

海洋調査要報

第 13 号

DATA RECORD OF OCEANOGRAPHIC OBSERVATIONS

No.13

APRIL 1997 - MARCH 1998

北海道立水産試験場

平成 19 年 3 月

HOKKAIDO FISHERIES EXPERIMENTAL STATION

March 2007

**海洋調査要報によるデータの印刷公表は、この号が最後になります。今後につきましてはホームページを参照してください。**

北海道立水産試験場による海洋観測結果の生データの印刷公表は昭和9年以降途絶えていましたが、昭和39年度より漁海況予報事業が発足してからは、その関係分は結果報告書に載るようになりました。その後、昭和51年度から中央水産試験場では石狩湾海域生態調査報告書に石狩湾付近の海洋観測結果を掲載するようになり、釧路水産試験場では昭和52年度から、稚内水産試験場では昭和58年度からそれぞれの事業報告書に当該年の全データを掲載公表してきました。このようにいくつかの報告書に掲載されていたデータについて、昭和60年度からは利用の便を図るため、5水産試験場及び1支場の海洋観測結果をまとめて「海洋調査要報」として印刷公表し、各方面の参考に供することになりました。

しかしながら、データ流通が紙から電子媒体へと変化し、財政的な事情から冊子としてのデータ公表をインターネット利用の電子媒体へと変更することとなりました。今後はホームページ上で公表していくこととなりますので、次のURLをご参照ください。

ホームページ URL <http://www.fishexp.pref.hokkaido.jp/exp/central/kaiyou/index.htm>

問い合わせ先 E-mail: [ckaiyou@fishexp.pref.hokkaido.jp](mailto:ckaiyou@fishexp.pref.hokkaido.jp)

掲載した海洋観測結果を引用する場合には本要報によった旨を明記することをお願いいたします。また、データの品質管理には、(財)日本水路協会海洋情報研究センターの海洋観測データ品質管理ソフト(POD-QC)を利用しました。また、作図には The Generic Mapping Tools を利用しました。

**This is the last Data Record as printed matter. You can get the next series from our home page.**

( URL <http://www.fishexp.pref.hokkaido.jp/exp/central/kaiyou/index.htm> )

It is requested that due credit be given if data from this "DATA RECORD" are quoted, or if information taken herefrom is incorporated in other papers.

平成 19 年 3 月 March 2007

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1997 to March 1998.

| Period   | Area                            | Station Nos. occupied       | Number of obs Vessel | Research staff on board | Equipments for hydrography | Referencial pages |
|--|---------------------------------|-----------------------------|----------------------|-------------------------|----------------------------|-------------------|
| Hokkaido Central Fisheries Experimental Station  |                                 |                             |                      |                         |                            |                   |
| 1997/4/14 - 1997/4/17                            | West of Hokkaido,Japan Sea      | 199704J31 - 199704J33B      | 35 Oyashio Maru      | I.Tanaka A.Nakata       | SBE 9/11plus 725/1055      | Table 3-1         |
| 1997/5/7 - 1997/5/9                              | Ishikari Bay,Japan Sea          | 199705CIS003 - 199705CIS026 | 24 Oyashio Maru      | A.Fujioka               | SBE 9/11plus 725/1055      | Table 3-4         |
| 1997/5/12 - 1997/5/16                            | Ishikari Bay,Japan Sea          | 199705CMG001 - 199705CMG016 | 16 Oyashio Maru      | A.Fujioka M.Yamaguchi   | SBE 9/11plus 725/1055      | Table 3-6         |
| 1997/5/26 - 1997/6/2                             | West of Hokkaido,Japan Sea      | 199706J31 - 199706JC04      | 59 Oyashio Maru      | I.Tanaka                | SBE 9/11plus 725/1055      | Table 3-8         |
| 1997/6/9 - 1997/6/13                             | Ishikari Bay,Japan Sea          | 199706CSH001 - 199706CSH012 | 12 Oyashio Maru      | A.Fujioka               | SBE 9/11plus 725/1055      | Table 3-14        |
| 1997/6/24 - 1997/7/1                             | West of Hokkaido,Japan Sea      | 199706CSR101 - 199706CSR117 | 17 Oyashio Maru      | K.Sakaguchi             | SBE 9/11plus 725/1055      | Table 3-15        |
| 1997/7/8 - 1997/7/9                              | Ishikari Bay,Japan Sea          | 199707CIS001 - 199707CIS024 | 24 Oyashio Maru      | A.Fujioka               | SBE 9/11plus 725/1055      | Table 3-17        |
| 1997/7/14 - 1997/7/17                            | West of Hokkaido,Japan Sea      | 199707CHA001 - 199707CHA012 | 12 Oyashio Maru      | Y.Kunihiro              | SBE 9/11plus 725/1055      | Table 3-19        |
| 1997/7/22 - 1997/7/23                            | Ishikari Bay,Japan Sea          | 199707CJ33 - 199707CJH01    | 8 Oyashio Maru       | T.Watanabe              | SBE 9/11plus 725/1055      | Table 3-20        |
| 1997/7/28 - 1997/8/2                             | West of Hokkaido,Japan Sea      | 199708J31 - 199708J63       | 53 Oyashio Maru      | M.Kotori A.Nakata       | SBE 9/11plus 725/1055      | Table 3-21        |
| 1997/8/26 - 1997/9/2                             | West of Hokkaido,Japan Sea      | 199708CSR101 - 199708CSR119 | 20 Oyashio Maru      | K.Sakaguchi             | SBE 9/11plus 725/1055      | Table 3-27        |
| 1997/9/8 - 1997/9/8                              | West of Hokkaido,Japan Sea      | 199709CHA001 - 199709CHA003 | 3 Oyashio Maru       | Y.Kunihiro              | SBE 9/11plus 725/1055      | Table 3-29        |
| 1997/9/29 - 1997/10/2                            | West of Hokkaido,Japan Sea      | 199710J31 - 199710JC11      | 34 Oyashio Maru      | K.Hirano T.Yasunaga     | SBE 9/11plus 725/1055      | Table 3-29        |
| 1997/10/14 - 1997/10/16                          | West of Hokkaido,Japan Sea      | 199710CW01 - 199710CW26     | 26 Oyashio Maru      | S.Takayanagi            | SBE 9/11plus 725/1055      | Table 3-32        |
| 1997/10/28 - 1997/10/30                          | West of Hokkaido,Japan Sea      | 199710CHA001 - 199710CHA005 | 5 Oyashio Maru       | Y.Kunihiro              | SBE 9/11plus 725/1055      | Table 3-35        |
| 1997/11/4 - 1997/11/6                            | West of Hokkaido,Japan Sea      | 199711CHA001 - 199711CHA005 | 5 Oyashio Maru       | Y.Kunihiro              | SBE 9/11plus 725/1055      | Table 3-35        |
| 1997/11/17 - 1997/11/17                          | Ishikari Bay,Japan Sea          | 199711CW101 - 199711CW101   | 1 Oyashio Maru       | R.Ishida                | SBE 9/11plus 725/1055      | Table 3-36        |
| 1997/11/20 - 1997/11/21                          | West of Hokkaido,Japan Sea      | 199711CW201 - 199711CW204   | 4 Oyashio Maru       | R.Ishida                | SBE 9/11plus 725/1055      | Table 3-36        |
| 1997/11/25 - 1997/12/14                          | West of Hokkaido,Japan Sea      | 199712J31 - 199712J63       | 19 Oyashio Maru      | K.Hirano T.Yasunaga     | SBE 9/11plus 725/1055      | Table 3-36        |
| 1997/12/15 - 1997/12/18                          | South of Hokkaido,North Pacific | 199712HW001 - 199712HW015   | 15 Oyashio Maru      | Y.Mihara                | SBE 9/11plus 725/1055      | Table 3-38        |
| 1998/2/2 - 1998/2/3                              | West of Hokkaido,Japan Sea      | 199802J63 - 199802J41       | 7 Oyashio Maru       | I.Tanaka T.Yasunaga     | SBE 9/11plus 725/1055      | Table 3-40        |
| 1998/2/23 - 1998/2/25                            | West of Hokkaido,Japan Sea      | 199802J31 - 199802JC11      | 20 Oyashio Maru      | T.Watanabe T.Yasunaga   | SBE 9/11plus 725/1055      | Table 3-40        |
| 1998/3/11 - 1998/3/12                            | Ishikari Bay,Japan Sea          | 199803CJ331 - 199803CJH01   | 6 Oyashio Maru       | T.Watanabe              | SBE 9/11plus 725/1055      | Table 3-42        |
| Hokkaido Hakodate Fisheries Experimental Station |                                 |                             |                      |                         |                            |                   |
| 1997/4/14 - 1997/4/17                            | South of Hokkaido,North Pacific | 199704PH01 - 199704HFS10    | 31 Kinsei Maru       | Y.Nishida               | SBE 9/11                   | Table 4-1         |
| 1997/4/21 - 1997/4/22                            | South of Hokkaido,Funka Bay     | 199704HKD101 - 199704HKD118 | 18 Kinsei Maru       | H.Shimada               | SBE 9/11                   | Table 4-4         |
| 1997/5/12 - 1997/5/18                            | South of Hokkaido,Funka Bay     | 199705HFS12 - 199705HXS24   | 112 Kinsei Maru      |                         | SBE 9/11                   | Table 4-5         |
| 1997/5/20 - 1997/5/20                            | South of Hokkaido,Funka Bay     | 199705HKG004 - 199705HKG001 | 4 Kinsei Maru        | E.Mihara                | SBE 9/11                   | Table 4-17        |
| 1997/5/26 - 1997/5/28                            | South of Hokkaido,North Pacific | 199706PH01 - 199706HKD25    | 36 Kinsei Maru       | H.Shimada &*1           | SBE 9/11                   | Table 4-17        |
| 1997/6/3 - 1997/6/11                             | West of Aomori,Japan Sea        | 199706HSR001 - 199706HAP07  | 25 Kinsei Maru       | K.Kanomata              | SBE 9/11                   | Table 4-21        |

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1997 to March 1998.

| Period  | Area  | Station Nos. occupied         | Number of obs | Vessel        | Research staff on board | Equipments for hydrography | Referencial pages |
|---|---|-------------------------------|---------------|---------------|-------------------------|----------------------------|-------------------|
| 1997/6/17 - 1997/6/18                           | South of Hokkaido,Funka Bay                   | 199706HFS14 - 199706HSR022    | 40            | Kinsei Maru   | Y.Nishida               | SBE 9/11                   | Table 4-23        |
| 1997/6/23 - 1997/6/24                           | South of Hokkaido,Funka Bay                   | 199706HKD101 - 199706HKD118   | 18            | Kinsei Maru   | H.Shimada               | SBE 9/11                   | Table 4-27        |
| 1997/7/1 - 1997/7/3                             | South of Hokkaido,North Pacific               | 199706HSR107 - 199707HSR108   | 15            | Kinsei Maru   | K.Kanomata              | SBE 9/11                   | Table 4-29        |
| 1997/7/7 - 1997/7/10                            | Japan Sea                                     | 199707HSR021 - 199707HSR017   | 7             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-30        |
| 1997/7/22 - 1997/7/24                           | South of Hokkaido,Funka Bay                   | 199707HFS04 - 199707HSR116    | 39            | Kinsei Maru   | Y.Nishida               | SBE 9/11                   | Table 4-31        |
| 1997/7/28 - 1997/7/30                           | South of Hokkaido,North Pacific               | 199708PH01 - 199708HKD018     | 31            | Kinsei Maru   | H.Shimada &*1           | SBE 9/11                   | Table 4-35        |
| 1997/8/4 - 1997/8/7                             | West of Hokkaido,Japan Sea                    | 199708HSR118 - 199708HSR116   | 6             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-38        |
| 1997/8/25 - 1997/8/29                           | South of Hokkaido,North Pacific               | 199708HSR016 - 199708HSR006   | 18            | Kinsei Maru   | K.Kanomata &*2          | SBE 9/11                   | Table 4-39        |
| 1997/9/1 - 1997/9/1                             | Tsugaru Strait                                | 199709HAP07 - 199709HAP01     | 7             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-41        |
| 1997/9/2 - 1997/9/4                             | Tsugaru Strait                                | 199708HSR0171 - 199708HSR0162 | 4             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-41        |
| 1997/9/8 - 1997/9/9                             | South of Hokkaido,Funka Bay                   | 199709HFS01 - 199709HFS38     | 38            | Kinsei Maru   | Y.Nishida               | SBE 9/11                   | Table 4-42        |
| 1997/9/29 - 1997/10/2                           | South of Hokkaido,North Pacific               | 199710PH01 - 199710HKD07      | 22            | Kinsei Maru   | K.Kanomata &*3          | SBE 9/11                   | Table 4-45        |
| 1997/10/6 - 1997/10/13                          | Tsugaru Strait                                | 199710HSR101 -                | 1             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-48        |
| 1997/10/14 - 1997/10/14                         | South of Hokkaido,Funka Bay                   | 199710HKG116 - 199710HKG001   | 5             | Kinsei Maru   | E.Mihara                | SBE 9/11                   | Table 4-48        |
| 1997/10/22 - 1997/10/23                         | West of Hokkaido,Japan Sea                    | 199710HW002 - 199710HW001     | 12            | Kinsei Maru   |                         | SBE 9/11                   | Table 4-48        |
| 1997/11/5 - 1997/11/5                           | South of Hokkaido,Funka Bay                   | 199711HFS15 - 199711HFS38     | 24            | Kinsei Maru   | Y.Nishida               | SBE 9/11                   | Table 4-49        |
| 1997/11/10 - 1997/11/13                         | Tsugaru Strait                                | 199711HSR011 - 199711HSR014   | 4             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-52        |
| 1997/11/19 - 1997/11/20                         | Tsugaru Strait                                | 199711HSR015 - 199711HSR017   | 3             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-52        |
| 1997/11/25 - 1997/11/28                         | South of Hokkaido,North Pacific               | 199712P55 - 199712P65         | 11            | Kinsei Maru   | K.Kanomata &*1          | SBE 9/11                   | Table 4-53        |
| 1997/12/1 - 1997/12/1                           | Tsugaru Strait                                | 199712PH01                    | 1             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-54        |
| 1997/12/4 - 1997/12/4                           | Tsugaru Strait                                | 19971204H16                   | 1             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-54        |
| 1997/12/14 - 1997/12/14                         | West of Tsugaru Strait                        | 199712HAP07 - 199712HAP01     | 7             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-54        |
| 1998/2/17 - 1998/2/18                           | South of Hokkaido,North Pacific               | 199802H01 - 199802P55-1       | 6             | Kinsei Maru   | R.Machida*1             | SBE 9/11                   | Table 4-55        |
| 1998/2/22 - 1998/2/24                           | South of Hokkaido,Funka Bay                   | 199802P56-2 - 199802HFS38     | 51            | Kinsei Maru   | Y.Nishida               | SBE 9/11                   | Table 4-55        |
| 1998/3/2 - 1998/3/2                             | West of Tsugaru Strait                        | 199803HAP07 - 199803HAP01     | 7             | Kinsei Maru   | K.Kanomata              | SBE 9/11                   | Table 4-60        |
| 1998/3/10 - 1998/3/10                           | South of Hokkaido,Funka Bay                   | 199803HS29                    | 1             | Kinsei Maru   |                         | SBE 9/11                   | Table 4-61        |
| Hokkaido Kushiro Fisheries Experimental Station |   |                               |               |               |                         |                            |                   |
| 1997/4/15 - 1997/4/22                           | South of Hokkaido & off Sanriku North Pacific | 199704P31 - 199704PK06        | 59            | Hokushin Maru | Y.Nakame                | SBE 9/11plus 2256/1853     | Table 5-1         |
| 1997/5/13 - 1997/5/17                           | South of Hokkaido, Off Tokachi                | 199705SU02 - 199705SU35       | 24            | Hokushin Maru |                         | SBE 9/11plus 2256/1853     | Table 5-6         |
| 1997/5/27 - 1997/6/2                            | South of Hokkaido & off Sanriku North Pacific | 199706P31 - 199706PK06        | 59            | Hokushin Maru | T.Honma                 | SBE 9/11plus 2256/1853     | Table 5-9         |
| 1997/6/11 - 1997/6/17                           | South of Hokkaido, North Pacific              | 199706IK01 - 199706IK14       | 14            | Hokushin Maru | T.Sato                  | SBE 9/11plus 2256/1853     | Table 5-15        |

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1997 to March 1998.

| Period   | Area  | Station Nos. occupied       | Number of obs | Vessel        | Research staff on board | Equipments for hydrography | Referencial pages |
|--|---|-----------------------------|---------------|---------------|-------------------------|----------------------------|-------------------|
| 1997/6/26 - 1997/7/3                             | South of Hokkaido & off Sanriku North Pacific | 199707IW01 - 199707IW22     | 16            | Hokushin Maru | Y.Nakame                | SBE 9/11plus 2256/1853     | Table 5-16        |
| 1997/7/12 - 1997/7/20                            | East of Hokkaido, North Pacific               | 199707SM01 - 199707SM17     | 17            | Hokushin Maru | T.Honma                 | SBE 9/11plus 2256/1853     | Table 5-18        |
| 1997/8/1 - 1997/8/5                              | South of Hokkaido, North Pacific              | 199708P31 - 199708PK04      | 40            | Hokushin Maru | Y.Nakame                | SBE 9/11plus 2256/1853     | Table 5-19        |
| 1997/8/25 - 1997/8/28                            | South of Hokkaido, North Pacific              | 199708IK01 - 199708IK07     | 7             | Hokushin Maru | T.Sato                  | SBE 9/11plus 2256/1853     | Table 5-23        |
| 1997/9/2 - 1997/9/9                              | South of Hokkaido, North Pacific              | 199709IW01 - 199709IW15     | 15            | Hokushin Maru | Y.Nakame                | SBE 9/11plus 2256/1853     | Table 5-24        |
| 1997/9/21 - 1997/9/25                            | South of Hokkaido, North Pacific              | 199709SM09 - 199709SM01     | 9             | Hokushin Maru | T.Honma                 | SBE 9/11plus 2256/1853     | Table 5-26        |
| 1997/10/2 - 1997/10/5                            | South of Hokkaido, North Pacific              | 199710P31 - 199710PK11      | 40            | Hokushin Maru | Y.Nakame                | SBE 9/11plus 2256/1853     | Table 5-27        |
| 1997/10/13 - 1997/10/19                          | Off Shiretoko & Okhotsk Sea                   | 199710IK01 - 199710IK10     | 10            | Hokushin Maru | T.Sato                  | SBE 9/11plus 2256/1853     | Table 5-31        |
| 1997/10/22 - 1997/10/23                          | South of Hokkaido, North Pacific              | 199710SM01 - 199710SM02     | 2             | Hokushin Maru | T.Honma                 | SBE 9/11plus 2256/1853     | Table 5-32        |
| 1997/11/6 - 1997/11/11                           | South of Hokkaido, Off Tokachi                | 199711SU02 - 199711SU36     | 22            | Hokushin Maru |                         | SBE 9/11plus 2256/1853     | Table 5-32        |
| 1997/11/19 - 1997/11/24                          | Off Shiretoko & Okhotsk Sea                   | 199711SU27 - 199711SU50     | 23            | Hokushin Maru | O.Shida                 | SBE 9/11plus 2256/1853     | Table 5-34        |
| 1997/12/2 - 1997/12/7                            | South of Hokkaido, North Pacific              | 199712P31 - 199712PK11      | 38            | Hokushin Maru | T.Sato M.Kotori         | SBE 9/11plus 2256/1853     | Table 5-36        |
| 1998/2/24 - 1998/3/1                             | South of Hokkaido, North Pacific              | 199802SU02 - 199802PK11     | 42            | Hokushin Maru | T.Honma                 | SBE 9/11plus 2256/1853     | Table 5-40        |
| Hokkaido Wakkanai Fisheries Experimental Station |   |                             |               |               |                         |                            |                   |
| 1997/4/9 - 1997/4/11                             | North of Hokkaido, Japan Sea                  | 199704J11 - 199704JW11      | 18            | Hokuyo Maru   | T. Suzuuchi             | SBE 9/11                   | Table 6-1         |
| 1997/4/14 - 1997/4/16                            | Southwestern Okhotsk Sea                      | 199704S4 - 199704O14        | 40            | Hokuyo Maru   | K.Sazaki                | SBE 9/11                   | Table 6-2         |
| 1997/4/21 - 1997/4/24                            | North of Hokkaido, Japan Sea                  | 199704WTCJ11 - 199704WTCLS2 | 31            | Hokuyo Maru   | H.Miyake                | SBE 9/11                   | Table 6-6         |
| 1997/5/13 - 1997/5/14                            | North of Hokkaido, Japan Sea                  | 199705WTCJW12- 199705WTCJ11 | 16            | Hokuyo Maru   | H.Miyake                | SBE 9/11                   | Table 6-9         |
| 1997/5/27 - 1997/5/29                            | Southwestern Okhotsk Sea                      | 199705WSK01 - 199705WSK08   | 8             | Hokuyo Maru   | K.Sazaki                | SBE 9/11                   | Table 6-11        |
| 1997/6/3 - 1997/6/5                              | Southwestern Okhotsk Sea                      | 199706S4 - 199706O14        | 40            | Hokuyo Maru   | A.Ootsuki*0             | SBE 9/11                   | Table 6-11        |
| 1997/6/9 - 1997/6/11                             | Japan Sea & Okhotsk Sea                       | 199706J101 - 199706S131     | 23            | Hokuyo Maru   | A.Miyazono A.Nakata &*4 | SBE 9/11                   | Table 6-15        |
| 1997/7/9 - 1997/7/16                             | North of Hokkaido, Japan Sea                  | 199707WEB01 - 199707WEB14   | 13            | Hokuyo Maru   | M.Mitsuhashi            | SBE 9/11                   | Table 6-17        |
| 1997/7/28 - 1997/7/30                            | Japan Sea & Okhotsk Sea                       | 199708J101 - 199708S401     | 22            | Hokuyo Maru   | I.Tanaka A.Miyazono &*5 | SBE 9/11                   | Table 6-19        |
| 1997/8/1 - 1997/8/3                              | Southwestern Okhotsk Sea                      | 199708S4 - 199708WNI22      | 43            | Hokuyo Maru   | A.Ootsuki*0             | SBE 9/11                   | Table 6-21        |
| 1997/9/1 - 1997/9/4                              | Southwestern Okhotsk Sea                      | 199709S4 - 199709OA03       | 40            | Hokuyo Maru   | M.Torisawa              | SBE 9/11                   | Table 6-25        |
| 1997/9/8 - 1997/9/9                              | North of Hokkaido, Japan Sea                  | 199709WST01 - 199709WST03   | 3             | Hokuyo Maru   | M.Mitsuhashi            | SBE 9/11                   | Table 6-29        |
| 1997/9/16 - 1997/9/16                            | North of Hokkaido, Japan Sea                  | 199709WST06 - 199709WST07   | 2             | Hokuyo Maru   | M.Mitsuhashi            | SBE 9/11                   | Table 6-29        |
| 1997/9/29 - 1997/10/2                            | Southwestern Okhotsk Sea                      | 199710S4 - 199710O36        | 40            | Hokuyo Maru   | M.Torisawa, A.Ootsuki*6 | SBE 9/11                   | Table 6-30        |
| 1997/10/13 - 1997/10/16                          | West of Hokkaido, Japan Sea                   | 199710WTCH - 199710WTCT4    | 7             | Hokuyo Maru   | M.Mizuno                | SBE 9/11                   | Table 6-34        |
| 1997/10/23 - 1997/10/26                          | North of Hokkaido, Japan Sea                  | 199710J21 - 199710J11       | 25            | Hokuyo Maru   | M.Mizuno                | SBE 9/11                   | Table 6-34        |
| 1997/11/20 - 1997/11/20                          | Southwestern Okhotsk Sea                      | 199711WSK01 -               | 1             | Hokuyo Maru   | M.Oota                  | SBE 9/11                   | Table 6-37        |

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1997 to March 1998.

| Period                 | Area                             | Station Nos. occupied     | Number of obs | Vessel      | Research staff on board | Equipments for hydrography | Referencial pages |
|------------------------|----------------------------------|---------------------------|---------------|-------------|-------------------------|----------------------------|-------------------|
| 1997/12/4 - 1997/12/5  | Soya strait                      | 199712S103 - 199712J101   | 10            | Hokuyo Maru | I.Tanaka A.Nakata &*7   | SBE 9/11                   | Table 6-37        |
| 1997/12/9 - 1997/12/10 | Southwestern Okhotsk Sea         | 199712O15 - 199712OA05    | 13            | Hokuyo Maru | A.Ootsuki*6             | SBE 9/11                   | Table 6-38        |
| 1998/2/16 - 1998/2/18  | North of Hokkaido, Japan Sea     | 199802J11 - 199802JW01    | 24            | Hokuyo Maru | M.Oota                  | SBE 9/11                   | Table 6-39        |
| 1998/2/25 - 1998/2/28  | South of Hokkaido, North Pacific | 199802WKO14 - 199802WKO26 | 10            | Hokuyo Maru | H.Miyake                | SBE 9/11                   | Table 6-42        |
| 1998/3/10 - 1998/3/11  | Japan Sea & Soya strait          | 199803J101 - 199803SA01   | 19            | Hokuyo Maru | I.Tanaka A.Nakata &*8   | SBE 9/11                   | Table 6-43        |

\*1:R.Machida(Hokkaido Univ.)

\*2:Y.Nishihama Y.Nishida(Muroran B.O.)

\*3:Y.Yamada(Hokkaido Univ.)

\*4:M.Seo I.Yasuda (Hokkaido Tokai Univ)

\*5:I.Yasuda (Hokkaido Tokai Univ)

\*6:A.Ootsuki(Hokkaido Univ)

\*7:I.Yasuda K.Yokogi (Hokkaido Tokai Univ)

\*8:T.Yasunaga (CFES)

Table 2. Principal particulars of research vessels

| Vessel        | Gross tonnage | Main engine | Number of crew | Captain     | Affiliated institution                  |
|---------------|---------------|-------------|----------------|-------------|---|
| Oyashio Maru  | 178           | 440 p.s.    | 20             | M. Furumaki | Central Fisheries Experimental Station  |
| Kinsei Maru   | 68            | 290 p.s.    | 12             | K. Kuratome | Hakodate Fisheries Experimental Station |
| Hokushin Maru | 214           | 440 p.s.    | 22             | Y. Nunokawa | Kushiro Fisheries Experimental Station  |
| Hokuyo Maru   | 276           | 610 p.s.    | 20             | K. Sazaki   | Wakkanai Fisheries Experimental Station |

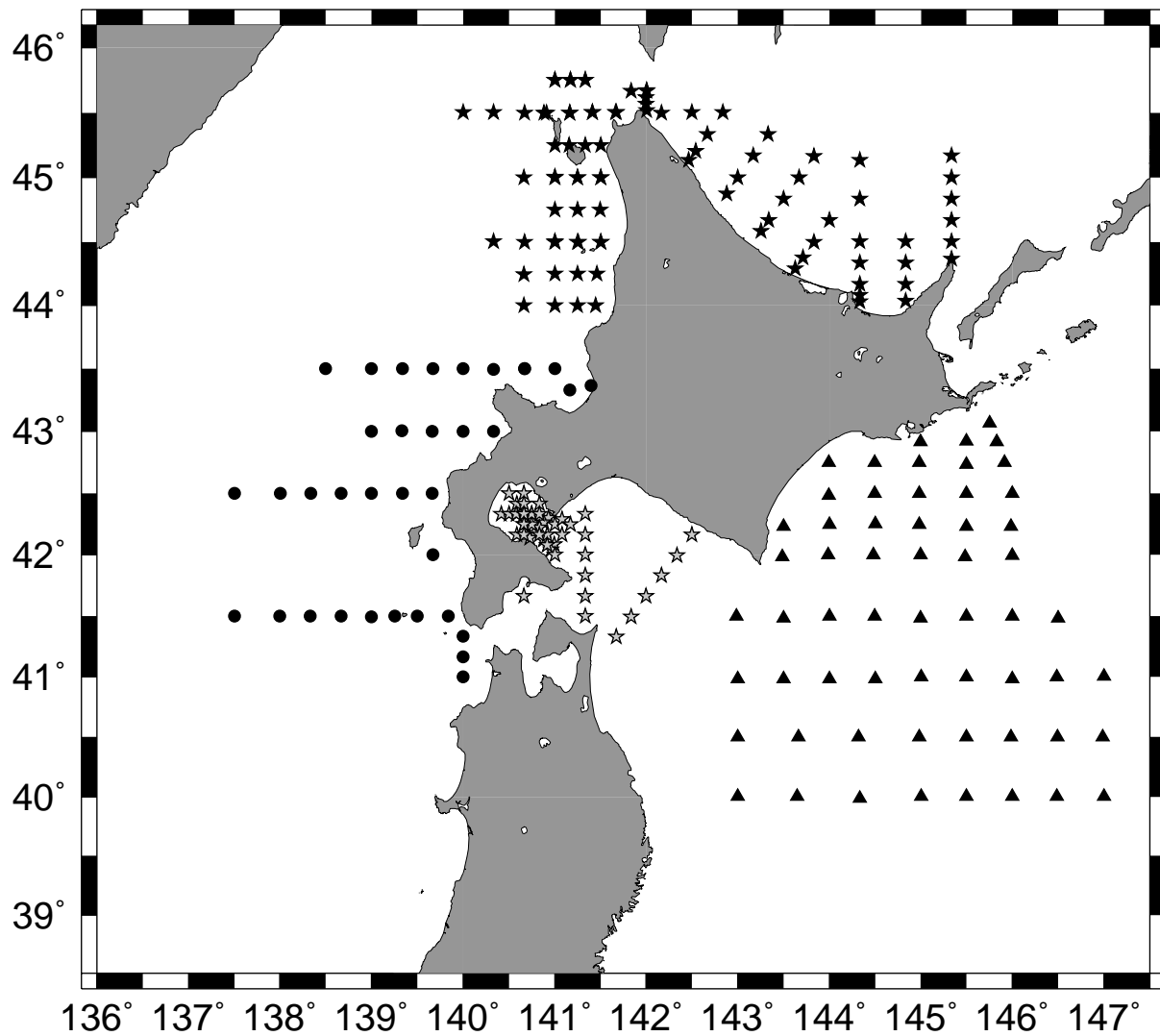


Fig. 1. Location of oceanographic stations covered in April 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru



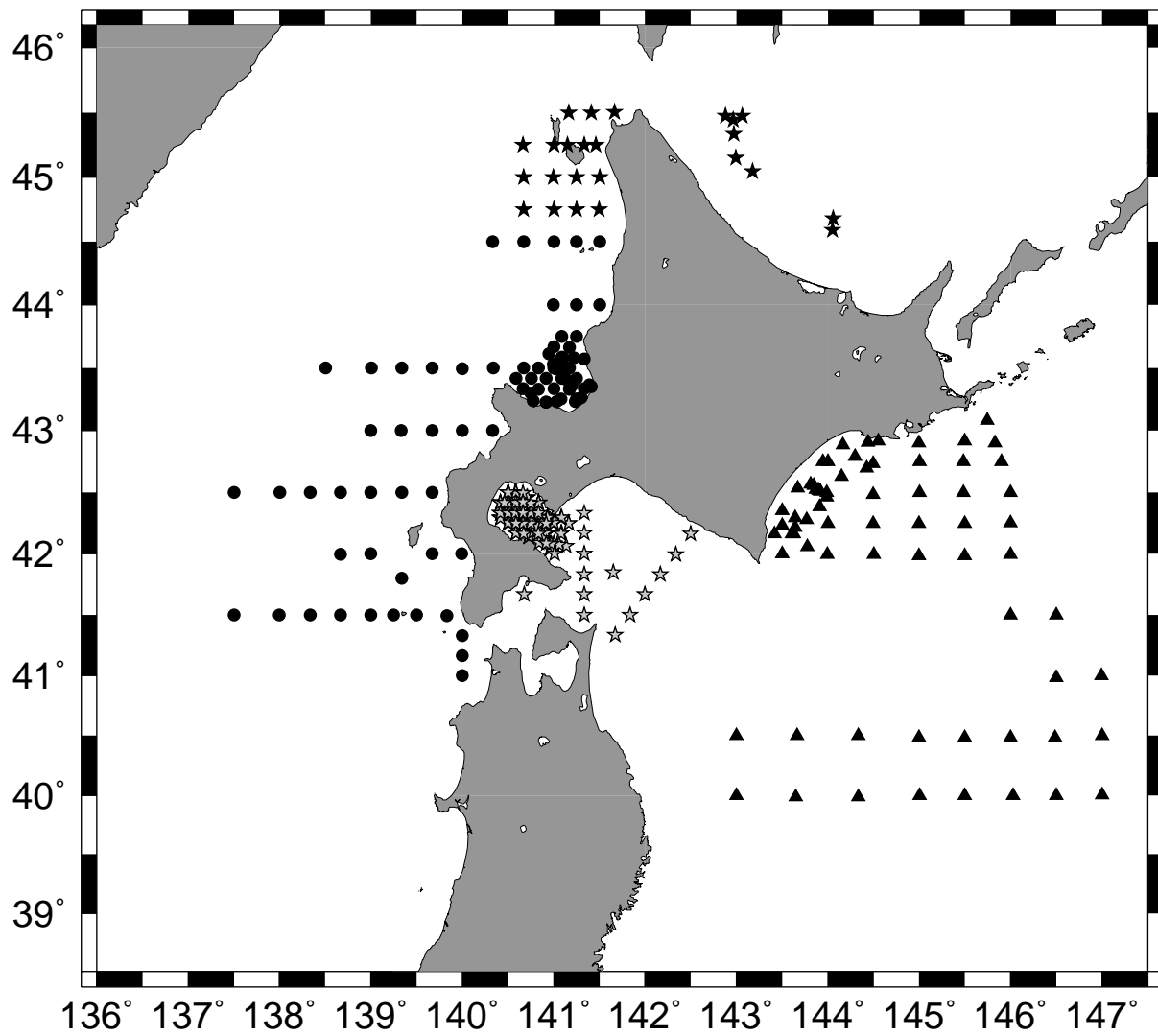


Fig. 2. Location of oceanographic stations covered in May 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

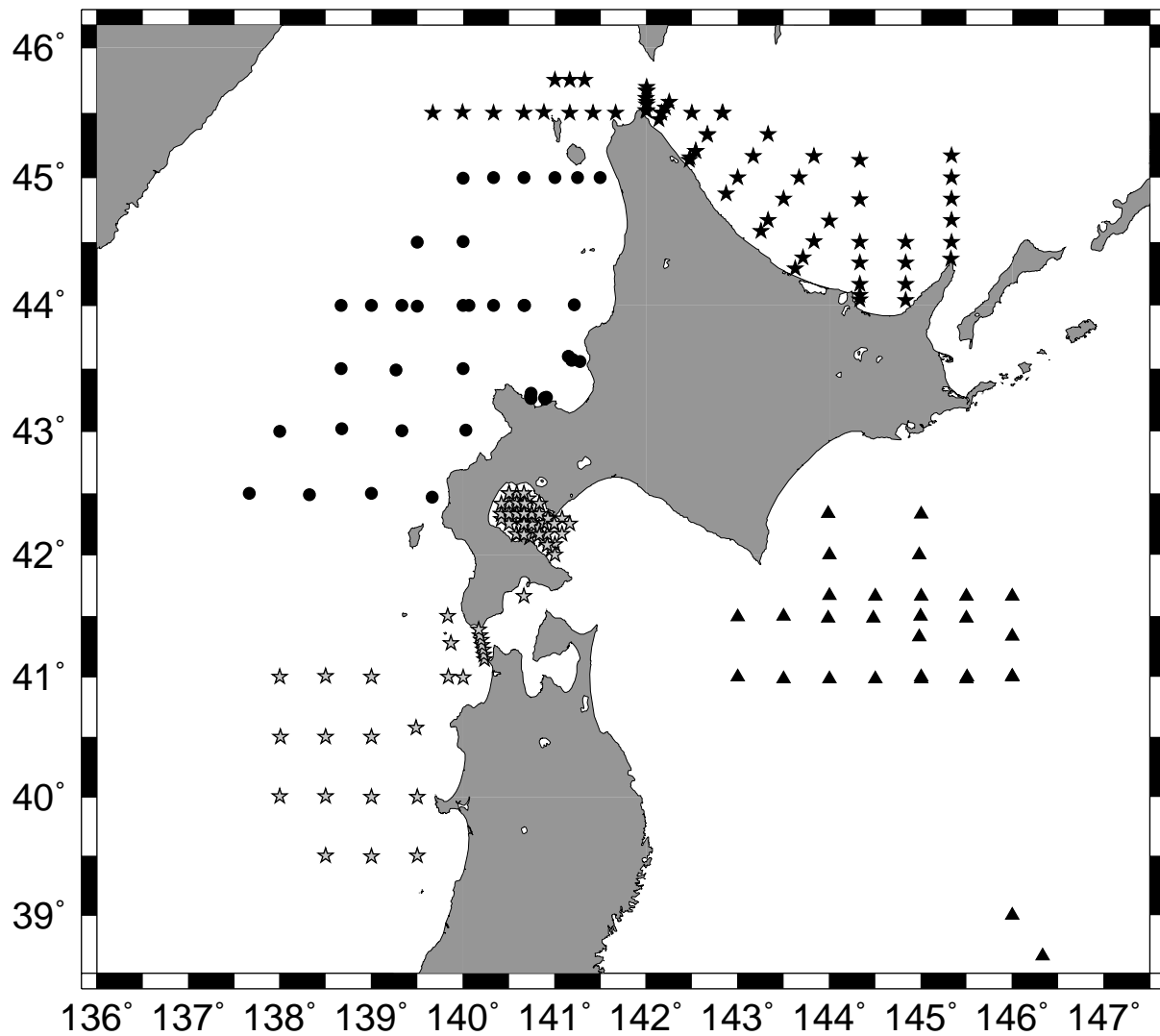


Fig. 3. Location of oceanographic stations covered in June 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

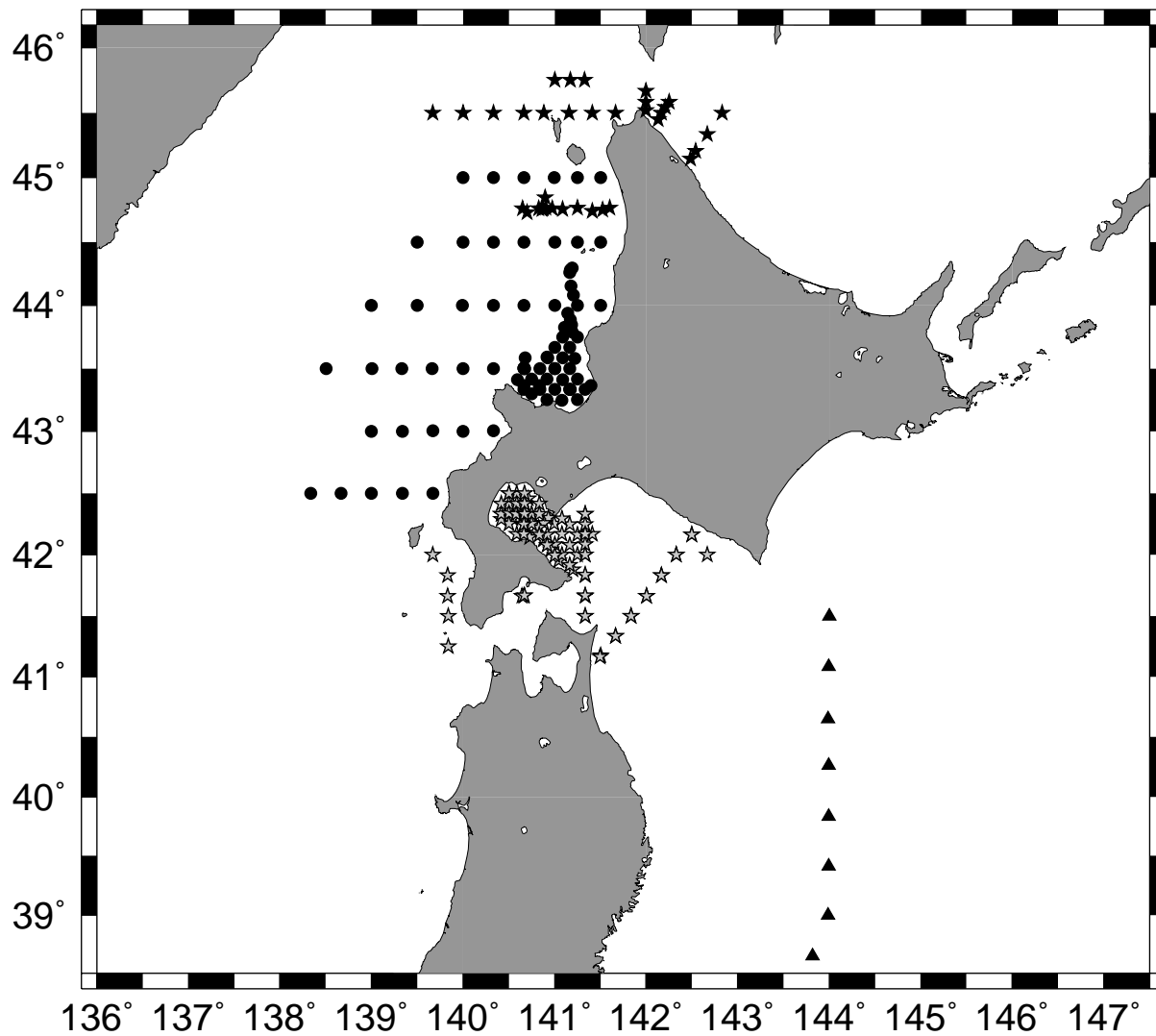


Fig. 4. Location of oceanographic stations covered in July 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

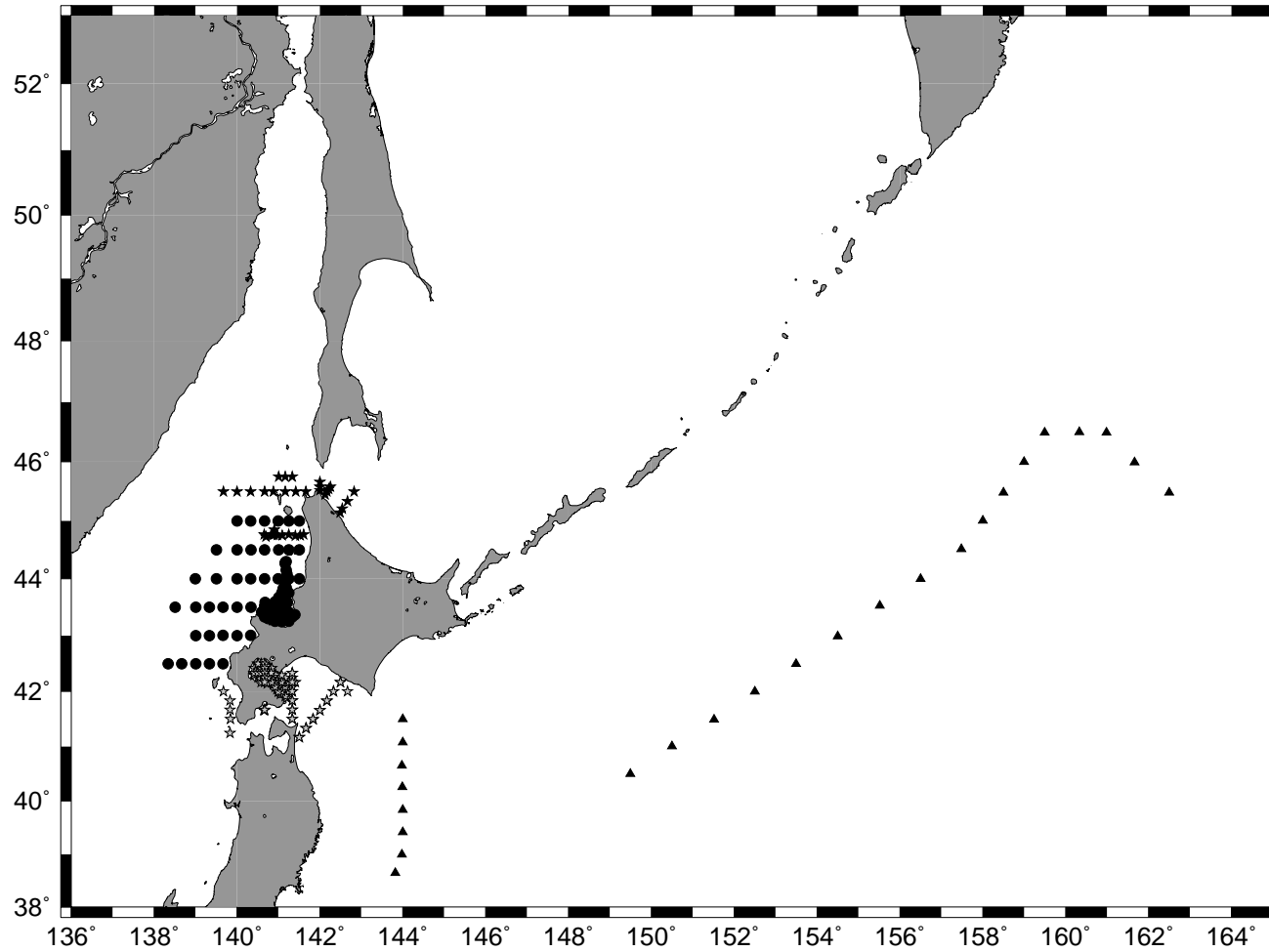


Fig. 4-2. Location of oceanographic stations covered in July 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

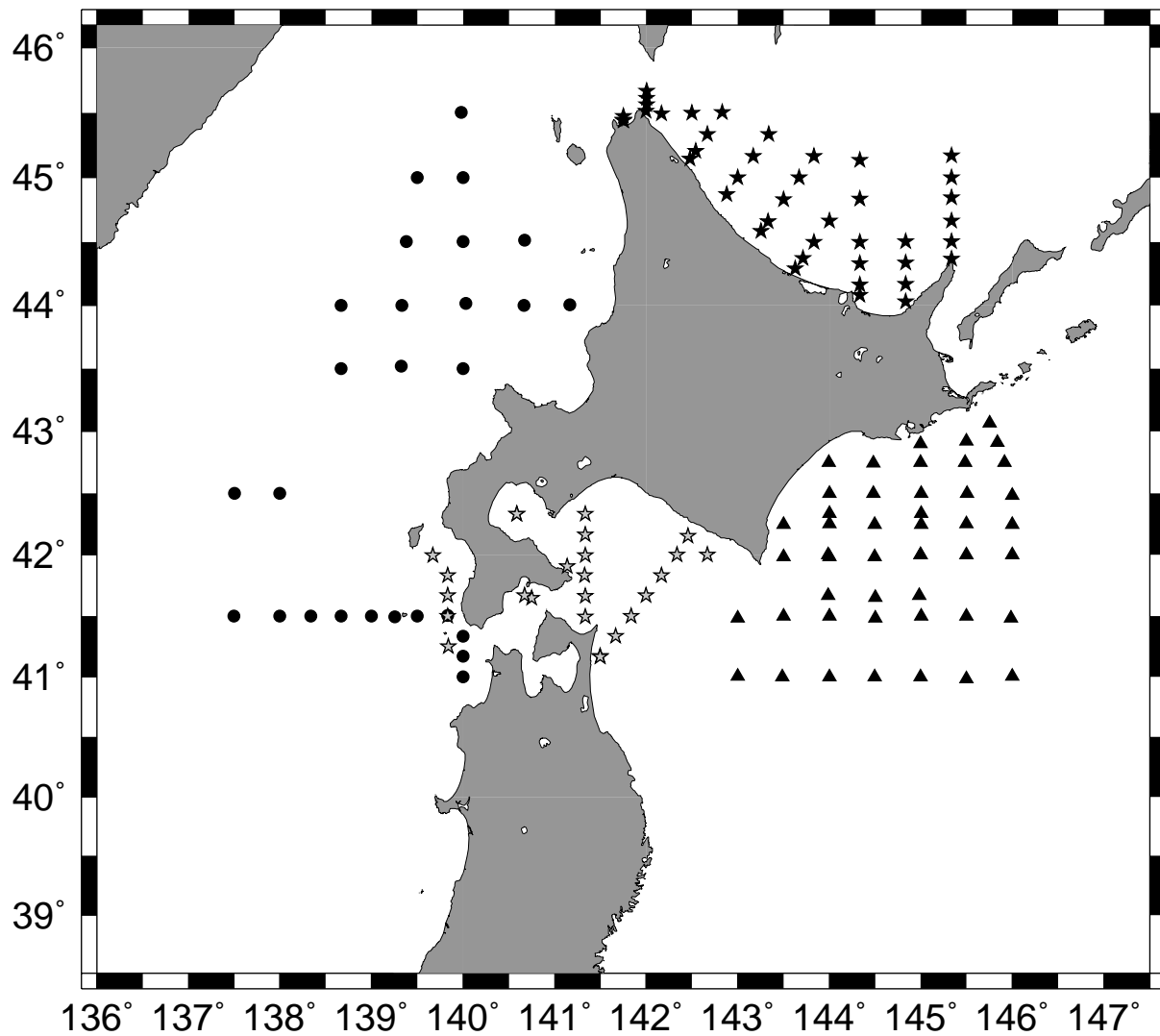


Fig. 5. Location of oceanographic stations covered in August 1997.  
 ● :Oyasyhio-Maru    ★ :Hokuyo-Maru    ☆ :Hokushin-Maru    ▲ :Kinsei-Maru

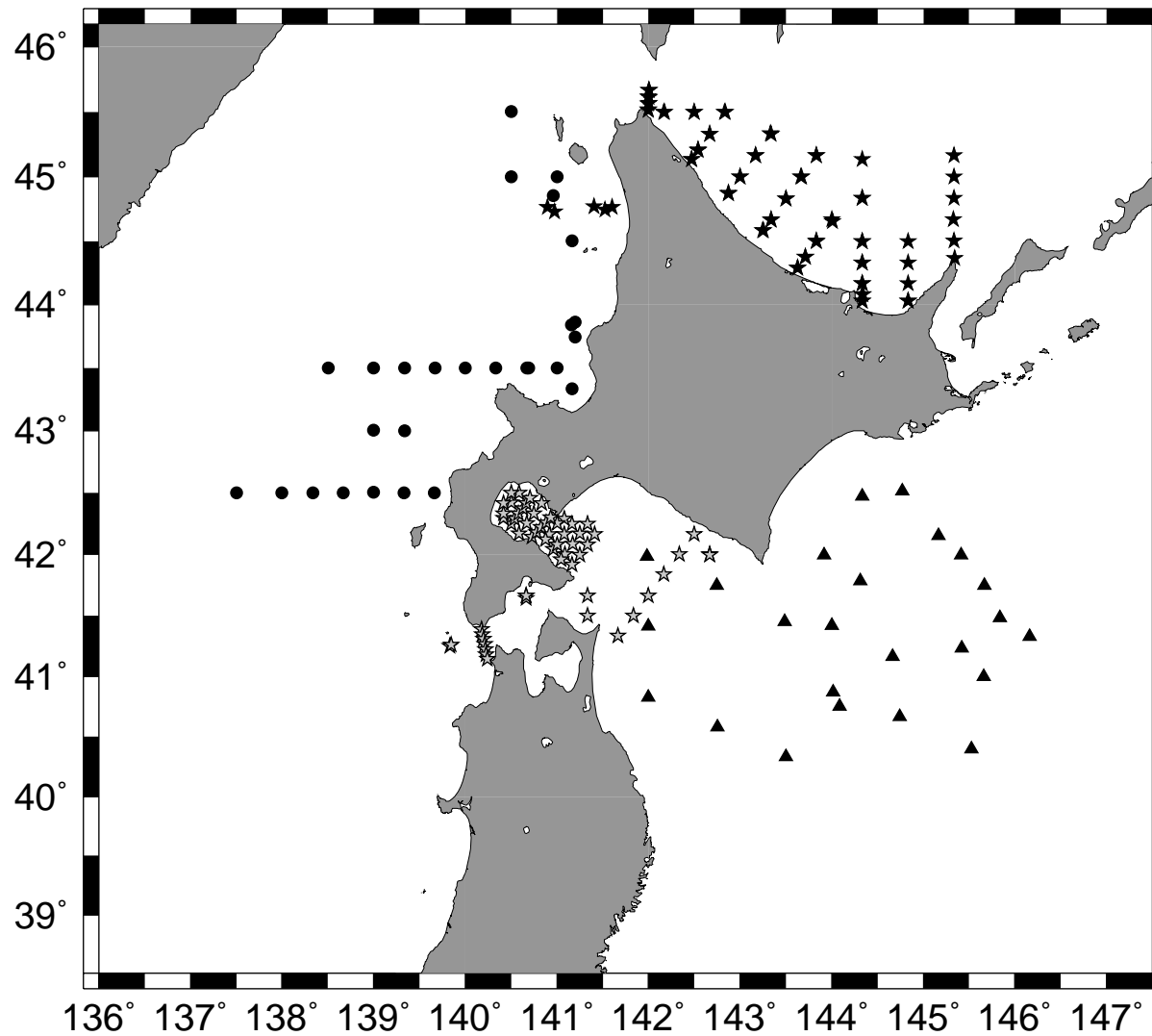


Fig. 6. Location of oceanographic stations covered in September 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

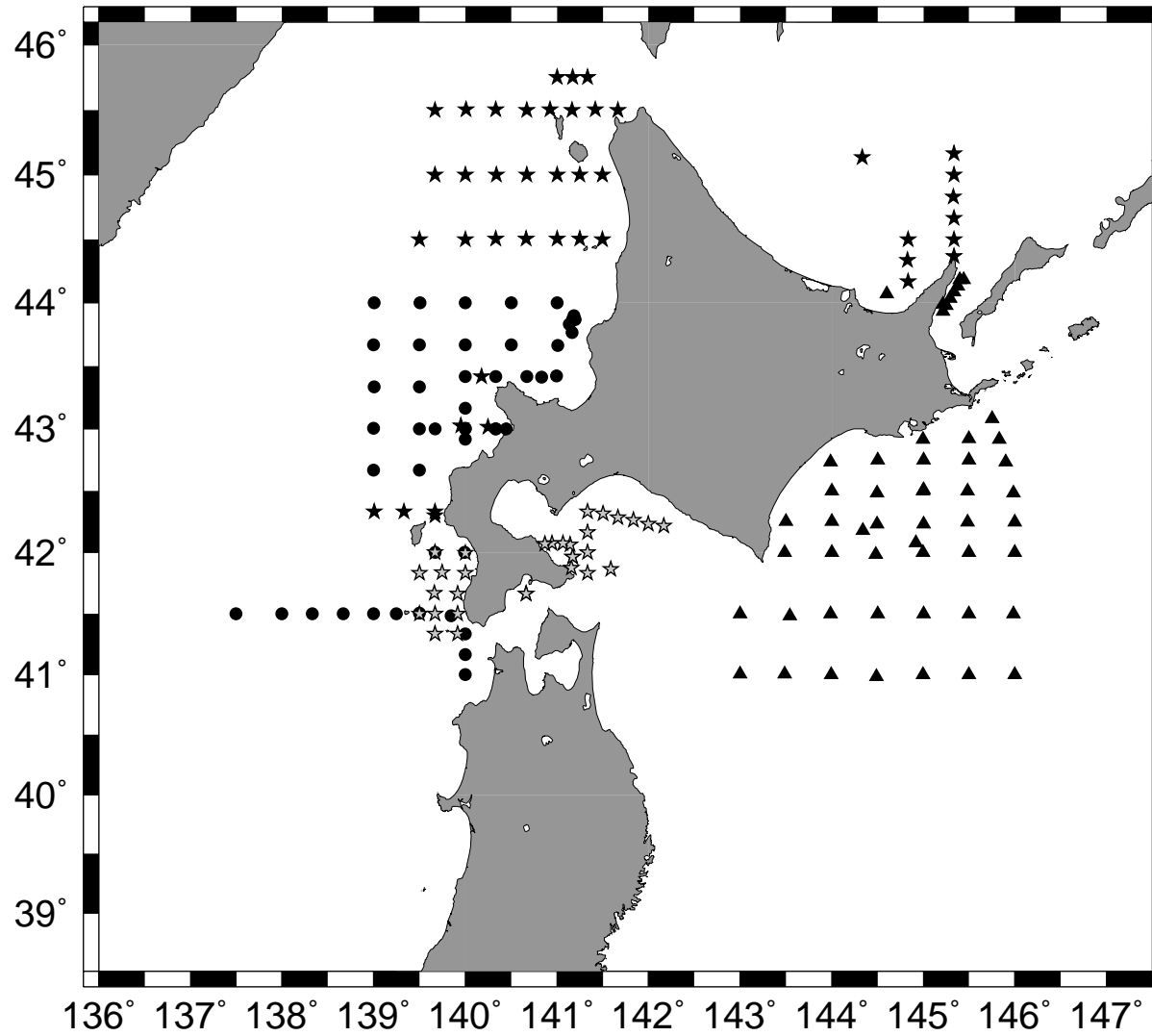


Fig. 7. Location of oceanographic stations covered in October 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

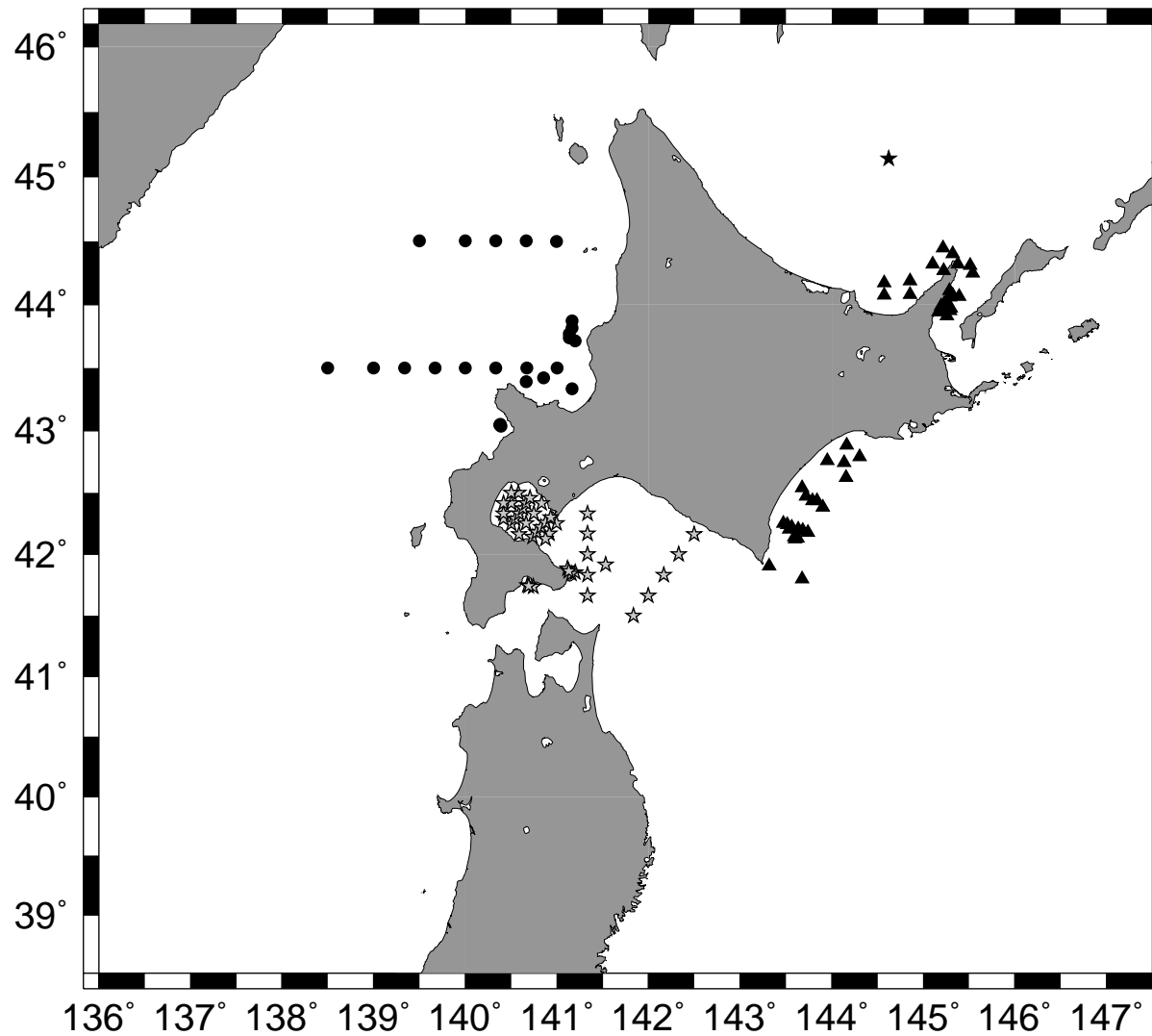


Fig. 8. Location of oceanographic stations covered in November 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru



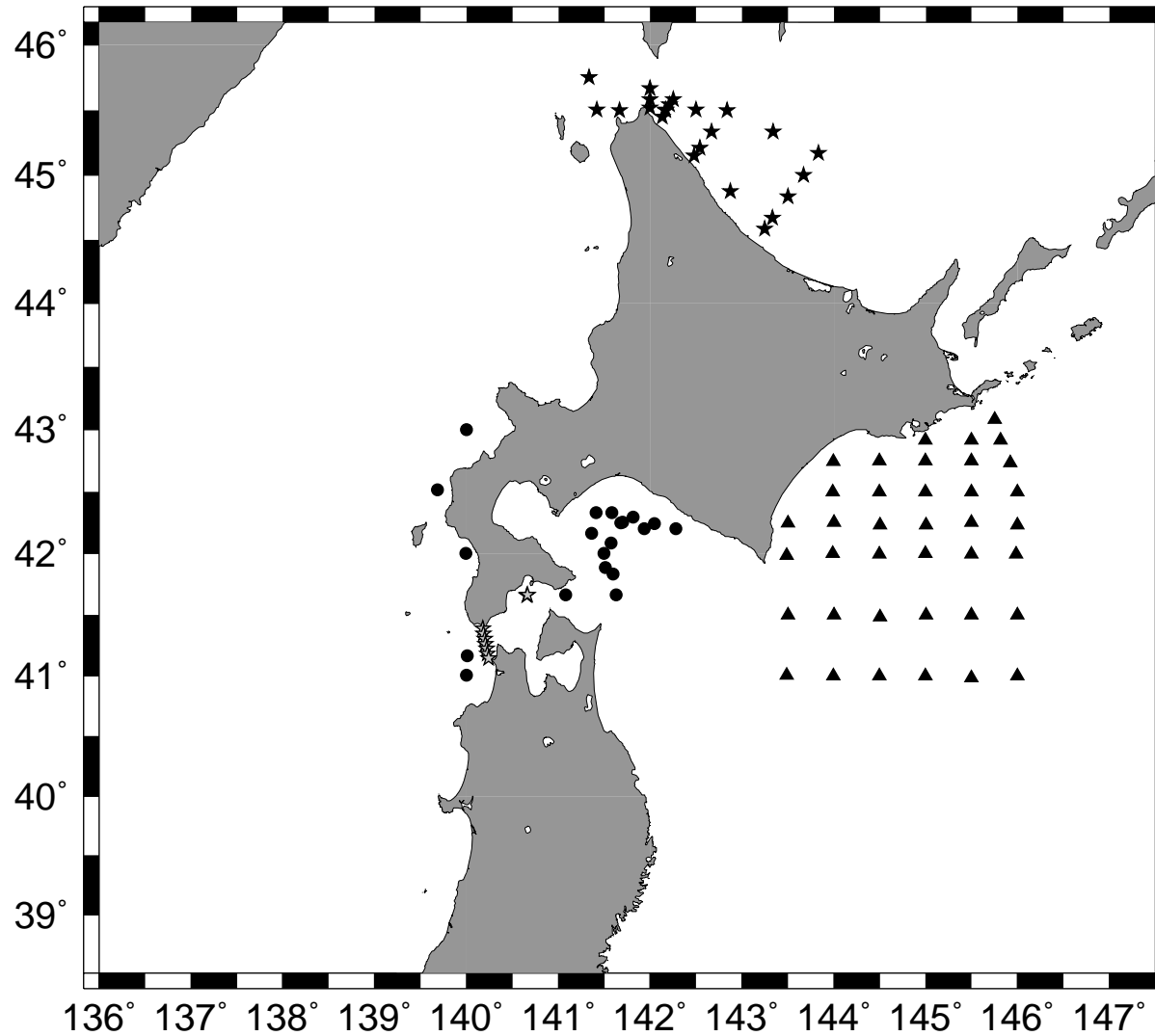


Fig. 9. Location of oceanographic stations covered in December 1997.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

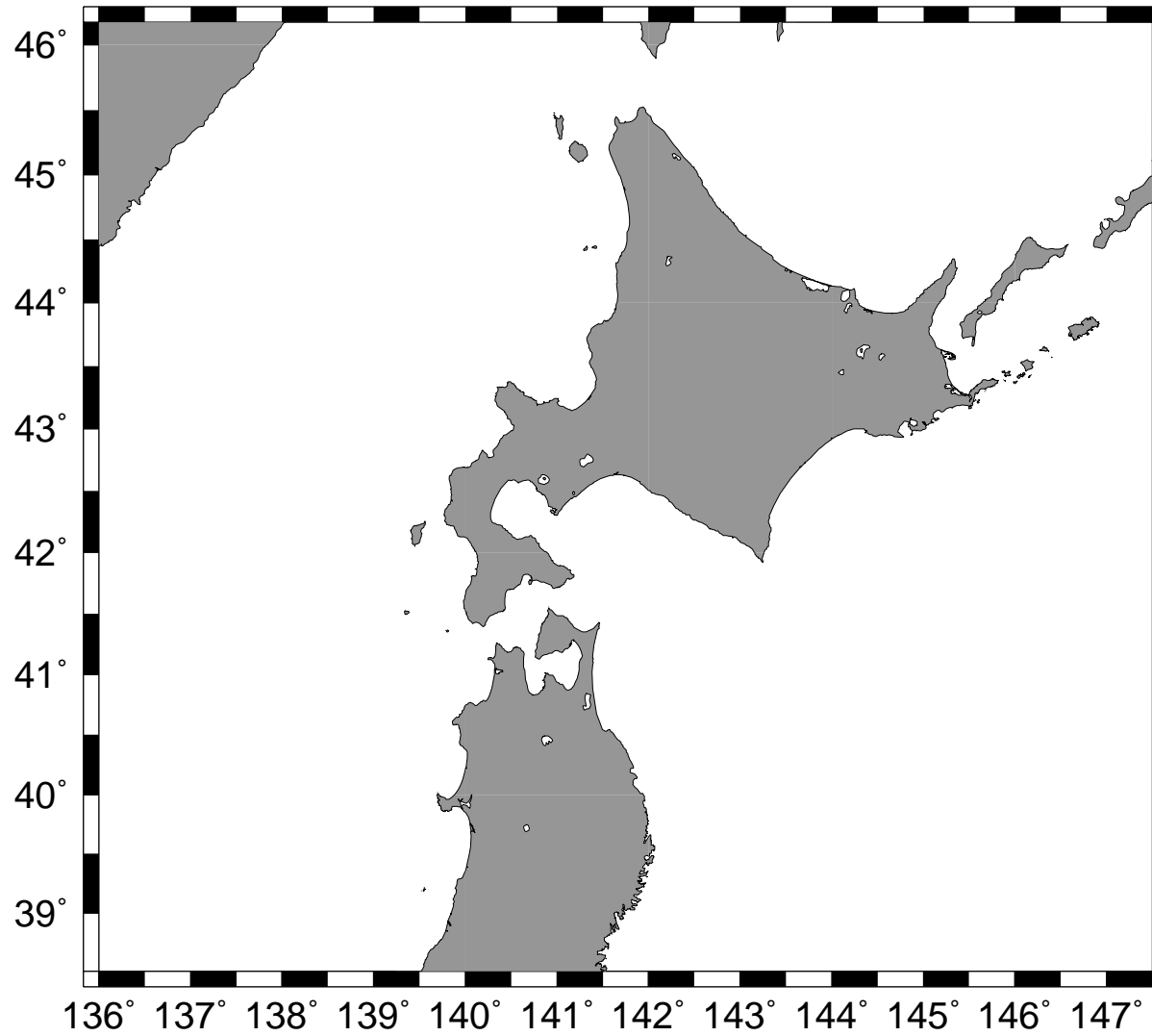


Fig. 10. Location of oceanographic stations covered in January 1998.  
:Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

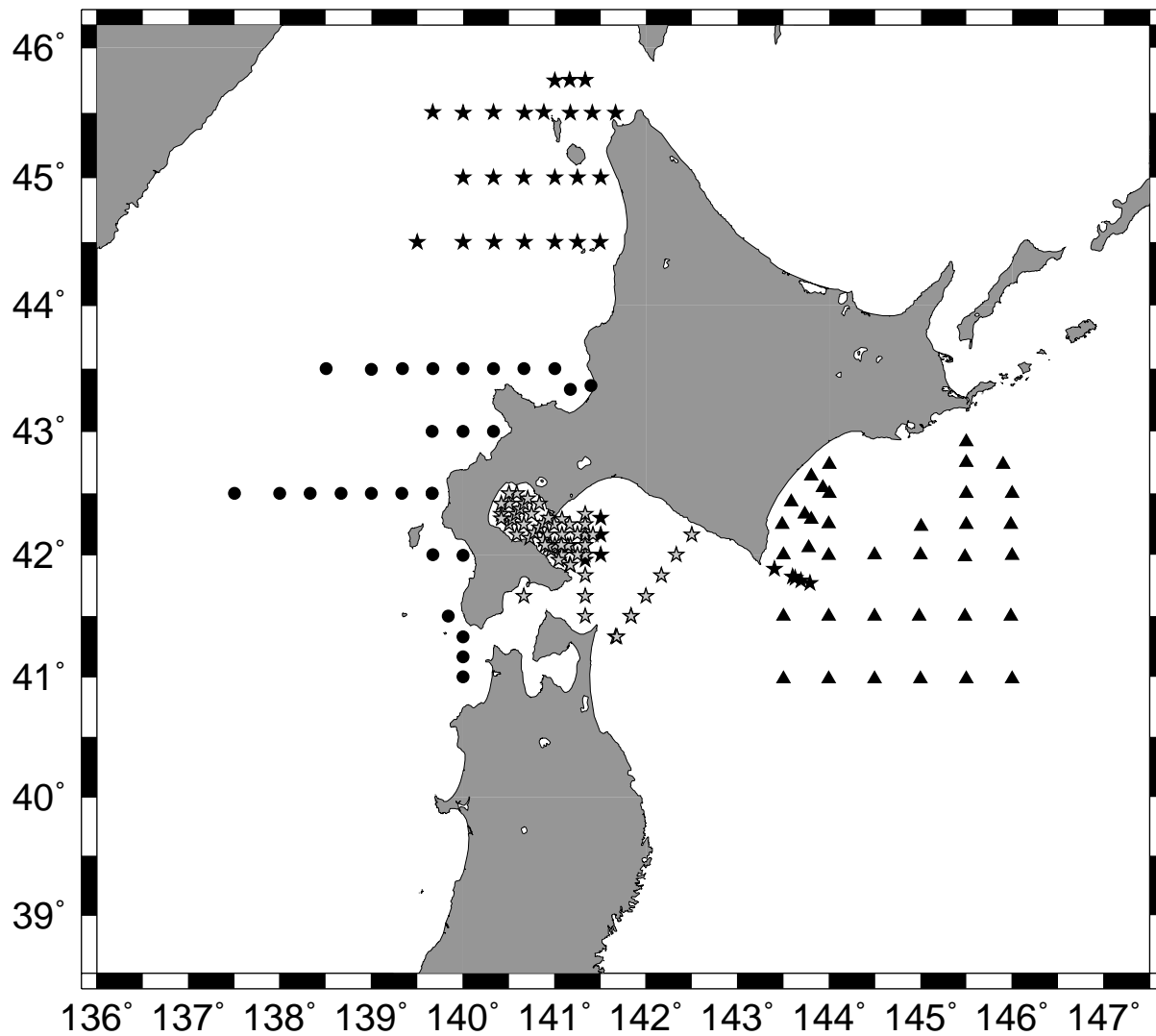


Fig. 11. Location of oceanographic stations covered in February 1998.  
 ○:Oyasyhio-Maru    ★:Hokuyo-Maru    ▲:Hokushin-Maru    ★:Kinsei-Maru

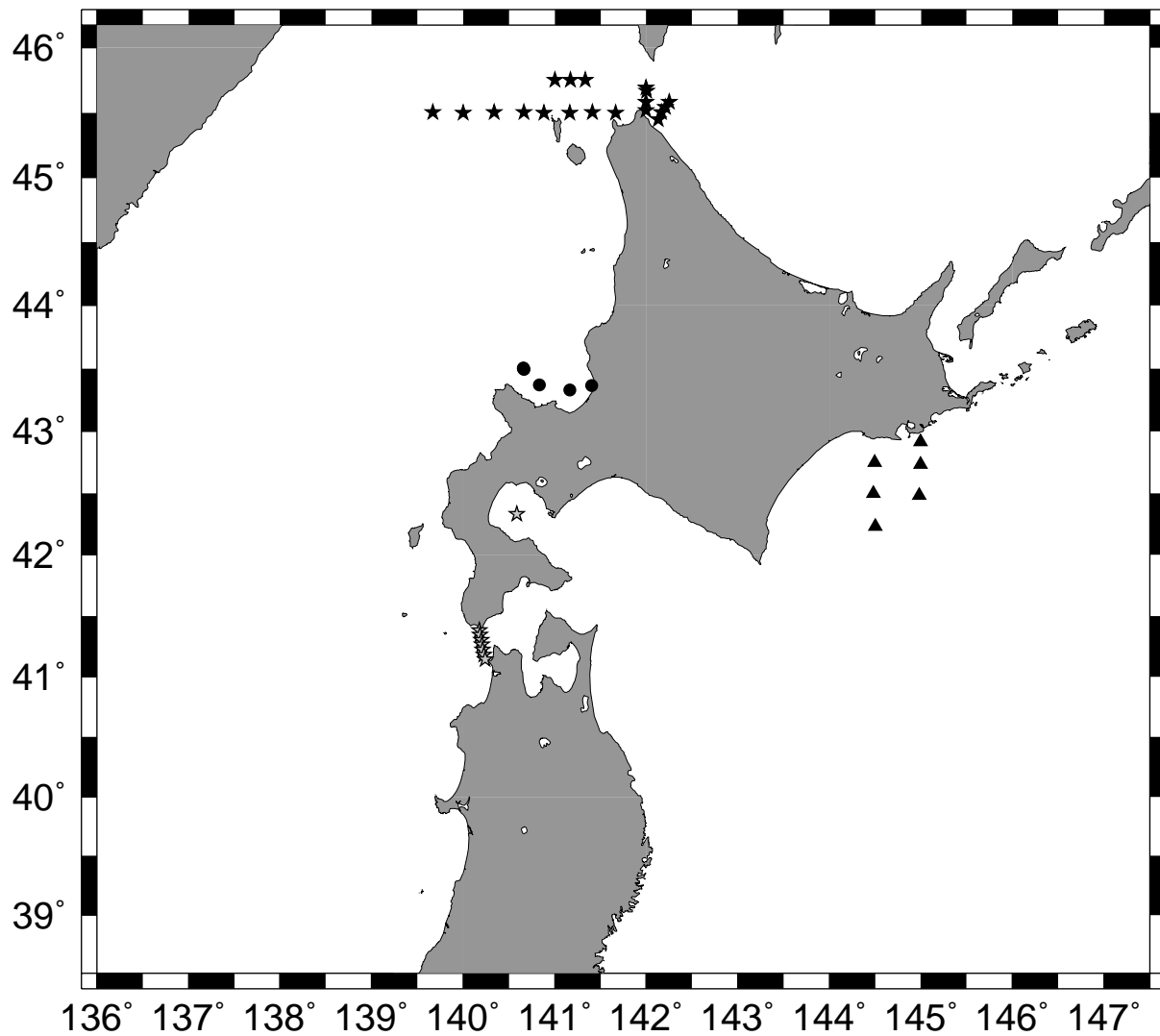


Fig. 12. Location of oceanographic stations covered in March 1998.  
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

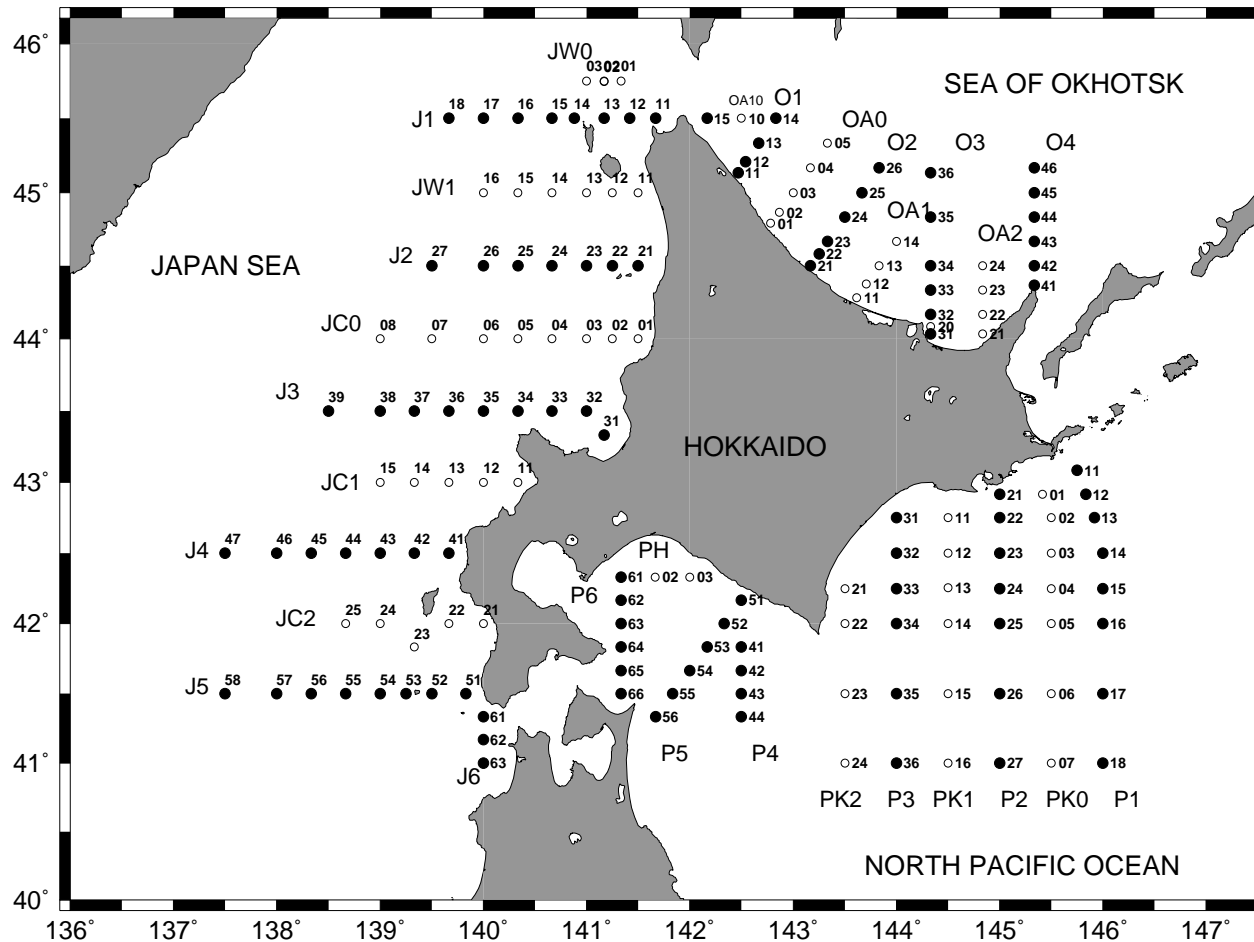


Fig. 13. Periodical observation of environmental research on fishing ground and adjacent waters off Hokkaido. Observed months: April, June, August, October, December and February except for Sea of Okhotsk (April to December only) and P4-Line (June, August and October only). ;Routine station ; Additional station

## Part I. Summary of Serial Oceanographic Observations

Salinity was determined with Auto-Lab salinometer or CTD systems. Tables 3 to 6 show results of serial oceanographic observations. Abbreviations used are as follows: LATITUDE, north latitude; LONGITUDE, east longitude (Japan geodetic) ; WEATHER, WMO code 4501; AIR TEMP, air temperature in ; BAR, barometric pressure in hectopascal; WIND DIR, wind direction; WIND FORCE (F) , wind force in Beufort scale; WIND SPEED (S), wind speed in m/s; TR, transparency in meters with white Secci disc; COLOR, water color in Forel's scale; DEPTH, water depth in meters measured with an echo-sounder; STND. DEP, standard depth in meters; T, water temperature in ; S, salinity (PSS-78). Asterisks ( \* ) at 0m row indicate the value of temperature or salinity with CTD at several meter under the sea surface and N.D. means No Data.

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J31        |        | JH01       |        | J32        |        | J33        |        | J34        |        | J35        |        | J36        |        | J37        |        | J38        |        | J39        |        |
| Latitude:N   | 43-19.9    |        | 43-21.9    |        | 43-30.0    |        | 43-30.1    |        | 43-29.8    |        | 43-29.9    |        | 43-30.0    |        | 43-30.1    |        | 43-30.1    |        | 43-30.0    |        |
| Longitude:E  | 141-10.0   |        | 141-23.9   |        | 141- 0.1   |        | 140-40.1   |        | 140-20.0   |        | 140- 0.1   |        | 139-40.1   |        | 139-20.1   |        | 139- 0.1   |        | 138-30.0   |        |
| Date         | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/15 |        | 1997/04/15 |        |
| Time(JST)    | 10:00      |        | 11:24      |        | 13:21      |        | 15:12      |        | 17:02      |        | 18:41      |        | 20:44      |        | 22:25      |        | 00:04      |        | 02:36      |        |
| Weather      | C          |        | C          |        | S          |        | BC         |        | BC         |        | C          |        | BC         |        | C          |        |            |        | BC         |        |
| Air Temp.    | 3.3        |        | 4.5        |        | 3.8        |        | 2.6        |        | 3.2        |        | 2.8        |        | 2.9        |        | 3.0        |        | 2.2        |        | 2.7        |        |
| Bar          | 1014.3     |        | 1013.7     |        | 1013.7     |        | 1013.7     |        | 1014.5     |        | 1015.1     |        | 1016.2     |        | 1016.2     |        | 1016.2     |        | 1016.2     |        |
| Wind Dir     | N          |        | NNW        |        | WNW        |        | N          |        | NNW        |        | N          |        | NNW        |        | NNW        |        | NNW        |        | NW         |        |
| Wind Spd/F   | S 4        |        | S 4        |        | S 2        |        | S 6        |        | S 5        |        | S 3        |        | S 5        |        | S 4        |        | S 4        |        | S 5        |        |
| Transparency | 7          |        | 3          |        | 10         |        | 11         |        | 11         |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 40         |        | 22         |        | 96         |        | 690        |        | 635        |        | 1247       |        | 2056       |        | 3200       |        | 3450       |        | 3400       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.2        | 32.148 | 4.2        | 27.393 | 5.6        | 34.065 | 4.8        | 34.163 | 4.6        | 34.161 | 4.7        | 34.168 | 5.7        | 34.155 | 5.7        | 34.157 | 4.1        | 34.157 | 4.1        | 34.159 |
| 10m          | 5.35       | 33.909 | 5.13       | 33.693 | 5.45       | 34.073 | 4.76       | 34.157 | 4.62       | 34.156 | 4.82       | 34.168 | 6.05       | 34.147 | 5.79       | 34.157 | 3.94       | 34.155 | 4.00       | 34.159 |
| 20m          | 5.32       | 33.963 |            |        | 5.43       | 34.076 | 4.66       | 34.164 | 4.31       | 34.155 | 4.64       | 34.169 | 5.89       | 34.146 | 5.79       | 34.156 | 3.76       | 34.152 | 3.84       | 34.153 |
| 30m          | 5.18       | 34.043 |            |        | 5.42       | 34.076 | 4.46       | 34.162 | 4.09       | 34.153 | 4.59       | 34.167 | 5.86       | 34.145 | 5.75       | 34.155 | 3.62       | 34.157 | 3.68       | 34.150 |
| 50m          |            |        |            |        | 5.26       | 34.090 | 4.30       | 34.158 | 4.04       | 34.154 | 4.36       | 34.163 | 5.68       | 34.140 | 5.53       | 34.154 | 3.53       | 34.162 | 3.51       | 34.158 |
| 75m          |            |        |            |        | 5.15       | 34.098 | 3.99       | 34.155 | 3.83       | 34.151 | 4.24       | 34.159 | 4.96       | 34.138 | 4.54       | 34.124 | 3.45       | 34.163 | 3.39       | 34.158 |
| 100m         |            |        |            |        |            |        | 3.93       | 34.154 | 3.31       | 34.144 | 3.86       | 34.150 | 4.80       | 34.150 | 3.43       | 34.140 | 3.40       | 34.161 | 3.32       | 34.157 |
| 125m         |            |        |            |        |            |        | 3.33       | 34.144 | 3.08       | 34.142 | 3.51       | 34.140 | 4.36       | 34.131 | 3.22       | 34.149 | 3.34       | 34.158 | 3.11       | 34.153 |
| 150m         |            |        |            |        |            |        | 2.85       | 34.126 | 2.39       | 34.100 | 3.14       | 34.144 | 3.97       | 34.141 | 3.00       | 34.152 | 3.18       | 34.153 | 3.01       | 34.152 |
| 200m         |            |        |            |        |            |        | 2.09       | 34.092 | 1.65       | 34.076 | 2.44       | 34.118 | 3.10       | 34.136 | 2.72       | 34.147 | 2.65       | 34.147 | 2.70       | 34.141 |
| 250m         |            |        |            |        |            |        | 1.25       | 34.076 | 1.39       | 34.074 | 1.64       | 34.085 | 2.13       | 34.095 | 2.15       | 34.125 | 2.23       | 34.120 | 2.28       | 34.127 |
| 300m         |            |        |            |        |            |        | 1.03       | 34.074 | 1.08       | 34.074 | 1.23       | 34.077 | 1.44       | 34.072 | 1.17       | 34.077 | 1.67       | 34.107 | 1.75       | 34.107 |
| 400m         |            |        |            |        |            |        | 0.76       | 34.073 | 0.74       | 34.073 | 0.84       | 34.074 | 0.94       | 34.079 | 0.86       | 34.077 | 0.95       | 34.076 | 1.11       | 34.086 |
| 500m         |            |        |            |        |            |        | 0.63       | 34.070 | 0.60       | 34.070 | 0.61       | 34.071 | 0.70       | 34.071 | 0.62       | 34.072 | 0.68       | 34.072 | 0.72       | 34.074 |
| 600m         |            |        |            |        |            |        |            |        |            |        | 0.49       | 34.069 |            |        |            |        | 0.53       | 34.070 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-1

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J41        |        | J42        |        | J43        |        | J44        |        | J45        |        | J46        |        | J47        |        | J58        |        | J57        |        | J56        |        |
| Latitude:N   | 42-30.0    |        | 42-30.0    |        | 42-29.9    |        | 42-29.9    |        | 42-30.0    |        | 42-29.9    |        | 42-30.1    |        | 41-30.0    |        | 41-29.9    |        | 41-30.0    |        |
| Longitude:E  | 139-39.9   |        | 139-20.1   |        | 139- 0.1   |        | 138-40.1   |        | 138-20.1   |        | 138- 0.1   |        | 137-30.1   |        | 137-30.0   |        | 137-59.9   |        | 138-19.9   |        |
| Date         | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        |
| Time(JST)    | 09:48      |        | 12:19      |        | 13:55      |        | 15:35      |        | 17:14      |        | 18:56      |        | 21:55      |        | 03:25      |        | 05:47      |        | 07:28      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | BC         |        | C          |        | C          |        | C          |        |
| Air Temp.    | 5.9        |        | 4.7        |        | 4.7        |        | 4.6        |        | 4.3        |        | 3.7        |        | 3.7        |        | 4.1        |        | 4.2        |        | 4.3        |        |
| Bar          | 1016.4     |        | 1016.4     |        | 1016.9     |        | 1017.3     |        | 1018.0     |        | 1019.2     |        | 1019.8     |        | 1019.1     |        | 1019.5     |        | 1019.7     |        |
| Wind Dir     | NNW        |        | N          |        | N          |        | N          |        | N          |        | N          |        | N          |        | NNW        |        | NNW        |        | NNE        |        |
| Wind Spd/F   | S 4        |        | S 7        |        | S 8        |        | S 8        |        | S 7        |        | S 5        |        | S 5        |        | S 5        |        | S 4        |        | S 4        |        |
| Transparency | 12         |        | 12         |        | 8          |        | 7          |        | 14         |        |            |        |            |        |            |        | 18         |        | 19         |        |
| Depth        | 1826       |        | 3300       |        | 3600       |        | 3690       |        | 3634       |        | 3678       |        | 3673       |        | 3670       |        | 3682       |        | 3686       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.4        | 34.133 | 6.6        | 34.154 | 6.6        | 34.143 | 6.9        | 34.148 | 6.2        | 34.160 | 5.7        | 34.164 | 5.3        | 34.165 | 4.9        | 34.159 | 4.7        | 34.161 | 5.3        | 34.159 |
| 10m          | 6.35       | 34.136 | 6.64       | 34.150 | 6.56       | 34.140 | 6.86       | 34.141 | 6.24       | 34.153 | 5.80       | 34.161 | 5.33       | 34.161 | 4.88       | 34.156 | 4.64       | 34.158 | 5.14       | 34.155 |
| 20m          | 6.33       | 34.137 | 6.64       | 34.149 | 6.54       | 34.143 | 6.74       | 34.141 | 5.97       | 34.141 | 5.79       | 34.161 | 4.95       | 34.158 | 4.80       | 34.154 | 4.46       | 34.157 | 5.12       | 34.154 |
| 30m          | 6.32       | 34.141 | 6.60       | 34.149 | 6.52       | 34.147 | 6.29       | 34.145 | 5.47       | 34.159 | 5.45       | 34.161 | 4.76       | 34.154 | 4.47       | 34.152 | 4.31       | 34.156 | 4.45       | 34.156 |
| 50m          | 6.13       | 34.140 | 6.52       | 34.147 | 5.77       | 34.151 | 5.44       | 34.146 | 5.39       | 34.156 | 5.07       | 34.159 | 4.23       | 34.148 | 4.30       | 34.151 | 3.65       | 34.147 | 4.30       | 34.154 |
| 75m          | 5.56       | 34.140 | 6.30       | 34.134 | 4.97       | 34.136 | 4.49       | 34.135 | 2.96       | 34.113 | 3.95       | 34.156 | 3.16       | 34.139 | 2.76       | 34.124 | 2.84       | 34.146 | 3.40       | 34.134 |
| 100m         | 5.28       | 34.152 | 5.96       | 34.136 | 3.94       | 34.104 | 3.26       | 34.106 | 2.24       | 34.097 | 3.36       | 34.153 | 2.56       | 34.121 | 2.28       | 34.123 | 2.62       | 34.136 | 1.90       | 34.110 |
| 125m         | 4.39       | 34.122 | 5.47       | 34.135 | 2.85       | 34.093 | 2.31       | 34.078 | 1.67       | 34.076 | 2.60       | 34.102 | 1.77       | 34.086 | 2.05       | 34.123 | 2.21       | 34.127 | 1.50       | 34.087 |
| 150m         | 2.72       | 34.090 | 4.50       | 34.118 | 2.31       | 34.082 | 1.78       | 34.071 | 1.46       | 34.077 | 1.53       | 34.078 | 1.40       | 34.076 | 1.87       | 34.119 | 1.76       | 34.113 | 1.29       | 34.084 |
| 200m         | 1.89       | 34.087 | 2.74       | 34.094 | 1.51       | 34.069 | 1.33       | 34.076 | 1.11       | 34.074 | 1.24       | 34.083 | 1.18       | 34.074 | 1.48       | 34.104 | 1.45       | 34.103 | 1.08       | 34.085 |
| 250m         | 1.31       | 34.075 | 1.73       | 34.095 | 1.13       | 34.073 | 1.06       | 34.074 | 0.99       | 34.077 | 1.10       | 34.084 | 1.04       | 34.081 | 1.25       | 34.096 | 1.21       | 34.091 | 0.99       | 34.085 |
| 300m         | 1.07       | 34.077 | 1.45       | 34.090 | 0.97       | 34.075 | 1.01       | 34.085 | 0.93       | 34.080 | 1.00       | 34.084 | 0.94       | 34.081 | 1.01       | 34.086 | 1.05       | 34.088 | 0.89       | 34.083 |
| 400m         | 0.74       | 34.073 | 0.88       | 34.074 | 0.73       | 34.076 | 0.70       | 34.075 | 0.68       | 34.074 | 0.73       | 34.077 | 0.70       | 34.075 | 0.71       | 34.077 | 0.77       | 34.078 | 0.63       | 34.074 |
| 500m         | 0.53       | 34.069 | 0.63       | 34.070 | 0.56       | 34.072 | 0.53       | 34.073 | 0.52       | 34.071 | 0.54       | 34.072 | 0.54       | 34.071 | 0.52       | 34.072 | 0.57       | 34.073 | 0.49       | 34.072 |
| 600m         | 0.44       | 34.069 |            |        |            |        |            |        |            |        | 0.42       | 34.071 |            |        |            |        |            |        |            |        |
| 700m         | 0.35       | 34.067 |            |        |            |        |            |        |            |        | 0.35       | 34.069 |            |        |            |        |            |        |            |        |
| 800m         | 0.29       | 34.067 |            |        |            |        |            |        |            |        | 0.31       | 34.068 |            |        |            |        |            |        |            |        |
| 900m         | 0.25       | 34.066 |            |        |            |        |            |        |            |        | 0.28       | 34.068 |            |        |            |        |            |        |            |        |
| 1000m        | 0.24       | 34.066 |            |        |            |        |            |        |            |        | 0.26       | 34.067 |            |        |            |        |            |        |            |        |

Table 3-2



Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J55        |        | J54        |        | J53        |        | J52        |        | J63        |        | J62        |        | J61        |        | J51        |        | JC22       |        | JC15       |        |
| Latitude:N   | 41-29.9    |        | 41-29.8    |        | 41-30.0    |        | 41-30.0    |        | 41- 0.0    |        | 41-10.0    |        | 41-20.0    |        | 41-29.9    |        | 42- 0.0    |        | 42-59.9    |        |
| Longitude:E  | 138-39.9   |        | 139- 0.1   |        | 139-15.0   |        | 139-30.0   |        | 140- 0.0   |        | 139-59.9   |        | 140- 0.0   |        | 139-50.1   |        | 139-40.1   |        | 138-59.9   |        |
| Date         | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/17 |        | 1997/04/17 |        |
| Time(JST)    | 09:09      |        | 10:55      |        | 12:09      |        | 15:30      |        | 19:08      |        | 20:23      |        | 21:23      |        | 22:54      |        | 02:06      |        | 08:37      |        |
| Weather      | C          |        | BC         |        | BC         |        | C          |        | C          |        | BC         |        | BC         |        | C          |        | BC         |        | C          |        |
| Air Temp.    | 6.0        |        | 3.1        |        | 7.6        |        | 8.5        |        | 6.5        |        | 6.4        |        | 6.1        |        | 5.7        |        | 5.4        |        | 8.1        |        |
| Bar          | 1019.7     |        | 1019.6     |        | 1019.3     |        | 1019.1     |        | 1020.4     |        | 1020.7     |        | 1020.9     |        | 1021.2     |        | 1020.4     |        | 1020.2     |        |
| Wind Dir     | N          |        | NNW        |        | NW         |        | W          |        | WNW        |        | WNW        |        | NW         |        | WNW        |        | W          |        | SW         |        |
| Wind Spd/F   | S 3        |        | S 3        |        | S 5        |        | S 6        |        | S 5        |        | S 5        |        | S 5        |        | S 5        |        | S 5        |        | S 7        |        |
| Transparency | 10         |        | 8          |        | 7          |        | 7          |        |            |        |            |        |            |        |            |        |            |        | 13         |        |
| Depth        | 3126       |        | 1329       |        | 1140       |        | 1674       |        | 509        |        | 113        |        | 228        |        | 1359       |        | 900        |        | 3543       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.4        | 34.180 | 8.9        | 34.219 | 8.4        | 34.141 | 7.7        | 34.146 | 9.7        | 33.131 | 9.8        | 33.072 | 8.8        | 34.075 | 6.9        | 34.035 | 7.0        | 34.061 | 5.6        | 34.163 |
| 10m          | 6.15       | 34.169 | 8.73       | 34.185 | 7.95       | 34.136 | 7.53       | 34.143 | 9.59       | 33.356 | 10.33      | 34.115 | 8.81       | 34.084 | 6.77       | 34.060 | 7.02       | 34.056 | 5.42       | 34.159 |
| 20m          | 6.06       | 34.167 | 8.60       | 34.187 | 7.33       | 34.151 | 7.16       | 34.136 | 9.71       | 33.827 | 9.93       | 34.095 | 8.87       | 34.128 | 6.76       | 34.117 | 6.92       | 34.066 | 5.39       | 34.159 |
| 30m          | 4.92       | 34.156 | 7.95       | 34.169 | 6.59       | 34.164 | 6.93       | 34.135 | 9.72       | 33.882 | 9.90       | 34.093 | 8.49       | 34.187 | 6.73       | 34.127 | 6.91       | 34.078 | 5.33       | 34.158 |
| 50m          | 4.39       | 34.146 | 5.81       | 34.154 | 5.21       | 34.151 | 6.00       | 34.127 | 9.77       | 34.004 | 9.93       | 34.171 | 7.83       | 34.172 | 6.37       | 34.146 | 6.24       | 34.148 | 5.06       | 34.152 |
| 75m          | 3.90       | 34.150 | 4.40       | 34.124 | 3.81       | 34.133 | 4.46       | 34.123 | 9.75       | 34.128 | 8.21       | 34.185 | 7.33       | 34.171 | 5.69       | 34.137 | 5.46       | 34.135 | 4.81       | 34.144 |
| 100m         | 2.53       | 34.125 | 3.44       | 34.137 | 2.65       | 34.096 | 3.66       | 34.109 | 9.69       | 34.147 | 7.52       | 34.180 | 6.91       | 34.155 | 4.16       | 34.121 | 4.72       | 34.130 | 3.94       | 34.136 |
| 125m         | 1.99       | 34.112 | 2.03       | 34.116 | 2.21       | 34.093 | 3.05       | 34.098 | 9.42       | 34.179 |            |        | 6.24       | 34.141 | 3.43       | 34.107 | 3.77       | 34.104 | 3.35       | 34.140 |
| 150m         | 1.67       | 34.108 | 1.64       | 34.105 | 1.77       | 34.090 | 2.51       | 34.088 | 9.16       | 34.173 |            |        | 5.88       | 34.137 | 2.87       | 34.096 | 2.71       | 34.090 | 2.66       | 34.098 |
| 200m         | 1.22       | 34.090 | 1.27       | 34.085 | 1.21       | 34.073 | 1.64       | 34.072 | 6.01       | 34.149 |            |        | 3.75       | 34.112 | 2.04       | 34.085 | 1.96       | 34.074 | 2.24       | 34.098 |
| 250m         | 1.05       | 34.085 | 0.98       | 34.077 | 1.08       | 34.072 | 1.26       | 34.070 | 2.98       | 34.097 |            |        |            |        | 1.41       | 34.074 | 1.32       | 34.072 | 1.50       | 34.081 |
| 300m         | 0.86       | 34.078 | 0.87       | 34.076 | 0.85       | 34.073 | 0.95       | 34.073 | 1.83       | 34.074 |            |        |            |        | 1.16       | 34.072 | 1.03       | 34.072 | 1.07       | 34.073 |
| 400m         | 0.67       | 34.074 | 0.60       | 34.072 | 0.57       | 34.069 | 0.78       | 34.072 | 0.82       | 34.074 |            |        |            |        | 0.82       | 34.072 | 0.70       | 34.071 | 0.77       | 34.074 |
| 500m         | 0.48       | 34.071 | 0.46       | 34.069 | 0.42       | 34.068 | 0.54       | 34.069 |            |        |            |        |            |        | 0.55       | 34.070 | 0.52       | 34.069 | 0.55       | 34.070 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-3

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | JC14       |        | JC13       |        | JC12       |        | JC11       |        | J33B       |        | CIS003     |        | CIS004     |        | CIS005     |        | CIS006     |        | CIS007     |        |
| Latitude:N   | 43- 0.1    |        | 43- 0.0    |        | 43- 0.0    |        | 43- 0.0    |        | 43-30.0    |        | 43-20.0    |        | 43-15.0    |        | 43-15.0    |        | 43-20.0    |        | 43-20.0    |        |
| Longitude:E  | 139-19.9   |        | 139-39.9   |        | 139-59.9   |        | 140-20.0   |        | 140-40.1   |        | 141- 0.0   |        | 141- 4.9   |        | 141-14.9   |        | 141-20.0   |        | 141-10.1   |        |
| Date         | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        |
| Time(JST)    | 10:12      |        | 11:48      |        | 13:26      |        | 15:01      |        | 21:55      |        | 07:23      |        | 08:03      |        | 08:47      |        | 09:27      |        | 10:14      |        |
| Weather      | BC         |        | BC         |        | B          |        | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 7.6        |        | 7.7        |        | 7.7        |        | 8.6        |        | 6.5        |        | 6.9        |        | 7.6        |        | 7.2        |        | 8.1        |        | 10.8       |        |
| Bar          | 1020.2     |        | 1019.6     |        | 1019.5     |        | 1019.3     |        | 1020.2     |        | 1021.5     |        | 1021.8     |        | 1022.0     |        | 1022.1     |        | 1021.0     |        |
| Wind Dir     | SW         |        | SW         |        | SW         |        | WSW        |        | WSW        |        | W          |        | WNW        |        | NNW        |        | NNW        |        | F          |        |
| Wind Spd/F   | S 6        |        | S 8        |        | S 10       |        | S 9        |        | S 7        |        | S 5        |        | S 3        |        | S 3        |        | S 3        |        | S 1        |        |
| Transparency | 12         |        | 13         |        | 9          |        | 7          |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 2338       |        | 3365       |        | 1300       |        | 477        |        | 685        |        | 53         |        | 31         |        | 25         |        | 25         |        | 40         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.7        | 34.152 | 6.1        | 34.162 | 6.1        | 34.160 | 6.2        | 34.080 | 5.9        | 34.039 | 6.8        | 34.08* | 7.7        | 33.65* | 7.2        | 30.51* | 7.7        | 30.19* | 6.9        | 34.08* |
| 10m          | 6.47       | 34.145 | 5.81       | 34.154 | 5.90       | 34.156 | 5.97       | 34.087 | 5.87       | 34.033 | 6.79       | 34.076 | 7.59       | 33.672 | 7.09       | 33.887 | 7.34       | 33.710 | 6.55       | 34.081 |
| 20m          | 6.43       | 34.145 | 5.66       | 34.159 | 5.87       | 34.156 | 5.52       | 34.134 | 5.54       | 34.061 | 6.77       | 34.076 | 7.50       | 33.786 | 7.04       | 33.918 | 7.31       | 33.773 | 6.50       | 34.081 |
| 30m          | 6.39       | 34.144 | 5.56       | 34.161 | 5.54       | 34.157 | 5.14       | 34.147 | 5.45       | 34.093 | 6.56       | 34.069 |            |        |            |        |            |        | 6.41       | 34.080 |
| 50m          | 5.52       | 34.154 | 5.13       | 34.159 | 5.18       | 34.158 | 4.76       | 34.150 | 5.35       | 34.105 | 5.81       | 34.122 |            |        |            |        |            |        |            |        |
| 75m          | 5.22       | 34.150 | 5.08       | 34.156 | 5.06       | 34.157 | 4.39       | 34.149 | 4.88       | 34.148 |            |        |            |        |            |        |            |        |            |        |
| 100m         | 4.03       | 34.114 | 4.95       | 34.156 | 4.87       | 34.157 | 3.98       | 34.142 | 4.64       | 34.154 |            |        |            |        |            |        |            |        |            |        |
| 125m         | 2.76       | 34.089 | 4.79       | 34.156 | 4.61       | 34.149 | 3.60       | 34.152 | 4.40       | 34.152 |            |        |            |        |            |        |            |        |            |        |
| 150m         | 2.45       | 34.080 | 4.60       | 34.149 | 4.31       | 34.145 | 3.26       | 34.158 | 3.99       | 34.151 |            |        |            |        |            |        |            |        |            |        |
| 200m         | 1.54       | 34.070 | 3.93       | 34.137 | 3.41       | 34.128 | 2.70       | 34.138 | 2.79       | 34.126 |            |        |            |        |            |        |            |        |            |        |
| 250m         | 1.22       | 34.074 | 3.08       | 34.118 | 2.60       | 34.107 | 1.40       | 34.074 | 1.71       | 34.080 |            |        |            |        |            |        |            |        |            |        |
| 300m         | 1.05       | 34.079 | 1.93       | 34.084 | 1.65       | 34.079 | 1.18       | 34.074 | 1.27       | 34.075 |            |        |            |        |            |        |            |        |            |        |
| 400m         | 0.76       | 34.072 | 1.04       | 34.077 | 0.99       | 34.076 | 0.72       | 34.073 | 0.82       | 34.073 |            |        |            |        |            |        |            |        |            |        |
| 500m         | 0.55       | 34.070 | 0.79       | 34.072 | 0.60       | 34.070 |            |        | 0.61       | 34.070 |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        | 0.52       | 34.069 |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-4

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CIS008     |        | CIS009     |        | CIS010     |        | CIS011     |        | CIS012     |        | CIS013     |        | CIS014     |        | CIS015     |        | CIS016     |        | CIS017     |        |
| Latitude:N   | 43-25.0    |        | 43-25.0    |        | 43-30.0    |        | 43-34.9    |        | 43-35.1    |        | 43-39.9    |        | 43-45.0    |        | 43-45.0    |        | 43-40.1    |        | 43-36.8    |        |
| Longitude:E  | 141- 5.1   |        | 141-15.0   |        | 141-10.1   |        | 141-13.1   |        | 141- 5.2   |        | 141-10.1   |        | 141-15.0   |        | 141- 5.1   |        | 141- 0.0   |        | 140-56.6   |        |
| Date         | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        |
| Time(JST)    | 10:55      |        | 11:40      |        | 12:20      |        | 12:55      |        | 13:35      |        | 14:15      |        | 14:55      |        | 15:45      |        | 16:33      |        | 17:12      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 11.1       |        | 10.1       |        | 10.9       |        | 11.5       |        | 10.2       |        | 10.2       |        | 11.0       |        | 9.3        |        | 9.1        |        | 9.3        |        |
| Bar          | 1021.3     |        | 1021.1     |        | 1021.0     |        | 1020.8     |        | 1020.3     |        | 1019.8     |        | 1018.9     |        | 1018.2     |        | 1017.5     |        | 1016.6     |        |
| Wind Dir     | E          |        | CALM       |        | NNE        |        | CALM       |        | NNE        |        | CALM       |        | W          |        | SW         |        | SW         |        | CALM       |        |
| Wind Spd/F   | S 2        |        | S 0        |        | S 1        |        | S 0        |        | S 1        |        | S 0        |        | S 3        |        | S 2        |        | S 2        |        | S 0        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 62         |        | 44         |        | 62         |        | 62         |        | 92         |        | 87         |        | 118        |        | 278        |        | 368        |        | 137        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.0        | 33.46* | 7.5        | 33.50* | 7.2        | 33.93* | 7.4        | 33.58* | 7.4        | 34.14* | 7.7        | 34.12* | 7.3        | 33.06* | 7.4        | 34.13* | 6.8        | 34.14* | 7.2        | 34.13* |
| 10m          | 6.43       | 33.991 | 7.12       | 33.865 | 6.62       | 34.003 | 6.92       | 33.811 | 6.93       | 34.130 | 6.93       | 34.127 | 6.70       | 34.020 | 7.15       | 34.139 | 6.57       | 34.138 | 6.68       | 34.142 |
| 20m          | 6.37       | 33.993 | 6.85       | 33.916 | 6.35       | 34.037 | 6.76       | 33.876 | 6.88       | 34.132 | 6.85       | 34.130 | 6.62       | 34.126 | 6.86       | 34.137 | 6.48       | 34.140 | 6.62       | 34.139 |
| 30m          | 6.24       | 34.022 | 6.46       | 33.950 | 6.20       | 34.050 | 6.70       | 33.891 | 6.83       | 34.135 | 6.82       | 34.131 | 6.58       | 34.127 | 6.80       | 34.140 | 6.43       | 34.140 | 6.61       | 34.138 |
| 50m          | 4.86       | 34.148 |            |        | 4.60       | 34.149 | 6.44       | 33.956 | 6.56       | 34.136 | 6.56       | 34.137 | 6.41       | 34.127 | 6.38       | 34.144 | 6.10       | 34.145 | 6.60       | 34.137 |
| 75m          |            |        |            |        |            |        |            |        | 5.25       | 34.133 | 5.06       | 34.149 | 5.53       | 34.138 | 5.54       | 34.148 | 5.24       | 34.158 | 5.86       | 34.131 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        | 5.05       | 34.140 | 4.70       | 34.164 | 4.77       | 34.158 | 4.95       | 34.157 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 4.27       | 34.158 | 4.37       | 34.149 | 4.74       | 34.154 |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 4.00       | 34.161 | 4.09       | 34.154 |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.00       | 34.133 | 3.43       | 34.145 |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.68       | 34.080 | 2.33       | 34.098 |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.08       | 34.081 |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-5

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CIS018     |        | CIS019     |        | CIS020     |        | CIS021     |        | CIS022     |        | CIS023     |        | CIS024     |        | CIS025     |        | CIS026     |        | CMG001     |        |
| Latitude:N   | 43-30.1    |        | 43-30.0    |        | 43-25.1    |        | 43-25.0    |        | 43-25.0    |        | 43-20.0    |        | 43-18.0    |        | 43-19.9    |        | 43-13.9    |        | 43-13.9    |        |
| Longitude:E  | 140-50.0   |        | 141- 0.0   |        | 140-55.1   |        | 140-45.2   |        | 140-35.1   |        | 140-39.8   |        | 140-44.8   |        | 140-49.9   |        | 141- 1.9   |        | 141-14.2   |        |
| Date         | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/07 |        | 1997/05/09 |        | 1997/05/12 |        |
| Time(JST)    | 18:23      |        | 19:21      |        | 20:02      |        | 20:51      |        | 21:44      |        | 22:44      |        | 23:15      |        | 23:46      |        | 09:27      |        | 09:56      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | R          |        | R          |        | R          |        | R          |        | BC         |        | BC         |        |
| Air Temp.    | 9.1        |        | 9.1        |        | 9.0        |        | 9.7        |        | 9.3        |        | 7.9        |        | 7.4        |        | 7.0        |        | 9.4        |        | 7.5        |        |
| Bar          | 1016.4     |        | 1016.2     |        | 1016.4     |        | 1015.5     |        | 1014.4     |        | 1013.1     |        | 1012.5     |        | 1011.1     |        | 1003.6     |        | 1021.0     |        |
| Wind Dir     | E          |        | NE         |        | S          |        | SE         |        | ESE        |        | SSE        |        | SSE        |        | ESE        |        | NNE        |        | NE         |        |
| Wind Spd/F   | S 2        |        | S 1        |        | S 1        |        | S 3        |        | S 5        |        | S 6        |        | S 3        |        | S 9        |        | S 3        |        | S 1        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 460        |        | 96         |        | 89         |        | 155        |        | 197        |        | 112        |        | 78         |        | 83         |        | 21         |        | 24         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.6        | 34.02* | 7.4        | 34.13* | 7.6        | 34.03* | 7.8        | 33.90* | 8.0        | 33.71* | 8.2        | 33.50* | 8.5        | 33.71* | 7.7        | 33.87* | 7.9        | 33.01* | 8.5        | 31.90* |
| 10m          | 7.14       | 34.032 | 7.04       | 34.131 | 7.04       | 34.040 | 7.52       | 33.971 | 7.65       | 33.903 | 7.63       | 33.812 | 8.16       | 33.756 | 7.30       | 33.991 | 7.55       | 33.525 | 7.49       | 33.385 |
| 20m          | 7.04       | 34.066 | 6.95       | 34.121 | 6.97       | 34.042 | 7.42       | 34.076 | 7.51       | 34.134 | 7.55       | 33.848 | 7.65       | 33.756 | 7.16       | 34.027 |            |        | 7.41       | 33.580 |
| 30m          | 6.92       | 34.078 | 6.85       | 34.113 | 6.64       | 34.096 | 7.40       | 34.127 | 7.15       | 34.146 | 7.41       | 33.860 | 7.57       | 33.805 | 7.13       | 34.023 |            |        |            |        |
| 50m          | 6.80       | 34.080 | 6.25       | 34.086 | 6.54       | 34.115 | 7.17       | 34.116 | 6.56       | 34.138 | 7.31       | 33.901 | 7.34       | 33.903 | 7.09       | 34.018 |            |        |            |        |
| 75m          | 6.16       | 34.098 | 5.79       | 34.096 | 6.15       | 34.119 | 6.32       | 34.103 | 6.18       | 34.144 | 6.39       | 34.052 |            |        | 7.05       | 34.063 |            |        |            |        |
| 100m         | 5.59       | 34.123 |            |        |            |        | 5.54       | 34.119 | 5.76       | 34.124 | 5.66       | 34.129 |            |        |            |        |            |        |            |        |
| 125m         | 5.03       | 34.148 |            |        |            |        | 4.90       | 34.147 | 5.13       | 34.149 |            |        |            |        |            |        |            |        |            |        |
| 150m         | 4.63       | 34.153 |            |        |            |        |            |        | 4.90       | 34.154 |            |        |            |        |            |        |            |        |            |        |
| 200m         | 3.46       | 34.143 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 2.46       | 34.113 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 1.45       | 34.081 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 0.81       | 34.075 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-6

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CMG002     |        | CMG003     |        | CMG004     |        | CMG005     |        | CMG006     |        | CMG007     |        | CMG008     |        | CMG009     |        | CMG010     |        | CMG011     |        |
| Latitude:N   | 43-15.9    |        | 43-21.5    |        | 43-23.1    |        | 43-24.1    |        | 43-26.2    |        | 43-28.6    |        | 43-29.8    |        | 43-34.8    |        | 43-20.9    |        | 43-14.1    |        |
| Longitude:E  | 141-18.1   |        | 141-12.1   |        | 141-10.4   |        | 141- 9.1   |        | 141- 6.4   |        | 141- 5.2   |        | 141- 5.1   |        | 141- 6.1   |        | 141-24.5   |        | 140-46.6   |        |
| Date         | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/13 |        | 1997/05/14 |        |
| Time(JST)    | 10:56      |        | 11:57      |        | 12:35      |        | 13:05      |        | 13:41      |        | 14:19      |        | 15:20      |        | 16:09      |        | 07:50      |        | 06:47      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 8.8        |        | 10.2       |        | 11.8       |        | 12.9       |        | 13.1       |        | 14.1       |        | 13.9       |        | 13.9       |        | 11.6       |        | 13.6       |        |
| Bar          | 1020.5     |        | 1020.3     |        | 1020.2     |        | 1019.8     |        | 1019.6     |        | 1019.3     |        | 1019.2     |        | 1018.7     |        | 1017.2     |        | 1011.9     |        |
| Wind Dir     | NE         |        | NNE        |        | NNE        |        | NE         |        | NNE        |        | CALM       |        | NNE        |        | WMW        |        | ENE        |        | CALM       |        |
| Wind Spd/F   | S 2        |        | S 2        |        | S 3        |        | S 3        |        | S 1        |        | S 0        |        | S 2        |        | S 1        |        | S 4        |        | S 0        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 24         |        | 39         |        | 43         |        | 56         |        | 64         |        | 78         |        | 84         |        | 88         |        | 20         |        | 34         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.8        | 31.59* | 9.7        | 30.82* | 8.1        | 31.27* | 8.4        | 32.16* | 8.2        | 33.46* | 8.2        | 33.83* | 9.2        | 33.63* | 9.0        | 33.68* | 8.3        | 30.14* | 8.9        | 32.95* |
| 10m          | 7.63       | 33.513 | 7.57       | 33.724 | 6.84       | 33.821 | 6.81       | 33.845 | 7.66       | 33.843 | 7.50       | 33.846 | 7.52       | 33.921 | 7.93       | 33.697 | 7.39       | 33.312 | 8.46       | 33.699 |
| 20m          | 7.12       | 33.875 | 6.93       | 33.975 | 6.46       | 34.038 | 6.53       | 34.032 | 7.43       | 33.929 | 7.44       | 33.919 | 7.49       | 34.045 | 7.55       | 33.949 |            |        | 8.29       | 33.877 |
| 30m          |            |        | 6.71       | 34.055 | 6.10       | 34.049 | 6.46       | 34.086 | 7.11       | 33.973 | 7.24       | 34.102 | 7.38       | 34.085 | 7.39       | 34.055 |            |        | 8.26       | 33.871 |
| 50m          |            |        |            |        |            |        | 5.90       | 34.072 | 6.64       | 34.067 | 6.83       | 34.098 | 6.97       | 34.137 | 6.70       | 34.110 |            |        |            |        |
| 75m          |            |        |            |        |            |        |            |        |            |        |            |        | 5.46       | 34.124 | 6.10       | 34.106 |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-7

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CMG012     |        | CMG013     |        | CMG014     |        | CMG015     |        | CMG016     |        | J31        |        | JH01       |        | J32        |        | J33        |        | J34        |        |
| Latitude:N   | 43-29.8    |        | 43-31.8    |        | 43-34.4    |        | 43-13.7    |        | 43-13.7    |        | 43-19.9    |        | 43-21.8    |        | 43-30.0    |        | 43-30.1    |        | 43-30.0    |        |
| Longitude:E  | 141- 1.5   |        | 140-59.8   |        | 141-20.1   |        | 140-55.2   |        | 140-55.1   |        | 141-10.1   |        | 141-23.6   |        | 141- 0.1   |        | 140-40.1   |        | 140-20.2   |        |
| Date         | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/15 |        | 1997/05/16 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        |
| Time(JST)    | 11:08      |        | 11:47      |        | 15:32      |        | 15:30      |        | 07:43      |        | 09:58      |        | 11:03      |        | 12:55      |        | 14:24      |        | 16:05      |        |
| Weather      | BC         |        | BC         |        | C          |        | C          |        | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 16.2       |        | 15.6       |        | 17.7       |        |            |        |            |        | 13.5       |        | 15.1       |        | 13.5       |        | 13.2       |        | 12.9       |        |
| Bar          | 1010.1     |        | 1009.6     |        | 1007.1     |        |            |        |            |        | 1009.4     |        | 1009.4     |        | 1009.1     |        | 1009.1     |        | 1009.2     |        |
| Wind Dir     | NNE        |        | NNE        |        | S          |        |            |        |            |        | NW         |        | CALM       |        | WNW        |        | NW         |        | NNW        |        |
| Wind Spd/F   | S 3        |        | S 4        |        | S 8        |        |            |        |            |        | S 3        |        | S 0        |        | S 3        |        | S 3        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        | 4          |        | 4          |        | 11         |        | 9          |        | 13         |        |
| Depth        | 92         |        | 103        |        | 36         |        |            |        | 29         |        | 40         |        | 22         |        | 95         |        | 691        |        | 641        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 9.9        | 33.78* | 9.3        | 33.78* | 10.9       | 29.09* | 9.2        | 33.76* | 9.1        | 33.86* | 10.8       | 33.586 | 10.8       | 28.810 | 10.9       | 33.941 | 11.7       | 34.024 | 10.3       | 34.042 |
| 10m          | 8.02       | 33.797 | 7.59       | 33.862 | 7.76       | 33.545 | 8.45       | 33.814 | 8.49       | 33.883 | 9.50       | 33.909 | 7.75       | 33.744 | 10.39      | 34.012 | 10.68      | 34.172 | 9.84       | 34.042 |
| 20m          | 7.42       | 33.918 | 7.34       | 33.937 | 6.87       | 33.977 | 8.42       | 33.933 | 8.50       | 33.921 | 8.21       | 34.024 |            |        | 10.33      | 34.024 | 10.57      | 34.169 | 9.34       | 34.056 |
| 30m          | 7.23       | 33.975 | 7.49       | 34.059 | 6.63       | 34.016 |            |        |            |        | 8.11       | 34.023 |            |        | 10.28      | 34.035 | 10.09      | 34.112 | 8.99       | 34.066 |
| 50m          | 7.06       | 34.084 | 7.51       | 34.118 |            |        |            |        |            |        |            |        |            |        | 8.29       | 34.035 | 9.74       | 34.118 | 6.94       | 34.103 |
| 75m          | 6.10       | 34.124 | 6.22       | 34.142 |            |        |            |        |            |        |            |        |            |        | 7.86       | 34.088 | 8.88       | 34.180 | 5.71       | 34.136 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 6.90       | 34.140 | 4.64       | 34.137 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5.97       | 34.139 | 4.01       | 34.111 |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5.02       | 34.147 | 3.38       | 34.123 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.45       | 34.128 | 2.42       | 34.091 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.08       | 34.094 | 1.63       | 34.080 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.22       | 34.076 | 1.29       | 34.072 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.78       | 34.070 | 1.02       | 34.072 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.56       | 34.067 | 0.68       | 34.068 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-8

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J35        |        | J36        |        | J37        |        | J38        |        | J39        |        | JC15       |        | J41        |        | J42        |        | J43        |        | J44        |        |
| Latitude:N   | 43-29.8    |        | 43-29.9    |        | 43-30.0    |        | 43-30.0    |        | 43-30.0    |        | 43- 0.0    |        | 42-30.1    |        | 42-30.1    |        | 42-30.1    |        | 42-30.0    |        |
| Longitude:E  | 140- 0.2   |        | 139-40.1   |        | 139-20.2   |        | 139- 0.2   |        | 138-30.1   |        | 138-59.9   |        | 139-40.0   |        | 139-20.1   |        | 139- 0.1   |        | 138-40.1   |        |
| Date         | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        |
| Time(JST)    | 17:50      |        | 19:48      |        | 21:24      |        | 22:59      |        | 01:39      |        | 05:19      |        | 09:39      |        | 12:13      |        | 13:53      |        | 15:40      |        |
| Weather      | C          |        | C          |        | B          |        | F          |        | C          |        | BC         |        | C          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 12.1       |        | 10.9       |        | 10.7       |        | 9.2        |        | 8.7        |        | 11.0       |        | 14.4       |        | 14.3       |        | 14.4       |        | 13.8       |        |
| Bar          | 1009.8     |        | 1010.0     |        | 1010.0     |        | 1010.7     |        | 1010.0     |        | 1011.9     |        | 1012.1     |        | 1012.2     |        | 1012.2     |        | 1012.0     |        |
| Wind Dir     | N          |        | WNW        |        | CALM       |        | NW         |        | NNW        |        | ENE        |        | NNW        |        | WNW        |        | WNW        |        | NW         |        |
| Wind Spd/F   | S 1        |        | S 1        |        | S 0        |        | S 2        |        | S 2        |        | S 1        |        | S 1        |        | S 3        |        | S 3        |        | S 3        |        |
| Transparency | 12         |        |            |        |            |        |            |        |            |        | 11         |        | 12         |        | 11         |        | 10         |        | 11         |        |
| Depth        | 1246       |        | 2400       |        | 3200       |        | 3443       |        | 3400       |        | 3540       |        | 1840       |        | 3280       |        | 3600       |        | 3686       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 10.2       | 34.054 | 11.0       | 34.152 | 10.8       | 34.135 | 7.8        | 34.082 | 8.9        | 34.075 | 9.7        | 34.077 | 12.7       | 33.954 | 12.3       | 34.093 | 16.0       | 34.015 | 9.9        | 34.052 |
| 10m          | 9.69       | 34.048 | 10.91      | 34.161 | 10.20      | 34.151 | 6.57       | 34.091 | 8.75       | 34.061 | 8.75       | 34.055 | 12.39      | 33.942 | 10.19      | 34.095 | 9.05       | 34.019 | 8.54       | 34.057 |
| 20m          | 8.03       | 34.053 | 10.08      | 34.156 | 9.94       | 34.145 | 6.20       | 34.110 | 7.73       | 34.083 | 8.67       | 34.066 | 11.58      | 34.026 | 9.36       | 34.046 | 8.79       | 34.013 | 8.23       | 34.069 |
| 30m          | 7.59       | 34.086 | 8.08       | 34.094 | 9.07       | 34.210 | 6.12       | 34.101 | 7.05       | 34.099 | 8.52       | 34.075 | 11.49      | 34.017 | 6.47       | 34.144 | 5.07       | 34.168 | 5.08       | 34.164 |
| 50m          | 6.75       | 34.138 | 5.86       | 34.159 | 6.63       | 34.160 | 5.60       | 34.118 | 5.02       | 34.150 | 6.61       | 34.169 | 10.84      | 34.083 | 4.66       | 34.120 | 3.74       | 34.141 | 3.97       | 34.130 |
| 75m          | 5.49       | 34.135 | 5.03       | 34.169 | 4.92       | 34.130 | 3.79       | 34.131 | 3.71       | 34.168 | 5.02       | 34.130 | 9.34       | 34.161 | 3.29       | 34.125 | 2.31       | 34.096 | 3.01       | 34.112 |
| 100m         | 4.91       | 34.147 | 4.88       | 34.166 | 4.24       | 34.115 | 3.33       | 34.141 | 3.44       | 34.166 | 3.79       | 34.124 | 8.10       | 34.206 | 2.26       | 34.098 | 1.88       | 34.092 | 2.08       | 34.082 |
| 125m         | 4.68       | 34.149 | 4.84       | 34.164 | 3.93       | 34.129 | 2.99       | 34.133 | 3.24       | 34.166 | 3.25       | 34.098 | 5.56       | 34.155 | 2.01       | 34.091 | 1.51       | 34.083 | 1.61       | 34.073 |
| 150m         | 4.41       | 34.145 | 4.80       | 34.162 | 3.49       | 34.137 | 2.69       | 34.126 | 3.08       | 34.161 | 2.62       | 34.087 | 4.45       | 34.131 | 1.67       | 34.091 | 1.34       | 34.085 | 1.45       | 34.077 |
| 200m         | 3.67       | 34.127 | 4.25       | 34.144 | 2.32       | 34.103 | 1.95       | 34.102 | 2.36       | 34.119 | 1.84       | 34.082 | 2.56       | 34.093 | 1.30       | 34.081 | 1.12       | 34.083 | 1.31       | 34.085 |
| 250m         | 2.88       | 34.117 | 3.69       | 34.154 | 1.62       | 34.077 | 1.49       | 34.084 | 2.02       | 34.115 | 1.40       | 34.079 | 1.61       | 34.078 | 0.92       | 34.074 | 0.99       | 34.082 | 1.06       | 34.080 |
| 300m         | 1.65       | 34.080 | 3.42       | 34.155 | 1.18       | 34.073 | 1.20       | 34.082 | 1.68       | 34.110 | 1.14       | 34.075 | 1.25       | 34.070 | 0.86       | 34.079 | 0.84       | 34.078 | 0.92       | 34.079 |
| 400m         | 1.05       | 34.075 | 1.34       | 34.078 | 0.80       | 34.072 | 0.88       | 34.077 | 1.00       | 34.079 | 0.81       | 34.072 | 0.81       | 34.070 | 0.63       | 34.071 | 0.62       | 34.071 | 0.62       | 34.071 |
| 500m         | 0.79       | 34.072 | 0.91       | 34.073 | 0.58       | 34.069 | 0.67       | 34.072 | 0.65       | 34.070 | 0.59       | 34.068 | 0.58       | 34.067 | 0.46       | 34.068 | 0.48       | 34.069 | 0.47       | 34.068 |
| 600m         | 0.57       | 34.067 |            |        |            |        | 0.48       | 34.067 |            |        | 0.46       | 34.066 | 0.44       | 34.065 |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.36       | 34.065 |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.30       | 34.064 |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.26       | 34.063 |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        | 0.23       | 34.063 |            |        |            |        |            |        |

Table 3-9

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J45        |        | J46        |        | J47        |        | J58        |        | J57        |        | J56        |        | J55        |        | J54        |        | J53        |        | J52        |        |
| Latitude:N   | 42-29.9    |        | 42-30.0    |        | 42-30.0    |        | 41-30.0    |        | 41-30.0    |        | 41-30.0    |        | 41-30.1    |        | 41-30.1    |        | 41-30.1    |        | 41-30.0    |        |
| Longitude:E  | 138-20.2   |        | 138- 0.1   |        | 137-30.2   |        | 137-30.1   |        | 138- 0.0   |        | 138-20.0   |        | 138-39.9   |        | 138-59.9   |        | 139-14.9   |        | 139-30.0   |        |
| Date         | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        |
| Time(JST)    | 17:20      |        | 19:00      |        | 22:29      |        | 04:01      |        | 06:24      |        | 08:01      |        | 09:39      |        | 11:19      |        | 12:40      |        | 15:43      |        |
| Weather      | B          |        | F          |        | C          |        | F          |        | B          |        | B          |        | B          |        | BC         |        | BC         |        | B          |        |
| Air Temp.    | 12.3       |        | 10.2       |        | 10.0       |        | 8.3        |        | 9.8        |        | 10.8       |        | 12.4       |        | 14.1       |        | 15.1       |        | 15.0       |        |
| Bar          | 1011.9     |        | 1012.3     |        | 1013.8     |        | 1014.5     |        | 1014.3     |        | 1014.6     |        | 1014.7     |        | 1014.7     |        | 1014.8     |        | 1014.6     |        |
| Wind Dir     | WNW        |        | WNW        |        | NW         |        | WNW        |        | WNW        |        | NW         |        | WNW        |        | W          |        | W          |        | W          |        |
| Wind Spd/F   | S 4        |        | S 4        |        | S 3        |        | S 3        |        | S 2        |        | S 3        |        | S 3        |        | S 5        |        | S 5        |        | S 6        |        |
| Transparency | 12         |        |            |        |            |        |            |        | 10         |        | 10         |        | 12         |        | 10         |        | 15         |        | 14         |        |
| Depth        | 3630       |        | 3678       |        | 3678       |        | 3665       |        | 3686       |        | 1686       |        | 3121       |        | 1334       |        | 1134       |        | 1677       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 9.8        | 33.986 | 10.2       | 33.974 | 10.0       | 33.986 | 9.4        | 33.999 | 9.5        | 34.017 | 10.4       | 34.040 | 11.7       | 34.055 | 12.6       | 33.844 | 12.6       | 33.833 | 13.3       | 33.705 |
| 10m          | 9.16       | 33.997 | 8.96       | 33.989 | 9.58       | 33.986 | 9.30       | 33.995 | 9.45       | 34.015 | 10.20      | 34.039 | 11.17      | 34.054 | 12.10      | 33.854 | 11.62      | 33.901 | 12.79      | 33.720 |
| 20m          | 7.79       | 34.110 | 8.54       | 34.017 | 8.52       | 34.002 | 8.53       | 33.999 | 8.59       | 34.050 | 8.30       | 34.051 | 10.42      | 34.090 | 11.57      | 33.918 | 11.57      | 33.913 | 12.44      | 33.836 |
| 30m          | 6.82       | 34.135 | 6.16       | 34.139 | 6.54       | 34.116 | 6.31       | 34.101 | 5.97       | 34.141 | 5.95       | 34.118 | 9.29       | 34.110 | 10.89      | 34.004 | 11.59      | 33.909 | 11.93      | 34.005 |
| 50m          | 5.10       | 34.163 | 4.49       | 34.155 | 3.83       | 34.165 | 4.33       | 34.133 | 3.55       | 34.153 | 3.35       | 34.116 | 6.75       | 34.178 | 8.81       | 34.165 | 8.20       | 34.101 | 11.18      | 34.123 |
| 75m          | 3.75       | 34.131 | 3.36       | 34.123 | 3.08       | 34.147 | 2.34       | 34.118 | 2.83       | 34.124 | 2.40       | 34.105 | 4.73       | 34.138 | 6.13       | 34.155 | 5.53       | 34.156 | 9.38       | 34.192 |
| 100m         | 2.67       | 34.102 | 2.59       | 34.105 | 2.54       | 34.136 | 1.90       | 34.107 | 2.29       | 34.119 | 1.93       | 34.106 | 3.41       | 34.114 | 4.21       | 34.129 | 4.55       | 34.128 | 7.41       | 34.184 |
| 125m         | 2.21       | 34.088 | 2.22       | 34.112 | 2.15       | 34.125 | 1.65       | 34.101 | 1.78       | 34.095 | 1.58       | 34.095 | 2.75       | 34.096 | 3.18       | 34.105 | 3.67       | 34.117 | 5.11       | 34.142 |
| 150m         | 1.86       | 34.093 | 2.21       | 34.126 | 1.74       | 34.103 | 1.51       | 34.102 | 1.61       | 34.102 | 1.39       | 34.088 | 2.23       | 34.086 | 2.72       | 34.098 | 3.01       | 34.103 | 3.78       | 34.125 |
| 200m         | 1.29       | 34.082 | 1.43       | 34.083 | 1.27       | 34.085 | 1.31       | 34.097 | 1.32       | 34.093 | 1.24       | 34.090 | 1.53       | 34.079 | 1.91       | 34.089 | 1.54       | 34.081 | 2.65       | 34.101 |
| 250m         | 1.10       | 34.082 | 1.16       | 34.082 | 1.29       | 34.097 | 1.19       | 34.092 | 1.12       | 34.087 | 1.10       | 34.086 | 1.10       | 34.072 | 1.57       | 34.092 | 1.48       | 34.095 | 1.70       | 34.086 |
| 300m         | 0.98       | 34.082 | 1.06       | 34.084 | 1.07       | 34.088 | 1.05       | 34.085 | 0.97       | 34.083 | 1.01       | 34.083 | 0.92       | 34.073 | 1.37       | 34.092 | 1.25       | 34.087 | 1.38       | 34.075 |
| 400m         | 0.72       | 34.073 | 0.81       | 34.076 | 0.80       | 34.079 | 0.71       | 34.072 | 0.66       | 34.072 | 0.69       | 34.072 | 0.70       | 34.070 | 0.87       | 34.073 | 0.71       | 34.071 | 0.79       | 34.070 |
| 500m         | 0.52       | 34.068 | 0.60       | 34.070 | 0.56       | 34.070 | 0.55       | 34.069 | 0.49       | 34.068 | 0.52       | 34.069 | 0.47       | 34.067 | 0.56       | 34.068 | 0.56       | 34.067 | 0.50       | 34.067 |
| 600m         |            |        | 0.46       | 34.068 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        | 0.38       | 34.067 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        | 0.33       | 34.066 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        | 0.29       | 34.065 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        | 0.27       | 34.064 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-10



Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J63        |        | J62        |        | J61        |        | J51        |        | JC21       |        | JC22       |        | JC23       |        | JC24       |        | JC25       |        | JC14       |        |
| Latitude:N   | 41- 0.0    |        | 41- 9.9    |        | 41-19.9    |        | 41-29.8    |        | 42- 0.0    |        | 42- 0.0    |        | 41-48.0    |        | 42- 0.0    |        | 41-59.9    |        | 42-59.9    |        |
| Longitude:E  | 140- 0.0   |        | 140- 0.1   |        | 140- 0.1   |        | 139-49.9   |        | 139-59.8   |        | 139-40.1   |        | 139-20.1   |        | 139- 0.1   |        | 138-40.1   |        | 139-20.0   |        |
| Date         | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        |
| Time(JST)    | 19:16      |        | 20:30      |        | 21:35      |        | 23:03      |        | 02:29      |        | 04:02      |        | 06:08      |        | 08:12      |        | 09:52      |        | 15:59      |        |
| Weather      | B          |        | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 12.4       |        | 12.7       |        | 12.4       |        | 12.1       |        | 11.5       |        | 11.6       |        | 12.0       |        | 11.0       |        | 11.5       |        | 11.7       |        |
| Bar          | 1015.3     |        | 1015.2     |        | 1014.9     |        | 1015.0     |        | 1013.0     |        | 1013.2     |        | 1012.3     |        | 1011.7     |        | 1011.3     |        | 1009.2     |        |
| Wind Dir     | SW         |        | SW         |        | WSW        |        | WSW        |        | E          |        | SW         |        | WSW        |        | SW         |        | WSW        |        | SW         |        |
| Wind Spd/F   | S 7        |        | S 5        |        | S 3        |        | S 5        |        | S 2        |        |            |        | S 3        |        | S 2        |        | S 5        |        | S 6        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        | 15         |        | 10         |        | 11         |        | 13         |        |
| Depth        | 511        |        | 109        |        | 232        |        | 1358       |        | 710        |        | 906        |        | 2339       |        | 3721       |        | 3691       |        | 2366       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.3       | 33.079 | 14.0       | 33.577 | 12.8       | 33.940 | 12.3       | 33.856 | 12.2       | 33.835 | 11.4       | 34.103 | 12.5       | 33.729 | 11.1       | 34.066 | 11.2       | 34.068 | 10.9       | 34.044 |
| 10m          | 13.24      | 33.090 | 13.94      | 33.583 | 12.61      | 33.930 | 11.91      | 33.895 | 12.13      | 33.844 | 10.27      | 34.115 | 12.01      | 33.821 | 10.84      | 34.060 | 10.83      | 34.043 | 10.10      | 34.036 |
| 20m          | 12.43      | 33.582 | 11.84      | 33.975 | 11.82      | 33.982 | 10.77      | 33.971 | 11.89      | 33.896 | 9.92       | 34.111 | 11.11      | 34.045 | 9.33       | 34.174 | 10.19      | 34.076 | 8.11       | 34.109 |
| 30m          | 12.06      | 33.702 | 10.32      | 34.134 | 11.11      | 34.004 | 10.22      | 34.055 | 11.67      | 33.958 | 5.58       | 34.141 | 10.50      | 34.120 | 8.14       | 34.214 | 9.34       | 34.159 | 6.23       | 34.163 |
| 50m          | 10.23      | 34.085 | 9.53       | 34.130 | 8.35       | 34.131 | 9.09       | 34.148 | 10.62      | 34.079 | 4.13       | 34.135 | 9.27       | 34.187 | 6.83       | 34.181 | 6.43       | 34.140 | 5.18       | 34.132 |
| 75m          | 9.83       | 34.123 | 9.25       | 34.127 | 6.54       | 34.133 | 7.54       | 34.178 | 8.16       | 34.122 | 2.99       | 34.122 | 7.11       | 34.189 | 4.94       | 34.135 | 4.93       | 34.138 | 4.42       | 34.141 |
| 100m         | 9.60       | 34.131 | 8.93       | 34.165 | 6.17       | 34.122 | 5.08       | 34.144 | 7.03       | 34.155 | 2.23       | 34.096 | 5.69       | 34.151 | 3.43       | 34.110 | 4.08       | 34.120 | 3.69       | 34.130 |
| 125m         | 9.43       | 34.129 |            |        | 4.96       | 34.136 | 3.13       | 34.107 | 6.18       | 34.145 | 1.85       | 34.090 | 4.19       | 34.125 | 2.53       | 34.097 | 3.28       | 34.103 | 3.35       | 34.136 |
| 150m         | 9.26       | 34.140 |            |        | 4.26       | 34.115 | 2.61       | 34.102 | 5.49       | 34.139 | 1.67       | 34.083 | 3.54       | 34.107 | 2.31       | 34.091 | 2.67       | 34.091 | 2.89       | 34.126 |
| 200m         | 7.87       | 34.174 |            |        | 3.49       | 34.105 | 1.76       | 34.083 | 2.20       | 34.092 | 1.18       | 34.072 | 2.66       | 34.091 | 2.00       | 34.087 | 1.75       | 34.087 | 1.83       | 34.085 |
| 250m         | 4.79       | 34.135 |            |        |            |        | 1.24       | 34.075 | 1.79       | 34.077 | 0.89       | 34.069 | 1.85       | 34.086 | 1.81       | 34.087 | 1.44       | 34.084 | 1.37       | 34.073 |
| 300m         | 2.18       | 34.096 |            |        |            |        | 1.00       | 34.071 | 1.37       | 34.080 | 0.80       | 34.068 | 1.50       | 34.095 | 1.72       | 34.088 | 1.13       | 34.077 | 1.06       | 34.076 |
| 400m         | 1.09       | 34.073 |            |        |            |        | 0.62       | 34.067 | 0.76       | 34.068 | 0.58       | 34.066 | 1.18       | 34.086 | 1.48       | 34.088 | 0.81       | 34.071 | 0.71       | 34.069 |
| 500m         |            |        |            |        |            |        | 0.51       | 34.065 | 0.57       | 34.066 | 0.43       | 34.064 | 0.90       | 34.078 | 0.89       | 34.075 |            |        | 0.52       | 34.065 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-11

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | JC13       |        | JC12       |        | JC11       |        | JC03       |        | JC02       |        | JC01       |        | J21        |        | J22        |        | J23        |        | J24        |        |
| Latitude:N   | 43- 0.0    |        | 43- 0.0    |        | 43- 0.0    |        | 43-59.9    |        | 44- 0.1    |        | 44- 0.0    |        | 44-29.9    |        | 44-30.0    |        | 44-30.0    |        | 44-29.9    |        |
| Longitude:E  | 139-40.0   |        | 140- 0.0   |        | 140-19.9   |        | 140-59.9   |        | 141-14.9   |        | 141-30.0   |        | 141-30.1   |        | 141-15.0   |        | 141- 0.0   |        | 140-40.1   |        |
| Date         | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        |
| Time(JST)    | 17:35      |        | 19:13      |        | 20:50      |        | 12:13      |        | 13:26      |        | 14:30      |        | 17:19      |        | 18:22      |        | 19:24      |        | 20:48      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 11.4       |        | 11.3       |        | 11.4       |        | 12.7       |        | 14.4       |        | 15.1       |        | 14.6       |        | 13.0       |        | 11.6       |        | 10.1       |        |
| Bar          | 1009.1     |        | 1009.3     |        | 1010.3     |        | 1010.9     |        | 1010.6     |        | 1010.2     |        | 1009.9     |        | 1010.3     |        | 1010.9     |        | 1010.8     |        |
| Wind Dir     | WSW        |        | WSW        |        | WSW        |        | SE         |        | WNW        |        | NW         |        | ENE        |        | ENE        |        | ENE        |        | ENE        |        |
| Wind Spd/F   | S 5        |        | S 5        |        | S 2        |        | S 4        |        | S 3        |        | S 4        |        | S 4        |        | S 8        |        | S 8        |        | S 9        |        |
| Transparency | 14         |        |            |        |            |        | 11         |        | 11         |        | 16         |        | 15         |        | 14         |        |            |        |            |        |
| Depth        | 3365       |        | 2278       |        | 479        |        | 406        |        | 170        |        | 52         |        | 79         |        | 117        |        | 201        |        | 146        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.5       | 33.955 | 12.4       | 33.992 | 12.5       | 34.104 | 10.5       | 34.082 | 11.3       | 34.040 | 11.2       | 33.993 | 11.8       | 33.656 | 11.0       | 34.007 | 10.6       | 34.047 | 9.6        | 34.062 |
| 10m          | 12.37      | 33.959 | 12.44      | 33.994 | 11.95      | 34.098 | 10.11      | 34.085 | 10.38      | 34.032 | 10.84      | 33.400 | 11.01      | 33.663 | 10.91      | 34.019 | 10.46      | 34.045 | 9.31       | 34.045 |
| 20m          | 11.86      | 34.006 | 11.08      | 34.098 | 11.21      | 34.134 | 9.60       | 33.984 | 9.32       | 34.036 | 8.73       | 33.748 | 8.29       | 34.054 | 9.19       | 34.057 | 8.82       | 34.069 | 7.26       | 34.086 |
| 30m          | 10.76      | 34.090 | 11.05      | 34.110 | 10.94      | 34.125 | 7.72       | 34.062 | 8.75       | 34.035 | 8.53       | 33.841 | 7.84       | 34.107 | 8.70       | 34.102 | 7.65       | 34.060 | 6.30       | 34.123 |
| 50m          | 9.49       | 34.127 | 10.71      | 34.126 | 10.32      | 34.110 | 6.02       | 34.117 | 7.85       | 34.150 |            |        | 7.20       | 34.103 | 7.67       | 34.098 | 6.14       | 34.112 | 5.49       | 34.126 |
| 75m          | 8.06       | 34.188 | 9.80       | 34.179 | 9.35       | 34.137 | 5.08       | 34.140 | 7.00       | 34.144 |            |        |            |        | 6.94       | 34.088 | 4.98       | 34.136 | 5.02       | 34.143 |
| 100m         | 6.49       | 34.156 | 7.83       | 34.204 | 7.03       | 34.169 | 3.98       | 34.136 | 5.98       | 34.139 |            |        |            |        | 6.85       | 34.087 | 4.20       | 34.147 | 4.15       | 34.157 |
| 125m         | 4.94       | 34.139 | 7.14       | 34.166 | 4.96       | 34.127 | 3.67       | 34.142 | 4.97       | 34.145 |            |        |            |        |            |        | 3.72       | 34.144 | 3.78       | 34.151 |
| 150m         | 4.39       | 34.122 | 6.15       | 34.152 | 3.31       | 34.115 | 3.29       | 34.135 | 4.30       | 34.145 |            |        |            |        |            |        | 3.34       | 34.135 |            |        |
| 200m         | 2.59       | 34.088 | 3.83       | 34.116 | 2.33       | 34.087 | 2.58       | 34.118 |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 1.91       | 34.082 | 2.75       | 34.127 | 1.71       | 34.080 | 1.66       | 34.078 |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 1.31       | 34.069 | 1.83       | 34.080 | 1.28       | 34.073 | 1.09       | 34.070 |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 0.92       | 34.073 | 1.12       | 34.072 | 0.77       | 34.069 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 0.63       | 34.068 | 0.74       | 34.069 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         | 0.49       | 34.065 | 0.51       | 34.065 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-12

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J25        |        | JW11       |        | JW12       |        | JW13       |        | JW14       |        | JW15       |        | JW16       |        | J26        |        | J27        |        | JC08       |        |
| Latitude:N   | 44-30.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.0    |        | 44-59.9    |        | 44-59.8    |        | 44-30.1    |        | 44-29.9    |        | 44- 0.0    |        |
| Longitude:E  | 140-20.1   |        | 141-29.9   |        | 141-14.9   |        | 141- 0.0   |        | 140-40.0   |        | 140-20.1   |        | 140- 0.1   |        | 139-59.9   |        | 139-30.1   |        | 139- 0.0   |        |
| Date         | 1997/05/31 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        | 1997/06/01 |        |
| Time(JST)    | 22:12      |        | 03:58      |        | 05:03      |        | 06:05      |        | 07:41      |        | 09:12      |        | 10:38      |        | 13:39      |        | 15:50      |        | 19:44      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | R          |        | R          |        | C          |        | C          |        | C          |        | F          |        |
| Air Temp.    | 10.3       |        | 7.1        |        | 7.4        |        | 7.5        |        | 7.8        |        | 8.0        |        | 8.4        |        | 9.6        |        | 9.6        |        | 10.1       |        |
| Bar          | 1011.1     |        | 1011.8     |        | 1011.7     |        | 1011.3     |        | 1012.3     |        | 1012.3     |        | 1012.8     |        | 1013.3     |        | 1014.2     |        | 1014.8     |        |
| Wind Dir     | E          |        | ENE        |        | NE         |        | ENE        |        | ENE        |        | ENE        |        | E          |        | ENE        |        | ENE        |        | NE         |        |
| Wind Spd/F   | S 9        |        | S 8        |        | S 9        |        | S 11       |        | S 9        |        | S 7        |        | S 7        |        | S 7        |        | S 5        |        | S 3        |        |
| Transparency |            |        |            |        | 19         |        | 17         |        | 15         |        | 12         |        | 11         |        | 10         |        | 8          |        |            |        |
| Depth        | 251        |        | 66         |        | 87         |        | 100        |        | 366        |        | 156        |        |            |        | 576        |        | 505        |        | 3365       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 10.2       | 34.082 | 9.3        | 33.753 | 10.0       | 33.520 | 9.8        | 34.051 | 7.9        | 34.084 | 7.4        | 34.112 | 8.9        | 34.064 | 9.1        | 34.041 | 8.7        | 34.049 | 9.0        | 34.015 |
| 10m          | 10.19      | 34.072 | 9.16       | 33.769 | 9.89       | 33.541 | 9.81       | 34.052 | 7.88       | 34.085 | 7.36       | 34.232 | 8.77       | 34.058 | 9.00       | 34.036 | 8.59       | 34.047 | 8.51       | 34.021 |
| 20m          | 8.47       | 34.072 | 7.15       | 34.066 | 7.43       | 33.966 | 9.81       | 34.052 | 7.75       | 34.084 | 6.49       | 34.088 | 7.03       | 34.092 | 7.16       | 34.084 | 6.02       | 34.082 | 6.49       | 34.089 |
| 30m          | 6.64       | 34.111 | 6.07       | 34.065 | 6.42       | 34.085 | 9.81       | 34.052 | 5.91       | 34.112 | 5.75       | 34.125 | 6.13       | 34.117 | 6.16       | 34.111 | 5.54       | 34.082 | 6.23       | 34.103 |
| 50m          | 5.41       | 34.145 | 6.09       | 34.095 | 5.78       | 34.114 | 7.35       | 34.115 | 4.79       | 34.145 | 4.54       | 34.158 | 4.75       | 34.144 | 4.57       | 34.126 | 4.63       | 34.098 | 4.04       | 34.128 |
| 75m          | 4.38       | 34.134 |            |        | 5.33       | 34.118 | 6.31       | 34.111 | 4.03       | 34.150 | 4.06       | 34.152 | 3.72       | 34.129 | 3.43       | 34.140 | 2.79       | 34.141 | 2.66       | 34.113 |
| 100m         | 3.72       | 34.125 |            |        |            |        |            |        | 3.55       | 34.155 | 3.77       | 34.149 | 3.55       | 34.142 | 3.22       | 34.140 | 2.25       | 34.123 | 2.18       | 34.113 |
| 125m         | 3.39       | 34.138 |            |        |            |        |            |        | 3.31       | 34.146 | 3.30       | 34.142 | 3.01       | 34.120 | 2.46       | 34.101 | 2.02       | 34.116 | 1.73       | 34.084 |
| 150m         | 2.95       | 34.120 |            |        |            |        |            |        | 2.89       | 34.128 |            |        | 2.63       | 34.110 | 2.19       | 34.100 | 1.78       | 34.107 | 1.52       | 34.082 |
| 200m         | 2.07       | 34.092 |            |        |            |        |            |        | 2.44       | 34.109 |            |        | 2.52       | 34.102 | 1.60       | 34.082 | 1.47       | 34.093 | 1.41       | 34.096 |
| 250m         |            |        |            |        |            |        |            |        | 1.79       | 34.098 |            |        |            |        | 1.23       | 34.072 | 1.17       | 34.081 | 1.11       | 34.081 |
| 300m         |            |        |            |        |            |        |            |        | 1.10       | 34.074 |            |        |            |        | 0.98       | 34.071 | 0.88       | 34.072 | 0.90       | 34.076 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.68       | 34.066 | 0.60       | 34.066 | 0.67       | 34.068 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.54       | 34.064 |            |        | 0.51       | 34.065 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-13

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | JC07       |        | JC06       |        | JC05       |        | JC04       |        | CSH001     |        | CSH002     |        | CSH003     |        | CSH004     |        | CSH005     |        | CSH006     |        |
| Latitude:N   | 43-59.8    |        | 44- 0.0    |        | 44- 0.0    |        | 43-59.9    |        | 43-15.8    |        | 43-16.3    |        | 43-15.9    |        | 43-16.7    |        | 43-34.3    |        | 43-35.7    |        |
| Longitude:E  | 139-29.9   |        | 139-59.9   |        | 140-19.9   |        | 140-39.9   |        | 140-53.7   |        | 140-54.7   |        | 140-44.6   |        | 140-44.0   |        | 141-11.8   |        | 141- 9.0   |        |
| Date         | 1997/06/01 |        | 1997/06/02 |        | 1997/06/02 |        | 1997/06/02 |        | 1997/06/09 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        |
| Time(JST)    | 21:57      |        | 00:14      |        | 01:55      |        | 03:33      |        | 10:44      |        | 10:36      |        | 12:40      |        | 06:32      |        | 11:22      |        | 12:21      |        |
| Weather      | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 10.3       |        | 10.0       |        | 10.2       |        | 10.5       |        | 13.2       |        | 14.9       |        | 18.7       |        | 12.9       |        | 13.8       |        | 14.1       |        |
| Bar          | 1016.2     |        | 1016.0     |        | 1016.0     |        | 1016.5     |        | 1006.0     |        | 994.5      |        | 995.0      |        | 1003.8     |        | 1005.9     |        | 1006.1     |        |
| Wind Dir     | NE         |        | NE         |        | ESE        |        | SE         |        | E          |        | ESE        |        | SSE        |        | CALM       |        | NW         |        | WNW        |        |
| Wind Spd/F   | S 3        |        | S 1        |        | S 4        |        | S 3        |        | S 6        |        | S 6        |        | S 6        |        | S 0        |        | S 3        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 1369       |        | 486        |        | 525        |        | 580        |        | 46         |        | 47         |        | 61         |        | 68         |        | 64         |        | 78         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 10.2       | 33.976 | 9.4        | 34.018 | 9.8        | 34.014 | 10.1       | 34.031 | 12.0       | 33.77* | 12.1       | 33.89* | 12.2       | 34.00* | 11.9       | 33.87* | 10.9       | 33.93* | 11.2       | 33.64* |
| 10m          | 8.99       | 33.997 | 8.90       | 34.033 | 9.54       | 34.037 | 10.06      | 34.025 | 11.61      | 33.856 | 11.23      | 34.033 | 11.04      | 34.022 | 11.71      | 33.872 | 10.35      | 33.983 | 10.12      | 33.916 |
| 20m          | 6.40       | 34.086 | 6.51       | 34.112 | 9.46       | 34.044 | 9.82       | 34.016 | 11.27      | 34.018 | 10.95      | 34.077 | 10.83      | 34.046 | 11.68      | 33.891 | 10.08      | 33.993 | 9.72       | 33.937 |
| 30m          | 5.84       | 34.116 | 5.60       | 34.139 | 7.32       | 34.082 | 7.88       | 34.100 | 10.73      | 34.008 | 10.44      | 34.084 | 10.19      | 34.077 | 11.52      | 33.972 | 10.02      | 33.985 | 9.59       | 33.966 |
| 50m          | 4.69       | 34.135 | 4.04       | 34.152 | 5.70       | 34.144 | 6.21       | 34.146 |            |        |            |        | 9.03       | 34.102 | 10.00      | 34.083 | 9.82       | 33.985 | 9.00       | 34.045 |
| 75m          | 3.76       | 34.131 | 3.58       | 34.142 | 4.74       | 34.163 | 5.13       | 34.143 |            |        |            |        |            |        |            |        |            |        |            |        |
| 100m         | 3.36       | 34.141 | 3.16       | 34.131 | 4.48       | 34.161 | 4.52       | 34.144 |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         | 2.99       | 34.136 | 2.45       | 34.108 | 4.30       | 34.158 | 4.02       | 34.136 |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         | 2.65       | 34.127 | 1.93       | 34.082 | 4.14       | 34.155 | 3.76       | 34.146 |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         | 1.84       | 34.096 | 1.46       | 34.075 | 3.61       | 34.142 | 2.92       | 34.114 |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 1.43       | 34.081 | 1.13       | 34.072 | 2.81       | 34.118 | 1.92       | 34.083 |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 1.13       | 34.076 | 0.99       | 34.071 | 1.87       | 34.081 | 1.33       | 34.071 |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 0.68       | 34.067 | 0.69       | 34.067 | 0.82       | 34.067 | 0.82       | 34.067 |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 0.48       | 34.064 |            |        | 0.52       | 34.064 | 0.55       | 34.064 |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-14

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CSH007     |        | CSH008     |        | CSH009     |        | CSH010     |        | CSH011     |        | CSH012     |        | CSR101     |        | CSR102     |        | CSR103     |        | CSR104     |        |
| Latitude:N   | 43-33.3    |        | 43-35.7    |        | 43-33.9    |        | 43-16.1    |        | 43-15.9    |        | 43-18.1    |        | 43- 0.6    |        | 42-28.1    |        | 42-30.1    |        | 42-29.3    |        |
| Longitude:E  | 141-16.6   |        | 141- 8.9   |        | 141-11.1   |        | 140-53.5   |        | 140-53.6   |        | 140-44.4   |        | 140- 1.8   |        | 139-39.5   |        | 139- 0.0   |        | 138-19.1   |        |
| Date         | 1997/06/11 |        | 1997/06/12 |        | 1997/06/12 |        | 1997/06/12 |        | 1997/06/13 |        | 1997/06/13 |        | 1997/06/24 |        | 1997/06/25 |        | 1997/06/26 |        | 1997/06/26 |        |
| Time(JST)    | 16:41      |        | 05:40      |        | 07:50      |        | 12:54      |        | 05:18      |        | 08:53      |        | 18:37      |        | 18:28      |        | 07:17      |        | 18:23      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 13.1       |        | 11.6       |        | 12.2       |        | 15.5       |        | 12.8       |        | 13.4       |        | 18.8       |        | 20.2       |        | 18.1       |        | 17.2       |        |
| Bar          | 1006.6     |        | 1010.1     |        | 1010.6     |        | 1011.2     |        | 1014.7     |        | 1015.3     |        | 1006.0     |        | 1008.1     |        | 1006.7     |        | 1003.0     |        |
| Wind Dir     | N          |        | ESE        |        | SE         |        | NNW        |        | CALM       |        | CALM       |        | SW         |        | S          |        | SSW        |        | N          |        |
| Wind Spd/F   | S 3        |        | S 3        |        | S 3        |        | S 4        |        | S 0        |        | S 0        |        | S 11       |        | S 7        |        | S 5        |        | S 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 45         |        | 79         |        | 65         |        | 48         |        | 48         |        | 79         |        | 1338       |        | 2028       |        | 3626       |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.2       | 32.78* | 10.9       | 33.85* | 11.7       | 33.89* | 12.4       | 33.97* | 12.5       | 33.91* | 12.5       | 33.93* | 15.8       | 34.10* | 18.6       | 34.22* | 16.1       | 34.00* | 15.6       | 33.95* |
| 10m          | 10.98      | 33.914 | 10.68      | 33.959 | 10.76      | 33.936 | 11.68      | 33.986 | 11.68      | 33.986 | 11.89      | 33.992 | 15.72      | 34.104 | 18.38      | 34.216 | 15.96      | 34.001 | 15.39      | 34.059 |
| 20m          | 10.56      | 33.964 | 9.71       | 33.975 | 10.05      | 33.982 | 10.95      | 34.087 | 10.95      | 34.087 | 11.64      | 34.005 | 15.73      | 34.117 | 16.44      | 34.208 | 12.39      | 33.995 | 11.29      | 34.070 |
| 30m          | 10.56      | 33.963 | 9.46       | 33.967 | 9.89       | 33.974 | 10.43      | 34.110 | 10.43      | 34.110 | 11.11      | 34.059 | 14.11      | 34.164 | 14.56      | 34.269 | 7.61       | 34.108 | 7.41       | 34.195 |
| 50m          |            |        | 9.03       | 33.996 | 8.84       | 34.067 |            |        |            |        | 10.12      | 34.076 | 9.57       | 34.202 | 10.56      | 34.243 | 3.47       | 34.130 | 5.34       | 34.154 |
| 75m          |            |        | 7.26       | 34.110 |            |        |            |        |            |        | 7.15       | 34.139 | 6.62       | 34.183 | 8.90       | 34.225 | 2.38       | 34.117 | 3.76       | 34.117 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        | 5.44       | 34.146 | 7.49       | 34.207 | 1.83       | 34.091 | 2.94       | 34.103 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        | 4.75       | 34.134 | 6.23       | 34.174 | 1.64       | 34.082 | 2.17       | 34.087 |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.73       | 34.135 | 5.32       | 34.142 | 1.59       | 34.092 | 1.99       | 34.094 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        | 2.19       | 34.092 | 3.08       | 34.102 | 1.39       | 34.094 | 1.52       | 34.085 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        | 1.66       | 34.088 | 2.01       | 34.089 | 1.20       | 34.087 | 1.21       | 34.083 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        | 1.31       | 34.079 | 1.54       | 34.085 | 1.11       | 34.087 | 1.04       | 34.080 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.81       | 34.068 | 1.00       | 34.073 | 0.77       | 34.072 | 0.73       | 34.071 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.58       | 34.065 | 0.70       | 34.069 | 0.55       | 34.068 | 0.57       | 34.068 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-15

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CSR105     |        | CSR106     |        | CSR107     |        | CRS108     |        | CSR109     |        | CSR110     |        | CSR111     |        | CSR112     |        | CSR113     |        | CSR114     |        |
| Latitude:N   | 42-30.0    |        | 43- 0.0    |        | 43- 1.1    |        | 43- 0.1    |        | 43-30.0    |        | 43-29.4    |        | 43-30.1    |        | 44- 0.0    |        | 44- 0.0    |        | 44- 0.1    |        |
| Longitude:E  | 137-40.0   |        | 138- 0.0   |        | 138-40.5   |        | 139-20.0   |        | 139-59.9   |        | 139-15.8   |        | 138-40.1   |        | 138-40.1   |        | 139-19.9   |        | 140- 3.7   |        |
| Date         | 1997/06/27 |        | 1997/06/27 |        | 1997/06/27 |        | 1997/06/28 |        | 1997/06/28 |        | 1997/06/28 |        | 1997/06/29 |        | 1997/06/29 |        | 1997/06/29 |        | 1997/06/29 |        |
| Time(JST)    | 09:25      |        | 12:47      |        | 18:12      |        | 06:56      |        | 10:57      |        | 18:27      |        | 06:22      |        | 10:21      |        | 13:20      |        | 18:25      |        |
| Weather      | C          |        | F          |        | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        |
| Air Temp.    | 16.3       |        | 17.1       |        | 16.8       |        | 15.6       |        | 19.9       |        | 14.9       |        | 13.2       |        | 13.7       |        | 14.5       |        | 14.4       |        |
| Bar          | 1005.2     |        | 1004.4     |        | 1003.9     |        | 1002.2     |        | 1001.0     |        | 999.0      |        | 1000.0     |        | 1002.0     |        | 1002.3     |        | 1002.9     |        |
| Wind Dir     | W          |        | W          |        | WSW        |        | SW         |        | WSW        |        | NNE        |        | N          |        | N          |        | N          |        | N          |        |
| Wind Spd/F   | S 2        |        | S 5        |        | S 3        |        | S 6        |        | S 4        |        | S 2        |        | S 9        |        | S 9        |        | S 8        |        | S 6        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 3678       |        | 3673       |        | 3578       |        | 2330       |        | 1247       |        | 2760       |        | 3443       |        | 3282       |        | 1651       |        | 854        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 14.8       | 33.87* | 15.0       | 33.99* | 16.1       | 34.05* | 16.6       | 34.00* | 16.7       | 34.07* | 16.3       | 34.08* | 13.4       | 33.92* | 13.1       | 33.89* | 13.6       | 33.92* | 16.3       | 34.03* |
| 10m          | 14.16      | 33.817 | 13.90      | 33.995 | 14.97      | 34.106 | 15.92      | 34.073 | 15.79      | 34.063 | 16.15      | 34.071 | 13.25      | 33.928 | 12.78      | 33.893 | 13.42      | 33.924 | 15.25      | 34.031 |
| 20m          | 10.17      | 34.008 | 11.03      | 33.983 | 10.24      | 34.087 | 10.79      | 34.200 | 14.94      | 34.010 | 13.41      | 34.144 | 12.25      | 33.918 | 10.43      | 33.921 | 11.68      | 33.934 | 14.81      | 34.059 |
| 30m          | 6.94       | 34.140 | 7.86       | 34.135 | 8.56       | 34.246 | 8.77       | 34.214 | 13.44      | 34.020 | 10.75      | 34.165 | 8.58       | 34.091 | 6.70       | 34.105 | 8.29       | 34.089 | 14.14      | 34.088 |
| 50m          | 4.15       | 34.141 | 5.07       | 34.150 | 6.05       | 34.155 | 6.39       | 34.190 | 11.98      | 34.041 | 7.24       | 34.137 | 5.79       | 34.146 | 5.06       | 34.135 | 5.96       | 34.166 | 11.87      | 34.065 |
| 75m          | 3.02       | 34.101 | 4.03       | 34.126 | 3.99       | 34.123 | 4.75       | 34.118 | 10.73      | 34.079 | 4.81       | 34.136 | 4.25       | 34.124 | 3.61       | 34.128 | 4.43       | 34.130 | 9.49       | 34.149 |
| 100m         | 2.34       | 34.089 | 3.35       | 34.124 | 3.10       | 34.117 | 3.44       | 34.093 | 8.76       | 34.168 | 4.10       | 34.118 | 3.59       | 34.147 | 2.68       | 34.123 | 3.54       | 34.119 | 7.47       | 34.176 |
| 125m         | 2.14       | 34.105 | 2.84       | 34.116 | 2.36       | 34.102 | 2.82       | 34.096 | 7.17       | 34.169 | 3.29       | 34.120 | 3.52       | 34.167 | 2.26       | 34.112 | 2.91       | 34.117 | 5.60       | 34.133 |
| 150m         | 1.80       | 34.099 | 2.33       | 34.095 | 1.93       | 34.092 | 2.47       | 34.090 | 5.88       | 34.141 | 2.92       | 34.126 | 3.40       | 34.168 | 1.87       | 34.099 | 2.36       | 34.099 | 4.32       | 34.123 |
| 200m         | 1.26       | 34.080 | 1.58       | 34.082 | 1.50       | 34.086 | 1.91       | 34.086 | 4.27       | 34.155 | 2.28       | 34.114 | 3.08       | 34.153 | 1.47       | 34.087 | 1.65       | 34.084 | 2.82       | 34.109 |
| 250m         | 1.07       | 34.078 | 1.24       | 34.076 | 1.26       | 34.080 | 1.67       | 34.086 | 2.84       | 34.097 | 1.71       | 34.089 | 2.61       | 34.131 | 1.14       | 34.076 | 1.23       | 34.069 | 1.94       | 34.083 |
| 300m         | 0.93       | 34.073 | 1.05       | 34.074 | 1.05       | 34.074 | 1.46       | 34.084 | 1.66       | 34.079 | 1.22       | 34.071 | 2.06       | 34.108 | 0.98       | 34.074 | 1.06       | 34.073 | 1.59       | 34.076 |
| 400m         | 0.70       | 34.070 | 0.73       | 34.067 | 0.73       | 34.066 | 0.91       | 34.069 | 0.90       | 34.068 | 0.82       | 34.067 | 1.13       | 34.075 | 0.68       | 34.065 | 0.73       | 34.065 | 0.86       | 34.068 |
| 500m         | 0.52       | 34.066 | 0.56       | 34.066 | 0.55       | 34.064 | 0.69       | 34.065 | 0.66       | 34.064 | 0.58       | 34.063 | 0.81       | 34.067 | 0.53       | 34.062 | 0.54       | 34.061 | 0.66       | 34.063 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-16

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CSR115     |        | CSR116     |        | CSR117     |        | CIS001     |        | CIS002     |        | CIS003     |        | CIS004     |        | CIS005     |        | CIS006     |        | CIS007     |        |
| Latitude:N   | 43-59.9    |        | 44- 0.2    |        | 43-30.0    |        | 43-14.9    |        | 43-15.0    |        | 43-20.0    |        | 43-20.0    |        | 43-24.9    |        | 43-24.8    |        | 43-30.0    |        |
| Longitude:E  | 140-40.1   |        | 141-13.0   |        | 140-40.1   |        | 141- 5.0   |        | 141-14.9   |        | 141-20.1   |        | 141-10.2   |        | 141-15.1   |        | 141- 5.2   |        | 141-10.0   |        |
| Date         | 1997/06/30 |        | 1997/06/30 |        | 1997/07/01 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        |
| Time(JST)    | 13:38      |        | 18:23      |        | 18:39      |        | 09:27      |        | 10:12      |        | 10:54      |        | 11:41      |        | 12:22      |        | 13:08      |        | 13:49      |        |
| Weather      | B          |        | B          |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 21.8       |        | 19.9       |        | 20.1       |        | 15.6       |        | 15.9       |        | 16.2       |        | 16.0       |        | 16.7       |        | 16.2       |        | 17.0       |        |
| Bar          | 1009.7     |        | 1010.3     |        | 1008.6     |        | 1008.2     |        | 1008.0     |        | 1008.3     |        | 1008.4     |        | 1008.7     |        | 1008.9     |        | 1008.9     |        |
| Wind Dir     | SW         |        | CALM       |        | NNW        |        | NW         |        | WNW        |        | NW         |        | NW         |        | NW         |        | WNW        |        | WNW        |        |
| Wind Spd/F   | S 2        |        | S 0        |        | S 3        |        | S 5        |        | S 7        |        | S 9        |        | S 8        |        | S 6        |        | S 6        |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 571        |        | 219        |        | 690        |        | 31         |        | 25         |        | 25         |        | 40         |        | 43         |        | 61         |        | 61         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.4       | 33.95* | 15.9       | 33.81* | 17.4       | 33.95* | 16.6       | 33.79* | 15.6       | 33.76* | 16.0       | 32.51* | 15.6       | 33.70* | 16.9       | 33.87* | 17.7       | 33.92* | 16.6       | 33.71* |
| 10m          | 13.97      | 33.958 | 15.30      | 33.811 | 14.49      | 33.979 | 16.56      | 33.792 | 15.47      | 33.767 | 15.61      | 33.055 | 15.51      | 33.700 | 16.95      | 33.867 | 17.70      | 33.914 | 16.47      | 33.716 |
| 20m          | 12.18      | 33.996 | 13.66      | 34.019 | 13.84      | 33.933 | 15.37      | 33.925 | 14.27      | 33.971 | 14.26      | 33.952 | 15.41      | 33.689 | 16.86      | 33.899 | 16.46      | 33.733 | 16.53      | 33.768 |
| 30m          | 11.40      | 34.018 | 12.50      | 34.001 | 10.34      | 34.000 |            |        |            |        |            |        | 13.75      | 33.991 | 16.15      | 33.796 | 16.06      | 33.772 | 15.89      | 33.972 |
| 50m          | 8.65       | 34.118 | 8.31       | 34.104 | 7.13       | 34.103 |            |        |            |        |            |        |            |        |            |        | 14.70      | 33.998 | 14.52      | 33.991 |
| 75m          | 6.38       | 34.134 | 6.11       | 34.152 | 5.54       | 34.151 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 100m         | 5.00       | 34.149 | 5.12       | 34.143 | 4.49       | 34.146 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         | 4.34       | 34.147 | 4.39       | 34.137 | 3.65       | 34.121 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         | 3.90       | 34.139 | 3.55       | 34.135 | 3.32       | 34.127 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         | 2.85       | 34.115 |            |        | 2.58       | 34.113 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 1.90       | 34.088 |            |        | 1.80       | 34.086 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 1.52       | 34.075 |            |        | 1.29       | 34.069 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 0.91       | 34.066 |            |        | 0.79       | 34.064 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 0.59       | 34.062 |            |        | 0.61       | 34.061 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-17

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CIS008     |        | CIS009     |        | CIS010     |        | CIS011     |        | CIS012     |        | CIS013     |        | CIS014     |        | CIS015     |        | CIS016     |        | CIS017     |        |
| Latitude:N   | 43-35.0    |        | 43-35.1    |        | 43-40.0    |        | 43-45.0    |        | 43-45.1    |        | 43-40.1    |        | 43-35.1    |        | 43-30.1    |        | 43-30.0    |        | 43-25.1    |        |
| Longitude:E  | 141-13.1   |        | 141- 5.1   |        | 141-10.0   |        | 141-15.1   |        | 141- 5.1   |        | 141- 0.1   |        | 140-55.3   |        | 141- 0.1   |        | 140-50.2   |        | 140-45.1   |        |
| Date         | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        | 1997/07/08 |        |
| Time(JST)    | 14:24      |        | 15:04      |        | 15:41      |        | 16:20      |        | 17:12      |        | 18:09      |        | 19:03      |        | 19:50      |        | 20:47      |        | 21:44      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 16.2       |        | 16.2       |        | 16.2       |        | 16.9       |        | 15.6       |        | 16.0       |        | 15.6       |        | 15.7       |        | 15.3       |        | 15.7       |        |
| Bar          | 1009.4     |        | 1009.3     |        | 1009.5     |        | 1009.5     |        | 1009.4     |        | 1009.6     |        | 1009.6     |        | 1010.4     |        | 1010.5     |        | 1010.5     |        |
| Wind Dir     | WNW        |        | WMW        |        | WNW        |        | NW         |        | WNW        |        | WNW        |        | NW         |        | NW         |        | NW         |        | N          |        |
| Wind Spd/F   | S 6        |        | S 5        |        | S 5        |        | S 3        |        | S 3        |        | S 2        |        | S 3        |        | S 3        |        | S 2        |        | S 1        |        |
| Transparency | 60         |        | 92         |        | 86         |        | 116        |        | 278        |        | 298        |        | 127        |        | 95         |        | 418        |        | 176        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.8       | 33.72* | 16.9       | 33.98* | 17.2       | 33.95* | 16.3       | 33.97* | 16.5       | 34.01* | 16.0       | 33.99* | 15.9       | 34.03* | 17.6       | 33.92* | 15.8       | 34.02* | 16.1       | 34.00* |
| 10m          | 16.69      | 33.720 | 16.60      | 33.965 | 17.23      | 33.956 | 16.11      | 33.969 | 16.50      | 34.008 | 15.98      | 33.995 | 15.83      | 34.030 | 17.59      | 33.924 | 15.71      | 34.018 | 16.08      | 34.003 |
| 20m          | 16.64      | 33.728 | 15.11      | 34.006 | 15.48      | 34.036 | 16.06      | 33.970 | 16.40      | 34.005 | 15.81      | 33.999 | 15.26      | 34.002 | 15.93      | 34.020 | 15.71      | 34.020 | 16.02      | 34.008 |
| 30m          | 15.48      | 33.985 | 13.58      | 33.991 | 15.20      | 34.029 | 15.97      | 33.969 | 14.86      | 34.008 | 12.79      | 34.038 | 14.98      | 33.985 | 15.54      | 34.018 | 15.69      | 34.021 | 15.94      | 34.009 |
| 50m          | 14.11      | 33.995 | 9.55       | 34.082 | 10.58      | 34.111 | 12.06      | 34.070 | 9.94       | 34.067 | 9.30       | 34.044 | 9.61       | 34.094 | 10.56      | 34.055 | 10.97      | 34.111 | 13.04      | 34.072 |
| 75m          |            |        | 7.39       | 34.167 | 7.83       | 34.162 | 11.44      | 34.059 | 7.14       | 34.174 | 5.81       | 34.139 | 5.65       | 34.134 | 7.51       | 34.140 | 7.73       | 34.086 | 10.90      | 34.228 |
| 100m         |            |        |            |        |            |        | 6.46       | 34.156 | 6.49       | 34.149 | 4.41       | 34.128 | 4.41       | 34.136 |            |        | 5.65       | 34.133 | 6.50       | 34.143 |
| 125m         |            |        |            |        |            |        |            |        | 5.78       | 34.141 | 4.12       | 34.134 |            |        |            |        | 4.51       | 34.137 | 5.54       | 34.145 |
| 150m         |            |        |            |        |            |        |            |        | 4.50       | 34.136 | 3.97       | 34.132 |            |        |            |        | 4.14       | 34.140 | 4.97       | 34.133 |
| 200m         |            |        |            |        |            |        |            |        | 3.02       | 34.113 | 2.82       | 34.102 |            |        |            |        | 2.92       | 34.117 |            |        |
| 250m         |            |        |            |        |            |        |            |        | 2.17       | 34.094 | 1.79       | 34.080 |            |        |            |        | 2.37       | 34.098 |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.55       | 34.078 |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.73       | 34.064 |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-18



Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CIS018     |        | CIS019     |        | CIS020     |        | CIS021     |        | CIS022     |        | CIS023     |        | CIS024     |        | CHA001     |        | CHA002     |        | CHA003     |        |
| Latitude:N   | 43-24.8    |        | 43-20.0    |        | 43-18.0    |        | 43-20.0    |        | 43-15.0    |        | 43-25.0    |        | 43-20.0    |        | 43-47.4    |        | 43-48.1    |        | 43-49.5    |        |
| Longitude:E  | 140-35.4   |        | 140-40.0   |        | 140-45.0   |        | 140-50.2   |        | 140-55.0   |        | 140-55.0   |        | 141- 0.0   |        | 141-11.5   |        | 141- 8.7   |        | 141- 6.7   |        |
| Date         | 1997/07/08 |        | 1997/07/08 |        | 1997/07/09 |        | 1997/07/09 |        | 1997/07/09 |        | 1997/07/09 |        | 1997/07/09 |        | 1997/07/14 |        | 1997/07/14 |        | 1997/07/14 |        |
| Time(JST)    | 22:40      |        | 23:28      |        | 00:05      |        | 00:38      |        | 01:28      |        | 02:36      |        | 03:39      |        | 12:16      |        | 13:44      |        | 15:12      |        |
| Weather      | C          |        | C          |        | C          |        | BC         |        | BC         |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 15.8       |        | 15.8       |        | 15.7       |        | 15.8       |        | 15.0       |        | 15.5       |        |            |        | 26.0       |        | 22.6       |        | 23.7       |        |
| Bar          | 1009.7     |        | 1009.6     |        | 1009.7     |        | 1009.6     |        | 1009.2     |        | 1009.2     |        | 1009.0     |        | 1004.0     |        | 1004.0     |        | 1004.0     |        |
| Wind Dir     | SSE        |        | SE         |        | S          |        | SSE        |        | S          |        | SSE        |        | ESE        |        | SSW        |        | NW         |        | NNE        |        |
| Wind Spd/F   | S 3        |        | S 3        |        | S 3        |        | S 4        |        | S 3        |        | S 2        |        | S 1        |        | S 1        |        | S 4        |        | S 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 196        |        | 107        |        | 76         |        | 83         |        | 41         |        | 87         |        | 52         |        | 187        |        | 247        |        | 285        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.4       | 33.91* | 17.4       | 34.02* | 17.4       | 34.01* | 17.4       | 34.03* | 17.2       | 33.81* | 17.2       | 34.01* | 17.7       | 33.89* | 17.9       | 33.85* | 17.9       | 33.80* | 18.0       | 33.89* |
| 10m          | 17.39      | 33.936 | 17.37      | 34.018 | 17.38      | 34.014 | 17.37      | 34.032 | 17.31      | 33.812 | 17.19      | 34.009 | 17.74      | 33.902 | 16.58      | 33.898 | 16.68      | 33.769 | 16.62      | 33.790 |
| 20m          | 17.20      | 34.064 | 17.37      | 34.018 | 17.34      | 34.019 | 17.36      | 34.029 | 16.42      | 33.879 | 16.82      | 34.027 | 17.74      | 33.906 | 15.82      | 33.844 | 16.18      | 33.794 | 16.16      | 33.860 |
| 30m          | 16.34      | 34.078 | 17.36      | 34.017 | 17.07      | 34.010 | 17.07      | 34.032 | 15.59      | 33.946 | 16.23      | 33.999 | 17.13      | 34.000 | 14.60      | 33.871 | 13.59      | 33.955 | 14.06      | 33.941 |
| 50m          | 14.56      | 34.145 | 17.21      | 34.022 | 16.94      | 33.998 | 14.57      | 33.966 |            |        | 12.21      | 34.133 |            |        | 10.82      | 34.135 | 10.16      | 34.228 | 9.35       | 34.183 |
| 75m          | 10.56      | 34.236 | 12.47      | 34.125 |            |        | 9.21       | 34.174 |            |        | 9.00       | 34.157 |            |        | 8.45       | 34.184 | 7.52       | 34.167 | 7.47       | 34.185 |
| 100m         | 8.68       | 34.227 | 8.76       | 34.172 |            |        |            |        |            |        |            |        |            |        | 6.42       | 34.155 | 6.04       | 34.151 | 5.84       | 34.150 |
| 125m         | 6.55       | 34.162 |            |        |            |        |            |        |            |        |            |        |            |        | 5.98       | 34.136 | 5.08       | 34.142 | 4.75       | 34.140 |
| 150m         | 6.28       | 34.151 |            |        |            |        |            |        |            |        |            |        |            |        | 5.56       | 34.133 | 4.51       | 34.131 | 3.97       | 34.125 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.30       | 34.124 | 3.10       | 34.117 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.19       | 34.091 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-19

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CHA004     |        | CHA005     |        | CHA006     |        | CHA007     |        | CHA008     |        | CHA009     |        | CHA010     |        | CHA011     |        | CHA012     |        | CJ33       |        |
| Latitude:N   | 44- 4.8    |        | 44-17.6    |        | 44-16.9    |        | 44-15.6    |        | 44- 9.3    |        | 43-56.4    |        | 43-53.4    |        | 43-50.9    |        | 43-35.5    |        | 43-29.9    |        |
| Longitude:E  | 141-12.6   |        | 141-11.4   |        | 141-10.1   |        | 141- 9.7   |        | 141-10.9   |        | 141- 8.4   |        | 141-10.1   |        | 141-11.2   |        | 140-55.0   |        | 140-39.8   |        |
| Date         | 1997/07/15 |        | 1997/07/16 |        | 1997/07/16 |        | 1997/07/16 |        | 1997/07/16 |        | 1997/07/17 |        | 1997/07/17 |        | 1997/07/17 |        | 1997/07/17 |        | 1997/07/22 |        |
| Time(JST)    | 07:05      |        | 07:04      |        | 08:15      |        | 09:27      |        | 12:22      |        | 07:00      |        | 08:46      |        | 10:15      |        | 13:07      |        | 11:43      |        |
| Weather      | C          |        |            |        |            |        |            |        |            |        |            |        | BC         |        |            |        | C          |        |            |        |
| Air Temp.    | 18.3       |        | 15.7       |        | 16.0       |        | 17.2       |        | 19.3       |        | 16.2       |        | 17.0       |        | 16.9       |        | 17.8       |        | 24.7       |        |
| Bar          | 998.0      |        | 1009.0     |        | 1000.0     |        | 1009.0     |        | 1000.0     |        | 1005.0     |        | 1005.0     |        | 1005.0     |        | 1005.0     |        | 1015.5     |        |
| Wind Dir     | SW         |        | NNW        |        | N          |        | N          |        | NW         |        | N          |        |            |        | NNW        |        | ESE        |        |            |        |
| Wind Spd/F   | S 10       |        | S 3        |        | S 2        |        | S 2        |        | S 2        |        | S 2        |        |            |        | S 4        |        | S 2        |        |            |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 16         |        |
| Depth        | 261        |        | 152        |        | 185        |        | 259        |        | 280        |        | 301        |        | 251        |        | 218        |        | 135        |        | 695        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 18.6       | 33.79* | 18.0       | 33.84* | 18.1       | 33.85* | 18.3       | 33.86* | 19.2       | 33.82* | 17.5       | 33.78* | 17.5       | 33.51* | 17.6       | 33.81* | 17.6       | 33.99* | 19.5       | 34.051 |
| 10m          | 18.26      | 33.915 | 18.03      | 33.846 | 18.06      | 33.853 | 18.20      | 33.864 | 17.98      | 33.841 | 17.41      | 33.782 | 17.41      | 33.796 | 17.45      | 33.809 | 17.41      | 33.964 | 18.95      | 34.032 |
| 20m          | 17.47      | 33.955 | 17.50      | 33.893 | 17.74      | 33.905 | 17.94      | 33.872 | 17.37      | 33.766 | 16.47      | 33.822 | 16.55      | 33.811 | 16.46      | 33.844 | 17.18      | 33.987 | 18.63      | 34.034 |
| 30m          | 16.61      | 34.010 | 16.06      | 33.937 | 16.28      | 33.974 | 16.65      | 33.916 | 16.10      | 33.935 | 15.41      | 33.972 | 14.22      | 33.954 | 15.17      | 33.914 | 15.88      | 33.885 | 16.28      | 34.148 |
| 50m          | 13.12      | 34.001 | 13.50      | 34.032 | 13.32      | 34.008 | 14.89      | 33.906 | 14.36      | 33.970 | 9.54       | 34.078 | 10.42      | 34.055 | 10.53      | 34.078 | 11.76      | 34.068 | 12.87      | 34.406 |
| 75m          | 8.56       | 34.181 | 10.15      | 34.182 | 9.49       | 34.155 | 9.06       | 34.181 | 8.66       | 34.185 | 7.14       | 34.161 | 7.49       | 34.168 | 7.44       | 34.184 | 8.38       | 34.148 | 9.93       | 34.321 |
| 100m         | 7.57       | 34.152 | 7.71       | 34.161 | 8.00       | 34.170 | 7.79       | 34.173 | 7.70       | 34.162 | 5.45       | 34.138 | 5.11       | 34.133 | 5.77       | 34.138 | 6.52       | 34.169 | 8.26       | 34.205 |
| 125m         | 6.32       | 34.141 | 6.93       | 34.151 | 6.64       | 34.132 | 6.91       | 34.145 | 6.48       | 34.150 | 4.49       | 34.135 | 4.64       | 34.128 | 5.07       | 34.131 | 4.99       | 34.135 | 7.15       | 34.199 |
| 150m         | 5.61       | 34.140 |            |        | 5.41       | 34.139 | 5.85       | 34.139 | 5.49       | 34.138 | 3.90       | 34.136 | 4.36       | 34.125 | 4.80       | 34.127 |            |        | 5.88       | 34.163 |
| 200m         | 3.68       | 34.124 |            |        |            |        | 3.45       | 34.139 | 3.90       | 34.129 | 2.92       | 34.110 | 3.93       | 34.118 | 3.58       | 34.101 |            |        | 3.70       | 34.121 |
| 250m         | 2.69       | 34.109 |            |        |            |        |            |        | 2.88       | 34.112 | 2.25       | 34.092 |            |        |            |        |            |        | 2.87       | 34.126 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.81       | 34.093 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.06       | 34.079 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.75       | 34.076 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.54       | 34.073 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-20

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CJ332      |        | CJ333      |        | CJ334      |        | CJP1       |        | CJP2       |        | CJ31       |        | CJH01      |        | J31        |        | J32        |        | J33        |        |
| Latitude:N   | 43-30.3    |        | 43-35.2    |        | 43-29.9    |        | 43-22.0    |        | 43-21.9    |        | 43-20.2    |        | 43-21.9    |        | 43-20.0    |        | 43-30.0    |        | 43-30.4    |        |
| Longitude:E  | 140-40.0   |        | 140-40.6   |        | 140-40.2   |        | 140-39.8   |        | 140-50.0   |        | 141- 9.9   |        | 141-23.9   |        | 141- 9.8   |        | 141- 0.1   |        | 140-39.9   |        |
| Date         | 1997/07/22 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        |
| Time(JST)    | 21:59      |        | 03:28      |        | 10:27      |        | 11:43      |        | 13:09      |        | 14:59      |        | 16:17      |        | 09:55      |        | 11:10      |        | 12:40      |        |
| Weather      | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | B          |        |
| Air Temp.    | 20.8       |        | 19.0       |        | 22.0       |        | 23.2       |        | 25.2       |        | 26.8       |        | 24.7       |        | 24.3       |        | 27.4       |        | 27.3       |        |
| Bar          | 1015.0     |        | 1014.0     |        | 1015.0     |        | 1015.0     |        | 1014.0     |        | 1013.5     |        | 1013.0     |        | 1004.7     |        | 1004.6     |        | 1004.5     |        |
| Wind Dir     | ESE        |        | SE         |        | SE         |        | E          |        | NNE        |        | ENE        |        | ESE        |        | SE         |        | ESE        |        | E          |        |
| Wind Spd/F   | S 6        |        | F 3        |        | S 5        |        | S 1        |        | S 2        |        | S 3        |        | F 3        |        | S 7        |        | S 7        |        | S 4        |        |
| Transparency |            |        |            |        | 17         |        | 15         |        | 13         |        | 11         |        | 21         |        | 15         |        | 21         |        | 14         |        |
| Depth        | 695        |        | 724        |        | 690        |        | 228        |        | 94         |        | 40         |        | 21         |        | 39         |        | 91         |        | 673        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 19.7       | 34.052 | 19.1       | 33.962 | 20.9       | 34.045 | 19.5       | 33.957 | 20.1       | 33.669 | 20.1       | 33.696 | 21.7       | 31.474 | 20.2       | 33.964 | 21.1       | 33.994 | 21.1       | 33.983 |
| 10m          | 19.00      | 34.047 | 19.05      | 33.972 | 19.95      | 34.048 | 18.53      | 34.001 | 18.52      | 33.927 | 19.36      | 33.710 | 17.82      | 33.814 | 19.61      | 33.974 | 20.59      | 34.001 | 19.39      | 34.013 |
| 20m          | 17.75      | 34.022 | 17.12      | 34.032 | 18.68      | 34.061 | 18.23      | 34.021 | 18.04      | 33.979 | 17.08      | 34.026 |            |        | 17.66      | 34.037 | 18.29      | 34.132 | 17.63      | 34.032 |
| 30m          | 15.68      | 34.221 | 14.05      | 34.225 | 16.16      | 34.235 | 17.64      | 34.037 | 16.41      | 33.882 | 15.78      | 33.974 |            |        | 15.52      | 34.128 | 15.64      | 34.138 | 15.65      | 34.126 |
| 50m          | 11.70      | 34.346 | 11.14      | 34.264 | 11.76      | 34.293 | 14.80      | 34.023 | 12.93      | 34.114 |            |        |            |        |            |        | 12.18      | 34.370 | 11.44      | 34.287 |
| 75m          | 9.60       | 34.305 | 8.54       | 34.218 | 9.63       | 34.300 | 11.40      | 34.318 | 9.60       | 34.249 |            |        |            |        |            |        | 9.84       | 34.293 | 9.70       | 34.284 |
| 100m         | 8.00       | 34.235 | 6.63       | 34.158 | 7.92       | 34.234 | 9.62       | 34.301 |            |        |            |        |            |        |            |        |            |        | 7.57       | 34.195 |
| 125m         | 6.48       | 34.181 | 5.33       | 34.152 | 6.90       | 34.192 | 8.51       | 34.244 |            |        |            |        |            |        |            |        |            |        | 6.09       | 34.177 |
| 150m         | 5.65       | 34.156 | 4.55       | 34.145 | 5.84       | 34.165 | 7.41       | 34.202 |            |        |            |        |            |        |            |        |            |        | 5.11       | 34.150 |
| 200m         | 3.65       | 34.132 | 3.18       | 34.122 | 3.87       | 34.123 | 4.96       | 34.151 |            |        |            |        |            |        |            |        |            |        | 3.74       | 34.129 |
| 250m         | 2.77       | 34.118 | 2.35       | 34.109 | 2.98       | 34.126 |            |        |            |        |            |        |            |        |            |        |            |        | 2.71       | 34.118 |
| 300m         | 1.80       | 34.094 | 1.62       | 34.087 | 1.92       | 34.095 |            |        |            |        |            |        |            |        |            |        |            |        | 1.80       | 34.092 |
| 400m         | 1.04       | 34.079 | 1.00       | 34.079 | 1.05       | 34.078 |            |        |            |        |            |        |            |        |            |        |            |        | 0.97       | 34.079 |
| 500m         | 0.76       | 34.076 | 0.71       | 34.076 | 0.77       | 34.075 |            |        |            |        |            |        |            |        |            |        |            |        | 0.71       | 34.076 |
| 600m         | 0.58       | 34.073 | 0.54       | 34.073 | 0.56       | 34.072 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-21

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J34        |        | J35        |        | J36        |        | J37        |        | J38        |        | J39        |        | JC08       |        | JC07       |        | JC06       |        | JC05       |        |
| Latitude:N   | 43-29.9    |        | 43-29.9    |        | 43-30.0    |        | 43-30.0    |        | 43-29.9    |        | 43-29.9    |        | 44- 0.0    |        | 43-59.9    |        | 44- 0.0    |        | 43-59.9    |        |
| Longitude:E  | 140-20.1   |        | 140- 0.1   |        | 139-39.9   |        | 139-20.0   |        | 139- 0.2   |        | 138-30.2   |        | 139- 0.0   |        | 139-30.0   |        | 139-59.8   |        | 140-19.9   |        |
| Date         | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        |
| Time(JST)    | 14:19      |        | 16:04      |        | 17:46      |        | 19:24      |        | 21:03      |        | 23:46      |        | 04:47      |        | 07:13      |        | 09:41      |        | 11:27      |        |
| Weather      | B          |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 24.9       |        | 24.0       |        | 23.2       |        | 22.9       |        | 21.3       |        | 20.2       |        | 19.4       |        | 20.5       |        | 20.4       |        | 20.9       |        |
| Bar          | 1004.7     |        | 1004.5     |        | 1014.5     |        | 1015.0     |        | 1005.5     |        | 1006.0     |        | 1005.5     |        | 1006.2     |        | 1006.4     |        | 1006.3     |        |
| Wind Dir     | NE         |        | NE         |        | NE         |        | NE         |        | NE         |        | NNE        |        | NNE        |        | NE         |        | NE         |        | NE         |        |
| Wind Spd/F   | S 5        |        | S 7        |        | S 7        |        | S 7        |        | S 7        |        | S 6        |        | S 7        |        | S 7        |        | S 7        |        | S 7        |        |
| Transparency | 17         |        | 21         |        | 21         |        |            |        |            |        |            |        | 24         |        | 25         |        | 19         |        | 20         |        |
| Depth        | 640        |        | 1246       |        | 2050       |        | 3186       |        |            |        |            |        | 3365       |        | 1360       |        | 477        |        | 522        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 23.0       | 34.018 | 22.6       | 33.999 | 22.3       | 34.013 | 22.9       | 33.851 | 20.5       | 33.899 | 19.9       | 33.918 | 19.2       | 33.809 | 20.2       | 33.887 | 19.9       | 33.993 | 20.1       | 34.007 |
| 10m          | 20.51      | 34.043 | 20.21      | 33.998 | 19.82      | 34.087 | 21.66      | 33.851 | 18.52      | 33.880 | 18.66      | 33.858 | 19.12      | 33.815 | 18.37      | 33.854 | 17.67      | 33.971 | 18.01      | 34.014 |
| 20m          | 18.77      | 34.032 | 18.76      | 34.009 | 18.01      | 34.080 | 17.37      | 34.084 | 15.76      | 33.925 | 12.78      | 34.069 | 11.10      | 34.254 | 14.79      | 33.795 | 16.82      | 33.951 | 13.32      | 34.069 |
| 30m          | 16.80      | 34.084 | 17.74      | 34.039 | 13.88      | 34.256 | 12.44      | 34.245 | 8.47       | 34.178 | 8.63       | 34.205 | 8.73       | 34.265 | 9.72       | 34.219 | 15.66      | 33.959 | 12.03      | 34.070 |
| 50m          | 12.31      | 34.313 | 13.46      | 34.216 | 11.09      | 34.333 | 8.36       | 34.235 | 5.36       | 34.173 | 6.51       | 34.186 | 6.05       | 34.185 | 7.11       | 34.215 | 11.82      | 34.054 | 11.04      | 34.084 |
| 75m          | 10.25      | 34.318 | 10.93      | 34.308 | 9.40       | 34.272 | 5.98       | 34.184 | 3.83       | 34.136 | 4.59       | 34.150 | 4.43       | 34.142 | 4.98       | 34.151 | 10.86      | 34.092 | 10.36      | 34.122 |
| 100m         | 8.73       | 34.255 | 9.32       | 34.276 | 7.51       | 34.228 | 4.38       | 34.139 | 2.96       | 34.116 | 3.74       | 34.132 | 3.71       | 34.131 | 3.92       | 34.140 | 9.39       | 34.161 | 9.17       | 34.170 |
| 125m         | 7.35       | 34.212 | 7.73       | 34.226 | 6.25       | 34.186 | 3.34       | 34.122 | 2.35       | 34.107 | 3.19       | 34.119 | 2.98       | 34.115 | 3.16       | 34.126 | 7.41       | 34.173 | 7.13       | 34.173 |
| 150m         | 6.05       | 34.179 | 6.22       | 34.183 | 4.43       | 34.141 | 2.45       | 34.107 | 2.06       | 34.097 | 2.86       | 34.126 | 2.53       | 34.117 | 2.54       | 34.107 | 6.19       | 34.154 | 5.60       | 34.164 |
| 200m         | 4.10       | 34.137 | 3.78       | 34.122 | 2.54       | 34.101 | 1.80       | 34.093 | 1.62       | 34.097 | 2.22       | 34.123 | 1.80       | 34.098 | 1.72       | 34.095 | 4.56       | 34.153 | 4.79       | 34.157 |
| 250m         | 2.91       | 34.114 | 2.29       | 34.103 | 1.79       | 34.096 | 1.42       | 34.100 | 1.36       | 34.096 | 1.47       | 34.085 | 1.34       | 34.087 | 1.15       | 34.083 | 3.58       | 34.139 | 3.89       | 34.136 |
| 300m         | 2.09       | 34.100 | 1.66       | 34.097 | 1.53       | 34.099 | 1.24       | 34.096 | 1.13       | 34.089 | 1.31       | 34.090 | 1.15       | 34.084 | 0.95       | 34.082 | 2.86       | 34.128 | 3.08       | 34.130 |
| 400m         | 1.01       | 34.080 | 1.22       | 34.090 | 0.99       | 34.084 | 0.88       | 34.083 | 0.76       | 34.077 | 0.95       | 34.086 | 0.83       | 34.082 | 0.65       | 34.076 | 1.48       | 34.088 | 1.41       | 34.085 |
| 500m         | 0.52       | 34.073 | 0.81       | 34.080 | 0.67       | 34.076 | 0.63       | 34.075 | 0.55       | 34.073 | 0.69       | 34.079 | 0.61       | 34.074 | 0.48       | 34.072 |            |        | 0.90       | 34.078 |
| 600m         |            |        |            |        |            |        |            |        | 0.44       | 34.071 |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-22

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | JC04       |        | JC03       |        | JC02       |        | JC01       |        | J21        |        | J22        |        | J23        |        | J24        |        | J25        |        | J26        |        |
| Latitude:N   | 44- 0.0    |        | 44- 0.1    |        | 44- 0.0    |        | 43-59.9    |        | 44-29.9    |        | 44-30.0    |        | 44-30.0    |        | 44-29.9    |        | 44-30.0    |        | 44-30.0    |        |
| Longitude:E  | 140-39.9   |        | 141- 0.0   |        | 141-15.0   |        | 141-30.0   |        | 141-30.0   |        | 141-15.1   |        | 141- 0.1   |        | 140-40.0   |        | 140-20.1   |        | 140- 0.1   |        |
| Date         | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        |
| Time(JST)    | 13:14      |        | 14:58      |        | 16:21      |        | 17:35      |        | 20:27      |        | 21:33      |        | 22:40      |        | 00:14      |        | 01:46      |        | 03:23      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 22.5       |        | 23.8       |        | 23.2       |        | 23.6       |        | 21.0       |        | 19.5       |        | 19.7       |        | 19.3       |        | 19.6       |        | 19.3       |        |
| Bar          | 1005.5     |        | 1005.0     |        | 1005.5     |        | 1005.5     |        | 1006.7     |        | 1006.9     |        | 1007.9     |        | 1006.5     |        | 1006.0     |        | 1006.0     |        |
| Wind Dir     | NNE        |        | N          |        | N          |        | E          |        | NNE        |        | NE         |        | NE         |        | ENE        |        | ENE        |        | NNE        |        |
| Wind Spd/F   | S 6        |        | S 6        |        | S 6        |        | S 6        |        | S 6        |        | S 7        |        | S 7        |        | S 8        |        | S 6        |        | S 7        |        |
| Transparency | 19         |        | 20         |        | 15         |        | 14         |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 577        |        | 400        |        | 164        |        | 51         |        | 77         |        | 116        |        | 200        |        | 144        |        | 252        |        | 564        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 20.4       | 33.955 | 21.2       | 33.980 | 22.5       | 33.619 | 22.6       | 33.625 | 20.8       | 33.947 | 20.9       | 33.893 | 21.0       | 33.993 | 19.8       | 34.019 | 21.0       | 34.030 | 20.9       | 34.057 |
| 10m          | 19.95      | 33.960 | 20.21      | 34.021 | 19.86      | 33.958 | 18.89      | 33.896 | 18.17      | 33.909 | 20.87      | 33.889 | 21.08      | 33.991 | 19.71      | 34.021 | 20.98      | 34.030 | 20.89      | 34.056 |
| 20m          | 17.50      | 33.913 | 17.66      | 33.977 | 18.92      | 34.001 | 17.42      | 33.963 | 17.25      | 33.903 | 18.52      | 33.977 | 18.84      | 34.050 | 17.32      | 34.028 | 17.45      | 34.061 | 17.46      | 34.073 |
| 30m          | 15.36      | 33.903 | 15.76      | 34.136 | 17.75      | 34.025 | 16.57      | 33.904 | 16.49      | 33.924 | 17.17      | 33.992 | 17.08      | 34.045 | 12.63      | 34.141 | 12.88      | 34.307 | 13.09      | 34.311 |
| 50m          | 8.95       | 34.259 | 10.94      | 34.150 | 14.86      | 33.976 |            |        | 14.62      | 33.988 | 14.04      | 34.257 | 11.60      | 34.298 | 8.90       | 34.191 | 9.24       | 34.273 | 10.45      | 34.339 |
| 75m          | 6.58       | 34.156 | 7.71       | 34.177 | 9.76       | 34.298 |            |        |            |        | 10.21      | 34.184 | 8.06       | 34.161 | 6.93       | 34.179 | 7.44       | 34.210 | 7.97       | 34.230 |
| 100m         | 5.28       | 34.146 | 5.82       | 34.158 | 7.81       | 34.217 |            |        |            |        | 7.43       | 34.187 | 6.37       | 34.154 | 6.21       | 34.154 | 5.19       | 34.143 | 6.10       | 34.170 |
| 125m         | 4.39       | 34.155 | 4.76       | 34.145 | 6.50       | 34.186 |            |        |            |        |            |        | 5.58       | 34.150 | 5.42       | 34.147 | 3.94       | 34.142 | 4.52       | 34.140 |
| 150m         | 3.82       | 34.150 | 4.16       | 34.153 | 6.07       | 34.165 |            |        |            |        |            |        | 4.68       | 34.141 |            |        | 3.31       | 34.137 | 4.01       | 34.137 |
| 200m         | 2.81       | 34.129 | 3.28       | 34.143 |            |        |            |        |            |        |            |        |            |        |            |        | 2.35       | 34.117 | 2.82       | 34.126 |
| 250m         | 1.91       | 34.099 | 2.47       | 34.114 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.17       | 34.120 |
| 300m         | 1.32       | 34.085 | 1.64       | 34.092 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.41       | 34.084 |
| 400m         | 0.79       | 34.077 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.89       | 34.078 |
| 500m         | 0.54       | 34.072 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.61       | 34.073 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-23

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J27        |        | JW16       |        | JW15       |        | JW14       |        | JW13       |        | JW12       |        | JW11       |        | JC11       |        | JC12       |        | JC13       |        |
| Latitude:N   | 44-30.0    |        | 44-59.9    |        | 45- 0.1    |        | 45- 0.0    |        | 44-59.9    |        | 45- 0.0    |        | 45- 0.0    |        | 43- 0.1    |        | 42-59.9    |        | 43- 0.1    |        |
| Longitude:E  | 139-30.1   |        | 140- 0.0   |        | 140-19.9   |        | 140-39.9   |        | 140-59.9   |        | 141-15.0   |        | 141-30.0   |        | 140-20.0   |        | 140- 0.0   |        | 139-40.0   |        |
| Date         | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/31 |        | 1997/07/31 |        | 1997/07/31 |        |
| Time(JST)    | 05:45      |        | 09:37      |        | 11:06      |        | 12:39      |        | 14:19      |        | 15:30      |        | 16:38      |        | 05:37      |        | 07:36      |        | 09:17      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 19.0       |        | 18.9       |        | 20.5       |        | 20.4       |        | 20.2       |        | 22.4       |        | 21.4       |        | 22.2       |        | 22.6       |        | 23.3       |        |
| Bar          | 1007.0     |        | 1007.7     |        | 1007.8     |        | 1007.0     |        | 1006.5     |        | 1006.0     |        | 1006.0     |        | 1008.0     |        | 1009.0     |        | 1009.0     |        |
| Wind Dir     | NE         |        | NNE        |        | NNW        |        | NE         |        | NNE        |        | NE         |        | NNW        |        | SSW        |        | SSE        |        | NE         |        |
| Wind Spd/F   | S 6        |        | S 4        |        | S 3        |        | S 6        |        | S 6        |        | S 6        |        | S 5        |        | S 3        |        | S 2        |        | S 1        |        |
| Transparency | 18         |        | 20         |        | 20         |        | 18         |        | 14         |        | 15         |        | 25         |        | 21         |        | 26         |        | 25         |        |
| Depth        | 495        |        | 227        |        | 147        |        | 366        |        | 101        |        | 86         |        | 65         |        | 469        |        | 1260       |        | 3200       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 19.6       | 33.942 | 18.6       | 33.822 | 19.9       | 34.022 | 18.9       | 33.946 | 18.7       | 33.887 | 19.9       | 33.964 | 19.9       | 33.903 | 23.0       | 33.966 | 22.6       | 34.034 | 22.7       | 33.979 |
| 10m          | 19.66      | 33.942 | 18.32      | 33.832 | 19.65      | 33.891 | 18.79      | 33.949 | 18.53      | 33.892 | 19.53      | 33.978 | 18.12      | 34.021 | 20.89      | 33.993 | 22.10      | 34.010 | 21.89      | 33.994 |
| 20m          | 12.92      | 34.322 | 12.19      | 33.989 | 17.35      | 34.019 | 18.07      | 33.924 | 17.37      | 33.869 | 16.39      | 33.932 | 17.06      | 34.007 | 19.74      | 34.006 | 19.17      | 34.096 | 20.56      | 34.032 |
| 30m          | 9.45       | 34.275 | 7.08       | 34.206 | 13.27      | 34.102 | 15.76      | 33.981 | 15.27      | 33.897 | 12.67      | 34.111 | 14.16      | 33.996 | 18.30      | 34.027 | 17.51      | 34.144 | 17.88      | 34.110 |
| 50m          | 7.63       | 34.221 | 5.28       | 34.159 | 8.98       | 34.168 | 12.44      | 34.059 | 11.59      | 34.021 | 9.92       | 34.208 | 11.49      | 34.090 | 13.49      | 34.260 | 12.48      | 34.395 | 13.36      | 34.400 |
| 75m          | 5.96       | 34.175 | 4.15       | 34.147 | 6.40       | 34.161 | 10.54      | 34.094 | 10.06      | 34.088 |            |        | 10.10      | 34.280 | 10.92      | 34.350 | 11.28      | 34.340 |            |        |
| 100m         | 4.54       | 34.142 | 3.48       | 34.149 | 4.93       | 34.152 | 8.44       | 34.184 |            |        |            |        | 8.16       | 34.234 | 8.84       | 34.275 | 9.63       | 34.296 |            |        |
| 125m         | 3.64       | 34.129 | 2.99       | 34.137 | 4.11       | 34.148 | 5.78       | 34.153 |            |        |            |        | 6.79       | 34.195 | 7.40       | 34.220 | 8.24       | 34.249 |            |        |
| 150m         | 3.04       | 34.116 | 2.46       | 34.124 |            |        | 4.62       | 34.153 |            |        |            |        | 5.57       | 34.161 | 6.14       | 34.179 | 7.25       | 34.216 |            |        |
| 200m         | 2.25       | 34.106 | 2.00       | 34.097 |            |        | 3.45       | 34.140 |            |        |            |        | 3.36       | 34.116 | 4.69       | 34.141 | 5.39       | 34.152 |            |        |
| 250m         | 1.65       | 34.094 |            |        |            |        | 2.21       | 34.114 |            |        |            |        | 2.46       | 34.103 | 2.92       | 34.107 | 2.77       | 34.104 |            |        |
| 300m         | 1.18       | 34.082 |            |        |            |        | 0.90       | 34.081 |            |        |            |        | 1.62       | 34.089 | 1.91       | 34.092 | 1.84       | 34.092 |            |        |
| 400m         | 0.77       | 34.075 |            |        |            |        |            |        |            |        |            |        | 0.74       | 34.074 | 1.23       | 34.086 | 1.12       | 34.081 |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.78       | 34.077 | 0.84       | 34.075 |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.53       | 34.071 | 0.60       | 34.072 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-24

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |         | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|---------|------------|--------|------------|--------|------------|--------|
| Station No   | JC14       |        | JC15       |        | J41        |        | J42        |        | J43        |        | J44        |        | J45        |         | J46        |        | J47        |        | J58        |        |
| Latitude:N   | 43- 0.0    |        | 43- 0.0    |        | 42-30.0    |        | 42-30.0    |        | 42-30.1    |        | 42-30.1    |        | 42-30.1    |         | 42-30.1    |        | 42-30.0    |        | 41-30.1    |        |
| Longitude:E  | 139-20.1   |        | 139- 0.1   |        | 139-40.0   |        | 139-20.1   |        | 139- 0.1   |        | 138-40.1   |        | 138-20.1   |         | 138- 0.0   |        | 137-30.0   |        | 137-29.9   |        |
| Date         | 1997/07/31 |        | 1997/07/31 |        | 1997/07/31 |        | 1997/07/31 |        | 1997/07/31 |        | 1997/07/31 |        | 1997/07/31 |         | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        |
| Time(JST)    | 10:58      |        | 12:36      |        | 16:52      |        | 19:07      |        | 20:43      |        | 22:20      |        | 23:56      |         | 01:35      |        | 04:23      |        | 10:02      |        |
| Weather      | C          |        | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |         | C          |        | C          |        | C          |        |
| Air Temp.    | 24.2       |        | 24.3       |        | 25.3       |        | 23.8       |        | 23.2       |        | 21.8       |        | 21.5       |         | 20.4       |        | 20.4       |        | 22.7       |        |
| Bar          | 1009.3     |        | 1009.5     |        | 1008.5     |        | 1009.4     |        | 1010.1     |        | 1010.3     |        | 1010.4     |         | 1010.0     |        | 1010.0     |        | 1011.5     |        |
| Wind Dir     | NNE        |        | N          |        | NNE        |        | N          |        | NNW        |        | NW         |        | WSW        |         | WSW        |        | SW         |        | SW         |        |
| Wind Spd/F   | S 2        |        | S 4        |        | S 4        |        | S 4        |        | S 4        |        | S 2        |        | S 2        |         | S 2        |        | S 2        |        | S 5        |        |
| Transparency | 24         |        | 20         |        | 21         |        |            |        |            |        |            |        |            |         |            |        |            |        | 20         |        |
| Depth        | 2400       |        | 3600       |        | 1830       |        | 3295       |        |            |        | 3600       |        | 3600       |         | 3600       |        | 3673       |        | 3600       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |         | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S       | T          | S      | T          | S      | T          | S      |
| 0m           | 23.2       | 33.990 | 23.5       | 34.002 | 24.1       | 33.957 | 24.5       | 33.960 | 24.4       | 34.013 | 22.7       | 33.835 | 22.3       | 33.819c | 21.6       | 33.846 | 20.5       | 33.803 | 22.3       | 33.821 |
| 10m          | 22.33      | 34.002 | 20.12      | 33.744 | 21.73      | 34.000 | 23.35      | 33.975 | 19.24      | 33.847 | 18.81      | 33.810 | 19.52      | 33.820  | 19.64      | 33.803 | 17.96      | 33.732 | 17.08      | 33.806 |
| 20m          | 18.62      | 34.147 | 15.41      | 33.830 | 17.11      | 34.331 | 18.08      | 34.189 | 14.37      | 33.910 | 13.47      | 33.912 | 14.27      | 33.845  | 13.79      | 33.788 | 12.12      | 33.988 | 11.64      | 33.987 |
| 30m          | 14.55      | 34.274 | 10.61      | 34.168 | 14.63      | 34.399 | 13.38      | 34.387 | 8.16       | 34.055 | 7.01       | 34.101 | 7.27       | 34.136  | 6.37       | 34.162 | 7.04       | 34.156 | 7.64       | 34.078 |
| 50m          | 10.86      | 34.350 | 6.38       | 34.199 | 11.83      | 34.342 | 10.26      | 34.334 | 3.33       | 34.145 | 2.63       | 34.147 | 4.10       | 34.149  | 3.77       | 34.188 | 4.16       | 34.157 | 3.79       | 34.174 |
| 75m          | 7.40       | 34.208 | 4.70       | 34.151 | 10.21      | 34.311 | 8.88       | 34.273 | 2.37       | 34.105 | 2.02       | 34.105 | 2.83       | 34.111  | 2.53       | 34.116 | 3.20       | 34.138 | 2.94       | 34.147 |
| 100m         | 5.80       | 34.178 | 3.57       | 34.117 | 8.58       | 34.265 | 6.89       | 34.211 | 1.96       | 34.096 | 1.84       | 34.109 | 2.16       | 34.096  | 1.93       | 34.100 | 2.46       | 34.118 | 2.29       | 34.125 |
| 125m         | 4.91       | 34.152 | 2.56       | 34.104 | 7.39       | 34.207 | 5.02       | 34.148 | 1.67       | 34.089 | 1.65       | 34.101 | 1.88       | 34.091  | 1.74       | 34.106 | 2.09       | 34.119 | 1.95       | 34.117 |
| 150m         | 3.88       | 34.121 | 2.11       | 34.093 | 5.81       | 34.173 | 3.96       | 34.112 | 1.40       | 34.082 | 1.46       | 34.099 | 1.65       | 34.087  | 1.54       | 34.100 | 1.74       | 34.109 | 1.70       | 34.109 |
| 200m         | 2.48       | 34.098 | 1.41       | 34.084 | 3.70       | 34.122 | 2.01       | 34.097 | 1.11       | 34.080 | 1.18       | 34.091 | 1.33       | 34.083  | 1.23       | 34.090 | 1.27       | 34.091 | 1.45       | 34.108 |
| 250m         | 1.59       | 34.092 | 1.08       | 34.077 | 2.06       | 34.094 | 1.54       | 34.087 | 0.92       | 34.077 | 1.04       | 34.085 | 1.18       | 34.091  | 1.06       | 34.090 | 1.17       | 34.091 | 1.32       | 34.106 |
| 300m         | 1.24       | 34.085 | 0.92       | 34.078 | 1.41       | 34.085 | 1.19       | 34.086 | 0.83       | 34.078 | 0.91       | 34.082 | 1.06       | 34.089  | 0.94       | 34.086 | 1.01       | 34.089 | 1.06       | 34.091 |
| 400m         | 0.81       | 34.076 | 0.62       | 34.071 | 0.77       | 34.075 | 0.75       | 34.073 | 0.62       | 34.073 | 0.65       | 34.075 | 0.73       | 34.076  | 0.69       | 34.077 | 0.71       | 34.077 | 0.82       | 34.083 |
| 500m         | 0.60       | 34.073 | 0.48       | 34.070 | 0.54       | 34.071 | 0.53       | 34.069 | 0.48       | 34.070 | 0.50       | 34.072 | 0.54       | 34.072  | 0.52       | 34.073 | 0.54       | 34.073 | 0.55       | 34.073 |
| 600m         | 0.45       | 34.070 | 0.39       | 34.069 | 0.41       | 34.069 |            |        |            |        |            |        |            |         | 0.41       | 34.071 |            |        |            |        |
| 700m         |            |        |            |        | 0.35       | 34.068 |            |        |            |        |            |        |            |         | 0.35       | 34.070 |            |        |            |        |
| 800m         |            |        |            |        | 0.29       | 34.067 |            |        |            |        |            |        |            |         | 0.31       | 34.068 |            |        |            |        |
| 900m         |            |        |            |        | 0.24       | 34.066 |            |        |            |        |            |        |            |         | 0.28       | 34.068 |            |        |            |        |
| 1000m        |            |        |            |        | 0.22       | 34.066 |            |        |            |        |            |        |            |         | 0.25       | 34.067 |            |        |            |        |

Table 3-25

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J57        |        | J56        |        | J55        |        | J54        |        | J53        |        | J52        |        | J51        |        | J61        |        | J62        |        | J63        |        |
| Latitude:N   | 41-30.0    |        | 41-30.0    |        | 41-30.1    |        | 41-30.0    |        | 41-29.8    |        | 41-30.0    |        | 41-30.2    |        | 41-20.1    |        | 41-10.1    |        | 41- 0.0    |        |
| Longitude:E  | 138- 0.0   |        | 138-20.0   |        | 138-40.0   |        | 139- 0.0   |        | 139-15.1   |        | 139-30.0   |        | 139-50.0   |        | 140- 0.1   |        | 140- 0.1   |        | 140- 0.1   |        |
| Date         | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/02 |        | 1997/08/02 |        |
| Time(JST)    | 12:31      |        | 14:14      |        | 15:56      |        | 17:33      |        | 18:50      |        | 20:05      |        | 21:41      |        | 23:02      |        | 00:07      |        | 01:09      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 23.1       |        | 24.9       |        | 25.1       |        | 24.4       |        | 24.0       |        | 23.6       |        | 23.8       |        | 24.0       |        | 23.7       |        | 23.8       |        |
| Bar          | 1011.5     |        | 1011.3     |        | 1011.0     |        | 1011.0     |        | 1011.3     |        | 1011.5     |        | 1011.4     |        | 1011.4     |        | 1011.4     |        | 1011.2     |        |
| Wind Dir     | W          |        | W          |        | W          |        | W          |        | W          |        | W          |        | W          |        | WNW        |        | WNW        |        | W          |        |
| Wind Spd/F   | S 6        |        | S 6        |        | S 5        |        | S 5        |        | S 5        |        | S 3        |        | S 2        |        | S 4        |        | S 4        |        | S 4        |        |
| Transparency | 19         |        | 20         |        | 14         |        | 21         |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 3670       |        | 3700       |        | 3200       |        | 1338       |        | 1150       |        | 1700       |        | 1373       |        | 225        |        | 110        |        | 500        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 23.2       | 33.871 | 24.5       | 34.001 | 25.4       | 33.957 | 25.4       | 33.838 | 25.4       | 33.850 | 25.3       | 33.844 | 25.2       | 33.491 | 21.7       | 33.983 | 25.3       | 33.318 | 25.2       | 32.569 |
| 10m          | 16.74      | 33.856 | 23.32      | 33.731 | 23.87      | 33.873 | 24.10      | 33.805 | 25.45      | 33.852 | 24.21      | 33.818 | 23.57      | 33.719 | 21.18      | 34.050 | 23.66      | 33.628 | 22.11      | 33.604 |
| 20m          | 12.74      | 33.959 | 15.26      | 34.117 | 16.25      | 34.255 | 20.94      | 34.103 | 21.24      | 34.024 | 21.72      | 33.990 | 19.87      | 34.144 | 17.20      | 34.420 | 22.14      | 33.899 | 20.32      | 33.809 |
| 30m          | 5.73       | 34.169 | 9.65       | 34.022 | 12.82      | 34.330 | 15.90      | 34.473 | 18.61      | 34.253 | 19.77      | 34.158 | 16.46      | 34.427 | 15.05      | 34.473 | 20.25      | 34.189 | 19.71      | 34.077 |
| 50m          | 2.80       | 34.138 | 3.65       | 34.138 | 9.60       | 34.341 | 12.14      | 34.426 | 13.64      | 34.481 | 14.19      | 34.459 | 13.53      | 34.494 | 12.67      | 34.416 | 15.86      | 34.486 | 17.40      | 34.139 |
| 75m          | 2.37       | 34.119 | 2.24       | 34.118 | 6.73       | 34.207 | 10.01      | 34.332 | 11.50      | 34.403 | 11.06      | 34.357 | 11.90      | 34.383 | 11.61      | 34.364 | 13.91      | 34.429 | 15.31      | 34.364 |
| 100m         | 2.05       | 34.118 | 1.73       | 34.097 | 4.75       | 34.149 | 7.11       | 34.211 | 10.10      | 34.339 | 8.87       | 34.290 | 9.16       | 34.280 | 9.96       | 34.303 | 11.94      | 34.363 | 13.72      | 34.412 |
| 125m         | 1.78       | 34.111 | 1.56       | 34.100 | 3.35       | 34.120 | 4.66       | 34.147 | 8.13       | 34.263 | 6.98       | 34.215 | 6.52       | 34.162 | 9.04       | 34.264 |            |        | 12.36      | 34.381 |
| 150m         | 1.58       | 34.107 | 1.35       | 34.093 | 2.71       | 34.104 | 3.22       | 34.115 | 5.69       | 34.167 | 5.66       | 34.176 | 4.69       | 34.147 | 8.90       | 34.261 |            |        | 11.01      | 34.332 |
| 200m         | 1.38       | 34.103 | 1.32       | 34.103 | 1.72       | 34.087 | 2.21       | 34.092 | 2.68       | 34.104 | 2.92       | 34.111 | 2.71       | 34.089 | 7.22       | 34.209 |            |        | 7.81       | 34.214 |
| 250m         | 1.17       | 34.096 | 1.10       | 34.093 | 1.40       | 34.087 | 1.60       | 34.087 | 2.05       | 34.087 | 1.90       | 34.084 | 1.77       | 34.087 |            |        |            |        | 3.64       | 34.119 |
| 300m         | 0.96       | 34.087 | 1.05       | 34.095 | 1.23       | 34.091 | 1.27       | 34.082 | 1.54       | 34.083 | 1.47       | 34.089 | 1.49       | 34.087 |            |        |            |        | 1.66       | 34.092 |
| 400m         | 0.64       | 34.077 | 0.69       | 34.077 | 0.80       | 34.079 | 0.88       | 34.078 | 1.03       | 34.081 | 1.02       | 34.082 | 1.02       | 34.081 |            |        |            |        | 0.98       | 34.080 |
| 500m         | 0.46       | 34.075 | 0.52       | 34.072 | 0.59       | 34.072 | 0.67       | 34.072 | 0.73       | 34.074 | 0.71       | 34.073 | 0.73       | 34.074 |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-26



Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CSR101     |        | CSR102     |        | CSR103     |        | CSR104     |        | CSR105     |        | CSR106     |        | CSR107     |        | CSR118     |        | CSR108     |        | CSR109     |        |
| Latitude:N   | 43-30.0    |        | 43-31.3    |        | 43-30.1    |        | 44- 0.0    |        | 44- 0.1    |        | 44- 1.0    |        | 44- 0.0    |        | 44- 0.2    |        | 44-30.7    |        | 44-30.1    |        |
| Longitude:E  | 140- 0.2   |        | 139-19.4   |        | 138-40.1   |        | 138-40.0   |        | 139-19.9   |        | 140- 1.6   |        | 140-39.9   |        | 141-10.0   |        | 140-40.1   |        | 140- 0.2   |        |
| Date         | 1997/08/26 |        | 1997/08/26 |        | 1997/08/27 |        | 1997/08/27 |        | 1997/08/27 |        | 1997/08/27 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/29 |        | 1997/08/30 |        |
| Time(JST)    | 13:52      |        | 18:38      |        | 06:45      |        | 09:50      |        | 12:44      |        | 18:03      |        | 14:04      |        | 16:18      |        | 18:17      |        | 14:25      |        |
| Weather      | B          |        | B          |        | BC         |        | C          |        | R          |        | C          |        | B          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 23.0       |        | 21.1       |        | 21.0       |        | 19.6       |        | 20.1       |        | 20.2       |        | 24.5       |        | 24.2       |        | 20.4       |        | 22.1       |        |
| Bar          | 1012.0     |        | 1011.0     |        | 1008.0     |        | 1006.9     |        | 1005.9     |        | 1006.3     |        | 1008.1     |        | 1008.3     |        | 1005.8     |        | 1006.5     |        |
| Wind Dir     | SW         |        | SSW        |        | SW         |        | SSW        |        | SW         |        | SSW        |        | SSW        |        | SSW        |        | WSW        |        | WSW        |        |
| Wind Spd/F   | S 4        |        | S 5        |        | S 9        |        | S 6        |        | S 5        |        | S 7        |        | S 3        |        | S 4        |        | S 6        |        | S 6        |        |
| Transparency | 20         |        | 13         |        | 17         |        | 22         |        | 16         |        | 17         |        | 23         |        | 17         |        | 17         |        | 21         |        |
| Depth        | 1221       |        | 602        |        | 603        |        | 602        |        | 605        |        | 392        |        | 551        |        | 252        |        | 101        |        | 501        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 21.3       | 33.89* | 22.9       | 33.99* | 20.5       | 33.85* | 17.7       | 33.91* | 20.8       | 33.94* | 21.0       | 33.92* | 20.9       | 33.918 | 21.0       | 33.827 | 20.1       | 33.895 | 21.1       | 33.942 |
| 10m          | 20.91      | 33.888 | 22.86      | 34.009 | 20.63      | 33.857 | 17.53      | 33.906 | 20.80      | 33.941 | 21.08      | 33.923 | 19.84      | 33.935 | 20.67      | 33.867 | 20.08      | 33.896 | 20.95      | 33.942 |
| 20m          | 20.87      | 33.942 | 21.94      | 33.982 | 19.34      | 33.813 | 15.73      | 33.905 | 20.51      | 33.912 | 18.77      | 34.089 | 19.67      | 33.920 | 20.52      | 33.839 | 19.27      | 33.932 | 20.83      | 33.963 |
| 30m          | 15.92      | 34.481 | 16.06      | 34.389 | 11.26      | 34.328 | 8.22       | 34.223 | 10.36      | 34.265 | 14.09      | 34.431 | 13.12      | 34.270 | 20.03      | 33.892 | 14.73      | 34.180 | 14.09      | 34.358 |
| 50m          | 11.82      | 34.083 | 12.37      | 34.371 | 8.38       | 34.280 | 5.71       | 34.154 | 6.88       | 34.190 | 11.88      | 34.361 | 10.31      | 34.272 | 14.03      | 34.395 | 9.54       | 34.279 | 10.79      | 34.369 |
| 75m          | 10.89      | 34.097 | 8.82       | 34.262 | 6.01       | 34.174 | 3.98       | 34.140 | 5.12       | 34.155 | 9.94       | 34.320 | 7.11       | 34.199 | 11.11      | 34.347 | 7.78       | 34.228 | 8.87       | 34.283 |
| 100m         | 10.28      | 34.137 | 6.74       | 34.206 | 3.69       | 34.112 | 3.11       | 34.128 | 4.48       | 34.152 | 8.24       | 34.244 | 5.63       | 34.164 | 10.18      | 34.307 | 5.76       | 34.157 | 7.19       | 34.211 |
| 125m         | 9.18       | 34.212 | 5.31       | 34.160 | 2.71       | 34.101 | 2.28       | 34.118 | 3.66       | 34.151 | 7.32       | 34.216 | 4.81       | 34.146 | 9.03       | 34.270 |            |        | 5.57       | 34.163 |
| 150m         | 7.80       | 34.192 | 4.25       | 34.134 | 2.21       | 34.097 | 1.99       | 34.107 | 3.19       | 34.137 | 6.02       | 34.176 | 4.15       | 34.139 | 7.19       | 34.213 |            |        | 4.17       | 34.134 |
| 200m         | 5.31       | 34.161 | 2.58       | 34.108 | 1.62       | 34.088 | 1.53       | 34.097 | 2.34       | 34.111 | 3.51       | 34.108 | 3.19       | 34.128 | 4.36       | 34.143 |            |        | 2.98       | 34.134 |
| 250m         | 3.66       | 34.137 | 1.83       | 34.094 | 1.33       | 34.083 | 1.15       | 34.084 | 1.61       | 34.094 | 2.64       | 34.118 | 2.38       | 34.109 | 2.39       | 34.114 |            |        | 2.02       | 34.100 |
| 300m         | 2.22       | 34.098 | 1.36       | 34.088 | 1.09       | 34.083 | 0.98       | 34.080 | 1.25       | 34.083 | 2.09       | 34.097 | 1.64       | 34.085 |            |        |            |        | 1.39       | 34.082 |
| 400m         | 1.38       | 34.094 | 0.87       | 34.079 | 0.83       | 34.080 | 0.74       | 34.076 | 0.83       | 34.076 |            |        | 1.00       | 34.077 |            |        |            |        | 0.84       | 34.076 |
| 500m         | 0.93       | 34.083 | 0.67       | 34.075 | 0.58       | 34.073 | 0.56       | 34.072 | 0.58       | 34.071 |            |        | 0.64       | 34.073 |            |        |            |        | 0.52       | 34.070 |
| 600m         | 0.67       | 34.076 | 0.51       | 34.072 | 0.46       | 34.071 | 0.42       | 34.070 | 0.45       | 34.070 |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-27

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CSR110     |        | CSR111     |        | CSR112     |        | CSR113     |        | CSR114     |        | CSR115     |        | CSR116     |        | CSR126     |        | CSR117     |        | CSR119     |        |
| Latitude:N   | 44-30.2    |        | 45- 0.0    |        | 45- 0.1    |        | 45-30.2    |        | 45-30.1    |        | 45- 0.1    |        | 45- 0.1    |        | 44-51.2    |        | 44-30.1    |        | 43-30.0    |        |
| Longitude:E  | 139-22.8   |        | 139-30.1   |        | 139-59.9   |        | 139-58.6   |        | 140-29.9   |        | 140-30.0   |        | 141- 0.0   |        | 140-57.6   |        | 141-10.0   |        | 140-41.6   |        |
| Date         | 1997/08/30 |        | 1997/08/31 |        | 1997/08/31 |        | 1997/08/31 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/02 |        | 1997/09/02 |        |
| Time(JST)    | 18:19      |        | 10:36      |        | 12:47      |        | 18:14      |        | 05:53      |        | 08:51      |        | 12:58      |        | 18:32      |        | 10:37      |        | 18:15      |        |
| Weather      | B          |        | C          |        | B          |        | B          |        | C          |        | C          |        | C          |        | R          |        | C          |        | BC         |        |
| Air Temp.    | 19.9       |        | 23.5       |        | 22.1       |        | 19.5       |        | 19.8       |        | 20.6       |        | 21.0       |        | 20.5       |        | 19.7       |        | 19.4       |        |
| Bar          | 1006.1     |        | 1005.9     |        | 1005.6     |        | 1004.8     |        | 1003.5     |        | 1002.8     |        | 1002.0     |        | 999.7      |        | 998.2      |        | 999.1      |        |
| Wind Dir     | WSW        |        | SSW        |        | SW         |        | S          |        | S          |        | S          |        | SW         |        | SSE        |        | N          |        | NNE        |        |
| Wind Spd/F   | S 6        |        | S 5        |        | S 5        |        | S 5        |        | S 6        |        | S 7        |        | S 4        |        | S 3        |        | S 7        |        | S 5        |        |
| Transparency | 16         |        | 23         |        | 20         |        | 16         |        | 20         |        | 23         |        | 20         |        |            |        | 19         |        | 20         |        |
| Depth        | 502        |        | 503        |        | 253        |        | 501        |        | 401        |        | 299        |        | 77         |        | 100        |        | 100        |        | 602        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 19.9       | 33.804 | 18.6       | 33.904 | 18.4       | 33.943 | 18.3       | 33.736 | 19.4       | 33.905 | 19.6       | 33.909 | 20.3       | 33.90* | 20.6       | 33.836 | 21.0       | 33.818 | 22.0       | 33.987 |
| 10m          | 19.78      | 33.805 | 18.33      | 33.904 | 18.09      | 33.949 | 17.75      | 33.736 | 19.10      | 33.898 | 19.49      | 33.910 | 20.30      | 33.898 | 20.45      | 33.902 | 21.00      | 33.817 | 22.20      | 33.999 |
| 20m          | 10.71      | 34.261 | 10.65      | 34.304 | 17.82      | 33.975 | 9.37       | 34.062 | 18.04      | 33.883 | 15.93      | 34.177 | 20.24      | 33.900 | 19.85      | 33.938 | 20.94      | 33.822 | 21.98      | 33.932 |
| 30m          | 8.14       | 34.195 | 8.66       | 34.273 | 11.66      | 34.208 | 5.26       | 34.161 | 8.82       | 34.125 | 12.25      | 34.391 | 16.77      | 34.071 | 15.02      | 34.227 | 20.45      | 33.873 | 15.59      | 34.396 |
| 50m          | 6.23       | 34.175 | 7.03       | 34.208 | 7.21       | 34.169 | 3.72       | 34.138 | 5.62       | 34.160 | 8.80       | 34.261 | 11.83      | 34.319 | 11.40      | 34.350 | 14.20      | 34.341 | 12.38      | 34.397 |
| 75m          | 4.65       | 34.138 | 5.52       | 34.161 | 4.33       | 34.148 | 3.15       | 34.129 | 4.16       | 34.139 | 6.13       | 34.182 | 10.45      | 34.288 | 9.15       | 34.263 | 10.79      | 34.299 | 10.58      | 34.331 |
| 100m         | 3.66       | 34.130 | 3.95       | 34.127 | 3.56       | 34.122 | 2.50       | 34.115 | 3.44       | 34.118 | 4.80       | 34.149 |            |        | 8.25       | 34.228 | 8.70       | 34.240 | 8.25       | 34.182 |
| 125m         | 3.00       | 34.122 | 3.09       | 34.120 | 2.80       | 34.110 | 2.01       | 34.094 | 2.99       | 34.129 | 4.29       | 34.134 |            |        |            |        |            |        | 7.26       | 34.182 |
| 150m         | 2.41       | 34.103 | 2.63       | 34.114 | 2.21       | 34.100 | 1.82       | 34.087 | 2.56       | 34.120 | 3.85       | 34.127 |            |        |            |        |            |        | 5.88       | 34.163 |
| 200m         | 1.70       | 34.092 | 1.99       | 34.107 | 1.80       | 34.092 | 1.57       | 34.091 | 1.86       | 34.100 | 3.06       | 34.122 |            |        |            |        |            |        | 3.79       | 34.140 |
| 250m         | 1.33       | 34.083 | 1.60       | 34.096 | 1.51       | 34.084 | 1.29       | 34.083 | 1.26       | 34.082 | 2.38       | 34.110 |            |        |            |        |            |        | 2.70       | 34.120 |
| 300m         | 1.13       | 34.085 | 1.41       | 34.092 |            |        | 1.00       | 34.075 | 0.95       | 34.073 |            |        |            |        |            |        |            |        | 1.89       | 34.090 |
| 400m         | 0.74       | 34.074 | 1.00       | 34.083 |            |        | 0.69       | 34.068 | 0.63       | 34.068 |            |        |            |        |            |        |            |        | 1.02       | 34.073 |
| 500m         | 0.53       | 34.069 | 0.63       | 34.068 |            |        | 0.52       | 34.066 |            |        |            |        |            |        |            |        |            |        | 0.67       | 34.068 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.51       | 34.065 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-28

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CHA001     |        | CHA002     |        | CHA003     |        | J31        |        | J32        |        | J33        |        | J34        |        | J35        |        | J36        |        | J37        |        |
| Latitude:N   | 43-44.6    |        | 43-50.4    |        | 43-51.7    |        | 43-20.1    |        | 43-30.0    |        | 43-30.0    |        | 43-30.1    |        | 43-29.9    |        | 43-29.9    |        | 43-30.0    |        |
| Longitude:E  | 141-12.2   |        | 141- 9.5   |        | 141-11.9   |        | 141-10.0   |        | 141- 0.0   |        | 140-40.1   |        | 140-20.1   |        | 140- 0.0   |        | 139-40.1   |        | 139-20.1   |        |
| Date         | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        |
| Time(JST)    | 12:10      |        | 14:08      |        | 15:30      |        | 10:00      |        | 11:18      |        | 12:46      |        | 14:37      |        | 16:18      |        | 18:21      |        | 20:01      |        |
| Weather      | BC         |        | B          |        | B          |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | R          |        |
| Air Temp.    | 26.0       |        | 26.1       |        | 24.1       |        | 18.4       |        | 19.3       |        | 18.2       |        | 17.7       |        | 16.0       |        | 15.7       |        | 15.7       |        |
| Bar          | 1013.8     |        | 1013.0     |        | 1012.5     |        | 1009.0     |        | 1009.5     |        | 1010.0     |        | 1010.3     |        | 1011.0     |        | 1012.6     |        | 1013.7     |        |
| Wind Dir     | SSW        |        | WSW        |        | SW         |        | WNW        |        | NNW        |        | N          |        | N          |        | N          |        | N          |        | N          |        |
| Wind Spd/F   | S 3        |        | S 4        |        | S 4        |        | S 2        |        | S 2        |        | S 2        |        | S 6        |        | S 5        |        | S 7        |        | S 7        |        |
| Transparency |            |        |            |        |            |        | 10         |        | 13         |        | 18         |        | 16         |        |            |        |            |        |            |        |
| Depth        | 148        |        |            |        | 205        |        | 39         |        | 95         |        | 691        |        | 649        |        | 1229       |        | 2040       |        | 3200       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 22.2       | 33.95* | 21.8       | 33.97* | 21.8       | 33.71* | 18.6       | 33.136 | 19.2       | 33.853 | 18.5       | 34.009 | 17.1       | 34.091 | 18.1       | 34.021 | 16.1       | 34.027 | 18.8       | 33.632 |
| 10m          | 21.45      | 33.939 | 21.59      | 33.967 | 21.55      | 33.786 | 17.89      | 34.019 | 19.10      | 33.865 | 18.34      | 34.009 | 17.01      | 34.097 | 18.44      | 34.020 | 16.10      | 34.029 | 18.85      | 33.760 |
| 20m          | 21.42      | 33.942 | 21.43      | 33.967 | 21.10      | 33.815 | 16.81      | 34.138 | 19.06      | 33.866 | 16.25      | 34.084 | 15.59      | 34.115 | 18.32      | 34.029 | 16.11      | 34.036 | 18.83      | 33.764 |
| 30m          | 19.63      | 34.014 | 19.10      | 34.120 | 19.83      | 33.940 | 14.51      | 34.351 | 15.51      | 34.394 | 11.71      | 34.391 | 10.98      | 34.242 | 14.07      | 34.400 | 16.22      | 34.078 | 18.81      | 33.774 |
| 50m          | 13.58      | 34.435 | 13.22      | 34.334 | 15.75      | 34.392 |            |        | 11.15      | 34.346 | 9.59       | 34.277 | 8.52       | 34.240 | 11.76      | 34.349 | 13.48      | 34.424 | 12.19      | 34.375 |
| 75m          | 11.00      | 34.302 | 9.95       | 34.276 | 10.98      | 34.310 |            |        | 7.24       | 34.166 | 8.09       | 34.242 | 6.76       | 34.200 | 10.10      | 34.311 | 11.15      | 34.340 | 10.22      | 34.321 |
| 100m         | 9.08       | 34.258 | 7.98       | 34.234 | 8.17       | 34.245 |            |        |            |        | 6.60       | 34.189 | 5.43       | 34.163 | 8.27       | 34.233 | 9.28       | 34.292 | 8.04       | 34.250 |
| 125m         | 7.09       | 34.203 | 7.01       | 34.198 | 6.26       | 34.175 |            |        |            |        | 5.01       | 34.154 | 4.58       | 34.155 | 6.77       | 34.193 | 7.35       | 34.220 | 5.54       | 34.170 |
| 150m         |            |        | 6.28       | 34.177 | 4.86       | 34.152 |            |        |            |        | 4.00       | 34.133 | 3.67       | 34.125 | 5.59       | 34.165 | 5.52       | 34.159 | 3.95       | 34.124 |
| 200m         |            |        | 3.84       | 34.142 | 3.64       | 34.138 |            |        |            |        | 2.72       | 34.116 | 2.74       | 34.115 | 3.87       | 34.138 | 3.47       | 34.125 | 2.60       | 34.116 |
| 250m         |            |        |            |        |            |        |            |        |            |        | 1.82       | 34.091 | 1.83       | 34.100 | 2.42       | 34.103 | 2.18       | 34.101 | 1.75       | 34.097 |
| 300m         |            |        |            |        |            |        |            |        |            |        | 1.28       | 34.085 | 1.33       | 34.087 | 1.63       | 34.091 | 1.53       | 34.095 | 1.29       | 34.089 |
| 400m         |            |        |            |        |            |        |            |        |            |        | 0.81       | 34.078 | 0.78       | 34.078 | 0.81       | 34.080 | 1.05       | 34.087 | 0.93       | 34.083 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.56       | 34.074 | 0.53       | 34.075 | 0.74       | 34.080 | 0.62       | 34.076 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.38       | 34.072 |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-29

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J38        |        | J39        |        | JC15       |        | JC14       |        | J41        |        | J42        |        | J43        |        | J44        |        | J45        |        | J46        |        |
| Latitude:N   | 43-29.9    |        | 43-30.1    |        | 43- 0.1    |        | 42-59.9    |        | 42-30.0    |        | 42-30.0    |        | 42-30.2    |        | 42-30.0    |        | 42-29.9    |        | 42-30.0    |        |
| Longitude:E  | 139- 0.1   |        | 138-30.2   |        | 139- 0.1   |        | 139-20.1   |        | 139-39.9   |        | 139-20.0   |        | 139- 0.0   |        | 138-40.1   |        | 138-20.1   |        | 138- 0.0   |        |
| Date         | 1997/09/29 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        |
| Time(JST)    | 21:45      |        | 00:28      |        | 04:14      |        | 06:38      |        | 09:58      |        | 12:30      |        | 14:06      |        | 15:44      |        | 17:27      |        | 19:14      |        |
| Weather      |            |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | B          |        | B          |        | B          |        |
| Air Temp.    | 15.0       |        | 14.2       |        | 15.1       |        | 15.5       |        | 16.4       |        | 18.2       |        | 17.1       |        | 16.7       |        | 15.9       |        | 15.2       |        |
| Bar          | 1015.0     |        | 1016.0     |        | 1016.6     |        | 1017.3     |        | 1018.5     |        | 1019.4     |        | 1019.4     |        | 1020.0     |        | 1020.6     |        | 1021.5     |        |
| Wind Dir     | N          |        | NNW        |        | NNW        |        | N          |        | N          |        | N          |        | NNW        |        | NNW        |        | NW         |        | CALM       |        |
| Wind Spd/F   | S 4        |        | S 8        |        | S 4        |        | S 6        |        | S 5        |        | S 6        |        | S 7        |        | S 4        |        | S 2        |        | S 0        |        |
| Transparency |            |        |            |        |            |        | 15         |        | 17         |        | 20         |        | 16         |        | 21         |        |            |        |            |        |
| Depth        | 3440       |        | 3404       |        | 3500       |        | 2330       |        | 1830       |        | 2442       |        | 3620       |        | 3670       |        | 3630       |        | 3686       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 18.5       | 33.920 | 18.4       | 33.967 | 18.3       | 34.081 | 18.4       | 34.093 | 17.0       | 33.973 | 17.9       | 34.047 | 18.0       | 33.923 | 18.7       | 33.802 | 16.8       | 33.825 | 16.8       | 33.819 |
| 10m          | 18.63      | 33.934 | 18.52      | 33.964 | 18.56      | 34.082 | 18.62      | 34.093 | 16.93      | 33.980 | 17.79      | 34.042 | 17.95      | 33.925 | 18.34      | 33.836 | 16.74      | 33.815 | 16.88      | 33.822 |
| 20m          | 18.62      | 33.931 | 18.50      | 33.984 | 18.58      | 34.082 | 18.62      | 34.094 | 13.28      | 34.291 | 17.71      | 34.037 | 17.59      | 33.993 | 18.00      | 33.866 | 16.19      | 33.812 | 16.72      | 33.828 |
| 30m          | 18.55      | 34.025 | 18.43      | 34.032 | 15.33      | 34.338 | 18.62      | 34.094 | 10.31      | 34.339 | 13.43      | 34.350 | 17.06      | 34.076 | 8.41       | 34.186 | 8.13       | 34.116 | 15.67      | 33.816 |
| 50m          | 12.55      | 34.398 | 10.89      | 34.369 | 12.09      | 34.396 | 13.70      | 34.429 | 7.58       | 34.242 | 10.27      | 34.321 | 10.07      | 34.281 | 4.93       | 34.176 | 3.49       | 34.127 | 3.45       | 34.137 |
| 75m          | 9.02       | 34.290 | 7.74       | 34.252 | 9.46       | 34.289 | 11.78      | 34.352 | 5.43       | 34.174 | 7.92       | 34.241 | 5.08       | 34.143 | 3.44       | 34.117 | 2.49       | 34.099 | 1.92       | 34.106 |
| 100m         | 6.48       | 34.197 | 5.18       | 34.152 | 7.85       | 34.210 | 9.91       | 34.312 | 3.62       | 34.130 | 5.58       | 34.173 | 3.37       | 34.117 | 2.69       | 34.098 | 1.95       | 34.093 | 1.62       | 34.100 |
| 125m         | 4.64       | 34.147 | 3.84       | 34.144 | 5.53       | 34.165 | 8.23       | 34.260 | 2.28       | 34.108 | 3.96       | 34.135 | 2.40       | 34.103 | 2.11       | 34.098 | 1.79       | 34.107 | 1.46       | 34.098 |
| 150m         | 3.45       | 34.122 | 2.94       | 34.113 | 3.98       | 34.116 | 6.56       | 34.198 | 1.86       | 34.098 | 2.93       | 34.109 | 1.98       | 34.090 | 1.70       | 34.089 | 1.61       | 34.108 | 1.38       | 34.098 |
| 200m         | 2.38       | 34.116 | 2.21       | 34.121 | 2.27       | 34.091 | 3.76       | 34.126 | 1.35       | 34.087 | 1.86       | 34.097 | 1.58       | 34.097 | 1.36       | 34.091 | 1.30       | 34.098 | 1.17       | 34.095 |
| 250m         | 1.79       | 34.103 | 1.51       | 34.092 | 1.62       | 34.091 | 2.87       | 34.106 | 0.98       | 34.082 | 1.47       | 34.092 | 1.36       | 34.101 | 1.13       | 34.088 | 1.17       | 34.096 | 1.10       | 34.097 |
| 300m         | 1.32       | 34.087 | 1.25       | 34.090 | 1.40       | 34.102 | 1.77       | 34.091 | 0.79       | 34.078 | 1.15       | 34.086 | 1.19       | 34.098 | 1.07       | 34.093 | 1.01       | 34.092 | 0.99       | 34.093 |
| 400m         | 0.90       | 34.080 | 0.91       | 34.084 | 1.08       | 34.096 | 1.08       | 34.081 | 0.57       | 34.074 | 0.82       | 34.081 | 0.91       | 34.088 | 0.76       | 34.081 | 0.74       | 34.081 | 0.65       | 34.078 |
| 500m         | 0.69       | 34.077 | 0.68       | 34.077 | 0.87       | 34.087 | 0.72       | 34.076 | 0.42       | 34.072 | 0.60       | 34.076 | 0.62       | 34.077 | 0.56       | 34.076 | 0.55       | 34.076 | 0.49       | 34.074 |
| 600m         | 0.51       | 34.073 |            |        | 0.64       | 34.079 | 0.56       | 34.075 | 0.36       | 34.071 |            |        |            |        |            |        |            |        | 0.39       | 34.074 |
| 700m         |            |        |            |        |            |        |            |        | 0.28       | 34.070 |            |        |            |        |            |        |            |        | 0.34       | 34.072 |
| 800m         |            |        |            |        |            |        |            |        | 0.24       | 34.069 |            |        |            |        |            |        |            |        | 0.30       | 34.072 |
| 900m         |            |        |            |        |            |        |            |        | 0.22       | 34.070 |            |        |            |        |            |        |            |        | 0.27       | 34.071 |
| 1000m        |            |        |            |        |            |        |            |        | 0.20       | 34.069 |            |        |            |        |            |        |            |        | 0.24       | 34.070 |

Table 3-30

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J47        |        | J58        |        | J57        |        | J56        |        | J55        |        | J54        |        | J53        |        | J52        |        | J63        |        | J62        |        |
| Latitude:N   | 42-30.0    |        | 41-30.0    |        | 41-30.1    |        | 41-30.0    |        | 41-30.0    |        | 41-30.0    |        | 41-30.1    |        | 41-30.2    |        | 41- 0.1    |        | 41-10.0    |        |
| Longitude:E  | 137-30.1   |        | 137-29.9   |        | 137-59.9   |        | 138-19.9   |        | 138-40.0   |        | 138-59.9   |        | 139-14.9   |        | 139-30.0   |        | 140- 0.0   |        | 140- 0.0   |        |
| Date         | 1997/09/30 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        |
| Time(JST)    | 22:08      |        | 03:58      |        | 06:25      |        | 08:12      |        | 09:50      |        | 11:39      |        | 12:57      |        | 14:17      |        | 17:58      |        | 19:12      |        |
| Weather      | BC         |        | B          |        | B          |        | BC         |        | BC         |        | B          |        | B          |        | B          |        | B          |        | BC         |        |
| Air Temp.    | 15.5       |        | 16.3       |        | 16.1       |        | 17.0       |        | 17.4       |        | 18.9       |        | 19.9       |        | 22.9       |        | 18.1       |        | 17.8       |        |
| Bar          | 1022.4     |        | 1023.4     |        | 1024.0     |        | 1025.0     |        | 1025.6     |        | 1026.0     |        | 1025.5     |        | 1025.2     |        | 1025.5     |        | 1025.8     |        |
| Wind Dir     | SW         |        | CALM       |        | CALM       |        | SSW        |        | SSW        |        | SW         |        | SW         |        | SW         |        | W          |        | W          |        |
| Wind Spd/F   | S 2        |        | S 0        |        | S 0        |        | S 1        |        | S 2        |        | S 3        |        | S 2        |        | S 3        |        | S 2        |        | S 1        |        |
| Transparency |            |        |            |        | 21         |        | 26         |        | 22         |        | 26         |        | 27         |        | 23         |        |            |        |            |        |
| Depth        | 3680       |        | 3673       |        | 3680       |        | 3686       |        | 3108       |        | 1342       |        | 1134       |        | 1660       |        | 506        |        | 110        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.9       | 33.840 | 17.3       | 33.719 | 17.6       | 33.668 | 18.5       | 33.736 | 18.5       | 33.755 | 19.0       | 33.694 | 19.3       | 33.569 | 21.0       | 33.371 | 21.0       | 33.315 | 21.0       | 33.351 |
| 10m          | 16.84      | 33.839 | 17.26      | 33.718 | 17.64      | 33.669 | 18.50      | 33.733 | 18.40      | 33.748 | 18.80      | 33.689 | 19.07      | 33.554 | 20.59      | 33.382 | 21.02      | 33.312 | 20.91      | 33.335 |
| 20m          | 16.80      | 33.839 | 17.26      | 33.716 | 15.43      | 33.488 | 18.39      | 33.808 | 18.23      | 33.735 | 18.62      | 33.725 | 18.97      | 33.582 | 20.19      | 33.538 | 20.95      | 33.322 | 20.83      | 33.438 |
| 30m          | 13.64      | 33.854 | 8.19       | 34.100 | 6.31       | 34.154 | 6.41       | 34.064 | 9.48       | 34.075 | 10.13      | 34.089 | 17.78      | 33.664 | 20.19      | 33.699 | 20.88      | 33.335 | 20.19      | 33.774 |
| 50m          | 3.82       | 34.131 | 4.08       | 34.128 | 3.23       | 34.126 | 3.46       | 34.096 | 4.26       | 34.160 | 4.33       | 34.164 | 6.07       | 34.217 | 13.78      | 34.463 | 17.11      | 34.382 | 17.92      | 34.350 |
| 75m          | 2.25       | 34.111 | 2.73       | 34.111 | 2.54       | 34.114 | 2.50       | 34.074 | 2.80       | 34.105 | 2.88       | 34.105 | 3.88       | 34.130 | 9.82       | 34.258 | 15.73      | 34.466 | 15.47      | 34.499 |
| 100m         | 1.95       | 34.095 | 2.27       | 34.113 | 1.92       | 34.094 | 1.90       | 34.071 | 2.17       | 34.091 | 2.64       | 34.090 | 2.68       | 34.094 | 6.95       | 34.203 | 12.97      | 34.430 |            |        |
| 125m         | 1.67       | 34.093 | 1.88       | 34.099 | 1.63       | 34.094 | 1.54       | 34.075 | 1.69       | 34.087 | 2.21       | 34.085 | 2.18       | 34.095 | 3.26       | 34.119 | 11.71      | 34.390 |            |        |
| 150m         | 1.46       | 34.091 | 1.63       | 34.099 | 1.47       | 34.095 | 1.41       | 34.081 | 1.41       | 34.087 | 1.82       | 34.086 | 1.74       | 34.088 | 2.23       | 34.101 | 8.22       | 34.263 |            |        |
| 200m         | 1.21       | 34.089 | 1.39       | 34.103 | 1.26       | 34.096 | 1.13       | 34.084 | 1.29       | 34.097 | 1.46       | 34.091 | 1.33       | 34.081 | 1.52       | 34.090 | 5.30       | 34.156 |            |        |
| 250m         | 1.06       | 34.087 | 1.20       | 34.099 | 1.17       | 34.099 | 1.06       | 34.092 | 1.14       | 34.096 | 1.28       | 34.093 | 1.02       | 34.079 | 1.22       | 34.086 | 4.10       | 34.121 |            |        |
| 300m         | 0.89       | 34.083 | 1.11       | 34.098 | 1.03       | 34.093 | 0.98       | 34.089 | 1.08       | 34.096 | 0.93       | 34.079 | 0.81       | 34.076 | 0.95       | 34.082 | 2.13       | 34.091 |            |        |
| 400m         | 0.69       | 34.078 | 0.83       | 34.084 | 0.74       | 34.080 | 0.83       | 34.086 | 0.74       | 34.082 | 0.65       | 34.074 | 0.53       | 34.073 | 0.65       | 34.075 | 0.89       | 34.079 |            |        |
| 500m         | 0.52       | 34.075 | 0.58       | 34.076 | 0.52       | 34.075 | 0.60       | 34.077 | 0.54       | 34.075 | 0.48       | 34.072 | 0.41       | 34.071 | 0.48       | 34.072 |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-31

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J61        |        | J51        |        | JC21       |        | JC22       |        | JC13       |        | JC12       |        | JC11       |        | CW01       |        | CW02       |        | CW03       |        |
| Latitude:N   | 41-20.0    |        | 41-29.1    |        | 42- 0.2    |        | 42- 0.1    |        | 42-59.9    |        | 43- 0.0    |        | 43- 0.0    |        | 43-25.2    |        | 43-24.8    |        | 43-25.0    |        |
| Longitude:E  | 140- 0.1   |        | 139-50.8   |        | 139-59.7   |        | 139-40.1   |        | 139-40.0   |        | 139-59.9   |        | 140-19.9   |        | 140-59.9   |        | 140-50.1   |        | 140-40.1   |        |
| Date         | 1997/10/01 |        | 1997/10/01 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/14 |        | 1997/10/14 |        | 1997/10/14 |        |
| Time(JST)    | 20:13      |        | 21:34      |        | 00:56      |        | 02:40      |        | 08:10      |        | 09:51      |        | 11:34      |        | 13:01      |        | 13:57      |        | 14:55      |        |
| Weather      | B          |        | BC         |        | BC         |        | BC         |        | B          |        | BC         |        |            |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 17.7       |        | 18.0       |        | 15.3       |        | 16.6       |        | 17.9       |        | 17.6       |        | 18.5       |        | 13.3       |        | 13.4       |        | 13.0       |        |
| Bar          | 1026.0     |        | 1026.0     |        | 1025.8     |        | 1025.5     |        | 1025.1     |        | 1025.6     |        | 1025.4     |        | 1011.1     |        | 1011.2     |        | 1011.2     |        |
| Wind Dir     | WNW        |        | E          |        | E          |        | S          |        | SSW        |        | S          |        | CALM       |        | WNW        |        | WNW        |        | WNW        |        |
| Wind Spd/F   | S 2        |        | S 3        |        | S 4        |        | S 2        |        | S 9        |        | S 6        |        | S 0        |        | S 3        |        | S 4        |        | S 2        |        |
| Transparency |            |        |            |        |            |        |            |        | 22         |        | 20         |        | 16         |        |            |        |            |        |            |        |
| Depth        | 227        |        | 1100       |        | 663        |        | 891        |        | 1025       |        | 1273       |        | 480        |        | 78         |        | 314        |        | 490        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 20.6       | 33.345 | 20.5       | 33.456 | 16.4       | 34.047 | 19.4       | 33.680 | 18.3       | 34.060 | 18.0       | 34.016 | 18.3       | 33.227 | 15.9       | 34.07* | 15.6       | 33.99* | 15.7       | 34.02* |
| 10m          | 20.83      | 33.345 | 20.63      | 33.437 | 15.72      | 34.167 | 19.39      | 33.678 | 18.28      | 34.064 | 17.94      | 34.016 | 17.93      | 33.929 | 15.82      | 34.067 | 15.60      | 33.987 | 15.64      | 34.019 |
| 20m          | 20.23      | 33.525 | 20.30      | 33.525 | 14.30      | 34.285 | 19.40      | 33.686 | 18.25      | 34.062 | 16.73      | 34.086 | 15.82      | 34.239 | 15.78      | 34.065 | 15.53      | 33.985 | 15.55      | 34.006 |
| 30m          | 20.02      | 33.606 | 19.88      | 33.723 | 13.08      | 34.372 | 18.41      | 33.990 | 16.31      | 34.113 | 13.53      | 34.382 | 12.63      | 34.361 | 15.77      | 34.068 | 15.52      | 33.985 | 15.54      | 34.009 |
| 50m          | 15.67      | 34.461 | 15.45      | 34.419 | 11.16      | 34.346 | 11.57      | 34.294 | 12.09      | 34.277 | 8.62       | 34.262 | 9.26       | 34.289 | 15.68      | 34.074 | 13.93      | 34.389 | 13.39      | 34.398 |
| 75m          | 13.30      | 34.402 | 12.02      | 34.419 | 8.40       | 34.248 | 7.85       | 34.248 | 11.14      | 34.341 | 5.52       | 34.179 | 6.98       | 34.208 |            |        | 10.09      | 34.306 | 10.49      | 34.321 |
| 100m         | 8.52       | 34.275 | 9.85       | 34.315 | 5.97       | 34.186 | 5.88       | 34.182 | 9.08       | 34.256 | 3.84       | 34.134 | 5.88       | 34.175 |            |        | 7.21       | 34.213 | 7.79       | 34.227 |
| 125m         | 6.50       | 34.196 | 7.19       | 34.223 | 4.49       | 34.149 | 4.34       | 34.131 | 7.39       | 34.208 | 2.44       | 34.122 | 3.42       | 34.139 |            |        | 5.29       | 34.159 | 5.47       | 34.173 |
| 150m         | 5.74       | 34.170 | 4.92       | 34.142 | 3.65       | 34.113 | 3.09       | 34.102 | 6.15       | 34.173 | 2.06       | 34.100 | 2.39       | 34.112 |            |        | 3.95       | 34.140 | 4.56       | 34.145 |
| 200m         | 4.29       | 34.126 | 2.97       | 34.088 | 2.31       | 34.092 | 1.70       | 34.089 | 3.72       | 34.135 | 1.48       | 34.090 | 1.89       | 34.096 |            |        | 2.47       | 34.112 | 2.70       | 34.120 |
| 250m         |            |        | 1.88       | 34.084 | 1.71       | 34.088 | 1.15       | 34.086 | 2.39       | 34.106 | 1.17       | 34.084 | 1.24       | 34.087 |            |        | 1.69       | 34.093 | 1.69       | 34.095 |
| 300m         |            |        | 1.36       | 34.083 | 1.34       | 34.085 | 0.79       | 34.080 | 1.53       | 34.084 | 0.94       | 34.081 | 0.99       | 34.081 |            |        |            |        | 1.24       | 34.083 |
| 400m         |            |        | 0.83       | 34.077 | 0.75       | 34.076 | 0.54       | 34.074 | 1.04       | 34.083 | 0.57       | 34.073 | 0.54       | 34.075 |            |        |            |        | 0.76       | 34.078 |
| 500m         |            |        | 0.57       | 34.072 | 0.56       | 34.073 | 0.40       | 34.071 | 0.75       | 34.076 | 0.43       | 34.071 |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        | 0.55       | 34.073 | 0.31       | 34.069 |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-32

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CW04       |        | CW05       |        | CW06       |        | CW07       |        | CW08       |        | CW09       |        | CW10       |        | CW11       |        | CW12       |        | CW13       |        |
| Latitude:N   | 43-25.0    |        | 43-25.0    |        | 43-39.9    |        | 43-59.9    |        | 44- 0.0    |        | 43-40.0    |        | 43-40.0    |        | 43-59.9    |        | 44- 0.0    |        | 44- 0.0    |        |
| Longitude:E  | 140-20.0   |        | 140- 0.0   |        | 141- 0.5   |        | 141- 0.0   |        | 140-30.0   |        | 140-30.0   |        | 140- 0.0   |        | 140- 0.0   |        | 139-30.3   |        | 139- 0.2   |        |
| Date         | 1997/10/14 |        | 1997/10/14 |        | 1997/10/14 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/15 |        |
| Time(JST)    | 16:31      |        | 17:56      |        | 23:47      |        | 01:58      |        | 04:16      |        | 06:27      |        | 08:48      |        | 11:25      |        | 13:46      |        | 16:07      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        |
| Air Temp.    | 11.2       |        | 11.2       |        | 11.6       |        | 12.2       |        | 12.2       |        | 12.5       |        | 16.6       |        | 13.8       |        | 13.8       |        | 12.8       |        |
| Bar          | 1011.0     |        | 1011.5     |        | 1011.0     |        | 1010.5     |        | 1010.5     |        | 1010.0     |        | 1010.5     |        | 1010.5     |        | 1010.3     |        | 1012.1     |        |
| Wind Dir     | N          |        | NNE        |        | CALM       |        | E          |        | E          |        | E          |        | E          |        | NE         |        | NE         |        | NE         |        |
| Wind Spd/F   | S 2        |        | S 4        |        | S 0        |        | S 4        |        | S 6        |        | S 6        |        | S 7        |        | S 8        |        | S 9        |        | S 8        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 160        |        | 650        |        | 307        |        | 402        |        | 733        |        | 812        |        | 1000       |        | 453        |        | 1000       |        | 1000       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.5       | 34.00* | 15.1       | 34.02* | 15.4       | 33.88* | 15.6       | 33.91* | 15.4       | 34.06* | 15.0       | 33.99* | 16.7       | 33.83* | 15.0       | 34.05* | 15.1       | 34.07* | 13.9       | 34.02* |
| 10m          | 15.66      | 34.000 | 15.61      | 34.027 | 15.49      | 33.875 | 15.76      | 33.953 | 15.63      | 34.068 | 15.32      | 33.989 | 16.58      | 33.825 | 15.46      | 34.051 | 15.14      | 34.066 | 13.97      | 34.025 |
| 20m          | 15.59      | 34.003 | 15.59      | 34.026 | 15.49      | 33.874 | 15.54      | 34.040 | 15.63      | 34.068 | 15.31      | 33.988 | 16.56      | 33.832 | 15.46      | 34.051 | 15.14      | 34.067 | 13.97      | 34.024 |
| 30m          | 15.58      | 34.006 | 15.43      | 34.023 | 15.48      | 33.877 | 15.52      | 34.044 | 15.63      | 34.085 | 15.31      | 33.988 | 16.10      | 34.030 | 15.46      | 34.051 | 15.15      | 34.068 | 13.11      | 34.137 |
| 50m          | 15.24      | 34.083 | 10.80      | 34.317 | 11.56      | 34.367 | 12.03      | 34.392 | 12.35      | 34.300 | 12.35      | 34.264 | 15.66      | 34.037 | 12.49      | 34.368 | 9.01       | 34.203 | 9.31       | 34.269 |
| 75m          | 9.97       | 34.307 | 7.49       | 34.229 | 8.68       | 34.255 | 8.97       | 34.263 | 11.16      | 34.337 | 11.28      | 34.349 | 9.71       | 34.269 | 10.85      | 34.327 | 4.59       | 34.157 | 7.12       | 34.189 |
| 100m         | 6.94       | 34.185 | 5.25       | 34.154 | 6.94       | 34.199 | 7.45       | 34.209 | 9.84       | 34.288 | 9.78       | 34.293 | 7.42       | 34.221 | 9.54       | 34.269 | 3.21       | 34.131 | 3.81       | 34.121 |
| 125m         | 5.20       | 34.168 | 3.69       | 34.130 | 5.31       | 34.155 | 5.56       | 34.160 | 8.14       | 34.235 | 7.61       | 34.214 | 5.91       | 34.171 | 7.71       | 34.214 | 2.43       | 34.117 | 2.72       | 34.107 |
| 150m         | 3.59       | 34.134 | 2.87       | 34.118 | 4.61       | 34.141 | 4.65       | 34.145 | 6.75       | 34.183 | 5.88       | 34.170 | 4.60       | 34.146 | 6.46       | 34.181 | 1.85       | 34.095 | 2.36       | 34.106 |
| 200m         |            |        | 1.69       | 34.095 | 3.45       | 34.111 | 3.07       | 34.118 | 4.49       | 34.142 | 3.99       | 34.134 | 2.93       | 34.118 | 3.61       | 34.114 | 1.43       | 34.090 | 1.67       | 34.098 |
| 250m         |            |        | 1.25       | 34.085 | 2.19       | 34.106 | 2.01       | 34.103 | 2.96       | 34.108 | 2.79       | 34.121 | 1.56       | 34.093 | 2.45       | 34.102 | 1.21       | 34.087 | 1.29       | 34.088 |
| 300m         |            |        | 0.91       | 34.080 |            |        | 1.25       | 34.085 | 2.08       | 34.094 | 1.96       | 34.097 | 1.08       | 34.082 | 1.64       | 34.090 | 1.05       | 34.084 | 1.06       | 34.083 |
| 400m         |            |        | 0.57       | 34.073 |            |        |            |        | 1.09       | 34.083 | 0.99       | 34.079 | 0.62       | 34.073 | 1.14       | 34.082 | 0.66       | 34.075 | 0.76       | 34.077 |
| 500m         |            |        | 0.41       | 34.072 |            |        |            |        | 0.63       | 34.074 | 0.72       | 34.074 | 0.42       | 34.071 |            |        | 0.52       | 34.072 | 0.57       | 34.072 |
| 600m         |            |        | 0.31       | 34.070 |            |        |            |        | 0.50       | 34.071 | 0.54       | 34.072 | 0.29       | 34.069 |            |        | 0.41       | 34.071 | 0.44       | 34.071 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-33

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CW14       |        | CW15       |        | CW16       |        | CW17       |        | CW18       |        | CW19       |        | CW20       |        | CW21       |        | CW22       |        | CW23       |        |
| Latitude:N   | 43-40.0    |        | 43-40.0    |        | 43-20.1    |        | 43-20.0    |        | 43- 0.1    |        | 42-40.0    |        | 42-40.0    |        | 43- 0.0    |        | 42-55.1    |        | 42-59.9    |        |
| Longitude:E  | 139- 0.1   |        | 139-29.8   |        | 139-30.1   |        | 139- 0.2   |        | 139- 0.1   |        | 139- 0.0   |        | 139-29.9   |        | 139-30.0   |        | 139-59.9   |        | 140-26.9   |        |
| Date         | 1997/10/15 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/16 |        | 1997/10/16 |        | 1997/10/16 |        | 1997/10/16 |        | 1997/10/16 |        | 1997/10/16 |        | 1997/10/16 |        |
| Time(JST)    | 18:15      |        | 20:41      |        | 23:03      |        | 01:33      |        | 03:43      |        | 05:52      |        | 08:17      |        | 10:33      |        | 12:58      |        | 15:15      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        |
| Air Temp.    | 12.1       |        | 12.5       |        | 13.2       |        | 12.6       |        | 12.4       |        | 12.6       |        | 13.8       |        | 18.5       |        | 16.0       |        | 16.6       |        |
| Bar          | 1012.6     |        | 1013.5     |        | 1014.4     |        | 1016.0     |        | 1016.0     |        | 1017.0     |        | 1018.1     |        | 1018.0     |        | 1017.3     |        | 1017.2     |        |
| Wind Dir     | NNE        |        | NNE        |        | N          |        | N          |        | NNW        |        | WNW        |        | NNW        |        | NNW        |        | WSW        |        | SW         |        |
| Wind Spd/F   | S 9        |        | S 4        |        | S 6        |        | S 6        |        | S 6        |        | S 5        |        | S 4        |        | S 2        |        | S 4        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 84         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 14.4       | 34.18* | 15.3       | 34.07* | 15.4       | 34.06* | 15.5       | 34.12* | 15.5       | 34.10* | 16.5       | 33.87* | 16.8       | 33.81* | 16.0       | 34.00* | 16.6       | 33.67* | 16.4       | 33.22* |
| 10m          | 14.33      | 34.177 | 15.60      | 34.067 | 15.43      | 34.063 | 15.52      | 34.119 | 15.57      | 34.101 | 16.45      | 33.875 | 16.75      | 33.804 | 15.80      | 33.998 | 16.44      | 33.693 | 16.79      | 33.707 |
| 20m          | 14.29      | 34.180 | 15.60      | 34.067 | 15.44      | 34.063 | 15.52      | 34.119 | 15.57      | 34.103 | 16.06      | 33.957 | 16.77      | 33.810 | 15.79      | 34.000 | 16.73      | 33.846 | 16.91      | 33.792 |
| 30m          | 12.25      | 34.305 | 15.60      | 34.067 | 15.06      | 34.055 | 15.52      | 34.120 | 15.57      | 34.103 | 14.20      | 34.370 | 16.55      | 33.875 | 15.79      | 34.004 | 16.69      | 33.844 | 16.65      | 33.863 |
| 50m          | 11.06      | 34.310 | 11.06      | 34.336 | 11.98      | 34.339 | 12.73      | 34.289 | 12.60      | 34.376 | 8.70       | 34.265 | 11.56      | 34.316 | 13.24      | 34.401 | 12.65      | 34.319 | 15.65      | 34.052 |
| 75m          | 9.71       | 34.281 | 8.34       | 34.234 | 9.07       | 34.285 | 11.48      | 34.365 | 10.48      | 34.330 | 5.61       | 34.171 | 6.84       | 34.219 | 10.37      | 34.271 | 9.90       | 34.303 | 10.49      | 34.294 |
| 100m         | 7.61       | 34.204 | 6.15       | 34.174 | 6.50       | 34.190 | 9.10       | 34.267 | 8.64       | 34.257 | 3.06       | 34.124 | 4.11       | 34.143 | 8.46       | 34.235 | 7.86       | 34.239 |            |        |
| 125m         | 4.64       | 34.156 | 4.52       | 34.129 | 5.14       | 34.154 | 6.84       | 34.195 | 6.55       | 34.195 | 2.30       | 34.104 | 2.92       | 34.116 | 6.93       | 34.175 | 6.53       | 34.195 |            |        |
| 150m         | 3.70       | 34.173 | 3.23       | 34.097 | 3.44       | 34.106 | 5.19       | 34.153 | 4.72       | 34.147 | 1.98       | 34.092 | 2.29       | 34.106 | 5.16       | 34.150 | 4.68       | 34.146 |            |        |
| 200m         | 3.44       | 34.182 | 2.02       | 34.091 | 2.36       | 34.108 | 2.97       | 34.111 | 2.81       | 34.104 | 1.42       | 34.089 | 1.61       | 34.091 | 2.88       | 34.118 | 3.07       | 34.122 |            |        |
| 250m         | 3.27       | 34.178 | 1.53       | 34.086 | 1.71       | 34.092 | 1.91       | 34.093 | 1.81       | 34.092 | 1.13       | 34.084 | 1.29       | 34.089 | 1.79       | 34.092 | 1.92       | 34.094 |            |        |
| 300m         | 2.86       | 34.153 | 1.14       | 34.081 | 1.34       | 34.091 | 1.48       | 34.092 | 1.46       | 34.091 | 0.96       | 34.082 | 1.03       | 34.082 | 1.42       | 34.092 | 1.35       | 34.088 |            |        |
| 400m         | 1.33       | 34.084 | 0.82       | 34.078 | 0.89       | 34.078 | 1.00       | 34.083 | 1.05       | 34.091 | 0.81       | 34.083 | 0.75       | 34.078 | 0.94       | 34.082 | 0.86       | 34.078 |            |        |
| 500m         | 1.10       | 34.092 | 0.60       | 34.073 | 0.63       | 34.074 | 0.69       | 34.076 | 0.68       | 34.076 | 0.61       | 34.075 | 0.54       | 34.072 | 0.65       | 34.074 | 0.55       | 34.073 |            |        |
| 600m         | 0.76       | 34.076 | 0.48       | 34.071 | 0.48       | 34.071 | 0.52       | 34.072 | 0.51       | 34.072 | 0.48       | 34.073 | 0.42       | 34.070 | 0.50       | 34.071 | 0.39       | 34.069 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-34



Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199711     |        | 199711     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CW24       |        | CW25       |        | CW26       |        | CHA001     |        | CHA002     |        | CHA003     |        | CHA004     |        | CHA005     |        | CHA001     |        | CHA002     |        |
| Latitude:N   | 43- 0.0    |        | 43- 0.1    |        | 43-10.0    |        | 43-46.0    |        | 43-52.3    |        | 43-49.8    |        | 43-53.8    |        | 43-52.1    |        | 43-43.0    |        | 43-46.2    |        |
| Longitude:E  | 140-20.1   |        | 140- 0.1   |        | 140- 0.1   |        | 141-10.0   |        | 141-10.3   |        | 141- 8.2   |        | 141-11.2   |        | 141-11.8   |        | 141-11.8   |        | 141- 8.0   |        |
| Date         | 1997/10/16 |        | 1997/10/16 |        | 1997/10/16 |        | 1997/10/28 |        | 1997/10/28 |        | 1997/10/29 |        | 1997/10/29 |        | 1997/10/30 |        | 1997/11/04 |        | 1997/11/04 |        |
| Time(JST)    | 15:52      |        | 17:36      |        | 21:20      |        | 12:50      |        | 15:30      |        | 06:50      |        | 14:35      |        | 08:53      |        | 11:57      |        | 14:38      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | C          |        | C          |        | BC         |        |
| Air Temp.    | 14.7       |        | 13.5       |        | 13.3       |        | 8.7        |        | 8.6        |        | 8.3        |        | 13.1       |        | 12.8       |        | 17.3       |        | 14.4       |        |
| Bar          | 1017.0     |        | 1017.1     |        | 1016.3     |        |            |        |            |        | 1022.0     |        | 1020.0     |        | 1012.0     |        | 1018.0     |        | 1017.0     |        |
| Wind Dir     | W          |        | WSW        |        | SW         |        | SE         |        | W          |        | SSE        |        | ENE        |        | S          |        | SSE        |        | W          |        |
| Wind Spd/F   | S 5        |        | S 7        |        | S 9        |        | S 6        |        | S 7        |        | S 9        |        | S 3        |        | S 7        |        | S 5        |        | S 5        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 499        |        | 1000       |        | 729        |        | 210        |        | 243        |        | 263        |        | 231        |        | 211        |        | 134        |        | 248        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.7       | 33.86* | 16.4       | 33.74* | 15.3       | 34.12* | 13.2       | 34.07* | 13.7       | 34.07* | 13.8       | 34.02* | 13.4       | 34.12* | 13.9       | 34.07* | 14.0       | 34.02* | 13.8       | 34.00* |
| 10m          | 16.53      | 33.859 | 16.57      | 33.739 | 15.41      | 34.115 | 13.62      | 34.105 | 13.91      | 34.078 | 14.03      | 34.031 | 13.33      | 34.130 | 13.89      | 34.079 | 13.80      | 34.023 | 13.70      | 34.021 |
| 20m          | 15.93      | 34.026 | 16.60      | 33.763 | 15.40      | 34.114 | 13.61      | 34.115 | 13.82      | 34.107 | 13.52      | 34.095 | 13.32      | 34.129 | 13.89      | 34.079 | 13.79      | 34.025 | 13.53      | 34.039 |
| 30m          | 15.84      | 34.036 | 16.64      | 33.855 | 15.33      | 34.118 | 13.59      | 34.116 | 13.57      | 34.120 | 13.40      | 34.120 | 13.31      | 34.129 | 13.76      | 34.083 | 13.78      | 34.026 | 13.42      | 34.058 |
| 50m          | 15.69      | 34.049 | 15.67      | 34.317 | 12.03      | 34.326 | 13.60      | 34.123 | 13.42      | 34.146 | 13.28      | 34.133 | 13.14      | 34.195 | 13.31      | 34.121 | 13.49      | 34.084 | 13.36      | 34.076 |
| 75m          | 11.16      | 34.350 | 9.62       | 34.276 | 10.04      | 34.287 | 12.10      | 34.280 | 11.17      | 34.316 | 11.73      | 34.273 | 10.73      | 34.314 | 13.06      | 34.156 | 13.28      | 34.118 | 13.18      | 34.123 |
| 100m         | 8.96       | 34.262 | 7.90       | 34.208 | 8.18       | 34.231 | 10.02      | 34.294 | 9.29       | 34.274 | 9.25       | 34.267 | 8.84       | 34.260 | 9.14       | 34.273 | 12.52      | 34.225 | 10.75      | 34.308 |
| 125m         | 7.20       | 34.204 | 5.90       | 34.173 | 5.39       | 34.157 | 8.16       | 34.227 | 7.35       | 34.203 | 7.13       | 34.199 | 6.62       | 34.190 | 7.11       | 34.205 | 9.82       | 34.295 | 8.95       | 34.247 |
| 150m         | 6.01       | 34.170 | 4.61       | 34.134 | 4.06       | 34.134 | 6.43       | 34.177 | 5.92       | 34.160 | 5.45       | 34.151 | 5.39       | 34.148 | 5.60       | 34.155 |            |        | 6.97       | 34.192 |
| 200m         | 3.85       | 34.131 | 2.45       | 34.110 | 2.56       | 34.112 | 4.28       | 34.129 | 3.94       | 34.121 | 3.57       | 34.126 | 3.65       | 34.131 | 3.81       | 34.128 |            |        | 4.39       | 34.136 |
| 250m         | 2.78       | 34.110 | 1.75       | 34.093 | 1.64       | 34.090 |            |        |            |        | 2.22       | 34.096 |            |        |            |        |            |        |            |        |
| 300m         | 1.53       | 34.089 | 1.25       | 34.087 | 1.29       | 34.054 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 1.08       | 34.080 | 0.80       | 34.078 | 0.86       | 34.076 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        | 0.55       | 34.073 | 0.58       | 34.072 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        | 0.46       | 34.070 | 0.47       | 34.070 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-35

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | CHA003     |        | CHA004     |        | CHA005     |        | CW101      |        | CW201      |        | CW202      |        | CW203      |        | CW204      |        | J31        |        | J32        |        |
| Latitude:N   | 43-44.5    |        | 43-49.0    |        | 43-52.5    |        | 43-25.2    |        | 43- 2.0    |        | 43- 3.1    |        | 43- 2.6    |        | 43-23.4    |        | 43-20.1    |        | 43-29.9    |        |
| Longitude:E  | 141- 8.2   |        | 141- 9.8   |        | 141- 9.8   |        | 140-51.2   |        | 140-23.5   |        | 140-23.1   |        | 140-22.5   |        | 140-40.0   |        | 141- 9.9   |        | 141- 0.0   |        |
| Date         | 1997/11/05 |        | 1997/11/06 |        | 1997/11/06 |        | 1997/11/17 |        | 1997/11/20 |        | 1997/11/20 |        | 1997/11/20 |        | 1997/11/21 |        | 1997/11/25 |        | 1997/11/25 |        |
| Time(JST)    | 06:46      |        | 06:57      |        | 11:37      |        | 11:35      |        | 11:38      |        | 16:29      |        | 18:23      |        | 06:53      |        | 10:05      |        | 11:20      |        |
| Weather      | BC         |        | C          |        | C          |        |            |        |            |        |            |        |            |        |            |        | BC         |        | BC         |        |
| Air Temp.    | 12.2       |        | 9.4        |        | 9.5        |        |            |        |            |        |            |        |            |        |            |        | 8.7        |        | 9.6        |        |
| Bar          | 1012.0     |        | 1013.0     |        | 1013.0     |        |            |        |            |        |            |        |            |        |            |        | 1027.4     |        | 1027.0     |        |
| Wind Dir     | SE         |        | NW         |        | W          |        |            |        |            |        |            |        |            |        |            |        | SE         |        | SE         |        |
| Wind Spd/F   | S 4        |        | S 7        |        | S 7        |        |            |        |            |        |            |        |            |        |            |        | S 8        |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 10         |        | 18         |        |
| Depth        | 233        |        | 233        |        | 253        |        |            |        |            |        |            |        |            |        |            |        | 40         |        | 95         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.5       | 34.03* | 14.2       | 33.88* | 14.1       | 33.92* | 13.3       | 33.98* | 13.2       | 33.81* | 13.2       | 33.87* | 13.1       | 33.85* | 12.5       | 33.97* | 10.9       | 32.741 | 12.1       | 34.054 |
| 10m          | 13.54      | 34.040 | 14.42      | 33.895 | 14.18      | 33.947 | 13.27      | 33.991 | 13.16      | 33.895 | 13.21      | 33.882 | 13.20      | 33.888 | 12.71      | 33.977 | 10.91      | 32.880 | 12.11      | 34.049 |
| 20m          | 13.55      | 34.040 | 14.01      | 33.951 | 13.89      | 34.005 | 13.08      | 33.994 | 13.29      | 33.948 | 13.26      | 33.914 | 13.15      | 33.925 | 12.71      | 33.979 | 12.88      | 33.913 | 12.11      | 34.049 |
| 30m          | 13.55      | 34.041 | 13.92      | 34.001 | 13.76      | 34.017 | 13.01      | 33.991 | 13.25      | 33.957 | 13.28      | 33.954 | 13.14      | 33.934 | 12.71      | 33.980 | 12.94      | 33.958 | 12.10      | 34.050 |
| 50m          | 13.55      | 34.043 | 13.71      | 34.029 | 13.49      | 34.050 | 12.92      | 34.047 | 12.82      | 33.992 | 12.86      | 34.001 | 12.83      | 34.030 | 12.65      | 34.005 |            |        | 11.78      | 34.108 |
| 75m          | 13.52      | 34.068 | 13.41      | 34.152 | 12.40      | 34.227 | 11.76      | 34.300 | 9.02       | 34.261 | 8.68       | 34.249 | 8.81       | 34.242 | 11.27      | 34.230 |            |        | 10.12      | 34.280 |
| 100m         | 12.46      | 34.273 | 10.97      | 34.325 | 10.27      | 34.293 | 9.11       | 34.270 | 6.02       | 34.177 | 6.57       | 34.190 | 6.30       | 34.185 | 7.76       | 34.229 |            |        |            |        |
| 125m         | 10.52      | 34.310 | 9.72       | 34.273 | 8.27       | 34.234 | 7.07       | 34.202 | 4.92       | 34.142 | 5.56       | 34.158 | 5.29       | 34.150 | 5.96       | 34.160 |            |        |            |        |
| 150m         | 8.78       | 34.253 | 7.85       | 34.219 | 6.60       | 34.185 | 5.84       | 34.167 | 3.82       | 34.117 |            |        | 3.71       | 34.114 | 4.72       | 34.124 |            |        |            |        |
| 200m         | 4.92       | 34.152 | 4.62       | 34.135 | 4.09       | 34.132 | 3.40       | 34.121 |            |        |            |        | 2.29       | 34.092 | 2.52       | 34.109 |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.50       | 34.081 |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.17       | 34.075 |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-36

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J33        |        | J34        |        | J35        |        | J36        |        | J37        |        | J38        |        | J39        |        | J27        |        | J26        |        | J25        |        |
| Latitude:N   | 43-30.0    |        | 43-30.0    |        | 43-30.1    |        | 43-30.1    |        | 43-30.1    |        | 43-30.0    |        | 43-30.1    |        | 44-30.3    |        | 44-30.2    |        | 44-30.1    |        |
| Longitude:E  | 140-40.2   |        | 140-20.1   |        | 140- 0.2   |        | 139-40.1   |        | 139-20.1   |        | 139- 0.0   |        | 138-29.9   |        | 139-29.9   |        | 139-59.9   |        | 140-19.9   |        |
| Date         | 1997/11/25 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/29 |        | 1997/11/29 |        | 1997/11/29 |        |
| Time(JST)    | 13:06      |        | 12:49      |        | 14:36      |        | 16:23      |        | 18:08      |        | 19:49      |        | 22:39      |        | 05:23      |        | 07:46      |        | 09:24      |        |
| Weather      | B          |        | C          |        | C          |        | C          |        |            |        | BC         |        | BC         |        | C          |        | C          |        | C          |        |
| Air Temp.    | 11.5       |        | 5.7        |        | 4.7        |        | 5.4        |        | 5.6        |        | 5.5        |        | 3.3        |        | 4.8        |        | 6.2        |        | 7.6        |        |
| Bar          | 1025.6     |        | 1031.0     |        | 1031.3     |        | 1031.5     |        | 1031.5     |        | 1031.0     |        | 1031.0     |        | 1026.4     |        | 1025.4     |        | 1023.5     |        |
| Wind Dir     | SSE        |        | W          |        | WNW        |        | SW         |        | SW         |        | SSW        |        | WSW        |        | SW         |        | SW         |        | SSW        |        |
| Wind Spd/F   | S 5        |        | S 3        |        | S 2        |        | S 3        |        | S 7        |        | S 8        |        | S 6        |        | S 7        |        | S 7        |        | S 7        |        |
| Transparency | 15         |        | 15         |        | 15         |        |            |        |            |        |            |        |            |        |            |        | 15         |        | 19         |        |
| Depth        | 682        |        | 642        |        | 1230       |        | 1100       |        | 3200       |        | 3440       |        | 3400       |        | 525        |        | 565        |        | 245        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.1       | 34.053 | 11.7       | 33.995 | 9.6        | 33.878 | 9.9        | 34.170 | 10.4       | 34.207 | 10.4       | 34.208 | 11.0       | 34.044 | 9.6        | 34.071 | 10.4       | 34.074 | 12.1       | 34.013 |
| 10m          | 11.98      | 34.055 | 11.73      | 33.990 | 9.81       | 34.149 | 10.03      | 34.169 | 10.48      | 34.205 | 10.64      | 34.204 | 11.16      | 34.042 | 9.69       | 34.066 | 10.40      | 34.073 | 12.16      | 34.011 |
| 20m          | 11.97      | 34.054 | 11.72      | 33.990 | 9.80       | 34.148 | 9.24       | 34.132 | 10.48      | 34.204 | 10.64      | 34.204 | 11.16      | 34.042 | 9.55       | 34.064 | 10.39      | 34.073 | 12.17      | 34.010 |
| 30m          | 11.77      | 34.060 | 11.72      | 33.990 | 9.79       | 34.147 | 8.73       | 34.216 | 10.47      | 34.203 | 10.65      | 34.204 | 11.16      | 34.042 | 9.28       | 34.067 | 10.36      | 34.072 | 12.16      | 34.010 |
| 50m          | 11.49      | 34.068 | 11.74      | 33.997 | 9.66       | 34.140 | 7.43       | 34.086 | 10.38      | 34.196 | 10.64      | 34.204 | 9.55       | 34.225 | 5.91       | 34.151 | 9.06       | 34.243 | 12.11      | 34.007 |
| 75m          | 11.45      | 34.097 | 10.95      | 34.190 | 7.80       | 34.161 | 6.14       | 34.055 | 9.92       | 34.197 | 10.28      | 34.219 | 7.44       | 34.213 | 4.17       | 34.136 | 7.28       | 34.207 | 10.60      | 34.179 |
| 100m         | 9.45       | 34.278 | 7.64       | 34.222 | 5.94       | 34.172 | 4.62       | 34.135 | 7.74       | 34.212 | 6.97       | 34.188 | 5.50       | 34.153 | 3.13       | 34.109 | 5.55       | 34.151 | 8.77       | 34.254 |
| 125m         | 5.86       | 34.177 | 5.72       | 34.163 | 3.97       | 34.125 | 3.15       | 34.107 | 5.80       | 34.164 | 4.55       | 34.172 | 3.72       | 34.124 | 2.44       | 34.107 | 4.52       | 34.144 | 6.65       | 34.192 |
| 150m         | 4.32       | 34.144 | 4.66       | 34.140 | 2.96       | 34.107 | 2.39       | 34.092 | 4.02       | 34.121 | 3.65       | 34.193 | 2.83       | 34.102 | 1.90       | 34.092 | 3.81       | 34.124 | 5.65       | 34.162 |
| 200m         | 2.33       | 34.104 | 3.03       | 34.119 | 2.06       | 34.097 | 1.73       | 34.086 | 2.50       | 34.096 | 3.51       | 34.191 | 1.90       | 34.089 | 1.42       | 34.085 | 2.32       | 34.099 | 3.53       | 34.125 |
| 250m         | 1.51       | 34.085 | 2.06       | 34.097 | 1.54       | 34.085 | 1.46       | 34.090 | 1.94       | 34.092 | 3.50       | 34.189 | 1.49       | 34.090 | 1.11       | 34.081 | 1.57       | 34.087 |            |        |
| 300m         | 1.08       | 34.077 | 1.44       | 34.083 | 1.19       | 34.082 | 1.11       | 34.082 | 1.52       | 34.088 | 3.46       | 34.186 | 1.19       | 34.086 | 0.91       | 34.078 | 1.33       | 34.085 |            |        |
| 400m         | 0.71       | 34.072 | 0.96       | 34.074 | 0.71       | 34.073 | 0.76       | 34.074 | 1.18       | 34.089 | 3.00       | 34.159 | 0.89       | 34.081 | 0.66       | 34.072 | 0.86       | 34.076 |            |        |
| 500m         | 0.56       | 34.070 | 0.63       | 34.071 | 0.51       | 34.070 | 0.59       | 34.070 | 0.89       | 34.079 | 1.90       | 34.109 | 0.67       | 34.075 |            |        | 0.55       | 34.070 |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            | 1.06   | 34.082     |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-37

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J24        |        | J23        |        | JC12       |        | J41        |        | JC21       |        | J62        |        | J63        |        | HW001      |        | HW002      |        | HW003      |        |
| Latitude:N   | 44-30.1    |        | 44-29.9    |        | 43- 0.0    |        | 42-30.8    |        | 42- 0.1    |        | 41-10.0    |        | 41- 0.2    |        | 41-40.0    |        | 41-39.9    |        | 41-50.0    |        |
| Longitude:E  | 140-40.0   |        | 140-59.9   |        | 140- 0.2   |        | 139-41.0   |        | 139-59.7   |        | 140- 0.4   |        | 140- 0.0   |        | 141- 5.0   |        | 141-37.8   |        | 141-35.5   |        |
| Date         | 1997/11/29 |        | 1997/11/29 |        | 1997/12/13 |        | 1997/12/13 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/15 |        | 1997/12/15 |        | 1997/12/15 |        |
| Time(JST)    | 10:54      |        | 12:22      |        | 16:40      |        | 21:40      |        | 01:57      |        | 07:18      |        | 08:28      |        | 10:11      |        | 13:20      |        | 20:42      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 8.7        |        | 8.8        |        | 0.3        |        | 2.4        |        | 3.8        |        | 5.1        |        | 5.2        |        | 8.8        |        | 8.7        |        | 5.7        |        |
| Bar          | 1022.8     |        | 1021.3     |        | 1018.0     |        | 1019.5     |        | 1019.5     |        | 1020.0     |        | 1021.5     |        | 1011.0     |        | 1008.0     |        | 1008.0     |        |
| Wind Dir     | SSW        |        | SSW        |        | W          |        | W          |        | WNW        |        | W          |        | WSW        |        | WSW        |        | W          |        | NW         |        |
| Wind Spd/F   | S 7        |        | S 11       |        | S 11       |        | S 4        |        | S 5        |        | S 8        |        | S 5        |        | S 12       |        | S 8        |        | S 10       |        |
| Transparency | 18         |        | 13         |        |            |        |            |        |            |        | 9          |        | 14         |        |            |        |            |        |            |        |
| Depth        | 141        |        | 203        |        | 1186       |        | 1821       |        |            |        | 100        |        |            |        | 98         |        | 370        |        | 648        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 11.5       | 34.042 | 11.2       | 34.036 | 9.8        | 34.07* | 13.4       | 33.82* | 12.7       | 33.81* | 14.4       | 33.55* | 14.5       | 33.49* | 14.0       | 33.74* | 13.0       | 33.52* | 11.0       | 33.73* |
| 10m          | 11.68      | 34.041 | 11.28      | 34.036 | 9.92       | 34.071 | 13.74      | 33.818 | 13.14      | 33.811 | 14.65      | 33.541 | 14.56      | 33.496 | 14.05      | 33.733 | 13.43      | 33.792 | 10.89      | 33.735 |
| 20m          | 11.45      | 34.058 | 11.28      | 34.037 | 9.93       | 34.073 | 13.74      | 33.818 | 13.18      | 33.833 | 14.64      | 33.539 | 14.59      | 33.501 | 13.40      | 33.722 | 13.40      | 33.792 | 10.86      | 33.730 |
| 30m          | 11.26      | 34.076 | 11.25      | 34.036 | 9.93       | 34.073 | 13.73      | 33.818 | 13.16      | 33.906 | 14.64      | 33.541 | 14.58      | 33.504 | 12.27      | 33.704 | 13.20      | 33.804 | 10.73      | 33.711 |
| 50m          | 11.06      | 34.089 | 11.23      | 34.038 | 9.91       | 34.071 | 13.75      | 34.243 | 13.07      | 33.946 | 14.77      | 33.605 | 14.59      | 33.507 | 11.12      | 33.674 | 12.61      | 33.823 | 10.03      | 33.652 |
| 75m          | 10.77      | 34.150 | 9.27       | 34.270 | 9.78       | 34.068 | 11.51      | 34.255 | 12.94      | 33.984 | 14.57      | 33.687 | 14.62      | 33.509 | 5.39       | 33.456 | 12.00      | 33.830 | 8.56       | 33.705 |
| 100m         | 7.97       | 34.236 | 7.44       | 34.212 | 7.78       | 34.209 | 7.73       | 34.164 | 12.04      | 34.265 |            |        | 14.77      | 33.561 |            |        | 11.57      | 33.823 | 7.94       | 33.745 |
| 125m         | 7.10       | 34.201 | 5.99       | 34.172 | 5.83       | 34.161 | 6.39       | 34.182 | 11.05      | 34.184 |            |        | 15.39      | 34.181 |            |        | 9.71       | 33.758 | 7.18       | 33.734 |
| 150m         |            |        | 4.54       | 34.143 | 4.49       | 34.125 | 5.33       | 34.136 | 10.31      | 34.141 |            |        | 13.65      | 34.409 |            |        | 8.52       | 33.738 | 5.00       | 33.462 |
| 200m         |            |        |            |        | 2.67       | 34.092 | 3.11       | 34.096 | 9.44       | 34.242 |            |        | 9.15       | 34.283 |            |        | 6.35       | 33.705 | 4.09       | 33.483 |
| 250m         |            |        |            |        | 1.71       | 34.085 | 1.77       | 34.084 | 6.14       | 34.156 |            |        | 3.71       | 34.110 |            |        | 4.24       | 33.670 | 3.06       | 33.453 |
| 300m         |            |        |            |        | 1.38       | 34.082 | 1.30       | 34.079 | 4.58       | 34.109 |            |        | 1.96       | 34.076 |            |        | 3.73       | 33.693 | 2.97       | 33.539 |
| 400m         |            |        |            |        | 0.96       | 34.076 | 0.83       | 34.074 | 1.60       | 34.084 |            |        | 0.97       | 34.070 |            |        |            |        |            |        |
| 500m         |            |        |            |        | 0.63       | 34.071 | 0.58       | 34.070 | 0.64       | 34.072 |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        | 0.45       | 34.068 |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        | 0.37       | 34.067 |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        | 0.31       | 34.066 |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        | 0.27       | 34.066 |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        | 0.24       | 34.065 |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-38

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HW004      |        | HW005      |        | HW006      |        | HW007      |        | HW008      |        | HW009      |        | HW010      |        | HW011      |        | HW012      |        | HW013      |        |
| Latitude:N   | 42- 0.0    |        | 42-10.0    |        | 42-14.9    |        | 42-20.0    |        | 42-19.9    |        | 42-15.1    |        | 42-17.9    |        | 42-12.1    |        | 42-14.7    |        | 42-12.0    |        |
| Longitude:E  | 141-29.8   |        | 141-21.8   |        | 141-40.7   |        | 141-24.8   |        | 141-35.0   |        | 141-42.1   |        | 141-49.0   |        | 141-56.2   |        | 142- 2.9   |        | 142-16.9   |        |
| Date         | 1997/12/16 |        | 1997/12/16 |        | 1997/12/16 |        | 1997/12/17 |        | 1997/12/17 |        | 1997/12/17 |        | 1997/12/17 |        | 1997/12/17 |        | 1997/12/17 |        | 1997/12/17 |        |
| Time(JST)    | 06:16      |        | 15:46      |        | 18:23      |        | 01:14      |        | 04:13      |        | 07:05      |        | 08:20      |        | 11:31      |        | 13:02      |        | 17:18      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        |            |        |
| Air Temp.    | 4.9        |        | 4.9        |        | 5.1        |        | 4.3        |        | 5.3        |        | 5.4        |        | 6.3        |        | 6.4        |        | 8.5        |        |            |        |
| Bar          | 1011.0     |        | 1012.0     |        | 1015.0     |        | 1012.0     |        | 1016.0     |        | 1016.5     |        | 1016.0     |        | 1016.0     |        | 1016.0     |        |            |        |
| Wind Dir     | WNW        |        | WNW        |        | NW         |        | WNW        |        | WNW        |        | W          |        | WNW        |        | WSW        |        | WNW        |        | WNW        |        |
| Wind Spd/F   | S 9        |        | S 12       |        | S 6        |        | S 6        |        | S 8        |        | S 6        |        | S 9        |        | S 8        |        | S 10       |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 470        |        | 430        |        | 660        |        |            |        | 464        |        | 650        |        | 533        |        | 804        |        | 550        |        | 405        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.0        | 33.37* | 7.6        | 33.27* | 7.7        | 33.28* | 8.2        | 33.38* | 8.6        | 33.63* | 9.2        | 33.59* | 9.5        | 33.64* | 9.4        | 33.62* | 9.8        | 33.71* | 8.9        | 33.50* |
| 10m          | 8.20       | 33.373 | 7.71       | 33.271 | 7.79       | 33.283 | 8.43       | 33.384 | 8.65       | 33.474 | 9.32       | 33.613 | 9.43       | 33.638 | 9.37       | 33.621 | 9.75       | 33.705 | 8.92       | 33.500 |
| 20m          | 8.21       | 33.372 | 7.71       | 33.271 | 7.79       | 33.280 | 8.44       | 33.384 | 8.76       | 33.492 | 9.32       | 33.611 | 9.47       | 33.643 | 9.38       | 33.623 | 9.73       | 33.700 | 8.95       | 33.509 |
| 30m          | 8.22       | 33.374 | 7.72       | 33.271 | 7.79       | 33.283 | 8.44       | 33.384 | 9.01       | 33.538 | 9.31       | 33.610 | 9.49       | 33.645 | 9.40       | 33.627 | 9.73       | 33.702 | 9.00       | 33.527 |
| 50m          | 8.22       | 33.375 | 7.72       | 33.271 | 7.79       | 33.283 | 8.45       | 33.386 | 9.00       | 33.538 | 9.32       | 33.610 | 9.49       | 33.644 | 9.48       | 33.647 | 9.74       | 33.702 | 8.99       | 33.529 |
| 75m          | 8.22       | 33.373 | 7.17       | 33.503 | 7.80       | 33.287 | 8.50       | 33.395 | 9.17       | 33.571 | 9.31       | 33.611 | 9.47       | 33.642 | 9.54       | 33.661 | 9.52       | 33.661 | 8.98       | 33.538 |
| 100m         | 7.79       | 33.423 | 6.11       | 33.573 | 5.86       | 33.402 | 7.29       | 33.664 | 6.60       | 33.445 | 9.28       | 33.612 | 9.47       | 33.641 | 9.59       | 33.675 | 9.38       | 33.634 | 8.73       | 33.566 |
| 125m         | 6.45       | 33.627 | 5.58       | 33.601 | 5.28       | 33.473 | 4.81       | 33.416 | 5.14       | 33.454 | 7.46       | 33.714 | 5.25       | 33.428 | 8.08       | 33.623 | 8.52       | 33.697 | 8.60       | 33.582 |
| 150m         | 4.81       | 33.504 | 4.66       | 33.550 | 4.87       | 33.513 | 4.51       | 33.486 | 6.22       | 33.686 | 5.70       | 33.545 | 4.52       | 33.412 | 6.08       | 33.557 | 7.75       | 33.730 | 7.99       | 33.576 |
| 200m         | 3.61       | 33.462 | 3.50       | 33.475 | 3.64       | 33.466 | 3.80       | 33.476 | 4.12       | 33.501 | 4.79       | 33.560 | 3.94       | 33.436 | 3.86       | 33.427 | 5.40       | 33.604 | 5.96       | 33.493 |
| 250m         | 3.44       | 33.486 | 3.35       | 33.540 | 3.12       | 33.469 | 3.29       | 33.502 | 3.05       | 33.440 | 3.77       | 33.535 | 4.48       | 33.603 | 3.30       | 33.470 | 4.54       | 33.572 | 4.65       | 33.471 |
| 300m         | 3.13       | 33.524 | 3.18       | 33.588 | 3.07       | 33.527 | 3.05       | 33.512 | 3.20       | 33.538 | 3.16       | 33.524 | 3.16       | 33.476 | 3.68       | 33.585 | 3.21       | 33.521 | 3.20       | 33.523 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-39

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HW014      |        | HW015      |        | J63        |        | J62        |        | J61        |        | J51        |        | JC21       |        | JC22       |        | J41        |        | J31        |        |
| Latitude:N   | 41-53.3    |        | 42- 5.1    |        | 41- 0.1    |        | 41-10.0    |        | 41-19.9    |        | 41-29.9    |        | 41-59.9    |        | 42- 0.0    |        | 42-30.0    |        | 43-20.1    |        |
| Longitude:E  | 141-30.6   |        | 141-34.6   |        | 140- 0.2   |        | 140- 0.1   |        | 140- 0.0   |        | 139-50.1   |        | 139-59.9   |        | 139-40.1   |        | 139-39.9   |        | 141-10.1   |        |
| Date         | 1997/12/18 |        | 1997/12/18 |        | 1998/02/02 |        | 1998/02/02 |        | 1998/02/02 |        | 1998/02/02 |        | 1998/02/03 |        | 1998/02/03 |        | 1998/02/03 |        | 1998/02/23 |        |
| Time(JST)    | 09:54      |        | 13:11      |        | 19:38      |        | 20:55      |        | 22:04      |        | 23:41      |        | 03:15      |        | 05:39      |        | 08:56      |        | 10:03      |        |
| Weather      | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | S          |        | C          |        |
| Air Temp.    | 8.2        |        | 10.5       |        | 1.6        |        | 2.2        |        | 3.0        |        | 2.4        |        | 2.4        |        | 1.5        |        | 0.7        |        | 0.6        |        |
| Bar          |            |        |            |        | 1019.0     |        | 1018.5     |        | 1018.0     |        | 1017.5     |        | 1015.5     |        |            |        | 1015.5     |        | 1021.4     |        |
| Wind Dir     | ESE        |        |            |        | W          |        | WSW        |        | W          |        | W          |        | W          |        | WNW        |        | W          |        | ESE        |        |
| Wind Spd/F   | S 7        |        |            |        | S 10       |        | S 9        |        | S 10       |        | S 12       |        | S 11       |        | S 10       |        | S 9        |        | S 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 12         |        | 6          |        |
| Depth        | 431        |        | 670        |        | 500        |        | 109        |        | 228        |        | 1340       |        | 704        |        | 920        |        | 1826       |        | 40         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.3        | 33.38* | 8.2        | 33.31* | 9.5        | 33.987 | 9.5        | 34.024 | 8.2        | 34.077 | 9.0        | 34.009 | 7.9        | 34.085 | 7.5        | 34.099 | 7.1        | 34.10* | 2.0        | 33.164 |
| 10m          | 8.22       | 33.384 | 7.98       | 33.321 | 9.76       | 33.974 | 9.69       | 34.014 | 8.27       | 34.070 | 9.12       | 34.004 | 8.22       | 34.079 | 7.93       | 34.093 | 7.57       | 34.098 | 2.70       | 33.552 |
| 20m          | 8.22       | 33.384 | 7.95       | 33.320 | 9.76       | 33.974 | 9.70       | 34.012 | 8.10       | 34.087 | 9.12       | 34.005 | 8.20       | 34.080 | 7.94       | 34.093 | 7.58       | 34.099 | 4.17       | 34.025 |
| 30m          | 8.22       | 33.383 | 7.94       | 33.318 | 9.76       | 33.974 | 9.71       | 34.012 | 8.05       | 34.093 | 9.12       | 34.005 | 8.20       | 34.080 | 7.94       | 34.093 | 7.57       | 34.099 | 4.37       | 34.096 |
| 50m          | 8.23       | 33.384 | 7.92       | 33.315 | 9.76       | 33.975 | 9.70       | 34.012 | 7.99       | 34.098 | 9.12       | 34.005 | 8.06       | 34.077 | 7.94       | 34.092 | 7.49       | 34.098 |            |        |
| 75m          | 8.23       | 33.384 | 7.93       | 33.324 | 9.71       | 33.995 | 9.64       | 34.012 | 7.91       | 34.104 | 9.12       | 34.005 | 7.40       | 34.104 | 7.20       | 34.106 | 7.31       | 34.093 |            |        |
| 100m         | 8.16       | 33.400 | 6.40       | 33.465 | 9.65       | 34.010 | 9.10       | 34.056 | 7.93       | 34.105 | 8.45       | 34.106 | 6.67       | 34.108 | 6.97       | 34.105 | 6.34       | 34.108 |            |        |
| 125m         | 6.30       | 33.466 | 5.96       | 33.578 | 9.51       | 34.018 |            |        | 7.80       | 34.109 | 7.38       | 34.147 | 5.28       | 34.101 | 6.32       | 34.110 | 5.12       | 34.102 |            |        |
| 150m         | 5.69       | 33.543 | 4.84       | 33.531 | 9.48       | 34.016 |            |        | 7.84       | 34.107 | 6.25       | 34.144 | 3.63       | 34.095 | 3.99       | 34.099 | 4.10       | 34.096 |            |        |
| 200m         | 4.30       | 33.495 | 3.49       | 33.460 | 8.63       | 34.156 |            |        | 5.49       | 34.122 | 4.17       | 34.115 | 1.94       | 34.082 | 1.88       | 34.081 | 2.33       | 34.082 |            |        |
| 250m         | 3.70       | 33.472 | 3.24       | 33.514 | 3.36       | 34.107 |            |        |            |        | 2.22       | 34.086 | 1.53       | 34.078 | 1.36       | 34.078 | 1.69       | 34.079 |            |        |
| 300m         | 3.25       | 33.477 | 3.07       | 33.584 | 1.78       | 34.082 |            |        |            |        | 1.70       | 34.079 | 1.16       | 34.079 | 1.12       | 34.079 | 1.32       | 34.078 |            |        |
| 400m         | 3.22       | 33.644 |            |        | 0.89       | 34.075 |            |        |            |        | 0.95       | 34.077 | 0.86       | 34.075 | 0.69       | 34.073 | 0.89       | 34.076 |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        | 0.66       | 34.073 | 0.62       | 34.070 | 0.47       | 34.070 | 0.65       | 34.072 |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.54       | 34.071 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.46       | 34.070 |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.35       | 34.069 |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.26       | 34.068 |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.24       | 34.067 |            |        |

Table 3-40

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | JH01       |        | J32        |        | J33        |        | J34        |        | J35        |        | J36        |        | J37        |        | J38        |        | J39        |        | J47        |        |
| Latitude:N   | 43-22.0    |        | 43-29.9    |        | 43-30.1    |        | 43-29.9    |        | 43-29.9    |        | 43-29.9    |        | 43-29.9    |        | 43-29.8    |        | 43-29.9    |        | 42-30.0    |        |
| Longitude:E  | 141-23.9   |        | 141- 0.2   |        | 140-40.0   |        | 140-20.1   |        | 140- 0.1   |        | 139-40.1   |        | 139-20.1   |        | 139- 0.0   |        | 138-30.2   |        | 137-30.0   |        |
| Date         | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        |
| Time(JST)    | 11:35      |        | 13:45      |        | 15:39      |        | 18:11      |        | 19:55      |        | 22:06      |        | 23:52      |        | 01:34      |        | 03:46      |        | 10:36      |        |
| Weather      | BC         |        | BC         |        | BC         |        | C          |        | C          |        | B          |        | B          |        | B          |        | BC         |        | B          |        |
| Air Temp.    | 0.6        |        | 3.4        |        | 2.0        |        | 1.4        |        | 1.1        |        | 1.1        |        | 0.8        |        | 0.7        |        | 0.2        |        | 4.2        |        |
| Bar          | 1021.4     |        | 1021.4     |        | 1022.1     |        | 1023.4     |        | 1024.4     |        | 1025.1     |        | 1025.2     |        | 1026.0     |        | 1026.0     |        | 1026.0     |        |
| Wind Dir     | CALM       |        | NW         |        | N          |        | NNE        |        | NNE        |        | NW         |        | NE         |        | NE         |        | ENE        |        | ENE        |        |
| Wind Spd/F   | S 0        |        | S 5        |        | S 6        |        | S 6        |        | S 5        |        | S 4        |        | S 4        |        | S 2        |        | S 3        |        | S 4        |        |
| Transparency | 6          |        | 16         |        | 14         |        |            |        |            |        |            |        |            |        |            |        |            |        | 24         |        |
| Depth        | 22         |        | 96         |        | 697        |        | 645        |        | 1230       |        | 2030       |        | 3170       |        | 3440       |        | 3426       |        | 3678       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 1.3        | 30.870 | 4.9        | 34.103 | 5.5        | 34.115 | 5.1        | 34.127 | 5.2        | 34.121 | 5.4        | 34.125 | 3.7        | 34.151 | 3.3        | 34.166 | 3.3        | 34.173 | 3.0        | 34.138 |
| 10m          | 2.47       | 33.744 | 5.02       | 34.118 | 5.57       | 34.111 | 5.15       | 34.123 | 5.27       | 34.119 | 5.57       | 34.121 | 3.77       | 34.144 | 3.39       | 34.163 | 3.42       | 34.173 | 2.83       | 34.132 |
| 20m          |            |        | 5.00       | 34.118 | 5.56       | 34.111 | 5.15       | 34.123 | 5.27       | 34.119 | 5.58       | 34.121 | 3.46       | 34.135 | 3.38       | 34.164 | 3.42       | 34.172 | 2.79       | 34.132 |
| 30m          |            |        | 4.96       | 34.118 | 5.55       | 34.110 | 5.14       | 34.123 | 5.27       | 34.118 | 5.57       | 34.121 | 3.28       | 34.146 | 3.39       | 34.163 | 3.42       | 34.172 | 2.55       | 34.129 |
| 50m          |            |        | 4.91       | 34.117 | 5.49       | 34.107 | 5.11       | 34.122 | 5.25       | 34.118 | 5.58       | 34.121 | 3.06       | 34.141 | 3.39       | 34.164 | 3.43       | 34.173 | 2.45       | 34.126 |
| 75m          |            |        | 4.88       | 34.116 | 5.28       | 34.107 | 5.10       | 34.122 | 5.25       | 34.118 | 5.51       | 34.120 | 2.54       | 34.110 | 3.39       | 34.165 | 3.43       | 34.173 | 2.43       | 34.125 |
| 100m         |            |        |            |        | 5.12       | 34.114 | 5.06       | 34.122 | 5.25       | 34.118 | 4.33       | 34.105 | 2.41       | 34.123 | 3.39       | 34.166 | 3.43       | 34.173 | 2.27       | 34.118 |
| 125m         |            |        |            |        | 4.85       | 34.117 | 4.88       | 34.124 | 5.24       | 34.118 | 3.56       | 34.138 | 2.10       | 34.113 | 3.39       | 34.169 | 3.43       | 34.173 | 1.85       | 34.100 |
| 150m         |            |        |            |        | 4.33       | 34.120 | 4.58       | 34.124 | 5.23       | 34.118 | 3.31       | 34.138 | 1.85       | 34.111 | 3.32       | 34.164 | 3.44       | 34.174 | 1.60       | 34.095 |
| 200m         |            |        |            |        | 2.40       | 34.099 | 3.10       | 34.122 | 4.94       | 34.127 | 2.67       | 34.130 | 1.38       | 34.090 | 3.15       | 34.152 | 3.46       | 34.179 | 1.31       | 34.093 |
| 250m         |            |        |            |        | 1.65       | 34.088 | 1.81       | 34.094 | 3.54       | 34.101 | 1.69       | 34.094 | 1.13       | 34.086 | 2.64       | 34.124 | 3.41       | 34.180 | 1.14       | 34.094 |
| 300m         |            |        |            |        | 1.34       | 34.085 | 1.40       | 34.087 | 1.99       | 34.085 | 1.24       | 34.084 | 0.97       | 34.085 | 1.92       | 34.100 | 2.65       | 34.138 | 1.05       | 34.093 |
| 400m         |            |        |            |        | 1.15       | 34.082 | 0.95       | 34.081 | 1.10       | 34.085 | 0.90       | 34.079 | 0.72       | 34.079 | 1.25       | 34.090 | 1.50       | 34.095 | 0.81       | 34.085 |
| 500m         |            |        |            |        | 0.75       | 34.077 | 0.63       | 34.075 | 0.84       | 34.080 | 0.60       | 34.074 | 0.52       | 34.074 | 0.89       | 34.082 | 1.03       | 34.087 | 0.59       | 34.076 |
| 600m         |            |        |            |        |            |        |            |        | 0.58       | 34.075 |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 3-41

Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199803     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J46        |        | J45        |        | J44        |        | J43        |        | J42        |        | J41B       |        | J13        |        | JC12       |        | JC11       |        | CJ331      |        |
| Latitude:N   | 42-29.9    |        | 42-30.1    |        | 42-29.9    |        | 42-30.0    |        | 42-30.0    |        | 42-30.0    |        | 42-59.9    |        | 43- 0.0    |        | 43- 0.0    |        | 43-30.2    |        |
| Longitude:E  | 137-59.8   |        | 138-19.9   |        | 138-39.9   |        | 138-59.9   |        | 139-19.9   |        | 139-39.9   |        | 139-39.9   |        | 139-59.9   |        | 140-20.0   |        | 140-39.6   |        |
| Date         | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/03/11 |        |
| Time(JST)    | 13:02      |        | 15:26      |        | 17:10      |        | 18:58      |        | 20:41      |        | 22:25      |        | 02:12      |        | 04:01      |        | 05:46      |        | 11:33      |        |
| Weather      | B          |        | B          |        | B          |        | BC         |        | B          |        | B          |        | B          |        | B          |        | B          |        | BC         |        |
| Air Temp.    | 3.6        |        | 5.3        |        | 3.8        |        | 2.6        |        | 2.2        |        | 1.3        |        | 1.7        |        | 1.5        |        | -0.7       |        | 5.2        |        |
| Bar          | 1025.5     |        | 1024.4     |        | 1024.0     |        | 1024.0     |        | 1024.1     |        | 1024.1     |        | 1023.0     |        | 1022.1     |        | 1022.5     |        | 1019.5     |        |
| Wind Dir     | ENE        |        | NE         |        | NE         |        | NE         |        | E          |        | ESE        |        | CALM       |        | SE         |        | ENE        |        | SW         |        |
| Wind Spd/F   | S 4        |        | S 4        |        | S 5        |        | S 6        |        | S 7        |        | S 10       |        | S 0        |        | S 10       |        | S 5        |        | S 11       |        |
| Transparency | 17         |        | 20         |        | 10         |        |            |        |            |        |            |        |            |        |            |        | 10         |        | 15         |        |
| Depth        | 3678       |        | 3678       |        | 3650       |        | 3700       |        | 3300       |        | 1830       |        | 3290       |        | 1290       |        | 482        |        | 690        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.7        | 34.129 | 4.1        | 34.142 | 5.5        | 34.143 | 6.1        | 34.118 | 5.9        | 34.122 | 5.4        | 34.116 | 6.4        | 34.099 | 5.8        | 34.121 | 6.2        | 34.119 | 5.4        | 34.119 |
| 10m          | 3.48       | 34.129 | 3.99       | 34.134 | 3.42       | 34.173 | 6.26       | 34.116 | 6.04       | 34.118 | 6.56       | 34.112 | 6.51       | 34.100 | 5.99       | 34.115 | 6.34       | 34.107 | 5.31       | 34.123 |
| 20m          | 3.43       | 34.129 | 3.83       | 34.134 | 3.42       | 34.172 | 6.25       | 34.116 | 6.05       | 34.118 | 6.44       | 34.112 | 6.51       | 34.100 | 5.99       | 34.115 | 6.34       | 34.107 | 5.30       | 34.123 |
| 30m          | 3.41       | 34.129 | 3.71       | 34.131 | 3.42       | 34.172 | 6.19       | 34.117 | 6.05       | 34.118 | 6.37       | 34.111 | 6.50       | 34.100 | 5.99       | 34.115 | 6.34       | 34.107 | 5.30       | 34.123 |
| 50m          | 3.40       | 34.129 | 3.60       | 34.129 | 3.43       | 34.173 | 6.13       | 34.118 | 6.05       | 34.118 | 6.25       | 34.112 | 6.47       | 34.102 | 5.91       | 34.115 | 6.31       | 34.107 | 5.30       | 34.123 |
| 75m          | 3.39       | 34.129 | 3.45       | 34.127 | 3.43       | 34.173 | 5.90       | 34.116 | 5.37       | 34.123 | 6.12       | 34.113 | 6.41       | 34.104 | 5.74       | 34.117 | 5.61       | 34.118 | 5.30       | 34.123 |
| 100m         | 2.94       | 34.116 | 3.32       | 34.121 | 3.43       | 34.173 | 4.20       | 34.111 | 5.32       | 34.121 | 5.65       | 34.108 | 5.77       | 34.110 | 5.52       | 34.115 | 4.77       | 34.103 | 5.30       | 34.123 |
| 125m         | 1.83       | 34.085 | 1.64       | 34.086 | 3.43       | 34.173 | 3.03       | 34.091 | 5.23       | 34.120 | 4.47       | 34.114 | 5.18       | 34.110 | 5.26       | 34.121 | 4.29       | 34.097 | 5.21       | 34.121 |
| 150m         | 1.57       | 34.088 | 1.37       | 34.084 | 3.44       | 34.174 | 2.29       | 34.083 | 5.07       | 34.120 | 3.94       | 34.103 | 3.52       | 34.100 | 4.56       | 34.109 | 3.71       | 34.098 | 5.18       | 34.121 |
| 200m         | 1.28       | 34.091 | 1.15       | 34.090 | 3.46       | 34.179 | 1.43       | 34.083 | 3.29       | 34.098 | 2.58       | 34.089 | 2.19       | 34.084 | 2.45       | 34.092 | 3.05       | 34.091 | 4.07       | 34.109 |
| 250m         | 1.16       | 34.091 | 1.06       | 34.093 | 3.41       | 34.180 | 1.15       | 34.089 | 1.54       | 34.084 | 1.61       | 34.083 | 1.34       | 34.080 | 1.73       | 34.088 | 1.92       | 34.088 | 2.43       | 34.103 |
| 300m         | 1.03       | 34.091 | 0.94       | 34.090 | 2.65       | 34.138 | 1.05       | 34.091 | 1.30       | 34.088 | 1.26       | 34.079 | 1.05       | 34.078 | 1.26       | 34.083 | 1.33       | 34.082 | 1.56       | 34.087 |
| 400m         | 0.79       | 34.083 | 0.72       | 34.082 | 1.50       | 34.095 | 0.85       | 34.087 | 0.84       | 34.079 | 0.78       | 34.075 | 0.75       | 34.076 | 0.76       | 34.077 | 0.88       | 34.077 | 0.92       | 34.082 |
| 500m         | 0.62       | 34.077 | 0.54       | 34.076 | 1.03       | 34.087 | 0.61       | 34.077 | 0.68       | 34.078 | 0.59       | 34.073 | 0.60       | 34.076 | 0.61       | 34.074 |            |        | 0.60       | 34.076 |
| 600m         | 0.45       | 34.074 |            |        |            |        |            |        |            |        | 0.46       | 34.072 | 0.46       | 34.073 | 0.49       | 34.072 |            |        | 0.50       | 34.075 |
| 700m         | 0.38       | 34.073 |            |        |            |        |            |        |            |        | 0.39       | 34.071 |            |        |            |        |            |        |            |        |
| 800m         | 0.33       | 34.072 |            |        |            |        |            |        |            |        | 0.33       | 34.070 |            |        |            |        |            |        |            |        |
| 900m         | 0.30       | 34.071 |            |        |            |        |            |        |            |        | 0.28       | 34.069 |            |        |            |        |            |        |            |        |
| 1000m        | 0.27       | 34.070 |            |        |            |        |            |        |            |        | 0.25       | 34.069 |            |        |            |        |            |        |            |        |

Table 3-42



Table 3 Results of serial oceanographic observations. Hokkaido Central Fisheries Experimental Station

| Stn-prefix   | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        |   |   |   |   |   |   |   |   |   |   |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|---|---|---|---|---|---|---|---|---|---|
| Station No   | CJ332      |        | CJ333      |        | CJP2       |        | CJ31       |        | CJH01      |        |   |   |   |   |   |   |   |   |   |   |
| Latitude:N   | 43-30.0    |        | 43-29.7    |        | 43-22.1    |        | 43-19.8    |        | 43-21.9    |        |   |   |   |   |   |   |   |   |   |   |
| Longitude:E  | 140-39.3   |        | 140-40.0   |        | 140-50.1   |        | 141-10.0   |        | 141-24.1   |        |   |   |   |   |   |   |   |   |   |   |
| Date         | 1998/03/11 |        | 1998/03/12 |        | 1998/03/12 |        | 1998/03/12 |        | 1998/03/12 |        |   |   |   |   |   |   |   |   |   |   |
| Time(JST)    | 21:55      |        | 10:55      |        | 12:19      |        | 14:06      |        | 15:23      |        |   |   |   |   |   |   |   |   |   |   |
| Weather      | B          |        | C          |        |            |        | C          |        | C          |        |   |   |   |   |   |   |   |   |   |   |
| Air Temp.    | 2.9        |        | 4.7        |        |            |        | 3.6        |        | 2.9        |        |   |   |   |   |   |   |   |   |   |   |
| Bar          | 1016.0     |        | 1004.5     |        |            |        |            |        | 1001.0     |        |   |   |   |   |   |   |   |   |   |   |
| Wind Dir     | SE         |        | ESE        |        |            |        | ESE        |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Wind Spd/F   | S 2        |        | S 6        |        |            |        | S 12       |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Transparency |            |        | 18         |        | 13         |        |            |        | 6          |        |   |   |   |   |   |   |   |   |   |   |
| Depth        | 705        |        | 685        |        |            |        | 40         |        | 22         |        |   |   |   |   |   |   |   |   |   |   |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |   |   |   |   |   |   |   |   |   |   |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T | S | T | S | T | S | T | S | T | S |
| 0m           | 5.5        | 34.136 | 5.4        | 34.128 | 4.8        | 33.901 | 4.5        | 33.721 | 3.8        | 32.753 |   |   |   |   |   |   |   |   |   |   |
| 10m          | 5.48       | 34.122 | 5.39       | 34.122 | 4.82       | 34.104 | 4.53       | 33.729 | 4.03       | 33.491 |   |   |   |   |   |   |   |   |   |   |
| 20m          | 5.48       | 34.122 | 5.39       | 34.123 | 4.80       | 34.105 | 4.76       | 33.933 |            |        |   |   |   |   |   |   |   |   |   |   |
| 30m          | 5.48       | 34.122 | 5.39       | 34.122 | 4.78       | 34.105 | 4.95       | 34.107 |            |        |   |   |   |   |   |   |   |   |   |   |
| 50m          | 5.48       | 34.122 | 5.38       | 34.122 | 4.77       | 34.105 |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 75m          | 5.36       | 34.120 | 5.38       | 34.122 | 4.76       | 34.103 |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 100m         | 5.26       | 34.122 | 5.35       | 34.122 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 125m         | 5.19       | 34.121 | 5.31       | 34.122 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 150m         | 5.10       | 34.121 | 4.91       | 34.121 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 200m         | 4.01       | 34.111 | 3.38       | 34.118 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 250m         | 2.82       | 34.130 | 2.13       | 34.099 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 300m         | 1.80       | 34.093 | 1.44       | 34.089 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 400m         | 0.93       | 34.082 | 0.92       | 34.082 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 500m         | 0.66       | 34.077 | 0.69       | 34.077 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 600m         | 0.55       | 34.075 | 0.55       | 34.075 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 700m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 800m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 900m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 1000m        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |

Table 3-43

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PH01       |        | P64        |        | P65        |        | P66        |        | P56        |        | P55        |        | P54        |        | P53        |        | P52        |        | P51        |        |
| Latitude:N   | 41-40.0    |        | 41-49.9    |        | 41-40.0    |        | 41-29.9    |        | 41-19.8    |        | 41-29.8    |        | 41-40.0    |        | 41-49.9    |        | 41-59.9    |        | 42-10.0    |        |
| Longitude:E  | 140-40.0   |        | 141-20.0   |        | 141-20.2   |        | 141-20.2   |        | 141-40.2   |        | 141-50.0   |        | 142- 0.0   |        | 142-10.0   |        | 142-20.1   |        | 142-29.8   |        |
| Date         | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        |
| Time(JST)    | 11:19      |        | 14:34      |        | 15:50      |        | 17:07      |        | 19:03      |        | 21:11      |        | 00:09      |        | 02:19      |        | 04:35      |        | 06:33      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 11.0       |        | 11.0       |        | 10.0       |        | 9.0        |        | 8.0        |        | 6.0        |        | 4.0        |        | 3.0        |        | 3.0        |        | 3.0        |        |
| Bar          | 1016.0     |        | 1014.5     |        | 1014.5     |        | 1015.0     |        | 1016.0     |        | 1017.5     |        | 1017.0     |        | 1017.0     |        | 1017.0     |        | 1017.0     |        |
| Wind Dir     | S          |        | W          |        | WSW        |        | W          |        | WNW        |        | NNE        |        | NNW        |        | NNW        |        | NNW        |        | NNW        |        |
| Wind Spd/F   | S 7        |        | S 6        |        | S 8        |        | S 9        |        | S 7        |        | S 8        |        | S 8        |        | S 8        |        | S 8        |        | S 5        |        |
| Transparency | 12         |        | 8          |        | 14         |        | 12         |        |            |        |            |        |            |        |            |        |            |        | 6          |        |
| Depth        | 119        |        | 280        |        | 233        |        | 241        |        | 762        |        | 1487       |        |            |        |            |        |            |        | 123        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.7        | 34.072 | 3.8        | 33.045 | 8.0        | 33.976 | 8.9        | 34.043 | 7.8        | 34.100 | 7.4        | 33.979 | 5.2        | 33.538 | 3.1        | 32.799 | 2.8        | 32.926 | 3.0        | 32.604 |
| 10m          | 8.19       | 34.117 | 2.73       | 32.911 | 7.94       | 34.005 | 8.76       | 34.011 | 8.14       | 34.034 | 7.05       | 33.840 | 5.31       | 33.459 | 3.10       | 32.746 | 2.46       | 32.901 | 2.82       | 32.844 |
| 20m          | 8.04       | 34.120 | 3.16       | 33.085 | 7.79       | 34.001 | 8.49       | 34.011 | 8.23       | 34.075 | 7.06       | 33.840 | 5.38       | 33.491 | 1.91       | 32.948 | 2.46       | 32.902 | 2.61       | 32.889 |
| 30m          | 7.93       | 34.124 | 4.71       | 33.427 | 7.77       | 33.998 | 8.28       | 34.012 | 8.20       | 34.076 | 7.01       | 33.833 | 6.06       | 33.677 | 2.22       | 33.026 | 2.40       | 32.924 | 2.35       | 32.970 |
| 50m          | 7.68       | 34.127 | 4.70       | 33.503 | 7.61       | 33.988 | 8.19       | 34.030 | 8.15       | 34.078 | 7.44       | 33.966 | 6.56       | 33.785 | 3.28       | 33.256 | 2.73       | 33.148 | 3.07       | 33.223 |
| 75m          | 7.37       | 34.131 | 6.37       | 33.801 | 7.52       | 34.037 | 8.25       | 34.043 | 8.04       | 34.076 | 7.48       | 33.986 | 6.55       | 33.790 | 4.43       | 33.447 | 3.14       | 33.244 | 4.52       | 33.467 |
| 100m         | 7.21       | 34.137 | 6.79       | 33.920 | 7.55       | 34.051 | 8.21       | 34.045 | 8.03       | 34.077 | 7.52       | 33.998 | 6.50       | 33.783 | 4.97       | 33.553 | 3.80       | 33.363 | 5.58       | 33.660 |
| 125m         |            |        | 6.47       | 33.905 | 7.47       | 34.049 | 8.27       | 34.059 | 8.01       | 34.073 | 7.63       | 34.021 | 6.12       | 33.736 | 5.42       | 33.636 | 4.80       | 33.515 |            |        |
| 150m         |            |        | 6.46       | 33.906 | 7.44       | 34.051 | 8.10       | 34.099 | 8.01       | 34.072 | 7.55       | 34.014 | 5.35       | 33.640 | 5.73       | 33.710 | 4.59       | 33.509 |            |        |
| 200m         |            |        | 5.65       | 33.841 | 5.06       | 33.829 | 7.79       | 34.110 | 7.94       | 34.057 | 7.33       | 33.996 | 5.17       | 33.668 | 6.43       | 33.896 | 3.74       | 33.479 |            |        |
| 250m         |            |        | 4.69       | 33.752 |            |        |            |        | 7.79       | 34.042 | 6.62       | 33.923 | 6.43       | 33.921 | 6.40       | 33.931 | 3.39       | 33.531 |            |        |
| 300m         |            |        |            |        |            |        |            |        | 7.24       | 33.987 | 3.01       | 33.498 | 5.84       | 33.898 | 4.13       | 33.655 | 3.14       | 33.589 |            |        |
| 400m         |            |        |            |        |            |        |            |        | 3.96       | 33.817 | 2.78       | 33.603 | 4.72       | 33.839 | 3.08       | 33.646 | 3.32       | 33.761 |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        | 3.41       | 33.856 | 3.58       | 33.832 | 3.40       | 33.861 | 3.51       | 33.943 |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        | 3.53       | 34.055 | 3.50       | 33.957 | 3.53       | 34.044 | 3.47       | 34.064 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-1

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P63        |        | P62        |        | P61        |        | HFS22      |        | HFS21      |        | HFS20      |        | HFS19      |        | HFS18      |        | HFS26      |        | HFS25      |        |
| Latitude:N   | 42- 0.0    |        | 42-10.0    |        | 42-19.9    |        | 42-18.2    |        | 42-15.9    |        | 42-13.3    |        | 42-10.9    |        | 42- 8.4    |        | 42-10.0    |        | 42-15.0    |        |
| Longitude:E  | 141-20.0   |        | 141-20.1   |        | 141-19.9   |        | 140-55.7   |        | 140-53.0   |        | 140-49.9   |        | 140-46.8   |        | 140-43.8   |        | 140-35.0   |        | 140-40.0   |        |
| Date         | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        |
| Time(JST)    | 12:08      |        | 13:24      |        | 14:42      |        | 10:55      |        | 11:19      |        | 11:45      |        | 12:10      |        | 12:37      |        | 13:25      |        | 14:12      |        |
| Weather      | C          |        | BC         |        | C          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    | 8.0        |        | 8.0        |        | 8.0        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Bar          | 1018.0     |        | 1018.0     |        | 1017.5     |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     | WNW        |        | WNW        |        | NE         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 5        |        | S 5        |        | S 1        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Transparency | 6          |        | 8          |        | 10         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 310        |        | 364        |        | 243        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.2        | 32.958 | 4.0        | 33.094 | 3.4        | 32.947 | 3.8        | 33.12* | 4.3        | 32.93* | 4.4        | 32.94* | 4.3        | 33.02* | 4.1        | 32.94* | 4.0        | 33.01* | 4.6        | 33.02* |
| 10m          | 2.43       | 33.019 | 3.61       | 33.056 | 2.64       | 32.884 | 3.57       | 33.148 | 4.21       | 32.936 | 4.04       | 32.969 | 3.86       | 33.022 | 3.97       | 32.963 | 3.84       | 33.020 | 4.45       | 33.022 |
| 20m          | 3.43       | 33.267 | 3.58       | 33.067 | 2.32       | 32.884 | 3.26       | 33.226 | 3.16       | 33.038 | 3.63       | 33.006 | 3.57       | 33.020 | 3.86       | 33.024 | 3.69       | 33.071 | 3.74       | 33.044 |
| 30m          | 3.88       | 33.358 | 3.46       | 33.179 | 2.19       | 32.979 | 3.44       | 33.281 | 3.42       | 33.138 | 3.64       | 33.082 | 3.44       | 33.068 | 3.55       | 33.070 | 3.48       | 33.095 | 3.41       | 33.123 |
| 50m          | 5.23       | 33.583 | 4.81       | 33.503 | 2.72       | 33.163 |            |        | 4.26       | 33.448 | 4.89       | 33.611 | 3.95       | 33.394 |            |        | 4.42       | 33.484 | 4.61       | 33.525 |
| 75m          | 5.69       | 33.667 | 5.49       | 33.651 | 4.45       | 33.431 |            |        |            |        |            |        | 4.66       | 33.737 |            |        |            |        | 4.58       | 33.581 |
| 100m         | 5.95       | 33.718 | 5.43       | 33.671 | 5.11       | 33.571 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         | 5.21       | 33.632 | 5.89       | 33.777 | 5.33       | 33.634 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         | 4.95       | 33.618 | 6.07       | 33.832 | 5.19       | 33.632 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         | 5.46       | 33.745 | 6.36       | 33.921 | 4.59       | 33.608 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 5.34       | 33.793 | 6.13       | 33.926 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 4.00       | 33.672 | 4.25       | 33.712 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-2

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS24      |        | HFS23      |        | HFS29      |        | HFS17      |        | HFS16      |        | HFS15      |        | HFS14      |        | HFS13      |        | HFS12      |        | HFS11      |        |  |
| Latitude:N   | 42-19.9    |        | 42-24.9    |        | 42-20.1    |        | 42- 7.5    |        | 42- 9.9    |        | 42-14.9    |        | 42-17.5    |        | 42-15.0    |        | 42-10.0    |        | 42- 5.1    |        |  |
| Longitude:E  | 140-44.9   |        | 140-49.9   |        | 140-35.0   |        | 140-52.5   |        | 140-54.9   |        | 141- 0.0   |        | 141- 5.0   |        | 141-10.1   |        | 141- 5.0   |        | 140-59.9   |        |  |
| Date         | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/17 |        | 1997/04/17 |        |  |
| Time(JST)    | 14:58      |        | 15:53      |        | 17:11      |        | 19:29      |        | 19:57      |        | 20:45      |        | 22:45      |        | 23:18      |        | 00:03      |        | 00:49      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 4.7        | 33.02* | 4.4        | 32.94* | 4.2        | 33.06* | 3.6        | 32.89* | 4.2        | 32.97* | 4.4        | 32.98* | 3.9        | 32.97* | 3.1        | 32.91* | 3.6        | 32.97* | 3.5        | 32.93* |  |
| 10m          | 4.62       | 33.024 | 3.48       | 33.200 | 4.17       | 33.057 | 3.61       | 32.885 | 4.21       | 32.968 | 4.38       | 32.977 | 3.86       | 32.978 | 3.07       | 32.907 | 3.62       | 32.965 | 3.53       | 32.926 |  |
| 20m          | 4.28       | 33.031 | 3.11       | 33.233 | 3.87       | 33.069 | 3.54       | 32.916 | 3.69       | 33.030 | 3.19       | 33.023 | 2.96       | 33.049 | 2.17       | 32.898 | 3.53       | 33.003 | 3.48       | 33.023 |  |
| 30m          | 3.16       | 33.201 | 3.25       | 33.279 | 3.49       | 33.086 | 3.55       | 33.031 | 3.56       | 33.062 | 3.34       | 33.075 | 3.14       | 33.137 | 2.17       | 32.937 | 3.14       | 33.005 | 3.37       | 33.042 |  |
| 50m          | 3.14       | 33.241 |            |        | 3.17       | 33.155 | 4.45       | 33.455 | 3.26       | 33.225 | 3.69       | 33.334 | 3.81       | 33.360 | 4.85       | 33.476 | 3.65       | 33.270 | 2.90       | 33.060 |  |
| 75m          |            |        |            |        | 4.25       | 33.694 | 4.79       | 33.785 |            |        |            |        |            |        | 5.27       | 33.608 | 4.70       | 33.540 | 4.58       | 33.566 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-3

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HFS10      |        | HKD101     |        | HKD102     |        | HKD103     |        | HKD104     |        | HKD105     |        | HKD106     |        | HKD107     |        | HKD108     |        | HKD109     |        |
| Latitude:N   | 42- 2.7    |        | 42- 0.1    |        | 42- 5.0    |        | 42-10.0    |        | 42-15.0    |        | 42-20.0    |        | 42-25.0    |        | 42-30.0    |        | 42-20.1    |        | 42-20.1    |        |
| Longitude:E  | 140-57.5   |        | 141- 0.0   |        | 140-55.0   |        | 140-50.0   |        | 140-45.0   |        | 140-40.0   |        | 140-35.0   |        | 140-30.0   |        | 140-25.0   |        | 140-29.9   |        |
| Date         | 1997/04/17 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        |
| Time(JST)    | 01:15      |        | 14:02      |        | 14:49      |        | 15:37      |        | 16:24      |        | 17:14      |        | 18:01      |        | 18:49      |        | 20:10      |        | 20:48      |        |
| Weather      |            |        | C          |        | C          |        | C          |        | C          |        | R          |        | R          |        | R          |        | R          |        | R          |        |
| Air Temp.    |            |        | 7.0        |        | 7.0        |        | 6.0        |        | 6.0        |        | 6.0        |        | 5.0        |        | 5.0        |        | 5.5        |        | 6.0        |        |
| Bar          |            |        | 1024.5     |        | 1024.5     |        | 1024.0     |        | 1024.0     |        | 1024.0     |        | 1023.5     |        | 1023.5     |        | 1024.5     |        | 1023.5     |        |
| Wind Dir     |            |        | E          |        | E          |        | ENE        |        | ENE        |        | E          |        | E          |        | E          |        | ESE        |        | ESE        |        |
| Wind Spd/F   |            |        | S 4        |        | S 4        |        | S 8        |        | S 11       |        | S 8        |        | S 8        |        | S 8        |        | S 8        |        | S 8        |        |
| Transparency |            |        | 19         |        | 19         |        | 15         |        | 15         |        | 15         |        |            |        |            |        |            |        |            |        |
| Depth        |            |        | 89         |        | 90         |        | 91         |        | 81         |        | 80         |        | 93         |        | 67         |        | 70         |        | 93         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.8        | 32.96* | 5.3        | 33.006 | 5.1        | 32.993 | 5.0        | 33.020 | 5.5        | 33.041 | 5.0        | 33.090 | 5.1        | 33.034 | 5.2        | 33.085 | 5.4        | 32.923 | 5.4        | 33.022 |
| 10m          | 3.87       | 32.966 | 4.91       | 32.971 | 5.01       | 32.954 | 4.88       | 32.988 | 5.15       | 33.020 | 5.01       | 33.056 | 4.97       | 33.016 | 4.70       | 33.085 | 5.30       | 32.892 | 5.17       | 33.020 |
| 20m          | 3.70       | 32.989 | 3.64       | 33.036 | 4.30       | 32.983 | 3.85       | 33.048 | 5.08       | 33.058 | 5.01       | 33.056 | 3.71       | 33.154 | 3.63       | 33.132 | 3.57       | 33.076 | 4.74       | 33.026 |
| 30m          | 3.49       | 33.060 | 3.30       | 33.058 | 3.51       | 33.045 | 3.40       | 33.089 | 3.64       | N.D.   | 3.96       | 33.077 | 3.21       | 33.251 | 3.28       | 33.194 | 3.56       | 33.106 | 3.60       | 33.105 |
| 50m          | 3.03       | 33.096 | 3.82       | 33.304 | 3.87       | 33.373 | 4.48       | 33.499 | 3.15       | 33.251 | 3.28       | 33.183 | 3.31       | 33.400 | 3.26       | 33.346 | 3.15       | 33.292 | 3.13       | 33.251 |
| 75m          | 4.77       | 33.652 | 4.62       | 33.547 | 4.62       | 33.772 | 4.52       | 33.761 |            |        |            |        | 4.95       | 33.910 |            |        |            |        | 3.86       | 33.577 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-4

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD110     |        | HKD111     |        | HKD112     |        | HKD113     |        | HKD114     |        | HKD115     |        | HKD116     |        | HKD117     |        | HKD118     |        | HFS12      |        |
| Latitude:N   | 42-20.0    |        | 42-20.1    |        | 42-20.0    |        | 42-20.1    |        | 42-30.0    |        | 42-25.0    |        | 42-20.0    |        | 42-15.0    |        | 42-10.0    |        | 42-10.1    |        |
| Longitude:E  | 140-34.8   |        | 140-39.9   |        | 140-44.8   |        | 140-49.9   |        | 140-40.0   |        | 140-40.0   |        | 140-39.9   |        | 140-39.9   |        | 140-39.9   |        | 141- 5.1   |        |
| Date         | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/05/12 |        |
| Time(JST)    | 21:26      |        | 22:03      |        | 22:38      |        | 23:14      |        | 00:38      |        | 01:20      |        | 02:03      |        | 02:46      |        | 03:29      |        | 15:14      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | R          |        | B          |        | R          |        | C          |        | C          |        |            |        |
| Air Temp.    | 6.0        |        | 7.0        |        | 6.5        |        | 7.0        |        | 6.5        |        | 6.5        |        | 6.0        |        | 6.0        |        | 5.0        |        |            |        |
| Bar          | 1023.5     |        | 1023.0     |        | 1023.0     |        | 1022.5     |        | 1021.5     |        | 1020.5     |        | 1020.5     |        | 1019.5     |        | 1019.0     |        |            |        |
| Wind Dir     | ESE        |        | ESE        |        | ESE        |        | E          |        | WNW        |        | ENE        |        | S          |        | SE         |        | ESE        |        |            |        |
| Wind Spd/F   | S 6        |        | S 8        |        | S 8        |        | S 9        |        | S 3        |        | S 3        |        | S 3        |        | S 7        |        | S 6        |        |            |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 95         |        | 79         |        | 61         |        | 47         |        | 65         |        | 78         |        | 79         |        | 89         |        | 85         |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.1        | 33.056 | 5.2        | 33.124 | 5.0        | 33.030 | 4.6        | 33.000 | 5.0        | 32.991 | 5.1        | 32.959 | 5.0        | 33.082 | 5.3        | 33.034 | 4.4        | 32.997 | 6.2        | 32.68* |
| 10m          | 5.04       | 33.035 | 5.01       | 33.054 | 5.13       | 32.971 | 4.37       | 32.963 | 4.84       | 32.995 | 5.06       | 33.018 | 4.98       | 33.052 | 5.22       | 32.996 | 4.40       | 32.950 | 5.24       | 32.786 |
| 20m          | 4.93       | 33.030 | 5.00       | 33.053 | 3.59       | 33.139 | 4.37       | 32.964 | 4.56       | 33.028 | 4.96       | 33.023 | 4.91       | 33.050 | 4.93       | 33.053 | 4.03       | 33.067 | 3.21       | 33.109 |
| 30m          | 3.87       | 33.083 | 3.80       | 33.086 | 3.39       | 33.198 | 2.90       | 33.037 | 4.19       | 33.118 | 3.84       | 33.122 | 3.67       | 33.088 | 3.84       | 33.101 | 3.33       | 33.176 | 3.26       | 33.195 |
| 50m          | 3.10       | 33.235 | 3.24       | 33.219 | 3.80       | 33.353 |            |        | 3.12       | 33.245 | 3.29       | 33.235 | 3.26       | 33.176 | 3.21       | 33.190 | 4.43       | 33.510 | 4.55       | 33.451 |
| 75m          | 4.11       | 33.662 |            |        |            |        |            |        |            |        |            |        | 3.60       | 33.428 | 3.54       | 33.363 | 4.73       | 33.847 | 4.94       | 33.574 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-5

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS11      |        | HFS10      |        | HFS17      |        | HFS16      |        | HFS15      |        | HFS22      |        | HFS21      |        | HFS20      |        | HFS19      |        | HFS18      |        |  |
| Latitude:N   | 42- 5.0    |        | 42- 2.6    |        | 42- 7.5    |        | 42- 9.9    |        | 42-14.9    |        | 42-18.0    |        | 42-15.7    |        | 42-13.3    |        | 42-10.9    |        | 42- 8.5    |        |  |
| Longitude:E  | 141- 0.0   |        | 140-57.6   |        | 140-52.6   |        | 140-54.9   |        | 140-59.9   |        | 140-55.9   |        | 140-52.7   |        | 140-49.8   |        | 140-46.8   |        | 140-43.8   |        |  |
| Date         | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        |  |
| Time(JST)    | 16:02      |        | 16:29      |        | 17:13      |        | 17:40      |        | 18:26      |        | 18:57      |        | 19:26      |        | 19:53      |        | 20:23      |        | 20:54      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 6.4        | 32.84* | 6.7        | 32.75* | 6.0        | 32.49* | 6.1        | 32.47* | 5.9        | 32.63* | 6.8        | 32.52* | 6.3        | 32.69* | 6.9        | 32.76* | 6.1        | 32.80* | 6.8        | 32.39* |  |
| 10m          | 5.80       | 32.849 | 6.07       | 32.765 | 5.77       | 32.467 | 5.46       | 32.561 | 5.50       | 32.661 | 5.72       | 32.602 | 5.83       | 32.693 | 6.24       | 32.737 | 6.22       | 32.816 | 6.10       | 32.478 |  |
| 20m          | 5.63       | 32.863 | 4.39       | 32.984 | 4.73       | 32.860 | 4.96       | 32.857 | 5.22       | 32.779 | 4.96       | 32.734 | 5.66       | 32.704 | 6.42       | 32.840 | 6.05       | 32.813 | 5.87       | 32.590 |  |
| 30m          | 4.61       | 32.955 | 3.37       | 33.082 | 3.21       | 33.007 | 3.67       | 33.027 | 4.63       | 32.847 | 4.01       | 32.870 | 5.40       | 32.784 | 5.94       | 32.904 | 5.49       | 32.754 | 5.42       | 32.713 |  |
| 50m          | 3.88       | 33.345 | 3.93       | 33.367 | 5.72       | 33.622 | 3.33       | 33.221 | 3.03       | 33.154 |            |        | 3.48       | 33.277 | 3.18       | 33.206 | 3.18       | 33.200 |            |        |  |
| 75m          |            |        | 4.50       | 33.708 | 4.91       | 33.595 |            |        |            |        |            |        |            |        |            |        | 4.04       | 33.473 |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-6

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS26      |        | HFS25      |        | HFS24      |        | HFS23      |        | HFS32      |        | HFS31      |        | HFS30      |        | HFS29      |        | HFS28      |        | HFS27      |        |  |
| Latitude:N   | 42-10.1    |        | 42-15.0    |        | 42-20.0    |        | 42-25.0    |        | 42-27.4    |        | 42-25.0    |        | 42-22.4    |        | 42-19.9    |        | 42-17.6    |        | 42-15.2    |        |  |
| Longitude:E  | 140-35.0   |        | 140-40.0   |        | 140-45.0   |        | 140-50.0   |        | 140-42.4   |        | 140-40.0   |        | 140-37.5   |        | 140-35.0   |        | 140-32.5   |        | 140-30.0   |        |  |
| Date         | 1997/05/12 |        | 1997/05/12 |        | 1997/05/12 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        |  |
| Time(JST)    | 21:54      |        | 22:39      |        | 23:26      |        | 00:13      |        | 00:57      |        | 01:21      |        | 01:49      |        | 02:15      |        | 03:31      |        | 03:58      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 7.7        | 32.31* | 6.4        | 32.50* | 6.8        | 32.81* | 5.9        | 32.56* | 6.9        | 32.60* | 7.5        | 32.56* | 6.7        | 32.81* | 6.6        | 32.86* | 6.5        | 32.78* | 7.2        | 32.67* |  |
| 10m          | 6.85       | 32.632 | 5.82       | 32.603 | 6.58       | 32.841 | 5.69       | 32.580 | 6.57       | 32.644 | 6.66       | 32.689 | 6.53       | 32.832 | 6.41       | 32.868 | 5.69       | 32.757 | 6.21       | 32.832 |  |
| 20m          | 6.46       | 32.798 | 5.48       | 32.621 | 5.88       | 32.908 | 4.67       | 32.767 | 6.12       | 32.841 | 6.09       | 32.808 | 6.37       | 32.848 | 6.32       | 32.867 | 5.80       | 32.785 | 6.05       | 32.824 |  |
| 30m          | 5.75       | 32.911 | 5.17       | 32.676 | 5.81       | 32.907 | 3.62       | 33.064 | 5.04       | 33.004 | 5.76       | 32.842 | 6.09       | 32.879 | 6.29       | 32.871 | 5.55       | 32.785 | 5.59       | 32.899 |  |
| 50m          | 3.33       | 33.237 | 3.52       | 33.181 | 3.46       | 33.280 |            |        | 3.51       | 33.332 | 3.26       | 33.256 | 3.45       | 33.222 | 3.42       | 33.221 | 3.43       | 33.219 | 3.54       | 33.204 |  |
| 75m          |            |        | 4.12       | 33.636 |            |        |            |        |            |        |            |        | 3.65       | 33.457 | 3.59       | 33.437 | 4.13       | 33.627 | 4.23       | 33.672 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-7



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HST36      |        | HST35      |        | HST34      |        | HST33      |        | HST38      |        | HST37      |        | HSS13      |        | HSS12      |        | HSS11      |        | HSS10      |        |  |
| Latitude:N   | 42-17.6    |        | 42-20.0    |        | 42-25.0    |        | 42-30.0    |        | 42-30.0    |        | 42-25.1    |        | 42-15.0    |        | 42-10.1    |        | 42- 5.1    |        | 42- 2.5    |        |  |
| Longitude:E  | 140-25.1   |        | 140-24.9   |        | 140-30.1   |        | 140-35.0   |        | 140-30.0   |        | 140-25.0   |        | 141-10.0   |        | 141- 4.9   |        | 141- 0.1   |        | 140-57.5   |        |  |
| Date         | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        |  |
| Time(JST)    | 04:32      |        | 04:54      |        | 05:40      |        | 06:25      |        | 06:55      |        | 07:39      |        | 10:03      |        | 10:49      |        | 11:35      |        | 12:03      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 7.2        | 32.75* | 7.3        | 32.56* | 6.8        | 32.79* | 7.6        | 32.59* | 7.3        | 32.53* | 7.5        | 32.60* | 5.5        | 32.83* | 7.2        | 32.82* | 6.1        | 32.79* | 6.0        | 32.55* |  |
| 10m          | 6.52       | 32.778 | 6.80       | 32.738 | 6.68       | 32.799 | 6.91       | 32.688 | 6.91       | 32.629 | 6.97       | 32.669 | 5.26       | 32.828 | 5.82       | 32.916 | 5.45       | 32.842 | 5.27       | 32.610 |  |
| 20m          | 6.24       | 32.821 | 6.23       | 32.835 | 6.51       | 32.821 | 6.45       | 32.848 | 6.30       | 32.832 | 6.43       | 32.850 | 4.82       | 32.925 | 3.44       | 32.968 | 3.52       | 33.104 | 4.98       | 32.763 |  |
| 30m          | 5.93       | 32.895 | 5.89       | 32.891 | 4.19       | 33.127 | 4.19       | 33.114 | 5.69       | 32.975 | 6.03       | 32.891 | 2.91       | 32.998 | 2.40       | 33.032 | 3.13       | 33.151 | 3.74       | 33.051 |  |
| 50m          | 3.65       | 33.198 | 3.52       | 33.214 | 3.35       | 33.254 | 3.35       | 33.246 | 3.53       | 33.212 | 3.36       | 33.259 | 2.94       | 33.146 | 3.67       | 33.306 | 4.15       | 33.414 | 3.39       | 33.235 |  |
| 75m          |            |        |            |        | 4.17       |        | 33.652     |        |            |        |            |        | 4.63       |        | 33.494     |        | 4.12       |        | 33.415     |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-8

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HSS17      |        | HSS16      |        | HSS15      |        | HSS14      |        | HSS22      |        | HSS21      |        | HSS20      |        | HSS19      |        | HSS18      |        | HSS26      |        |  |
| Latitude:N   | 42- 7.6    |        | 42-10.0    |        | 42-15.0    |        | 42-17.6    |        | 42-18.1    |        | 42-15.9    |        | 42-13.4    |        | 42-11.0    |        | 42- 8.5    |        | 42-10.1    |        |  |
| Longitude:E  | 140-52.6   |        | 140-54.8   |        | 140-59.9   |        | 141- 5.0   |        | 140-55.9   |        | 140-52.7   |        | 140-49.7   |        | 140-46.7   |        | 140-43.8   |        | 140-35.0   |        |  |
| Date         | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        |  |
| Time(JST)    | 12:51      |        | 13:16      |        | 14:06      |        | 14:45      |        | 15:29      |        | 15:56      |        | 16:22      |        | 16:47      |        | 17:14      |        | 18:04      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 7.0        | 32.64* | 6.7        | 32.48* | 6.2        | 32.66* | 6.3        | 32.71* | 7.0        | 32.00* | 6.9        | 32.09* | 6.5        | 32.28* | 7.5        | 32.55* | 6.9        | 32.55* | 7.9        | 32.28* |  |
| 10m          | 6.31       | 32.674 | 5.80       | 32.639 | 5.50       | 32.781 | 5.31       | 32.658 | 5.89       | 32.400 | 6.24       | 32.364 | 5.45       | 32.492 | 6.08       | 32.707 | 5.78       | 32.666 | 6.86       | 32.751 |  |
| 20m          | 5.36       | 32.816 | 5.23       | 32.887 | 5.02       | 32.807 | 5.33       | 32.789 | 5.49       | 32.610 | 5.60       | 32.631 | 5.71       | 32.572 | 6.22       | 32.850 | 6.10       | 32.784 | 6.24       | 32.805 |  |
| 30m          | 4.22       | 33.033 | 3.74       | 33.027 | 4.75       | 32.828 | 4.77       | 32.838 | 4.46       | 32.881 | 4.75       | 32.805 | 5.60       | 32.836 | 5.59       | 32.885 | 4.77       | 33.025 | 5.23       | 32.843 |  |
| 50m          | 3.40       | 33.257 | 3.11       | 33.189 | 3.57       | 32.963 | 3.06       | 33.002 |            |        | 3.99       | 32.842 | 3.41       | 32.903 | 3.27       | 33.214 |            |        | 3.30       | 33.245 |  |
| 75m          | 4.53       | 33.767 |            |        |            |        |            |        |            |        |            |        |            |        | 3.93       | 33.423 |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-9

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HSS25      |        | HSS24      |        | HSS23      |        | HSS32      |        | HSS31      |        | HSS30      |        | HSS29      |        | HSS28      |        | HSS27      |        | HSS36      |        |  |
| Latitude:N   | 42-15.1    |        | 42-20.0    |        | 42-25.0    |        | 42-27.6    |        | 42-25.1    |        | 42-22.5    |        | 42-20.1    |        | 42-17.6    |        | 42-15.0    |        | 42-17.7    |        |  |
| Longitude:E  | 140-39.9   |        | 140-44.9   |        | 140-50.0   |        | 140-42.5   |        | 140-40.1   |        | 140-37.5   |        | 140-35.1   |        | 140-32.4   |        | 140-30.1   |        | 140-25.0   |        |  |
| Date         | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/15 |        |  |
| Time(JST)    | 18:47      |        | 19:31      |        | 20:14      |        | 21:00      |        | 21:27      |        | 21:56      |        | 22:27      |        | 23:11      |        | 23:42      |        | 00:22      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 7.8        | 32.52* | 7.5        | 32.69* | 8.2        | 32.68* | 8.5        | 32.47* | 7.9        | 32.66* | 7.5        | 32.86* | 7.8        | 32.41* | 7.5        | 32.45* | 7.8        | 32.62* | 9.0        | 32.37* |  |
| 10m          | 5.98       | 32.650 | 7.39       | 32.712 | 7.55       | 32.654 | 7.78       | 32.531 | 7.61       | 32.664 | 7.42       | 32.851 | 6.42       | 32.879 | 7.00       | 32.584 | 6.43       | 32.838 | 6.67       | 32.776 |  |
| 20m          | 5.56       | 32.671 | 6.44       | 32.835 | 6.23       | 32.709 | 5.68       | 32.620 | 6.12       | 32.785 | 6.66       | 32.818 | 6.33       | 32.871 | 5.53       | 32.703 | 6.17       | 32.818 | 6.15       | 32.819 |  |
| 30m          | 5.47       | 32.707 | 5.83       | 32.868 | 4.86       | 32.760 | 5.24       | 32.809 | 6.08       | 32.892 | 6.27       | 32.849 | 6.25       | 32.877 | 4.90       | 32.741 | 5.52       | 32.914 | 5.48       | 32.947 |  |
| 50m          | 3.66       | 33.160 | 3.50       | 33.306 |            |        | 3.45       | 33.245 | 3.40       | 33.260 | 3.48       | 33.202 | 3.66       | 33.166 | 3.53       | 33.190 | 3.41       | 33.297 | 3.63       | 33.220 |  |
| 75m          | 4.06       | 33.578 |            |        |            |        |            |        |            |        | 3.50       | 33.389 | 3.52       | 33.386 | 3.80       | 33.508 | 4.20       | 33.658 |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-10

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HSS34      |        | HSS33      |        | HSS38      |        | HSS37      |        | HST23      |        | HST24      |        | HTS25      |        | HTS26      |        | HTS18      |        | HTS19      |        |  |
| Latitude:N   | 42-25.1    |        | 42-30.0    |        | 42-29.9    |        | 42-25.2    |        | 42-24.9    |        | 42-20.1    |        | 42-15.1    |        | 42-10.1    |        | 42- 8.6    |        | 42-10.9    |        |  |
| Longitude:E  | 140-30.1   |        | 140-34.9   |        | 140-30.0   |        | 140-25.1   |        | 140-50.0   |        | 140-44.9   |        | 140-40.0   |        | 140-35.0   |        | 140-43.7   |        | 140-46.7   |        |  |
| Date         | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        |  |
| Time(JST)    | 01:30      |        | 02:16      |        | 02:45      |        | 03:31      |        | 05:35      |        | 06:20      |        | 07:05      |        | 07:50      |        | 08:46      |        | 09:13      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 8.0        | 32.61* | 7.6        | 32.49* | 8.3        | 32.33* | 8.8        | 32.20* | 7.9        | 32.58* | 8.0        | 32.66* | 7.6        | 32.45* | 8.0        | 32.22* | 7.1        | 32.74* | 6.4        | 32.50* |  |
| 10m          | 7.70       | 32.608 |            |        | 7.10       | 32.525 | 6.84       | 32.736 | 7.58       | 32.660 | 7.76       | 32.730 | 5.73       | 32.677 | 6.52       | 32.783 | 6.65       | 32.831 | 5.98       | 32.763 |  |
| 20m          | 6.76       | 32.809 | 6.48       | 32.835 | 6.32       | 32.844 | 6.44       | 32.851 | 6.16       | 32.701 | 7.15       | 32.760 | 5.49       | 32.677 | 5.63       | 32.775 | 6.14       | 32.851 | 5.60       | 32.841 |  |
| 30m          | 6.36       | 32.836 | 5.84       | 32.932 | 5.49       | 32.984 | 5.63       | 32.957 | 5.32       | 32.762 | 6.20       | 32.863 | 5.58       | 32.721 | 4.88       | 32.973 | 4.71       | 32.853 | 4.38       | 32.848 |  |
| 50m          | 3.33       | 33.250 | 3.44       | 33.253 | 3.35       | 33.241 | 3.48       | 33.251 |            |        | 3.50       | 33.277 | 4.10       | 33.056 | 3.31       | 33.241 |            |        | 3.43       | 33.154 |  |
| 75m          | 3.80       | 33.470 |            |        |            |        |            |        |            |        |            |        | 3.83       | 33.472 |            |        |            |        | 3.86       | 33.427 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-11

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HTS20      |        | HTS21      |        | HTS22      |        | HOS14      |        | HOS13      |        | HOS12      |        | HOS11      |        | HOS10      |        | HOS17      |        | HOS16      |        |  |
| Latitude:N   | 42-13.3    |        | 42-15.6    |        | 42-18.0    |        | 42-17.5    |        | 42-15.0    |        | 42-10.0    |        | 42- 4.9    |        | 42- 2.6    |        | 42- 7.5    |        | 42-10.0    |        |  |
| Longitude:E  | 140-49.7   |        | 140-52.6   |        | 140-55.7   |        | 141- 5.0   |        | 141-10.0   |        | 141- 5.0   |        | 141- 0.0   |        | 140-57.5   |        | 140-52.6   |        | 140-54.9   |        |  |
| Date         | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        |  |
| Time(JST)    | 09:43      |        | 10:13      |        | 10:42      |        | 09:53      |        | 10:27      |        | 11:17      |        | 12:02      |        | 12:27      |        | 13:13      |        | 13:40      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 5.8        | 32.68* | 6.0        | 32.39* | 6.4        | 32.34* | 6.2        | 32.47* | 7.0        | 32.64* | 6.8        | 32.79* | 6.3        | 32.81* | 6.8        | 32.74* | 6.8        | 32.68* | 6.3        | 32.36* |  |
| 10m          | 5.80       | 32.685 | 5.94       | 32.425 | 6.38       | 32.332 | 5.68       | 32.489 | 6.40       | 32.966 | 6.07       | 32.862 | 5.98       | 32.829 | 5.84       | 32.787 | 6.03       | 32.802 | 5.98       | 32.568 |  |
| 20m          | 5.03       | 32.731 | 5.82       | 32.504 | 6.03       | 32.407 | 4.68       | 32.807 | 6.14       | 33.053 | 3.96       | 33.111 | 4.73       | 32.902 | 3.94       | 32.826 | 4.82       | 32.812 | 5.19       | 32.761 |  |
| 30m          | 5.09       | 32.792 | 5.12       | 32.679 | 5.80       | 32.540 | 4.66       | 32.968 | 5.37       | 33.264 | 4.15       | 33.374 | 3.02       | 32.990 | 3.18       | 32.974 | 4.51       | 32.946 | 4.54       | 32.836 |  |
| 50m          | 3.80       | 32.881 | 4.22       | 33.023 | 3.95       | 32.905 | 3.47       | 33.110 | 3.99       | 33.361 | 5.39       | 33.607 | 3.39       | 33.245 | 3.05       | 33.141 | 3.23       | 33.047 | 3.22       | 33.021 |  |
| 75m          |            |        |            |        |            |        |            |        | 4.33       | 33.436 | 4.85       | 33.561 | 3.97       | 33.408 | 3.92       | 33.519 | 4.17       | 33.639 |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-12

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HOS15      |        | HOS22      |        | HOS21      |        | HOS20      |        | HOS19      |        | HOS18      |        | HOS25      |        | HOS24      |        | HOS23      |        | HOS32      |        |  |
| Latitude:N   | 42-15.1    |        | 42-17.9    |        | 42-15.8    |        | 42-13.2    |        | 42-10.9    |        | 42- 8.5    |        | 42-15.0    |        | 42-20.0    |        | 42-25.0    |        | 42-27.5    |        |  |
| Longitude:E  | 140-59.9   |        | 140-55.8   |        | 140-52.7   |        | 140-49.7   |        | 140-46.7   |        | 140-43.9   |        | 140-40.0   |        | 140-45.0   |        | 140-50.0   |        | 140-42.6   |        |  |
| Date         | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        |  |
| Time(JST)    | 14:30      |        | 15:02      |        | 15:26      |        | 15:53      |        | 16:18      |        | 16:45      |        | 18:18      |        | 19:03      |        | 19:44      |        | 20:25      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 6.5        | 32.04* | 7.0        | 32.11* | 8.1        | 31.49* | 6.7        | 32.23* | 7.2        | 32.65* | 6.6        | 32.67* | 6.5        | 32.51* | 8.0        | 32.36* | 7.6        | 32.63* | 7.8        | 32.15* |  |
| 10m          | 5.95       | 32.359 | 6.77       | 32.135 | 6.91       | 32.166 | 6.18       | 32.386 | 6.36       | 32.817 | 6.38       | 32.845 | 6.22       | 32.582 | 7.57       | 32.503 | 7.28       | 32.629 | 7.75       | 32.578 |  |
| 20m          | 5.75       | 32.550 | 6.33       | 32.300 | 6.69       | 32.286 | 5.90       | 32.645 | 6.01       | 32.806 | 5.97       | 32.891 | 6.55       | 32.823 | 7.39       | 32.763 | 5.78       | 32.676 | 6.28       | 32.690 |  |
| 30m          | 4.84       | 32.844 | 6.36       | 32.381 | 6.49       | 32.488 | 5.97       | 32.744 | 4.85       | 32.830 | 4.24       | 33.100 | 6.22       | 32.847 | 6.52       | 32.828 | 5.69       | 32.834 | 4.62       | 32.813 |  |
| 50m          | 3.59       | 32.996 |            |        | 6.26       | 32.809 | 5.32       | 32.822 | 3.22       | 32.951 |            |        | 4.18       | 33.113 | 3.34       | 33.184 |            |        | 3.47       | 33.193 |  |
| 75m          |            |        |            |        |            |        |            |        | 3.70       | 33.384 |            |        | 3.52       | 33.384 |            |        |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-13

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HOS31      |        | HOS30      |        | HOS29      |        | HOS28      |        | HOS27      |        | HOS36      |        | HOS35      |        | HOS34      |        | HOS33      |        | HOS38      |        |  |
| Latitude:N   | 42-25.0    |        | 42-22.5    |        | 42-20.1    |        | 42-17.5    |        | 42-15.1    |        | 42-17.5    |        | 42-19.9    |        | 42-25.1    |        | 42-30.0    |        | 42-30.0    |        |  |
| Longitude:E  | 140-40.0   |        | 140-37.5   |        | 140-35.0   |        | 140-32.4   |        | 140-30.0   |        | 140-25.1   |        | 140-25.0   |        | 140-30.0   |        | 140-35.0   |        | 140-29.9   |        |  |
| Date         | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/16 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        |  |
| Time(JST)    | 20:53      |        | 21:19      |        | 21:46      |        | 22:24      |        | 22:51      |        | 23:27      |        | 23:49      |        | 00:35      |        | 01:22      |        | 01:53      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 9.9        | 32.15* | 8.9        | 31.98* | 7.8        | 32.39* | 8.0        | 32.50* | 7.5        | 32.39* | 7.5        | 32.60* | 8.1        | 32.42* | 8.8        | 32.23* | 8.8        | 32.26* | 9.1        | 32.05* |  |
| 10m          | 9.65       | 32.234 | 8.47       | 32.466 | 7.37       | 32.580 | 6.17       | 32.651 | 6.77       | 32.582 | 6.68       | 32.801 | 6.49       | 32.815 | 6.76       | 32.634 | 7.81       | 32.328 | 7.82       | 32.645 |  |
| 20m          | 6.61       | 32.759 | 6.98       | 32.735 | 6.52       | 32.863 | 5.47       | 32.673 | 5.40       | 32.747 | 5.83       | 32.780 | 6.25       | 32.824 | 5.87       | 32.747 | 6.52       | 32.843 | 6.71       | 32.793 |  |
| 30m          | 5.64       | 32.827 | 6.18       | 32.892 | 6.35       | 32.874 | 5.53       | 32.704 | 4.57       | 32.890 | 5.36       | 32.986 | 5.83       | 32.856 | 6.32       | 32.876 | 5.57       | 32.879 | 5.79       | 32.941 |  |
| 50m          | 3.43       | 33.244 | 3.43       | 33.209 | 4.03       | 33.118 | 3.50       | 33.204 | 3.36       | 33.233 | 3.51       | 33.211 | 3.75       | 33.166 | 3.71       | 33.180 | 3.50       | 33.233 | 3.45       | 33.206 |  |
| 75m          |            |        | 3.63       | 33.404 | 3.67       | 33.391 | 3.75       | 33.484 | 4.32       | 33.698 |            |        |            |        | 3.77       | 33.454 |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-14

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HOS37      |        | HST23      |        | HST24      |        | HST25      |        | HIS26      |        | HIS18      |        | HIS19      |        | HIS20      |        | HIS21      |        | HIS22      |        |  |
| Latitude:N   | 42-25.0    |        | 42-25.1    |        | 42-20.1    |        | 42-15.1    |        | 42-10.1    |        | 42- 8.5    |        | 42-10.9    |        | 42-13.2    |        | 42-15.6    |        | 42-17.9    |        |  |
| Longitude:E  | 140-25.0   |        | 140-49.9   |        | 140-44.9   |        | 140-40.0   |        | 140-35.1   |        | 140-43.8   |        | 140-46.6   |        | 140-49.7   |        | 140-52.7   |        | 140-55.7   |        |  |
| Date         | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        |  |
| Time(JST)    | 02:37      |        | 04:43      |        | 05:29      |        | 06:15      |        | 07:02      |        | 08:03      |        | 08:31      |        | 09:04      |        | 09:35      |        | 10:03      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 8.4        | 32.51* | 8.6        | 32.51* | 7.9        | 32.36* | 6.3        | 32.64* | 6.5        | 32.58* | 6.5        | 32.59* | 6.5        | 32.11* | 7.0        | 31.96* | 7.2        | 31.92* | 7.6        | 31.66* |  |
| 10m          | 7.24       | 32.683 | 7.99       | 32.670 | 7.84       | 32.392 | 6.03       | 32.711 | 6.57       | 32.656 | 6.40       | 32.696 | 6.50       | 32.131 | 6.73       | 32.094 | 7.03       | 31.997 | 7.61       | 31.659 |  |
| 20m          | 6.28       | 32.836 | 6.90       | 32.770 | 7.44       | 32.750 | 5.79       | 32.753 | 5.63       | 32.770 | 5.87       | 32.900 | 6.07       | 32.676 | 6.51       | 32.486 | 6.17       | 32.511 | 6.23       | 32.764 |  |
| 30m          | 5.50       | 32.964 | 5.86       | 32.834 | 6.61       | 32.816 | 5.76       | 32.795 | 4.94       | 32.967 | 4.55       | 33.067 | 4.79       | 32.833 | 6.02       | 32.595 | 5.98       | 32.575 | 6.50       | 32.670 |  |
| 50m          | 3.49       | 33.197 |            |        | 3.91       | 33.170 | 5.04       | 33.000 | 3.36       | 33.232 |            |        | 3.28       | 32.998 | 5.45       | 32.903 | 6.18       | 32.842 | 3.67       | 33.177 |  |
| 75m          |            |        |            |        |            |        | 3.52       | 33.390 |            |        |            |        | 3.70       | 33.403 |            |        |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-15



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HXS14      |        | HXS15      |        | HXS16      |        | HXS17      |        | HXS18      |        | HXS19      |        | HXS20      |        | HXS21      |        | HXS22      |        | HXS23      |        |  |
| Latitude:N   | 42-17.6    |        | 42-15.3    |        | 42-10.1    |        | 42- 7.7    |        | 42- 8.5    |        | 42-10.7    |        | 42-13.2    |        | 42-15.5    |        | 42-17.9    |        | 42-25.0    |        |  |
| Longitude:E  | 141- 5.1   |        | 141- 0.1   |        | 140-54.8   |        | 140-52.5   |        | 140-43.8   |        | 140-46.7   |        | 140-49.7   |        | 140-52.7   |        | 140-55.7   |        | 140-50.1   |        |  |
| Date         | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        | 1997/05/18 |        |  |
| Time(JST)    | 14:04      |        | 14:35      |        | 15:21      |        | 15:47      |        | 16:33      |        | 16:59      |        | 17:30      |        | 17:59      |        | 18:27      |        | 19:21      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 5.7        | 31.91* | 6.1        | 32.17* | 5.7        | 32.20* | 6.1        | 32.61* | 6.2        | 32.69* | 5.9        | 32.45* | 6.5        | 31.94* | 7.0        | 32.06* | 6.9        | 32.04* | 6.6        | 32.26* |  |
| 10m          | 4.09       | 32.225 | 6.03       | 32.251 | 5.72       | 32.214 | 6.13       | 32.610 | 6.16       | 32.702 | 5.87       | 32.452 | 6.55       | 31.943 | 7.00       | 32.055 | 6.79       | 32.091 | 6.62       | 32.262 |  |
| 20m          | 3.71       | 32.416 | 5.01       | 32.649 | 4.41       | 32.612 | 4.83       | 32.755 | 5.32       | 32.924 | 6.02       | 32.656 | 6.83       | 32.508 | 6.80       | 32.167 | 6.01       | 32.260 | 6.56       | 32.310 |  |
| 30m          | 3.04       | 32.662 | 4.18       | 32.814 | 4.67       | 32.868 | 4.51       | 32.896 | 4.69       | 33.034 | 5.94       | 32.821 | 7.01       | 32.776 | 6.76       | 32.347 | 5.01       | 32.701 | 6.53       | 32.395 |  |
| 50m          | 3.44       | 33.040 | 2.39       | 32.947 | 4.12       | 33.018 | 3.93       | 32.987 |            |        | 3.74       | 33.152 | 5.54       | 32.960 | 4.03       | 33.011 | 4.13       | 32.908 |            |        |  |
| 75m          |            |        |            |        |            |        | 4.11       | 33.623 |            |        | 3.83       | 33.511 |            |        |            |        |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-16

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |             | 199705     |             | 199705     |             | 199705     |             | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HXS24      |        | HKG004     |             | HKG003     |             | HKG002     |             | HKG001     |             | PH01       |        | P65        |        | P66        |        | P56        |        | P55        |        |
| Latitude:N   | 42-20.0    |        | 42- 3.9    |             | 42- 4.5    |             | 42- 4.7    |             | 42- 5.6    |             | 41-40.1    |        | 41-40.1    |        | 41-30.0    |        | 41-20.1    |        | 41-30.0    |        |
| Longitude:E  | 140-44.8   |        | 141- 8.0   |             | 141- 3.7   |             | 140-58.5   |             | 140-50.4   |             | 140-40.5   |        | 141-19.9   |        | 141-20.1   |        | 141-40.2   |        | 141-49.9   |        |
| Date         | 1997/05/18 |        | 1997/05/20 |             | 1997/05/20 |             | 1997/05/20 |             | 1997/05/20 |             | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        | 1997/05/26 |        |
| Time(JST)    | 20:15      |        | 07:46      |             | 08:24      |             | 09:05      |             | 10:12      |             | 14:16      |        | 16:59      |        | 18:18      |        | 20:33      |        | 22:20      |        |
| Weather      |            |        | C          |             | C          |             | C          |             | C          |             | C          |        | R          |        | R          |        | R          |        | R          |        |
| Air Temp.    |            |        | 8.0        |             | 8.9        |             | 9.5        |             | 9.5        |             | 11.5       |        | 10.0       |        | 10.0       |        | 9.5        |        | 9.5        |        |
| Bar          |            |        | 1008.0     |             | 1007.5     |             | 1007.0     |             | 1006.5     |             | 1013.0     |        | 1013.0     |        | 1013.5     |        | 1014.5     |        | 1014.5     |        |
| Wind Dir     |            |        | SSE        |             | SSE        |             | SSE        |             | SE         |             | ENE        |        | S          |        | SE         |        | SW         |        | W          |        |
| Wind Spd/F   |            |        | S 4        |             | S 5        |             | S 4        |             | S 7        |             | S 2        |        | S 2        |        | S 6        |        | S 6        |        | S 4        |        |
| Transparency |            |        | 10         |             | 11         |             | 11         |             | 11         |             | 13         |        | 14         |        | 16         |        |            |        |            |        |
| Depth        |            |        | 122        |             | 98         |             | 83         |             | 42         |             | 120        |        | 231        |        | 245        |        | 752        |        | 869        |        |
| Equipment    | CTD        |        | CTD        |             | CTD        |             | CTD        |             | CTD        |             | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S           | T          | S           | T          | S           | T          | S           | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.7        | 32.12* | 7.5        | <i>N.D.</i> | 5.7        | <i>N.D.</i> | 5.8        | <i>N.D.</i> | 5.7        | <i>N.D.</i> | 11.6       | 32.709 | 8.5        | 33.444 | 10.9       | 33.652 | 10.4       | 33.792 | 10.6       | 33.843 |
| 10m          | 6.63       | 32.150 | 7.30       | 32.920      | 5.44       | 32.660      | 5.47       | 32.475      | 5.84       | 32.709      | 11.46      | 33.820 | 8.49       | 33.592 | 10.65      | 33.881 | 10.54      | 33.814 | 10.60      | 33.884 |
| 20m          | 6.52       | 32.253 | 7.14       | 32.927      | 5.92       | 32.799      | 6.21       | 32.927      | 5.66       | 32.748      | 11.36      | 33.826 | 8.63       | 33.680 | 10.60      | 33.889 | 10.51      | 33.862 | 10.54      | 33.882 |
| 30m          | 6.20       | 32.526 | 6.31       | 33.209      | 5.14       | 33.061      | 5.66       | 33.135      | 5.32       | 32.829      | 10.91      | 33.878 | 8.67       | 33.740 | 10.57      | 33.894 | 10.44      | 33.897 | 10.43      | 33.904 |
| 50m          | 5.25       | 32.934 | 5.35       | 33.373      | 1.44       | 32.948      | 2.50       | 32.997      |            |             | 9.69       | 34.080 | 8.60       | 33.825 | 10.39      | 33.921 | 10.38      | 33.918 | 10.38      | 33.956 |
| 75m          |            |        | 5.09       | 33.532      | 4.43       | 33.369      | 4.22       | 33.637      |            |             | 9.12       | 34.127 | 8.31       | 33.833 | 10.18      | 33.954 | 10.30      | 33.930 | 10.31      | 33.970 |
| 100m         |            |        | 5.07       | 33.576      |            |             |            |             |            |             | 8.96       | 34.136 | 8.23       | 33.828 | 10.12      | 33.958 | 10.20      | 33.945 | 10.19      | 33.980 |
| 125m         |            |        |            |             |            |             |            |             |            |             |            |        | 8.23       | 33.834 | 10.10      | 33.959 | 10.14      | 33.946 | 10.03      | 33.983 |
| 150m         |            |        |            |             |            |             |            |             |            |             |            |        | 7.67       | 33.784 | 10.08      | 33.961 | 10.07      | 33.950 | 9.86       | 33.970 |
| 200m         |            |        |            |             |            |             |            |             |            |             |            |        | 6.71       | 33.695 | 9.63       | 34.049 | 9.73       | 33.987 | 9.44       | 34.003 |
| 250m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        | 9.30       | 33.979 | 6.49       | 33.806 |
| 300m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        | 8.10       | 33.987 | 4.68       | 33.659 |
| 400m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        | 3.44       | 33.772 | 3.39       | 33.705 |
| 500m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        | 3.35       | 33.930 | 3.27       | 33.857 |
| 600m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        | 3.50       | 34.078 | 3.51       | 34.066 |
| 700m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |             |            |             |            |             |            |             |            |        |            |        |            |        |            |        |            |        |

Table 4-17

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P54        |        | P53        |        | P52        |        | P51        |        | P61        |        | P62        |        | P63        |        | HKD01      |        | HKD02      |        | HKD03      |        |
| Latitude:N   | 41-40.1    |        | 41-50.1    |        | 41-59.9    |        | 42-10.0    |        | 42-19.9    |        | 42-10.1    |        | 42- 0.1    |        | 42- 0.0    |        | 42- 5.2    |        | 42- 9.9    |        |
| Longitude:E  | 142- 0.0   |        | 142- 9.9   |        | 142-20.0   |        | 142-30.0   |        | 141-20.1   |        | 141-20.1   |        | 141-20.1   |        | 141- 0.5   |        | 140-55.1   |        | 140-50.0   |        |
| Date         | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        |
| Time(JST)    | 00:31      |        | 02:51      |        | 04:55      |        | 07:01      |        | 12:37      |        | 13:50      |        | 15:08      |        | 16:52      |        | 17:43      |        | 18:32      |        |
| Weather      | R          |        | C          |        | C          |        | F          |        | BC         |        | BC         |        | B          |        | B          |        | B          |        | BC         |        |
| Air Temp.    | 9.0        |        | 8.5        |        | 9.0        |        | 10.0       |        | 13.0       |        | 13.0       |        | 13.0       |        | 13.0       |        | 13.5       |        | 12.0       |        |
| Bar          | 1014.0     |        | 1014.0     |        | 1014.0     |        | 1014.5     |        | 1013.5     |        | 1013.5     |        | 1013.0     |        | 1013.0     |        | 1013.0     |        | 1013.0     |        |
| Wind Dir     | SE         |        | NE         |        | SW         |        | NNW        |        | SSE        |        | ESE        |        | S          |        | S          |        | W          |        | W          |        |
| Wind Spd/F   | S 4        |        | S 1        |        | S 3        |        | S 2        |        | S 3        |        | S 2        |        | S 4        |        | S 2        |        | S 4        |        | S 8        |        |
| Transparency |            |        |            |        | 15         |        | 8          |        | 12         |        | 13         |        | 13         |        | 22         |        | 12         |        | 7          |        |
| Depth        | 1050       |        | 1072       |        | 1004       |        | 122        |        | 250        |        | 368        |        | 312        |        | 91         |        | 88         |        | 91         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.6        | 33.278 | 8.8        | 33.497 | 9.0        | 33.584 | 5.9        | 31.652 | 8.6        | 32.810 | 8.7        | 32.941 | 8.8        | 32.975 | 7.8        | 32.253 | 10.1       | 31.594 | 8.4        | 31.068 |
| 10m          | 9.01       | 33.579 | 8.75       | 33.487 | 8.77       | 33.575 | 5.22       | 32.557 | 7.44       | 32.897 | 7.42       | 32.898 | 7.72       | 32.938 | 6.20       | 32.329 | 4.39       | 32.453 | 6.06       | 32.227 |
| 20m          | 9.52       | 33.725 | 8.65       | 33.503 | 8.77       | 33.584 | 5.45       | 32.643 | 7.28       | 33.191 | 6.95       | 33.211 | 7.08       | 33.016 | 4.44       | 32.451 | 4.59       | 32.513 | 5.85       | 32.403 |
| 30m          | 8.98       | 33.660 | 8.63       | 33.500 | 8.77       | 33.585 | 4.53       | 32.599 | 7.07       | 33.251 | 5.42       | 33.336 | 5.35       | 33.119 | 4.57       | 32.576 | 5.15       | 32.665 | 5.25       | 32.393 |
| 50m          | 8.39       | 33.664 | 8.74       | 33.613 | 8.42       | 33.571 | 4.70       | 32.735 | 5.87       | 33.511 | 4.35       | 33.338 | 5.70       | 33.591 | 2.29       | 32.630 | 2.13       | 32.660 | 5.89       | 32.793 |
| 75m          | 7.68       | 33.683 | 6.88       | 33.746 | 7.12       | 33.695 | 5.72       | 32.977 | 5.96       | 33.685 | 5.55       | 33.609 | 6.09       | 33.722 | 1.26       | 32.797 | 2.39       | 32.945 | 3.91       | 33.170 |
| 100m         | 7.38       | 33.763 | 6.12       | 33.724 | 7.64       | 33.887 | 5.10       | 33.002 | 6.16       | 33.737 | 6.00       | 33.713 | 5.89       | 33.706 |            |        |            |        |            |        |
| 125m         | 7.12       | 33.792 | 6.06       | 33.724 | 7.47       | 33.885 |            |        | 5.98       | 33.718 | 5.86       | 33.713 | 5.37       | 33.644 |            |        |            |        |            |        |
| 150m         | 6.05       | 33.640 | 5.83       | 33.702 | 7.11       | 33.878 |            |        | 5.49       | 33.666 | 5.93       | 33.763 | 4.81       | 33.573 |            |        |            |        |            |        |
| 200m         | 6.33       | 33.777 | 6.12       | 33.795 | 6.07       | 33.782 |            |        | 5.44       | 33.704 | 5.36       | 33.740 | 5.49       | 33.732 |            |        |            |        |            |        |
| 250m         | 5.54       | 33.734 | 4.66       | 33.641 | 5.62       | 33.755 |            |        | 5.05       | 33.739 | 4.28       | 33.646 |            |        |            |        |            |        |            |        |
| 300m         | 4.01       | 33.665 | 4.51       | 33.705 | 4.76       | 33.689 |            |        | 3.57       | 33.599 | 3.53       | 33.598 |            |        |            |        |            |        |            |        |
| 400m         | 3.26       | 33.751 | 3.18       | 33.689 | 3.58       | 33.715 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 3.37       | 33.872 | 3.44       | 33.852 | 3.16       | 33.793 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         | 3.50       | 34.027 | 3.52       | 34.039 | 3.64       | 34.039 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-18

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD04      |        | HKD05      |        | HKD06      |        | HKD07      |        | HKD21      |        | HKD08      |        | HKD09      |        | HKD10      |        | HKD11      |        | HKD12      |        |
| Latitude:N   | 42-15.0    |        | 42-20.0    |        | 42-25.0    |        | 42-30.0    |        | 42-25.0    |        | 42-20.0    |        | 42-20.0    |        | 42-20.1    |        | 42-19.9    |        | 42-19.8    |        |
| Longitude:E  | 140-45.0   |        | 140-40.0   |        | 140-35.0   |        | 140-30.0   |        | 140-27.4   |        | 140-25.0   |        | 140-29.9   |        | 140-34.9   |        | 140-39.8   |        | 140-44.9   |        |
| Date         | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        |
| Time(JST)    | 19:20      |        | 20:08      |        | 21:00      |        | 21:52      |        | 22:36      |        | 23:13      |        | 23:48      |        | 00:24      |        | 01:04      |        | 01:40      |        |
| Weather      | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 11.5       |        | 10.5       |        | 10.0       |        | 10.0       |        |            |        | 10.0       |        | 10.0       |        | 10.0       |        | 10.0       |        | 9.5        |        |
| Bar          | 1013.5     |        | 1014.0     |        | 1014.5     |        | 1014.5     |        | 1015.0     |        | 1015.0     |        | 1015.0     |        | 1015.0     |        | 1015.0     |        | 1015.0     |        |
| Wind Dir     | W          |        | WNW        |        | WNW        |        | W          |        | W          |        | WNW        |        | W          |        | W          |        | WSW        |        | WSW        |        |
| Wind Spd/F   | S 7        |        | S 6        |        | S 7        |        | S 3        |        | S 4        |        | S 3        |        | S 4        |        | S 3        |        | S 4        |        | S 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 80         |        | 78         |        | 92         |        | 67         |        | 83         |        | 69         |        | 94         |        | 94         |        | 78         |        | 60         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.2        | 31.079 | 8.0        | 31.414 | 7.8        | 31.532 | 9.3        | 31.989 | 8.9        | 31.186 | 8.2        | 31.193 | 9.5        | 32.183 | 9.0        | 31.019 | 7.8        | 31.633 | 7.8        | 31.967 |
| 10m          | 6.04       | 32.019 | 7.04       | 31.753 | 7.18       | 31.874 | 7.38       | 32.003 | 6.49       | 32.045 | 6.60       | 32.051 | 8.00       | 32.365 | 7.15       | 32.487 | 7.23       | 31.806 | 7.02       | 31.997 |
| 20m          | 7.09       | 32.541 | 6.67       | 32.111 | 7.32       | 32.070 | 6.42       | 32.126 | 6.48       | 32.356 | 6.61       | 32.545 | 6.98       | 32.568 | 6.64       | 32.525 | 7.30       | 32.345 | 6.74       | 32.031 |
| 30m          | 6.52       | 32.666 | 6.79       | 32.600 | 6.68       | 32.167 | 6.62       | 32.213 | 6.54       | 32.621 | 6.39       | 32.647 | 6.37       | 32.694 | 6.08       | 32.733 | 6.76       | 32.587 | 7.26       | 32.283 |
| 50m          | 5.55       | 32.844 | 5.28       | 32.866 | 5.81       | 32.785 | 5.93       | 32.782 | 4.59       | 32.969 | 4.92       | 32.949 | 4.63       | 33.054 | 4.48       | 33.011 | 5.43       | 32.790 | 3.98       | 32.594 |
| 75m          | 4.11       | 33.604 |            |        | 3.39       | 33.294 |            |        | 3.50       | 33.345 |            |        | 3.37       | 33.308 | 3.48       | 33.325 |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-19

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD13      |        | HKD22      |        | HKD14      |        | HKD15      |        | HKD16      |        | HKD17      |        | HKD18      |        | HKD23      |        | HKD24      |        | P64        |        |
| Latitude:N   | 42-19.8    |        | 42-24.8    |        | 42-29.8    |        | 42-25.2    |        | 42-20.0    |        | 42-15.0    |        | 42-10.0    |        | 42-15.0    |        | 42-14.9    |        | 41-50.0    |        |
| Longitude:E  | 140-50.0   |        | 140-44.9   |        | 140-39.9   |        | 140-39.9   |        | 140-39.9   |        | 140-40.0   |        | 140-40.1   |        | 140-35.0   |        | 140-55.0   |        | 141-20.2   |        |
| Date         | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        |
| Time(JST)    | 02:15      |        | 03:06      |        | 03:53      |        | 04:30      |        | 05:11      |        | 05:53      |        | 06:33      |        | 07:22      |        | 08:57      |        | 12:07      |        |
| Weather      | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 9.0        |        | 9.5        |        | 10.0       |        | 10.0       |        | 11.0       |        | 11.0       |        | 12.5       |        | 14.5       |        | 12.5       |        | 14.0       |        |
| Bar          | 1013.0     |        | 1014.5     |        | 1014.5     |        | 1014.5     |        | 1015.0     |        | 1015.0     |        | 1015.5     |        | 1015.0     |        | 1014.5     |        | 1015.5     |        |
| Wind Dir     | W          |        | WNW        |        | WNW        |        | W          |        | W          |        | W          |        | S          |        | W          |        | W          |        | SW         |        |
| Wind Spd/F   | S 3        |        | S 5        |        | S 2        |        | S 3        |        | S 3        |        | S 6        |        | S 2        |        | S 4        |        | S 5        |        | S 4        |        |
| Transparency |            |        |            |        |            |        | 11         |        | 10         |        | 9          |        | 11         |        | 11         |        | 7          |        | 13         |        |
| Depth        | 47         |        | 58         |        | 67         |        | 78         |        | 79         |        | 88         |        | 85         |        | 92         |        | 61         |        | 288        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.3        | 32.256 | 9.9        | 32.033 | 9.6        | 31.838 | 8.5        | 32.128 | 7.6        | 31.908 | 8.6        | 31.497 | 8.6        | 32.276 | 8.1        | 31.997 | 8.2        | 31.656 | 9.3        | 32.855 |
| 10m          | 8.18       | 32.285 | 7.18       | 32.170 | 7.70       | 32.331 | 7.35       | 32.072 | 7.62       | 31.940 | 6.54       | 32.255 | 7.97       | 32.314 | 7.07       | 32.138 | 7.22       | 32.143 | 7.85       | 32.922 |
| 20m          | 7.12       | 32.368 | 7.20       | 32.258 | 7.12       | 32.394 | 7.12       | 32.224 | 6.46       | 32.059 | 6.56       | 32.381 | 6.52       | 32.345 | 7.10       | 32.384 | 5.29       | 32.508 | 6.41       | 32.978 |
| 30m          | 4.98       | 32.629 | 7.04       | 32.480 | 6.49       | 32.399 | 7.28       | 32.372 | 6.96       | 32.624 | 6.35       | 32.626 | 7.01       | 32.536 | 6.80       | 32.599 | 3.74       | 32.537 | 5.73       | 33.218 |
| 50m          |            |        | 5.33       | 32.876 | 5.88       | 32.833 | 6.09       | 32.718 | 5.51       | 32.800 | 5.42       | 32.876 | 6.01       | 32.762 | 5.01       | 32.974 | 2.57       | 32.722 | 6.29       | 33.654 |
| 75m          |            |        |            |        |            |        |            |        | 4.00       | 33.569 | 3.67       | 33.377 | 3.86       | 33.503 | 3.36       | 33.273 |            |        | 6.22       | 33.729 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5.97       | 33.713 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5.50       | 33.654 |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5.23       | 33.621 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 4.80       | 33.617 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 4.54       | 33.655 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-20

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD25      |        | HSR001     |        | HSR002     |        | HSR003     |        | HSR005     |        | HSR013     |        | HSR006     |        | HSR004     |        | HSR007     |        | HSR008     |        |
| Latitude:N   | 41-50.9    |        | 41- 0.0    |        | 41- 0.3    |        | 41- 0.0    |        | 40-29.9    |        | 40- 0.2    |        | 40-30.0    |        | 40-29.9    |        | 40- 0.1    |        | 39-30.1    |        |
| Longitude:E  | 141-39.2   |        | 139- 0.1   |        | 138-29.9   |        | 138- 0.0   |        | 138- 0.2   |        | 138- 0.0   |        | 138-30.0   |        | 138-59.9   |        | 138-30.0   |        | 138-29.9   |        |
| Date         | 1997/05/28 |        | 1997/06/03 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/05 |        | 1997/06/05 |        | 1997/06/05 |        |
| Time(JST)    | 20:51      |        | 22:55      |        | 06:16      |        | 09:06      |        | 12:30      |        | 16:04      |        | 20:11      |        | 05:29      |        | 09:42      |        | 13:18      |        |
| Weather      | B          |        | C          |        | F          |        | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 9.5        |        | 14.5       |        | 15.5       |        | 14.0       |        | 17.0       |        | 17.5       |        | 13.5       |        | 14.0       |        | 14.5       |        | 16.0       |        |
| Bar          | 1016.0     |        | 1014.5     |        | 1012.5     |        |            |        | 1011.0     |        | 1010.0     |        | 1009.0     |        | 1008.5     |        | 1009.5     |        | 1010.0     |        |
| Wind Dir     | W          |        | SE         |        | SE         |        | W          |        | NNW        |        | SW         |        | N          |        | NW         |        | CALM       |        | WNW        |        |
| Wind Spd/F   | S 7        |        | S 5        |        | S 3        |        | S 3        |        | S 3        |        | S 2        |        | S 1        |        | F 2        |        | S 0        |        | S 3        |        |
| Transparency |            |        |            |        | 17         |        | 8          |        | 12         |        | 18         |        |            |        | 17         |        | 15         |        | 15         |        |
| Depth        | 796        |        | 1280       |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.2        | 32.791 | 14.7       | 33.964 | 14.1       | 34.086 | 11.0       | 33.686 | 13.2       | 33.884 | 15.4       | 34.126 | 15.8       | 34.208 | 13.8       | 34.113 | 15.5       | 33.671 | 16.6       | 34.062 |
| 10m          | 7.64       | 33.061 | 14.66      | N.D.   | 13.71      | 34.147 | 9.54       | 33.899 | 11.31      | 33.955 | 15.16      | 34.189 | 15.61      | 34.236 | 13.84      | 34.038 | 13.97      | 33.847 | 16.35      | 34.066 |
| 20m          | 7.10       | 33.072 | 13.35      | N.D.   | 11.84      | 34.245 | 7.64       | 34.003 | 7.72       | 34.083 | 12.52      | 34.269 | 12.62      | 34.199 | 12.14      | 34.210 | 12.11      | 34.122 | 14.09      | 34.320 |
| 30m          | 7.28       | 33.540 | 12.01      | N.D.   | 10.64      | 34.296 | 4.02       | 34.127 | 5.04       | 34.114 | 9.54       | 34.257 | 12.11      | 34.255 | 10.87      | 34.189 | 11.32      | 34.152 | 12.98      | 34.333 |
| 50m          | 7.68       | 33.889 | 10.30      | N.D.   | 8.20       | 34.239 | 2.20       | 34.103 | 2.71       | 34.106 | 7.51       | 34.220 | 9.53       | 34.258 | 6.73       | 34.154 | 10.42      | 34.172 | 11.83      | 34.351 |
| 75m          | 6.99       | 33.834 | 8.11       | N.D.   | 6.54       | 34.181 | 1.97       | 34.094 | 2.24       | 34.087 | 5.50       | 34.162 | 7.58       | 34.219 | 3.25       | 34.104 | 9.87       | 34.199 | 10.25      | 34.273 |
| 100m         | 6.07       | 33.723 | 6.49       | N.D.   | 4.15       | 34.122 | 1.79       | 34.093 | 1.99       | 34.083 | 3.58       | 34.108 | 5.42       | 34.150 | 2.47       | 34.090 | 9.60       | 34.226 | 9.34       | 34.270 |
| 125m         | 5.86       | 33.702 | 5.01       | N.D.   | 3.51       | 34.105 | 1.75       | 34.103 | 1.70       | 34.079 | 2.70       | 34.090 | 3.66       | 34.095 | 2.03       | 34.078 | 8.57       | 34.236 | 7.77       | 34.185 |
| 150m         | 5.48       | 33.661 | 3.46       | N.D.   | 2.48       | 34.093 | 1.34       | 34.081 | 1.54       | 34.077 | 2.39       | 34.083 | 2.55       | 34.101 | 1.67       | 34.071 | 6.48       | 34.185 | 6.12       | 34.155 |
| 200m         | 5.16       | 33.666 | 2.18       | N.D.   | 1.67       | 34.080 | 1.31       | 34.096 | 1.32       | 34.084 | 1.72       | 34.078 | 1.74       | 34.094 | 1.37       | 34.072 | 5.30       | 34.145 | 2.78       | 34.092 |
| 250m         | 5.21       | 33.726 | 1.52       | N.D.   | 1.44       | 34.089 | 1.17       | 34.093 | 1.15       | 34.084 | 1.30       | 34.074 | 1.31       | 34.077 | 1.11       | 34.074 | 2.14       | 34.081 | 1.57       | 34.071 |
| 300m         | 4.69       | 33.714 | 1.10       | N.D.   | 1.28       | 34.088 | 1.10       | 34.093 | 0.97       | 34.079 | 1.04       | 34.072 | 1.11       | 34.080 | 1.01       | 34.081 | 1.43       | 34.070 | 1.08       | 34.068 |
| 400m         | 3.23       | 33.717 | 0.82       | N.D.   | 0.91       | 34.078 | 0.73       | 34.076 | 0.58       | 34.068 | 0.63       | 34.069 | 0.75       | 34.071 | 0.74       | 34.074 | 0.80       | 34.067 | 0.58       | 34.065 |
| 500m         | 3.48       | 33.910 | 0.59       | N.D.   | 0.65       | 34.071 | 0.55       | 34.072 | 0.48       | 34.068 | 0.46       | 34.067 | 0.54       | 34.069 | 0.57       | 34.072 | 0.55       | 34.067 | 0.40       | 34.065 |
| 600m         | 3.71       | 34.077 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-21

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HSR009     |        | HSR011     |        | HSR010     |        | HSR012     |        | HSR015     |        | HSR020     |        | HSR021     |        | HSR018     |        | HSR019     |        | HAP01      |        |
| Latitude:N   | 39-29.8    |        | 39-59.9    |        | 39-30.0    |        | 40- 0.0    |        | 40-34.5    |        | 41-30.0    |        | 41-16.5    |        | 40-59.9    |        | 40-59.8    |        | 41- 8.7    |        |
| Longitude:E  | 138-59.9   |        | 139- 0.1   |        | 139-29.9   |        | 139-30.0   |        | 139-29.2   |        | 139-50.0   |        | 139-52.1   |        | 139-50.1   |        | 139-59.9   |        | 140-14.2   |        |
| Date         | 1997/06/05 |        | 1997/06/05 |        | 1997/06/06 |        | 1997/06/08 |        | 1997/06/08 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        |
| Time(JST)    | 16:14      |        | 20:05      |        | 06:46      |        | 13:58      |        | 18:45      |        | 20:55      |        | 22:41      |        | 05:17      |        | 06:24      |        | 08:14      |        |
| Weather      | C          |        | C          |        | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 18.5       |        | 14.0       |        | 16.5       |        | 20.0       |        | 16.0       |        | 13.0       |        | 13.0       |        | 14.0       |        | 15.0       |        |            |        |
| Bar          | 1009.5     |        | 1010.5     |        | 1009.5     |        | 1014.5     |        | 1012.5     |        | 1015.0     |        | 1015.5     |        | 1007.0     |        | 1007.5     |        |            |        |
| Wind Dir     | WNW        |        | NW         |        | NW         |        | NNE        |        | ENE        |        | SW         |        | W          |        | WSW        |        | W          |        |            |        |
| Wind Spd/F   | S 5        |        | S 5        |        | S 2        |        | S 2        |        | S 6        |        | S 2        |        | S 3        |        | S 2        |        | S 4        |        |            |        |
| Transparency | 16         |        |            |        | 8          |        | 23         |        | 8          |        |            |        | 8          |        | 9          |        |            |        |            |        |
| Depth        | 556        |        |            |        | 568        |        |            |        |            |        |            |        | 610        |        |            |        | 512        |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.7       | 34.062 | 15.6       | 34.073 | 17.2       | 32.724 | 15.9       | 34.001 | 15.2       | 33.458 | 14.5       | 33.679 | 15.1       | 32.977 | 15.2       | 32.789 | 15.3       | 32.734 | 15.4       | 32.97* |
| 10m          | 16.18      | 34.204 | 15.24      | 34.072 | 16.17      | 33.822 | 15.25      | 34.172 | 14.47      | 33.945 | 14.38      | 33.689 | 15.24      | 32.955 | 15.30      | 32.781 | 15.31      | 32.753 | 15.10      | 33.083 |
| 20m          | 14.36      | 34.323 | 12.80      | 34.321 | 13.73      | 34.156 | 15.18      | 34.175 | 13.95      | 34.026 | 13.67      | 33.892 | 15.21      | 32.981 | 13.99      | 33.824 | 14.88      | 33.217 | 14.74      | 33.187 |
| 30m          | 13.20      | 34.347 | 11.70      | 34.258 | 12.70      | 34.227 | 13.25      | 34.203 | 13.71      | 34.016 | 12.66      | 34.051 | 14.03      | 33.602 | 12.94      | 34.000 | 12.71      | 34.173 | 13.86      | 33.718 |
| 50m          | 11.56      | 34.343 | 11.17      | 34.315 | 11.29      | 34.167 | 11.38      | 34.181 | 11.78      | 34.185 | 10.36      | 34.124 | 10.63      | 34.235 | 12.02      | 34.122 | 11.51      | 34.231 | 12.59      | 33.975 |
| 75m          | 11.00      | 34.330 | 10.15      | 34.289 | 11.13      | 34.311 | 10.73      | 34.298 | 10.16      | 34.224 | 10.19      | 34.230 | 10.09      | 34.229 | 11.64      | 34.314 | 10.67      | 34.146 |            |        |
| 100m         | 10.14      | 34.292 | 9.46       | 34.272 | 10.37      | 34.194 | 9.54       | 34.275 | 8.01       | 34.213 | 9.21       | 34.231 | 9.41       | 34.229 | 10.96      | 34.253 | 10.45      | 34.164 |            |        |
| 125m         | 9.30       | 34.278 | 8.10       | 34.203 | 10.16      | 34.189 | 8.18       | 34.220 | 5.41       | 34.154 | 7.70       | 34.212 | 8.69       | 34.225 | 10.65      | 34.250 | 10.53      | 34.221 |            |        |
| 150m         | 7.85       | 34.176 | 7.40       | 34.193 | 9.66       | 34.233 | 6.88       | 34.184 | 4.84       | 34.131 | 5.58       | 34.148 | 8.37       | 34.218 | 9.82       | 34.189 | 10.03      | 34.160 |            |        |
| 200m         | 4.31       | 34.124 | 5.15       | 34.137 | 7.66       | 34.211 | 3.31       | 34.101 | 3.10       | 34.092 | 2.85       | 34.094 | 5.39       | 34.147 | 7.92       | 34.205 | 6.71       | 34.176 |            |        |
| 250m         | 2.08       | 34.079 | 3.21       | 34.093 | 3.20       | 34.102 | 1.88       | 34.075 | 1.67       | 34.073 | 1.79       | 34.086 | 3.29       | 34.101 | 3.50       | 34.106 | 3.24       | 34.105 |            |        |
| 300m         | 1.33       | 34.069 | 2.13       | 34.077 | 1.88       | 34.074 | 1.19       | 34.067 | 1.15       | 34.069 | 1.35       | 34.081 | 1.69       | 34.081 | 2.10       | 34.083 | 1.79       | 34.079 |            |        |
| 400m         | 0.67       | 34.065 | 1.20       | 34.077 | 0.84       | 34.067 | 0.71       | 34.065 | 0.70       | 34.068 | 0.86       | 34.073 | 0.84       | 34.070 | 1.24       | 34.075 | 0.93       | 34.072 |            |        |
| 500m         | 0.50       | 34.065 | 0.77       | 34.071 | 0.46       | 34.065 | 0.50       | 34.066 | 0.54       | 34.067 | 0.62       | 34.068 | 0.59       | 34.068 | 0.76       | 34.070 | 0.53       | 34.067 |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-22

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HAP02      |        | HAP03      |        | HAP04      |        | HAP05      |        | HAP06      |        | HAP07      |        | HFS14      |        | HFS13      |        | HFS12      |        | HFS11      |        |  |
| Latitude:N   | 41-10.9    |        | 41-13.4    |        | 41-15.7    |        | 41-18.1    |        | 41-20.5    |        | 41-23.2    |        | 42-17.8    |        | 42-15.1    |        | 42-10.1    |        | 42- 5.1    |        |  |
| Longitude:E  | 140-13.6   |        | 140-13.0   |        | 140-12.5   |        | 140-11.7   |        | 140-11.1   |        | 140-10.3   |        | 141- 4.7   |        | 141-10.0   |        | 141- 5.0   |        | 141- 0.0   |        |  |
| Date         | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        |  |
| Time(JST)    | 08:50      |        | 09:20      |        | 09:53      |        | 10:25      |        | 10:56      |        | 11:26      |        | 07:53      |        | 08:29      |        | 09:16      |        | 10:01      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 15.3       | 33.01* | 15.1       | 33.10* | 14.4       | 33.68* | 14.3       | 33.74* | 14.5       | 33.66* | 12.7       | 34.04* | 10.0       | 32.35* | 9.0        | 32.18* | 10.3       | 31.89* | 9.8        | 32.16* |  |
| 10m          | 15.27      | 33.073 | 14.14      | 33.454 | 14.30      | 33.718 | 14.28      | 33.738 | 14.10      | 33.845 | 11.99      | 34.061 | 8.13       | 32.806 | 8.30       | 32.428 | 7.18       | 32.515 | 8.85       | 32.269 |  |
| 20m          | 14.97      | 33.170 | 14.41      | 33.950 | 14.19      | 33.791 | 14.21      | 33.864 | 13.63      | 33.908 | 11.46      | 34.083 | 8.42       | 33.167 | 8.45       | 32.993 | 8.16       | 32.982 | 7.08       | 32.528 |  |
| 30m          | 14.63      | 33.211 | 13.93      | 34.030 | 13.99      | 33.994 | 14.04      | 33.996 | 12.89      | 33.991 | 11.14      | 34.104 | 8.68       | 33.272 | 8.77       | 33.206 | 7.73       | 33.078 | 8.58       | 33.107 |  |
| 50m          | 12.49      | 34.000 | 13.00      | 34.065 | 12.25      | 34.158 | 13.26      | 34.020 | 11.01      | 34.192 | 9.77       | 34.174 | 8.06       | 33.379 | 7.79       | 33.230 | 8.24       | 33.276 | 8.68       | 33.401 |  |
| 75m          | 11.45      | 34.041 | 11.48      | 34.182 | 11.14      | 34.221 | 10.52      | 34.217 | 8.48       | 34.210 |            |        |            |        | 6.37       | 33.640 | 8.43       | 33.564 | 6.96       | 33.420 |  |
| 100m         |            |        | 10.39      | 34.223 | 10.12      | 34.214 | 8.91       | 34.215 | 8.42       | 34.198 |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        | 9.79       | 34.207 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-23



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS10      |        | HFS17      |        | HFS16      |        | HFS15      |        | HFS22      |        | HFS21      |        | HFS20      |        | HFS19      |        | HFS18      |        | HFS26      |        |  |
| Latitude:N   | 42- 2.6    |        | 42- 7.5    |        | 42-10.1    |        | 42-15.0    |        | 42-18.2    |        | 42-15.7    |        | 42-13.3    |        | 42-10.9    |        | 42- 8.5    |        | 42-10.0    |        |  |
| Longitude:E  | 140-57.4   |        | 140-52.5   |        | 140-54.9   |        | 140-59.9   |        | 140-55.9   |        | 140-52.7   |        | 140-49.8   |        | 140-46.8   |        | 140-43.7   |        | 140-35.0   |        |  |
| Date         | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        |  |
| Time(JST)    | 10:28      |        | 11:10      |        | 11:37      |        | 12:22      |        | 12:57      |        | 13:28      |        | 13:56      |        | 14:24      |        | 14:53      |        | 15:42      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 9.5        | 32.13* | 9.9        | 32.27* | 10.3       | 31.96* | 10.7       | 31.62* | 10.6       | 31.89* | 10.9       | 31.96* | 10.2       | 31.94* | 9.9        | 32.00* | 9.1        | 32.05* | 9.0        | 32.09* |  |
| 10m          | 8.94       | 32.194 | 9.83       | 32.288 | 9.58       | 32.020 | 10.30      | 31.814 | 10.60      | 31.895 | 9.37       | 32.072 | 10.16      | 31.943 | 9.72       | 31.998 | 7.62       | 32.204 | 8.93       | 32.085 |  |
| 20m          | 7.60       | 32.358 | 8.16       | 32.777 | 7.37       | 32.354 | 7.18       | 32.513 | 6.88       | 32.453 | 7.79       | 32.193 | 8.19       | 32.174 | 7.94       | 32.191 | 7.41       | 32.336 | 7.83       | 32.212 |  |
| 30m          | 8.51       | 32.771 | 7.03       | 32.937 | 7.33       | 32.624 | 7.32       | 32.816 | 5.77       | 32.731 | 5.86       | 32.639 | 6.63       | 32.492 | 7.27       | 32.463 | 6.89       | 32.554 | 6.76       | 32.475 |  |
| 50m          | 7.54       | 33.172 | 8.19       | 33.453 | 8.10       | 33.347 | 7.06       | 33.241 |            |        | 6.38       | 33.020 | 6.09       | 32.923 | 7.36       | 32.963 |            |        | 4.77       | 32.814 |  |
| 75m          | 5.54       | 33.549 | 5.85       | 33.433 |            |        |            |        |            |        |            |        |            |        | 6.14       | 33.311 |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-24

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS25      |        | HFS24      |        | HFS23      |        | HFS32      |        | HFS31      |        | HFS30      |        | HFS29      |        | HFS28      |        | HFS27      |        | HFS36      |        |  |
| Latitude:N   | 42-15.1    |        | 42-20.0    |        | 42-25.0    |        | 42-27.5    |        | 42-25.2    |        | 42-22.6    |        | 42-20.2    |        | 42-17.6    |        | 42-15.1    |        | 42-17.5    |        |  |
| Longitude:E  | 140-39.9   |        | 140-45.1   |        | 140-50.0   |        | 140-42.7   |        | 140-40.0   |        | 140-37.5   |        | 140-34.8   |        | 140-32.5   |        | 140-30.0   |        | 140-25.0   |        |  |
| Date         | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        | 1997/06/17 |        |  |
| Time(JST)    | 16:27      |        | 17:11      |        | 17:55      |        | 18:37      |        | 19:04      |        | 19:32      |        | 20:00      |        | 21:21      |        | 21:49      |        | 22:21      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 9.4        | 32.07* | 10.6       | 31.97* | 10.5       | 32.03* | 11.1       | 31.98* | 10.6       | 32.00* | 10.0       | 32.01* | 10.3       | 31.95* | 9.5        | 31.97* | 10.5       | 31.92* | 10.3       | 32.00* |  |
| 10m          | 9.26       | 32.065 | 10.40      | 31.989 | 10.51      | 32.033 | 10.77      | 31.988 | 10.57      | 32.003 | 10.01      | 32.010 | 10.16      | 31.974 | 8.89       | 32.043 | 9.12       | 32.028 | 8.57       | 32.104 |  |
| 20m          | 7.79       | 32.124 | 10.02      | 32.030 | 10.43      | 32.032 | 8.19       | 32.164 | 8.19       | 32.206 | 9.63       | 32.025 | 8.54       | 32.115 | 8.30       | 32.118 | 7.88       | 32.205 | 8.14       | 32.179 |  |
| 30m          | 7.49       | 32.213 | 8.07       | 32.225 | 7.07       | 32.368 | 7.24       | 32.375 | 7.52       | 32.339 | 8.06       | 32.214 | 8.06       | 32.219 | 7.58       | 32.310 | 7.12       | 32.517 | 7.73       | 32.280 |  |
| 50m          | 7.56       | 32.996 | 5.32       | 32.637 |            |        | 4.98       | 32.853 | 5.13       | 32.722 | 6.10       | 32.505 | 6.17       | 32.450 | 5.88       | 32.652 | 4.98       | 32.758 | 5.18       | 32.766 |  |
| 75m          | 7.48       | 33.451 |            |        |            |        |            |        |            |        | 4.09       | 33.020 | 4.53       | 32.977 | 4.03       | 33.071 | 3.57       | 33.312 |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-25

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     | 199705     | 199706     | 199706     | 199706     |       |        |       |        |      |        |      |        |      |        |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|--------|-------|--------|------|--------|------|--------|------|--------|
| Station No   | HFS35      | HFS34      | HFS33      | HFS38      | HFS37      | HSS23      | HST24      | HSS25      | HSS26      | HSS18      |       |        |       |        |      |        |      |        |      |        |
| Latitude:N   | 42-20.0    | 42-25.0    | 42-30.0    | 42-29.9    | 42-25.0    | 42-25.1    | 42-20.2    | 42-15.2    | 42-10.3    | 42- 8.5    |       |        |       |        |      |        |      |        |      |        |
| Longitude:E  | 140-25.0   | 140-30.0   | 140-35.0   | 140-30.1   | 140-25.0   | 140-50.0   | 140-45.1   | 140-40.0   | 140-34.8   | 140-43.6   |       |        |       |        |      |        |      |        |      |        |
| Date         | 1997/06/17 | 1997/06/17 | 1997/06/18 | 1997/06/18 | 1997/06/18 | 1997/06/18 | 1997/06/18 | 1997/06/18 | 1997/06/18 | 1997/06/18 |       |        |       |        |      |        |      |        |      |        |
| Time(JST)    | 22:42      | 23:27      | 00:13      | 00:45      | 01:33      | 03:30      | 04:20      | 05:07      | 05:54      | 06:50      |       |        |       |        |      |        |      |        |      |        |
| Weather      |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Air Temp.    |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Bar          |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Wind Dir     |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Wind Spd/F   |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Transparency |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Depth        |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| Equipment    | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD   |        | CTD   |        | CTD  |        | CTD  |        | CTD  |        |
| STND. Dep    | T          | S          | T          | S          | T          | S          | T          | S          | T          | S          | T     | S      | T     | S      | T    | S      | T    | S      | T    | S      |
| 0m           | 10.4       | 32.00*     | 10.7       | 31.85*     | 11.2       | 31.94*     | 11.7       | 31.68*     | 10.7       | 31.90*     | 10.9  | 31.99* | 10.3  | 31.97* | 9.6  | 32.02* | 8.6  | 32.12* | 9.8  | 32.04* |
| 10m          | 8.85       | 32.099     | 10.22      | 31.954     | 11.00      | 31.991     | 9.59       | 32.048     | 10.41      | 31.996     | 10.92 | 32.004 | 10.21 | 31.985 | 9.50 | 32.024 | 8.51 | 32.124 | 8.23 | 32.133 |
| 20m          | 8.26       | 32.164     | 8.56       | 32.087     | 8.26       | 32.185     | 8.26       | 32.199     | 8.42       | 32.128     | 8.15  | 32.194 | 9.81  | 32.016 | 8.78 | 32.061 | 8.49 | 32.139 | 7.30 | 32.408 |
| 30m          | 7.83       | 32.246     | 8.16       | 32.168     | 7.67       | 32.307     | 7.61       | 32.292     | 7.64       | 32.303     | 6.86  | 32.406 | 8.84  | 32.116 | 8.26 | 32.123 | 6.90 | 32.402 | 7.08 | 32.538 |
| 50m          | 5.42       | 32.722     | 6.03       | 32.665     | 5.61       | 32.842     | 5.21       | 32.815     | 5.37       | 32.743     |       |        | 5.01  | 32.737 | 7.08 | 32.832 | 4.98 | 32.876 |      |        |
| 75m          |            |            | 3.61       | 33.272     |            |            |            |            |            |            |       |        |       |        | 6.11 | 33.323 |      |        |      |        |
| 100m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 125m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 150m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 200m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 250m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 300m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 400m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 500m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 600m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 700m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 800m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 900m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |
| 1000m        |            |            |            |            |            |            |            |            |            |            |       |        |       |        |      |        |      |        |      |        |

Table 4-26

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |      |        |  |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------|--------|--|--|
| Station No   | HSS19      |        | HSS20      |        | HSS21      |        | HSS22      |        | HSS15      |        | HSR022     |        | HKD101     |        | HKD102     |        | HKD103     |        | HKD104     |        |      |        |  |  |
| Latitude:N   | 42-10.9    |        | 42-13.2    |        | 42-15.6    |        | 42-17.9    |        | 42-15.1    |        | 41-40.0    |        | 42- 0.0    |        | 42- 5.0    |        | 42-10.0    |        | 42-14.9    |        |      |        |  |  |
| Longitude:E  | 140-46.6   |        | 140-49.6   |        | 140-52.8   |        | 140-55.6   |        | 140-59.9   |        | 140-40.0   |        | 141- 0.0   |        | 140-55.0   |        | 140-49.9   |        | 140-45.0   |        |      |        |  |  |
| Date         | 1997/06/18 |        | 1997/06/18 |        | 1997/06/18 |        | 1997/06/18 |        | 1997/06/18 |        | 1997/06/18 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        |      |        |  |  |
| Time(JST)    | 07:16      |        | 07:44      |        | 08:12      |        | 08:39      |        | 09:12      |        | 21:42      |        | 13:32      |        | 14:22      |        | 15:07      |        | 15:53      |        |      |        |  |  |
| Weather      |            |        |            |        |            |        |            |        |            |        | C          |        | F          |        | F          |        | C          |        | C          |        |      |        |  |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        | 14.0       |        | 20.0       |        | 19.5       |        | 19.5       |        | 19.0       |        |      |        |  |  |
| Bar          |            |        |            |        |            |        |            |        |            |        | 1019.0     |        | 1009.5     |        | 1009.5     |        | 1009.0     |        | 1009.0     |        |      |        |  |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        | CALM       |        | NE         |        | NE         |        | E          |        | E          |        |      |        |  |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        | S 0        |        | S 2        |        | S 2        |        | S 2        |        | S 3        |        |      |        |  |  |
| Transparency |            |        |            |        |            |        |            |        |            |        | 12         |        | 12         |        | 11         |        | 9          |        |            |        |      |        |  |  |
| Depth        |            |        |            |        |            |        |            |        |            |        | 88         |        | 88         |        | 90         |        | 80         |        |            |        |      |        |  |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |      |        |  |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |      |        |  |  |
| 0m           | 10.0       | 31.94* | 10.8       | 31.97* | 10.8       | 31.95* | 11.0       | 31.83* | 10.2       | 31.91* | 15.9       | 33.702 | 13.5       | 32.433 | 13.3       | 32.096 | 13.0       | 32.020 | 17.4       | 31.896 |      |        |  |  |
| 10m          | 9.94       | 31.958 | 10.74      | 31.980 | 10.79      | 31.957 | 11.04      | 31.954 | 10.14      | 31.912 | 13.67      | 33.934 | 11.81      | 33.071 | 10.15      | 32.455 | 10.81      | 32.193 | 10.56      | 32.053 |      |        |  |  |
| 20m          | 8.40       | 32.145 | 8.03       | 32.231 | 10.27      | 32.014 | 6.48       | 32.638 | 7.33       | 32.353 | 12.20      | 34.043 | 10.35      | 33.390 | 10.21      | 33.496 | 7.90       | 32.642 | 8.56       | 32.162 |      |        |  |  |
| 30m          | 6.97       | 32.560 | 7.03       | 32.442 | 6.61       | 32.563 | 5.90       | 32.802 | 6.92       | 32.711 | 11.67      | 34.090 | 8.94       | 33.430 | 9.37       | 33.494 | 9.13       | 33.274 | 7.45       | 32.373 |      |        |  |  |
| 50m          | 5.99       | 32.915 | 6.54       | 33.088 | 6.04       | 32.970 | 7.67       | 33.375 | 7.17       | 33.314 | 10.11      | 34.169 | 9.25       | 33.738 | 8.96       | 33.681 | 9.28       | 33.616 | 5.49       | 32.796 |      |        |  |  |
| 75m          | 4.16       | 33.312 |            |        |            |        |            |        |            |        |            |        | 9.31       | 34.190 | 5.42       | 33.713 | 5.98       | 33.685 | 7.18       | 33.501 | 6.91 | 33.537 |  |  |
| 100m         |            |        |            |        |            |        |            |        |            |        | 8.83       |        | 34.191     |        |            |        |            |        |            |        |      |        |  |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |      |        |  |  |

Table 4-27

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD105     |        | HKD106     |        | HKD107     |        | HKD108     |        | HKD109     |        | HKD110     |        | HKD111     |        | HKD112     |        | HKD113     |        | HKD114     |        |
| Latitude:N   | 42-20.0    |        | 42-25.2    |        | 42-30.1    |        | 42-20.0    |        | 42-20.1    |        | 42-20.1    |        | 42-20.0    |        | 42-20.0    |        | 42-20.0    |        | 42-29.9    |        |
| Longitude:E  | 140-40.1   |        | 140-35.1   |        | 140-30.1   |        | 140-25.1   |        | 140-29.9   |        | 140-35.1   |        | 140-40.0   |        | 140-44.9   |        | 140-50.0   |        | 140-40.0   |        |
| Date         | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        | 1997/06/23 |        |
| Time(JST)    | 16:37      |        | 17:25      |        | 18:11      |        | 19:29      |        | 20:01      |        | 20:34      |        | 21:05      |        | 21:36      |        | 22:07      |        | 23:33      |        |
| Weather      | BC         |        | BC         |        | C          |        | F          |        | BC         |        | C          |        | F          |        | F          |        | E          |        | F          |        |
| Air Temp.    | 19.0       |        | 18.0       |        | 18.0       |        | 16.5       |        | 16.0       |        | 16.0       |        | 16.0       |        | 16.0       |        | 16.0       |        | 16.0       |        |
| Bar          | 1008.5     |        | 1009.0     |        | 1009.0     |        | 1009.0     |        | 1009.5     |        | 1009.5     |        | 1009.5     |        | 1009.5     |        | 1009.5     |        | 1009.5     |        |
| Wind Dir     | NE         |        | NE         |        | ESE        |        | ESE        |        | CALM       |        | SE         |        | E          |        | NNE        |        | SE         |        | SW         |        |
| Wind Spd/F   | S 2        |        | S 2        |        | S 1        |        | S 2        |        | S 0        |        | S 3        |        | S 2        |        | S 2        |        | S 2        |        | S 2        |        |
| Transparency | 10         |        | 10         |        | 7          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 79         |        | 92         |        | 66         |        | 71         |        | 94         |        | 94         |        | 78         |        | 60         |        | 47         |        | 66         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.4       | 31.806 | 15.4       | 31.779 | 15.1       | 31.507 | 15.1       | 31.734 | 14.4       | 31.687 | 14.5       | 31.938 | 14.0       | 31.883 | 14.5       | 31.900 | 15.0       | 31.764 | 15.2       | 31.828 |
| 10m          | 10.50      | 32.040 | 10.35      | 32.012 | 8.85       | 32.121 | 10.65      | 32.043 | 11.92      | 31.952 | 10.84      | 31.998 | 11.42      | 31.993 | 10.40      | 32.028 | 11.35      | 31.998 | 8.47       | 32.204 |
| 20m          | 9.56       | 32.057 | 9.09       | 32.104 | 7.64       | 32.207 | 7.85       | 32.277 | 8.97       | 32.259 | 8.77       | 32.119 | 9.67       | 32.051 | 8.53       | 32.102 | 8.90       | 32.129 | 7.12       | 32.459 |
| 30m          | 8.29       | 32.176 | 7.67       | 32.196 | 6.81       | 32.572 | 6.99       | 32.538 | 7.26       | 32.392 | 7.45       | 32.346 | 8.04       | 32.236 | 8.02       | 32.228 | 6.95       | 32.491 | 6.66       | 32.603 |
| 50m          | 6.78       | 32.422 | 6.42       | 32.858 | 5.01       | 32.864 | 5.99       | 33.016 | 6.48       | 32.913 | 6.54       | 32.440 | 6.57       | 32.483 | 5.81       | 32.666 |            |        | 4.79       | 32.902 |
| 75m          |            |        | 4.20       | 33.269 |            |        |            |        | 3.91       | 33.238 | 4.89       | 33.283 |            |        |            |        |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-28

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD115     |        | HKD116     |        | HKD117     |        | HKD118     |        | HSR107     |        | HSR106     |        | HSR105     |        | HSR104     |        | HSR101     |        | HSR103     |        |
| Latitude:N   | 42-25.1    |        | 42-20.1    |        | 42-15.0    |        | 42-10.0    |        | 41-30.0    |        | 41-40.0    |        | 41-50.0    |        | 42- 0.1    |        | 41-52.9    |        | 42-10.4    |        |
| Longitude:E  | 140-40.1   |        | 140-39.9   |        | 140-40.0   |        | 140-40.0   |        | 141-20.0   |        | 141-20.1   |        | 141-20.1   |        | 141-20.0   |        | 141-12.0   |        | 141-19.6   |        |
| Date         | 1997/06/24 |        | 1997/06/24 |        | 1997/06/24 |        | 1997/06/24 |        | 1997/07/01 |        | 1997/07/01 |        | 1997/07/01 |        | 1997/07/01 |        | 1997/07/01 |        | 1997/07/02 |        |
| Time(JST)    | 00:11      |        | 00:52      |        | 01:33      |        | 02:16      |        | 13:07      |        | 14:28      |        | 15:41      |        | 16:52      |        | 18:55      |        | 06:36      |        |
| Weather      | F          |        | F          |        | F          |        | F          |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | F          |        |
| Air Temp.    | 16.0       |        | 16.0       |        | 16.0       |        | 15.5       |        | 21.0       |        | 20.0       |        | 18.5       |        | 18.0       |        | 18.0       |        | 15.5       |        |
| Bar          | 1009.0     |        | 1009.0     |        | 1009.0     |        | 1008.5     |        | 1014.0     |        | 1013.5     |        | 1013.0     |        | 1013.0     |        | 1013.0     |        | 1010.0     |        |
| Wind Dir     | CALM       |        | WNW        |        | S          |        | ESE        |        | E          |        | SE         |        | SSE        |        | SE         |        | SSE        |        | ESE        |        |
| Wind Spd/F   | S 0        |        | S 2        |        | S 3        |        | S 2        |        | S 4        |        | S 5        |        | S 6        |        | S 3        |        | S 5        |        | S 5        |        |
| Transparency |            |        |            |        |            |        |            |        | 13         |        | 14         |        | 13         |        | 13         |        | 13         |        | 8          |        |
| Depth        | 77         |        | 78         |        | 88         |        | 84         |        | 243        |        | 230        |        | 286        |        | 310        |        | 209        |        | 356        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 14.3       | 31.777 | 13.9       | 31.857 | 14.2       | 31.881 | 12.5       | 31.950 | 16.8       | 33.986 | 15.2       | 34.142 | 14.4       | 33.297 | 15.4       | 33.447 | 14.8       | 32.452 | 14.2       | 33.280 |
| 10m          | 10.41      | 32.020 | 11.27      | 31.991 | 11.01      | 32.022 | 10.87      | 32.086 | 15.30      | 34.029 | 14.50      | 34.178 | 12.39      | 33.471 | 14.16      | 33.535 | 13.12      | 33.325 | 14.19      | 33.583 |
| 20m          | 8.64       | 32.145 | 9.40       | 32.055 | 9.31       | 32.087 | 10.04      | 32.521 | 15.25      | 34.019 | 14.47      | 34.187 | 10.91      | 33.935 | 12.34      | 33.874 | 10.32      | 33.412 | 11.59      | 33.841 |
| 30m          | 7.57       | 32.185 | 7.99       | 32.255 | 8.33       | 32.172 | 7.83       | 32.689 | 15.16      | 34.019 | 12.73      | 34.278 | 10.13      | 34.007 | 11.78      | 34.036 | 9.21       | 33.621 | 11.12      | 34.021 |
| 50m          | 5.74       | 32.662 | 6.35       | 32.526 | 8.46       | 33.196 | 6.76       | 33.133 | 12.09      | 34.215 | 11.18      | 34.229 | 9.76       | 34.080 | 10.09      | 34.074 | 8.56       | 33.875 | 9.85       | 34.024 |
| 75m          |            |        |            |        | 6.22       | 33.424 | 3.80       | 33.350 | 11.68      | 34.229 | 9.95       | 34.094 | 8.46       | 33.941 | 9.12       | 34.027 | 7.55       | 33.849 | 9.46       | 34.005 |
| 100m         |            |        |            |        |            |        |            |        | 11.60      | 34.232 | 9.62       | 34.067 | 7.78       | 33.889 | 7.85       | 33.911 | 7.12       | 33.859 | 8.39       | 33.950 |
| 125m         |            |        |            |        |            |        |            |        | 11.29      | 34.249 | 9.37       | 34.060 | 6.31       | 33.763 | 5.76       | 33.664 | 6.12       | 33.750 | 6.98       | 33.826 |
| 150m         |            |        |            |        |            |        |            |        | 10.68      | 34.255 | 8.00       | 33.986 | 5.73       | 33.699 | 5.90       | 33.718 | 5.69       | 33.713 | 6.10       | 33.731 |
| 200m         |            |        |            |        |            |        |            |        | 10.13      | 34.259 | 4.44       | 33.684 | 5.31       | 33.708 | 5.27       | 33.691 | 4.71       | 33.682 | 5.47       | 33.673 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        | 4.07       | 33.646 | 4.18       | 33.657 |            |        | 5.18       | 33.695 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.39       | 33.672 |            |        | 4.04       | 33.654 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-29

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HSR102     |        | HSR113     |        | HSR114     |        | HSR115     |        | HSR112     |        | HSR111     |        | HSR110     |        | HSR109     |        | HSR108     |        | HSR208     |        |
| Latitude:N   | 42-20.0    |        | 42- 0.0    |        | 42-10.0    |        | 42- 0.1    |        | 41-49.9    |        | 41-39.7    |        | 41-29.9    |        | 41-20.1    |        | 41-10.4    |        | 41-10.0    |        |
| Longitude:E  | 141-20.0   |        | 142-19.8   |        | 142-30.0   |        | 142-39.9   |        | 142-10.1   |        | 142- 0.1   |        | 141-50.3   |        | 141-40.1   |        | 141-30.0   |        | 141-29.9   |        |
| Date         | 1997/07/02 |        | 1997/07/02 |        | 1997/07/02 |        | 1997/07/02 |        | 1997/07/03 |        | 1997/07/03 |        | 1997/07/03 |        | 1997/07/03 |        | 1997/07/03 |        | 1997/07/07 |        |
| Time(JST)    | 07:55      |        | 13:31      |        | 15:12      |        | 18:14      |        | 07:45      |        | 09:46      |        | 11:51      |        | 14:12      |        | 17:52      |        | 19:41      |        |
| Weather      | F          |        | F          |        | F          |        | R          |        | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 15.0       |        | 15.0       |        | 15.0       |        | 15.0       |        | 16.0       |        | 18.0       |        | 19.0       |        | 20.5       |        | 21.0       |        | 20.0       |        |
| Bar          | 1009.0     |        | 1005.0     |        | 1004.0     |        | 1003.0     |        | 1007.0     |        | 1006.5     |        | 1006.5     |        | 1005.5     |        | 1004.5     |        | 1003.5     |        |
| Wind Dir     | E          |        | E          |        | ESE        |        | ENE        |        | W          |        | W          |        | W          |        | N          |        | NNW        |        | WNW        |        |
| Wind Spd/F   | F 3        |        | S 7        |        | S 5        |        | S 5        |        | S 6        |        | S 7        |        | S 3        |        | S 1        |        | S 1        |        | S 7        |        |
| Transparency | 12         |        | 11         |        | 10         |        | 13         |        | 12         |        | 11         |        | 16         |        | 12         |        | 12         |        |            |        |
| Depth        | 244        |        | 1000       |        | 123        |        | 550        |        | 1000       |        | 1000       |        | 1000       |        | 760        |        | 490        |        | 490        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 14.2       | 32.057 | 14.2       | 32.057 | 12.2       | 32.623 | 12.8       | 32.620 | 14.2       | 33.517 | 13.9       | 33.011 | 14.8       | 34.097 | 16.7       | 33.815 | 16.1       | 33.690 | 16.5       | 33.890 |
| 10m          | 8.68       | 33.125 | 8.68       | 33.125 | 11.60      | 32.592 | 11.97      | 32.714 | 13.95      | 33.557 | 13.51      | 32.979 | 14.47      | 34.118 | 15.21      | 33.762 | 15.12      | 33.620 | 15.55      | 33.957 |
| 20m          | 8.67       | 33.254 | 8.67       | 33.254 | 9.62       | 32.780 | 9.12       | 33.010 | 11.71      | 33.744 | 8.03       | 33.004 | 14.16      | 34.131 | 14.67      | 33.863 | 14.79      | 33.614 | 15.20      | 34.007 |
| 30m          | 8.38       | 33.337 | 8.38       | 33.337 | 8.35       | 33.030 | 8.64       | 33.107 | 10.21      | 33.836 | 9.44       | 33.579 | 13.92      | 34.130 | 13.86      | 33.919 | 13.49      | 33.857 | 14.95      | 34.058 |
| 50m          | 8.59       | 33.633 | 8.59       | 33.633 | 8.11       | 33.425 | 7.56       | 33.531 | 9.93       | 34.049 | 10.26      | 34.036 | 13.83      | 34.126 | 13.48      | 34.104 | 13.16      | 34.094 | 14.19      | 34.050 |
| 75m          | 7.90       | 33.780 | 7.90       | 33.780 | 3.21       | 33.138 | 7.75       | 33.780 | 9.17       | 34.023 | 9.10       | 33.992 | 11.85      | 34.195 | 12.58      | 34.122 | 12.66      | 34.131 | 13.53      | 34.066 |
| 100m         | 6.96       | 33.767 | 6.96       | 33.767 | 3.59       | 33.217 | 6.90       | 33.777 | 8.73       | 33.991 | 8.30       | 33.954 | 11.57      | 34.195 | 11.27      | 34.011 | 12.26      | 34.157 | 12.59      | 33.986 |
| 125m         | 6.53       | 33.787 | 6.53       | 33.787 |            |        | 6.35       | 33.738 | 7.13       | 33.829 | 6.20       | 33.684 | 11.44      | 34.189 | 10.78      | 33.983 | 12.02      | 34.128 | 11.84      | 33.937 |
| 150m         | 5.83       | 33.705 | 5.83       | 33.705 |            |        | 5.82       | 33.703 | 6.11       | 33.744 | 6.95       | 33.859 | 10.23      | 34.051 | 10.56      | 34.032 | 11.35      | 34.070 | 11.36      | 34.033 |
| 200m         | 5.05       | 33.687 | 5.05       | 33.687 |            |        | 5.27       | 33.687 | 4.16       | 33.542 | 4.74       | 33.652 | 9.91       | 34.198 | 9.66       | 33.984 | 10.50      | 34.074 | 8.21       | 33.826 |
| 250m         |            |        | 3.94       | 33.562 |            |        | 3.86       | 33.557 | 4.29       | 33.652 | 3.40       | 33.586 | 9.02       | 34.103 | 8.89       | 33.989 | 6.19       | 33.722 | 6.03       | 33.676 |
| 300m         |            |        | 2.90       | 33.544 |            |        | 3.56       | 33.632 | 3.44       | 33.669 | 3.25       | 33.639 | 7.68       | 33.963 | 5.31       | 33.661 | 3.85       | 33.570 | 4.21       | 33.574 |
| 400m         |            |        | 3.26       | 33.738 |            |        | 3.26       | 33.717 | 3.34       | 33.833 | 3.31       | 33.820 | 3.38       | 33.728 | 3.65       | 33.622 | 3.30       | 33.794 | 3.33       | 33.779 |
| 500m         |            |        | 3.41       | 33.944 |            |        | 3.34       | 33.883 | 3.61       | 34.031 | 3.44       | 34.003 |            |        | 3.37       | 33.835 |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-30

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HSR216     |        | HSR021     |        | HSR018     |        | HSR019     |        | HSR020     |        | HSR017     |        | HFS04      |        | HFS03      |        | HFS02      |        | HFS01      |        |
| Latitude:N   | 41-39.8    |        | 41-30.0    |        | 42- 0.0    |        | 41-50.0    |        | 41-40.0    |        | 41-15.0    |        | 42-10.1    |        | 42- 5.1    |        | 42- 0.1    |        | 41-55.0    |        |
| Longitude:E  | 140-40.0   |        | 139-50.4   |        | 139-40.1   |        | 139-50.0   |        | 139-50.0   |        | 139-50.1   |        | 141-24.8   |        | 141-20.1   |        | 141-14.9   |        | 141- 9.8   |        |
| Date         | 1997/07/08 |        | 1997/07/09 |        | 1997/07/09 |        | 1997/07/10 |        | 1997/07/10 |        | 1997/07/10 |        | 1997/07/22 |        | 1997/07/22 |        | 1997/07/22 |        | 1997/07/22 |        |
| Time(JST)    | 18:32      |        | 08:47      |        | 18:24      |        | 05:42      |        | 07:05      |        | 18:38      |        | 19:16      |        | 20:12      |        | 21:20      |        | 22:25      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | B          |        |            |        |            |        |            |        |            |        |
| Air Temp.    | 16.3       |        | 20.0       |        | 21.5       |        | 18.0       |        | 19.0       |        | 22.0       |        |            |        |            |        |            |        |            |        |
| Bar          | 1012.0     |        | 1012.0     |        | 1012.0     |        | 1013.5     |        | 1014.0     |        | 1013.0     |        |            |        |            |        |            |        |            |        |
| Wind Dir     | SW         |        | E          |        | E          |        | NE         |        | CALM       |        | NNW        |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 3        |        | S 2        |        | S 1        |        | S 1        |        | S 0        |        | S 2        |        |            |        |            |        |            |        |            |        |
| Transparency |            |        | 23         |        | 20         |        | 26         |        | 25         |        | 24         |        |            |        |            |        |            |        |            |        |
| Depth        | 118        |        | 1000       |        | 900        |        | 1000       |        | 1000       |        | 1000       |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.6       | 33.603 | 19.2       | 34.112 | 18.3       | 34.096 | 17.6       | 34.036 | 18.4       | 34.145 | 21.3       | 34.249 | 16.3       | 33.36* | 18.1       | 33.15* | 18.6       | 33.04* | 17.2       | 32.29* |
| 10m          | 15.00      | 34.127 | 18.40      | 34.163 | 16.42      | 34.075 | 16.98      | 34.015 | 17.63      | 34.066 | 19.74      | 34.223 | 14.19      | 33.340 | 15.62      | 33.314 | 16.57      | 33.263 | 13.42      | 32.236 |
| 20m          | 14.84      | 34.135 | 17.92      | 34.203 | 12.60      | 34.136 | 16.80      | 34.012 | 17.14      | 34.035 | 19.49      | 34.220 | 11.96      | 33.854 | 10.09      | 33.505 | 11.08      | 33.155 | 8.77       | 33.204 |
| 30m          | 13.65      | 34.223 | 15.47      | 34.392 | 11.72      | 34.158 | 14.92      | 34.048 | 16.11      | 34.260 | 15.51      | 34.421 | 10.18      | 33.867 | 9.76       | 33.709 | 8.40       | 33.192 | 8.39       | 33.354 |
| 50m          | 11.75      | 34.250 | 13.05      | 34.438 | 11.30      | 34.243 | 11.86      | 34.245 | 12.54      | 34.397 | 12.98      | 34.411 | 9.46       | 33.958 | 9.51       | 33.981 | 8.01       | 33.605 | 10.05      | 33.978 |
| 75m          | 10.97      | 34.276 | 11.10      | 34.374 | 10.62      | 34.258 | 9.70       | 34.268 | 10.50      | 34.318 | 11.14      | 34.246 | 8.46       | 33.927 | 8.24       | 33.940 | 6.72       | 33.570 | 8.90       | 33.923 |
| 100m         | 10.58      | 34.275 | 9.76       | 34.300 | 8.97       | 34.234 | 8.59       | 34.225 | 8.16       | 34.238 | 10.86      | 34.330 | 7.53       | 33.880 | 6.36       | 33.696 | 6.96       | 33.749 | 7.79       | 33.869 |
| 125m         |            |        | 7.88       | 34.230 | 6.81       | 34.186 | 6.64       | 34.183 | 6.87       | 34.179 | 9.94       | 34.281 | 6.60       | 33.790 | 5.97       | 33.670 | 6.18       | 33.710 | 7.21       | 33.822 |
| 150m         |            |        | 6.75       | 34.189 | 4.46       | 34.131 | 5.06       | 34.140 | 5.59       | 34.152 | 8.96       | 34.254 | 5.64       | 33.688 | 4.77       | 33.557 | 5.21       | 33.612 | 6.43       | 33.745 |
| 200m         |            |        | 5.13       | 34.138 | 2.44       | 34.089 | 2.26       | 34.089 | 3.40       | 34.086 | 5.90       | 34.160 | 4.36       | 33.593 | 3.36       | 33.400 | 3.43       | 33.485 |            |        |
| 250m         |            |        | 3.32       | 34.093 | 1.81       | 34.086 | 1.77       | 34.080 | 2.27       | 34.083 | 2.77       | 34.092 |            |        |            |        |            |        |            |        |
| 300m         |            |        | 2.13       | 34.079 | 1.53       | 34.082 | 1.31       | 34.080 | 1.60       | 34.079 | 1.85       | 34.077 |            |        |            |        |            |        |            |        |
| 400m         |            |        | 1.25       | 34.074 | 1.03       | 34.076 | 0.83       | 34.071 | 1.00       | 34.076 | 1.25       | 34.072 |            |        |            |        |            |        |            |        |
| 500m         |            |        | 0.90       | 34.076 | 0.63       | 34.069 | 0.59       | 34.068 | 0.69       | 34.070 | 0.75       | 34.070 |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-31



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS09      |        | HFS08      |        | HFS07      |        | HFS06      |        | HFS05      |        | HFS13      |        | HFS12      |        | HFS11      |        | HFS10      |        | HFS17      |        |  |
| Latitude:N   | 41-57.4    |        | 42- 0.0    |        | 42- 5.0    |        | 42-10.0    |        | 42-15.0    |        | 42-15.0    |        | 42-10.1    |        | 42- 5.1    |        | 42- 2.6    |        | 42- 7.5    |        |  |
| Longitude:E  | 141- 2.6   |        | 141- 4.9   |        | 141- 9.9   |        | 141-15.0   |        | 141-20.0   |        | 141-10.0   |        | 141- 4.9   |        | 141- 0.0   |        | 140-57.6   |        | 140-52.5   |        |  |
| Date         | 1997/07/22 |        | 1997/07/22 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        |  |
| Time(JST)    | 23:14      |        | 23:44      |        | 00:32      |        | 01:25      |        | 02:19      |        | 05:52      |        | 06:42      |        | 07:33      |        | 08:04      |        | 08:52      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 16.4       | 32.24* | 16.9       | 31.75* | 17.2       | 32.06* | 18.6       | 32.07* | 17.3       | 32.13* | 18.3       | 32.19* | 18.6       | 32.68* | 16.5       | 32.22* | 14.6       | 32.19* | 11.0       | 32.38* |  |
| 10m          | 11.66      | 32.642 | 12.29      | 32.236 | 12.91      | 32.969 | 16.58      | 32.294 | 16.44      | 33.276 | 17.70      | 32.431 | 15.83      | 33.216 | 13.83      | 33.186 | 12.17      | 33.087 | 7.57       | 32.566 |  |
| 20m          | 10.13      | 33.141 | 8.48       | 33.042 | 8.90       | 33.237 | 9.45       | 32.941 | 11.42      | 33.792 | 12.06      | 33.065 | 11.85      | 33.487 | 10.03      | 33.532 | 8.83       | 33.203 | 6.92       | 32.851 |  |
| 30m          | 9.00       | 33.426 | 10.10      | 33.772 | 8.41       | 33.391 | 7.92       | 33.437 | 11.02      | 33.991 | 8.79       | 33.290 | 9.57       | 33.694 | 8.35       | 33.428 | 8.98       | 33.511 | 8.39       | 33.349 |  |
| 50m          | 10.09      | 34.039 | 10.03      | 34.016 | 9.62       | 33.978 | 7.40       | 33.622 | 7.45       | 33.591 | 6.67       | 33.284 | 9.22       | 33.930 | 9.01       | 33.878 | 8.31       | 33.721 | 7.90       | 33.673 |  |
| 75m          | 8.10       | 33.878 | 8.55       | 33.911 | 7.61       | 33.737 | 6.56       | 33.594 | 5.16       | 33.328 | 5.76       | 33.426 | 7.91       | 33.857 |            |        |            |        | 7.22       | 33.792 |  |
| 100m         |            |        | 7.14       | 33.787 | 6.98       | 33.713 | 5.55       | 33.538 | 5.12       | 33.382 |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        | 6.07       | 33.677 | 6.66       | 33.699 |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        | 4.78       | 33.551 | 5.75       | 33.632 |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        | 4.60       | 33.595 | 5.03       | 33.644 |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-32

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS16      |        | HFS15      |        | HFS14      |        | HFS22      |        | HFS21      |        | HFS20      |        | HFS19      |        | HFS18      |        | HFS26      |        | HFS25      |        |  |
| Latitude:N   | 42-10.0    |        | 42-15.1    |        | 42-17.6    |        | 42-18.0    |        | 42-15.6    |        | 42-13.2    |        | 42-10.8    |        | 42- 8.5    |        | 42-10.1    |        | 42-15.0    |        |  |
| Longitude:E  | 140-55.0   |        | 140-59.8   |        | 141- 4.8   |        | 140-56.0   |        | 140-52.8   |        | 140-49.7   |        | 140-46.8   |        | 140-43.8   |        | 140-35.0   |        | 140-39.9   |        |  |
| Date         | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        |  |
| Time(JST)    | 09:22      |        | 10:13      |        | 10:51      |        | 11:38      |        | 12:07      |        | 12:41      |        | 13:05      |        | 13:49      |        | 14:35      |        | 15:23      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 17.1       | 32.15* | 18.8       | 32.69* | 18.6       | 32.31* | 18.6       | 32.49* | 18.6       | 32.99* | 17.4       | 32.10* | 18.3       | 31.93* | 17.3       | 32.13* | 17.6       | 31.81* | 19.8       | 31.75* |  |
| 10m          | 11.75      | 33.125 | 17.61      | 33.024 | 16.81      | 32.703 | 17.52      | 32.705 | 17.84      | 32.944 | 13.49      | 32.654 | 11.79      | 32.805 | 11.51      | 32.312 | 12.22      | 32.216 | 16.17      | 31.874 |  |
| 20m          | 9.33       | 33.180 | 12.07      | 33.349 | 11.11      | 33.164 | 12.30      | 33.244 | 10.18      | 32.965 | 7.25       | 32.835 | 6.98       | 32.788 | 8.50       | 33.097 | 7.75       | 32.675 | 10.32      | 32.316 |  |
| 30m          | 8.24       | 33.290 | 9.86       | 33.264 | 10.92      | 33.787 | 8.85       | 33.238 | 7.57       | 33.122 | 7.17       | 33.016 | 8.66       | 33.371 | 5.74       | 32.961 | 6.82       | 32.979 | 8.41       | 32.932 |  |
| 50m          | 8.78       | 33.700 | 8.59       | 33.549 | 9.09       | 33.754 |            |        | 8.21       | 33.646 | 7.24       | 33.537 | 8.05       | 33.566 |            |        | 4.93       | 33.039 | 6.01       | 33.102 |  |
| 75m          |            |        |            |        |            |        |            |        |            |        |            |        | 6.25       | 33.718 |            |        |            |        | 7.14       | 33.627 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-33

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS24      |        | HFS23      |        | HFS32      |        | HFS31      |        | HFS30      |        | HFS29      |        | HFS28      |        | HFS27      |        | HFS36      |        | HFS35      |        |  |
| Latitude:N   | 42-19.9    |        | 42-25.0    |        | 42-27.5    |        | 42-25.2    |        | 42-22.6    |        | 42-20.0    |        | 42-17.6    |        | 42-15.1    |        | 42-17.4    |        | 42-20.0    |        |  |
| Longitude:E  | 140-44.9   |        | 140-50.0   |        | 140-42.6   |        | 140-40.1   |        | 140-37.6   |        | 140-35.2   |        | 140-32.6   |        | 140-30.2   |        | 140-24.9   |        | 140-25.0   |        |  |
| Date         | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/23 |        | 1997/07/24 |        | 1997/07/24 |        |  |
| Time(JST)    | 18:21      |        | 19:11      |        | 19:59      |        | 20:28      |        | 21:02      |        | 21:44      |        | 23:09      |        | 23:44      |        | 00:20      |        | 00:49      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 19.6       | 31.74* | 18.1       | 31.59* | 19.5       | 31.78* | 19.3       | 31.83* | 19.2       | 31.83* | 19.6       | 31.79* | 19.6       | 31.77* | 17.7       | 31.85* | 14.8       | 31.93* | 15.6       | 31.91* |  |
| 10m          | 18.40      | 31.775 | 17.08      | 32.171 | 17.55      | 31.841 | 17.47      | 31.828 | 17.01      | 31.837 | 16.93      | 31.840 | 15.04      | 31.899 | 14.57      | 32.036 | 10.52      | 32.508 | 9.97       | 32.315 |  |
| 20m          | 13.87      | 31.937 | 12.47      | 32.907 | 12.51      | 32.368 | 12.48      | 31.981 | 12.96      | 31.976 | 12.27      | 32.053 | 11.87      | 32.133 | 8.21       | 32.491 | 7.19       | 32.696 | 7.43       | 32.708 |  |
| 30m          | 7.36       | 32.783 | 9.16       | 33.163 | 7.22       | 32.666 | 8.28       | 32.326 | 8.44       | 32.291 | 8.09       | 32.372 | 8.02       | 32.653 | 7.03       | 32.842 | 5.94       | 32.831 | 6.91       | 32.944 |  |
| 50m          | 7.10       | 33.355 |            |        | 6.33       | 33.218 | 5.89       | 33.063 | 7.16       | 33.223 | 6.74       | 33.142 | 6.82       | 33.204 | 5.15       | 33.030 | 6.19       | 33.197 | 6.37       | 33.278 |  |
| 75m          |            |        |            |        |            |        |            |        | 6.42       | 33.622 | 4.27       | 33.419 | 4.53       | 33.399 | 4.42       | 33.396 |            |        |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-34

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--------|--|
| Station No   | HFS34      |        | HFS33      |        | HFS38      |        | HFS37      |        | HSR116     |        | PH01       |        | P65        |        | P66        |        | P56        |        | P55        |        |        |  |
| Latitude:N   | 42-25.1    |        | 42-30.0    |        | 42-30.0    |        | 42-25.0    |        | 41-39.8    |        | 41-40.1    |        | 41-40.1    |        | 41-30.1    |        | 41-20.2    |        | 41-30.1    |        |        |  |
| Longitude:E  | 140-30.1   |        | 140-35.0   |        | 140-30.1   |        | 140-25.1   |        | 140-38.7   |        | 140-40.1   |        | 141-20.1   |        | 141-20.1   |        | 141-39.9   |        | 141-49.9   |        |        |  |
| Date         | 1997/07/24 |        | 1997/07/24 |        | 1997/07/24 |        | 1997/07/24 |        | 1997/07/24 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/29 |        |        |  |
| Time(JST)    | 01:35      |        | 02:21      |        | 02:55      |        | 03:43      |        | 18:33      |        | 17:10      |        | 20:03      |        | 21:34      |        | 23:59      |        | 01:48      |        |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        | C          |        | BC         |        | BC         |        | BC         |        | F          |        |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        | 22.0       |        | 26.5       |        | 23.5       |        | 23.0       |        | 22.5       |        | 22.0   |  |
| Bar          |            |        |            |        |            |        |            |        |            |        | 1015.0     |        | 1006.5     |        | 1008.0     |        | 1007.5     |        | 1007.0     |        | 1005.5 |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        | CALM       |        | E          |        | E          |        | E          |        | E          |        | ESE    |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        | S 0        |        | S 7        |        | S 6        |        | S 4        |        | S 3        |        | S 5    |  |
| Transparency |            |        |            |        |            |        |            |        |            |        | 14         |        |            |        |            |        |            |        |            |        |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        | 120        |        | 232        |        | 242        |        | 748        |        | 936        |        |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |        |  |
| 0m           | 18.7       | 31.80* | 17.8       | 31.85* | 15.1       | 31.88* | 17.0       | 31.79* | 21.1*      | 33.70* | 24.7       | 33.056 | 22.4       | 33.657 | 20.1       | 33.870 | 20.2       | 33.380 | 20.5       | 33.787 |        |  |
| 10m          | 15.74      | 31.936 | 15.76      | 31.834 | 11.12      | 32.341 | 11.34      | 32.489 | 18.70      | 33.975 | 21.77      | 33.684 | 19.44      | 33.859 | 20.01      | 33.826 | 19.64      | 33.331 | 19.35      | 33.861 |        |  |
| 20m          | 9.24       | 32.352 | 9.07       | 32.585 | 7.40       | 32.596 | 7.39       | 32.690 | 16.85      | 34.090 | 18.55      | 34.084 | 16.93      | 34.035 | 16.82      | 34.109 | 17.60      | 33.357 | 18.81      | 33.901 |        |  |
| 30m          | 7.47       | 32.961 | 7.05       | 32.808 | 6.79       | 32.835 | 6.74       | 32.929 | 15.17      | 34.203 | 16.83      | 34.199 | 14.36      | 34.181 | 15.35      | 34.175 | 17.01      | 33.402 | 17.63      | 33.906 |        |  |
| 50m          | 5.82       | 33.158 | 5.57       | 33.223 | 6.55       | 33.303 | 6.28       | 33.272 | 13.07      | 34.273 | 13.43      | 34.273 | 12.79      | 34.301 | 14.58      | 34.207 | 14.29      | 33.386 | 16.40      | 34.027 |        |  |
| 75m          | 4.72       | 33.443 |            |        |            |        |            |        | 12.46      | 34.289 | 12.05      | 34.294 | 11.26      | 34.157 | 14.55      | 34.202 | 12.03      | 33.508 | 15.40      | 34.037 |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        | 11.33      | 34.287 | 9.36       | 33.969 | 14.29      | 34.216 | 10.84      | 33.704 | 14.32      | 34.029 |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        | 7.69       | 33.900 | 12.20      | 34.304 | 10.23      | 33.859 | 12.95      | 33.972 |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        | 5.81       | 33.703 | 11.31      | 34.288 | 9.24       | 33.768 | 12.11      | 33.986 |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        | 4.78       | 33.642 | 11.10      | 34.284 | 6.01       | 33.690 | 9.69       | 33.940 |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.57       | 33.592 | 7.50       | 33.793 |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.33       | 33.637 | 4.58       | 33.610 |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.34       | 33.824 | 3.22       | 33.726 |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.47       | 33.979 | 3.45       | 33.960 |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.45       | 34.122 | 3.49       | 34.074 |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |  |

Table 4-35

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P54        |        | P53        |        | P52        |        | P51        |        | P61        |        | P62        |        | P63        |        | P64        |        | HKD001     |        | HKD002     |        |
| Latitude:N   | 41-39.9    |        | 41-50.1    |        | 42- 0.0    |        | 42-10.0    |        | 42-20.0    |        | 42-10.1    |        | 42- 0.1    |        | 41-50.2    |        | 41-59.8    |        | 42- 4.8    |        |
| Longitude:E  | 142- 0.2   |        | 142-10.0   |        | 142-19.8   |        | 142-29.9   |        | 141-20.1   |        | 141-20.1   |        | 141-20.0   |        | 141-20.0   |        | 141- 0.0   |        | 140-55.0   |        |
| Date         | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        |
| Time(JST)    | 03:49      |        | 06:28      |        | 08:34      |        | 11:00      |        | 16:39      |        | 17:59      |        | 19:21      |        | 20:39      |        | 22:51      |        | 23:44      |        |
| Weather      | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        |
| Air Temp.    | 21.0       |        | 20.5       |        | 20.0       |        | 21.0       |        | 22.0       |        | 21.0       |        | 20.0       |        | 20.0       |        | 21.0       |        | 21.0       |        |
| Bar          | 1007.0     |        | 1008.0     |        | 1008.9     |        | 1009.0     |        | 1008.5     |        | 1008.0     |        | 1008.0     |        | 1008.5     |        | 1008.5     |        | 1008.5     |        |
| Wind Dir     | ESE        |        | E          |        | ESE        |        | E          |        | E          |        | E          |        | ENE        |        | ENE        |        | WNW        |        | WSW        |        |
| Wind Spd/F   | S 5        |        | S 5        |        | S 6        |        | S 6        |        | S 3        |        | S 5        |        | S 6        |        | S 3        |        | S 3        |        | S 1        |        |
| Transparency |            |        | 13         |        | 17         |        | 16         |        | 14         |        | 15         |        |            |        |            |        |            |        |            |        |
| Depth        | 1050       |        | 1088       |        | 1008       |        | 122        |        | 252        |        | 362        |        | 309        |        | 288        |        | 89         |        | 88         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 20.5       | 33.787 | 19.1       | 32.714 | 18.1       | 33.356 | 18.8       | 32.833 | 19.1       | 33.090 | 19.4       | 33.090 | 19.0       | 33.062 | 18.6       | 32.890 | 19.9       | 32.198 | 19.7       | 32.276 |
| 10m          | 20.47      | 33.775 | 17.74      | 33.416 | 17.80      | 33.325 | 17.56      | 32.681 | 14.59      | 32.954 | 16.02      | 33.749 | 14.00      | 33.616 | 15.56      | 33.310 | 15.00      | 33.218 | 13.43      | 33.238 |
| 20m          | 19.01      | 33.991 | 13.78      | 34.075 | 9.71       | 33.407 | 7.82       | 32.577 | 10.36      | 33.368 | 12.42      | 33.813 | 12.84      | 34.173 | 10.68      | 33.396 | 8.32       | 33.029 | 9.39       | 33.405 |
| 30m          | 16.23      | 34.145 | 10.83      | 33.921 | 9.26       | 33.805 | 4.66       | 32.739 | 10.88      | 33.850 | 12.48      | 34.183 | 11.13      | 34.098 | 8.64       | 33.414 | 7.34       | 33.103 | 8.25       | 33.347 |
| 50m          | 14.09      | 34.157 | 9.91       | 34.016 | 9.42       | 34.064 | 2.70       | 32.780 | 5.92       | 33.420 | 10.59      | 34.073 | 10.24      | 34.072 | 9.33       | 33.746 | 7.60       | 33.465 | 8.38       | 33.653 |
| 75m          | 11.74      | 34.171 | 8.39       | 33.892 | 8.46       | 33.983 | 1.77       | 32.876 | 5.34       | 33.325 | 9.08       | 33.953 | 8.97       | 33.992 | 7.74       | 33.793 | 7.69       | 33.785 | 5.28       | 33.592 |
| 100m         | 8.94       | 33.844 | 7.64       | 33.891 | 4.90       | 33.548 | 1.54       | 33.007 | 6.26       | 33.541 | 7.15       | 33.773 | 8.31       | 33.970 | 7.80       | 33.887 |            |        |            |        |
| 125m         | 8.53       | 33.923 | 6.65       | 33.822 | 3.99       | 33.452 |            |        | 5.51       | 33.554 | 7.20       | 33.872 | 6.95       | 33.821 | 5.74       | 33.658 |            |        |            |        |
| 150m         | 8.09       | 33.916 | 4.30       | 33.557 | 3.15       | 33.366 |            |        | 4.95       | 33.491 | 5.60       | 33.630 | 6.15       | 33.756 | 5.17       | 33.627 |            |        |            |        |
| 200m         | 5.60       | 33.666 | 2.88       | 33.456 | 2.37       | 33.329 |            |        | 4.81       | 33.545 | 3.86       | 33.512 | 4.51       | 33.653 | 5.02       | 33.658 |            |        |            |        |
| 250m         | 3.90       | 33.539 | 2.35       | 33.451 | 2.04       | 33.366 |            |        |            |        | 3.49       | 33.527 | 3.67       | 33.606 | 3.70       | 33.576 |            |        |            |        |
| 300m         | 3.66       | 33.612 | 2.57       | 33.527 | 2.42       | 33.475 |            |        |            |        | 2.72       | 33.515 | 3.08       | 33.570 |            |        |            |        |            |        |
| 400m         | 3.35       | 33.762 | 2.89       | 33.682 | 3.22       | 33.727 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 3.40       | 33.915 | 3.46       | 33.912 | 3.11       | 33.845 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         | 3.28       | 34.013 | 3.49       | 34.072 | 3.38       | 34.028 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-36

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD003     |        | HKD005     |        | HKD006     |        | HKD007     |        | HKD008     |        | HKD009     |        | HKD010     |        | HKD011     |        | HKD012     |        | HKD013     |        |
| Latitude:N   | 42-10.0    |        | 42-20.0    |        | 42-24.9    |        | 42-29.9    |        | 42-20.1    |        | 42-20.2    |        | 42-20.0    |        | 42-20.0    |        | 42-19.9    |        | 42-19.9    |        |
| Longitude:E  | 140-50.0   |        | 140-39.9   |        | 140-35.1   |        | 140-30.2   |        | 140-24.9   |        | 140-29.9   |        | 140-34.9   |        | 140-39.9   |        | 140-45.0   |        | 140-49.8   |        |
| Date         | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        |
| Time(JST)    | 00:35      |        | 02:14      |        | 03:00      |        | 03:48      |        | 05:15      |        | 05:47      |        | 06:27      |        | 07:02      |        | 07:37      |        | 08:11      |        |
| Weather      | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        |
| Air Temp.    | 21.0       |        | 21.5       |        | 21.5       |        | 21.5       |        | 21.5       |        | 22.0       |        | 22.0       |        | 22.0       |        | 22.5       |        | 23.0       |        |
| Bar          | 1008.5     |        | 1008.5     |        | 1008.5     |        | 1009.0     |        | 1009.0     |        | 1009.5     |        | 1009.5     |        | 1009.5     |        | 1010.0     |        | 1010.0     |        |
| Wind Dir     | N          |        | S          |        | SE         |        | S          |        | ESE        |        | NE         |        | E          |        | SE         |        | NE         |        | WNW        |        |
| Wind Spd/F   | S 2        |        | S 2        |        | S 2        |        | S 2        |        | S 1        |        | S 2        |        | S 2        |        | S 3        |        | S 2        |        | S 1        |        |
| Transparency |            |        |            |        |            |        |            |        | 13         |        | 16         |        | 15         |        | 17         |        | 13         |        | 11         |        |
| Depth        | 90         |        | 77         |        | 92         |        | 67         |        | 67         |        | 92         |        | 93         |        | 77         |        | 58         |        | 46         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 19.2       | 32.439 | 20.2       | 31.784 | 20.3       | 31.800 | 20.1       | 31.920 | 20.4       | 31.575 | 20.6       | 31.777 | 20.5       | 31.777 | 20.3       | 31.764 | 20.4       | 31.817 | 20.4       | 31.761 |
| 10m          | 16.95      | 32.509 | 19.86      | 31.794 | 19.78      | 32.014 | 19.22      | 32.126 | 16.23      | 32.807 | 19.62      | 31.974 | 20.00      | 31.885 | 19.89      | 31.879 | 20.21      | 31.849 | 19.64      | 32.004 |
| 20m          | 11.76      | 33.277 | 16.50      | 31.996 | 14.83      | 32.056 | 12.36      | 32.682 | 7.99       | 32.762 | 14.54      | 33.179 | 16.85      | 31.852 | 16.10      | 31.880 | 17.00      | 32.012 | 13.76      | 32.330 |
| 30m          | 9.91       | 33.521 | 11.82      | 32.423 | 10.14      | 32.499 | 7.83       | 32.947 | 7.19       | 32.957 | 7.80       | 32.866 | 8.78       | 32.437 | 10.52      | 32.180 | 11.12      | 32.327 | 7.68       | 32.840 |
| 50m          | 8.39       | 33.715 | 6.47       | 33.189 | 7.33       | 33.089 | 6.62       | 33.197 | 5.94       | 33.131 | 6.73       | 33.317 | 7.02       | 33.220 | 6.61       | 33.070 | 7.39       | 33.360 |            |        |
| 75m          | 6.48       | 33.813 |            |        | 5.32       | 33.515 |            |        |            |        | 4.91       | 33.443 | 5.95       | 33.575 |            |        |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-37

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD014     |        | HKD015     |        | HKD016     |        | HKD004     |        | HKD017     |        | HKD018     |        | HSR118     |        | HSR119     |        | HSR120     |        | HSR121     |        |
| Latitude:N   | 42-30.0    |        | 42-25.1    |        | 42-20.1    |        | 42-15.1    |        | 42-15.0    |        | 42-10.2    |        | 41-59.9    |        | 41-50.1    |        | 41-40.1    |        | 41-30.1    |        |
| Longitude:E  | 140-40.1   |        | 140-40.2   |        | 140-40.1   |        | 140-44.9   |        | 140-40.0   |        | 140-40.0   |        | 139-40.1   |        | 139-50.0   |        | 139-50.0   |        | 139-50.0   |        |
| Date         | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/08/04 |        | 1997/08/05 |        | 1997/08/06 |        | 1997/08/06 |        |
| Time(JST)    | 09:53      |        | 10:35      |        | 11:16      |        | 12:06      |        | 12:36      |        | 13:16      |        | 22:34      |        | 06:28      |        | 16:15      |        | 17:46      |        |
| Weather      | F          |        | F          |        | F          |        | F          |        | B          |        | BC         |        | R          |        | C          |        | C          |        | B          |        |
| Air Temp.    | 25.0       |        | 25.5       |        | 25.5       |        | 25.0       |        | 25.5       |        | 25.0       |        | 23.0       |        | 24.0       |        | 25.2       |        | 25.5       |        |
| Bar          | 1010.0     |        | 1010.0     |        | 1010.0     |        | 1010.0     |        | 1010.0     |        | 1010.0     |        | 1004.0     |        | 997.0      |        | 1006.0     |        | 1006.0     |        |
| Wind Dir     | SSW        |        | E          |        | E          |        | ESE        |        | E          |        | E          |        | S          |        | SSW        |        | S          |        | WSW        |        |
| Wind Spd/F   | S 2        |        | S 1        |        | S 3        |        | S 4        |        | S 4        |        | S 5        |        | S 4        |        | S 9        |        | F 4        |        | S 4        |        |
| Transparency | 13         |        | 14         |        | 12         |        | 11         |        | 12         |        | 9          |        |            |        | 12         |        | 20         |        | 20         |        |
| Depth        | 63         |        | 75         |        | 76         |        | 78         |        | 87         |        | 84         |        | 900        |        | 1300       |        | 1280       |        | 1280       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 20.9       | 31.817 | 21.7       | 31.827 | 21.2       | 31.811 | 21.5       | 31.813 | 21.5       | 31.814 | 20.6       | 31.992 | 24.5       | 33.74* | 24.5       | 33.74* | 23.9       | 33.75* | 22.5       | 33.56* |
| 10m          | 19.66      | 32.006 | 19.96      | 31.879 | 20.06      | 31.823 | 19.46      | 32.122 | 19.74      | 32.091 | 18.64      | 32.240 | 24.15      | 33.971 | 24.54      | 33.765 | 23.08      | 33.862 | 22.57      | 33.929 |
| 20m          | 14.70      | 31.948 | 15.43      | 31.918 | 16.88      | 31.863 | 18.10      | 32.095 | 16.10      | 32.209 | 13.10      | 32.870 | 21.35      | 34.008 | 21.41      | 34.038 | 16.02      | 34.453 | 17.64      | 34.390 |
| 30m          | 8.31       | 32.495 | 10.30      | 32.188 | 10.40      | 32.205 | 8.76       | 32.488 | 9.95       | 32.561 | 7.38       | 32.778 | 17.89      | 34.331 | 17.19      | 34.394 | 14.49      | 34.449 | 15.25      | 34.452 |
| 50m          | 6.24       | 33.091 | 6.73       | 32.999 | 6.99       | 33.100 | 8.46       | 33.478 | 8.46       | 33.543 | 7.75       | 33.412 | 13.32      | 34.442 | 12.33      | 34.426 | 12.56      | 34.431 | 13.18      | 34.464 |
| 75m          |            |        |            |        |            |        | 6.82       | 33.775 | 7.25       | 33.751 | 6.69       | 33.645 | 11.75      | 34.419 | 11.01      | 34.354 | 11.00      | 34.328 | 11.60      | 34.396 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        | 9.34       | 34.281 | 9.28       | 34.287 | 9.65       | 34.272 | 10.08      | 34.290 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        | 7.83       | 34.218 | 7.09       | 34.203 | 7.60       | 34.215 | 8.03       | 34.231 |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        | 4.02       | 34.132 | 5.02       | 34.142 | 6.32       | 34.179 | 6.08       | 34.169 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        | 1.93       | 34.079 | 3.02       | 34.091 | 3.65       | 34.107 | 3.01       | 34.093 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        | 1.47       | 34.077 | 1.87       | 34.076 | 2.27       | 34.080 | 1.77       | 34.076 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        | 1.16       | 34.072 | 1.31       | 34.072 | 1.68       | 34.077 | 1.38       | 34.076 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.81       | 34.069 | 0.77       | 34.069 | 1.13       | 34.075 | 0.95       | 34.073 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.56       | 34.066 |            |        | 0.74       | 34.067 | 0.68       | N.D.   |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-38

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HSR117     |        | HSR116     |        | HSR016     |        | HSR129     |        | HSR001     |        | HSR005     |        | HSR004     |        | HSR003     |        | HSR002     |        | HSR014     |        |
| Latitude:N   | 41-15.1    |        | 41-38.8    |        | 41-40.1    |        | 42-20.1    |        | 41-54.4    |        | 41-50.1    |        | 41-59.9    |        | 42- 9.9    |        | 42-20.0    |        | 42- 9.2    |        |
| Longitude:E  | 139-50.1   |        | 140-44.7   |        | 140-40.1   |        | 140-35.1   |        | 141- 8.3   |        | 141-19.8   |        | 141-20.1   |        | 141-20.1   |        | 141-19.9   |        | 142-27.5   |        |
| Date         | 1997/08/06 |        | 1997/08/07 |        | 1997/08/25 |        | 1997/08/26 |        | 1997/08/26 |        | 1997/08/27 |        | 1997/08/27 |        | 1997/08/27 |        | 1997/08/27 |        | 1997/08/27 |        |
| Time(JST)    | 19:52      |        | 18:55      |        | 11:18      |        | 17:14      |        | 22:13      |        | 04:05      |        | 05:23      |        | 06:39      |        | 11:38      |        | 16:57      |        |
| Weather      | C          |        | C          |        | C          |        |            |        | C          |        | C          |        | C          |        | C          |        | C          |        | F          |        |
| Air Temp.    | 24.5       |        | 24.5       |        | 21.0       |        |            |        | 19.5       |        | 19.0       |        | 19.0       |        | 19.0       |        | 20.0       |        | 20.0       |        |
| Bar          | 1007.0     |        | 1008.0     |        | 1013.5     |        |            |        | 1015.5     |        | 1013.0     |        | 1012.5     |        | 1013.0     |        | 1011.5     |        | 1016.0     |        |
| Wind Dir     | WSW        |        | CALM       |        | E          |        |            |        | E          |        | E          |        | E          |        | ESE        |        | ENE        |        |            |        |
| Wind Spd/F   | S 4        |        | S 0        |        | S 5        |        |            |        | S 3        |        | S 5        |        | S 5        |        | S 4        |        | S 1        |        | S 1        |        |
| Transparency |            |        |            |        | 16         |        |            |        |            |        |            |        |            |        | 16         |        | 13         |        | 20         |        |
| Depth        | 1280       |        | 225        |        | 118        |        |            |        | 145        |        | 283        |        | 310        |        | 362        |        | 241        |        | 281        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 22.4       | 23.45* | 21.0       | 20.78* | 22.1       | 33.795 | 19.1       | 31.39* | 18.7       | 31.719 | 18.0       | 32.121 | 17.8       | 32.497 | 17.6       | 31.820 | 18.1       | 32.591 | 18.4       | 32.971 |
| 10m          | 23.14      | 33.874 | 20.38      | 33.973 | 21.52      | 33.963 | 19.13      | 31.386 | 17.50      | 32.755 | 17.94      | 32.893 | 17.38      | 32.920 | 17.53      | 32.626 | 17.66      | 32.633 | 18.19      | 33.239 |
| 20m          | 22.42      | 33.906 | 18.90      | 34.065 | 21.09      | 33.992 | 19.08      | 31.388 | 16.66      | 33.156 | 14.49      | 33.337 | 11.81      | 33.177 | 16.75      | 32.854 | 14.65      | 33.348 | 18.19      | 33.470 |
| 30m          | 20.28      | 33.997 | 18.09      | 34.160 | 20.17      | 34.068 | 18.12      | 31.648 | 15.75      | 33.102 | 8.11       | 33.008 | 9.24       | 33.253 | 12.47      | 33.448 | 10.91      | 33.284 | 14.77      | 33.071 |
| 50m          | 15.39      | 34.355 | 14.93      | 34.234 | 15.22      | 34.331 | 8.23       | 32.881 | 12.85      | 33.245 | 7.69       | 33.447 | 7.41       | 33.282 | 8.58       | 33.454 | 9.13       | 33.630 | 8.04       | 33.244 |
| 75m          | 14.22      | 34.409 | 12.55      | 34.316 | 12.55      | 34.333 | 6.45       | 33.513 | 7.28       | 33.607 | 6.03       | 33.415 | 6.56       | 33.370 | 6.64       | 33.440 | 5.43       | 33.382 | 4.93       | 33.082 |
| 100m         | 12.52      | 34.364 | 11.77      | 34.310 | 11.94      | 34.318 |            |        | 5.60       | 33.592 | 5.75       | 33.515 | 6.64       | 33.459 | 5.74       | 33.492 | 6.09       | 33.548 | 5.29       | 33.445 |
| 125m         | 11.29      | 34.318 | 11.56      | 34.306 |            |        |            |        | 4.75       | 33.560 | 5.99       | 33.606 | 5.59       | 33.371 | 5.10       | 33.502 | 5.82       | 33.595 | 4.80       | 33.505 |
| 150m         | 10.59      | 34.298 | 11.14      | 34.300 |            |        |            |        |            |        | 5.40       | 33.599 | 5.08       | 33.413 | 4.46       | 33.525 | 4.94       | 33.559 | 4.39       | 33.545 |
| 200m         | 6.90       | 34.188 | 10.76      | 34.295 |            |        |            |        |            |        | 4.73       | 33.570 | 4.71       | 33.559 | 4.18       | 33.581 | 3.85       | 33.502 | 3.40       | 33.508 |
| 250m         | 4.99       | 34.134 |            |        |            |        |            |        |            |        | 4.02       | 33.560 | 3.75       | 33.517 | 3.11       | 33.518 |            |        | 2.95       | 33.506 |
| 300m         | 2.28       | 34.074 |            |        |            |        |            |        |            |        |            |        | 3.23       | 33.614 | 3.23       | 33.610 |            |        |            |        |
| 400m         | 0.87       | 34.069 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 0.53       | 34.065 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-39



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HSR015     |        | HSR013     |        | HSR012     |        | HSR011     |        | HSR010     |        | HSR009     |        | HSR081     |        | HSR082     |        | HSR007     |        | HSR006     |        |
| Latitude:N   | 42- 0.0    |        | 42- 0.1    |        | 41-50.0    |        | 41-40.1    |        | 41-30.0    |        | 41-20.2    |        | 41-10.2    |        | 41-10.0    |        | 41-29.8    |        | 41-39.9    |        |
| Longitude:E  | 142-40.0   |        | 142-20.0   |        | 142-10.1   |        | 141-59.8   |        | 141-50.0   |        | 141-39.9   |        | 141-29.9   |        | 141-29.9   |        | 141-19.9   |        | 141-20.1   |        |
| Date         | 1997/08/27 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/28 |        | 1997/08/29 |        | 1997/08/29 |        |
| Time(JST)    | 18:30      |        | 05:55      |        | 07:27      |        | 09:06      |        | 10:45      |        | 12:22      |        | 14:19      |        | 17:58      |        | 02:19      |        | 03:41      |        |
| Weather      | C          |        | F          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        |
| Air Temp.    | 19.0       |        | 19.5       |        | 19.0       |        | 19.0       |        | 23.0       |        | 23.0       |        | 24.0       |        | 23.0       |        | 20.0       |        | 20.0       |        |
| Bar          | 1011.0     |        | 1011.0     |        | 1012.0     |        | 1011.5     |        | 1012.0     |        | 1012.0     |        | 1012.0     |        | 1012.5     |        | 1014.0     |        | 1014.0     |        |
| Wind Dir     | NW         |        | N          |        | NW         |        | N          |        | NNE        |        | ESE        |        | SSW        |        | ESE        |        | SW         |        | W          |        |
| Wind Spd/F   | S 2        |        | S 3        |        | S 2        |        | S 3        |        | S 2        |        | S 1        |        | S 1        |        | S 2        |        | S 5        |        | S 2        |        |
| Transparency |            |        | 18         |        | 21         |        | 17         |        | 19         |        | 12         |        | 12         |        |            |        |            |        |            |        |
| Depth        | 546        |        | 980        |        | 1080       |        | 1045       |        | 950        |        | 757        |        | 482        |        | 485        |        | 238        |        | 229        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.7       | 32.993 | 18.5       | 33.299 | 18.3       | 32.862 | 22.4       | 33.547 | 22.2       | 33.660 | 20.8       | 33.706 | 21.2       | 33.405 | 21.0       | 33.394 | 21.8       | 33.619 | 23.1       | 33.594 |
| 10m          | 17.56      | 33.163 | 18.48      | 33.454 | 18.78      | 33.566 | 19.84      | 33.968 | 21.40      | 33.784 | 20.15      | 33.823 | 20.05      | 33.697 | 20.34      | 33.726 | 21.93      | 33.721 | 22.32      | 33.715 |
| 20m          | 17.96      | 33.406 | 17.45      | 33.210 | 18.25      | 33.466 | 19.33      | 33.989 | 21.05      | 33.814 | 20.01      | 33.812 | 19.73      | 33.723 | 19.70      | 33.768 | 21.94      | 33.722 | 21.70      | 33.739 |
| 30m          | 17.47      | 33.454 | 16.81      | 33.134 | 17.56      | 33.453 | 18.16      | 34.057 | 20.80      | 33.838 | 19.33      | 33.877 | 19.52      | 33.790 | 19.34      | 33.789 | 21.93      | 33.725 | 20.18      | 33.877 |
| 50m          | 9.71       | 33.400 | 9.98       | 33.585 | 11.25      | 33.288 | 15.80      | 34.199 | 20.31      | 33.877 | 18.43      | 34.000 | 18.36      | 33.991 | 18.68      | 33.908 | 17.84      | 34.069 | 19.52      | 33.885 |
| 75m          | 5.19       | 33.221 | 9.63       | 33.965 | 9.19       | 33.804 | 15.11      | 34.257 | 18.66      | 34.008 | 16.90      | 34.126 | 16.88      | 34.082 | 17.39      | 34.011 | 14.81      | 34.312 | 16.61      | 34.082 |
| 100m         | 3.60       | 33.114 | 8.52       | 33.895 | 8.51       | 33.858 | 14.13      | 34.263 | 17.71      | 34.054 | 15.51      | 34.146 | 16.20      | 34.078 | 16.53      | 34.090 | 14.60      | 34.315 | 11.57      | 34.078 |
| 125m         | 4.86       | 33.440 | 5.49       | 33.619 | 7.28       | 33.757 | 12.09      | 34.251 | 16.02      | 34.082 | 13.93      | 34.207 | 14.78      | 34.090 | 15.73      | 34.081 | 13.38      | 34.288 | 5.68       | 33.720 |
| 150m         | 4.59       | 33.515 | 3.91       | 33.473 | 6.23       | 33.737 | 11.23      | 34.171 | 14.52      | 34.127 | 12.29      | 34.184 | 12.29      | 34.072 | 14.46      | 34.081 | 12.11      | 34.313 | 4.10       | 33.539 |
| 200m         | 3.71       | 33.507 | 3.40       | 33.458 | 4.38       | 33.621 | 9.32       | 34.004 | 8.65       | 33.940 | 9.37       | 34.027 | 8.62       | 33.932 | 9.34       | 33.988 | 11.61      | 34.276 | 3.57       | 33.541 |
| 250m         | 2.98       | 33.542 | 3.51       | 33.549 | 3.61       | 33.634 | 3.60       | 33.484 | 3.73       | 33.616 | 5.39       | 33.625 | 3.35       | 33.499 | 3.36       | 33.499 |            |        |            |        |
| 300m         | 2.89       | 33.587 | 2.66       | 33.508 | 3.12       | 33.654 | 3.45       | 33.561 | 3.12       | 33.676 | 3.20       | 33.454 | 3.04       | 33.646 | 3.12       | 33.674 |            |        |            |        |
| 400m         | 3.05       | 33.693 | 2.94       | 33.698 | 3.11       | 33.772 | 3.11       | 33.682 | 3.28       | 33.819 | 2.79       | 33.641 | 3.29       | 33.839 | 3.33       | 33.859 |            |        |            |        |
| 500m         | 3.33       | 33.870 | 3.33       | 33.897 | 3.47       | 33.961 | 3.37       | 33.887 |            |        | 3.36       | 33.913 |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        | 3.49       | 34.056 |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-40

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199708     |        | 199708     |        | 199708     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HAP07      |        | HAP06      |        | HAP05      |        | HAP04      |        | HAP03      |        | HAP02      |        | HAP01      |        | HSR0171    |        | HSR0172    |        | HSR0161    |        |  |
| Latitude:N   | 41-23.2    |        | 41-20.7    |        | 41-18.4    |        | 41-16.0    |        | 41-13.5    |        | 41-11.0    |        | 41- 8.6    |        | 41-15.1    |        | 41-15.6    |        | 41-39.9    |        |  |
| Longitude:E  | 140-10.7   |        | 140-11.2   |        | 140-11.8   |        | 140-12.6   |        | 140-13.2   |        | 140-13.6   |        | 140-14.3   |        | 139-49.8   |        | 139-50.8   |        | 140-40.0   |        |  |
| Date         | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/04 |        |  |
| Time(JST)    | 14:11      |        | 14:39      |        | 15:11      |        | 15:42      |        | 16:13      |        | 16:45      |        | 17:15      |        | 17:07      |        | 18:31      |        | 16:47      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | BC     |            | BC     |            | B      |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | 23.0   |            | 22.0   |            | 26.0   |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | 1002.0 |            | 1002.0 |            | 1008.0 |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | NW     |            | WNW    |            | W      |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | S 3    |            | S 3    |            | S 8    |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | 19     |            | 1      |            | 18     |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | 789    |            | 640    |            | 118    |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 24.4       | 33.81* | 24.6       | 33.84* | 24.0       | 33.67* | 24.5       | 33.41* | 24.9       | 33.46* | 24.9       | 33.45* | 24.9       | 33.47* | 24.1       | 33.187 | 24.1       | 33.124 | 23.6       | 33.261 |  |
| 10m          | 24.26      | 33.809 | 24.60      | 33.842 | 23.98      | 33.713 | 24.54      | 33.418 | 24.79      | 33.506 | 24.89      | 33.461 | 24.94      | 33.475 | 24.06      | 33.444 | 24.07      | 33.249 | 22.65      | 33.602 |  |
| 20m          | 20.25      | 34.031 | 22.15      | 34.027 | 23.93      | 33.750 | 24.52      | 33.421 | 24.78      | 33.572 | 24.67      | 33.530 | 24.87      | 33.565 | 21.37      | 33.588 | 23.55      | 33.416 | 20.48      | 33.998 |  |
| 30m          | 14.97      | 34.332 | 17.64      | 34.424 | 19.40      | 34.337 | 24.24      | 33.543 | 23.35      | 33.943 | 23.79      | 33.804 | 24.43      | 33.558 | 18.40      | 34.249 | 18.62      | 33.870 | 18.97      | 34.118 |  |
| 50m          |            |        | 10.40      | 34.351 | 15.04      | 34.506 | 24.03      | 33.778 | 18.22      | 34.373 | 18.39      | 34.382 | 19.70      | 34.258 | 15.94      | 34.489 | 15.92      | 34.493 | 15.71      | 34.302 |  |
| 75m          |            |        | 8.85       | 34.282 | 12.23      | 34.392 | 18.29      | 34.407 | 15.59      | 34.506 | 15.83      | 34.486 |            |        | 13.80      | 34.479 | 13.96      | 34.479 | 13.45      | 34.371 |  |
| 100m         |            |        | 8.45       | 34.252 | 9.35       | 34.293 | 14.17      | 34.479 | 13.76      | 34.448 |            |        |            |        | 12.45      | 34.443 | 12.51      | 34.443 | 13.08      | 34.351 |  |
| 125m         |            |        |            |        | 9.18       | 34.278 | 11.60      | 34.388 |            |        |            |        |            |        | 11.40      | 34.386 | 11.58      | 34.402 |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 9.99       | 34.323 | 9.93       | 34.319 |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5.70       | 34.173 | 5.63       | 34.174 |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.08       | 34.115 | 3.70       | 34.117 |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.41       | 34.085 | 1.75       | 34.086 |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.89       | 34.077 | 0.93       | 34.078 |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.64       | 34.073 | 0.70       | 34.075 |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-41

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HSR0162    |        | HFS01      |        | HFS02      |        | HFS03      |        | HFS04      |        | HFS05      |        | HFS06      |        | HFS07      |        | HFS08      |        | HFS09      |        |  |
| Latitude:N   | 41-38.7    |        | 41-54.9    |        | 41-59.9    |        | 42- 5.0    |        | 42-10.0    |        | 42-15.0    |        | 42-10.1    |        | 42- 5.1    |        | 42- 0.1    |        | 41-57.6    |        |  |
| Longitude:E  | 140-39.7   |        | 141-10.0   |        | 141-15.0   |        | 141-19.9   |        | 141-24.8   |        | 141-20.1   |        | 141-15.1   |        | 141-10.1   |        | 141- 5.2   |        | 141- 2.5   |        |  |
| Date         | 1997/09/04 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        |  |
| Time(JST)    | 18:31      |        | 13:36      |        | 14:25      |        | 15:12      |        | 16:00      |        | 16:53      |        | 17:48      |        | 18:58      |        | 19:56      |        | 20:43      |        |  |
| Weather      | B          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    | 24.0       |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          | 1009.5     |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     | WNW        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   | S 5        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        | 116        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 23.4       | 33.322 | 19.6       | 31.90* | 19.9       | 31.53* | 19.8       | 32.47* | 18.6       | 32.75* | 19.7       | 31.92* | 19.6       | 32.25* | 19.6       | 32.41* | 20.0       | 31.63* | 19.8       | 31.69* |  |
| 10m          | 22.31      | 33.666 | 18.32      | 32.717 | 18.95      | 32.753 | 18.32      | 32.787 | 17.84      | 32.885 | 19.30      | 32.165 | 19.42      | 32.562 | 18.94      | 32.910 | 19.93      | 31.680 | 17.74      | 32.227 |  |
| 20m          | 20.98      | 33.837 | 16.55      | 33.050 | 16.43      | 33.182 | 16.35      | 33.253 | 16.70      | 32.912 | 17.36      | 33.018 | 16.50      | 33.143 | 13.19      | 33.130 | 15.80      | 32.855 | 15.90      | 32.673 |  |
| 30m          | 19.69      | 34.069 | 14.11      | 33.134 | 14.82      | 33.334 | 14.20      | 33.429 | 15.64      | 32.960 | 15.34      | 33.405 | 11.86      | 33.414 | 10.65      | 33.378 | 13.18      | 33.579 | 14.83      | 32.972 |  |
| 50m          | 16.36      | 34.256 | 11.20      | 33.579 | 8.92       | 33.386 | 9.06       | 33.506 | 11.18      | 33.341 | 9.90       | 33.299 | 8.53       | 33.591 | 9.12       | 33.667 | 9.24       | 33.314 | 10.75      | 33.569 |  |
| 75m          | 13.26      | 34.352 | 9.08       | 33.693 | 7.19       | 33.525 | 6.88       | 33.526 | 7.28       | 33.452 | 7.75       | 33.509 | 6.31       | 33.513 | 7.14       | 33.563 | 9.34       | 33.450 | 9.10       | 33.528 |  |
| 100m         | 12.65      | 34.344 | 7.95       | 33.651 | 6.73       | 33.572 | 6.03       | 33.567 | 5.95       | 33.500 | 5.63       | 33.532 | 6.14       | 33.592 | 6.39       | 33.571 | 7.71       | 33.544 | 6.55       | 33.469 |  |
| 125m         |            |        | 6.81       | 33.632 | 6.04       | 33.587 | 4.97       | 33.514 | 5.29       | 33.532 | 5.10       | 33.569 | 5.37       | 33.553 |            |        |            |        |            |        |  |
| 150m         |            |        | 6.42       | 33.587 | 5.53       | 33.551 | 4.86       | 33.520 | 4.72       | 33.524 | 4.94       | 33.579 | 4.93       | 33.533 |            |        |            |        |            |        |  |
| 200m         |            |        |            |        | 4.49       | 33.552 | 3.79       | 33.473 | 3.76       | 33.470 | 3.47       | 33.483 | 4.37       | 33.518 |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-42

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS10      |        | HFS11      |        | HFS12      |        | HFS13      |        | HFS14      |        | HFS15      |        | HFS16      |        | HFS17      |        | HFS18      |        | HFS19      |        |  |
| Latitude:N   | 42- 2.5    |        | 42- 5.0    |        | 42-10.0    |        | 42-15.0    |        | 42-17.4    |        | 42-15.1    |        | 42-10.0    |        | 42- 7.5    |        | 42- 8.5    |        | 42-10.9    |        |  |
| Longitude:E  | 140-57.5   |        | 141- 0.0   |        | 141- 4.9   |        | 141- 9.9   |        | 141- 5.0   |        | 141- 0.0   |        | 140-55.0   |        | 140-52.5   |        | 140-43.8   |        | 140-46.7   |        |  |
| Date         | 1997/09/08 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        |  |
| Time(JST)    | 21:39      |        | 22:08      |        | 23:22      |        | 00:13      |        | 01:10      |        | 01:42      |        | 02:25      |        | 02:51      |        | 03:42      |        | 04:13      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 19.5       | 32.11* | 19.7       | 32.65* | 19.7       | 32.19* | 20.0       | 31.59* | 19.2       | 32.10* | 19.2       | 32.10* | 19.1       | 31.96* | 19.0       | 32.34* | 19.7       | 31.50* | 19.4       | 32.24* |  |
| 10m          | 18.01      | 32.741 | 19.56      | 32.960 | 18.76      | 32.657 | 19.43      | 32.419 | 18.53      | 32.654 | 19.38      | 32.677 | 19.05      | 32.712 | 17.80      | 32.677 | 18.50      | 31.886 | 19.01      | 32.442 |  |
| 20m          | 14.63      | 33.031 | 14.12      | 33.223 | 16.20      | 33.504 | 16.88      | 33.339 | 16.21      | 33.008 | 17.01      | 32.918 | 15.94      | 33.062 | 16.20      | 33.000 | 16.79      | 32.690 | 18.25      | 32.595 |  |
| 30m          | 13.15      | 33.519 | 11.40      | 33.297 | 12.18      | 33.496 | 12.61      | 33.140 | 15.08      | 33.073 | 14.75      | 33.093 | 13.98      | 33.105 | 14.59      | 33.210 | 13.51      | 32.711 | 15.58      | 32.900 |  |
| 50m          | 9.52       | 33.288 | 8.99       | 33.430 | 8.65       | 33.516 | 9.59       | 33.579 | 9.43       | 33.161 | 10.85      | 33.124 | 11.81      | 33.193 | 11.13      | 33.137 |            |        | 8.46       | 32.855 |  |
| 75m          |            |        | 7.60       | 33.543 | 7.75       | 33.370 | 8.58       | 33.667 |            |        |            |        |            |        | 6.01       | 33.456 |            |        | 6.51       | 33.469 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-43

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS20      |        | HFS21      |        | HFS22      |        | HFS23      |        | HFS24      |        | HFS25      |        | HFS26      |        | HFS27      |        | HFS28      |        | HFS29      |        |  |
| Latitude:N   | 42-13.2    |        | 42-15.6    |        | 42-18.0    |        | 42-25.0    |        | 42-20.0    |        | 42-15.1    |        | 42-10.1    |        | 42-14.9    |        | 42-17.4    |        | 42-20.0    |        |  |
| Longitude:E  | 140-49.7   |        | 140-52.8   |        | 140-55.9   |        | 140-50.1   |        | 140-44.9   |        | 140-40.1   |        | 140-35.0   |        | 140-30.0   |        | 140-32.4   |        | 140-34.9   |        |  |
| Date         | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        |  |
| Time(JST)    | 05:11      |        | 05:42      |        | 06:19      |        | 07:32      |        | 08:22      |        | 09:15      |        | 10:25      |        | 11:13      |        | 11:46      |        | 12:33      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 18.8       | 32.29* | 19.2       | 31.68* | 19.4       | 32.07* | 20.9       | 31.18* | 20.4       | 31.34* | 20.2       | 31.55* | 20.3       | 31.40* | 20.5       | 31.34* | 20.4       | 31.34* | 20.4       | 31.37* |  |
| 10m          | 18.70      | 32.457 | 18.70      | 32.438 | 19.01      | 32.323 | 19.38      | 31.639 | 20.32      | 31.339 | 19.24      | 32.167 | 19.65      | 31.559 | 20.21      | 31.362 | 20.28      | 31.345 | 20.03      | 31.375 |  |
| 20m          | 18.23      | 32.557 | 17.85      | 32.868 | 17.06      | 32.744 | 17.65      | 32.625 | 18.25      | 31.743 | 16.52      | 32.645 | 16.49      | 32.597 | 17.93      | 32.027 | 19.53      | 32.111 | 19.55      | 31.915 |  |
| 30m          | 16.38      | 32.956 | 15.85      | 33.012 | 15.41      | 33.040 | 15.29      | 33.045 | 16.00      | 32.594 | 14.83      | 33.058 | 14.12      | 32.906 | 15.30      | 32.876 | 16.65      | 32.924 | 17.10      | 32.469 |  |
| 50m          | 11.93      | 33.124 | 11.56      | 33.252 |            |        |            |        | 11.10      | 33.408 | 10.35      | 33.434 | 7.84       | 32.838 | 8.01       | 32.961 | 7.33       | 32.912 | 7.17       | 32.971 |  |
| 75m          |            |        |            |        |            |        |            |        |            |        | 6.32       | 33.460 |            |        | 6.48       | 33.287 | 6.36       | 33.408 | 6.22       | 33.423 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-44

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199710     |        |             |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|-------------|
| Station No   | HFS30      |        | HFS31      |        | HFS32      |        | HFS33      |        | HFS34      |        | HFS36      |        | HFS35      |        | HFS37      |        | HFS38      |        | PH01       |        |             |
| Latitude:N   | 42-22.5    |        | 42-24.9    |        | 42-27.4    |        | 42-30.0    |        | 42-25.2    |        | 42-17.6    |        | 42-19.8    |        | 42-25.0    |        | 42-29.9    |        | 41-39.9    |        |             |
| Longitude:E  | 140-37.5   |        | 140-40.0   |        | 140-42.4   |        | 140-35.1   |        | 140-29.9   |        | 140-24.9   |        | 140-25.0   |        | 140-25.0   |        | 140-29.9   |        | 140-40.0   |        |             |
| Date         | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/09 |        | 1997/09/29 |        |             |
| Time(JST)    | 13:36      |        | 14:10      |        | 14:50      |        | 15:43      |        | 16:42      |        | 18:04      |        | 18:31      |        | 19:14      |        | 20:04      |        | 18:23      |        |             |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | C           |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 16.0        |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1015.5      |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | WNW         |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | S 7         |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 120         |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |             |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |             |
| 0m           | 20.7       | 31.39* | 20.6       | 31.38* | 20.9       | 31.35* | 20.8       | 31.37* | 20.7       | 31.38* | 21.0       | 31.31* | 21.0       | 31.28* | 21.0       | 31.20* | 20.8       | 31.34* | 19.0       | 33.737 |             |
| 10m          | 20.21      | 31.393 | 20.23      | 31.379 | 20.40      | 31.356 | 20.30      | 31.386 | 20.06      | 31.373 | 20.21      | 31.331 | 19.89      | 31.342 | 19.85      | 31.344 | 20.65      | 31.324 | 19.00      | 33.672 |             |
| 20m          | 19.56      | 31.433 | 18.54      | 31.633 | 18.42      | 31.698 | 18.21      | 31.807 | 19.30      | 31.462 | 17.36      | 32.167 | 17.64      | 32.110 | 17.19      | 32.384 | 17.95      | 31.910 | 17.00      | 33.933 |             |
| 30m          | 17.22      | 32.259 | 16.93      | 32.439 | 16.40      | 32.749 | 16.05      | 32.908 | 16.45      | 32.871 | 15.30      | 33.022 | 15.04      | 32.907 | 14.73      | 33.015 | 15.14      | 32.831 | 14.76      | 34.085 |             |
| 50m          | 8.04       | 32.883 | 8.15       | 32.980 | 10.61      | 33.384 | 9.61       | 33.372 | 7.80       | 32.921 | 8.16       | 32.957 | 8.03       | 32.943 | 8.64       | 33.002 | 9.20       | 33.139 | 11.65      | 34.262 |             |
| 75m          | 6.56       | 33.429 |            |        |            |        |            |        | 6.78       | 33.496 |            |        |            |        |            |        |            |        | 9.11       | 34.239 |             |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 8.73 34.227 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |             |

Table 4-45

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P65        |        | P66        |        | P56        |        | P55        |        | P54        |        | P53        |        | P52        |        | P51        |        | HKD151     |        | HKD152     |        |
| Latitude:N   | 41-40.0    |        | 41-30.0    |        | 41-20.0    |        | 41-29.9    |        | 41-40.0    |        | 41-50.2    |        | 42- 0.0    |        | 42- 9.9    |        | 42- 0.0    |        | 41-59.8    |        |
| Longitude:E  | 141-20.1   |        | 141-20.0   |        | 141-40.0   |        | 141-49.9   |        | 141-59.9   |        | 142- 9.9   |        | 142-20.0   |        | 142-29.9   |        | 142-39.9   |        | 142-40.0   |        |
| Date         | 1997/09/29 |        | 1997/09/29 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        |
| Time(JST)    | 21:12      |        | 22:31      |        | 00:45      |        | 02:40      |        | 05:01      |        | 07:18      |        | 09:12      |        | 12:40      |        | 14:20      |        | 17:40      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | R          |        | R          |        | C          |        | BC         |        | BC         |        | C          |        |
| Air Temp.    | 16.0       |        | 17.0       |        | 17.0       |        | 16.0       |        | 15.0       |        | 14.0       |        | 14.0       |        | 21.0       |        | 18.5       |        | 16.0       |        |
| Bar          | 1016.0     |        | 1016.0     |        | 1016.5     |        | 1016.0     |        | 1017.0     |        | 1018.5     |        | 1020.0     |        | 1019.5     |        | 1020.0     |        | 1021.5     |        |
| Wind Dir     | W          |        | W          |        | W          |        | NW         |        | WNW        |        | ESE        |        | S          |        | SSW        |        | SSW        |        | SSW        |        |
| Wind Spd/F   | S 5        |        | S 6        |        | S 7        |        | S 6        |        | S 5        |        | S 5        |        | S 4        |        | S 4        |        | S 3        |        | S 5        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        | 14         |        | 13         |        | 10         |        | 13         |        |            |        |
| Depth        | 230        |        | 240        |        | 750        |        | 960        |        | 1050       |        | 1050       |        | 1000       |        | 118        |        | 565        |        | 550        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.9       | 33.897 | 18.6       | 33.804 | 20.1       | 33.700 | 16.6       | 33.289 | 15.0       | 33.029 | 16.2       | 33.087 | 16.4       | 33.125 | 17.0       | 33.111 | 18.1       | 33.391 | 17.9       | 33.378 |
| 10m          | 17.39      | 33.846 | 18.88      | 33.761 | 19.17      | 33.674 | 16.76      | 33.243 | 15.33      | 32.988 | 16.21      | 33.232 | 16.79      | 33.125 | 16.74      | 33.056 | 17.86      | 33.375 | 17.89      | 33.344 |
| 20m          | 15.78      | 33.955 | 18.78      | 33.776 | 19.17      | 33.674 | 16.55      | 33.502 | 14.93      | 33.069 | 16.30      | 33.811 | 16.44      | 33.144 | 15.85      | 33.070 | 17.15      | 33.225 | 17.60      | 33.317 |
| 30m          | 14.71      | 34.151 | 18.70      | 33.785 | 19.18      | 33.675 | 13.33      | 33.444 | 13.84      | 33.490 | 13.02      | 33.376 | 12.19      | 33.067 | 13.89      | 33.161 | 16.42      | 33.207 | 16.02      | 33.385 |
| 50m          | 14.55      | 34.131 | 18.66      | 33.789 | 19.16      | 33.672 | 12.93      | 34.110 | 9.91       | 33.441 | 11.40      | 33.807 | 10.29      | 33.450 | 13.84      | 33.265 | 12.89      | 33.505 | 11.10      | 33.207 |
| 75m          | 14.08      | 34.037 | 18.22      | 33.822 | 19.14      | 33.675 | 12.38      | 34.199 | 8.20       | 33.511 | 8.94       | 33.657 | 8.13       | 33.466 | 11.43      | 33.493 | 7.96       | 33.382 | 8.50       | 33.362 |
| 100m         | 11.47      | 33.852 | 13.04      | 34.202 | 16.64      | 33.854 | 11.44      | 34.169 | 8.42       | 33.781 | 8.84       | 33.980 | 7.25       | 33.651 | 7.07       | 33.577 | 7.47       | 33.511 | 7.71       | 33.551 |
| 125m         | 9.27       | 33.921 | 10.45      | 34.258 | 12.35      | 34.095 | 11.02      | 34.151 | 7.25       | 33.716 | 6.83       | 33.785 | 5.91       | 33.592 |            |        | 6.37       | 33.648 | 7.13       | 33.682 |
| 150m         | 6.94       | 33.812 | 10.04      | 34.243 | 9.30       | 33.825 | 9.57       | 33.894 | 5.91       | 33.650 | 5.87       | 33.745 | 5.28       | 33.580 |            |        | 5.39       | 33.596 | 5.71       | 33.624 |
| 200m         | 3.65       | 33.602 | 8.40       | 34.224 | 6.44       | 33.784 | 4.25       | 33.318 | 3.33       | 33.494 | 4.16       | 33.597 | 3.86       | 33.512 |            |        | 3.73       | 33.500 | 3.97       | 33.509 |
| 250m         |            |        |            |        | 3.55       | 33.507 | 4.36       | 33.520 | 3.15       | 33.562 | 3.18       | 33.575 | 3.22       | 33.555 |            |        | 3.02       | 33.524 | 3.09       | 33.518 |
| 300m         |            |        |            |        | 3.00       | 33.523 | 3.73       | 33.522 | 3.04       | 33.629 | 3.03       | 33.636 | 2.98       | 33.610 |            |        | 3.23       | 33.618 | 2.92       | 33.571 |
| 400m         |            |        |            |        | 3.17       | 33.721 | 3.09       | 33.695 | 3.24       | 33.815 | 3.23       | 33.824 | 3.23       | 33.801 |            |        | 3.28       | 33.730 | 3.20       | 33.729 |
| 500m         |            |        |            |        | 3.39       | 33.945 | 3.33       | 33.912 | 3.44       | 33.988 | 3.40       | 33.994 | 3.49       | 33.986 |            |        | 3.38       | 33.915 | 3.42       | 33.922 |
| 600m         |            |        |            |        | 3.42       | 34.100 | 3.46       | 34.082 | 3.44       | 34.113 | 3.43       | 34.123 | 3.44       | 34.101 |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-46

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD05      |        | HKD04      |        | HKD03      |        | HKD02      |        | HKD01      |        | P61        |        | P62        |        | P63        |        | P64        |        | HKD06      |        |
| Latitude:N   | 42-13.0    |        | 42-14.0    |        | 42-16.0    |        | 42-17.0    |        | 42-19.0    |        | 42-20.0    |        | 42-10.0    |        | 42- 0.0    |        | 41-50.0    |        | 41-52.4    |        |
| Longitude:E  | 142- 9.9   |        | 142- 0.0   |        | 141-49.9   |        | 141-40.0   |        | 141-30.0   |        | 141-20.0   |        | 141-19.9   |        | 141-20.0   |        | 141-20.1   |        | 141- 9.3   |        |
| Date         | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        |
| Time(JST)    | 05:48      |        | 06:54      |        | 08:01      |        | 09:06      |        | 10:09      |        | 11:10      |        | 12:22      |        | 13:40      |        | 14:55      |        | 16:04      |        |
| Weather      | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 15.0       |        | 15.0       |        | 18.0       |        | 21.5       |        | 23.0       |        | 24.0       |        | 18.0       |        | 17.0       |        | 17.0       |        | 18.0       |        |
| Bar          | 1026.5     |        | 1027.5     |        | 1027.5     |        | 1028.5     |        | 1029.0     |        | 1029.5     |        | 1028.0     |        | 1028.0     |        | 1027.5     |        | 1027.5     |        |
| Wind Dir     | NW         |        | NNW        |        | NW         |        | NWN        |        | N          |        | E          |        | WNW        |        | SSE        |        | SE         |        | SE         |        |
| Wind Spd/F   | S 5        |        | S 2        |        | S 6        |        | S 2        |        | S 1        |        | S 2        |        | S 2        |        | S 1        |        | S 2        |        | S 1        |        |
| Transparency | 18         |        | 17         |        | 17         |        | 19         |        | 15         |        | 14         |        | 15         |        | 12         |        | 14         |        | 18         |        |
| Depth        | 575        |        | 568        |        | 652        |        | 513        |        | 459        |        | 245        |        | 362        |        | 310        |        | 285        |        | 106        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.8       | 33.198 | 18.0       | 33.458 | 17.4       | 33.333 | 16.4       | 33.177 | 16.5       | 33.195 | 16.8       | 33.183 | 16.7       | 33.197 | 16.3       | 32.894 | 16.6       | 32.915 | 17.4       | 32.317 |
| 10m          | 17.33      | 33.183 | 17.95      | 33.457 | 17.33      | 33.301 | 16.39      | 33.136 | 16.23      | 33.185 | 16.44      | 33.117 | 16.84      | 33.184 | 14.73      | 32.797 | 16.30      | 32.926 | 16.49      | 32.382 |
| 20m          | 17.02      | 33.279 | 17.95      | 33.457 | 17.32      | 33.299 | 16.38      | 33.135 | 16.12      | 33.178 | 16.40      | 33.120 | 12.92      | 33.581 | 13.21      | 33.131 | 16.14      | 32.913 | 16.11      | 32.511 |
| 30m          | 15.84      | 33.290 | 17.91      | 33.451 | 16.48      | 33.193 | 14.58      | 33.471 | 11.33      | 33.464 | 13.32      | 33.288 | 10.62      | 33.699 | 11.30      | 33.192 | 16.03      | 32.920 | 15.63      | 32.593 |
| 50m          | 13.62      | 33.803 | 12.22      | 33.277 | 11.46      | 33.647 | 10.59      | 33.715 | 9.76       | 33.716 | 11.62      | 33.592 | 8.86       | 33.644 | 10.15      | 33.355 | 13.66      | 33.374 | 15.30      | 32.832 |
| 75m          | 9.81       | 33.287 | 10.93      | 33.608 | 9.83       | 33.594 | 10.28      | 34.018 | 8.33       | 33.670 | 9.60       | 33.832 | 7.70       | 33.705 | 8.32       | 33.504 | 11.70      | 33.738 | 7.65       | 33.402 |
| 100m         | 9.61       | 33.679 | 9.49       | 33.921 | 10.37      | 33.950 | 8.89       | 33.929 | 8.04       | 33.753 | 8.10       | 33.720 | 7.53       | 33.780 | 8.55       | 33.783 | 11.32      | 34.149 | 6.46       | 33.637 |
| 125m         | 7.62       | 33.698 | 6.98       | 33.690 | 9.43       | 33.982 | 6.64       | 33.679 | 7.04       | 33.710 | 7.26       | 33.687 | 5.98       | 33.649 | 7.43       | 33.740 | 9.83       | 34.112 |            |        |
| 150m         | 5.76       | 33.594 | 5.67       | 33.603 | 7.77       | 33.784 | 6.09       | 33.691 | 5.99       | 33.630 | 5.28       | 33.576 | 4.85       | 33.556 | 6.50       | 33.681 | 7.87       | 33.944 |            |        |
| 200m         | 3.88       | 33.516 | 4.14       | 33.515 | 3.96       | 33.499 | 3.92       | 33.522 | 4.16       | 33.511 | 3.57       | 33.529 | 3.70       | 33.506 | 4.20       | 33.527 | 6.58       | 33.926 |            |        |
| 250m         | 3.32       | 33.528 | 3.25       | 33.502 | 3.47       | 33.511 | 3.27       | 33.537 | 3.55       | 33.511 |            |        | 3.06       | 33.551 | 3.37       | 33.529 | 3.20       | 33.579 |            |        |
| 300m         |            |        | 3.12       | 33.585 | 3.08       | 33.589 | 3.03       | 33.585 | 3.18       | 33.590 |            |        | 3.11       | 33.649 | 3.10       | 33.609 |            |        |            |        |
| 400m         |            |        | 3.19       | 33.774 | 3.19       | 33.773 | 3.11       | 33.733 | 3.17       | 33.782 |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        | 3.44       | 33.966 | 3.45       | 33.967 | 3.43       | 33.946 |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-47



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HKD07      |        | HSR101     |        | HKG116     |        | HKG004     |        | HKG003     |        | HKG002     |        | HKG001     |        | HW002      |        | HW003      |        | HW004      |        |
| Latitude:N   | 41-52.0    |        | 41-40.0    |        | 41-58.0    |        | 42- 3.9    |        | 42- 4.5    |        | 42- 4.4    |        | 42- 4.3    |        | 41-29.9    |        | 41-39.9    |        | 41-50.0    |        |
| Longitude:E  | 141-35.2   |        | 140-40.0   |        | 141-10.4   |        | 141- 8.6   |        | 141- 4.0   |        | 140-56.9   |        | 140-52.0   |        | 139-55.0   |        | 139-55.0   |        | 140- 0.0   |        |
| Date         | 1997/10/02 |        | 1997/10/06 |        | 1997/10/13 |        | 1997/10/14 |        | 1997/10/14 |        | 1997/10/14 |        | 1997/10/14 |        | 1997/10/22 |        | 1997/10/22 |        | 1997/10/22 |        |
| Time(JST)    | 00:18      |        | 16:28      |        | 17:41      |        | 07:09      |        | 07:58      |        | 08:49      |        | 09:36      |        | 12:23      |        | 13:46      |        | 15:18      |        |
| Weather      | B          |        | BC         |        | C          |        | BC         |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 16.0       |        | 16.0       |        |            |        |            |        | 11.0       |        | 12.0       |        | 14.5       |        | 15.5       |        | 16.0       |        | 16.5       |        |
| Bar          | 1029.0     |        | 1020.5     |        | 1012.0     |        | 1014.0     |        | 1014.5     |        | 1014.5     |        | 1015.0     |        | 1016.5     |        | 1016.5     |        | 1016.5     |        |
| Wind Dir     | SSW        |        | N          |        | WNW        |        | W          |        | NW         |        | NW         |        | NW         |        | NW         |        | NW         |        | W          |        |
| Wind Spd/F   | S 4        |        | S 2        |        | S 6        |        | S 4        |        | S 4        |        | S 4        |        | S 5        |        | S 8        |        | S 8        |        | S 7        |        |
| Transparency |            |        |            |        |            |        | 12         |        | 13         |        | 12         |        | 14         |        | 14         |        | 15         |        | 13         |        |
| Depth        | 659        |        |            |        | 168        |        | 122        |        | 100        |        |            |        | 59         |        | 244        |        | 1200       |        | 970        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 100.0      | 33.00* | 20.3       | 33.61* | 14.9       | 33.36* | 14.4       | 33.161 | 14.6       | 32.796 | 15.2       | 32.835 | 14.3       | 32.288 | 17.5       | 32.153 | 17.2       | 33.681 | 16.8       | 33.791 |
| 10m          | 16.05      | 32.957 | 18.01      | 33.801 | 14.90      | 33.356 | 14.76      | 33.071 | 15.18      | 32.719 | 15.08      | 32.757 | 15.11      | 32.527 | 17.45      | 33.743 | 17.12      | 33.737 | 17.09      | 33.749 |
| 20m          | 15.79      | 32.925 | 17.86      | 33.977 | 15.01      | 33.463 | 14.43      | 33.113 | 15.34      | 32.868 | 15.09      | 32.760 | 15.14      | 32.547 | 16.83      | 33.783 | 16.37      | 33.901 | 16.67      | 33.807 |
| 30m          | 13.87      | 33.471 | 17.54      | 33.902 | 15.03      | 33.952 | 14.42      | 33.131 | 15.04      | 33.037 | 15.37      | 32.929 | 15.22      | 32.673 | 16.60      | 33.802 | 16.03      | 34.172 | 15.83      | 34.038 |
| 50m          | 9.68       | 33.437 | 14.38      | 34.103 | 11.06      | 34.168 | 13.16      | 34.034 | 11.29      | 33.903 | 9.75       | 33.325 | 10.42      | 33.286 | 14.27      | 34.389 | 12.40      | 34.421 | 12.69      | 34.361 |
| 75m          | 10.13      | 33.809 | 11.65      | 34.231 | 9.09       | 33.979 | 8.55       | 33.678 | 7.58       | 33.702 | 4.49       | 33.610 |            |        | 11.89      | 34.363 | 9.90       | 34.313 | 10.72      | 34.324 |
| 100m         | 9.86       | 33.937 | 10.35      | 34.247 | 5.75       | 33.618 | 7.00       | 33.617 |            |        |            |        |            |        | 7.76       | 34.239 | 7.94       | 34.236 | 8.86       | 34.264 |
| 125m         | 8.87       | 33.936 |            |        | 4.79       | 33.554 |            |        |            |        |            |        |            |        | 4.09       | 34.155 | 5.45       | 34.157 | 6.51       | 34.186 |
| 150m         | 7.19       | 33.757 |            |        | 4.18       | 33.596 |            |        |            |        |            |        |            |        | 2.01       | 34.089 | 3.95       | 34.113 | 4.70       | 34.140 |
| 200m         | 4.71       | 33.547 |            |        |            |        |            |        |            |        |            |        |            |        | 1.56       | 34.077 | 1.97       | 34.083 | 1.75       | 34.091 |
| 250m         | 3.55       | 33.510 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.39       | 34.076 | 1.35       | 34.078 |
| 300m         | 3.11       | 33.549 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 1.05       | 34.073 | 1.04       | 34.075 |
| 400m         | 3.16       | 33.734 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.71       | 34.070 | 0.70       | 34.070 |
| 500m         | 3.36       | 33.886 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.49       | 34.068 | 0.45       | 34.067 |
| 600m         | 3.47       | 34.059 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.35       | 34.066 | 0.37       | 34.067 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-48

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199711     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HW005      |        | HW006      |        | HW007      |        | HW008      |        | HW009      |        | HW010      |        | HW011      |        | HW012      |        | HW001      |        | HFS15      |        |
| Latitude:N   | 41-59.9    |        | 42- 0.0    |        | 41-50.0    |        | 41-50.2    |        | 41-40.1    |        | 41-30.0    |        | 41-30.0    |        | 41-20.0    |        | 41-20.0    |        | 42-15.1    |        |
| Longitude:E  | 140- 0.1   |        | 139-40.1   |        | 139-30.0   |        | 139-44.9   |        | 139-39.9   |        | 139-30.0   |        | 139-40.0   |        | 139-40.0   |        | 139-55.1   |        | 140-59.9   |        |
| Date         | 1997/10/22 |        | 1997/10/22 |        | 1997/10/22 |        | 1997/10/22 |        | 1997/10/22 |        | 1997/10/23 |        | 1997/10/23 |        | 1997/10/23 |        | 1997/10/23 |        | 1997/11/05 |        |
| Time(JST)    | 16:48      |        | 18:42      |        | 20:18      |        | 21:50      |        | 23:24      |        | 01:10      |        | 02:14      |        | 03:40      |        | 05:03      |        | 08:24      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        |            |        |
| Air Temp.    | 14.0       |        | 13.0       |        | 12.0       |        | 11.5       |        | 12.0       |        | 12.0       |        | 12.0       |        | 12.0       |        | 12.0       |        |            |        |
| Bar          | 1016.5     |        | 1017.5     |        | 1018.0     |        | 1018.0     |        | 1017.5     |        | 1017.0     |        | 1017.0     |        | 1017.0     |        | 1017.0     |        |            |        |
| Wind Dir     | W          |        | W          |        | W          |        | W          |        | W          |        | W          |        | W          |        | W          |        | W          |        |            |        |
| Wind Spd/F   | S 7        |        | F 4        |        | F 3        |        | F 3        |        | S 5        |        | S 2        |        | S 4        |        | S 3        |        | S 3        |        |            |        |
| Transparency | 12         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 700        |        | 900        |        | 652        |        | 1000       |        | 1000       |        | 1000       |        | 1000       |        | 533        |        | 130        |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.6       | 33.765 | 16.1       | 32.741 | 16.2       | 32.823 | 16.2       | 33.830 | 16.9       | 33.859 | 15.1       | 33.785 | 15.5       | 32.954 | 16.9       | 33.616 | 18.2       | 33.628 | 10.9       | 33.09* |
| 10m          | 17.10      | 33.713 | 16.25      | 33.805 | 16.24      | 33.825 | 16.31      | 33.904 | 16.32      | 33.860 | 15.32      | 33.773 | 15.69      | 33.830 | 17.15      | 33.665 | 18.79      | 33.604 | 10.87      | 33.202 |
| 20m          | 17.08      | 33.716 | 16.25      | 33.805 | 16.23      | 33.826 | 15.78      | 33.881 | 15.85      | 33.881 | 15.32      | 33.773 | 15.53      | 33.884 | 16.99      | 34.032 | 17.74      | 33.572 | 10.46      | 33.313 |
| 30m          | 16.94      | 33.761 | 16.25      | 33.808 | 15.95      | 33.932 | 15.57      | 33.855 | 15.83      | 33.883 | 15.32      | 33.772 | 15.51      | 33.887 | 15.56      | 34.180 | 17.40      | 33.682 | 10.29      | 33.341 |
| 50m          | 15.83      | 34.092 | 14.95      | 34.277 | 11.71      | 34.295 | 13.98      | 34.249 | 13.62      | 34.378 | 9.71       | 34.244 | 12.90      | 34.387 | 12.41      | 34.381 | 16.72      | 33.851 | 8.34       | 33.312 |
| 75m          | 11.05      | 34.343 | 12.05      | 34.359 | 7.88       | 34.239 | 10.07      | 34.314 | 10.37      | 34.298 | 6.16       | 34.169 | 10.95      | 34.342 | 11.56      | 34.365 | 14.55      | 34.271 |            |        |
| 100m         | 8.60       | 34.269 | 8.49       | 34.261 | 6.19       | 34.180 | 7.62       | 34.213 | 7.97       | 34.235 | 4.40       | 34.132 | 6.80       | 34.203 | 8.60       | 34.248 | 9.50       | 34.310 |            |        |
| 125m         | 6.20       | 34.180 | 6.01       | 34.170 | 4.87       | 34.131 | 5.41       | 34.143 | 5.83       | 34.159 | 3.03       | 34.101 | 4.82       | 34.134 | 6.06       | 34.171 | 4.35       | 34.148 |            |        |
| 150m         | 4.62       | 34.133 | 4.31       | 34.130 | 3.19       | 34.094 | 4.56       | 34.119 | 3.97       | 34.112 | 2.20       | 34.085 | 4.00       | 34.110 | 3.79       | 34.115 |            |        |            |        |
| 200m         | 2.67       | 34.090 | 2.28       | 34.087 | 1.96       | 34.080 | 2.65       | 34.086 | 2.46       | 34.081 | 1.49       | 34.077 | 2.59       | 34.085 | 2.29       | 34.081 |            |        |            |        |
| 250m         | 1.58       | 34.081 | 1.59       | 34.080 | 1.24       | 34.076 | 1.68       | 34.079 | 1.57       | 34.077 | 1.12       | 34.074 | 1.69       | 34.077 | 1.29       | 34.075 |            |        |            |        |
| 300m         | 1.16       | 34.078 | 1.20       | 34.079 | 0.88       | 34.074 | 1.21       | 34.077 | 1.18       | 34.077 | 0.92       | 34.072 | 1.18       | 34.074 | 1.02       | 34.073 |            |        |            |        |
| 400m         | 0.78       | 34.071 | 0.73       | 34.070 | 0.63       | 34.070 | 0.83       | 34.073 | 0.79       | 34.071 | 0.63       | 34.069 | 0.77       | 34.071 | 0.72       | 34.069 |            |        |            |        |
| 500m         | 0.54       | 34.068 | 0.51       | 34.069 | 0.45       | 34.067 | 0.58       | 34.069 | 0.50       | 34.068 | 0.44       | 34.067 | 0.51       | 34.068 | 0.54       | 34.068 |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-49

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS16      |        | HFS17      |        | HFS18      |        | HFS19      |        | HFS20      |        | HFS21      |        | HFS22      |        | HFS23      |        | HFS24      |        | HFS25      |        |  |
| Latitude:N   | 42-10.1    |        | 42- 7.6    |        | 42- 8.5    |        | 42-10.8    |        | 42-13.2    |        | 42-15.5    |        | 42-18.0    |        | 42-24.9    |        | 42-20.0    |        | 42-15.2    |        |  |
| Longitude:E  | 140-55.0   |        | 140-52.5   |        | 140-44.2   |        | 140-46.8   |        | 140-49.7   |        | 140-52.7   |        | 140-55.7   |        | 140-50.0   |        | 140-44.9   |        | 140-39.9   |        |  |
| Date         | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        |  |
| Time(JST)    | 09:10      |        | 09:37      |        | 10:23      |        | 10:47      |        | 11:14      |        | 11:41      |        | 12:08      |        | 13:05      |        | 13:47      |        | 14:32      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 11.2       | 33.26* | 11.5       | 32.93* | 11.5       | 32.81* | 11.6       | 32.82* | 11.1       | 33.26* | 11.1       | 33.04* | 11.2       | 32.98* | 10.8       | 33.08* | 11.9       | 32.80* | 11.1       | 32.83* |  |
| 10m          | 11.09      | 33.268 | 10.69      | 33.195 | 11.45      | 32.906 | 11.44      | 32.837 | 11.09      | 33.262 | 11.05      | 33.169 | 10.92      | 33.214 | 10.75      | 33.124 | 11.91      | 32.826 | 11.16      | 32.881 |  |
| 20m          | 10.93      | 33.254 | 10.59      | 33.201 | 9.32       | 33.371 | 10.06      | 33.359 | 11.03      | 33.262 | 10.70      | 33.355 | 10.46      | 33.301 | 10.45      | 33.434 | 11.75      | 32.867 | 10.90      | 33.199 |  |
| 30m          | 10.93      | 33.327 | 10.16      | 33.524 | 8.84       | 33.428 | 9.20       | 33.464 | 10.70      | 33.283 | 10.05      | 33.431 | 10.13      | 33.363 | 10.32      | 33.553 | 10.99      | 33.291 | 9.69       | 33.405 |  |
| 50m          | 8.45       | 33.411 | 8.93       | 33.548 |            |        | 8.82       | 33.660 | 8.65       | 33.466 | 9.31       | 33.421 | 9.27       | 33.457 |            |        | 9.78       | 33.647 | 7.90       | 33.610 |  |
| 75m          |            |        | 6.44       | 33.601 |            |        | 6.74       | 33.613 |            |        |            |        |            |        |            |        |            |        | 5.75       | 33.629 |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-50

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS26      |        | HFS27      |        | HFS28      |        | HFS29      |        | HFS30      |        | HFS31      |        | HFS32      |        | HFS33      |        | HFS34      |        | HFS36      |        |  |
| Latitude:N   | 42- 9.9    |        | 42-15.0    |        | 42-17.5    |        | 42-20.0    |        | 42-22.5    |        | 42-24.9    |        | 42-27.4    |        | 42-29.9    |        | 42-25.0    |        | 42-17.5    |        |  |
| Longitude:E  | 140-35.0   |        | 140-30.0   |        | 140-32.5   |        | 140-35.0   |        | 140-37.5   |        | 140-40.0   |        | 140-42.5   |        | 140-34.9   |        | 140-30.0   |        | 140-25.0   |        |  |
| Date         | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        |  |
| Time(JST)    | 15:20      |        | 16:09      |        | 16:37      |        | 17:04      |        | 18:23      |        | 18:48      |        | 19:14      |        | 19:59      |        | 20:44      |        | 21:42      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 11.3       | 32.77* | 11.6       | 32.76* | 11.3       | 32.98* | 11.0       | 33.03* | 11.3       | 32.85* | 12.0       | 32.82* | 11.6       | 32.86* | 11.6       | 32.83* | 11.3       | 32.90* | 11.4       | 32.78* |  |
| 10m          | 11.39      | 32.809 | 11.59      | 32.841 | 11.09      | 33.083 | 10.92      | 33.159 | 11.84      | 32.857 | 11.97      | 32.824 | 11.60      | 32.872 | 11.55      | 32.879 | 11.24      | 32.965 | 11.17      | 32.884 |  |
| 20m          | 10.21      | 33.426 | 9.72       | 33.481 | 10.79      | 33.254 | 10.40      | 33.270 | 11.61      | 33.043 | 11.81      | 32.847 | 11.26      | 33.034 | 11.15      | 33.036 | 10.98      | 33.195 | 10.33      | 33.040 |  |
| 30m          | 9.58       | 33.548 | 9.48       | 33.638 | 9.12       | 33.410 | 9.29       | 33.447 | 10.61      | 33.221 | 11.19      | 33.088 | 10.93      | 33.194 | 10.78      | 33.207 | 10.72      | 33.314 | 9.61       | 33.484 |  |
| 50m          | 9.13       | 33.654 | 8.62       | 33.682 | 7.80       | 33.664 | 8.41       | 33.703 | 9.57       | 33.536 | 9.61       | 33.661 | 9.64       | 33.650 | 8.34       | 33.591 | 8.82       | 33.678 | 9.17       | 33.662 |  |
| 75m          |            |        | 7.53       | 33.646 | 6.08       | 33.634 | 7.22       | 33.675 | 7.32       | 33.684 |            |        |            |        |            |        | 5.61       | 33.629 |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-51

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HFS35      |        | HFS37      |        | HFS38      |        | HSR011     |        | HSR012     |        | HSR013     |        | HSR014     |        | HSR015     |        | HSR016     |        | HSR017     |        |
| Latitude:N   | 42-20.0    |        | 42-24.9    |        | 42-30.0    |        | 41-53.1    |        | 41-51.2    |        | 41-50.7    |        | 41-44.4    |        | 41-51.9    |        | 41-44.8    |        | 41-44.7    |        |
| Longitude:E  | 140-25.0   |        | 140-24.9   |        | 140-29.9   |        | 141- 7.0   |        | 141-12.1   |        | 141- 9.5   |        | 140-44.3   |        | 141- 7.9   |        | 140-40.8   |        | 140-41.6   |        |
| Date         | 1997/11/05 |        | 1997/11/05 |        | 1997/11/05 |        | 1997/11/10 |        | 1997/11/11 |        | 1997/11/11 |        | 1997/11/13 |        | 1997/11/19 |        | 1997/11/20 |        | 1997/11/20 |        |
| Time(JST)    | 22:05      |        | 22:45      |        | 23:33      |        | 17:24      |        | 10:03      |        | 14:12      |        | 15:21      |        | 19:22      |        | 05:40      |        | 14:29      |        |
| Weather      |            |        |            |        |            |        |            |        | BC         |        | B          |        | B          |        | BC         |        | C          |        | C          |        |
| Air Temp.    |            |        |            |        |            |        |            |        | 14.0       |        | 14.0       |        |            |        | 6.0        |        | 11.0       |        | 12.0       |        |
| Bar          |            |        |            |        |            |        |            |        | 1025.0     |        | 1023.5     |        | 1022.0     |        | 1032.5     |        | 1034.0     |        | 1032.5     |        |
| Wind Dir     |            |        |            |        |            |        | CALM       |        | W          |        | N          |        | E          |        | SW         |        | NNW        |        | NW         |        |
| Wind Spd/F   |            |        |            |        |            |        | S 0        |        | S 1        |        | S 2        |        | S 5        |        | S 1        |        | S 2        |        | S 1        |        |
| Transparency |            |        |            |        |            |        |            |        | 10         |        | 12         |        | 14         |        |            |        |            |        | 10         |        |
| Depth        |            |        |            |        |            |        |            |        | 173        |        | 30         |        | 28         |        | 34         |        | 50         |        | 29         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 11.4       | 32.72* | 11.4       | 32.81* | 11.6       | 32.83* | 10.6       | 33.089 | 10.2       | 33.060 | 10.5       | 33.054 | 15.1       | 33.723 | 9.5        | 33.188 | 13.9       | 33.622 | 14.6       | 33.139 |
| 10m          | 11.17      | 32.876 | 11.44      | 32.812 | 11.60      | 32.833 | 10.48      | 33.079 | 9.90       | 33.110 | 10.09      | 33.155 | 15.24      | 33.835 | 9.78       | 33.145 | 14.93      | 33.772 | 14.78      | 33.694 |
| 20m          | 10.80      | 33.235 | 10.21      | 33.418 | 11.47      | 32.954 | 10.07      | 33.171 | 9.91       | 33.138 | 10.00      | 33.181 | 15.24      | 33.857 | 9.69       | 33.194 | 14.94      | 33.781 | 14.75      | 33.721 |
| 30m          | 9.25       | 33.428 | 10.00      | 33.588 | 9.55       | 33.407 | 9.98       | 33.202 | 9.89       | 33.175 |            |        |            |        | 9.53       | 33.215 | 14.93      | 33.867 |            |        |
| 50m          | 8.82       | 33.683 | 9.50       | 33.657 | 7.96       | 33.634 | 9.83       | 33.233 | 9.82       | 33.213 |            |        |            |        |            |        |            |        |            |        |
| 75m          |            |        |            |        |            |        | 5.58       | 33.234 | 7.51       | 33.213 |            |        |            |        |            |        |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        | 5.38       | 33.187 |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        | 4.57       | 33.253 |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        | 3.98       | 33.308 |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-52

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P55        |        | P54        |        | P53        |        | P52        |        | P51        |        | P61        |        | P62        |        | P63        |        | HLF1       |        | P64        |        |
| Latitude:N   | 41-29.9    |        | 41-40.0    |        | 41-50.1    |        | 42- 0.0    |        | 42-10.0    |        | 42-20.0    |        | 42-10.1    |        | 42- 0.1    |        | 41-55.1    |        | 41-50.1    |        |
| Longitude:E  | 141-50.0   |        | 142- 0.0   |        | 142- 9.8   |        | 142-19.9   |        | 142-29.9   |        | 141-20.0   |        | 141-19.9   |        | 141-20.0   |        | 141-31.7   |        | 141-20.0   |        |
| Date         | 1997/11/25 |        | 1997/11/25 |        | 1997/11/25 |        | 1997/11/25 |        | 1997/11/26 |        | 1997/11/26 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/28 |        | 1997/11/28 |        |
| Time(JST)    | 16:20      |        | 18:34      |        | 20:44      |        | 22:56      |        | 01:06      |        | 06:58      |        | 08:49      |        | 10:06      |        | 11:23      |        | 13:14      |        |
| Weather      | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | BC         |        | C          |        | BC         |        |
| Air Temp.    | 14.0       |        | 11.0       |        | 12.0       |        | 11.0       |        | 11.0       |        | 10.5       |        | 6.0        |        | 6.0        |        | 6.0        |        | 7.0        |        |
| Bar          | 1031.5     |        | 1031.0     |        | 1031.0     |        | 1030.0     |        | 1029.0     |        | 1022.0     |        | 1035.0     |        | 1035.0     |        | 1035.0     |        | 1034.0     |        |
| Wind Dir     | SE         |        | ESE        |        | SE         |        | SE         |        | SE         |        | ESE        |        | NE         |        | NNE        |        | N          |        | NE         |        |
| Wind Spd/F   | S 5        |        | S 5        |        | S 6        |        | S 6        |        | S 5        |        | S 5        |        | S 5        |        | S 4        |        | S 2        |        | S 2        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        | 18         |        | 16         |        | 17         |        | 19         |        |
| Depth        | 869        |        | 1000       |        | 1080       |        | 1006       |        | 122        |        | 246        |        | 360        |        | 311        |        | 540        |        | 285        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.4       | 33.823 | 10.3       | 32.461 | 11.9       | 32.253 | 11.8       | 32.292 | 11.1       | 33.358 | 8.8        | 33.104 | 9.6        | 32.599 | 9.0        | 33.224 | 9.1        | 32.675 | 9.1        | 33.197 |
| 10m          | 13.08      | 33.797 | 10.28      | 33.258 | 11.92      | 33.525 | 11.89      | 33.514 | 11.17      | 33.438 | 8.65       | 33.072 | 9.47       | 33.311 | 9.16       | 33.246 | 9.09       | 33.200 | 9.05       | 33.222 |
| 20m          | 11.91      | 33.708 | 10.21      | 33.272 | 11.87      | 33.515 | 11.12      | 33.440 | 11.17      | 33.442 | 8.65       | 33.072 | 9.46       | 33.309 | 9.16       | 33.249 | 9.18       | 33.227 | 9.04       | 33.222 |
| 30m          | 9.91       | 33.445 | 10.18      | 33.281 | 9.88       | 33.323 | 9.49       | 33.270 | 10.13      | 33.479 | 8.65       | 33.073 | 9.46       | 33.310 | 9.19       | 33.254 | 9.29       | 33.272 | 9.04       | 33.221 |
| 50m          | 9.65       | 33.396 | 10.02      | 33.371 | 8.98       | 33.348 | 9.45       | 33.295 | 9.71       | 33.344 | 8.63       | 33.069 | 9.49       | 33.318 | 9.05       | 33.246 | 8.70       | 33.345 | 9.04       | 33.221 |
| 75m          | 9.43       | 33.373 | 8.90       | 33.808 | 5.29       | 33.221 | 6.50       | 33.237 | 9.69       | 33.308 | 8.48       | 33.103 | 6.07       | 33.375 | 8.01       | 33.287 | 7.13       | 33.355 | 9.04       | 33.222 |
| 100m         | 7.57       | 33.579 | 6.05       | 33.500 | 4.88       | 33.338 | 5.13       | 33.236 | 7.80       | 33.320 | 7.47       | 33.282 | 5.23       | 33.344 | 6.10       | 33.253 | 6.08       | 33.430 | 8.46       | 33.476 |
| 125m         | 5.76       | 33.432 | 5.69       | 33.580 | 4.17       | 33.373 | 4.75       | 33.331 |            |        | 6.34       | 33.369 | 5.24       | 33.471 | 5.56       | 33.249 | 5.76       | 33.494 | 5.77       | 33.350 |
| 150m         | 6.34       | 33.630 | 5.12       | 33.558 | 3.25       | 33.339 | 4.15       | 33.355 |            |        | 7.69       | 33.722 | 4.34       | 33.419 | 5.40       | 33.372 | 5.06       | 33.517 | 5.62       | 33.555 |
| 200m         | 4.11       | 33.481 | 4.31       | 33.531 | 3.19       | 33.399 | 3.77       | 33.391 |            |        | 4.65       | 33.509 | 4.51       | 33.516 | 4.42       | 33.539 | 3.95       | 33.465 | 4.51       | 33.543 |
| 250m         | 3.75       | 33.510 | 3.19       | 33.485 | 2.75       | 33.397 | 3.36       | 33.394 |            |        |            |        | 3.11       | 33.431 | 3.14       | 33.474 | 3.17       | 33.457 | 3.47       | 33.458 |
| 300m         | 3.04       | 33.483 | 3.00       | 33.566 | 2.74       | 33.478 | 3.52       | 33.467 |            |        |            |        | 2.88       | 33.479 | 3.15       | 33.488 | 3.27       | 33.601 |            |        |
| 400m         | 3.14       | 33.656 | 3.33       | 33.799 | 3.13       | 33.690 | 2.79       | 33.570 |            |        |            |        |            |        |            |        | 3.32       | 33.785 |            |        |
| 500m         | 3.33       | 33.873 | 3.44       | 33.973 | 3.36       | 33.889 | 3.14       | 33.788 |            |        |            |        |            |        |            |        | 3.43       | 33.969 |            |        |
| 600m         | 3.45       | 34.045 | 3.43       | 34.099 | 3.47       | 34.031 | 3.46       | 34.017 |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-53

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P65        |        | PH01       |        | 04H16      |        | HAP07      |        | HAP06      |        | HAP05      |        | HAP04      |        | HAP03      |        | HAP02      |        | HAP01      |        |
| Latitude:N   | 41-40.0    |        | 41-39.4    |        | 41-39.9    |        | 41-23.2    |        | 41-20.7    |        | 41-18.3    |        | 41-15.8    |        | 41-13.4    |        | 41-10.8    |        | 41- 8.5    |        |
| Longitude:E  | 141-20.1   |        | 140-39.6   |        | 140-40.0   |        | 140-10.6   |        | 140-11.0   |        | 140-11.7   |        | 140-12.4   |        | 140-13.0   |        | 140-13.5   |        | 140-14.3   |        |
| Date         | 1997/11/28 |        | 1997/12/01 |        | 1997/12/04 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/14 |        | 1997/12/14 |        |
| Time(JST)    | 14:28      |        | 17:15      |        | 17:20      |        | 14:59      |        | 15:31      |        | 16:01      |        | 16:31      |        | 17:02      |        | 17:33      |        | 18:03      |        |
| Weather      | R          |        | S          |        | C          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    | 8.0        |        | 1.0        |        | 3.0        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Bar          | 1035.0     |        | 1023.0     |        | 1032.0     |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     | SE         |        | NW         |        | W          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 3        |        | S 6        |        | S 6        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 232        |        | 113        |        | 119        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.0       | 33.659 | 13.8       | 32.453 | 13.8       | 33.86* | 14.0       | 33.74* | 14.2       | 33.70* | 14.6       | 33.63* | 14.7       | 33.57* | 14.7       | 33.58* | 14.5       | 33.58* | 13.8       | 33.44* |
| 10m          | 13.21      | 33.926 | 14.70      | 33.864 | 13.98      | 33.861 | 13.98      | 33.750 | 14.17      | 33.697 | 14.58      | 33.630 | 14.72      | 33.570 | 14.68      | 33.572 | 14.52      | 33.581 | 13.77      | 33.445 |
| 20m          | 13.23      | 33.931 | 14.50      | 33.900 | 13.89      | 33.887 | 13.94      | 33.766 | 14.16      | 33.697 | 14.57      | 33.629 | 14.73      | 33.570 | 14.68      | 33.571 | 14.54      | 33.586 | 13.75      | 33.504 |
| 30m          | 13.13      | 33.931 | 14.31      | 33.923 | 13.73      | 33.916 | 13.94      | 33.768 | 14.17      | 33.696 | 14.57      | 33.630 | 14.72      | 33.570 | 14.69      | 33.573 | 14.55      | 33.588 | 13.72      | 33.501 |
| 50m          | 13.01      | 33.924 | 12.65      | 34.067 | 13.26      | 33.947 |            |        | 14.18      | 33.698 | 14.56      | 33.629 | 14.74      | 33.571 | 14.70      | 33.577 | 14.29      | 33.529 | 13.87      | 33.574 |
| 75m          | 12.71      | 33.919 | 12.01      | 34.093 | 13.06      | 33.995 |            |        | 13.86      | 33.860 | 14.25      | 33.712 | 14.31      | 33.553 | 14.75      | 33.604 | 13.54      | 33.393 |            |        |
| 100m         | 11.20      | 33.923 | 11.96      | 34.111 | 12.25      | 34.089 |            |        | 13.36      | 33.946 | 14.22      | 33.837 | 14.06      | 33.610 | 14.58      | 33.588 |            |        |            |        |
| 125m         | 7.44       | 33.715 |            |        |            |        |            |        |            |        | 12.78      | 34.019 | 13.70      | 34.071 |            |        |            |        |            |        |
| 150m         | 5.80       | 33.689 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         | 3.42       | 33.541 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-54

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | H01        |        | P64        |        | P65        |        | P66        |        | P56-1      |        | P55-1      |        | P56-2      |        | P55-2      |        | P54        |        | P53        |        |
| Latitude:N   | 41-40.0    |        | 41-50.0    |        | 41-39.8    |        | 41-30.0    |        | 41-19.7    |        | 41-29.9    |        | 41-19.9    |        | 41-30.0    |        | 41-39.9    |        | 41-50.1    |        |
| Longitude:E  | 140-40.0   |        | 141-20.0   |        | 141-20.1   |        | 141-20.1   |        | 141-40.1   |        | 141-50.2   |        | 141-40.8   |        | 141-49.9   |        | 141-59.8   |        | 142- 9.8   |        |
| Date         | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/18 |        | 1998/02/18 |        | 1998/02/22 |        | 1998/02/22 |        | 1998/02/22 |        | 1998/02/22 |        |
| Time(JST)    | 16:04      |        | 19:27      |        | 20:55      |        | 22:15      |        | 00:20      |        | 02:40      |        | 17:59      |        | 19:41      |        | 21:29      |        | 23:45      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | S          |        | C          |        | BC         |        | C          |        | B          |        | B          |        |
| Air Temp.    | 0.0        |        | -1.5       |        | -2.0       |        | -2.0       |        | -1.0       |        | -2.5       |        | 2.0        |        | -1.5       |        | 1.5        |        | 0.0        |        |
| Bar          | 1024.0     |        | 1026.5     |        | 1026.5     |        | 1028.0     |        | 1029.0     |        | 1031.0     |        | 1028.5     |        | 1028.5     |        | 1028.0     |        | 1026.5     |        |
| Wind Dir     | NW         |        | NNW        |        | NW         |        | NW         |        | NW         |        | N          |        | NW         |        | NW         |        | NW         |        | NW         |        |
| Wind Spd/F   | S 7        |        | S 10       |        | S 8        |        | S 7        |        | S 8        |        | S 8        |        | S 4        |        | S 5        |        | S 4        |        | S 5        |        |
| Transparency | 15         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 120        |        | 287        |        | 232        |        | 234        |        | 760        |        | 950        |        | 777        |        | 945        |        | 1052       |        | 1086       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.2        | 34.045 | 1.9        | 33.006 | 1.8        | 32.983 | 7.9        | 33.964 | 7.6        | 34.046 | 4.5        | 33.488 | 6.5        | 34.057 | 4.0        | 33.544 | 4.2        | 33.456 | 1.8        | 33.34* |
| 10m          | 8.28       | 34.034 | 2.26       | 32.978 | 1.99       | 32.951 | 8.79       | 34.008 | 8.43       | 33.993 | 4.67       | 33.395 | 6.95       | 33.854 | 4.21       | 33.365 | 4.43       | 33.404 | 1.89       | 33.040 |
| 20m          | 8.25       | 34.032 | 2.28       | 32.979 | 3.36       | 33.144 | 8.80       | 34.008 | 8.17       | 33.951 | 4.68       | 33.399 | 6.96       | 33.854 | 4.21       | 33.365 | 4.44       | 33.405 | 1.89       | 33.040 |
| 30m          | 8.24       | 34.031 | 2.37       | 32.993 | 5.95       | 33.552 | 8.79       | 34.009 | 7.83       | 33.903 | 4.68       | 33.400 | 6.95       | 33.853 | 4.22       | 33.366 | 4.45       | 33.404 | 1.89       | 33.039 |
| 50m          | 8.22       | 34.052 | 3.81       | 33.162 | 6.25       | 33.614 | 8.81       | 34.009 | 7.58       | 33.859 | 4.67       | 33.402 | 6.94       | 33.851 | 4.43       | 33.392 | 4.47       | 33.407 | 1.89       | 33.040 |
| 75m          | 8.05       | 34.033 | 3.65       | 33.154 | 6.22       | 33.616 | 8.82       | 34.007 | 7.34       | 33.817 | 4.68       | 33.400 | 6.96       | 33.854 | 4.55       | 33.415 | 4.45       | 33.404 | 5.06       | 33.478 |
| 100m         | 8.04       | 34.064 | 3.62       | 33.151 | 6.27       | 33.626 | 8.81       | 34.007 | 7.46       | 33.833 | 4.68       | 33.403 | 7.04       | 33.869 | 4.71       | 33.439 | 4.41       | 33.399 | 5.52       | 33.555 |
| 125m         |            |        | 3.85       | 33.180 | 6.25       | 33.622 | 8.80       | 34.008 | 7.05       | 33.766 | 4.69       | 33.401 | 7.02       | 33.866 | 4.82       | 33.457 | 4.40       | 33.397 | 5.10       | 33.503 |
| 150m         |            |        | 3.80       | 33.193 | 6.19       | 33.615 | 8.82       | 34.006 | 6.96       | 33.750 | 4.69       | 33.401 | 7.11       | 33.881 | 4.83       | 33.458 | 4.42       | 33.400 | 4.55       | 33.432 |
| 200m         |            |        | 5.00       | 33.422 | 6.09       | 33.605 | 8.79       | 34.009 | 6.93       | 33.743 | 4.60       | 33.604 | 7.10       | 33.881 | 5.05       | 33.507 | 4.60       | 33.492 | 3.99       | 33.368 |
| 250m         |            |        | 4.68       | 33.528 |            |        |            |        | 6.88       | 33.734 | 3.85       | 33.565 | 7.13       | 33.888 | 5.17       | 33.668 | 3.98       | 33.529 |            |        |
| 300m         |            |        |            |        |            |        |            |        | 6.61       | 33.707 | 3.51       | 33.599 | 7.35       | 33.951 | 3.09       | 33.503 | 3.41       | 33.552 |            |        |
| 400m         |            |        |            |        |            |        |            |        | 3.32       | 33.674 | 3.24       | 33.701 | 3.33       | 33.611 | 3.62       | 33.727 | 3.45       | 33.773 |            |        |
| 500m         |            |        |            |        |            |        |            |        | 3.32       | 33.856 | 3.47       | 33.867 | 3.36       | 33.838 | 3.52       | 33.993 | 3.59       | 33.945 |            |        |
| 600m         |            |        |            |        |            |        |            |        | 3.44       | 34.022 | 3.58       | 34.056 | 3.48       | 34.048 | 3.52       | 34.099 | 3.50       | 34.067 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-55



Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P52        |        | P51        |        | P61        |        | P62        |        | P63        |        | HFS01      |        | HFS02      |        | HFS03      |        | HFS04      |        | HFS05      |        |
| Latitude:N   | 42- 0.0    |        | 42-10.0    |        | 42-19.9    |        | 42-10.0    |        | 42- 0.1    |        | 41-55.2    |        | 42- 0.0    |        | 42- 5.0    |        | 42- 9.9    |        | 42-14.9    |        |
| Longitude:E  | 142-19.9   |        | 142-29.9   |        | 141-20.0   |        | 141-20.0   |        | 141-20.0   |        | 141-10.4   |        | 141-14.9   |        | 141-19.9   |        | 141-25.1   |        | 141-19.9   |        |
| Date         | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        |
| Time(JST)    | 02:19      |        | 04:36      |        | 10:01      |        | 11:15      |        | 12:26      |        | 13:45      |        | 14:32      |        | 15:22      |        | 16:16      |        | 17:16      |        |
| Weather      | B          |        | B          |        | C          |        | C          |        | C          |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    | -0.5       |        | -1.5       |        | 4.0        |        | 4.0        |        | 2.5        |        |            |        |            |        |            |        |            |        |            |        |
| Bar          | 1026.5     |        | 1026.0     |        | 1024.5     |        | 1024.5     |        | 1024.0     |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     | WNW        |        | NW         |        | W          |        | W          |        | NW         |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 3        |        | S 4        |        | S 5        |        | S 7        |        | S 6        |        |            |        |            |        |            |        |            |        |            |        |
| Transparency |            |        |            |        | 18         |        | 17         |        | 16         |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 1004       |        | 125        |        | 251        |        | 365        |        | 312        |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 2.9        | 33.22* | -0.3       | 32.54* | 1.7        | 32.87* | 1.9        | 32.87* | 1.7        | 32.86* | 2.5        | 33.03* | 3.2        | 33.11* | 1.6        | 32.86* | 1.5        | 32.86* | 1.6        | 32.88* |
| 10m          | 3.61       | 33.275 | -0.14      | 32.606 | 1.56       | 32.872 | 1.60       | 32.866 | 1.46       | 32.857 | 2.52       | 33.025 | 3.21       | 33.109 | 1.64       | 32.861 | 1.52       | 32.860 | 1.59       | 32.877 |
| 20m          | 4.60       | 33.405 | -0.13      | 32.613 | 1.68       | 32.891 | 1.61       | 32.868 | 1.43       | 32.858 | 2.49       | 33.023 | 3.22       | 33.113 | 1.60       | 32.864 | 1.53       | 32.867 | 1.64       | 32.885 |
| 30m          | 4.75       | 33.429 | 0.00       | 32.568 | 1.73       | 32.897 | 1.67       | 32.876 | 1.46       | 32.862 | 2.53       | 33.025 | 3.23       | 33.114 | 1.58       | 32.864 | 1.75       | 32.901 | 1.78       | 32.902 |
| 50m          | 4.82       | 33.445 | 0.13       | 32.638 | 1.83       | 32.914 | 1.88       | 32.901 | 3.62       | 33.125 | 2.48       | 33.023 | 3.25       | 33.117 | 1.73       | 32.886 | 1.89       | 32.921 | 1.99       | 32.933 |
| 75m          | 5.04       | 33.477 | 0.16       | 32.658 | 1.94       | 32.931 | 2.02       | 32.927 | 3.87       | 33.170 | 2.84       | 33.067 | 3.26       | 33.118 | 1.91       | 32.916 | 2.30       | 32.967 | 2.00       | 32.937 |
| 100m         | 5.05       | 33.479 | 0.20       | 32.682 | 2.00       | 32.948 | 2.08       | 32.939 | 3.89       | 33.176 | 3.51       | 33.162 | 3.25       | 33.118 | 2.36       | 32.967 | 2.85       | 33.043 | 2.04       | 32.942 |
| 125m         | 5.28       | 33.512 |            |        | 2.07       | 32.957 | 2.09       | 32.944 | 3.90       | 33.178 | 3.21       | 33.176 | 3.42       | 33.139 | 3.08       | 33.073 | 3.73       | 33.165 | 2.11       | 32.956 |
| 150m         | 5.27       | 33.511 |            |        | 2.25       | 32.984 | 2.25       | 32.966 | 3.96       | 33.190 | 3.36       | 33.238 | 3.49       | 33.160 | 3.47       | 33.132 | 4.20       | 33.247 | 3.78       | 33.180 |
| 200m         | 5.48       | 33.545 |            |        | 2.64       | 33.059 | 4.32       | 33.299 | 4.50       | 33.305 |            |        | 3.96       | 33.251 | 4.18       | 33.252 | 4.40       | 33.341 | 3.03       | 33.160 |
| 250m         | 5.39       | 33.536 |            |        |            |        | 4.34       | 33.354 | 4.63       | 33.403 |            |        |            | 4.53   | 33.395     | 4.54   | 33.462     | 4.56   | 33.468     |        |
| 300m         | 5.53       | 33.601 |            |        |            |        | 4.29       | 33.396 | 4.45       | 33.448 |            |        |            | 4.51   | 33.448     | 4.08   | 33.506     | 4.34   | 33.508     |        |
| 400m         | 3.34       | 33.609 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.31       | 33.577 |            |        |
| 500m         | 3.40       | 33.814 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         | 3.49       | 33.993 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-56

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HFS06      |        | HFS07      |        | HFS08      |        | HFS09      |        | HFS10      |        | HFS11      |        | HFS12      |        | HFS13      |        | HFS14      |        | HFS15      |        |
| Latitude:N   | 42-10.1    |        | 42- 5.0    |        | 42- 0.1    |        | 41-57.5    |        | 42- 2.4    |        | 42- 4.8    |        | 42- 9.9    |        | 42-14.9    |        | 42-17.4    |        | 42-15.0    |        |
| Longitude:E  | 141-15.1   |        | 141-10.1   |        | 141- 5.0   |        | 141- 2.5   |        | 140-57.5   |        | 141- 0.0   |        | 141- 4.9   |        | 141-10.0   |        | 141- 4.9   |        | 140-59.9   |        |
| Date         | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/23 |        | 1998/02/24 |        |
| Time(JST)    | 18:07      |        | 18:55      |        | 19:41      |        | 20:08      |        | 20:57      |        | 21:26      |        | 22:15      |        | 23:04      |        | 23:39      |        | 00:12      |        |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 1.9        | 32.90* | 1.8        | 32.90* | 2.6        | 33.02* | 2.5        | 33.02* | 2.5        | 33.02* | 2.4        | 33.00* | 2.2        | 32.96* | 1.9        | 32.93* | 2.3        | 32.99* | 1.7        | 32.89* |
| 10m          | 1.90       | 32.895 | 1.82       | 32.900 | 2.63       | 33.027 | 2.47       | 33.024 | 2.52       | 33.021 | 2.51       | 33.010 | 2.20       | 32.960 | 1.98       | 32.929 | 2.31       | 32.990 | 1.74       | 32.893 |
| 20m          | 1.90       | 32.896 | 1.81       | 32.897 | 2.84       | 33.062 | 2.50       | 33.052 | 2.56       | 33.027 | 2.69       | 33.038 | 2.23       | 32.964 | 2.01       | 32.934 | 2.34       | 32.993 | 1.77       | 32.896 |
| 30m          | 1.90       | 32.896 | 2.06       | 32.944 | 3.01       | 33.093 | 2.84       | 33.098 | 2.67       | 33.042 | 2.72       | 33.046 | 2.25       | 32.968 | 2.01       | 32.937 | 2.35       | 32.994 | 1.87       | 32.911 |
| 50m          | 1.88       | 32.896 | 3.14       | 33.083 | 3.32       | 33.136 | 3.25       | 33.194 | 3.19       | 33.242 | 3.14       | 33.108 | 2.41       | 32.995 | 2.11       | 32.953 | 2.42       | 33.013 | 2.43       | 32.999 |
| 75m          | 1.88       | 32.905 | 3.26       | 33.114 | 3.52       | 33.176 | 3.30       | 33.251 | 3.27       | 33.333 | 3.31       | 33.251 | 2.79       | 33.061 | 2.17       | 32.968 |            |        |            |        |
| 100m         | 1.90       | 32.910 | 3.32       | 33.127 | 3.16       | 33.195 | 3.25       | 33.289 |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         | 2.32       | 32.971 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         | 2.62       | 33.032 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         | 2.63       | 33.036 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-57

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | HFS16      |        | HFS17      |        | HKG000     |        | HKG003     |        | HKG002     |        | HKG001     |        | HFS18      |        | HFS19      |        | HFS20      |        | HFS21      |        |
| Latitude:N   | 42-10.0    |        | 42- 7.5    |        | 42- 4.6    |        | 42- 4.9    |        | 42- 4.2    |        | 42- 4.9    |        | 42- 8.4    |        | 42-10.8    |        | 42-13.3    |        | 42-15.6    |        |
| Longitude:E  | 140-55.0   |        | 140-52.4   |        | 141- 8.4   |        | 141- 4.5   |        | 140-56.0   |        | 140-53.7   |        | 140-43.7   |        | 140-46.8   |        | 140-49.8   |        | 140-52.8   |        |
| Date         | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        |
| Time(JST)    | 00:56      |        | 01:24      |        | 06:57      |        | 07:36      |        | 08:26      |        | 08:58      |        | 10:05      |        | 10:31      |        | 10:58      |        | 11:24      |        |
| Weather      | D          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    | 0.0        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Bar          | 1028.5     |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     | NE         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 3        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Transparency | 12         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 123        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 2.4        | 33.01* | 2.1        | 32.95* | 1.6        | 32.915 | 1.9        | 32.970 | 2.4        | 33.012 | 2.4        | 33.060 | 2.8        | 33.17* | 2.7        | 33.10* | 2.6        | 33.06* | 2.0        | 32.94* |
| 10m          | 2.41       | 33.011 | 2.08       | 32.951 | 1.63       | 32.837 | 2.23       | 32.970 | 2.38       | 33.006 | 2.46       | 33.086 | 3.10       | 33.284 | 2.69       | 33.098 | 2.58       | 33.065 | 2.00       | 32.943 |
| 20m          | 2.40       | 33.011 | 2.10       | 32.954 | 1.64       | 32.838 | 2.30       | 32.983 | 2.44       | 33.014 | 2.66       | 33.133 | 3.12       | 33.295 | 2.94       | 33.202 | 2.59       | 33.066 | 2.01       | 32.948 |
| 30m          | 2.56       | 33.030 | 2.86       | 33.148 | 1.61       | 32.837 | 2.66       | 33.029 | 2.52       | 33.039 | 3.04       | 33.278 | 3.18       | 33.313 | 2.99       | 33.228 | 2.61       | 33.069 | 2.48       | 33.023 |
| 50m          | 2.58       | 33.034 | 3.24       | 33.310 | 2.02       | 32.887 | 3.11       | 33.098 | 3.11       | 33.254 | 3.23       | 33.329 |            |        | 2.97       | 33.249 | 3.17       | 33.179 | 3.09       | 33.133 |
| 75m          |            |        | 3.23       | 33.335 | 2.45       | 32.949 | 3.08       | 33.100 | 3.22       | 33.329 |            |        |            |        | 3.38       | 33.325 |            |        |            |        |
| 100m         |            |        |            |        | 3.06       | 33.050 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 4-58

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | HFS22      |        | HFS23      |        | HFS24      |        | HFS25      |        | HFS26      |        | HFS27      |        | HFS28      |        | HFS29      |        | HFS30      |        | HFS31      |        |  |
| Latitude:N   | 42-18.0    |        | 42-25.1    |        | 42-20.0    |        | 42-15.0    |        | 42-10.0    |        | 42-15.0    |        | 42-17.4    |        | 42-20.0    |        | 42-22.4    |        | 42-25.0    |        |  |
| Longitude:E  | 140-55.9   |        | 140-50.0   |        | 140-45.1   |        | 140-39.9   |        | 140-35.1   |        | 140-29.9   |        | 140-32.4   |        | 140-34.9   |        | 140-37.4   |        | 140-40.0   |        |  |
| Date         | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        |  |
| Time(JST)    | 11:50      |        | 12:45      |        | 13:31      |        | 14:16      |        | 15:03      |        | 15:48      |        | 16:14      |        | 16:40      |        | 17:06      |        | 17:31      |        |  |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 2.3        | 32.96* | 2.6        | 33.08* | 2.6        | 33.10* | 2.9        | 33.18* | 3.3        | 33.32* | 3.3        | 33.32* | 3.4        | 33.34* | 3.4        | 33.34* | 3.4        | 33.32* | 3.2        | 33.28* |  |
| 10m          | 2.27       | 32.961 | 2.65       | 33.094 | 2.59       | 33.119 | 2.88       | 33.188 | 3.26       | 33.323 | 3.26       | 33.323 | 3.35       | 33.336 | 3.40       | 33.339 | 3.41       | 33.324 | 3.15       | 33.275 |  |
| 20m          | 2.23       | 32.961 | 2.60       | 33.102 | 2.81       | 33.213 | 3.05       | 33.278 | 3.22       | 33.331 | 3.17       | 33.326 | 3.23       | 33.337 | 3.29       | 33.341 | 3.33       | 33.327 | 3.07       | 33.268 |  |
| 30m          | 2.23       | 32.961 | 2.63       | 33.106 | 2.92       | 33.242 | 3.11       | 33.292 | 3.23       | 33.336 | 3.18       | 33.328 | 3.22       | 33.337 | 3.27       | 33.340 | 3.32       | 33.328 | 3.00       | 33.267 |  |
| 50m          | 2.30       | 32.978 |            |        | 3.13       | 33.297 | 3.12       | 33.297 | 3.26       | 33.340 | 3.19       | 33.330 | 3.22       | 33.337 | 3.27       | 33.340 | 3.33       | 33.331 | 3.08       | 33.281 |  |
| 75m          |            |        |            |        |            |        | 3.37       | 33.339 |            |        | 3.20       | 33.331 | 3.22       | 33.337 | 3.27       | 33.340 | 3.41       | 33.341 |            |        |  |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 4-59

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199802     | 199802     | 199802     | 199802     | 199802     | 199802     | 199802     | 199803     | 199803     | 199803     |      |        |      |        |      |        |      |        |      |        |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|--------|------|--------|------|--------|------|--------|------|--------|
| Station No   | HFS32      | HFS33      | HFS34      | HFS35      | HFS36      | HFS37      | HFS38      | HAP07      | HAP06      | HAP05      |      |        |      |        |      |        |      |        |      |        |
| Latitude:N   | 42-27.5    | 42-30.0    | 42-25.0    | 42-20.0    | 42-17.6    | 42-25.1    | 42-30.0    | 41-23.1    | 41-20.6    | 41-18.3    |      |        |      |        |      |        |      |        |      |        |
| Longitude:E  | 140-42.5   | 140-35.2   | 140-30.1   | 140-25.1   | 140-25.1   | 140-24.9   | 140-30.0   | 140-10.6   | 140-11.2   | 140-11.8   |      |        |      |        |      |        |      |        |      |        |
| Date         | 1998/02/24 | 1998/02/24 | 1998/02/24 | 1998/02/24 | 1998/02/24 | 1998/02/24 | 1998/02/24 | 1998/03/02 | 1998/03/02 | 1998/03/02 |      |        |      |        |      |        |      |        |      |        |
| Time(JST)    | 17:56      | 18:39      | 19:25      | 20:12      | 20:58      | 21:50      | 22:35      | 13:20      | 13:52      | 14:21      |      |        |      |        |      |        |      |        |      |        |
| Weather      |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Air Temp.    |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Bar          |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Wind Dir     |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Wind Spd/F   |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Transparency |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Depth        |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| Equipment    | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD  |        | CTD  |        | CTD  |        | CTD  |        | CTD  |        |
| STND. Dep    | T          | S          | T          | S          | T          | S          | T          | S          | T          | S          | T    | S      | T    | S      | T    | S      | T    | S      | T    | S      |
| 0m           | 2.8        | 33.20*     | 2.8        | 33.15*     | 3.4        | 33.34*     | 3.5        | 33.36*     | 3.4        | 33.35*     | 3.2  | 33.31* | 2.9  | 33.23* | 8.3  | 34.05* | 9.4  | 34.02* | 9.3  | 33.99* |
| 10m          | 2.79       | 33.204     | 2.85       | 33.166     | 3.37       | 33.340     | 3.53       | 33.357     | 3.40       | 33.349     | 3.17 | 33.304 | 2.94 | 33.233 | 8.30 | 34.049 | 9.36 | 34.023 | 9.18 | 33.984 |
| 20m          | 2.80       | 33.208     | 3.05       | 33.240     | 3.28       | 33.339     | 3.44       | 33.357     | 3.40       | 33.350     | 3.17 | 33.304 | 3.09 | 33.267 | 8.14 | 34.052 | 9.28 | 34.024 | 8.93 | 34.018 |
| 30m          | 3.05       | 33.270     | 3.11       | 33.263     | 3.28       | 33.338     | 3.44       | 33.356     | 3.31       | 33.350     | 3.16 | 33.303 | 3.06 | 33.271 | 7.99 | 34.063 | 8.89 | 34.063 | 8.54 | 34.070 |
| 50m          | 3.15       | 33.290     | 3.37       | 33.323     | 3.27       | 33.338     | 3.44       | 33.355     | 3.32       | 33.350     | 3.22 | 33.311 | 3.05 | 33.273 | 6.47 | 34.110 | 7.54 | 34.110 | 8.25 | 34.084 |
| 75m          |            |            |            |            | 3.27       | 33.338     |            |            |            |            |      |        |      |        |      |        | 6.15 | 34.125 | 7.11 | 34.123 |
| 100m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        | 5.89 | 34.112 | 6.09 | 34.124 |
| 125m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        | 6.08 | 34.118 |
| 150m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 200m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 250m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 300m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 400m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 500m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 600m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 700m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 800m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 900m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |
| 1000m        |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |

Table 4-60

Table 4 Results of serial oceanographic observations. Hokkaido Hakodate Fisheries Experimental Station

| Stn-prefix   | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        |   |   |   |   |   |   |   |   |   |   |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|---|---|---|---|---|---|---|---|---|---|
| Station No   | HAP04      |        | HAP03      |        | HAP02      |        | HAP01      |        | HS29       |        |   |   |   |   |   |   |   |   |   |   |
| Latitude:N   | 41-15.9    |        | 41-13.3    |        | 41-10.9    |        | 41- 8.5    |        | 42-20.0    |        |   |   |   |   |   |   |   |   |   |   |
| Longitude:E  | 140-12.5   |        | 140-12.9   |        | 140-13.6   |        | 140-14.3   |        | 140-35.0   |        |   |   |   |   |   |   |   |   |   |   |
| Date         | 1998/03/02 |        | 1998/03/02 |        | 1998/03/02 |        | 1998/03/02 |        | 1998/03/10 |        |   |   |   |   |   |   |   |   |   |   |
| Time(JST)    | 14:54      |        | 15:26      |        | 15:54      |        | 16:28      |        | 10:01      |        |   |   |   |   |   |   |   |   |   |   |
| Weather      |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Bar          |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Wind Dir     |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Wind Spd/F   |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Transparency |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Depth        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |   |   |   |   |   |   |   |   |   |   |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T | S | T | S | T | S | T | S | T | S |
| 0m           | 9.2        | 33.99* | 9.1        | 33.98* | 9.1        | 33.97* | 8.9        | 33.88* | 2.6        | 33.09* |   |   |   |   |   |   |   |   |   |   |
| 10m          | 9.18       | 33.989 | 9.12       | 33.978 | 9.06       | 33.968 | 8.90       | 33.883 | 2.56       | 33.091 |   |   |   |   |   |   |   |   |   |   |
| 20m          | 9.15       | 33.986 | 9.12       | 33.978 | 9.06       | 33.968 | 8.91       | 33.883 | 2.62       | 33.114 |   |   |   |   |   |   |   |   |   |   |
| 30m          | 9.15       | 33.986 | 9.09       | 33.977 | 9.06       | 33.969 | 8.94       | 33.958 | 3.02       | 33.227 |   |   |   |   |   |   |   |   |   |   |
| 50m          | 8.99       | 34.017 | 9.01       | 33.973 | 9.06       | 33.969 | 8.91       | 33.963 | 3.24       | 33.289 |   |   |   |   |   |   |   |   |   |   |
| 75m          | 8.08       | 34.095 | 8.91       | 34.003 | 8.91       | 33.972 |            |        | 3.30       | 33.339 |   |   |   |   |   |   |   |   |   |   |
| 100m         | 7.38       | 34.116 | 8.09       | 34.086 |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 125m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 150m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 200m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 250m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 300m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 400m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 500m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 600m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 700m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 800m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 900m         |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |
| 1000m        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |   |   |   |   |

Table 4-61

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P31        |        | P32        |        | PK11       |        | PK12       |        | PK13       |        | P33        |        | PK21       |        | PK22       |        | P34        |        | PK14       |        |
| Latitude:N   | 42-45.1    |        | 42-29.1    |        | 42-45.0    |        | 42-30.0    |        | 42-15.1    |        | 42-15.0    |        | 42-14.1    |        | 41-59.1    |        | 42- 0.1    |        | 42- 0.1    |        |
| Longitude:E  | 143-59.9   |        | 143-59.9   |        | 144-29.9   |        | 144-29.9   |        | 144-30.1   |        | 144- 0.1   |        | 143-30.0   |        | 143-29.1   |        | 143-59.1   |        | 144-29.1   |        |
| Date         | 1997/04/15 |        | 1997/04/15 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        | 1997/04/17 |        |
| Time(JST)    | 11:04      |        | 12:29      |        | 10:16      |        | 11:41      |        | 13:15      |        | 15:32      |        | 17:50      |        | 19:15      |        | 21:14      |        | 23:40      |        |
| Weather      | BC         |        | BC         |        | B          |        | B          |        | B          |        | B          |        | BC         |        | BC         |        | BC         |        | B          |        |
| Air Temp.    | 3.2        |        | 2.4        |        | 4.0        |        | 4.4        |        | 4.0        |        | 3.5        |        | 5.4        |        | 3.7        |        | 3.2        |        | 2.5        |        |
| Bar          | 1015.2     |        | 1015.0     |        | 1019.5     |        | 1019.0     |        | 1019.5     |        | 1018.5     |        | 1018.5     |        | 1020.5     |        | 1021.0     |        | 1020.5     |        |
| Wind Dir     |            |        | NE         |        | SW         |        | WSW        |        | SW         |        | SW         |        | WSW        |        | WSW        |        | WSW        |        | WSW        |        |
| Wind Spd/F   | F          |        | F 1        |        | F 2        |        | F 2        |        | F 3        |        | F 4        |        | F 3        |        | F 4        |        | F 4        |        | F 4        |        |
| Transparency | 7          |        | 7          |        | 6          |        | 1          |        | 4          |        | 5          |        | 10         |        |            |        |            |        |            |        |
| Depth        | 64         |        | 482        |        | 132        |        | 1400       |        | 1607       |        | 941        |        | 67         |        | 122        |        | 1123       |        | 1691       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 1.7        | 32.178 | 1.8        | 32.414 | 2.0        | 32.604 | 1.7        | 32.494 | 2.4        | 32.506 | 1.6        | 32.631 | 2.7        | 31.987 | 1.8        | 32.293 | 1.4        | 32.573 | 1.1        | 32.589 |
| 10m          | 1.20       | 32.214 | 0.42       | 32.464 | 0.61       | 32.655 | 0.85       | 32.546 | 0.95       | 32.588 | 1.33       | 32.681 | 2.17       | 32.033 | 1.64       | 32.334 | 1.09       | 32.624 | 0.87       | 32.641 |
| 20m          | 0.96       | 32.239 | 0.32       | 32.461 | 0.45       | 32.677 | -0.23      | 32.707 | 0.35       | 32.637 | 0.38       | 32.693 | 0.10       | 32.417 | 1.25       | 32.535 | 0.19       | 32.658 | 0.24       | 32.695 |
| 30m          | 0.01       | 32.575 | -0.07      | 32.484 | -0.08      | 32.712 | -0.32      | 32.808 | -0.38      | 32.790 | 0.31       | 32.775 | -0.40      | 32.567 | 0.62       | 32.722 | -0.19      | 32.707 | 0.10       | 32.786 |
| 50m          | -0.01      | 32.612 | -0.32      | 32.704 | -0.36      | 32.741 | -0.03      | 32.924 | 0.51       | 33.017 | 0.59       | 32.906 | -0.40      | 32.562 | 0.20       | 32.840 | -0.31      | 32.857 | 0.86       | 33.044 |
| 75m          |            |        | -0.18      | 32.796 | -0.23      | 32.827 | 0.96       | 33.062 | 1.02       | 33.165 | 0.66       | 33.023 |            |        | 0.16       | 32.867 | -0.13      | 32.914 | 0.82       | 33.117 |
| 100m         |            |        | 0.68       | 32.964 | -0.24      | 32.872 | 1.09       | 33.132 | 0.99       | 33.177 | 0.38       | 33.054 |            |        | 0.22       | 32.885 | -0.13      | 32.939 | 1.33       | 33.202 |
| 125m         |            |        | 1.06       | 33.084 |            |        | 1.40       | 33.182 | 1.04       | 33.198 | 0.76       | 33.119 |            |        |            |        | 0.65       | 33.046 | 1.52       | 33.283 |
| 150m         |            |        | 1.26       | 33.138 |            |        | 1.19       | 33.194 | 1.09       | 33.242 | 0.98       | 33.163 |            |        |            |        | 1.62       | 33.159 | 1.74       | 33.353 |
| 200m         |            |        | 1.47       | 33.221 |            |        | 1.57       | 33.291 | 1.06       | 33.254 | 1.10       | 33.219 |            |        |            |        | 1.54       | 33.203 | 1.69       | 33.440 |
| 250m         |            |        | 1.60       | 33.283 |            |        | 1.87       | 33.379 | 1.96       | 33.430 | 1.47       | 33.334 |            |        |            |        | 0.96       | 33.192 | 2.35       | 33.583 |
| 300m         |            |        | 1.89       | 33.387 |            |        | 2.04       | 33.456 | 2.26       | 33.571 | 1.54       | 33.386 |            |        |            |        | 1.48       | 33.311 | 2.21       | 33.633 |
| 400m         |            |        | 2.51       | 33.680 |            |        | 2.38       | 33.618 | 2.56       | 33.735 | 1.72       | 33.491 |            |        |            |        | 1.81       | 33.497 | 2.63       | 33.757 |
| 500m         |            |        |            |        |            |        | 2.81       | 33.820 | 3.05       | 33.929 | 2.57       | 33.725 |            |        |            |        | 2.43       | 33.737 | 3.04       | 33.927 |
| 600m         |            |        |            |        |            |        |            |        | 3.16       | 34.080 | 3.10       | 33.951 |            |        |            |        | 3.10       | 33.946 | 3.11       | 34.065 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.24       | 34.078 | 3.24       | 34.143 |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.04       | 34.158 | 3.08       | 34.234 |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.01       | 34.238 | 2.97       | 34.280 |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.87       | 34.296 | 2.81       | 34.317 |

Table 5-1

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P25        |        | P24        |        | P23        |        | P22        |        | P21        |        | PK01       |        | P12        |        | P13        |        | P14        |        | P15        |        |
| Latitude:N   | 42- 0.1    |        | 42-15.0    |        | 42-30.0    |        | 42-45.0    |        | 42-55.0    |        | 42-55.1    |        | 42-55.0    |        | 42-45.0    |        | 42-30.0    |        | 42-14.1    |        |
| Longitude:E  | 144-59.9   |        | 144-59.1   |        | 144-59.1   |        | 144-59.1   |        | 145- 0.0   |        | 145-29.9   |        | 145-49.9   |        | 145-54.9   |        | 145-59.9   |        | 145-59.1   |        |
| Date         | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        | 1997/04/18 |        |
| Time(JST)    | 02:16      |        | 04:20      |        | 06:01      |        | 07:38      |        | 08:36      |        | 10:40      |        | 12:07      |        | 13:38      |        | 15:33      |        | 17:29      |        |
| Weather      | BC         |        | BC         |        | BC         |        | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        |
| Air Temp.    | 3.2        |        | 3.7        |        | 4.3        |        | 5.5        |        | 4.6        |        | 5.5        |        | 6.3        |        | 5.8        |        | 6.4        |        | 4.5        |        |
| Bar          | 1020.5     |        | 1020.0     |        | 1020.2     |        | 1020.5     |        | 1020.5     |        | 1020.0     |        | 1020.4     |        | 1020.0     |        | 1020.0     |        | 1019.2     |        |
| Wind Dir     | WSW        |        | SW         |        | SW         |        | WSW        |        | CALM       |        | SSW        |        | SW         |        | SSW        |        | S          |        | SE         |        |
| Wind Spd/F   | F 4        |        | F 4        |        | F 3        |        | F 1        |        | F 0        |        | F 3        |        | F 3        |        | F 2        |        | F 3        |        | F 2        |        |
| Transparency |            |        |            |        | 17         |        | 21         |        | 6          |        | 5          |        | 6          |        | 16         |        | 7          |        | 15         |        |
| Depth        |            |        |            |        |            |        |            |        | 69         |        | 151        |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 2.9        | 33.016 | 3.2        | 33.071 | 3.3        | 33.12* | 2.7        | 32.91* | 1.7        | 32.54* | 2.0        | 32.520 | 2.1        | 32.701 | 2.9        | 32.812 | 3.6        | 33.061 | 3.7        | 33.018 |
| 10m          | 2.79       | 33.072 | 3.08       | 33.117 | 3.14       | 33.119 | 2.38       | 32.911 | 0.70       | 32.542 | 0.76       | 32.750 | 1.47       | 32.784 | 1.95       | 32.878 | 2.72       | 33.119 | 2.65       | 33.056 |
| 20m          | 2.34       | 33.078 | 2.80       | 33.133 | 2.97       | 33.124 | 2.27       | 32.912 | 0.02       | 32.561 | 1.07       | 32.781 | 1.70       | 32.905 | 2.05       | 32.948 | 2.40       | 33.116 | 2.27       | 33.045 |
| 30m          | 2.18       | 33.078 | 2.23       | 33.115 | 2.76       | 33.127 | 1.93       | 32.971 | -0.02      | 32.557 | 1.37       | 32.837 | 0.77       | 32.895 | 1.80       | 32.974 | 2.23       | 33.125 | 2.05       | 33.070 |
| 50m          | 1.99       | 33.094 | 2.07       | 33.130 | 2.50       | 33.139 | 1.69       | 33.056 | -0.04      | 32.563 | 1.37       | 32.890 | 0.56       | 33.037 | 1.65       | 33.026 | 2.05       | 33.163 | 1.88       | 33.113 |
| 75m          | 1.94       | 33.182 | 1.95       | 33.188 | 1.95       | 33.177 | 1.81       | 33.210 |            |        | 1.11       | 33.041 | 1.04       | 33.114 | 1.41       | 33.074 | 1.99       | 33.204 | 1.66       | 33.163 |
| 100m         | 1.93       | 33.219 | 2.20       | 33.248 | 2.01       | 33.185 | 1.79       | 33.239 |            |        | 1.02       | 33.118 | 1.31       | 33.171 | 1.18       | 33.105 | 2.57       | 33.287 | 2.03       | 33.239 |
| 125m         | 2.02       | 33.296 | 2.07       | 33.252 | 1.96       | 33.185 | 1.65       | 33.266 |            |        |            |        | 1.35       | 33.196 | 1.35       | 33.137 | 2.34       | 33.318 | 2.28       | 33.334 |
| 150m         | 2.37       | 33.422 | 2.58       | 33.439 | 2.50       | 33.349 | 1.62       | 33.267 |            |        |            |        | 1.48       | 33.242 | 1.40       | 33.172 | 2.50       | 33.438 | 2.26       | 33.444 |
| 200m         | 2.69       | 33.632 | 2.69       | 33.591 | 2.53       | 33.554 |            |        |            |        |            |        | 1.33       | 33.283 | 2.54       | 33.368 | 2.99       | 33.642 | 2.78       | 33.642 |
| 250m         | 2.82       | 33.743 | 2.70       | 33.713 | 2.48       | 33.637 |            |        |            |        |            |        | 1.65       | 33.371 | 2.54       | 33.473 | 2.92       | 33.744 | 2.96       | 33.777 |
| 300m         | 3.22       | 33.866 | 3.26       | 33.860 | 2.73       | 33.730 |            |        |            |        |            |        | 1.85       | 33.408 | 2.85       | 33.632 | 3.20       | 33.864 | 3.07       | 33.874 |
| 400m         | 3.22       | 34.008 | 3.29       | 34.003 | 3.29       | 33.970 |            |        |            |        |            |        | 2.11       | 33.508 | 2.74       | 33.749 | 3.21       | 34.011 | 3.45       | 34.079 |
| 500m         | 3.07       | 34.113 | 3.61       | 34.169 | 3.22       | 34.091 |            |        |            |        |            |        | 2.87       | 33.772 | 3.10       | 33.940 | 3.19       | 34.118 | 3.42       | 34.193 |
| 600m         | 3.09       | 34.191 | 3.25       | 34.220 | 3.15       | 34.167 |            |        |            |        |            |        | 3.08       | 33.990 | 3.19       | 34.040 | 3.10       | 34.204 | 3.12       | 34.240 |
| 700m         | 3.03       | 34.272 |            |        |            |        |            |        |            |        |            |        | 3.16       | 34.108 | 3.15       | 34.104 | 2.99       | 34.299 | 2.94       | 34.301 |
| 800m         | 2.80       | 34.317 |            |        |            |        |            |        |            |        |            |        | 3.11       | 34.188 | 3.09       | 34.182 | 2.86       | 34.347 | 2.78       | 34.346 |
| 900m         | 2.67       | 34.361 |            |        |            |        |            |        |            |        |            |        | 3.03       | 34.246 | 2.93       | 34.306 | 2.74       | 34.391 | 2.77       | 34.401 |
| 1000m        | 2.62       | 34.408 |            |        |            |        |            |        |            |        |            |        | 2.86       | 34.309 | 2.51       | 34.426 | 2.58       | 34.430 | 2.60       | 34.426 |

Table 5-2



Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | P11        |        | PK02       |        | PK03       |        | PK04       |        | PK05       |        | P16        |        | P17        |        | PKA24      |        | PKA28      |        | PKA29      |        |  |
| Latitude:N   | 43- 4.1    |        | 42-44.1    |        | 42-30.0    |        | 42-14.1    |        | 41-59.1    |        | 41-59.7    |        | 41-30.1    |        | 41-29.1    |        | 41- 0.1    |        | 40-30.1    |        |  |
| Longitude:E  | 145-45.3   |        | 145-30.0   |        | 145-30.0   |        | 145-30.0   |        | 145-29.1   |        | 146- 0.1   |        | 146- 0.0   |        | 146-30.0   |        | 147- 0.0   |        | 146-59.1   |        |  |
| Date         | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/19 |        | 1997/04/20 |        |  |
| Time(JST)    | 02:10      |        | 04:22      |        | 05:55      |        | 07:30      |        | 09:02      |        | 11:40      |        | 14:48      |        | 18:08      |        | 21:28      |        | 00:07      |        |  |
| Weather      | R          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | B          |        | BC         |        | BC         |        |  |
| Air Temp.    | 3.0        |        | 3.2        |        | 3.5        |        | 4.4        |        | 5.0        |        | 5.5        |        | 7.6        |        | 3.7        |        | 2.4        |        | 2.2        |        |  |
| Bar          | 1018.7     |        | 1018.0     |        | 1018.2     |        | 1019.0     |        | 1018.5     |        | 1018.5     |        | 1019.0     |        | 1020.0     |        | 1021.0     |        | 1021.5     |        |  |
| Wind Dir     |            |        | NNE        |        | ENE        |        | NE         |        | ENE        |        | NNE        |        | N          |        | NNE        |        | N          |        | NW         |        |  |
| Wind Spd/F   | F          |        | F 2        |        | F 2        |        | F 2        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        |  |
| Transparency |            |        |            |        | 25         |        | 7          |        | 7          |        | 7          |        | 11         |        |            |        |            |        |            |        |  |
| Depth        | 107        |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 1.0        | 32.555 | 1.5        | 32.643 | 2.6        | 32.828 | 3.4        | 33.07* | 3.8        | 33.000 | 4.0        | 33.037 | 3.6        | 32.843 | 3.4        | 33.122 | 2.2        | 32.869 | 1.9        | 32.811 |  |
| 10m          | 0.06       | 32.661 | 1.32       | 32.694 | 2.12       | 32.906 | 2.75       | 33.082 | 3.27       | 33.071 | 3.19       | 33.090 | 3.05       | 32.898 | 2.82       | 33.038 | 2.05       | 32.789 | 1.81       | 32.722 |  |
| 20m          | -0.25      | 32.700 | 0.87       | 32.740 | 2.02       | 32.937 | 2.51       | 33.085 | 2.63       | 33.082 | 2.64       | 33.109 | 2.53       | 32.944 | 2.20       | 33.046 | 1.97       | 32.920 | 1.08       | 32.727 |  |
| 30m          | -0.34      | 32.714 | 0.65       | 32.759 | 2.10       | 32.956 | 2.40       | 33.111 | 2.19       | 33.081 | 2.45       | 33.112 | 1.99       | 32.972 | 2.12       | 33.056 | 1.86       | 32.922 | 0.68       | 32.781 |  |
| 50m          | -0.37      | 32.745 | 0.81       | 32.978 | 1.56       | 33.034 | 1.97       | 33.122 | 1.97       | 33.138 | 2.32       | 33.128 | 1.64       | 33.089 | 1.85       | 33.111 | 1.17       | 32.941 | 0.04       | 32.908 |  |
| 75m          | -0.41      | 32.786 | 1.21       | 33.083 | 0.98       | 33.101 | 1.65       | 33.157 | 1.98       | 33.186 | 2.14       | 33.149 | 1.75       | 33.165 | 1.71       | 33.161 | 1.37       | 33.136 | 1.31       | 33.107 |  |
| 100m         |            |        | 1.03       | 33.123 | 0.85       | 33.137 | 1.70       | 33.182 | 2.02       | 33.217 | 1.97       | 33.176 | 2.34       | 33.268 | 1.85       | 33.222 | 1.56       | 33.198 | 1.49       | 33.179 |  |
| 125m         |            |        | 0.87       | 33.169 | 0.65       | 33.161 | 1.66       | 33.215 | 2.28       | 33.332 | 2.10       | 33.232 | 2.03       | 33.304 | 2.10       | 33.297 | 1.88       | 33.273 | 1.72       | 33.225 |  |
| 150m         |            |        | 1.00       | 33.203 | 1.31       | 33.283 | 2.34       | 33.395 | 2.53       | 33.483 | 2.55       | 33.424 | 2.61       | 33.483 | 2.31       | 33.415 | 2.29       | 33.395 | 1.82       | 33.273 |  |
| 200m         |            |        | 1.53       | 33.305 | 2.16       | 33.488 | 3.21       | 33.702 | 2.79       | 33.660 | 2.78       | 33.650 | 2.60       | 33.648 | 2.67       | 33.617 | 1.76       | 33.486 | 1.38       | 33.353 |  |
| 250m         |            |        | 1.80       | 33.386 | 2.35       | 33.624 | 3.22       | 33.834 | 2.85       | 33.781 | 3.15       | 33.813 | 2.91       | 33.781 | 2.87       | 33.768 | 2.67       | 33.668 | 2.51       | 33.573 |  |
| 300m         |            |        | 2.04       | 33.506 | 2.79       | 33.769 | 3.21       | 33.906 | 3.04       | 33.900 | 3.13       | 33.897 | 3.04       | 33.882 | 3.00       | 33.870 | 2.62       | 33.753 | 2.92       | 33.704 |  |
| 400m         |            |        | 2.41       | 33.656 | 3.14       | 33.931 | 3.19       | 34.049 | 3.23       | 34.063 | 3.26       | 34.059 | 3.19       | 34.030 |            |        |            |        |            |        |  |
| 500m         |            |        | 2.82       | 33.804 | 3.20       | 34.059 | 3.18       | 34.134 | 3.19       | 34.168 | 3.19       | 34.167 | 3.04       | 34.130 |            |        |            |        |            |        |  |
| 600m         |            |        | 3.01       | 33.963 | 3.25       | 34.136 | 3.07       | 34.211 | 3.03       | 34.242 | 3.06       | 34.248 | 3.01       | 34.245 |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        | 2.77       | 34.305 | 2.96       | 34.317 | 2.96       | 34.317 |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        | 2.77       | 34.358 | 2.86       | 34.372 | 2.77       | 34.354 |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        | 2.60       | 34.405 | 2.68       | 34.406 | 2.62       | 34.400 |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        | 2.39       | 34.445 | 2.55       | 34.437 | 2.51       | 34.432 |            |        |            |        |            |        |  |

Table 5-3

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PKA30      |        | PKA27      |        | PKA22      |        | PKA19      |        | PKA16      |        | PKA13      |        | PKA10      |        | PKA07      |        | PKA06      |        | PKA09      |        |
| Latitude:N   | 40- 0.1    |        | 40- 0.0    |        | 40- 0.0    |        | 40- 0.1    |        | 40- 0.1    |        | 39-59.1    |        | 40- 0.0    |        | 40- 0.0    |        | 40-29.9    |        | 40-30.1    |        |
| Longitude:E  | 147- 0.1   |        | 146-29.1   |        | 146- 0.0   |        | 145-30.1   |        | 145- 0.1   |        | 144-20.1   |        | 143-39.1   |        | 143- 0.0   |        | 142-59.9   |        | 143-39.8   |        |
| Date         | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/20 |        | 1997/04/21 |        |
| Time(JST)    | 02:47      |        | 04:58      |        | 07:04      |        | 09:14      |        | 11:23      |        | 14:02      |        | 16:39      |        | 19:20      |        | 22:03      |        | 01:04      |        |
| Weather      | F          |        | F          |        | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | BC         |        | BC         |        |
| Air Temp.    | 2.2        |        | 0.7        |        | 2.9        |        | 5.5        |        | 7.3        |        | 5.9        |        | 6.0        |        | 5.3        |        | 4.5        |        | 6.0        |        |
| Bar          | 1022.0     |        | 1023.5     |        | 1024.5     |        | 1025.5     |        | 1025.0     |        | 1025.5     |        | 1026.4     |        | 1028.0     |        | 1028.5     |        | 1027.8     |        |
| Wind Dir     | NW         |        | NW         |        | NW         |        | NW         |        | WNW        |        | NW         |        | WNW        |        | SSE        |        | SSW        |        | SE         |        |
| Wind Spd/F   | F 4        |        | F 3        |        | F 2        |        | F 3        |        | F 3        |        | F 3        |        | F 2        |        | F 1        |        | F 2        |        | F 3        |        |
| Transparency |            |        | 5          |        | 7          |        | 13         |        | 11         |        | 12         |        | 10         |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.3        | 33.152 | 3.3        | 33.084 | 2.8        | 32.924 | 4.3        | 33.076 | 4.2        | 32.985 | 4.2        | 32.799 | 5.4        | 32.745 | 4.4        | 32.736 | 4.5        | 32.785 | 7.6        | 33.888 |
| 10m          | 3.27       | 33.058 | 3.10       | 32.998 | 4.64       | 33.189 | 4.06       | 33.039 | 4.80       | 33.186 | 3.18       | 32.869 | 3.84       | 32.672 | 3.04       | 32.723 | 3.78       | 32.938 | 7.64       | 33.839 |
| 20m          | 2.14       | 33.009 | 2.44       | 32.982 | 5.41       | 33.373 | 4.36       | 33.295 | 5.22       | 33.326 | 2.52       | 32.994 | 1.32       | 32.781 | 1.47       | 32.730 | 3.42       | 33.047 | 7.68       | 33.856 |
| 30m          | 2.13       | 33.102 | 1.95       | 33.026 | 6.27       | 33.699 | 4.58       | 33.391 | 5.86       | 33.542 | 1.69       | 32.987 | 0.77       | 32.862 | 1.21       | 32.798 | 3.06       | 33.177 | 7.69       | 33.875 |
| 50m          | 2.21       | 33.189 | 1.96       | 33.169 | 6.28       | 33.758 | 4.85       | 33.527 | 6.20       | 33.691 | 2.55       | 33.157 | 1.15       | 33.019 | 0.63       | 32.933 | 6.38       | 33.740 | 8.00       | 33.979 |
| 75m          | 2.53       | 33.233 | 1.97       | 33.178 | 5.84       | 33.701 | 5.64       | 33.673 | 6.27       | 33.761 | 5.11       | 33.550 | 1.40       | 33.145 | 1.32       | 33.093 | 6.50       | 33.801 | 8.45       | 34.116 |
| 100m         | 2.34       | 33.232 | 1.93       | 33.206 | 5.28       | 33.633 | 5.35       | 33.639 | 5.89       | 33.717 | 3.19       | 33.331 | 1.69       | 33.198 | 2.61       | 33.281 | 6.14       | 33.750 | 8.45       | 34.122 |
| 125m         | 2.78       | 33.304 | 2.10       | 33.264 | 4.73       | 33.573 | 4.91       | 33.587 | 5.36       | 33.644 | 4.07       | 33.472 | 1.78       | 33.222 | 2.65       | 33.316 | 5.60       | 33.679 | 8.44       | 34.119 |
| 150m         | 2.38       | 33.316 | 1.95       | 33.317 | 4.51       | 33.556 | 4.53       | 33.540 | 4.58       | 33.551 | 3.87       | 33.456 | 1.81       | 33.244 | 2.21       | 33.295 | 5.20       | 33.623 | 8.44       | 34.120 |
| 200m         | 2.71       | 33.526 | 2.72       | 33.532 | 2.95       | 33.467 | 3.67       | 33.478 | 3.79       | 33.463 | 3.01       | 33.388 | 2.58       | 33.490 | 2.91       | 33.440 | 4.04       | 33.486 | 8.43       | 34.118 |
| 250m         | 2.80       | 33.628 | 2.68       | 33.641 | 2.22       | 33.433 | 2.84       | 33.429 | 2.80       | 33.410 | 1.44       | 33.281 | 2.46       | 33.597 | 2.31       | 33.482 | 3.32       | 33.442 | 8.36       | 34.107 |
| 300m         | 2.97       | 33.738 | 2.79       | 33.730 | 2.83       | 33.612 | 3.98       | 33.628 | 2.66       | 33.470 | 3.64       | 33.607 | 2.71       | 33.703 | 2.38       | 33.570 | 3.09       | 33.473 | 7.06       | 33.892 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-4

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704      |        | 199704      |        | 199704      |        | 199704      |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|--|
| Station No   | PKA12      |        | PKA15      |        | PKA18      |        | PKA21      |        | PKA26      |        | PKA25      |        | P18         |        | PK07        |        | P27         |        | PK16        |        |  |
| Latitude:N   | 40-29.9    |        | 40-29.9    |        | 40-29.9    |        | 40-29.9    |        | 40-30.0    |        | 40-59.9    |        | 40-59.1     |        | 40-59.9     |        | 40-59.9     |        | 40-59.1     |        |  |
| Longitude:E  | 144-19.1   |        | 144-59.1   |        | 145-29.9   |        | 145-59.1   |        | 146-29.8   |        | 146-29.1   |        | 146- 0.0    |        | 145-30.0    |        | 145- 0.2    |        | 144-30.2    |        |  |
| Date         | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21  |        | 1997/04/21  |        | 1997/04/21  |        | 1997/04/22  |        |  |
| Time(JST)    | 04:13      |        | 07:05      |        | 09:15      |        | 11:26      |        | 13:37      |        | 16:20      |        | 18:35       |        | 21:32       |        | 23:59       |        | 02:29       |        |  |
| Weather      | BC         |        | B          |        | BC         |        | C          |        | C          |        | C          |        | BC          |        | C           |        | R           |        | R           |        |  |
| Air Temp.    | 6.6        |        | 5.6        |        | 6.0        |        | 6.3        |        | 6.3        |        | 5.5        |        | 4.4         |        | 5.1         |        | 4.5         |        | 8.0         |        |  |
| Bar          | 1028.4     |        | 1029.0     |        | 1029.5     |        | 1029.0     |        | 1028.8     |        | 1028.1     |        | 1028.5      |        | 1027.0      |        | 1025.1      |        | 1022.0      |        |  |
| Wind Dir     | SSE        |        | SE         |        | SSE        |        | SSE        |        | SSE        |        | S          |        | SSE         |        | SSE         |        | SE          |        | SSE         |        |  |
| Wind Spd/F   | F 3        |        | F 2        |        | F 3        |        | F 3        |        | F 2        |        | F 3        |        | F 2         |        | F 4         |        | F 4         |        | F 6         |        |  |
| Transparency |            |        | 10         |        | 13         |        | 12         |        | 7          |        | 4          |        |             |        |             |        |             |        |             |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |             |        |             |        |             |        |             |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD         |        | CTD         |        | CTD         |        | CTD         |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T           | S      | T           | S      | T           | S      | T           | S      |  |
| 0m           | 8.6        | 34.150 | 8.1        | 33.833 | 5.8        | 33.288 | 3.4        | 32.528 | 2.9        | 32.563 | 4.1        | 32.835 | 3.3         | 32.536 | 3.7         | 33.018 | 2.5         | 32.307 | 7.3         | 33.778 |  |
| 10m          | 8.65       | 34.127 | 8.45       | 34.059 | 5.14       | 33.324 | 1.12       | 32.657 | 1.93       | 32.653 | 2.91       | 32.961 | 1.76        | 32.694 | 3.63        | 33.071 | 2.24        | 32.418 | 7.22        | 33.814 |  |
| 20m          | 8.63       | 34.128 | 8.38       | 34.096 | 5.03       | 33.351 | 3.65       | 32.980 | 0.97       | 32.709 | 2.74       | 33.060 | 0.64        | 32.722 | 2.85        | 33.102 | 1.98        | 32.851 | 7.21        | 33.813 |  |
| 30m          | 8.55       | 34.128 | 8.37       | 34.103 | 6.13       | 33.668 | 3.79       | 33.179 | 0.84       | 32.803 | 1.59       | 33.045 | 0.30        | 32.752 | 2.07        | 33.092 | 1.06        | 32.850 | 7.21        | 33.813 |  |
| 50m          | 8.49       | 34.126 | 8.42       | 34.117 | 7.83       | 34.004 | 4.84       | 33.448 | 0.60       | 32.935 | 2.00       | 33.141 | 0.40        | 32.907 | 1.88        | 33.133 | -0.06       | 32.871 | 7.46        | 33.864 |  |
| 75m          | 8.47       | 34.126 | 8.39       | 34.112 | 7.45       | 33.947 | 5.47       | 33.626 | 5.07       | 33.555 | 1.78       | 33.175 | 0.36        | 33.025 | 1.95        | 33.172 | 0.60        | 32.985 | 7.41        | 33.896 |  |
| 100m         | 8.46       | 34.126 | 8.36       | 34.108 | 6.78       | 33.848 | 5.77       | 33.704 | 5.25       | 33.620 | 1.83       | 33.205 | 0.71        | 33.101 | 2.05        | 33.228 | 0.78        | 33.082 | 6.70        | 33.809 |  |
| 125m         | 8.47       | 34.126 | 8.27       | 34.092 | 6.52       | 33.813 | 5.46       | 33.678 | 4.35       | 33.513 | 1.88       | 33.228 | 1.33        | 33.175 | 2.00        | 33.231 | 1.19        | 33.151 | 6.59        | 33.812 |  |
| 150m         | 8.47       | 34.125 | 8.20       | 34.080 | 6.40       | 33.798 | 5.27       | 33.671 | 3.71       | 33.450 | 1.79       | 33.243 | 4.01        | 33.499 | 1.92        | 33.233 | 1.24        | 33.185 | 6.54        | 33.802 |  |
| 200m         | 8.46       | 34.125 | 7.92       | 34.030 | 5.55       | 33.674 | 4.66       | 33.643 | 2.20       | 33.358 | 2.63       | 33.523 | 1.79        | 33.391 | 2.54        | 33.497 | 1.58        | 33.282 | 6.08        | 33.744 |  |
| 250m         | 8.47       | 34.125 | 7.49       | 33.963 | 3.66       | 33.465 | 4.03       | 33.590 | 1.75       | 33.384 | 2.58       | 33.652 | 2.03        | 33.463 | 2.61        | 33.608 | 1.62        | 33.351 | 5.44        | 33.662 |  |
| 300m         | 8.48       | 34.126 | 6.19       | 33.765 | 2.24       | 33.359 | 3.48       | 33.620 | 2.50       | 33.533 | 2.29       | 33.710 | 2.61        | 33.628 | 2.65        | 33.720 | 1.92        | 33.474 | 4.37        | 33.526 |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        | 2.90 33.845 |        | 3.20 33.942 |        | 2.43 33.651 |        | 2.13 33.337 |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.60 34.114 |        | 3.29 34.067 |        | 2.94 33.858 |        | 2.91 33.566 |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.46 34.208 |        | 3.13 34.137 |        | 3.17 33.990 |        | 3.15 33.666 |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.28 34.283 |        |             |        |             |        |             |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.08 34.330 |        |             |        |             |        |             |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        | 2.94 34.372 |        |             |        |             |        |             |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        | 2.82 34.422 |        |             |        |             |        |             |        |  |

Table 5-5

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P36        |        | PK24       |        | PK32       |        | PK31       |        | PK23       |        | P35        |        | PK15       |        | P26        |        | PK06       |        | SU02       |        |
| Latitude:N   | 40-59.1    |        | 40-59.1    |        | 40-59.1    |        | 41-29.9    |        | 41-29.1    |        | 41-29.9    |        | 41-30.0    |        | 41-29.1    |        | 41-30.0    |        | 42-41.8    |        |
| Longitude:E  | 144- 0.1   |        | 143-30.0   |        | 143- 0.0   |        | 142-59.1   |        | 143-29.9   |        | 144- 0.0   |        | 144-29.9   |        | 144-59.9   |        | 145-29.9   |        | 144-25.7   |        |
| Date         | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/05/13 |        |
| Time(JST)    | 05:11      |        | 07:39      |        | 09:56      |        | 12:31      |        | 14:39      |        | 16:47      |        | 18:55      |        | 21:08      |        | 23:25      |        | 10:32      |        |
| Weather      | C          |        | C          |        | C          |        | R          |        | R          |        | R          |        | R          |        | R          |        | R          |        | F          |        |
| Air Temp.    | 9.6        |        | 9.6        |        | 7.0        |        | 7.1        |        | 8.5        |        | 7.4        |        | 4.8        |        | 5.4        |        | 5.5        |        | 5.4        |        |
| Bar          | 1019.5     |        | 1019.0     |        | 1018.5     |        | 1016.5     |        | 1015.4     |        | 1015.0     |        | 1015.0     |        | 1015.0     |        | 1013.5     |        | 1016.5     |        |
| Wind Dir     | S          |        | S          |        | S          |        | SSW        |        | SSW        |        | SSW        |        | S          |        | S          |        | SSW        |        | SW         |        |
| Wind Spd/F   | F 5        |        | F 5        |        | F 5        |        | F 5        |        | F 5        |        | F 4        |        | F 4        |        | F 5        |        | F 5        |        | F 1        |        |
| Transparency | 7          |        | 10         |        | 11         |        | 11         |        | 10         |        | 10         |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.6        | 34.059 | 8.2        | 33.889 | 6.4        | 33.471 | 4.9        | 32.982 | 5.3        | 33.212 | 4.5        | 32.876 | 1.9        | 32.438 | 3.4        | 33.041 | 2.8        | 32.877 | 4.1        | 32.40* |
| 10m          | 8.56       | 34.125 | 8.11       | 33.975 | 6.38       | 33.551 | 4.57       | 33.046 | 5.42       | 33.283 | 4.77       | 32.986 | 1.57       | 32.555 | 3.35       | 33.092 | 2.68       | 32.950 | 3.11       | 32.416 |
| 20m          | 8.55       | 34.126 | 8.24       | 34.020 | 6.87       | 33.689 | 4.89       | 33.425 | 5.15       | 33.250 | 4.90       | 33.076 | 1.30       | 32.607 | 3.34       | 33.107 | 2.75       | 32.984 | 2.32       | 32.463 |
| 30m          | 8.55       | 34.126 | 8.37       | 34.058 | 7.34       | 33.838 | 7.31       | 33.864 | 5.11       | 33.336 | 5.20       | 33.370 | 0.52       | 32.649 | 3.15       | 33.121 | 2.57       | 33.013 | 1.34       | 32.575 |
| 50m          | 8.55       | 34.126 | 8.51       | 34.111 | 7.65       | 33.967 | 8.09       | 34.046 | 5.56       | 33.577 | 5.39       | 33.545 | -0.40      | 32.808 | 2.15       | 33.146 | 2.09       | 33.138 | 0.86       | 32.845 |
| 75m          | 8.52       | 34.127 | 8.50       | 34.121 | 7.99       | 34.038 | 7.85       | 34.012 | 6.64       | 33.779 | 5.85       | 33.669 | 0.20       | 32.950 | 1.87       | 33.186 | 1.79       | 33.174 | 0.52       | 32.935 |
| 100m         | 8.47       | 34.126 | 8.47       | 34.123 | 7.64       | 33.986 | 7.37       | 33.941 | 7.15       | 33.886 | 6.58       | 33.806 | 0.25       | 33.018 | 1.95       | 33.225 | 1.92       | 33.251 | 0.75       | 33.057 |
| 125m         | 8.47       | 34.125 | 8.47       | 34.123 | 7.21       | 33.913 | 6.62       | 33.825 | 6.69       | 33.834 | 6.56       | 33.816 | 0.66       | 33.094 | 2.01       | 33.258 | 2.09       | 33.338 | 0.90       | 33.092 |
| 150m         | 8.47       | 34.125 | 8.46       | 34.121 | 6.79       | 33.850 | 6.48       | 33.803 | 6.69       | 33.838 | 6.08       | 33.753 | 0.97       | 33.134 | 1.94       | 33.347 | 2.56       | 33.484 | 0.97       | 33.125 |
| 200m         | 8.48       | 34.125 | 8.45       | 34.121 | 6.35       | 33.783 | 5.49       | 33.668 | 6.15       | 33.759 | 6.41       | 33.845 | 1.12       | 33.228 | 2.45       | 33.531 | 2.79       | 33.665 | 1.07       | 33.182 |
| 250m         | 8.48       | 34.124 | 8.44       | 34.120 | 6.07       | 33.746 | 4.64       | 33.592 | 4.97       | 33.601 | 6.63       | 33.917 | 1.50       | 33.313 | 2.86       | 33.704 | 2.80       | 33.790 | 1.96       | 33.388 |
| 300m         | 8.48       | 34.125 | 8.43       | 34.116 | 5.49       | 33.667 | 5.98       | 33.813 | 4.38       | 33.550 | 5.35       | 33.776 | 1.69       | 33.423 | 2.87       | 33.801 | 3.46       | 33.969 | 2.08       | 33.531 |
| 400m         | 8.43       | 34.113 | 8.30       | 34.094 | 4.30       | 33.609 | 3.49       | 33.603 | 1.77       | 33.390 | 3.94       | 33.695 | 2.27       | 33.624 | 3.16       | 33.984 | 3.20       | 34.060 | 2.98       | 33.827 |
| 500m         | 7.56       | 33.968 | 7.62       | 33.974 | 3.22       | 33.621 | 2.22       | 33.570 | 2.14       | 33.573 | 3.40       | 33.820 | 3.02       | 33.885 | 3.09       | 34.095 | 3.10       | 34.158 | 3.17       | 33.952 |
| 600m         | 5.66       | 33.726 | 4.47       | 33.633 | 3.32       | 33.798 | 3.00       | 33.792 | 3.74       | 33.903 | 3.53       | 33.999 | 3.17       | 34.027 | 3.19       | 34.195 | 3.06       | 34.233 |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-6

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SU01       |        | SU03       |        | SU05       |        | SU04       |        | SU08       |        | SU09       |        | SU15       |        | SU14       |        | SU19       |        | SU18       |        |
| Latitude:N   | 42-54.8    |        | 42-54.2    |        | 42-47.5    |        | 42-53.1    |        | 42-45.1    |        | 42-37.7    |        | 42-23.1    |        | 42-32.3    |        | 42-16.7    |        | 42-21.1    |        |
| Longitude:E  | 144-33.3   |        | 144-26.3   |        | 144-18.1   |        | 144- 9.7   |        | 143-56.6   |        | 144- 9.2   |        | 143-54.5   |        | 143-40.4   |        | 143-46.3   |        | 143-30.0   |        |
| Date         | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        |
| Time(JST)    | 12:36      |        | 13:11      |        | 14:28      |        | 15:44      |        | 03:58      |        | 05:34      |        | 10:24      |        | 12:27      |        | 15:00      |        | 16:43      |        |
| Weather      | BC         |        | BC         |        | B          |        | B          |        | BC         |        | B          |        | BC         |        | BC         |        | F          |        | F          |        |
| Air Temp.    | 10.1       |        | 6.5        |        | 6.4        |        | 6.9        |        | 4.8        |        | 5.0        |        | 6.8        |        | 9.1        |        | 7.6        |        | 8.1        |        |
| Bar          | 1015.5     |        | 1015.0     |        | 1014.0     |        | 1013.5     |        | 1013.0     |        | 1014.0     |        | 1014.0     |        | 1013.5     |        | 1012.0     |        | 1010.7     |        |
| Wind Dir     | SSE        |        | E          |        | SSW        |        | NE         |        | CALM       |        | W          |        | ENE        |        | SSE        |        | SE         |        | SSE        |        |
| Wind Spd/F   | F 2        |        | F 3        |        | F 4        |        | F 2        |        | F 0        |        | F 2        |        | F 2        |        | F 3        |        | F 3        |        | F 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        | 51         |        |            |        | 49         |        | 39         |        |            |        |            |        | 42         |        | 510        |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.7        | 32.25* | 4.1        | 32.25* | 4.1        | 32.38* | 4.6        | 32.27* | 4.6        | 32.35* | 4.0        | 32.66* | 4.0        | 32.44* | 5.8        | 32.23* | 5.2        | 32.48* | 5.2        | 31.74* |
| 10m          | 4.21       | 32.253 | 3.18       | 32.318 | 3.49       | 32.394 | 3.01       | 32.346 | 2.86       | 32.371 | 3.13       | 32.780 | 3.49       | 32.463 | 2.99       | 32.442 | 3.56       | 32.488 | 4.59       | 31.922 |
| 20m          | 3.33       | 32.305 | 2.89       | 32.336 | 2.88       | 32.403 | 2.31       | 32.404 | 2.72       | 32.377 | 2.33       | 32.811 | 3.08       | 32.476 | 2.07       | 32.412 | 2.24       | 32.568 | 1.99       | 32.411 |
| 30m          | 2.71       | 32.358 | 1.74       | 32.441 | 1.36       | 32.583 | 2.17       | 32.414 | 2.46       | 32.399 | 1.72       | 32.819 | 1.60       | 32.631 | 1.98       | 32.429 | 0.94       | 32.661 | 1.76       | 32.437 |
| 50m          |            |        |            |        | 0.61       | 32.698 |            |        |            |        | 1.56       | 32.893 | 0.64       | 32.715 |            |        | 0.65       | 32.733 |            |        |
| 75m          |            |        |            |        | 0.50       | 32.757 |            |        |            |        | 1.12       | 32.947 | 0.59       | 32.849 |            |        | 0.65       | 32.824 |            |        |
| 100m         |            |        |            |        | 0.74       | 32.853 |            |        |            |        | 0.92       | 33.045 | 0.88       | 32.996 |            |        | 0.68       | 32.901 |            |        |
| 125m         |            |        |            |        | 0.81       | 33.030 |            |        |            |        | 0.93       | 33.088 | 0.96       | 33.032 |            |        | 0.80       | 32.938 |            |        |
| 150m         |            |        |            |        | 0.93       | 33.106 |            |        |            |        | 0.98       | 33.123 | 1.05       | 33.081 |            |        | 1.09       | 33.027 |            |        |
| 200m         |            |        |            |        | 1.14       | 33.191 |            |        |            |        | 1.10       | 33.184 | 1.24       | 33.180 |            |        | 0.99       | 33.103 |            |        |
| 250m         |            |        |            |        | 1.67       | 33.346 |            |        |            |        | 1.30       | 33.250 | 1.54       | 33.301 |            |        | 1.25       | 33.184 |            |        |
| 300m         |            |        |            |        | 2.60       | 33.720 |            |        |            |        | 1.70       | 33.375 | 1.90       | 33.435 |            |        | 1.53       | 33.301 |            |        |
| 400m         |            |        |            |        | 2.87       | 33.868 |            |        |            |        | 2.44       | 33.640 | 2.74       | 33.805 |            |        | 2.17       | 33.533 |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        | 2.81       | 33.807 |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-7

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SU22       |        | SU23       |        | SU24       |        | SU25       |        | SU26       |        | SU27       |        | SU28       |        | SU29       |        | SU31       |        | SU32       |        |
| Latitude:N   | 42- 9.7    |        | 42- 3.7    |        | 42-27.9    |        | 42-30.5    |        | 42-30.9    |        | 42-31.1    |        | 42-33.4    |        | 42-34.1    |        | 42-31.6    |        | 42-17.8    |        |
| Longitude:E  | 143-25.2   |        | 143-46.4   |        | 143-59.3   |        | 143-54.9   |        | 143-54.1   |        | 143-53.6   |        | 143-50.9   |        | 143-48.7   |        | 143-52.0   |        | 143-38.5   |        |
| Date         | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/15 |        | 1997/05/16 |        | 1997/05/17 |        |
| Time(JST)    | 03:58      |        | 06:04      |        | 08:35      |        | 09:21      |        | 09:36      |        | 09:47      |        | 10:19      |        | 10:42      |        | 12:51      |        | 07:31      |        |
| Weather      | R          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | C          |        | F          |        |
| Air Temp.    | 9.5        |        | 7.5        |        | 6.9        |        | 6.9        |        | 6.5        |        | 7.0        |        | 6.8        |        | 6.9        |        | 9.5        |        | 5.5        |        |
| Bar          | 1009.5     |        | 1008.5     |        | 1009.0     |        | 1008.0     |        | 1008.0     |        | 1008.0     |        | 1007.5     |        | 1007.5     |        | 999.5      |        | 1006.2     |        |
| Wind Dir     | CALM       |        | SE         |        | ESE        |        | ESE        |        | ESE        |        | ESE        |        | ESE        |        | SE         |        | ENE        |        | N          |        |
| Wind Spd/F   | F 0        |        | F 5        |        | F 4        |        | F 3        |        | F 3        |        | F 3        |        | F 4        |        | F 3        |        | F 2        |        | F 2        |        |
| Transparency | 40         |        |            |        |            |        |            |        |            |        |            |        | 95         |        | 72         |        | 119        |        |            |        |
| Depth        | 40         |        |            |        |            |        |            |        |            |        |            |        | 95         |        | 72         |        | 119        |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.1        | 31.40* | 4.2        | 32.54* | 4.1        | 32.57* | 3.9        | 32.42* | 3.7        | 32.35* | 3.9        | 32.39* | 4.4        | 32.41* | 4.6        | 32.28* | 4.6        | 32.59* | 4.2        | 32.32* |
| 10m          | 2.97       | 32.346 | 2.71       | 32.639 | 3.61       | 32.645 | 3.59       | 32.348 | 3.17       | 32.417 | 3.70       | 32.396 | 3.79       | 32.443 | 4.39       | 32.281 | 3.74       | 32.630 | 3.79       | 32.331 |
| 20m          | 2.09       | 32.392 | 2.26       | 32.768 | 2.74       | 32.684 | 2.79       | 32.499 | 2.73       | 32.478 | 2.24       | 32.501 | 2.48       | 32.474 | 2.69       | 32.490 | 3.25       | 32.696 | 3.01       | 32.495 |
| 30m          | 1.58       | 32.437 | 1.45       | 32.885 | 1.50       | 32.689 | 2.75       | 32.659 | 2.42       | 32.536 | 2.02       | 32.518 | 2.03       | 32.509 | 1.89       | 32.501 | 2.85       | 32.731 | 2.18       | 32.643 |
| 50m          |            |        | 1.22       | 32.949 | 1.84       | 32.777 | 1.84       | 32.694 | 1.82       | 32.650 | 1.69       | 32.644 | 1.44       | 32.542 | 1.59       | 32.519 | 2.32       | 32.784 | 1.10       | 32.719 |
| 75m          |            |        | 1.15       | 33.023 | 1.24       | 32.842 | 1.53       | 32.693 | 1.86       | 32.744 | 1.72       | 32.776 | 0.99       | 32.613 |            |        | 0.88       | 32.750 | 0.71       | 32.821 |
| 100m         |            |        | 1.21       | 33.137 | 0.42       | 32.944 | 1.56       | 32.690 | 0.68       | 32.759 | 0.97       | 32.805 |            |        |            |        | 1.10       | 32.847 | 0.65       | 32.882 |
| 125m         |            |        | 1.31       | 33.179 | 0.35       | 33.001 | 0.70       | 32.756 | 0.70       | 32.782 | 0.78       | 32.850 |            |        |            |        |            |        |            |        |
| 150m         |            |        | 1.33       | 33.200 | 0.94       | 33.118 | 0.80       | 32.877 | 0.82       | 32.898 |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        | 1.40       | 33.267 | 1.11       | 33.198 | 0.93       | 32.997 |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        | 1.70       | 33.364 | 1.87       | 33.380 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        | 1.80       | 33.442 | 2.10       | 33.477 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        | 2.72       | 33.776 | 2.72       | 33.755 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-8

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SU33       |        | SU34       |        | SU35       |        | P31        |        | P32        |        | P33        |        | PK21       |        | PK22       |        | P34        |        | PK14       |        |
| Latitude:N   | 42-12.9    |        | 42- 9.8    |        | 42- 9.9    |        | 42-45.0    |        | 42-30.0    |        | 42-15.0    |        | 42-14.1    |        | 42- 0.1    |        | 41-59.9    |        | 41-59.9    |        |
| Longitude:E  | 143-38.5   |        | 143-36.3   |        | 143-37.7   |        | 144- 0.0   |        | 143-59.1   |        | 144- 0.0   |        | 143-30.1   |        | 143-30.0   |        | 143-59.9   |        | 144-30.2   |        |
| Date         | 1997/05/17 |        | 1997/05/17 |        | 1997/05/17 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/27 |        |
| Time(JST)    | 09:23      |        | 10:57      |        | 13:44      |        | 10:51      |        | 12:14      |        | 13:50      |        | 16:04      |        | 17:25      |        | 19:26      |        | 21:52      |        |
| Weather      | F          |        | R          |        | R          |        | F          |        | F          |        | B          |        | B          |        | B          |        | B          |        |            |        |
| Air Temp.    | 5.0        |        | 5.0        |        | 4.8        |        | 6.5        |        | 5.4        |        | 6.9        |        | 7.5        |        | 8.5        |        | 6.8        |        | 3.5        |        |
| Bar          | 1006.5     |        | 1006.5     |        | 1006.0     |        | 1012.0     |        | 1012.0     |        | 1011.5     |        | 1010.5     |        | 1010.5     |        | 1011.4     |        | 1012.0     |        |
| Wind Dir     | NNE        |        | N          |        | NE         |        | SE         |        | SE         |        | ESE        |        | SSE        |        | WSW        |        | CALM       |        | CALM       |        |
| Wind Spd/F   | F 4        |        | F 4        |        | F 4        |        | F 2        |        | F 3        |        | F 2        |        | F 3        |        | F 3        |        | F 0        |        | F 0        |        |
| Transparency |            |        |            |        |            |        | 10         |        | 13         |        | 15         |        | 11         |        | 10         |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        | 490        |        | 930        |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.5        | 32.34* | 4.7        | 32.27* | 4.5        | 32.38* | 4.8        | 32.205 | 6.3        | 32.686 | 6.2        | 32.765 | 5.9        | 32.420 | 6.3        | 32.645 | 6.6        | 32.896 | 5.7        | 32.980 |
| 10m          | 3.69       | 32.394 | 4.38       | 32.279 | 4.31       | 32.382 | 4.00       | 32.282 | 5.49       | 32.649 | 5.71       | 32.680 | 4.73       | 32.292 | 5.48       | 32.590 | 6.15       | 32.774 | 5.49       | 32.922 |
| 20m          | 1.51       | 32.584 | 2.98       | 32.450 | 2.66       | 32.481 | 3.07       | 32.390 | 3.67       | 32.659 | 4.30       | 32.739 | 3.65       | 32.379 | 5.99       | 32.846 | 5.75       | 32.931 | 4.73       | 32.969 |
| 30m          | 1.18       | 32.608 | 1.67       | 32.644 | 1.52       | 32.602 | 2.95       | 32.418 | 2.00       | 32.701 | 2.93       | 32.733 | 2.35       | 32.450 | 3.59       | 32.656 | 3.71       | 32.884 | 3.26       | 33.069 |
| 50m          | 0.62       | 32.723 | 0.73       | 32.741 | 0.70       | 32.752 | 2.40       | 32.514 | 0.48       | 32.738 | 3.65       | 33.205 | 1.27       | 32.574 | 1.11       | 32.700 | 2.68       | 32.943 | 2.51       | 33.105 |
| 75m          | 0.82       | 32.889 | 0.66       | 32.851 | 1.27       | 32.916 |            |        | 0.49       | 32.883 | 1.21       | 33.081 |            |        | 0.93       | 32.794 | 0.95       | 33.000 | 2.33       | 33.200 |
| 100m         | 0.92       | 33.014 | 0.89       | 33.007 | 1.14       | 33.046 |            |        | 0.76       | 33.002 | 1.78       | 33.167 |            |        | 0.83       | 32.892 | 1.70       | 33.123 | 2.28       | 33.251 |
| 125m         | 1.11       | 33.099 | 0.96       | 33.056 | 1.16       | 33.134 |            |        | 2.16       | 33.215 | 3.56       | 33.402 |            |        |            |        | 3.88       | 33.409 | 2.60       | 33.308 |
| 150m         | 1.20       | 33.156 |            |        | 1.30       | 33.196 |            |        | 3.23       | 33.343 | 2.23       | 33.288 |            |        |            |        | 4.04       | 33.458 | 2.02       | 33.284 |
| 200m         |            |        |            |        |            |        |            |        | 2.80       | 33.337 | 2.03       | 33.307 |            |        |            |        | 3.45       | 33.422 | 1.79       | 33.329 |
| 250m         |            |        |            |        |            |        |            |        | 2.41       | 33.356 | 1.69       | 33.365 |            |        |            |        | 2.99       | 33.420 | 2.54       | 33.479 |
| 300m         |            |        |            |        |            |        |            |        | 1.69       | 33.338 | 2.25       | 33.495 |            |        |            |        | 3.16       | 33.492 | 2.39       | 33.539 |
| 400m         |            |        |            |        |            |        |            |        | 2.25       | 33.560 | 2.56       | 33.671 |            |        |            |        | 3.27       | 33.681 | 2.70       | 33.718 |
| 500m         |            |        |            |        |            |        |            |        |            |        | 3.04       | 33.890 |            |        |            |        | 3.41       | 33.953 | 3.03       | 33.883 |
| 600m         |            |        |            |        |            |        |            |        |            |        | 3.19       | 34.026 |            |        |            |        | 3.34       | 34.086 | 3.16       | 33.981 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.16       | 34.182 | 3.19       | 34.063 |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.06       | 34.256 | 3.27       | 34.183 |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.84       | 34.328 | 3.03       | 34.237 |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.77       | 34.367 | 2.91       | 34.304 |

Table 5-9

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK13       |        | PK12       |        | PK11       |        | P21        |        | P22        |        | PK02       |        | PK01       |        | P11        |        | P12        |        | P13        |        |
| Latitude:N   | 42-14.9    |        | 42-29.1    |        | 42-44.1    |        | 42-54.1    |        | 42-45.1    |        | 42-45.0    |        | 42-54.9    |        | 43- 4.9    |        | 42-54.1    |        | 42-45.0    |        |
| Longitude:E  | 144-29.9   |        | 144-30.0   |        | 144-29.9   |        | 144-59.9   |        | 145- 0.1   |        | 145-29.1   |        | 145-30.1   |        | 145-44.9   |        | 145-49.9   |        | 145-54.1   |        |
| Date         | 1997/05/27 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        |
| Time(JST)    | 23:55      |        | 01:35      |        | 03:13      |        | 05:29      |        | 06:25      |        | 08:50      |        | 10:04      |        | 11:37      |        | 12:48      |        | 14:17      |        |
| Weather      | F          |        | F          |        | B          |        | C          |        | C          |        | B          |        | B          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 4.8        |        | 4.5        |        | 3.7        |        | 4.9        |        | 5.1        |        | 5.5        |        | 6.6        |        | 6.5        |        | 5.6        |        | 5.9        |        |
| Bar          | 1011.5     |        | 1011.0     |        | 1011.0     |        | 1011.5     |        | 1012.0     |        | 1012.0     |        | 1012.5     |        | 1012.5     |        | 1012.5     |        | 1012.5     |        |
| Wind Dir     | ENE        |        | NW         |        | NW         |        | N          |        | N          |        | NNE        |        | ENE        |        | E          |        | NE         |        | NE         |        |
| Wind Spd/F   | F 1        |        | F 1        |        | F 2        |        | F 3        |        | F 4        |        | F 3        |        | F 3        |        | F 3        |        | F 2        |        | F 3        |        |
| Transparency |            |        |            |        |            |        | 8          |        | 5          |        | 13         |        | 15         |        | 5          |        | 9          |        | 7          |        |
| Depth        |            |        | 1683       |        | 132        |        | 65         |        | 168        |        |            |        |            |        | 104        |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.1        | 33.130 | 6.3        | 32.828 | 3.3        | 32.706 | 4.8        | 32.347 | 3.6        | 32.878 | 4.8        | 32.838 | 3.8        | 32.834 | 4.3        | 32.856 | 4.8        | 32.945 | 4.5        | 32.899 |
| 10m          | 7.34       | 33.088 | 5.99       | 32.750 | 3.72       | 32.724 | 4.68       | 32.273 | 3.37       | 32.789 | 4.59       | 32.885 | 3.01       | 32.757 | 3.53       | 32.750 | 4.54       | 32.837 | 4.10       | 32.805 |
| 20m          | 6.59       | 33.163 | 6.00       | 32.901 | 3.99       | 32.862 | 2.64       | 32.476 | 3.15       | 32.811 | 4.11       | 32.894 | 2.64       | 32.809 | 2.70       | 32.750 | 4.34       | 32.838 | 3.25       | 32.802 |
| 30m          | 3.85       | 33.123 | 3.24       | 32.778 | 4.16       | 32.897 | 2.53       | 32.571 | 2.02       | 32.824 | 3.49       | 32.897 | 2.29       | 32.891 | 1.85       | 32.759 | 3.14       | 32.851 | 2.08       | 32.829 |
| 50m          | 1.17       | 32.992 | 2.01       | 32.863 | 2.68       | 33.009 | 1.92       | 32.654 | 0.89       | 32.918 | 2.88       | 32.961 | 1.27       | 32.958 | 0.70       | 32.823 | 0.67       | 32.875 | 0.43       | 32.890 |
| 75m          | 1.54       | 33.087 | 1.34       | 32.943 | 1.65       | 33.070 |            |        | 0.71       | 33.012 | 2.46       | 32.999 | 0.75       | 33.051 | 0.62       | 32.848 | 0.45       | 32.972 | 0.46       | 33.021 |
| 100m         | 4.01       | 33.461 | 1.23       | 33.035 | 1.15       | 33.108 |            |        | 1.02       | 33.078 | 1.85       | 33.072 | 0.81       | 33.062 |            |        | 0.30       | 33.041 | 0.17       | 33.060 |
| 125m         | 2.40       | 33.311 | 1.28       | 33.107 |            |        |            |        | 1.10       | 33.096 | 1.83       | 33.154 | 0.68       | 33.090 |            |        | 0.44       | 33.113 | 0.64       | 33.150 |
| 150m         | 2.10       | 33.316 | 1.51       | 33.194 |            |        |            |        | 1.10       | 33.105 | 2.35       | 33.325 | 0.87       | 33.147 |            |        | 0.71       | 33.185 | 0.78       | 33.196 |
| 200m         | 2.20       | 33.367 | 1.66       | 33.295 |            |        |            |        |            |        | 2.87       | 33.568 |            |        |            |        | 1.24       | 33.313 | 1.47       | 33.334 |
| 250m         | 2.81       | 33.545 | 2.16       | 33.458 |            |        |            |        |            |        | 2.36       | 33.613 |            |        |            |        | 1.46       | 33.405 | 1.28       | 33.403 |
| 300m         | 2.32       | 33.591 | 2.38       | 33.607 |            |        |            |        |            |        | 2.31       | 33.645 |            |        |            |        | 1.98       | 33.524 | 1.99       | 33.535 |
| 400m         | 2.97       | 33.833 | 3.02       | 33.847 |            |        |            |        |            |        | 2.65       | 33.753 |            |        |            |        | 2.37       | 33.654 | 2.60       | 33.761 |
| 500m         | 3.19       | 33.973 | 3.20       | 34.006 |            |        |            |        |            |        | 3.24       | 33.993 |            |        |            |        | 2.80       | 33.795 | 3.14       | 33.935 |
| 600m         | 3.19       | 34.080 | 3.20       | 34.116 |            |        |            |        |            |        | 3.20       | 34.095 |            |        |            |        | 3.27       | 33.980 | 3.19       | 34.029 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.22       | 34.124 | 3.21       | 34.111 |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.09       | 34.223 | 3.14       | 34.241 |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.94       | 34.287 | 2.95       | 34.286 |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.80       | 34.340 | 2.78       | 34.349 |

Table 5-10



Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P14        |        | P15        |        | PK03       |        | P23        |        | P24        |        | P25        |        | PK04       |        | PK05       |        | P16        |        | P17        |        |
| Latitude:N   | 42-30.1    |        | 42-15.1    |        | 42-30.1    |        | 42-29.9    |        | 42-15.0    |        | 41-59.1    |        | 42-14.9    |        | 41-59.1    |        | 41-59.9    |        | 41-29.9    |        |
| Longitude:E  | 145-59.9   |        | 146- 0.1   |        | 145-29.1   |        | 145- 0.2   |        | 144-59.9   |        | 145- 0.0   |        | 145-30.1   |        | 145-30.1   |        | 145-59.8   |        | 146- 0.0   |        |
| Date         | 1997/05/28 |        | 1997/05/28 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        |
| Time(JST)    | 16:21      |        | 18:18      |        | 05:04      |        | 07:10      |        | 08:43      |        | 10:17      |        | 13:19      |        | 15:14      |        | 17:47      |        | 20:54      |        |
| Weather      | B          |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | F          |        | F          |        |            |        |
| Air Temp.    | 6.0        |        | 5.4        |        | 5.5        |        | 5.5        |        | 6.0        |        | 6.5        |        | 7.0        |        | 7.0        |        | 6.4        |        | 6.1        |        |
| Bar          | 1011.5     |        | 1013.0     |        | 1011.0     |        | 1010.7     |        | 1010.0     |        | 1009.0     |        | 1009.0     |        | 1009.0     |        | 1009.5     |        | 1010.5     |        |
| Wind Dir     | NE         |        | NE         |        | SW         |        | ENE        |        | ENE        |        | ESE        |        | ENE        |        | NE         |        | ENE        |        | E          |        |
| Wind Spd/F   | F 4        |        | F 2        |        | F 3        |        | F 1        |        | F 1        |        | F 2        |        | F 2        |        | F 2        |        | F 2        |        | F 2        |        |
| Transparency | 10         |        | 8          |        | 9          |        | 12         |        | 5          |        | 10         |        | 9          |        | 9          |        | 10         |        |            |        |
| Depth        |            |        |            |        |            |        | 1798       |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.0        | 33.041 | 6.3        | 33.093 | 5.1        | 33.054 | 3.9        | 32.841 | 4.4        | 32.906 | 5.5        | 33.015 | 5.9        | 33.137 | 5.7        | 33.022 | 6.2        | 33.028 | 5.8        | 33.045 |
| 10m          | 4.83       | 32.904 | 6.24       | 32.931 | 4.42       | 32.850 | 3.83       | 32.713 | 3.64       | 32.808 | 4.50       | 32.923 | 5.59       | 33.022 | 5.25       | 33.023 | 5.95       | 33.006 | 5.65       | 33.014 |
| 20m          | 4.47       | 32.907 | 5.82       | 32.943 | 4.27       | 32.860 | 3.53       | 32.793 | 3.39       | 32.823 | 4.04       | 32.919 | 5.07       | 33.022 | 4.61       | 33.032 | 4.93       | 33.006 | 5.25       | 33.020 |
| 30m          | 3.63       | 32.922 | 4.82       | 32.975 | 3.29       | 32.878 | 2.53       | 32.788 | 2.49       | 32.869 | 2.90       | 32.918 | 4.42       | 33.023 | 4.52       | 33.026 | 3.95       | 33.040 | 4.42       | 33.035 |
| 50m          | 3.04       | 32.962 | 2.82       | 33.077 | 2.79       | 32.939 | 2.80       | 32.937 | 1.65       | 33.054 | 1.29       | 32.978 | 3.22       | 33.066 | 3.61       | 33.017 | 3.03       | 33.061 | 3.34       | 33.055 |
| 75m          | 2.17       | 33.033 | 2.41       | 33.173 | 2.08       | 33.058 | 1.33       | 32.983 | 1.04       | 33.120 | 0.89       | 33.030 | 2.26       | 33.148 | 2.63       | 33.139 | 2.48       | 33.082 | 1.96       | 33.153 |
| 100m         | 1.74       | 33.088 | 2.10       | 33.239 | 2.19       | 33.153 | 1.01       | 33.078 | 1.10       | 33.194 | 0.92       | 33.136 | 2.00       | 33.220 | 2.05       | 33.201 | 2.39       | 33.127 | 1.96       | 33.218 |
| 125m         | 1.94       | 33.183 | 2.53       | 33.388 | 2.07       | 33.222 | 1.03       | 33.150 | 1.04       | 33.222 | 0.82       | 33.156 | 2.29       | 33.325 | 2.25       | 33.264 | 1.98       | 33.194 | 2.07       | 33.300 |
| 150m         | 2.43       | 33.360 | 2.59       | 33.492 | 2.22       | 33.291 | 1.17       | 33.201 | 1.11       | 33.247 | 1.59       | 33.258 | 2.76       | 33.474 | 2.11       | 33.330 | 2.33       | 33.345 | 2.59       | 33.449 |
| 200m         | 3.28       | 33.726 | 2.89       | 33.681 | 2.76       | 33.540 | 1.87       | 33.335 | 1.26       | 33.298 | 1.38       | 33.320 | 2.97       | 33.660 | 2.70       | 33.587 | 2.76       | 33.581 | 2.68       | 33.598 |
| 250m         | 2.72       | 33.757 | 2.98       | 33.789 | 2.90       | 33.716 | 1.59       | 33.366 | 1.45       | 33.381 | 1.46       | 33.358 | 2.95       | 33.768 | 3.11       | 33.716 | 2.86       | 33.714 | 2.96       | 33.761 |
| 300m         | 2.95       | 33.848 | 3.13       | 33.893 | 3.03       | 33.810 | 1.47       | 33.430 | 1.63       | 33.438 | 1.87       | 33.444 | 3.28       | 33.896 | 3.14       | 33.833 | 3.05       | 33.838 | 3.23       | 33.880 |
| 400m         | 3.21       | 34.006 | 3.21       | 34.046 | 3.24       | 33.982 | 2.45       | 33.660 | 2.16       | 33.607 | 2.45       | 33.661 | 3.23       | 34.037 | 3.23       | 33.988 | 3.19       | 34.024 | 3.18       | 34.018 |
| 500m         | 3.16       | 34.109 | 3.18       | 34.153 | 3.19       | 34.084 | 3.07       | 33.914 | 2.78       | 33.791 | 2.94       | 33.847 | 3.21       | 34.130 | 3.15       | 34.095 | 3.17       | 34.156 | 3.23       | 34.129 |
| 600m         | 3.10       | 34.205 | 3.02       | 34.227 | 3.15       | 34.173 | 3.25       | 34.075 | 3.26       | 34.015 | 3.23       | 34.035 | 3.11       | 34.213 | 3.17       | 34.195 | 3.05       | 34.240 | 3.14       | 34.216 |
| 700m         | 3.00       | 34.266 | 2.94       | 34.295 |            |        |            |        |            |        | 3.22       | 34.148 |            | 3.04   | 34.255     | 2.90   | 34.318     | 2.98   | 34.270     |        |
| 800m         | 2.87       | 34.319 | 2.75       | 34.352 |            |        |            |        |            |        | 3.07       | 34.232 |            | 2.90   | 34.301     | 2.75   | 34.368     | 2.88   | 34.331     |        |
| 900m         | 2.76       | 34.374 | 2.67       | 34.391 |            |        |            |        |            |        | 3.12       | 34.317 |            | 2.80   | 34.349     | 2.62   | 34.413     | 2.75   | 34.374     |        |
| 1000m        | 2.61       | 34.408 | 2.55       | 34.432 |            |        |            |        |            |        | 2.84       | 34.346 |            | 2.71   | 34.381     | 2.48   | 34.445     | 2.61   | 34.412     |        |

Table 5-11

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | PKA24      |        | PKA25      |        | PKA28      |        | PKA29      |        | PKA30      |        | PKA27      |        | PKA22      |        | PKA19      |        | PKA16      |        | PKA13      |        |  |
| Latitude:N   | 41-29.9    |        | 40-59.1    |        | 40-59.9    |        | 40-30.1    |        | 40- 0.0    |        | 39-59.9    |        | 39-59.9    |        | 39-59.9    |        | 39-59.9    |        | 39-59.1    |        |  |
| Longitude:E  | 146-30.0   |        | 146-30.1   |        | 146-59.8   |        | 147- 0.0   |        | 147- 0.1   |        | 146-30.1   |        | 146- 1.6   |        | 145-30.1   |        | 145- 0.1   |        | 144-19.9   |        |  |
| Date         | 1997/05/29 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        | 1997/05/30 |        |  |
| Time(JST)    | 23:26      |        | 02:09      |        | 04:15      |        | 06:59      |        | 09:45      |        | 11:59      |        | 14:08      |        | 16:29      |        | 18:26      |        | 20:54      |        |  |
| Weather      | C          |        | C          |        | BC         |        | C          |        | C          |        | C          |        | BC         |        | B          |        | BC         |        |            |        |  |
| Air Temp.    | 6.3        |        | 5.9        |        | 6.5        |        | 7.8        |        | 10.6       |        | 13.3       |        | 13.3       |        | 9.8        |        | 8.8        |        | 10.3       |        |  |
| Bar          | 1010.0     |        | 1010.0     |        | 1010.2     |        | 1011.0     |        | 1011.0     |        | 1011.0     |        | 1011.5     |        | 1012.0     |        | 1012.5     |        | 1013.0     |        |  |
| Wind Dir     | ESE        |        | NE         |        | ENE        |        | NE         |        | NE         |        | E          |        | E          |        | E          |        | E          |        | E          |        |  |
| Wind Spd/F   | F 2        |        | F 2        |        | F 3        |        | F 3        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 3        |        |  |
| Transparency |            |        |            |        | 13         |        | 9          |        | 10         |        | 12         |        | 11         |        | 5          |        | 13         |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 5.9        | 32.991 | 5.8        | 33.021 | 6.9        | 33.002 | 7.0        | 32.784 | 11.7       | 33.743 | 12.3       | 33.777 | 12.3       | 33.794 | 7.2        | 32.834 | 8.7        | 33.196 | 10.3       | 33.911 |  |
| 10m          | 5.79       | 32.948 | 5.65       | 32.953 | 6.83       | 32.956 | 6.51       | 32.730 | 11.64      | 33.697 | 12.02      | 33.718 | 12.04      | 33.729 | 6.23       | 32.743 | 8.57       | 33.134 | 10.03      | 33.927 |  |
| 20m          | 5.58       | 32.956 | 5.04       | 32.967 | 4.96       | 32.952 | 3.52       | 32.922 | 11.54      | 33.700 | 11.96      | 33.729 | 11.57      | 33.686 | 5.30       | 32.766 | 8.62       | 33.279 | 9.79       | 33.938 |  |
| 30m          | 4.33       | 33.013 | 4.21       | 33.002 | 3.15       | 33.008 | 2.25       | 32.936 | 10.61      | 33.508 | 11.75      | 33.706 | 5.58       | 33.031 | 2.71       | 32.904 | 2.73       | 32.861 | 9.64       | 33.943 |  |
| 50m          | 3.48       | 33.066 | 2.55       | 33.109 | 2.42       | 33.105 | 1.88       | 32.961 | 1.15       | 32.835 | 2.92       | 33.012 | 2.96       | 33.053 | 2.69       | 32.922 | 4.83       | 33.209 | 8.05       | 33.906 |  |
| 75m          | 2.23       | 33.132 | 2.06       | 33.161 | 2.03       | 33.188 | 2.46       | 33.160 | 6.22       | 33.642 | 1.95       | 33.077 | 2.34       | 33.093 | 1.81       | 33.027 | 5.64       | 33.613 | 7.97       | 33.982 |  |
| 100m         | 1.84       | 33.181 | 1.93       | 33.226 | 2.34       | 33.277 | 2.01       | 33.200 | 4.73       | 33.536 | 1.93       | 33.199 | 2.25       | 33.196 | 1.62       | 33.099 | 5.80       | 33.685 | 8.11       | 34.033 |  |
| 125m         | 1.95       | 33.248 | 2.00       | 33.281 | 2.42       | 33.370 | 2.35       | 33.286 | 2.16       | 33.270 | 2.72       | 33.308 | 1.96       | 33.241 | 1.77       | 33.188 | 4.00       | 33.469 | 8.11       | 34.048 |  |
| 150m         | 2.26       | 33.381 | 2.29       | 33.395 | 2.66       | 33.542 | 2.28       | 33.346 | 1.08       | 33.199 | 2.68       | 33.362 | 2.48       | 33.368 | 2.09       | 33.274 | 4.19       | 33.493 | 7.96       | 34.024 |  |
| 200m         | 2.63       | 33.575 | 2.53       | 33.556 | 2.73       | 33.652 | 2.59       | 33.557 | 1.50       | 33.311 | 2.65       | 33.520 | 2.55       | 33.547 | 2.72       | 33.539 | 2.27       | 33.297 | 6.99       | 33.875 |  |
| 250m         | 3.00       | 33.761 | 2.92       | 33.718 | 3.24       | 33.826 | 2.80       | 33.683 | 2.03       | 33.437 | 2.81       | 33.670 | 2.65       | 33.659 | 3.00       | 33.689 | 1.65       | 33.289 | 6.22       | 33.759 |  |
| 300m         | 3.07       | 33.857 | 3.05       | 33.835 | 3.17       | 33.899 | 3.17       | 33.821 | 2.85       | 33.633 | 3.04       | 33.778 | 2.92       | 33.781 | 3.08       | 33.795 | 1.77       | 33.373 | 5.13       | 33.618 |  |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 5-12

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |        |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--------|--------|
| Station No   | PKA10      |        | PKA07      |        | PKA06      |        | PKA09      |        | PKA12      |        | PKA15      |        | PKA18      |        | PKA21      |        | PKA26      |        | P18        |        |        |        |
| Latitude:N   | 39-59.1    |        | 39-59.9    |        | 40-29.9    |        | 40-30.0    |        | 40-29.9    |        | 40-29.1    |        | 40-29.1    |        | 40-29.1    |        | 40-29.1    |        | 40-59.9    |        |        |        |
| Longitude:E  | 143-39.1   |        | 143- 0.0   |        | 142-59.9   |        | 143-39.8   |        | 144-19.9   |        | 144-59.9   |        | 145-29.9   |        | 145-59.9   |        | 146-29.1   |        | 146- 0.1   |        |        |        |
| Date         | 1997/05/30 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/05/31 |        | 1997/06/01 |        |        |        |
| Time(JST)    | 23:27      |        | 02:14      |        | 04:56      |        | 07:53      |        | 11:02      |        | 14:10      |        | 16:32      |        | 18:48      |        | 21:09      |        | 00:37      |        |        |        |
| Weather      | B          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |        |        |
| Air Temp.    | 10.3       |        | 10.3       |        | 10.3       |        | 10.0       |        | 10.3       |        | 10.3       |        | 9.6        |        | 7.6        |        | 8.8        |        | 7.5        |        |        |        |
| Bar          | 1012.5     |        | 1011.0     |        | 1012.9     |        | 1013.5     |        | 1013.0     |        | 1013.5     |        | 1014.0     |        | 1015.0     |        | 1015.2     |        | 1014.5     |        |        |        |
| Wind Dir     | E          |        | E          |        | ESE        |        | E          |        | E          |        | ESE        |        | E          |        | E          |        | ESE        |        | E          |        |        |        |
| Wind Spd/F   | F 4        |        | F 4        |        | F 5        |        | F 5        |        | F 5        |        | F 5        |        | F 5        |        | F 3        |        | F 4        |        | F 5        |        |        |        |
| Transparency |            |        |            |        | 7          |        | 11         |        | 13         |        | 12         |        | 10         |        |            |        |            |        |            |        |        |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |        |        |
| 0m           | 10.1       | 33.532 | 9.4        | 33.340 | 10.2       | 33.457 | 9.4        | 33.520 | 10.1       | 34.143 | 10.3       | 34.072 | 9.9        | 33.703 | 6.1        | 32.705 | 7.5        | 32.838 | 5.9        | 32.853 |        |        |
| 10m          | 9.97       | 33.495 | 8.92       | 33.342 | 10.05      | 33.419 | 9.29       | 33.442 | 10.02      | 34.060 | 10.13      | 34.014 | 9.82       | 33.646 | 5.87       | 32.684 | 7.18       | 32.770 | 5.89       | 32.756 |        |        |
| 20m          | 8.87       | 33.432 | 8.97       | 33.440 | 9.35       | 33.521 | 9.13       | 33.535 | 9.82       | 34.062 | 10.05      | 34.029 | 9.82       | 33.646 | 3.20       | 32.791 | 4.99       | 33.019 | 4.14       | 32.841 |        |        |
| 30m          | 9.19       | 33.536 | 8.15       | 33.588 | 8.60       | 33.565 | 9.30       | 33.764 | 8.96       | 34.083 | 9.69       | 34.035 | 9.69       | 33.678 | 1.20       | 32.815 | 4.27       | 33.044 | 1.33       | 32.855 |        |        |
| 50m          | 8.30       | 33.852 | 6.18       | 33.660 | 5.83       | 33.539 | 8.44       | 33.854 | 8.51       | 34.087 | 8.79       | 34.058 | 5.07       | 33.283 | 0.73       | 32.878 | 2.66       | 33.172 | 2.20       | 33.074 |        |        |
| 75m          | 7.33       | 33.893 | 6.95       | 33.882 | 6.33       | 33.730 | 7.41       | 33.868 | 8.51       | 34.117 | 8.40       | 34.068 | 4.49       | 33.389 | 1.02       | 33.039 | 2.06       | 33.194 | 1.54       | 33.147 |        |        |
| 100m         | 6.36       | 33.766 | 6.59       | 33.851 | 6.51       | 33.805 | 7.61       | 33.943 | 8.50       | 34.117 | 8.38       | 34.087 | 5.72       | 33.648 | 1.00       | 33.119 | 1.97       | 33.224 | 2.92       | 33.334 |        |        |
| 125m         | 6.19       | 33.749 | 5.91       | 33.793 | 5.90       | 33.774 | 7.10       | 33.878 | 8.49       | 34.115 | 8.38       | 34.093 | 4.65       | 33.541 | 2.37       | 33.274 | 2.38       | 33.329 | 2.88       | 33.343 |        |        |
| 150m         | 5.74       | 33.691 | 5.42       | 33.755 | 5.72       | 33.768 | 6.49       | 33.787 | 8.48       | 34.115 | 8.41       | 34.101 | 4.14       | 33.484 | 1.37       | 33.232 | 2.56       | 33.445 | 2.19       | 33.301 |        |        |
| 200m         | 4.40       | 33.545 | 5.10       | 33.781 | 3.48       | 33.552 | 5.91       | 33.711 | 8.49       | 34.117 | 8.43       | 34.107 | 3.07       | 33.372 | 1.88       | 33.348 | 2.53       | 33.575 | 1.74       | 33.319 |        |        |
| 250m         | 3.56       | 33.486 | 4.43       | 33.741 | 4.21       | 33.704 | 5.01       | 33.599 | 8.47       | 34.115 | 8.39       | 34.100 | 2.31       | 33.336 | 2.40       | 33.493 | 2.87       | 33.702 | 1.85       | 33.422 |        |        |
| 300m         | 1.67       | 33.333 | 3.49       | 33.707 | 3.51       | 33.695 | 3.89       | 33.482 | 8.48       | 34.115 | 8.33       | 34.088 | 2.41       | 33.395 | 2.21       | 33.557 | 3.10       | 33.824 | 2.02       | 33.554 |        |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | 3.74   | 33.933 |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.40   | 34.018 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.67   | 34.192 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.27   | 34.246 |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.21   | 34.318 |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.01   | 34.362 |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.84   | 34.393 |

Table 5-13

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     |      |        |      |        |      |        |      |        |      |        |  |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|--------|------|--------|------|--------|------|--------|------|--------|--|
| Station No   | PK07       | P27        | PK16       | P36        | PK24       | PK32       | PK31       | PK23       | P35        | PK15       |      |        |      |        |      |        |      |        |      |        |  |
| Latitude:N   | 40-59.9    | 40-59.1    | 40-59.1    | 40-59.1    | 40-59.1    | 40-59.9    | 41-29.8    | 41-30.0    | 41-29.1    | 41-29.1    |      |        |      |        |      |        |      |        |      |        |  |
| Longitude:E  | 145-30.5   | 145- 0.1   | 144-30.1   | 144- 0.1   | 143-30.1   | 143- 0.1   | 143- 0.0   | 143-29.9   | 143-59.1   | 144-29.1   |      |        |      |        |      |        |      |        |      |        |  |
| Date         | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/01 | 1997/06/02 |      |        |      |        |      |        |      |        |      |        |  |
| Time(JST)    | 03:17      | 05:39      | 08:08      | 10:37      | 13:04      | 15:21      | 18:32      | 21:19      | 23:58      | 02:23      |      |        |      |        |      |        |      |        |      |        |  |
| Weather      | C          | C          | C          | R          | C          | C          | C          |            | R          | C          |      |        |      |        |      |        |      |        |      |        |  |
| Air Temp.    | 7.1        | 9.0        | 9.8        | 10.1       | 9.6        | 9.3        | 7.5        | 7.9        | 7.3        | 7.8        |      |        |      |        |      |        |      |        |      |        |  |
| Bar          | 1014.0     | 1013.9     | 1014.5     | 1014.0     | 1014.5     | 1014.5     | 1016.0     | 1017.2     | 1018.0     | 1013.5     |      |        |      |        |      |        |      |        |      |        |  |
| Wind Dir     | E          | ESE        | ESE        | ESE        | NE         | ENE        | ENE        | ENE        | ENE        | E          |      |        |      |        |      |        |      |        |      |        |  |
| Wind Spd/F   | F 4        | F 5        | F 5        | F 4        | F 4        | F 4        | F 6        | F 5        | F 5        | F 5        |      |        |      |        |      |        |      |        |      |        |  |
| Transparency |            | 9          | 15         | 15         | 12         | 11         |            |            |            |            |      |        |      |        |      |        |      |        |      |        |  |
| Depth        |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |  |
| Equipment    | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD  |        |      |        |      |        |      |        |      |        |  |
| STND. Dep    | T          | S          | T          | S          | T          | S          | T          | S          | T          | S          | T    | S      |      |        |      |        |      |        |      |        |  |
| 0m           | 6.9        | 32.946     | 9.6        | 33.872     | 10.1       | 33.947     | 9.9        | 33.812     | 9.4        | 33.174     | 8.3  | 33.151 | 9.2  | 33.303 | 9.7  | 33.276 | 6.6  | 32.820 | 9.4  | 33.662 |  |
| 10m          | 6.94       | 32.914     | 9.56       | 33.841     | 10.00      | 33.998     | 9.87       | 33.896     | 9.43       | 33.124     | 8.25 | 33.054 | 9.12 | 33.190 | 9.68 | 33.171 | 6.44 | 32.709 | 9.38 | 33.550 |  |
| 20m          | 6.45       | 32.917     | 9.58       | 33.850     | 10.00      | 33.998     | 9.86       | 33.901     | 9.84       | 33.670     | 8.22 | 33.051 | 9.08 | 33.191 | 6.90 | 33.286 | 6.38 | 32.740 | 9.38 | 33.551 |  |
| 30m          | 2.41       | 32.885     | 9.74       | 33.931     | 10.00      | 33.999     | 9.60       | 33.963     | 8.48       | 33.512     | 8.79 | 33.449 | 7.40 | 33.472 | 6.26 | 33.301 | 5.17 | 33.196 | 9.35 | 33.559 |  |
| 50m          | 0.88       | 32.929     | 9.31       | 33.901     | 8.66       | 33.995     | 9.55       | 33.963     | 8.26       | 33.818     | 2.88 | 33.039 | 4.16 | 33.310 | 5.19 | 33.352 | 4.07 | 33.278 | 8.43 | 33.906 |  |
| 75m          | 1.57       | 33.095     | 8.01       | 33.975     | 8.57       | 34.051     | 7.51       | 33.867     | 7.45       | 33.912     | 5.21 | 33.475 | 4.67 | 33.533 | 4.73 | 33.431 | 5.31 | 33.596 | 7.31 | 33.854 |  |
| 100m         | 3.91       | 33.446     | 8.24       | 34.058     | 8.26       | 34.054     | 7.82       | 33.976     | 6.26       | 33.780     | 4.68 | 33.486 | 3.97 | 33.466 | 3.76 | 33.432 | 4.98 | 33.572 | 6.60 | 33.790 |  |
| 125m         | 2.51       | 33.305     | 8.33       | 34.086     | 8.36       | 34.088     | 7.89       | 34.005     | 5.33       | 33.661     | 2.92 | 33.327 | 3.97 | 33.458 | 3.62 | 33.431 | 4.08 | 33.475 | 5.78 | 33.685 |  |
| 150m         | 1.53       | 33.218     | 8.36       | 34.093     | 8.44       | 34.105     | 7.76       | 33.988     | 5.33       | 33.672     | 3.28 | 33.376 | 3.14 | 33.383 | 3.05 | 33.398 | 3.76 | 33.442 | 5.51 | 33.660 |  |
| 200m         | 1.49       | 33.293     | 8.07       | 34.044     | 8.44       | 34.109     | 6.86       | 33.853     | 4.80       | 33.660     | 2.85 | 33.402 | 3.08 | 33.433 | 3.10 | 33.473 | 3.91 | 33.504 | 4.97 | 33.618 |  |
| 250m         | 1.63       | 33.354     | 7.32       | 33.926     | 8.46       | 34.111     | 6.32       | 33.768     | 4.55       | 33.692     | 2.45 | 33.465 | 2.84 | 33.487 | 3.26 | 33.563 | 4.33 | 33.640 | 4.06 | 33.569 |  |
| 300m         | 1.79       | 33.412     | 6.40       | 33.785     | 8.40       | 34.101     | 5.39       | 33.651     | 3.93       | 33.675     | 2.67 | 33.593 | 2.59 | 33.538 | 3.21 | 33.628 | 4.10 | 33.697 | 2.90 | 33.485 |  |
| 400m         | 2.58       | 33.608     | 4.67       | 33.608     | 7.30       | 33.922     | 2.79       | 33.428     | 3.58       | 33.754     | 3.05 | 33.783 | 2.99 | 33.737 | 2.99 | 33.763 | 2.79 | 33.677 | 2.14 | 33.508 |  |
| 500m         | 3.29       | 33.840     | 2.89       | 33.511     | 4.87       | 33.638     | 2.67       | 33.553     | 3.10       | 33.850     | 3.48 | 34.015 | 3.58 | 33.980 | 3.48 | 33.982 | 3.21 | 33.866 | 3.61 | 33.826 |  |
| 600m         | 3.31       | 33.986     | 3.03       | 33.673     | 3.04       | 33.569     | 2.82       | 33.679     | 3.76       | 34.071     | 3.34 | 34.120 | 3.33 | 34.062 | 3.35 | 34.077 | 3.84 | 34.094 | 3.10 | 33.911 |  |
| 700m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |  |
| 800m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |  |
| 900m         |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |  |
| 1000m        |            |            |            |            |            |            |            |            |            |            |      |        |      |        |      |        |      |        |      |        |  |

Table 5-14

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P26        |        | PK06       |        | IK01       |        | IK02       |        | IK03       |        | IK04       |        | IK05       |        | IK06       |        | IK07       |        | IK08       |        |
| Latitude:N   | 41-29.9    |        | 41-29.1    |        | 42-19.9    |        | 42- 0.0    |        | 41-39.8    |        | 41-39.9    |        | 41-39.8    |        | 41-20.0    |        | 41- 0.1    |        | 40-59.1    |        |
| Longitude:E  | 144-59.8   |        | 145-29.9   |        | 145- 0.1   |        | 144-59.1   |        | 145- 0.2   |        | 145-30.1   |        | 145-59.9   |        | 146- 0.0   |        | 146- 0.0   |        | 145-30.0   |        |
| Date         | 1997/06/02 |        | 1997/06/02 |        | 1997/06/11 |        | 1997/06/12 |        | 1997/06/12 |        | 1997/06/13 |        | 1997/06/13 |        | 1997/06/14 |        | 1997/06/14 |        | 1997/06/15 |        |
| Time(JST)    | 04:47      |        | 07:00      |        | 18:04      |        | 05:17      |        | 18:01      |        | 05:16      |        | 17:57      |        | 05:18      |        | 17:58      |        | 06:06      |        |
| Weather      | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 6.9        |        | 6.6        |        | 8.7        |        | 6.9        |        | 9.1        |        | 7.8        |        | 9.8        |        | 9.6        |        | 11.8       |        | 10.6       |        |
| Bar          | 1020.0     |        | 1021.0     |        | 1008.0     |        | 1012.0     |        | 1012.0     |        | 1016.0     |        | 1017.0     |        | 1016.0     |        | 1011.0     |        | 1013.0     |        |
| Wind Dir     | E          |        | E          |        |            |        | N          |        | NE         |        | NE         |        | ESE        |        | SE         |        | SE         |        | NNW        |        |
| Wind Spd/F   | F 5        |        | F 4        |        | F          |        | F 2        |        | F 3        |        | F 1        |        | F 2        |        | F 3        |        | F 3        |        | F 3        |        |
| Transparency | 12         |        | 11         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 9.3        | 33.721 | 6.4        | 32.917 | 7.6        | 32.86* | 7.3        | 32.90* | 7.2        | 32.55* | 7.3        | 32.85* | 7.8        | 32.90* | 8.1        | 32.87* | 9.9        | 32.95* | 10.7       | 32.98* |
| 10m          | 9.39       | 33.610 | 6.21       | 32.844 | 7.15       | 32.867 | 6.91       | 32.905 | 6.36       | 32.551 | 7.14       | 32.852 | 7.18       | 32.896 | 7.48       | 32.893 | 9.24       | 32.881 | 9.63       | 33.234 |
| 20m          | 9.39       | 33.610 | 7.37       | 33.091 | 6.51       | 32.857 | 6.76       | 32.909 | 4.56       | 32.640 | 5.98       | 32.829 | 6.59       | 32.895 | 5.37       | 32.979 | 7.12       | 32.797 | 8.60       | 33.337 |
| 30m          | 9.29       | 33.601 | 4.76       | 33.013 | 2.18       | 32.820 | 3.66       | 32.987 | 1.89       | 32.694 | 3.77       | 33.046 | 5.87       | 32.949 | 3.64       | 33.067 | 7.83       | 33.590 | 8.60       | 33.639 |
| 50m          | 4.59       | 33.331 | 2.80       | 33.046 | 1.30       | 32.857 | 2.61       | 33.075 | 1.88       | 32.875 | 1.65       | 33.004 | 3.17       | 33.101 | 2.56       | 33.068 | 7.03       | 33.692 | 6.18       | 33.552 |
| 75m          | 4.42       | 33.463 | 2.73       | 33.176 | 1.75       | 33.031 | 2.41       | 33.147 | 1.22       | 32.976 | 0.70       | 33.064 | 2.23       | 33.167 | 2.52       | 33.153 | 6.22       | 33.722 | 6.70       | 33.792 |
| 100m         | 4.77       | 33.535 | 4.94       | 33.563 | 1.97       | 33.124 | 2.19       | 33.207 | 0.89       | 33.073 | 1.65       | 33.191 | 2.06       | 33.216 | 2.18       | 33.192 | 5.77       | 33.719 | 6.43       | 33.781 |
| 125m         | 4.09       | 33.475 | 4.10       | 33.490 | 1.79       | 33.196 | 2.17       | 33.269 | 2.54       | 33.273 | 1.24       | 33.192 | 2.22       | 33.279 | 2.38       | 33.280 | 4.59       | 33.575 | 5.90       | 33.709 |
| 150m         | 4.00       | 33.471 | 3.84       | 33.504 | 1.66       | 33.233 | 2.43       | 33.375 | 2.04       | 33.259 | 1.04       | 33.222 | 2.48       | 33.435 | 2.52       | 33.388 | 5.12       | 33.678 | 5.16       | 33.607 |
| 200m         | 2.57       | 33.353 | 3.90       | 33.570 | 1.34       | 33.300 | 2.69       | 33.551 | 1.85       | 33.292 | 1.49       | 33.378 | 2.76       | 33.628 | 2.68       | 33.553 | 4.90       | 33.709 | 3.21       | 33.393 |
| 250m         | 2.34       | 33.380 | 2.33       | 33.475 | 2.81       | 33.560 | 2.76       | 33.657 | 1.95       | 33.389 | 1.76       | 33.487 | 2.95       | 33.764 | 2.90       | 33.687 | 3.80       | 33.660 | 1.64       | 33.283 |
| 300m         | 2.86       | 33.506 | 2.41       | 33.555 | 2.82       | 33.668 | 3.04       | 33.786 | 1.98       | 33.458 | 2.55       | 33.666 | 3.04       | 33.848 | 3.08       | 33.813 | 3.38       | 33.686 | 2.95       | 33.471 |
| 400m         | 2.19       | 33.579 | 2.82       | 33.779 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 3.68       | 33.900 | 3.26       | 33.986 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         | 3.49       | 34.006 | 3.36       | 34.117 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-15

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199706     | 199706     | 199706     | 199706     | 199706     | 199706     | 199707     | 199707     | 199707     | 199707     |      |        |       |        |       |        |       |        |       |        |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| Station No   | IK09       | IK10       | IK11       | IK12       | IK13       | IK14       | IW01       | IW02       | IW03       | IW04       |      |        |       |        |       |        |       |        |       |        |
| Latitude:N   | 40-59.9    | 41-19.9    | 41-39.9    | 41-40.0    | 42- 0.0    | 42-20.1    | 38-59.8    | 38-40.0    | 38-20.1    | 38- 0.0    |      |        |       |        |       |        |       |        |       |        |
| Longitude:E  | 145- 0.3   | 144-59.1   | 144-30.2   | 144- 0.1   | 144- 0.1   | 143-59.1   | 147-59.9   | 147-40.0   | 147-19.1   | 147- 0.1   |      |        |       |        |       |        |       |        |       |        |
| Date         | 1997/06/15 | 1997/06/16 | 1997/06/16 | 1997/06/16 | 1997/06/17 | 1997/06/17 | 1997/06/26 | 1997/06/27 | 1997/06/27 | 1997/06/27 |      |        |       |        |       |        |       |        |       |        |
| Time(JST)    | 18:10      | 06:28      | 09:34      | 17:57      | 05:02      | 17:53      | 17:20      | 07:49      | 10:52      | 17:19      |      |        |       |        |       |        |       |        |       |        |
| Weather      | C          | BC         | C          | C          | C          | C          | C          | C          | C          | BC         |      |        |       |        |       |        |       |        |       |        |
| Air Temp.    | 10.5       | 9.6        | 10.6       | 9.3        | 9.3        | 10.6       | 21.7       | 21.7       | 22.1       | 20.7       |      |        |       |        |       |        |       |        |       |        |
| Bar          | 1014.7     | 1017.0     | 1018.0     | 1017.5     | 1018.4     | 1018.0     | 1009.7     | 1005.2     | 1005.2     | 1005.7     |      |        |       |        |       |        |       |        |       |        |
| Wind Dir     | W          | NNE        | NNE        | SE         | SSE        | S          | SSW        | SW         | W          | W          |      |        |       |        |       |        |       |        |       |        |
| Wind Spd/F   | F 2        | F 4        | F 3        | F 2        | F 3        | F 4        | F 3        | F 4        | F 5        | F 3        |      |        |       |        |       |        |       |        |       |        |
| Transparency |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| Depth        |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| Equipment    | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD  |        | CTD   |        | CTD   |        | CTD   |        |       |        |
| STND. Dep    | T          | S          | T          | S          | T          | S          | T          | S          | T          | S          | T    | S      | T     | S      | T     | S      | T     | S      |       |        |
| 0m           | 12.0       | 33.86*     | 11.1       | 33.13*     | 9.4        | 32.94*     | 12.4       | 33.24*     | 9.5        | 32.87*     | 9.5  | 32.80* | 21.1  | 34.50* | 21.3  | 34.57* | 20.6  | 34.29* | 18.8  | 33.96* |
| 10m          | 11.36      | 33.879     | 10.80      | 33.127     | 8.85       | 32.989     | 11.55      | 33.222     | 9.40       | 32.871     | 9.47 | 32.804 | 20.02 | 34.451 | 21.02 | 34.609 | 19.64 | 34.472 | 16.05 | 33.972 |
| 20m          | 10.36      | 33.912     | 9.16       | 33.166     | 8.45       | 33.067     | 10.62      | 33.262     | 8.01       | 32.923     | 7.93 | 32.790 | 19.72 | 34.486 | 19.09 | 34.482 | 19.08 | 34.505 | 15.95 | 34.041 |
| 30m          | 10.24      | 33.906     | 9.31       | 33.750     | 5.58       | 32.907     | 9.50       | 33.356     | 6.07       | 33.001     | 7.07 | 32.841 | 18.19 | 34.519 | 17.08 | 34.570 | 18.10 | 34.444 | 13.32 | 33.946 |
| 50m          | 8.54       | 34.026     | 9.44       | 33.962     | 5.36       | 33.309     | 4.73       | 33.201     | 3.23       | 32.948     | 3.40 | 32.969 | 15.22 | 34.513 | 14.75 | 34.583 | 12.79 | 34.105 | 9.13  | 33.880 |
| 75m          | 8.32       | 34.072     | 8.16       | 33.896     | 4.29       | 33.416     | 3.98       | 33.349     | 1.88       | 33.040     | 1.09 | 32.935 | 14.46 | 34.548 | 13.71 | 34.538 | 10.56 | 34.250 | 8.31  | 33.974 |
| 100m         | 8.42       | 34.098     | 7.30       | 33.841     | 4.48       | 33.507     | 5.12       | 33.583     | 2.30       | 33.184     | 0.67 | 32.993 | 13.54 | 34.501 | 12.50 | 34.456 | 9.94  | 34.255 | 6.94  | 33.858 |
| 125m         | 8.41       | 34.100     | 6.70       | 33.797     | 3.77       | 33.442     | 4.20       | 33.492     | 2.18       | 33.228     | 1.66 | 33.136 | 12.84 | 34.487 | 11.07 | 34.325 | 8.12  | 33.999 | 4.95  | 33.618 |
| 150m         | 8.43       | 34.104     | 5.30       | 33.625     | 3.98       | 33.480     | 4.71       | 33.575     | 1.70       | 33.230     | 1.43 | 33.172 | 12.24 | 34.448 | 10.28 | 34.285 | 7.87  | 34.023 | 5.07  | 33.650 |
| 200m         | 8.41       | 34.101     | 3.31       | 33.412     | 3.06       | 33.419     | 3.50       | 33.497     | 1.67       | 33.294     | 1.31 | 33.240 | 10.13 | 34.255 | 8.30  | 34.079 | 7.39  | 34.037 | 4.68  | 33.750 |
| 250m         | 8.34       | 34.089     | 3.92       | 33.527     | 3.32       | 33.558     | 2.90       | 33.510     | 1.79       | 33.390     | 2.12 | 33.405 | 7.03  | 33.896 | 6.42  | 33.887 | 6.69  | 34.045 | 4.73  | 33.865 |
| 300m         | 7.85       | 34.006     | 3.56       | 33.556     | 2.75       | 33.579     | 2.85       | 33.536     | 2.38       | 33.516     | 1.95 | 33.481 | 7.48  | 34.139 | 5.58  | 33.833 | 5.97  | 34.054 | 3.79  | 33.828 |
| 400m         |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| 500m         |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| 600m         |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| 700m         |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| 800m         |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| 900m         |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |
| 1000m        |            |            |            |            |            |            |            |            |            |            |      |        |       |        |       |        |       |        |       |        |

Table 5-16

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | IW05       |        | IW06       |        | IW07       |        | IW13       |        | IW15       |        | IW16       |        | IW17       |        | IW18       |        | IW19       |        | IW20       |        |
| Latitude:N   | 38-19.9    |        | 38-39.1    |        | 38-59.9    |        | 38- 0.4    |        | 38-39.1    |        | 38-59.7    |        | 39-24.9    |        | 39-50.0    |        | 40-15.6    |        | 40-39.1    |        |
| Longitude:E  | 146-40.0   |        | 146-20.0   |        | 145-59.8   |        | 143-29.1   |        | 143-49.1   |        | 143-59.1   |        | 143-59.9   |        | 143-59.9   |        | 143-59.7   |        | 143-59.1   |        |
| Date         | 1997/06/28 |        | 1997/06/28 |        | 1997/06/28 |        | 1997/06/30 |        | 1997/07/01 |        | 1997/07/01 |        | 1997/07/02 |        | 1997/07/02 |        | 1997/07/02 |        | 1997/07/03 |        |
| Time(JST)    | 07:29      |        | 10:27      |        | 17:17      |        | 17:19      |        | 07:33      |        | 17:19      |        | 07:21      |        | 10:12      |        | 17:18      |        | 05:48      |        |
| Weather      | F          |        | F          |        | C          |        | B          |        | F          |        | F          |        | F          |        | F          |        | F          |        | C          |        |
| Air Temp.    | 20.2       |        | 19.7       |        | 16.6       |        | 19.8       |        | 17.1       |        | 15.5       |        | 17.0       |        | 17.5       |        | 15.8       |        | 15.8       |        |
| Bar          | 1004.5     |        | 1003.5     |        | 1000.0     |        | 1011.7     |        | 1014.0     |        | 1012.5     |        | 1011.0     |        | 1009.4     |        | 1002.7     |        | 1004.5     |        |
| Wind Dir     | SSW        |        | SW         |        | SE         |        | SSW        |        | SW         |        | SSW        |        | SSE        |        | S          |        | S          |        | W          |        |
| Wind Spd/F   | F 3        |        | F 2        |        | F 2        |        | F 2        |        | F 3        |        | F 3        |        | F 4        |        | F 4        |        | F 5        |        | F 5        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 19.1       | 34.06* | 18.4       | 33.96* | 14.7       | 33.11* | 20.4       | 34.54* | 13.9       | 32.92* | 14.4       | 32.74* | 14.8       | 33.39* | 13.2       | 32.73* | 13.8       | 33.21* | 13.9       | 33.52* |
| 10m          | 16.54      | 34.197 | 16.09      | 34.034 | 10.09      | 33.130 | 19.63      | 34.550 | 12.92      | 32.944 | 12.71      | 32.764 | 14.14      | 33.393 | 11.78      | 32.744 | 13.41      | 33.454 | 13.73      | 33.530 |
| 20m          | 16.09      | 34.188 | 15.67      | 33.992 | 9.04       | 33.123 | 19.43      | 34.544 | 12.80      | 32.965 | 11.78      | 32.925 | 13.24      | 33.409 | 10.78      | 32.893 | 11.98      | 33.578 | 13.45      | 33.580 |
| 30m          | 14.77      | 34.197 | 15.56      | 34.004 | 5.79       | 33.105 | 19.21      | 34.524 | 9.27       | 32.925 | 5.89       | 33.058 | 11.97      | 33.452 | 9.49       | 33.409 | 10.24      | 33.805 | 10.55      | 33.809 |
| 50m          | 8.71       | 33.830 | 9.93       | 33.743 | 3.87       | 33.349 | 14.04      | 34.051 | 7.01       | 33.730 | 7.34       | 33.867 | 6.76       | 33.678 | 5.42       | 33.422 | 8.40       | 33.969 | 8.35       | 33.952 |
| 75m          | 7.78       | 33.961 | 7.54       | 33.854 | 3.35       | 33.372 | 12.94      | 34.203 | 6.09       | 33.721 | 6.52       | 33.805 | 5.03       | 33.594 | 5.43       | 33.565 | 8.31       | 34.067 | 8.26       | 34.036 |
| 100m         | 6.11       | 33.760 | 6.25       | 33.753 | 4.38       | 33.511 | 10.13      | 33.945 | 5.48       | 33.663 | 4.95       | 33.622 | 4.28       | 33.524 | 5.39       | 33.624 | 8.32       | 34.075 | 8.30       | 34.064 |
| 125m         | 4.80       | 33.601 | 5.25       | 33.628 | 4.32       | 33.544 | 9.16       | 33.895 | 4.91       | 33.624 | 5.05       | 33.688 | 4.60       | 33.610 | 4.71       | 33.546 | 8.27       | 34.070 | 8.36       | 34.084 |
| 150m         | 5.22       | 33.685 | 4.28       | 33.524 | 4.56       | 33.620 | 9.24       | 34.039 | 4.36       | 33.596 | 5.14       | 33.744 | 4.64       | 33.676 | 4.10       | 33.486 | 8.08       | 34.042 | 8.33       | 34.082 |
| 200m         | 3.21       | 33.536 | 4.99       | 33.690 | 3.16       | 33.524 | 8.86       | 34.169 | 4.45       | 33.718 | 4.39       | 33.747 | 4.32       | 33.712 | 2.75       | 33.383 | 7.38       | 33.932 | 8.26       | 34.069 |
| 250m         | 4.27       | 33.741 | 5.73       | 33.938 | 2.30       | 33.503 | 7.17       | 34.044 | 3.94       | 33.748 | 3.53       | 33.720 | 3.57       | 33.704 | 2.41       | 33.410 | 6.48       | 33.796 | 7.70       | 33.980 |
| 300m         | 5.38       | 34.011 | 6.14       | 34.100 | 3.32       | 33.701 | 6.67       | 34.081 | 4.37       | 33.894 | 4.00       | 33.841 | 4.30       | 33.900 | 2.65       | 33.520 | 5.55       | 33.672 |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-17

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | IW21       |        | IW22       |        | SM01       |        | SM02       |        | SM03       |        | SM04       |        | SM05       |        | SM06       |        | SM07       |        | SM08       |        |
| Latitude:N   | 41- 4.9    |        | 41-30.0    |        | 45-29.2    |        | 45-59.9    |        | 46-29.7    |        | 46-29.9    |        | 46-29.8    |        | 46- 0.0    |        | 45-29.1    |        | 45- 0.1    |        |
| Longitude:E  | 143-59.9   |        | 144- 0.0   |        | 162-30.0   |        | 161-40.0   |        | 160-59.2   |        | 160-20.1   |        | 159-30.0   |        | 159- 0.1   |        | 158-30.2   |        | 158- 0.0   |        |
| Date         | 1997/07/03 |        | 1997/07/03 |        | 1997/07/12 |        | 1997/07/13 |        | 1997/07/13 |        | 1997/07/14 |        | 1997/07/14 |        | 1997/07/14 |        | 1997/07/14 |        | 1997/07/16 |        |
| Time(JST)    | 08:50      |        | 17:13      |        | 17:28      |        | 08:58      |        | 17:27      |        | 07:45      |        | 12:15      |        | 16:58      |        | 21:32      |        | 08:40      |        |
| Weather      | BC         |        | BC         |        | C          |        | C          |        | C          |        | R          |        | C          |        | C          |        | F          |        | F          |        |
| Air Temp.    | 15.8       |        | 14.3       |        | 9.1        |        | 9.5        |        | 8.6        |        | 8.5        |        | 9.0        |        | 8.8        |        | 8.0        |        | 9.3        |        |
| Bar          | 1004.0     |        | 1001.7     |        | 1017.4     |        | 1014.2     |        | 1009.9     |        | 1002.2     |        | 1003.0     |        | 1004.9     |        | 1007.0     |        | 1008.5     |        |
| Wind Dir     | WNW        |        | W          |        | SW         |        | ESE        |        | ESE        |        | NE         |        | NE         |        | NNE        |        | NNE        |        | SSE        |        |
| Wind Spd/F   | F 5        |        | F 4        |        | F 2        |        | F 3        |        | F 4        |        | F 5        |        | F 5        |        | F 4        |        | F 4        |        | F 4        |        |
| Transparency |            |        |            |        |            |        | 14         |        |            |        | 13         |        | 9          |        | 12         |        |            |        | 15         |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.5       | 33.03* | 11.9       | 32.89* | 9.4        | 33.16* | 9.1        | 33.19* | 8.4        | 32.89* | 8.1        | 32.86* | 8.1        | 32.84* | 8.3        | 32.85* | 8.3        | 32.91* | 8.8        | 32.84* |
| 10m          | 13.13      | 33.027 | 11.63      | 32.898 | 8.27       | 33.167 | 8.88       | 33.191 | 8.33       | 32.889 | 7.93       | 32.867 | 7.93       | 32.839 | 8.23       | 32.851 | 8.16       | 32.908 | 8.53       | 32.843 |
| 20m          | 12.30      | 33.431 | 9.97       | 33.041 | 7.60       | 33.163 | 8.51       | 33.198 | 6.94       | 32.933 | 7.94       | 32.866 | 7.82       | 32.842 | 8.15       | 32.855 | 8.07       | 32.904 | 8.29       | 32.845 |
| 30m          | 11.63      | 33.453 | 7.05       | 33.034 | 7.28       | 33.168 | 8.06       | 33.203 | 6.59       | 32.930 | 6.59       | 32.942 | 5.95       | 32.949 | 6.08       | 32.959 | 6.34       | 32.971 | 7.85       | 32.898 |
| 50m          | 5.03       | 33.293 | 3.97       | 33.133 | 6.58       | 33.206 | 7.67       | 33.243 | 3.85       | 33.021 | 3.36       | 33.011 | 3.30       | 33.014 | 3.43       | 33.024 | 3.91       | 33.174 | 5.21       | 32.943 |
| 75m          | 5.30       | 33.527 | 3.50       | 33.250 | 5.09       | 33.339 | 4.03       | 33.309 | 2.55       | 33.094 | 2.52       | 33.035 | 2.52       | 33.039 | 2.24       | 33.078 | 1.88       | 33.125 | 2.49       | 33.031 |
| 100m         | 6.11       | 33.710 | 4.76       | 33.517 | 4.44       | 33.384 | 3.84       | 33.429 | 1.86       | 33.151 | 1.93       | 33.076 | 1.85       | 33.088 | 1.79       | 33.112 | 1.80       | 33.176 | 1.75       | 33.107 |
| 125m         | 5.78       | 33.676 | 3.65       | 33.419 | 4.39       | 33.443 | 3.33       | 33.403 | 2.03       | 33.232 | 2.03       | 33.164 | 2.50       | 33.366 | 2.02       | 33.227 | 2.30       | 33.349 | 2.15       | 33.270 |
| 150m         | 5.23       | 33.611 | 3.21       | 33.390 | 4.46       | 33.490 | 3.16       | 33.444 | 2.59       | 33.456 | 2.69       | 33.455 | 3.32       | 33.755 | 2.83       | 33.541 | 2.90       | 33.588 | 2.93       | 33.541 |
| 200m         | 3.93       | 33.464 | 2.93       | 33.435 | 4.61       | 33.611 | 2.86       | 33.546 | 3.32       | 33.804 | 3.34       | 33.801 | 3.47       | 33.934 | 3.34       | 33.842 | 3.16       | 33.791 | 3.40       | 33.826 |
| 250m         | 2.75       | 33.359 | 1.69       | 33.376 | 4.06       | 33.717 | 2.96       | 33.671 | 3.46       | 33.914 | 3.46       | 33.936 | 3.51       | 34.015 | 3.42       | 33.928 | 3.27       | 33.914 | 3.49       | 33.924 |
| 300m         | 3.09       | 33.452 | 2.53       | 33.509 | 3.96       | 33.801 | 3.11       | 33.765 | 3.47       | 34.010 | 3.48       | 34.020 | 3.46       | 34.076 | 3.44       | 34.023 | 3.33       | 33.992 | 3.43       | 33.986 |
| 400m         |            |        |            |        | 3.85       | 33.954 | 3.46       | 33.975 | 3.38       | 34.119 | 3.36       | 34.144 | 3.34       | 34.173 | 3.36       | 34.132 | 3.25       | 34.104 | 3.32       | 34.122 |
| 500m         |            |        |            |        | 3.71       | 34.070 | 3.63       | 34.134 | 3.25       | 34.189 | 3.25       | 34.218 | 3.19       | 34.240 | 3.20       | 34.227 | 3.19       | 34.206 | 3.23       | 34.198 |
| 600m         |            |        |            |        | 3.63       | 34.176 | 3.47       | 34.208 | 3.12       | 34.255 | 3.09       | 34.276 | 3.04       | 34.294 | 3.07       | 34.280 | 3.08       | 34.265 | 3.03       | 34.261 |
| 700m         |            |        |            |        | 3.49       | 34.251 | 3.31       | 34.275 | 3.00       | 34.309 | 2.95       | 34.322 | 2.88       | 34.341 | 2.92       | 34.331 | 2.95       | 34.313 | 2.90       | 34.312 |
| 800m         |            |        |            |        | 3.26       | 34.298 | 3.10       | 34.322 | 2.85       | 34.354 | 2.81       | 34.364 | 2.73       | 34.383 | 2.76       | 34.375 | 2.80       | 34.362 | 2.82       | 34.356 |
| 900m         |            |        |            |        | 3.02       | 34.341 | 2.95       | 34.369 | 2.70       | 34.392 | 2.67       | 34.399 | 2.57       | 34.423 | 2.62       | 34.413 | 2.66       | 34.402 | 2.65       | 34.394 |
| 1000m        |            |        |            |        | 2.91       | 34.383 | 2.81       | 34.408 | 2.57       | 34.425 | 2.53       | 34.435 | 2.45       | 34.452 | 2.49       | 34.445 | 2.53       | 34.436 | 2.51       | 34.429 |

Table 5-18



Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SM09       |        | SM10       |        | SM11       |        | SM12       |        | SM13       |        | SM14       |        | SM15       |        | SM16       |        | SM17       |        | P31        |        |
| Latitude:N   | 44-30.7    |        | 44- 0.0    |        | 43-31.6    |        | 42-59.1    |        | 42-29.7    |        | 42- 0.1    |        | 41-29.5    |        | 41- 0.2    |        | 40-29.9    |        | 42-45.0    |        |
| Longitude:E  | 157-29.4   |        | 156-30.0   |        | 155-31.2   |        | 154-30.2   |        | 153-29.9   |        | 152-30.0   |        | 151-31.2   |        | 150-29.9   |        | 149-29.7   |        | 143-59.9   |        |
| Date         | 1997/07/16 |        | 1997/07/17 |        | 1997/07/17 |        | 1997/07/18 |        | 1997/07/18 |        | 1997/07/19 |        | 1997/07/19 |        | 1997/07/20 |        | 1997/07/20 |        | 1997/08/01 |        |
| Time(JST)    | 17:30      |        | 10:07      |        | 17:26      |        | 11:08      |        | 17:26      |        | 10:53      |        | 17:27      |        | 11:04      |        | 17:26      |        | 10:45      |        |
| Weather      | F          |        | R          |        | F          |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | B          |        | C          |        |
| Air Temp.    | 9.3        |        | 11.1       |        | 12.1       |        | 12.8       |        | 12.1       |        | 17.6       |        | 19.2       |        | 21.0       |        | 21.6       |        | 19.1       |        |
| Bar          | 1007.5     |        | 1003.6     |        | 1003.0     |        | 1010.2     |        | 1011.5     |        | 1015.0     |        | 1015.4     |        | 1018.4     |        | 1017.5     |        | 1010.0     |        |
| Wind Dir     | SSE        |        | SSE        |        | SW         |        | NNE        |        | N          |        | S          |        | SSW        |        | S          |        | SW         |        | SE         |        |
| Wind Spd/F   | F 3        |        | F 4        |        | F 2        |        | F 2        |        | F 1        |        | F 2        |        | F 2        |        | F 3        |        | F 2        |        | F 2        |        |
| Transparency |            |        | 15         |        |            |        | 11         |        |            |        | 19         |        | 13         |        | 11         |        | 20         |        | 12         |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 64         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.9        | 32.85* | 9.5        | 32.80* | 10.8       | 33.57* | 12.0       | 32.83* | 14.4       | 32.93* | 16.4       | 33.48* | 18.4       | 33.41* | 21.1       | 34.01* | 22.0       | 34.27* | 14.8       | 32.561 |
| 10m          | 8.72       | 32.850 | 9.17       | 32.797 | 10.54      | 33.577 | 12.59      | 32.832 | 15.25      | 33.438 | 16.66      | 33.919 | 17.16      | 33.076 | 20.15      | 34.018 | 21.79      | 34.268 | 11.50      | 32.589 |
| 20m          | 8.36       | 32.853 | 6.69       | 32.821 | 10.24      | 33.591 | 9.95       | 33.090 | 15.29      | 33.716 | 16.38      | 33.992 | 15.76      | 33.804 | 16.14      | 34.227 | 19.59      | 34.410 | 6.37       | 33.017 |
| 30m          | 7.05       | 32.912 | 6.09       | 32.837 | 9.11       | 33.608 | 9.38       | 33.863 | 9.50       | 33.260 | 13.96      | 33.988 | 13.25      | 33.735 | 14.43      | 34.489 | 17.67      | 34.517 | 5.35       | 33.053 |
| 50m          | 4.74       | 32.951 | 2.91       | 32.910 | 8.38       | 33.650 | 8.81       | 34.042 | 10.16      | 34.152 | 9.27       | 33.687 | 11.46      | 34.279 | 12.95      | 34.405 | 15.43      | 34.598 | 5.29       | 33.034 |
| 75m          | 2.26       | 33.043 | 2.07       | 33.005 | 7.14       | 33.786 | 7.83       | 33.952 | 7.22       | 33.844 | 9.07       | 34.099 | 10.39      | 34.221 | 11.10      | 34.346 | 13.67      | 34.503 |            |        |
| 100m         | 1.75       | 33.105 | 2.15       | 33.150 | 6.78       | 33.836 | 6.84       | 33.843 | 6.96       | 33.851 | 7.49       | 33.915 | 9.39       | 34.121 | 10.17      | 34.264 | 12.55      | 34.457 |            |        |
| 125m         | 2.38       | 33.349 | 2.57       | 33.310 | 6.03       | 33.750 | 5.41       | 33.677 | 6.68       | 33.837 | 6.76       | 33.829 | 7.89       | 33.957 | 7.41       | 33.896 | 11.21      | 34.353 |            |        |
| 150m         | 3.16       | 33.645 | 3.24       | 33.543 | 5.57       | 33.703 | 4.61       | 33.591 | 5.98       | 33.747 | 6.00       | 33.750 | 6.20       | 33.725 | 3.85       | 33.426 | 10.17      | 34.277 |            |        |
| 200m         | 3.41       | 33.856 | 3.41       | 33.750 | 5.56       | 33.734 | 4.91       | 33.706 | 4.98       | 33.676 | 5.26       | 33.706 | 5.00       | 33.626 | 5.35       | 33.722 | 7.79       | 33.967 |            |        |
| 250m         | 3.44       | 33.969 | 3.49       | 33.879 | 5.71       | 33.782 | 4.55       | 33.757 | 5.21       | 33.829 | 5.10       | 33.815 | 5.16       | 33.755 | 4.95       | 33.773 | 5.68       | 33.712 |            |        |
| 300m         | 3.43       | 34.043 | 3.46       | 33.946 | 4.52       | 33.739 | 3.42       | 33.688 | 4.87       | 33.889 | 4.43       | 33.820 | 4.39       | 33.770 | 4.01       | 33.737 | 5.71       | 33.827 |            |        |
| 400m         | 3.34       | 34.137 | 3.44       | 34.083 | 4.01       | 33.865 | 3.49       | 33.914 | 3.89       | 33.915 | 3.93       | 33.912 | 4.30       | 33.953 | 2.95       | 33.793 | 3.93       | 33.797 |            |        |
| 500m         | 3.19       | 34.213 | 3.26       | 34.163 | 3.88       | 34.012 | 3.81       | 34.097 | 3.74       | 34.038 | 4.13       | 34.095 | 3.56       | 34.015 | 3.14       | 33.955 | 4.21       | 33.999 |            |        |
| 600m         | 3.01       | 34.272 | 3.11       | 34.252 | 3.72       | 34.120 | 3.70       | 34.195 | 3.30       | 34.108 | 3.35       | 34.116 | 3.79       | 34.170 | 3.31       | 34.103 | 3.93       | 34.089 |            |        |
| 700m         | 2.88       | 34.320 | 2.95       | 34.305 | 3.48       | 34.194 | 3.42       | 34.258 | 3.25       | 34.210 | 3.17       | 34.196 | 3.45       | 34.244 | 3.51       | 34.245 | 3.73       | 34.208 |            |        |
| 800m         | 2.76       | 34.363 | 2.80       | 34.350 | 3.33       | 34.257 | 3.24       | 34.320 | 3.20       | 34.298 | 3.02       | 34.254 | 3.25       | 34.306 | 3.20       | 34.306 | 3.34       | 34.238 |            |        |
| 900m         | 2.62       | 34.403 | 2.68       | 34.386 | 3.12       | 34.319 | 3.05       | 34.358 | 3.04       | 34.344 | 2.95       | 34.324 | 3.01       | 34.343 | 2.99       | 34.351 | 3.22       | 34.314 |            |        |
| 1000m        | 2.49       | 34.435 | 2.54       | 34.425 | 2.94       | 34.360 | 2.86       | 34.394 | 2.85       | 34.386 | 2.84       | 34.375 | 2.85       | 34.388 | 2.85       | 34.397 | 3.08       | 34.370 |            |        |

Table 5-19

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P32        |        | P33        |        | PK21       |        | PK22       |        | P34        |        | P35        |        | PK23       |        | PK31       |        | PK32       |        | PK24       |        |
| Latitude:N   | 42-30.1    |        | 42-15.1    |        | 42-15.0    |        | 41-59.1    |        | 41-59.1    |        | 41-30.0    |        | 41-29.9    |        | 41-29.1    |        | 41- 0.1    |        | 40-59.9    |        |
| Longitude:E  | 144- 0.0   |        | 144- 0.0   |        | 143-30.2   |        | 143-30.0   |        | 144- 0.0   |        | 144- 0.0   |        | 143-30.0   |        | 143- 0.1   |        | 143- 0.0   |        | 143-29.1   |        |
| Date         | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        |
| Time(JST)    | 12:06      |        | 13:37      |        | 15:50      |        | 17:09      |        | 19:12      |        | 22:28      |        | 00:45      |        | 02:57      |        | 05:57      |        | 08:09      |        |
| Weather      | C          |        | C          |        | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 19.6       |        | 18.2       |        | 17.5       |        | 15.5       |        | 15.3       |        | 19.1       |        | 18.7       |        | 18.2       |        | 21.6       |        | 21.7       |        |
| Bar          | 1009.9     |        | 1010.0     |        | 1011.0     |        | 1011.0     |        | 1011.5     |        | 1012.0     |        | 1011.4     |        | 1011.5     |        | 1011.4     |        | 1012.0     |        |
| Wind Dir     | ESE        |        | ESE        |        | E          |        | ENE        |        | ENE        |        | NE         |        | ENE        |        | ENE        |        | NE         |        | NNE        |        |
| Wind Spd/F   | F 2        |        | F 3        |        | F 2        |        | F 3        |        | F 3        |        | F 3        |        | F 4        |        | F 4        |        | F 2        |        | F 2        |        |
| Transparency | 12         |        | 12         |        | 10         |        | 10         |        |            |        |            |        |            |        |            |        | 17         |        | 21         |        |
| Depth        | 491        |        | 921        |        | 67         |        | 120        |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.4       | 32.650 | 17.2       | 32.672 | 14.0       | 32.708 | 13.0       | 32.584 | 12.9       | 32.745 | 22.5       | 32.981 | 21.6       | 32.962 | 21.3       | 33.040 | 21.6       | 33.051 | 23.2       | 33.246 |
| 10m          | 10.41      | 32.721 | 11.37      | 32.784 | 9.22       | 32.766 | 8.15       | 32.633 | 9.04       | 32.746 | 22.53      | 32.902 | 21.60      | 32.910 | 21.27      | 32.985 | 18.31      | 33.415 | 15.98      | 33.360 |
| 20m          | 5.87       | 32.676 | 6.40       | 32.836 | 5.40       | 32.743 | 6.66       | 32.669 | 5.67       | 32.829 | 15.98      | 33.741 | 14.43      | 33.291 | 14.40      | 33.358 | 11.13      | 32.855 | 13.23      | 33.605 |
| 30m          | 5.02       | 32.807 | 4.95       | 32.867 | 4.95       | 32.740 | 5.83       | 32.717 | 3.01       | 32.951 | 15.06      | 34.142 | 10.45      | 33.252 | 8.01       | 33.194 | 6.72       | 32.925 | 12.52      | 33.913 |
| 50m          | 2.74       | 32.931 | 2.56       | 32.974 | 4.44       | 32.772 | 3.56       | 32.845 | 1.67       | 33.048 | 11.55      | 33.751 | 8.71       | 33.798 | 4.71       | 33.279 | 2.78       | 33.095 | 8.13       | 33.558 |
| 75m          | 1.63       | 33.033 | 2.08       | 33.068 |            |        | 2.80       | 32.897 | 1.48       | 33.104 | 4.00       | 33.207 | 7.16       | 33.786 | 3.54       | 33.293 | 6.08       | 33.638 | 6.81       | 33.713 |
| 100m         | 1.36       | 33.099 | 1.36       | 33.095 |            |        | 1.94       | 32.951 | 1.38       | 33.167 | 4.36       | 33.342 | 4.45       | 33.513 | 3.67       | 33.371 | 4.79       | 33.540 | 7.31       | 33.872 |
| 125m         | 1.36       | 33.183 | 1.49       | 33.157 |            |        |            |        | 1.45       | 33.219 | 5.38       | 33.577 | 4.31       | 33.500 | 3.82       | 33.427 | 4.21       | 33.495 | 6.64       | 33.792 |
| 150m         | 1.34       | 33.224 | 1.54       | 33.212 |            |        |            |        | 1.48       | 33.251 | 4.91       | 33.560 | 3.95       | 33.474 | 3.23       | 33.389 | 3.96       | 33.494 | 6.42       | 33.761 |
| 200m         | 1.64       | 33.330 | 2.12       | 33.359 |            |        |            |        | 1.68       | 33.337 | 4.01       | 33.493 | 3.00       | 33.395 | 3.08       | 33.449 | 4.03       | 33.575 | 4.81       | 33.559 |
| 250m         | 1.63       | 33.398 | 2.10       | 33.458 |            |        |            |        | 1.74       | 33.381 | 3.37       | 33.483 | 3.06       | 33.472 | 2.56       | 33.496 | 2.87       | 33.524 | 3.44       | 33.416 |
| 300m         | 1.95       | 33.497 | 2.38       | 33.568 |            |        |            |        | 1.83       | 33.442 | 2.60       | 33.484 | 2.68       | 33.505 | 2.46       | 33.557 | 2.91       | 33.612 | 2.92       | 33.404 |
| 400m         | 2.35       | 33.668 | 2.90       | 33.784 |            |        |            |        | 2.29       | 33.607 | 2.13       | 33.550 | 2.70       | 33.649 | 3.11       | 33.795 | 3.05       | 33.785 | 2.16       | 33.446 |
| 500m         |            |        | 3.10       | 33.942 |            |        |            |        | 2.97       | 33.844 | 3.79       | 33.892 | 3.08       | 33.839 | 3.11       | 33.933 | 3.23       | 33.944 | 2.75       | 33.640 |
| 600m         |            |        | 3.25       | 34.080 |            |        |            |        | 3.22       | 34.048 | 4.00       | 34.043 | 3.38       | 34.009 | 3.48       | 34.096 | 3.35       | 34.084 | 3.43       | 33.872 |
| 700m         |            |        |            |        |            |        |            |        | 3.19       | 34.142 |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        | 3.04       | 34.241 |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        | 2.90       | 34.301 |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        | 2.75       | 34.359 |            |        |            |        |            |        |            |        |            |        |

Table 5-20

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P36        |        | PK16       |        | P27        |        | PK07       |        | P18        |        | P17        |        | PK06       |        | P26        |        | PK15       |        | PK14       |        |
| Latitude:N   | 40-59.9    |        | 41- 0.0    |        | 40-59.9    |        | 40-59.1    |        | 41- 0.1    |        | 41-29.1    |        | 41-30.0    |        | 41-30.0    |        | 41-29.1    |        | 41-59.1    |        |
| Longitude:E  | 144- 0.0   |        | 144-29.8   |        | 144-59.9   |        | 145-29.9   |        | 145-59.9   |        | 145-59.1   |        | 145-30.1   |        | 145- 0.1   |        | 144-30.1   |        | 144-29.9   |        |
| Date         | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        |
| Time(JST)    | 10:21      |        | 12:32      |        | 14:47      |        | 17:34      |        | 19:49      |        | 23:05      |        | 01:50      |        | 04:22      |        | 06:56      |        | 09:49      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        |
| Air Temp.    | 20.0       |        | 21.0       |        | 21.2       |        | 19.6       |        | 19.5       |        | 19.7       |        | 20.0       |        | 22.5       |        | 22.2       |        | 21.1       |        |
| Bar          | 1012.0     |        | 1011.7     |        | 1011.5     |        | 1011.2     |        | 1012.5     |        | 1011.5     |        | 1010.5     |        | 1010.0     |        | 1010.0     |        | 1009.0     |        |
| Wind Dir     | E          |        | ESE        |        | ESE        |        | SSE        |        | SE         |        | SSE        |        | S          |        | SW         |        | SSW        |        | S          |        |
| Wind Spd/F   | F 2        |        | F 2        |        | F 2        |        | F 4        |        | F 2        |        | F 4        |        | F 4        |        | F 4        |        | F 2        |        | F 2        |        |
| Transparency | 21         |        | 20         |        | 16         |        | 10         |        |            |        |            |        | 15         |        | 18         |        | 13         |        |            |        |
| Depth        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 22.9       | 33.690 | 22.6       | 33.679 | 22.6       | 33.450 | 17.8       | 32.516 | 20.6       | 32.558 | 19.5       | 32.537 | 21.7       | 33.099 | 23.0       | 33.182 | 22.6       | 33.128 | 16.2       | 32.586 |
| 10m          | 17.22      | 33.654 | 16.34      | 33.792 | 16.93      | 33.598 | 13.36      | 32.752 | 19.35      | 32.663 | 17.64      | 32.601 | 15.04      | 33.419 | 18.64      | 33.440 | 19.72      | 33.124 | 13.33      | 32.673 |
| 20m          | 13.35      | 33.825 | 12.02      | 33.915 | 13.24      | 34.007 | 7.12       | 32.805 | 12.55      | 32.813 | 8.63       | 32.883 | 10.41      | 33.352 | 15.13      | 33.862 | 15.20      | 34.059 | 8.35       | 32.817 |
| 30m          | 11.14      | 33.963 | 10.13      | 34.020 | 11.52      | 34.105 | 4.79       | 32.795 | 8.48       | 32.880 | 6.20       | 32.904 | 6.88       | 33.237 | 11.72      | 33.499 | 11.28      | 33.542 | 5.50       | 32.894 |
| 50m          | 8.86       | 34.077 | 8.70       | 34.102 | 9.06       | 33.965 | 3.03       | 32.920 | 4.04       | 32.947 | 3.40       | 33.067 | 5.30       | 33.387 | 7.81       | 33.612 | 8.19       | 33.627 | 3.56       | 32.983 |
| 75m          | 8.43       | 34.087 | 8.49       | 34.108 | 8.06       | 33.958 | 2.30       | 33.047 | 2.81       | 33.064 | 2.60       | 33.137 | 5.47       | 33.610 | 7.42       | 33.875 | 6.08       | 33.594 | 2.34       | 33.035 |
| 100m         | 8.46       | 34.105 | 8.48       | 34.112 | 8.22       | 34.055 | 1.53       | 33.100 | 1.93       | 33.083 | 2.16       | 33.210 | 5.02       | 33.586 | 7.72       | 33.974 | 6.97       | 33.844 | 1.85       | 33.097 |
| 125m         | 8.46       | 34.109 | 8.48       | 34.113 | 8.15       | 34.050 | 1.44       | 33.146 | 1.89       | 33.181 | 2.41       | 33.320 | 4.16       | 33.499 | 7.05       | 33.879 | 6.34       | 33.763 | 1.77       | 33.181 |
| 150m         | 8.46       | 34.110 | 8.48       | 34.113 | 8.09       | 34.035 | 1.38       | 33.201 | 2.39       | 33.355 | 2.60       | 33.419 | 3.20       | 33.426 | 6.53       | 33.808 | 5.67       | 33.685 | 1.73       | 33.213 |
| 200m         | 8.45       | 34.109 | 8.47       | 34.113 | 7.41       | 33.937 | 1.79       | 33.326 | 2.91       | 33.613 | 2.72       | 33.578 | 2.10       | 33.321 | 5.40       | 33.654 | 4.73       | 33.576 | 1.80       | 33.323 |
| 250m         | 8.40       | 34.098 | 8.42       | 34.104 | 6.42       | 33.788 | 2.30       | 33.456 | 3.04       | 33.779 | 2.94       | 33.714 | 3.49       | 33.554 | 3.82       | 33.478 | 3.52       | 33.452 | 2.18       | 33.461 |
| 300m         | 8.40       | 34.098 | 8.42       | 34.102 | 5.52       | 33.672 | 2.64       | 33.580 | 3.16       | 33.866 | 3.17       | 33.836 | 2.90       | 33.608 | 2.78       | 33.429 | 2.84       | 33.428 | 2.40       | 33.543 |
| 400m         | 7.79       | 33.995 | 8.43       | 34.101 | 3.36       | 33.510 | 3.59       | 33.865 | 3.22       | 34.032 | 3.41       | 34.026 | 2.95       | 33.735 | 3.89       | 33.709 | 2.70       | 33.573 | 3.68       | 33.869 |
| 500m         | 5.24       | 33.672 | 7.12       | 33.901 | 2.58       | 33.538 | 3.08       | 33.937 | 3.27       | 34.131 | 3.20       | 34.132 | 3.39       | 33.946 | 2.93       | 33.765 | 3.95       | 33.856 | 3.56       | 33.994 |
| 600m         | 3.34       | 33.609 | 3.82       | 33.587 | 2.98       | 33.724 | 3.49       | 34.117 | 3.12       | 34.223 | 3.17       | 34.235 | 3.21       | 34.084 | 3.51       | 33.979 | 3.52       | 33.953 | 3.49       | 34.145 |
| 700m         |            |        |            |        |            |        |            |        | 2.96       | 34.289 | 2.96       | 34.292 |            |        |            |        |            |        | 3.26       | 34.256 |
| 800m         |            |        |            |        |            |        |            |        | 2.78       | 34.350 | 2.85       | 34.345 |            |        |            |        |            |        | 2.96       | 34.321 |
| 900m         |            |        |            |        |            |        |            |        | 2.63       | 34.398 | 2.69       | 34.387 |            |        |            |        |            |        | 2.83       | 34.383 |
| 1000m        |            |        |            |        |            |        |            |        | 2.51       | 34.433 | 2.54       | 34.428 |            |        |            |        |            |        | 2.57       | 34.424 |

Table 5-21

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK13       |        | PK12       |        | PK11       |        | P21        |        | P22        |        | P23        |        | P24        |        | P25        |        | PK05       |        | P16        |        |
| Latitude:N   | 42-15.0    |        | 42-29.9    |        | 42-44.8    |        | 42-54.1    |        | 42-45.1    |        | 42-30.1    |        | 42-15.0    |        | 42- 0.1    |        | 42- 0.0    |        | 42- 0.0    |        |
| Longitude:E  | 144-29.9   |        | 144-29.1   |        | 144-29.1   |        | 144-59.9   |        | 145- 0.0   |        | 145- 0.1   |        | 145- 0.1   |        | 144-59.9   |        | 145-29.8   |        | 145-59.8   |        |
| Date         | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/04 |        | 1997/08/04 |        |
| Time(JST)    | 11:43      |        | 13:14      |        | 14:50      |        | 17:15      |        | 18:12      |        | 19:36      |        | 21:14      |        | 22:46      |        | 01:16      |        | 03:47      |        |
| Weather      | BC         |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | R          |        |
| Air Temp.    | 21.8       |        | 20.7       |        | 17.7       |        | 16.2       |        | 16.7       |        | 17.2       |        | 19.0       |        | 20.2       |        | 19.7       |        | 21.6       |        |
| Bar          | 1007.5     |        | 1006.2     |        | 1005.5     |        | 1004.5     |        | 1004.5     |        | 1005.0     |        | 1005.5     |        | 1006.0     |        | 1004.9     |        | 1004.9     |        |
| Wind Dir     | SSW        |        | SE         |        | E          |        | SSW        |        | WSW        |        | SW         |        | WSW        |        | SW         |        | SSW        |        | SW         |        |
| Wind Spd/F   | F 4        |        | F 3        |        | F 3        |        | F 4        |        | F 2        |        | F 5        |        | F 5        |        | F 4        |        | F 3        |        | F 6        |        |
| Transparency | 10         |        | 9          |        | 7          |        | 8          |        | 15         |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        | 130        |        | 65         |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.5       | 32.522 | 16.3       | 32.441 | 14.1       | 32.352 | 12.4       | 32.935 | 14.2       | 32.511 | 13.8       | 32.322 | 16.4       | 32.269 | 19.4       | 32.876 | 18.6       | 32.284 | 19.7       | 32.535 |
| 10m          | 11.15      | 32.792 | 8.60       | 32.841 | 11.19      | 32.656 | 11.64      | 33.015 | 9.36       | 32.725 | 9.38       | 32.671 | 7.06       | 32.850 | 11.24      | 32.721 | 18.38      | 32.352 | 17.79      | 32.609 |
| 20m          | 7.70       | 32.843 | 5.81       | 32.878 | 8.14       | 32.826 | 10.30      | 33.026 | 5.82       | 32.810 | 4.14       | 32.807 | 4.97       | 32.882 | 7.46       | 32.811 | 7.63       | 32.829 | 11.60      | 32.796 |
| 30m          | 5.60       | 32.858 | 4.21       | 32.849 | 5.89       | 33.116 | 9.28       | 33.280 | 3.24       | 32.908 | 3.36       | 32.878 | 4.05       | 32.947 | 5.07       | 32.867 | 4.84       | 32.913 | 7.10       | 32.919 |
| 50m          | 2.54       | 32.962 | 2.53       | 32.945 | 4.65       | 33.131 | 6.62       | 33.214 | 2.24       | 32.985 | 2.66       | 32.988 | 3.07       | 32.995 | 3.13       | 32.922 | 2.97       | 32.963 | 3.75       | 33.026 |
| 75m          | 1.88       | 33.050 | 2.31       | 33.080 | 4.37       | 33.155 |            |        | 1.69       | 33.070 | 2.36       | 33.112 | 2.34       | 33.118 | 2.15       | 33.035 | 2.67       | 33.073 | 2.72       | 33.097 |
| 100m         | 1.52       | 33.126 | 1.95       | 33.193 | 3.77       | 33.134 |            |        | 1.73       | 33.137 | 1.86       | 33.167 | 2.12       | 33.205 | 1.65       | 33.118 | 1.68       | 33.113 | 2.42       | 33.134 |
| 125m         | 1.42       | 33.189 | 1.66       | 33.241 |            |        |            |        | 1.69       | 33.164 | 2.37       | 33.267 | 2.30       | 33.286 | 1.71       | 33.172 | 2.02       | 33.252 | 2.22       | 33.188 |
| 150m         | 1.44       | 33.234 | 1.22       | 33.245 |            |        |            |        | 1.64       | 33.191 | 1.60       | 33.256 | 2.19       | 33.340 | 1.49       | 33.220 | 1.66       | 33.313 | 2.30       | 33.261 |
| 200m         | 1.76       | 33.352 | 1.82       | 33.373 |            |        |            |        |            |        | 2.17       | 33.390 | 1.66       | 33.369 | 1.99       | 33.357 | 1.77       | 33.441 | 2.49       | 33.458 |
| 250m         | 2.27       | 33.481 | 2.11       | 33.465 |            |        |            |        |            |        | 1.71       | 33.410 | 2.43       | 33.540 | 2.31       | 33.476 | 2.45       | 33.587 | 2.75       | 33.594 |
| 300m         | 2.55       | 33.609 | 2.41       | 33.548 |            |        |            |        |            |        | 1.83       | 33.485 | 2.04       | 33.576 | 2.62       | 33.597 | 2.82       | 33.733 | 2.99       | 33.730 |
| 400m         | 3.65       | 33.911 | 2.36       | 33.664 |            |        |            |        |            |        | 2.65       | 33.714 | 3.15       | 33.861 | 3.23       | 33.858 | 3.41       | 33.949 | 3.17       | 33.895 |
| 500m         | 3.41       | 34.030 | 2.90       | 33.838 |            |        |            |        |            |        | 3.35       | 33.962 | 3.29       | 34.024 | 3.38       | 34.010 | 3.24       | 34.055 | 3.27       | 34.042 |
| 600m         | 3.40       | 34.152 | 3.22       | 34.009 |            |        |            |        |            |        | 3.27       | 34.095 | 3.23       | 34.137 | 3.51       | 34.165 | 3.22       | 34.172 | 3.22       | 34.152 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.20       | 34.230 | 3.05       | 34.246 | 3.12       | 34.247 |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.99       | 34.283 | 2.90       | 34.309 | 2.96       | 34.317 |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.89       | 34.343 | 2.87       | 34.368 | 2.74       | 34.395 |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.78       | 34.386 | 2.68       | 34.394 | 2.52       | 34.451 |

Table 5-22

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P15        |        | P14        |        | P13        |        | P12        |        | P11        |        | PK01       |        | PK02       |        | PK03       |        | PK04       |        | IK01       |        |
| Latitude:N   | 42-15.0    |        | 42-29.1    |        | 42-45.0    |        | 42-54.6    |        | 43- 4.1    |        | 42-55.1    |        | 42-45.1    |        | 42-30.0    |        | 42-15.1    |        | 42-20.1    |        |
| Longitude:E  | 145-59.9   |        | 145-59.9   |        | 145-55.0   |        | 145-50.1   |        | 145-45.0   |        | 145-30.0   |        | 145-29.1   |        | 145-30.2   |        | 145-30.0   |        | 145- 0.2   |        |
| Date         | 1997/08/04 |        | 1997/08/04 |        | 1997/08/04 |        | 1997/08/04 |        | 1997/08/04 |        | 1997/08/04 |        | 1997/08/04 |        | 1997/08/05 |        | 1997/08/05 |        | 1997/08/25 |        |
| Time(JST)    | 05:43      |        | 07:39      |        | 09:39      |        | 11:13      |        | 13:07      |        | 14:31      |        | 15:33      |        | 04:01      |        | 05:55      |        | 18:18      |        |
| Weather      | C          |        | C          |        | F          |        | F          |        | F          |        | BC         |        | BC         |        | F          |        | F          |        | C          |        |
| Air Temp.    | 20.8       |        | 17.0       |        | 16.6       |        | 16.8       |        | 17.2       |        | 17.5       |        | 18.3       |        | 16.6       |        | 19.0       |        | 12.5       |        |
| Bar          | 1004.2     |        | 1003.5     |        | 1003.0     |        | 1003.0     |        | 1002.7     |        | 1002.0     |        | 1001.5     |        | 1002.0     |        | 1000.5     |        | 1014.0     |        |
| Wind Dir     | SW         |        | SW         |        | SW         |        | SW         |        | SW         |        | SW         |        | WSW        |        | NW         |        | SSW        |        | NW         |        |
| Wind Spd/F   | F 4        |        | F 5        |        | F 4        |        | F 4        |        | F 2        |        | F 3        |        | F 5        |        | F 1        |        | F 4        |        | F 2        |        |
| Transparency | 10         |        | 15         |        | 13         |        | 12         |        | 7          |        | 14         |        | 14         |        |            |        | 15         |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        | 102        |        | 147        |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 18.8       | 32.490 | 12.7       | 32.534 | 12.5       | 32.634 | 12.9       | 32.603 | 13.3       | 32.982 | 14.1       | 32.564 | 13.6       | 32.516 | 13.3       | 32.462 | 14.4       | 32.425 | 10.8       | 32.63* |
| 10m          | 13.36      | 32.699 | 11.70      | 32.589 | 11.69      | 32.684 | 12.66      | 32.661 | 12.08      | 33.036 | 8.45       | 32.782 | 10.92      | 32.547 | 10.29      | 32.686 | 10.84      | 32.532 | 9.90       | 32.638 |
| 20m          | 6.91       | 32.762 | 4.85       | 32.830 | 5.23       | 32.847 | 5.70       | 32.839 | 8.39       | 33.369 | 4.57       | 32.877 | 3.76       | 32.804 | 3.75       | 32.853 | 6.13       | 32.809 | 8.79       | 32.697 |
| 30m          | 5.23       | 32.829 | 3.85       | 32.890 | 3.13       | 32.919 | 3.86       | 32.851 | 7.07       | 33.253 | 3.73       | 32.898 | 2.49       | 32.811 | 3.16       | 32.956 | 5.08       | 32.856 | 5.50       | 32.885 |
| 50m          | 3.38       | 32.931 | 2.28       | 32.957 | 1.87       | 33.027 | 2.49       | 32.938 | 5.42       | 33.254 | 2.75       | 32.956 | 1.91       | 32.918 | 2.52       | 33.107 | 3.58       | 32.937 | 3.32       | 33.003 |
| 75m          | 2.74       | 33.075 | 1.52       | 33.086 | 1.61       | 33.120 | 1.80       | 33.042 | 4.06       | 33.190 | 2.10       | 33.090 | 1.40       | 33.037 | 2.17       | 33.203 | 1.87       | 32.929 | 2.07       | 33.100 |
| 100m         | 2.41       | 33.172 | 1.36       | 33.193 | 1.39       | 33.160 | 1.20       | 33.076 |            |        | 2.10       | 33.112 | 1.94       | 33.178 | 2.45       | 33.331 | 1.33       | 33.019 | 2.02       | 33.143 |
| 125m         | 3.52       | 33.400 | 0.96       | 33.221 | 1.37       | 33.199 | 1.07       | 33.141 |            |        | 2.22       | 33.129 | 1.76       | 33.223 | 2.43       | 33.371 | 1.41       | 33.120 | 1.77       | 33.172 |
| 150m         | 3.00       | 33.422 | 0.78       | 33.246 | 1.90       | 33.285 | 1.15       | 33.198 |            |        |            |        | 1.77       | 33.271 | 2.42       | 33.391 | 1.43       | 33.247 | 1.85       | 33.223 |
| 200m         | 3.05       | 33.571 | 1.10       | 33.341 | 1.63       | 33.333 | 1.15       | 33.261 |            |        |            |        | 1.81       | 33.343 | 2.38       | 33.428 | 2.37       | 33.514 | 1.83       | 33.292 |
| 250m         | 3.13       | 33.703 | 1.83       | 33.469 | 1.70       | 33.388 | 1.45       | 33.319 |            |        |            |        | 1.68       | 33.405 | 2.43       | 33.475 | 3.04       | 33.718 | 1.91       | 33.369 |
| 300m         | 3.18       | 33.824 | 2.31       | 33.594 | 1.58       | 33.440 | 1.37       | 33.390 |            |        |            |        | 1.60       | 33.457 | 2.37       | 33.506 | 3.18       | 33.819 | 1.93       | 33.434 |
| 400m         | 3.40       | 33.991 | 2.48       | 33.731 | 2.56       | 33.708 | 1.51       | 33.514 |            |        |            |        | 1.65       | 33.576 | 2.30       | 33.655 | 3.19       | 33.955 |            |        |
| 500m         | 3.31       | 34.105 | 2.84       | 33.873 | 2.55       | 33.799 | 2.27       | 33.727 |            |        |            |        | 2.09       | 33.757 | 3.16       | 33.934 | 3.25       | 34.061 |            |        |
| 600m         | 3.14       | 34.192 | 3.07       | 34.036 | 2.57       | 33.868 | 2.56       | 33.896 |            |        |            |        | 2.73       | 33.947 | 3.08       | 34.051 | 3.32       | 34.176 |            |        |
| 700m         | 3.03       | 34.266 | 2.86       | 34.120 | 2.98       | 34.068 | 3.09       | 34.071 |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         | 2.89       | 34.322 | 2.93       | 34.227 | 2.93       | 34.172 | 3.20       | 34.183 |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         | 2.74       | 34.364 | 2.91       | 34.301 | 2.99       | 34.270 | 2.98       | 34.260 |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        | 2.61       | 34.405 | 2.77       | 34.351 | 2.86       | 34.332 | 2.86       | 34.333 |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-23

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199708     | 199708     | 199708     | 199708     | 199708     | 199708     | 199709     | 199709     | 199709     | 199709     |       |        |      |        |       |        |       |        |       |        |  |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|--------|------|--------|-------|--------|-------|--------|-------|--------|--|
| Station No   | IK02       | IK03       | IK04       | IK05       | IK06       | IK07       | IW01       | IW02       | IW03       | IW04       |       |        |      |        |       |        |       |        |       |        |  |
| Latitude:N   | 42- 0.1    | 41-40.0    | 41-39.1    | 41-40.0    | 42- 0.0    | 42-20.1    | 42- 9.1    | 41-45.0    | 41-19.8    | 41-14.1    |       |        |      |        |       |        |       |        |       |        |  |
| Longitude:E  | 145- 0.0   | 144-59.1   | 144-30.1   | 143-59.1   | 143-59.1   | 144- 0.1   | 145-10.1   | 145-39.9   | 146- 9.8   | 145-25.1   |       |        |      |        |       |        |       |        |       |        |  |
| Date         | 1997/08/26 | 1997/08/26 | 1997/08/27 | 1997/08/27 | 1997/08/28 | 1997/08/28 | 1997/09/02 | 1997/09/03 | 1997/09/03 | 1997/09/04 |       |        |      |        |       |        |       |        |       |        |  |
| Time(JST)    | 06:18      | 18:34      | 07:26      | 17:37      | 05:49      | 17:34      | 17:26      | 08:24      | 17:18      | 09:35      |       |        |      |        |       |        |       |        |       |        |  |
| Weather      | BC         | C          | C          | C          | C          | BC         | F          | C          | R          | C          |       |        |      |        |       |        |       |        |       |        |  |
| Air Temp.    | 11.6       | 15.3       | 17.5       | 18.6       | 14.1       | 15.3       | 14.6       | 15.6       | 15.8       | 17.2       |       |        |      |        |       |        |       |        |       |        |  |
| Bar          | 1015.7     | 1014.5     | 1011.7     | 1008.5     | 1008.0     | 1010.4     | 997.5      | 1000.5     | 998.0      | 1000.9     |       |        |      |        |       |        |       |        |       |        |  |
| Wind Dir     | CALM       | S          | SSE        | S          | N          | WSW        | SW         | ENE        | E          | N          |       |        |      |        |       |        |       |        |       |        |  |
| Wind Spd/F   | F 0        | F 3        | F 4        | F 3        | F 3        | F 3        | F 3        | F 2        | F 3        | F 5        |       |        |      |        |       |        |       |        |       |        |  |
| Transparency | 12         |            | 13         |            | 12         |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| Depth        |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| Equipment    | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD   |        | CTD  |        | CTD   |        | CTD   |        | CTD   |        |  |
| STND. Dep    | T          | S          | T          | S          | T          | S          | T          | S          | T          | S          | T     | S      | T    | S      | T     | S      | T     | S      | T     | S      |  |
| 0m           | 11.5       | 32.60*     | 17.5       | 33.20*     | 18.2       | 33.42*     | 18.4       | 33.40*     | 14.2       | 32.80*     | 14.9  | 32.77* | 11.8 | 32.65* | 14.9  | 32.30* | 15.4  | 32.18* | 18.3  | 33.47* |  |
| 10m          | 10.37      | 32.637     | 15.43      | 32.853     | 18.14      | 33.435     | 18.26      | 33.401     | 13.62      | 32.771     | 12.66 | 32.590 | 9.89 | 32.712 | 12.75 | 32.424 | 13.77 | 32.455 | 17.98 | 33.480 |  |
| 20m          | 7.52       | 32.995     | 10.39      | 32.682     | 17.63      | 33.511     | 17.97      | 33.441     | 6.53       | 32.835     | 8.90  | 32.617 | 6.81 | 32.897 | 10.90 | 32.644 | 8.98  | 32.715 | 12.96 | 33.832 |  |
| 30m          | 6.53       | 33.231     | 6.74       | 32.835     | 11.13      | 33.648     | 12.50      | 33.334     | 4.12       | 32.919     | 5.65  | 32.730 | 4.37 | 32.986 | 7.97  | 32.756 | 5.63  | 32.890 | 9.51  | 34.019 |  |
| 50m          | 3.77       | 33.055     | 4.78       | 32.914     | 7.49       | 33.467     | 7.30       | 33.279     | 2.49       | 32.983     | 3.42  | 32.944 | 3.24 | 33.045 | 4.59  | 32.920 | 3.23  | 33.005 | 8.59  | 34.066 |  |
| 75m          | 2.99       | 33.162     | 3.54       | 32.984     | 7.01       | 33.800     | 6.81       | 33.492     | 1.61       | 33.047     | 2.17  | 33.031 | 1.88 | 33.134 | 2.73  | 32.995 | 2.81  | 33.177 | 8.39  | 34.084 |  |
| 100m         | 2.04       | 33.153     | 2.98       | 33.082     | 7.29       | 33.892     | 6.31       | 33.658     | 1.28       | 33.106     | 1.36  | 33.124 | 1.53 | 33.183 | 2.32  | 33.123 | 2.69  | 33.314 | 8.44  | 34.102 |  |
| 125m         | 1.74       | 33.186     | 2.90       | 33.160     | 6.66       | 33.819     | 6.43       | 33.770     | 1.68       | 33.208     | 1.57  | 33.204 | 1.33 | 33.213 | 2.57  | 33.279 | 2.86  | 33.446 | 8.44  | 34.103 |  |
| 150m         | 1.62       | 33.245     | 2.91       | 33.227     | 6.48       | 33.793     | 6.00       | 33.721     | 1.54       | 33.243     | 1.61  | 33.256 | 1.34 | 33.264 | 2.70  | 33.416 | 2.84  | 33.568 | 8.42  | 34.100 |  |
| 200m         | 1.59       | 33.344     | 2.61       | 33.319     | 5.13       | 33.620     | 4.86       | 33.593     | 1.64       | 33.318     | 1.57  | 33.315 | 1.46 | 33.345 | 1.94  | 33.457 | 3.36  | 33.762 | 8.36  | 34.088 |  |
| 250m         | 1.68       | 33.393     | 2.37       | 33.386     | 3.60       | 33.478     | 3.46       | 33.435     | 1.92       | 33.424     | 1.79  | 33.404 | 1.58 | 33.427 | 1.95  | 33.524 | 3.09  | 33.836 | 8.35  | 34.085 |  |
| 300m         | 1.95       | 33.461     | 3.32       | 33.587     | 2.30       | 33.400     | 3.22       | 33.459     | 1.80       | 33.468     | 1.78  | 33.456 | 1.64 | 33.485 | 2.34  | 33.648 | 2.95  | 33.911 | 8.32  | 34.079 |  |
| 400m         |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| 500m         |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| 600m         |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| 700m         |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| 800m         |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| 900m         |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |
| 1000m        |            |            |            |            |            |            |            |            |            |            |       |        |      |        |       |        |       |        |       |        |  |

Table 5-24

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | IW05       |        | IW06       |        | IW07       |        | IW08       |        | IW09       |        | IW10       |        | IW11       |        | IW12       |        | IW13       |        | IW14       |        |
| Latitude:N   | 41-10.0    |        | 40-45.0    |        | 40-20.1    |        | 40-34.8    |        | 40-49.8    |        | 41-24.8    |        | 41-59.1    |        | 41-45.0    |        | 41-27.0    |        | 41-59.9    |        |
| Longitude:E  | 144-40.1   |        | 144- 5.1   |        | 143-30.0   |        | 142-45.1   |        | 142- 0.1   |        | 142- 0.0   |        | 141-59.1   |        | 142-44.9   |        | 143-29.1   |        | 143-54.9   |        |
| Date         | 1997/09/04 |        | 1997/09/05 |        | 1997/09/05 |        | 1997/09/06 |        | 1997/09/06 |        | 1997/09/07 |        | 1997/09/07 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/09 |        |
| Time(JST)    | 17:16      |        | 10:59      |        | 17:17      |        | 10:06      |        | 17:16      |        | 08:37      |        | 17:16      |        | 10:04      |        | 17:15      |        | 09:50      |        |
| Weather      | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | B          |        | BC         |        | BC         |        |
| Air Temp.    | 16.3       |        | 20.8       |        | 22.5       |        | 23.1       |        | 21.7       |        | 21.7       |        | 18.2       |        | 17.8       |        | 20.8       |        | 20.2       |        |
| Bar          | 1005.7     |        | 1015.7     |        | 1017.2     |        | 1020.0     |        | 1017.0     |        | 1015.2     |        | 1014.0     |        | 1015.5     |        | 1015.0     |        | 1013.7     |        |
| Wind Dir     | N          |        | NW         |        | CALM       |        | SE         |        | SE         |        | SE         |        | ESE        |        | ESE        |        | CALM       |        | SSW        |        |
| Wind Spd/F   | F 4        |        | F 2        |        | F 0        |        | F 3        |        | F 5        |        | F 4        |        | F 3        |        | F 2        |        | F 0        |        | F 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        | 520        |        |            |        |            |        | 749        |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.0       | 33.58* | 21.6       | 33.13* | 22.6       | 33.40* | 20.7       | 32.84* | 22.4       | 33.69* | 22.1       | 33.63* | 18.2       | 33.33* | 19.0       | 33.45* | 20.2       | 33.25* | 16.3       | 32.58* |
| 10m          | 16.81      | 33.579 | 20.48      | 33.211 | 21.72      | 33.373 | 20.37      | 32.846 | 22.24      | 33.686 | 22.05      | 33.632 | 18.03      | 33.328 | 17.42      | 33.055 | 17.39      | 32.903 | 13.37      | 32.605 |
| 20m          | 12.88      | 33.869 | 14.21      | 32.827 | 16.37      | 33.975 | 17.65      | 32.900 | 22.24      | 33.686 | 21.39      | 33.643 | 18.56      | 33.604 | 11.61      | 32.663 | 13.63      | 33.234 | 6.94       | 32.826 |
| 30m          | 9.54       | 34.047 | 11.69      | 33.399 | 13.59      | 34.164 | 8.32       | 32.963 | 22.14      | 33.688 | 21.03      | 33.645 | 14.69      | 32.992 | 8.77       | 32.894 | 9.08       | 33.203 | 4.05       | 32.954 |
| 50m          | 8.54       | 34.076 | 6.76       | 33.413 | 12.02      | 34.193 | 4.18       | 32.989 | 21.03      | 33.821 | 19.77      | 33.900 | 9.48       | 33.538 | 6.09       | 33.069 | 10.57      | 34.127 | 2.34       | 33.038 |
| 75m          | 8.44       | 34.099 | 7.37       | 33.792 | 10.25      | 34.082 | 2.67       | 33.066 | 20.51      | 33.844 | 17.50      | 34.062 | 7.05       | 33.447 | 5.02       | 33.162 | 9.26       | 34.063 | 2.52       | 33.194 |
| 100m         | 8.46       | 34.107 | 7.00       | 33.806 | 9.26       | 34.098 | 2.22       | 33.133 | 17.93      | 34.041 | 14.99      | 34.144 | 6.88       | 33.580 | 4.39       | 33.172 | 5.93       | 33.652 | 2.18       | 33.233 |
| 125m         | 8.45       | 34.107 | 5.54       | 33.649 | 8.07       | 34.014 | 2.25       | 33.212 | 16.35      | 34.122 | 13.80      | 34.158 | 6.13       | 33.595 | 3.67       | 33.178 | 3.16       | 33.342 | 1.90       | 33.233 |
| 150m         | 8.40       | 34.098 | 5.37       | 33.684 | 6.65       | 33.862 | 2.43       | 33.318 | 14.27      | 34.166 | 12.10      | 34.142 | 6.01       | 33.649 | 5.19       | 33.542 | 2.49       | 33.294 | 2.12       | 33.309 |
| 200m         | 8.39       | 34.095 | 3.71       | 33.533 | 6.27       | 33.927 | 2.54       | 33.453 | 11.87      | 34.151 | 9.21       | 33.950 | 3.96       | 33.466 | 3.09       | 33.509 | 1.68       | 33.298 | 2.37       | 33.405 |
| 250m         | 8.39       | 34.094 | 3.48       | 33.577 | 4.85       | 33.782 | 2.50       | 33.535 | 8.27       | 33.829 | 5.24       | 33.580 | 3.74       | 33.518 | 2.92       | 33.561 | 1.49       | 33.350 | 1.70       | 33.408 |
| 300m         | 8.15       | 34.054 | 3.54       | 33.661 | 4.24       | 33.836 | 2.32       | 33.639 | 4.14       | 33.518 | 3.48       | 33.505 | 3.14       | 33.547 | 2.93       | 33.626 | 1.74       | 33.445 | 1.83       | 33.496 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-25

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | IW15       |        | SM09       |        | SM08       |        | SM07       |        | SM06       |        | SM05       |        | SM04       |        | SM03       |        | SM02       |        | SM01       |        |
| Latitude:N   | 42-28.5    |        | 41-47.0    |        | 41-25.2    |        | 40-52.1    |        | 40-40.0    |        | 40-23.9    |        | 40-59.8    |        | 41-29.1    |        | 41-59.9    |        | 42-30.8    |        |
| Longitude:E  | 144-19.9   |        | 144-18.8   |        | 144- 0.2   |        | 144- 0.8   |        | 144-44.8   |        | 145-31.7   |        | 145-39.8   |        | 145-50.3   |        | 145-25.0   |        | 144-46.2   |        |
| Date         | 1997/09/09 |        | 1997/09/21 |        | 1997/09/22 |        | 1997/09/22 |        | 1997/09/23 |        | 1997/09/23 |        | 1997/09/24 |        | 1997/09/24 |        | 1997/09/25 |        | 1997/09/25 |        |
| Time(JST)    | 17:17      |        | 17:35      |        | 09:42      |        | 17:32      |        | 11:00      |        | 17:30      |        | 10:24      |        | 17:27      |        | 10:15      |        | 17:24      |        |
| Weather      | C          |        |            |        | C          |        |            |        | BC         |        |            |        | BC         |        | R          |        | B          |        |            |        |
| Air Temp.    | 15.8       |        | 18.2       |        | 17.2       |        | 17.1       |        | 16.1       |        | 16.0       |        | 15.1       |        | 13.8       |        | 17.1       |        | 14.3       |        |
| Bar          | 1010.0     |        | 1017.5     |        | 1017.5     |        | 1019.2     |        | 1024.0     |        | 1022.7     |        | 1023.5     |        | 1023.9     |        | 1025.5     |        | 1021.5     |        |
| Wind Dir     | S          |        | S          |        | WSW        |        | NW         |        | NE         |        | NE         |        | NE         |        | NE         |        | SSW        |        | SE         |        |
| Wind Spd/F   | F 4        |        | F 5        |        | F 2        |        | F 4        |        | F 4        |        | F 5        |        | F 4        |        | F 3        |        | F 2        |        | F 2        |        |
| Transparency |            |        |            |        | 18         |        |            |        | 12         |        |            |        | 15         |        |            |        | 11         |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.6       | 32.71* | 19.0       | 33.82* | 16.2       | 33.40* | 16.7       | 33.34* | 16.1       | 33.44* | 17.9       | 33.05* | 16.8       | 33.43* | 15.1       | 32.37* | 15.5       | 32.38* | 14.7       | 32.42* |
| 10m          | 13.27      | 32.731 | 19.36      | 33.819 | 16.08      | 33.444 | 16.63      | 33.344 | 15.96      | 33.444 | 17.82      | 33.048 | 16.64      | 33.429 | 14.94      | 32.374 | 15.16      | 32.382 | 14.46      | 32.446 |
| 20m          | 9.35       | 33.151 | 19.38      | 33.823 | 15.79      | 33.469 | 16.62      | 33.361 | 10.39      | 34.014 | 17.82      | 33.049 | 16.18      | 33.421 | 14.93      | 32.384 | 13.55      | 32.401 | 9.16       | 32.877 |
| 30m          | 8.03       | 33.148 | 18.77      | 33.770 | 12.15      | 33.535 | 16.55      | 33.456 | 8.94       | 34.073 | 15.19      | 34.324 | 12.35      | 33.797 | 14.55      | 32.424 | 9.18       | 32.782 | 7.96       | 33.218 |
| 50m          | 6.02       | 33.128 | 7.15       | 33.024 | 9.12       | 33.866 | 8.60       | 33.588 | 8.41       | 34.072 | 9.51       | 33.661 | 8.52       | 33.910 | 5.32       | 32.943 | 3.53       | 32.999 | 5.25       | 33.126 |
| 75m          | 2.75       | 33.082 | 4.70       | 33.082 | 7.52       | 33.770 | 6.76       | 33.643 | 8.45       | 34.100 | 5.63       | 33.435 | 7.91       | 33.979 | 2.58       | 33.055 | 2.51       | 33.036 | 3.02       | 33.112 |
| 100m         | 2.31       | 33.162 | 3.19       | 33.097 | 7.62       | 33.939 | 8.02       | 34.013 | 8.46       | 34.105 | 5.07       | 33.480 | 8.02       | 34.016 | 2.30       | 33.122 | 2.23       | 33.121 | 2.26       | 33.168 |
| 125m         | 2.14       | 33.206 | 2.51       | 33.163 | 7.45       | 33.924 | 7.88       | 33.995 | 8.45       | 34.105 | 4.65       | 33.520 | 7.92       | 34.002 | 2.27       | 33.213 | 2.21       | 33.202 | 2.00       | 33.219 |
| 150m         | 1.99       | 33.238 | 1.79       | 33.179 | 7.03       | 33.868 | 7.60       | 33.957 | 8.42       | 34.099 | 4.50       | 33.511 | 7.90       | 33.998 | 2.31       | 33.289 | 2.36       | 33.295 | 2.13       | 33.296 |
| 200m         | 2.14       | 33.319 | 1.99       | 33.276 | 6.29       | 33.769 | 6.62       | 33.821 | 8.36       | 34.088 | 3.11       | 33.376 | 6.64       | 33.829 | 2.60       | 33.482 | 2.58       | 33.483 | 2.01       | 33.343 |
| 250m         | 1.75       | 33.367 | 2.52       | 33.433 | 4.91       | 33.606 | 5.49       | 33.664 | 8.37       | 34.088 | 2.42       | 33.341 | 5.86       | 33.715 | 2.90       | 33.634 | 2.83       | 33.648 | 2.31       | 33.454 |
| 300m         | 1.88       | 33.463 | 1.78       | 33.422 | 4.00       | 33.522 | 4.11       | 33.522 | 8.37       | 34.087 | 1.82       | 33.336 | 4.01       | 33.511 | 2.55       | 33.714 | 2.99       | 33.764 | 2.16       | 33.506 |
| 400m         |            |        | 2.23       | 33.618 | 2.75       | 33.489 | 2.57       | 33.458 | 6.79       | 33.857 | 1.80       | 33.441 | 2.34       | 33.455 | 3.10       | 33.910 | 3.24       | 33.938 | 3.07       | 33.783 |
| 500m         |            |        | 2.86       | 33.861 | 2.52       | 33.585 | 2.76       | 33.600 | 3.60       | 33.500 | 2.54       | 33.640 | 2.19       | 33.572 | 3.24       | 34.076 | 3.29       | 34.077 | 3.21       | 33.913 |
| 600m         |            |        | 3.10       | 34.018 | 3.03       | 33.769 | 3.26       | 33.809 | 2.80       | 33.547 | 2.79       | 33.829 | 2.98       | 33.826 | 3.09       | 34.164 | 3.07       | 34.145 | 3.04       | 34.012 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-26



Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P31        |        | P32        |        | P33        |        | PK21       |        | PK22       |        | P34        |        | P35        |        | PK23       |        | PK31       |        | PK32       |        |
| Latitude:N   | 42-44.1    |        | 42-30.1    |        | 42-15.1    |        | 42-15.1    |        | 42- 0.1    |        | 42- 0.1    |        | 41-30.0    |        | 41-29.1    |        | 41-30.0    |        | 41- 0.1    |        |
| Longitude:E  | 143-59.1   |        | 144- 0.0   |        | 144- 0.1   |        | 143-30.1   |        | 143-29.1   |        | 144- 0.0   |        | 143-59.1   |        | 143-32.6   |        | 143- 0.1   |        | 143- 0.0   |        |
| Date         | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/02 |        | 1997/10/03 |        | 1997/10/03 |        | 1997/10/03 |        |
| Time(JST)    | 10:46      |        | 12:08      |        | 13:41      |        | 15:57      |        | 17:25      |        | 19:32      |        | 22:46      |        | 00:55      |        | 03:22      |        | 06:09      |        |
| Weather      | B          |        | B          |        | B          |        | B          |        | C          |        | BC         |        | BC         |        | C          |        | BC         |        | BC         |        |
| Air Temp.    | 14.5       |        | 15.8       |        | 15.6       |        | 15.5       |        | 15.0       |        | 14.6       |        | 16.0       |        | 16.5       |        | 16.6       |        | 16.8       |        |
| Bar          | 1027.4     |        | 1026.5     |        | 1026.0     |        | 1026.5     |        | 1025.0     |        | 1026.6     |        | 1026.8     |        | 1026.5     |        | 1025.0     |        | 1024.9     |        |
| Wind Dir     | WSW        |        | SSW        |        | SSW        |        | SSW        |        | SW         |        | SSW        |        | SSW        |        | SSW        |        | S          |        | S          |        |
| Wind Spd/F   | F 3        |        | F 4        |        | F 4        |        | F 5        |        | F 5        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        |
| Transparency | 5          |        | 14         |        | 17         |        | 5          |        |            |        |            |        |            |        |            |        |            |        | 13         |        |
| Depth        | 63         |        | 487        |        | 930        |        | 67         |        | 121        |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.0       | 33.042 | 16.9       | 33.383 | 14.5       | 32.460 | 15.2       | 32.850 | 14.4       | 32.837 | 14.0       | 32.460 | 16.9       | 33.120 | 17.5       | 32.843 | 16.8       | 33.352 | 16.8       | 32.938 |
| 10m          | 14.16      | 33.196 | 16.26      | 33.401 | 14.07      | 32.516 | 15.01      | 32.953 | 14.26      | 32.909 | 13.67      | 32.581 | 17.06      | 33.288 | 17.49      | 32.922 | 16.74      | 33.281 | 16.85      | 32.895 |
| 20m          | 14.08      | 33.237 | 15.53      | 33.342 | 12.87      | 32.587 | 14.76      | 33.110 | 13.65      | 33.287 | 10.82      | 33.021 | 16.28      | 33.426 | 16.83      | 33.020 | 17.04      | 33.504 | 16.91      | 32.919 |
| 30m          | 13.52      | 33.387 | 11.74      | 33.387 | 8.48       | 32.930 | 14.51      | 33.272 | 13.15      | 33.336 | 7.69       | 33.004 | 15.74      | 33.640 | 11.88      | 33.397 | 14.25      | 33.188 | 9.21       | 32.915 |
| 50m          | 11.07      | 33.254 | 10.25      | 33.501 | 5.18       | 32.967 | 13.61      | 33.359 | 11.60      | 33.376 | 7.33       | 33.442 | 13.26      | 34.246 | 10.97      | 34.040 | 12.90      | 33.471 | 8.50       | 33.547 |
| 75m          |            |        | 9.04       | 33.742 | 3.32       | 33.001 |            |        | 9.67       | 33.275 | 6.36       | 33.495 | 11.91      | 34.298 | 9.16       | 33.948 | 10.70      | 33.451 | 5.04       | 33.431 |
| 100m         |            |        | 7.16       | 33.696 | 2.67       | 33.099 |            |        | 7.96       | 33.215 | 7.64       | 33.871 | 7.58       | 33.790 | 7.19       | 33.725 | 11.32      | 34.171 | 4.90       | 33.520 |
| 125m         |            |        | 6.10       | 33.691 | 3.32       | 33.329 |            |        | 6.31       | 33.745 | 6.42       | 33.724 | 5.69       | 33.620 | 7.62       | 33.704 | 4.63       | 33.558 |            |        |
| 150m         |            |        | 4.81       | 33.586 | 2.11       | 33.273 |            |        | 4.65       | 33.586 | 4.23       | 33.472 | 4.69       | 33.559 | 6.09       | 33.600 | 3.90       | 33.519 |            |        |
| 200m         |            |        | 1.96       | 33.341 | 2.92       | 33.502 |            |        | 3.65       | 33.563 | 4.10       | 33.491 | 3.48       | 33.503 | 3.39       | 33.511 | 4.17       | 33.642 |            |        |
| 250m         |            |        | 1.92       | 33.429 | 2.93       | 33.607 |            |        | 1.99       | 33.507 | 3.94       | 33.542 | 3.34       | 33.588 | 2.91       | 33.556 | 4.21       | 33.736 |            |        |
| 300m         |            |        | 2.14       | 33.531 | 2.31       | 33.619 |            |        | 1.99       | 33.605 | 2.46       | 33.438 | 3.60       | 33.718 | 3.00       | 33.639 | 4.90       | 33.939 |            |        |
| 400m         |            |        | 3.07       | 33.872 | 2.71       | 33.819 |            |        | 2.09       | 33.647 | 2.75       | 33.631 | 3.25       | 33.832 | 3.36       | 33.826 | 2.94       | 33.819 |            |        |
| 500m         |            |        |            |        | 3.25       | 34.032 |            |        | 2.34       | 33.755 | 3.69       | 33.891 | 4.43       | 34.137 | 3.38       | 33.968 | 3.19       | 34.010 |            |        |
| 600m         |            |        |            |        | 3.17       | 34.125 |            |        | 3.09       | 33.981 | 4.56       | 34.177 | 3.61       | 34.132 | 3.65       | 34.169 | 3.32       | 34.158 |            |        |
| 700m         |            |        |            |        |            |        |            |        | 3.17       | 34.148 |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        | 3.15       | 34.236 |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        | 2.87       | 34.301 |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-27

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK24       |        | P36        |        | PK16       |        | P27        |        | PK07       |        | P18        |        | P17        |        | PK06       |        | P26        |        | PK15       |        |
| Latitude:N   | 41- 0.1    |        | 41- 0.0    |        | 40-59.1    |        | 41- 0.0    |        | 41- 0.0    |        | 41- 0.0    |        | 41-29.9    |        | 41-30.0    |        | 41-30.0    |        | 41-30.0    |        |
| Longitude:E  | 143-29.1   |        | 143-59.9   |        | 144-29.5   |        | 144-59.8   |        | 145-29.8   |        | 145-59.9   |        | 145-59.1   |        | 145-30.0   |        | 145- 0.1   |        | 144-30.2   |        |
| Date         | 1997/10/03 |        | 1997/10/03 |        | 1997/10/03 |        | 1997/10/03 |        | 1997/10/03 |        | 1997/10/03 |        | 1997/10/03 |        | 1997/10/04 |        | 1997/10/04 |        | 1997/10/04 |        |
| Time(JST)    | 08:27      |        | 10:46      |        | 13:06      |        | 15:30      |        | 17:49      |        | 20:09      |        | 23:49      |        | 02:40      |        | 05:06      |        | 07:34      |        |
| Weather      | B          |        | B          |        | B          |        | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        |
| Air Temp.    | 17.3       |        | 18.1       |        | 17.7       |        | 15.8       |        | 14.5       |        | 14.3       |        | 14.3       |        | 14.8       |        | 14.8       |        | 15.5       |        |
| Bar          | 1025.5     |        | 1025.1     |        | 1024.5     |        | 1024.5     |        | 1024.5     |        | 1025.4     |        | 1023.9     |        | 1022.0     |        | 1021.0     |        | 1020.5     |        |
| Wind Dir     | S          |        | S          |        | S          |        | S          |        | S          |        | S          |        | S          |        | S          |        | SSE        |        | SSE        |        |
| Wind Spd/F   | F 4        |        | F 5        |        | F 5        |        | F 4        |        | F 4        |        | F 4        |        | F 3        |        | F 4        |        | F 4        |        | F 5        |        |
| Transparency | 10         |        | 15         |        | 19         |        | 6          |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.8       | 32.327 | 17.1       | 33.538 | 17.1       | 33.392 | 14.6       | 33.706 | 15.0       | 33.693 | 17.0       | 33.552 | 16.8       | 33.640 | 16.7       | 33.459 | 16.1       | 33.516 | 16.6       | 33.436 |
| 10m          | 15.61      | 32.274 | 16.72      | 33.391 | 16.85      | 33.311 | 14.08      | 33.634 | 14.96      | 33.588 | 17.24      | 33.440 | 16.96      | 33.499 | 16.69      | 33.363 | 16.14      | 33.410 | 16.62      | 33.329 |
| 20m          | 15.58      | 32.394 | 16.65      | 33.416 | 15.46      | 33.577 | 9.50       | 34.073 | 13.82      | 33.681 | 17.23      | 33.439 | 16.85      | 33.553 | 16.44      | 33.402 | 12.70      | 33.753 | 15.85      | 33.536 |
| 30m          | 10.28      | 32.691 | 16.52      | 33.438 | 12.36      | 33.813 | 8.77       | 34.108 | 9.51       | 34.044 | 13.58      | 33.561 | 11.20      | 33.227 | 10.90      | 33.948 | 8.89       | 34.111 | 13.76      | 33.653 |
| 50m          | 5.19       | 32.929 | 12.20      | 33.899 | 8.86       | 33.935 | 8.50       | 34.112 | 8.50       | 34.070 | 10.85      | 34.069 | 11.06      | 34.207 | 8.48       | 33.988 | 8.49       | 34.108 | 8.42       | 33.871 |
| 75m          | 4.27       | 33.004 | 7.58       | 33.686 | 8.04       | 33.972 | 8.48       | 34.110 | 8.43       | 34.093 | 6.66       | 33.563 | 8.29       | 33.866 | 8.31       | 34.057 | 8.46       | 34.105 | 7.91       | 33.977 |
| 100m         | 2.80       | 33.049 | 6.21       | 33.620 | 8.18       | 34.044 | 8.48       | 34.111 | 8.43       | 34.097 | 6.26       | 33.697 | 6.09       | 33.635 | 8.33       | 34.073 | 8.46       | 34.106 | 7.99       | 34.009 |
| 125m         | 2.42       | 33.144 | 3.33       | 33.307 | 8.11       | 34.036 | 8.47       | 34.110 | 8.40       | 34.093 | 6.04       | 33.713 | 5.39       | 33.620 | 8.30       | 34.070 | 8.43       | 34.100 | 7.86       | 33.991 |
| 150m         | 2.67       | 33.286 | 3.88       | 33.433 | 8.11       | 34.036 | 8.44       | 34.104 | 8.33       | 34.083 | 5.28       | 33.628 | 5.12       | 33.612 | 8.23       | 34.061 | 8.38       | 34.092 | 7.63       | 33.956 |
| 200m         | 2.59       | 33.407 | 3.45       | 33.429 | 8.01       | 34.020 | 8.40       | 34.096 | 8.34       | 34.082 | 3.35       | 33.437 | 2.81       | 33.393 | 8.25       | 34.064 | 8.37       | 34.089 | 6.84       | 33.861 |
| 250m         | 2.92       | 33.622 | 2.89       | 33.433 | 7.23       | 33.909 | 8.41       | 34.096 | 8.34       | 34.083 | 2.29       | 33.377 | 2.32       | 33.408 | 7.75       | 33.989 | 8.37       | 34.089 | 6.34       | 33.785 |
| 300m         | 3.02       | 33.769 | 2.82       | 33.510 | 6.62       | 33.818 | 8.41       | 34.096 | 8.35       | 34.084 | 2.20       | 33.435 | 2.12       | 33.452 | 6.79       | 33.846 | 8.39       | 34.092 | 5.10       | 33.628 |
| 400m         | 3.30       | 34.014 | 2.70       | 33.632 | 4.26       | 33.541 | 8.42       | 34.095 | 6.79       | 33.854 | 2.58       | 33.622 | 2.85       | 33.663 | 4.38       | 33.563 | 7.39       | 33.941 | 3.06       | 33.475 |
| 500m         | 3.27       | 34.162 | 3.98       | 33.937 | 2.91       | 33.509 | 6.50       | 33.819 | 4.10       | 33.568 | 2.82       | 33.803 | 3.21       | 33.896 | 3.11       | 33.540 | 4.76       | 33.630 | 2.53       | 33.537 |
| 600m         | 3.11       | 34.223 | 4.27       | 34.137 | 2.70       | 33.616 | 3.60       | 33.579 | 2.78       | 33.559 | 3.13       | 34.003 | 3.25       | 34.062 | 2.76       | 33.644 | 3.05       | 33.577 | 2.86       | 33.709 |
| 700m         |            |        |            |        |            |        |            |        |            |        | 3.24       | 34.124 | 3.22       | 34.148 |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        | 3.09       | 34.211 | 3.11       | 34.221 |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        | 3.18       | 34.308 | 2.90       | 34.277 |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        | 2.82       | 34.337 | 2.77       | 34.332 |            |        |            |        |            |        |

Table 5-28

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK14       |        | P25        |        | PK05       |        | P16        |        | P15        |        | P14        |        | P13        |        | P12        |        | P11        |        | PK01       |        |
| Latitude:N   | 41-59.1    |        | 42- 0.0    |        | 42- 0.0    |        | 42- 0.1    |        | 42-14.9    |        | 42-29.1    |        | 42-44.1    |        | 42-54.9    |        | 43- 4.9    |        | 42-55.1    |        |
| Longitude:E  | 144-29.1   |        | 144-59.9   |        | 145-29.9   |        | 145-59.8   |        | 145-59.9   |        | 145-59.1   |        | 145-54.1   |        | 145-49.9   |        | 145-45.0   |        | 145-30.1   |        |
| Date         | 1997/10/04 |        | 1997/10/04 |        | 1997/10/04 |        | 1997/10/04 |        | 1997/10/04 |        | 1997/10/04 |        | 1997/10/04 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        |
| Time(JST)    | 10:16      |        | 12:49      |        | 15:14      |        | 17:38      |        | 19:38      |        | 21:38      |        | 23:38      |        | 01:23      |        | 02:45      |        | 04:18      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | BC         |        | F          |        | F          |        | F          |        | F          |        | F          |        |
| Air Temp.    | 16.6       |        | 16.3       |        | 16.2       |        | 15.5       |        | 14.8       |        | 14.8       |        | 13.8       |        | 12.6       |        | 13.6       |        | 14.1       |        |
| Bar          | 1019.0     |        | 1017.5     |        | 1017.0     |        | 1017.0     |        | 1016.5     |        | 1016.0     |        | 1014.5     |        | 1013.0     |        | 1012.0     |        | 1011.0     |        |
| Wind Dir     | SSE        |        | S          |        | SSW        |        | SSW        |        | SE         |        | SSE        |        | SSE        |        | SSE        |        | SSE        |        | SSE        |        |
| Wind Spd/F   | F 5        |        | F 5        |        | F 5        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 5        |        |
| Transparency | 10         |        | 13         |        | 10         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 103        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.8       | 33.271 | 16.8       | 33.188 | 16.2       | 33.236 | 14.3       | 32.455 | 14.8       | 32.450 | 14.5       | 32.428 | 11.6       | 32.497 | 11.1       | 32.630 | 13.5       | 33.457 | 14.1       | 33.381 |
| 10m          | 16.60      | 33.170 | 16.68      | 33.090 | 16.00      | 33.128 | 14.11      | 32.344 | 14.69      | 32.331 | 14.38      | 32.267 | 11.18      | 32.422 | 10.96      | 32.548 | 13.45      | 33.363 | 14.00      | 33.298 |
| 20m          | 15.44      | 33.088 | 16.67      | 33.092 | 14.31      | 32.954 | 10.53      | 32.498 | 13.18      | 32.444 | 14.35      | 32.270 | 9.94       | 32.448 | 7.65       | 32.667 | 13.45      | 33.364 | 13.48      | 33.311 |
| 30m          | 14.09      | 34.030 | 14.61      | 33.586 | 9.37       | 33.115 | 8.01       | 32.675 | 8.79       | 32.743 | 11.44      | 32.560 | 8.16       | 32.629 | 5.67       | 32.843 | 13.24      | 33.353 | 12.11      | 33.219 |
| 50m          | 11.50      | 34.110 | 13.68      | 34.386 | 6.75       | 33.228 | 5.27       | 32.891 | 3.90       | 33.000 | 4.33       | 32.936 | 6.07       | 32.798 | 2.99       | 33.028 | 8.30       | 33.267 | 7.86       | 33.259 |
| 75m          | 9.19       | 34.003 | 11.73      | 34.207 | 8.43       | 33.849 | 2.84       | 33.014 | 2.51       | 33.041 | 2.97       | 32.975 | 3.30       | 32.979 | 2.18       | 33.201 | 5.24       | 33.192 | 5.67       | 33.216 |
| 100m         | 6.16       | 33.651 | 9.12       | 33.903 | 6.71       | 33.689 | 2.51       | 33.086 | 2.18       | 33.108 | 2.59       | 33.100 | 2.24       | 33.032 | 2.25       | 33.292 |            |        | 2.95       | 33.132 |
| 125m         | 5.26       | 33.610 | 7.85       | 33.809 | 6.24       | 33.693 | 2.33       | 33.147 | 2.05       | 33.210 | 2.62       | 33.269 | 2.60       | 33.213 | 2.17       | 33.345 |            |        | 2.38       | 33.264 |
| 150m         | 4.12       | 33.476 | 5.59       | 33.606 | 5.70       | 33.683 | 2.44       | 33.265 | 2.61       | 33.417 | 2.79       | 33.420 | 3.05       | 33.408 | 2.16       | 33.397 |            |        |            |        |
| 200m         | 3.52       | 33.464 | 4.04       | 33.483 | 3.96       | 33.515 | 3.15       | 33.578 | 3.03       | 33.671 | 2.80       | 33.645 | 3.41       | 33.671 | 2.08       | 33.433 |            |        |            |        |
| 250m         | 5.03       | 33.784 | 3.22       | 33.485 | 4.27       | 33.612 | 2.76       | 33.638 | 3.06       | 33.797 | 2.96       | 33.775 | 3.29       | 33.784 | 2.42       | 33.523 |            |        |            |        |
| 300m         | 4.27       | 33.767 | 4.07       | 33.654 | 2.10       | 33.424 | 3.30       | 33.804 | 3.22       | 33.911 | 3.07       | 33.873 | 3.37       | 33.888 | 2.52       | 33.632 |            |        |            |        |
| 400m         | 3.44       | 33.814 | 4.02       | 33.802 | 2.27       | 33.570 | 3.32       | 33.962 | 3.31       | 34.042 | 3.30       | 34.030 | 2.93       | 33.944 | 2.86       | 33.802 |            |        |            |        |
| 500m         | 3.40       | 33.956 | 3.94       | 33.938 | 2.65       | 33.747 | 3.32       | 34.073 | 3.23       | 34.137 | 3.02       | 34.100 | 2.81       | 34.012 | 2.48       | 33.854 |            |        |            |        |
| 600m         | 3.20       | 34.050 | 4.05       | 34.077 | 3.12       | 34.006 | 3.20       | 34.176 | 3.13       | 34.217 | 3.15       | 34.205 | 3.20       | 34.152 | 2.81       | 33.966 |            |        |            |        |
| 700m         | 3.15       | 34.148 | 3.15       | 34.060 | 3.40       | 34.177 | 3.01       | 34.239 | 2.96       | 34.268 | 3.02       | 34.264 | 3.06       | 34.206 | 3.17       | 34.106 |            |        |            |        |
| 800m         | 3.08       | 34.224 | 3.07       | 34.197 | 3.15       | 34.231 | 2.83       | 34.285 | 2.87       | 34.323 | 2.90       | 34.327 | 3.00       | 34.283 | 3.15       | 34.226 |            |        |            |        |
| 900m         | 2.98       | 34.299 | 3.19       | 34.299 | 2.90       | 34.283 | 2.76       | 34.336 | 2.73       | 34.371 | 2.69       | 34.371 | 2.93       | 34.334 |            |        |            |        |            |        |
| 1000m        | 2.82       | 34.349 | 2.91       | 34.330 | 2.92       | 34.351 | 2.75       | 34.385 | 2.60       | 34.406 | 2.50       | 34.399 | 2.70       | 34.374 |            |        |            |        |            |        |

Table 5-29

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK02       |        | PK03       |        | PK04       |        | P24        |        | PK13       |        | PK12       |        | P23        |        | P22        |        | P21        |        | PK11       |        |
| Latitude:N   | 42-45.1    |        | 42-30.1    |        | 42-15.0    |        | 42-14.1    |        | 42-14.1    |        | 42-29.1    |        | 42-30.0    |        | 42-44.9    |        | 42-55.0    |        | 42-45.0    |        |
| Longitude:E  | 145-29.9   |        | 145-29.1   |        | 145-29.1   |        | 145- 0.1   |        | 144-30.0   |        | 144-30.0   |        | 144-59.8   |        | 145- 0.1   |        | 145- 0.0   |        | 144-30.1   |        |
| Date         | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        | 1997/10/05 |        |
| Time(JST)    | 05:17      |        | 06:49      |        | 08:24      |        | 11:34      |        | 13:50      |        | 15:26      |        | 17:42      |        | 19:26      |        | 20:31      |        | 22:38      |        |
| Weather      | F          |        | R          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 13.3       |        | 14.0       |        | 15.3       |        | 15.6       |        | 15.6       |        | 15.1       |        | 15.3       |        | 14.8       |        | 14.0       |        | 13.1       |        |
| Bar          | 1010.0     |        | 1009.7     |        | 1010.0     |        | 1008.4     |        | 1007.0     |        | 1007.5     |        | 1007.0     |        | 1008.0     |        | 1008.4     |        | 1009.5     |        |
| Wind Dir     | S          |        | S          |        | SSW        |        | SW         |        | CALM       |        | S          |        | WSW        |        | NNE        |        | NNE        |        | N          |        |
| Wind Spd/F   | F 4        |        | F 3        |        | F 4        |        | F 3        |        | F 0        |        | F 2        |        | F 1        |        | F 5        |        | F 5        |        | F 6        |        |
| Transparency |            |        | 7          |        | 9          |        | 11         |        | 17         |        | 14         |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 167        |        | 64         |        | 129        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 13.1       | 32.998 | 12.0       | 32.742 | 12.9       | 32.343 | 14.4       | 32.666 | 14.3       | 32.500 | 14.4       | 32.546 | 15.1       | 33.170 | 14.4       | 33.324 | 14.8       | 32.730 | 14.2       | 32.918 |
| 10m          | 13.44      | 33.191 | 11.86      | 32.805 | 12.52      | 32.444 | 14.12      | 32.737 | 14.11      | 32.564 | 14.19      | 32.636 | 14.33      | 33.181 | 14.28      | 33.375 | 14.17      | 32.967 | 14.14      | 32.974 |
| 20m          | 11.47      | 32.854 | 8.29       | 32.651 | 10.30      | 32.524 | 13.35      | 33.166 | 12.76      | 32.721 | 11.12      | 33.369 | 12.14      | 33.252 | 14.22      | 33.368 | 13.77      | 33.336 | 14.00      | 32.978 |
| 30m          | 7.74       | 32.681 | 7.69       | 32.976 | 8.21       | 32.736 | 11.43      | 33.391 | 10.71      | 32.844 | 10.94      | 33.709 | 9.62       | 33.109 | 14.15      | 33.387 | 13.43      | 33.357 | 12.75      | 33.275 |
| 50m          | 5.13       | 32.872 | 6.60       | 33.210 | 5.76       | 33.005 | 10.25      | 33.770 | 5.58       | 32.933 | 8.89       | 33.679 | 6.00       | 33.092 | 12.82      | 33.414 | 11.30      | 33.355 | 11.24      | 33.528 |
| 75m          | 3.91       | 32.956 | 3.35       | 33.128 | 3.68       | 32.962 | 7.38       | 33.643 | 4.08       | 33.010 | 8.45       | 33.790 | 6.09       | 33.496 | 9.96       | 33.294 |            |        | 3.31       | 33.118 |
| 100m         | 2.74       | 33.057 | 2.53       | 33.148 | 2.87       | 33.066 | 4.31       | 33.352 | 2.84       | 33.050 | 4.99       | 33.406 | 6.11       | 33.621 | 4.58       | 33.070 |            |        | 2.89       | 33.130 |
| 125m         | 2.59       | 33.147 | 2.23       | 33.273 | 2.71       | 33.182 | 4.33       | 33.427 | 2.77       | 33.216 | 4.63       | 33.520 | 5.68       | 33.665 | 3.54       | 33.185 |            |        |            |        |
| 150m         | 2.96       | 33.327 | 2.29       | 33.338 | 3.14       | 33.417 | 4.78       | 33.559 | 2.75       | 33.379 | 3.42       | 33.441 | 5.08       | 33.603 | 2.35       | 33.352 |            |        |            |        |
| 200m         | 3.32       | 33.593 | 2.60       | 33.477 | 2.85       | 33.535 | 2.95       | 33.396 | 2.37       | 33.460 | 3.51       | 33.530 | 3.11       | 33.417 |            |        |            |        |            |        |
| 250m         | 1.62       | 33.502 | 2.48       | 33.580 | 2.11       | 33.550 | 2.57       | 33.407 | 2.82       | 33.640 | 1.95       | 33.426 | 2.44       | 33.385 |            |        |            |        |            |        |
| 300m         | 2.10       | 33.596 | 2.54       | 33.684 | 3.32       | 33.763 | 2.37       | 33.460 | 2.79       | 33.748 | 2.08       | 33.497 | 2.37       | 33.447 |            |        |            |        |            |        |
| 400m         | 3.43       | 33.903 | 2.46       | 33.776 | 3.53       | 33.959 | 2.75       | 33.671 | 3.11       | 33.935 | 2.80       | 33.762 | 2.71       | 33.667 |            |        |            |        |            |        |
| 500m         | 2.64       | 33.910 | 3.19       | 33.972 | 3.07       | 33.995 | 3.26       | 33.917 | 3.14       | 34.048 | 3.59       | 34.037 | 3.15       | 33.940 |            |        |            |        |            |        |
| 600m         | 3.06       | 34.051 | 3.23       | 34.064 | 3.34       | 34.129 | 3.14       | 34.058 | 3.08       | 34.131 | 3.13       | 34.107 | 3.21       | 34.048 |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-30

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | IK01       |        | IK02       |        | IK03       |        | IK04       |        | IK05       |        | IK06       |        | IK07       |        | IK08       |        | IK09       |        | IK10       |        |
| Latitude:N   | 43-56.1    |        | 43-58.9    |        | 44- 2.0    |        | 44- 5.1    |        | 44- 8.0    |        | 44-11.1    |        | 44- 4.4    |        | 44-10.9    |        | 43-59.3    |        | 42-30.5    |        |
| Longitude:E  | 145-12.8   |        | 145-14.9   |        | 145-17.5   |        | 145-20.0   |        | 145-22.5   |        | 145-24.1   |        | 144-36.2   |        | 145-26.7   |        | 145-13.1   |        | 145- 0.1   |        |
| Date         | 1997/10/13 |        | 1997/10/13 |        | 1997/10/13 |        | 1997/10/13 |        | 1997/10/13 |        | 1997/10/13 |        | 1997/10/15 |        | 1997/10/16 |        | 1997/10/18 |        | 1997/10/19 |        |
| Time(JST)    | 20:30      |        | 20:53      |        | 21:26      |        | 21:58      |        | 22:26      |        | 22:58      |        | 16:05      |        | 20:08      |        | 17:49      |        | 17:21      |        |
| Weather      |            |        |            |        |            |        |            |        |            |        |            |        | BC         |        | BC         |        |            |        |            |        |
| Air Temp.    | 10.3       |        | 10.1       |        | 9.8        |        | 10.0       |        | 9.8        |        | 9.5        |        | 10.3       |        | 12.1       |        | 14.3       |        | 14.1       |        |
| Bar          | 1005.7     |        |            |        | 1005.5     |        | 1005.0     |        | 1004.5     |        | 1004.9     |        | 1012.2     |        | 1017.5     |        | 1005.5     |        | 1012.0     |        |
| Wind Dir     | W          |        | SW         |        | W          |        | WSW        |        | WNW        |        | WSW        |        | NE         |        | S          |        | NW         |        | WSW        |        |
| Wind Spd/F   | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 3        |        | F 5        |        | F 4        |        | F 1        |        | F 3        |        | F 5        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 82         |        | 489        |        |            |        |            |        |            |        |            |        | 142        |        |            |        | 541        |        | 1736       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 14.3       | 33.53* | 14.2       | 32.75* | 14.2       | 33.29* | 14.2       | 33.65* | 13.7       | 33.73* | 14.0       | 33.20* | 12.4       | 33.40* | 13.8       | 33.65* | 14.0       | 33.56* | 11.6       | 33.50* |
| 10m          | 14.40      | 33.523 | 14.38      | 33.626 | 14.36      | 33.654 | 14.40      | 33.651 | 13.83      | 33.731 | 14.10      | 33.605 | 12.34      | 33.431 | 13.84      | 33.653 | 13.97      | 33.620 | 11.31      | 32.920 |
| 20m          | 14.41      | 33.523 | 14.39      | 33.627 | 14.16      | 33.720 | 14.44      | 33.648 | 13.85      | 33.731 | 14.11      | 33.606 | 12.70      | 33.590 | 13.84      | 33.654 | 13.97      | 33.654 | 10.99      | 32.943 |
| 30m          | 14.40      | 33.523 | 14.41      | 33.643 | 14.10      | 33.737 | 14.35      | 33.664 | 13.85      | 33.731 | 14.07      | 33.647 | 12.96      | 33.693 | 13.84      | 33.663 | 13.92      | 33.692 | 9.25       | 33.187 |
| 50m          | 14.03      | 33.814 | 14.36      | 33.690 | 14.08      | 33.749 | 14.11      | 33.719 | 13.88      | 33.757 | 13.30      | 33.827 | 12.52      | 33.902 | 12.75      | 33.789 | 13.32      | 33.823 | 4.94       | 33.163 |
| 75m          |            |        | 12.01      | 33.828 | 13.38      | 33.846 | 12.89      | 33.860 | 12.05      | 33.815 | 10.77      | 33.828 | 11.82      | 33.866 | 10.30      | 33.864 | 11.02      | 33.874 | 3.15       | 33.095 |
| 100m         |            |        | 10.04      | 33.875 | 10.34      | 33.859 | 10.47      | 33.892 | 9.11       | 33.797 | 8.76       | 33.765 | 11.80      | 33.917 | 9.18       | 33.832 | 9.84       | 33.832 | 2.86       | 33.116 |
| 125m         |            |        | 7.42       | 33.678 | 8.57       | 33.835 | 9.23       | 33.862 | 7.78       | 33.739 | 6.36       | 33.648 | 10.39      | 33.880 | 8.16       | 33.729 | 8.21       | 33.750 | 2.66       | 33.125 |
| 150m         |            |        | 5.30       | 33.555 | 5.97       | 33.603 | 6.71       | 33.665 | 6.55       | 33.697 | 5.77       | 33.637 |            |        | 5.52       | 33.590 | 6.81       | 33.661 | 2.32       | 33.161 |
| 200m         |            |        | 3.17       | 33.390 | 3.45       | 33.427 | 4.25       | 33.548 | 4.89       | 33.594 | 4.20       | 33.523 |            |        | 4.21       | 33.498 | 4.01       | 33.463 | 1.98       | 33.210 |
| 250m         |            |        | 2.30       | 33.342 | 2.05       | 33.337 | 3.16       | 33.448 | 3.03       | 33.436 | 2.54       | 33.426 |            |        | 2.53       | 33.412 | 2.61       | 33.367 | 1.59       | 33.244 |
| 300m         |            |        | 1.86       | 33.335 | 1.51       | 33.329 | 1.71       | 33.335 | 2.31       | 33.418 | 1.85       | 33.377 |            |        | 2.46       | 33.418 | 1.78       | 33.345 | 1.42       | 33.342 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-31

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199710     | 199710     | 199711     | 199711     | 199711     | 199711     | 199711     | 199711     | 199711     | 199711     |       |        |       |        |       |        |      |        |      |        |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|--------|-------|--------|-------|--------|------|--------|------|--------|
| Station No   | SM01       | SM02       | SU02       | SU01       | SU06       | SU05       | SU11       | SU12       | SU23       | SU24       |       |        |       |        |       |        |      |        |      |        |
| Latitude:N   | 42- 4.9    | 42-10.9    | 42-47.5    | 42-53.1    | 42-37.5    | 42-45.5    | 42-32.5    | 42-23.2    | 41-54.3    | 41-48.2    |       |        |       |        |       |        |      |        |      |        |
| Longitude:E  | 144-55.4   | 144-20.3   | 144-18.2   | 144- 9.7   | 144- 9.4   | 143-57.3   | 143-40.7   | 143-54.4   | 143-19.2   | 143-40.8   |       |        |       |        |       |        |      |        |      |        |
| Date         | 1997/10/22 | 1997/10/23 | 1997/11/06 | 1997/11/06 | 1997/11/06 | 1997/11/06 | 1997/11/07 | 1997/11/07 | 1997/11/08 | 1997/11/08 |       |        |       |        |       |        |      |        |      |        |
| Time(JST)    | 17:15      | 17:26      | 09:58      | 11:14      | 14:33      | 16:19      | 09:52      | 11:39      | 05:49      | 08:04      |       |        |       |        |       |        |      |        |      |        |
| Weather      |            |            | B          | B          | C          | C          | B          | BC         | C          | C          |       |        |       |        |       |        |      |        |      |        |
| Air Temp.    | 12.8       | 12.8       | 10.5       | 11.3       | 10.8       | 10.1       | 8.3        | 8.3        | 7.5        | 8.6        |       |        |       |        |       |        |      |        |      |        |
| Bar          | 1010.0     | 1015.0     | 1012.0     | 1011.5     | 1010.5     | 1011.0     | 1017.5     | 1018.0     | 1016.0     | 1016.0     |       |        |       |        |       |        |      |        |      |        |
| Wind Dir     | W          | SSW        | CALM       | CALM       | SW         | WSW        | NW         | NNW        | NW         | WNW        |       |        |       |        |       |        |      |        |      |        |
| Wind Spd/F   | F 4        | F 3        | F 0        | F 0        | F 3        | F 3        | F 5        | F 4        | F 4        | F 5        |       |        |       |        |       |        |      |        |      |        |
| Transparency |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |
| Depth        |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |
| Equipment    | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD        |            | CTD   |        | CTD   |        | CTD   |        | CTD  |        | CTD  |        |
| STND. Dep    | T          | S          | T          | S          | T          | S          | T          | S          | T          | S          | T     | S      | T     | S      | T     | S      | T    | S      | T    | S      |
| 0m           | 14.2       | 33.41*     | 13.9       | 33.35*     | 10.5       | 32.94*     | 9.9        | 32.95*     | 11.1       | 33.35*     | 10.5  | 32.94* | 10.2  | 32.80* | 10.4  | 33.32* | 9.8  | 33.24* | 9.7  | 33.28* |
| 10m          | 14.17      | 33.414     | 13.41      | 33.293     | 10.02      | 33.170     | 9.57       | 32.955     | 10.87      | 33.349     | 10.27 | 33.014 | 10.18 | 32.847 | 10.30 | 33.321 | 9.82 | 33.237 | 9.70 | 33.274 |
| 20m          | 14.16      | 33.413     | 12.69      | 33.179     | 10.10      | 33.261     | 10.10      | 33.180     | 10.71      | 33.376     | 10.28 | 33.174 | 10.27 | 33.251 | 10.29 | 33.321 | 9.33 | 33.275 | 9.67 | 33.270 |
| 30m          | 14.16      | 33.414     | 11.63      | 33.504     | 10.31      | 33.335     | 10.04      | 33.253     | 10.61      | 33.369     | 10.45 | 33.295 | 10.05 | 33.254 | 10.28 | 33.320 | 8.71 | 33.272 | 9.01 | 33.234 |
| 50m          | 9.90       | 33.579     | 8.16       | 33.579     | 10.13      | 33.342     |            |            | 10.15      | 33.353     |       |        |       |        | 10.11 | 33.358 |      |        | 4.20 | 33.192 |
| 75m          | 5.27       | 33.312     | 5.84       | 33.412     | 9.81       | 33.329     |            |            | 8.18       | 33.232     |       |        |       |        | 7.25  | 33.229 |      |        | 4.22 | 33.195 |
| 100m         | 6.41       | 33.637     | 4.36       | 33.320     | 8.48       | 33.223     |            |            | 6.19       | 33.192     |       |        |       |        | 5.09  | 33.172 |      |        | 3.71 | 33.307 |
| 125m         | 5.11       | 33.553     | 4.05       | 33.385     | 6.92       | 33.233     |            |            | 4.33       | 33.103     |       |        |       |        | 2.86  | 33.088 |      |        | 3.82 | 33.400 |
| 150m         | 5.14       | 33.583     | 4.03       | 33.454     | 4.04       | 33.115     |            |            | 3.10       | 33.096     |       |        |       |        | 2.67  | 33.126 |      |        | 3.41 | 33.403 |
| 200m         | 3.60       | 33.457     | 4.18       | 33.557     | 2.98       | 33.168     |            |            | 2.80       | 33.119     |       |        |       |        | 2.72  | 33.232 |      |        | 2.65 | 33.415 |
| 250m         | 2.66       | 33.400     | 2.34       | 33.420     | 2.46       | 33.184     |            |            | 2.35       | 33.172     |       |        |       |        | 2.38  | 33.296 |      |        | 2.36 | 33.415 |
| 300m         | 2.45       | 33.427     | 2.59       | 33.515     | 2.71       | 33.246     |            |            | 2.17       | 33.202     |       |        |       |        | 2.66  | 33.416 |      |        |      |        |
| 400m         |            |            |            |            | 2.54       | 33.422     |            |            | 2.56       | 33.393     |       |        |       |        | 2.64  | 33.590 |      |        |      |        |
| 500m         |            |            |            |            |            |            |            |            | 2.78       | 33.725     |       |        |       |        |       |        |      |        |      |        |
| 600m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |
| 700m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |
| 800m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |
| 900m         |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |
| 1000m        |            |            |            |            |            |            |            |            |            |            |       |        |       |        |       |        |      |        |      |        |

Table 5-32

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SU18       |        | SU17       |        | SU25       |        | SU26       |        | SU27       |        | SU28       |        | SU29       |        | SU30       |        | SU31       |        | SU32       |        |
| Latitude:N   | 42-10.8    |        | 42-15.3    |        | 42-11.7    |        | 42-12.5    |        | 42-13.4    |        | 42-14.6    |        | 42-12.5    |        | 42- 8.6    |        | 42- 7.5    |        | 42- 7.9    |        |
| Longitude:E  | 143-44.3   |        | 143-28.2   |        | 143-40.9   |        | 143-38.2   |        | 143-34.1   |        | 143-31.0   |        | 143-32.4   |        | 143-35.4   |        | 143-36.2   |        | 143-37.8   |        |
| Date         | 1997/11/08 |        | 1997/11/08 |        | 1997/11/09 |        | 1997/11/09 |        | 1997/11/09 |        | 1997/11/09 |        | 1997/11/10 |        | 1997/11/10 |        | 1997/11/10 |        | 1997/11/10 |        |
| Time(JST)    | 14:28      |        | 16:18      |        | 09:48      |        | 10:15      |        | 10:42      |        | 11:12      |        | 07:27      |        | 08:58      |        | 10:36      |        | 12:48      |        |
| Weather      | BC         |        | C          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        | B          |        |
| Air Temp.    | 10.6       |        | 9.5        |        | 7.4        |        | 7.8        |        | 8.5        |        | 9.1        |        | 6.0        |        | 6.6        |        | 7.9        |        | 10.1       |        |
| Bar          | 1013.5     |        | 1014.4     |        | 1023.5     |        | 1023.5     |        | 1023.5     |        | 1024.0     |        | 1028.5     |        | 1029.0     |        | 1028.0     |        | 1026.5     |        |
| Wind Dir     | N          |        | NNE        |        | N          |        | N          |        | N          |        | NNE        |        | N          |        | N          |        | ESE        |        | N          |        |
| Wind Spd/F   | F 2        |        | F 3        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        | F 2        |        | F 1        |        | F 1        |        | F 1        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 10.4       | 33.23* | 10.6       | 33.25* | 10.1       | 33.32* | 10.2       | 16.13* | 10.3       | 33.35* | 10.4       | 33.34* | 10.0       | 33.35* | 9.9        | 33.28* | 9.7        | 33.25* | 10.7       | 33.31* |
| 10m          | 10.10      | 33.226 | 10.50      | 33.277 | 10.15      | 33.317 | 10.15      | 33.237 | 10.28      | 33.355 | 10.23      | 33.337 | 10.21      | 33.351 | 9.92       | 33.280 | 9.73       | 33.255 | 10.35      | 33.273 |
| 20m          | 10.04      | 33.218 | 10.06      | 33.312 | 10.14      | 33.316 | 10.14      | 33.268 | 10.26      | 33.355 | 10.16      | 33.331 | 10.22      | 33.350 | 9.91       | 33.279 | 9.72       | 33.255 | 9.99       | 33.293 |
| 30m          | 9.87       | 33.207 | 9.33       | 33.292 | 10.14      | 33.316 | 10.13      | 33.244 | 10.24      | 33.355 | 10.14      | 33.328 | 10.22      | 33.350 | 9.91       | 33.280 | 9.72       | 33.256 | 10.00      | 33.303 |
| 50m          | 6.15       | 33.088 |            |        | 9.54       | 33.291 | 9.99       | 33.416 | 9.86       | 33.339 | 9.76       | 33.320 | 10.22      | 33.350 | 9.67       | 33.332 | 9.08       | 33.306 | 8.11       | 33.282 |
| 75m          | 4.03       | 33.127 |            |        | 5.40       | 33.137 | 7.21       | 33.273 | 8.60       | 33.276 |            |        | 9.29       | 33.320 | 7.69       | 33.235 | 6.42       | 33.230 | 5.84       | 33.197 |
| 100m         | 4.50       | 33.308 |            |        | 3.38       | 33.105 | 4.99       | 33.172 | 6.80       | 33.223 |            |        |            |        | 5.81       | 33.200 | 5.44       | 33.221 | 4.29       | 33.165 |
| 125m         | 4.92       | 33.455 |            |        | 2.89       | 33.120 | 3.68       | 33.140 |            |        |            |        |            |        | 5.85       | 33.191 | 3.51       | 33.151 | 2.73       | 33.123 |
| 150m         | 4.93       | 33.535 |            |        | 2.64       | 33.172 |            |        |            |        |            |        |            |        |            |        |            |        | 2.73       | 33.193 |
| 200m         | 3.54       | 33.422 |            |        | 2.11       | 33.261 |            |        |            |        |            |        |            |        |            |        |            |        | 2.86       | 33.281 |
| 250m         | 2.31       | 33.356 |            |        | 1.96       | 33.292 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 2.47       | 33.448 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 2.81       | 33.624 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 3.22       | 33.855 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-33

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | SU33       |        | SU34       |        | SU35       |        | SU36       |        | SU27       |        | SU28       |        | SU29       |        | SU32       |        | SU33       |        | SU37       |        |  |
| Latitude:N   | 42-28.4    |        | 42-26.1    |        | 42-26.3    |        | 42-44.7    |        | 44-18.5    |        | 44-24.2    |        | 44-26.8    |        | 44-16.2    |        | 44-19.2    |        | 44-11.3    |        |  |
| Longitude:E  | 143-43.2   |        | 143-47.4   |        | 143-50.3   |        | 144- 8.0   |        | 145-30.8   |        | 145-19.4   |        | 145-13.1   |        | 145-13.2   |        | 145- 6.3   |        | 144-51.4   |        |  |
| Date         | 1997/11/11 |        | 1997/11/11 |        | 1997/11/11 |        | 1997/11/11 |        | 1997/11/19 |        | 1997/11/19 |        | 1997/11/20 |        | 1997/11/20 |        | 1997/11/20 |        | 1997/11/20 |        |  |
| Time(JST)    | 07:43      |        | 09:06      |        | 10:39      |        | 13:56      |        | 22:17      |        | 23:49      |        | 00:51      |        | 02:48      |        | 03:43      |        | 06:50      |        |  |
| Weather      | B          |        | B          |        | B          |        | B          |        | BC         |        | BC         |        | B          |        | BC         |        | BC         |        | B          |        |  |
| Air Temp.    | 8.8        |        | 11.5       |        | 13.0       |        | 10.6       |        | 6.5        |        | 6.0        |        | 5.6        |        | 5.8        |        | 5.5        |        | 5.6        |        |  |
| Bar          | 1022.2     |        | 1022.0     |        | 1021.0     |        | 1019.0     |        | 1028.0     |        | 1028.3     |        | 1028.5     |        | 1029.1     |        | 1029.0     |        | 1030.5     |        |  |
| Wind Dir     | WSW        |        | CAL        |        | SSW        |        | S          |        | WSW        |        | W          |        | W          |        | SSW        |        | S          |        | SSW        |        |  |
| Wind Spd/F   | F 3        |        | F          |        | F 1        |        | F 1        |        | F 6        |        | F 2        |        | F 2        |        | F 2        |        | F 3        |        | F 2        |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 9.8        | 33.20* | 9.9        | 33.20* | 10.1       | 33.18* | 10.5       | 33.19* | 8.8        | 32.90* | 9.9        | 33.21* | 7.0        | 32.21* | 9.2        | 32.98* | 6.5        | 31.85* | 6.6        | 31.81* |  |
| 10m          | 10.01      | 33.234 | 9.73       | 33.206 | 9.69       | 33.182 | 10.06      | 33.191 | 9.01       | 33.034 | 10.03      | 33.212 | 7.14       | 32.272 | 9.36       | 32.976 | 6.41       | 31.850 | 6.55       | 31.834 |  |
| 20m          | 9.91       | 33.244 | 9.73       | 33.207 | 9.77       | 33.220 | 9.99       | 33.191 | 9.75       | 33.262 | 10.04      | 33.212 | 7.28       | 32.329 | 9.37       | 32.980 | 6.54       | 31.916 | 7.63       | 32.438 |  |
| 30m          | 9.86       | 33.238 | 9.76       | 33.213 | 9.17       | 33.287 | 10.06      | 33.213 | 9.83       | 33.317 | 10.34      | 33.305 | 7.72       | 32.570 | 9.70       | 33.082 | 7.50       | 32.490 | 7.99       | 32.619 |  |
| 50m          | 9.85       | 33.261 | 9.83       | 33.236 | 7.40       | 33.246 | 10.19      | 33.308 | 10.17      | 33.482 | 10.35      | 33.385 | 9.99       | 33.621 | 9.81       | 33.131 | 9.59       | 33.432 | 9.23       | 33.545 |  |
| 75m          | 8.57       | 33.294 | 8.99       | 33.290 | 5.35       | 33.160 | 9.01       | 33.317 | 10.05      | 33.551 | 10.07      | 33.674 | 9.16       | 33.822 | 9.74       | 33.110 | 10.64      | 33.953 | 8.56       | 33.713 |  |
| 100m         |            |        | 6.95       | 33.235 | 4.51       | 33.142 | 7.04       | 33.247 | 9.97       | 33.647 | 9.58       | 33.771 | 9.04       | 33.875 | 10.01      | 33.271 | 10.54      | 34.000 | 8.88       | 33.929 |  |
| 125m         |            |        |            |        | 3.76       | 33.129 | 4.71       | 33.161 | 9.78       | 33.706 | 9.41       | 33.816 | 4.48       | 33.337 | 10.23      | 33.516 | 10.14      | 33.970 | 8.71       | 33.952 |  |
| 150m         |            |        |            |        | 3.07       | 33.143 |            |        | 8.76       | 33.691 | 9.02       | 33.803 | 0.76       | 33.123 | 9.92       | 33.648 | 9.63       | 33.959 | 8.39       | 33.922 |  |
| 200m         |            |        |            |        |            |        |            |        | 7.68       | 33.652 | 7.82       | 33.671 | 0.99       | 33.193 | 10.25      | 33.920 | 8.57       | 33.887 | 3.34       | 33.292 |  |
| 250m         |            |        |            |        |            |        |            |        | 3.77       | 33.429 | 2.08       | 33.218 | -0.20      | 33.156 |            |        | 1.89       | 33.195 | 1.78       | 33.204 |  |
| 300m         |            |        |            |        |            |        |            |        | 1.48       | 33.337 | 1.10       | 33.202 | -0.05      | 33.202 |            |        | 1.32       | 33.207 | 0.86       | 33.261 |  |
| 400m         |            |        |            |        |            |        |            |        | 1.23       | 33.426 | 0.74       | 33.334 | 1.08       | 33.423 |            |        | 0.83       | 33.347 | 1.55       | 33.613 |  |
| 500m         |            |        |            |        |            |        |            |        | 1.79       | 33.647 | 1.58       | 33.631 | 1.52       | 33.603 |            |        | 1.47       | 33.555 | 1.81       | 33.791 |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 5-34



Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | SU38       |        | SU42       |        | SU41       |        | SU01       |        | SU02       |        | SU05       |        | SU06       |        | SU07       |        | SU08       |        | SU09       |        |  |
| Latitude:N   | 44- 5.0    |        | 44-10.3    |        | 44- 4.5    |        | 43-54.8    |        | 43-56.7    |        | 43-58.4    |        | 43-59.5    |        | 43-57.3    |        | 43-58.5    |        | 44- 0.6    |        |  |
| Longitude:E  | 144-51.5   |        | 144-34.5   |        | 144-34.4   |        | 145-15.3   |        | 145- 9.8   |        | 145-13.4   |        | 145-11.9   |        | 145-17.6   |        | 145-18.1   |        | 145-13.9   |        |  |
| Date         | 1997/11/20 |        | 1997/11/20 |        | 1997/11/20 |        | 1997/11/21 |        | 1997/11/21 |        | 1997/11/21 |        | 1997/11/21 |        | 1997/11/21 |        | 1997/11/21 |        | 1997/11/21 |        |  |
| Time(JST)    | 07:56      |        | 09:54      |        | 10:51      |        | 06:55      |        | 07:34      |        | 08:40      |        | 09:00      |        | 09:44      |        | 10:03      |        | 10:44      |        |  |
| Weather      | BC         |        | B          |        | B          |        | B          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |  |
| Air Temp.    | 5.4        |        | 6.8        |        | 6.5        |        | 6.5        |        | 6.9        |        | 7.6        |        | 8.3        |        | 8.8        |        | 8.8        |        | 9.6        |        |  |
| Bar          | 1031.0     |        | 1031.0     |        | 1031.0     |        | 1031.0     |        | 1029.0     |        | 1027.5     |        | 1028.0     |        | 1027.0     |        | 1027.0     |        | 1026.0     |        |  |
| Wind Dir     | SW         |        | SW         |        | SSW        |        | SSW        |        | WNW        |        | WSW        |        | WSW        |        | WSW        |        | SW         |        | SSW        |        |  |
| Wind Spd/F   | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 2        |        | F 2        |        | F 2        |        | F 2        |        | F 2        |        | F 3        |        |  |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 6.4        | 31.89* | 6.2        | 31.66* | 7.4        | 32.30* | 10.3       | 33.35* | 10.1       | 33.27* | 10.0       | 33.25* | 10.1       | 33.25* | 10.2       | 33.29* | 10.3       | 33.31* | 10.3       | 33.29* |  |
| 10m          | 6.99       | 32.077 | 6.05       | 31.706 | 7.79       | 32.449 | 10.32      | 33.354 | 10.27      | 33.314 | 10.04      | 33.253 | 10.02      | 33.254 | 10.20      | 33.293 | 10.26      | 33.310 | 10.32      | 33.332 |  |
| 20m          | 9.27       | 33.116 | 6.03       | 31.790 | 8.72       | 32.878 | 10.35      | 33.360 | 10.37      | 33.339 | 10.08      | 33.264 | 10.02      | 33.254 | 10.20      | 33.294 | 10.25      | 33.309 | 10.38      | 33.357 |  |
| 30m          | 10.18      | 33.517 | 6.45       | 32.086 | 9.29       | 33.123 | 10.38      | 33.366 | 10.75      | 33.426 | 10.51      | 33.362 | 10.02      | 33.254 | 10.21      | 33.296 | 10.35      | 33.334 | 10.37      | 33.360 |  |
| 50m          | 10.91      | 33.844 | 7.72       | 32.722 | 10.53      | 33.644 | 10.44      | 33.384 | 10.95      | 33.480 | 10.87      | 33.466 | 10.58      | 33.403 | 10.24      | 33.302 | 10.49      | 33.379 | 10.29      | 33.346 |  |
| 75m          | 11.14      | 34.010 | 7.61       | 33.609 | 10.56      | 33.663 |            |        | 10.69      | 33.513 | 10.63      | 33.444 | 10.25      | 33.304 | 10.74      | 33.442 | 10.63      | 33.498 |            |        |  |
| 100m         | 10.87      | 33.976 | 7.92       | 33.822 | 10.55      | 33.657 |            |        | 10.38      | 33.612 | 10.60      | 33.568 | 10.81      | 33.541 | 10.71      | 33.596 | 10.54      | 33.620 |            |        |  |
| 125m         | 10.60      | 34.022 | 6.05       | 33.584 | 10.62      | 33.690 |            |        | 9.66       | 33.681 | 9.72       | 33.685 |            |        | 10.01      | 33.715 | 10.18      | 33.633 |            |        |  |
| 150m         | 10.06      | 33.996 | 4.82       | 33.421 |            |        |            |        | 8.15       | 33.662 | 8.68       | 33.686 |            |        | 9.23       | 33.688 | 9.02       | 33.675 |            |        |  |
| 200m         | 6.13       | 33.587 | 4.04       | 33.360 |            |        |            |        | 5.06       | 33.507 | 4.98       | 33.494 |            |        | 7.18       | 33.602 |            |        |            |        |  |
| 250m         |            |        | 3.95       | 33.385 |            |        |            |        | 2.93       | 33.430 | 3.03       | 33.422 |            |        |            |        |            |        |            |        |  |
| 300m         |            |        | 1.86       | 33.293 |            |        |            |        | 2.18       | 33.423 |            |        |            |        |            |        |            |        |            |        |  |
| 400m         |            |        | 1.28       | 33.481 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 500m         |            |        | 1.75       | 33.715 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 5-35

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199711     |        | 199712     |        | 199712     |        | 199712     |        |            |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SU10       |        | SU19       |        | SU18       |        | SU17       |        | SU26       |        | SU25       |        | SU50       |        | P31        |        | P32        |        | P33        |        |
| Latitude:N   | 44- 0.7    |        | 44- 6.8    |        | 44- 4.1    |        | 44- 4.7    |        | 44-19.1    |        | 44-14.9    |        | 44- 3.8    |        | 42-44.6    |        | 42-30.1    |        | 42-15.1    |        |
| Longitude:E  | 145-15.2   |        | 145-17.4   |        | 145-23.5   |        | 145-19.4   |        | 145-22.5   |        | 145-32.5   |        | 145-17.5   |        | 143-59.8   |        | 143-59.1   |        | 144- 0.0   |        |
| Date         | 1997/11/21 |        | 1997/11/21 |        | 1997/11/21 |        | 1997/11/22 |        | 1997/11/22 |        | 1997/11/22 |        | 1997/11/24 |        | 1997/12/02 |        | 1997/12/02 |        | 1997/12/02 |        |
| Time(JST)    | 11:03      |        | 13:49      |        | 14:39      |        | 09:16      |        | 12:05      |        | 13:07      |        | 11:37      |        | 10:45      |        | 12:05      |        | 13:33      |        |
| Weather      | C          |        | BC         |        | B          |        | C          |        | R          |        | R          |        | B          |        | BC         |        | BC         |        | C          |        |
| Air Temp.    | 9.3        |        | 9.8        |        | 10.3       |        | 10.3       |        | 8.8        |        | 9.1        |        | 4.3        |        | -0.3       |        | 0.0        |        | 0.7        |        |
| Bar          | 1025.6     |        | 1024.0     |        | 1023.5     |        | 1017.0     |        | 1015.2     |        | 1014.5     |        | 1020.5     |        | 1011.0     |        | 1009.7     |        | 1009.0     |        |
| Wind Dir     | SW         |        | S          |        | SSW        |        | SSE        |        | NNW        |        | NNE        |        | NW         |        | NNW        |        | NW         |        | NW         |        |
| Wind Spd/F   | F 3        |        | F 4        |        | F 3        |        | F 4        |        | F 3        |        | F 4        |        | F 2        |        | F 2        |        | F 4        |        | F 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 5          |        | 15         |        | 14         |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 70         |        | 488        |        | 934        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 10.4       | 33.33* | 10.4       | 33.31* | 10.1       | 33.18* | 10.1       | 33.27* | 8.9        | 32.76* | 10.1       | 33.24* | 10.2       | 33.30* | 8.1        | 32.391 | 9.9        | 33.361 | 9.7        | 33.338 |
| 10m          | 10.28      | 33.332 | 10.17      | 33.313 | 9.90       | 33.179 | 10.05      | 33.277 | 9.39       | 33.052 | 9.98       | 33.247 | 10.22      | 33.305 | 8.12       | 32.435 | 10.24      | 33.395 | 10.02      | 33.379 |
| 20m          | 10.27      | 33.341 | 10.18      | 33.322 | 9.86       | 33.173 | 10.24      | 33.328 | 9.73       | 33.179 | 10.01      | 33.295 | 10.28      | 33.321 | 8.32       | 32.564 | 10.26      | 33.398 | 10.04      | 33.378 |
| 30m          | 10.23      | 33.337 | 10.24      | 33.339 | 9.84       | 33.168 | 10.24      | 33.333 | 9.77       | 33.203 | 10.01      | 33.300 | 10.29      | 33.325 | 8.99       | 32.945 | 10.27      | 33.405 | 10.03      | 33.378 |
| 50m          | 10.22      | 33.339 | 10.33      | 33.359 | 9.58       | 33.126 | 10.33      | 33.358 | 10.15      | 33.350 | 10.00      | 33.306 | 10.29      | 33.327 | 9.15       | 33.296 | 11.15      | 33.666 | 9.89       | 33.385 |
| 75m          | 10.26      | 33.358 | 10.37      | 33.374 | 9.98       | 33.250 | 10.10      | 33.454 | 10.14      | 33.481 | 10.13      | 33.351 | 10.36      | 33.354 |            |        | 9.02       | 33.566 | 8.98       | 33.735 |
| 100m         | 10.64      | 33.598 | 10.27      | 33.402 | 10.43      | 33.426 | 9.98       | 33.673 | 9.90       | 33.656 | 10.29      | 33.654 | 10.68      | 33.490 |            |        | 6.90       | 33.450 | 7.04       | 33.673 |
| 125m         | 10.16      | 33.656 | 9.85       | 33.650 | 10.58      | 33.621 | 9.14       | 33.738 |            |        | 9.64       | 33.720 | 9.44       | 33.689 |            |        | 5.26       | 33.414 | 6.16       | 33.637 |
| 150m         | 8.75       | 33.690 | 8.24       | 33.661 | 9.29       | 33.718 | 8.51       | 33.700 |            |        | 8.25       | 33.686 | 8.07       | 33.668 |            |        | 3.78       | 33.369 | 5.26       | 33.615 |
| 200m         | 6.43       | 33.576 | 7.91       | 33.675 | 5.96       | 33.524 | 4.77       | 33.470 |            |        | 3.95       | 33.418 | 6.28       | 33.556 |            |        | 3.17       | 33.406 | 3.89       | 33.524 |
| 250m         | 3.77       | 33.435 |            |        | 3.64       | 33.425 | 2.98       | 33.370 |            |        | 1.32       | 33.269 | 4.13       | 33.434 |            |        | 3.16       | 33.439 | 3.58       | 33.567 |
| 300m         | 2.40       | 33.409 |            |        | 0.71       | 33.219 | -0.06      | 33.180 |            |        | 1.31       | 33.301 | 1.84       | 33.355 |            |        | 2.70       | 33.473 | 2.73       | 33.560 |
| 400m         | 1.72       | 33.495 |            |        | 1.45       | 33.440 | 1.69       | 33.534 |            |        | 1.54       | 33.477 | 1.65       | 33.466 |            |        | 2.85       | 33.675 | 3.21       | 33.753 |
| 500m         | 1.73       | 33.667 |            |        | 1.73       | 33.652 | 1.83       | 33.779 |            |        | 1.95       | 33.667 | 1.77       | 33.707 |            |        |            |        | 3.37       | 33.969 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.32       | 34.082 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-36

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK21       |        | PK22       |        | P34        |        | P35        |        | PK23       |        | PK24       |        | P36        |        | PK16       |        | P27        |        | PK07       |        |
| Latitude:N   | 42-15.0    |        | 41-59.1    |        | 42- 0.1    |        | 41-30.0    |        | 41-30.0    |        | 41- 0.1    |        | 41- 0.0    |        | 41- 0.0    |        | 40-59.9    |        | 40-59.1    |        |
| Longitude:E  | 143-30.2   |        | 143-29.1   |        | 143-59.1   |        | 144- 0.0   |        | 143-30.1   |        | 143-29.1   |        | 143-59.9   |        | 144-29.8   |        | 144-59.8   |        | 145-29.9   |        |
| Date         | 1997/12/02 |        | 1997/12/02 |        | 1997/12/02 |        | 1997/12/02 |        | 1997/12/03 |        | 1997/12/03 |        | 1997/12/03 |        | 1997/12/03 |        | 1997/12/03 |        | 1997/12/03 |        |
| Time(JST)    | 15:43      |        | 17:04      |        | 19:09      |        | 22:14      |        | 01:00      |        | 03:57      |        | 06:12      |        | 08:21      |        | 10:30      |        | 12:45      |        |
| Weather      | C          |        | C          |        | B          |        | BC         |        | S          |        | S          |        | C          |        | C          |        | C          |        | BC         |        |
| Air Temp.    | -0.2       |        | 0.7        |        | 1.5        |        | 2.2        |        | -0.7       |        | 0.8        |        | 0.7        |        | -0.8       |        | -0.1       |        | 0.5        |        |
| Bar          | 1008.2     |        | 1008.2     |        | 1008.5     |        | 1008.5     |        | 1008.5     |        | 1008.5     |        | 1009.0     |        | 1011.0     |        | 1011.5     |        | 1011.4     |        |
| Wind Dir     | NNW        |        | W          |        | W          |        | NW         |        | NNW        |        | NW         |        | NW         |        | NW         |        | NW         |        | NW         |        |
| Wind Spd/F   | F 2        |        | F 2        |        | F 3        |        | F 5        |        | F 5        |        | F 6        |        | F 7        |        | F 6        |        | F 6        |        | F 6        |        |
| Transparency | 11         |        |            |        |            |        |            |        |            |        |            |        |            |        | 13         |        | 11         |        | 10         |        |
| Depth        | 68         |        | 120        |        | 1118       |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.4        | 33.107 | 9.5        | 33.321 | 9.8        | 33.364 | 11.3       | 33.700 | 9.7        | 33.488 | 10.6       | 33.525 | 10.9       | 33.479 | 7.8        | 32.695 | 9.6        | 33.076 | 8.7        | 33.290 |
| 10m          | 8.88       | 33.163 | 9.93       | 33.358 | 9.92       | 33.400 | 11.55      | 33.748 | 10.16      | 33.530 | 11.30      | 33.535 | 11.21      | 33.523 | 8.11       | 32.754 | 9.73       | 33.147 | 9.23       | 33.341 |
| 20m          | 9.06       | 33.208 | 9.94       | 33.358 | 9.91       | 33.401 | 11.33      | 33.708 | 10.14      | 33.524 | 11.30      | 33.534 | 11.20      | 33.519 | 8.11       | 32.754 | 9.73       | 33.145 | 9.24       | 33.340 |
| 30m          | 9.24       | 33.253 | 9.81       | 33.350 | 9.90       | 33.401 | 10.53      | 33.558 | 10.14      | 33.524 | 11.31      | 33.535 | 11.22      | 33.525 | 8.11       | 32.755 | 9.73       | 33.147 | 9.19       | 33.340 |
| 50m          | 8.89       | 33.232 | 8.44       | 33.232 | 9.71       | 33.428 | 10.88      | 33.752 | 10.15      | 33.527 | 11.29      | 33.567 | 11.29      | 33.540 | 8.11       | 32.756 | 9.72       | 33.146 | 9.21       | 33.340 |
| 75m          |            |        | 7.11       | 33.282 | 8.78       | 33.829 | 9.41       | 34.102 | 10.93      | 34.012 | 9.48       | 33.819 | 8.81       | 33.168 | 3.40       | 32.989 | 3.53       | 33.046 | 3.72       | 33.136 |
| 100m         |            |        | 5.37       | 33.303 | 6.40       | 33.665 | 8.67       | 34.079 | 8.55       | 33.846 | 8.91       | 34.024 | 3.78       | 33.063 | 2.55       | 33.105 | 2.69       | 33.118 | 2.73       | 33.187 |
| 125m         |            |        |            |        | 5.23       | 33.597 | 7.29       | 33.930 | 8.96       | 34.060 | 7.40       | 33.896 | 3.35       | 33.217 | 2.47       | 33.180 | 5.08       | 33.545 | 2.58       | 33.216 |
| 150m         |            |        |            |        | 5.12       | 33.642 | 6.21       | 33.811 | 7.31       | 33.863 | 6.58       | 33.802 | 3.19       | 33.315 | 2.42       | 33.272 | 4.60       | 33.574 | 2.34       | 33.253 |
| 200m         |            |        |            |        | 3.88       | 33.558 | 5.68       | 33.817 | 5.91       | 33.740 | 5.76       | 33.803 | 3.36       | 33.530 | 2.62       | 33.506 | 3.38       | 33.547 | 2.20       | 33.335 |
| 250m         |            |        |            |        | 3.60       | 33.596 | 4.03       | 33.722 | 3.87       | 33.540 | 3.10       | 33.565 | 3.46       | 33.648 | 2.99       | 33.727 | 3.14       | 33.632 | 3.18       | 33.543 |
| 300m         |            |        |            |        | 2.90       | 33.602 | 3.65       | 33.756 | 4.88       | 33.710 | 2.90       | 33.672 | 2.84       | 33.679 | 3.01       | 33.824 | 3.12       | 33.730 | 3.50       | 33.706 |
| 400m         |            |        |            |        | 3.03       | 33.777 | 3.67       | 33.946 | 4.40       | 33.875 | 3.71       | 33.936 | 4.43       | 34.084 | 2.96       | 33.971 | 4.49       | 34.069 | 3.21       | 33.826 |
| 500m         |            |        |            |        | 3.28       | 33.961 | 3.77       | 34.058 | 3.44       | 33.909 | 3.31       | 34.005 | 3.18       | 34.042 | 3.16       | 34.113 | 4.23       | 34.156 | 3.23       | 33.966 |
| 600m         |            |        |            |        | 3.39       | 34.096 | 3.15       | 34.105 | 3.44       | 34.076 | 3.17       | 34.098 | 3.43       | 34.184 | 3.18       | 34.212 | 3.66       | 34.212 | 3.30       | 34.088 |
| 700m         |            |        |            |        | 3.21       | 34.180 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        | 3.04       | 34.263 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        | 2.84       | 34.316 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        | 2.70       | 34.363 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-37

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199712       | 199712       | 199712       | 199712      | 199712      | 199712       | 199712      | 199712       | 199712       | 199712       | 199712 |
|--------------|--------------|--------------|--------------|-------------|-------------|--------------|-------------|--------------|--------------|--------------|--------|
| Station No   | P18          | P17          | PK06         | P26         | PK15        | PK14         | P25         | PK05         | P16          | P15          |        |
| Latitude:N   | 41- 0.0      | 41-29.9      | 41-30.0      | 41-30.1     | 41-29.1     | 41-59.9      | 42- 0.0     | 41-59.9      | 41-59.9      | 42-14.1      |        |
| Longitude:E  | 145-59.8     | 146- 0.1     | 145-30.1     | 145- 0.2    | 144-30.2    | 144-29.9     | 144-59.8    | 145-29.9     | 145-59.1     | 145-59.9     |        |
| Date         | 1997/12/03   | 1997/12/04   | 1997/12/04   | 1997/12/04  | 1997/12/05  | 1997/12/05   | 1997/12/05  | 1997/12/05   | 1997/12/05   | 1997/12/05   |        |
| Time(JST)    | 15:12        | 13:48        | 18:30        | 22:45       | 03:05       | 06:08        | 08:41       | 11:24        | 13:59        | 16:02        |        |
| Weather      | C            | BC           | C            | C           | C           | C            | BC          | BC           | BC           | BC           |        |
| Air Temp.    | 1.3          | 3.7          | 4.3          | 4.5         | 4.5         | 5.5          | 6.5         | 6.8          | 7.1          | 5.9          |        |
| Bar          | 1013.2       | 1025.1       | 1027.5       | 1028.0      | 1028.5      | 1027.5       | 1028.5      | 1028.0       | 1027.9       | 1028.5       |        |
| Wind Dir     | WNW          | WNW          | WNW          | NW          | NW          | W            | W           | WNW          | WNW          | NW           |        |
| Wind Spd/F   | F 6          | F 5          | F 6          | F 5         | F 5         | F 5          | F 6         | F 6          | F 5          | F 3          |        |
| Transparency | 9            | 11           |              |             |             |              | 14          | 12           | 13           |              |        |
| Depth        |              |              |              |             |             |              |             |              |              |              |        |
| Equipment    | CTD          | CTD          | CTD          | CTD         | CTD         | CTD          | CTD         | CTD          | CTD          | CTD          | CTD    |
| STND. Dep    | T S          | T S          | T S          | T S         | T S         | T S          | T S         | T S          | T S          | T S          | T S    |
| 0m           | 9.5 33.483   | 9.8 33.916   | 11.8 33.864  | 8.3 32.855  | 8.1 32.820  | 10.1 33.451  | 8.8 33.303  | 10.6 33.865  | 10.4 33.857  | 9.8 33.888   |        |
| 10m          | 10.27 33.537 | 10.27 33.886 | 11.99 33.835 | 8.34 32.901 | 8.19 32.849 | 10.47 33.490 | 8.75 33.350 | 10.60 33.897 | 10.45 33.903 | 10.15 33.929 |        |
| 20m          | 10.32 33.540 | 10.26 33.886 | 11.99 33.834 | 8.35 32.901 | 8.20 32.850 | 10.48 33.490 | 8.78 33.354 | 10.60 33.898 | 10.45 33.903 | 10.14 33.929 |        |
| 30m          | 10.32 33.544 | 10.23 33.885 | 11.98 33.833 | 8.35 32.901 | 8.20 32.850 | 10.48 33.490 | 8.78 33.353 | 10.54 33.897 | 10.46 33.903 | 10.01 33.944 |        |
| 50m          | 7.90 33.179  | 10.15 33.914 | 11.99 33.836 | 8.28 32.905 | 8.18 32.850 | 10.12 33.835 | 8.78 33.354 | 10.34 33.887 | 9.23 34.037  | 9.29 34.015  |        |
| 75m          | 7.38 33.098  | 8.41 34.090  | 12.00 33.836 | 3.03 33.022 | 3.54 33.089 | 7.28 33.580  | 8.27 33.271 | 10.18 33.878 | 8.40 34.099  | 8.42 34.101  |        |
| 100m         | 3.90 33.126  | 8.40 34.091  | 10.02 33.881 | 2.65 33.158 | 3.42 33.239 | 4.64 33.451  | 6.08 33.555 | 8.93 34.007  | 8.39 34.095  | 8.42 34.099  |        |
| 125m         | 3.08 33.167  | 8.38 34.088  | 7.86 33.755  | 2.54 33.237 | 3.23 33.382 | 3.94 33.447  | 3.43 33.280 | 8.20 34.026  | 8.39 34.095  | 8.35 34.087  |        |
| 150m         | 4.43 33.463  | 8.30 34.075  | 6.53 33.685  | 2.51 33.333 | 3.16 33.436 | 3.40 33.441  | 3.79 33.412 | 8.05 34.021  | 8.39 34.095  | 8.35 34.087  |        |
| 200m         | 2.25 33.296  | 8.30 34.075  | 5.96 33.704  | 2.86 33.532 | 3.05 33.599 | 2.71 33.529  | 2.66 33.426 | 7.99 34.015  | 8.40 34.095  | 8.36 34.087  |        |
| 250m         | 2.06 33.351  | 8.31 34.074  | 4.71 33.574  | 3.43 33.704 | 3.38 33.752 | 2.92 33.661  | 2.88 33.574 | 7.02 33.877  | 8.40 34.095  | 8.37 34.088  |        |
| 300m         | 2.26 33.477  | 8.14 34.048  | 5.46 33.752  | 3.26 33.764 | 3.22 33.842 | 2.91 33.732  | 3.06 33.691 | 5.83 33.718  | 8.41 34.095  | 8.37 34.088  |        |
| 400m         | 3.16 33.716  | 5.45 33.678  | 3.85 33.687  | 4.30 34.074 | 3.85 34.090 | 3.38 33.954  | 3.08 33.872 | 2.93 33.433  | 8.42 34.095  | 8.17 34.054  |        |
| 500m         | 3.22 33.898  | 2.65 33.457  | 4.15 33.893  | 3.95 34.161 | 3.35 34.128 | 3.27 34.064  | 3.12 33.997 | 2.54 33.538  | 7.21 33.926  | 5.39 33.682  |        |
| 600m         | 3.56 34.069  | 2.85 33.630  | 3.27 33.904  | 3.40 34.197 | 3.14 34.193 | 3.27 34.180  | 3.18 34.107 | 2.71 33.673  | 3.59 33.511  | 2.97 33.532  |        |
| 700m         | 3.29 34.144  | 2.95 33.782  |              |             |             | 3.09 34.218  | 3.13 34.184 | 3.42 33.906  | 3.06 33.594  | 3.06 33.688  |        |
| 800m         | 3.23 34.227  | 3.79 34.028  |              |             |             | 3.04 34.304  | 3.07 34.253 | 3.32 34.036  | 3.17 33.762  | 3.17 33.826  |        |
| 900m         | 3.27 34.317  | 3.55 34.119  |              |             |             | 2.77 34.338  | 2.94 34.298 | 3.37 34.166  | 3.35 33.976  | 3.38 33.997  |        |
| 1000m        | 2.89 34.335  | 3.25 34.204  |              |             |             | 2.75 34.389  | 2.84 34.353 | 3.25 34.259  | 3.40 34.096  | 3.38 34.136  |        |

Table 5-38

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | P14        |        | P13        |        | P12        |        | P11        |        | PK01       |        | PK02       |        | PK03       |        | PK04       |        | P24        |        | PK13       |        |
| Latitude:N   | 42-30.0    |        | 42-44.1    |        | 42-54.9    |        | 43- 4.9    |        | 42-55.0    |        | 42-45.1    |        | 42-30.1    |        | 42-15.1    |        | 42-14.1    |        | 42-14.1    |        |
| Longitude:E  | 146- 0.1   |        | 145-55.2   |        | 145-49.1   |        | 145-45.0   |        | 145-30.1   |        | 145-30.1   |        | 145-29.9   |        | 145-29.8   |        | 145- 0.2   |        | 144-30.1   |        |
| Date         | 1997/12/05 |        | 1997/12/05 |        | 1997/12/06 |        | 1997/12/06 |        | 1997/12/06 |        | 1997/12/06 |        | 1997/12/06 |        | 1997/12/06 |        | 1997/12/06 |        | 1997/12/06 |        |
| Time(JST)    | 18:59      |        | 22:09      |        | 00:39      |        | 03:06      |        | 05:11      |        | 06:12      |        | 07:57      |        | 09:50      |        | 14:15      |        | 17:58      |        |
| Weather      | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | B          |        | BC         |        | BC         |        | B          |        |
| Air Temp.    | 5.9        |        | 6.0        |        | 5.4        |        | 5.0        |        | 4.0        |        | 4.8        |        | 8.1        |        | 9.0        |        | 9.1        |        | 8.6        |        |
| Bar          | 1029.0     |        | 1029.0     |        | 1028.5     |        | 1027.1     |        | 1027.0     |        | 1026.5     |        | 1027.5     |        | 1027.0     |        | 1024.4     |        | 1026.0     |        |
| Wind Dir     | W          |        | W          |        | W          |        | SW         |        | NW         |        | NW         |        | W          |        | W          |        | W          |        | W          |        |
| Wind Spd/F   | F 2        |        | F 2        |        | F 3        |        | F 5        |        | F 4        |        | F 2        |        | F 6        |        | F 6        |        | F 6        |        | F 6        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        | 10         |        | 14         |        | 10         |        |            |        |
| Depth        |            |        |            |        |            |        | 102        |        | 158        |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 10.4       | 33.858 | 10.7       | 33.641 | 7.6        | 33.197 | 7.7        | 33.216 | 7.9        | 33.209 | 10.6       | 33.660 | 11.9       | 33.868 | 10.6       | 33.919 | 9.0        | 33.144 | 9.2        | 33.031 |
| 10m          | 10.44      | 33.883 | 10.83      | 33.693 | 7.78       | 33.233 | 8.04       | 33.237 | 8.07       | 33.242 | 10.85      | 33.693 | 12.04      | 33.899 | 11.02      | 33.911 | 8.97       | 33.148 | 9.15       | 33.054 |
| 20m          | 10.44      | 33.884 | 10.84      | 33.694 | 7.75       | 33.233 | 8.04       | 33.236 | 8.08       | 33.240 | 10.87      | 33.694 | 12.04      | 33.899 | 11.01      | 33.914 | 8.91       | 33.153 | 9.16       | 33.056 |
| 30m          | 10.44      | 33.883 | 10.84      | 33.694 | 7.70       | 33.228 | 8.05       | 33.236 | 8.08       | 33.240 | 10.87      | 33.695 | 12.00      | 33.892 | 10.99      | 33.920 | 8.58       | 33.181 | 9.16       | 33.057 |
| 50m          | 10.44      | 33.883 | 10.83      | 33.691 | 7.52       | 33.218 | 8.05       | 33.236 | 8.08       | 33.241 | 10.87      | 33.695 | 11.81      | 33.878 | 10.96      | 33.959 | 8.11       | 33.181 | 5.87       | 32.892 |
| 75m          | 10.41      | 33.881 | 10.84      | 33.693 | 7.33       | 33.191 | 8.05       | 33.236 | 8.09       | 33.242 | 10.86      | 33.693 | 11.85      | 33.975 | 11.03      | 34.015 | 5.42       | 33.176 | 3.49       | 32.981 |
| 100m         | 9.29       | 33.942 | 5.02       | 33.169 | 7.20       | 33.172 |            |        | 8.08       | 33.240 | 7.31       | 33.204 | 8.16       | 33.598 | 10.79      | 34.188 | 4.78       | 33.359 | 2.70       | 33.101 |
| 125m         | 8.13       | 33.998 | 4.90       | 33.191 | 6.15       | 33.228 |            |        | 7.00       | 33.230 | 5.41       | 33.184 | 7.57       | 33.707 | 8.09       | 33.900 | 3.69       | 33.341 | 2.53       | 33.167 |
| 150m         | 8.22       | 34.049 | 2.97       | 33.145 | 4.64       | 33.145 |            |        | 6.05       | 33.239 | 3.19       | 33.167 | 5.40       | 33.509 | 6.86       | 33.754 | 4.84       | 33.580 | 2.61       | 33.262 |
| 200m         | 8.16       | 34.044 | 4.96       | 33.524 | 5.30       | 33.490 |            |        |            |        | 3.39       | 33.331 | 5.80       | 33.673 | 5.80       | 33.673 | 4.56       | 33.686 | 2.87       | 33.467 |
| 250m         | 7.82       | 33.992 | 4.15       | 33.531 | 4.60       | 33.543 |            |        |            |        | 3.55       | 33.498 | 4.92       | 33.599 | 5.01       | 33.603 | 3.88       | 33.712 | 2.79       | 33.548 |
| 300m         | 6.56       | 33.809 | 2.94       | 33.467 | 3.57       | 33.501 |            |        |            |        | 3.20       | 33.549 | 4.80       | 33.637 | 3.80       | 33.473 | 3.81       | 33.792 | 2.93       | 33.672 |
| 400m         | 4.22       | 33.541 | 3.22       | 33.631 | 2.42       | 33.544 |            |        |            |        | 2.96       | 33.667 | 3.54       | 33.643 | 2.76       | 33.473 | 3.04       | 33.873 | 3.66       | 34.085 |
| 500m         | 2.57       | 33.457 | 3.25       | 33.779 | 2.84       | 33.771 |            |        |            |        | 3.33       | 33.846 | 3.49       | 33.811 | 3.73       | 33.762 | 3.27       | 34.036 | 3.25       | 34.224 |
| 600m         | 2.69       | 33.620 | 3.83       | 33.999 | 3.50       | 34.018 |            |        |            |        | 3.52       | 34.031 | 3.63       | 33.955 | 3.45       | 33.857 | 3.20       | 34.123 | 2.92       | 34.266 |
| 700m         | 3.08       | 33.826 | 3.19       | 34.034 | 3.36       | 34.128 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         | 3.31       | 34.018 | 3.68       | 34.196 | 3.12       | 34.203 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         | 3.32       | 34.125 | 3.51       | 34.274 | 3.03       | 34.291 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        | 3.24       | 34.232 | 3.10       | 34.297 | 2.88       | 34.337 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-39

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK12       |        | P23        |        | P22        |        | P21        |        | PK11       |        | P31        |        | P32        |        | P33        |        | SU02       |        | SU01       |        |
| Latitude:N   | 42-30.0    |        | 42-30.0    |        | 42-44.9    |        | 42-54.9    |        | 42-45.0    |        | 42-44.1    |        | 42-30.1    |        | 42-15.3    |        | 42-32.9    |        | 42-38.5    |        |
| Longitude:E  | 144-29.9   |        | 144-59.9   |        | 145- 0.0   |        | 144-59.9   |        | 144-30.0   |        | 144- 0.1   |        | 144- 0.0   |        | 143-59.6   |        | 143-56.1   |        | 143-48.2   |        |
| Date         | 1997/12/06 |        | 1997/12/06 |        | 1997/12/07 |        | 1997/12/07 |        | 1997/12/07 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        | 1998/02/24 |        |
| Time(JST)    | 19:37      |        | 22:41      |        | 00:15      |        | 01:23      |        | 03:24      |        | 10:43      |        | 12:04      |        | 16:56      |        | 19:09      |        | 20:16      |        |
| Weather      | B          |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | B          |        | B          |        |            |        |            |        |
| Air Temp.    | 7.6        |        | 7.8        |        | 7.0        |        | 5.5        |        | 5.5        |        | -2.0       |        | -2.2       |        | -1.2       |        | 0.0        |        | 0.0        |        |
| Bar          | 1025.0     |        | 1026.0     |        | 1025.9     |        | 1026.1     |        | 1026.0     |        | 1026.5     |        | 1026.5     |        | 1026.1     |        |            |        |            |        |
| Wind Dir     | WNW        |        | NNW        |        | ENE        |        | NE         |        | NE         |        | SSE        |        | W          |        | SSE        |        | CALM       |        | CALM       |        |
| Wind Spd/F   | F 3        |        | F 3        |        | F 4        |        | F 4        |        | F 4        |        | F 1        |        | F 2        |        | F 2        |        | F 0        |        | F 0        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        | 13         |        | 24         |        | 19         |        |            |        |            |        |
| Depth        |            |        |            |        | 167        |        | 65         |        | 128        |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.9        | 32.662 | 9.1        | 33.161 | 9.6        | 33.444 | 7.9        | 33.190 | 8.7        | 33.289 | -1.9       | 32.504 | 0.7        | 32.712 | 1.1        | 32.869 | 0.0        | 32.52* | 0.0        | 32.47* |
| 10m          | 7.92       | 32.702 | 9.06       | 33.219 | 9.81       | 33.492 | 8.24       | 33.228 | 8.80       | 33.340 | -1.06      | 32.477 | 0.47       | 32.803 | 0.98       | 32.973 | -0.85      | 32.541 | -0.89      | 32.483 |
| 20m          | 7.92       | 32.709 | 9.01       | 33.228 | 9.81       | 33.492 | 8.24       | 33.229 | 8.57       | 33.305 | -1.08      | 32.477 | 0.61       | 32.834 | 1.02       | 32.979 | -0.61      | 32.595 | -0.91      | 32.501 |
| 30m          | 7.96       | 32.724 | 8.82       | 33.259 | 9.81       | 33.504 | 8.26       | 33.231 | 8.22       | 33.257 | -1.11      | 32.476 | 1.19       | 32.942 | 1.07       | 32.989 | -0.51      | 32.615 | -0.94      | 32.531 |
| 50m          | 7.92       | 32.718 | 8.72       | 33.271 | 9.54       | 33.481 | 8.24       | 33.244 | 8.02       | 33.232 | -1.10      | 32.479 | 1.59       | 33.045 | 1.25       | 33.017 | -0.11      | 32.719 |            |        |
| 75m          | 3.11       | 33.019 | 7.18       | 33.223 | 9.44       | 33.463 |            |        | 7.27       | 33.193 |            |        | 1.78       | 33.100 | 1.33       | 33.031 | 0.29       | 32.820 |            |        |
| 100m         | 2.56       | 33.140 | 4.54       | 33.281 | 6.79       | 33.580 |            |        | 6.68       | 33.326 |            |        | 2.06       | 33.139 | 1.41       | 33.062 | 1.15       | 32.952 |            |        |
| 125m         | 2.55       | 33.239 | 2.60       | 33.184 | 5.32       | 33.535 |            |        |            |        |            |        | 2.20       | 33.166 | 1.55       | 33.107 | 2.03       | 33.115 |            |        |
| 150m         | 2.67       | 33.345 | 2.68       | 33.291 | 5.22       | 33.556 |            |        |            |        |            |        | 3.16       | 33.312 | 1.41       | 33.133 | 2.19       | 33.150 |            |        |
| 200m         | 2.85       | 33.548 | 2.97       | 33.493 |            |        |            |        |            |        |            |        | 3.88       | 33.416 | 1.71       | 33.220 |            |        |            |        |
| 250m         | 2.88       | 33.660 | 3.45       | 33.639 |            |        |            |        |            |        |            |        | 4.83       | 33.568 | 2.12       | 33.320 |            |        |            |        |
| 300m         | 2.98       | 33.764 | 2.70       | 33.661 |            |        |            |        |            |        |            |        | 2.74       | 33.382 | 2.32       | 33.408 |            |        |            |        |
| 400m         | 3.17       | 33.950 | 3.10       | 33.878 |            |        |            |        |            |        |            |        | 2.58       | 33.567 | 2.77       | 33.633 |            |        |            |        |
| 500m         | 3.24       | 34.073 | 3.22       | 34.011 |            |        |            |        |            |        |            |        |            |        | 3.15       | 33.847 |            |        |            |        |
| 600m         | 3.47       | 34.215 | 3.31       | 34.130 |            |        |            |        |            |        |            |        |            |        | 3.13       | 33.965 |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 5-40

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | SU06       |        | SU17       |        | SU05       |        | PK21       |        | SU10       |        | PK22       |        | P34        |        | PK23       |        | P35        |        | PK15       |        |
| Latitude:N   | 42-17.5    |        | 42-19.9    |        | 42-25.8    |        | 42-15.0    |        | 42- 3.7    |        | 42- 0.2    |        | 41-59.9    |        | 41-30.0    |        | 41-29.9    |        | 41-30.0    |        |
| Longitude:E  | 143-48.3   |        | 143-44.1   |        | 143-35.0   |        | 143-29.1   |        | 143-46.6   |        | 143-30.1   |        | 143-59.9   |        | 143-29.9   |        | 143-59.9   |        | 144-29.9   |        |
| Date         | 1998/02/24 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/02/25 |        | 1998/02/26 |        | 1998/02/26 |        | 1998/02/26 |        |
| Time(JST)    | 23:22      |        | 00:06      |        | 01:20      |        | 02:24      |        | 11:47      |        | 13:05      |        | 16:03      |        | 04:41      |        | 06:58      |        | 09:14      |        |
| Weather      |            |        |            |        |            |        | B          |        |            |        | B          |        | B          |        | B          |        | BC         |        | B          |        |
| Air Temp.    | 0.0        |        | 0.0        |        | 0.0        |        | -3.5       |        | 0.0        |        | 0.1        |        | 1.2        |        | 1.0        |        | 2.0        |        | 3.0        |        |
| Bar          |            |        |            |        |            |        | 1026.5     |        |            |        | 1024.0     |        | 1022.5     |        | 1018.5     |        | 1019.0     |        | 1019.5     |        |
| Wind Dir     | CALM       |        | CALM       |        | CALM       |        | NNW        |        | CALM       |        | S          |        | SSE        |        | E          |        | SE         |        | SE         |        |
| Wind Spd/F   | F 0        |        | F 0        |        | F 0        |        | F 3        |        | F 0        |        | F 3        |        | F 4        |        | F 4        |        | F 4        |        | F 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        | 17         |        | 23         |        |            |        | 16         |        | 16         |        |
| Depth        |            |        |            |        |            |        | 50         |        |            |        | 121        |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 0.0        | 32.73* | 0.0        | 32.49* | 0.0        | 32.55* | -0.6       | 32.509 | 0.0        | 33.00* | -0.5       | 32.436 | 1.4        | 33.014 | 0.5        | 32.791 | 1.3        | 32.983 | 3.6        | 33.190 |
| 10m          | 0.05       | 32.726 | -0.93      | 32.490 | -0.84      | 32.553 | -0.67      | 32.567 | 1.05       | 32.996 | -0.88      | 32.495 | 1.22       | 33.039 | 1.31       | 32.322 | 1.11       | 33.031 | 3.29       | 33.228 |
| 20m          | 0.04       | 32.727 | -0.92      | 32.492 | -0.83      | 32.553 | -0.66      | 32.567 | 0.98       | 32.998 | -0.91      | 32.495 | 1.19       | 33.039 | 1.68       | 33.044 | 1.11       | 33.031 | 3.29       | 33.229 |
| 30m          | 0.53       | 32.813 | -0.81      | 32.533 | -0.84      | 32.552 | -0.67      | 32.566 | 0.96       | 33.006 | -0.91      | 32.497 | 1.21       | 33.047 | 1.73       | 33.075 | 1.11       | 33.031 | 3.29       | 33.229 |
| 50m          | 0.89       | 32.898 | -0.60      | 32.582 |            |        |            |        | 0.98       | 33.011 | -0.86      | 32.512 | 1.24       | 33.051 | 1.79       | 33.106 | 1.12       | 33.032 | 3.28       | 33.228 |
| 75m          | 1.52       | 33.021 | -0.48      | 32.621 |            |        |            |        | 1.07       | 33.026 | -0.77      | 32.534 | 1.27       | 33.054 | 1.83       | 33.113 | 1.28       | 33.076 | 3.42       | 33.247 |
| 100m         | 2.04       | 33.105 | 0.06       | 32.750 |            |        |            |        | 1.25       | 33.057 | -0.51      | 32.590 | 1.31       | 33.062 | 1.91       | 33.127 | 1.34       | 33.126 | 3.66       | 33.331 |
| 125m         | 2.29       | 33.145 | 1.80       | 33.043 |            |        |            |        | 1.39       | 33.084 |            |        | 1.67       | 33.117 | 2.00       | 33.141 | 1.51       | 33.182 | 4.32       | 33.433 |
| 150m         | 2.69       | 33.214 | 2.17       | 33.128 |            |        |            |        | 1.73       | 33.134 |            |        | 1.58       | 33.147 | 2.19       | 33.169 | 2.43       | 33.389 | 3.74       | 33.403 |
| 200m         | 3.38       | 33.347 |            |        |            |        |            |        | 4.00       | 33.469 |            |        | 2.41       | 33.355 | 2.64       | 33.261 | 2.64       | 33.553 | 2.77       | 33.487 |
| 250m         | 3.58       | 33.436 |            |        |            |        |            |        | 2.39       | 33.348 |            |        | 2.63       | 33.481 | 2.79       | 33.310 | 3.13       | 33.693 | 2.76       | 33.618 |
| 300m         | 2.56       | 33.405 |            |        |            |        |            |        | 2.75       | 33.532 |            |        | 2.79       | 33.596 | 3.29       | 33.392 | 2.94       | 33.757 | 2.75       | 33.686 |
| 400m         | 2.65       | 33.598 |            |        |            |        |            |        | 2.89       | 33.708 |            |        | 2.84       | 33.717 | 3.21       | 33.635 | 3.23       | 33.916 | 3.44       | 33.924 |
| 500m         | 2.91       | 33.762 |            |        |            |        |            |        | 3.28       | 33.897 |            |        | 3.19       | 33.900 | 3.50       | 33.925 | 3.27       | 34.050 | 3.30       | 34.048 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.30       | 34.027 | 3.50       | 34.051 | 3.17       | 34.169 | 3.39       | 34.176 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.27       | 34.150 |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.07       | 34.228 |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        | 3.03       | 34.279 |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        | 2.87       | 34.334 |            |        |            |        |            |        |

Table 5-41

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | PK24       |        | P36        |        | PK16       |        | P27        |        | PK07       |        | P18        |        | P17        |        | PK06       |        | P26        |        | PK14       |        |
| Latitude:N   | 40-59.1    |        | 40-59.1    |        | 40-59.1    |        | 40-59.1    |        | 40-59.1    |        | 40-59.1    |        | 41-29.9    |        | 41-30.0    |        | 41-30.0    |        | 42- 0.0    |        |
| Longitude:E  | 143-30.0   |        | 143-59.9   |        | 144-29.9   |        | 144-59.9   |        | 145-29.9   |        | 145-59.8   |        | 145-59.1   |        | 145-29.1   |        | 144-59.1   |        | 144-29.9   |        |
| Date         | 1998/02/26 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        | 1998/02/27 |        |
| Time(JST)    | 23:54      |        | 02:18      |        | 04:38      |        | 06:57      |        | 09:31      |        | 12:01      |        | 15:19      |        | 17:52      |        | 20:02      |        | 23:18      |        |
| Weather      | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | R          |        | C          |        |
| Air Temp.    | 2.0        |        | 2.7        |        | 2.2        |        | 1.7        |        | 2.7        |        | 3.0        |        | 2.7        |        | 3.7        |        | 2.5        |        | 2.0        |        |
| Bar          | 1018.5     |        | 1018.0     |        | 1018.0     |        | 1019.0     |        | 1018.5     |        | 1017.5     |        | 1017.0     |        | 1017.0     |        | 1017.4     |        | 1016.5     |        |
| Wind Dir     | E          |        | ESE        |        | SE         |        | ESE        |        | ESE        |        | SE         |        | ESE        |        | ESE        |        | NE         |        | CALM       |        |
| Wind Spd/F   | F 2        |        | F 3        |        | F 4        |        | F 3        |        | F 3        |        | F 4        |        | F 4        |        | F 3        |        | F 3        |        | F 0        |        |
| Transparency |            |        |            |        |            |        | 18         |        | 20         |        | 22         |        | 13         |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 1.7        | 33.001 | 3.6        | 33.250 | 2.4        | 33.129 | 1.6        | 32.977 | 2.1        | 33.172 | 4.2        | 33.550 | 4.7        | 33.640 | 4.5        | 33.596 | 1.7        | 33.059 | 1.9        | 33.133 |
| 10m          | 1.50       | 33.033 | 3.37       | 33.220 | 2.19       | 33.115 | 1.33       | 32.996 | 1.71       | 33.130 | 4.10       | 33.505 | 4.53       | 33.560 | 4.39       | 33.532 | 1.32       | 33.032 | 1.55       | 33.072 |
| 20m          | 1.49       | 33.051 | 3.37       | 33.220 | 2.18       | 33.114 | 1.33       | 32.996 | 1.69       | 33.130 | 4.41       | 33.549 | 4.81       | 33.611 | 4.38       | 33.530 | 1.23       | 33.038 | 1.46       | 33.072 |
| 30m          | 1.62       | 33.066 | 3.37       | 33.220 | 2.18       | 33.114 | 1.26       | 33.000 | 1.68       | 33.130 | 4.93       | 33.621 | 5.14       | 33.672 | 4.36       | 33.529 | 1.15       | 33.059 | 1.36       | 33.067 |
| 50m          | 1.54       | 33.069 | 3.02       | 33.196 | 2.13       | 33.114 | 1.17       | 33.014 | 1.80       | 33.153 | 5.15       | 33.657 | 5.77       | 33.779 | 4.66       | 33.581 | 1.16       | 33.069 | 1.33       | 33.094 |
| 75m          | 1.51       | 33.076 | 2.71       | 33.165 | 2.14       | 33.117 | 0.91       | 33.046 | 2.46       | 33.227 | 5.12       | 33.658 | 6.14       | 33.842 | 5.19       | 33.665 | 1.19       | 33.075 | 1.29       | 33.097 |
| 100m         | 1.45       | 33.091 | 2.88       | 33.186 | 2.30       | 33.135 | 1.04       | 33.078 | 3.77       | 33.398 | 5.11       | 33.658 | 6.46       | 33.899 | 5.19       | 33.668 | 1.92       | 33.148 | 1.32       | 33.103 |
| 125m         | 2.08       | 33.194 | 3.35       | 33.281 | 2.12       | 33.124 | 1.17       | 33.115 | 4.11       | 33.473 | 5.06       | 33.656 | 6.59       | 33.923 | 5.11       | 33.658 | 4.11       | 33.431 | 2.48       | 33.221 |
| 150m         | 2.40       | 33.298 | 3.41       | 33.350 | 2.69       | 33.348 | 1.54       | 33.218 | 4.42       | 33.534 | 5.16       | 33.674 | 6.60       | 33.924 | 5.14       | 33.661 | 4.84       | 33.566 | 4.14       | 33.520 |
| 200m         | 2.62       | 33.443 | 3.47       | 33.613 | 2.72       | 33.549 | 2.28       | 33.393 | 3.61       | 33.479 | 5.43       | 33.719 | 6.59       | 33.922 | 5.30       | 33.698 | 2.70       | 33.336 | 3.53       | 33.493 |
| 250m         | 2.82       | 33.585 | 3.16       | 33.695 | 2.97       | 33.707 | 2.37       | 33.518 | 3.41       | 33.495 | 4.99       | 33.662 | 6.58       | 33.921 | 5.50       | 33.736 | 2.22       | 33.308 | 2.63       | 33.469 |
| 300m         | 2.78       | 33.670 | 3.29       | 33.827 | 3.28       | 33.862 | 2.78       | 33.664 | 2.33       | 33.433 | 4.07       | 33.545 | 6.55       | 33.914 | 5.62       | 33.756 | 2.73       | 33.450 | 2.62       | 33.563 |
| 400m         | 3.08       | 33.833 | 3.16       | 33.950 | 3.31       | 33.987 | 3.12       | 33.850 | 2.77       | 33.652 | 2.93       | 33.509 | 6.54       | 33.912 | 5.65       | 33.766 | 2.56       | 33.560 | 3.67       | 33.851 |
| 500m         | 3.53       | 34.024 | 3.29       | 34.096 | 3.28       | 34.116 | 3.69       | 34.061 | 3.20       | 33.900 | 2.84       | 33.658 | 6.10       | 33.845 | 2.89       | 33.465 | 2.87       | 33.739 | 4.06       | 34.059 |
| 600m         | 3.38       | 34.100 | 3.43       | 34.220 | 3.33       | 34.231 | 3.53       | 34.161 | 3.29       | 34.034 | 3.06       | 33.831 | 2.92       | 33.587 | 2.89       | 33.631 | 3.16       | 33.908 | 3.62       | 34.103 |
| 700m         |            |        |            |        |            |        |            |        |            |        | 3.26       | 34.003 | 2.95       | 33.739 |            |        |            |        | 3.53       | 34.186 |
| 800m         |            |        |            |        |            |        |            |        |            |        | 3.42       | 34.164 | 3.17       | 33.898 |            |        |            |        | 3.20       | 34.239 |
| 900m         |            |        |            |        |            |        |            |        |            |        | 3.22       | 34.241 | 3.38       | 34.065 |            |        |            |        | 2.98       | 34.286 |
| 1000m        |            |        |            |        |            |        |            |        |            |        | 2.84       | 34.277 | 3.35       | 34.168 |            |        |            |        | 2.88       | 34.332 |

Table 5-42



Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199802      | 199802      | 199802      | 199802      | 199802      | 199802       | 199802       | 199802      | 199802      | 199802      |
|--------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|
| Station No   | P25         | PK05        | P16         | P15         | P14         | P13          | PK01         | PK02        | PK03        | PK04        |
| Latitude:N   | 42- 0.0     | 41-59.1     | 41-59.9     | 42-14.9     | 42-29.9     | 42-44.1      | 42-54.9      | 42-45.1     | 42-30.0     | 42-14.9     |
| Longitude:E  | 144-59.9    | 145-29.1    | 145-59.9    | 145-59.1    | 145-59.9    | 145-54.1     | 145-30.0     | 145-30.1    | 145-30.1    | 145-30.0    |
| Date         | 1998/02/28  | 1998/02/28  | 1998/02/28  | 1998/02/28  | 1998/02/28  | 1998/02/28   | 1998/02/28   | 1998/02/28  | 1998/02/28  | 1998/02/28  |
| Time(JST)    | 02:00       | 04:38       | 07:12       | 09:29       | 11:45       | 13:51        | 16:37        | 17:35       | 19:10       | 20:48       |
| Weather      | C           | C           | C           | C           | C           | F            | C            | C           | C           | C           |
| Air Temp.    | 2.2         | 3.5         | 2.4         | 3.0         | 2.9         | 0.9          | -0.3         | -0.4        | 0.0         | 0.2         |
| Bar          | 1016.0      | 1016.0      | 1016.0      | 1016.0      | 1015.5      | 1015.0       | 1016.0       | 1016.0      | 1016.0      | 1016.5      |
| Wind Dir     | NE          | ENE         | ENE         | E           | ENE         | NE           | NE           | NE          | NNE         | NE          |
| Wind Spd/F   | F 1         | F 2         | F 3         | F 3         | F 2         | F 2          | F 3          | F 3         | F 3         | F 3         |
| Transparency |             |             | 22          | 25          | 22          | 19           | 19           |             |             |             |
| Depth        |             |             |             |             |             |              |              |             |             |             |
| Equipment    | CTD         | CTD         | CTD         | CTD         | CTD         | CTD          | CTD          | CTD         | CTD         | CTD         |
| STND. Dep    | T S         | T S         | T S         | T S         | T S         | T S          | T S          | T S         | T S         | T S         |
| 0m           | 1.4 33.067  | 6.1 33.934  | 5.2 33.612  | 4.9 33.682  | 0.7 32.727  | -0.7 32.406  | -0.4 32.494  | 0.5 32.792  | 1.8 32.992  | 2.2 33.094  |
| 10m          | 1.20 33.028 | 6.11 33.845 | 5.18 33.676 | 4.76 33.613 | 0.28 32.861 | -0.85 32.458 | -0.58 32.541 | 0.39 32.839 | 1.67 33.040 | 2.02 33.142 |
| 20m          | 1.02 33.030 | 6.10 33.845 | 5.21 33.680 | 5.42 33.715 | 0.31 32.888 | -0.43 32.650 | -0.50 32.647 | 0.63 32.889 | 1.54 33.070 | 2.34 33.198 |
| 30m          | 0.95 33.027 | 6.10 33.845 | 5.54 33.736 | 5.49 33.731 | 0.32 32.897 | -0.12 32.745 | -0.37 32.681 | 0.97 32.949 | 1.17 33.061 | 2.40 33.215 |
| 50m          | 0.82 33.025 | 6.11 33.845 | 5.42 33.723 | 5.65 33.757 | 0.67 32.954 | 0.41 32.849  | -0.11 32.752 | 1.24 33.021 | 1.30 33.081 | 4.20 33.485 |
| 75m          | 0.82 33.045 | 6.13 33.850 | 5.44 33.730 | 5.67 33.762 | 1.13 33.035 | 0.33 32.899  | 0.06 32.792  | 1.76 33.112 | 1.36 33.093 | 4.90 33.602 |
| 100m         | 1.12 33.082 | 6.18 33.856 | 5.45 33.732 | 5.72 33.770 | 1.41 33.096 | 0.97 32.977  | 0.07 32.798  | 1.83 33.132 | 1.79 33.139 | 4.78 33.613 |
| 125m         | 3.11 33.308 | 6.18 33.856 | 5.47 33.735 | 5.64 33.759 | 1.93 33.146 | 1.19 33.061  | 0.23 32.839  | 1.85 33.148 | 2.02 33.182 | 5.03 33.657 |
| 150m         | 1.88 33.225 | 6.17 33.855 | 5.46 33.734 | 5.63 33.757 | 1.89 33.149 | 1.27 33.099  | 0.51 32.907  | 2.01 33.170 | 3.97 33.430 | 5.17 33.683 |
| 200m         | 1.42 33.196 | 6.19 33.856 | 5.47 33.735 | 5.61 33.756 | 3.37 33.365 | 1.30 33.158  |              | 3.50 33.395 | 4.74 33.565 | 5.69 33.767 |
| 250m         | 2.26 33.284 | 6.20 33.858 | 5.48 33.735 | 5.71 33.774 | 3.68 33.448 | 1.40 33.192  |              | 4.09 33.512 | 4.28 33.538 | 5.82 33.789 |
| 300m         | 3.51 33.442 | 6.21 33.860 | 5.51 33.740 | 5.71 33.774 | 3.44 33.467 | 1.90 33.305  |              | 2.72 33.406 | 3.26 33.453 | 5.96 33.814 |
| 400m         | 2.67 33.515 | 6.22 33.860 | 5.68 33.767 | 5.58 33.756 | 2.68 33.517 | 2.36 33.517  |              | 2.77 33.571 | 2.45 33.488 | 5.61 33.758 |
| 500m         | 2.83 33.670 | 6.09 33.841 | 3.29 33.511 | 2.91 33.562 | 2.88 33.697 | 2.75 33.740  |              | 3.06 33.771 | 2.62 33.645 | 3.00 33.512 |
| 600m         | 3.02 33.832 | 2.84 33.543 | 2.81 33.621 | 2.95 33.720 | 3.33 33.905 | 3.25 33.972  |              | 3.24 33.936 | 3.23 33.853 | 2.95 33.661 |
| 700m         | 3.32 34.009 | 2.99 33.703 | 3.07 33.791 | 2.98 33.855 | 3.34 34.074 | 3.36 34.109  |              |             |             |             |
| 800m         | 3.32 34.154 | 3.00 33.816 | 3.28 33.945 | 3.28 34.019 | 3.25 34.171 | 3.25 34.202  |              |             |             |             |
| 900m         | 3.06 34.172 | 3.35 33.994 | 3.23 34.069 | 3.37 34.141 | 3.07 34.249 | 2.95 34.248  |              |             |             |             |
| 1000m        | 3.02 34.200 | 3.41 34.116 | 3.29 34.168 | 3.20 34.220 | 3.03 34.310 | 2.92 34.324  |              |             |             |             |

Table 5-43

Table 5 Results of serial oceanographic observations. Hokkaido Kushiro Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |   |   |   |   |   |   |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|---|---|---|---|---|---|
| Station No   | P24        |        | PK13       |        | PK12       |        | P23        |        | P22        |        | P21        |        | PK11       |        |   |   |   |   |   |   |
| Latitude:N   | 42-14.1    |        | 42-14.1    |        | 42-29.9    |        | 42-29.1    |        | 42-44.1    |        | 42-54.9    |        | 42-45.0    |        |   |   |   |   |   |   |
| Longitude:E  | 145- 0.1   |        | 144-30.4   |        | 144-29.1   |        | 144-59.1   |        | 145- 0.0   |        | 144-59.9   |        | 144-29.9   |        |   |   |   |   |   |   |
| Date         | 1998/02/28 |        | 1998/03/01 |        | 1998/03/01 |        | 1998/03/01 |        | 1998/03/01 |        | 1998/03/01 |        | 1998/03/01 |        |   |   |   |   |   |   |
| Time(JST)    | 23:27      |        | 01:39      |        | 03:10      |        | 05:40      |        | 07:16      |        | 08:44      |        | 10:52      |        |   |   |   |   |   |   |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |   |   |   |   |   |   |
| Air Temp.    | -0.3       |        | 0.0        |        | -0.2       |        | -1.0       |        | -1.9       |        | -1.7       |        | -0.6       |        |   |   |   |   |   |   |
| Bar          | 1016.5     |        | 1016.5     |        | 1016.5     |        | 1015.0     |        | 1016.2     |        | 1017.5     |        | 1017.0     |        |   |   |   |   |   |   |
| Wind Dir     | ENE        |        | ENE        |        | E          |        | NE         |        | NE         |        | ENE        |        | E          |        |   |   |   |   |   |   |
| Wind Spd/F   | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        |   |   |   |   |   |   |
| Transparency |            |        |            |        |            |        |            |        | 11         |        | 13         |        | 14         |        |   |   |   |   |   |   |
| Depth        |            |        |            |        |            |        |            |        | 170        |        | 67         |        | 132        |        |   |   |   |   |   |   |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |   |   |   |   |   |   |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T | S | T | S | T | S |
| 0m           | 1.4        | 32.975 | 1.6        | 32.947 | 1.2        | 32.961 | 1.5        | 32.976 | -0.7       | 32.493 | -0.6       | 32.403 | -0.5       | 32.466 |   |   |   |   |   |   |
| 10m          | 1.25       | 33.018 | 1.45       | 32.993 | 1.17       | 33.014 | 1.42       | 33.024 | -0.79      | 32.537 | -0.87      | 32.460 | -0.75      | 32.524 |   |   |   |   |   |   |
| 20m          | 1.02       | 33.030 | 1.13       | 33.022 | 1.12       | 33.032 | 1.42       | 33.029 | -0.92      | 32.550 | -1.37      | 32.501 | -0.87      | 32.558 |   |   |   |   |   |   |
| 30m          | 0.96       | 33.026 | 1.07       | 33.034 | 1.06       | 33.038 | 1.17       | 33.057 | -0.63      | 32.623 | -1.33      | 32.512 | -0.63      | 32.607 |   |   |   |   |   |   |
| 50m          | 1.42       | 33.070 | 0.96       | 33.034 | 0.94       | 33.041 | 1.32       | 33.077 | -0.33      | 32.679 | -1.35      | 32.518 | -0.30      | 32.687 |   |   |   |   |   |   |
| 75m          | 1.64       | 33.109 | 0.90       | 33.043 | 0.93       | 33.054 | 1.16       | 33.070 | -0.14      | 32.728 |            |        | -0.01      | 32.761 |   |   |   |   |   |   |
| 100m         | 1.13       | 33.097 | 2.91       | 33.270 | 2.12       | 33.173 | 1.31       | 33.101 | -0.05      | 32.756 |            |        | 0.24       | 32.828 |   |   |   |   |   |   |
| 125m         | 1.47       | 33.136 | 4.34       | 33.481 | 3.51       | 33.360 | 2.30       | 33.202 | 0.14       | 32.809 |            |        |            |        |   |   |   |   |   |   |
| 150m         | 1.39       | 33.177 | 3.40       | 33.418 | 4.31       | 33.493 | 1.97       | 33.196 | 0.21       | 32.826 |            |        |            |        |   |   |   |   |   |   |
| 200m         | 1.43       | 33.194 | 3.82       | 33.475 | 1.64       | 33.260 | 3.66       | 33.427 |            |        |            |        |            |        |   |   |   |   |   |   |
| 250m         | 2.15       | 33.283 | 2.40       | 33.396 | 2.71       | 33.407 | 3.83       | 33.487 |            |        |            |        |            |        |   |   |   |   |   |   |
| 300m         | 1.77       | 33.288 | 2.40       | 33.486 | 2.14       | 33.432 | 2.91       | 33.421 |            |        |            |        |            |        |   |   |   |   |   |   |
| 400m         | 2.71       | 33.519 | 2.84       | 33.684 | 2.95       | 33.672 | 2.74       | 33.550 |            |        |            |        |            |        |   |   |   |   |   |   |
| 500m         | 2.92       | 33.704 | 3.17       | 33.857 | 3.34       | 33.859 | 2.96       | 33.721 |            |        |            |        |            |        |   |   |   |   |   |   |
| 600m         | 3.18       | 33.869 | 3.51       | 34.040 | 3.25       | 33.977 | 3.16       | 33.877 |            |        |            |        |            |        |   |   |   |   |   |   |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |   |   |   |   |   |   |

Table 5-44

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J11        |        | J12        |        | J13        |        | J14        |        | J15        |        | J16        |        | J17        |        | J25        |        | J24        |        | J23        |        |
| Latitude:N   | 45-30.1    |        | 45-30.1    |        | 45-30.0    |        | 45-29.9    |        | 45-30.0    |        | 45-30.1    |        | 45-30.2    |        | 44-30.1    |        | 44-30.0    |        | 44-30.0    |        |
| Longitude:E  | 141-40.2   |        | 141-24.9   |        | 141-10.0   |        | 140-53.0   |        | 140-40.1   |        | 140-19.9   |        | 140- 0.0   |        | 140-19.9   |        | 140-40.1   |        | 141- 0.2   |        |
| Date         | 1997/04/09 |        | 1997/04/09 |        | 1997/04/09 |        | 1997/04/09 |        | 1997/04/09 |        | 1997/04/09 |        | 1997/04/09 |        | 1997/04/10 |        | 1997/04/10 |        | 1997/04/10 |        |
| Time(JST)    | 10:29      |        | 11:46      |        | 12:52      |        | 14:13      |        | 15:20      |        | 17:00      |        | 18:40      |        | 06:34      |        | 08:03      |        | 09:34      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | R          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 6.9        |        | 6.6        |        | 7.3        |        | 6.4        |        | 6.0        |        | 5.3        |        | 3.2        |        | 3.5        |        | 4.4        |        | 4.8        |        |
| Bar          | 998.0      |        | 997.0      |        | 994.0      |        | 992.5      |        | 989.5      |        | 987.0      |        | 984.5      |        | 992.5      |        | 993.0      |        | 994.0      |        |
| Wind Dir     | SSW        |        | SE         |        | S          |        | SSE        |        | ESE        |        | SSE        |        | S          |        | W          |        | W          |        | W          |        |
| Wind Spd/F   | F 3        |        | F 2        |        | F 2        |        | F 3        |        | F 5        |        | F 5        |        | F 5        |        | F 5        |        | F 5        |        | F 5        |        |
| Transparency | 6          |        | 12         |        | 16         |        | 13         |        | 15         |        |            |        | 22         |        | 16         |        | 12         |        |            |        |
| Depth        | 54         |        | 114        |        | 130        |        | 421        |        | 548        |        | 398        |        | 590        |        | 250        |        | 145        |        | 199        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.9        | 33.509 | 4.2        | 34.158 | 4.5        | 34.187 | 4.6        | 34.174 | 4.2        | 34.169 | 4.1        | 34.155 | 3.0        | 34.152 | 4.0        | 34.165 | 4.2        | 34.111 | 4.5        | 34.146 |
| 10m          | 4.16       | 33.635 | 3.91       | 34.156 | 4.36       | 34.183 | 4.47       | 34.176 | 4.09       | 34.173 | 4.08       | 34.173 | 3.60       | 34.155 | 4.09       | 34.166 | 4.18       | 34.167 | 4.34       | 34.164 |
| 20m          | 3.91       | 33.795 | 3.88       | 34.155 | 4.30       | 34.184 | 4.47       | 34.178 | 3.93       | 34.180 | 4.07       | 34.174 | 3.57       | 34.151 | 4.09       | 34.166 | 4.18       | 34.167 | 4.34       | 34.164 |
| 30m          | 3.97       | 34.057 | 3.86       | 34.154 | 4.29       | 34.184 | 4.41       | 34.177 | 3.91       | 34.177 | 3.86       | 34.183 | 3.21       | 34.170 | 4.09       | 34.166 | 4.19       | 34.168 | 4.31       | 34.165 |
| 50m          | 3.98       | 34.151 | 3.45       | 34.142 | 4.08       | 34.184 | 3.90       | 34.176 | 3.38       | 34.165 | 3.55       | 34.170 | 2.85       | 34.153 | 4.08       | 34.167 | 4.18       | 34.167 | 4.26       | 34.166 |
| 75m          |            |        | 3.41       | 34.135 | 3.82       | 34.186 | 3.79       | 34.174 | 3.35       | 34.169 | 3.28       | 34.160 | 2.81       | 34.151 | 4.06       | 34.169 | 4.17       | 34.167 | 4.23       | 34.166 |
| 100m         |            |        | 3.50       | 34.147 | 3.71       | 34.176 | 3.69       | 34.180 | 3.25       | 34.165 | 3.17       | 34.157 | 2.64       | 34.140 | 3.99       | 34.168 | 4.15       | 34.166 | 4.18       | 34.168 |
| 125m         |            |        |            |        |            |        | 3.65       | 34.179 | 3.07       | 34.152 | 3.17       | 34.161 | 2.27       | 34.121 | 3.53       | 34.157 | 3.81       | 34.162 | 4.02       | 34.167 |
| 150m         |            |        |            |        |            |        | 3.30       | 34.167 | 2.65       | 34.136 | 3.09       | 34.159 | 1.44       | 34.084 | 2.82       | 34.121 |            |        | 3.80       | 34.162 |
| 200m         |            |        |            |        |            |        | 2.08       | 34.110 | 1.55       | 34.086 | 2.74       | 34.144 | 1.20       | 34.081 | 1.98       | 34.088 |            |        |            |        |
| 250m         |            |        |            |        |            |        | 1.34       | 34.082 | 1.10       | 34.077 | 1.90       | 34.109 | 0.99       | 34.077 |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        | 1.02       | 34.076 | 0.91       | 34.075 | 1.11       | 34.078 | 0.84       | 34.077 |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        | 0.51       | 34.072 | 0.57       | 34.073 |            |        | 0.61       | 34.074 |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        | 0.36       | 34.071 |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-1

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J22        |        | J21        |        | JW11       |        | JW12       |        | JW13       |        | JW03       |        | JW02       |        | JW01       |        | S4         |        | S3         |        |
| Latitude:N   | 44-30.0    |        | 44-30.0    |        | 44-59.9    |        | 45- 0.0    |        | 45- 0.1    |        | 45-45.1    |        | 45-45.0    |        | 45-45.0    |        | 45-40.2    |        | 45-37.0    |        |
| Longitude:E  | 141-15.2   |        | 141-30.2   |        | 141-30.1   |        | 141-15.1   |        | 141- 0.0   |        | 141- 0.1   |        | 141-10.1   |        | 141-20.0   |        | 142- 0.1   |        | 142- 0.0   |        |
| Date         | 1997/04/10 |        | 1997/04/10 |        | 1997/04/10 |        | 1997/04/10 |        | 1997/04/10 |        | 1997/04/10 |        | 1997/04/10 |        | 1997/04/11 |        | 1997/04/14 |        | 1997/04/14 |        |
| Time(JST)    | 10:47      |        | 11:53      |        | 15:11      |        | 16:27      |        | 17:45      |        | 22:43      |        | 23:53      |        | 01:06      |        | 11:31      |        | 11:59      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        |
| Air Temp.    | 5.4        |        | 6.2        |        | 3.6        |        | 3.4        |        | 2.8        |        | 1.2        |        | 1.2        |        | 1.2        |        | 3.2        |        | 3.7        |        |
| Bar          | 994.5      |        | 995.0      |        | 995.5      |        | 996.5      |        | 997.0      |        | 1000.0     |        | 1000.0     |        | 1000.0     |        | 1016.0     |        | 1016.0     |        |
| Wind Dir     | W          |        | W          |        | W          |        | WNW        |        | NW         |        | N          |        | N          |        | NNW        |        | WNW        |        | NW         |        |
| Wind Spd/F   | F 4        |        | F 4        |        | F 4        |        | F 3        |        | F 3        |        | F 3        |        | F 3        |        | F 4        |        | F 3        |        | F 2        |        |
| Transparency | 9          |        | 7          |        | 7          |        | 11         |        | 13         |        |            |        |            |        |            |        | 13         |        | 8          |        |
| Depth        | 118        |        | 78         |        | 66         |        | 88         |        | 99         |        | 498        |        | 123        |        | 126        |        | 56         |        | 43         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.7        | 34.157 | 4.7        | 34.122 | 4.1        | 34.065 | 3.9        | 34.147 | 4.2        | 34.167 | 3.7        | 34.193 | 3.8        | 34.189 | 3.4        | 34.166 | 4.0        | 34.153 | 4.5        | 33.518 |
| 10m          | 4.41       | 34.142 | 4.35       | 34.116 | 4.08       | 34.087 | 3.80       | 34.159 | 4.25       | 34.172 | 4.03       | 34.173 | 3.92       | 34.180 | 3.80       | 34.176 | 3.72       | 34.171 | 3.84       | 34.119 |
| 20m          | 4.40       | 34.142 | 4.35       | 34.116 | 4.07       | 34.138 | 3.79       | 34.159 | 4.21       | 34.172 | 4.03       | 34.174 | 3.91       | 34.180 | 3.79       | 34.176 | 3.71       | 34.171 | 3.77       | 34.152 |
| 30m          | 4.40       | 34.143 | 4.35       | 34.116 | 4.07       | 34.132 | 3.78       | 34.159 | 4.15       | 34.173 | 4.03       | 34.173 | 3.92       | 34.180 | 3.80       | 34.175 | 3.70       | 34.170 | 3.77       | 34.151 |
| 50m          | 4.39       | 34.142 | 4.33       | 34.117 | 4.03       | 34.160 | 3.77       | 34.161 | 4.11       | 34.173 | 4.03       | 34.173 | 3.84       | 34.179 | 3.79       | 34.175 | 3.69       | 34.170 |            |        |
| 75m          | 4.37       | 34.143 |            |        |            |        | 3.77       | 34.160 | 4.06       | 34.176 | 4.03       | 34.174 | 3.59       | 34.178 | 3.60       | 34.177 |            |        |            |        |
| 100m         | 4.33       | 34.144 |            |        |            |        |            |        |            |        | 3.99       | 34.175 | 3.57       | 34.175 | 3.48       | 34.174 |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        | 3.87       | 34.179 |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        | 3.78       | 34.181 |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        | 3.64       | 34.179 |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        | 3.09       | 34.161 |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        | 1.57       | 34.093 |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-2

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | S2         |        | S1         |        | O15        |        | OA10       |        | O13        |        | O12        |        | O11        |        | OA02       |        | OA03       |        | OA04       |        |
| Latitude:N   | 45-34.1    |        | 45-31.0    |        | 45-30.0    |        | 45-30.1    |        | 45-20.1    |        | 45-12.4    |        | 45- 8.0    |        | 44-52.5    |        | 45- 0.1    |        | 45-10.1    |        |
| Longitude:E  | 141-59.9   |        | 142- 0.3   |        | 142-10.0   |        | 142-30.1   |        | 142-40.0   |        | 142-32.5   |        | 142-27.8   |        | 142-52.8   |        | 143- 0.1   |        | 143-10.1   |        |
| Date         | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        | 1997/04/14 |        |
| Time(JST)    | 12:23      |        | 12:46      |        | 13:26      |        | 14:54      |        | 16:02      |        | 16:55      |        | 17:28      |        | 19:29      |        | 20:26      |        | 21:37      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 4.0        |        | 3.8        |        | 4.4        |        | 4.8        |        | 6.9        |        | 3.6        |        | 3.1        |        | 1.0        |        | 0.3        |        | 0.0        |        |
| Bar          | 1016.0     |        | 1016.0     |        | 1016.0     |        | 1015.9     |        | 1016.0     |        | 1016.5     |        | 1016.5     |        | 1018.0     |        | 1018.0     |        | 1017.5     |        |
| Wind Dir     | NW         |        | NW         |        | NW         |        | NW         |        | NW         |        | NNW        |        | NNW        |        | SW         |        | SW         |        | SW         |        |
| Wind Spd/F   | F 2        |        | F 4        |        | F 4        |        | F 3        |        | F 4        |        | F 4        |        | F 5        |        | F 2        |        | F 2        |        | F 2        |        |
| Transparency | 7          |        | 7          |        | 9          |        | 8          |        | 7          |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 42         |        | 25         |        | 37         |        | 83         |        | 97         |        | 61         |        | 33         |        | 86         |        | 131        |        | 134        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.1        | 32.495 | 4.9        | 32.650 | 4.6        | 33.787 | 1.0        | 32.792 | 0.9        | 32.633 | 4.2        | 33.783 | 4.1        | 33.635 | -0.1       | 32.770 | 0.6        | 32.553 | 0.5        | 32.488 |
| 10m          | 4.66       | 32.842 | 4.74       | 32.683 | 4.29       | 33.860 | -0.14      | 32.816 | 0.11       | 32.871 | 4.31       | 33.790 | 4.22       | 33.631 | -0.06      | 32.813 | 0.37       | 32.584 | 0.50       | 32.470 |
| 20m          | 4.09       | 33.996 | 4.40       | 33.406 | 4.03       | 34.034 | -0.90      | 32.903 | -0.49      | 33.015 | 4.09       | 33.866 | 4.20       | 33.630 | 0.24       | 33.115 | -0.09      | 32.702 | -0.20      | 32.489 |
| 30m          | 4.01       | 34.075 |            |        | 4.01       | 34.052 | 0.07       | 33.218 | -0.60      | 33.178 | 4.04       | 33.895 |            |        | 0.42       | 33.429 | -0.44      | 32.776 | -0.61      | 32.506 |
| 50m          |            |        |            |        |            |        | 1.48       | 33.639 | 3.05       | 34.026 | 4.04       | 33.908 |            |        | 2.21       | 33.868 | -0.14      | 33.008 | -1.57      | 32.776 |
| 75m          |            |        |            |        |            |        |            |        | 3.31       | 34.085 |            |        |            |        | 2.27       | 33.879 | 1.78       | 33.673 | -1.44      | 32.922 |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 2.24       | 33.967 | -1.75      | 33.029 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-3

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O25        |        | O24        |        | O23        |        | O22        |        | OA11       |        | OA12       |        | OA13       |        | OA14       |        | O35        |        | O34        |        |
| Latitude:N   | 45- 0.1    |        | 44-50.0    |        | 44-40.1    |        | 44-35.0    |        | 44-17.5    |        | 44-22.5    |        | 44-30.0    |        | 44-40.0    |        | 44-50.0    |        | 44-30.1    |        |
| Longitude:E  | 143-40.2   |        | 143-30.0   |        | 143-20.2   |        | 143-15.3   |        | 143-37.6   |        | 143-42.6   |        | 143-50.1   |        | 144- 0.1   |        | 144-20.1   |        | 144-19.9   |        |
| Date         | 1997/04/14 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        |
| Time(JST)    | 23:44      |        | 01:15      |        | 02:47      |        | 03:42      |        | 05:54      |        | 06:32      |        | 07:26      |        | 08:41      |        | 10:25      |        | 12:16      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | -0.7       |        | -0.7       |        | -0.3       |        | -0.3       |        | -0.4       |        | -0.4       |        | -0.4       |        | -0.4       |        | -0.3       |        | 1.1        |        |
| Bar          | 1017.5     |        | 1017.5     |        | 1017.3     |        | 1017.5     |        | 1018.0     |        | 1018.0     |        | 1018.0     |        | 1018.5     |        | 1019.0     |        | 1019.0     |        |
| Wind Dir     | WSW        |        | CALM       |        | WNW        |        | WNW        |        | WNW        |        | WNW        |        | NE         |        | NNE        |        | NNW        |        | N          |        |
| Wind Spd/F   | F 1        |        | F 0        |        | F 2        |        | F 3        |        | F 4        |        | F 2        |        | F 1        |        | F 1        |        | F 1        |        | F 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        | 5          |        | 6          |        | 4          |        | 7          |        |
| Depth        | 173        |        | 150        |        | 115        |        | 76         |        | 46         |        | 91         |        | 163        |        | 190        |        | 154        |        | 877        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 0.4        | 32.574 | 0.1        | 32.754 | 0.0        | 32.758 | 0.3        | 32.814 | 2.4        | 33.296 | 0.7        | 32.825 | 0.5        | 32.706 | 0.4        | 32.713 | 0.0        | 32.676 | 0.9        | 32.634 |
| 10m          | 0.28       | 32.556 | 0.23       | 32.751 | 0.04       | 32.763 | 0.95       | 33.012 | 2.72       | 33.295 | 0.61       | 32.878 | 0.46       | 32.705 | 0.22       | 32.709 | -0.13      | 32.676 | 0.06       | 32.642 |
| 20m          | -0.27      | 32.579 | 0.06       | 32.766 | -0.43      | 32.855 | 1.15       | 33.404 | 1.53       | 33.215 | 0.27       | 33.063 | 0.32       | 32.712 | 0.10       | 32.714 | -0.44      | 32.726 | -0.07      | 32.663 |
| 30m          | -0.73      | 32.621 | -0.14      | 32.824 | -0.42      | 32.970 | 2.97       | 33.844 | 0.80       | 33.177 | -0.35      | 33.151 | -1.22      | 32.795 | -0.54      | 32.741 | -0.79      | 32.759 | -0.72      | 32.719 |
| 50m          | -1.62      | 32.834 | -0.37      | 32.906 | 0.94       | 33.665 | 3.17       | 33.900 |            |        | 3.37       | 33.813 | -1.51      | 32.836 | -1.21      | 32.818 | -1.20      | 32.811 | -0.90      | 32.787 |
| 75m          | -1.75      | 32.917 | 1.17       | 33.631 | 2.62       | 33.993 |            |        |            |        | 3.49       | 33.860 | -1.67      | 32.898 | -1.72      | 32.865 | -1.68      | 32.920 | -1.17      | 32.876 |
| 100m         | -1.75      | 33.003 | 2.07       | 33.956 | 2.62       | 33.996 |            |        |            |        |            |        | -1.58      | 33.008 | -1.73      | 32.903 | -1.72      | 32.955 | -1.47      | 32.938 |
| 125m         | -1.75      | 33.029 | 2.06       | 33.958 |            |        |            |        |            |        |            |        | 2.96       | 33.996 | -1.66      | 32.952 | -1.64      | 33.023 | -1.38      | 32.974 |
| 150m         | -0.69      | 33.303 |            |        |            |        |            |        |            |        |            |        | 2.95       | 34.008 | -1.43      | 33.047 |            |        | -1.13      | 33.007 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | -0.54      | 33.098 |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | -0.13      | 33.208 |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.33       | 33.268 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.37       | 33.395 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.79       | 33.544 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-4

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O33        |        | O32        |        | OA20       |        | O31        |        | OA21       |        | OA22       |        | OA23       |        | OA24       |        | O41        |        | O42        |        |
| Latitude:N   | 44-20.0    |        | 44-10.1    |        | 44- 5.0    |        | 44- 2.0    |        | 44- 2.1    |        | 44-10.0    |        | 44-20.0    |        | 44-30.1    |        | 44-22.0    |        | 44-30.2    |        |
| Longitude:E  | 144-20.1   |        | 144-20.1   |        | 144-20.1   |        | 144-19.8   |        | 144-50.1   |        | 144-50.1   |        | 144-50.0   |        | 144-50.0   |        | 145-20.0   |        | 145-20.2   |        |
| Date         | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/15 |        | 1997/04/16 |        |
| Time(JST)    | 13:33      |        | 14:38      |        | 15:16      |        | 15:39      |        | 17:32      |        | 18:21      |        | 19:36      |        | 20:55      |        | 23:15      |        | 00:06      |        |
| Weather      | C          |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | S          |        |
| Air Temp.    | 1.8        |        | 2.2        |        | 1.7        |        | 2.4        |        | 0.3        |        | 0.0        |        | -0.3       |        | -0.9       |        | -0.6       |        | -0.7       |        |
| Bar          | 1019.0     |        | 1019.0     |        | 1019.0     |        | 1019.0     |        | 1019.5     |        | 1019.5     |        | 1020.0     |        | 1020.0     |        | 1020.0     |        | 1020.0     |        |
| Wind Dir     | NNW        |        | N          |        | NNW        |        | N          |        | NNW        |        | NNW        |        | NNW        |        | WNW        |        | WNW        |        | WNW        |        |
| Wind Spd/F   | F 4        |        | F 4        |        | F 3        |        | F 4        |        | F 5        |        | F 2        |        | F 2        |        | F 2        |        | F 3        |        | F 2        |        |
| Transparency | 8          |        | 7          |        | 6          |        | 6          |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 267        |        | 118        |        | 38         |        | 32         |        | 82         |        | 590        |        | 1080       |        | 1586       |        | 139        |        | 1708       |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 0.6        | 32.745 | 0.4        | 32.780 | 0.9        | 32.517 | 2.1        | 32.138 | 0.3        | 32.706 | 0.3        | 32.742 | 0.5        | 32.691 | 0.8        | 32.761 | 0.7        | 32.660 | 0.3        | 32.668 |
| 10m          | 0.22       | 32.735 | -0.21      | 32.777 | 0.71       | 32.528 | 0.63       | 32.647 | -0.05      | 32.739 | 0.17       | 32.740 | 0.17       | 32.724 | 0.26       | 32.749 | 0.82       | 32.659 | 0.29       | 32.671 |
| 20m          | -0.08      | 32.746 | -0.34      | 32.785 | 0.33       | 32.655 | 0.49       | 32.755 | -0.50      | 32.784 | 0.17       | 32.740 | -0.04      | 32.748 | -0.51      | 32.785 | 0.59       | 32.701 | 0.24       | 32.678 |
| 30m          | -0.58      | 32.770 | -0.58      | 32.795 | 0.02       | 32.734 |            |        | -0.57      | 32.788 | 0.07       | 32.744 | -0.48      | 32.777 | -0.88      | 32.806 | 0.41       | 32.742 | 0.03       | 32.687 |
| 50m          | -1.06      | 32.823 | -1.58      | 32.852 |            |        |            |        | -0.61      | 32.848 | -0.44      | 32.776 | -1.04      | 32.831 | -1.42      | 32.892 | -0.04      | 32.770 | -0.90      | 32.870 |
| 75m          | -1.44      | 32.863 | -1.67      | 32.883 |            |        |            |        | -0.56      | 32.852 | -1.22      | 32.898 | -1.21      | 32.869 | -1.48      | 32.944 | -0.27      | 32.844 | -0.83      | 32.923 |
| 100m         | -1.41      | 32.934 | 0.27       | 33.197 |            |        |            |        | -1.34      | 32.930 | -1.26      | 32.905 | -1.58      | 32.963 | -0.32      | 32.851 | -0.68      | 33.026 |            |        |
| 125m         | -1.50      | 32.950 |            |        |            |        |            |        | -1.15      | 32.985 | -1.14      | 32.983 | -1.61      | 32.985 | -0.47      | 32.917 | -0.30      | 33.141 |            |        |
| 150m         | -1.58      | 32.983 |            |        |            |        |            |        | -1.00      | 33.055 | -1.36      | 33.030 | -1.58      | 33.007 |            |        | -0.02      | 33.258 |            |        |
| 200m         | -1.34      | 33.024 |            |        |            |        |            |        | -0.44      | 33.170 | -0.65      | 33.125 | -1.57      | 33.037 |            |        | 0.38       | 33.379 |            |        |
| 250m         | 1.83       | 33.874 |            |        |            |        |            |        | 0.27       | 33.307 | -0.18      | 33.258 | -1.25      | 33.080 |            |        | 0.60       | 33.450 |            |        |
| 300m         |            |        |            |        |            |        |            |        | 0.65       | 33.431 | 0.37       | 33.390 | -1.00      | 33.123 |            |        | 0.92       | 33.524 |            |        |
| 400m         |            |        |            |        |            |        |            |        | 1.18       | 33.598 | 0.77       | 33.510 | 0.42       | 33.335 |            |        | 1.24       | 33.606 |            |        |
| 500m         |            |        |            |        |            |        |            |        | 1.55       | 33.685 | 0.99       | 33.622 | 0.70       | 33.487 |            |        | 1.29       | 33.679 |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-5

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O43        |        | O44        |        | O45        |        | O46        |        | O36        |        | O26        |        | OA05       |        | O14        |        | WTC01      |        | WTC02      |        |
| Latitude:N   | 44-40.0    |        | 44-50.0    |        | 45- 0.0    |        | 45-10.1    |        | 45- 8.0    |        | 45-10.0    |        | 45-20.0    |        | 45-30.1    |        | 45-30.1    |        | 45-30.1    |        |
| Longitude:E  | 145-19.9   |        | 145-20.2   |        | 145-20.0   |        | 145-20.1   |        | 144-20.0   |        | 143-50.0   |        | 143-20.0   |        | 142-50.0   |        | 141-40.1   |        | 141-24.8   |        |
| Date         | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/16 |        | 1997/04/21 |        | 1997/04/21 |        |
| Time(JST)    | 01:22      |        | 02:40      |        | 03:52      |        | 05:02      |        | 09:12      |        | 11:29      |        | 14:27      |        | 16:39      |        | 11:04      |        | 12:33      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | B          |        | BC         |        | C          |        | BC         |        |
| Air Temp.    | -1.1       |        | -1.1       |        | -0.9       |        | -0.8       |        | 2.7        |        | 4.3        |        | 2.7        |        | 2.0        |        | 10.2       |        | 8.2        |        |
| Bar          | 1019.0     |        | 1019.0     |        | 1018.5     |        | 1018.0     |        | 1019.0     |        | 1018.5     |        | 1018.0     |        | 1018.5     |        | 1026.5     |        | 1025.7     |        |
| Wind Dir     | NW         |        | WNW        |        | W          |        | W          |        | NW         |        | NW         |        | WNW        |        | WNW        |        | CALM       |        | NE         |        |
| Wind Spd/F   | F 4        |        | F 3        |        | F 3        |        | F 3        |        | F 2        |        | F 2        |        | F 4        |        | F 4        |        | S 0        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        | 7          |        | 10         |        | 7          |        | 12         |        |            |        |            |        |
| Depth        | 2200       |        | 2221       |        | 2577       |        | 2760       |        | 806        |        | 342        |        | 143        |        | 119        |        | 54         |        | 115        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 0.0        | 32.728 | -0.3       | 32.678 | -0.6       | 32.513 | -0.6       | 32.516 | 0.3        | 32.576 | 0.4        | 32.798 | 1.0        | 32.717 | 1.3        | 32.445 | 6.8        | 32.43* | 6.4        | 34.17* |
| 10m          | 0.10       | 32.716 | -0.27      | 32.658 | -0.50      | 32.513 | -0.57      | 32.509 | -0.33      | 32.577 | -0.89      | 32.832 | 0.76       | 32.708 | 0.97       | 32.407 | 4.77       | 33.770 | 4.65       | 34.165 |
| 20m          | -0.11      | 32.737 | -0.22      | 32.732 | -0.74      | 32.532 | -0.79      | 32.532 | -0.91      | 32.728 | -1.10      | 32.925 | -0.75      | 32.758 | 0.16       | 32.433 | 4.43       | 33.933 | 4.45       | 34.166 |
| 30m          | -0.78      | 32.789 | -0.28      | 32.789 | -1.33      | 32.679 | -0.96      | 32.576 | -1.01      | 32.751 | -1.54      | 32.942 | -1.10      | 32.878 | -0.08      | 32.665 | 4.30       | 34.036 | 4.08       | 34.163 |
| 50m          | -1.24      | 32.878 | -1.14      | 32.851 | -1.13      | 32.830 | -1.18      | 32.662 | -1.24      | 32.847 | -1.54      | 32.994 | -1.39      | 32.987 | -1.64      | 32.864 |            |        | 3.94       | 34.169 |
| 75m          | -1.33      | 32.933 | -1.46      | 32.957 | -1.58      | 32.894 | -1.26      | 32.815 | -1.57      | 32.919 | -1.58      | 33.030 | -1.52      | 33.028 | -1.67      | 32.986 |            |        | 3.87       | 34.166 |
| 100m         | -1.01      | 33.016 | -1.59      | 32.974 | -1.65      | 32.951 | -1.56      | 32.939 | -1.59      | 32.970 | -1.62      | 33.032 | -1.25      | 33.075 | -0.88      | 33.179 |            |        | 3.82       | 34.166 |
| 125m         | -1.53      | 33.033 | -1.64      | 33.012 | -1.62      | 33.001 | -1.31      | 32.992 | -1.66      | 32.999 | -1.61      | 33.043 | -1.24      | 33.083 |            |        |            |        |            |        |
| 150m         | -1.25      | 33.066 | -1.65      | 33.023 | -1.48      | 33.047 | -0.40      | 33.107 | -1.52      | 33.026 | -1.59      | 33.047 |            |        |            |        |            |        |            |        |
| 200m         | -0.12      | 33.221 | -1.13      | 33.116 | -1.35      | 33.090 | 0.55       | 33.284 | -0.67      | 33.140 | -1.57      | 33.060 |            |        |            |        |            |        |            |        |
| 250m         | 0.52       | 33.342 | -0.19      | 33.218 | -0.02      | 33.251 | 0.75       | 33.375 | 0.10       | 33.256 | -1.14      | 33.107 |            |        |            |        |            |        |            |        |
| 300m         | 0.66       | 33.411 | 0.34       | 33.342 | 0.64       | 33.367 | 0.93       | 33.437 | 0.62       | 33.362 | -0.57      | 33.175 |            |        |            |        |            |        |            |        |
| 400m         | 1.05       | 33.529 | 0.98       | 33.476 | 1.21       | 33.556 | 1.39       | 33.601 | 1.17       | 33.515 |            |        |            |        |            |        |            |        |            |        |
| 500m         | 1.48       | 33.656 | 1.37       | 33.604 | 1.46       | 33.640 | 1.68       | 33.747 | 1.55       | 33.672 |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-6



Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WTC03      |        | WTC04      |        | WTC05      |        | WTC06      |        | WTC07      |        | WTC08      |        | WTC09      |        | WTC10      |        | WTC11      |        | WTC12      |        |
| Latitude:N   | 45-30.0    |        | 45-30.0    |        | 45-15.0    |        | 45-15.0    |        | 45-15.0    |        | 45-15.0    |        | 45- 0.1    |        | 45- 0.1    |        | 45- 0.2    |        | 44-45.0    |        |
| Longitude:E  | 141-10.0   |        | 140-54.8   |        | 141- 0.1   |        | 141- 9.3   |        | 141-20.0   |        | 141-30.1   |        | 141-30.0   |        | 141-15.0   |        | 141- 0.0   |        | 141- 0.0   |        |
| Date         | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/21 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        |
| Time(JST)    | 13:57      |        | 15:29      |        | 17:26      |        | 18:20      |        | 19:26      |        | 20:26      |        | 22:19      |        | 00:01      |        | 01:30      |        | 03:28      |        |
| Weather      | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 7.1        |        | 6.5        |        | 6.7        |        | 6.2        |        | 6.0        |        | 6.3        |        | 6.9        |        | 7.1        |        | 6.6        |        | 6.5        |        |
| Bar          | 1025.1     |        | 1024.6     |        | 1024.0     |        | 1024.0     |        | 1024.5     |        | 1025.0     |        | 1024.0     |        | 1023.5     |        | 1022.3     |        | 1021.0     |        |
| Wind Dir     | NE         |        | NE         |        | N          |        | NE         |        | WSW        |        | N          |        | NNW        |        | NE         |        | NE         |        | ENE        |        |
| Wind Spd/F   | S 4        |        | S 5        |        | S 1        |        | S 3        |        | S 4        |        | S 2        |        | S 2        |        | S 4        |        | S 4        |        | S 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 129        |        | 130        |        | 88         |        | 53         |        | 85         |        | 35         |        | 65         |        | 86         |        | 100        |        | 136        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.7        | 34.18* | 5.5        | 34.18* | 5.6        | 34.18* | 5.6        | 34.15* | 6.5        | 33.74* | 7.2        | 32.77* | 7.7        | 31.45* | 6.5        | 33.97* | 5.5        | 34.17* | 6.0        | 34.16* |
| 10m          | 5.04       | 34.184 | 4.71       | 34.185 | 5.41       | 34.182 | 4.99       | 34.176 | 5.13       | 34.141 | 4.79       | 33.832 | 5.00       | 34.041 | 4.75       | 34.155 | 5.10       | 34.180 | 5.53       | 34.170 |
| 20m          | 4.66       | 34.186 | 4.34       | 34.182 | 4.69       | 34.185 | 4.52       | 34.175 | 4.78       | 34.138 | 4.80       | 34.016 | 4.50       | 34.110 | 4.35       | 34.186 | 4.68       | 34.179 | 4.86       | 34.169 |
| 30m          | 4.42       | 34.178 | 4.18       | 34.180 | 4.37       | 34.182 | 4.24       | 34.179 | 4.50       | 34.161 |            |        | 4.45       | 34.109 | 4.20       | 34.181 | 4.50       | 34.176 | 4.65       | 34.168 |
| 50m          | 3.89       | 34.163 | 4.01       | 34.177 | 4.14       | 34.177 |            |        | 4.17       | 34.172 |            |        | 4.33       | 34.147 | 4.04       | 34.174 | 4.24       | 34.172 | 4.40       | 34.166 |
| 75m          | 3.77       | 34.157 | 3.84       | 34.175 | 3.94       | 34.173 |            |        | 3.78       | 34.161 |            |        |            |        | 3.83       | 34.164 | 4.11       | 34.173 | 4.33       | 34.168 |
| 100m         | 3.44       | 34.135 | 3.69       | 34.172 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 4.29       | 34.171 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-7

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WTC13      |        | WTC14      |        | WTC15      |        | WTC16      |        | WTC17      |        | WTC18      |        | WTC19      |        | WTC20      |        | WTC21      |        | WTC22      |        |
| Latitude:N   | 44-45.0    |        | 44-44.9    |        | 44-30.0    |        | 44-30.0    |        | 44-30.1    |        | 44-15.0    |        | 44-15.0    |        | 44-14.9    |        | 43-59.9    |        | 43-59.9    |        |
| Longitude:E  | 141-15.0   |        | 141-29.9   |        | 141-30.1   |        | 141-15.0   |        | 141- 0.0   |        | 141- 0.0   |        | 141-15.0   |        | 141-27.6   |        | 141-26.7   |        | 141-15.1   |        |
| Date         | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        | 1997/04/22 |        |
| Time(JST)    | 04:55      |        | 06:16      |        | 07:58      |        | 09:20      |        | 10:41      |        | 12:25      |        | 14:02      |        | 15:21      |        | 17:16      |        | 18:21      |        |
| Weather      | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 6.3        |        | 5.9        |        | 6.7        |        | 7.4        |        | 6.9        |        | 6.2        |        | 6.8        |        | 6.7        |        | 7.1        |        | 6.6        |        |
| Bar          | 1021.0     |        | 1020.5     |        | 1020.0     |        | 1019.0     |        | 1018.0     |        | 1011.0     |        | 1015.0     |        | 1014.5     |        | 1014.0     |        | 1014.0     |        |
| Wind Dir     | ENE        |        | ENE        |        | NE         |        | ENE        |        | NE         |        | NE         |        | NNE        |        | NNE        |        | N          |        | NNE        |        |
| Wind Spd/F   | S 4        |        | S 6        |        | S 5        |        | S 6        |        | S 9        |        | S 8        |        | S 7        |        | S 7        |        | S 6        |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 102        |        | 86         |        | 79         |        | 119        |        | 198        |        | 327        |        | 120        |        | 62         |        | 64         |        | 167        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.9        | 34.18* | 6.3        | 34.13* | 6.6        | 33.60* | 5.5        | 34.12* | 6.0        | 34.15* | 6.0        | 33.99* | 6.0        | 33.00* | 7.5        | 32.47* | 6.0        | 33.25* | 6.3        | 33.96* |
| 10m          | 5.23       | 34.187 | 5.86       | 34.159 | 4.91       | 33.944 | 5.85       | 34.118 | 5.96       | 34.148 | 5.86       | 34.004 | 6.70       | 33.884 | 6.74       | 32.914 | 6.59       | 33.268 | 5.45       | 34.109 |
| 20m          | 4.83       | 34.182 | 4.81       | 34.169 | 4.77       | 34.054 | 4.84       | 34.099 | 4.83       | 34.153 | 5.02       | 34.127 | 5.64       | 34.101 | 4.82       | 33.651 | 5.00       | 33.988 | 5.09       | 34.127 |
| 30m          | 4.50       | 34.179 | 4.46       | 34.158 | 4.95       | 34.131 | 4.67       | 34.110 | 4.59       | 34.161 | 4.86       | 34.144 | 5.07       | 34.139 | 4.53       | 33.983 | 5.02       | 34.094 | 4.86       | 34.150 |
| 50m          | 4.26       | 34.173 | 4.31       | 34.169 | 4.61       | 34.136 | 4.60       | 34.135 | 4.51       | 34.159 | 4.73       | 34.158 | 4.72       | 34.133 | 4.34       | 34.126 | 4.69       | 34.122 | 4.50       | 34.150 |
| 75m          | 4.18       | 34.175 | 4.12       | 34.170 |            |        | 4.36       | 34.116 | 4.41       | 34.162 | 4.52       | 34.153 | 4.61       | 34.164 |            |        |            |        | 4.39       | 34.164 |
| 100m         |            |        |            |        |            |        | 4.35       | 34.154 | 4.23       | 34.159 | 4.44       | 34.163 | 4.38       | 34.161 |            |        |            |        | 4.25       | 34.158 |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.68       | 34.153 |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-8

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199704     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WTC23      |        | WTC24      |        | WTC25      |        | WTC26      |        | WTC27      |        | WTC28      |        | WTC29      |        | WTC30      |        | WTC31      |        | WTC01      |        |
| Latitude:N   | 44- 0.0    |        | 44- 0.0    |        | 44-14.8    |        | 45- 0.1    |        | 45-45.1    |        | 45-45.0    |        | 45-45.1    |        | 45-40.1    |        | 45-40.1    |        | 45- 0.1    |        |
| Longitude:E  | 141- 0.0   |        | 140-39.9   |        | 140-40.0   |        | 140-40.0   |        | 141- 0.1   |        | 141-10.1   |        | 141-20.0   |        | 141-50.0   |        | 142- 0.1   |        | 141-15.0   |        |
| Date         | 1997/04/22 |        | 1997/04/22 |        | 1997/04/23 |        | 1997/04/23 |        | 1997/04/24 |        | 1997/04/24 |        | 1997/04/24 |        | 1997/04/24 |        | 1997/04/24 |        | 1997/05/13 |        |
| Time(JST)    | 20:10      |        | 21:58      |        | 00:37      |        | 21:10      |        | 02:40      |        | 03:48      |        | 04:52      |        | 07:27      |        | 08:27      |        | 09:18      |        |
| Weather      | R          |        | R          |        | C          |        | BC         |        | C          |        | BC         |        | C          |        | C          |        | C          |        | BC         |        |
| Air Temp.    | 5.8        |        | 5.1        |        | 3.7        |        | 3.6        |        | 3.2        |        | 3.0        |        | 2.8        |        | 1.7        |        | 1.4        |        | 8.2        |        |
| Bar          | 1015.0     |        | 1015.0     |        | 1014.0     |        | 1017.5     |        | 1014.5     |        | 1014.1     |        | 1014.0     |        | 1014.0     |        | 1013.0     |        | 1018.5     |        |
| Wind Dir     | NNE        |        | NNW        |        | NNE        |        | NNW        |        | N          |        | N          |        | NNE        |        | N          |        | NNW        |        | S          |        |
| Wind Spd/F   | S 5        |        | F 4        |        | S 9        |        | S 9        |        | S 7        |        | S 7        |        | S 5        |        | S 7        |        | S 8        |        | S 5        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 405        |        | 578        |        | 163        |        | 370        |        | 499        |        | 129        |        | 127        |        | 67         |        | 56         |        | 87         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 5.3        | 34.15* | 5.2        | 34.13* | 4.9        | 34.14* | 4.6        | 34.14* | 4.4        | 34.17* | 4.4        | 34.17* | 4.9        | 33.83* | 2.7        | 33.81* | 1.6        | 33.16* | 6.4        | 34.09* |
| 10m          | 5.21       | 34.153 | 5.13       | 34.135 | 5.01       | 34.144 | 4.61       | 34.143 | 4.60       | 34.172 | 4.42       | 34.174 | 4.95       | 33.833 | 2.64       | 33.823 | 1.49       | 33.165 | 6.00       | 34.092 |
| 20m          | 5.13       | 34.158 | 5.12       | 34.147 | 5.01       | 34.144 | 4.61       | 34.143 | 4.60       | 34.172 | 4.42       | 34.174 | 4.94       | 33.837 | 2.55       | 33.873 | 1.38       | 33.243 | 5.65       | 34.100 |
| 30m          | 4.75       | 34.164 | 4.72       | 34.168 | 4.90       | 34.153 | 4.61       | 34.143 | 4.60       | 34.172 | 4.42       | 34.174 | 4.35       | 34.165 | 2.51       | 33.883 | 2.22       | 33.831 | 5.43       | 34.105 |
| 50m          | 4.19       | 34.161 | 4.31       | 34.165 | 4.26       | 34.167 | 3.95       | 34.179 | 4.60       | 34.172 | 4.07       | 34.182 | 3.73       | 34.167 | 2.46       | 34.011 |            |        | 5.12       | 34.142 |
| 75m          | 3.90       | 34.157 | 4.23       | 34.165 | 3.99       | 34.168 | 3.69       | 34.168 | 4.22       | 34.177 | 3.86       | 34.177 | 3.59       | 34.161 |            |        |            |        | 4.38       | 34.164 |
| 100m         | 3.61       | 34.151 | 4.17       | 34.164 | 3.64       | 34.154 | 3.29       | 34.158 | 4.11       | 34.176 | 3.56       | 34.165 | 3.49       | 34.165 |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-9

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WTC02      |        | WTC03      |        | WTC04      |        | WTC05      |        | WTC06      |        | WTC07      |        | WTC08      |        | WTC09      |        | WTC10      |        | WTC11      |        |
| Latitude:N   | 45- 0.0    |        | 45- 0.0    |        | 44-59.9    |        | 44-45.1    |        | 44-45.0    |        | 44-45.0    |        | 44-45.1    |        | 45-14.9    |        | 45-15.0    |        | 45-15.0    |        |
| Longitude:E  | 141-30.0   |        | 140-40.1   |        | 140-59.9   |        | 141-15.0   |        | 141-29.8   |        | 141- 0.0   |        | 140-40.1   |        | 140-40.0   |        | 141- 0.1   |        | 141- 9.0   |        |
| Date         | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/13 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        |
| Time(JST)    | 10:37      |        | 16:57      |        | 19:34      |        | 22:30      |        | 23:53      |        | 03:09      |        | 05:01      |        | 11:38      |        | 13:18      |        | 14:12      |        |
| Weather      | BC         |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        | B          |        | C          |        | BC         |        | BC         |        |
| Air Temp.    | 9.1        |        | 7.5        |        | 7.4        |        | 7.6        |        | 8.2        |        | 8.6        |        | 7.9        |        | 16.9       |        | 15.4       |        | 13.8       |        |
| Bar          | 1018.0     |        | 1015.0     |        | 1016.0     |        | 1016.5     |        | 1016.0     |        | 1015.5     |        | 1015.3     |        | 1014.0     |        | 1013.5     |        | 1013.0     |        |
| Wind Dir     | S          |        | S          |        | S          |        | SSW        |        | SW         |        | S          |        | S          |        | SE         |        | NW         |        | NE         |        |
| Wind Spd/F   | S 8        |        | S 5        |        | S 6        |        | S 8        |        | S 7        |        | S 4        |        | S 3        |        | S 2        |        | S 2        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 66         |        | 365        |        | 104        |        | 102        |        | 83         |        | 135        |        | 208        |        | 453        |        | 85         |        | 57         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.8        | 33.89* | 5.7        | 34.14* | 6.5        | 34.11* | 6.6        | 34.11* | 7.2        | 33.64* | 6.9        | 34.08* | 5.8        | 34.14* | 7.4        | 34.14* | 7.0        | 34.13* | 8.1        | 34.14* |
| 10m          | 6.62       | 33.895 | 5.59       | 34.137 | 6.33       | 34.112 | 6.08       | 34.124 | 7.04       | 33.653 | 6.66       | 34.079 | 5.60       | 34.142 | 5.25       | 34.146 | 6.10       | 34.125 | 6.28       | 34.142 |
| 20m          | 6.14       | 33.969 | 4.98       | 34.142 | 5.59       | 34.134 | 5.57       | 34.131 | 6.44       | 33.845 | 6.26       | 34.086 | 5.59       | 34.141 | 5.11       | 34.145 | 5.40       | 34.132 | 6.09       | 34.140 |
| 30m          | 5.64       | 34.077 | 4.73       | 34.141 | 5.35       | 34.141 | 5.50       | 34.130 | 5.89       | 34.036 | 5.89       | 34.083 | 5.39       | 34.140 | 4.88       | 34.145 | 5.11       | 34.144 | 5.66       | 34.140 |
| 50m          | 5.19       | 34.129 | 4.45       | 34.141 | 5.26       | 34.140 | 5.33       | 34.136 | 5.47       | 34.108 | 5.67       | 34.104 | 5.07       | 34.146 | 4.52       | 34.155 | 4.33       | 34.173 |            |        |
| 75m          |            |        | 3.82       | 34.162 | 5.05       | 34.151 | 4.54       | 34.151 | 4.84       | 34.115 | 5.04       | 34.134 | 4.23       | 34.159 | 3.64       | 34.170 | 4.31       | 34.169 |            |        |
| 100m         |            |        | 3.42       | 34.158 |            |        |            |        |            |        | 4.56       | 34.148 | 3.29       | 34.157 | 3.26       | 34.159 |            |        |            |        |
| 125m         |            |        | 3.02       | 34.144 |            |        |            |        |            |        |            |        | 2.81       | 34.143 | 2.80       | 34.141 |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-10

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        | 199705     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WTC12      |        | WTC13      |        | WTC14      |        | WTC15      |        | WTC16      |        | WSK01      |        | WSK02      |        | WSK04      |        | WSK03      |        | WSK05      |        |
| Latitude:N   | 45-14.9    |        | 45-14.9    |        | 45-29.9    |        | 45-29.9    |        | 45-30.1    |        | 44-40.7    |        | 44-35.2    |        | 45- 2.8    |        | 45- 9.1    |        | 45-20.1    |        |
| Longitude:E  | 141-20.1   |        | 141-27.5   |        | 141- 9.9   |        | 141-24.9   |        | 141-39.9   |        | 144- 3.5   |        | 144- 3.0   |        | 143-10.7   |        | 142-59.6   |        | 142-58.3   |        |
| Date         | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/14 |        | 1997/05/27 |        | 1997/05/27 |        | 1997/05/28 |        | 1997/05/28 |        | 1997/05/28 |        |
| Time(JST)    | 15:16      |        | 16:06      |        | 18:53      |        | 20:19      |        | 21:44      |        | 11:48      |        | 14:05      |        | 08:58      |        | 11:42      |        | 14:15      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    | 14.6       |        | 13.2       |        | 9.8        |        | 7.9        |        | 7.7        |        |            |        |            |        |            |        |            |        |            |        |
| Bar          | 1012.5     |        | 1011.7     |        | 1011.6     |        | 1012.0     |        | 1012.0     |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     | NW         |        | N          |        | ENE        |        | ENE        |        | E          |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 3        |        | S 5        |        | S 7        |        | S 9        |        | S 7        |        |            |        |            |        |            |        |            |        |            |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 85         |        | 45         |        | 128        |        | 111        |        | 56         |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.3        | 34.02* | 8.3        | 33.96* | 5.9        | 34.14* | 6.3        | 34.12* | 8.0        | 32.55* | 4.6*       | 32.75* | 6.0*       | 32.74* | 5.3*       | 32.86* | 5.2*       | 32.73* | 4.6*       | 32.73* |
| 10m          | 5.60       | 34.065 | 6.46       | 33.984 | 5.37       | 34.149 | 6.24       | 34.120 | 6.57       | 33.663 | 2.51       | 32.810 | 2.90       | 32.812 | 5.61       | 32.866 | 3.35       | 32.764 | 4.34       | 32.735 |
| 20m          | 5.03       | 34.121 | 5.80       | 34.030 | 5.14       | 34.149 | 5.39       | 34.125 | 6.39       | 33.837 | 0.33       | 32.890 | 0.70       | 32.882 | 2.43       | 32.913 | 1.86       | 32.780 | 2.24       | 32.760 |
| 30m          | 4.62       | 34.152 | 5.61       | 34.054 | 5.13       | 34.146 | 5.21       | 34.128 | 5.98       | 34.006 | -0.04      | 32.902 | -0.10      | 32.922 | 2.07       | 32.988 | -0.08      | 32.910 | -0.19      | 32.916 |
| 50m          | 4.57       | 34.152 |            |        | 5.06       | 34.146 | 5.06       | 34.140 |            |        | -0.69      | 32.927 | -0.95      | 32.973 | 0.34       | 33.022 | -0.85      | 33.001 | -0.65      | 32.958 |
| 75m          | 4.52       | 34.154 |            |        | 4.74       | 34.158 | 4.73       | 34.154 |            |        | -1.30      | 32.990 | -1.40      | 33.001 | 0.37       | 33.133 | -1.51      | 33.026 | -0.96      | 32.981 |
| 100m         |            |        |            |        | 3.92       | 34.160 | 4.40       | 34.162 |            |        | -1.45      | 33.015 | -1.47      | 33.044 | 1.86       | 33.686 | -1.44      | 33.042 | 0.42       | 33.214 |
| 125m         |            |        |            |        |            |        |            |        |            |        | -1.55      | 33.033 | -1.31      | 33.071 | 2.56       | 33.839 |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        | -1.36      | 33.066 | -1.00      | 33.107 |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-11

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199705     |        | 199705     |        | 199705     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |            |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WSK06      |        | WSK07      |        | WSK08      |        | S4         |        | S3         |        | S2         |        | S1         |        | O15        |        | OA10       |        | O13        |        |
| Latitude:N   | 45-28.4    |        | 45-28.4    |        | 45-26.7    |        | 45-39.9    |        | 45-36.9    |        | 45-33.9    |        | 45-31.0    |        | 45-29.9    |        | 45-29.9    |        | 45-20.0    |        |
| Longitude:E  | 142-52.6   |        | 143- 3.8   |        | 142-57.9   |        | 142- 0.2   |        | 141-59.9   |        | 142- 0.2   |        | 142- 0.0   |        | 142-10.0   |        | 142-30.0   |        | 142-40.0   |        |
| Date         | 1997/05/29 |        | 1997/05/29 |        | 1997/05/29 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        |
| Time(JST)    | 08:32      |        | 10:47      |        | 14:18      |        | 11:20      |        | 11:43      |        | 12:05      |        | 12:25      |        | 13:06      |        | 14:33      |        | 15:42      |        |
| Weather      |            |        |            |        |            |        | C          |        | C          |        | C          |        | C          |        | R          |        | C          |        | C          |        |
| Air Temp.    |            |        |            |        |            |        | 6.1        |        | 5.9        |        | 5.9        |        | 5.9        |        | 6.1        |        | 5.5        |        | 4.8        |        |
| Bar          |            |        |            |        |            |        | 1016.5     |        | 1017.0     |        | 1017.0     |        | 1017.0     |        | 1017.0     |        | 1016.5     |        | 1016.0     |        |
| Wind Dir     |            |        |            |        |            |        | ENE        |        | E          |        | E          |        | E          |        | E          |        | E          |        | E          |        |
| Wind Spd/F   |            |        |            |        |            |        | S 11       |        | S 10       |        | S 9        |        | S 8        |        | S 6        |        | S 7        |        | S 5        |        |
| Transparency |            |        |            |        |            |        | 9          |        | 12         |        | 10         |        | 12         |        | 13         |        | 8          |        | 9          |        |
| Depth        |            |        |            |        |            |        | 59         |        | 41         |        | 43         |        | 26         |        | 37         |        | 82         |        | 97         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.4*       | 32.66* | 4.3*       | 32.66* | 4.9*       | 32.68* | 7.0        | 34.180 | 6.5        | 33.991 | 6.4        | 34.014 | 6.5        | 33.976 | 6.3        | 33.976 | 4.2        | 33.337 | 3.8        | 32.985 |
| 10m          | 4.27       | 32.673 | 4.11       | 32.679 | 4.08       | 32.692 | 6.94       | 33.875 | 6.35       | 33.991 | 6.44       | 34.006 | 6.39       | 33.974 | 6.27       | 33.978 | 4.01       | 33.319 | 2.80       | 32.974 |
| 20m          | 2.68       | 32.706 | 2.55       | 32.725 | 1.76       | 32.747 | 6.56       | 33.933 | 6.29       | 33.997 | 6.44       | 34.006 | 6.39       | 33.974 | 6.27       | 33.978 | 3.42       | 33.483 | 1.88       | 33.100 |
| 30m          | 0.63       | 32.853 | 0.28       | 32.878 | 0.71       | 32.827 | 5.82       | 34.054 | 6.19       | 34.010 | 6.43       | 34.007 |            |        | 6.27       | 33.979 | 3.75       | 33.799 | 3.96       | 33.387 |
| 50m          | -0.43      | 32.927 | -0.48      | 32.947 | -0.47      | 32.946 |            |        |            |        |            |        |            |        |            |        | 4.11       | 33.899 | 1.83       | 33.362 |
| 75m          | -0.91      | 32.968 | -0.99      | 32.977 | -1.05      | 32.982 |            |        |            |        |            |        |            |        |            |        | 4.25       | 33.923 | 3.65       | 33.955 |
| 100m         | -0.55      | 33.091 | -1.07      | 33.020 | -1.03      | 33.054 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-12

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O12        |        | O11        |        | OA02       |        | OA03       |        | OA04       |        | O25        |        | O24        |        | O23        |        | O22        |        | OA11       |        |
| Latitude:N   | 45-12.4    |        | 45- 8.2    |        | 44-52.4    |        | 44-59.9    |        | 45- 9.9    |        | 44-59.9    |        | 44-50.0    |        | 44-40.1    |        | 44-35.1    |        | 44-17.4    |        |
| Longitude:E  | 142-32.5   |        | 142-28.2   |        | 142-52.5   |        | 143- 0.1   |        | 143-10.0   |        | 143-40.2   |        | 143-30.0   |        | 143-19.9   |        | 143-15.0   |        | 143-37.6   |        |
| Date         | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/03 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        |
| Time(JST)    | 16:40      |        | 17:17      |        | 19:19      |        | 20:15      |        | 21:31      |        | 23:49      |        | 01:15      |        | 02:49      |        | 03:45      |        | 06:04      |        |
| Weather      | C          |        | C          |        | C          |        | R          |        | C          |        | BC         |        | BC         |        | BC         |        | F          |        | F          |        |
| Air Temp.    | 5.8        |        | 6.4        |        | 6.8        |        | 6.0        |        | 6.0        |        | 4.9        |        | 4.8        |        | 4.7        |        | 4.4        |        | 6.3        |        |
| Bar          | 1016.0     |        | 1016.0     |        | 1016.0     |        | 1016.9     |        | 1016.5     |        | 1015.6     |        | 1015.5     |        | 1016.0     |        | 1016.0     |        | 1016.0     |        |
| Wind Dir     | E          |        | E          |        | NNW        |        | NE         |        | CALM       |        | ESE        |        | WNW        |        | WSW        |        | SSW        |        | SSE        |        |
| Wind Spd/F   | S 4        |        | S 3        |        | S 3        |        | S 1        |        | S 0        |        | S 2        |        | S 4        |        | S 2        |        | S 3        |        | S 3        |        |
| Transparency | 8          |        | 7          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 11         |        |
| Depth        | 62         |        | 34         |        | 84         |        | 131        |        | 134        |        | 174        |        | 152        |        | 115        |        | 76         |        | 45         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.0        | 33.649 | 7.4        | 33.714 | 7.1        | 33.842 | 5.3        | 32.743 | 4.6        | 32.688 | 4.0        | 32.769 | 4.1        | 32.771 | 4.7        | 32.817 | 2.4        | 32.939 | 4.6        | 33.363 |
| 10m          | 6.87       | 33.633 | 6.66       | 33.917 | 6.66       | 33.920 | 3.95       | 32.756 | 4.52       | 32.698 | 3.92       | 32.755 | 3.47       | 32.779 | 4.57       | 32.811 | 2.03       | 32.922 | 2.91       | 33.281 |
| 20m          | 6.48       | 33.620 | 6.66       | 33.913 | 6.51       | 33.912 | 0.28       | 32.873 | 1.39       | 32.873 | 1.61       | 32.811 | 0.52       | 32.871 | -0.19      | N.D.   | -0.68      | 32.968 | 5.84       | 33.723 |
| 30m          | 5.99       | 33.933 | 6.66       | 33.913 | 6.33       | 33.896 | -0.31      | 32.926 | -0.19      | 32.927 | -0.17      | 32.871 | -0.36      | 32.921 | -0.67      | N.D.   | -1.28      | 33.015 | 5.92       | 33.772 |
| 50m          | 5.97       | 33.948 |            |        | 6.18       | 33.974 | -0.85      | 32.956 | -0.86      | 32.978 | -1.37      | 32.984 | -1.23      | 32.980 | -1.44      | N.D.   | -1.48      | 33.040 |            |        |
| 75m          |            |        |            |        | 6.03       | 33.983 | -0.99      | 32.991 | -1.40      | 33.005 | -1.58      | 33.011 | -1.51      | 33.012 | -1.45      | N.D.   |            |        |            |        |
| 100m         |            |        |            |        |            |        | 4.39       | 34.040 | -1.49      | 33.031 | -1.59      | 33.028 | -1.48      | 33.031 | 4.88       | N.D.   |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        | -0.13      | 33.247 | -1.58      | 33.037 | -1.40      | 33.058 |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        | -0.96      | 33.128 |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-13

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA12       |        | OA13       |        | OA14       |        | O35        |        | O34        |        | O33        |        | O32        |        | OA20       |        | O31        |        | OA21       |        |
| Latitude:N   | 44-22.5    |        | 44-30.1    |        | 44-39.9    |        | 44-49.8    |        | 44-30.0    |        | 44-20.0    |        | 44-10.0    |        | 44- 5.0    |        | 44- 2.9    |        | 44- 2.5    |        |
| Longitude:E  | 143-42.6   |        | 143-49.9   |        | 143-59.9   |        | 144-20.0   |        | 144-20.0   |        | 144-20.0   |        | 144-20.0   |        | 144-20.0   |        | 144-20.0   |        | 144-49.9   |        |
| Date         | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        |
| Time(JST)    | 06:44      |        | 07:47      |        | 09:00      |        | 10:41      |        | 12:31      |        | 13:43      |        | 14:47      |        | 15:20      |        | 15:36      |        | 17:44      |        |
| Weather      | F          |        | F          |        | F          |        | F          |        | C          |        | C          |        | BC         |        | C          |        | C          |        | C          |        |
| Air Temp.    | 6.0        |        | 6.7        |        | 8.0        |        | 7.9        |        | 7.5        |        | 7.8        |        | 8.7        |        | 9.3        |        | 9.6        |        | 12.7       |        |
| Bar          | 1016.0     |        | 1015.5     |        | 1015.1     |        | 1015.6     |        | 1014.0     |        | 1012.5     |        | 1012.5     |        | 1013.0     |        | 1011.5     |        | 1011.0     |        |
| Wind Dir     | SE         |        | SE         |        | SE         |        | SE         |        | ENE        |        | NE         |        | ENE        |        | NE         |        | N          |        | ESE        |        |
| Wind Spd/F   | S 4        |        | S 2        |        | S 1        |        | S 2        |        | S 4        |        | S 6        |        | S 2        |        | S 1        |        | S 1        |        | S 7        |        |
| Transparency | 9          |        | 7          |        | 12         |        | 15         |        | 11         |        | 8          |        | 13         |        | 13         |        | 11         |        | 8          |        |
| Depth        | 92         |        | 162        |        | 188        |        | 154        |        | 876        |        | 267        |        | 119        |        | 37         |        | 38         |        | 80         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 2.9        | 33.064 | 3.8        | 33.069 | 5.4        | 32.830 | 5.4        | 32.645 | 5.6        | 32.694 | 6.1        | 32.599 | 7.3        | 33.368 | 3.6        | 32.964 | 5.2        | 33.004 | 4.7        | 32.929 |
| 10m          | 1.91       | 33.058 | 3.13       | 33.036 | 4.09       | 32.827 | 3.81       | 32.644 | 4.33       | 32.664 | 4.32       | 32.592 | 5.74       | N.D.   | 2.32       | 32.997 | 2.27       | 32.999 | 3.57       | 33.011 |
| 20m          | -0.62      | 33.018 | 3.31       | 33.092 | 1.19       | 32.863 | 3.27       | 32.656 | 3.70       | 32.671 | 1.38       | 32.713 | 5.63       | 33.496 | 1.88       | 33.005 | 3.22       | 33.132 | 0.31       | 33.074 |
| 30m          | -1.50      | 33.002 | 3.98       | 33.455 | -0.68      | 32.866 | 0.03       | 32.723 | 0.13       | 32.812 | 0.47       | 32.774 | 4.31       | 33.545 | 2.72       | 33.217 | 2.65       | 33.210 | 0.15       | 33.093 |
| 50m          | -1.45      | 33.021 | 4.78       | 33.886 | -1.16      | 32.962 | -0.82      | 32.890 | -0.59      | 32.878 | -0.45      | 32.847 | 5.20       | 33.765 |            |        |            |        | -0.12      | 33.085 |
| 75m          | 0.07       | 33.204 | 4.59       | 33.918 | -1.18      | 33.007 | -1.18      | 32.983 | -1.10      | 32.956 | -1.09      | 32.945 | 5.04       | 33.786 |            |        |            |        |            |        |
| 100m         |            |        | 4.45       | 33.915 | -1.30      | 33.033 | -1.43      | 33.020 | -1.29      | 33.009 | -1.15      | 32.992 | 4.95       | 33.816 |            |        |            |        |            |        |
| 125m         |            |        | 4.40       | 33.914 | -1.55      | 33.040 | -1.34      | 33.051 | -1.18      | 33.046 | -1.22      | 33.028 |            |        |            |        |            |        |            |        |
| 150m         |            |        | 4.11       | 33.896 | -1.23      | 33.075 |            |        | -0.71      | 33.109 | -1.20      | 33.056 |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        | -0.07      | 33.213 | -0.88      | 33.120 |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        | 0.34       | 33.311 | 3.21       | 33.724 |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        | 0.63       | 33.376 |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        | 1.07       | 33.514 |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        | 1.43       | 33.635 |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-14



Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA22       |        | OA23       |        | OA24       |        | O41        |        | O42        |        | O43        |        | O44        |        | O45        |        | O46        |        | O36        |        |
| Latitude:N   | 44-10.1    |        | 44-20.1    |        | 44-29.9    |        | 44-22.1    |        | 44-30.0    |        | 44-40.0    |        | 44-50.1    |        | 45- 0.1    |        | 45-10.1    |        | 45- 8.0    |        |
| Longitude:E  | 144-50.1   |        | 144-50.1   |        | 144-50.0   |        | 145-19.6   |        | 145-19.9   |        | 145-20.0   |        | 145-20.0   |        | 145-19.9   |        | 145-19.9   |        | 144-20.1   |        |
| Date         | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/04 |        | 1997/06/05 |        | 1997/06/05 |        | 1997/06/05 |        | 1997/06/05 |        | 1997/06/05 |        | 1997/06/05 |        |
| Time(JST)    | 18:31      |        | 19:41      |        | 20:54      |        | 23:14      |        | 00:08      |        | 01:19      |        | 02:51      |        | 04:00      |        | 05:10      |        | 09:20      |        |
| Weather      | C          |        | C          |        | C          |        | R          |        | R          |        | R          |        | C          |        | R          |        | R          |        | F          |        |
| Air Temp.    | 10.9       |        | 9.4        |        | 7.0        |        | 6.0        |        | 6.0        |        | 5.6        |        | 5.1        |        | 5.0        |        | 5.1        |        | 5.5        |        |
| Bar          | 1011.0     |        | 1010.0     |        | 1011.2     |        | 1010.5     |        | 1010.5     |        | 1009.5     |        | 1009.0     |        | 1010.0     |        | 1009.5     |        | 1007.0     |        |
| Wind Dir     | W          |        | ESE        |        | E          |        | SE         |        | SE         |        | SE         |        | E          |        | ENE        |        | ENE        |        | NE         |        |
| Wind Spd/F   | S 3        |        | S 2        |        | S 9        |        | S 9        |        | S 9        |        | S 9        |        | S 7        |        | S 4        |        | S 7        |        | S 8        |        |
| Transparency | 8          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 7          |        | 7          |        |
| Depth        | 600        |        | 1086       |        | 1580       |        | 335        |        | 1600       |        | 2000       |        | 2000       |        | 2000       |        | 2000       |        | 801        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 6.5        | 32.719 | 6.3        | 32.620 | 5.2        | 32.635 | 5.8        | 32.634 | 3.6        | 32.678 | 4.0        | 32.619 | 3.4        | 32.667 | 3.7        | 32.670 | 4.3        | 32.552 | 3.8        | 32.537 |
| 10m          | 5.12       | 32.870 | 4.15       | 32.676 | 4.99       | 32.630 | 5.80       | 32.705 | 3.30       | 32.696 | 3.72       | 32.659 | 3.32       | 32.682 | 3.56       | 32.663 | 4.01       | 32.553 | 3.67       | 32.540 |
| 20m          | 4.84       | 32.967 | 2.10       | 32.755 | 2.50       | 32.713 | 4.32       | 32.837 | 1.44       | 32.765 | 2.65       | 32.686 | 3.16       | 32.678 | 3.87       | 32.822 | 3.42       | 32.535 | 3.55       | 32.533 |
| 30m          | 4.13       | 33.001 | 0.15       | 32.843 | 0.77       | 32.792 | 0.70       | 32.867 | -0.29      | 32.863 | 0.23       | 32.869 | 0.76       | 32.822 | 2.46       | 32.798 | 0.18       | 32.611 | 1.01       | 32.708 |
| 50m          | 2.14       | 33.137 | -1.09      | 32.922 | -0.21      | 32.856 | -0.57      | 32.925 | -0.82      | 32.920 | -0.34      | 32.970 | -0.11      | 32.964 | -0.03      | 32.864 | -0.42      | 32.766 | -1.12      | 32.883 |
| 75m          | 1.79       | 33.367 | -1.37      | 32.987 | -1.14      | 32.920 | -1.13      | 33.000 | -1.17      | 32.964 | -1.32      | 32.996 | -0.35      | 33.041 | -0.74      | 32.937 | -0.98      | 32.883 | -1.44      | 32.966 |
| 100m         | 2.61       | 33.506 | -1.35      | 33.032 | -1.14      | 32.993 | -0.92      | 33.070 | -0.99      | 33.043 | -1.16      | 33.040 | -0.94      | 33.048 | -1.20      | 32.982 | -1.08      | 32.951 | -1.59      | 33.010 |
| 125m         | 3.00       | 33.562 | -1.28      | 33.069 | -0.99      | 33.025 | 0.22       | 33.173 | -0.03      | 33.126 | -1.00      | 33.068 | -0.48      | 33.116 | -1.00      | 33.040 | -1.27      | 33.005 | -1.58      | 33.032 |
| 150m         | 3.07       | 33.575 | -0.88      | 33.125 | -0.83      | 33.061 | 0.26       | 33.181 | 0.76       | 33.211 | -0.48      | 33.141 | -0.60      | 33.144 | -0.39      | 33.114 | -0.92      | 33.057 | -1.53      | 33.049 |
| 200m         | 3.13       | 33.606 | -0.45      | 33.189 | 0.01       | 33.196 | 0.72       | 33.233 | 0.03       | 33.231 | 0.39       | 33.272 | 0.15       | 33.255 | -0.25      | 33.195 | -0.72      | 33.147 | -1.07      | 33.118 |
| 250m         | 3.22       | 33.640 | -0.14      | 33.243 | 0.48       | 33.289 | 0.94       | 33.259 | 1.48       | 33.416 | 0.75       | 33.372 | 0.65       | 33.372 | 0.61       | 33.329 | 0.47       | 33.279 | -0.27      | 33.224 |
| 300m         | 3.05       | 33.653 | 0.19       | 33.305 | 0.64       | 33.363 | 1.73       | 33.449 | 2.58       | 33.584 | 0.94       | 33.435 | 1.07       | 33.474 | 0.88       | 33.414 | 0.57       | 33.346 | 0.40       | 33.341 |
| 400m         | 1.33       | 33.507 | 1.68       | 33.508 | 1.06       | 33.491 |            |        | 2.09       | 33.649 | 1.20       | 33.552 | 1.48       | 33.614 | 1.41       | 33.577 | 1.13       | 33.511 | 1.09       | 33.512 |
| 500m         | 1.87       | 33.632 | 2.17       | 33.692 | 1.48       | 33.641 |            |        | 2.15       | 33.731 | 1.58       | 33.690 | 2.08       | 33.745 | 1.40       | 33.665 | 1.30       | 33.618 | 1.54       | 33.662 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-15

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O26        |        | OA05       |        | O14        |        | J101       |        | J102       |        | J103       |        | J104       |        | J105       |        | J106       |        | J107       |        |
| Latitude:N   | 45- 9.9    |        | 45-20.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.1    |        | 45-30.0    |        | 45-30.0    |        | 45-30.1    |        |
| Longitude:E  | 143-50.1   |        | 143-20.0   |        | 142-50.0   |        | 141-40.1   |        | 141-25.1   |        | 141- 9.9   |        | 140-53.0   |        | 140-40.0   |        | 140-20.0   |        | 139-59.8   |        |
| Date         | 1997/06/05 |        | 1997/06/05 |        | 1997/06/05 |        | 1997/06/09 |        | 1997/06/09 |        | 1997/06/09 |        | 1997/06/09 |        | 1997/06/09 |        | 1997/06/09 |        | 1997/06/09 |        |
| Time(JST)    | 11:27      |        | 14:22      |        | 16:48      |        | 10:08      |        | 11:43      |        | 13:15      |        | 14:57      |        | 16:57      |        | 18:26      |        | 20:37      |        |
| Weather      | D          |        | R          |        | C          |        | R          |        | C          |        | R          |        | R          |        | C          |        | C          |        | R          |        |
| Air Temp.    | 5.3        |        | 4.9        |        | 4.7        |        | 8.6        |        | 8.0        |        | 8.5        |        | 8.4        |        | 8.4        |        | 8.7        |        | 8.5        |        |
| Bar          | 1006.5     |        | 1006.0     |        | 1006.5     |        | 1011.5     |        | 1011.0     |        | 1010.5     |        | 1009.0     |        |            |        | 1007.5     |        | 1007.0     |        |
| Wind Dir     | NE         |        | NNE        |        | N          |        | ENE        |        | ENE        |        | E          |        | E          |        | E          |        | E          |        | E          |        |
| Wind Spd/F   | S 8        |        | S 8        |        | S 7        |        | S 10       |        | S 9        |        | S 7        |        | S 9        |        | S 9        |        | S 7        |        | S 7        |        |
| Transparency | 15         |        | 11         |        | 12         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 356        |        | 145        |        | 119        |        | 53         |        | 113        |        | 129        |        | 440        |        | 546        |        | 399        |        | 590        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.8        | 32.690 | 3.9        | 32.570 | 3.9        | 32.632 | 11.1       | 33.386 | 9.9        | 33.690 | 8.0        | 33.845 | 10.1       | 33.958 | 8.8        | 34.071 | 8.4        | 34.070 | 8.3        | 34.037 |
| 10m          | 4.58       | 32.696 | 4.84       | 32.688 | 3.83       | 32.623 | 10.81      | 33.428 | 9.75       | 33.686 | 7.69       | 33.841 | 9.81       | 33.955 | 8.78       | 34.057 | 7.88       | 34.095 | 8.21       | 34.053 |
| 20m          | 3.73       | 32.750 | 3.73       | 32.740 | 3.79       | 32.627 | 9.44       | 33.649 | 7.80       | 33.831 | 7.36       | 33.880 | 7.57       | 34.101 | 7.33       | 34.095 | 5.89       | 34.123 | 7.70       | 34.075 |
| 30m          | 0.13       | 32.917 | -0.04      | 32.909 | 1.61       | 32.687 | 8.30       | 33.944 | 5.28       | 34.125 | 6.94       | 33.951 | 6.38       | 34.133 | 5.85       | 34.119 | 4.78       | 34.144 | 5.86       | 34.130 |
| 50m          | -0.83      | 32.970 | -0.65      | 32.948 | 0.23       | 32.853 |            |        | 4.60       | 34.148 | 5.73       | 34.121 | 5.37       | 34.137 | 3.98       | 34.148 | 3.05       | 34.144 | 3.65       | 34.143 |
| 75m          | -1.33      | 32.991 | -1.48      | 33.010 | -0.86      | 32.952 |            |        | 4.19       | 34.159 | 5.30       | 34.137 | 4.99       | 34.143 | 3.11       | 34.142 | 2.62       | 34.131 | 2.58       | 34.127 |
| 100m         | -1.44      | 33.030 | -1.52      | 33.012 | -1.01      | 33.023 |            |        | 3.73       | 34.155 | 3.94       | 34.156 | 4.70       | 34.146 | 2.86       | 34.134 | 2.10       | 34.106 | 2.13       | 34.104 |
| 125m         | -1.38      | 33.047 | -1.52      | 33.011 |            |        |            |        |            |        |            |        | 4.22       | 34.144 | 2.43       | 34.124 | 1.73       | 34.095 | 1.90       | 34.099 |
| 150m         | -1.43      | 33.055 |            |        |            |        |            |        |            |        |            |        | 3.71       | 34.149 | 2.16       | 34.114 | 1.38       | 34.083 | 1.62       | 34.091 |
| 200m         | -0.69      | 33.180 |            |        |            |        |            |        |            |        |            |        | 2.52       | 34.124 | 1.49       | 34.083 | 1.07       | 34.073 | 1.18       | 34.078 |
| 250m         | 0.91       | 33.467 |            |        |            |        |            |        |            |        |            |        | 1.73       | 34.098 | 1.03       | 34.073 | 0.87       | 34.070 | 0.98       | 34.073 |
| 300m         | 1.17       | 33.540 |            |        |            |        |            |        |            |        |            |        | 1.22       | 34.078 | 0.82       | 34.070 | 0.76       | 34.069 | 0.80       | 34.070 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.82       | 34.069 | 0.54       | 34.067 |            |        | 0.56       | 34.067 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.31       | 34.064 |            |        | 0.42       | 34.065 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-16

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J108       |        | JW03       |        | JW02       |        | JW01       |        | S103       |        | S102       |        | S101       |        | S300       |        | S301       |        | S401       |        |
| Latitude:N   | 45-30.0    |        | 45-45.0    |        | 45-45.0    |        | 45-45.1    |        | 45-40.0    |        | 45-34.9    |        | 45-30.9    |        | 45-27.0    |        | 45-30.0    |        | 45- 9.2    |        |
| Longitude:E  | 139-40.1   |        | 141- 0.1   |        | 141- 9.8   |        | 141-19.7   |        | 142- 0.1   |        | 142- 0.1   |        | 142- 0.1   |        | 142- 8.2   |        | 142-10.0   |        | 142-28.8   |        |
| Date         | 1997/06/09 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        |
| Time(JST)    | 22:13      |        | 06:37      |        | 08:42      |        | 09:48      |        | 13:50      |        | 14:54      |        | 15:42      |        | 16:26      |        | 17:16      |        | 20:00      |        |
| Weather      | R          |        | R          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 8.6        |        | 8.7        |        | 9.0        |        | 9.0        |        | 8.5        |        | 8.2        |        |            |        | 8.8        |        | 8.7        |        | 8.4        |        |
| Bar          | 1005.1     |        | 1001.8     |        | 1000.4     |        | 1000.1     |        | 1000.0     |        | 1000.5     |        |            |        | 1000.0     |        | 1000.5     |        | 1001.2     |        |
| Wind Dir     | E          |        | ESE        |        | ESE        |        | ESE        |        | SE         |        | ESE        |        | E          |        | SE         |        | SE         |        | ENE        |        |
| Wind Spd/F   | S 7        |        | S 8        |        | S 8        |        | S 9        |        | S 8        |        | S 5        |        | S 3        |        | S 3        |        | S 3        |        | S 2        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 833        |        | 497        |        | 123        |        | 130        |        | 56         |        | 42         |        | 26         |        | 22         |        | 36         |        | 43         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.2        | 34.009 | 9.5        | 33.939 | 9.4        | 33.358 | 10.3       | 33.342 | 7.3        | 33.241 | 7.5        | 33.953 | 7.7        | 33.883 | 8.0        | 33.895 | 7.8        | 33.942 | 7.3        | 33.893 |
| 10m          | 8.02       | 34.062 | 9.71       | 33.976 | 9.38       | 33.405 | 9.77       | 33.284 | 7.06       | 33.954 | 7.29       | 33.961 | 7.51       | 33.989 | 7.73       | 33.872 | 7.36       | 33.950 | 7.04       | 33.896 |
| 20m          | 7.33       | 34.088 | 9.70       | 33.980 | 7.65       | 33.957 | 7.29       | 34.049 | 6.32       | 34.018 | 7.08       | 33.993 | 7.51       | 33.988 |            |        | 7.35       | 33.950 | 7.05       | 33.896 |
| 30m          | 4.21       | 34.078 | 7.67       | 34.055 | 6.43       | 34.104 | 5.98       | 34.110 | 5.59       | 34.080 | 7.06       | 33.996 |            |        |            |        | 7.35       | 33.950 | 7.00       | 33.896 |
| 50m          | 2.68       | 34.107 | 6.52       | 34.128 | 5.11       | 34.123 | 5.14       | 34.126 | 4.89       | 34.123 |            |        |            |        |            |        |            |        |            |        |
| 75m          | 2.20       | 34.109 | 5.50       | 34.139 | 4.57       | 34.146 | 4.74       | 34.140 |            |        |            |        |            |        |            |        |            |        |            |        |
| 100m         | 1.93       | 34.096 | 4.94       | 34.141 | 4.02       | 34.148 | 4.62       | 34.142 |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         | 1.67       | 34.085 | 3.86       | 34.155 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         | 1.48       | 34.079 | 3.57       | 34.150 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         | 1.32       | 34.080 | 2.78       | 34.131 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 1.02       | 34.073 | 2.25       | 34.113 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 0.83       | 34.070 | 1.32       | 34.085 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 0.57       | 34.067 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 0.39       | 34.066 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-17

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199706     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | S402       |        | S403       |        | S404       |        | S399       |        | S302       |        | S131       |        | WEB01      |        | WEB02      |        | WEB03      |        | WEB04      |        |
| Latitude:N   | 45-12.4    |        | 45-19.9    |        | 45-29.9    |        | 45-32.4    |        | 45-34.9    |        | 45-41.8    |        | 44-45.8    |        | 44-45.1    |        | 44-44.4    |        | 44-46.0    |        |
| Longitude:E  | 142-32.5   |        | 142-39.9   |        | 142-49.9   |        | 142-12.5   |        | 142-15.0   |        | 142- 0.2   |        | 141-36.3   |        | 141-31.5   |        | 141-24.6   |        | 141-15.1   |        |
| Date         | 1997/06/10 |        | 1997/06/10 |        | 1997/06/10 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/06/11 |        | 1997/07/09 |        | 1997/07/09 |        | 1997/07/10 |        | 1997/07/10 |        |
| Time(JST)    | 20:56      |        | 22:00      |        | 23:57      |        | 02:50      |        | 03:48      |        | 12:28      |        | 07:31      |        | 08:35      |        | 10:13      |        | 11:10      |        |
| Weather      | C          |        | C          |        | F          |        | F          |        | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 8.2        |        | 7.2        |        | 6.7        |        | 7.2        |        | 6.6        |        | 11.4       |        | 15.0       |        | 15.5       |        | 17.0       |        | 17.6       |        |
| Bar          | 1002.9     |        | 1002.9     |        | 1002.5     |        | 1003.0     |        | 1004.0     |        | 1008.0     |        | 1012.5     |        | 1013.0     |        | 1013.0     |        | 1013.0     |        |
| Wind Dir     | W          |        | WNW        |        | WNW        |        | ENE        |        | ENE        |        | W          |        | SSW        |        | S          |        | SSW        |        | S          |        |
| Wind Spd/F   | S 3        |        | S 3        |        | S 2        |        | S 3        |        | S 2        |        | S 4        |        | S 4        |        | S 5        |        | S 5        |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 61         |        | 95         |        | 120        |        | 44         |        | 49         |        | 61         |        | 70         |        |            |        | 92         |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 7.5        | 33.931 | 4.1        | 33.263 | 4.5        | 32.467 | 8.2        | 33.758 | 5.0        | 33.928 | 9.3        | 33.857 | 15.6       | 33.89* | 15.3       | 33.63* | 16.0       | 33.87* | 16.5       | 33.97* |
| 10m          | 6.86       | 33.927 | 3.72       | 33.256 | 4.29       | 32.466 | 7.44       | 33.918 | 6.06       | 34.042 | 8.21       | 33.854 | 15.54      | 33.892 | 14.87      | 33.926 | 15.38      | 33.859 | 14.30      | 33.955 |
| 20m          | 6.73       | 33.935 | 3.56       | 33.304 | 4.23       | 32.465 | 7.31       | 33.945 | 6.09       | 34.057 | 4.60       | 34.159 | 15.56      | 33.925 | 14.37      | 33.940 | 14.48      | 33.939 | 11.73      | 34.131 |
| 30m          | 6.64       | 33.941 | 3.80       | 33.346 | 1.78       | 32.692 | 7.28       | 33.951 | 6.08       | 34.053 | 4.56       | 34.141 | 12.82      | 34.044 | 11.97      | 34.020 | 12.00      | 34.053 | 10.58      | 34.105 |
| 50m          | 6.58       | 33.946 | 4.37       | 33.846 | 0.13       | 32.847 |            |        |            |        | 4.52       | 34.132 | 11.06      | 34.050 | 9.49       | 34.047 | 10.39      | 34.103 | 7.86       | 34.144 |
| 75m          |            |        | 4.61       | 33.941 | -0.79      | 32.984 |            |        |            |        |            |        |            |        | 7.77       | 34.091 | 8.67       | 34.111 | 5.79       | 34.156 |
| 100m         |            |        |            |        | -0.83      | 32.989 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-18

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199707     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WEB06      |        | WEB05      |        | WEB07      |        | WEB08      |        | WEB10      |        | WEB09      |        | WEB11      |        | WEB12      |        | WEB14      |        | J101       |        |
| Latitude:N   | 44-45.5    |        | 44-45.2    |        | 44-45.8    |        | 44-45.7    |        | 44-45.7    |        | 44-45.4    |        | 44-43.7    |        | 44-45.7    |        | 44-50.8    |        | 45-30.0    |        |
| Longitude:E  | 140-58.4   |        | 141- 5.2   |        | 140-54.2   |        | 140-52.6   |        | 140-49.5   |        | 140-51.6   |        | 140-41.8   |        | 140-39.1   |        | 140-53.9   |        | 141-39.8   |        |
| Date         | 1997/07/11 |        | 1997/07/11 |        | 1997/07/12 |        | 1997/07/12 |        | 1997/07/14 |        | 1997/07/14 |        | 1997/07/15 |        | 1997/07/15 |        | 1997/07/16 |        | 1997/07/28 |        |
| Time(JST)    | 11:51      |        | 13:02      |        | 08:48      |        | 09:33      |        | 11:45      |        | 12:05      |        | 09:08      |        | 09:48      |        | 10:37      |        | 11:44      |        |
| Weather      | C          |        | C          |        | F          |        | F          |        |            |        | BC         |        | C          |        | F          |        | C          |        | C          |        |
| Air Temp.    | 15.8       |        | 16.1       |        | 16.2       |        | 16.2       |        | 17.7       |        | 18.3       |        | 17.3       |        | 17.1       |        | 15.7       |        | 18.2       |        |
| Bar          | 1010.0     |        | 1010.0     |        | 1007.0     |        | 1008.0     |        | 1008.0     |        | 1008.0     |        | 999.5      |        | 999.5      |        | 1003.5     |        | 1011.5     |        |
| Wind Dir     | SW         |        | SW         |        | SW         |        | SW         |        | WSW        |        | WSW        |        | SW         |        | SW         |        | NNE        |        | ENE        |        |
| Wind Spd/F   | S 8        |        | S 7        |        | S 10       |        | S 10       |        | S 5        |        | S 4        |        | S 9        |        | S 7        |        | S 5        |        | S 10       |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 141        |        | 121        |        | 160        |        | 180        |        | 220        |        |            |        | 208        |        | 153        |        |            |        | 55         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 14.4       | 33.85* | 14.9       | 33.86* | 14.5       | 33.86* | 14.6       | 33.86* | 15.2       | 33.84* | 15.2       | 33.85* | 16.3       | 33.93* | 15.8       | 33.86* | 15.6       | 33.85* | 18.5       | 33.848 |
| 10m          | 14.25      | 33.846 | 14.57      | 33.856 | 14.36      | 33.858 | 14.45      | 33.857 | 15.05      | 33.837 | 14.97      | 33.850 | 16.18      | 33.934 | 15.68      | 33.859 | 15.28      | 33.846 | 18.34      | 33.853 |
| 20m          | 14.07      | 33.848 | 13.95      | 33.884 | 14.18      | 33.870 | 14.31      | 33.867 | 14.41      | 33.887 | 14.76      | 33.868 | 15.61      | 33.931 | 15.48      | 33.888 | 14.30      | 33.889 | 16.88      | 33.940 |
| 30m          | 9.45       | 34.078 | 10.53      | 34.068 | 12.01      | 34.019 | 10.62      | 34.087 | 11.98      | 34.149 | 11.97      | 34.185 | 12.74      | 34.262 | 10.63      | 34.076 | 11.25      | 34.165 | 14.46      | 34.008 |
| 50m          | 6.29       | 34.152 | 6.97       | 34.161 | 6.78       | 34.149 | 6.84       | 34.163 | 8.13       | 34.186 | 8.44       | 34.184 | 9.26       | 34.204 | 7.66       | 34.166 | 7.69       | 34.147 | 11.53      | 34.077 |
| 75m          | 5.08       | 34.140 | 5.79       | 34.149 | 5.27       | 34.148 | 5.40       | 34.145 | 6.44       | 34.165 | 6.50       | 34.150 | 7.17       | 34.174 | 5.99       | 34.160 | 6.01       | 34.156 |            |        |
| 100m         | 4.35       | 34.141 | 5.14       | 34.145 | 4.50       | 34.144 | 4.50       | 34.152 | 5.23       | 34.145 | 5.22       | 34.146 | 5.57       | 34.147 | 5.03       | 34.146 | 4.84       | 34.146 |            |        |
| 125m         | 3.89       | 34.138 |            |        | 3.87       | 34.144 | 3.93       | 34.143 | 4.47       | 34.147 | 4.40       | 34.143 | 4.52       | 34.146 | 4.23       | 34.145 | 4.18       | 34.145 |            |        |
| 150m         |            |        |            |        | 3.32       | 34.135 | 3.62       | 34.140 | 3.97       | 34.143 | 3.95       | 34.144 | 3.90       | 34.143 | 3.69       | 34.141 |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        | 3.21       | 34.128 |            |        | 3.05       | 34.132 |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-19

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J102       |        | J103       |        | J104       |        | J105       |        | J106       |        | J107       |        | J108       |        | JW03       |        | JW02       |        | JW01       |        |
| Latitude:N   | 45-29.9    |        | 45-29.8    |        | 45-30.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.0    |        | 45-29.9    |        | 45-45.1    |        | 45-45.0    |        | 45-45.0    |        |
| Longitude:E  | 141-24.9   |        | 141- 9.6   |        | 140-53.0   |        | 140-39.9   |        | 140-20.0   |        | 140- 0.0   |        | 139-40.1   |        | 141- 0.2   |        | 141-10.1   |        | 141-19.8   |        |
| Date         | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/28 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        |
| Time(JST)    | 13:23      |        | 14:59      |        | 16:40      |        | 18:30      |        | 19:59      |        | 22:28      |        | 00:03      |        | 09:36      |        | 11:49      |        | 12:48      |        |
| Weather      | R          |        | C          |        | R          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    | 17.5       |        | 17.6       |        | 17.8       |        | 17.7       |        | 17.7       |        | 17.9       |        | 17.8       |        | 16.9       |        | 16.9       |        | 16.9       |        |
| Bar          | 1010.6     |        | 1010.5     |        | 1010.5     |        | 1011.0     |        | 1011.5     |        | 1011.5     |        | 1011.5     |        | 1012.0     |        | 1012.5     |        | 1011.0     |        |
| Wind Dir     | ENE        |        | E          |        | ENE        |        | ENE        |        | ENE        |        | ENE        |        | NE         |        | E          |        | E          |        | E          |        |
| Wind Spd/F   | S 11       |        | S 8        |        | S 9        |        | S 10       |        | S 10       |        | S 8        |        | S 9        |        | S 10       |        | S 9        |        | S 10       |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 114        |        | 123        |        | 450        |        | 544        |        | 398        |        | 593        |        | 837        |        | 495        |        | 121        |        | 127        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.7       | 33.868 | 17.5       | 33.893 | 18.5       | 33.873 | 18.1       | 33.81* | 17.4       | 33.825 | 17.7       | 33.82* | 17.3       | 33.842 | 18.3       | 33.922 | 19.1       | 33.91* | 18.5       | 33.853 |
| 10m          | 17.38      | 33.869 | 17.39      | 33.898 | 18.06      | 33.888 | 17.93      | 33.811 | 17.40      | 33.827 | 17.51      | 33.824 | 17.28      | 33.845 | 18.43      | 33.918 | 17.86      | 33.904 | 18.61      | 33.851 |
| 20m          | 11.29      | 34.097 | 14.21      | 34.026 | 14.87      | 33.929 | 13.98      | 33.940 | 8.71       | 34.092 | 9.32       | 34.065 | 7.64       | 34.168 | 18.28      | 33.912 | 17.34      | 33.872 | 18.23      | 33.886 |
| 30m          | 9.30       | 34.157 | 11.52      | 34.104 | 12.30      | 34.190 | 8.42       | 34.192 | 5.67       | 34.141 | 5.92       | 34.131 | 5.01       | 34.156 | 16.61      | 33.907 | 16.19      | 33.904 | 15.00      | 33.889 |
| 50m          | 7.69       | 34.141 | 7.39       | 34.110 | 9.16       | 34.222 | 5.53       | 34.168 | 3.94       | 34.147 | 3.76       | 34.137 | 3.13       | 34.149 | 8.71       | 34.196 | 11.01      | 34.097 | 11.18      | 33.986 |
| 75m          | 6.01       | 34.139 | 6.50       | 34.113 | 6.62       | 34.148 | 4.32       | 34.153 | 3.09       | 34.135 | 2.33       | 34.128 | 2.45       | 34.130 | 5.93       | 34.167 | 7.28       | 34.124 | 8.12       | 34.099 |
| 100m         | 4.90       | 34.143 | 5.84       | 34.125 | 5.71       | 34.146 | 4.14       | 34.145 | 2.50       | 34.123 | 1.85       | 34.116 | 2.10       | 34.115 | 4.49       | 34.158 | 5.79       | 34.127 | 6.43       | 34.122 |
| 125m         |            |        |            |        | 5.45       | 34.143 | 3.82       | 34.151 | 2.20       | 34.120 | 1.58       | 34.101 | 1.78       | 34.098 | 3.99       | 34.155 |            |        |            |        |
| 150m         |            |        |            |        | 5.32       | 34.140 | 3.55       | 34.147 | 1.76       | 34.101 | 1.37       | 34.090 | 1.45       | 34.083 | 3.54       | 34.145 |            |        |            |        |
| 200m         |            |        |            |        | 3.60       | 34.148 | 2.77       | 34.129 | 1.37       | 34.088 | 1.18       | 34.090 | 1.23       | 34.082 | 2.67       | 34.128 |            |        |            |        |
| 250m         |            |        |            |        | 2.44       | 34.121 | 1.79       | 34.096 | 1.08       | 34.085 | 0.94       | 34.080 | 1.01       | 34.078 | 1.90       | 34.108 |            |        |            |        |
| 300m         |            |        |            |        | 1.39       | 34.088 | 1.46       | 34.089 | 0.81       | 34.076 | 0.78       | 34.077 | 0.80       | 34.074 | 1.33       | 34.088 |            |        |            |        |
| 400m         |            |        |            |        | 0.84       | 34.076 | 0.97       | 34.077 |            |        | 0.54       | 34.073 | 0.60       | 34.072 | 0.85       | 34.078 |            |        |            |        |
| 500m         |            |        |            |        |            |        | 0.65       | 34.074 |            |        | 0.41       | 34.072 | 0.45       | 34.072 |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.34       | 34.072 |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-20

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | S103       |        | S102       |        | S101       |        | S300       |        | S301       |        | S399       |        | S302       |        | S404       |        | S403       |        | S402       |        |
| Latitude:N   | 45-39.9    |        | 45-34.9    |        | 45-31.1    |        | 45-27.0    |        | 45-30.0    |        | 45-32.5    |        | 45-35.0    |        | 45-30.0    |        | 45-20.0    |        | 45-12.4    |        |
| Longitude:E  | 142- 0.0   |        | 142- 0.0   |        | 142- 0.0   |        | 142- 7.9   |        | 142-10.1   |        | 142-12.5   |        | 142-15.1   |        | 142-49.8   |        | 142-39.9   |        | 142-32.6   |        |
| Date         | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/29 |        | 1997/07/30 |        | 1997/07/30 |        | 1997/07/30 |        |
| Time(JST)    | 17:16      |        | 18:13      |        | 19:06      |        | 20:01      |        | 20:58      |        | 21:29      |        | 22:30      |        | 01:44      |        | 03:00      |        | 04:43      |        |
| Weather      | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | F          |        | C          |        | F          |        | F          |        |
| Air Temp.    | 14.3       |        | 14.7       |        | 14.8       |        | 14.6       |        | 14.3       |        | 13.7       |        | 11.9       |        | 13.9       |        | 14.5       |        | 14.3       |        |
| Bar          | 1012.0     |        | 1012.0     |        | 1012.5     |        | 1012.5     |        | 1012.5     |        | 1012.5     |        | 1012.5     |        | 1011.0     |        | 1011.0     |        | 1011.5     |        |
| Wind Dir     | ENE        |        | ENE        |        | ENE        |        | ENE        |        | ENE        |        | ENE        |        | ENE        |        | NE         |        | ENE        |        | NE         |        |
| Wind Spd/F   | S 8        |        | S 9        |        | S 10       |        | S 8        |        | S 8        |        | S 7        |        | S 5        |        | S 7        |        | S 5        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 56         |        | 41         |        | 26         |        |            |        | 36         |        | 43         |        | 48         |        | 120        |        | 96         |        | 61         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.7       | 33.757 | 17.5       | 33.830 | 17.2       | 33.73* | 16.9       | 33.900 | 15.9       | 33.85* | 15.3       | 33.740 | 8.0        | 33.484 | 14.4       | 32.06* | 14.9       | 32.346 | 15.9       | 33.93* |
| 10m          | 15.92      | 33.760 | 17.68      | 33.829 | 17.28      | 33.879 | 16.52      | 33.922 | 15.74      | 33.857 | 10.42      | 34.011 | 5.73       | 33.567 | 14.30      | 32.068 | 13.98      | 32.778 | 15.14      | 33.939 |
| 20m          | 7.24       | 34.195 | 12.43      | 34.068 | 16.75      | 33.905 | 16.27      | 33.929 | 12.65      | 34.020 | 9.57       | 34.037 | 5.59       | 34.046 | 6.17       | 32.410 | 4.47       | 33.449 | 12.94      | 34.016 |
| 30m          | 6.42       | 34.160 | 10.86      | 34.052 |            |        |            |        | 12.62      | 34.015 | 9.41       | 34.038 | 5.68       | 34.095 | 2.49       | 32.676 | 1.78       | 33.387 | 11.37      | 34.039 |
| 50m          | 6.32       | 34.130 |            |        |            |        |            |        |            |        |            |        |            | -0.40  | 32.859     | 4.84   | 34.080     | 9.22   | 34.062     |        |
| 75m          |            |        |            |        |            |        |            |        |            |        |            |        |            | -0.91  | 32.995     | 4.77   | 34.078     |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            | 0.10   | 33.150     |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-21

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | S401       |        | S4         |        | S3         |        | S2         |        | S1         |        | O15        |        | OA10       |        | O13        |        | O12        |        | O11        |        |
| Latitude:N   | 45- 8.6    |        | 45-40.0    |        | 45-36.8    |        | 45-33.9    |        | 45-30.9    |        | 45-29.7    |        | 45-29.9    |        | 45-20.0    |        | 45-12.4    |        | 45- 8.7    |        |
| Longitude:E  | 142-29.0   |        | 142- 0.2   |        | 142- 0.1   |        | 142- 0.1   |        | 141-59.8   |        | 142-10.1   |        | 142-30.1   |        | 142-40.0   |        | 142-32.5   |        | 142-28.8   |        |
| Date         | 1997/07/30 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        | 1997/08/01 |        |
| Time(JST)    | 05:13      |        | 15:46      |        | 16:12      |        | 16:34      |        | 16:58      |        | 17:57      |        | 19:31      |        | 20:47      |        | 21:42      |        | 22:09      |        |
| Weather      | F          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | R          |        | R          |        | R          |        |
| Air Temp.    | 14.6       |        | 14.9       |        | 14.8       |        | 14.9       |        | 15.0       |        | 14.7       |        | 14.2       |        | 13.6       |        | 13.8       |        | 14.6       |        |
| Bar          | 1012.0     |        | 1015.0     |        | 1015.2     |        | 1015.5     |        | 1015.5     |        | 1015.6     |        | 1016.4     |        | 1011.5     |        | 1015.5     |        | 1015.5     |        |
| Wind Dir     | NE         |        | E          |        | E          |        | E          |        | E          |        | E          |        | E          |        | E          |        | SE         |        | SE         |        |
| Wind Spd/F   | S 4        |        | S 11       |        | S 10       |        | S 10       |        | S 10       |        | S 9        |        | S 7        |        | S 7        |        | S 7        |        | S 8        |        |
| Transparency |            |        | 13         |        | 14         |        | 15         |        | 14         |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 39         |        | 56         |        | 40         |        | 40         |        | 19         |        | 34         |        | 82         |        | 96         |        | 60         |        | 39         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.9       | 33.815 | 18.3       | 33.841 | 17.8       | 33.910 | 17.7       | 33.915 | 16.3       | 33.928 | 18.2       | 33.892 | 13.3       | 32.916 | 12.0       | 33.014 | 16.1       | 33.738 | 15.4       | 33.905 |
| 10m          | 17.46      | 33.912 | 18.25      | 33.847 | 17.55      | 33.920 | 17.47      | 33.922 | 15.72      | 33.952 | 16.28      | 33.933 | 13.77      | 33.216 | 8.43       | 33.787 | 15.07      | 33.916 | 15.42      | 33.916 |
| 20m          | 17.23      | 33.923 | 13.80      | 34.024 | 13.55      | 34.015 | 15.34      | 33.993 |            |        | 15.45      | 33.961 | 9.23       | 33.653 | 7.56       | 33.886 | 14.85      | 33.929 | 15.42      | 33.916 |
| 30m          | 16.23      | 33.947 | 10.71      | 34.017 | 12.74      | 34.030 | 15.12      | 33.987 |            |        | 15.42      | 33.959 | 8.69       | 33.947 | 7.28       | 33.893 | 14.33      | 33.939 | 15.34      | 33.912 |
| 50m          |            |        | 9.80       | 34.023 |            |        |            |        |            |        |            |        | 8.89       | 34.038 | 7.18       | 33.892 | 14.21      | 33.936 |            |        |
| 75m          |            |        |            |        |            |        |            |        |            |        |            |        | 8.54       | 34.039 | 7.14       | 33.903 |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-22



Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA02       |        | OA03       |        | OA04       |        | O25        |        | O24        |        | O23        |        | O22        |        | OA11       |        | OA12       |        | OA13       |        |
| Latitude:N   | 44-52.3    |        | 45- 0.0    |        | 45-10.0    |        | 44-59.9    |        | 44-49.9    |        | 44-39.6    |        | 44-34.9    |        | 44-17.4    |        | 44-22.4    |        | 44-30.0    |        |
| Longitude:E  | 142-52.6   |        | 143- 0.1   |        | 143-10.1   |        | 143-40.0   |        | 143-29.9   |        | 143-20.0   |        | 143-15.0   |        | 143-37.5   |        | 143-42.7   |        | 143-50.1   |        |
| Date         | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        |
| Time(JST)    | 00:09      |        | 01:09      |        | 02:23      |        | 04:42      |        | 06:25      |        | 07:59      |        | 08:55      |        | 11:06      |        | 11:45      |        | 12:41      |        |
| Weather      | R          |        | R          |        | R          |        | R          |        | R          |        | F          |        | C          |        | R          |        | C          |        | R          |        |
| Air Temp.    | 14.5       |        | 14.7       |        | 14.1       |        | 14.2       |        | 14.5       |        | 14.6       |        | 14.7       |        | 16.3       |        | 16.1       |        | 15.7       |        |
| Bar          | 1015.5     |        | 1015.0     |        | 1015.0     |        | 1015.2     |        | 1015.1     |        | 1015.3     |        |            |        | 1014.0     |        | 1013.5     |        | 1013.5     |        |
| Wind Dir     | SE         |        | E          |        | E          |        | ESE        |        | ESE        |        | E          |        | ESE        |        | ESE        |        | E          |        | ESE        |        |
| Wind Spd/F   | S 8        |        | S 8        |        | S 8        |        | S 8        |        |            |        | S 5        |        | S 5        |        | S 7        |        | S 8        |        | S 5        |        |
| Transparency |            |        |            |        |            |        |            |        | 14         |        | 9          |        | 13         |        | 11         |        | 10         |        | 8          |        |
| Depth        | 84         |        | 131        |        | 133        |        | 172        |        | 149        |        | 110        |        | 72         |        | 43         |        | 90         |        | 164        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.1       | 33.695 | 16.2       | 33.302 | 15.6       | 32.193 | 16.2       | 32.275 | 16.5       | 32.353 | 13.5       | 32.595 | 16.6       | 33.742 | 18.5       | 33.741 | 17.4       | 33.721 | 15.2       | 32.391 |
| 10m          | 12.13      | 33.949 | 8.89       | 32.286 | 13.43      | 32.290 | 11.77      | 32.274 | 13.87      | 32.694 | 12.38      | 33.372 | 14.66      | 33.757 | 15.84      | 33.875 | 12.13      | 33.981 | 1.41       | 32.943 |
| 20m          | 11.84      | 33.913 | 3.57       | 32.623 | 4.31       | 32.704 | 2.82       | 32.637 | 3.05       | 32.769 | 5.40       | 33.800 | 14.08      | 33.937 | 15.35      | 33.939 | 11.50      | 33.982 | -0.51      | 32.980 |
| 30m          | 11.73      | 33.909 | 1.61       | 32.747 | 1.84       | 32.837 | 0.22       | 32.752 | 0.86       | 32.910 | 4.56       | 33.874 | 12.80      | 33.947 | 13.23      | 33.909 | 10.77      | 33.965 | -0.96      | 32.996 |
| 50m          | 9.38       | 33.895 | -0.65      | 32.958 | -0.60      | 32.962 | -1.08      | 32.892 | -0.65      | 32.969 | 4.63       | 33.933 | 9.58       | 33.957 |            |        | 7.04       | 33.868 | 1.42       | 33.257 |
| 75m          | 8.68       | 33.874 | 3.40       | 33.426 | -1.23      | 33.016 | -1.39      | 32.989 | 1.77       | 33.297 | 4.63       | 33.969 |            |        |            |        | 5.77       | 33.746 | 4.81       | 33.757 |
| 100m         |            |        | 4.62       | 33.952 | -1.26      | 33.014 | -1.40      | 33.032 | 4.70       | 33.887 | 4.47       | 33.963 |            |        |            |        |            |        | 5.81       | 33.998 |
| 125m         |            |        | 4.64       | 33.970 | 1.79       | 33.504 | -1.13      | 33.092 | 3.66       | 33.866 |            |        |            |        |            |        |            |        | 4.77       | 34.058 |
| 150m         |            |        |            |        |            |        | -1.11      | 33.098 |            |        |            |        |            |        |            |        |            |        | 4.73       | 34.057 |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-23

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |  |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|
| Station No   | OA14       |        | O35        |        | O34        |        | O33        |        | O32        |        | OA20       |        | OA21       |        | OA22       |        | OA23       |        | OA24       |        |  |
| Latitude:N   | 44-39.9    |        | 44-50.0    |        | 44-30.0    |        | 44-19.9    |        | 44- 9.9    |        | 44- 5.0    |        | 44- 2.0    |        | 44-10.1    |        | 44-20.1    |        | 44-30.1    |        |  |
| Longitude:E  | 144- 0.1   |        | 144-20.1   |        | 144-20.0   |        | 144-20.0   |        | 144-20.0   |        | 144-19.9   |        | 144-50.0   |        | 144-49.9   |        | 144-50.0   |        | 144-50.0   |        |  |
| Date         | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/02 |        | 1997/08/03 |        | 1997/08/03 |        |  |
| Time(JST)    | 13:53      |        | 15:33      |        | 17:25      |        | 18:44      |        | 19:53      |        | 20:26      |        | 22:21      |        | 23:09      |        | 00:17      |        | 01:26      |        |  |
| Weather      | R          |        | R          |        | C          |        | R          |        | R          |        | C          |        | C          |        | C          |        | C          |        | C          |        |  |
| Air Temp.    | 15.4       |        | 14.8       |        | 14.8       |        | 14.6       |        | 15.8       |        | 15.8       |        | 15.9       |        | 16.0       |        | 15.6       |        | 15.4       |        |  |
| Bar          | 1013.0     |        | 1013.0     |        | 1012.0     |        | 1012.4     |        | 1012.2     |        | 1012.5     |        | 1012.0     |        | 1012.0     |        | 1011.0     |        | 1011.0     |        |  |
| Wind Dir     | ESE        |        | ESE        |        | E          |        | SSE        |        | SSE        |        | SSE        |        | SE         |        | S          |        | SSE        |        | ESE        |        |  |
| Wind Spd/F   | S 7        |        | S 6        |        | S 7        |        | S 9        |        | S 9        |        | S 8        |        | S 5        |        | S 5        |        | S 9        |        | S 4        |        |  |
| Transparency | 9          |        | 10         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| Depth        | 189        |        | 153        |        | 845        |        | 267        |        | 112        |        | 36         |        | 78         |        | 596        |        | 1086       |        | 1582       |        |  |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |  |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |  |
| 0m           | 15.6       | 32.123 | 14.4       | 32.119 | 15.2       | 32.098 | 14.0       | 32.237 | 17.8       | 33.781 | 17.5       | 33.770 | 17.1       | 33.873 | 14.4       | 33.187 | 13.4       | 32.663 | 14.1       | 32.355 |  |
| 10m          | 10.74      | 32.575 | 12.02      | 32.242 | 9.12       | 32.444 | 10.80      | 32.380 | 17.24      | 33.806 | 17.60      | 33.770 | 17.01      | 33.883 | 9.84       | 33.366 | 9.31       | 32.833 | 6.60       | 32.702 |  |
| 20m          | 3.79       | 32.650 | 3.19       | 32.736 | 4.05       | 32.683 | 4.74       | 32.614 | 14.04      | 33.960 | 16.06      | 33.895 | 16.91      | 33.886 | 4.70       | 33.370 | 3.24       | 33.027 | 2.26       | 32.822 |  |
| 30m          | 0.65       | 32.816 | 0.27       | 32.853 | 1.19       | 32.842 | 1.21       | 32.727 | 12.95      | 33.973 |            |        | 15.48      | 33.912 | 3.07       | 33.305 | 2.55       | 33.118 | 1.05       | 32.951 |  |
| 50m          | -0.98      | 32.938 | -1.02      | 32.953 | -0.95      | 32.899 | -0.48      | 32.852 | 11.00      | 33.961 |            |        | 12.53      | 33.914 | 3.08       | 33.458 | 0.85       | 33.101 | -0.28      | 33.029 |  |
| 75m          | -1.24      | 33.002 | -1.25      | 33.021 | -1.30      | 32.983 | -1.30      | 32.979 | 7.23       | 33.852 |            |        |            |        | 2.94       | 33.502 | 0.06       | 33.134 | 0.13       | 33.139 |  |
| 100m         | -0.84      | 33.071 | -1.05      | 33.087 | -1.12      | 33.064 | -1.21      | 33.058 | 6.70       | 33.864 |            |        |            |        | 3.05       | 33.517 | 0.74       | 33.199 | -0.60      | 33.155 |  |
| 125m         | -0.61      | 33.133 | -0.67      | 33.145 | -0.87      | 33.120 | -0.97      | 33.117 |            |        |            |        |            |        | 2.86       | 33.516 | 0.11       | 33.200 | -0.08      | 33.219 |  |
| 150m         | 0.57       | 33.223 |            |        | -0.69      | 33.154 | -0.59      | 33.177 |            |        |            |        |            |        | 3.26       | 33.571 | 0.60       | 33.259 | -0.08      | 33.254 |  |
| 200m         |            |        |            |        | -0.41      | 33.206 | -0.41      | 33.208 |            |        |            |        |            |        | 3.46       | 33.629 | 0.92       | 33.339 | 0.33       | 33.313 |  |
| 250m         |            |        |            |        | 0.02       | 33.283 | 3.04       | 33.700 |            |        |            |        |            |        | 2.91       | 33.583 | 0.96       | 33.401 | 1.19       | 33.427 |  |
| 300m         |            |        |            |        | 0.44       | 33.351 |            |        |            |        |            |        |            |        | 2.70       | 33.604 | 1.58       | 33.506 | 0.97       | 33.432 |  |
| 400m         |            |        |            |        | 1.14       | 33.503 |            |        |            |        |            |        |            |        | 2.37       | 33.660 | 1.69       | 33.618 | 2.45       | 33.655 |  |
| 500m         |            |        |            |        | 1.51       | 33.638 |            |        |            |        |            |        |            |        | 2.47       | 33.744 | 1.69       | 33.724 | 1.71       | 33.686 |  |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |  |

Table 6-24

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        | 199708     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O41        |        | O42        |        | O43        |        | O44        |        | O45        |        | O46        |        | O36        |        | O26        |        | OA05       |        | O14        |        |
| Latitude:N   | 44-21.9    |        | 44-30.2    |        | 44-39.9    |        | 44-50.8    |        | 45- 0.1    |        | 45-10.3    |        | 45- 8.0    |        | 45-10.0    |        | 45-20.0    |        | 45-30.1    |        |
| Longitude:E  | 145-20.1   |        | 145-20.0   |        | 145-20.0   |        | 145-19.9   |        | 145-19.9   |        | 145-20.1   |        | 144-19.9   |        | 143-50.0   |        | 143-20.1   |        | 142-49.9   |        |
| Date         | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        | 1997/08/03 |        |
| Time(JST)    | 03:41      |        | 04:29      |        | 05:43      |        | 07:06      |        | 08:19      |        | 09:34      |        | 14:00      |        | 16:18      |        | 19:22      |        | 21:28      |        |
| Weather      | C          |        | C          |        | R          |        | C          |        | C          |        | C          |        | C          |        | C          |        | C          |        | R          |        |
| Air Temp.    | 15.4       |        | 14.9       |        | 14.2       |        | 13.4       |        | 14.1       |        | 14.3       |        | 15.7       |        | 17.2       |        | 18.9       |        | 18.5       |        |
| Bar          | 1010.5     |        | 1010.5     |        | 1010.1     |        | 1010.1     |        | 1009.0     |        | 1009.0     |        | 1005.5     |        | 1004.5     |        | 1004.0     |        | 1003.0     |        |
| Wind Dir     | SE         |        | SE         |        | SSE        |        | SSE        |        | SSE        |        | SSE        |        | SSE        |        | SSW        |        | NNW        |        | W          |        |
| Wind Spd/F   | S 9        |        | S 11       |        | S 10       |        | S 9        |        | S 7        |        | S 9        |        | S 3        |        | S 1        |        | S 1        |        | S 4        |        |
| Transparency |            |        |            |        |            |        | 9          |        | 12         |        | 15         |        | 12         |        | 10         |        |            |        |            |        |
| Depth        | 136        |        | 1725       |        | 2200       |        | 2158       |        | 2650       |        | 2760       |        | 796        |        | 345        |        | 143        |        | 118        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.8       | 33.842 | 16.8       | 33.824 | 12.3       | 33.237 | 12.2       | 32.617 | 13.5       | 32.589 | 13.0       | 32.485 | 14.3       | 32.084 | 15.6       | 31.876 | 15.7       | 32.69* | 15.3       | 29.428 |
| 10m          | 16.43      | 33.836 | 16.63      | 33.810 | 12.10      | 33.283 | 12.00      | 32.621 | 13.28      | 32.604 | 12.81      | 32.496 | 9.34       | 32.383 | 14.54      | 32.145 | 12.05      | 32.217 | 14.05      | 31.878 |
| 20m          | 14.52      | 33.838 | 11.99      | 33.712 | 3.87       | 33.203 | 5.80       | 33.032 | 3.93       | 33.002 | 4.83       | 32.937 | 5.52       | 32.538 | 4.37       | 32.572 | 4.70       | 32.514 | 11.60      | 32.130 |
| 30m          | 13.68      | 33.782 | 12.45      | 33.825 | 2.72       | 33.242 | 1.77       | 32.976 | 3.41       | 33.148 | 0.13       | 32.797 | 1.54       | 32.713 | 1.64       | 32.703 | 1.50       | 32.738 | 4.90       | 32.526 |
| 50m          | 9.77       | 33.594 | 4.13       | 33.424 | -0.14      | 33.068 | 0.96       | 33.063 | 2.36       | 33.206 | -0.91      | 32.937 | -0.44      | 32.845 | -0.80      | 32.844 | -1.03      | 32.949 | -0.09      | 32.863 |
| 75m          | 7.95       | 33.776 | -0.57      | 33.093 | 0.47       | 33.164 | 0.64       | 33.128 | 0.75       | 33.156 | -1.22      | 33.019 | -1.15      | 32.947 | -1.17      | 32.945 | -1.29      | 32.994 | -0.79      | 32.973 |
| 100m         | 6.13       | 33.657 | 2.35       | 33.387 | 1.18       | 33.264 | 0.53       | 33.170 | 0.61       | 33.181 | -1.15      | 33.066 | -1.39      | 33.010 | -1.29      | 33.004 | -1.21      | 33.043 | -0.35      | 33.095 |
| 125m         | 3.43       | 33.520 | 2.27       | 33.417 | 0.59       | 33.260 | 0.40       | 33.197 | 0.45       | 33.207 | -0.84      | 33.117 | -1.28      | 33.063 | -1.29      | 33.041 | -1.20      | 33.047 |            |        |
| 150m         |            |        | 2.95       | 33.526 | 0.72       | 33.294 | 0.82       | 33.262 | 0.74       | 33.260 | -0.28      | 33.194 | -1.05      | 33.104 | -1.02      | 33.107 |            |        |            |        |
| 200m         |            |        | 2.24       | 33.498 | 1.31       | 33.385 | 0.99       | 33.345 | 1.05       | 33.348 | 0.09       | 33.278 | -0.10      | 33.238 | -0.60      | 33.178 |            |        |            |        |
| 250m         |            |        | 1.75       | 33.459 | 1.21       | 33.431 | 0.01       | 33.321 | 1.05       | 33.414 | 0.58       | 33.368 | 0.43       | 33.340 | 0.31       | 33.335 |            |        |            |        |
| 300m         |            |        | 1.96       | 33.511 | 1.74       | 33.526 | 0.71       | 33.421 | 1.51       | 33.507 | 0.78       | 33.428 | 0.67       | 33.394 | 1.10       | 33.515 |            |        |            |        |
| 400m         |            |        |            |        |            |        | 1.38       | 33.535 | 1.66       | 33.615 | 1.42       | 33.586 | 1.22       | 33.553 |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        | 1.58       | 33.702 | 1.69       | 33.717 | 1.66       | 33.711 | 1.54       | 33.677 |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-25

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199708                                      |        | 199708     |        | 199708     |        | 199708     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |
|--------------|---|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WNI03                                       |        | WNI02      |        | WNI01      |        | WNI22      |        | S4         |        | S3         |        | S2         |        | S1         |        | O15        |        | OA10       |        |
| Latitude:N   | 45-28.5                                     |        | 45-26.7    |        | 45-26.4    |        | 45-26.7    |        | 45-40.0    |        | 45-36.8    |        | 45-33.9    |        | 45-30.8    |        | 45-29.9    |        | 45-29.9    |        |
| Longitude:E  | 141-45.0                                    |        | 141-45.0   |        | 141-45.0   |        | 141-45.0   |        | 142- 0.2   |        | 142- 0.1   |        | 142- 0.0   |        | 141-59.8   |        | 142-10.3   |        | 142-30.1   |        |
| Date         | 1997/08/04                                  |        | 1997/08/04 |        | 1997/08/04 |        | 1997/08/04 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        |
| Time(JST)    | 05:31                                       |        | 05:49      |        | 06:01      |        | 06:10      |        | 11:18      |        | 11:42      |        | 12:03      |        | 12:27      |        | 13:05      |        | 14:13      |        |
| Weather      | C   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Air Temp.    | 24.7 22.5 22.4 22.1 21.4 20.3               |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Bar          | 1006.0 1006.0 1005.5 1005.5 1005.0 1004.5   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Dir     | SE ESE ESE ESE SE SSE                       |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Wind Spd/F   | S 6 S 4 S 4 S 3 S 5 S 6                     |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Transparency | 20 18 13 9 13 16                            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 54 48 41 17 35 80                           |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Equipment    | CTD CTD CTD CTD CTD CTD CTD CTD CTD CTD CTD |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| STND. Dep    | T   | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 17.9*                                       | 33.81* | 18.2*      | 33.22* | 17.9*      | 33.63* | 18.1*      | 33.50* | 19.4       | 33.914 | 21.0       | 33.764 | 20.3       | 33.659 | 20.6       | 33.537 | 20.0       | 33.754 | 18.6       | 33.852 |
| 10m          | 17.91                                       | 33.812 | 17.57      | 33.884 | 17.76      | 33.756 | 17.98      | 33.851 | 18.33      | 33.935 | 18.10      | 33.919 | 19.95      | 33.693 | 20.54      | 33.533 | 19.08      | 33.835 | 11.73      | 33.867 |
| 20m          | 16.06                                       | 33.941 |            |        |            |        |            |        | 17.69      | 33.953 | 16.19      | 34.006 | 19.93      | 33.698 |            |        | 16.89      | 33.978 | 7.41       | 33.962 |
| 30m          |   |        |            |        |            |        |            |        | 11.06      | 34.237 | 15.50      | 34.033 | 19.87      | 33.712 |            |        | 15.94      | 34.025 | 6.92       | 34.006 |
| 50m          |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 6.32       | 34.120 |
| 75m          |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 6.30       | 34.116 |
| 100m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |   |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-26

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O14        |        | O13        |        | O12        |        | O11        |        | OA04       |        | OA05       |        | O26        |        | O25        |        | O24        |        | O23        |        |
| Latitude:N   | 45-30.0    |        | 45-19.9    |        | 45-12.4    |        | 45- 8.0    |        | 45- 9.9    |        | 45-19.9    |        | 45- 9.9    |        | 45- 0.0    |        | 44-49.9    |        | 44-39.9    |        |
| Longitude:E  | 142-49.9   |        | 142-40.1   |        | 142-32.5   |        | 142-28.2   |        | 143-10.0   |        | 143-20.1   |        | 143-50.0   |        | 143-39.9   |        | 143-30.0   |        | 143-20.1   |        |
| Date         | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/01 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        |
| Time(JST)    | 15:29      |        | 16:41      |        | 17:33      |        | 18:05      |        | 20:40      |        | 22:03      |        | 00:17      |        | 01:33      |        | 02:57      |        | 04:27      |        |
| Weather      | C          |        | C          |        | R          |        | C          |        | R          |        | R          |        | R          |        | R          |        | R          |        | F          |        |
| Air Temp.    | 18.0       |        | 16.8       |        | 18.2       |        | 18.7       |        | 17.0       |        | 16.8       |        | 17.0       |        | 17.0       |        | 17.3       |        | 16.0       |        |
| Bar          | 1004.5     |        | 1004.0     |        | 1003.5     |        | 1003.5     |        | 1002.5     |        | 1001.9     |        | 1000.5     |        | 1000.0     |        | 999.5      |        | 999.5      |        |
| Wind Dir     | SSE        |        | NNW        |        | NE         |        | NNE        |        | NNE        |        | NE         |        | SSE        |        | WSW        |        | WNW        |        | WNW        |        |
| Wind Spd/F   | S 3        |        | S 5        |        | S 5        |        | S 5        |        | S 6        |        | S 5        |        | S 1        |        | S 2        |        | S 3        |        | S 2        |        |
| Transparency | 11         |        | 9          |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 118        |        | 96         |        | 60         |        | 32         |        | 132        |        | 143        |        | 330        |        | 174        |        | 149        |        | 113        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.2       | 31.839 | 10.2       | 33.865 | 19.9       | 33.751 | 19.5       | 33.707 | 16.7       | 31.925 | 16.3       | 32.111 | 16.3       | 32.118 | 16.3       | 31.779 | 17.0       | 32.572 | 15.8       | 33.516 |
| 10m          | 15.54      | 31.854 | 7.08       | 34.032 | 18.08      | 33.931 | 19.48      | 33.721 | 13.53      | 32.071 | 14.93      | 32.192 | 13.34      | 32.274 | 13.35      | 32.342 | 15.79      | N.D.   | 12.32      | 34.101 |
| 20m          | 7.71       | 32.473 | 7.01       | 34.074 | 17.94      | 33.926 | 19.44      | 33.715 | 2.04       | 32.753 | 3.83       | 32.696 | 8.32       | 32.465 | 5.66       | 32.607 | 11.75      | N.D.   | 11.76      | 34.127 |
| 30m          | 2.57       | 32.705 | 7.04       | 34.084 | 17.86      | 33.923 |            |        | 0.26       | 32.800 | 0.36       | 32.811 | 2.86       | 32.760 | 2.16       | 32.773 | 7.92       | N.D.   | 10.52      | 34.060 |
| 50m          | -0.39      | 32.874 | 7.04       | 34.099 | 14.49      | 34.086 |            |        | -0.88      | 32.932 | -1.05      | 32.943 | -0.27      | 32.887 | -0.70      | 32.913 | 6.39       | N.D.   | 9.54       | 34.075 |
| 75m          | 3.58       | 33.372 | 6.75       | 34.086 |            |        |            |        | -1.22      | 32.995 | -1.35      | 32.992 | -0.78      | 32.937 | -1.03      | 32.988 | 5.15       | N.D.   | 8.18       | 34.015 |
| 100m         | 3.67       | 33.655 |            |        |            |        |            |        | -0.97      | 33.058 | -1.31      | 33.030 | -0.91      | 32.993 | -1.18      | 33.044 | 4.40       | N.D.   | 8.12       | 34.016 |
| 125m         |            |        |            |        |            |        |            |        |            |        | -1.30      | 33.031 | -1.13      | 33.031 | -1.19      | 33.083 | 5.07       | N.D.   |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        | -1.14      | 33.072 | -0.80      | 33.143 |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        | -0.34      | 33.187 |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.03       | 33.260 |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.16       | 33.300 |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-27

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O22        |        | OA11       |        | OA12       |        | OA13       |        | O34        |        | O33        |        | O32        |        | OA20       |        | O31        |        | OA21       |        |
| Latitude:N   | 44-35.0    |        | 44-17.4    |        | 44-22.6    |        | 44-30.0    |        | 44-29.9    |        | 44-19.9    |        | 44-10.0    |        | 44- 4.9    |        | 44- 2.0    |        | 44- 2.0    |        |
| Longitude:E  | 143-15.0   |        | 143-37.7   |        | 143-42.6   |        | 143-50.1   |        | 144-19.8   |        | 144-19.9   |        | 144-20.0   |        | 144-20.0   |        | 144-20.0   |        | 144-50.0   |        |
| Date         | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        |
| Time(JST)    | 05:10      |        | 07:10      |        | 07:49      |        | 08:48      |        | 10:51      |        | 12:05      |        | 13:07      |        | 13:40      |        | 14:00      |        | 15:58      |        |
| Weather      | R          |        | C          |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | C          |        |
| Air Temp.    | 17.4       |        | 18.2       |        | 18.5       |        | 18.5       |        | 19.5       |        | 19.7       |        | 20.2       |        | 20.6       |        | 20.7       |        | 21.2       |        |
| Bar          | 999.5      |        | 1000.5     |        | 1000.0     |        | 1000.1     |        | 999.8      |        | 1000.0     |        | 999.5      |        | 999.5      |        | 999.5      |        | 1000.5     |        |
| Wind Dir     | NN         |        | WNW        |        | W          |        | SW         |        | W          |        | SSW        |        | SE         |        | SE         |        | SE         |        | NNW        |        |
| Wind Spd/F   | S 2        |        | S 4        |        | S 4        |        | S 2        |        | S 1        |        | S 1        |        | S 2        |        | S 2        |        | S 2        |        | S 2        |        |
| Transparency |            |        | 10         |        | 12         |        | 13         |        | 10         |        | 11         |        | 11         |        | 10         |        | 10         |        | 10         |        |
| Depth        | 72         |        | 44         |        | 90         |        | 164        |        | 850        |        | 265        |        | 114        |        | 36         |        | 33         |        | 77         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 19.1       | 33.631 | 18.9       | 33.685 | 18.7       | 33.691 | 17.1       | 33.075 | 16.0       | 32.486 | 17.2       | 32.779 | 19.1       | 33.752 | 19.3       | 33.562 | 19.2       | 33.58* | 19.6       | 33.659 |
| 10m          | 18.14      | 33.835 | 18.58      | 33.783 | 16.90      | 33.969 | 12.55      | 33.620 | 7.52       | 32.748 | 12.05      | 33.156 | 18.37      | 33.848 | 18.65      | 33.644 | 18.33      | 33.690 | 18.58      | 33.695 |
| 20m          | 18.03      | 33.846 | 18.47      | 33.787 | 16.51      | 33.972 | 7.54       | 33.580 | 1.87       | 32.918 | 7.69       | 32.948 | 17.92      | 33.916 | 18.53      | 33.675 | 17.53      | 33.744 | 16.77      | 33.796 |
| 30m          | 17.32      | 33.925 | 18.37      | 33.794 | 16.31      | 33.978 | 8.41       | 33.975 | -0.16      | 32.902 | 5.94       | 33.206 | 17.87      | 33.908 | 17.92      | 33.733 |            |        | 16.23      | 33.841 |
| 50m          | 15.42      | 34.018 |            |        | 15.53      | 34.009 | 1.57       | 33.256 | 0.43       | 33.040 | 1.61       | 33.061 | 17.22      | 33.931 |            |        |            |        | 15.85      | 33.855 |
| 75m          |            |        |            |        | 11.86      | 34.047 | 0.50       | 33.152 | -0.67      | 33.073 | 0.32       | 33.043 | 12.83      | 34.052 |            |        |            |        |            |        |
| 100m         |            |        |            |        |            |        | -0.69      | 33.124 | -0.24      | 33.136 | -0.39      | 33.115 | 10.24      | 33.986 |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        | -0.53      | 33.166 | -0.16      | 33.171 |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        | 0.09       | 33.249 | 0.20       | 33.232 |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        | 0.59       | 33.338 | 0.81       | 33.327 |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        | 1.41       | 33.456 | 2.53       | 33.626 |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        | 1.69       | 33.510 |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        | 2.82       | 33.698 |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        | 1.94       | 33.701 |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-28

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA22       |        | O41        |        | O42        |        | O43        |        | O44        |        | O45        |        | O46        |        | O36        |        | O35        |        | OA14       |        |
| Latitude:N   | 44-10.1    |        | 44-22.0    |        | 44-30.1    |        | 44-40.1    |        | 44-50.0    |        | 44-59.9    |        | 45-10.0    |        | 45- 8.1    |        | 44-50.0    |        | 44-40.2    |        |
| Longitude:E  | 144-50.1   |        | 145-20.3   |        | 145-20.2   |        | 145-19.8   |        | 145-20.1   |        | 145-20.1   |        | 145-20.0   |        | 144-19.9   |        | 144-19.9   |        | 144- 0.0   |        |
| Date         | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/02 |        | 1997/09/03 |        | 1997/09/03 |        | 1997/09/03 |        | 1997/09/03 |        |
| Time(JST)    | 16:46      |        | 19:01      |        | 19:57      |        | 21:18      |        | 22:35      |        | 23:58      |        | 01:15      |        | 05:31      |        | 07:30      |        | 09:15      |        |
| Weather      | C          |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | BC         |        | C          |        | C          |        |
| Air Temp.    | 19.1       |        | 18.0       |        | 17.3       |        | 15.7       |        | 14.9       |        | 14.7       |        | 14.6       |        | 14.6       |        | 15.2       |        | 15.4       |        |
| Bar          | 1001.0     |        | 1001.5     |        | 1001.5     |        | 1002.1     |        | 1002.1     |        | 1002.4     |        | 1002.0     |        | 1003.5     |        | 1004.0     |        | 1004.5     |        |
| Wind Dir     | N          |        | WNW        |        | WNW        |        | W          |        | WNW        |        | W          |        | WNW        |        | N          |        | NW         |        | NNW        |        |
| Wind Spd/F   | S 3        |        | S 8        |        | S 5        |        | S 5        |        | S 6        |        | S 5        |        | S 5        |        | S 1        |        | S 1        |        | S 2        |        |
| Transparency | 11         |        |            |        |            |        |            |        |            |        |            |        |            |        | 12         |        | 12         |        | 8          |        |
| Depth        | 594        |        | 186        |        | 1714       |        | 2200       |        | 2221       |        | 2460       |        | 2786       |        | 796        |        | 153        |        | 190        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 18.6       | 33.774 | 18.4       | 33.736 | 18.2       | 33.407 | 14.1       | 32.57* | 14.5       | 32.390 | 14.4       | 32.473 | 14.6       | 32.507 | 15.2       | 32.162 | 15.2       | 32.197 | 15.2       | 32.388 |
| 10m          | 17.74      | 33.865 | 18.32      | 33.730 | 16.83      | 33.840 | 6.34       | 33.055 | 12.77      | 32.732 | 13.93      | 32.601 | 13.53      | 33.023 | 15.13      | 32.178 | 13.65      | 32.513 | 10.75      | 32.702 |
| 20m          | 16.24      | 33.932 | 17.48      | 33.780 | 15.50      | 33.870 | 1.14       | 32.899 | 1.01       | 32.886 | 4.10       | 33.113 | 5.47       | 32.514 | 12.85      | 32.333 | 2.84       | 32.730 | 2.79       | 32.769 |
| 30m          | 15.44      | 33.900 | 16.99      | 33.862 | 13.71      | 33.871 | 0.82       | 32.954 | -0.36      | 32.888 | 2.05       | 33.166 | 2.63       | 32.922 | 3.71       | 32.663 | 0.65       | 32.808 | 0.90       | 32.864 |
| 50m          | 13.74      | 33.891 | 15.50      | 33.927 | 10.66      | 33.975 | 0.56       | 33.062 | -0.99      | 32.968 | 2.25       | 33.277 | -0.49      | 32.936 | 0.64       | 32.809 | -0.69      | 32.940 | -0.60      | 32.931 |
| 75m          | 11.16      | 34.074 | 14.12      | 33.961 | 8.69       | 33.811 | -0.99      | 33.034 | -1.13      | 33.039 | 1.24       | 33.241 | -0.54      | 33.047 | -0.55      | 32.956 | -1.01      | 33.025 | -1.04      | 33.011 |
| 100m         | 9.86       | 33.959 | 12.09      | 33.987 | 1.87       | 33.181 | -1.13      | 33.079 | -1.07      | 33.085 | 1.89       | 33.319 | -0.03      | 33.124 | -0.56      | 33.036 | -0.71      | 33.107 | -0.90      | 33.067 |
| 125m         | 7.86       | 33.938 | 10.62      | 33.958 | 0.95       | 33.186 | -1.15      | 33.100 | -0.83      | 33.130 | 1.46       | 33.310 | -0.68      | 33.128 | -0.93      | 33.073 | -0.57      | 33.142 | -0.23      | 33.151 |
| 150m         | 7.40       | 33.934 |            |        | 1.62       | 33.314 | -0.71      | 33.149 | -0.80      | 33.158 | 1.61       | 33.358 | -0.33      | 33.181 | -0.82      | 33.120 |            |        | 1.00       | 33.314 |
| 200m         | 0.71       | 33.264 |            |        | 1.54       | 33.381 | 0.05       | 33.252 | 0.53       | 33.314 | 1.55       | 33.404 | 0.07       | 33.275 | -0.27      | 33.210 |            |        |            |        |
| 250m         | 0.34       | 33.281 |            |        | 2.80       | 33.552 | 0.46       | 33.336 | 1.98       | 33.496 | 1.05       | 33.416 | 0.48       | 33.358 | 0.33       | 33.310 |            |        |            |        |
| 300m         | 2.65       | 33.567 |            |        | 2.27       | 33.559 | 1.19       | 33.457 | 2.11       | 33.562 | 0.88       | 33.446 | 0.84       | 33.439 | 0.64       | 33.376 |            |        |            |        |
| 400m         | 2.55       | 33.659 |            |        | 1.63       | 33.592 | 1.48       | 33.583 | 1.35       | 33.568 | 1.42       | 33.591 | 1.23       | 33.557 | 1.27       | 33.566 |            |        |            |        |
| 500m         | 2.06       | 33.757 |            |        |            |        | 1.61       | 33.696 | 1.52       | 33.689 | 1.65       | 33.712 | 1.64       | 33.722 | 1.68       | 33.738 |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-29

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199709     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA23       |        | OA24       |        | OA02       |        | OA03       |        | WST01      |        | WST02      |        | WST03      |        | WST06      |        | WST07      |        | S4         |        |
| Latitude:N   | 44-19.9    |        | 44-30.0    |        | 44-52.5    |        | 45- 0.0    |        | 44-46.0    |        | 44-44.7    |        | 44-46.1    |        | 44-43.8    |        | 44-46.0    |        | 45-40.0    |        |
| Longitude:E  | 144-50.2   |        | 144-50.0   |        | 142-52.5   |        | 142-59.8   |        | 141-36.3   |        | 141-31.4   |        | 141-24.1   |        | 140-58.3   |        | 140-53.9   |        | 142- 0.3   |        |
| Date         | 1997/09/03 |        | 1997/09/03 |        | 1997/09/04 |        | 1997/09/04 |        | 1997/09/08 |        | 1997/09/08 |        | 1997/09/10 |        | 1997/09/16 |        | 1997/09/16 |        | 1997/09/29 |        |
| Time(JST)    | 13:04      |        | 14:16      |        | 07:40      |        | 08:38      |        | 15:26      |        | 16:08      |        | 09:50      |        | 14:39      |        | 15:15      |        | 11:28      |        |
| Weather      | C          |        | C          |        | BC         |        | B          |        | C          |        | C          |        | BC         |        | C          |        | C          |        | C          |        |
| Air Temp.    | 17.0       |        | 17.5       |        | 24.3       |        | 20.7       |        | 22.2       |        | 22.0       |        | 22.2       |        | 16.7       |        | 16.9       |        | 13.7       |        |
| Bar          | 1003.5     |        | 1003.5     |        | 1006.0     |        | 1006.5     |        | 1015.5     |        | 1015.5     |        | 1011.5     |        | 1027.0     |        | 1027.0     |        | 1016.0     |        |
| Wind Dir     | NE         |        | ESE        |        | SE         |        | CALM       |        | SW         |        | SW         |        | SSW        |        | SE         |        | S          |        | ENE        |        |
| Wind Spd/F   | S 2        |        | S 2        |        | S 1        |        | S 0        |        | S 6        |        | S 6        |        | S 11       |        | S 2        |        | S 1        |        | S 7        |        |
| Transparency | 10         |        | 10         |        | 12         |        | 19         |        |            |        |            |        |            |        |            |        |            |        | 18         |        |
| Depth        | 1000       |        | 1573       |        | 83         |        | 130        |        | 70         |        | 82         |        |            |        | 142        |        | 160        |        | 57         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.6       | 32.398 | 16.9       | 33.279 | 19.5       | 33.697 | 15.9       | 31.956 | 21.6       | 33.53* | 21.7       | 33.53* | 20.7       | 33.95* | 20.3       | 33.77* | 19.8       | 33.87* | 16.6       | 34.071 |
| 10m          | 12.85      | 32.672 | 9.25       | 33.480 | 18.59      | 33.908 | 12.99      | 32.654 | 21.39      | 33.586 | 21.50      | 33.566 | 20.58      | 33.948 | 20.34      | 33.825 | 19.54      | 34.008 | 16.68      | 34.074 |
| 20m          | 6.46       | 32.985 | 9.46       | 34.029 | 18.13      | 33.897 | 7.53       | 33.700 | 20.00      | 33.925 | 20.70      | 33.574 | 20.59      | 33.948 | 20.15      | 33.798 | 19.51      | 34.010 | 16.68      | 34.075 |
| 30m          | 4.39       | 33.068 | 8.67       | 33.937 | 16.98      | 33.978 | 3.99       | 33.465 | 17.19      | 34.121 | 19.06      | 33.916 | 17.74      | 34.255 | 19.96      | 33.877 | 19.48      | 34.019 | 9.82       | 34.298 |
| 50m          | 1.81       | 33.178 | 3.63       | 33.432 | 12.15      | 34.125 | 5.63       | 33.821 | 14.45      | 34.353 | 13.41      | 34.253 | 12.60      | 34.347 | 13.45      | 34.426 | 12.58      | 34.371 | 9.14       | 34.246 |
| 75m          | 2.28       | 33.351 | 2.27       | 33.325 | 10.83      | 34.140 | 6.05       | 34.024 |            |        | 10.96      | 34.282 | 10.13      | 34.260 | 10.16      | 34.321 | 9.14       | 34.279 |            |        |
| 100m         | 1.10       | 33.277 | 0.65       | 33.205 |            |        | 6.29       | 34.084 |            |        |            |        |            |        | 7.92       | 34.235 | 7.09       | 34.202 |            |        |
| 125m         | 0.14       | 33.240 | 1.31       | 33.291 |            |        | 6.28       | 34.084 |            |        |            |        |            |        | 5.80       | 34.171 | 5.69       | 34.161 |            |        |
| 150m         | 1.84       | 33.403 | 1.44       | 33.341 |            |        |            |        |            |        |            |        |            |        |            |        | 4.73       | 34.148 |            |        |
| 200m         | 2.53       | 33.533 | 0.79       | 33.343 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         | 1.63       | 33.502 | 1.21       | 33.429 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         | 2.80       | 33.666 | 1.71       | 33.538 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         | 2.25       | 33.661 | 1.34       | 33.573 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         | 2.13       | 33.817 | 1.78       | 33.720 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-30



Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | S3         |        | S2         |        | S1         |        | O15        |        | OA10       |        | O14        |        | O13        |        | O12        |        | O11        |        | OA02       |        |
| Latitude:N   | 45-37.0    |        | 45-34.0    |        | 45-31.0    |        | 45-29.9    |        | 45-30.0    |        | 45-29.9    |        | 45-19.9    |        | 45-12.5    |        | 45- 8.1    |        | 44-52.3    |        |
| Longitude:E  | 142- 0.0   |        | 142- 0.1   |        | 142- 0.0   |        | 142-10.0   |        | 142-30.0   |        | 142-50.0   |        | 142-39.9   |        | 142-32.5   |        | 142-28.0   |        | 142-52.4   |        |
| Date         | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        | 1997/09/29 |        |
| Time(JST)    | 11:51      |        | 12:11      |        | 12:31      |        | 13:15      |        | 14:46      |        | 16:09      |        | 17:23      |        | 18:17      |        | 18:57      |        | 21:10      |        |
| Weather      | BC         |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | B          |        |
| Air Temp.    | 13.6       |        | 13.8       |        | 13.3       |        | 13.9       |        | 13.9       |        | 14.5       |        | 12.6       |        | 12.6       |        | 12.7       |        | 12.6       |        |
| Bar          | 1015.9     |        | 1015.5     |        | 1016.0     |        | 1016.0     |        | 1016.0     |        | 1017.0     |        | 1017.2     |        | 1017.5     |        | 1018.0     |        | 1018.2     |        |
| Wind Dir     | ENE        |        | ENE        |        | ENE        |        | E          |        | E          |        | ENE        |        | ENE        |        | E          |        | E          |        | ENE        |        |
| Wind Spd/F   | S 8        |        | S 8        |        | S 8        |        | S 6        |        | S 3        |        | S 3        |        | S 4        |        | S 4        |        | S 5        |        | S 6        |        |
| Transparency | 18         |        | 15         |        | 13         |        | 19         |        | 9          |        | 9          |        |            |        |            |        |            |        |            |        |
| Depth        | 58         |        | 44         |        | 26         |        | 36         |        | 80         |        | 120        |        | 96         |        | 60         |        | 32         |        | 82         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 16.5       | 34.068 | 16.4       | 34.084 | 12.7       | 34.209 | 15.2       | 34.069 | 9.9        | 33.005 | 13.3       | 32.058 | 10.9       | 33.424 | 14.9       | 33.833 | 15.9       | 33.974 | 16.1       | 34.035 |
| 10m          | 16.57      | 34.073 | 16.45      | 34.086 | 12.45      | 34.204 | 15.40      | 34.067 | 9.79       | 33.144 | 12.27      | 32.201 | 8.87       | 33.276 | 14.95      | 33.838 | 16.53      | 33.990 | 16.29      | 34.044 |
| 20m          | 14.84      | 34.156 | 14.05      | 34.151 | 12.36      | 34.209 | 15.31      | 34.067 | 7.43       | 33.054 | 7.80       | 32.512 | 7.47       | 33.296 | 11.43      | 33.464 | 16.50      | 33.989 | 16.29      | 34.045 |
| 30m          | 11.22      | 34.265 | 13.30      | 34.169 |            |        | 11.92      | 34.234 | 6.45       | 33.574 | 3.59       | 32.671 | 5.01       | 33.484 | 11.98      | 34.040 |            |        | 11.89      | 34.188 |
| 50m          |            |        |            |        |            |        |            |        | 6.73       | 33.971 | -0.14      | 32.885 | 6.41       | 33.750 | 12.28      | 34.147 |            |        | 11.57      | 34.186 |
| 75m          |            |        |            |        |            |        |            |        | 6.92       | 34.025 | -0.90      | 32.937 | 6.85       | 33.953 |            |        |            |        | 10.93      | 34.175 |
| 100m         |            |        |            |        |            |        |            |        |            |        | -1.18      | 33.010 |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-31

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA03       |        | OA04       |        | OA05       |        | O26        |        | O25        |        | O24        |        | O23        |        | O22        |        | OA11       |        | OA12       |        |
| Latitude:N   | 44-59.9    |        | 45-10.0    |        | 45-20.0    |        | 45-10.0    |        | 45- 0.0    |        | 44-49.9    |        | 44-40.1    |        | 44-35.0    |        | 44-17.5    |        | 44-22.5    |        |
| Longitude:E  | 143- 0.0   |        | 143-10.0   |        | 143-20.0   |        | 143-50.0   |        | 143-40.0   |        | 143-30.0   |        | 143-20.3   |        | 143-14.9   |        | 143-37.5   |        | 143-42.6   |        |
| Date         | 1997/09/29 |        | 1997/09/29 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        |
| Time(JST)    | 22:15      |        | 23:38      |        | 00:58      |        | 03:16      |        | 05:06      |        | 06:35      |        | 08:07      |        | 09:05      |        | 11:22      |        | 12:04      |        |
| Weather      | B          |        | B          |        | BC         |        | BC         |        | C          |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 11.9       |        | 11.9       |        | 11.5       |        | 11.8       |        | 12.0       |        | 13.1       |        | 13.7       |        | 13.9       |        | 13.7       |        | 15.1       |        |
| Bar          | 1018.5     |        | 1018.9     |        | 1019.0     |        | 1019.5     |        | 1020.0     |        | 1021.0     |        | 1021.2     |        | 1021.5     |        | 1021.7     |        | 1022.0     |        |
| Wind Dir     | ENE        |        | ENE        |        | ENE        |        | NE         |        | NE         |        | NNE        |        | NE         |        | NE         |        | NE         |        | ENE        |        |
| Wind Spd/F   | S 6        |        | S 6        |        | S 6        |        | S 6        |        | S 8        |        | S 6        |        | S 7        |        | S 8        |        | S 6        |        | S 3        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        | 13         |        | 12         |        | 12         |        | 10         |        | 12         |        |
| Depth        | 132        |        | 133        |        | 143        |        | 340        |        | 172        |        | 148        |        | 112        |        | 70         |        | 44         |        | 88         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.8       | 32.731 | 12.8       | 32.055 | 12.6       | 32.075 | 12.4       | 32.119 | 13.4       | 32.506 | 13.7       | 32.441 | 16.6       | 33.971 | 16.6       | 33.982 | 16.6       | 33.962 | 16.1       | 34.015 |
| 10m          | 11.91      | 33.426 | 12.89      | 32.049 | 12.70      | 32.063 | 12.43      | 32.118 | 13.53      | 32.494 | 13.61      | 32.443 | 16.67      | 33.972 | 16.59      | 33.977 | 16.70      | 33.958 | 16.14      | 34.011 |
| 20m          | 11.26      | 33.448 | 5.76       | 32.584 | 3.84       | 32.778 | 7.87       | 32.563 | 10.44      | 32.495 | 10.00      | 32.939 | 16.67      | 33.972 | 16.59      | 33.977 | 16.02      | 34.063 | 16.12      | 34.011 |
| 30m          | 2.10       | 32.819 | 2.62       | 32.810 | 0.86       | 32.839 | 1.63       | 32.838 | 2.13       | 32.752 | 6.56       | 33.646 | 16.39      | 33.999 | 16.22      | 33.996 | 14.21      | 34.070 | 10.99      | 33.735 |
| 50m          | -0.51      | 32.923 | -0.15      | 32.875 | -0.14      | 32.879 | -0.60      | 32.970 | -0.67      | 32.911 | 2.45       | 33.302 | 10.63      | 34.135 | 13.51      | 34.100 |            |        | 8.43       | 34.089 |
| 75m          | 2.70       | 33.359 | -0.71      | 32.920 | -1.18      | 32.960 | -0.46      | 33.047 | -1.31      | 32.971 | 2.50       | 33.367 | 9.70       | 34.115 |            |        |            |        | 5.73       | 33.716 |
| 100m         | 4.67       | 33.672 | -1.17      | 32.996 | -1.35      | 33.009 | -1.38      | 33.037 | -1.38      | 33.012 | 3.34       | 33.508 | 8.97       | 34.089 |            |        |            |        |            |        |
| 125m         |            |        |            |        | -1.22      | 33.051 | -1.33      | 33.060 | -1.29      | 33.036 | 4.51       | 33.722 |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        | -1.34      | 33.074 | -1.06      | 33.097 |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        | -1.22      | 33.113 |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        | -0.81      | 33.163 |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        | 0.39       | 33.371 |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-32

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | OA13       |        | OA14       |        | O35        |        | O34        |        | O33        |        | O32        |        | OA20       |        | O31        |        | OA21       |        | OA22       |        |
| Latitude:N   | 44-30.1    |        | 44-39.2    |        | 44-50.0    |        | 44-29.9    |        | 44-19.9    |        | 44-10.1    |        | 44- 5.0    |        | 44- 2.0    |        | 44- 2.0    |        | 44-10.1    |        |
| Longitude:E  | 143-50.1   |        | 144- 0.5   |        | 144-20.1   |        | 144-20.0   |        | 144-20.0   |        | 144-20.1   |        | 144-20.2   |        | 144-20.1   |        | 144-50.0   |        | 144-50.1   |        |
| Date         | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/09/30 |        | 1997/10/01 |        |
| Time(JST)    | 13:02      |        | 14:16      |        | 16:00      |        | 17:53      |        | 19:06      |        | 20:12      |        | 20:49      |        | 21:14      |        | 23:16      |        | 00:10      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 16.4       |        | 16.0       |        | 14.1       |        | 12.7       |        | 12.3       |        | 12.3       |        | 12.4       |        | 12.4       |        | 13.0       |        | 12.8       |        |
| Bar          | 1021.5     |        | 1022.0     |        | 1023.0     |        | 1024.0     |        | 1024.5     |        | 1024.6     |        | 1025.0     |        | 1025.0     |        | 1024.9     |        | 1025.0     |        |
| Wind Dir     | NE         |        | NNE        |        | NE         |        | NNE        |        | NNE        |        | NNE        |        | N          |        | NNE        |        | ENE        |        | NE         |        |
| Wind Spd/F   | S 5        |        | S 5        |        | S 5        |        | S 5        |        | S 5        |        | S 5        |        | S 5        |        | S 4        |        | S 3        |        | S 4        |        |
| Transparency | 10         |        | 13         |        | 12         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 164        |        | 190        |        | 154        |        | 832        |        | 267        |        | 114        |        | 37         |        | 34         |        | 78         |        | 590        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.9       | 32.892 | 13.5       | 32.223 | 12.5       | 32.077 | 12.7       | 32.529 | 13.8       | 32.633 | 16.0       | 33.983 | 15.8       | 33.963 | 15.7       | 33.928 | 15.4       | 34.059 | 15.8       | 34.022 |
| 10m          | 7.50       | 33.436 | 13.42      | 32.223 | 13.41      | 32.075 | 12.70      | 32.523 | 13.81      | 33.132 | 16.15      | 34.020 | 16.01      | 33.953 | 15.81      | 33.915 | 15.70      | 34.033 | 16.07      | 34.012 |
| 20m          | 0.43       | 33.076 | 5.21       | 32.618 | 11.26      | 32.232 | 4.03       | 32.710 | 2.91       | 32.734 | 14.49      | 34.095 | 16.00      | 33.954 | 15.90      | 33.958 | 15.71      | 34.034 | 16.07      | 34.011 |
| 30m          | 4.00       | 33.482 | 0.94       | 32.822 | 0.76       | 32.846 | 0.62       | 32.846 | 0.18       | 32.853 | 13.13      | 34.099 | 14.45      | 34.084 |            |        | 14.97      | 34.042 | 16.01      | 34.012 |
| 50m          | 6.15       | 33.867 | -0.66      | 32.945 | -0.83      | 32.963 | -0.55      | 32.909 | -0.64      | 32.934 | 8.13       | 33.954 |            |        |            |        | 11.84      | 34.030 | 8.52       | 33.692 |
| 75m          | 5.10       | 33.730 | -1.06      | 33.006 | -0.92      | 33.025 | -1.00      | 32.992 | -1.01      | 33.035 | 7.38       | 33.906 |            |        |            |        |            |        | 1.01       | 33.162 |
| 100m         | 4.90       | 33.722 | -1.28      | 33.055 | -0.88      | 33.084 | -1.09      | 33.039 | -1.06      | 33.067 | 7.34       | 33.892 |            |        |            |        |            |        | 0.85       | 33.158 |
| 125m         | 4.78       | 33.715 | -1.23      | 33.085 | -0.97      | 33.124 | -1.14      | 33.083 | -0.91      | 33.114 |            |        |            |        |            |        |            |        | -0.61      | 33.105 |
| 150m         | 4.75       | 33.710 | -0.65      | 33.155 |            |        | -0.99      | 33.122 | -0.81      | 33.131 |            |        |            |        |            |        |            |        | 1.71       | 33.296 |
| 200m         |            |        |            |        |            |        | -0.16      | 33.238 | -0.78      | 33.152 |            |        |            |        |            |        |            |        | 1.44       | 33.331 |
| 250m         |            |        |            |        |            |        | 0.33       | 33.325 | 2.01       | 33.542 |            |        |            |        |            |        |            |        | 1.73       | 33.429 |
| 300m         |            |        |            |        |            |        | 0.82       | 33.412 |            |        |            |        |            |        |            |        |            |        | 2.83       | 33.624 |
| 400m         |            |        |            |        |            |        | 1.15       | 33.530 |            |        |            |        |            |        |            |        |            |        | 2.80       | 33.700 |
| 500m         |            |        |            |        |            |        | 1.54       | 33.671 |            |        |            |        |            |        |            |        |            |        | 1.95       | 33.791 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-33

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--------|
| Station No   | OA23       |        | OA24       |        | O46        |        | O45        |        | O44        |        | O43        |        | O42        |        | O41        |        | O36        |        | WTC01      |        |        |
| Latitude:N   | 44-20.1    |        | 44-30.0    |        | 45-10.0    |        | 44-59.9    |        | 44-49.9    |        | 44-39.9    |        | 44-30.0    |        | 44-22.0    |        | 45- 8.0    |        | 42-20.1    |        |        |
| Longitude:E  | 144-49.8   |        | 144-50.0   |        | 145-19.9   |        | 145-20.1   |        | 145-19.8   |        | 145-20.0   |        | 145-20.0   |        | 145-20.0   |        | 144-19.9   |        | 139- 0.2   |        |        |
| Date         | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/01 |        | 1997/10/02 |        | 1997/10/13 |        |        |
| Time(JST)    | 01:21      |        | 02:38      |        | 06:57      |        | 09:58      |        | 11:11      |        | 12:25      |        | 13:56      |        | 15:31      |        | 01:40      |        | 10:40      |        |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |        |
| Air Temp.    | 12.4       |        | 12.1       |        | 12.3       |        | 13.4       |        | 14.4       |        | 14.4       |        | 15.3       |        | 15.3       |        | 13.2       |        |            |        |        |
| Bar          | 1026.0     |        | 1026.0     |        | 1028.0     |        | 1029.0     |        | 1029.0     |        | 1029.0     |        | 1029.0     |        | 1028.5     |        | 1028.0     |        |            |        |        |
| Wind Dir     | NE         |        | NNE        |        | ENE        |        | CALM       |        | CALM       |        | W          |        | NNW        |        | ENE        |        | S          |        |            |        |        |
| Wind Spd/F   | S 3        |        | S 1        |        | S 1        |        | S 0        |        | S 0        |        | S 2        |        | S 2        |        | S 2        |        | S 5        |        |            |        |        |
| Transparency |            |        |            |        | 17         |        | 12         |        | 16         |        | 15         |        | 14         |        | 13         |        |            |        |            |        |        |
| Depth        | 1091       |        | 1577       |        | 2752       |        | 2577       |        | 2182       |        | 2199       |        | 1700       |        | 138        |        | 796        |        |            |        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |        |
| 0m           | 13.4       | 33.070 | 12.7       | 32.929 | 14.1       | 33.203 | 13.9       | 32.901 | 14.7       | 32.735 | 14.6       | 32.502 | 16.6       | 33.931 | 16.6       | 34.016 | 14.1       | 32.189 | 15.1       | 33.829 |        |
| 10m          | 12.28      | 33.208 | 12.11      | 33.060 | 14.03      | 33.212 | 13.35      | 32.897 | 13.59      | 32.811 | 12.95      | 32.554 | 15.88      | 33.980 | 16.32      | 33.992 | 14.10      | 32.182 | 15.33      | 33.830 |        |
| 20m          | 5.32       | 33.379 | 1.03       | 32.908 | 14.04      | 33.218 | 13.32      | 32.899 | 12.84      | 32.794 | 13.47      | 33.224 | 15.73      | 34.004 | 16.21      | 33.994 | 7.14       | 32.566 | 15.33      | 33.834 |        |
| 30m          | 3.68       | 33.324 | 0.17       | 32.940 | 9.34       | 33.500 | 8.09       | 33.476 | 4.93       | 33.196 | 1.81       | 32.958 | 14.98      | 34.078 | 15.52      | 34.020 | 1.16       | 32.882 | 9.70       | 34.312 |        |
| 50m          | 0.82       | 33.138 | -0.78      | 32.970 | 3.78       | 33.321 | 3.57       | 33.251 | 1.41       | 33.137 | -0.27      | 32.997 | 0.18       | 32.940 | 11.57      | 34.050 | 0.03       | 32.992 | 6.40       | 34.208 |        |
| 75m          | 0.46       | 33.149 | -1.20      | 33.035 | 2.45       | 33.303 | 1.08       | 33.145 | 1.42       | 33.207 | -0.79      | 33.062 | 0.18       | 33.026 | 9.99       | 34.030 | -1.09      | 33.033 | 4.53       | 34.139 |        |
| 100m         | 0.18       | 33.165 | -1.07      | 33.073 | 0.20       | 33.160 | 0.42       | 33.146 | 0.98       | 33.219 | -0.82      | 33.100 | -0.78      | 33.032 | 8.62       | 33.922 | -1.12      | 33.064 | 3.05       | 34.102 |        |
| 125m         | 0.12       | 33.196 | -0.86      | 33.123 | 0.57       | 33.213 | 0.14       | 33.171 | 1.07       | 33.265 | 0.08       | 33.184 | -0.56      | 33.091 | 6.21       | 33.690 | -1.13      | 33.082 | 2.35       | 34.086 |        |
| 150m         | 0.41       | 33.246 | -0.43      | 33.183 | 0.43       | 33.238 | 0.21       | 33.207 | 1.09       | 33.304 | -0.23      | 33.208 | -0.67      | 33.118 |            |        | -1.22      | 33.089 | 1.84       | 34.085 |        |
| 200m         | 1.63       | 33.415 | 0.07       | 33.279 | 0.70       | 33.313 | 0.54       | 33.290 | 1.01       | 33.351 | 2.14       | 33.461 | -0.04      | 33.222 |            |        | -1.13      | 33.125 | 1.46       | 34.090 |        |
| 250m         | 2.63       | 33.588 | 0.59       | 33.369 | 1.48       | 33.450 | 0.87       | 33.376 | 0.87       | 33.393 | 2.76       | 33.590 | 0.33       | 33.301 |            |        | -0.47      | 33.217 | 1.28       | 34.094 |        |
| 300m         | 2.99       | 33.661 | 0.76       | 33.422 | 1.25       | 33.478 | 1.17       | 33.458 | 1.68       | 33.503 | 2.14       | 33.576 | 0.67       | 33.388 |            |        | 0.14       | 33.307 | 1.11       | 34.094 |        |
| 400m         | 2.14       | 33.649 | 1.87       | 33.640 | 1.45       | 33.592 | 1.58       | 33.599 | 1.55       | 33.583 | 1.87       | 33.632 | 2.02       | 33.605 |            |        | 1.16       | 33.563 | 0.90       | 34.088 |        |
| 500m         | 1.97       | 33.777 | 1.87       | 33.757 | 1.64       | 33.712 | 1.71       | 33.732 | 1.64       | 33.703 | 1.70       | 33.710 | 1.68       | 33.686 |            |        | 1.69       | 33.741 | 0.62       | 34.078 |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            | 0.49   | 34.076 |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |        |

Table 6-34

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | WTC02      |        | WTC03      |        | WTC04      |        | WTC05      |        | WTC06      |        | WTC07      |        | J21        |        | J22        |        | J23        |        | J24        |        |
| Latitude:N   | 42-20.0    |        | 42-20.0    |        | 42-18.0    |        | 43- 1.0    |        | 43- 1.6    |        | 43-24.9    |        | 44-30.0    |        | 44-30.1    |        | 44-30.1    |        | 44-30.1    |        |
| Longitude:E  | 139-20.0   |        | 139-40.0   |        | 139-40.1   |        | 140-14.9   |        | 139-57.0   |        | 140-10.7   |        | 141-29.9   |        | 141-15.1   |        | 141- 0.2   |        | 140-40.0   |        |
| Date         | 1997/10/13 |        | 1997/10/13 |        | 1997/10/14 |        | 1997/10/15 |        | 1997/10/15 |        | 1997/10/16 |        | 1997/10/23 |        | 1997/10/24 |        | 1997/10/24 |        | 1997/10/24 |        |
| Time(JST)    | 12:57      |        | 14:56      |        | 09:28      |        | 09:24      |        | 13:31      |        | 11:48      |        | 23:54      |        | 01:09      |        | 02:31      |        | 04:19      |        |
| Weather      |            |        |            |        | BC         |        | BC         |        | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |        |
| Air Temp.    |            |        |            |        |            |        |            |        |            |        |            |        | 14.3       |        | 14.1       |        | 14.1       |        | 13.7       |        |
| Bar          |            |        |            |        |            |        |            |        |            |        |            |        | 1017.0     |        | 1017.0     |        | 1017.0     |        | 1016.5     |        |
| Wind Dir     |            |        | W          |        |            |        |            |        |            |        |            |        | SW         |        | SW         |        | SW         |        | SSW        |        |
| Wind Spd/F   |            |        | S 6        |        |            |        |            |        |            |        |            |        | S 7        |        | S 6        |        | S 5        |        | S 6        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        |            |        |            |        |            |        |            |        |            |        |            |        | 78         |        | 117        |        | 196        |        | 143        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 15.8       | 33.860 | 17.8       | 33.727 | 17.4       | 33.788 | 15.7       | 34.059 | 16.0       | 34.009 | 16.0       | 34.053 | 14.9       | 34.097 | 14.8       | 34.017 | 14.6       | 34.069 | 13.5       | 34.126 |
| 10m          | 15.93      | 33.858 | 17.87      | 33.722 | 17.46      | 33.777 | 15.76      | 34.052 | 15.98      | 34.006 | 15.68      | 34.046 | 14.95      | 33.979 | 14.84      | 34.030 | 14.64      | 34.060 | 13.42      | 34.130 |
| 20m          | 15.70      | 33.875 | 17.86      | 33.722 | 17.36      | 33.837 | 15.75      | 34.055 | 15.90      | 34.027 | 15.51      | 34.035 | 14.94      | 33.981 | 14.76      | 34.066 | 14.62      | 34.057 | 13.41      | 34.130 |
| 30m          | 15.18      | 33.971 | 16.85      | 34.024 | 14.74      | 34.384 | 15.74      | 34.058 | 15.88      | 34.030 | 15.39      | 34.042 | 14.94      | 33.985 | 14.72      | 34.074 | 14.61      | 34.056 | 13.34      | 34.127 |
| 50m          | 9.11       | 34.300 | 11.28      | 34.395 | 11.89      | 34.410 | 12.77      | 34.345 | 15.81      | 34.044 | 11.48      | 34.340 | 14.94      | 33.988 | 14.72      | 34.078 | 14.56      | 34.060 | 13.35      | 34.128 |
| 75m          | 6.37       | 34.198 | 8.23       | 34.265 | 9.61       | 34.315 | 9.57       | 34.293 | 11.06      | 34.335 | 7.38       | 34.224 |            |        | 14.63      | 34.097 | 10.51      | 34.328 | 9.64       | 34.300 |
| 100m         | 4.22       | 34.123 | 5.80       | 34.178 | 5.88       | 34.192 | 7.12       | 34.215 | 7.80       | 34.240 | 5.72       | 34.171 |            |        | 11.88      | 34.337 | 7.63       | 34.226 | 8.09       | 34.242 |
| 125m         | 3.05       | 34.103 | 3.68       | 34.127 | 4.66       | 34.142 | 5.36       | 34.161 | 5.91       | 34.178 | 4.26       | 34.144 |            |        |            |        | 6.27       | 34.181 | 5.96       | 34.175 |
| 150m         | 2.16       | 34.098 | 3.09       | 34.110 | 3.48       | 34.119 | 4.41       | 34.141 | 4.60       | 34.149 | 3.28       | 34.117 |            |        |            |        | 4.91       | 34.151 |            |        |
| 200m         | 1.66       | 34.094 | 2.38       | 34.094 | 2.27       | 34.096 | 2.47       | 34.109 | 2.81       | 34.110 | 2.25       | 34.102 |            |        |            |        |            |        |            |        |
| 250m         | 1.30       | 34.090 | 1.97       | 34.090 | 1.80       | 34.087 | 1.74       | 34.092 | 1.82       | 34.093 | 1.43       | 34.087 |            |        |            |        |            |        |            |        |
| 300m         | 1.12       | 34.088 | 1.47       | 34.085 | 1.26       | 34.085 | 1.27       | 34.084 | 1.39       | 34.085 | 1.09       | 34.081 |            |        |            |        |            |        |            |        |
| 400m         | 0.98       | 34.092 | 0.79       | 34.077 | 0.76       | 34.076 | 0.92       | 34.079 | 0.80       | 34.078 | 0.75       | 34.076 |            |        |            |        |            |        |            |        |
| 500m         | 0.69       | 34.079 | 0.53       | 34.074 |            |        | 0.69       | 34.076 | 0.54       | 34.074 |            |        |            |        |            |        |            |        |            |        |
| 600m         | 0.54       | 34.077 | 0.32       | 34.071 |            |        | 0.46       | 34.073 | 0.40       | 34.072 |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-35

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J25        |        | J26        |        | J27        |        | JW11       |        | JW12       |        | JW13       |        | J12        |        | J13        |        | J14        |        | J15        |        |
| Latitude:N   | 44-30.1    |        | 44-30.0    |        | 44-30.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45-30.1    |        | 45-30.0    |        | 45-30.1    |        | 45-29.9    |        |
| Longitude:E  | 140-20.0   |        | 140- 0.0   |        | 139-30.1   |        | 141-29.8   |        | 141-15.1   |        | 141- 0.2   |        | 141-25.1   |        | 141- 9.9   |        | 140-55.3   |        | 140-40.1   |        |
| Date         | 1997/10/24 |        | 1997/10/24 |        | 1997/10/24 |        | 1997/10/24 |        | 1997/10/24 |        | 1997/10/24 |        | 1997/10/25 |        | 1997/10/25 |        | 1997/10/25 |        | 1997/10/25 |        |
| Time(JST)    | 06:01      |        | 07:53      |        | 10:48      |        | 20:12      |        | 21:44      |        | 23:17      |        | 08:58      |        | 10:18      |        | 12:07      |        | 13:36      |        |
| Weather      | C          |        | R          |        | C          |        | C          |        | C          |        | R          |        | C          |        | C          |        | BC         |        | BC         |        |
| Air Temp.    | 13.4       |        | 13.2       |        | 12.8       |        | 13.5       |        | 14.0       |        | 12.7       |        | 8.9        |        | 9.0        |        | 7.3        |        | 5.7        |        |
| Bar          | 1015.5     |        | 1015.5     |        | 1013.0     |        | 1011.2     |        | 1010.3     |        | 1009.5     |        | 1009.0     |        | 1009.1     |        | 1009.5     |        | 1009.5     |        |
| Wind Dir     | SSW        |        | SSW        |        | S          |        | SSE        |        | SSE        |        | S          |        | WNW        |        | WNW        |        | WNW        |        | WNW        |        |
| Wind Spd/F   | S 7        |        | S 7        |        | S 11       |        | S 12       |        | S 8        |        | S 11       |        | S 9        |        | S 7        |        | S 10       |        | S 8        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        | 12         |        | 11         |        | 11         |        | 13         |        |
| Depth        | 246        |        | 575        |        | 499        |        | 65         |        | 84         |        | 92         |        | 112        |        | 127        |        | 119        |        | 550        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.6       | 34.070 | 12.8       | 34.033 | 12.8       | 34.004 | 14.5       | 34.019 | 14.8       | 34.010 | 14.4       | 34.024 | 14.0       | 34.044 | 13.8       | 34.067 | 12.7       | 34.103 | 10.8       | 34.03* |
| 10m          | 12.56      | 34.065 | 12.60      | 34.011 | 12.70      | 34.004 | 14.73      | 34.013 | 14.69      | 34.015 | 14.61      | 34.013 | 14.21      | 34.048 | 13.92      | 34.057 | 13.63      | 34.092 | 10.94      | 34.026 |
| 20m          | 12.56      | 34.073 | 12.60      | 34.027 | 12.70      | 34.006 | 14.73      | 34.014 | 14.69      | 34.026 | 14.62      | 34.015 | 14.21      | 34.049 | 13.86      | 34.058 | 13.21      | 34.091 | 10.94      | 34.027 |
| 30m          | 12.49      | 34.070 | 12.58      | 34.055 | 12.70      | 34.007 | 14.47      | 34.033 | 14.59      | 34.052 | 14.62      | 34.020 | 14.11      | 34.059 | 13.85      | 34.060 | 12.71      | 34.071 | 10.42      | 34.040 |
| 50m          | 12.30      | 34.209 | 9.20       | 34.269 | 5.36       | 34.181 | 13.95      | 34.084 | 14.34      | 34.039 | 12.56      | 34.302 | 13.42      | 34.068 | 13.43      | 34.080 | 11.55      | 34.302 | 7.56       | 34.165 |
| 75m          | 9.55       | 34.275 | 6.75       | 34.192 | 3.97       | 34.124 |            |        | 11.67      | 34.311 | 9.13       | 34.271 | 10.48      | 34.295 | 12.04      | 34.163 | 9.90       | 34.283 | 5.02       | 34.146 |
| 100m         | 7.57       | 34.222 | 5.11       | 34.148 | 3.03       | 34.115 |            |        |            |        |            |        | 6.97       | 34.182 | 8.48       | 34.248 | 8.35       | 34.243 | 3.79       | 34.125 |
| 125m         | 5.91       | 34.170 | 3.39       | 34.113 | 2.41       | 34.099 |            |        |            |        |            |        |            |        |            |        |            |        | 2.80       | 34.117 |
| 150m         | 4.70       | 34.135 | 2.60       | 34.101 | 1.92       | 34.094 |            |        |            |        |            |        |            |        |            |        |            |        | 2.31       | 34.111 |
| 200m         | 2.84       | 34.108 | 1.84       | 34.091 | 1.37       | 34.086 |            |        |            |        |            |        |            |        |            |        |            |        | 1.68       | 34.100 |
| 250m         |            |        | 1.41       | 34.086 | 1.11       | 34.083 |            |        |            |        |            |        |            |        |            |        |            |        | 1.44       | 34.092 |
| 300m         |            |        | 1.19       | 34.085 | 0.91       | 34.079 |            |        |            |        |            |        |            |        |            |        |            |        | 1.17       | 34.086 |
| 400m         |            |        | 0.83       | 34.079 | 0.62       | 34.074 |            |        |            |        |            |        |            |        |            |        |            |        | 0.80       | 34.077 |
| 500m         |            |        | 0.53       | 34.073 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.50       | 34.074 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-36

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        | 199710     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J16        |        | J17        |        | J18        |        | JW17       |        | JW16       |        | JW15       |        | JW14       |        | JW03       |        | JW02       |        | JW01       |        |
| Latitude:N   | 45-30.1    |        | 45-30.1    |        | 45-30.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.1    |        | 45-45.1    |        | 45-45.0    |        | 45-45.0    |        |
| Longitude:E  | 140-20.1   |        | 140- 0.3   |        | 139-40.0   |        | 139-40.1   |        | 140- 0.0   |        | 140-20.2   |        | 140-40.1   |        | 141- 0.0   |        | 141-10.5   |        | 141-19.9   |        |
| Date         | 1997/10/25 |        | 1997/10/25 |        | 1997/10/25 |        | 1997/10/25 |        | 1997/10/26 |        | 1997/10/26 |        | 1997/10/26 |        | 1997/10/26 |        | 1997/10/26 |        | 1997/10/26 |        |
| Time(JST)    | 16:06      |        | 18:02      |        | 20:01      |        | 23:39      |        | 01:27      |        | 03:27      |        | 05:02      |        | 13:55      |        | 15:05      |        | 15:57      |        |
| Weather      | BC         |        | BC         |        | BC         |        | C          |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        |
| Air Temp.    | 5.1        |        | 4.5        |        | 4.7        |        | 4.2        |        | 5.6        |        | 5.3        |        | 5.5        |        | 5.0        |        | 4.6        |        | 5.1        |        |
| Bar          | 1009.5     |        | 1010.0     |        | 1009.0     |        | 1007.8     |        | 1007.0     |        | 1006.0     |        | 1005.0     |        | 1001.5     |        | 1001.5     |        | 1001.0     |        |
| Wind Dir     | W          |        | NW         |        | NW         |        | WSW        |        | NW         |        | NW         |        | NW         |        | WNW        |        | WNW        |        | WNW        |        |
| Wind Spd/F   | S 6        |        | S 5        |        | S 6        |        | S 2        |        | S 8        |        | S 7        |        | S 7        |        | S 11       |        | S 11       |        | S 11       |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 12         |        | 10         |        |            |        |
| Depth        | 398        |        | 591        |        | 841        |        | 801        |        | 282        |        | 160        |        | 367        |        | 498        |        | 120        |        | 126        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.9        | 33.828 | 8.3        | 33.846 | 9.0        | 33.757 | 11.2       | 34.007 | 12.0       | 34.073 | 12.2       | 34.106 | 12.8       | 34.042 | 12.3       | 34.114 | 12.9       | 34.033 | 13.0       | 34.079 |
| 10m          | 8.99       | 33.831 | 8.76       | 33.837 | 9.33       | 33.763 | 11.63      | 34.009 | 12.45      | 34.065 | 13.35      | 34.096 | 12.93      | 34.050 | 13.42      | 34.071 | 13.13      | 34.071 | 13.13      | 34.081 |
| 20m          | 9.00       | 33.832 | 8.89       | 33.888 | 9.35       | 33.764 | 11.54      | 34.016 | 12.43      | 34.066 | 13.35      | 34.096 | 12.91      | 34.049 | 13.34      | 34.067 | 13.14      | 34.071 | 13.14      | 34.081 |
| 30m          | 8.60       | 33.945 | 8.25       | 34.065 | 9.41       | 33.948 | 11.17      | 34.021 | 12.44      | 34.066 | 13.35      | 34.097 | 12.82      | 34.045 | 13.34      | 34.066 | 13.16      | 34.071 | 13.14      | 34.081 |
| 50m          | 5.33       | 34.161 | 5.14       | 34.160 | 4.20       | 34.134 | 9.32       | 34.130 | 9.90       | 34.301 | 13.04      | 34.167 | 12.64      | 34.093 | 12.71      | 34.112 | 13.16      | 34.071 | 13.14      | 34.082 |
| 75m          | 3.91       | 34.132 | 3.85       | 34.127 | 2.13       | 34.073 | 5.30       | 34.163 | 7.11       | 34.217 | 10.37      | 34.323 | 10.22      | 34.315 | 10.68      | 34.317 | 13.14      | 34.071 | 12.99      | 34.096 |
| 100m         | 3.13       | 34.123 | 3.18       | 34.122 | 1.87       | 34.063 | 4.14       | 34.136 | 4.41       | 34.137 | 7.70       | 34.248 | 8.09       | 34.244 | 8.75       | 34.263 | 11.30      | 34.199 | 11.12      | 34.282 |
| 125m         | 2.53       | 34.121 | 2.73       | 34.120 | 2.01       | 34.106 | 3.30       | 34.127 | 3.41       | 34.119 | 5.85       | 34.177 | 6.07       | 34.180 | 7.10       | 34.200 |            |        |            |        |
| 150m         | 2.24       | 34.119 | 2.36       | 34.113 | 1.76       | 34.102 | 2.72       | 34.125 | 2.49       | 34.105 | 4.70       | 34.141 | 4.66       | 34.144 | 5.54       | 34.162 |            |        |            |        |
| 200m         | 1.69       | 34.100 | 1.94       | 34.111 | 1.44       | 34.092 | 2.02       | 34.113 | 2.29       | 34.099 |            |        | 3.19       | 34.121 | 3.43       | 34.126 |            |        |            |        |
| 250m         | 1.39       | 34.094 | 1.52       | 34.096 | 1.20       | 34.090 | 1.40       | 34.090 |            |        |            |        | 1.45       | 34.094 | 1.45       | 34.097 |            |        |            |        |
| 300m         | 0.99       | 34.082 | 1.35       | 34.095 | 1.01       | 34.086 | 1.17       | 34.087 |            |        |            |        | 0.93       | 34.079 | 1.07       | 34.081 |            |        |            |        |
| 400m         |            |        | 0.89       | 34.081 | 0.67       | 34.076 | 0.88       | 34.081 |            |        |            |        |            |        | 0.71       | 34.075 |            |        |            |        |
| 500m         |            |        | 0.47       | 34.073 | 0.48       | 34.073 | 0.57       | 34.074 |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-37

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199710     |        | 199711     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J11        |        | WSK01      |        | S103       |        | S102       |        | S101       |        | S300       |        | S301       |        | S399       |        | S302       |        | J102       |        |
| Latitude:N   | 45-30.0    |        | 45- 8.5    |        | 45-40.0    |        | 45-35.0    |        | 45-31.0    |        | 45-27.0    |        | 45-30.2    |        | 45-32.6    |        | 45-35.0    |        | 45-30.1    |        |
| Longitude:E  | 141-40.1   |        | 144-37.5   |        | 142- 0.0   |        | 141-59.9   |        | 142- 0.0   |        | 142- 8.0   |        | 142- 9.9   |        | 142-12.4   |        | 142-14.9   |        | 141-25.1   |        |
| Date         | 1997/10/26 |        | 1997/11/20 |        | 1997/12/04 |        | 1997/12/04 |        | 1997/12/04 |        | 1997/12/04 |        | 1997/12/04 |        | 1997/12/04 |        | 1997/12/04 |        | 1997/12/05 |        |
| Time(JST)    | 17:55      |        | 10:20      |        | 16:08      |        | 17:30      |        | 18:35      |        | 19:24      |        | 20:26      |        | 20:50      |        | 21:42      |        | 03:12      |        |
| Weather      | C          |        |            |        | C          |        | C          |        | C          |        | S          |        | C          |        | S          |        | C          |        | BC         |        |
| Air Temp.    | 5.7        |        |            |        | -0.9       |        | 0.1        |        | 0.7        |        | 0.3        |        | 0.6        |        | 0.8        |        | 0.5        |        | 0.6        |        |
| Bar          | 1001.0     |        |            |        | 1026.0     |        | 1026.0     |        | 1026.5     |        | 1027.0     |        | 1027.0     |        | 1026.9     |        | 1026.9     |        | 1027.0     |        |
| Wind Dir     | WNW        |        |            |        | W          |        | W          |        | W          |        | WSW        |        | WSW        |        | WSW        |        | WSW        |        | W          |        |
| Wind Spd/F   | S 13       |        |            |        | S 10       |        | S 11       |        | S 10       |        | S 8        |        | S 9        |        | S 9        |        | S 9        |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 52         |        |            |        | 56         |        | 39         |        | 27         |        | 22         |        | 38         |        | 45         |        | 49         |        | 112        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 12.9       | 33.535 | 6.7*       | 32.78* | 4.9        | 33.550 | 7.9        | 34.189 | 7.9        | 34.011 | 7.9        | 34.172 | 7.9        | 34.156 | 5.0        | 32.991 | 3.8        | 32.181 | 8.1        | 34.174 |
| 10m          | 13.77      | 33.497 | 6.73       | 32.781 | 4.94       | 33.547 | 8.28       | 34.168 | 8.00       | 34.008 | 8.06       | 34.174 | 8.01       | 34.152 | 6.72       | 33.734 | 3.91       | 32.178 | 8.98       | 34.162 |
| 20m          | 13.89      | 33.565 | 6.72       | 32.781 | 5.64       | 33.702 | 8.29       | 34.168 | 8.01       | 34.009 |            |        | 7.94       | 34.160 | 7.32       | 33.963 | 5.00       | 33.148 | 8.98       | 34.162 |
| 30m          | 14.24      | 33.835 | 6.73       | 32.784 | 6.61       | 33.942 | 8.29       | 34.168 |            |        |            |        | 7.92       | 34.163 | 7.55       | 34.049 | 6.30       | 33.763 | 8.97       | 34.162 |
| 50m          |            |        | 4.15       | 33.045 | 7.02       | 34.053 |            |        |            |        |            |        |            |        |            |        |            |        | 8.75       | 34.167 |
| 75m          |            |        | 1.31       | 33.165 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 8.53       | 34.170 |
| 100m         |            |        | 0.22       | 33.130 |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 7.84       | 34.177 |
| 125m         |            |        | -0.19      | 33.158 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        | 0.15       | 33.199 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        | 0.11       | 33.230 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        | 0.47       | 33.306 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        | 1.05       | 33.405 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        | 1.54       | 33.567 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        | 1.68       | 33.700 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        | 1.89       | 33.839 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        | 2.15       | 34.019 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-38



Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | JW01       |        | J101       |        | O15        |        | OA10       |        | O14        |        | O13        |        | O12        |        | O11        |        | OA02       |        | O22        |        |
| Latitude:N   | 45-45.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.2    |        | 45-30.0    |        | 45-20.0    |        | 45-12.5    |        | 45- 8.9    |        | 44-52.5    |        | 44-34.9    |        |
| Longitude:E  | 141-20.0   |        | 141-40.0   |        | 142- 9.9   |        | 142-29.9   |        | 142-50.1   |        | 142-40.0   |        | 142-32.4   |        | 142-28.6   |        | 142-52.3   |        | 143-14.8   |        |
| Date         | 1997/12/05 |        | 1997/12/05 |        | 1997/12/09 |        | 1997/12/09 |        | 1997/12/09 |        | 1997/12/09 |        | 1997/12/09 |        | 1997/12/09 |        | 1997/12/09 |        | 1997/12/10 |        |
| Time(JST)    | 05:20      |        | 07:46      |        | 12:31      |        | 15:21      |        | 16:49      |        | 18:39      |        | 19:49      |        | 20:25      |        | 22:38      |        | 00:50      |        |
| Weather      | BC         |        | C          |        | BC         |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 0.7        |        | 1.3        |        | 5.9        |        | 5.6        |        | 5.5        |        | 3.9        |        | 3.5        |        | 3.7        |        | 4.5        |        | 4.4        |        |
| Bar          | 1027.0     |        | 1028.0     |        | 1003.5     |        | 1003.5     |        | 1006.0     |        | 1008.0     |        | 1008.0     |        | 1009.5     |        | 1010.5     |        | 1011.0     |        |
| Wind Dir     | W          |        | W          |        | SE         |        | SSE        |        | S          |        | WSW        |        | WSW        |        | WSW        |        | WSW        |        | WSW        |        |
| Wind Spd/F   | S 9        |        | S 9        |        | S 12       |        | S 8        |        | S 7        |        | S 13       |        | S 11       |        | S 11       |        | S 8        |        | S 7        |        |
| Transparency |            |        |            |        | 18         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 125        |        | 55         |        | 38         |        | 83         |        | 118        |        | 97         |        | 62         |        | 41         |        | 84         |        | 70         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 8.6        | 34.168 | 8.6        | 34.072 | 7.4        | 34.039 | 4.7        | 32.589 | 3.4        | 31.810 | 4.1        | 31.954 | 3.6        | 32.449 | 7.2        | 33.958 | 3.8        | 31.847 | 3.8        | 31.815 |
| 10m          | 8.82       | 34.163 | 8.85       | 34.073 | 7.47       | 34.144 | 4.73       | 32.617 | 3.18       | 31.795 | 4.08       | 31.943 | 3.55       | 32.441 | 7.38       | 33.957 | 3.80       | 31.846 | 3.78       | 31.810 |
| 20m          | 8.82       | 34.163 | 8.85       | 34.072 | 7.48       | 34.147 | 4.74       | 32.703 | 3.15       | 31.797 | 4.00       | 31.940 | 3.49       | 32.438 | 7.41       | 33.966 | 3.79       | 31.855 | 3.75       | 31.822 |
| 30m          | 8.81       | 34.162 | 8.77       | 34.066 | 7.48       | 34.147 | 4.74       | 32.766 | 3.10       | 31.799 | 2.59       | 32.014 | 3.63       | 32.562 | 7.54       | 34.048 | 3.92       | 32.350 | 3.78       | 31.863 |
| 50m          | 8.81       | 34.160 |            |        |            |        | 5.29       | 33.234 | 3.05       | 31.799 | 2.86       | 32.236 | 6.82       | 33.918 |            |        | 1.37       | 32.784 | 4.15       | 32.307 |
| 75m          | 8.76       | 34.159 |            |        |            |        |            |        | 2.81       | 32.104 | 2.13       | 32.594 |            |        |            |        | 6.75       | 33.884 |            |        |
| 100m         | 7.74       | 34.168 |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-39

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199712     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | O23        |        | O24        |        | O25        |        | O26        |        | OA05       |        | J11        |        | J12        |        | J13        |        | J14        |        | J15        |        |
| Latitude:N   | 44-40.0    |        | 44-50.0    |        | 45- 0.0    |        | 45-10.1    |        | 45-20.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.0    |        | 45-30.2    |        | 45-30.0    |        |
| Longitude:E  | 143-20.0   |        | 143-30.0   |        | 143-40.1   |        | 143-50.0   |        | 143-20.1   |        | 141-40.0   |        | 141-24.8   |        | 141-10.2   |        | 140-53.1   |        | 140-40.2   |        |
| Date         | 1997/12/10 |        | 1997/12/10 |        | 1997/12/10 |        | 1997/12/10 |        | 1997/12/10 |        | 1998/02/16 |        | 1998/02/16 |        | 1998/02/16 |        | 1998/02/16 |        | 1998/02/16 |        |
| Time(JST)    | 01:39      |        | 03:07      |        | 04:43      |        | 06:19      |        | 09:29      |        | 10:33      |        | 11:45      |        | 12:52      |        | 14:25      |        | 15:31      |        |
| Weather      | BC         |        | BC         |        | BC         |        | C          |        | C          |        | C          |        | C          |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 4.2        |        | 3.8        |        | 3.9        |        | 4.0        |        | 3.7        |        | -5.1       |        | -5.0       |        | -5.1       |        | -4.8       |        | -5.6       |        |
| Bar          | 1011.0     |        | 1011.5     |        | 1011.5     |        | 1010.5     |        | 1011.0     |        | 1019.5     |        | 1019.5     |        | 1019.5     |        | 1020.1     |        | 1020.8     |        |
| Wind Dir     | W          |        | SW         |        | SW         |        | SSW        |        | SW         |        | WNW        |        | WNW        |        | NW         |        | NW         |        | NW         |        |
| Wind Spd/F   | S 8        |        | S 7        |        | S 6        |        | S 5        |        | S 4        |        | S 7        |        | S 8        |        | S 7        |        | S 8        |        | S 7        |        |
| Transparency |            |        |            |        |            |        |            |        | 15         |        | 11         |        | 15         |        | 18         |        | 20         |        | 23         |        |
| Depth        | 112        |        | 149        |        | 170        |        | 335        |        | 143        |        | 56         |        | 114        |        | 129        |        | 150        |        | 553        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.4        | 31.657 | 3.8        | 31.731 | 4.3        | 32.660 | 4.4        | 32.726 | 3.3        | 31.751 | 3.0        | 33.920 | 3.9        | 31.672 | 3.6        | 34.085 | 4.2        | 34.092 | 3.5        | 34.138 |
| 10m          | 4.01       | 31.657 | 3.85       | 31.732 | 4.35       | 32.668 | 4.51       | 32.735 | 3.28       | 31.747 | 3.04       | 33.910 | 3.84       | 34.130 | 3.74       | 34.080 | 4.64       | 34.120 | 3.82       | 34.140 |
| 20m          | 3.49       | 31.811 | 3.73       | 31.794 | 4.36       | 32.669 | 4.55       | 32.754 | 3.06       | 31.815 | 2.99       | 33.910 | 3.84       | 34.130 | 3.74       | 34.080 | 4.64       | 34.119 | 3.82       | 34.140 |
| 30m          | 3.67       | 31.877 | 2.74       | 32.239 | 4.36       | 32.670 | 4.55       | 32.761 | 2.75       | 31.998 | 2.98       | 33.916 | 3.85       | 34.130 | 3.75       | 34.080 | 4.57       | 34.126 | 3.82       | 34.140 |
| 50m          | 3.06       | 32.080 | 3.22       | 32.355 | 4.43       | 32.697 | 4.56       | 32.774 | 2.36       | 32.062 | 3.03       | 33.922 | 3.85       | 34.131 | 3.75       | 34.081 | 4.53       | 34.127 | 3.74       | 34.141 |
| 75m          | 2.75       | 32.708 | 2.60       | 32.635 | 1.39       | 32.910 | 4.04       | 32.868 | 2.11       | 32.130 |            |        | 3.86       | 34.132 | 3.71       | 34.076 | 4.10       | 34.145 | 3.52       | 34.148 |
| 100m         | 6.99       | 33.922 | 1.32       | 32.890 | 1.14       | 33.050 | 1.51       | 33.106 | 1.97       | 32.137 |            |        | 3.84       | 34.131 | 3.69       | 34.073 | 3.92       | 34.148 | 3.41       | 34.142 |
| 125m         |            |        | 0.33       | 32.970 | -0.03      | 33.036 | 0.88       | 33.139 | 2.42       | 32.397 |            |        |            |        |            |        | 3.79       | 34.150 | 2.92       | 34.131 |
| 150m         |            |        |            |        | 0.08       | 33.062 | 0.81       | 33.167 |            |        |            |        |            |        |            |        |            |        | 2.40       | 34.116 |
| 200m         |            |        |            |        |            |        | 0.41       | 33.197 |            |        |            |        |            |        |            |        |            |        | 1.77       | 34.097 |
| 250m         |            |        |            |        |            |        | 0.50       | 33.224 |            |        |            |        |            |        |            |        |            |        | 1.29       | 34.090 |
| 300m         |            |        |            |        |            |        | 0.51       | 33.225 |            |        |            |        |            |        |            |        |            |        | 1.00       | 34.084 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.66       | 34.077 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 0.38       | 34.073 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-40

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J16        |        | J17        |        | J18        |        | JW15       |        | JW16       |        | J27        |        | J26        |        | J25        |        | J24        |        | J23        |        |
| Latitude:N   | 45-30.1    |        | 45-30.0    |        | 45-30.1    |        | 45- 0.0    |        | 45- 0.0    |        | 44-30.0    |        | 44-30.0    |        | 44-30.0    |        | 44-30.0    |        | 44-30.0    |        |
| Longitude:E  | 140-19.9   |        | 140- 0.1   |        | 139-40.0   |        | 140-20.1   |        | 140- 0.2   |        | 139-30.0   |        | 140- 0.1   |        | 140-20.2   |        | 140-40.1   |        | 141- 0.1   |        |
| Date         | 1998/02/16 |        | 1998/02/16 |        | 1998/02/16 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        |
| Time(JST)    | 17:13      |        | 18:44      |        | 20:20      |        | 00:15      |        | 01:42      |        | 05:09      |        | 07:19      |        | 09:00      |        | 10:29      |        | 11:54      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | C          |        | C          |        | S          |        | C          |        |
| Air Temp.    | -6.3       |        | -6.3       |        | -5.4       |        | -4.5       |        | -4.3       |        | -3.5       |        | -2.8       |        | -3.0       |        | -3.8       |        | -4.5       |        |
| Bar          | 1021.5     |        | 1022.5     |        | 1023.0     |        | 1023.0     |        | 1023.0     |        | 1023.0     |        | 1023.5     |        | 1024.0     |        | 1024.5     |        | 1024.5     |        |
| Wind Dir     | NW         |        | NNW        |        | WNW        |        | NNE        |        | NW         |        | NNW        |        | N          |        | NNE        |        | E          |        | ENE        |        |
| Wind Spd/F   | S 6        |        | S 6        |        | S 4        |        | S 1        |        | S 2        |        | S 7        |        | S 8        |        | S 8        |        | S 7        |        | S 4        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 17         |        | 16         |        | 11         |        |
| Depth        | 395        |        | 584        |        | 840        |        | 158        |        | 212        |        | 497        |        | 571        |        | 247        |        | 145        |        | 200        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.1        | 34.162 | 3.4        | 34.155 | 1.9        | 31.888 | 3.6        | 32.183 | 3.8        | 34.142 | 3.8        | 34.160 | 4.2        | 34.138 | 4.9        | 34.123 | 4.8        | 33.588 | 4.6        | 34.075 |
| 10m          | 4.11       | 34.148 | 3.87       | 34.145 | 2.27       | 34.130 | 3.94       | 34.144 | 4.47       | 34.136 | 4.31       | 34.136 | 4.47       | 34.131 | 4.90       | 34.119 | 5.10       | 34.114 | 4.59       | 34.075 |
| 20m          | 4.11       | 34.147 | 3.82       | 34.147 | 2.26       | 34.130 | 3.95       | 34.144 | 4.48       | 34.136 | 4.32       | 34.136 | 4.49       | 34.135 | 4.61       | 34.129 | 5.10       | 34.113 | 4.58       | 34.073 |
| 30m          | 4.11       | 34.147 | 3.79       | 34.147 | 2.28       | 34.131 | 3.95       | 34.144 | 4.47       | 34.136 | 4.32       | 34.136 | 4.49       | 34.136 | 4.59       | 34.128 | 5.10       | 34.114 | 4.58       | 34.073 |
| 50m          | 4.09       | 34.148 | 3.70       | 34.148 | 1.88       | 34.112 | 3.95       | 34.144 | 4.47       | 34.136 | 4.33       | 34.136 | 4.48       | 34.136 | 4.57       | 34.127 | 5.09       | 34.115 | 4.58       | 34.073 |
| 75m          | 4.04       | 34.150 | 3.02       | 34.137 | 1.52       | 34.097 | 2.96       | 34.131 | 4.43       | 34.136 | 4.30       | 34.135 | 4.35       | 34.137 | 4.53       | 34.128 | 5.05       | 34.117 | 4.59       | 34.074 |
| 100m         | 3.96       | 34.153 | 2.82       | 34.145 | 1.35       | 34.093 | 2.75       | 34.127 | 3.27       | 34.153 | 3.53       | 34.130 | 4.24       | 34.137 | 4.12       | 34.123 | 4.98       | 34.119 | 4.59       | 34.073 |
| 125m         | 3.87       | 34.151 | 2.40       | 34.135 | 1.19       | 34.089 | 2.28       | 34.112 | 2.92       | 34.140 | 2.81       | 34.117 | 3.55       | 34.136 | 3.32       | 34.115 | 4.41       | 34.122 | 4.63       | 34.082 |
| 150m         | 3.24       | 34.138 | 1.88       | 34.112 | 1.13       | 34.088 | 2.11       | 34.108 | 2.70       | 34.133 | 2.70       | 34.137 | 3.36       | 34.131 | 2.41       | 34.106 |            |        | 4.77       | 34.119 |
| 200m         | 2.47       | 34.120 | 1.28       | 34.090 | 0.94       | 34.083 |            |        | 2.14       | 34.121 | 2.57       | 34.107 | 1.74       | 34.092 |            |        |            |        |            |        |
| 250m         | 1.62       | 34.092 | 1.08       | 34.087 | 0.83       | 34.081 |            |        | 1.83       | 34.110 | 1.55       | 34.091 |            |        |            |        |            |        |            |        |
| 300m         | 1.17       | 34.086 | 0.91       | 34.083 | 0.64       | 34.077 |            |        | 1.47       | 34.102 | 1.02       | 34.081 |            |        |            |        |            |        |            |        |
| 400m         |            |        | 0.54       | 34.076 | 0.43       | 34.074 |            |        | 0.83       | 34.082 | 0.64       | 34.076 |            |        |            |        |            |        |            |        |
| 500m         |            |        | 0.24       | 34.071 | 0.33       | 34.072 |            |        |            |        | 0.42       | 34.073 |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-41

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        | 199802     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J22        |        | J21        |        | JW11       |        | JW12       |        | JW13       |        | JW14       |        | JW03       |        | JW02       |        | JW01       |        | WKO14      |        |
| Latitude:N   | 44-29.8    |        | 44-30.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45- 0.0    |        | 45-44.9    |        | 45-45.0    |        | 45-45.0    |        | 41-46.2    |        |
| Longitude:E  | 141-15.1   |        | 141-29.9   |        | 141-30.0   |        | 141-15.0   |        | 141- 0.0   |        | 140-39.9   |        | 141- 0.0   |        | 141-10.0   |        | 141-19.9   |        | 143-47.5   |        |
| Date         | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/17 |        | 1998/02/18 |        | 1998/02/18 |        | 1998/02/18 |        | 1998/02/25 |        |
| Time(JST)    | 13:02      |        | 14:06      |        | 16:48      |        | 17:48      |        | 18:50      |        | 20:25      |        | 01:32      |        | 02:23      |        | 03:13      |        | 22:43      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | S          |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | -3.3       |        | 4.4        |        | -5.5       |        | -6.0       |        | -5.7       |        | -4.9       |        | -5.8       |        | -5.9       |        | -6.0       |        | -6.0       |        |
| Bar          | 1024.3     |        | 1024.5     |        | 1027.0     |        | 1028.0     |        | 1029.0     |        | 1030.5     |        | 1033.0     |        | 1033.0     |        | 1033.5     |        | 1033.5     |        |
| Wind Dir     | NE         |        | NE         |        | NE         |        | NE         |        | NNE        |        | N          |        | N          |        | N          |        | N          |        | N          |        |
| Wind Spd/F   | S 4        |        | S 4        |        | S 9        |        | S 10       |        | S 9        |        | S 8        |        | S 8        |        | S 8        |        | S 6        |        | S 6        |        |
| Transparency | 19         |        | 18         |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 119        |        | 80         |        | 66         |        | 86         |        | 98         |        | 369        |        | 102        |        | 123        |        | 115        |        |            |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 4.1        | 34.069 | 3.8        | 34.065 | 1.6        | 33.652 | 3.8        | 30.621 | 4.2        | 34.126 | 4.8        | 33.113 | 4.2        | 34.124 | 3.6        | 34.132 | 2.9        | 34.093 | 0.6*       | 33.18* |
| 10m          | 4.55       | 34.068 | 4.23       | 34.053 | 1.77       | 33.649 | 4.32       | 34.121 | 4.42       | 34.122 | 4.79       | 34.112 | 4.24       | 34.132 | 4.10       | 34.129 | 3.37       | 34.076 | 1.23       | 33.051 |
| 20m          | 4.54       | 34.068 | 4.22       | 34.052 | 2.44       | 33.775 | 4.34       | 34.121 | 4.43       | 34.121 | 4.80       | 34.112 | 4.26       | 34.131 | 4.10       | 34.129 | 3.39       | 34.076 | 1.23       | 33.050 |
| 30m          | 4.54       | 34.067 | 4.19       | 34.049 | 2.57       | 33.796 | 4.33       | 34.121 | 4.42       | 34.122 | 4.80       | 34.113 | 4.10       | 34.133 | 4.10       | 34.129 | 3.39       | 34.076 | 1.22       | 33.050 |
| 50m          | 4.54       | 34.067 | 4.04       | 34.034 | 3.01       | 33.868 | 4.33       | 34.121 | 4.34       | 34.117 | 4.81       | 34.116 | 3.86       | 34.143 | 4.10       | 34.130 | 3.39       | 34.076 | 1.22       | 33.058 |
| 75m          | 4.55       | 34.070 |            |        |            |        | 4.30       | 34.118 | 4.33       | 34.116 | 4.78       | 34.122 | 3.87       | 34.142 | 4.11       | 34.131 | 3.40       | 34.077 | 1.25       | 33.068 |
| 100m         | 4.29       | 34.063 |            |        |            |        |            |        |            |        | 4.55       | 34.133 |            |        | 4.12       | 34.130 | 3.40       | 34.078 | 1.36       | 33.097 |
| 125m         |            |        |            |        |            |        |            |        |            |        | 4.08       | 34.127 |            |        |            |        |            |        | 1.45       | 33.137 |
| 150m         |            |        |            |        |            |        |            |        |            |        | 3.40       | 34.120 |            |        |            |        |            |        | 1.74       | 33.204 |
| 200m         |            |        |            |        |            |        |            |        |            |        | 2.12       | 34.107 |            |        |            |        |            |        | 2.63       | 33.397 |
| 250m         |            |        |            |        |            |        |            |        |            |        | 1.42       | 34.090 |            |        |            |        |            |        | 2.64       | 33.515 |
| 300m         |            |        |            |        |            |        |            |        |            |        | 0.96       | 34.082 |            |        |            |        |            |        | 3.01       | 33.679 |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.04       | 33.836 |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        | 3.29       | 33.956 |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-42

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199709       | 199802       | 199802      | 199802      | 199802      | 199802      | 199802      | 199709      | 199802      | 199803      |
|--------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Station No   | WKO131       | WKO13        | WT01        | WT02        | WKO19       | WKO23       | WKO25       | WKO251      | WKO26       | J101        |
| Latitude:N   | 41-49.5      | 41-53.0      | 41-47.4     | 41-48.6     | 42-18.0     | 42-10.0     | 42- 0.0     | 41-57.6     | 41-55.1     | 45-30.0     |
| Longitude:E  | 143-35.8     | 143-24.0     | 143-41.6    | 143-37.5    | 141-30.0    | 141-30.0    | 141-30.2    | 141-20.0    | 141-10.0    | 141-39.9    |
| Date         | 1998/02/25   | 1998/02/26   | 1998/02/26  | 1998/02/26  | 1998/02/28  | 1998/02/28  | 1998/02/28  | 1998/02/28  | 1998/02/28  | 1998/03/10  |
| Time(JST)    | 23:57        | 01:03        | 09:41       | 10:51       | 01:10       | 06:02       | 09:42       | 10:59       | 11:59       | 14:26       |
| Weather      |              |              |             |             |             |             |             |             |             | BC          |
| Air Temp.    |              |              |             |             |             |             |             |             |             | 0.8         |
| Bar          |              |              |             |             |             |             |             |             |             | 1023.5      |
| Wind Dir     |              |              |             |             |             |             |             |             |             | NW          |
| Wind Spd/F   |              |              |             |             |             |             |             |             |             | S 6         |
| Transparency |              |              |             |             |             |             |             |             |             |             |
| Depth        |              |              |             |             |             |             |             |             |             | 56          |
| Equipment    | CTD          | CTD          | CTD         | CTD         | CTD         | CTD         | CTD         | CTD         | CTD         | CTD         |
| STND. Dep    | T S          | T S          | T S         | T S         | T S         | T S         | T S         | T S         | T S         | T S         |
| 0m           | -0.1* 32.69* | -0.9* 32.52* | 1.2* 32.73* | 1.2* 33.03* | 1.0* 32.79* | 1.5* 32.81* | 1.0* 32.76* | 1.1* 32.79* | 2.2* 32.94* | 3.4 34.022  |
| 10m          | -0.07 32.716 | -0.87 32.503 | 1.15 33.027 | 1.20 33.034 | 1.02 32.803 | 1.54 32.861 | 0.95 32.769 | 1.12 32.798 | 2.11 32.939 | 3.24 34.010 |
| 20m          | 0.70 32.896  | -0.93 32.505 | 1.22 33.035 | 1.21 33.035 | 1.07 32.816 | 1.58 32.864 | 1.19 32.805 | 1.31 32.822 | 2.09 32.939 | 3.24 34.010 |
| 30m          | 1.31 33.031  | -0.92 32.509 | 1.26 33.047 | 1.22 33.042 | 1.24 32.850 | 1.62 32.870 | 1.36 32.838 | 1.45 32.844 | 2.10 32.940 | 3.23 34.010 |
| 50m          | 1.66 33.104  | -0.57 32.577 | 1.12 33.053 | 1.38 33.064 | 1.41 32.885 | 1.64 32.873 | 1.45 32.874 | 1.60 32.871 | 2.13 32.945 | 3.24 34.013 |
| 75m          | 1.69 33.111  | -0.55 32.583 | 1.51 33.094 | 1.43 33.082 | 1.68 32.937 | 1.67 32.879 | 3.04 33.063 | 2.29 32.960 | 2.22 32.961 |             |
| 100m         | 1.65 33.114  |              | 2.07 33.161 | 1.73 33.128 | 2.28 33.039 | 2.03 32.942 | 3.33 33.116 | 2.80 33.040 | 2.43 32.992 |             |
| 125m         | 1.81 33.137  |              | 2.13 33.192 | 2.24 33.210 | 3.03 33.156 | 3.35 33.101 | 3.00 33.109 | 2.99 33.071 | 3.00 33.076 |             |
| 150m         | 2.74 33.262  |              | 2.78 33.303 | 3.36 33.381 | 3.17 33.196 | 2.93 33.080 | 3.56 33.211 | 3.01 33.080 | 3.15 33.103 |             |
| 200m         |              |              | 2.67 33.424 |             | 3.71 33.307 | 4.38 33.337 | 4.61 33.390 | 3.63 33.203 |             |             |
| 250m         |              |              | 2.47 33.477 |             | 4.39 33.445 | 4.64 33.493 | 4.58 33.419 | 4.38 33.347 |             |             |
| 300m         |              |              |             |             | 4.39 33.519 | 4.18 33.514 | 3.86 33.372 |             |             |             |
| 400m         |              |              |             |             | 3.33 33.653 | 3.28 33.634 | 3.70 33.544 |             |             |             |
| 500m         |              |              |             |             |             | 3.40 33.940 |             |             |             |             |
| 600m         |              |              |             |             |             |             |             |             |             |             |
| 700m         |              |              |             |             |             |             |             |             |             |             |
| 800m         |              |              |             |             |             |             |             |             |             |             |
| 900m         |              |              |             |             |             |             |             |             |             |             |
| 1000m        |              |              |             |             |             |             |             |             |             |             |

Table 6-43

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | J102       |        | J103       |        | J104       |        | J105       |        | J106       |        | J107       |        | J108       |        | JW03       |        | JW02       |        | JW01       |        |
| Latitude:N   | 45-30.1    |        | 45-30.0    |        | 45-30.0    |        | 45-30.1    |        | 45-30.1    |        | 45-30.0    |        | 45-30.1    |        | 45-45.0    |        | 45-45.2    |        | 45-45.0    |        |
| Longitude:E  | 141-24.9   |        | 141- 9.9   |        | 140-52.9   |        | 140-40.0   |        | 140-20.2   |        | 139-59.9   |        | 139-40.0   |        | 141- 0.1   |        | 141-10.3   |        | 141-20.1   |        |
| Date         | 1998/03/10 |        | 1998/03/10 |        | 1998/03/10 |        | 1998/03/10 |        | 1998/03/10 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        |
| Time(JST)    | 15:56      |        | 17:29      |        | 19:24      |        | 21:12      |        | 22:58      |        | 02:25      |        | 04:10      |        | 10:06      |        | 11:52      |        | 12:38      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | B          |        | B          |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | -0.3       |        | -0.7       |        | -0.3       |        | 0.4        |        | 0.8        |        | 1.4        |        | 1.3        |        | 4.6        |        | 5.5        |        | 6.8        |        |
| Bar          | 1023.9     |        | 1024.0     |        | 1023.8     |        | 1023.5     |        | 1022.5     |        | 1021.0     |        | 1021.2     |        | 1020.5     |        | 1020.0     |        | 1019.0     |        |
| Wind Dir     | WNW        |        | W          |        | WSW        |        | WSW        |        | WSW        |        | W          |        | WNW        |        | W          |        | W          |        | WSW        |        |
| Wind Spd/F   | S 6        |        | S 6        |        | S 8        |        | S 8        |        | S 10       |        | S 7        |        | S 4        |        | S 6        |        | S 6        |        | S 6        |        |
| Transparency |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| Depth        | 114        |        | 129        |        | 181        |        | 549        |        | 397        |        | 591        |        | 835        |        | 492        |        | 124        |        | 126        |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 3.5        | 34.110 | 3.4        | 34.087 | 4.1        | 34.133 | 4.0        | 34.165 | 3.9        | 34.140 | 3.6        | 34.151 | 3.0        | 34.136 | 3.8        | 34.148 | 3.8        | 34.077 | 3.6        | 34.075 |
| 10m          | 3.50       | 34.105 | 3.42       | 34.080 | 4.11       | 34.127 | 4.04       | 34.131 | 3.87       | 34.134 | 3.40       | 34.144 | 3.05       | 34.138 | 3.70       | 34.148 | 3.10       | 34.034 | 3.45       | 34.070 |
| 20m          | 3.50       | 34.105 | 3.41       | 34.079 | 4.12       | 34.127 | 4.06       | 34.130 | 3.88       | 34.134 | 3.41       | 34.143 | 3.05       | 34.138 | 3.69       | 34.147 | 3.04       | 34.033 | 3.41       | 34.072 |
| 30m          | 3.48       | 34.105 | 3.39       | 34.080 | 4.11       | 34.127 | 3.95       | 34.135 | 3.88       | 34.134 | 3.41       | 34.144 | 3.05       | 34.138 | 3.69       | 34.147 | 3.00       | 34.033 | 3.40       | 34.072 |
| 50m          | 3.50       | 34.109 | 3.39       | 34.083 | 3.88       | 34.109 | 3.92       | 34.135 | 3.88       | 34.134 | 3.41       | 34.144 | 3.04       | 34.138 | 3.69       | 34.148 | 2.99       | 34.033 | 3.37       | 34.071 |
| 75m          | 3.49       | 34.107 | 3.39       | 34.084 | 3.76       | 34.102 | 3.90       | 34.134 | 3.82       | 34.138 | 3.05       | 34.143 | 3.01       | 34.135 | 3.69       | 34.147 | 2.99       | 34.033 | 3.32       | 34.068 |
| 100m         | 3.50       | 34.108 | 3.40       | 34.085 | 3.54       | 34.093 | 3.85       | 34.138 | 3.76       | 34.143 | 2.97       | 34.150 | 2.15       | 34.112 | 3.69       | 34.147 | 3.00       | 34.036 | 3.30       | 34.068 |
| 125m         |            |        |            |        | 3.47       | 34.121 | 3.72       | 34.141 | 3.43       | 34.137 | 2.92       | 34.154 | 2.01       | 34.117 | 3.69       | 34.147 |            |        |            |        |
| 150m         |            |        |            |        | 3.02       | 34.123 | 3.64       | 34.145 | 3.07       | 34.132 | 2.79       | 34.204 | 1.95       | 34.116 | 3.66       | 34.146 |            |        |            |        |
| 200m         |            |        |            |        |            |        | 2.86       | 34.129 | 2.46       | 34.121 | 2.00       | 34.115 | 1.38       | 34.087 | 2.96       | 34.131 |            |        |            |        |
| 250m         |            |        |            |        |            |        | 2.08       | 34.111 | 1.76       | 34.098 | 1.17       | 34.083 | 1.16       | 34.086 | 1.79       | 34.097 |            |        |            |        |
| 300m         |            |        |            |        |            |        | 1.51       | 34.087 | 1.21       | 34.082 | 0.93       | 34.077 | 1.03       | 34.081 | 1.45       | 34.085 |            |        |            |        |
| 400m         |            |        |            |        |            |        | 0.88       | 34.076 |            |        | 0.58       | 34.070 | 0.73       | 34.074 | 0.96       | 34.076 |            |        |            |        |
| 500m         |            |        |            |        |            |        | 0.36       | 34.067 |            |        | 0.38       | 34.068 | 0.54       | 34.069 |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        | 0.39       | 34.067 |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-44

Table 6 Results of serial oceanographic observations. Hokkaido Wakkanai Fisheries Experimental Station

| Stn-prefix   | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        | 199803     |        |
|--------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| Station No   | S103       |        | S102       |        | S101       |        | S300       |        | S301       |        | S399       |        | S302       |        | SA01       |        |
| Latitude:N   | 45-40.0    |        | 45-35.1    |        | 45-31.0    |        | 45-26.8    |        | 45-30.1    |        | 45-32.6    |        | 45-35.1    |        | 45-41.4    |        |
| Longitude:E  | 142- 0.1   |        | 141-59.7   |        | 141-59.9   |        | 142- 8.0   |        | 142-10.0   |        | 142-12.4   |        | 142-14.9   |        | 142- 0.0   |        |
| Date         | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        | 1998/03/11 |        |
| Time(JST)    | 15:56      |        | 16:57      |        | 17:44      |        | 18:31      |        | 19:19      |        | 19:42      |        | 20:21      |        | 22:39      |        |
| Weather      | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        | BC         |        |
| Air Temp.    | 7.4        |        | 3.7        |        | 2.7        |        | 2.3        |        | 1.9        |        | 1.3        |        | 1.1        |        | 1.5        |        |
| Bar          | 1019.0     |        | 1018.7     |        | 1019.9     |        | 1019.3     |        | 1019.1     |        | 1019.0     |        | 1019.0     |        | 1017.8     |        |
| Wind Dir     | WSW        |        | W          |        | WSW        |        | SW         |        | SW         |        | SW         |        | SW         |        | SSW        |        |
| Wind Spd/F   | S 6        |        | S 7        |        | S 4        |        | S 5        |        | S 3        |        | S 3        |        | S 3        |        | S 6        |        |
| Transparency | 57         |        | 39         |        | 26         |        | 22         |        | 38         |        | 44         |        | 49         |        | 72         |        |
| Equipment    | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        | CTD        |        |
| STND. Dep    | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      | T          | S      |
| 0m           | 1.3        | 33.371 | 1.9        | 33.571 | 3.2        | 34.033 | 3.1        | 34.050 | 0.2        | 32.595 | -1.2       | 32.122 | -1.4       | 32.100 | 1.0        | 33.645 |
| 10m          | 1.81       | 33.670 | 1.79       | 33.564 | 3.11       | 34.030 | 3.07       | 34.047 | 0.11       | 32.794 | -1.35      | 32.116 | -1.49      | 32.089 | 1.86       | 33.644 |
| 20m          | 2.32       | 33.881 | 2.46       | 33.870 |            |        |            |        | 2.31       | 33.803 | 0.53       | 33.010 | -0.24      | 32.661 | 2.15       | 33.781 |
| 30m          | 2.32       | 33.886 | 2.60       | 33.923 |            |        |            |        | 2.42       | 33.860 | 1.96       | 33.647 | 0.45       | 32.977 | 2.28       | 33.860 |
| 50m          | 2.34       | 33.901 |            |        |            |        |            |        |            |        |            |        |            |        | 2.29       | 33.891 |
| 75m          |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 100m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 125m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 150m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 200m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 250m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 300m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 400m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 500m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 600m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 700m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 800m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 900m         |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |
| 1000m        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |            |        |

Table 6-45

## Part II. Results of Chemical Analyses

Water samples were taken with Nansen bottle cast on R/V Oyashio Maru cruises in South of Hokkaido, Japan Sea. Sea temperature was determined with Nansen bottles equipped with reversing thermometers. Salinity was measured with an Auto-Lab salinometer (PSS-78). Dissolved oxygen was analyzed in the land laboratory by the Winkler method within 24 hours after sampling at sea. Sea water samples of 200 to 500 ml from selected depth were filtered through Whatman GF/F glass fiber filter covered with a thin layer of  $\text{MgCO}_3$  on board immediately after sampling, stored at  $-20$  in a deep freezer, and brought back to the land laboratory. The GF/C filter had been changed to GF/F glass fiber filter since 1995. These samples were analyzed with a Turner Designs Fluorometer Model 10 to determine concentration of chlorophyll *a*. Nutrients ( $\text{NO}_2\text{-N}$ ,  $\text{NO}_3\text{-N}$  and  $\text{PO}_4\text{-P}$ ) were analyzed with Technicon Auto-Analyzer II.  $\text{SiO}_3\text{-Si}$  was analyzed with molybdenum blue method.



Table 7. Results of chemical analysis. Hokkaido Central Fisheries Experimental Station. N.D.; not detected

| Station No | Position   |             | Japanese Standard |       | Depth<br>m | Temperature | Salinity<br>P.S.U. | Dissolved<br>oxygen ml | Nutrients, $\mu\text{g-atoms/l}$ |                    |                    |                    | Chlorophyll-a<br>$\mu\text{g/l}$ |  |
|------------|------------|-------------|-------------------|-------|------------|-------------|--------------------|------------------------|----------------------------------|--------------------|--------------------|--------------------|----------------------------------|--|
|            | Latitude N | Longitude E | Date              | Time  |            |             |                    |                        | NO <sub>3</sub> -N               | NO <sub>2</sub> -N | PO <sub>4</sub> -P | NH <sub>4</sub> -N | Si                               |  |
| 199704J35  | 43-29.9    | 140-00.1    | 1997/4/14         | 18:41 | 0          | 4.7         | 34.168             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 199        | 2.54        | 34.120             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 293        | 1.30        | 34.077             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 391        | 0.89        | 34.068             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 485        | 0.67        | 34.071             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 579        | 0.54        | 34.072             |                        |                                  |                    |                    |                    |                                  |  |
| 199704J38  | 43-30.1    | 139-00.1    | 1997/4/15         | 0:04  | 0          | 4.1         | 34.157             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 207        | 2.66        | 34.146             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 301        | 1.71        | 34.104             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 402        | 1.02        | 34.073             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 500        | 0.73        | 34.071             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 596        | 0.55        | 34.069             |                        |                                  |                    |                    |                    |                                  |  |
| 199704J41  | 42-30.0    | 139-39.9    | 1997/4/15         | 9:48  | 0          | 6.40        | 34.133             | 2.4                    | 0.09                             | 0.31               |                    | 7.5                | 1.52                             |  |
|            |            |             |                   |       | 10         | 6.46        | 34.135             | 3.7                    | 0.17                             | 0.29               |                    | 6.3                | 1.15                             |  |
|            |            |             |                   |       | 20         | 6.38        | 34.132             | 3.3                    | 0.14                             | 0.20               |                    | 6.7                | 1.18                             |  |
|            |            |             |                   |       | 30         | 6.37        | 34.140             | 3.3                    | 0.13                             | 0.23               |                    | 7.6                | 1.24                             |  |
|            |            |             |                   |       | 49         | 6.18        | 34.142             | 4.3                    | 0.15                             | 0.26               |                    | 8.4                | 0.84                             |  |
|            |            |             |                   |       | 74         | 5.67        | 34.136             | 6.3                    | 0.19                             | 0.34               |                    | 8.9                | 0.29                             |  |
|            |            |             |                   |       | 98         | 5.37        | 34.156             | 5.8                    | 0.17                             | 0.26               |                    | 7.9                | 0.31                             |  |
|            |            |             |                   |       | 123        | 4.46        | 34.126             | 9.5                    | 0.12                             | 0.41               |                    | 9.4                | 0.02                             |  |
|            |            |             |                   |       | 136        | 3.63        | 34.115             | 10.5                   | 0.05                             | 0.48               |                    | 9.2                | 0.01                             |  |
|            |            |             |                   |       | 185        | 2.20        | 34.079             | 14.7                   | N.D.                             | 0.94               |                    | 18.6               | 0.00                             |  |
|            |            |             |                   |       | 264        | 1.29        | 34.074             | 17.8                   | N.D.                             | 1.35               |                    | 28.6               |                                  |  |
|            |            |             |                   |       | 355        | 0.90        | 34.072             | 20.3                   | N.D.                             | 1.39               |                    | 33.5               |                                  |  |
|            |            |             |                   |       | 441        | 0.66        | 34.069             | 22.6                   | N.D.                             | 1.50               |                    | 39.3               |                                  |  |
|            |            |             |                   |       | 534        | 0.51        | 34.069             | 23.5                   | N.D.                             | 1.86               |                    | 47.5               |                                  |  |
| 199704J46  | 42-29.9    | 138-00.1    | 1997/4/15         | 18:56 | 0          | 5.7         | 34.164             | 3.8                    | 0.07                             | 0.38               |                    | 10.1               | 1.08                             |  |
|            |            |             |                   |       | 10         | 5.85        | 34.163             | 4.6                    | 0.10                             | 0.35               |                    | 9.5                | 0.76                             |  |
|            |            |             |                   |       | 20         | 5.84        | 34.160             | 4.6                    | 0.1                              | 0.28               |                    | 10.0               | 0.76                             |  |
|            |            |             |                   |       | 30         | 5.63        | 34.160             | 4.8                    | 0.10                             | 0.43               |                    | 9.9                | 0.76                             |  |
|            |            |             |                   |       | 50         | 5.25        | 34.156             | 5.1                    | 0.10                             | 0.28               |                    | 10.3               | 0.80                             |  |
|            |            |             |                   |       | 75         | 4.16        | 34.153             | 6.7                    | 0.17                             | 0.48               |                    | 11.4               | 0.17                             |  |
|            |            |             |                   |       | 100        | 3.55        | 34.152             | 7.3                    | 0.20                             | 0.44               |                    | 10.9               | 0.10                             |  |
|            |            |             |                   |       | 125        | 3.13        | 34.144             | 8.6                    | 0.20                             | 0.63               |                    | 13.7               | 0.06                             |  |
|            |            |             |                   |       | 149        | 1.73        | 34.075             | 16.1                   | N.D.                             | 0.93               |                    | 21.7               | 0.00                             |  |
|            |            |             |                   |       | 222        | 1.21        | 34.079             | 17.3                   | N.D.                             | 1.23               |                    | 26.1               | 0.00                             |  |
|            |            |             |                   |       | 315        | 0.99        | 34.084             | 18.7                   | N.D.                             | 1.38               |                    | 29.2               |                                  |  |
|            |            |             |                   |       | 416        | 0.73        | 34.081             | 21.8                   | N.D.                             | 1.22               |                    | 35.5               |                                  |  |
|            |            |             |                   |       | 513        | 0.56        | 34.073             | 23.3                   | N.D.                             | 1.77               |                    | 39.3               |                                  |  |
|            |            |             |                   |       | 607        | 0.47        | 34.069             | 23.5                   | N.D.                             | 1.84               |                    | 42.8               |                                  |  |
| 199706J35  | 43-29.8    | 140-00.2    | 1997/5/26         | 17:50 | 0          | 10.2        | 34.054             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 200        | 3.67        | 34.122             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 299        | 1.77        | 34.078             |                        |                                  |                    |                    |                    |                                  |  |
|            |            |             |                   |       | 398        | 1.10        | 34.076             |                        |                                  |                    |                    |                    |                                  |  |

Table 7. Results of chemical analysis. Hokkaido Central Fisheries Experimental Station. N.D.;not detected

| Station No | Position   |             | Japanese Standard |       | Depth<br>m | Temperature | Salinity<br>P.S.U. | Dissolved<br>oxygen ml | Nutrients, $\mu\text{g-atoms/l}$ |                    |                    |                    | Chlorophyll-a<br>$\mu\text{g/l}$ |
|------------|------------|-------------|-------------------|-------|------------|-------------|--------------------|------------------------|----------------------------------|--------------------|--------------------|--------------------|----------------------------------|
|            | Latitude N | Longitude E | Date              | Time  |            |             |                    |                        | NO <sub>3</sub> -N               | NO <sub>2</sub> -N | PO <sub>4</sub> -P | NH <sub>4</sub> -N |                                  |
| 199706J38  | 43-30.0    | 139-00.2    | 1997/5/26         | 22:59 | 497        | 0.83        | 34.078             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 597        | 0.64        | 34.072             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 0          | 7.8         | 34.082             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 200        | 2.03        | 34.107             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 300        | 1.28        | 34.076             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 399        | 0.94        | 34.077             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 499        | 0.72        | 34.073             |                        |                                  |                    |                    |                    |                                  |
| 9706J41    | 42-30.1    | 139-40.0    | 1997/5/27         | 9:39  | 599        | 0.53        | 34.068             |                        |                                  |                    |                    |                    |                                  |
|            |            |             |                   |       | 0          | 12.7        | 33.954             | N.D.                   | N.D.                             | 0.08               |                    | 3.6                | 0.41                             |
|            |            |             |                   |       | 10         | 12.51       | 33.950             | N.D.                   | N.D.                             | N.D.               |                    | 3.6                | 0.33                             |
|            |            |             |                   |       | 20         | 11.66       | 34.016             | N.D.                   | N.D.                             | 0.08               |                    | 4.0                | 0.74                             |
|            |            |             |                   |       | 30         | 11.57       | 34.022             | N.D.                   | N.D.                             | N.D.               |                    | 4.2                | 1.02                             |
|            |            |             |                   |       | 50         | 10.97       | 34.085             | 1.2                    | N.D.                             | 0.16               |                    | 5.0                | 0.49                             |
|            |            |             |                   |       | 75         | 9.54        | 34.144             | 1.8                    | N.D.                             | 0.26               |                    | 6.4                | 0.47                             |
|            |            |             |                   |       | 100        | 8.30        | 34.201             | 6.5                    | N.D.                             | 0.41               |                    | 8.8                | 0.07                             |
|            |            |             |                   |       | 125        | 6.93        | 34.178             | 8.0                    | N.D.                             | 0.62               |                    | 7.2                | 0.07                             |
|            |            |             |                   |       | 149        | 4.82        | 34.134             | 10.9                   | N.D.                             | 0.83               |                    | 13.6               | 0.02                             |
|            |            |             |                   |       | 199        | 2.90        | 34.099             | 13.4                   | N.D.                             | 1.09               |                    | 13.6               | 0.00                             |
|            |            |             |                   |       | 298        | 1.35        | 34.065             | 19.0                   | N.D.                             | 1.53               |                    | 30.5               |                                  |
|            |            |             |                   |       | 398        | 0.90        | 34.065             | 20.5                   | N.D.                             | 1.66               |                    | 34.1               |                                  |
|            |            |             |                   |       | 497        | 0.64        | 34.060             | 22.4                   | N.D.                             | 1.76               |                    | 37.3               |                                  |
|            |            |             |                   |       | 597        | 0.44        | 34.062             | 23.4                   | N.D.                             | 1.95               |                    | 49.4               |                                  |
| 9706J46    | 42-30.0    | 138-00.1    | 1997/5/27         | 19:00 | 0          | 10.2        | 33.974             | N.D.                   | N.D.                             | 0.09               |                    | 6.0                | 0.46                             |
|            |            |             |                   |       | 10         | 8.98        | 33.989             | N.D.                   | N.D.                             | N.D.               |                    | 5.9                | 0.67                             |
|            |            |             |                   |       | 20         | 8.02        | 34.049             | N.D.                   | N.D.                             | 0.15               |                    | 6.6                | 1.39                             |
|            |            |             |                   |       | 30         | 5.84        | 34.127             | 4.8                    | 0.33                             | 0.49               |                    | 11.0               | 0.33                             |
|            |            |             |                   |       | 50         | 4.36        | 34.136             | 7.7                    | 0.35                             | 0.68               |                    | 7.2                | 0.08                             |
|            |            |             |                   |       | 75         | 3.19        | 34.103             | 11.5                   | N.D.                             | 0.96               |                    | 14.2               | 0.03                             |
|            |            |             |                   |       | 100        | 2.53        | 34.093             | 13.0                   | N.D.                             | 1.05               |                    | 18.9               | 0.00                             |
|            |            |             |                   |       | 125        | 2.27        | 34.109             | 13.0                   | N.D.                             | 0.96               |                    |                    | 0.00                             |
|            |            |             |                   |       | 149        | 2.15        | 34.120             | 13.0                   | N.D.                             | 1.09               |                    | 19.6               | 0.01                             |
|            |            |             |                   |       | 198        | 1.39        | 34.086             | 16.6                   | N.D.                             | 1.37               |                    | 21.9               | 0.01                             |
|            |            |             |                   |       | 304        | 1.06        | 34.089             | 17.6                   | N.D.                             | 1.45               |                    | 21.6               |                                  |
|            |            |             |                   |       | 406        | 0.81        | 34.083             | 20.3                   | N.D.                             | 1.68               |                    | 10.4               |                                  |
|            |            |             |                   |       | 506        | 0.57        | 34.068             | 22.8                   | N.D.                             | 1.90               |                    | 34.0               |                                  |
|            |            |             |                   |       | 602        | 0.47        | 34.061             | 23.1                   | N.D.                             | 1.93               |                    | 34.1               |                                  |
|            |            |             |                   |       | 199706JC11 | 43-00.0     | 140-19.9           | 1997/5/29              | 20:50                            | 0                  | 12.5               | 34.104             | N.D.                             |
| 10         | 12.68      | 34.108      | N.D.              | N.D.  |            |             |                    |                        |                                  | N.D.               |                    | 4.5                | 0.28                             |
| 20         | 11.53      | 34.111      | N.D.              | N.D.  |            |             |                    |                        |                                  | N.D.               |                    | 5.0                | 0.41                             |
| 30         | 11.14      | 34.118      | N.D.              | N.D.  |            |             |                    |                        |                                  | N.D.               |                    | 4.9                | 0.96                             |
| 50         | 10.27      | 34.109      | N.D.              | N.D.  |            |             |                    |                        |                                  | 0.21               |                    | 4.6                | 0.16                             |
| 75         | 9.18       | 34.147      | 2.7               | 0.24  |            |             |                    |                        |                                  | 0.33               |                    | 6.2                | 0.07                             |
| 100        | 6.37       | 34.150      | 7.8               | 0.22  |            |             |                    |                        |                                  | 0.67               |                    | 11.7               | 0.03                             |
| 125        | 4.42       | 34.119      | 11.2              | N.D.  |            |             |                    |                        |                                  | 0.89               |                    | 10.0               | 0.02                             |

Table 7. Results of chemical analysis. Hokkaido Central Fisheries Experimental Station. N.D.;not detected

| Station No | Position   |             | Japanese Standard |       | Depth<br>m | Temperature | Salinity | Dissolved<br>P.S.U. oxygen ml | Nutrients, $\mu\text{g-atoms/l}$ |                        |                        |                        | Chlorophyll-a<br>$\mu\text{g/l}$ |      |
|------------|------------|-------------|-------------------|-------|------------|-------------|----------|-------------------------------|----------------------------------|------------------------|------------------------|------------------------|----------------------------------|------|
|            | Latitude N | Longitude E | Date              | Time  |            |             |          |                               | $\text{NO}_3\text{-N}$           | $\text{NO}_2\text{-N}$ | $\text{PO}_4\text{-P}$ | $\text{NH}_4\text{-N}$ | Si                               |      |
| 199706J27  | 44-29.9    | 139-30.1    | 1997/6/1          | 15:50 | 150        | 3.34        | 34.099   |                               | 12.6                             | N.D.                   | 1.03                   |                        | 17.8                             | 0.01 |
|            |            |             |                   |       | 200        | 2.47        | 34.091   |                               | 13.8                             | N.D.                   | 1.14                   |                        | 21.1                             | 0.01 |
|            |            |             |                   |       | 0          | 8.7         | 34.049   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 199        | 1.51        | 34.098   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 297        | 0.98        | 34.077   |                               |                                  |                        |                        |                        |                                  |      |
| 199708J38  | 43-29.9    | 139-00.2    | 1997/7/28         | 21:03 | 396        | 0.65        | 34.068   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 0          | 20.5        | 33.899   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 221        | 1.51        | 34.091   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 309        | 1.11        | 34.088   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 401        | 0.79        | 34.080   |                               |                                  |                        |                        |                        |                                  |      |
| 199708J27  | 44-30.0    | 139-30.1    | 1997/7/30         | 5:45  | 495        | 0.58        | 34.068   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 588        | 0.50        | 34.069   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 0          | 19.6        | 33.942   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 205        | 2.26        | 34.105   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 302        | 1.21        | 34.082   |                               |                                  |                        |                        |                        |                                  |      |
| 199708JC11 | 43-00.1    | 140-20.0    | 1997/7/31         | 5:37  | 405        | 0.78        | 34.077   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 454        | 0.65        | 34.071   |                               |                                  |                        |                        |                        |                                  |      |
|            |            |             |                   |       | 0          | 23.0        | 33.966   | N.D.                          | N.D.                             | N.D.                   |                        | 3.3                    | 0.15                             |      |
|            |            |             |                   |       | 10         | 20.91       | 33.985   | N.D.                          | N.D.                             | N.D.                   |                        | 2.7                    | 0.11                             |      |
|            |            |             |                   |       | 20         | 19.77       | 33.995   | N.D.                          | N.D.                             | N.D.                   |                        | 1.9                    | 0.12                             |      |
|            |            |             |                   |       | 30         | 18.55       | 34.023   | N.D.                          | N.D.                             | N.D.                   |                        | 1.9                    | 0.17                             |      |
|            |            |             |                   |       | 50         | 13.23       | 34.265   | N.D.                          | N.D.                             | 0.11                   |                        | 2.7                    | 0.70                             |      |
|            |            |             |                   |       | 75         | 10.17       | 34.255   | 4.7                           | 0.13                             | 0.41                   |                        | 7.3                    | 0.14                             |      |
|            |            |             |                   |       | 100        | 8.29        | 34.215   | 6.8                           | N.D.                             | 0.59                   |                        | 10.4                   | 0.04                             |      |
|            |            |             |                   |       | 125        | 6.75        | 34.175   | 8.3                           | N.D.                             | 0.70                   |                        | 12.7                   | 0.02                             |      |
| 199708J41  | 42-30.0    | 139-40.0    | 1997/7/31         | 16:52 | 150        | 5.51        | 34.141   | 9.7                           | N.D.                             | 0.83                   |                        | 14.7                   | 0.02                             |      |
|            |            |             |                   |       | 200        | 3.44        | 34.108   | 12.0                          | N.D.                             | 1.04                   |                        | 19.2                   | 0.01                             |      |
|            |            |             |                   |       | 0          | 24.1        | 33.957   | N.D.                          | N.D.                             | N.D.                   |                        | 3.5                    | 0.11                             |      |
|            |            |             |                   |       | 10         | 21.40       | 34.050   | N.D.                          | N.D.                             | N.D.                   |                        | 4.2                    | 0.15                             |      |
|            |            |             |                   |       | 20         | 17.38       | 34.295   | N.D.                          | N.D.                             | N.D.                   |                        | 2.3                    | 0.22                             |      |
|            |            |             |                   |       | 30         | 14.67       | 34.364   | N.D.                          | N.D.                             | N.D.                   |                        | 2.4                    | 0.45                             |      |
|            |            |             |                   |       | 50         | 12.02       | 34.338   | 2.3                           | 0.14                             | 0.28                   |                        | 5.0                    | 0.50                             |      |
|            |            |             |                   |       | 75         | 10.27       | 34.304   | 5.1                           | N.D.                             | 0.46                   |                        | 7.9                    | 0.15                             |      |
|            |            |             |                   |       | 100        | 8.68        | 34.252   | 6.6                           | N.D.                             | 0.58                   |                        | 10.3                   | 0.06                             |      |
|            |            |             |                   |       | 125        | 7.60        | 34.215   | 7.5                           | N.D.                             | 0.65                   |                        | 11.5                   | 0.08                             |      |
| 9708J46    | 42-30.1    | 138-00.0    | 1997/8/1          | 1:36  | 150        | 6.10        | 34.165   | 9.1                           | N.D.                             | 0.78                   |                        | 12.6                   | 0.03                             |      |
|            |            |             |                   |       | 204        | 3.82        | 34.111   | 11.7                          | N.D.                             | 1.02                   |                        | 18.3                   | 0.02                             |      |
|            |            |             |                   |       | 303        | 1.37        | 34.083   | 16.6                          | N.D.                             | 1.44                   |                        | 28.6                   |                                  |      |
|            |            |             |                   |       | 403        | 0.76        | 34.076   | 20.1                          | N.D.                             | 1.70                   |                        | 41.0                   |                                  |      |
|            |            |             |                   |       | 502        | 0.55        | 34.073   | 21.3                          | N.D.                             | 1.75                   |                        | 42.4                   |                                  |      |
|            |            |             |                   |       | 602        | 0.43        | 34.074   | 22.1                          | N.D.                             | 1.93                   |                        | 48.2                   |                                  |      |
|            |            |             |                   |       | 0          | 21.6        | 33.846   | N.D.                          | N.D.                             | N.D.                   |                        | 7.9                    | 0.10                             |      |
|            |            |             |                   |       | 10         | 21.07       | 33.821   | N.D.                          | N.D.                             | N.D.                   |                        | 7.8                    | 0.10                             |      |
|            |            |             |                   |       | 20         | 15.54       | 33.826   | N.D.                          | N.D.                             | 0.11                   |                        | 7.9                    | 0.18                             |      |

Table 7. Results of chemical analysis. Hokkaido Central Fisheries Experimental Station. N.D.;not detected

| Station No | Position   |             | Japanese Standard |       | Depth<br>m | Temperature | Salinity | Dissolved<br>P.S.U. oxygen ml | Nutrients, $\mu\text{g-atoms/l}$ |                        |                        |                        | Chlorophyll-a |                 |
|------------|------------|-------------|-------------------|-------|------------|-------------|----------|-------------------------------|----------------------------------|------------------------|------------------------|------------------------|---------------|-----------------|
|            | Latitude N | Longitude E | Date              | Time  |            |             |          |                               | $\text{NO}_3\text{-N}$           | $\text{NO}_2\text{-N}$ | $\text{PO}_4\text{-P}$ | $\text{NH}_4\text{-N}$ | Si            | $\mu\text{g/l}$ |
| 199710J35  | 43-29.9    | 140-00.0    | 1997/9/29         | 16:18 | 30         | 7.17        | 34.090   |                               | N.D.                             | N.D.                   | 0.42                   |                        | 10.2          | 0.58            |
|            |            |             |                   |       | 50         | 3.83        | 34.118   |                               | 9.5                              | 0.28                   | 0.88                   |                        | 16.6          | 0.67            |
|            |            |             |                   |       | 75         | 2.72        | 34.104   |                               | 12.2                             | N.D.                   | 1.05                   |                        | 18.8          | 0.18            |
|            |            |             |                   |       | 100        | 2.01        | 34.091   |                               | 13.7                             | N.D.                   | 1.19                   |                        | 20.9          | 0.01            |
|            |            |             |                   |       | 125        | 1.76        | 34.095   |                               | 13.7                             | N.D.                   | 1.17                   |                        | 22.1          | 0.00            |
|            |            |             |                   |       | 150        | 1.58        | 34.096   |                               | 13.7                             | N.D.                   | 1.19                   |                        | 22.8          | 0.00            |
|            |            |             |                   |       | 200        | 1.26        | 34.089   |                               | 15.8                             | N.D.                   | 1.36                   |                        | 24.6          | 0.00            |
|            |            |             |                   |       | 300        | 0.96        | 34.085   |                               | 17.7                             | N.D.                   | 1.54                   |                        | 30.0          |                 |
|            |            |             |                   |       | 400        | 0.70        | 34.071   |                               | 20.5                             | N.D.                   | 1.77                   |                        | 36.4          |                 |
|            |            |             |                   |       | 500        | 0.52        | 34.073   |                               | 21.8                             | N.D.                   | 1.92                   |                        | 41.8          |                 |
|            |            |             |                   |       | 600        | 0.42        | 34.070   |                               | 21.8                             | N.D.                   | 1.92                   |                        | 36.8          |                 |
| 199710J38  | 43-29.9    | 139-00.1    | 1997/9/29         | 21:45 | 0          | 18.1        | 34.021   |                               |                                  |                        |                        |                        |               |                 |
|            |            |             |                   |       | 188        | 4.40        | 34.137   |                               |                                  |                        |                        |                        |               |                 |
|            |            |             |                   |       | 276        | 2.01        | 34.098   |                               |                                  |                        |                        |                        |               |                 |
|            |            |             |                   |       | 365        | 0.93        | 34.080   |                               |                                  |                        |                        |                        |               |                 |
|            |            |             |                   |       | 455        | 0.65        | 34.073   |                               |                                  |                        |                        |                        |               |                 |
|            |            |             |                   |       | 548        | 0.45        | 34.073   |                               |                                  |                        |                        |                        |               |                 |
| 199710J41  | 42-30.0    | 139-39.9    | 1997/9/30         | 9:58  | 0          | 17.0        | 33.973   |                               | 0.0                              | 0.03                   | 0.06                   | 0.6                    | 3.1           | 1.08            |
|            |            |             |                   |       | 12         | 16.90       | 33.980   |                               | 0.0                              | 0.02                   | 0.08                   | N.D.                   | 2.9           | 0.90            |
|            |            |             |                   |       | 22         | 12.54       | 34.353   |                               | 0.0                              | 0.03                   | 0.07                   | N.D.                   | 5.6           | 0.43            |
|            |            |             |                   |       | 31         | 10.25       | 34.298   |                               | 2.3                              | 0.18                   | 0.29                   | N.D.                   | 7.2           | 0.14            |
|            |            |             |                   |       | 51         | 7.58        | 34.208   |                               | 5.4                              | 0.11                   | 0.43                   | N.D.                   | 7.8           | 0.03            |
|            |            |             |                   |       | 75         | 5.43        | 34.153   |                               | 8.4                              | 0.05                   | 0.54                   | 0.1                    | 7.9           | 0.02            |
|            |            |             |                   |       | 100        | 3.64        | 34.119   |                               | 10.7                             | 0.04                   | 0.73                   | 0.1                    | 12.8          | 0.00            |
|            |            |             |                   |       | 124        | 2.27        | 34.098   |                               | 13.1                             | 0.04                   | 1.04                   | 0.1                    | 18.6          | 0.00            |
|            |            |             |                   |       | 193        | 1.45        | 34.090   |                               | 15.4                             | 0.06                   | 1.21                   | 0.1                    | 8.2           | 0.00            |
|            |            |             |                   |       | 251        | 1.07        | 34.082   |                               | 17.7                             | 0.05                   | 1.05                   | N.D.                   | 33.0          | 0.00            |
|            |            |             |                   |       | 347        | 0.68        | 34.075   |                               | 20.0                             | 0.03                   | 1.55                   | N.D.                   | 46.0          |                 |
| 199710J46  | 42-30.0    | 138-00.0    | 1997/9/30         | 19:14 | 442        | 0.49        | 34.075   |                               | 22.7                             | 0.03                   | 1.79                   | N.D.                   | 24.5          |                 |
|            |            |             |                   |       | 537        | 0.42        | 34.071   |                               | 23.8                             | 0.03                   | 1.79                   | N.D.                   | 49.5          |                 |
|            |            |             |                   |       | 635        | 0.33        | 34.073   |                               | 24.1                             | 0.03                   | 1.91                   | N.D.                   |               |                 |
|            |            |             |                   |       | 0          | 16.8        | 33.819   |                               | 0.0                              | 0.03                   | 0.03                   | N.D.                   | 6.0           | 0.12            |
|            |            |             |                   |       | 11         | 16.91       | 33.818   |                               | 0.0                              | 0.03                   | 0.11                   | N.D.                   | 6.0           | 0.09            |
|            |            |             |                   |       | 21         | 16.76       | 33.822   |                               | 0.0                              | 0.04                   | 0.14                   | N.D.                   | 6.0           | 0.11            |
|            |            |             |                   |       | 31         | 16.59       | 33.836   |                               | 0.0                              | 0.04                   | 0.12                   | N.D.                   | 6.0           | 0.14            |
|            |            |             |                   |       | 50         | 3.63        | 34.081   |                               | 0.0                              | 0.03                   | 0.12                   | N.D.                   | 11.1          | 0.29            |
| 75         | 2.01       | 34.087      |                   | 9.7   | 0.96       | 0.82        | N.D.     | 18.7                          | 0.12                             |                        |                        |                        |               |                 |
| 99         | 1.65       | 34.089      |                   | 15.1  | 0.05       | 1.18        | 0.1      | 25.3                          | 0.04                             |                        |                        |                        |               |                 |

Table 7. Results of chemical analysis. Hokkaido Central Fisheries Experimental Station. N.D.;not detected

| Station No | Position   |             | Japanese Standard |       | Depth<br>m | Temperature | Salinity | Dissolved<br>P.S.U. oxygen ml | Nutrients, $\mu\text{g-atoms/l}$ |                        |                        |                        |      | Chlorophyll-a<br>$\mu\text{g/l}$ |
|------------|------------|-------------|-------------------|-------|------------|-------------|----------|-------------------------------|----------------------------------|------------------------|------------------------|------------------------|------|----------------------------------|
|            | Latitude N | Longitude E | Date              | Time  |            |             |          |                               | $\text{NO}_3\text{-N}$           | $\text{NO}_2\text{-N}$ | $\text{PO}_4\text{-P}$ | $\text{NH}_4\text{-N}$ | Si   |                                  |
|            |            |             |                   |       | 124        | 1.48        | 34.092   |                               | 15.8                             | 0.03                   | 1.28                   | N.D.                   | 24.4 | 0.00                             |
|            |            |             |                   |       | 156        | 1.30        | 34.091   |                               | 16.2                             | 0.04                   | 1.23                   | N.D.                   | 10.1 | 0.00                             |
|            |            |             |                   |       | 206        | 1.13        | 34.090   |                               | 17.2                             | 0.05                   | 1.26                   | N.D.                   | 21.4 | 0.00                             |
|            |            |             |                   |       | 305        | 0.97        | 34.094   |                               | 18.1                             | 0.04                   | 1.38                   | N.D.                   | 32.3 |                                  |
|            |            |             |                   |       | 404        | 0.65        | 34.080   |                               | 19.0                             | 0.03                   | 1.54                   | N.D.                   | 40.2 |                                  |
|            |            |             |                   |       | 504        | 0.52        | 34.077   |                               | 23.0                             | 0.03                   | 1.78                   | 0.1                    | 43.4 |                                  |
|            |            |             |                   |       | 602        | 0.41        | 34.072   |                               | 23.9                             | 0.03                   | 1.91                   | 0.1                    | 47.0 |                                  |
| 199710JC11 | 43-00.0    | 140-19.9    | 1997/10/2         | 11:34 | 0          | 18.3        | 33.230   |                               | 0.0                              | 0.05                   | 0.06                   | 0.1                    | 15.5 | 1.58                             |
|            |            |             |                   |       | 10         | 17.95       | 33.893   |                               | 0.0                              | 0.06                   | 0.11                   | 0.8                    | 3.6  | 0.34                             |
|            |            |             |                   |       | 20         | 16.73       | 34.141   |                               | 1.9                              | 0.20                   | 0.29                   | N.D.                   | 3.3  | 0.63                             |
|            |            |             |                   |       | 30         | 12.77       | 34.339   |                               | 6.4                              | 0.06                   | 0.52                   | 0.1                    | 5.6  | 0.60                             |
|            |            |             |                   |       | 50         | 9.58        | 34.276   |                               | 8.7                              | 0.11                   | 0.64                   | 0.3                    | 8.9  | 0.12                             |
|            |            |             |                   |       | 75         | 7.32        | 34.206   |                               | 9.9                              | 0.07                   | 0.76                   | 0.4                    | 9.3  | 0.01                             |
|            |            |             |                   |       | 100        | 6.14        | 34.174   |                               | 13.1                             | 0.04                   | 0.97                   | 0.4                    | 13.8 | 0.01                             |
|            |            |             |                   |       | 125        | 3.69        | 34.125   |                               | 15.3                             | 0.04                   | 1.14                   | 0.9                    | 19.7 | 0.01                             |
|            |            |             |                   |       | 143        | 2.46        | 34.106   |                               | 17.0                             | 0.05                   | 1.24                   | N.D.                   | 16.0 | 0.00                             |
|            |            |             |                   |       | 204        | 1.89        | 34.099   |                               | 23.9                             | 0.03                   | 1.83                   | N.D.                   | 26.9 | 0.00                             |
| 199712J38  | 43-30.0    | 139-00.0    | 1997/11/28        | 19:49 | 0          | 10.4        | 34.208   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 199        | 3.55        | 34.189   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 296        | 3.49        | 34.188   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 400        | 3.03        | 34.163   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 499        | 2.02        | 34.114   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 598        | 1.18        | 34.085   |                               |                                  |                        |                        |                        |      |                                  |
| 199712J27  | 44-30.3    | 139-29.9    | 1997/11/29        | 5:23  | 0          | 9.6         | 34.071   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 154        | 1.87        | 34.089   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 233        | 1.20        | 34.083   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 315        | 0.87        | 34.078   |                               |                                  |                        |                        |                        |      |                                  |
|            |            |             |                   |       | 405        | 0.68        | 34.071   |                               |                                  |                        |                        |                        |      |                                  |
| 199802J41  | 42-30.0    | 139-39.9    | 1998/2/3          | 9:00  | 0          | 7.1         |          |                               | 4.3                              | 0.18                   | 0.41                   | 1.2                    | 9.2  | 0.51                             |
|            |            |             |                   |       | 10         | 7.60        | 34.069   |                               | 4.2                              | 0.18                   | 0.44                   | 1.2                    | 8.9  | 0.45                             |
|            |            |             |                   |       | 19         | 7.60        | 34.096   |                               | 4.1                              | 0.18                   | 0.42                   | 1.2                    | 9.1  | 0.43                             |
|            |            |             |                   |       | 29         | 7.58        | 34.094   |                               | 4.2                              | 0.23                   | 0.43                   | 1.1                    | 9.5  | 0.52                             |
|            |            |             |                   |       | 48         | 7.53        | 34.100   |                               | 4.1                              | 0.24                   | 0.44                   | 1.1                    | 9.2  | 0.49                             |
|            |            |             |                   |       | 72         | 7.27        | 34.095   |                               | 4.5                              | 0.22                   | 0.47                   | 0.9                    | 10.1 | 0.33                             |
|            |            |             |                   |       | 99         | 6.53        | 34.103   |                               | 4.9                              | 0.22                   | 0.52                   | 0.8                    | 10.7 | 0.32                             |
|            |            |             |                   |       | 124        | 5.12        |          |                               | 8.3                              | 0.18                   | 0.74                   | 0.9                    | 15.6 | 0.11                             |

### Part III. Plankton Collection Records

Vertical hauls with a paired long NORPAC net (45 cm × (65cm cylindrical + 130cm conical) NGG 52 and NXX 13, 0.33 and 0.10 mm mesh openings, respectively) or a standard long NORPAC net (NGG 52) were carried out from the near sea bottom to the surface but sometimes from a depth of 150 m to the surface when the bottom was deeper than 150m. A long NORPAC net was used from February 1996. A flowmeter (RGS, Rigosha) was mounted at the center of the mouth ring of each net to register the volume of water filtered by the net. Calibrations of the flowmeter on board were means of repeated vertical tows without nets on each observation. Wet weight measurements of the preserved samples with 10% formalin seawater solution were all together carried out at the land laboratory of Central Fisheries Experimental Station, Yoichi.

Table 8-1. Calibration data of flow-meters used for NORPAC net samplings, Oyashio Maru, April 1997- March 1998 .

| Date                     | 1997/4/16 | 1997/4/16 | 1997/5/29 | 1997/5/29 | 1997/8/1 | 1997/8/1 | 1997/10/1 | 1997/10/1 | 1997/12/- | 1998/2/25 | 1998/2/25 |
|--------------------------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| Wire length(m)           | 100       | 100       | 100       | 100       | 100      | 100      | 100       | 100       |           | 100       | 100       |
| Wire angle(°)            | -         | -         | -         | -         | 4-8      | 4-8      | -         | -         | No data   | -         | -         |
| RGS No.                  | 2399      | 2401      | 2401      | 2399      | 2401     | 2399     | 2401      | 2399      |           | 2399      | 2401      |
| Revolution               | 902       | 807       | 746*      | 798       | 660*     | 786      | 718       | 852       |           | 834       | 815       |
|                          | 885       | 821       | 733       | 841       | 863      | 726*     | 744       | 752       |           | 855*      | 843*      |
|                          | 941*      | 774*      | 688       | 808       | 851      | 740      | 710*      | 770       |           | 835       | 804       |
|                          | 786*      | 903*      | 661*      | 795*      | 880*     | 765      | 743       | 876*      |           | 827*      | 754*      |
|                          | 872       | 817       | 734       | 877*      | 679      | 926*     | 854       | 738*      |           | 842       | 800       |
| Mean revolution per 100m | 886       | 815       | 718       | 816       | 798      | 764      | 765       | 782       |           | 837       | 806       |

Table 8-2. Calibration data of flow-meters used for NORPAC net samplings, Hokushin Maru, April 1997- March 1998 .

| Date                     | 1997/4/19 | 1997/5/29 | 1997/8/5 | 1997/10/5 | 1997/12/6 | 1998/3/1 |
|--------------------------|-----------|-----------|----------|-----------|-----------|----------|
| Wire length(m)           | 100       | 100       | 100      | 100       | 100       | 100      |
| Wire angle(°)            | 6-11      | 12-15     | 0-8      | -         | 3-13      | 7-11     |
| RGS No.                  | 1500      | 1500      | 1500     | 1500      | 1500      | 1500     |
| Revolution               | 1055*     | 1127      | 1019*    | 1097*     | 1050      | 1170*    |
|                          | 1050      | 1086      | 1016     | 1055      | 1040      | 925*     |
|                          | 1047      | 1052      | 1015     | 1050      | 1010*     | 1037     |
|                          | 1045      | 1146*     | 1000     | 1040*     | 1060*     | 1033     |
|                          | 1023*     | 1029*     | 990*     | 1043      | 1020      | 1050     |
| Mean revolution per 100m | 1047      | 1088      | 1010     | 1049      | 1037      | 1040     |

Table 8-3. Calibration data of flow-meters used for NORPAC net samplings, Hokuyo Maru, April 1997- March 1998 .

| Date                     | 1997/4/- | 1997/9/- | 1997/12/- |
|--------------------------|----------|----------|-----------|
| Wire length(m)           | 100      | 150      | 100       |
| Wire angle(°)            | -        | -        | -         |
| RGS No.                  | 2428?    | 2428     | 2428?     |
| Revolution               | 856*     | 1174*    | 951*      |
|                          | 847      | 1182     | 984*      |
|                          | 824      | 1176     | 968       |
|                          | 819*     | 1162     | 969       |
|                          | 825      | 1195*    | 964       |
| Mean revolution per 100m | 832      | 782      | 967       |

Table 8-4. Calibration data of flow-meters used for NORPAC net samplings, Kinsei Maru, April 1997- March 1998 .

| Date                     | 1997/4/15 | 1997/5/28 | 1997/9/30 |
|--------------------------|-----------|-----------|-----------|
| Wire length(m)           | 100       | 100       | 100       |
| Wire angle(°)            | 17-18     | 15-19     | 16-25     |
| RGS No.                  | 2427      | 2427      | 2427      |
| Revolution               | 770*      | 779*      | 949       |
|                          | 737       | 518*      | 927       |
|                          | 594       | 624       | 899       |
|                          | 733       | 601       | 890*      |
|                          | 541*      | 573       | 1097*     |
| Mean revolution per 100m | 688       | 599       | 925       |



Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1997 to March 1998.

| Station No. | Position |        | Japan Standard Time |       | Length of wire (m) | Angle of wire (degree) | Estimated depth of haul (m) | Net   | Flow meter (RGS) |      | Estimated volume of water filtered (m <sup>3</sup> ) | Wet weight of sample (g) |                        | Permanent Sample No. | Vessel       | Remarks |
|-------------|----------|--------|---------------------|-------|--------------------|------------------------|-----------------------------|-------|------------------|------|--|--------------------------|------------------------|----------------------|--------------|---------|
|             | Lat N    | Long E | Date                | Hour  |                    |                        |                             |       | No.              | Rev. |  | per haul                 | per 1000m <sup>3</sup> |                      |              |         |
|             |          |        |                     |       |                    |                        |                             |       |                  |      |  |                          |                        |                      |              |         |
| J31         | 43-20    | 141-10 | 1997/4/14           | 10:03 | 35                 | 22                     | 32                          | NXX13 | 2401             | 162  | 3.2  | 3.12                     | 987                    | C97017               | Oyashio Maru |         |
| J31         | 43-20    | 141-10 | 1997/4/14           | 10:03 | 35                 | 22                     | 32                          | NGG52 | 2399             | 295  | 5.3  | 0.40                     | 75                     | C97018               | Oyashio Maru |         |
| J32         | 43-30    | 141-00 | 1997/4/14           | 13:21 | 90                 | 0                      | 90                          | NXX13 | 2401             | 550  | 10.7   | 6.00                     | 559                    | C97019               | Oyashio Maru |         |
| J32         | 43-30    | 141-00 | 1997/4/14           | 13:21 | 90                 | 0                      | 90                          | NGG52 | 2399             | 769  | 13.8   | 1.40                     | 101                    | C97020               | Oyashio Maru |         |
| J33         | 43-30    | 140-40 | 1997/4/14           | 15:14 | 170                | 29                     | 149                         | NXX13 | 2401             | 1176 | 22.9   | 7.12                     | 310                    | C97021               | Oyashio Maru |         |
| J33         | 43-30    | 140-40 | 1997/4/14           | 15:14 | 170                | 29                     | 149                         | NGG52 | 2399             | 1752 | 31.5   | 1.80                     | 57                     | C97022               | Oyashio Maru | *1      |
| J34         | 43-30    | 140-20 | 1997/4/14           | 17:03 | 170                | 29                     | 149                         | NXX13 | 2401             | 1198 | 23.4   | 2.76                     | 118                    | C97023               | Oyashio Maru |         |
| J34         | 43-30    | 140-20 | 1997/4/14           | 17:03 | 170                | 29                     | 149                         | NGG52 | 2399             | 1872 | 33.7   | 1.12                     | 33                     | C97024               | Oyashio Maru |         |
| J41         | 42-30    | 139-40 | 1997/4/15           | 10:46 | 175                | 39                     | 136                         | NXX13 | 2401             | 1771 | 34.6   | 2.40                     | 69                     | C97025               | Oyashio Maru |         |
| J41         | 42-30    | 139-40 | 1997/4/15           | 10:46 | 175                | 39                     | 136                         | NGG52 | 2399             | 1861 | 33.5   | 0.82                     | 25                     | C97026               | Oyashio Maru |         |
| J43         | 42-30    | 139-00 | 1997/4/15           | 13:57 | 173                | 30                     | 150                         | NXX13 | 2401             | 1381 | 26.9   | 9.20                     | 341                    | C97027               | Oyashio Maru |         |
| J43         | 42-30    | 139-00 | 1997/4/15           | 13:57 | 173                | 30                     | 150                         | NGG52 | 2399             | 2182 | 39.2   | 0.78                     | 20                     | C97028               | Oyashio Maru |         |
| J45         | 42-30    | 138-20 | 1997/4/15           | 17:15 | 185                | 35                     | 152                         | NXX13 | 2401             | 1431 | 27.9   | 2.12                     | 76                     | C97029               | Oyashio Maru | *2      |
| J45         | 42-30    | 138-20 | 1997/4/15           | 17:15 | 185                | 35                     | 152                         | NGG52 | 2399             | 2189 | 39.4   | 2.88                     | 73                     | C97030               | Oyashio Maru | *2      |
| J47         | 42-30    | 137-30 | 1997/4/15           | 21:55 | 154                | 14                     | 149                         | NXX13 | 2401             | 842  | 16.4   | 3.98                     | 242                    | C97031               | Oyashio Maru | *3      |
| J47         | 42-30    | 137-30 | 1997/4/15           | 21:55 | 154                | 14                     | 149                         | NGG52 | 2399             | 1261 | 22.7   | 4.92                     | 217                    | C97032               | Oyashio Maru | *3      |
| JH01        | 43-22    | 141-24 | 1997/4/14           | 11:24 | 20                 | 16                     | 19                          | NXX13 | 2401             | 111  | 2.2  | 2.48                     | 1145                   | C97103               | Oyashio Maru | *4      |
| JH01        | 43-22    | 141-24 | 1997/4/14           | 11:24 | 20                 | 16                     | 19                          | NGG52 | 2399             | 147  | 2.6  | 0.24                     | 91                     | C07104               | Oyashio Maru |         |
| J31         | 43-20    | 141-10 | 1997/5/26           | 10:08 | 37                 | 18                     | 35                          | NXX13 | 2401             | 286  | 6.4  | 4.26                     | 670                    | C97033               | Oyashio Maru | *5      |
| J31         | 43-20    | 141-10 | 1997/5/26           | 10:08 | 37                 | 18                     | 35                          | NGG52 | 2399             | 286  | 5.6  | 3.76                     | 674                    | C97034               | Oyashio Maru |         |
| J32         | 43-30    | 141-00 | 1997/5/26           | 13:02 | 90                 | 6                      | 90                          | NXX13 | 2401             | 630  | 14.0   | 51.84                    | 3703                   | C97035               | Oyashio Maru | *6      |
| J32         | 43-30    | 141-00 | 1997/5/26           | 13:02 | 90                 | 6                      | 90                          | NGG52 | 2399             | 675  | 13.2   | 10.08                    | 765                    | C97036               | Oyashio Maru |         |
| J33         | 43-30    | 140-40 | 1997/5/26           | 14:35 | 152                | 10                     | 150                         | NXX13 | 2401             | 1204 | 26.8   |                          |                        | C97037               | Oyashio Maru | *7      |
| J33         | 43-30    | 140-40 | 1997/5/26           | 14:35 | 152                | 10                     | 150                         | NGG52 | 2399             | 1237 | 24.1   | 1.28                     | 53                     | C97038               | Oyashio Maru | *8      |
| J34         | 43-30    | 140-20 | 1997/5/26           | 16:18 | 150                | 7                      | 149                         | NXX13 | 2401             | 184  | 4.1  | 5.04                     | 1233                   | C97039               | Oyashio Maru |         |
| J34         | 43-30    | 140-20 | 1997/5/26           | 16:18 | 150                | 7                      | 149                         | NGG52 | 2399             | 948  | 18.5   | 2.24                     | 121                    | C97040               | Oyashio Maru |         |
| J41         | 42-30    | 139-40 | 1997/5/27           | 10:46 | 165                | 25                     | 150                         | NXX13 | 2401             | 1201 | 26.7   | 10.80                    | 405                    | C97041               | Oyashio Maru |         |
| J41         | 42-30    | 139-40 | 1997/5/27           | 10:46 | 165                | 25                     | 150                         | NGG52 | 2399             | 1277 | 24.9   | 4.28                     | 172                    | C97042               | Oyashio Maru |         |
| J43         | 42-30    | 139-00 | 1997/5/27           | 14:07 | 160                | 21                     | 149                         | NXX13 | 2401             | 487  | 10.8   | 2.64                     | 244                    | C97043               | Oyashio Maru |         |
| J43         | 42-30    | 139-00 | 1997/5/27           | 14:07 | 160                | 21                     | 149                         | NGG52 | 2399             | 1188 | 23.2   | 0.74                     | 32                     | C97044               | Oyashio Maru | *9      |
| J45         | 42-30    | 138-20 | 1997/5/27           | 17:04 | 167                | 26                     | 150                         | NXX13 | 2401             | 703  | 15.6   | 9.44                     | 604                    | C97045               | Oyashio Maru | *1      |
| J45         | 42-30    | 138-20 | 1997/5/27           | 17:04 | 167                | 26                     | 150                         | NGG52 | 2399             | 1528 | 29.8   | 1.46                     | 49                     | C97046               | Oyashio Maru |         |
| J47         | 42-30    | 137-30 | 1997/5/27           | 22:50 | 156                | 16                     | 150                         | NXX13 | 2401             | 1335 | 29.7   | 4.56                     | 154                    | C97047               | Oyashio Maru | *3      |
| J47         | 42-30    | 137-30 | 1997/5/27           | 22:50 | 156                | 16                     | 150                         | NGG52 | 2399             | 1361 | 26.6   | 4.14                     | 156                    | C97048               | Oyashio Maru |         |
| J31         | 43-20    | 141-10 | 1997/7/28           | 10:00 | 35                 | 32                     | 30                          | NXX13 | 2401             | 333  | 6.7  | 1.96                     | 294                    | C97049               | Oyashio Maru |         |
| J31         | 43-20    | 141-10 | 1997/7/28           | 10:00 | 35                 | 32                     | 30                          | NGG52 | 2399             | 414  | 8.7  | 0.62                     | 71                     | C97050               | Oyashio Maru |         |
| J32         | 43-30    | 141-00 | 1997/7/28           | 11:13 | 80                 | 34                     | 66                          | NXX13 | 2401             | 744  | 14.9   | 7.04                     | 473                    | C97051               | Oyashio Maru |         |
| J32         | 43-30    | 141-00 | 1997/7/28           | 11:13 | 80                 | 34                     | 66                          | NGG52 | 2399             | 825  | 17.4   | 3.76                     | 216                    | C97052               | Oyashio Maru |         |
| J33         | 43-30    | 140-40 | 1997/7/28           | 12:43 | 170                | 29                     | 149                         | NXX13 | 2401             | 880  | 17.6   | 6.56                     | 373                    | C97053               | Oyashio Maru |         |
| J33         | 43-30    | 140-40 | 1997/7/28           | 12:43 | 170                | 29                     | 149                         | NGG52 | 2399             | 1310 | 27.6   | 10.60                    | 384                    | C97054               | Oyashio Maru |         |

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1997 to March 1998.

| Station No. | Position |        | Japan Standard Time |       | Length of wire (m) | Angle of wire (degree) | Estimated depth of haul (m) | Net   | Flow meter (RGS) |      | Estimated volume of water filtered (m <sup>3</sup> ) | Wet weight of sample (g) |                        | Permanent Sample No. | Vessel       | Remarks      |     |
|-------------|----------|--------|---------------------|-------|--------------------|------------------------|-----------------------------|-------|------------------|------|--|--------------------------|------------------------|----------------------|--------------|--------------|-----|
|             | Lat N    | Long E | Date                | Hour  |                    |                        |                             |       | No.              | Rev. |  | per haul                 | per 1000m <sup>3</sup> |                      |              |              |     |
|             |          |        |                     |       |                    |                        |                             |       |                  |      |  |                          |                        |                      |              |              |     |
| J34         | 43-30    | 140-20 | 1997/7/28           | 14:24 | 170                | 28                     | 150                         | NXX13 | 2401             | 1119 | 22.4   | 11.68                    | 522                    | C97055               | Oyashio Maru | *10          |     |
| J34         | 43-30    | 140-20 | 1997/7/28           | 14:24 | 170                | 28                     | 150                         | NGG52 | 2399             | 1496 | 31.5   | 3.52                     | 112                    | C97056               | Oyashio Maru | *11          |     |
| J41         | 42-30    | 139-40 | 1997/7/31           | 17:38 | 162                | 21                     | 151                         | NXX13 | 2401             | 629  | 12.6   | 13.52                    | 1075                   | C97057               | Oyashio Maru | *12          |     |
| J41         | 42-30    | 139-40 | 1997/7/31           | 17:38 | 162                | 21                     | 151                         | NGG52 | 2399             | 1272 | 26.8   | 1.80                     | 67                     | C97058               | Oyashio Maru | *12          |     |
| J43         | 42-30    | 139-00 | 1997/7/31           | 20:45 | 153                | 12                     | 150                         | NXX13 | 2401             | 937  | 18.7   | 30.44                    | 1624                   | C97059               | Oyashio Maru | *13          |     |
| J43         | 42-30    | 139-00 | 1997/7/31           | 20:45 | 153                | 12                     | 150                         | NGG52 | 2399             | 1218 | 25.6   | 20.64                    | 805                    | C97060               | Oyashio Maru | *14          |     |
| J45         | 42-30    | 138-20 | 1997/7/31           | 23:57 | 151                | 7                      | 150                         | NXX13 | 2401             | 999  | 20.0   | 15.20                    | 761                    | C97061               | Oyashio Maru | *15          |     |
| J45         | 42-30    | 138-20 | 1997/7/31           | 23:57 | 151                | 7                      | 150                         | NGG52 | 2399             | 1171 | 24.7   | 8.68                     | 352                    | C97062               | Oyashio Maru | *16          |     |
| J47         | 42-30    | 137-30 | 1997/7/31           | 4:25  | 151                | 8                      | 150                         | NXX13 | 2401             |      |  | 8.80                     |                        |                      | C97063       | Oyashio Maru | *17 |
| J47         | 42-30    | 137-30 | 1997/7/31           | 4:25  | 151                | 8                      | 150                         | NGG52 | 2399             | 877  | 18.5   | 6.68                     | 362                    | C97064               | Oyashio Maru | *18          |     |
| J31         | 43-20    | 141-10 | 1997/9/29           | 10:00 | 35                 | 5                      | 35                          | NXX13 | 2399             | 670  | 13.7   | 3.16                     | 230                    | C97065               | Oyashio Maru |              |     |
| J31         | 43-20    | 141-10 | 1997/9/29           | 10:00 | 35                 | 5                      | 35                          | NGG52 | 2401             | 586  | 12.2   | 0.82                     | 67                     | C97066               | Oyashio Maru |              |     |
| J32         | 43-30    | 141-00 | 1997/9/29           | 11:15 | 90                 | 20                     | 85                          | NXX13 | 2401             | 708  | 14.7   | 3.52                     | 239                    | C97067               | Oyashio Maru |              |     |
| J32         | 43-30    | 141-00 | 1997/9/29           | 11:15 | 90                 | 20                     | 85                          | NGG52 | 2399             | 900  | 18.5   | 1.06                     | 57                     | C97068               | Oyashio Maru |              |     |
| J33         | 43-30    | 140-40 | 1997/9/29           | 13:08 | 175                | 31                     | 150                         | NXX13 | 2401             | 1698 | 35.3   | 2.88                     | 82                     | C97069               | Oyashio Maru |              |     |
| J33         | 43-30    | 140-40 | 1997/9/29           | 13:08 | 175                | 31                     | 150                         | NGG52 | 2399             | 1809 | 37.1   | 0.74                     | 20                     | C97070               | Oyashio Maru |              |     |
| J34         | 43-30    | 140-20 | 1997/9/29           | 14:40 | 150                | 2                      | 150                         | NXX13 | 2401             | 1199 | 24.9   | 1.42                     | 57                     | C97071               | Oyashio Maru |              |     |
| J34         | 43-30    | 140-20 | 1997/9/29           | 14:40 | 150                | 2                      | 150                         | NGG52 | 2399             | 1311 | 26.9   | 4.38                     | 163                    | C97072               | Oyashio Maru |              |     |
| J41         | 42-30    | 139-40 | 1997/9/30           | 10:56 | 202                | 42                     | 150                         | NXX13 | 2401             | 2192 | 45.5   | 3.08                     | 68                     | C97073               | Oyashio Maru |              |     |
| J41         | 42-30    | 139-40 | 1997/9/30           | 10:56 | 202                | 42                     | 150                         | NGG52 | 2399             | 2273 | 46.6   | 1.34                     | 29                     | C97074               | Oyashio Maru |              |     |
| J43         | 42-30    | 139-00 | 1997/9/30           | 14:07 | 167                | 26                     | 150                         | NXX13 | 2401             | 1376 | 28.6   | 5.60                     | 196                    | C97075               | Oyashio Maru |              |     |
| J43         | 42-30    | 139-00 | 1997/9/30           | 14:07 | 167                | 26                     | 150                         | NGG52 | 2399             | 1480 | 30.4   | 2.40                     | 79                     | C97076               | Oyashio Maru |              |     |
| J45         | 42-30    | 138-20 | 1997/9/30           | 21:15 | 152                | 10                     | 150                         | NXX13 | 2401             | 1022 | 21.2   | 5.04                     | 237                    | C97077               | Oyashio Maru | *19          |     |
| J45         | 42-30    | 138-20 | 1997/9/30           | 21:15 | 152                | 10                     | 150                         | NGG52 | 2399             | 1219 | 25.0   | 3.80                     | 152                    | C97078               | Oyashio Maru | *20          |     |
| J47         | 42-30    | 137-30 | 1997/9/30           | 22:27 | 158                | 18                     | 150                         | NXX13 | 2401             | 776  | 16.1   | 4.08                     | 253                    | C97079               | Oyashio Maru | *19          |     |
| J47         | 42-30    | 137-30 | 1997/9/30           | 22:27 | 158                | 18                     | 150                         | NGG52 | 2399             | 1127 | 23.1   | 1.68                     | 73                     | C97080               | Oyashio Maru |              |     |
| J31         | 43-20    | 141-10 | 1997/11/25          | 10:05 | 38                 | 30                     | 33                          | NXX13 | 2401             | 277  | 5.8  | 4.16                     | 723                    | C97081               | Oyashio Maru |              |     |
| J31         | 43-20    | 141-10 | 1997/11/25          | 10:05 | 38                 | 30                     | 33                          | NGG52 | 2399             | 337  | 6.9  | 0.20                     | 29                     | C97082               | Oyashio Maru |              |     |
| J32         | 43-30    | 141-00 | 1997/11/25          | 11:30 | 90.0               | 35                     | 74                          | NXX13 | 2401             | 973  | 20.2   | 2.02                     | 100                    | C97083               | Oyashio Maru |              |     |
| J32         | 43-30    | 141-00 | 1997/11/25          | 11:30 | 90                 | 35                     | 74                          | NGG52 | 2399             | 998  | 20.5   | 0.52                     | 25                     | C97084               | Oyashio Maru |              |     |
| J33         | 43-30    | 140-40 | 1997/11/25          | 13:07 | 161.0              | 21                     | 150                         | NXX13 | 2401             | 1311 | 27.2   | 5.70                     | 209                    | C97085               | Oyashio Maru |              |     |
| J33         | 43-30    | 140-40 | 1997/11/25          | 13:07 | 161                | 21                     | 150                         | NGG52 | 2399             | 1481 | 30.4   | 1.50                     | 49                     | C97086               | Oyashio Maru |              |     |
| J34         | 43-30    | 140-20 | 1997/11/28          | 12:50 | 154.0              | 14                     | 149                         | NXX13 | 2401             | 1481 | 30.8   | 5.36                     | 174                    | C97087               | Oyashio Maru |              |     |
| J34         | 43-30    | 140-20 | 1997/11/28          | 12:50 | 154                | 14                     | 149                         | NGG52 | 2399             | 1723 | 35.3   | 1.04                     | 29                     | C97088               | Oyashio Maru |              |     |
| J31         | 43-20    | 141-10 | 1998/2/23           | 10:15 | 35                 | 5                      | 35                          | NGG52 | 2399             | 533  | 10.2   | 0.64                     | 63                     | C98001               | Oyashio Maru |              |     |
| J31         | 43-20    | 141-10 | 1998/2/23           | 10:15 | 35                 | 5                      | 35                          | NXX13 | 2401             | 547  | 10.8   | 28.56                    | 2643                   | C98002               | Oyashio Maru | *21          |     |
| J32         | 43-30    | 141-00 | 1998/2/23           | 13:54 | 75                 | 26                     | 67                          | NGG52 | 2399             | 1063 | 20.2   | 0.62                     | 31                     | C98003               | Oyashio Maru |              |     |
| J32         | 43-30    | 141-00 | 1998/2/23           | 13:54 | 75.0               | 26                     | 67                          | NXX13 | 2401             | 968  | 19.1   | 3.42                     | 179                    | C98004               | Oyashio Maru | *21          |     |
| J33         | 43-30    | 140-40 | 1998/2/23           | 15:45 | 173.0              | 30                     | 150                         | NGG52 | 2399             | 1785 | 34.0   | 5.58                     | 164                    | C98005               | Oyashio Maru |              |     |
| J33         | 43-30    | 140-40 | 1998/2/23           | 15:45 | 173.0              | 30                     | 150                         | NXX13 | 2401             | 1517 | 30.0   | 6.14                     | 205                    | C98006               | Oyashio Maru | *21          |     |

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1997 to March 1998.

| Station No. | Position |        | Japan Standard Time |       | Length of wire (m) | Angle of wire (degree) | Estimated depth of haul (m) | Net   | Flow meter (RGS) |      | Estimated volume of water filtered (m <sup>3</sup> ) | Wet weight of sample (g) |                        | Permanent Sample No. | Vessel        | Remarks |
|-------------|----------|--------|---------------------|-------|--------------------|------------------------|-----------------------------|-------|------------------|------|--|--------------------------|------------------------|----------------------|---------------|---------|
|             | Lat N    | Long E | Date                | Hour  |                    |                        |                             |       | No.              | Rev. |  | per haul                 | per 1000m <sup>3</sup> |                      |               |         |
|             |          |        |                     |       |                    |                        |                             |       |                  |      |  |                          |                        |                      |               |         |
| J34         | 43-30    | 140-20 | 1998/2/23           | 18:30 | 162                | 22                     | 150                         | NGG52 | 2399             | 1867 | 35.6   | 1.44                     | 40                     | C98007               | Oyashio Maru  | *22     |
| J34         | 43-30    | 140-20 | 1998/2/23           | 18:30 | 162                | 22                     | 150                         | NXX13 | 2401             | 1357 | 26.8   | 4.16                     | 155                    | C98008               | Oyashio Maru  | *21     |
| J41-1       | 42-30    | 139-40 | 1998/2/3            | 10:19 | 177.0              | 32                     | 150                         | NGG52 | 2401             | 1590 | 31.4   | 0.92                     | 29                     | C98009               | Oyashio Maru  |         |
| J41-1       | 42-30    | 139-40 | 1998/2/3            | 10:19 | 177.0              | 32                     | 150                         | NXX13 | 2399             | 1537 | 29.3   | 1.90                     | 65                     | C98010               | Oyashio Maru  |         |
| J41-2       | 42-30    | 139-40 | 1998/2/24           | 23:40 | 214                | 45                     | 151                         | NGG52 | 2399             | 3225 | 61.4   | 11.08                    | 180                    | C98011               | Oyashio Maru  | *23     |
| J41-2       | 42-30    | 139-40 | 1998/2/24           | 23:40 | 214                | 45                     | 151                         | NXX13 | 2401             | 2990 | 59.1   | 12.68                    | 215                    | C98012               | Oyashio Maru  | *21     |
| J43         | 42-30    | 139-00 | 1998/2/24           | 19:10 | 196.0              | 40                     | 150                         | NGG52 | 2399             | 1835 | 35.0   | 4.50                     | 129                    | C98013               | Oyashio Maru  | *22     |
| J43         | 42-30    | 139-00 | 1998/2/24           | 19:10 | 196.0              | 40                     | 150                         | NXX13 | 2401             | 1796 | 35.5   | 5.36                     | 151                    | C98014               | Oyashio Maru  | *21     |
| J45         | 42-30    | 138-20 | 1998/2/24           | 15:40 | 156.0              | 16                     | 150                         | NGG52 | 2399             | 1462 | 27.8   | 1.00                     | 36                     | C98015               | Oyashio Maru  |         |
| J45         | 42-30    | 138-20 | 1998/2/24           | 15:40 | 156.0              | 16                     | 150                         | NXX13 | 2401             | 1267 | 25.0   | 2.26                     | 90                     | C98016               | Oyashio Maru  | *21     |
| J47         | 42-30    | 137-30 | 1998/2/24           | 10:50 | 159.0              | 19                     | 150                         | NGG52 | 2399             | 1730 | 33.0   | 1.10                     | 33                     | C98017               | Oyashio Maru  |         |
| J47         | 42-30    | 137-30 | 1998/2/24           | 10:50 | 159                | 19                     | 150                         | NXX13 | 2401             | 1369 | 27.0   | 2.28                     | 84                     | C98018               | Oyashio Maru  |         |
| P11         | 43-05    | 145-45 | 1997/2/19           | 12:39 | 125                | 37                     | 100                         | NGG52 | 1500             | 1860 | 25.2   | 0.62                     | 25                     | K9701                | Hokushin Maru | *24     |
| P13         | 42-45    | 145-55 | 1997/2/19           | 15:35 | 175                | 31                     | 150                         | NGG52 | 1500             | 2470 | 33.5   | 0.24                     | 7                      | K9702                | Hokushin Maru |         |
| P15         | 42-15    | 146-00 | 1997/2/19           | 19:36 | 177                | 32                     | 150                         | NGG52 | 1500             | 3048 | 41.3   | 2.12                     | 51                     | K9703                | Hokushin Maru |         |
| P16         | 42-00    | 146-00 | 1997/2/19           | 21:45 | 255                | 54                     | 150                         | NGG52 | 1500             | 2950 | 40.0   | 2.12                     | 53                     | K9704                | Hokushin Maru |         |
| P17         | 41-30    | 146-00 | 1997/2/20           | 1:25  | 188                | 37                     | 150                         | NGG52 | 1500             | 2070 | 28.1   | 2.66                     | 95                     | K9705                | Hokushin Maru |         |
| P11         | 43-05    | 145-45 | 1997/4/19           | 2:10  | 90                 | 2                      | 90                          | NGG52 | 1500             | 855  | 13.0   | 2.16                     | 166                    | K9706                | Hokushin Maru | *25     |
| P13         | 42-45    | 145-55 | 1997/4/18           | 13:38 | 155                | 15                     | 150                         | NGG52 | 1500             | 1600 | 24.4   | 2.60                     | 107                    | K9707                | Hokushin Maru |         |
| P15         | 42-15    | 146-00 | 1997/4/18           | 17:29 | 150                | 1                      | 150                         | NGG52 | 1500             | 1478 | 22.5   | 2.78                     | 123                    | K9708                | Hokushin Maru |         |
| P16         | 42-00    | 146-00 | 1997/4/19           | 11:38 | 155                | 14                     | 150                         | NGG52 | 1500             | 1779 | 27.1   | 10.56                    | 390                    | K9709                | Hokushin Maru | *25     |
| P17         | 41-30    | 146-00 | 1997/4/19           | 14:48 | 153                | 11                     | 150                         | NGG52 | 1500             | 1765 | 26.9   | 7.48                     | 278                    | K9710                | Hokushin Maru | *25     |
| P11         | 43-05    | 145-45 | 1997/5/28           | 11:37 | 91                 | 8                      | 90                          | NGG52 | 1500             | 1070 | 15.7   | 6.26                     | 399                    | K9711                | Hokushin Maru | *26     |
| P13         | 42-45    | 145-55 | 1997/5/28           | 14:16 | 164                | 24                     | 150                         | NGG52 | 1500             | 2225 | 32.7   | 2.10                     | 64                     | K9712                | Hokushin Maru |         |
| P15         | 42-15    | 146-00 | 1997/5/28           | 18:18 | 152                | 9                      | 150                         | NGG52 | 1500             | 1585 | 23.3   | 16.28                    | 700                    | K9713                | Hokushin Maru |         |
| P16         | 42-00    | 146-00 | 1997/5/29           | 17:47 | 150                | 0                      | 150                         | NGG52 | 1500             | 1482 | 21.8   | 14.96                    | 688                    | K9714                | Hokushin Maru |         |
| P17         | 41-30    | 146-00 | 1997/5/29           | 20:54 | 150                | 4                      | 150                         | NGG52 | 1500             | 1465 | 21.5   | 6.44                     | 299                    | K9715                | Hokushin Maru |         |
| P11         | 43-05    | 145-45 | 1997/8/4            | 13:06 | 105                | 17                     | 100                         | NGG52 | 1500             | 1240 | 19.6   | 6.48                     | 330                    | K9716                | Hokushin Maru |         |
| P13         | 42-45    | 145-55 | 1997/8/4            | 9:38  | 175                | 31                     | 150                         | NGG52 | 1500             | 3969 | 62.9   | 7.18                     | 114                    | K9717                | Hokushin Maru |         |
| P15         | 42-15    | 146-00 | 1997/8/4            | 5:42  | 209                | 44                     | 150                         | NGG52 | 1500             | 3200 | 50.7   | 36.96                    | 729                    | K9718                | Hokushin Maru | *25     |
| P16         | 42-00    | 146-00 | 1997/8/4            | 3:47  | 205                | 43                     | 150                         | NGG52 | 1500             | 3812 | 60.4   | 11.48                    | 190                    | K9719                | Hokushin Maru |         |
| P17         | 41-30    | 146-00 | 1997/8/2            | 23:03 | 153                | 12                     | 150                         | NGG52 | 1500             | 1856 | 29.4   | 7.54                     | 256                    | K9720                | Hokushin Maru |         |
| P11         | 43-05    | 145-45 | 1997/10/5           | 2:43  | 101                | 27                     | 90                          | NGG52 | 1500             | 1313 | 20.0   | 2.58                     | 129                    | K9721                | Hokushin Maru |         |
| P13         | 42-45    | 145-55 | 1997/10/4           | 23:36 | 181                | 34                     | 150                         | NGG52 | 1500             | 2571 | 39.2   | 5.60                     | 143                    | K9722                | Hokushin Maru |         |
| P15         | 42-15    | 146-00 | 1997/10/4           | 19:36 | 153                | 12                     | 150                         | NGG52 | 1500             | 1700 | 25.9   | 2.40                     | 93                     | K9723                | Hokushin Maru |         |
| P16         | 42-00    | 146-00 | 1997/10/4           | 17:38 | 154                | 13                     | 150                         | NGG52 | 1500             | 1783 | 27.2   | 1.88                     | 69                     | K9724                | Hokushin Maru |         |
| P17         | 41-30    | 146-00 | 1997/10/3           | 23:47 | 155                | 14                     | 150                         | NGG52 | 1500             | 1610 | 24.5   | 1.82                     | 74                     | K9725                | Hokushin Maru |         |
| P11         | 43-05    | 145-45 | 1997/12/6           | 3:06  | 110                | 35                     | 90                          | NGG52 | 1500             | 2685 | 41.3   | 2.18                     | 53                     | K9726                | Hokushin Maru |         |
| P13         | 42-45    | 145-55 | 1997/12/5           | 22:05 | 150                | 2                      | 150                         | NGG52 | 1500             | 2832 | 43.6   | 4.20                     | 96                     | K9727                | Hokushin Maru | *261    |
| P15         | 42-15    | 146-00 | 1997/12/5           | 16:02 | 190                | 38                     | 150                         | NGG52 | 1500             | 4510 | 69.4   | 1.02                     | 15                     | K9728                | Hokushin Maru |         |

Table 9-3

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1997 to March 1998.

| Station No. | Position |        | Japan Standard Time |       | Length of wire (m) | Angle of wire (degree) | Estimated depth of haul (m) | Net   | Flow meter (RGS) |      | Estimated volume of water filtered (m <sup>3</sup> ) | Wet weight of sample (g) |                        | Permanent Sample No. | Vessel        | Remarks |
|-------------|----------|--------|---------------------|-------|--------------------|------------------------|-----------------------------|-------|------------------|------|--|--------------------------|------------------------|----------------------|---------------|---------|
|             | Lat N    | Long E | Date                | Hour  |                    |                        |                             |       | No.              | Rev. |  | per haul                 | per 1000m <sup>3</sup> |                      |               |         |
|             |          |        |                     |       |                    |                        |                             |       |                  |      |  |                          |                        |                      |               |         |
| P16         | 42-00    | 146-00 | 1997/12/5           | 13:59 | 168                | 27                     | 150                         | NGG52 | 1500             | 3072 | 47.3   | 0.48                     | 10                     | K9729                | Hokushin Maru |         |
| P17         | 41-30    | 146-00 | 1997/12/4           | 14:25 | 162                | 22                     | 150                         | NGG52 | 1500             | 3128 | 48.1   | 0.88                     | 18                     | K9730                | Hokushin Maru |         |
| P13         | 42-45    | 145-55 | 1998/2/28           | 14:30 | 151                | 8                      | 150                         | NGG52 | 1500             | 1710 | 26.3   | 0.86                     | 33                     | K9801                | Hokushin Maru |         |
| P15         | 42-15    | 146-00 | 1998/2/28           | 10:05 | 168                | 27                     | 150                         | NGG52 | 1500             | 2630 | 40.5   | 0.44                     | 11                     | K9802                | Hokushin Maru |         |
| P16         | 42-00    | 146-00 | 1998/2/28           | 7:50  | 162                | 22                     | 150                         | NGG52 | 1500             | 2250 | 34.6   | 0.26                     | 8                      | K9803                | Hokushin Maru |         |
| P17         | 41-30    | 146-00 | 1998/2/27           | 15:35 | 153                | 11                     | 150                         | NGG52 | 1500             | 2457 | 37.8   | 0.24                     | 6                      | K9804                | Hokushin Maru |         |
| P52         | 42-00    | 142-20 | 1997/4/15           | 4:30  | 181                | 33                     | 152                         | NGG52 | 2427             | 1714 | 39.7   | 9.64                     | 243                    | H9701                | Kinsei Maru   | *27     |
| P54         | 41-40    | 142-00 | 1997/4/15           | 0:05  | 196                | 40                     | 150                         | NGG52 | 2427             | 2119 | 49.1   | 13.16                    | 268                    | H9702                | Kinsei Maru   | *28     |
| P56         | 41-20    | 141-40 | 1997/4/14           | 19:00 | 216                | 45                     | 153                         | NGG52 | 2427             | 2944 | 68.3   | 9.96                     | 146                    | H9703                | Kinsei Maru   |         |
| P52         | 42-00    | 142-20 | 1997/5/27           | 4:54  | 150                | 1                      | 150                         | NGG52 | 2427             | 834  | 22.2   | 11.18                    | 503                    | H9704                | Kinsei Maru   | *29     |
| P54         | 41-40    | 142-00 | 1997/5/27           | 0:33  | 161                | 21                     | 150                         | NGG52 | 2427             | 862  | 23.0   | 4.66                     | 203                    | H9705                | Kinsei Maru   | *30     |
| P56         | 41-20    | 141-40 | 1997/5/26           | 20:32 | 155                | 15                     | 150                         | NGG52 | 2427             | 1164 | 31.0   | 5.58                     | 180                    | H9706                | Kinsei Maru   | *30     |
| P52         | 42-00    | 142-20 | 1997/7/29           | 8:32  | 160                | 20                     | 150                         | NGG52 | 2427             | 710  | 18.9   | 8.48                     | 448                    | H9707                | Kinsei Maru   | *31     |
| P54         | 41-40    | 142-00 | 1997/7/29           | 3:49  | 159                | 19                     | 150                         | NGG52 | 2427             | 937  | 25.0   | 3.34                     | 134                    | H9708                | Kinsei Maru   |         |
| P56         | 41-20    | 141-40 | 1997/7/28           | 23:58 | 151                | 8                      | 150                         | NGG52 | 2427             | 1040 | 27.7   | 4.40                     | 159                    | H9709                | Kinsei Maru   | *311    |
| P52         | 42-00    | 142-20 | 1997/9/30           | 9:05  | 170                | 28                     | 150                         | NGG52 | 2427             | 2112 | 36.3   | 1.88                     | 52                     | H9710                | Kinsei Maru   |         |
| P54         | 41-40    | 142-00 | 1997/9/30           | 5:30  | 154                | 14                     | 149                         | NGG52 | 2427             | 1567 | 27.0   | 2.92                     | 108                    | H9711                | Kinsei Maru   |         |
| P56         | 41-20    | 141-40 | 1997/9/30           | 0:40  | 170                | 27                     | 151                         | NGG52 | 2427             | 2069 | 35.6   | 5.82                     | 164                    | H9712                | Kinsei Maru   |         |
| P52         | 42-00    | 142-20 | 1997/11/25          | 23:15 | 209                | 44                     | 150                         | NGG52 | 2427             | 2856 | 49.1   | 5.68                     | 116                    | H9713                | Kinsei Maru   | *30     |
| P54         | 41-40    | 142-00 | 1997/11/25          | 18:30 | 173                | 30                     | 150                         | NGG52 | 2427             | 1891 | 32.5   | 3.82                     | 117                    | H9714                | Kinsei Maru   |         |
| P52         | 42-00    | 142-20 | 1998/2/23           | 2:21  | 158                | 18                     | 150                         | NGG52 | 2427             | 1438 | 24.7   | 1.18                     | 48                     | H9801                | Kinsei Maru   |         |
| P54         | 41-40    | 142-00 | 1998/2/22           | 21:29 | 160                | 21                     | 149                         | NGG52 | 2427             | 1630 | 28.0   | 1.58                     | 56                     | H9802                | Kinsei Maru   | *30     |
| P56         | 41-20    | 141-40 | 1998/2/22           | 17:40 | 159                | 19                     | 150                         | NGG52 | 2427             | 1369 | 23.6   | 1.48                     | 63                     | H9803                | Kinsei Maru   |         |
| J11         | 45-30    | 141-40 | 1997/4/9            | 10:22 | 40                 | 10                     | 39                          | NGG52 | 2428             |      |  | 0.30                     |                        | W9705                | Hokuyo Maru   |         |
| J13         | 45-30    | 141-10 | 1997/4/9            | 12:43 | 135                | 31                     | 116                         | NGG52 | 2428             | 1029 | 19.8   | 1.04                     | 52                     | W9706                | Hokuyo Maru   |         |
| J15         | 45-30    | 140-40 | 1997/4/9            | 15:14 | 194                | 40                     | 149                         | NGG52 | 2428             | 1730 | 33.3   | 0.56                     | 17                     | W9707                | Hokuyo Maru   |         |
| O23         | 44-40    | 143-20 | 1997/4/15           | 2:41  | 102                | 12                     | 100                         | NGG52 | 2428             | 869  | 16.8   | 2.52                     | 150                    | W9708                | Hokuyo Maru   |         |
| O24         | 44-50    | 143-30 | 1997/4/15           | 1:10  | 155                | 8                      | 153                         | NGG52 | 2428             | 1250 | 24.1   | 2.78                     | 115                    | W9709                | Hokuyo Maru   | *31     |
| O26         | 45-10    | 143-50 | 1997/4/16           | 11:22 | 167                | 24                     | 153                         | NGG52 | 2428             | 1439 | 27.7   | 0.96                     | 35                     | W9710                | Hokuyo Maru   |         |
| O23         | 44-40    | 143-20 | 1997/6/4            | 2:47  | 108                | 23                     | 99                          | NGG52 | 2428             |      |  | 2.72                     |                        | W9711                | Hokuyo Maru   | *32     |
| O24         | 44-50    | 143-30 | 1997/6/4            | 1:13  | 162                | 22                     | 150                         | NGG52 | 2428             | 122  | 2.4  |                          |                        | W9712                | Hokuyo Maru   | *33     |
| O26         | 45-10    | 143-50 | 1997/6/5            | 11:26 | 205                | 45                     | 145                         | NGG52 | 2428             | 602  | 11.6   | 1.08                     | 93                     | W9713                | Hokuyo Maru   | *34     |
| O23         | 44-40    | 143-20 | 1997/8/2            | 7:57  | 103                | 15                     | 99                          | NGG52 | 2428             | 38   | 0.7  | 3.06                     |                        | W9714                | Hokuyo Maru   | *35     |
| O24         | 44-50    | 143-30 | 1997/8/2            | 6:25  | 140                | 35                     | 115                         | NGG52 | 2428             | 230  | 4.4  | 4.00                     |                        | W9715                | Hokuyo Maru   | *35     |
| O25         | 45-00    | 143-40 | 1997/8/2            | 4:42  | 164                | 25                     | 149                         | NGG52 | 2428             | 251  | 4.8  | 1.46                     |                        | W9716                | Hokuyo Maru   | *35     |
| O26         | 45-10    | 143-50 | 1997/8/3            | 16:18 | 150                | 0                      | 150                         | NGG52 | 2428             | 212  | 4.1  | 2.70                     |                        | W9717                | Hokuyo Maru   | *36     |
| O23         | 44-40    | 143-20 | 1997/9/30           | 8:07  | 116                | 20                     | 109                         | NGG52 | 2428             | 1162 | 23.8   | 0.62                     | 26                     | W9718                | Hokuyo Maru   |         |
| O24         | 44-50    | 143-30 | 1997/9/30           | 6:34  | 150                | 38                     | 118                         | NGG52 | 2428             | 1492 | 30.6   | 0.72                     | 24                     | W9719                | Hokuyo Maru   | *37     |
| O26         | 45-10    | 143-50 | 1997/9/30           | 3:16  | 157                | 17                     | 150                         | NGG52 | 2428             | 1380 | 28.3   | 4.70                     | 166                    | W9720                | Hokuyo Maru   | *38     |
| J11         | 45-30    | 141-40 | 1997/10/26          | 17:55 | 60                 | 40                     | 46                          | NGG52 | 2428             |      |  | 0.50                     |                        | W9721                | Hokuyo Maru   |         |

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1997 to March 1998.

| Station No. | Position |        | Japan Standard Time |       | Length of wire (m) | Angle of wire (degree) | Estimated depth of haul (m) | Net   | Flow meter (RGS) |      | Estimated volume of water filtered (m <sup>3</sup> ) | Wet weight of sample (g) |                        | Permanent Sample No. | Vessel      | Remarks |
|-------------|----------|--------|---------------------|-------|--------------------|------------------------|-----------------------------|-------|------------------|------|--|--------------------------|------------------------|----------------------|-------------|---------|
|             | Lat N    | Long E | Date                | Hour  |                    |                        |                             |       | No.              | Rev. |  | per haul                 | per 1000m <sup>3</sup> |                      |             |         |
|             |          |        |                     |       |                    |                        |                             |       |                  |      |  |                          |                        |                      |             |         |
| J13         | 45-30    | 141-10 | 1997/10/25          | 10:17 | 135                | 34                     | 112                         | NGG52 | 2428             | 1399 | 28.7   | 3.38                     | 118                    | W9722                | Hokuyo Maru |         |
| J15         | 45-30    | 140-40 | 1997/10/25          | 13:35 | 196                | 40                     | 150                         | NGG52 | 2428             | 1956 | 40.1   | 1.30                     | 32                     | W9723                | Hokuyo Maru |         |
| J17         | 45-30    | 140-00 | 1997/10/25          | 18:00 | 157                | 21                     | 147                         | NGG52 | 2428             | 1527 | 31.3   | 2.30                     | 73                     | W9724                | Hokuyo Maru |         |
| O23         | 44-40    | 143-20 | 1997/12/10          | 1:37  | 105                | 18                     | 100                         | NGG52 | 2428             | 940  | 15.5   | 1.40                     | 90                     | W9725                | Hokuyo Maru |         |
| O24         | 44-50    | 143-30 | 1997/12/10          | 3:05  | 160                | 37                     | 128                         | NGG52 | 2428             | 1814 | 29.9   | 4.18                     | 140                    | W9726                | Hokuyo Maru | *39     |
| O26         | 45-10    | 143-50 | 1997/12/10          | 6:10  | 181                | 35                     | 148                         | NGG52 | 2428             | 1667 | 27.5   | 1.14                     | 41                     | W9727                | Hokuyo Maru | *40     |
| J11         | 45-30    | 141-40 | 1998/2/16           | 10:21 | 59                 | 35                     | 48                          | NGG52 | 2428             | 580  | 9.6  | 0.68                     | 71                     | W9801                | Hokuyo Maru |         |
| J13         | 45-30    | 141-10 | 1998/2/16           | 12:50 | 150                | 37                     | 120                         | NGG52 | 2428             | 1977 | 32.6   | 0.94                     | 29                     | W9802                | Hokuyo Maru |         |
| J15         | 45-30    | 140-40 | 1998/2/16           | 15:28 | 178                | 30                     | 154                         | NGG52 | 2428             | 2067 | 34.1   | 0.50                     | 15                     | W9803                | Hokuyo Maru |         |
| J17         | 45-30    | 140-00 | 1998/2/16           | 18:39 | 158                | 17                     | 151                         | NGG52 | 2428             | 1665 | 27.5   | 1.14                     | 42                     | W9804                | Hokuyo Maru |         |

- |     |  |      |   |
|-----|--|------|---|
| *1  | <i>Parasagitta elegans</i> appear.                             | *21  | Phytoplankton abundant.                                 |
| *2  | Large copepods abundant.                                       | *22  | Euphausiids abundant.                                   |
| *3  | Euphausiids and <i>Parasagitta elegans</i> appear.             | *23  | Euphausiids appear.                                     |
| *4  | Almost all phytoplankton.                                      | *24  | Bottom sands slightly contaminated.                     |
| *5  | Small copepods abundant.                                       | *25  | Phytoplankton abundant.                                 |
| *6  | Gelatinous, but well-drained.                                  | *26  | White fragments abundant.                               |
| *7  | Many salps, so not measured wet wt.                            | *261 | Gelatinous.   |
| *8  | Large gelatinous matter excluded.                              | *27  | Phytoplankton and large copepods abundant.              |
| *9  | Excluding one salp (TL, ca 5.5cm).                             | *28  | Excluding one ? <i>Pseudosagitta</i> (L=ca. 5cm)        |
| *10 | Phytoplankton abundant.  | *29  | Twilight collection. <i>Parasagitta elegans</i> appear. |
| *11 | Somewhat gelatinous.   | *30  | Euphausiids appear.                                     |
| *12 | Daytime collection.  | *31  | <i>Parasagitta elegans</i> appear.                      |
| *13 | Neocalanus abundant.   | *311 | <i>P. elegans</i> and euphausiids appear.               |
| *14 | Neocalanus abundant. <i>P. elegans</i> and euphausiids appear. | *32  | Euphausiids appear.                                     |
| *15 | Zooplankton abundant.  | *33  | Wet weight unmeasurable due to containing bottom mad.   |
| *16 | <i>P. elegans</i> and euphausiids appear                       | *34  | Mostly copepods.  |
| *17 | Twilight hour collection. Flowmeter readings unreliable.       | *35  | Flowmeter readings unreliable.                          |
| *18 | Twilight hour collection. <i>P. elegans</i> appear.            | *36  | Amphipods appear. Flowmeter readings unreliable.        |
| *19 | <i>P. elegans</i> appear.                                      | *37  | Amphipods appear.                                       |
| *20 | Sunset at 17:30h.  | *38  | Euphausiids abundant.                                   |
|     |  | *39  | Euphausiids and amphipods abundant.                     |
|     |  | *40  | Amphipods abundant.                                     |

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