

海洋調査要報

第 14 号

DATA RECORD OF OCEANOGRAPHIC OBSERVATIONS

No.14

APRIL 1998 - MARCH 1999

北海道立水産試験場

平成 19 年 6 月

HOKKAIDO FISHERIES EXPERIMENTAL STATION

昭和60年(1985)以降、第13号まで海洋調査要報として海洋観測結果を印刷公表してきましたが、IT普及によるデータ流通の変化や財政的な背景から従来の印刷公表を見直すこととしました。そこで今回の第14号から、水産試験場以外の外部機関にはインターネットによるダウンロードを利用させていただくこととなりました。

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。

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 6 月 Jun 2007

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Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1998 to March 1999.

Period	Area	Station Nos. occupied	Number of obs	Vessel	Research staff on board	Equipments for hydrography	Referencial pages
Hokkaido Central Fisheries Experimental Station							
1998/4/14 - 1998/4/16	West of Hokkaido, Japan Sea	199804J31 - 199804J33B	19	Oyashio Maru	T.Yasunaga	SBE 9/11plus 725/1055	Table 3-1
1998/4/20 - 1998/4/23	West of Hokkaido, Japan Sea	199804CHA01 - 199804J43	7	Oyashio Maru	Y.Kunihiro	SBE 9/11plus 725/1055	Table 3-2
1998/5/6 - 1998/5/8	Ishikari Bay, Japan Sea	199805CIS125 - 199805CIS134	34	Oyashio Maru	A.Fujioka	SBE 9/11plus 725/1055	Table 3-3
1998/5/11 - 1998/5/11	Ishikari Bay, Japan Sea	199805CIS124 - 199805CIS124	1	Oyashio Maru	K. Maeda	SBE 9/11plus 725/1055	Table 3-7
1998/5/25 - 1998/5/28	West of Hokkaido, Japan Sea	199806J31 - 199806J27	25	Oyashio Maru	T.Yasunaga	SBE 9/11plus 725/1055	Table 3-7
1998/6/1 - 1998/6/3	West of Hokkaido, Japan Sea	199806JC11 - 199806J43	21	Oyashio Maru	A. Nakata A. Miyazono	SBE 9/11plus 725/1055	Table 3-9
1998/6/8 - 1998/6/10	West of Hokkaido, Japan Sea	199806J41 - 199806J46D	10	Oyashio Maru	A.Nakata I.Tanaka T.Watanabe	SBE 9/11plus 725/1055	Table 3-9
1998/6/23 - 1998/6/30	West of Hokkaido, Japan Sea	199806CSR100 - 199806CSR115	16	Oyashio Maru	K.Sakaguchi	SBE 9/11plus 725/1055	Table 3-10
1998/7/6 - 1998/7/8	Ishikari Bay, Japan Sea	199807CIS126 - 199807CIS109	33	Oyashio Maru	Y.Kunihiro	SBE 9/11plus 725/1055	Table 3-12
1998/7/14 - 1998/7/17	West of Hokkaido, Japan Sea	199807CHA01 - 199807CHA12	12	Oyashio Maru	A.Fujioka	SBE 9/11plus 725/1055	Table 3-15
1998/7/27 - 1998/7/28	Ishikari Bay, Japan Sea	199807CTW001 - 199807CTW027	27	Oyashio Maru	M.Seto	SBE 9/11plus 725/1055	Table 3-16
1998/7/28 - 1998/8/1	West of Hokkaido, Japan Sea	199808J31 - 199808AO01	49	Oyashio Maru	A. Nakata T.Yasunaga	SBE 9/11plus 725/1055	Table 3-19
1998/8/25 - 1998/9/1	West of Hokkaido, Japan Sea	199807CSR101 - 199807CSR119	19	Oyashio Maru	K.Sakaguchi	SBE 9/11plus 725/1055	Table 3-24
1998/9/7 - 1998/9/7	Ishikari Bay, Japan Sea	199809CST01 - 199809CST01	1	Oyashio Maru	M.Seto	SBE 9/11plus 725/1055	Table 3-26
1998/9/28 - 1998/9/30	West of Hokkaido, Japan Sea	199810J31 - 199810J56	24	Oyashio Maru	M. Kotori K. Hirano	SBE 9/11plus 725/1055	Table 3-26
1998/10/3 - 1998/10/6	South of Hokkaido, North Pacific	199810HW001 - 199810HW013	13	Oyashio Maru	Y.Mihara	SBE 9/11plus 725/1055	Table 3-28
1998/10/6 - 1998/10/7	West of Hokkaido, Japan Sea	199810J63 - 199810J52	5	Oyashio Maru	M.Furumaki	SBE 9/11plus 725/1055	Table 3-29
1998/10/13 - 1998/10/13	West of Hokkaido, Japan Sea	199810CW101 - 199810CW102	2	Oyashio Maru	S. Takayanagi	SBE 9/11plus 725/1055	Table 3-30
1998/10/21 - 1998/10/23	West of Hokkaido, Japan Sea	199810CW201 - 199810CW203	3	Oyashio Maru	S. Takayanagi	SBE 9/11plus 725/1055	Table 3-30
1998/10/27 - 1998/10/30	West of Hokkaido, Japan Sea	199810CHA01 - 199810CHA08	8	Oyashio Maru	Y.Kunihiro	SBE 9/11plus 725/1055	Table 3-30
1998/11/16 - 1998/11/16	West of Hokkaido, Japan Sea	199811CTK01 - 199811CTK02	2	Oyashio Maru	M. Yamaguchi	SBE 9/11plus 725/1055	Table 3-31
1998/11/26 - 1998/12/1	West of Hokkaido, Japan Sea	199812J41 - 199812J31	30	Oyashio Maru	K.Hirano T.Yasunaga	SBE 9/11plus 725/1055	Table 3-31
1998/12/12 - 1998/12/13	South of Hokkaido, North Pacific	199812HW001 - 199812HW010	10	Oyashio Maru	Y.Mihara	SBE 9/11plus 725/1055	Table 3-34
1999/2/5 - 1999/2/5	West of Hokkaido, Japan Sea	199902J63 - 199902J63	1	Oyashio Maru	A. Miyazono T. Yasunaga	SBE 9/11plus 725/1055	Table 3-35
1999/2/5 - 1999/2/17	West of Hokkaido, Japan Sea	199902J62 - 199902J31B	11	Oyashio Maru	T. Watanabe T. Yasunaga	SBE 9/11plus 725/1055	Table 3-35
1999/3/8 - 1999/3/10	West of Hokkaido, Japan Sea	199903J41 - 199903JH01	13	Oyashio Maru	T. Watanabe A. Miyazono	SBE 9/11plus 724/1054	Table 3-37
Hokkaido Hakodate Fisheries Experimental Station							
1998/4/14 - 1998/4/16	South of Hokkaido, Funka Bay	199804H01 - 199804P65	43	Kinsei Maru	K.Kanomata &*1	SBE 9/11	
1998/4/21 - 1998/4/22	South of Hokkaido, Funka Bay	199804HKD001 - 199804HKD018	18	Kinsei Maru	H.Shimada	SBE 9/11	
1998/5/11 - 1998/5/18	South of Hokkaido, Funka Bay	199805HFS115 - 199805HFS838	119	Kinsei Maru	Y.Nishida	SBE 9/11	
1998/5/19 - 1998/5/19	South of Hokkaido, Funka Bay	199805HKG000 - 199805HKG001	4	Kinsei Maru	E.Mihara	SBE 9/11	

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1998 to March 1999.

Period	Area	Station Nos. occupied	Number of obs	Vessel	Research staff on board	Equipments for hydrography	Referencial pages
1998/5/26 - 1998/5/28	South of Hokkaido, North Pacific	199806H01 - 199806P64	14	Kinsei Maru	H.Shimada	SBE 9/11	
1998/6/1 - 1998/6/10	South of Hokkaido, Japan Sea	199806HSR021 - 199806HSR020	22	Kinsei Maru	K.Kanomata	SBE 9/11	
1998/6/16 - 1998/6/19	South of Hokkaido, Funka Bay	199806HFS16 - 199806HIK03	29	Kinsei Maru	Y.Nishida	SBE 9/11	
1998/6/22 - 1998/6/24	South of Hokkaido, Funka Bay	199806HKD001 - 199806HYK02	25	Kinsei Maru	H.Shimada	SBE 9/11	
1998/6/25 - 1998/6/25	Tsugaru Strait	199806HSY01 - 199806HSY02	3	Kinsei Maru		SBE 9/11	
1998/6/29 - 1998/7/2	South of Hokkaido, North Pacific	199806HIK0H1 - 199806HIK016	22	Kinsei Maru	K.Kanomata	SBE 9/11	
1998/7/13 - 1998/7/16	South of Hokkaido, Funka Bay	199807HFS115 - 199807HIK016	27	Kinsei Maru	Y.Nishida	SBE 9/11	
1998/7/23 - 1998/7/24	Tsugaru Strait	199807HAP17 - 199807HAPR87	22	Kinsei Maru		SBE 9/11	
1998/7/27 - 1998/7/29	South of Hokkaido, North Pacific	199808H01 - 199807HIK916	15	Kinsei Maru	H.Shimada K.Nishina*2	SBE 9/11	
1998/8/3 - 1998/8/5	Tsugaru Strait	199808HIK017 - 199808HIK016	2	Kinsei Maru		SBE 9/11	
1998/8/24 - 1998/8/27	South of Hokkaido, North Pacific	199808HIK116 - 199808HIK816	19	Kinsei Maru	K.Kanomata	SBE 9/11	
1998/8/31 - 1998/9/3	West of Hokkaido, Japan Sea	199809HSR17 - 199809HSR20	5	Kinsei Maru	K.Kanomata	SBE 9/11	
1998/9/9 - 1998/9/10	Tsugaru Strait, Funka Bay	199809HFS31 - 199809HFS02	25	Kinsei Maru	Y.Nishida	SBE 9/11	
1998/9/28 - 1998/10/3	South of Hokkaido, North Pacific	199810H01 - 199810P64	14	Kinsei Maru	K.Kanomata	SBE 9/11	
1998/10/6 - 1998/10/7	Tsugaru Strait	199810HAP17 - 199810HAP87	21	Kinsei Maru		SBE 9/11	
1998/10/12 - 1998/10/13	South of Hokkaido, Funka Bay	199810HKG005 - 199810HKG004	5	Kinsei Maru	E.Mihara	SBE 9/11	
1998/10/20 - 1998/10/21	West of Hokkaido, Japan Sea	199810HW002 - 199810HW100	13	Kinsei Maru		SBE 9/11	
1998/11/24 - 1998/11/27	Tsugaru Strait, Funka Bay	199811HFS24 - 199811HAP87	51	Kinsei Maru	Y.Nishida	SBE 9/11	
1998/12/2 - 1998/12/4	South of Hokkaido, North Pacific	199812H01 - 199812P61	8	Kinsei Maru	K.Kanomata	SBE 9/11&MSTD	
1999/2/15 - 1999/2/17	South of Hokkaido, North Pacific	199902H011 - 199902P66	15	Kinsei Maru	K.Kanomata	SBE 9/11	
1999/3/2 - 1999/3/3	South of Hokkaido, Funka Bay	199903HKG004 - 199811HFS115	28	Kinsei Maru	Y.Nishida	SBE 9/11	
1999/3/7 - 1999/3/8	Tsugaru Strait	199903HAP11 - 199903HAP87	21	Kinsei Maru		SBE 9/11	

Hokkaido Kushiro Fisheries Experimental Station

1998/4/13 - 1998/4/19	South of Hokkaido & off Sanriku North	199804P31 - 199804PK11	63	Hokushin Maru	T.Sato M.Kotori	SBE 9/11plus 2256/1853	Table 5-1
1998/5/7 - 1998/5/11	South of Hokkaido, Off Tokachi & Kush	199805HA01 - 199805SU27	33	Hokushin Maru		SBE 9/11plus 2256/1853	Table 5-7
1998/5/19 - 1998/5/20	South of Hokkaido, North Pacific	199805SU58 - 199805SU63	6	Hokushin Maru		SBE 9/11plus 2256/1853	Table 5-10
1998/5/27 - 1998/6/2	South of Hokkaido & off Sanriku North	199806P31 - 199806PK11	63	Hokushin Maru	T.Honma M.Kotori	SBE 9/11plus 2256/1853	Table 5-11
1998/6/9 - 1998/6/18	South of Hokkaido, North Pacific	199806IK17 - 199806IK01	17	Hokushin Maru	T.Sato	SBE 9/11plus 2256/1853	Table 5-17
1998/6/24 - 1998/7/1	South of Hokkaido & off Sanriku North	199807IW01 - 199807IW22	22	Hokushin Maru	Y.Nakame	SBE 9/11plus 2256/1853	Table 5-19
1998/7/13 - 1998/7/22	East of Hokkaido, North Pacific	199807SM01 - 199807SM17	17	Hokushin Maru	T.Honma	SBE 9/11plus 2256/1853	Table 5-21

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1998 to March 1999.

Period	Area	Station Nos. occupied	Number of obs	Vessel	Research staff on board	Equipments for hydrography	Referencial pages
1998/7/31 - 1998/8/4	South of Hokkaido, North Pacific	199808P31 - 199808PK03	40	Hokushin Maru	Y.Nakame	SBE 9/11plus 2256/1853	Table 5-23
1998/8/21 - 1998/8/25	South of Hokkaido, North Pacific	199808IK09 - 199808IK01	9	Hokushin Maru	T.Sato	SBE 9/11plus 2256/1853	Table 5-27
1998/9/2 - 1998/9/9	South of Hokkaido, North Pacific	199809IW01 - 199809IW15	15	Hokushin Maru	Y.Nakame	SBE 9/11plus 2256/1853	Table 5-28
1998/9/18 - 1998/9/21	South of Hokkaido, North Pacific	199809SM01 - 199809SM06	5	Hokushin Maru	T.Honma	SBE 9/11plus 2256/1853	Table 5-29
1998/10/1 - 1998/10/6	South of Hokkaido, North Pacific	199810P31 - 199810PK06	40	Hokushin Maru	Y.Nakame	SBE 9/11plus 2256/1853	Table 5-30
1998/10/16 - 1998/10/21	Off Shiretoko & Okhotsk Sea	199810IK01 - 199810IK11	11	Hokushin Maru	T.Sato	SBE 9/11plus 2256/1853	Table 5-34
1998/10/26 - 1998/10/29	South of Hokkaido, North Pacific	199810SM01 - 199810SM07	7	Hokushin Maru	T.Honma	SBE 9/11plus 2256/1853	Table 5-35
1998/11/6 - 1998/11/10	South of Hokkaido, Off Tokachi	199811SU01 - 199811SU16	16	Hokushin Maru	O.Shida	SBE 9/11plus 2256/1853	Table 5-35
1998/11/16 - 1998/11/20	South of Hokkaido, North Pacific	199812PK11 - 199812P31	38	Hokushin Maru	Y.Nakame	SBE 9/11plus 2256/1853	Table 5-37
1998/12/2 - 1998/12/3	Off Shiretoko & Okhotsk Sea	199812SU01 - 199812SU24	23	Hokushin Maru	O.Shida	SBE 9/11plus 2256/1853	Table 5-41
1999/2/15 - 1999/2/18	South of Hokkaido, North Pacific	199902P31 - 199902P22	33	Hokushin Maru	T.Sato	SBE 9/11plus 2256/1853	Table 5-43
1999/2/25 - 1999/3/2	South of Hokkaido, Off Tokachi	199902SU01 - 199902SU15	18	Hokushin Maru		SBE 9/11plus 2256/1853	Table 5-46
Hokkaido Wakkanai Fisheries Experimental Station							
1998/4/14 - 1998/4/17	North of Hokkaido, Soya straight	199804J101 - 199804JW03	34	Hokuyo Maru	I.Tanaka J.Nakata &*3	SBE 9/11 1688/1392	Table 6-1
1998/4/20 - 1998/4/23	Southwestern Okhotsk Sea	199804S301 - 199804S103A	34	Hokuyo Maru	J.Nakata M.Natsume &*4	SBE 9/11 1688/1392	Table 6-4
1998/5/20 - 1998/5/20	North of Hokkaido, Japan Sea	199805WHK01 - 199805WHK01	1	Hokuyo Maru	T.Takashima	SBE 9/11 1688/1392	Table 6-7
1998/5/26 - 1998/5/27	Southwestern Okhotsk Sea	199805WSU01 - 199805WSU06	6	Hokuyo Maru	N.Hoshino	SBE 9/11 1688/1392	Table 6-7
1998/6/1 - 1998/6/3	North of Hokkaido, Soya straight	199806J101 - 199806S401	34	Hokuyo Maru	J.Nakata T.Yasunaga	SBE 9/11 1688/1392	Table 6-8
1998/6/8 - 1998/6/10	Southwestern Okhotsk Sea	199806O15 - 199806OA11	31	Hokuyo Maru	M.Watanobe A.Ootsuki*4	SBE 9/11 1688/1392	Table 6-11
1998/6/16 - 1998/6/18	Southwestern Okhotsk Sea	199806WSU01 - 199806WSU09	9	Hokuyo Maru	K.Sazaki	SBE 9/11 1688/1392	Table 6-15
1998/6/23 - 1998/6/24	North of Hokkaido, Japan Sea	199806WTP05 - 199806WTP03	11	Hokuyo Maru	J.Nakata	SBE 9/11 1688/1392	Table 6-15
1998/7/6 - 1998/7/15	North of Hokkaido, Japan Sea	199807WEB01 - 199807WEB16	17	Hokuyo Maru	N.Hoshino &*5	SBE 9/11 1688/1392	Table 6-17
1998/7/27 - 1998/7/29	North of Hokkaido, Soya straight	199808J101 - 199808S401	34	Hokuyo Maru	A.Miyazono T.Takashima	SBE 9/11 1688/1392	Table 6-18
1998/8/3 - 1998/8/5	Southwestern Okhotsk Sea	199808OA05 - 199808OA11	30	Hokuyo Maru	K.Sazaki	SBE 9/11 1688/1392	Table 6-22
1998/9/7 - 1998/9/10	Southwestern Okhotsk Sea	199809AS103 - 199809AO36	39	Hokuyo Maru	M.Torisawa(AFES)	SBE 9/11 1688/1392	Table 6-25
1998/9/28 - 1998/9/30	Southwestern Okhotsk Sea	199810S103 - 199810O34	39	Hokuyo Maru	K.Sazaki	SBE 9/11 1688/1392	Table 6-29
1998/10/8 - 1998/10/19	West of Hokkaido, Japan Sea	199810WTC01 - 199810WTC07	5	Hokuyo Maru	H.Miyake T.Kaneta	SBE 9/11 1688/1392	Table 6-32
1998/10/27 - 1998/10/29	North of Hokkaido, Japan Sea	199810J11 - 199810JW14	24	Hokuyo Maru	M.Mitsubishi	SBE 9/11 1688/1392	Table 6-33
1998/11/16 - 1998/11/17	Around Rishiri Island, Japan Sea	199811WTP01 - 199811WTP02	11	Hokuyo Maru	J.Nakata K.Abe*6	SBE 9/11 1688/1392	Table 6-35
1998/11/30 - 1998/12/1	North of Hokkaido, Japan Sea	199812J101 - 199812J104	14	Hokuyo Maru	A.Nakata A.Wada	SBE 9/11 1688/1392	Table 6-36
1998/12/7 - 1998/12/11	Southwestern Okhotsk Sea	199812S103 - 199812OA10	23	Hokuyo Maru	J.Nakata &*7	SBE 9/11 1688/1392	Table 6-38
1999/2/16 - 1999/2/16	Off Obira, Japan Sea	199902WNN01 - 199902WNN18	11	Hokuyo Maru	N.Tanaka	SBE 9/11 1688/1392	Table 6-40

Table 1. Summary of oceanographic observations conducted by Hokkaido Fisheries Experimental Station from April 1998 to March 1999.

Period	Area	Station Nos. occupied		Number of obs	Vessel	Research staff on board	Equipments for hydrography	Referencial pages
1999/2/22 - 1999/2/24	North of Hokkaido, Japan Sea	199902J11	199902JW01	24	Hokuyo Maru	K.Sazaki	SBE 9/11 1688/1392	Table 6-41
1999/3/1 - 1999/3/2	North of Hokkaido, Japan Sea	199903WSU01	199903WSU03	3	Hokuyo Maru	K.Sazaki	SBE 9/11 1688/1392	Table 6-44

*1:Y.Yamada(Hokkaido Univ.)

*2:Geological Survey of Hokkaido

*3:A.Nakata (CFES) A.Yasuda(Hokkaido Tokai Univ)

*4:M.Ito A.Ootsuki (Hokkaido Univ.)

*5:M.Kitagawa T.Nishikiori (KFES)

*6:Hokkaido Univ.

*7:M. Ito M. Yamamoto(Hokkaido Univ.)

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

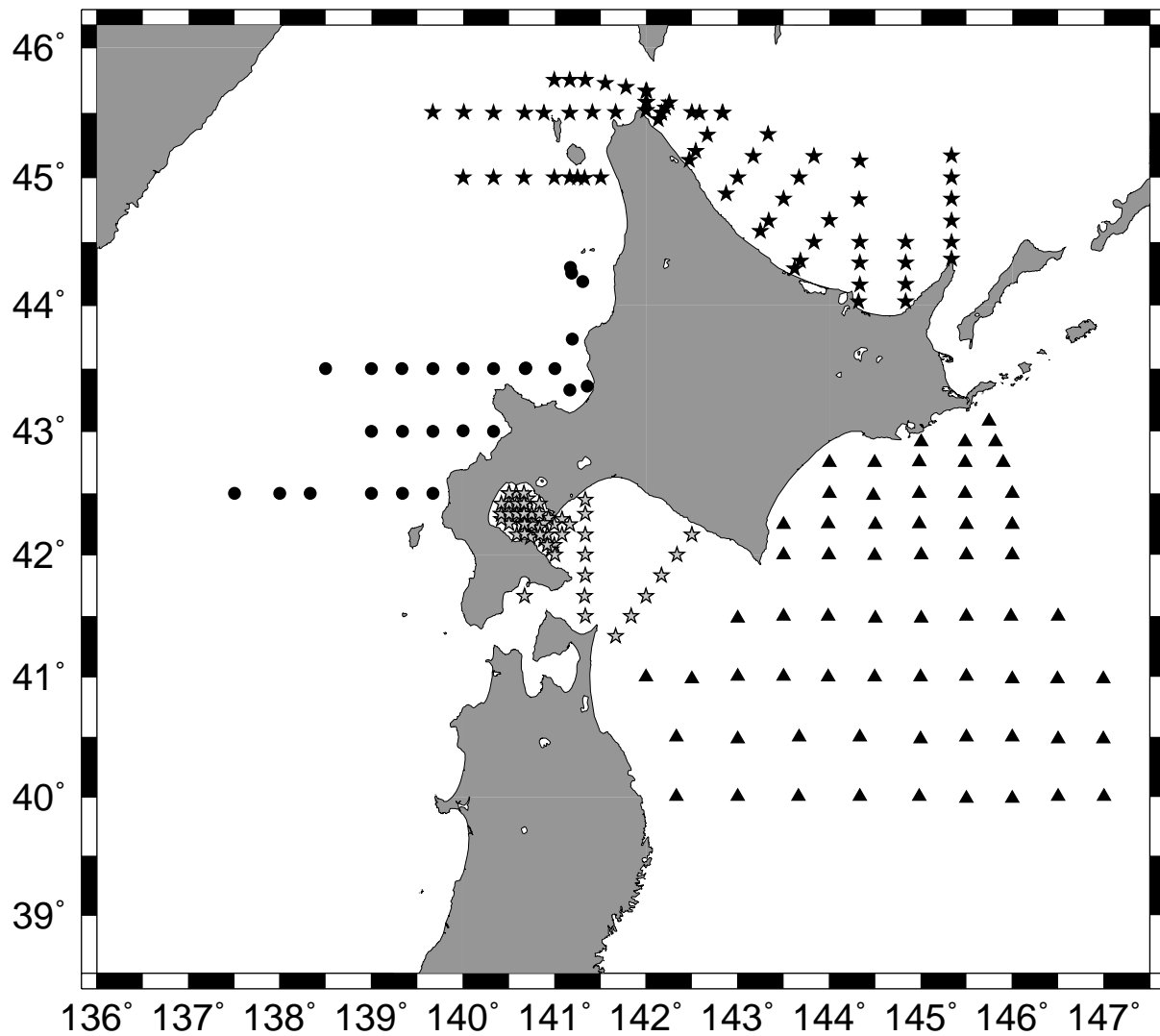


Fig. 1. Location of oceanographic stations covered in April 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

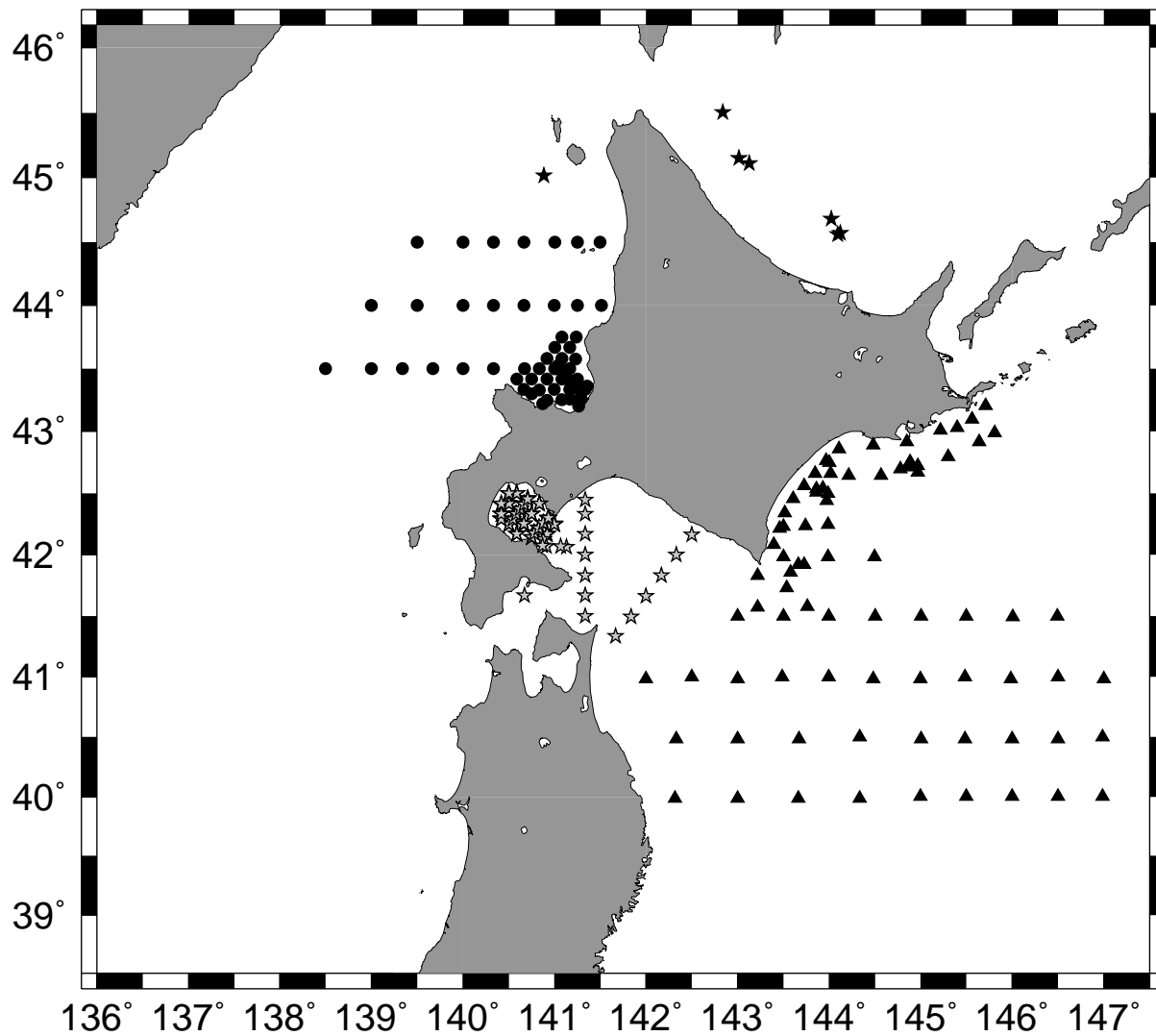


Fig. 2. Location of oceanographic stations covered in May 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

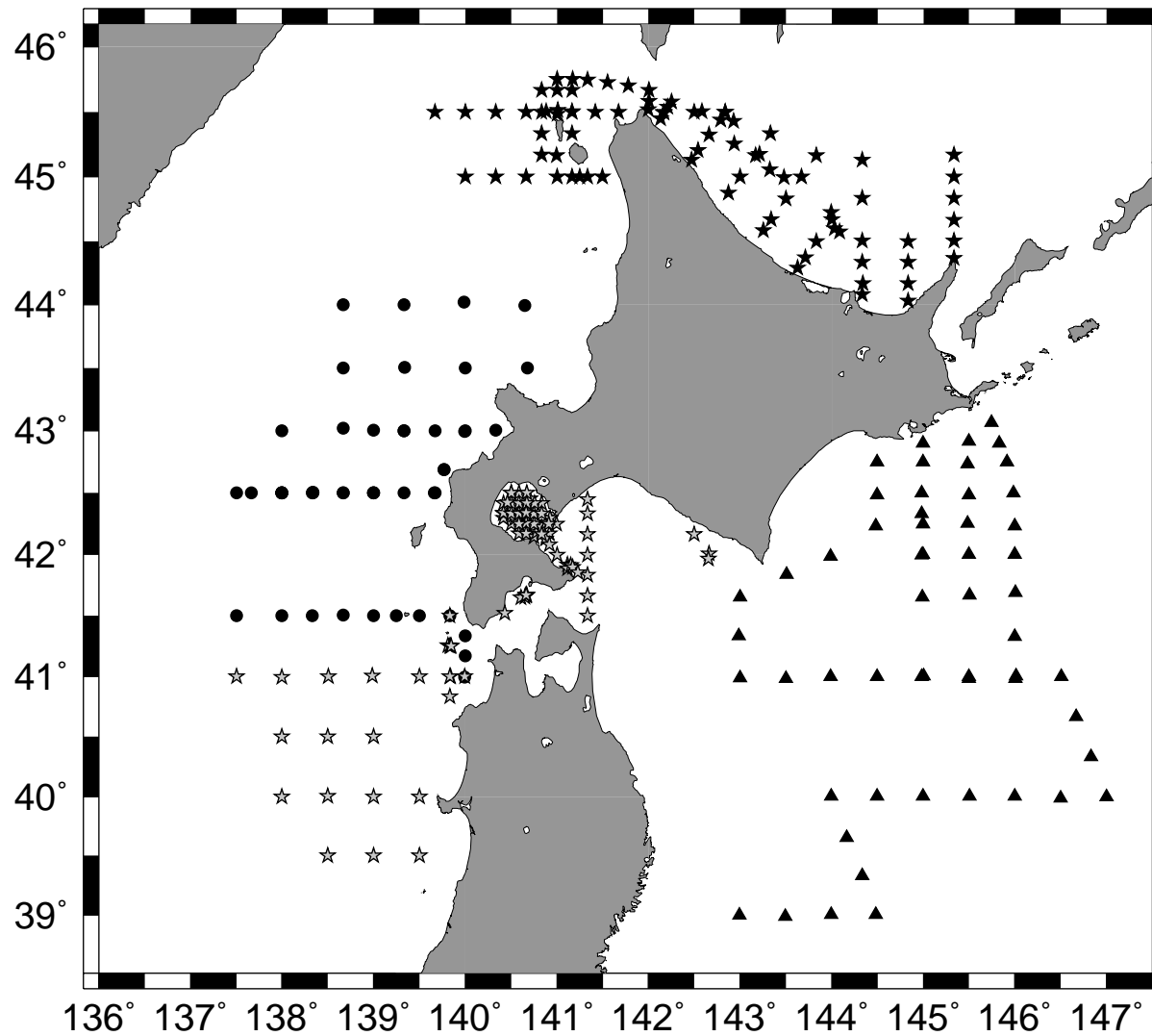


Fig. 3. Location of oceanographic stations covered in June 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

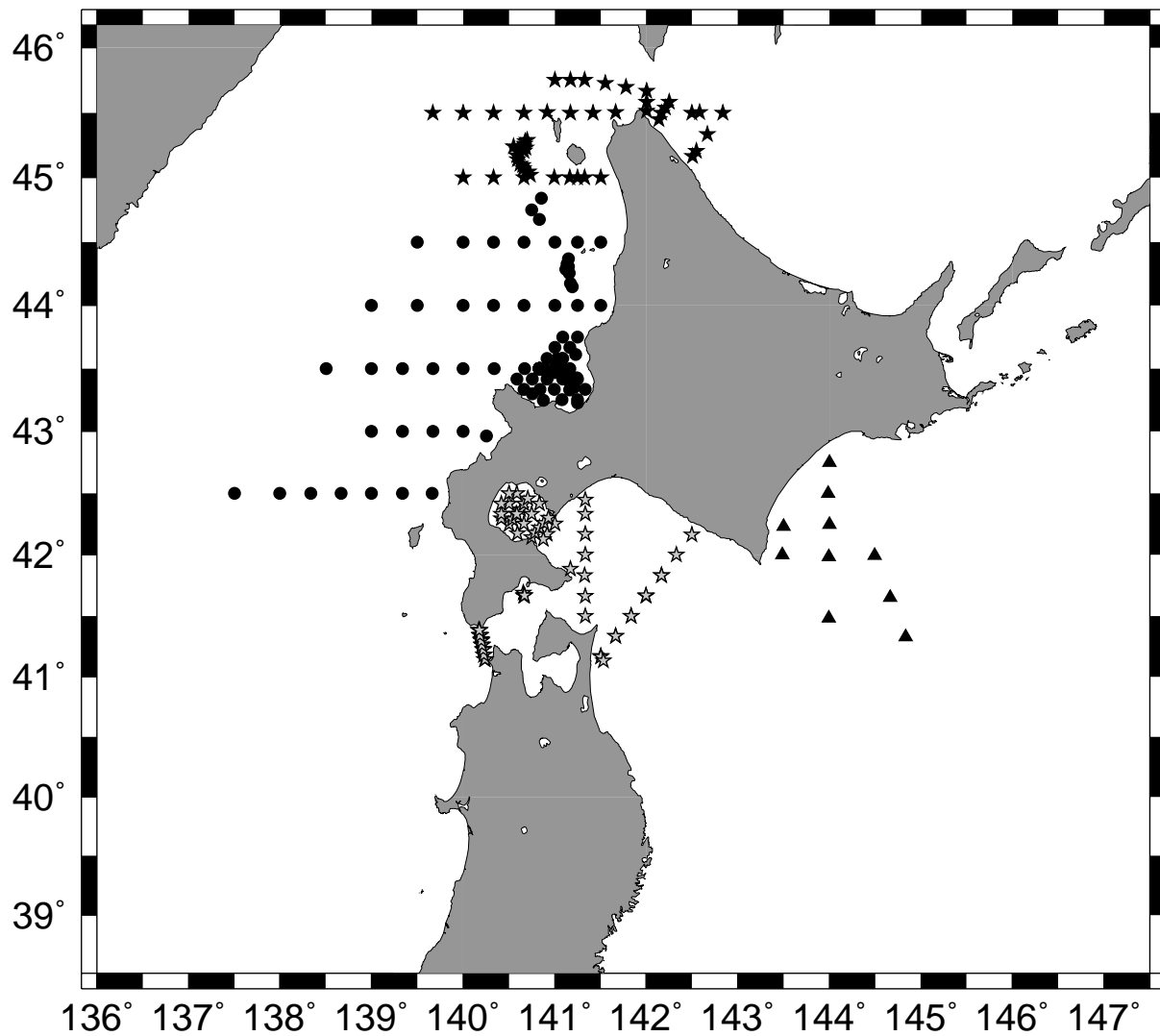


Fig. 4. Location of oceanographic stations covered in July 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

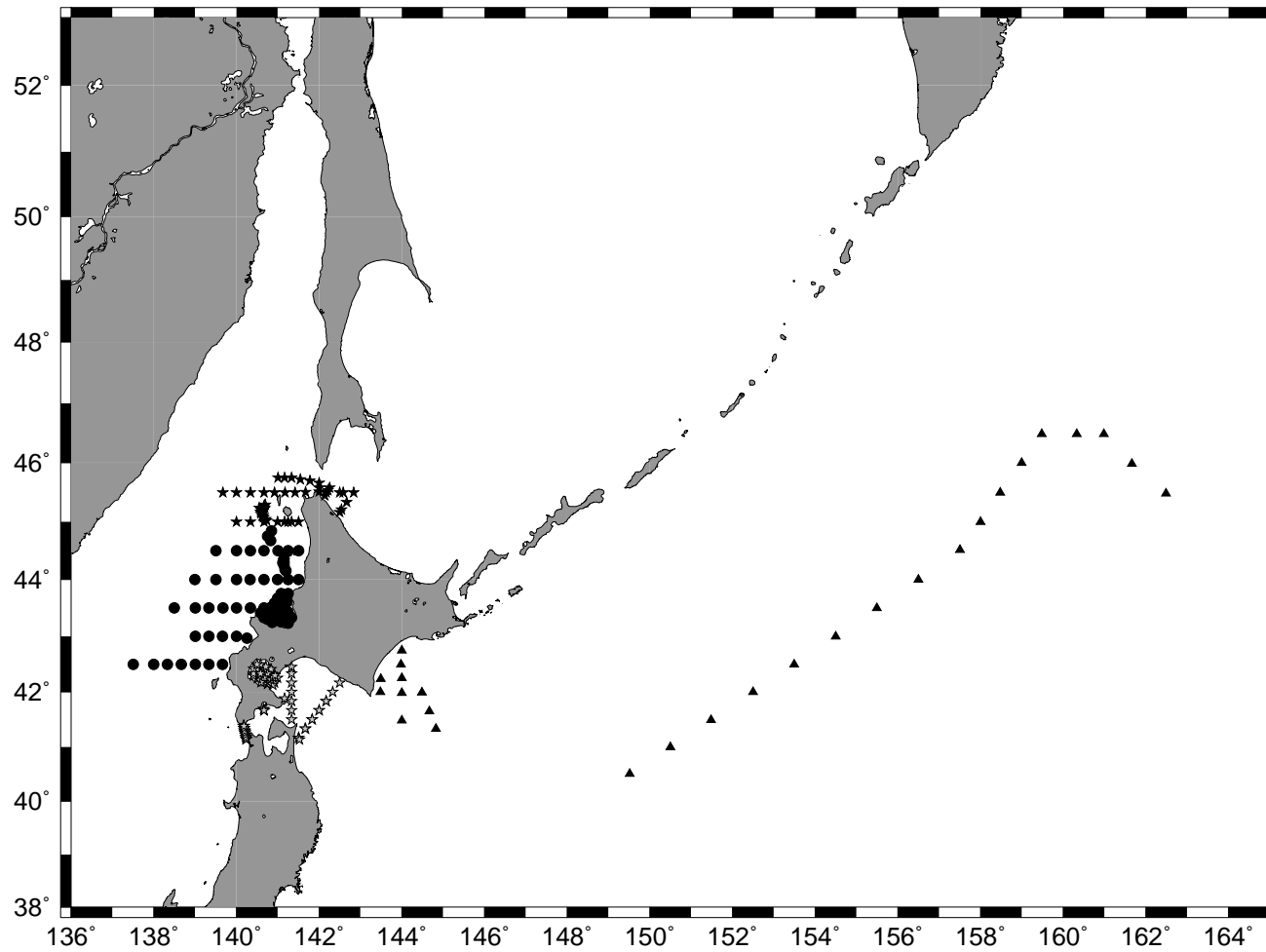


Fig. 4-2. Location of oceanographic stations covered in July 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

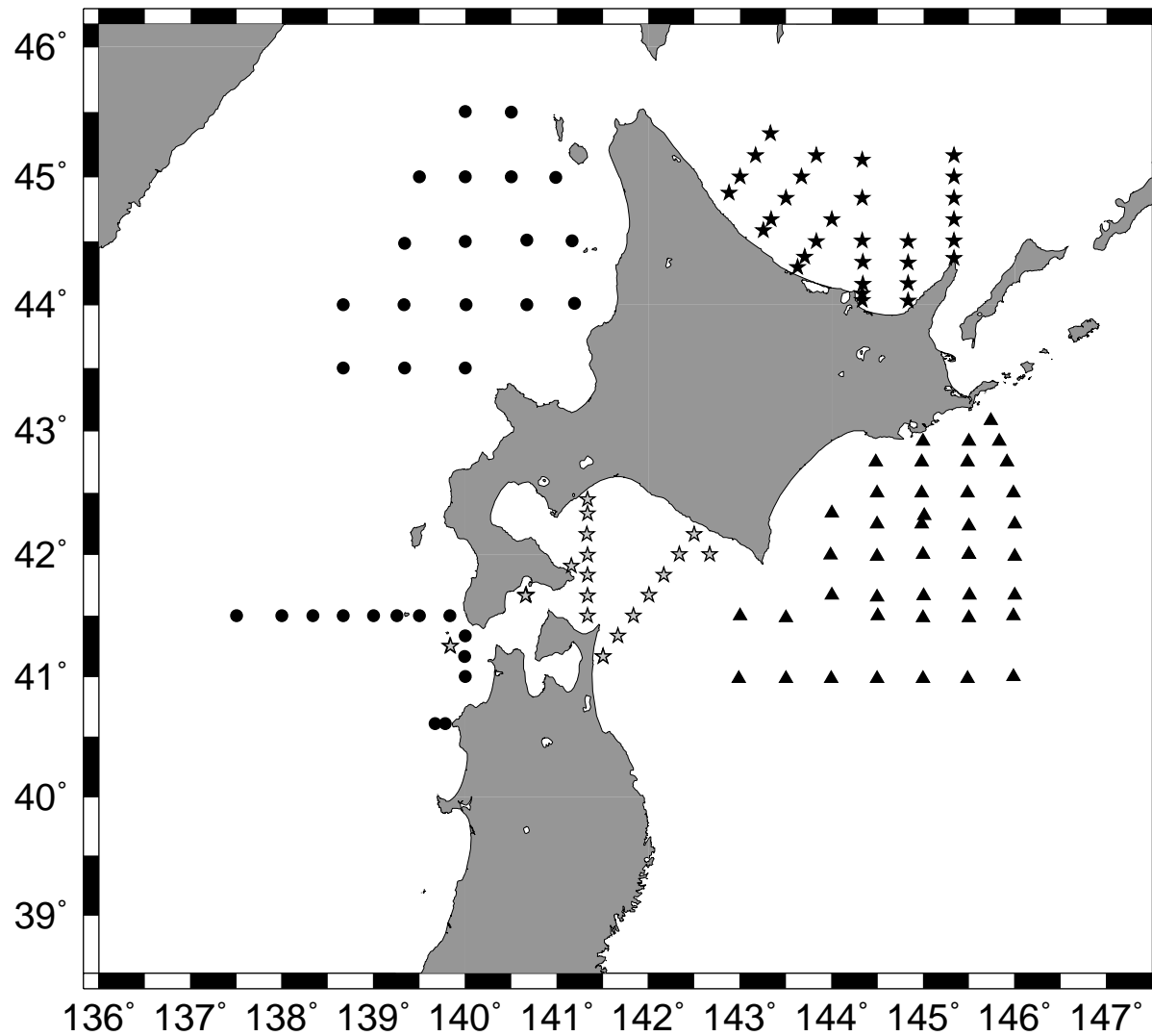


Fig. 5. Location of oceanographic stations covered in August 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

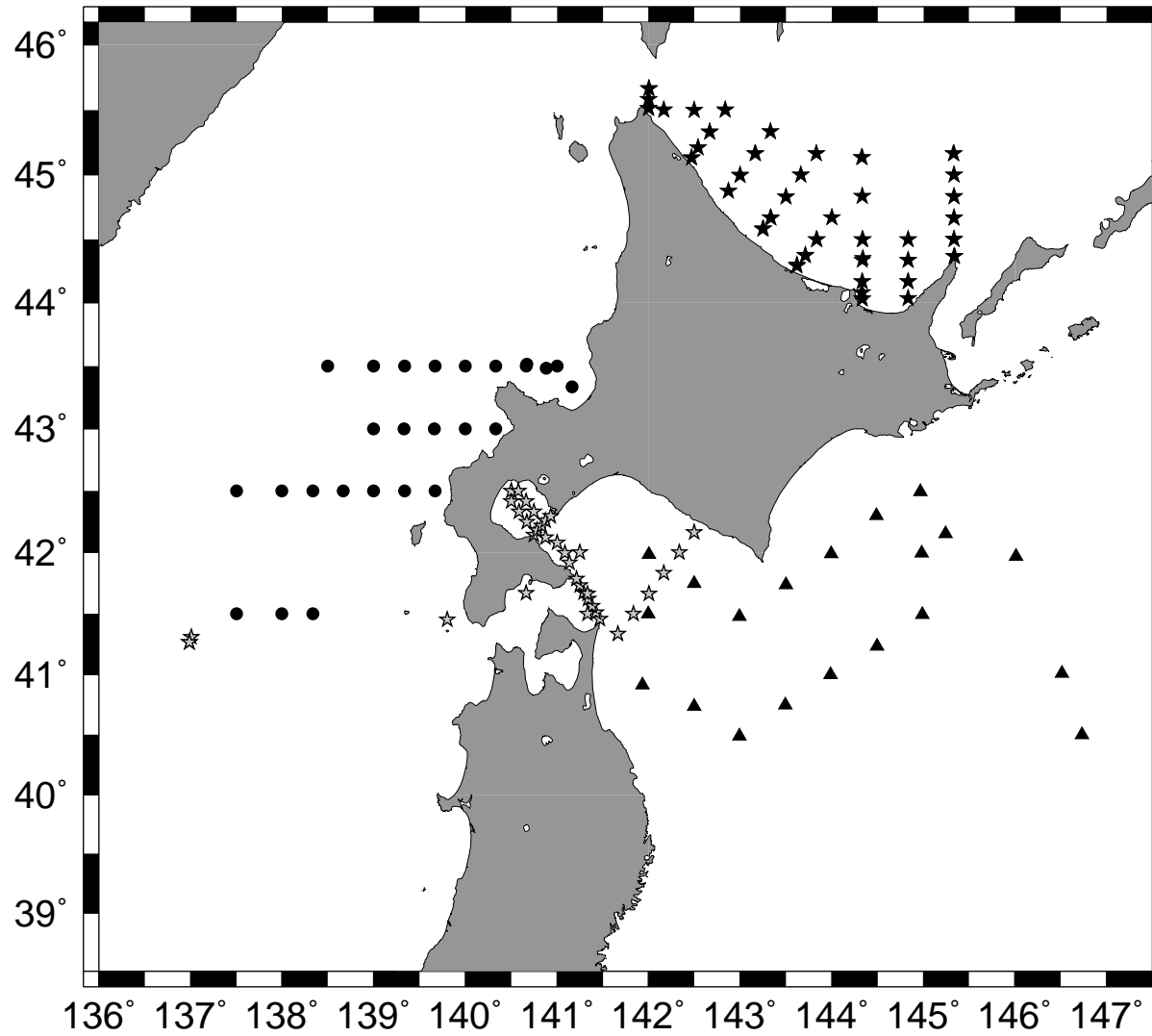


Fig. 6. Location of oceanographic stations covered in September 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

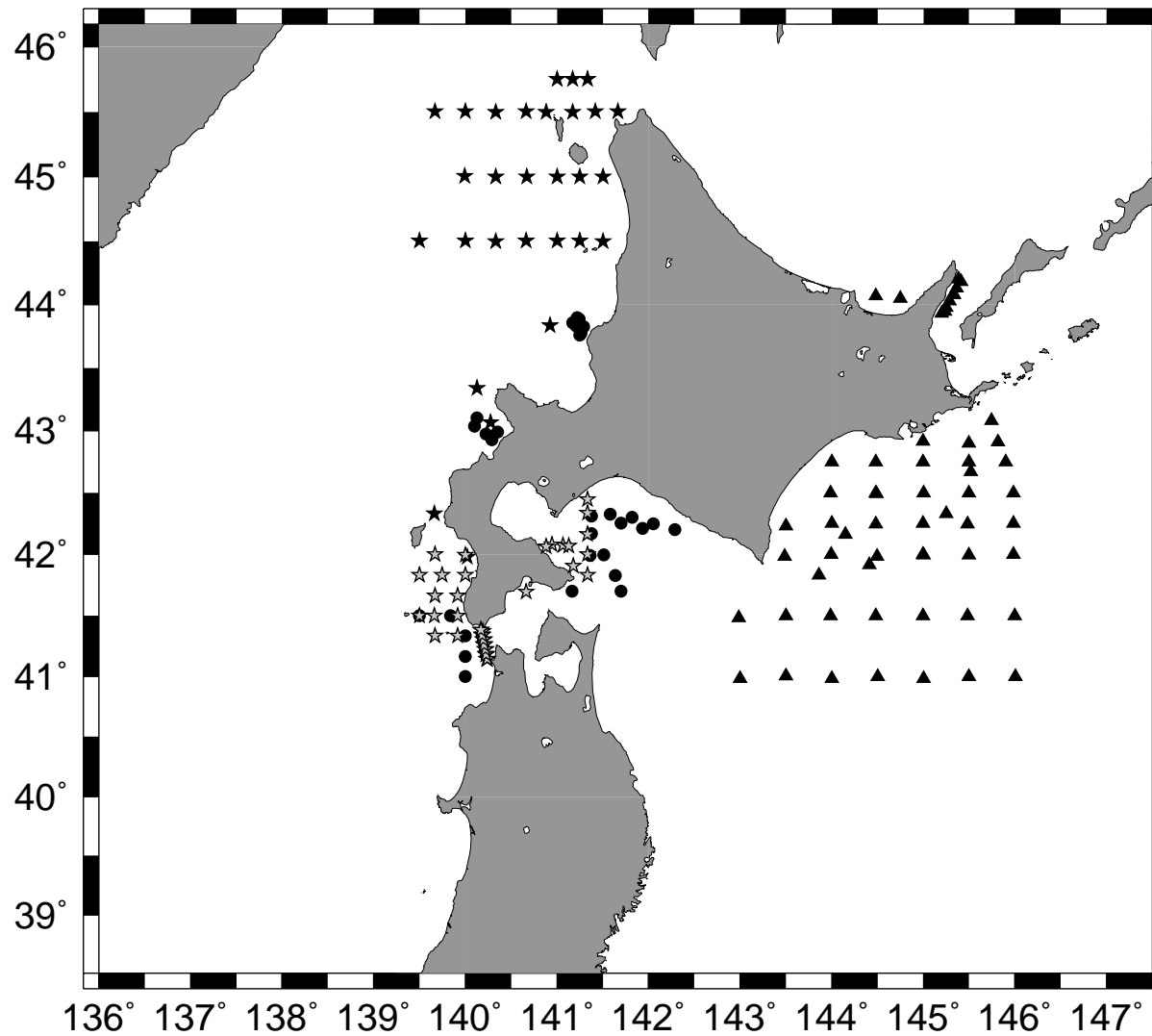


Fig. 7. Location of oceanographic stations covered in October 1998.
 :Oyasyhio-Maru :Hokuyo-Marur :Hokushin-Marur :Kinsei-Marur

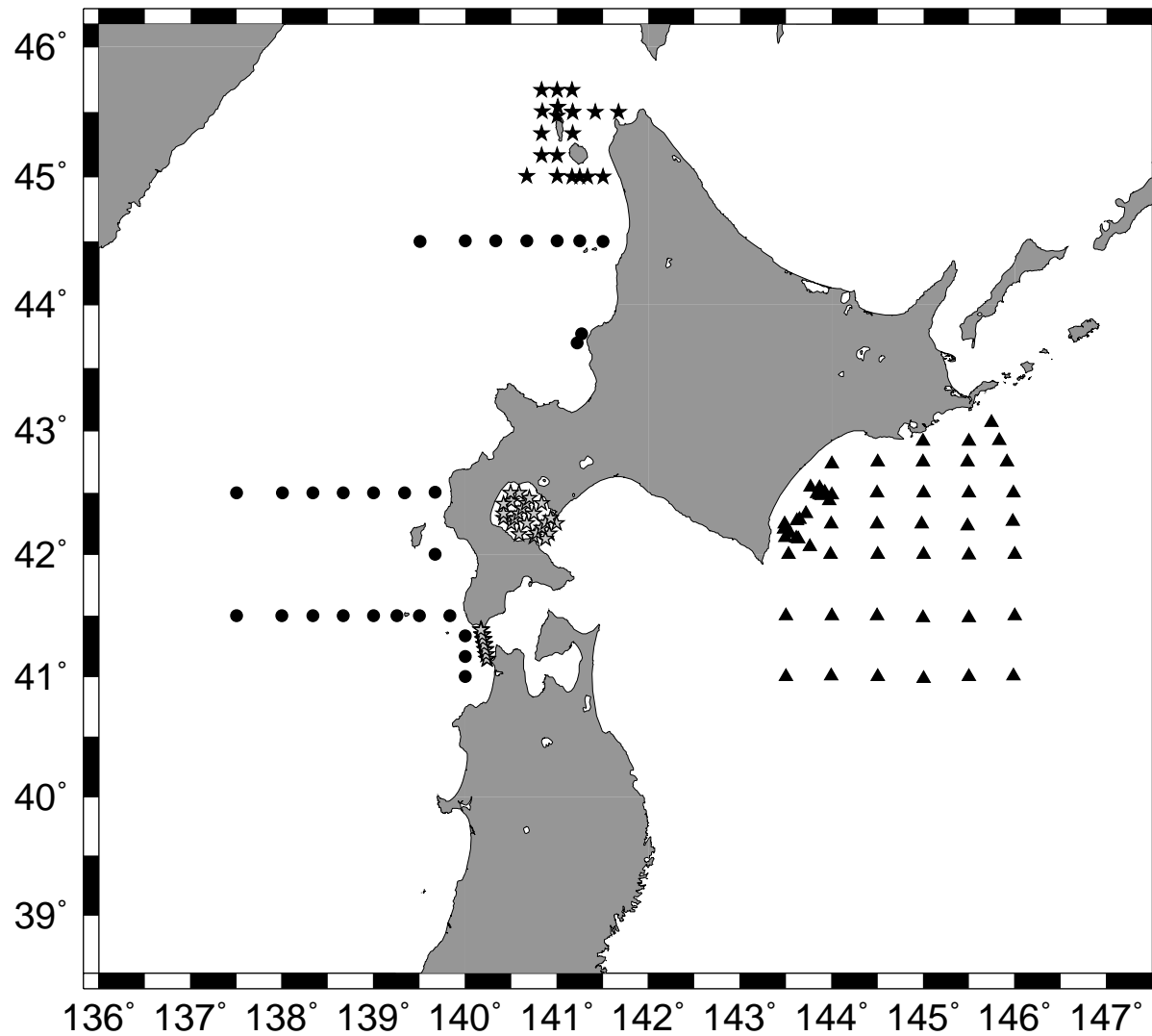


Fig. 8. Location of oceanographic stations covered in November 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

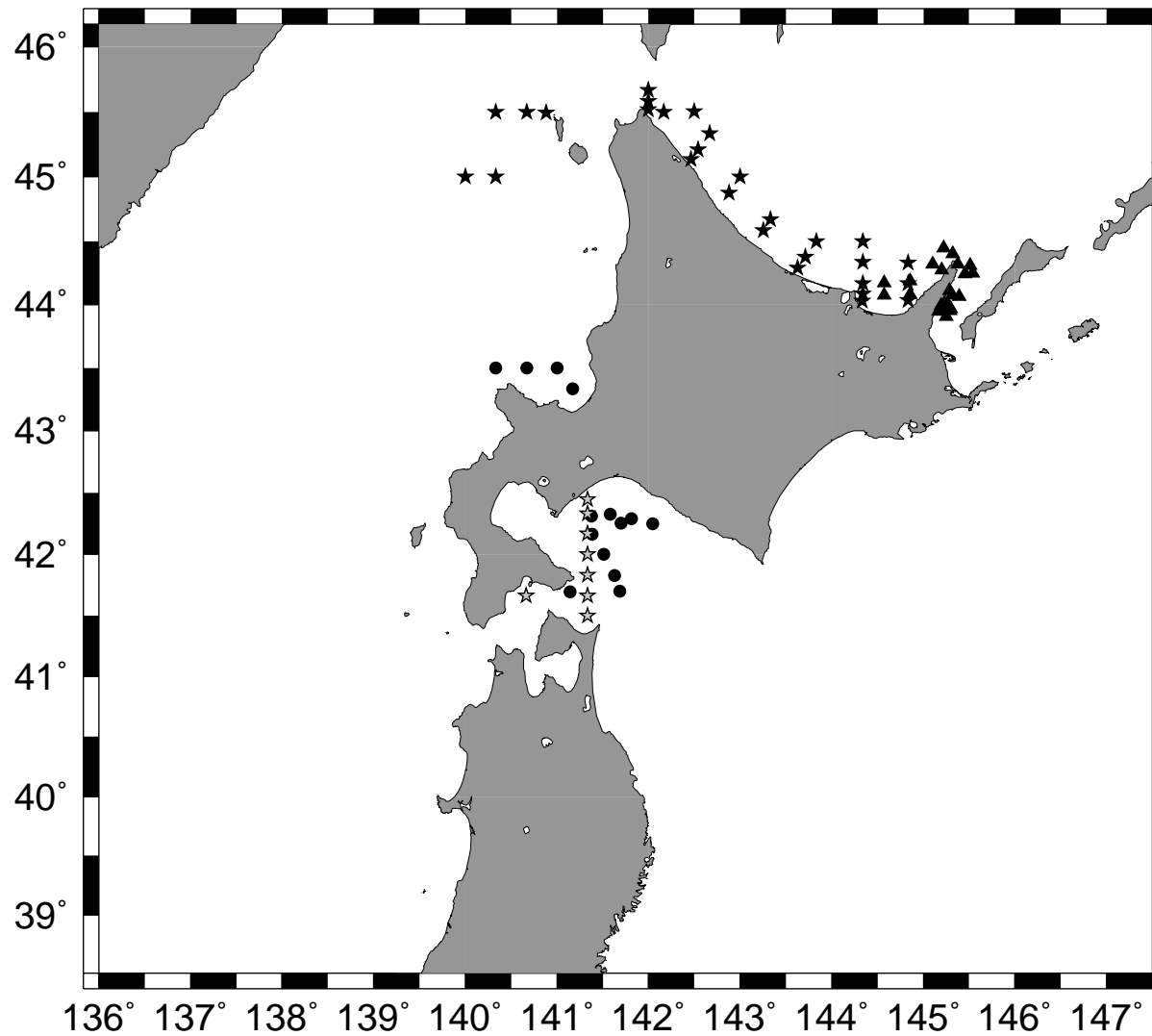


Fig. 9. Location of oceanographic stations covered in December 1998.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

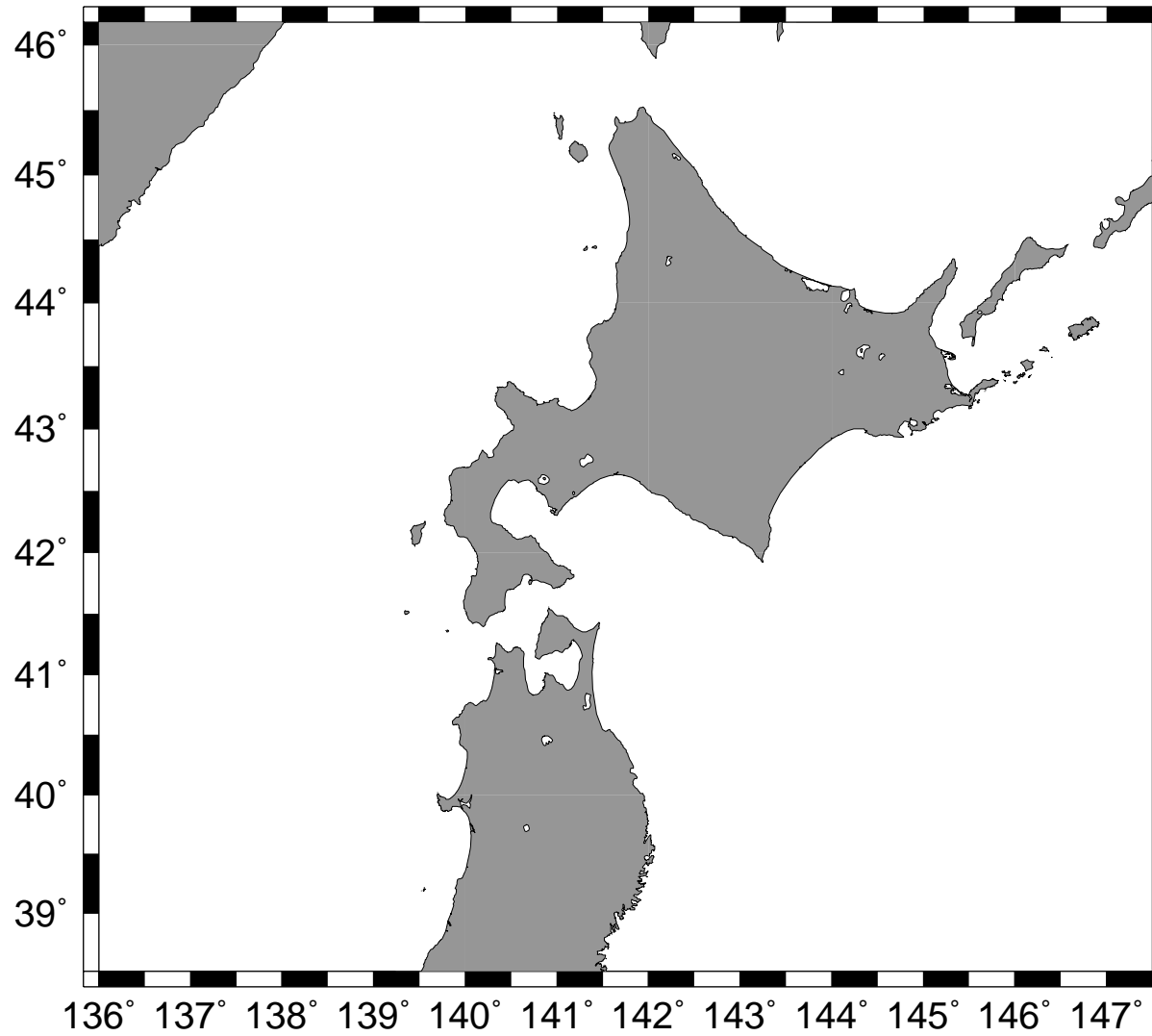


Fig. 10. Location of oceanographic stations covered in January 1999.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

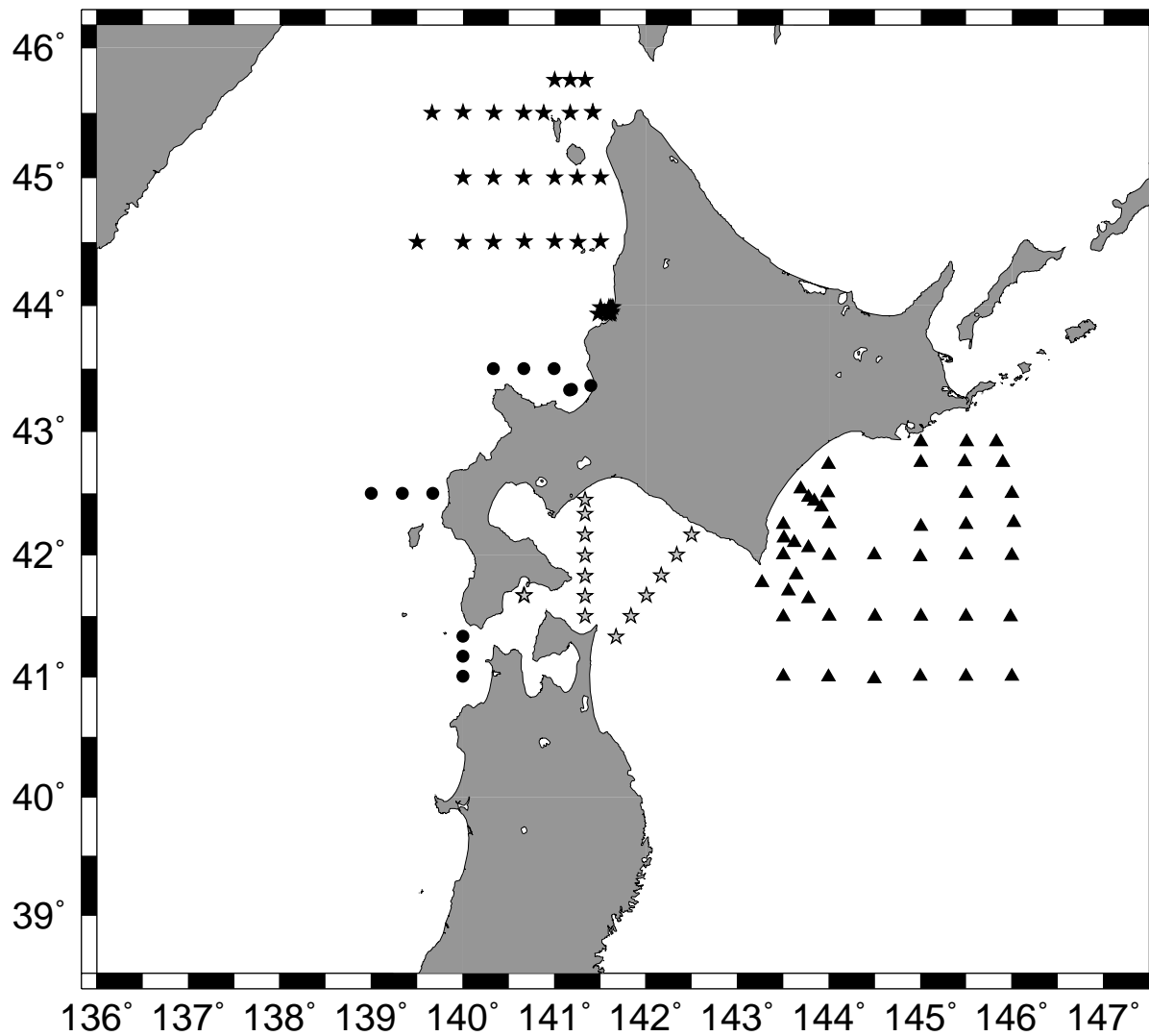


Fig. 11. Location of oceanographic stations covered in February 1999.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

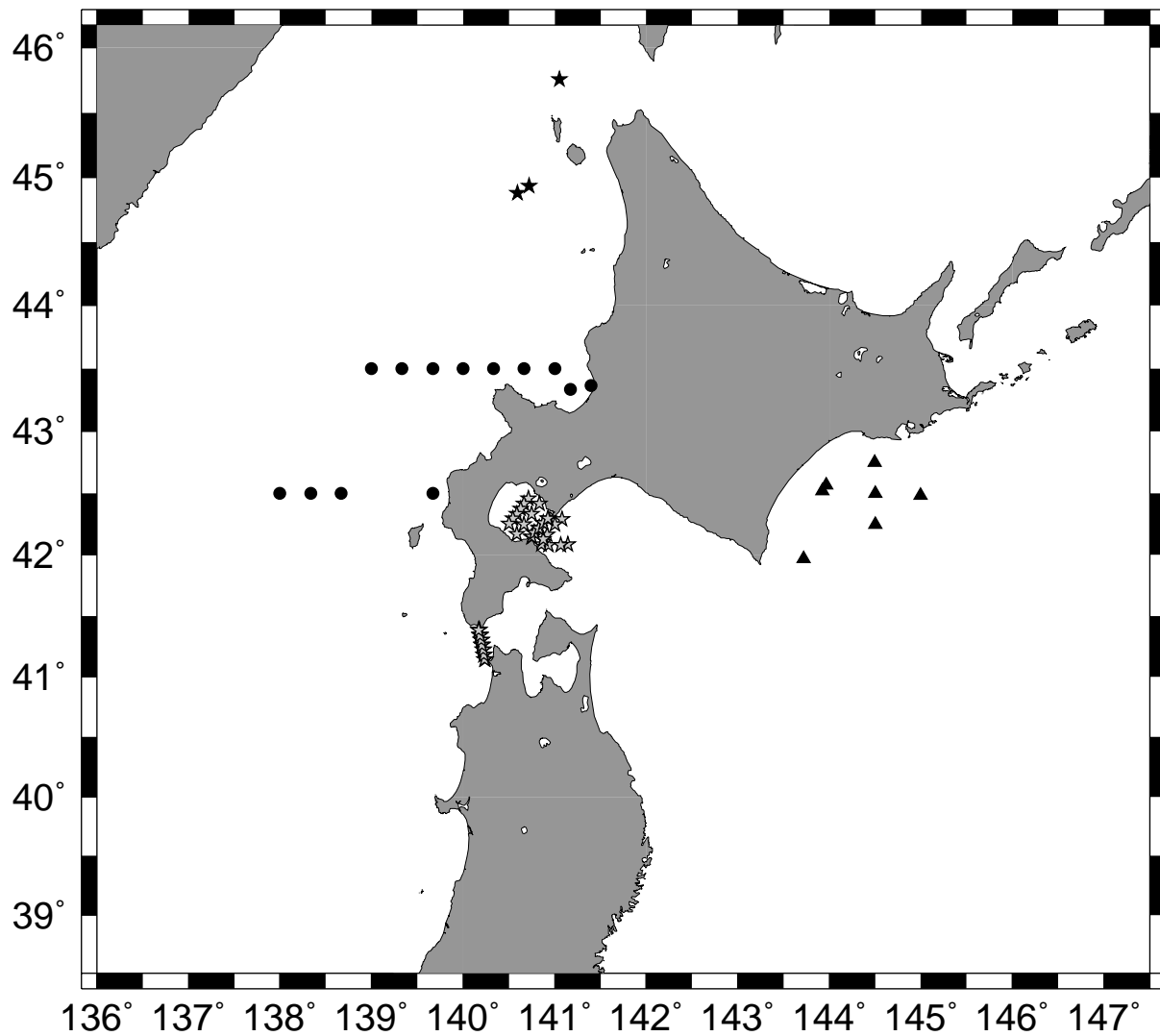


Fig. 12. Location of oceanographic stations covered in March 1999.
 :Oyasyhio-Maru :Hokuyo-Maru :Hokushin-Maru :Kinsei-Maru

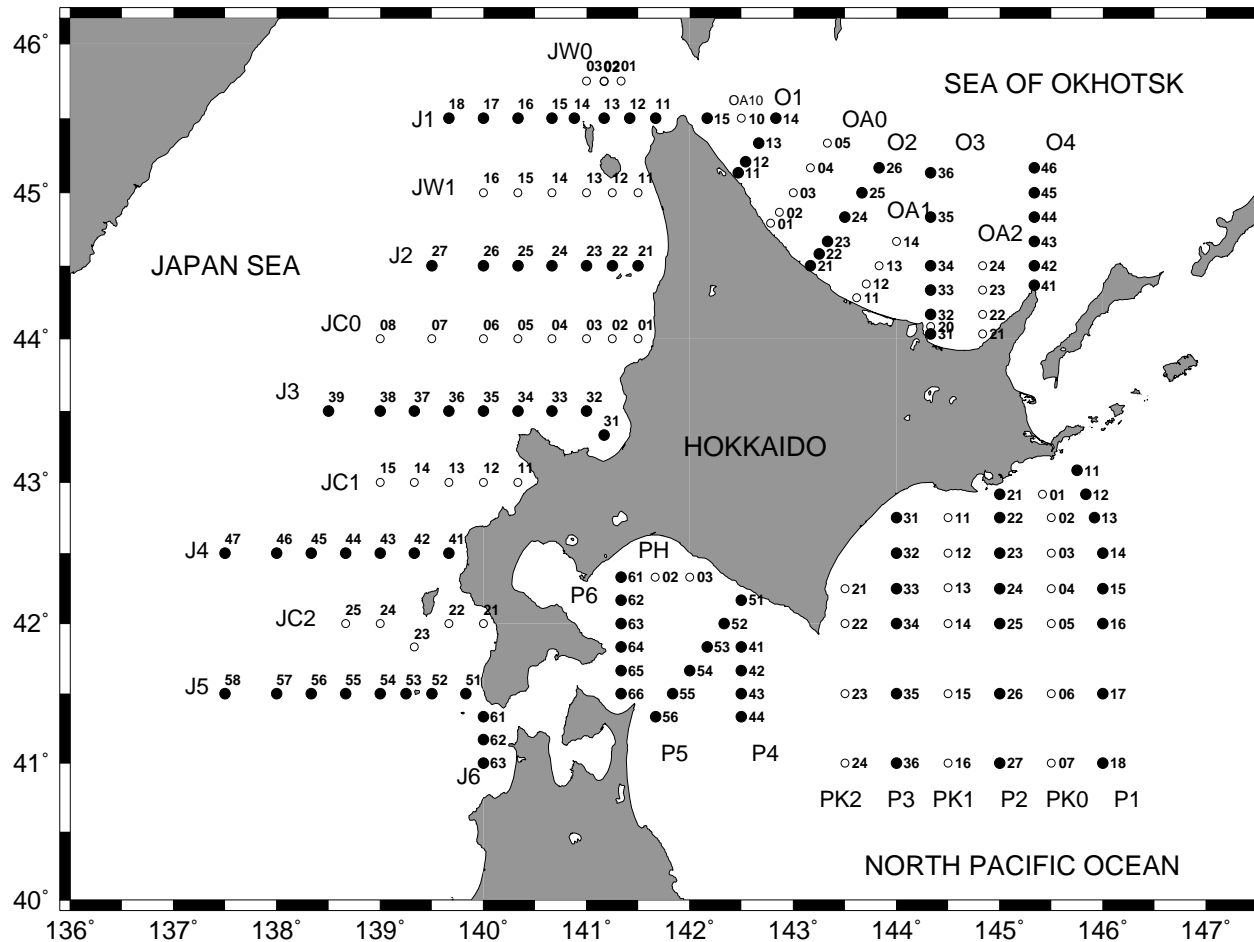


Fig. 13. Periodical observation of environmental research on fishing ground and adjacent waters off Hokkaido. Observed months: April, June, August, October, December and February except for Sea of Okhotsk (April to December only) and P4-Line (June, August and October only). ;Routine station ; Additional 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	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	J31		JH01		J32		J33		J34		J35		J36		J37		J38		J39	
Latitude:N	43-19.9		43-21.6		43-30.0		43-29.9		43-30.1		43-30.0		43-29.9		43-29.9		43-29.9		43-30.0	
Longitude:E	141- 9.8		141-21.2		141- 0.0		140-40.8		140-20.1		140- 0.0		139-40.0		139-20.0		138-59.9		138-29.9	
Date	1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/15		1998/04/15		1998/04/15		1998/04/15	
Time(JST)	10:56		12:14		16:10		17:58		20:34		22:15		00:17		01:58		03:38		06:36	
Weather	BC		B		B		BC		BC		BC		BC		BC		BC		BC	
Air Temp.	9.3		11.0		10.5		6.9		6.4		6.5		6.1		5.9		5.3		5.4	
Bar	1010.5		1010.5		1011.0		1014.0		1016.4		1017.0		1018.0		1018.0		1018.5		1019.4	
Wind Dir	NNE		NNW		NW		WNW		NNW		N		NNE		NE		NE		NE	
Wind Spd/F	S 2		S 2		S 6		S 4		S 5		S 3		S 6		S 8		S 8		S 9	
Transparency	7		3		10		16												10	
Depth	40		25		97		668		650		1247		2034		3182		3439		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	6.9	33.868	9.3	19.785	7.1	34.035	6.1	34.058	7.2	33.931	6.0	34.112	6.0	34.124	6.1	34.176	5.0	34.121	4.5	34.123
10m	6.51	33.892	5.82	33.473	6.36	34.054	6.01	34.058	7.03	33.935	5.87	34.095	5.75	34.098	5.95	34.093	4.75	34.124	4.47	34.130
20m	6.32	33.928	5.84	33.676	5.65	34.104	5.86	34.067	6.53	34.031	5.68	34.098	5.63	34.103	5.74	34.098	4.62	34.123	4.48	34.129
30m	6.27	33.949			5.41	34.118	5.76	34.082	6.38	34.058	5.63	34.102	5.61	34.104	5.71	34.100	4.56	34.126	4.48	34.129
50m					5.26	34.117	5.38	34.095	6.20	34.100	5.61	34.104	5.60	34.106	4.89	34.115	4.48	34.130	4.28	34.143
75m					4.82	34.116	5.07	34.109	5.26	34.118	5.56	34.110	5.59	34.108	4.28	34.104	3.94	34.139	4.03	34.150
100m							4.62	34.115	4.60	34.108	5.10	34.105	5.44	34.113	3.70	34.129	3.77	34.154	3.68	34.151
125m							4.21	34.111	3.83	34.103	4.58	34.119	4.90	34.113	3.36	34.151	3.54	34.146	3.25	34.142
150m							3.72	34.122	3.38	34.114	4.15	34.135	4.67	34.114	3.01	34.137	3.25	34.142	3.15	34.141
200m							2.32	34.105	2.13	34.102	3.66	34.140	3.90	34.121	2.04	34.092	2.83	34.125	2.72	34.131
250m							1.55	34.088	1.36	34.089	2.93	34.129	2.77	34.120	1.64	34.102	1.97	34.100	2.11	34.109
300m							1.14	34.083	1.11	34.083	1.61	34.096	2.00	34.098	1.27	34.091	1.51	34.094	1.42	34.090
400m							0.80	34.078	0.77	34.078	0.91	34.081	1.01	34.082	0.94	34.086	1.05	34.087	0.98	34.086
500m							0.61	34.075	0.58	34.074	0.60	34.075	0.68	34.076	0.68	34.077	0.80	34.080	0.71	34.078
600m							0.49	34.073			0.48	34.073					0.60	34.075		
700m																				
800m																				
900m																				
1000m																				

Table 3-1

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	J47		J46		J45		JC11		JC12		JC13		JC14		JC15		J33B		CHA01	
Latitude:N	42-30.0		42-30.1		42-30.0		43- 0.0		43- 0.1		42-59.9		43- 0.0		42-59.9		43-30.2		43-44.1	
Longitude:E	137-30.0		137-59.9		138-19.9		140-20.0		139-59.9		139-40.1		139-20.1		139- 0.0		140-40.9		141-11.6	
Date	1998/04/15		1998/04/15		1998/04/15		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/20	
Time(JST)	13:31		16:49		19:37		06:35		08:41		10:24		12:26		14:15		21:48		12:49	
Weather	C		C		R		D		D		C		C		C		C		BC	
Air Temp.	5.6		6.0		6.3		6.1		6.7		7.1		8.0		6.7		5.0		13.1	
Bar	1017.3		1014.2		1014.5		1014.0		1015.5		1016.0		1016.3		1016.8		1020.0		1013.0	
Wind Dir	NE		NE		NE		CALM		ESE		N		WNW		NNW		WNW		S	
Wind Spd/F	S 9		S 7		S 3		S 0		S 1		S 2		S 2		S 3		S 5		S 9	
Transparency	14		14				9		14		21		13		15					
Depth	3678		3680		3680		500		1317		3301		2347		3547		672		155	
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	4.3	34.068	4.6	34.073	6.3	34.069	7.6	32.754	7.3	33.777	5.7	34.006	6.0	34.040	6.0	34.058	6.4	34.059	7.8	33.62*
10m	4.00	34.073	4.49	34.075	6.19	34.075	7.28	33.887	7.10	33.979	5.45	34.059	5.75	34.097	5.72	34.089	6.03	34.032	6.86	33.595
20m	4.00	34.073	4.48	34.084	5.99	34.083	7.13	33.989	6.95	34.066	5.44	34.060	5.74	34.103	5.68	34.092	5.98	34.043	5.95	33.873
30m	3.95	34.081	4.29	34.105	5.44	34.088	7.07	34.033	6.82	34.080	5.00	34.106	5.72	34.103	5.67	34.092	5.77	34.062	6.01	33.988
50m	3.64	34.134	3.70	34.140	4.15	34.142	6.79	34.079	6.28	34.111	4.25	34.103	4.69	34.123	4.72	34.084	5.41	34.085	5.84	34.021
75m	2.86	34.135	2.97	34.127	3.42	34.127	5.97	34.114	6.06	34.107	2.60	34.093	3.78	34.108	4.19	34.155	5.13	34.103	5.59	34.079
100m	2.37	34.128	2.33	34.110	2.35	34.104	4.30	34.111	4.95	34.118	2.17	34.085	2.97	34.091	3.81	34.143	4.73	34.111	5.22	34.108
125m	2.03	34.122	1.92	34.096	1.70	34.087	2.54	34.099	3.45	34.096	1.77	34.082	2.49	34.089	3.23	34.134	4.32	34.111	5.00	34.110
150m	1.75	34.111	1.59	34.092	1.37	34.086	2.27	34.088	2.71	34.089	1.57	34.080	1.92	34.086	2.50	34.085	3.83	34.120		
200m	1.42	34.101	1.27	34.088	1.16	34.090	1.71	34.084	1.65	34.082	1.11	34.080	1.43	34.086	1.58	34.080	2.42	34.096		
250m	1.23	34.096	1.08	34.087	1.11	34.091	1.18	34.082	1.30	34.082	1.01	34.081	1.27	34.088	1.15	34.086	1.62	34.087		
300m	1.06	34.090	0.99	34.088	0.99	34.091	0.92	34.077	1.05	34.081	0.91	34.080	1.03	34.083	1.16	34.093	1.22	34.083		
400m	0.80	34.082	0.76	34.081	0.76	34.082	0.58	34.074	0.70	34.076	0.65	34.075	0.67	34.076	1.11	34.094	0.81	34.077		
500m	0.61	34.076	0.58	34.075	0.57	34.076			0.47	34.072	0.50	34.073	0.48	34.072	0.98	34.089	0.65	34.074		
600m			0.46	34.073					0.37	34.070	0.41	34.071	0.38	34.071	0.66	34.078	0.53	34.072		
700m			0.38	34.072																
800m			0.32	34.071																
900m			0.29	34.070																
1000m			0.26	34.069																

Table 3-2

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199805		199805		199805		199805	
Station No	CHA02		CHA03		CHA04		J41		J42		J43		CIS125		CIS126		CIS127		CIS128	
Latitude:N	44-11.2		44-15.4		44-17.9		42-30.0		42-30.0		42-30.1		43-15.3		43-22.3		43-24.5		43-26.5	
Longitude:E	141-18.4		141-11.3		141-10.1		139-40.0		139-20.1		139- 0.0		141-17.4		141-12.5		141- 9.6		141- 7.1	
Date	1998/04/22		1998/04/22		1998/04/22		1998/04/23		1998/04/23		1998/04/23		1998/05/06		1998/05/06		1998/05/06		1998/05/06	
Time(JST)	09:28		11:41		12:57		02:24		05:10		07:02		10:20		11:51		12:36		13:19	
Weather	B		B		F		C		C		BC		B		B		B		B	
Air Temp.	10.2		9.4		10.0		12.4		12.0		11.7		15.5		18.1		20.1		20.0	
Bar			1016.0		1016.0		1015.0		1015.0				1017.9							
Wind Dir			SE		SE		SSE		S		SSE				SSE		SSE		CALM	
Wind Spd/F			S 3		S 3		S 7		S 4		S 7				S 2				S 0	
Transparency									12		13									
Depth	89		155		184		1834		3200		3400		20		38		55		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	7.0	33.91*	7.0	33.69*	7.0	33.90*	10.2	33.931	9.6	34.059	8.2	34.098	9.7*	33.18*	10.4*	31.06*	9.6*	31.56*	9.6*	33.20*
10m	6.50	33.935	6.36	33.780	6.64	34.055	10.15	33.924	9.51	34.050	8.13	34.081	8.54	33.874	8.65	33.362	8.65	33.282	9.04	33.794
20m	6.19	34.020	6.62	33.976	6.60	34.062	9.80	33.985	9.48	34.055	7.68	34.092			7.29	33.990	8.11	33.797	8.84	33.976
30m	6.04	34.046	6.58	34.020	6.60	34.062	9.74	34.000	8.72	34.095	6.74	34.076			6.53	34.062	7.94	33.803	8.15	34.016
50m	5.92	34.052	5.58	34.040	5.72	34.043	9.28	34.064	8.10	34.134	4.76	34.132					6.34	34.083	7.35	34.068
75m	5.41	34.063	5.04	34.073	5.24	34.064	8.34	34.099	6.69	34.151	3.73	34.131								
100m			4.87	34.107	5.02	34.097	7.59	34.149	5.14	34.131	2.93	34.115								
125m			4.80	34.107	4.90	34.106	5.84	34.144	3.76	34.119	2.00	34.090								
150m					4.82	34.107	4.49	34.117	2.64	34.090	1.73	34.092								
200m							2.81	34.096	1.85	34.087	1.26	34.089								
250m							1.88	34.086	1.35	34.085	1.11	34.089								
300m							1.26	34.081	1.13	34.084	1.02	34.089								
400m							0.98	34.085	0.89	34.083	0.82	34.082								
500m							0.73	34.077	0.62	34.073	0.58	34.074								
600m							0.52	34.071												
700m							0.42	34.069												
800m							0.35	34.068												
900m							0.30	34.067												
1000m							0.27	34.066												

Table 3-3

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	CIS129		CIS130		CIS131		CIS113		CIS112		CIS115		CIS118		CIS120		CIS122		CIS123	
Latitude:N	43-28.2		43-30.3		43-31.5		43-30.0		43-20.0		43-14.9		43-19.9		43-17.9		43-20.0		43-25.0	
Longitude:E	141- 5.7		141- 3.7		141- 2.1		141- 0.0		140-59.8		140-55.1		140-49.9		140-44.9		140-39.9		140-35.0	
Date	1998/05/06		1998/05/06		1998/05/06		1998/05/06		1998/05/06		1998/05/06		1998/05/06		1998/05/06		1998/05/06		1998/05/06	
Time(JST)	14:00		14:51		15:45		16:55		17:58		18:38		19:19		19:50		20:22		21:04	
Weather	B		B														BC		BC	
Air Temp.	16.8		15.2		15.3												14.0		13.1	
Bar					1016.4												1018.5		1018.5	
Wind Dir	N		N		W		-		-		-		-		-		SSW		WSW	
Wind Spd/F	S 4		S 3		S 2												S 7		S 9	
Transparency																				
Depth	74		90		97		96		53		40		83		78		107		191	
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*	33.96*	9.3*	33.95*	9.7*	34.00*	9.6	33.97*	10.6	33.32*	10.6	33.10*	10.3	33.88*	10.4	33.68*	10.0	33.75*	9.9	33.85*
10m	8.69	34.012	8.48	34.007	8.48	34.004	8.84	34.002	8.90	33.917	9.14	33.850	10.24	33.886	10.18	33.770	10.04	33.776	9.94	33.855
20m	8.60	34.012	8.40	34.005	8.32	34.001	8.49	34.005	8.57	33.952	8.78	33.846	9.93	33.900	9.67	33.932	9.38	33.961	9.91	33.854
30m	8.34	34.020	8.29	34.010	8.26	34.004	8.46	34.002	8.03	33.966	8.67	33.861	9.35	33.996	9.15	33.997	8.96	34.001	9.21	33.975
50m	7.80	34.048	7.76	34.053	7.61	34.037	8.25	34.005					8.54	34.056	7.81	33.963	8.22	33.918	8.71	33.947
75m			7.11	34.072	6.61	34.088	6.40	34.111					7.44	34.051			7.61	34.026	7.79	34.014
100m																	4.07	34.125	5.22	34.124
125m																			4.46	34.109
150m																			3.57	34.126
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-4

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	CIS121		CIS116		CIS119		CIS117		CIS114		CIS111		CIS104		CIS107		CIS110		CIS103	
Latitude:N	43-25.0		43-24.9		43-30.0		43-35.0		43-40.0		43-45.0		43-44.9		43-40.0		43-34.9		43-34.5	
Longitude:E	140-44.9		140-55.0		140-50.0		140-55.1		141- 0.0		141- 5.0		141-14.2		141-10.0		141- 5.0		141-13.5	
Date	1998/05/06		1998/05/06		1998/05/06		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07	
Time(JST)	22:04		22:58		23:50		00:48		01:34		02:23		03:19		04:01		04:43		05:25	
Weather	BC		BC		BC		F		F		C		C		C		C		C	
Air Temp.	13.3		12.5		10.2		9.6		9.2		8.7		9.1		9.2		9.1		9.7	
Bar	1018.1		1018.6		1018.2		1019.0		1019.4		1019.4				1020.0					
Wind Dir	S		E		NNW		NW		NW		N		NNE		-		-		-	
Wind Spd/F	S 3		S 3		S 6		S 5		S 5		S 4		S 1							
Transparency																				
Depth	220		87		456		128		315		281		129		85		92		59	
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	33.92*	10.2	33.92*	9.8	33.90*	9.2	34.01*	8.5	33.99*	8.6	34.02*	8.7	33.61*	8.6	33.61*	8.9	33.93*	10.1	31.56*
10m	9.96	33.914	9.88	33.897	9.81	33.902	9.35	33.999	8.48	33.992	8.60	34.021	8.69	33.676	8.89	33.832	8.46	33.982	8.85	33.370
20m	9.85	33.919	9.14	33.995	9.81	33.911	9.25	34.001	8.48	33.992	8.42	34.018	8.35	33.642	8.08	33.775	8.46	34.008	8.41	33.697
30m	9.65	33.917	8.75	34.046	9.78	33.925	9.08	34.007	8.25	33.977	8.08	34.012	7.96	33.771	8.14	33.878	8.07	34.021	7.94	33.767
50m	8.99	33.958	7.98	34.046	9.51	33.992	8.29	34.057	7.78	34.034	7.17	34.088	6.55	34.048	7.38	33.991	7.59	34.071	6.59	34.057
75m	8.26	34.077	7.49	34.036	6.85	34.099	6.48	34.097	6.59	34.106	6.00	34.105	5.64	34.102	6.16	34.072	6.82	34.088		
100m	6.94	34.084			6.28	34.096	6.13	34.092	5.55	34.115	5.74	34.109	4.76	34.111						
125m	4.33	34.139			5.88	34.105			4.91	34.106	4.60	34.122								
150m	3.92	34.121			4.31	34.106			4.14	34.137	3.66	34.124								
200m	2.32	34.111			2.67	34.116			2.68	34.112	2.73	34.116								
250m					1.76	34.089			1.84	34.093	1.75	34.086								
300m					1.21	34.083														
400m					0.78	34.075														
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-5

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	CIS106		CIS109		CIS102		CIS105		CIS108		CIS101		CIS100		CIS133		CIS132		CIS134	
Latitude:N	43-30.0		43-25.0		43-25.1		43-20.1		43-15.0		43-14.9		43-20.0		43-20.5		43-15.4		43-12.0	
Longitude:E	141-10.0		141- 5.0		141-14.8		141- 9.8		141- 4.9		141-14.9		141-20.0		141-15.9		141- 9.7		141-15.7	
Date	1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/08	
Time(JST)	06:04		06:45		07:39		08:23		09:09		09:59		10:42		13:49		16:10		06:20	
Weather	C		C		C		C		C		C		C		C		C		R	
Air Temp.	9.8		10.0		10.1		11.9		13.8		14.7		15.6		16.0		14.8		8.0	
Bar			1019.5		1019.3		1019.0		1018.5		1017.8		1017.5		1016.1		1015.5		1017.6	
Wind Dir	-		CALM		SSE		SE		E		ESE		SE		SE		SE		ESE	
Wind Spd/F			S 0		S 5		S 5		S 4		S 9		S 8		S 10		S 1		S 9	
Transparency																				
Depth	61		63		44		40		31		25		25		32		29		18	
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	9.7	29.35*	9.4	33.05*	9.9	29.47*	10.7	32.37*	10.3	33.50*	10.3	32.44*	9.7	30.26*	10.6*	28.65*	10.9*	33.10*	8.9*	33.72*
10m	10.10	33.863	9.29	33.750	8.60	33.320	8.63	33.779	9.15	33.755	9.01	33.905	8.26	33.788	8.66	33.598	9.34	33.753	8.90	33.724
20m	9.04	33.962	8.82	33.981	8.23	33.668	7.19	33.965	9.21	33.857			7.80	33.955	7.51	33.984	8.88	33.835		
30m	8.08	34.011	8.36	34.014	6.78	34.045	6.56	34.082												
50m	6.98	34.015	7.61	34.066																
75m																				
100m																				
125m																				
150m																				
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-6

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

Stn-prefix	199805		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	CIS124		J31		JH01		J32		J33		J34		J35		J36		J37		J38	
Latitude:N	43-13.4		43-20.1		43-21.6		43-29.9		43-30.0		43-29.9		43-30.0		43-30.1		43-30.0		43-29.9	
Longitude:E	140-52.2		141-10.1		141-21.1		141- 0.1		140-40.1		140-20.0		140- 0.1		139-40.1		139-20.1		139- 0.1	
Date	1998/05/11		1998/05/25		1998/05/25		1998/05/25		1998/05/26		1998/05/26		1998/05/26		1998/05/26		1998/05/26		1998/05/26	
Time(JST)	16:34		10:05		11:00		12:45		11:21		13:10		15:08		16:55		18:42		20:26	
Weather			D		D		C		B		B		B		B		B		B	
Air Temp.			13.1		13.3		10.9		15.3		13.6		13.4		12.8		11.4		10.7	
Bar			992.7		992.6		993.0		1008.2		1009.3		1009.6		1009.9		1010.5		1011.5	
Wind Dir			E		SE		W		SW		SW		SW		SW		SSW		S	
Wind Spd/F			S 2		S 5		S 15		S 7		S 10		S 8		S 8		S 6		S 5	
Transparency			12		7		12		16		13		13		8		9			
Depth	25		39		25		96		693		640		1250		2100		3200		3380	
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	10.8*	33.41*	11.7	33.347	11.3	32.530	11.5	33.778	10.9	33.957	11.3	33.884	12.5	34.020	11.7	33.989	9.7	34.010	9.7	34.013
10m	10.43	33.657	11.62	33.394	10.97	33.593	11.50	33.793	10.54	33.954	11.17	33.883	12.44	34.022	11.46	33.988	9.44	34.010	9.65	34.015
20m	9.95	33.834	9.33	33.860	10.65	33.715	11.37	33.823	10.34	33.958	11.08	33.884	12.41	34.024	10.77	34.016	8.70	34.029	8.32	34.048
30m			8.63	33.973			11.24	33.835	9.91	33.972	11.00	33.885	11.77	34.044	8.08	34.130	6.42	34.092	6.93	34.093
50m							9.91	33.951	7.34	34.060	8.64	34.039	9.55	34.125	5.91	34.146	4.40	34.135	5.19	34.135
75m							7.52	34.092	4.99	34.126	6.76	34.118	7.13	34.141	4.39	34.124	3.17	34.129	3.81	34.154
100m									4.11	34.123	5.53	34.123	5.73	34.132	3.51	34.120	2.40	34.098	3.46	34.158
125m									3.33	34.115	4.82	34.123	4.46	34.123	2.71	34.102	1.99	34.097	3.37	34.167
150m									2.80	34.128	4.12	34.123	3.52	34.116	2.20	34.095	1.71	34.096	3.36	34.173
200m									2.04	34.107	2.75	34.106	2.16	34.092	1.54	34.088	1.32	34.090	3.17	34.163
250m									1.39	34.091	1.72	34.095	1.47	34.085	1.20	34.088	1.06	34.085	2.35	34.115
300m									1.03	34.085	1.13	34.085	1.17	34.088	1.04	34.089	0.86	34.081	1.74	34.105
400m									0.74	34.080	0.75	34.079	0.78	34.081	0.73	34.079	0.63	34.077	1.11	34.090
500m									0.59	34.077	0.56	34.076	0.58	34.076	0.53	34.075	0.51	34.074	0.89	34.088
600m																			0.63	34.079
700m																				
800m																				
900m																				
1000m																				

Table 3-7

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	J39		JC08		JC07		JC06		JC05		JC04		JC03		JC02		JC01		J21	
Latitude:N	43-30.0		43-59.9		44- 0.1		44- 0.1		44- 0.0		43-59.9		44- 0.0		44- 0.0		44- 0.1		44-30.0	
Longitude:E	138-30.0		139- 0.0		139-29.9		140- 0.1		140-20.0		140-40.0		140-59.9		141-14.9		141-30.5		141-29.9	
Date	1998/05/26		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27	
Time(JST)	23:29		03:08		05:29		07:44		09:13		10:49		12:29		13:45		14:55		17:40	
Weather	BC		BC		B		B		B		B		B		B		B		B	
Air Temp.	10.6		10.2		11.7		12.8		13.4		13.7		15.4		16.6		19.1		16.0	
Bar	1012.0		1013.4		1014.4		1016.0		1016.6		1017.2		1017.2		1017.0		1017.0		1017.0	
Wind Dir	SSW		SSW		S		SSW		S		S		WSW		W		N		S	
Wind Spd/F	S 4		S 5		S 5		S 3		S 3		S 4		S 4		S 4		S 1		S 2	
Transparency					12		12		16		17		13		15		16		20	
Depth	3408		3360		1380		490		522		573		402		167		50		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	9.6	33.997	9.3	34.048	11.3	33.911	12.5	34.031	12.6	34.038	11.9	33.874	11.5	33.563	12.1	33.695	11.7	33.648	11.1	33.787
10m	9.60	34.000	9.31	34.049	11.30	33.911	12.33	34.032	12.18	34.031	11.31	33.862	11.07	33.561	10.63	33.862	11.62	33.651	10.54	33.796
20m	8.00	34.039	8.67	34.042	10.78	33.910	11.12	33.918	11.91	33.991	10.82	33.887	10.81	33.547	10.04	33.894	10.86	33.683	10.09	33.816
30m	6.20	34.115	6.96	34.080	8.90	34.019	9.97	33.962	10.34	33.932	10.68	33.910	10.47	33.613	9.88	33.913	10.25	33.775	8.41	34.037
50m	4.57	34.157	5.36	34.118	6.71	34.118	7.85	34.089	8.57	34.061	8.25	34.014	9.56	33.904	7.84	34.006			7.29	33.995
75m	3.76	34.159	4.19	34.143	4.71	34.138	6.44	34.113	7.03	34.131	7.13	34.063	8.44	33.940	6.74	34.065				
100m	3.43	34.161	3.77	34.147	3.61	34.118	5.39	34.119	5.98	34.139	5.88	34.118	7.39	34.056	6.04	34.070				
125m	3.37	34.166	3.59	34.144	2.81	34.104	4.35	34.124	4.43	34.131	4.48	34.121	6.23	34.097	5.51	34.083				
150m	3.34	34.167	3.30	34.138	2.26	34.096	3.24	34.123	3.35	34.114	3.57	34.130	5.46	34.111	3.65	34.128				
200m	3.20	34.163	2.80	34.128	1.53	34.090	1.96	34.107	2.40	34.115	2.42	34.115	3.74	34.126						
250m	2.58	34.129	2.16	34.115	1.23	34.088	1.51	34.093	1.45	34.087	1.72	34.098	2.38	34.110						
300m	1.79	34.101	1.45	34.092	0.96	34.084	1.10	34.082	1.10	34.086	1.31	34.087	1.41	34.091						
400m	1.09	34.090	1.03	34.088	0.66	34.077	0.75	34.079	0.77	34.080	0.85	34.080								
500m	0.78	34.082	0.75	34.080	0.48	34.074			0.55	34.074	0.63	34.076								
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-8

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	J22		J23		J24		J25		J26		J27		JC11		JC12		JC13		JC14	
Latitude:N	44-30.0		44-30.0		44-30.0		44-30.0		44-30.0		44-30.0		43- 0.1		42-59.9		43- 0.0		42-59.9	
Longitude:E	141-15.1		141- 0.1		140-40.0		140-20.0		140- 0.0		139-30.1		140-20.0		140- 0.1		139-40.0		139-20.0	
Date	1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/28		1998/05/28		1998/06/01		1998/06/01		1998/06/01		1998/06/01	
Time(JST)	18:44		19:58		21:26		22:55		00:25		02:55		14:48		17:01		18:37		20:13	
Weather	B		B		BC		BC		BC		BC		C		BC		BC		C	
Air Temp.	14.1		12.4		12.2		12.0		11.6		11.1		15.6		15.4		13.3		12.2	
Bar	1017.2		1017.5		1017.6		1017.3		1017.0		1016.6		999.4		1000.6				1006.6	
Wind Dir	S		S		S		S		S		SSW		ENE		N		NE		NNE	
Wind Spd/F	S 3		S 3		S 6		S 10		S 6		S 8		S 1		S 5		S 9		S 8	
Transparency	12												14		12					
Depth	117		200		142		251		571		499		475		1260		3260		2361	
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	10.5	33.997	9.7	34.049	10.2	34.008	11.0	33.945	10.9	33.961	9.7	34.008	13.4	33.937	14.2	33.980	13.1	33.985	11.7	33.967
10m	10.12	33.987	9.55	34.068	9.36	34.014	10.48	33.943	10.60	33.935	9.08	34.014	12.83	33.929	13.99	33.989	12.70	33.942	11.51	33.968
20m	9.34	33.990	8.48	34.061	9.07	34.011	10.01	33.943	9.60	33.966	7.31	34.089	12.75	33.945	13.77	33.998	11.66	33.981	11.05	33.966
30m	8.45	34.030	7.38	34.084	7.24	34.096	8.16	34.013	6.96	34.074	5.99	34.111	12.37	33.982	12.73	34.044	7.92	34.081	6.51	34.066
50m	7.12	34.087	5.51	34.112	6.26	34.100	6.65	34.039	5.55	34.114	4.85	34.126	11.11	33.992	11.17	34.101	6.27	34.152	4.34	34.131
75m	5.98	34.105	4.97	34.114	5.18	34.113	5.99	34.093	4.57	34.118	3.62	34.123	8.21	34.099	8.04	34.145	4.70	34.133	3.28	34.114
100m	5.22	34.108	4.38	34.119	4.62	34.117	5.06	34.105	3.77	34.122	2.66	34.100	5.91	34.130	5.89	34.132	3.48	34.111	2.34	34.103
125m			3.84	34.124	4.17	34.117	4.48	34.116	3.40	34.121	2.09	34.099	4.42	34.131	4.29	34.133	2.82	34.102	2.03	34.095
150m			3.43	34.124			4.09	34.117	3.09	34.118	1.61	34.091	3.77	34.117	3.16	34.115	2.39	34.094	1.61	34.090
200m							2.81	34.114	1.99	34.100	1.25	34.089	2.29	34.096	2.20	34.095	1.91	34.095	1.25	34.088
250m									1.48	34.091	1.04	34.087	1.82	34.089	1.62	34.086	1.49	34.091	1.07	34.087
300m									1.13	34.085	0.86	34.083	1.19	34.084	1.23	34.083	1.13	34.083	0.99	34.090
400m									0.70	34.076	0.65	34.076	0.96	34.080	0.80	34.080	0.83	34.080	0.73	34.082
500m									0.55	34.072					0.58	34.075	0.61	34.076	0.55	34.075
600m															0.43	34.072	0.48	34.073	0.44	34.074
700m																				
800m																				
900m																				
1000m																				

Table 3-9

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	JC15		J51		J61		J62		J63		J52		J53		J54		J55		J56	
Latitude:N	43- 0.1		41-30.0		41-20.2		41-10.1		40-59.6		41-29.9		41-29.9		41-30.0		41-30.2		41-30.1	
Longitude:E	139- 0.0		139-50.0		140- 0.0		140- 0.0		139-59.7		139-30.0		139-14.9		139- 0.1		138-40.0		138-19.9	
Date	1998/06/01		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02	
Time(JST)	21:59		07:56		09:40		10:50		11:59		15:45		17:08		18:29		20:05		21:41	
Weather			C		BC		BC		BC		BC		BC		BC		BC		BC	
Air Temp.	10.8		14.5		13.9		14.7		15.6		14.9		14.4		14.4		14.0		13.4	
Bar	1008.5		1011.0		1012.5		1012.0		1011.7		1012.0		1012.0		1012.4		1012.0		1013.0	
Wind Dir	NNE		SE		ENE		NE		ENE		NNE		NE		ENE		ENE		ESE	
Wind Spd/F	S 12		S 6		S 8		S 9		S 6		S 6		S 7		S 7		S 7		S 7	
Transparency	2		18		20		22		22		17		15		14					
Depth	3551		1370		225		110		525		1686		1140		1338				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	11.6	33.964	15.0	34.062	15.0	34.079	15.6	34.173	16.1	33.849	13.6	33.986	13.9	33.987	14.0	33.883	14.2	33.938	13.4	34.014
10m	11.54	33.966	13.19	34.246	14.94	34.069	14.31	34.109	15.82	33.869	13.22	33.988	12.55	34.013	13.98	33.890	14.17	33.941	13.15	34.015
20m	10.81	34.012	11.96	34.218	12.57	34.228	11.15	34.094	15.50	34.102	13.14	33.985	10.48	34.089	13.70	33.896	12.44	33.889	11.69	33.984
30m	7.01	34.084	10.64	34.170	11.11	34.215	10.54	34.086	15.13	34.103	10.81	34.060	9.56	34.104	11.82	34.082	8.94	33.982	8.00	34.008
50m	4.13	34.136	9.12	34.169	10.63	34.200	10.31	34.077	11.38	34.138	8.40	34.063	9.12	34.114	10.63	34.127	7.45	34.069	5.51	34.075
75m	3.09	34.111	7.28	34.166	9.64	34.160	9.94	34.104	10.69	34.091	6.27	34.114	7.62	34.150	9.20	34.110	5.69	34.150	3.11	34.099
100m	2.61	34.111	5.80	34.146	7.89	34.165	9.49	34.131	10.48	34.088	5.46	34.119	6.54	34.135	7.72	34.139	4.36	34.121	2.61	34.101
125m	2.08	34.098	5.25	34.135	6.99	34.151			10.33	34.088	4.76	34.114	5.04	34.129	5.80	34.131	3.32	34.103	2.24	34.100
150m	1.64	34.085	4.32	34.119	6.43	34.146			10.03	34.100	4.05	34.109	4.42	34.111	4.65	34.119	2.57	34.096	2.05	34.109
200m	1.27	34.081	3.70	34.107	6.11	34.134			6.55	34.154	2.76	34.095	2.59	34.096	2.83	34.102	1.79	34.086	1.68	34.101
250m	1.14	34.087	2.17	34.089					4.21	34.121	1.65	34.087	1.89	34.091	1.78	34.087	1.35	34.079	1.42	34.096
300m	0.99	34.088	1.40	34.084					2.35	34.095	1.18	34.077	1.28	34.080	1.35	34.080	1.01	34.076	1.17	34.089
400m	0.75	34.081	0.87	34.079					0.90	34.077	0.81	34.074	0.85	34.077	0.89	34.077	0.68	34.073	0.92	34.086
500m	0.57	34.076	0.56	34.072					0.60	34.072	0.55	34.071	0.62	34.072	0.61	34.071	0.52	34.070	0.69	34.078
600m	0.45	34.074																		
700m																				
800m																				
900m																				
1000m																				

Table 3-10

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	J57		J58		J47		J46		J45		J44		J43		J41		J42		J43B	
Latitude:N	41-30.0		41-30.0		42-29.9		42-30.0		42-30.0		42-30.1		42-30.1		42-30.1		42-29.9		42-30.0	
Longitude:E	138- 0.0		137-30.1		137-30.0		138- 0.0		138-19.8		138-39.9		138-59.8		139-40.0		139-20.0		139- 0.0	
Date	1998/06/02		1998/06/03		1998/06/03		1998/06/03		1998/06/03		1998/06/03		1998/06/03		1998/06/08		1998/06/09		1998/06/09	
Time(JST)	23:23		01:39		07:32		10:10		12:51		15:29		18:08		20:42		07:50		12:40	
Weather	BC				BC		C		C		C		C		C		C		C	
Air Temp.	12.6		12.4		11.2		11.7		11.9		11.1		10.5		11.5		12.3		14.8	
Bar	1012.7		1011.6		1012.6		1011.5		1010.7		1009.7		1009.0		1017.9		1019.5		1018.6	
Wind Dir	E		ENE		E		E		E		ESE		ESE		ESE		ESE		E	
Wind Spd/F	S 6		S 6		S 8		S 9		S 11		S 13		S 15		S 15		S 11		S 8	
Transparency					13		20		12		12						13		14	
Depth	3678		3665		3600				3656				3600		1783		3300		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	11.7	33.887	11.8	33.890	11.2	33.933	13.6	33.994	12.4	33.927	12.1	33.909	11.8	33.954	13.8	33.991	14.0	33.896	15.6	33.737
10m	11.66	33.884	11.79	33.889	11.12	33.928	13.57	33.992	12.29	33.930	12.07	33.910	11.81	33.950	13.83	33.987	13.92	33.902	14.56	33.689
20m	7.04	34.006	8.29	33.937	11.11	33.927	10.18	33.964	11.27	34.125	11.71	33.877	8.57	33.954	13.59	33.988	13.78	33.921	12.37	33.964
30m	5.58	34.072	5.73	34.087	5.83	34.038	8.66	34.161	9.44	34.147	8.69	33.984	5.88	34.051	12.69	34.014	12.55	34.006	8.62	34.043
50m	3.55	34.120	3.42	34.139	3.16	34.142	6.57	34.164	6.79	34.162	4.37	34.122	3.27	34.109	10.58	34.049	9.26	34.107	4.28	34.136
75m	2.87	34.106	2.61	34.113	2.41	34.128	4.53	34.127	5.19	34.128	3.33	34.103	2.79	34.093	7.90	34.132	7.94	34.156	3.15	34.106
100m	2.44	34.113	2.13	34.100	2.10	34.120	3.21	34.104	3.69	34.107	2.62	34.096	2.05	34.095	6.75	34.138	5.54	34.150	2.59	34.089
125m	2.16	34.113	1.85	34.096	1.73	34.104	2.52	34.093	2.77	34.090	2.17	34.085	1.95	34.095	5.39	34.127	4.42	34.125	2.14	34.096
150m	1.83	34.100	1.58	34.092	1.56	34.100	2.23	34.092	2.30	34.091	1.87	34.085	1.80	34.096	4.20	34.113	3.66	34.106	1.84	34.092
200m	1.47	34.094	1.35	34.093	1.32	34.097	1.45	34.084	1.77	34.097	1.43	34.079	1.54	34.101	2.25	34.097	2.36	34.109	1.26	34.082
250m	1.32	34.094	1.16	34.089	1.16	34.092	1.18	34.080	1.26	34.086	1.13	34.077	1.36	34.093	1.55	34.087	1.62	34.099	1.16	34.092
300m	1.14	34.091	1.05	34.089	1.06	34.090	1.08	34.091	1.06	34.086	0.96	34.080	1.11	34.090	1.27	34.084	1.34	34.094	1.05	34.090
400m	0.90	34.084	0.78	34.080	0.82	34.081	0.83	34.083	0.85	34.083	0.71	34.074	0.90	34.085	1.07	34.087	1.03	34.089	0.80	34.082
500m	0.67	34.077	0.59	34.074	0.60	34.074	0.61	34.074	0.63	34.076	0.55	34.070	0.61	34.075	0.84	34.083	0.77	34.081	0.57	34.074
600m								0.46	34.071						0.54	34.073				
700m								0.39	34.070						0.45	34.071				
800m								0.33	34.069						0.38	34.070				
900m								0.30	34.068						0.32	34.068				
1000m								0.27	34.068						0.29	34.068				

Table 3-11

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	J44B		J45B		J46B		J46C		J46D		M01		MO1B		CSR100		CSR101		CSR102	
Latitude:N	42-30.0		42-30.0		42-30.0		42-30.0		42-30.1		42-41.4		42-41.3		42-59.6		42-30.1		42-30.0	
Longitude:E	138-40.0		138-20.0		138- 0.0		138- 0.0		137-59.7		139-46.1		139-46.2		139-59.6		139-39.5		139- 0.0	
Date	1998/06/09		1998/06/09		1998/06/09		1998/06/10		1998/06/10		1998/06/11		1998/06/11		1998/06/23		1998/06/24		1998/06/25	
Time(JST)	14:24		16:03		17:38		11:54		21:57		12:56		20:04		18:25		18:32		14:08	
Weather	BC		C		C		C		R		C		C		B		B		C	
Air Temp.	16.6		16.4		16.3		15.3		14.4		16.1		15.5		16.0		16.2		19.5	
Bar	1018.3		1018.1		1017.6		1014.1		1013.1		1013.2		1013.5		1016.7		1016.5		1014.1	
Wind Dir	ESE		E		E		NE		ENE		ENE		WNW		SSE		SE		SSE	
Wind Spd/F	S 4		S 2		S 2		S 7		S 4		S 2		S 3		S 8		S 12		S 7	
Transparency	18		13		20		17				17									
Depth	3686		3600		3678		3686		3682		1886		1886		1250		1893		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	13.5	33.963	15.0	34.043	14.2	34.040	14.7	34.031	14.1	33.999	14.0	33.972	14.0	33.956	15.4	33.92*	15.5	33.92*	18.1	33.51*
10m	12.94	33.953	13.74	34.067	13.99	34.067	12.81	34.001	13.84	34.040	13.55	33.974	13.64	33.968	14.63	33.918	15.02	33.896	17.37	33.820
20m	12.41	33.955	12.77	33.998	12.99	34.047	12.13	34.013	12.73	34.038	13.52	33.974	13.56	33.972	14.40	33.893	13.67	33.921	16.23	33.930
30m	8.66	34.037	12.53	34.036	8.98	34.163	10.63	34.098	11.52	34.045	13.50	33.975	12.93	33.991	14.37	33.888	10.54	34.070	13.03	34.141
50m	4.26	34.109	8.00	34.172	7.32	34.170	7.25	34.165	7.45	34.174	12.82	33.998	11.38	34.035	10.76	34.194	8.50	34.126	9.20	34.189
75m	2.78	34.101	5.86	34.143	5.40	34.136	5.15	34.136	5.22	34.141	9.32	34.114	9.04	34.109	8.06	34.172	7.15	34.144	7.59	34.174
100m	2.15	34.089	4.38	34.123	3.93	34.117	4.06	34.114	3.94	34.117	8.70	34.121	7.62	34.140	5.85	34.150	5.69	34.141	5.60	34.142
125m	1.84	34.083	3.37	34.106	3.28	34.105	3.39	34.103	2.99	34.097	7.39	34.120	6.55	34.120	4.65	34.127	4.27	34.126	3.60	34.115
150m	1.59	34.080	2.54	34.101	2.57	34.100	2.68	34.103	2.52	34.103	4.72	34.125	4.39	34.127	3.53	34.118	3.14	34.104	3.08	34.124
200m	1.22	34.084	1.84	34.095	1.78	34.098	1.65	34.093	1.67	34.093	3.48	34.110	2.60	34.105	2.16	34.094	2.10	34.106	1.98	34.101
250m	0.95	34.078	1.29	34.086	1.33	34.089	1.28	34.088	1.30	34.090	1.73	34.091	1.77	34.091	1.55	34.086	1.56	34.098	1.43	34.088
300m	0.82	34.075	1.11	34.089	1.10	34.087	1.12	34.087	1.15	34.089	1.36	34.085	1.23	34.084	1.15	34.086	1.29	34.094	1.09	34.076
400m	0.62	34.075	0.92	34.086	0.95	34.088	0.90	34.085	0.91	34.085	0.97	34.084	1.01	34.087	0.91	34.085	0.96	34.089	0.72	34.074
500m	0.49	34.072	0.69	34.076	0.72	34.079	0.66	34.077	0.70	34.077	0.74	34.079	0.76	34.079	0.65	34.075	0.77	34.081	0.52	34.070
600m					0.53	34.073	0.50	34.072	0.53	34.073	0.56	34.073	0.54	34.073						
700m					0.43	34.071	0.42	34.071	0.42	34.071	0.47	34.071	0.41	34.070						
800m					0.36	34.070	0.36	34.070	0.35	34.070	0.36	34.068	0.35	34.068						
900m					0.32	34.069	0.31	34.069	0.31	34.069	0.30	34.067	0.30	34.067						
1000m					0.28	34.068	0.28	34.068	0.28	34.068	0.27	34.066	0.27	34.067						

Table 3-12

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	CSR103		CSR104		CSR105		CSR106		CSR107		CSR108		CSR109		CSR110		CSR111		CSR112	
Latitude:N	42-30.4		42-30.0		42-59.9		43- 1.2		42-59.9		43-30.0		43-30.4		43-29.9		44- 0.0		44- 0.0	
Longitude:E	138-20.0		137-40.0		137-59.9		138-40.2		139-20.0		140- 0.0		139-20.2		138-40.1		138-40.0		139-20.0	
Date	1998/06/25		1998/06/26		1998/06/26		1998/06/26		1998/06/27		1998/06/27		1998/06/27		1998/06/28		1998/06/28		1998/06/28	
Time(JST)	18:29		10:58		14:07		19:01		10:35		14:30		18:18		06:53		10:02		13:15	
Weather	F		C		R		R		C		C		C		C		B		B	
Air Temp.	18.2		18.4		17.8		18.7		17.4		17.6		17.3		15.5		17.0		17.0	
Bar	1012.0		1008.9		1007.6		1004.4		1001.0		1000.6		999.5		1004.0		1005.0		1005.0	
Wind Dir	S		SSE		SE		SE		S		SSW		S		N		NNE		N	
Wind Spd/F	S 8		S 8		S 6		S 11		S 5		S 7		S 6		S 2		S 8		S 7	
Transparency																				
Depth	3642		3676		3670		3553		2348		1250		3253		3450		3282		1656	
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	16.0	33.93*	16.8	33.87*	16.3	33.89*	17.2	33.89*	16.6	33.85*	15.8	33.87*	16.7	33.97*	14.3	33.88*	15.3	33.76*	16.0	33.80*
10m	15.02	33.955	14.95	33.886	16.06	33.889	16.85	33.913	16.38	33.847	15.38	33.812	16.49	33.969	13.14	33.903	15.04	33.760	14.77	33.827
20m	14.36	33.956	11.29	34.102	14.83	33.852	16.65	33.926	13.75	33.932	14.00	33.930	15.92	34.022	8.71	34.056	12.92	33.932	13.42	33.962
30m	9.90	34.126	9.19	34.186	8.51	34.063	11.39	33.811	12.55	34.021	13.50	33.945	10.24	33.984	4.57	34.203	7.29	34.063	8.03	34.103
50m	6.54	34.177	7.10	34.174	3.88	34.125	5.58	34.159	9.67	34.151	9.93	34.014	6.44	34.159	3.96	34.173	4.58	34.155	5.15	34.139
75m	4.72	34.136	5.07	34.144	2.76	34.103	3.99	34.128	7.27	34.169	7.58	34.046	4.83	34.126	3.48	34.170	3.94	34.160	3.88	34.123
100m	3.44	34.112	3.84	34.123	2.34	34.103	2.98	34.116	4.43	34.129	6.15	34.130	3.73	34.115	3.39	34.171	3.45	34.155	2.98	34.115
125m	2.90	34.101	2.94	34.101	1.90	34.091	2.22	34.100	2.65	34.114	4.16	34.124	2.75	34.107	3.38	34.172	3.35	34.160	2.43	34.095
150m	2.25	34.107	2.34	34.099	1.59	34.085	1.82	34.088	2.11	34.092	3.80	34.111	2.15	34.099	3.37	34.173	3.33	34.163	2.09	34.088
200m	1.71	34.104	1.61	34.089	1.22	34.083	1.43	34.087	1.47	34.088	2.80	34.105	1.56	34.094	3.36	34.175	3.13	34.153	1.50	34.090
250m	1.30	34.089	1.26	34.089	1.00	34.082	1.18	34.090	1.25	34.092	1.70	34.086	1.22	34.089	3.35	34.175	2.48	34.121	1.09	34.080
300m	1.11	34.087	1.09	34.089	0.86	34.079	1.05	34.089	1.09	34.090	1.26	34.082	1.07	34.085	3.01	34.152	1.80	34.099	0.92	34.077
400m	0.84	34.081	0.88	34.084	0.64	34.074	0.78	34.081	0.86	34.083	0.85	34.077	0.79	34.079	1.92	34.110	1.19	34.085	0.75	34.077
500m	0.62	34.076	0.65	34.076	0.51	34.071	0.57	34.074	0.60	34.072	0.61	34.071	0.57	34.072	1.36	34.092	0.82	34.079	0.53	34.070
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-13

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

Stn-prefix	199806		199806		199806		199807		199807		199807		199807		199807		199807		199807	
Station No	CSR113		CSR114		CSR115		CIS126		CIS127		CIS128		CIS129		CIS130		CIS131		CIS132	
Latitude:N	44- 1.2		43-59.8		43-30.0		43-13.6		43-21.1		43-22.9		43-24.3		43-26.2		43-28.0		43-29.3	
Longitude:E	139-59.2		140-38.8		140-40.8		141-14.8		141-12.8		141-11.1		141- 9.2		141- 6.5		141- 5.2		141- 4.2	
Date	1998/06/28		1998/06/29		1998/06/30		1998/07/06		1998/07/06		1998/07/06		1998/07/06		1998/07/06		1998/07/06		1998/07/06	
Time(JST)	18:30		18:30		16:37		10:06		11:40		12:22		12:55		13:32		14:07		14:39	
Weather	B		BC		C		C										B		B	
Air Temp.	18.0		15.2		15.5		22.7										23.0		23.5	
Bar	1005.1		1005.5		1009.9		1013.5										1013.5		1013.2	
Wind Dir	NE		NNE		WNW		ENE										NNW		NNW	
Wind Spd/F	S 10		S 13		S 4		S 2										S 5		S 4	
Transparency																				
Depth	689		619		667		23		38		42		55		63		74		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	15.4	33.90*	16.6	34.03*	17.4	33.84*	17.3	33.76*	17.3	33.62*	17.3	33.66*	17.1	33.94*	18.0	33.83*	16.8	33.80*	17.0	33.68*
10m	15.18	33.897	16.45	34.035	16.45	33.864	16.63	33.903	15.99	33.631	15.89	33.659	15.85	33.695	15.85	33.872	16.20	33.985	15.67	33.714
20m	14.78	33.912	16.46	34.035	15.02	33.987	15.25	33.943	14.18	33.866	14.07	33.903	14.27	33.808	14.96	33.817	15.62	33.915	15.59	33.844
30m	13.69	33.952	14.40	34.047	12.69	34.079			12.95	34.028	12.61	34.013	12.78	33.901	13.02	33.921	13.03	33.954	13.45	33.904
50m	12.23	33.981	10.97	34.164	9.73	34.099							10.81	34.087	9.01	34.039	8.95	34.020	9.44	34.060
75m	9.75	34.020	8.50	34.134	8.34	34.108													7.26	34.112
100m	8.72	34.112	6.12	34.138	6.75	34.121														
125m	7.02	34.101	4.76	34.121	4.98	34.132														
150m	5.81	34.101	4.08	34.118	4.35	34.118														
200m	3.88	34.110	3.03	34.112	2.87	34.111														
250m	2.16	34.092	1.82	34.094	1.69	34.087														
300m	1.56	34.089	1.27	34.086	1.28	34.081														
400m	0.96	34.077	0.75	34.072	0.83	34.074														
500m	0.67	34.072	0.52	34.068	0.59	34.069														
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-14

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	CIS133		CIS125		CIS111		CIS108		CIS104		CIS105		CIS112		CIS115		CIS107		CIS103	
Latitude:N	43-31.8		43-34.6		43-35.0		43-40.0		43-36.6		43-45.0		43-45.0		43-40.1		43-30.0		43-25.1	
Longitude:E	141- 3.6		141- 1.6		141- 5.0		141-10.0		141-13.8		141-15.1		141- 5.1		141- 0.0		141-10.0		141-15.1	
Date	1998/07/06		1998/07/06		1998/07/06		1998/07/06		1998/07/06		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07	
Time(JST)	15:18		16:17		17:06		17:48		18:20		07:15		08:04		08:52		10:13		10:52	
Weather	B		B		B		B		B		C		C		C		C		C	
Air Temp.	23.6		22.8		23.0		22.7		22.4		20.8		20.9		20.7		20.6		21.5	
Bar	1013.0		1012.9		1012.9		1013.0		1013.4		1013.4		1013.4		1012.7		1012.7		1012.5	
Wind Dir	NNW		N		NNW		NW		NNW		S		SSW		S		S		CALM	
Wind Spd/F	S 2		S 2		S 4		S 4		S 4		S 1		S 4		S 4		S 4		S 0	
Transparency																				
Depth	93		100		91		86		61		117		275		302		61		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	16.4	33.79*	18.3	33.99*	18.5	33.70*	17.4	33.82*	16.4	33.58*	18.4	33.28*	17.8	33.79*	17.5	33.85*	17.1	33.66*	17.5	33.58*
10m	15.67	33.732	16.70	34.009	15.59	33.721	15.87	33.799	16.20	33.574	15.70	33.640	15.61	33.792	15.89	33.825	15.83	33.700	15.78	33.639
20m	15.10	33.745	16.49	34.011	14.86	33.750	12.77	33.907	11.73	33.989	13.92	33.817	15.24	33.794	15.68	33.843	15.11	33.735	14.30	33.911
30m	13.41	33.926	14.67	34.020	12.37	33.867	10.67	34.048	10.07	33.984	11.49	33.969	13.18	33.919	13.90	33.907	12.28	33.892	13.43	33.995
50m	9.64	34.048	10.27	34.175	8.48	34.049	8.24	34.058	8.95	34.064	8.75	34.050	8.84	34.017	10.12	34.067	8.75	34.056		
75m	7.64	34.094	7.75	34.068	6.81	34.097	6.83	34.131			7.99	34.106	7.64	34.095	8.24	34.123				
100m											6.52	34.123	6.47	34.106	6.75	34.085				
125m													5.99	34.115	5.90	34.111				
150m													5.35	34.117	5.22	34.111				
200m													3.97	34.117	3.53	34.117				
250m													2.50	34.108	2.42	34.105				
300m															1.41	34.084				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-15

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	CIS101		CIS110		CIS114		CIS118		CIS120		CIS122		CIS124		CIS123		CIS121		CIS116	
Latitude:N	43-20.0		43-25.0		43-30.0		43-35.0		43-30.0		43-25.0		43-25.0		43-20.0		43-17.8		43-14.9	
Longitude:E	141-20.0		141- 5.1		141- 0.1		140-55.2		140-50.2		140-45.2		140-35.1		140-39.9		140-45.2		140-52.4	
Date	1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07	
Time(JST)	11:33		12:43		13:25		14:09		14:51		15:43		16:31		17:17		17:52		18:34	
Weather					C		C		C		C		M		M		M		M	
Air Temp.	22.8		23.8		22.8		21.5		21.9		21.0		20.8		20.6		20.3		20.0	
Bar	1012.3		1012.0		1012.0		1012.1		1011.9		1011.2		1011.2		1011.1		1011.0		1010.7	
Wind Dir	ESE		NE		NW		N		N		NNE		CALM		ESE		ESE		CALM	
Wind Spd/F	S 3		S 1		S 3		S 2		S 4		S 4		S 0		S 2		S 1		S 0	
Transparency																				
Depth	24		61		95		126		469		156		191		110		76		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	17.7	33.34*	17.9	33.79*	18.2	33.63*	17.1	33.88*	17.7	33.73*	17.9	33.78*	19.1	33.78*	17.5	33.78*	18.1	33.73*	17.9	33.89*
10m	16.39	33.864	16.06	33.905	16.76	33.739	16.34	33.872	17.00	33.739	16.57	33.819	16.50	33.870	16.40	33.844	16.58	33.815	16.40	33.891
20m	14.69	33.956	15.95	33.964	15.94	33.884	16.02	33.877	16.48	33.868	16.22	33.840	16.14	33.881	15.93	33.841	16.04	33.843	16.14	33.877
30m			13.77	33.972	15.51	33.880	15.66	33.874	15.98	33.881	15.86	33.865	15.68	33.875	15.61	33.932	15.80	33.871	15.17	33.957
50m			9.61	34.000	10.91	34.072	13.02	33.955	14.21	33.988	14.24	33.961	12.60	34.014	12.22	34.024	12.30	34.016		
75m					9.22	34.112	9.07	34.094	10.07	34.071	10.59	34.039	9.26	34.086	8.06	34.120				
100m							6.26	34.136	7.67	34.124	7.59	34.129	7.06	34.138	6.40	34.138				
125m									5.49	34.131	5.50	34.133	6.38	34.133						
150m									4.67	34.121	4.60	34.121	5.52	34.129						
200m									3.56	34.109										
250m									2.28	34.099										
300m									1.60	34.087										
400m									0.89	34.075										
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-16

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	CIS119		CIS117		CIS113		CIS106		CIS102		CIS109		CHA01		CHA02		CHA03		CHA04	
Latitude:N	43-20.0		43-24.9		43-20.0		43-20.0		43-15.0		43-15.0		44-15.2		44-18.3		44-21.9		44-19.5	
Longitude:E	140-50.2		140-55.0		140-59.9		141-10.0		141-14.9		141- 5.0		141- 9.5		141- 9.0		141- 9.0		141- 8.0	
Date	1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/07		1998/07/08		1998/07/14		1998/07/14		1998/07/14		1998/07/14	
Time(JST)	19:25		20:21		21:10		22:08		23:03		00:01		06:43		08:25		10:06		13:01	
Weather	M		M		C		C		C		C		B		B		B		B	
Air Temp.	19.8		19.3		18.8		18.6		18.8		18.9		18.6		18.9					
Bar	1010.5		1010.8		1010.8		1009.9		1009.2		1008.3		1012.8							
Wind Dir	CALM		ESE		SE		ESE		ESE		ESE		SSW							
Wind Spd/F	S 0		S 4		S 3		S 6		S 9		S 9		S 4							
Transparency																				
Depth	82		86		52		39		25		30		280		272		195		311	
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	18.4	33.79*	18.0	33.64*	17.8	33.79*	17.8	33.67*	17.6	33.55*	17.5	33.71*	17.1	33.79*	17.1	33.80*	17.4	33.79*	17.4	33.75*
10m	17.25	33.842	17.03	33.821	16.07	33.861	15.93	33.670	16.77	33.887	16.55	33.877	16.93	33.787	16.77	33.809	16.82	33.794	16.85	33.808
20m	16.45	33.906	16.51	33.877	15.67	33.832	15.48	33.823	15.45	33.927	16.24	33.906	16.75	33.786	16.60	33.800	16.54	33.802	16.65	33.809
30m	15.82	33.865	15.25	33.867	14.89	33.871	13.69	33.887					12.95	33.996	12.55	33.976	13.01	34.022	12.75	33.982
50m	12.44	34.027	13.45	33.933									9.47	34.088	9.28	34.139	9.14	34.149	9.83	34.151
75m	8.77	34.104	9.68	34.052									6.99	34.091	7.08	34.127	7.08	34.140	7.43	34.113
100m													5.73	34.115	5.78	34.117	5.54	34.120	5.74	34.113
125m													4.85	34.119	4.91	34.120	4.59	34.118	4.94	34.116
150m													4.17	34.119	4.17	34.119	3.91	34.120	4.30	34.118
200m													3.30	34.116	3.30	34.115			3.28	34.116
250m													2.76	34.110	2.70	34.111			2.47	34.107
300m																			0.85	34.083
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-17

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	CHA05		CHA06		CHA07		CHA08		CHA09		CHA10		CHA11		CHA12		CTW001		CTW002	
Latitude:N	44-17.2		44-40.3		44-44.9		44-50.4		44-10.3		44- 9.0		43-34.8		43-26.8		43-29.9		43-29.9	
Longitude:E	141- 7.2		140-49.8		140-45.1		140-51.1		141-10.3		141-11.6		141- 5.2		141- 6.6		140-50.0		140-50.0	
Date	1998/07/14		1998/07/15		1998/07/15		1998/07/15		1998/07/16		1998/07/16		1998/07/17		1998/07/17		1998/07/27		1998/07/27	
Time(JST)	14:33		06:50		08:32		10:15		11:54		13:33		06:13		07:53		12:02		13:01	
Weather	B		B		B		B		BC		BC		BC		BC		BC		BC	
Air Temp.			19.8						22.0		20.8		17.4							
Bar			1012.6						1008.0				1007.0							
Wind Dir									NW				SE							
Wind Spd/F									S 1				S 7							
Transparency																				
Depth	337		217		218		185		293		249		93		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	18.8	33.74*	17.1	34.17*	17.1	33.78*	17.3	33.79*	19.1	33.86*	20.2	33.84*	18.3	33.67*	18.7	33.51*	20.6	33.46*	20.7	33.48*
10m	17.19	33.752	16.06	33.806	16.55	33.785	16.60	33.795	17.89	33.765	18.54	33.853	18.13	33.689	17.95	33.575	20.15	33.512	20.04	33.522
20m	16.81	33.794	16.05	33.835	15.92	33.819	16.10	33.788	17.53	33.759	17.56	33.828	16.59	33.771	16.60	33.849	17.15	34.021	17.19	34.031
30m	12.88	33.979	16.03	33.846	15.87	33.818	14.46	33.686	15.44	34.125	15.96	34.007	14.92	33.932	14.81	33.943	14.95	34.179	14.92	34.187
50m	9.63	34.099	8.56	34.172	8.28	34.140	8.87	33.994	10.40	34.089	11.02	34.103	10.81	34.047	11.39	34.032	11.46	34.092	11.68	34.155
75m	7.17	34.119	6.10	34.114	5.65	34.121	6.42	34.133	8.00	34.089	8.43	34.107	8.08	34.110			9.79	34.104	9.68	34.101
100m	6.02	34.113	5.01	34.115	4.71	34.118	5.00	34.120	7.06	34.122	7.55	34.123					8.26	34.114	8.15	34.117
125m	4.88	34.120	4.23	34.116	4.09	34.115	3.93	34.123	6.46	34.123	6.80	34.123					7.07	34.132	6.99	34.129
150m	4.24	34.113	3.43	34.117	3.61	34.114	3.65	34.115	6.10	34.125	6.31	34.116					5.84	34.133	5.91	34.136
200m	3.20	34.115	2.18	34.100	2.04	34.094			4.48	34.117	3.99	34.123					3.39	34.115	3.40	34.115
250m	2.12	34.099							2.70	34.109							1.99	34.094	1.95	34.097
300m	1.04	34.078															1.41	34.084	1.37	34.087
400m																	0.76	34.073	0.76	34.074
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-18

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807		
Station No	CTW003		CTW004		CTW005		CTW006		CTW007		CTW008		CTW009		CTW010		CTW011		CTW012		
Latitude:N	43-30.0		43-30.0		43-30.0		43-30.0		43-30.0		43-30.1		43-30.1		43-30.1		43-30.0		43-30.0		
Longitude:E	140-50.0		140-50.0		140-50.0		140-50.0		140-50.0		140-50.0		140-50.0		140-50.0		140-50.0		140-50.1		
Date	1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		
Time(JST)	13:59		14:59		15:59		17:02		17:59		19:00		20:01		21:03		21:57		23:03		
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	20.6	33.49*	20.8	33.46*	20.5	33.47*	20.3	33.44*	20.4	33.48*	20.2	33.48*	20.5	33.36*	20.2	33.51*	20.2	33.50*	20.2	33.52*	
10m	19.99	33.527	19.92	33.538	19.96	33.523	19.65	33.520	19.13	33.584	18.81	33.748	19.83	33.473	19.87	33.459	19.10	33.809	19.60	33.538	
20m	17.26	33.999	17.04	34.035	16.69	34.147	16.89	34.123	16.42	34.168	16.38	34.142	16.74	34.071	16.63	34.024	16.72	34.152	16.72	34.137	
30m	14.97	34.203	15.22	34.196	14.45	34.140	15.28	34.158	15.00	34.165	14.58	34.101	14.44	34.152	14.68	34.143	14.99	34.151	14.65	34.148	
50m	11.48	34.120	11.52	34.156	11.61	34.153	11.82	34.143	11.69	34.132	11.56	34.108	11.56	34.134	11.57	34.110	11.45	34.101	11.64	34.116	
75m	9.65	34.101	9.79	34.112	9.81	34.109	9.92	34.074	9.88	34.084	9.83	34.100	9.84	34.084	9.82	34.093	9.85	34.080	9.94	34.071	
100m	8.34	34.113	8.47	34.117	8.50	34.118	8.70	34.106	8.50	34.124	8.49	34.126	8.61	34.112	8.48	34.121	8.45	34.120	8.77	34.116	
125m	7.14	34.137	7.21	34.132	7.22	34.121	7.50	34.128	7.51	34.127	7.46	34.128	7.49	34.125	7.51	34.121	7.50	34.122	7.57	34.121	
150m	6.10	34.134	5.86	34.141	6.05	34.138	6.23	34.136	6.33	34.131	6.43	34.128	6.42	34.133	6.39	34.134	6.41	34.131	6.41	34.131	
200m	3.61	34.113	3.55	34.115	3.67	34.112	3.65	34.115	4.02	34.114	4.01	34.118	4.14	34.115	4.20	34.118	4.16	34.115	4.13	34.113	
250m	2.02	34.095	2.13	34.097	2.26	34.097	2.15	34.099	2.28	34.097	2.33	34.100	2.32	34.098	2.34	34.096	2.34	34.099	2.27	34.098	
300m	1.40	34.086	1.45	34.088	1.54	34.089	1.46	34.089	1.52	34.090	1.51	34.089	1.51	34.088	1.52	34.087	1.49	34.086	1.56	34.085	
400m	0.78	34.074	0.78	34.074	0.80	34.075	0.76	34.074	0.76	34.074	0.77	34.075	0.79	34.073	0.87	34.073	0.89	34.073	0.85	34.072	
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 3-19

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807		
Station No	CTW013		CTW014		CTW015		CTW016		CTW017		CTW018		CTW019		CTW020		CTW021		CTW022		
Latitude:N	43-30.0		43-29.7		43-29.6		43-30.0		43-29.5		43-29.3		43-30.0		43-29.1		43-28.8		43-30.0		
Longitude:E	140-50.1		140-51.0		140-52.0		140-50.0		140-53.0		140-54.0		140-50.0		140-54.8		140-56.8		140-50.0		
Date	1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		
Time(JST)	00:00		00:36		00:59		01:24		01:57		02:15		02:40		03:24		03:44		04:21		
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	20.3	33.53*	20.4	33.54*	20.1	33.53*	20.2	33.51*	20.5	33.47*	21.0	33.29*	20.4	33.54*	20.6	33.39*	21.3	33.21*	19.9	33.56*	
10m	19.68	33.548	19.46	33.572	18.19	33.820	19.66	33.551	17.03	33.836	16.98	33.835	19.03	33.803	17.04	33.812	17.06	33.840	19.42	33.587	
20m	16.80	34.047	16.64	34.017	16.12	33.978	16.83	34.128	15.77	33.928	15.78	33.895	16.62	34.110	15.80	33.890	15.67	33.906	16.08	34.047	
30m	15.15	34.162	15.15	34.132	14.43	33.985	15.03	34.174	14.62	33.947	14.54	33.962	14.67	34.139	14.20	33.972	14.17	33.983	14.13	34.119	
50m	11.73	34.139	11.60	34.099	11.85	34.088	11.73	34.153	11.41	34.119	11.13	34.103	11.28	34.077	10.81	34.082	10.64	34.104	11.26	34.060	
75m	9.95	34.075	9.69	34.110	9.79	34.154	9.93	34.074	9.46	34.107	9.14	34.113	9.81	34.085	8.76	34.106	8.84	34.111	9.65	34.096	
100m	8.47	34.118	8.33	34.120	8.26	34.116	8.21	34.122	8.15	34.118	8.00	34.113	8.24	34.132					8.45	34.162	
125m	7.37	34.127	7.47	34.131	7.44	34.123	7.09	34.115	7.27	34.121			7.16	34.143					7.16	34.134	
150m	6.36	34.128	6.29	34.133	6.41	34.133	6.16	34.131	6.64	34.099			6.13	34.132					6.11	34.127	
200m	4.18	34.116	4.33	34.110	4.24	34.113	4.23	34.116	4.48	34.116			4.14	34.108					3.99	34.111	
250m	2.38	34.100	2.51	34.098	2.49	34.102	2.52	34.101					2.60	34.101					2.39	34.100	
300m	1.63	34.087	1.62	34.087	1.60	34.085	1.61	34.088					1.65	34.088					1.60	34.088	
400m	0.81	34.073	0.84	34.073			0.82	34.073					0.83	34.072					0.82	34.073	
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 3-20

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

Stn-prefix	199807		199807		199807		199807		199807		199808		199808		199808		199808		199808	
Station No	CTW023		CTW024		CTW025		CTW026		CTW027		J31		J32		J33		J34		J35	
Latitude:N	43-28.2		43-29.9		43-27.4		43-26.5		43-25.7		43-19.9		43-30.0		43-29.9		43-29.9		43-29.9	
Longitude:E	140-59.8		140-49.8		141- 4.9		141- 9.7		141-14.6		141-10.0		140-59.9		140-40.1		140-20.2		140- 0.1	
Date	1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28	
Time(JST)	05:25		06:14		07:33		08:02		08:32		12:14		13:36		15:09		16:57		18:39	
Weather											C		D		C		C		C	
Air Temp.											22.0		22.0		23.1		21.0		20.4	
Bar											1006.6		1006.5		1006.5		1007.0		1007.5	
Wind Dir											ESE		CALM		NE		NE		NNE	
Wind Spd/F											S 1		S 0		S 2		S 7		S 9	
Transparency											12		14		14		14		14	
Depth											39		95		690		641		1246	
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	21.1	33.22*	20.3	33.55*	20.2	33.24*	20.4	33.15*	19.9	33.42*	21.1	33.429	21.4	33.239	21.0	33.424	21.7	34.015	21.4	33.856
10m	18.26	33.914	19.52	33.576	18.12	33.613	18.41	33.564	17.67	33.702	17.38	33.813	18.33	33.731	20.55	33.464	21.53	34.009	21.14	33.809
20m	15.89	34.120	16.18	34.055	15.91	33.910	15.40	33.921	15.44	33.907	16.59	34.061	16.14	33.857	17.25	33.950	20.37	33.992	12.91	34.274
30m	14.22	34.206	14.51	34.169	13.83	34.118	12.82	34.011	13.07	34.012	14.22	33.968	13.91	33.969	15.35	33.981	16.24	34.413	10.92	34.179
50m	10.59	34.100	11.25	34.066	10.15	34.109							10.23	34.108	12.82	34.217	11.38	34.206	8.71	34.187
75m	8.97	34.124	9.75	34.096									9.18	34.103	9.86	34.169	9.50	34.178	6.69	34.166
100m			8.46	34.158											8.83	34.162	8.37	34.165	4.99	34.136
125m			7.20	34.141											7.60	34.157	6.60	34.159	3.94	34.119
150m			6.03	34.133											6.19	34.138	5.71	34.134	3.06	34.109
200m			3.89	34.116											3.73	34.116	4.17	34.115	2.00	34.099
250m			2.33	34.098											2.69	34.110	2.55	34.103	1.41	34.088
300m			1.51	34.085											1.69	34.094	1.51	34.091	1.19	34.087
400m			0.81	34.073											0.95	34.079	0.83	34.078	0.90	34.084
500m															0.65	34.074	0.60	34.074	0.67	34.077
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-21

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	J36		J37		J38		J39		JC08		JC07		JC06		JC05		JC04		JC03	
Latitude:N	43-30.1		43-30.0		43-29.9		43-29.9		43-59.9		44- 0.0		44- 0.0		44- 0.0		44- 0.1		44- 0.0	
Longitude:E	139-40.1		139-20.1		139- 0.1		138-30.1		138-59.9		139-30.0		140- 0.0		140-20.0		140-40.0		141- 0.0	
Date	1998/07/28		1998/07/28		1998/07/28		1998/07/29		1998/07/29		1998/07/29		1998/07/29		1998/07/29		1998/07/29		1998/07/29	
Time(JST)	20:17		21:57		23:42		02:40		07:40		10:49		13:30		15:13		16:53		18:31	
Weather	C		C		C		C		C		C		BC		BC		BC		BC	
Air Temp.	19.5		19.1		18.3		18.0		17.6		18.3		20.4		21.7		22.2		21.1	
Bar	1008.1		1008.2		1008.2				1009.5		1009.0		1008.0		1007.5		1007.6		1007.4	
Wind Dir	NE		NNE		NNE		NE		ENE		NE		NE		NE		NE		NE	
Wind Spd/F	S 8		S 9		S 11		S 10		S 11		S 10		S 10		S 10		S 9		S 7	
Transparency									12		17		15		17		13		14	
Depth	2300		3160		3435		3435		3400		1377		483		524		578		402	
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	20.3	33.793	20.6	33.762	20.2	33.829	19.4	33.823	19.3	33.938	19.6	33.808	20.8	33.939	21.2	33.994	20.6	33.914	20.5	33.854
10m	20.00	33.806	20.53	33.742	17.65	33.636	19.38	33.824	19.21	33.941	19.50	33.808	20.13	33.827	21.12	33.983	20.56	33.913	19.78	33.855
20m	12.27	34.252	12.61	34.147	8.37	34.215	10.36	34.090	12.03	34.182	15.26	33.828	13.67	34.038	14.49	34.172	15.77	34.104	15.01	34.185
30m	10.28	34.202	8.68	34.118	6.62	34.131	6.38	34.194	9.41	34.127	11.15	34.037	9.09	34.095	11.02	34.233	12.97	34.241	13.16	34.263
50m	8.03	34.188	5.47	34.155	4.57	34.167	4.33	34.174	6.38	34.136	7.76	34.099	5.13	34.148	8.23	34.190	8.94	34.199	10.08	34.177
75m	5.83	34.155	4.04	34.126	3.66	34.169	3.50	34.163	4.57	34.132	5.52	34.126	3.95	34.124	5.55	34.135	7.28	34.167	7.93	34.167
100m	4.21	34.134	3.30	34.116	3.37	34.168	3.38	34.171	3.71	34.126	4.42	34.126	3.00	34.111	4.00	34.133	6.21	34.141	6.75	34.156
125m	3.15	34.127	2.72	34.125	3.36	34.170	3.36	34.173	3.11	34.128	3.75	34.115	2.55	34.104	3.11	34.123	5.09	34.131	4.93	34.121
150m	2.61	34.118	2.23	34.106	3.36	34.174	3.35	34.175	2.67	34.121	2.97	34.110	2.03	34.098	2.34	34.103	4.11	34.122	3.97	34.122
200m	1.80	34.096	1.50	34.089	3.21	34.166	3.10	34.157	1.85	34.099	1.92	34.098	1.44	34.091	1.71	34.092	2.49	34.100	2.59	34.114
250m	1.37	34.093	1.17	34.086	2.36	34.122	2.27	34.115	1.38	34.089	1.49	34.090	1.16	34.084	1.24	34.085	1.90	34.098	1.62	34.093
300m	1.12	34.086	1.04	34.091	1.70	34.100	1.58	34.091	1.14	34.086	1.16	34.087	0.90	34.079	0.99	34.082	1.34	34.089	1.15	34.084
400m	0.85	34.083	0.81	34.082	1.06	34.084	1.10	34.087	0.81	34.079	0.85	34.081	0.63	34.074	0.63	34.075	0.74	34.076		
500m	0.62	34.075	0.59	34.075	0.76	34.078	0.82	34.078	0.59	34.074	0.61	34.075			0.47	34.071	0.52	34.071		
600m					0.56	34.073														
700m																				
800m																				
900m																				
1000m																				

Table 3-22

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	JC02		JC01		J22		J21		J23		J24		J25		J26		J27		JC15	
Latitude:N	44- 0.0		44- 0.0		44-29.9		44-30.0		44-30.0		44-30.0		44-30.0		44-29.9		44-30.0		43- 0.0	
Longitude:E	141-15.0		141-30.0		141-15.0		141-30.0		141- 0.1		140-40.0		140-20.1		140- 0.1		139-30.1		139- 0.1	
Date	1998/07/29		1998/07/29		1998/07/30		1998/07/30		1998/07/30		1998/07/30		1998/07/30		1998/07/30		1998/07/30		1998/07/30	
Time(JST)	19:48		21:01		00:06		01:15		03:19		04:47		06:13		07:39		09:57		19:07	
Weather	C		C		C		C		C		C		C		C		C		BC	
Air Temp.	21.1		20.5		17.5		18.1		17.9		18.1		18.4		18.5		19.4		21.2	
Bar	1007.4		1007.9		1008.7		1008.5		1008.5		1009.0		1009.0		1009.4		1009.4		1009.2	
Wind Dir	NNE		ESE		NE		ESE		NE		ENE		ENE		NE		ENE		ENE	
Wind Spd/F	S 5		S 5		S 5		S 10		S 5		S 6		S 6		S 6		S 6		S 4	
Transparency											16		17		18		19			
Depth	167		51		117		78		199		143		247		570		499		3540	
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	21.1	33.445	21.7	33.032	18.0	33.741	19.3	33.614	19.7	33.649	20.0	33.807	19.4	33.796	18.2	33.795	19.6	33.848	21.6	33.801
10m	20.64	33.848	20.41	33.433	17.06	33.797	14.73	33.988	19.71	33.650	20.06	33.810	19.29	33.800	18.11	33.802	19.46	33.851	21.25	33.807
20m	16.69	34.085	16.93	33.974	14.15	33.981	13.75	34.049	15.59	34.068	14.76	34.226	19.29	33.800	17.27	33.825	19.45	33.850	15.53	33.983
30m	14.20	34.170	15.71	34.146	13.18	34.004	12.06	34.038	13.40	34.174	11.69	34.181	13.54	33.930	15.39	33.801	10.63	34.116	11.05	34.191
50m	11.28	34.181			10.68	34.081	10.48	34.085	10.26	34.095	8.49	34.141	8.71	34.118	9.81	34.057	6.32	34.143	7.62	34.192
75m	9.12	34.178			9.52	34.075			8.63	34.130	6.94	34.132	6.44	34.134	8.43	34.102	4.41	34.137	5.34	34.151
100m	7.46	34.144			8.04	34.113			7.08	34.148	6.12	34.133	5.08	34.119	7.19	34.101	2.94	34.082	3.83	34.115
125m	6.19	34.136							5.59	34.136	5.48	34.127	3.93	34.124	6.22	34.109	2.36	34.116	3.01	34.112
150m	5.30	34.130							5.15	34.125			3.17	34.122	5.42	34.118	1.95	34.105	2.38	34.103
200m													2.92	34.107	3.54	34.113	1.40	34.093	1.82	34.103
250m															2.39	34.098	1.12	34.088	1.44	34.098
300m															1.65	34.091	0.92	34.083	1.17	34.091
400m															0.96	34.079	0.67	34.076	0.93	34.088
500m															0.57	34.073			0.65	34.075
600m																			0.52	34.072
700m																				
800m																				
900m																				
1000m																				

Table 3-23

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	JC14		JC13		JC12		JC11		J41		J42		J43		J44		J45		J46	
Latitude:N	43- 0.0		43- 0.0		43- 0.0		42-57.9		42-30.1		42-29.9		42-30.0		42-30.0		42-30.0		42-30.0	
Longitude:E	139-20.1		139-40.0		139-59.9		140-15.1		139-39.9		139-20.1		139- 0.1		138-40.0		138-20.0		138- 0.0	
Date	1998/07/30		1998/07/30		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31	
Time(JST)	20:50		22:33		00:21		01:50		06:02		08:42		10:49		12:40		14:17		15:52	
Weather	BC		C		C		C		BC		B		BC		BC		BC		C	
Air Temp.	21.0		19.9		19.1		18.8		19.6		21.1		23.2		25.0		24.0		23.3	
Bar	1010.0		1010.2		1010.5		1010.6		1010.3		1011.0		1011.4		1010.9		1010.8		1010.5	
Wind Dir	E		ESE		SE		SSE		ESE		ESE		E		E		NNE		CALM	
Wind Spd/F	S 5		S 9		S 7		S 6		S 10		S 10		S 4		S 1		S 1		S 0	
Transparency									14		20		23		26		23		22	
Depth	2342		3368		1291		399		1833		3250		3605		3688		3641		3682	
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	22.1	33.919	22.1	34.001	20.7	33.895	21.2	33.970	20.9	33.993	22.7	33.909	23.2	33.971	22.8	33.930	22.7	33.907	21.9	33.833
10m	21.93	33.956	22.01	34.007	20.72	33.895	21.18	33.971	20.88	33.999	22.71	33.910	22.97	33.974	22.42	33.934	21.93	33.901	21.31	33.846
20m	16.87	33.892	21.26	34.006	20.40	33.868	21.18	33.972	20.48	34.014	19.20	34.094	18.97	34.058	20.02	33.925	19.56	33.813	14.52	33.793
30m	12.26	34.163	16.99	34.182	19.05	33.999	20.12	34.017	17.51	34.214	16.28	34.244	14.22	34.216	13.53	34.146	10.13	33.996	8.87	34.191
50m	8.76	34.187	11.22	34.205	12.95	34.287	12.44	34.209	12.41	34.264	12.84	34.280	11.25	34.173	5.60	34.121	6.07	34.168	6.83	34.184
75m	6.36	34.161	9.37	34.182	10.68	34.168	10.96	34.173	10.89	34.157	10.47	34.164	7.97	34.162	3.27	34.142	3.90	34.132	4.56	34.132
100m	4.63	34.132	7.72	34.169	8.11	34.171	9.10	34.170	10.31	34.146	9.03	34.184	5.79	34.138	2.52	34.110	2.91	34.105	3.35	34.121
125m	3.45	34.110	5.34	34.129	6.45	34.153	7.06	34.153	7.90	34.148	6.77	34.155	4.07	34.117	2.24	34.103	2.51	34.115	2.48	34.104
150m	2.62	34.104	3.94	34.120	4.97	34.137	5.03	34.135	6.56	34.140	4.67	34.127	2.75	34.101	2.05	34.113	2.01	34.105	2.09	34.106
200m	1.85	34.094	2.45	34.098	2.98	34.098	3.66	34.106	3.46	34.103	2.46	34.089	2.16	34.112	1.60	34.102	1.54	34.098	1.50	34.089
250m	1.48	34.096	1.70	34.094	2.04	34.096	2.55	34.099	2.32	34.091	1.97	34.097	1.68	34.098	1.32	34.097	1.23	34.094	1.15	34.081
300m	1.23	34.093	1.50	34.103	1.53	34.088	1.81	34.092	1.68	34.083	1.59	34.093	1.32	34.091	1.07	34.089	1.09	34.091	1.05	34.086
400m	0.93	34.086	1.02	34.088	1.05	34.089			1.01	34.078	1.06	34.083	0.96	34.088	0.87	34.085	0.81	34.083	0.81	34.081
500m	0.68	34.077	0.74	34.079	0.80	34.081			0.72	34.075	0.77	34.076	0.72	34.078	0.64	34.076	0.61	34.075	0.61	34.075
600m	0.49	34.072	0.57	34.074	0.55	34.072			0.55	34.071	0.54	34.070	0.54	34.072					0.48	34.071
700m									0.44	34.068	0.44	34.068	0.44	34.071					0.39	34.070
800m									0.36	34.068	0.36	34.067	0.38	34.070					0.34	34.069
900m									0.30	34.067									0.30	34.068
1000m									0.26	34.066									0.26	34.067

Table 3-24

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	J47		J58		J57		J56		J55		J54		J53		J52		J51		J61	
Latitude:N	42-30.0		41-30.0		41-29.9		41-30.0		41-30.0		41-29.9		41-29.9		41-29.9		41-30.0		41-20.0	
Longitude:E	137-30.1		137-30.0		138- 0.0		138-20.0		138-40.0		139- 0.0		139-15.0		139-29.9		139-49.9		140- 0.0	
Date	1998/07/31		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01	
Time(JST)	18:35		01:02		03:26		05:08		06:51		08:35		09:58		11:25		13:12		14:41	
Weather	BC		BC		BC		C		C		BC		BC		C		BC		BC	
Air Temp.	21.9		21.4		21.7		21.4		22.0		23.2		23.5		23.5		26.2		23.8	
Bar	1010.4		1010.9		1010.5		1010.4		1010.8		1010.9		1011.3		1011.5		1011.0		1011.0	
Wind Dir	N		CALM		N		NE		NNE		CALM		SE		SE		CALM		E	
Wind Spd/F	S 1		S 0		S 1		S 3		S 2		S 0		S 4		S 3		S 0		S 8	
Transparency	18						17		22		24		26		25		25		18	
Depth	3680		3675		3688		3690		3100		1329		1129		1673		1373		223	
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	20.8	33.541	21.8	33.524	22.5	33.924	22.8	34.024	22.4	33.978	23.4	34.074	23.6	34.058	23.5	34.025	22.7	33.794	23.3	33.714
10m	20.44	33.545	21.50	33.527	22.11	33.849	22.66	34.034	22.34	33.980	23.16	34.080	23.36	34.061	23.22	34.019	22.21	33.803	23.13	33.719
20m	8.46	34.121	12.33	33.941	10.40	33.988	14.14	34.147	21.39	33.982	17.92	34.059	22.47	33.798	21.76	33.876	21.70	33.891	22.07	33.758
30m	5.12	34.166	6.23	34.007	5.56	34.163	8.84	34.161	12.00	34.094	12.53	34.117	14.93	34.198	17.17	34.084	17.79	34.041	16.30	34.337
50m	3.00	34.136	2.69	34.103	3.52	34.145	4.89	34.140	6.83	34.188	7.82	34.181	10.43	34.198	11.38	34.260	12.23	34.251	12.23	34.266
75m	2.23	34.111	1.68	34.097	2.67	34.128	3.59	34.110	4.40	34.140	4.93	34.124	6.72	34.181	8.90	34.199	11.50	34.200	11.15	34.205
100m	2.11	34.100	1.55	34.101	2.35	34.121	2.57	34.094	3.29	34.110	3.12	34.111	4.93	34.131	7.11	34.175	10.58	34.155	10.78	34.201
125m	2.08	34.101	1.51	34.102	2.05	34.119	2.08	34.089	2.43	34.095	2.36	34.096	3.50	34.112	4.98	34.142	9.24	34.157	10.05	34.179
150m	1.91	34.101	1.31	34.097	1.81	34.111	1.78	34.088	1.92	34.088	1.93	34.089	2.60	34.091	3.70	34.111	6.81	34.145	8.52	34.171
200m	1.54	34.100	1.14	34.090	1.38	34.095	1.45	34.082	1.40	34.081	1.43	34.083	1.67	34.082	2.15	34.086	3.67	34.114	8.06	34.161
250m	1.35	34.096	1.00	34.086	1.16	34.092	1.22	34.087	1.10	34.083	1.02	34.079	1.27	34.081	1.54	34.081	2.31	34.096		
300m	1.17	34.092	0.93	34.086	1.02	34.087	1.06	34.085	0.92	34.078	0.79	34.074	0.99	34.077	1.12	34.078	1.61	34.086		
400m	0.90	34.086	0.70	34.077	0.84	34.084	0.87	34.084	0.71	34.076	0.55	34.070	0.70	34.072	0.71	34.073	0.95	34.079		
500m	0.65	34.076	0.54	34.072	0.59	34.074	0.67	34.076	0.45	34.068	0.43	34.068	0.50	34.069	0.50	34.069	0.64	34.072		
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-25

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

Stn-prefix	199808		199808		199808		199808		199807		199807		199807		199807		199807		199807	
Station No	J62		J63		AO02		AO01		CSR101		CSR102		CSR103		CSR104		CSR105		CSR106	
Latitude:N	41-10.0		41- 0.1		40-36.6		40-36.6		43-30.1		43-30.1		43-30.0		43-59.9		44- 0.1		43-59.9	
Longitude:E	139-59.8		140- 0.1		139-40.0		139-46.8		140- 0.0		139-20.4		138-40.1		138-40.1		139-20.0		140- 0.4	
Date	1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/25		1998/08/25		1998/08/26		1998/08/26		1998/08/26		1998/08/26	
Time(JST)	15:52		16:59		20:04		21:18		14:08		17:46		07:28		10:52		13:58		17:44	
Weather	C		C		D		D		C		C		C		C		C		C	
Air Temp.	22.3		22.7		23.9		24.0		22.9		22.4		20.1		19.2		24.4		19.5	
Bar	1010.6		1010.4		1011.0		1010.9		999.6		999.7		1002.5		1003.4		1004.1		1005.1	
Wind Dir	NE		NNE		NE		CALM		SSW		S		NW		N		NW		WNW	
Wind Spd/F	S 7		S 7		S 5		S 0		S 10		S 8		S 5		S 6		S 6		S 4	
Transparency	23		13																	
Depth	112		500		1103		630		1250		3261		3452		3280		1644		424	
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	23.9	33.872	24.5	33.368	25.2	33.740	24.4	33.198	22.0	33.55*	21.7	33.58*	21.4	33.91*	20.2	33.91*	21.1	33.76*	20.9	33.95*
10m	22.75	33.921	24.24	33.697	24.69	33.713	23.38	33.433	21.76	33.629	21.58	33.579	21.35	33.915	20.13	33.908	20.93	33.759	20.84	33.952
20m	19.63	34.174	19.44	33.827	19.28	33.983	19.81	34.029	18.92	34.085	20.37	33.863	13.83	34.091	14.14	34.170	12.81	34.212	20.41	34.013
30m	16.34	34.404	16.94	34.405	16.47	34.187	18.59	34.036	14.89	34.370	10.92	34.203	9.06	34.173	9.37	34.212	9.82	34.214	9.20	34.174
50m	13.45	34.403	14.18	34.479	13.32	34.215	16.79	34.206	11.11	34.206	8.05	34.183	5.90	34.159	6.24	34.161	7.04	34.178	5.35	34.125
75m	10.88	34.130	12.37	34.285	12.06	34.222	13.60	34.315	9.14	34.192	5.60	34.150	4.23	34.131	4.39	34.133	5.05	34.133	3.85	34.129
100m	10.33	34.125	11.53	34.202	10.86	34.104	11.86	34.234	7.03	34.156	4.07	34.122	3.53	34.126	3.55	34.126	4.12	34.123	3.07	34.119
125m			11.13	34.157	10.45	34.102	11.05	34.167	5.69	34.134	2.98	34.109	3.26	34.132	2.83	34.115	3.20	34.120	2.33	34.112
150m			10.47	34.183	10.12	34.120	10.47	34.123	4.17	34.124	2.35	34.109	3.14	34.144	2.34	34.112	2.43	34.108	2.09	34.106
200m			7.10	34.164	7.16	34.168	7.50	34.169	2.47	34.106	1.80	34.103	2.47	34.112	1.52	34.091	1.66	34.094	1.54	34.095
250m			3.35	34.101	3.91	34.107	4.31	34.113	1.77	34.096	1.37	34.095	1.65	34.089	1.25	34.088	1.31	34.089	1.12	34.087
300m			1.99	34.085	2.18	34.088	1.56	34.094	1.32	34.092	1.16	34.092	1.35	34.091	1.02	34.088	1.10	34.088	0.92	34.084
400m			0.89	34.076	0.91	34.074	0.72	34.071	0.95	34.089	0.88	34.087	1.04	34.094	0.77	34.081	0.83	34.083	0.64	34.078
500m					0.60	34.068			0.69	34.080	0.65	34.078	0.82	34.086	0.56	34.076	0.61	34.077		
600m					0.44	34.067			0.49	34.074	0.50	34.075	0.60	34.078	0.43	34.073	0.45	34.074		
700m					0.33	34.065														
800m					0.27	34.064														
900m					0.23	34.064														
1000m					0.19	34.064														

Table 3-26

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	CSR107		CSR108		CSR109		CSR110		CSR111		CSR112		CSR113		CSR114		CSR115		CSR116	
Latitude:N	44- 0.0		44-30.5		44-30.0		44-28.9		44-59.9		45- 0.0		45-30.3		45-30.0		45- 0.0		44-59.8	
Longitude:E	140-40.1		140-40.2		140- 0.1		139-20.3		139-30.1		140- 0.0		140- 0.0		140-29.9		140-30.2		140-59.1	
Date	1998/08/27		1998/08/27		1998/08/28		1998/08/28		1998/08/29		1998/08/29		1998/08/29		1998/08/30		1998/08/30		1998/08/30	
Time(JST)	13:52		17:44		11:02		17:44		11:08		13:21		17:46		09:54		12:53		17:46	
Weather	BC		BC		R		C		C		C		C		C		C		BC	
Air Temp.	24.0		22.8		20.1		19.7		20.9		20.5		21.6		19.3		19.9		20.3	
Bar	1009.5		1010.1		1007.4		1007.1		1010.4		1010.2		1011.3		1013.0		1011.4		1011.0	
Wind Dir	NNE		NNE		ENE		NE		NNE		NE		ENE		ENE		NE		ENE	
Wind Spd/F	S 5		S 7		S 7		S 7		S 4		S 6		S 2		S 8		S 8		S 10	
Transparency																				
Depth	573		141		569		852		948		256		584		418		310		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	22.3	33.74*	21.8	33.61*	21.4	33.87*	19.7	33.83*	19.6	33.94*	21.2	33.93*	20.2	33.98*	19.9	33.94*	20.3	33.86*	21.2	33.85*
10m	22.02	33.759	21.62	33.623	21.40	33.890	19.66	33.828	19.59	33.940	21.20	33.937	20.03	33.977	19.92	33.943	20.28	33.879	21.07	33.848
20m	20.95	33.931	21.17	33.914	19.97	34.029	10.29	34.209	16.50	33.827	17.05	34.124	17.19	33.936	19.90	33.942	19.99	33.836	21.06	33.873
30m	19.31	34.074	20.64	34.031	11.45	34.249	8.26	34.154	5.90	34.065	12.53	34.208	9.59	34.108	12.70	34.112	13.23	34.206	16.18	34.175
50m	12.25	34.282	12.68	34.182	8.49	34.184	6.13	34.135	2.60	34.111	8.74	34.200	4.73	34.102	9.64	34.169	9.39	34.107	11.50	34.214
75m	9.38	34.191	10.36	34.169	6.12	34.160	4.49	34.134	2.08	34.114	6.51	34.153	3.39	34.136	7.42	34.137	7.93	34.153	9.21	34.165
100m	7.25	34.162	8.76	34.153	4.48	34.128	3.68	34.122	1.57	34.101	5.15	34.129	2.82	34.127	6.07	34.124	6.68	34.143		
125m	4.98	34.128			3.58	34.117	2.90	34.125	1.39	34.103	4.21	34.124	2.26	34.107	4.82	34.123	5.07	34.132		
150m	3.75	34.123			2.92	34.109	2.35	34.116	1.24	34.097	3.54	34.114	1.85	34.102	3.82	34.122	4.15	34.122		
200m	2.76	34.117			2.07	34.100	1.47	34.095	1.03	34.091	3.01	34.109	1.38	34.094	2.71	34.111	3.27	34.114		
250m	2.02	34.101			1.50	34.091	1.17	34.089	0.91	34.087			1.08	34.090	1.65	34.099	2.38	34.103		
300m	1.38	34.092			1.13	34.086	0.99	34.086	0.81	34.084			0.93	34.085	1.24	34.089				
400m	0.73	34.079			0.80	34.078	0.80	34.082	0.63	34.077			0.64	34.077	0.79	34.079				
500m	0.50	34.075			0.54	34.074	0.62	34.078	0.41	34.072			0.47	34.072						
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-27

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

Stn-prefix	199807		199807		199807		199809		199810		199810		199810		199810		199810		199810	
Station No	CSR117		CSR118		CSR119		CST01		J31		J32		J33		J34		J35		J36	
Latitude:N	44-30.1		44- 0.5		43-30.9		43-29.1		43-20.0		43-30.0		43-30.0		43-30.0		43-29.9		43-30.0	
Longitude:E	141-10.0		141-11.7		140-40.1		140-53.1		141-10.0		141- 0.1		140-40.0		140-20.1		140- 0.2		139-40.1	
Date	1998/08/31		1998/08/31		1998/09/01		1998/09/07		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28	
Time(JST)	07:20		17:48		17:48		11:00		10:08		11:34		13:08		14:51		16:31		18:29	
Weather	C		BC		BC				B		B		B		B		B		B	
Air Temp.	19.7		24.9		21.6				20.8		23.5		21.1		19.8		19.1		18.1	
Bar	1011.0		1009.8		1009.0				1022.5		1022.5		1022.0		1022.5		1022.5		1023.0	
Wind Dir	NE		ENE		NNE				WNW		NNW		CALM		N		CALM		SW	
Wind Spd/F	S 7		S 4		S 8				S 2		S 3		S 0		S 1		S 0		S 2	
Transparency									17		17		22		21		23			
Depth	134		264		700				38		94		693		639		1244		2082	
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	21.0	33.82*	22.2	33.81*	21.7	33.68*	22.0	33.84*	20.1	33.665	19.9	33.895	19.8	33.889	20.6	33.830	20.3	33.770	20.1	33.719
10m	21.02	33.818	21.87	33.813	21.60	33.719	22.03	33.842	19.88	33.817	19.60	33.883	19.47	33.923	20.08	33.825	19.90	33.836	20.13	33.730
20m	21.02	33.820	21.29	33.943	21.34	33.931	19.88	33.985	19.90	33.843	19.55	33.881	19.32	33.945	20.04	33.829	19.45	33.872	19.39	33.863
30m	20.12	33.967	20.99	33.960	20.15	33.985	16.69	34.280	19.15	33.914	17.45	34.131	18.77	34.003	18.94	33.982	16.89	34.224	18.10	33.991
50m	13.63	34.297	15.89	34.217	14.87	34.301	13.41	34.360			12.53	34.276	11.88	34.238	15.60	34.307	13.22	34.310	12.77	34.298
75m	11.18	34.172	11.88	34.236	12.34	34.204	11.12	34.212			10.19	34.188	9.05	34.183	9.41	34.177	11.24	34.195	11.08	34.175
100m	10.10	34.157	9.50	34.177	10.56	34.166	8.75	34.174					7.37	34.162	6.78	34.163	10.01	34.176	9.91	34.175
125m			7.39	34.166	6.62	34.164	7.56	34.155					5.53	34.142	4.74	34.132	7.85	34.163	8.20	34.160
150m			5.71	34.141	3.43	34.124	6.07	34.151					4.20	34.123	3.40	34.113	5.33	34.140	6.52	34.153
200m			3.36	34.115	2.22	34.100	3.01	34.114					2.57	34.107	2.20	34.109	3.14	34.110	3.89	34.103
250m					1.49	34.088							1.75	34.099	1.54	34.096	2.07	34.100	2.20	34.103
300m					1.13	34.082							1.28	34.092	1.15	34.094	1.49	34.095	1.52	34.094
400m					0.75	34.074							0.96	34.087	0.82	34.085	1.09	34.097	0.97	34.086
500m					0.55	34.069							0.68	34.080	0.66	34.080	0.85	34.088	0.78	34.085
600m					0.46	34.068											0.64	34.080		
700m																				
800m																				
900m																				
1000m																				

Table 3-28

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	J37		J38		J39		JC15		JC14		JC13		JC12		JC11		J41		J42	
Latitude:N	43-30.0		43-30.0		43-29.9		43- 0.0		43- 0.0		43- 0.0		43- 0.0		43- 0.0		42-30.0		42-29.9	
Longitude:E	139-20.1		139- 0.0		138-29.9		138-59.9		139-20.0		139-39.8		140- 0.0		140-20.1		139-40.0		139-20.1	
Date	1998/09/28		1998/09/28		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29	
Time(JST)	20:14		22:00		00:50		04:41		06:30		08:20		10:08		11:49		16:21		18:44	
Weather	B		B		B		B		B		B		B		BC		C		C	
Air Temp.	18.3		19.2		18.6		18.8		19.7		19.4		20.3		22.0		19.7		19.6	
Bar	1024.0		1023.0		1023.4		1023.0		1023.5		1023.8		1024.0		1024.0		1023.0		1022.0	
Wind Dir	SSW		SW		WSW		SSW		SSW		S		CALM		SSE		ESE		ESE	
Wind Spd/F	S 3		S 5		S 4		S 3		S 4		S 2		S 0		S 3		S 9		S 11	
Transparency									18		20		18		15		15			
Depth	3200		3400		3408		3548		2353		3370		1283		484		1826		3234	
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	33.616	20.2	33.725	18.5	33.877	20.8	33.329	20.0	33.751	19.9	33.800	21.1	33.432	20.8	33.539	21.2	33.474	21.6	33.395
10m	20.57	33.624	20.18	33.724	18.43	33.872	20.29	33.537	19.97	33.759	19.79	33.800	20.59	33.559	19.96	33.713	21.10	33.478	21.28	33.439
20m	20.16	33.730	20.13	33.734	16.72	33.988	16.93	33.927	19.55	33.921	19.13	33.947	20.18	33.783	19.75	33.823	20.58	33.640	20.00	33.715
30m	20.12	33.734	20.08	33.763	13.70	34.087	11.74	34.245	17.66	34.021	18.60	33.977	19.07	33.890	18.42	33.914	20.25	33.755	16.13	34.180
50m	13.35	34.317	11.89	34.292	6.99	34.185	8.61	34.189	13.11	34.275	13.02	34.300	14.09	34.302	13.51	34.352	13.05	34.326	11.45	34.233
75m	9.10	34.199	8.78	34.187	4.66	34.140	6.49	34.165	10.33	34.187	11.00	34.189	10.88	34.201	9.87	34.193	10.47	34.185	9.44	34.193
100m	7.11	34.168	6.26	34.161	3.57	34.121	4.82	34.134	8.16	34.174	9.95	34.172	8.68	34.177	7.13	34.159	7.66	34.173	7.12	34.168
125m	5.93	34.145	4.28	34.126	2.96	34.110	3.37	34.112	6.32	34.149	8.46	34.164	5.75	34.156	4.23	34.129	5.96	34.149	5.28	34.134
150m	4.54	34.133	3.08	34.108	2.41	34.113	2.56	34.095	4.42	34.125	7.05	34.157	4.34	34.130	3.14	34.113	4.42	34.126	3.84	34.115
200m	2.48	34.107	2.05	34.106	1.69	34.100	1.82	34.099	2.61	34.102	3.44	34.118	2.72	34.107	2.18	34.105	2.43	34.104	2.31	34.093
250m	1.68	34.095	1.51	34.097	1.27	34.092	1.48	34.097	1.93	34.100	2.08	34.101	1.64	34.100	1.46	34.095	1.59	34.095	1.65	34.093
300m	1.18	34.087	1.29	34.096	1.10	34.089	1.27	34.095	1.35	34.091	1.51	34.097	1.23	34.092	1.17	34.091	1.21	34.089	1.28	34.089
400m	0.92	34.090	0.98	34.092	0.88	34.089	0.98	34.091	0.97	34.091	1.04	34.089	0.75	34.084	0.72	34.083	0.74	34.081	0.85	34.082
500m	0.63	34.078	0.72	34.084	0.65	34.081	0.75	34.085	0.67	34.082	0.82	34.085	0.45	34.077			0.55	34.077	0.64	34.079
600m			0.53	34.078			0.55	34.079	0.51	34.077	0.62	34.080	0.36	34.075			0.43	34.075	0.49	34.075
700m																	0.35	34.073	0.39	34.074
800m																	0.30	34.073	0.32	34.073
900m																	0.26	34.072		
1000m																	0.24	34.072		

Table 3-29

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	J43		J44		J45		J46		J47		J58		J57		J56		HW001		HW002	
Latitude:N	42-30.0		42-30.0		42-30.0		42-30.0		42-30.0		41-30.0		41-30.0		41-30.0		41-42.0		41-42.0	
Longitude:E	139- 0.1		138-40.1		138-20.0		138- 0.0		137-30.1		137-30.0		138- 0.0		138-20.0		141- 9.9		141-42.0	
Date	1998/09/29		1998/09/29		1998/09/29		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/10/03		1998/10/03	
Time(JST)	20:31		22:19		23:54		01:31		04:31		10:28		12:54		14:50		13:57		16:40	
Weather	C		C		C		C		C		C		C		C					
Air Temp.	19.8		20.0		19.7		19.4		19.1		20.3		20.6		20.7					
Bar	1022.5		1021.5		1021.0		1020.5		1020.0		1018.0		1016.0		1015.3					
Wind Dir	ESE		ESE		ESE		E		E		E		NE		E					
Wind Spd/F	S 9		S 5		S 5		S 3		S 4		S 3		S 3		S 12					
Transparency											17		15		18					
Depth	3560		3680		3620		3878		3678		3670		3682		3690					
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	22.5	33.340	20.3	33.637	19.9	33.608	19.2	33.712	18.3	33.906	18.3	33.584	19.4	33.625	20.8	33.500	18.3*	33.28*	19.5*	33.50*
10m	22.08	33.341	20.21	33.642	19.88	33.611	19.19	33.716	18.05	33.907	17.85	33.588	19.07	33.613	20.71	33.501	18.15	33.296	19.51	33.506
20m	22.06	33.341	19.96	33.639	19.13	33.667	18.91	33.702	17.69	33.893	5.83	34.186	9.14	33.968	20.03	33.569	18.15	33.358	19.49	33.508
30m	15.22	34.031	7.79	34.111	7.01	34.159	8.41	34.092	11.23	34.156	3.33	34.135	4.04	34.159	7.98	34.061	17.14	33.425	18.39	33.687
50m	8.69	34.210	3.87	34.143	2.79	34.141	3.81	34.129	6.87	34.169	2.59	34.138	2.71	34.119	3.09	34.125	12.80	33.545	17.31	33.820
75m	5.91	34.157	2.57	34.113	2.31	34.116	2.78	34.115	4.67	34.131	1.96	34.109	2.18	34.103	1.85	34.112	11.38	33.843	14.02	34.209
100m	4.20	34.127	2.03	34.100	2.06	34.108	2.14	34.103	3.75	34.095	1.77	34.106	1.91	34.104	1.57	34.109	10.11	33.720	12.75	34.215
125m	3.25	34.104	1.77	34.097	1.69	34.100	1.79	34.096	2.82	34.105	1.62	34.110	1.72	34.111	1.42	34.104	8.94	33.749	11.70	34.124
150m	2.55	34.092	1.62	34.104	1.62	34.108	1.69	34.098	2.15	34.094	1.46	34.106	1.60	34.105	1.34	34.101	7.53	33.656	10.75	34.054
200m	1.74	34.094	1.37	34.097	1.33	34.101	1.32	34.091	1.76	34.100	1.27	34.101	1.36	34.101	1.16	34.098			8.65	33.956
250m	1.51	34.102	1.19	34.095	1.14	34.096	1.17	34.094	1.52	34.103	1.10	34.097	1.19	34.098	1.05	34.097			5.50	33.666
300m	1.33	34.100	1.00	34.092	0.99	34.092	1.04	34.093	1.23	34.098	1.00	34.094	1.07	34.096	0.93	34.092			3.37	33.500
400m	1.04	34.095	0.81	34.088	0.78	34.086	0.81	34.087	0.93	34.093	0.77	34.087	0.88	34.090	0.70	34.084			3.43	33.781
500m	0.73	34.084	0.60	34.080	0.58	34.080	0.60	34.079	0.67	34.083	0.57	34.079	0.66	34.081	0.54	34.078				
600m	0.54	34.078						0.47	34.077											
700m	0.43	34.076						0.39	34.076											
800m	0.37	34.075						0.34	34.075											
900m								0.30	34.074											
1000m								0.27	34.073											

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810		
Station No	HW003		HW004		HW005		HW006		HW007		HW008		HW009		HW010		HW011		HW012		
Latitude:N	41-49.7		41-59.8		42-10.1		42-18.7		41-59.5		42-19.5		42-15.1		42-18.1		42-12.8		42-15.0		
Longitude:E	141-38.1		141-30.8		141-22.4		141-22.6		141-21.9		141-35.0		141-42.0		141-49.1		141-55.9		142- 3.1		
Date	1998/10/03		1998/10/03		1998/10/04		1998/10/04		1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/05		
Time(JST)	17:44		23:02		04:27		09:48		14:23		17:59		20:12		21:04		23:03		23:58		
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	19.1*	33.53*	19.1*	33.51*	19.1*	33.50*	19.3*	33.48*	18.5*	33.23*	18.8*	33.42*	18.8*	33.58*	18.9*	33.45*	19.0*	33.49*	18.9*	33.48*	
10m	19.13	33.537	19.06	33.506	19.11	33.503	19.29	33.486	18.52	33.249	18.85	33.538	18.80	33.584	18.96	33.454	18.99	33.495	18.90	33.479	
20m	19.07	33.544	19.06	33.507	19.10	33.503	19.29	33.485	18.58	33.347	18.79	33.536	18.80	33.584	18.94	33.452	18.99	33.495	18.90	33.479	
30m	18.87	33.553	19.07	33.508	19.13	33.541	19.20	33.461	18.59	33.381	18.77	33.535	18.80	33.584	18.95	33.452	18.99	33.495	18.90	33.479	
50m	16.13	34.037	19.06	33.520	17.50	33.794	17.01	33.841	18.23	33.486	14.54	34.100	18.20	33.724	16.37	33.986	18.62	33.556	18.16	33.642	
75m	13.61	34.170	13.13	34.150	12.99	34.135	13.01	34.062	13.65	34.092	12.30	34.079	12.42	33.779	12.50	34.101	13.27	34.120	13.22	34.130	
100m	11.26	34.064	11.54	34.098	11.35	34.059	11.48	34.026	12.01	34.100	10.93	34.052	11.80	33.929	10.24	33.985	11.14	34.077	10.54	34.033	
125m	9.68	33.955	10.95	34.085	10.23	34.020	10.34	33.979	10.83	34.051	8.13	33.806	9.79	33.906	6.19	33.648	9.03	33.899	8.22	33.836	
150m	7.77	33.782	7.94	33.798	9.57	33.992	8.85	33.861	8.55	33.833	5.30	33.557	7.41	33.768	4.64	33.531	7.04	33.707	6.88	33.714	
200m	4.41	33.529	4.75	33.525	5.86	33.598	4.84	33.533	5.54	33.572	3.83	33.496	4.18	33.493	3.49	33.473	4.01	33.501	3.70	33.507	
250m	3.39	33.511	3.99	33.491	3.67	33.489	3.74	33.499	3.65	33.492	3.22	33.519	3.40	33.521	3.14	33.515	3.32	33.495	3.00	33.534	
300m	3.13	33.567	3.23	33.546	3.10	33.579	2.99	33.511	3.15	33.556	3.24	33.620	3.17	33.616	3.03	33.600	3.12	33.637	3.10	33.597	
400m	3.21	33.747	3.21	33.751	3.21	33.773	3.28	33.806			3.39	33.882	3.36	33.831	3.37	33.827	3.29	33.822	3.20	33.751	
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 3-31

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	HW013		J63		J62		J61		J51		J52		CW101		CW102		CW201		CW202	
Latitude:N	42-12.1		41- 0.0		41-10.0		41-20.0		41-30.0		41-30.1		42-59.3		42-58.3		42-55.7		43- 2.1	
Longitude:E	142-17.0		140- 0.1		140- 0.1		140- 0.1		139-50.1		139-30.1		140-21.3		140-13.6		140-17.2		140- 6.1	
Date	1998/10/06		1998/10/06		1998/10/06		1998/10/06		1998/10/07		1998/10/07		1998/10/13		1998/10/13		1998/10/21		1998/10/22	
Time(JST)	02:40		20:15		21:34		22:34		00:04		01:52		09:44		13:13		21:18		15:30	
Weather			B		B				BC		BC									
Air Temp.			18.3		18.6		18.5		18.5		17.7									
Bar			1019.0		1019.0		1018.0		1018.0		1018.5									
Wind Dir			NNW		NW		NW		N		NNE									
Wind Spd/F			S 1		S 2		S 4		S 4		S 3									
Transparency							102		223		1334		1655							
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	18.6*	33.23*	22.1	32.646	22.0	33.079	20.6	33.389	21.1	33.279	21.1	33.283	18.8*	33.37*	19.3*	33.52*	19.4*	33.27*	19.1*	33.15*
10m	18.48	33.225	22.35	32.630	22.32	33.078	20.58	33.372	20.99	33.275	21.22	33.289	18.79	33.406	19.23	33.524	19.32	33.309	19.14	33.250
20m	18.37	33.210	22.51	32.766	21.81	33.231	20.64	33.502	20.96	33.332	21.19	33.292	18.79	33.460	19.22	33.524	19.13	33.355	19.14	33.260
30m	18.30	33.231	22.62	32.885	20.32	33.928	20.54	33.554	20.52	33.564	20.96	33.305	18.80	33.564	18.77	33.641	19.06	33.356	19.15	33.319
50m	14.35	34.112	19.69	34.219	17.03	34.384	16.29	34.367	15.29	34.366	15.89	34.426	18.57	33.777	15.85	34.092	16.20	33.811	18.29	33.649
75m	12.24	34.105	17.31	34.381	14.04	34.373	14.33	34.386	12.40	34.270	12.86	34.306	11.98	34.241	10.76	34.197	9.31	34.198	12.29	34.997
100m	10.69	34.032	14.66	34.380			12.24	34.265	10.71	34.223	10.82	34.176	8.49	34.196	8.73	34.183	6.60	34.144	9.81	34.531
125m	8.00	33.816	13.08	34.318			11.29	34.206	8.07	34.178	8.73	34.181	6.58	34.148	5.90	34.136	4.97	34.131	7.09	34.364
150m	6.37	33.671	10.96	34.190			10.49	34.158	6.36	34.147	5.31	34.148	5.29	34.135	4.11	34.124	3.97	34.118	5.48	34.296
200m	3.47	33.488	5.46	34.143			8.80	34.165	3.28	34.107	2.89	34.099	3.23	34.107	2.34	34.102			3.12	34.201
250m	3.08	33.563	2.72	34.097					1.87	34.090	1.84	34.090	2.04	34.098	1.77	34.096			1.96	34.142
300m	3.14	33.718	1.45	34.089					1.34	34.084	1.26	34.082	1.34	34.093	1.41	34.091			1.46	34.114
400m			0.80	34.077					0.74	34.077	0.81	34.077			0.68	34.080			0.87	34.101
500m									0.52	34.073	0.61	34.075							0.65	34.080
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199811	
Station No	CW203		CHA01		CHA02		CHA03		CHA04		CHA05		CHA06		CHA09		CHA08		CTK01	
Latitude:N	43- 6.3		43-51.4		43-54.0		43-53.4		43-49.3		43-50.2		43-46.7		43-45.6		43-49.7		43-42.1	
Longitude:E	140- 7.7		141-10.3		141-13.3		141-14.5		141-13.5		141-12.5		141-15.6		141-14.8		141-17.4		141-13.2	
Date	1998/10/23		1998/10/27		1998/10/27		1998/10/27		1998/10/28		1998/10/28		1998/10/29		1998/10/30		1998/10/30		1998/11/16	
Time(JST)	06:27		11:34		14:19		15:47		08:11		09:30		09:59		06:11		08:10		13:03	
Weather			C								C				BC					
Air Temp.			14.6								15.7				13.0					
Bar											1010.0				1015.0					
Wind Dir															WSW					
Wind Spd/F											S 2				S 4					
Transparency																				
Depth			237		192						183		123		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	18.9*	33.32*	17.2*	33.57*	17.2*	33.61*	17.3	33.60*	17.2	33.58*	16.4	33.61*	16.7	33.36*	16.4	33.37*	16.8	33.59*	13.7*	33.80*
10m	18.92	33.321	17.19	33.577	17.25	33.617	17.33	33.604	17.25	33.585	17.25	33.599	16.69	33.363	16.57	33.370	16.90	33.593	13.74	33.799
20m	18.93	33.320	17.15	33.596	17.26	33.617	17.34	33.603	17.26	33.585	17.25	33.599	16.73	33.410	16.72	33.539	16.90	33.593	13.73	33.799
30m	18.93	33.321	17.13	33.603	17.23	33.616	17.34	33.604	17.26	33.585	17.25	33.600	16.74	33.515	16.78	33.579	16.90	33.594	13.73	33.798
50m	18.09	33.548	17.15	33.615	17.22	33.615	17.25	33.617	17.12	33.655	17.23	33.618	16.91	33.615	16.80	33.594	16.55	33.615	13.64	33.801
75m	12.95	34.291	14.31	34.135	13.12	34.170	15.21	33.982	12.25	34.169	12.06	34.245	8.42	34.212	8.85	34.201	11.93	34.151	12.43	33.867
100m	10.69	34.190	10.08	34.190	10.28	34.198	10.42	34.204	8.01	34.182	8.07	34.193	6.84	34.151	5.97	34.142	5.63	34.162		
125m	8.29	34.176	7.37	34.166	7.39	34.170	6.94	34.163	6.19	34.155	5.78	34.156								
150m	5.27	34.149	5.72	34.148	5.99	34.143	6.35	34.146			4.35	34.136								
200m	3.03	34.108	3.10	34.114																
250m	1.97	34.095																		
300m	1.36	34.093																		
400m	0.94	34.086																		
500m	0.56	34.078																		
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199811		199812		199812		199812		199812		199812		199812		199812		199812			
Station No	CTK02		J41		J42		J43		J44		J45		J46		J47		J58		J57	
Latitude:N	43-46.2		42-30.2		42-30.1		42-30.0		42-30.0		42-30.0		42-30.0		42-30.0		41-30.0		41-30.0	
Longitude:E	141-16.3		139-40.1		139-20.1		139- 0.1		138-40.0		138-20.1		138- 0.1		137-30.1		137-30.1		138- 0.0	
Date	1998/11/16		1998/11/26		1998/11/26		1998/11/26		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27	
Time(JST)	15:42		18:17		21:29		23:27		01:20		03:03		04:47		07:51		13:40		16:01	
Weather			C				C		C		C		C		C		C		R	
Air Temp.			4.4		4.8		4.4		4.3		4.6		4.7		2.9		4.8		3.9	
Bar			1024.0		1023.0		1022.5		1022.2		1022.0		1020.9		1021.6		1017.6		1016.2	
Wind Dir			W		W		WNW		WNW		NW		NW		NNW		NNE		NNE	
Wind Spd/F			S 7		S 6		S 6		S 6		S 4		S 4		S 6		S 4		S 4	
Transparency															14		16		13	
Depth			1864		3300		3570		3673		3637		3688		3676		3672		3685	
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*	32.65*	13.5	33.770	13.2	33.799	12.0	33.778	10.9	33.890	11.2	33.874	11.0	33.882	8.5	33.861	8.2	33.917	9.0	33.899
10m	12.80	33.133	13.79	33.760	13.49	33.800	12.27	33.778	11.07	33.886	11.40	33.877	11.28	33.888	8.94	33.852	8.24	33.916	9.11	33.897
20m	13.68	33.775	13.78	33.760	13.49	33.800	12.27	33.778	11.07	33.886	11.40	33.877	11.24	33.889	8.94	33.852	8.24	33.916	9.11	33.897
30m	13.57	33.793	13.75	33.804	13.32	33.827	11.30	33.953	11.04	33.886	11.40	33.877	11.23	33.893	8.88	33.856	8.24	33.916	9.11	33.897
50m	13.21	33.854	13.64	33.857	12.69	33.939	4.02	34.100	3.92	34.125	3.55	34.118	3.54	34.142	3.75	34.152	8.24	33.916	2.41	34.123
75m	12.76	33.896	12.30	33.997	10.53	34.075	2.06	34.102	2.68	34.112	2.48	34.096	2.45	34.119	2.59	34.119	3.20	34.120	1.81	34.090
100m	11.96	33.904	10.53	34.213	6.51	34.165	1.75	34.094	2.10	34.108	2.13	34.104	2.12	34.102	2.12	34.111	2.39	34.113	1.55	34.090
125m			9.06	34.186	4.64	34.125	1.51	34.096	1.87	34.107	1.84	34.107	1.73	34.095	1.82	34.110	2.06	34.107	1.43	34.092
150m			6.79	34.154	3.53	34.113	1.43	34.096	1.69	34.108	1.66	34.103	1.60	34.106	1.59	34.105	1.82	34.111	1.38	34.099
200m			3.52	34.110	2.19	34.093	1.18	34.095	1.40	34.106	1.38	34.103	1.28	34.103	1.31	34.103	1.50	34.105	1.26	34.101
250m			2.00	34.096	1.52	34.093	1.02	34.096	1.22	34.103	1.16	34.101	1.12	34.099	1.16	34.101	1.29	34.103	1.14	34.102
300m			1.61	34.093	1.12	34.091	0.95	34.096	1.06	34.101	1.04	34.100	1.01	34.100	1.06	34.101	1.11	34.102	1.03	34.101
400m			0.92	34.087	0.83	34.092	0.66	34.088	0.85	34.095	0.80	34.094	0.77	34.092	0.80	34.092	0.87	34.096	0.73	34.091
500m			0.53	34.081	0.65	34.086	0.51	34.082	0.63	34.088	0.60	34.086	0.58	34.086	0.60	34.086	0.63	34.087	0.53	34.086
600m			0.39	34.080	0.47	34.082	0.43	34.083					0.46	34.084						
700m			0.30	34.079	0.36	34.080	0.37	34.082					0.38	34.082						
800m			0.26	34.078	0.31	34.080	0.32	34.081					0.32	34.081						
900m			0.23	34.078									0.29	34.080						
1000m			0.22	34.078									0.26	34.079						

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	J56		J55		J54		J53		J52		J63		J62		J61		J51		JC22	
Latitude:N	41-30.0		41-30.0		41-30.0		41-30.0		41-30.1		41- 0.0		41-10.0		41-20.0		41-29.9		42- 0.1	
Longitude:E	138-20.0		138-40.1		139- 0.0		139-15.0		139-30.0		140- 0.0		140- 0.1		140- 0.1		139-50.0		139-40.1	
Date	1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/28		1998/11/28		1998/11/28		1998/11/29		1998/11/29	
Time(JST)	17:40		19:20		21:01		22:25		23:50		03:58		05:11		06:12		11:57		15:07	
Weather					R		R		R				R		R		BC		C	
Air Temp.	3.6		4.2		5.8		6.0		6.3		7.0		7.1		6.6		7.7		6.2	
Bar	1015.5		1013.2		1011.0		1010.0		1008.0		1005.6		1006.5		1007.5		1020.0		1018.5	
Wind Dir	NNE		NE		NE		ENE		ENE		E		NNE		N		SW		SW	
Wind Spd/F	S 8		S 7		S 6		S 5		S 7		S 3		S 5		S 3		S 4		S 6	
Transparency																	18		16	
Depth	3698		3086		1340		1137		1672		505		105		224		1350		893	
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	33.946	10.3	33.844	10.7	33.859	12.2	33.741	12.4	33.699	16.3	33.203	15.8	33.190	16.2	33.183	15.2	33.749	15.0	33.811
10m	9.32	33.946	10.51	33.842	10.98	33.861	11.79	33.864	12.73	33.721	16.46	33.202	16.31	33.189	16.35	33.191	15.19	33.746	15.24	33.765
20m	9.32	33.947	10.52	33.843	10.98	33.862	10.82	33.835	12.18	33.799	16.46	33.202	16.33	33.196	16.60	33.522	15.07	33.740	15.24	33.773
30m	9.33	33.947	10.25	33.885	7.46	34.034	10.48	33.864	11.57	33.827	16.47	33.202	16.60	33.436	16.62	33.672	14.63	33.723	15.25	33.777
50m	2.69	34.126	8.01	33.994	5.24	34.131	9.41	34.032	10.93	33.865	16.48	33.202	15.85	33.494	16.24	33.944	15.07	34.215	14.53	34.143
75m	1.86	34.099	2.61	34.102	3.83	34.119	4.74	34.117	6.51	34.049	16.51	33.219	15.43	33.958	15.76	34.032	12.81	34.203	13.91	34.369
100m	1.48	34.087	2.00	34.095	2.86	34.103	3.55	34.095	4.16	34.106	16.71	34.314			16.16	34.306	9.86	34.218	10.77	34.223
125m	1.42	34.093	1.74	34.093	2.14	34.095	2.62	34.097	3.01	34.094	14.16	34.357			15.02	34.401	6.87	34.162	8.47	34.193
150m	1.31	34.095	1.46	34.093	1.78	34.094	2.13	34.094	2.41	34.083	11.87	34.274			12.77	34.255	5.79	34.140	6.86	34.155
200m	1.15	34.096	1.13	34.093	1.40	34.096	1.57	34.095	1.62	34.094	4.18	34.142			11.59	34.240	2.35	34.102	3.72	34.115
250m	1.02	34.099	0.97	34.093	1.07	34.089	1.22	34.089	1.41	34.100	1.99	34.101					1.54	34.094	2.09	34.098
300m	0.94	34.098	0.87	34.092	0.88	34.090	0.88	34.087	1.04	34.090	1.33	34.092					1.21	34.091	1.68	34.096
400m	0.71	34.090	0.63	34.087	0.60	34.083	0.59	34.082	0.72	34.086	0.81	34.086					0.83	34.089	1.02	34.089
500m	0.52	34.085	0.47	34.084	0.47	34.081	0.44	34.081	0.46	34.081							0.58	34.083	0.70	34.085
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-35

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	J21		J22		J23		J24		J25		J26		J27		J34		J33		J32	
Latitude:N	44-30.0		44-30.1		44-30.1		44-30.1		44-30.1		44-30.1		44-30.0		43-30.0		43-30.0		43-30.0	
Longitude:E	141-30.0		141-15.1		141- 0.1		140-40.1		140-20.0		140- 0.1		139-30.2		140-20.0		140-40.1		141- 0.0	
Date	1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/12/01		1998/12/01		1998/12/01	
Time(JST)	07:52		09:04		10:18		11:55		13:32		15:13		17:44		00:32		02:14		03:53	
Weather	S		S		S		S		S		S		C		S		S		S	
Air Temp.	0.0		-0.6		-1.0		-1.8		-2.2		-3.0		-4.2		-0.9		-0.6		0.2	
Bar	1017.5		1018.5		1019.0		1019.0		1018.5		1018.8		1020.8		1017.5		1016.8		1015.8	
Wind Dir	WNW		WNW		WNW		WNW		NW		NW		WNW		NNW		NW		NNW	
Wind Spd/F	S 8		S 8		S 8		S 7		S 8		S 7		S 5		S 4		S 5		S 6	
Transparency	16		13		13		18		15		17									
Depth	78		117		197		144		247		578		493		647		691		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	10.0	33.745	10.7	33.873	10.4	33.876	9.4	33.933	9.2	33.914	8.9	33.961	7.4	33.988	11.1	33.867	10.9	33.854	11.2	33.844
10m	10.57	33.741	11.19	33.854	11.07	33.855	9.92	33.909	9.48	33.912	9.23	33.963	7.79	33.974	11.48	33.845	11.54	33.835	11.49	33.833
20m	10.58	33.742	11.18	33.866	11.06	33.866	9.90	33.927	9.48	33.906	9.25	33.952	7.80	33.980	11.49	33.845	11.55	33.853	11.50	33.838
30m	10.58	33.741	11.15	33.875	11.06	33.866	9.85	33.962	9.49	33.909	9.24	33.962	7.80	33.980	11.49	33.853	11.54	33.864	11.51	33.826
50m	10.58	33.745	11.06	33.879	10.95	33.936	8.01	34.161	9.49	33.918	9.19	34.000	7.30	N.D.	11.49	33.865	11.51	33.855	11.52	33.847
75m			11.01	33.887	9.14	34.035	5.14	34.153	7.15	34.165	6.45	34.162	3.25	34.159	11.50	33.865	11.49	33.854	11.53	33.850
100m			10.45	34.014	8.34	34.119	4.11	34.132	4.93	34.149	4.67	34.134	2.46	34.118	11.43	34.004	10.97	34.159		
125m					6.16	34.152	3.64	34.121	3.42	34.128	3.57	34.122	1.87	34.103	9.87	34.175	9.83	34.137		
150m					4.91	34.129			2.72	34.115	2.97	34.109	1.52	34.098	7.39	34.169	7.17	34.162		
200m									1.52	34.099	1.80	34.103	1.16	34.096	4.11	34.116	4.30	34.122		
250m											1.25	34.096	1.00	34.095	2.38	34.105	2.34	34.108		
300m											0.97	34.090	0.87	34.093	1.72	34.099	1.68	34.101		
400m											0.67	34.085	0.65	34.087	0.88	34.091	0.95	34.091		
500m											0.48	34.082			0.60	34.084	0.68	34.086		
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 3-36

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	J31		HW001		HW002		HW003		HW004		HW005		HW006		HW007		HW008		HW009	
Latitude:N	43-20.0		41-41.7		41-42.0		41-49.8		42- 0.0		42- 9.9		42-18.7		42-19.6		42-15.3		42-17.5	
Longitude:E	141-10.1		141- 8.4		141-41.3		141-38.0		141-30.8		141-23.0		141-22.4		141-35.0		141-42.0		141-49.0	
Date	1998/12/01		1998/12/12		1998/12/12		1998/12/12		1998/12/12		1998/12/13		1998/12/13		1998/12/13		1998/12/13		1998/12/13	
Time(JST)	05:35		11:50		14:25		15:45		20:58		04:20		12:07		14:40		16:55		18:00	
Weather	S		C		BC		BC		C		R		BC		BC		BC		BC	
Air Temp.	0.8		3.1		3.7		3.5		4.3		6.9		7.3		8.9		6.3		6.7	
Bar																				
Wind Dir	NNW		W		W		WNW		W		SW		WSW		WSW		WSW		WNW	
Wind Spd/F	S 5		S 9		S 8		S 12		S 14		S 10		S 6		S 4		S 9		S 9	
Transparency																				
Depth	36		176		754		735		480		407		432		460		656		535	
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	33.632	11.7	33.87*	8.6	33.52*	9.1	33.57*	8.8	33.55*	8.1	33.49*	7.1	33.33*	7.1	33.33*	7.5	33.52*	6.9	33.32*
10m	10.68	33.628	11.99	33.949	8.75	33.591	9.35	33.638	9.08	33.621	7.99	33.560	7.02	33.408	7.28	33.458	7.45	33.496	6.77	33.385
20m	10.67	33.629	11.98	33.983	8.76	33.591	9.35	33.639	9.08	33.622	7.98	33.559	7.01	33.406	7.76	33.551	7.48	33.503	6.68	33.369
30m			11.53	33.961	8.72	33.588	9.36	33.639	9.08	33.621	7.99	33.559	7.00	33.406	8.15	33.624	7.77	33.562	6.67	33.363
50m			9.05	33.766	8.49	33.552	9.03	33.609	9.04	33.610	8.01	33.564	6.98	33.402	8.27	33.651	7.91	33.598	6.48	33.340
75m			6.75	33.719	8.45	33.556	8.84	33.584	8.21	33.504	8.06	33.570	6.94	33.396	8.66	33.730	8.04	33.624	6.51	33.386
100m			5.81	33.702	8.43	33.555	8.37	33.566	7.09	33.418	8.14	33.587	6.95	33.396	8.67	33.734	7.69	33.566	6.65	33.409
125m			4.97	33.664	7.76	33.473	7.97	33.472	7.03	33.407	8.02	33.564	6.50	33.353	8.72	33.755	6.81	33.451	4.99	33.309
150m			4.40	33.638	7.90	33.731	5.92	33.361	6.68	33.717	6.05	33.468	3.89	33.384	4.93	33.494	3.20	33.242	3.52	33.334
200m					4.54	33.543	4.19	33.459	3.74	33.499	4.92	33.643	4.03	33.561	3.64	33.521	2.81	33.406	2.29	33.355
250m					3.50	33.546	3.84	33.563	3.53	33.585	3.43	33.596	3.69	33.577	3.56	33.572	3.28	33.530	3.13	33.538
300m					3.18	33.613	3.24	33.584	3.14	33.639	3.38	33.668	3.48	33.644	3.04	33.590	2.57	33.523	2.59	33.549
400m					3.39	33.806	3.40	33.808	3.39	33.850			3.40	33.786	3.54	33.807	3.39	33.808	3.29	33.795
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199812		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	HW010		J63		J62		J61		J41		J42		J43		J34		J33		J32	
Latitude:N	42-14.9		41- 0.2		41-10.1		41-20.0		42-30.1		42-30.0		42-30.0		43-30.0		43-30.1		43-30.1	
Longitude:E	142- 3.0		139-59.9		140- 0.1		140- 0.1		139-40.2		139-20.1		139- 0.1		140-20.0		140-40.0		140-59.9	
Date	1998/12/13		1999/02/05		1999/02/05		1999/02/05		1999/02/16		1999/02/16		1999/02/16		1999/02/17		1999/02/17		1999/02/17	
Time(JST)	21:15		12:40		14:11		15:16		18:35		20:48		22:47		06:51		08:41		10:22	
Weather	BC		S		S				BC		BC		BC		BC		C		BC	
Air Temp.	6.2		1.9		0.9		1.3		5.4		5.3		5.4		6.3		6.1		6.9	
Bar			1010.0		1011.0		1011.5		1016.7		1016.0		1015.1		1009.2		1009.0		1008.0	
Wind Dir	WNW		SSW		WNW		NNW		SW		SW		SSW		SW		SW		SSW	
Wind Spd/F	S 11		S 17		S 15		S 8		S 8		S 11		S 10		S 8		S 10		S 7	
Transparency																	16		16	
Depth	536		505		110		226		1830		3300		3600		639		690		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	6.2	33.27*	9.5	33.811	9.1	33.981	8.5	33.950	6.9	34.011	7.5	33.974	6.7	33.959	6.3	34.018	5.3	34.047	5.8	34.020
10m	6.20	33.332			9.33	33.997	8.72	33.944	6.82	34.011	7.55	33.970	6.65	33.956	6.18	34.015	5.17	34.043	5.64	34.012
20m	6.20	33.331	9.75	33.957	9.32	34.001	8.74	33.944	6.78	34.013	7.48	33.978	6.65	33.956	6.18	34.015	5.18	34.044	5.62	34.017
30m	6.20	33.331	9.46	34.022	8.48	34.043	8.74	33.945	6.70	34.011	7.03	34.010	5.99	34.004	6.18	34.016	5.18	34.044	5.61	34.019
50m	6.21	33.331	8.92	33.972	8.10	34.072	8.73	33.944	6.48	34.030	6.26	34.039	4.18	34.066	6.15	34.017	5.17	34.043	5.58	34.028
75m	6.15	33.325	8.58	33.959	7.26	34.091	8.10	34.023	6.44	34.030	5.56	34.050	3.33	34.074	6.10	34.018	5.09	34.042	5.52	34.033
100m	5.50	33.339	8.28	34.041			7.51	34.071	6.28	34.034	4.96	34.048	2.42	34.075	6.07	34.020	4.94	34.055		
125m	3.12	33.259	7.20	34.093			6.90	34.094	5.87	34.039	4.04	34.068	1.85	34.080	5.71	34.036	4.90	34.059		
150m	3.08	33.319	5.86	34.091			6.58	34.084	4.89	34.052	3.01	34.085	1.64	34.083	5.09	34.056	4.64	34.067		
200m	4.51	33.615	3.47	34.091			5.81	34.092	3.55	34.067	2.09	34.079	1.33	34.085	4.62	34.059	3.30	34.095		
250m	3.47	33.577	1.90	34.084					2.43	34.079	1.49	34.084	1.11	34.083	3.77	34.073	2.01	34.091		
300m	2.48	33.539	1.21	34.079					1.68	34.080	1.20	34.082	1.04	34.087	2.63	34.091	1.49	34.087		
400m	2.86	33.704	0.68	34.075					1.02	34.078	0.96	34.085	0.84	34.082	1.16	34.084	0.90	34.080		
500m									0.72	34.074	0.69	34.078	0.60	34.075	0.72	34.076	0.67	34.075		
600m									0.56	34.072	0.53	34.073	0.46	34.073						
700m									0.42	34.070	0.41	34.070	0.39	34.071						
800m									0.34	34.069	0.34	34.070	0.33	34.071						
900m																				
1000m																				

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

Stn-prefix	199902		199902		199902		199903		199903		199903		199903		199903		199903		199903	
Station No	J31		JH01		J31B		J41		J44		J45		J46		J38		J37		J36	
Latitude:N	43-19.9		43-21.9		43-20.0		42-30.1		42-30.0		42-30.1		42-30.0		43-30.1		43-30.0		43-30.0	
Longitude:E	141- 9.8		141-23.9		141-11.1		139-40.0		138-40.1		138-20.1		138- 0.0		138-59.9		139-20.0		139-40.0	
Date	1999/02/17		1999/02/17		1999/02/17		1999/03/08		1999/03/08		1999/03/09		1999/03/09		1999/03/09		1999/03/09		1999/03/09	
Time(JST)	13:08		14:29		19:51		18:07		23:51		01:37		03:27		11:34		13:17		15:04	
Weather	BC		C		C		C						BC		BC		BC			
Air Temp.	5.6		5.8		5.9		-2.7		-3.4		-3.5		-3.9		-2.6				-2.1	
Bar	1005.8		1004.5		1004.4		1013.0				1015.5		1016.6		1018.0		1018.5		1018.0	
Wind Dir	E		SE		WSW		NW		WNW		WNW		WNW		NW		WNW		WSW	
Wind Spd/F	S 5		S 6		S 5		S 6		S 7		S 8		S 9		S 7		S 3		S 5	
Transparency	13		4												18		21		20	
Depth	40		22		39		1842		3680		3638		3682		3440				2046	
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	33.995	2.5	30.244	5.0	33.982	6.4	34.018	5.4	34.053	1.9	34.080	2.0	34.098	2.3	34.098	4.6	34.037	4.5	34.037
10m	4.85	33.992	3.59	33.734	4.74	33.980	6.61	34.005	5.49	34.039	2.86	34.085	2.07	34.094	2.47	34.092	4.65	34.037	4.81	34.034
20m	4.83	33.992			4.73	33.979	6.61	34.005	5.49	34.039	2.86	34.085	2.07	34.094	2.47	34.092	4.64	34.037	4.81	34.034
30m	4.81	33.989			4.61	33.969	6.61	34.005	5.48	34.039	2.86	34.085	2.07	34.094	2.46	34.092	4.64	34.037	4.80	34.035
50m							6.62	34.005	5.02	34.046	2.85	34.084	1.90	34.094	2.45	34.092	4.59	34.039	4.37	34.050
75m							6.55	34.007	4.31	34.063	2.84	34.085	1.78	34.094	2.45	34.092	4.47	34.046	3.75	34.074
100m							6.04	34.027	3.77	34.065	2.63	34.087	1.77	34.093	2.46	34.092	3.64	34.067	3.20	34.089
125m							5.07	34.054	1.81	34.087	2.40	34.090	1.75	34.092	2.46	34.091	2.66	34.091	2.54	34.099
150m							4.66	34.060	1.56	34.081	1.91	34.096	1.74	34.092	2.45	34.092	2.16	34.094	2.14	34.092
200m							3.03	34.080	1.37	34.087	1.62	34.093	1.45	34.093	1.99	34.097	1.71	34.095	1.50	34.087
250m							2.43	34.080	1.21	34.092	1.31	34.093	1.16	34.092	1.72	34.097	1.47	34.091	1.15	34.082
300m							1.55	34.080	1.07	34.090	1.17	34.090	0.97	34.089	1.56	34.095	1.13	34.083	0.97	34.081
400m							0.97	34.075	0.82	34.082	1.02	34.089	0.73	34.081	1.04	34.085	0.79	34.079	0.63	34.074
500m							0.58	34.072	0.64	34.077	0.73	34.081	0.59	34.076	0.74	34.079	0.56	34.073	0.49	34.072
600m							0.46	34.071	0.49	34.073	0.55	34.076	0.41	34.073	0.58	34.075				
700m							0.39	34.070					0.36	34.072						
800m							0.33	34.070					0.31	34.071						
900m							0.28	34.070					0.28	34.071						
1000m							0.25	34.069					0.25	34.070						

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

Stn-prefix	199903		199903		199903		199903		199903		199903									
Station No	J35		J34		J33		J32		J31		JH01									
Latitude:N	43-30.1		43-30.0		43-30.0		43-30.0		43-20.0		43-22.0									
Longitude:E	140- 0.0		140-20.0		140-40.0		141- 0.0		141-10.1		141-23.8									
Date	1999/03/09		1999/03/09		1999/03/09		1999/03/10		1999/03/10		1999/03/10									
Time(JST)	16:43		18:20		20:02		00:52		02:53		07:22									
Weather	BC										BC									
Air Temp.	-2.7		-2.1		-1.9		-0.1		-1.0		-4.4									
Bar	1018.4		1018.8		1019.0		1019.1		1019.0		1019.0									
Wind Dir	WSW		WSW		WSW		W		WSW		ESE									
Wind Spd/F	S 6		S 8		S 8		S 6		S 6		S 5									
Transparency	17										2									
Depth	1250		646		694		97		39		22									
Equipment	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	5.5	34.025	5.6	34.007	5.4	34.012	5.1	34.012	4.8	33.981	1.6	27.487								
10m	5.80	34.022	5.84	34.003	5.76	34.009	5.62	34.013	5.08	33.975	3.27	33.167								
20m	5.80	34.023	5.84	34.004	5.78	34.008	5.63	34.013	5.06	33.974										
30m	5.80	34.023	5.84	34.005	5.78	34.009	5.62	34.013	5.00	33.971										
50m	5.72	34.026	5.85	34.006	5.77	34.008	5.55	34.017												
75m	4.73	34.050	5.89	34.018	5.74	34.009	5.47	34.018												
100m	4.13	34.060	5.87	34.020	5.60	34.016														
125m	3.68	34.064	5.27	34.042	5.61	34.024														
150m	2.60	34.091	5.04	34.045	5.43	34.030														
200m	1.62	34.083	3.94	34.064	4.53	34.048														
250m	1.26	34.082	2.43	34.092	2.44	34.100														
300m	1.02	34.080	1.43	34.084	1.36	34.087														
400m	0.70	34.076	0.86	34.077	0.82	34.077														
500m	0.47	34.071	0.67	34.074	0.71	34.076														
600m					0.63	34.074														
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	H01		P66		P56		P55		P54		P53		P52		P51		P60		P61	
Latitude:N	41-40.0		41-30.0		41-20.0		41-30.0		41-39.9		41-50.0		42- 0.0		42-10.0		42-27.0		42-20.1	
Longitude:E	140-40.2		141-20.0		141-40.0		141-50.0		141-59.9		142- 9.8		142-20.0		142-29.9		141-20.1		141-20.2	
Date	1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15	
Time(JST)	14:11		17:03		19:06		21:02		00:17		03:18		05:46		07:57		13:59		14:53	
Weather	C		C		C		C		C		C		C		C		C		C	
Air Temp.	15.0		13.0		9.0		7.0		5.0		5.0		5.0		6.0		5.0		4.5	
Bar	1012.5		1014.0		1015.0		1017.0		1017.5		1019.5		1019.5		1021.0		1018.0		1018.5	
Wind Dir	ESE		E		SW		N		N		SW		S		W		SW		S	
Wind Spd/F	S 3		S 3		S 2		S 3		S 9		S 1		S 3		S 2		S 6		S 4	
Transparency	7		15										8		6		13		13	
Depth	120		245		752		1280				1080				125		81		259	
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	33.224	8.9	33.827	3.7	32.963	4.1	32.647	3.4	32.713	3.9	32.927	3.0	32.668	3.2	32.088	3.2	32.446	2.9	32.500
10m	8.42	33.765	8.72	33.904	3.33	33.096	2.69	32.958	3.19	32.769	3.62	33.009	2.56	32.906	1.31	32.522	2.33	32.587	2.54	32.573
20m	8.22	33.997	8.71	33.907	3.71	33.149	2.47	32.977	3.75	33.099	3.54	33.067	2.47	32.942	1.12	32.537	2.11	32.584	1.98	32.627
30m	8.04	34.049	8.73	33.913	3.78	33.176	2.42	33.016	5.26	33.353	3.83	33.220	2.49	32.950	0.38	32.711	1.21	32.620	1.88	32.623
50m	7.55	34.078	8.64	33.954	5.04	33.418	2.18	33.071	2.61	33.202	3.36	33.258	1.21	33.033	0.37	32.856	1.03	32.871	0.74	32.789
75m	7.05	34.108	8.66	33.965	4.28	33.366	2.18	33.151	3.39	33.316	3.90	33.378	1.81	33.118	0.70	32.926	1.03	32.876	2.04	33.063
100m	7.03	34.109	8.60	33.979	5.17	33.518	3.08	33.280	2.56	33.243	2.35	33.237	1.39	33.134	0.87	32.969			1.94	33.126
125m			8.56	33.985	5.48	33.594	2.66	33.259	1.45	33.141	2.36	33.227	2.40	33.271					2.54	33.213
150m			8.48	34.016	5.92	33.682	3.70	33.406	2.71	33.312	1.09	33.131	3.94	33.488					3.98	33.442
200m			7.85	33.983	7.02	33.925	3.52	33.461	3.24	33.451	3.94	33.500	3.53	33.474					4.80	33.582
250m					6.91	33.920	3.60	33.548	2.40	33.401	4.44	33.652	3.38	33.523						
300m					7.22	34.028	3.28	33.605	1.90	33.415	2.07	33.469	3.35	33.597						
400m					5.95	33.913	3.33	33.807	3.33	33.776	2.64	33.671	3.37	33.830						
500m					3.44	33.930	3.42	33.952	3.18	33.906	3.14	33.885	3.47	33.981						
600m					3.47	34.042	3.45	34.085	3.31	34.063	3.41	34.061	3.44	34.085						
700m																				
800m																				
900m																				
1000m																				

Table 4-1

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804		
Station No	HFS14		HFS13		HFS12		HFS11		HFS10		HFS17		HFS16		HFS15		HFS22		HFS21		
Latitude:N	42-17.5		42-15.0		42-10.0		42- 4.9		42- 2.5		42- 7.5		42-10.0		42-15.0		42-18.0		42-15.6		
Longitude:E	141- 4.8		141- 9.9		141- 5.0		140-59.9		140-57.5		140-52.5		140-55.0		140-59.9		140-55.8		140-52.8		
Date	1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/16		
Time(JST)	18:12		18:48		19:34		20:25		20:53		21:43		22:12		23:04		23:38		00:06		
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	2.9	32.45*	2.8	32.52*	2.7	32.60*	3.1	32.58*	3.3	32.52*	3.5	32.37*	3.1	32.59*	3.1	32.32*	3.4	32.19*	2.9	32.44*	
10m	2.79	32.458	2.70	32.535	2.56	32.588	2.92	32.629	3.15	32.565	3.21	32.591	3.08	32.602	3.00	32.381	3.31	32.218	2.98	32.459	
20m	2.20	32.588	1.96	32.602	2.33	32.593	2.00	32.834	2.04	32.785	2.59	32.697	2.85	32.640	2.29	32.620	3.03	32.359	2.82	32.491	
30m	2.16	32.586	1.49	32.662	1.38	32.660	1.61	32.944	1.57	32.884	2.39	32.818	1.33	32.756	1.88	32.708	2.69	32.530	2.71	32.558	
50m	1.37	32.890	0.66	32.801	1.34	32.873			2.86	33.138	2.73	33.091	1.50	32.974	1.10	32.853	1.96	32.727	1.19	32.858	
75m			1.23	32.927	1.52	32.996			3.34	33.327	3.32	33.331									
100m																					
125m																					
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-2

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804		
Station No	HFS20		HFS19		HFS18		HFS26		HFS25		HFS24		HFS23		HFS32		HFS31		HFS30		
Latitude:N	42-13.2		42-10.8		42- 8.5		42-10.0		42-15.2		42-20.0		42-25.0		42-27.5		42-25.0		42-22.6		
Longitude:E	140-49.9		140-46.9		140-44.0		140-35.2		140-39.9		140-44.7		140-49.9		140-42.5		140-40.1		140-37.5		
Date	1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		
Time(JST)	00:33		01:02		01:29		02:39		03:30		04:21		05:06		05:46		06:10		06:34		
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	3.8	32.32*	3.5	32.30*	3.4	32.60*	3.7	32.53*	3.7	32.67*	2.8	32.54*	3.6	32.54*	3.6	32.53*	3.5	32.51*	3.6	32.60*	
10m	3.49	32.465	3.54	32.304	3.06	32.690	3.15	32.652	3.51	32.684	2.76	32.582	3.39	32.616	3.53	32.552	3.45	32.516	3.62	32.620	
20m	3.09	32.605	2.82	32.666	2.91	32.765	2.94	32.692	3.41	32.696	2.53	32.657	2.91	32.683	2.95	32.643	3.13	32.605	3.37	32.687	
30m	2.48	32.743	2.56	32.792	2.43	32.910	2.42	32.777	3.32	32.711	2.47	32.710	2.98	32.715	2.95	32.649	3.04	32.683	3.24	32.754	
50m	2.48	33.037	2.63	33.075			2.50	33.041	2.63	32.898	2.15	32.922			2.84	32.725	2.54	32.844	2.54	32.828	
75m			3.30	33.327					3.07	33.230									3.20	33.290	
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	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	HFS29		HFS28		HFS27		HFS36		HFS35		HFS34		HFS33		HFS38		HFS37		P62	
Latitude:N	42-20.1		42-17.5		42-15.1		42-17.4		42-20.0		42-25.0		42-30.0		42-30.1		42-25.0		42-10.0	
Longitude:E	140-34.9		140-32.5		140-30.0		140-24.9		140-25.0		140-30.0		140-34.9		140-30.0		140-24.9		141-20.0	
Date	1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16	
Time(JST)	06:59		07:24		07:49		08:22		08:46		09:32		10:17		10:47		11:32		16:07	
Weather	C																			
Air Temp.	6.0																			
Bar	1020.0																			
Wind Dir	SSE																			
Wind Spd/F	S 3																			
Transparency	7																			
Depth	365																			
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	32.61*	3.5	32.56*	3.7	32.56*	5.0	31.75*	4.5	32.31*	4.3	32.51*	4.0	32.42*	4.4	32.38*	4.1	32.52*	2.5	32.546
10m	3.66	32.634	3.46	32.630	3.69	32.570	4.20	32.417	4.11	32.489	4.23	32.521	3.60	32.652	3.95	32.507	3.95	32.599	1.81	32.657
20m	3.56	32.667	3.36	32.710	3.10	32.702	3.81	32.637	3.73	32.693	3.92	32.624	3.38	32.674	3.49	32.691	3.52	32.695	1.84	32.717
30m	3.18	32.732	3.35	32.729	2.95	32.724	3.60	32.697	3.59	32.726	3.71	32.704	3.35	32.728	3.39	32.745	3.44	32.715	1.61	32.756
50m	2.19	32.831	2.30	32.959	2.35	32.993	2.43	33.027	2.23	32.956	2.49	33.034	2.23	32.868	2.10	32.917	2.16	32.895	0.88	32.869
75m	2.98	33.211	3.25	33.308	3.21	33.289					3.21	33.296							1.87	33.075
100m																			2.89	33.233
125m																			3.36	33.321
150m																			3.38	33.336
200m																			3.43	33.390
250m																			4.77	33.603
300m																			3.79	33.526
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-4

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	P63		P64		P65		HKD001		HKD002		HKD003		HKD004		HKD005		HKD006		HKD007	
Latitude:N	42- 0.2		41-50.1		41-40.0		42- 0.1		42- 4.9		42- 9.9		42-14.9		42-19.8		42-25.0		42-30.0	
Longitude:E	141-20.0		141-20.0		141-19.8		141- 0.0		140-55.1		140-50.2		140-45.1		140-39.8		140-35.2		140-30.1	
Date	1998/04/16		1998/04/16		1998/04/16		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21	
Time(JST)	17:40		18:53		20:11		14:01		14:48		15:44		16:34		17:29		18:20		19:14	
Weather	C		C		C		B		B		B		B		B		C		BC	
Air Temp.	5.3		5.0		5.2		16.0		16.0		14.5		13.5		13.0		13.5		13.0	
Bar	1020.5		1020.5		1022.0		1015.0		1014.5		1014.0		1015.0		1015.5		1015.5		1015.5	
Wind Dir	WSW		WSW		WSW		NE		N		NWW		W		WNW		WSW		E	
Wind Spd/F	S 2		S 4		S 2		S 3		S 6		S 7		S 10		S 4		S 7		S 5	
Transparency	11						21		16		12		11		16					
Depth	315		289		233		90		89		90		80		79		93		67	
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	32.639	2.9	32.578	4.1	33.040	0.1	32.428	5.4	32.432	5.4	32.300	5.3	32.270	5.2	32.265	6.2	31.820	8.1	30.795
10m	2.85	32.670	2.84	32.641	4.58	33.262	3.51	32.493	3.64	32.548	3.43	32.535	3.64	32.430	3.78	32.627	4.46	32.516	7.65	33.050
20m	2.60	32.721	2.69	32.699	5.54	33.478	2.60	32.572	2.56	32.622	2.81	32.585	3.33	32.502	3.57	32.635	3.47	32.635	6.64	33.849
30m	2.23	32.756	1.74	32.817	4.62	33.434	2.04	32.616	2.35	32.742	2.92	32.695	2.87	32.614	3.33	32.753	2.95	32.672	5.64	34.548
50m	2.19	33.100	1.41	33.009	5.23	33.554	1.38	32.837	2.24	32.952	2.29	32.983	2.18	32.933	2.13	32.896	2.46	32.868	4.25	35.188
75m	2.55	33.201	3.09	33.254	5.84	33.680	1.37	32.938	3.20	33.280	3.25	33.302	3.19	33.258	3.01	33.205	3.12	33.261		
100m	3.64	33.346	3.53	33.338	6.19	33.773														
125m	4.06	33.422	3.34	33.367	6.99	33.943														
150m	4.03	33.456	3.61	33.431	7.33	34.016														
200m	3.85	33.507	3.56	33.494	6.75	33.951														
250m	3.40	33.515	3.47	33.575																
300m	3.40	33.591																		
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-5

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	HKD008		HKD009		HKD010		HKD011		HKD012		HKD013		HKD014		HKD015		HKD016		HKD017	
Latitude:N	42-20.0		42-20.0		42-20.0		42-20.0		42-20.0		42-19.9		42-29.9		42-25.0		42-20.1		42-14.9	
Longitude:E	140-25.1		140-30.0		140-35.1		140-40.0		140-44.9		140-50.0		140-40.0		140-39.9		140-40.0		140-40.2	
Date	1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/22		1998/04/22		1998/04/22		1998/04/22	
Time(JST)	20:33		21:08		21:45		22:20		22:53		23:31		01:05		01:47		02:28		03:15	
Weather	BC		B		B		B		B		B		B		B		B		B	
Air Temp.	12.5		12.5		12.0		12.0		12.0		12.0		11.5		11.5		11.0		11.0	
Bar	1016.0		1016.5		1017.0		1018.0		1017.5		1017.0		1017.0		1017.0		1017.0		1017.0	
Wind Dir	W		SW		W		WNW		NW		W		S		SSW		SW		WSW	
Wind Spd/F	S 10		S 5		S 5		S 5		S 6		S 6		S 1		S 4		S 1		S 7	
Transparency																				
Depth	70		96		96		79		60		48		65		79		79		89	
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	4.6	32.407	5.9	32.161	6.2	31.684	6.1	32.070	5.5	32.145	5.2	32.177	5.9	32.151	5.9	32.179	5.0	32.274	6.4	31.928
10m	4.39	31.987	5.58	31.750	5.94	31.792	3.34	32.519	3.83	32.208	4.66	32.201	3.57	32.628	4.33	32.327	3.42	32.462	5.20	32.245
20m	4.36	32.066	5.40	32.007	3.61	32.712	3.23	32.612	3.06	32.434	3.51	32.422	3.36	32.716	2.97	32.521	3.25	32.597	3.73	32.620
30m	4.29	32.148	4.67	32.737	3.35	32.736	2.77	32.689	2.18	32.613	3.50	32.450	3.24	32.734	2.44	32.559	2.66	32.689	3.25	32.680
50m	3.43	32.892	3.45	33.741	2.55	32.898	2.15	32.896	1.69	32.897			2.34	32.865	2.72	32.807	2.33	32.988	2.24	32.945
75m			3.05	33.637	3.26	33.309													3.14	33.263
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	199804	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805
Station No	HKD018	HFS115	HFS116	HFS117	HFS118	HFS119	HFS120	HFS121	HFS122	HFS123									
Latitude:N	42-10.1	42-15.0	42-10.1	42- 7.7	42- 8.7	42-10.7	42-13.1	42-15.5	42-17.9	42-24.9									
Longitude:E	140-40.1	141- 0.0	140-55.1	140-52.7	140-44.8	140-46.8	140-49.7	140-52.7	140-55.7	140-50.0									
Date	1998/04/22	1998/05/11	1998/05/11	1998/05/11	1998/05/11	1998/05/11	1998/05/11	1998/05/11	1998/05/11	1998/05/11									
Time(JST)	04:00	16:52	17:36	18:02	18:48	19:11	19:40	20:08	20:36	21:33									
Weather	B																		
Air Temp.	11.0																		
Bar	1017.0																		
Wind Dir	SW																		
Wind Spd/F	S 8																		
Transparency																			
Depth	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	T S	T S	T S	T S	T S	T S	T S	T S	T S
0m	5.9 32.210	4.5 32.30*	7.2 32.06*	8.5 31.88*	7.7 31.69*	7.7 31.80*	7.7 31.81*	6.1 32.11*	3.0 32.56*	6.6 31.96*									
10m	5.03 32.359	3.48 32.457	6.22 32.088	6.18 32.146	7.10 31.887	6.73 31.900	6.92 31.889	4.91 32.259	2.83 32.564	3.83 32.674									
20m	3.83 32.634	2.70 32.565	5.49 32.376	5.98 32.135	5.76 32.170	5.84 32.101	5.83 32.121	2.60 32.639	1.77 32.672	3.15 32.761									
30m	3.37 32.744	1.51 32.727	1.99 32.723	2.89 32.647	3.40 32.672	2.58 32.701	1.85 32.719	1.47 32.705	1.07 32.764	2.59 32.834									
50m	2.48 32.941	1.30 32.896	1.24 32.890	2.19 32.901	2.77 32.830	0.78 32.755	0.87 32.840	1.22 32.845	1.32 32.847										
75m	3.15 33.268			3.13 33.268		3.12 33.245													
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS124		HFS125		HFS126		HFS127		HFS128		HFS129		HFS130		HFS131		HFS132		HFS133		
Latitude:N	42-20.0		42-15.0		42-10.1		42-14.9		42-17.5		42-20.0		42-22.5		42-25.0		42-27.4		42-30.0		
Longitude:E	140-45.1		140-40.0		140-35.0		140-30.1		140-32.5		140-35.0		140-37.5		140-40.0		140-42.5		140-35.0		
Date	1998/05/11		1998/05/11		1998/05/11		1998/05/12		1998/05/12		1998/05/12		1998/05/12		1998/05/12		1998/05/12		1998/05/12		
Time(JST)	22:17		23:01		23:46		00:34		01:03		01:31		01:59		02:29		02:58		03:45		
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	31.63*	7.0	31.86*	8.7	31.18*	7.9	31.75*	7.2	31.78*	7.6	31.78*	7.8	31.73*	7.9	31.60*	7.6	31.63*	8.2	31.55*	
10m	7.67	31.640	6.73	31.909	8.17	31.597	7.41	31.827	6.85	31.811	7.27	31.787	7.56	31.739	7.64	31.624	6.78	31.887	7.45	31.686	
20m	5.62	31.963	4.76	32.267	6.00	32.209	6.38	32.018	5.59	32.085	6.00	31.983	6.66	31.839	5.66	32.251	3.50	32.554	3.65	32.655	
30m	3.78	32.503	3.26	32.668	3.21	32.678	3.53	32.702	2.96	32.682	2.42	32.626	3.17	32.655	3.22	32.682	3.45	32.709	3.34	32.737	
50m	1.35	32.851	1.63	32.889	2.58	32.843	2.61	32.831	2.34	32.880	1.36	32.830	1.25	32.817	2.82	32.805	2.69	32.889			
75m			3.21	33.275			3.19	33.272	2.87	33.165	3.02	33.199	3.02	33.204	2.88	33.166					
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS134		HFS135		HFS137		HFS138		HFS315		HFS316		HFS317		HFS318		HFS319		HFS320		
Latitude:N	42-25.1		42-19.9		42-24.8		42-29.9		42-15.0		42-10.0		42- 7.6		42- 8.7		42-10.7		42-13.2		
Longitude:E	140-30.0		140-25.1		140-24.9		140-29.8		140-59.9		140-55.0		140-52.6		140-45.0		140-46.7		140-49.7		
Date	1998/05/12		1998/05/12		1998/05/12		1998/05/12		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		
Time(JST)	04:31		05:55		06:31		07:16		12:33		13:16		13:40		14:22		14:47		15:18		
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	31.65*	8.1	31.60*	8.0	31.61*	8.1	31.58*	6.6	31.96*	6.6	32.09*	8.1	31.61*	7.1	31.93*	7.6	31.71*	8.0	31.67*	
10m	7.21	31.771	8.12	31.607	7.59	31.637	7.23	31.765	6.40	32.008	6.14	32.150	7.14	31.974	6.64	32.030	7.29	31.820	7.92	31.680	
20m	5.49	32.224	4.04	32.563	5.22	32.322	4.18	32.463	2.54	32.621	5.23	32.473	3.11	32.630	4.24	32.565	6.37	31.993	3.48	32.568	
30m	3.33	32.695	3.33	32.723	3.27	32.724	3.43	32.717	2.02	32.666	2.27	32.741	2.40	32.833	3.18	32.708	2.27	32.767	1.94	32.662	
50m	2.48	32.881	2.38	32.912	2.34	32.968	2.38	32.909	0.98	32.863	0.73	32.838	2.54	33.054	2.53	32.905	0.95	32.844	0.83	32.817	
75m	3.15	33.269											3.11	33.275			2.76	33.193			
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS321		HFS322		HFS323		HFS324		HFS325		HFS326		HFS327		HFS328		HFS329		HFS330		
Latitude:N	42-15.6		42-17.9		42-24.9		42-20.1		42-15.2		42-10.3		42-14.9		42-17.5		42-20.0		42-22.4		
Longitude:E	140-52.8		140-55.6		140-50.1		140-45.1		140-40.0		140-35.2		140-30.1		140-32.4		140-35.0		140-37.5		
Date	1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/13		
Time(JST)	15:47		16:16		17:13		17:54		18:37		19:20		20:01		20:27		20:51		21:15		
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	8.3	31.65*	7.3	31.86*	8.0	31.61*	8.0	31.60*	7.8	31.65*	7.7	31.75*	8.2	31.50*	8.0	31.64*	7.7	31.70*	7.7	31.74*	
10m	7.92	31.741	5.80	32.124	7.02	31.903	7.99	31.603	7.76	31.659	7.45	31.796	8.00	31.565	7.80	31.680	7.42	31.740	7.62	31.734	
20m	2.98	32.645	2.10	32.649	3.24	32.638	7.89	31.631	6.94	31.854	3.46	32.582	5.76	32.085	5.68	32.066	6.73	31.886	7.54	31.736	
30m	1.54	32.760	1.20	32.733	2.73	32.725	3.75	32.665	3.60	32.611	3.35	32.715	3.60	32.719	2.74	32.682	3.83	32.608	4.98	32.404	
50m	1.31	32.856	1.29	32.848			2.53	32.900	2.32	32.899	2.32	32.936	2.32	32.907	2.28	32.923	0.87	32.739	1.82	32.754	
75m									3.07	33.241			3.25	33.292	3.23	33.288	2.64	33.129	2.20	33.024	
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS331		HFS332		HFS333		HFS334		HFS336		HFS335		HFS337		HFS338		HFS415		HFS416		
Latitude:N	42-24.9		42-27.4		42-30.0		42-25.0		42-17.6		42-20.0		42-25.0		42-30.0		42-15.1		42-10.1		
Longitude:E	140-40.0		140-42.4		140-35.0		140-30.1		140-25.0		140-25.0		140-25.0		140-30.0		140-59.9		140-55.1		
Date	1998/05/13		1998/05/13		1998/05/13		1998/05/13		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		
Time(JST)	21:40		22:06		22:50		23:34		00:33		00:57		01:37		02:21		16:24		17:39		
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	7.6	31.78*	8.1	31.59*	8.3	31.65*	7.5	31.80*	8.4	31.40*	8.3	31.60*	8.5	31.39*	8.6	31.55*	6.6	32.05*	7.2	32.03*	
10m	7.50	31.776	7.62	31.799	7.59	31.798	7.19	31.866	8.13	31.468	8.16	31.610	8.43	31.421	8.51	31.554	5.94	32.132	6.88	32.132	
20m	6.35	31.901	4.77	32.424	6.10	32.114	7.07	31.876	3.72	32.720	6.19	32.226	4.41	32.429	5.00	32.382	2.68	32.600	4.33	32.781	
30m	3.70	32.646	3.43	32.714	3.32	32.703	3.62	32.722	3.29	32.738	3.09	32.677	3.37	32.725	3.32	32.743	1.38	32.708	1.77	32.780	
50m	3.16	32.726	2.20	32.795	2.35	32.902	2.34	32.884	2.38	32.957	2.35	32.879	2.45	32.960	2.39	32.967	1.10	32.839	0.72	32.827	
75m	3.18 33.275																				
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS417		HFS418		HFS419		HFS420		HFS421		HFS422		HFS423		HFS424		HFS425		HFS426		
Latitude:N	42- 7.7		42- 8.7		42-10.7		42-13.1		42-15.5		42-18.0		42-24.9		42-20.1		42-15.1		42-10.1		
Longitude:E	140-52.5		140-44.8		140-46.8		140-49.7		140-52.7		140-55.8		140-50.1		140-45.0		140-40.0		140-35.1		
Date	1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		1998/05/14		
Time(JST)	18:07		18:52		19:15		19:43		20:16		20:42		21:37		22:21		23:07		23:53		
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	7.7	31.83*	7.6	31.83*	7.9	31.87*	8.6	31.63*	8.5	31.72*	8.1	31.77*	8.5	31.60*	8.3	31.63*	8.2	31.65*	7.8	31.73*	
10m	7.29	31.958	5.25	32.316	7.36	31.926	7.98	31.689	8.44	31.729	6.28	32.057	8.42	31.652	8.23	31.629	8.25	31.655	5.72	32.223	
20m	4.01	32.602	3.21	32.732	3.86	32.582	2.63	32.663	3.18	32.734	3.81	32.495	5.59	32.108	7.20	31.840	5.02	32.321	3.09	32.626	
30m	1.75	32.742	2.53	32.761	1.94	32.771	1.72	32.668	1.58	32.749	1.79	32.712	2.71	32.632	3.51	32.620	2.39	32.676	3.12	32.743	
50m	1.45	32.948	2.68	33.063	2.18	32.998	0.83	32.782	1.31	32.860	1.27	32.840		2.69	32.874	2.20	32.923	2.34	32.961		
75m	2.96	33.238			2.79	33.198											3.20	33.273			
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS427		HFS428		HFS429		HFS430		HFS431		HFS432		HFS433		HFS434		HFS436		HFS435		
Latitude:N	42-14.9		42-17.5		42-20.3		42-22.5		42-25.0		42-27.4		42-29.9		42-25.2		42-17.7		42-19.8		
Longitude:E	140-30.1		140-32.5		140-34.6		140-37.5		140-40.0		140-42.5		140-35.2		140-30.1		140-25.1		140-25.0		
Date	1998/05/15		1998/05/15		1998/05/15		1998/05/15		1998/05/15		1998/05/15		1998/05/15		1998/05/15		1998/05/15		1998/05/15		
Time(JST)	00:36		01:05		01:46		03:10		03:37		04:07		04:51		05:34		06:35		06:59		
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	7.9	31.72*	8.0	31.74*	8.2	31.63*	8.0	31.68*	7.8	31.70*	7.8	31.73*	8.0	31.73*	8.0	31.71*	8.3	31.58*	8.6	31.48*	
10m	7.89	31.720	7.93	31.771	7.81	31.808	8.04	31.695	7.78	31.697	7.67	31.765	7.69	31.799	7.80	31.765	7.57	31.739	7.87	31.752	
20m	3.82	32.526	6.41	32.019	6.64	31.941	7.70	31.738	7.18	31.859	6.67	31.967	5.82	32.069	5.48	32.107	3.83	32.685	4.89	32.397	
30m	3.28	32.715	2.98	32.689	2.60	32.648	4.22	32.549	4.36	32.532	3.19	32.697	3.47	32.679	3.34	32.620	3.32	32.728	3.24	32.717	
50m	2.34	32.962	1.26	32.850	1.16	32.860	2.43	32.802	3.12	32.708	2.37	32.822	2.66	32.823	2.37	32.868	2.47	32.929	2.32	32.918	
75m	3.23	33.287	3.24	33.293	2.98	33.204	2.23	33.041					2.66	32.823	2.37	32.868	2.47	32.929	2.32	32.918	
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	199805	199805	199805	199805	199805	199805	199805	199805	199805	199805										
Station No	HFS437	HFS438	HFS615	HFS616	HFS617	HFS618	HFS619	HFS620	HFS621	HFS622										
Latitude:N	42-24.8	42-30.0	42-15.1	42-10.1	42- 7.6	42- 8.7	42-10.8	42-13.2	42-15.6	42-18.0										
Longitude:E	140-25.0	140-30.0	140-59.9	140-55.1	140-52.6	140-45.0	140-46.8	140-49.8	140-52.8	140-55.8										
Date	1998/05/15	1998/05/15	1998/05/16	1998/05/16	1998/05/16	1998/05/16	1998/05/16	1998/05/16	1998/05/16	1998/05/16										
Time(JST)	07:36	08:23	10:07	10:49	11:13	11:55	12:16	12:47	13:15	13:42										
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	8.9	31.48*	8.8	31.32*	7.0	31.97*	7.6	32.06*	8.7	31.69*	8.9	31.60*	8.8	31.68*	8.9	31.73*	8.8	31.67*	6.7	32.06*
10m	8.87	31.489	8.66	31.452	6.24	32.100	7.23	32.069	7.83	31.850	7.88	31.819	8.05	31.718	8.45	31.759	6.49	32.091	5.98	32.123
20m	4.99	32.369	5.48	32.349	5.94	32.220	2.90	32.688	4.48	32.627	5.57	32.234	4.19	32.565	3.43	32.719	3.32	32.738	3.47	32.535
30m	3.52	32.740	3.23	32.687	2.65	32.644	1.65	32.759	1.92	32.789	3.11	32.723	2.86	32.712	1.66	32.721	2.44	32.776	2.09	32.696
50m	2.46	32.949	2.36	32.940	1.02	32.825	0.91	32.836	1.55	32.919	2.61	32.991	2.20	32.960	1.10	32.879	1.26	32.869	1.26	32.846
75m									2.98	33.235			2.81	33.202						
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS623		HFS624		HFS625		HFS626		HFS627		HFS628		HFS629		HFS630		HFS631		HFS632		
Latitude:N	42-25.0		42-20.0		42-15.1		42-10.4		42-14.9		42-17.4		42-19.9		42-22.3		42-24.9		42-27.4		
Longitude:E	140-50.0		140-45.0		140-40.0		140-35.2		140-30.2		140-32.3		140-34.8		140-37.4		140-39.9		140-42.4		
Date	1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		
Time(JST)	14:40		15:23		16:07		16:48		17:29		17:53		18:20		18:47		19:12		19:38		
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	8.8	31.62*	8.1	31.78*	8.3	31.77*	8.8	31.83*	8.3	31.80*	9.5	31.59*	9.3	31.61*	8.6	31.69*	9.0	31.70*	8.9	31.70*	
10m	7.25	31.994	7.73	31.785	8.00	31.800	6.95	32.007	7.77	31.858	8.94	31.584	8.80	31.617	8.44	31.706	8.33	31.703	8.24	31.706	
20m	3.56	32.663	6.71	31.906	7.37	31.865	3.42	32.564	6.16	32.154	7.55	31.796	7.40	31.780	7.93	31.749	6.41	31.925	5.59	32.198	
30m	2.56	32.833	3.44	32.637	3.41	32.591	3.42	32.709	3.27	32.668	3.22	32.668	3.65	32.612	3.44	32.691	3.49	32.662	3.31	32.663	
50m			2.58	32.937	1.27	32.790	2.40	32.904	2.33	32.896	2.33	32.900	1.85	32.839	0.85	32.808	2.41	32.792	2.84	32.801	
75m					3.20	33.273			3.21	33.275	3.04	33.226	3.19	33.270	2.17	33.043					
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS633		HFS634		HFS636		HFS635		HFS637		HFS638		HFS815		HFS816		HFS817		HFS818		
Latitude:N	42-30.0		42-25.0		42-17.5		42-19.9		42-24.8		42-30.0		42-15.0		42-10.1		42- 7.6		42- 8.6		
Longitude:E	140-35.1		140-30.1		140-25.1		140-25.0		140-25.0		140-29.9		140-59.9		140-55.0		140-52.6		140-45.0		
Date	1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/16		1998/05/18		1998/05/18		1998/05/18		1998/05/18		
Time(JST)	20:21		21:05		22:03		22:24		22:59		23:43		09:25		10:07		10:32		11:15		
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	9.0	31.66*	9.3	31.45*	8.6	31.67*	8.6	31.63*	10.7	31.25*	8.7	31.74*	7.5	31.88*	7.8	32.13*	9.3	31.67*	8.7	31.68*	
10m	7.49	31.859	7.99	31.771	7.97	31.837	7.91	31.840	8.64	31.608	8.07	31.791	6.07	32.196	7.39	32.177	9.26	31.681	7.84	31.799	
20m	4.95	32.281	5.28	32.240	4.07	32.575	5.16	32.287	5.60	32.298	5.83	32.114	5.05	32.568	2.86	32.643	4.40	32.496	3.77	32.620	
30m	3.44	32.710	3.48	32.686	3.46	32.732	3.18	32.701	3.37	32.671	3.24	32.710	2.33	32.646	2.46	32.777	1.73	32.724	3.21	32.729	
50m	1.96	32.864	2.58	32.828	2.52	32.853	2.34	32.902	2.36	32.935	2.02	32.873	1.33	32.870	1.05	32.796	1.55	32.910	1.60	32.879	
75m			3.12	33.256													3.12	33.252			
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	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805		
Station No	HFS819		HFS820		HFS821		HFS822		HFS823		HFS824		HFS825		HFS826		HFS827		HFS828		
Latitude:N	42-10.6		42-13.1		42-15.5		42-18.0		42-25.0		42-20.0		42-15.1		42-10.1		42-14.9		42-17.5		
Longitude:E	140-46.7		140-49.7		140-52.6		140-55.7		140-50.0		140-44.9		140-40.0		140-35.0		140-30.1		140-32.5		
Date	1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		
Time(JST)	11:34		12:01		12:29		12:57		13:55		14:37		15:20		16:03		16:46		17:13		
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	9.2	31.72*	8.7	31.75*	7.4	31.60*	7.4	31.63*	9.1	31.61*	9.6	31.58*	9.9	31.58*	9.4	31.40*	9.0	31.57*	9.5	31.67*	
10m	8.44	31.839	8.36	31.803	7.36	31.678	5.80	32.133	7.90	31.801	8.96	31.662	8.11	31.769	7.62	31.864	7.86	31.863	8.71	31.710	
20m	3.61	32.590	3.41	32.737	5.28	32.336	4.79	32.367	5.25	32.283	7.73	31.778	6.84	31.899	4.01	32.560	4.26	32.467	7.28	31.854	
30m	2.56	32.782	2.54	32.852	2.67	32.658	2.78	32.605	3.54	32.527	3.49	32.678	3.45	32.635	3.37	32.720	3.11	32.685	3.43	32.641	
50m	1.40	32.835	1.16	32.893	1.31	32.808	1.31	32.796			3.01	32.752	2.57	32.893	2.44	32.888	2.35	32.916	1.87	32.847	
75m	3.20	33.269											2.68	33.146			3.16	33.258	3.07	33.234	
100m																					
125m																					
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-17

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	HFS829		HFS830		HFS831		HFS832		HFS833		HFS834		HFS836		HFS835		HFS837		HFS838	
Latitude:N	42-19.9		42-22.5		42-24.8		42-27.3		42-29.9		42-25.1		42-17.5		42-19.9		42-24.9		42-30.0	
Longitude:E	140-34.9		140-37.3		140-40.0		140-42.4		140-35.2		140-30.1		140-25.0		140-25.1		140-25.1		140-30.0	
Date	1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18		1998/05/18	
Time(JST)	17:37		18:05		18:30		18:56		19:40		20:28		21:26		21:47		22:24		23:07	
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	9.1	31.68*	9.3	31.65*	9.4	31.59*	9.1	31.54*	10.2	31.22*	9.7	31.54*	9.6	31.52*	10.5	31.40*	9.7	31.59*	10.1	31.17*
10m	8.15	31.719	8.58	31.753	8.95	31.595	7.86	31.812	9.24	31.497	9.20	31.618	7.94	31.837	8.26	31.735	7.45	31.938	8.72	31.612
20m	7.46	31.795	7.63	31.824	7.34	31.810	5.52	32.199	6.05	32.181	5.80	32.194	4.44	32.497	4.37	32.437	4.64	32.490	6.23	32.222
30m	4.74	32.392	5.53	32.220	3.56	32.610	3.44	32.665	3.38	32.702	3.38	32.703	3.32	32.763	3.33	32.727	3.26	32.737	3.35	32.729
50m	1.21	32.742	0.99	32.786	1.16	32.766	2.53	32.852	2.53	32.846	2.36	32.882	2.50	32.943	2.31	32.914	2.40	32.972	2.35	32.887
75m	2.78	33.160	2.76	33.163							3.13	33.260								
100m																				
125m																				
150m																				
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-18

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

Stn-prefix	199805		199805		199805		199805		199806		199806		199806		199806		199806			
Station No	HKG000		HKG003		HKG002		HKG001		H01		P65		P66		P56		P55		P54	
Latitude:N	42- 3.8		42- 4.3		42- 4.3		42- 4.6		41-40.1		41-40.1		41-29.9		41-20.0		41-29.8		41-39.9	
Longitude:E	141- 7.8		141- 3.9		140-54.5		140-52.0		140-40.1		141-20.0		141-20.1		141-39.8		141-50.0		142- 0.0	
Date	1998/05/19		1998/05/19		1998/05/19		1998/05/19		1998/05/26		1998/05/26		1998/05/26		1998/05/26		1998/05/26		1998/05/26	
Time(JST)	07:46		08:20		09:12		10:09		10:51		13:24		14:51		16:48		18:42		20:31	
Weather	B		B		B		B		B		B		B		B		B		B	
Air Temp.	12.5		13.5		17.0		16.0		17.0		14.0		16.0		19.5		14.5		12.0	
Bar	1013.0		1013.0		1013.0		1013.0		1012.5		1012.5		1012.0		1012.5		1013.0		1014.0	
Wind Dir	SSE		E		WSW		SSE		SW		W		W		NW		W		W	
Wind Spd/F	S 3		S 2		S 1		S 2		S 7		S 8		S 5		S 4		S 5		S 6	
Transparency	14		14		12		11		10		10		14		12					
Depth	122		100		76		70		120		232		241		760		940		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	8.3	33.12*	8.2	32.15*	9.7	31.87*	9.5	33.68*	13.1	33.546	10.4	32.272	13.4	33.552	12.1	33.592	10.2	33.300	9.0	32.649
10m	7.26	32.310	6.01	32.354	7.88	31.929	8.46	31.757	12.52	33.840	10.62	33.413	12.77	33.621	12.16	33.736	9.99	33.271	8.97	32.591
20m	4.39	32.941	3.12	32.802	4.90	32.387	3.71	32.608	11.09	33.964	10.26	33.796	12.46	33.703	11.78	33.746	9.85	33.275	8.64	32.693
30m	3.43	32.993	1.51	32.801	2.00	32.716	2.80	32.704	9.92	34.015	9.66	33.813	12.30	33.725	11.65	33.781	10.17	33.808	7.08	32.982
50m	3.10	33.177	1.11	32.865	1.35	32.883	2.12	32.870	9.26	34.038	8.41	33.842	12.01	33.745	11.40	33.823	9.47	33.947	2.92	33.079
75m	3.53	33.321	5.04	33.476					8.68	34.065	7.50	33.895	11.64	33.786	11.24	33.864	9.34	34.005	2.48	33.147
100m	4.44	33.497							8.36	34.084	7.57	33.915	11.17	33.824	10.36	33.857	8.94	34.002	3.91	33.391
125m											6.60	33.815	9.82	34.014	10.30	33.896	8.66	33.992	3.84	33.482
150m											5.73	33.716	9.55	34.006	9.89	33.894	7.46	33.807	3.71	33.511
200m											3.23	33.507	9.21	34.031	9.53	33.923	6.87	33.772	3.29	33.555
250m															8.89	33.946	4.93	33.610	3.18	33.641
300m															5.32	33.682	2.61	33.426	3.15	33.727
400m															3.27	33.747	3.01	33.699	3.20	33.868
500m															3.38	33.934	3.33	33.920	3.45	34.006
600m															3.45	34.041	3.43	34.088	3.37	34.127
700m																				
800m																				
900m																				
1000m																				

Table 4-19

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	P53		P52		P51		P60		P61		P62		P63		P64		HSR021		HSR016	
Latitude:N	41-49.9		42- 0.0		42-10.0		42-27.0		42-20.1		42-10.1		42- 0.0		41-50.1		41-15.3		41- 0.0	
Longitude:E	142- 9.9		142-19.9		142-30.1		141-20.2		141-20.0		141-20.1		141-20.0		141-19.9		139-48.8		139-30.1	
Date	1998/05/26		1998/05/26		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/28		1998/06/01		1998/06/02	
Time(JST)	22:16		23:55		04:46		10:34		11:25		12:40		14:03		11:39		22:00		07:23	
Weather	B		B		B		B		B		B		B		C		BC		BC	
Air Temp.	11.0		10.5		9.0		17.0		15.0		13.5		12.5		12.0		14.0		16.5	
Bar	1014.0		1015.5		1019.0		1022.0		1022.5		1022.0		1022.0		1024.0		1010.0		1014.0	
Wind Dir	W		SE		W		S		ESE		E		SE		E		NNW		N	
Wind Spd/F	S 7		S 4		S 2		S 2		S 4		S 4		S 7		S 3		S 5		S 5	
Transparency					15		14		14		14		16		13				17	
Depth	1000		1010		124		80		248		360		311		286		640		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	8.8	32.735	6.8	32.263	7.8	32.186	7.0	32.014	10.2	32.330	10.0	32.438	9.4	32.44*	9.9	32.564	14.4	34.007	15.6	34.132
10m	8.51	32.737	6.86	32.288	6.93	32.221	7.41	32.163	6.72	32.738	9.03	32.762	7.10	32.484	8.66	32.877	14.35	33.979	15.41	34.123
20m	7.20	33.063	8.55	32.889	4.38	32.363	4.42	32.558	4.74	32.905	7.78	33.343	5.77	33.023	7.85	33.017	12.56	34.121	15.12	34.100
30m	6.77	33.367	7.67	33.141	3.54	32.527	1.40	32.676	6.88	33.500	7.39	33.627	6.39	33.474	7.27	33.258	11.00	34.121	11.86	34.145
50m	4.75	33.371	2.66	32.900	1.65	32.825	1.46	32.897	5.38	33.507	5.00	33.439	7.51	33.786	4.94	33.410	8.46	34.167	11.00	34.103
75m	4.98	33.501	3.06	33.171	1.20	32.927			4.11	33.384	4.39	33.448	7.05	33.801	4.91	33.512	5.33	34.127	10.38	34.067
100m	5.41	33.620	2.98	33.244	1.74	32.973			4.10	33.392	3.75	33.404	4.15	33.417	4.69	33.531	3.93	34.116	10.02	34.097
125m	5.36	33.646	3.23	33.308					3.79	33.374	3.79	33.433	3.92	33.407	4.05	33.504	2.84	34.091	8.92	34.165
150m	6.33	33.822	4.93	33.567					3.87	33.421	3.94	33.491	4.08	33.461	4.31	33.567	2.25	34.086	7.23	34.168
200m	4.03	33.586	5.56	33.750					3.85	33.495	3.42	33.498	4.14	33.549	3.33	33.510	1.49	34.079	3.25	34.107
250m	2.88	33.521	3.65	33.561					2.54	33.471	3.35	33.541	3.25	33.585	3.25	33.585	1.30	34.082	1.92	34.089
300m	3.04	33.638	2.80	33.538					3.04	33.629	3.24	33.596					1.10	34.081	1.30	34.076
400m	3.27	33.835	2.94	33.706													0.72	34.074	0.85	34.079
500m	3.36	33.986	3.22	33.914													0.54	34.073	0.59	34.072
600m	3.40	34.118	3.31	34.051																
700m																				
800m																				
900m																				
1000m																				

Table 4-20

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HSR017		HSR018		HSR019		HSR001		HSR002		HSR003		HSR004		HSR005		HSR006		HSR013	
Latitude:N	40-50.1		40-59.9		41- 0.0		41- 0.3		41- 0.1		40-59.7		41- 0.0		40-30.1		40-30.1		40- 0.0	
Longitude:E	139-49.9		139-50.1		139-59.8		138-59.2		138-30.1		137-59.6		137-30.1		138- 0.0		138-29.8		138- 0.0	
Date	1998/06/02		1998/06/02		1998/06/02		1998/06/05		1998/06/06		1998/06/06		1998/06/06		1998/06/06		1998/06/06		1998/06/07	
Time(JST)	09:36		10:59		12:04		20:20		06:50		09:45		12:29		16:43		19:45		06:07	
Weather	BC		B		BC		C		C		C		BC		C		C		B	
Air Temp.	15.5		17.0		17.0		12.5		14.0		14.0		14.0		16.0		16.0		20.0	
Bar	1014.5		1014.0		1014.5		1017.5		1017.0		1018.0		1017.5		1016.0		1016.5		1016.0	
Wind Dir	ENE		ENE		NE		ENE		ENE		NE		NE		NNE		ENE		N	
Wind Spd/F	S 5		S 2		S 6		S 10		S 8		S 5		S 5		S 4		S 5		S 2	
Transparency	17		18		17				15		13		12		12				22	
Depth	1280		1280		518		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	16.2	33.826	16.1	34.119	16.0	33.870	15.8	33.967	16.0	34.230	13.0	33.913	12.5	33.899	14.0	33.851	15.9	34.094	16.4	34.242
10m	15.81	33.856	15.53	34.190	15.67	33.918	15.97	34.040	16.08	34.222	12.79	33.874	12.14	33.878	9.76	34.011	15.84	34.097	16.56	34.238
20m	14.98	33.833	14.83	34.131	15.49	34.086	12.60	34.155	14.27	34.286	8.30	33.982	7.93	33.964	5.34	34.165	13.49	34.226	13.65	34.247
30m	13.67	34.042	11.70	34.057	15.15	34.100	11.09	34.055	12.33	34.244	3.74	34.130	4.44	34.123	4.27	34.135	11.53	34.240	12.45	34.314
50m	11.78	34.084	10.59	34.059	11.26	34.122	10.56	34.075	10.27	34.187	2.83	34.093	3.22	34.140	3.44	34.104	8.77	34.191	8.85	34.223
75m	11.11	34.127	10.41	34.062	10.66	34.088	10.32	34.069	8.19	34.164	2.12	34.083	2.57	34.123	2.87	34.091	5.85	34.151	6.23	34.167
100m	10.91	34.143	10.35	34.071	10.47	34.081	10.18	34.074	5.83	34.147	1.88	34.087	2.20	34.114	2.43	34.083	4.65	34.124	4.52	34.127
125m	10.44	34.152	10.13	34.101	10.30	34.086	9.75	34.118	3.86	34.115	1.78	34.091	1.83	34.104	2.10	34.083	3.28	34.098	3.26	34.096
150m	9.33	34.126	9.60	34.125	9.99	34.096	7.49	34.163	2.70	34.090	1.68	34.098	1.61	34.100	1.89	34.081	2.48	34.090	2.47	34.083
200m	7.05	34.159	6.66	34.149	6.59	34.154	4.17	34.115	1.75	34.079	1.32	34.092	1.34	34.094	1.66	34.092	1.53	34.076	1.63	34.075
250m	4.13	34.116	3.11	34.096	4.28	34.121	2.22	34.086	1.35	34.082	1.13	34.091	1.14	34.092			1.21	34.073	1.17	34.078
300m	2.14	34.085	1.69	34.082	2.30	34.092	1.74	34.093	1.15	34.089	1.01	34.090	1.02	34.091	1.16	34.087	0.94	34.074	1.03	34.082
400m	1.09	34.075	0.92	34.073	0.95	34.074	1.03	34.085	0.87	34.084	0.75	34.083	0.77	34.084	0.88	34.086	0.71	34.075	0.74	34.077
500m	0.68	34.074	0.61	34.072	0.66	34.072	0.85	34.084	0.57	34.076	0.55	34.076	0.56	34.076	0.69	34.080	0.55	34.074	0.50	34.072
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-21

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HSR007		HSR008		HSR009		HSR010		HSR011		HSR012		HSR014		HSR118		HSR021		HSR020	
Latitude:N	40- 0.1		39-30.2		39-30.0		39-30.1		39-59.9		40- 0.0		40-30.0		40-59.9		41-14.9		41-30.0	
Longitude:E	138-29.9		138-30.0		139- 0.0		139-30.0		139- 0.1		139-30.0		139- 0.1		139-50.0		139-50.0		139-50.0	
Date	1998/06/07		1998/06/07		1998/06/07		1998/06/07		1998/06/07		1998/06/08		1998/06/09		1998/06/10		1998/06/10		1998/06/10	
Time(JST)	08:47		12:23		14:50		17:15		21:22		06:00		18:15		07:18		09:16		11:06	
Weather	BC		B		B		BC		BC		C		BC		BC		BC		C	
Air Temp.	18.0		19.0		22.0		20.0		16.0		17.5		19.0		17.5		18.0		18.5	
Bar	1016.5		1015.5		1015.0		1015.0		1016.0		1018.0		1020.0		1017.0		1016.5		1015.5	
Wind Dir	ESE		ESE		NE		N		SE		SE		E		E		ENE		E	
Wind Spd/F	S 5		S 2		S 2		S 5		S 6		S 5		S 3		S 7		S 8		S 8	
Transparency	20		23		23		18				20		19		17		19		18	
Depth	1000		1000		1000		573		1000		1000		1000		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	15.8	34.160	17.7	34.006	17.8	33.946	17.5	33.972	16.2	34.110	16.6	34.057	16.6	34.006	16.7	33.921	16.2	34.240	16.0	33.937
10m	15.42	34.091	16.68	33.975	16.85	33.924	16.80	33.922	15.87	34.106	16.78	34.035	16.07	34.013	16.67	33.899	16.17	34.227	15.68	33.893
20m	13.44	34.098	15.65	33.998	14.61	34.093	16.57	33.943	13.87	34.173	16.56	34.020	14.81	34.111	13.95	34.217	16.17	34.228	15.60	34.009
30m	9.96	34.092	12.89	34.135	12.55	34.144	13.44	34.125	10.89	34.187	14.43	34.072	11.01	34.153	12.75	34.128	16.07	34.243	15.59	34.099
50m	7.67	34.175	11.35	34.151	11.14	34.128	11.57	34.122	8.75	34.174	11.43	34.149	7.15	34.181	10.92	34.059	12.46	34.252	14.67	34.239
75m	5.64	34.146	10.66	34.085	10.67	34.106	11.00	34.114	6.20	34.159	10.57	34.098	5.81	34.147	10.86	34.128	10.97	34.162	8.62	34.123
100m	4.40	34.115	10.44	34.089	10.41	34.092	10.73	34.099	4.45	34.119	10.46	34.089	4.51	34.120	10.45	34.097	10.03	34.184	6.79	34.138
125m	2.96	34.088	10.36	34.097	10.20	34.103	10.38	34.082	3.33	34.099	10.26	34.108	3.46	34.103	10.10	34.091	7.75	34.158	5.86	34.129
150m	2.36	34.079	10.11	34.120	9.37	34.154	10.33	34.167	2.54	34.085	8.52	34.177	2.72	34.091	9.44	34.132	5.90	34.139	4.36	34.109
200m	1.55	34.073	7.33	34.166	5.66	34.144	5.06	34.134	1.80	34.078	4.04	34.112	1.79	34.077	6.24	34.151	3.42	34.101	2.69	34.093
250m	1.19	34.073	3.64	34.110	3.29	34.098	4.14	34.102	1.19	34.073	2.38	34.086	1.26	34.074	3.22	34.098	1.87	34.082	2.07	34.082
300m	0.96	34.075	1.70	34.078	2.00	34.080	2.03	34.080	0.87	34.070	1.51	34.074	1.00	34.077	1.87	34.080	1.22	34.079	1.42	34.078
400m	0.62	34.071	0.86	34.071	0.80	34.070	0.86	34.071	0.59	34.069	0.82	34.070	0.68	34.070	1.01	34.072	0.80	34.075	0.90	34.077
500m	0.47	34.070	0.60	34.070	0.57	34.068	0.56	34.069	0.44	34.070	0.56	34.069	0.51	34.069	0.65	34.070	0.58	34.071	0.63	34.073
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-22

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806		
Station No	HFS16		HFS16		HFS17		HFS18		HFS19		HFS20		HFS21		HFS22		HFS23		HFS24		
Latitude:N	42-14.9		42-10.1		42- 7.6		42- 8.7		42-10.7		42-13.2		42-15.5		42-17.9		42-24.9		42-20.1		
Longitude:E	140-59.9		140-55.0		140-52.5		140-44.8		140-46.8		140-49.8		140-52.9		140-55.6		140-50.0		140-45.1		
Date	1998/06/16		1998/06/16		1998/06/16		1998/06/16		1998/06/16		1998/06/16		1998/06/16		1998/06/16		1998/06/16		1998/06/16		
Time(JST)	17:06		17:48		18:13		18:58		19:21		19:49		20:17		20:44		21:42		22:28		
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	10.8	32.05*	9.8	32.12*	10.0	32.38*	10.6	31.87*	11.4	31.67*	10.8	31.78*	11.2	31.73*	10.5	31.77*	11.2	31.69*	11.9	31.58*	
10m	9.88	32.394	9.40	32.244	10.11	32.603	10.36	31.922	10.63	31.854	10.18	32.000	10.21	32.043	10.46	31.891	11.09	31.703	11.01	31.720	
20m	9.42	32.455	9.50	32.514	9.34	32.568	9.83	32.037	9.76	32.047	9.69	32.435	9.58	32.338	9.84	32.128	9.69	31.994	10.16	32.003	
30m	8.08	32.503	8.77	32.553	8.83	32.646	9.28	32.177	9.17	32.441	9.20	32.553	9.48	32.418	9.04	32.433	7.35	32.482	9.86	32.597	
50m	5.94	32.836	6.32	32.811	6.55	32.719	7.27	32.388	7.00	32.615	6.59	32.687	5.77	32.663	5.91	32.715			7.34	32.649	
75m					2.32	32.925			2.31	32.839											
100m																					
125m																					
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806		
Station No	HFS25		HFS26		HFS27		HFS28		HFS29		HFS30		HFS31		HFS32		HFS33		HFS34		
Latitude:N	42-15.1		42-10.1		42-14.9		42-17.3		42-19.8		42-22.4		42-24.9		42-27.3		42-29.9		42-25.0		
Longitude:E	140-40.0		140-35.1		140-30.1		140-32.4		140-34.9		140-37.4		140-40.0		140-42.5		140-35.2		140-30.0		
Date	1998/06/16		1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/17		
Time(JST)	23:12		00:00		00:49		01:18		01:48		02:18		02:47		03:15		04:01		04:51		
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	11.5	31.75*	11.6	31.70*	11.6	31.64*	11.6	31.64*	11.7	31.62*	11.7	31.63*	11.7	31.58*	11.7	31.56*	11.4	31.67*	11.6	31.61*	
10m	9.92	31.930	10.71	31.790	11.53	31.653	11.56	31.644	11.57	31.633	11.35	31.653	11.31	31.636	11.42	31.614	11.23	31.672	11.16	31.688	
20m	8.85	32.124	10.29	31.870	10.68	31.772	10.89	31.740	11.03	31.705	10.92	31.719	10.93	31.717	10.80	31.747	11.09	31.686	11.00	31.698	
30m	8.13	32.360	9.82	32.069	9.93	32.077	10.34	31.873	10.22	31.827	10.13	31.863	10.05	31.890	9.92	31.907	10.15	31.887	10.89	31.724	
50m	2.49	32.729	4.32	32.614	4.11	32.595	3.95	32.604	7.58	32.454	9.14	32.284	6.77	32.388	3.95	32.615	7.11	32.581	5.93	32.379	
75m	2.68	33.097			2.20	32.940	2.41	32.979	2.98	33.202	3.01	33.219	2.40	32.919					2.05	32.847	
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HFS36		HFS35		HFS37		HFS38		HFS129		HIK04		HIK01		HIK02		HIK03		HKD001	
Latitude:N	42-17.9		42-19.9		42-24.9		42-29.9		42-20.1		41-55.2		41-40.2		41-39.3		41-38.9		41-59.8	
Longitude:E	140-25.2		140-25.1		140-25.1		140-30.0		140-34.9		141- 6.8		140-40.0		140-39.0		140-36.6		141- 0.2	
Date	1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/17		1998/06/18		1998/06/18		1998/06/18		1998/06/19		1998/06/22	
Time(JST)	05:48		06:08		06:46		07:29		08:40		10:22		17:44		22:53		03:29		21:18	
Weather											B		B		B		C		C	
Air Temp.											13.0		19.0		18.0		15.0		12.5	
Bar											1012.5		1011.5		1011.5		1012.0		1022.0	
Wind Dir											W		E		NE		NW		SE	
Wind Spd/F											S 2		S 2		S 1		S 3		S 7	
Transparency											136		120		101		76		90	
Depth											136		120		101		76		90	
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	31.66*	11.8	31.49*	11.9	31.38*	10.9	31.80*	11.7	31.62*	13.1	32.06*	14.8	33.88*	14.9	33.92*	14.4	33.80*	11.5	31.951
10m	11.51	31.657	11.45	31.661	11.05	31.734	10.85	31.836	11.22	31.663	9.76	32.247	13.22	34.030	14.16	33.992	13.80	33.981	9.57	32.121
20m	10.84	31.754	10.86	31.726	10.68	31.815	9.90	32.019	10.70	31.758	8.45	32.358	11.90	34.043	12.21	34.033	11.67	34.075	8.68	32.370
30m	10.36	31.887	10.51	31.842	9.91	32.014	9.12	32.322	10.31	31.882	8.41	32.545	10.75	34.083	10.14	34.090	9.49	34.092	7.96	32.633
50m	5.82	32.393	6.99	32.494	3.91	32.620	3.54	32.656	9.26	32.604	4.59	32.750	8.91	34.087	9.01	34.095	8.28	34.114	6.75	33.050
75m											2.87 33.150		3.10 33.092		8.28 34.098		8.57 34.099		4.25 33.158	
100m													2.99 33.161		8.02 34.097					
125m													3.39 33.268							
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HKD002		HKD003		HKD004		HKD005		HKD006		HKD007		HKD021		HKD008		HKD009		HKD010	
Latitude:N	42- 4.9		42- 9.8		42-14.9		42-19.9		42-25.0		42-29.9		42-25.2		42-20.2		42-20.1		42-20.1	
Longitude:E	140-55.2		140-50.1		140-45.0		140-40.1		140-35.2		140-30.0		140-27.6		140-25.0		140-30.0		140-35.0	
Date	1998/06/22		1998/06/22		1998/06/22		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23	
Time(JST)	22:14		23:06		23:56		00:44		01:35		02:27		03:13		03:56		04:35		05:15	
Weather	B		B		B		BC		BC		BC		B		BC		BC		C	
Air Temp.	12.0		12.0		11.5		12.0		11.5		12.0		12.0		12.0		12.0		12.0	
Bar	1022.0		1022.5		1022.5		1022.5		1022.5		1022.5		1023.0		1023.0		1023.0		1022.5	
Wind Dir	SE		ESE		ESE		E		E		E		E		E		E		E	
Wind Spd/F	S 6		S 5		S 7		S 6		S 5		S 4		S 4		S 4		S 5		S 7	
Transparency																	7		8	
Depth	89		91		80		780		92		68		83		69		94		94	
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	11.6	31.814	12.1	31.700	12.8	31.499	12.5	31.545	12.3	31.567	12.9	31.439	12.8	31.465	13.0	31.401	12.6	31.526	12.6	31.602
10m	11.46	32.450	12.19	31.703	12.91	31.481	12.60	31.561	12.33	31.569	12.17	31.602	12.78	31.483	11.29	31.718	12.50	31.541	12.64	31.526
20m	10.60	32.627	8.75	32.166	10.31	31.888	12.52	31.567	11.97	31.619	10.07	31.983	11.03	31.750	10.79	31.774	10.96	31.738	12.58	31.542
30m	9.62	32.725	7.75	32.353	9.07	32.240	10.30	31.894	11.00	31.729	9.12	32.242	9.53	32.147	10.09	31.974	10.65	31.779	10.56	31.802
50m	5.69	32.756	6.74	32.758	6.03	32.695	8.68	32.337	6.86	32.474	3.32	32.700	4.75	32.565	4.14	32.624	5.52	32.505	7.65	32.350
75m	2.52	32.959	2.55	33.059	3.63	32.996			2.69	33.105			2.49	32.958			2.59	32.981	2.84	33.153
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HKD011		HKD012		HKD013		HKD022		HKD014		HKD015		HKD016		HKD017		HKD018		HKD023	
Latitude:N	42-20.0		42-20.0		42-20.0		42-24.9		42-29.9		42-25.0		42-20.2		42-15.1		42-10.3		42-15.0	
Longitude:E	140-39.9		140-45.0		140-50.0		140-45.2		140-40.2		140-40.2		140-39.8		140-39.8		140-39.7		140-35.0	
Date	1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23	
Time(JST)	05:56		06:34		07:14		08:06		08:52		09:35		10:18		11:02		11:46		12:28	
Weather	C		E		C		C		C		C		C		C		C		C	
Air Temp.	12.0		12.5		12.5		13.5		15.0		14.5		14.0		14.0		14.0		13.0	
Bar	1023.0		1023.5		1023.5		1023.5		1023.0		1023.0		1023.0		1023.0		1022.5		1022.0	
Wind Dir	E		E		ESE		ESE		SE		SE		ESE		SE		ESE		ESE	
Wind Spd/F	S 7		S 8		S 3		S 6		S 3		S 7		S 5		S 7		S 9		S 8	
Transparency	9		10		9		11		9		9		10		11		8		10	
Depth	77		60		47		56		65		76		78		87		85		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	12.5	31.564	12.5	31.565	12.9	31.501	12.6	31.572	12.9	31.469	12.5	31.567	12.5	31.573	13.1	31.485	11.6	31.700	13.2	31.503
10m	12.53	31.569	12.43	31.578	12.83	31.494	12.64	31.577	12.70	31.460	12.35	31.565	12.59	31.575	12.77	31.517	11.36	31.723	12.93	31.498
20m	12.44	31.578	12.38	31.582	10.62	31.854	12.59	31.578	10.29	31.903	12.10	31.598	12.54	31.575	10.45	31.863	9.63	32.055	10.42	31.847
30m	10.40	31.883	10.09	32.007	8.82	32.472	10.03	32.014	8.94	32.325	10.91	31.754	11.63	31.653	9.71	32.037	8.55	32.407	9.57	32.063
50m	8.68	32.331	5.74	32.576			3.57	32.683	3.35	32.691	6.41	32.506	6.50	32.393	6.34	32.705	3.53	32.721	5.98	32.553
75m															2.70	33.054	2.43	32.969	2.47	33.008
100m																				
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HKD024		HYK03		HYK01		HYK02		HSY01		HSY02		HSY02		HIK0H1		HIK007		HIK006	
Latitude:N	42-15.0		41-53.0		41-40.2		41-40.0		41-31.4		41-15.0		41-15.1		41-40.1		41-30.0		41-39.9	
Longitude:E	140-54.8		141- 7.0		140-40.2		140-39.9		140-25.9		139-50.3		139-50.9		140-39.9		141-19.9		141-20.1	
Date	1998/06/23		1998/06/23		1998/06/23		1998/06/24		1998/06/25		1998/06/25		1998/06/25		1998/06/29		1998/06/29		1998/06/29	
Time(JST)	14:17		16:52		20:36		04:32		16:02		19:57		23:59		10:47		13:49		15:14	
Weather	C		BC		C		C		C		R		F		C		C		BC	
Air Temp.	15.0		16.0		13.0		15.0		21.0		20.0		21.0		17.5		21.0		19.5	
Bar	1022.5		1022.0		1021.0		1022.0		1018.0		1017.5		1017.5		1007.5		1006.5		1006.5	
Wind Dir	ESE		SE		E		E				S		SSW		ESE		CALM		E	
Wind Spd/F	S 7		S 4		S 4		S 7				S 6		S 5		S 4		S 0		S 4	
Transparency	7														16		20		17	
Depth	61		80		121		119		53		780				118		2420		230	
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	32.009	10.7	32.14*	15.5	33.35*	16.7	33.59*	14.6	33.76*	18.0	33.59*	17.9	33.59*	14.5	34.002	15.8	33.640	15.8	33.848
10m	11.34	32.256	9.20	32.403	15.23	33.679	16.32	33.563	12.40	33.898	17.80	33.515	17.69	33.584	13.84	33.984	14.72	33.792	14.63	33.924
20m	9.63	32.601	8.68	32.587	13.63	33.822	14.47	33.803	9.22	34.091	17.21	33.676	17.47	33.935	13.35	34.000	14.56	33.808	14.08	33.952
30m	8.60	32.521	8.24	32.779	12.50	33.960	12.28	33.978	8.64	34.096	16.46	33.697	16.44	33.804	12.60	34.025	14.55	33.809	13.76	33.973
50m	4.97	32.766	4.87	32.900	11.46	33.998	9.78	34.102	8.60	34.088	12.47	34.156	13.38	34.082	9.65	34.120	13.70	33.890	12.88	33.938
75m			3.93	33.093	8.93	34.101	8.14	34.101			10.90	34.116	10.98	34.118	8.84	34.124	12.70	33.933	11.18	33.725
100m					8.51	34.097	7.74	34.101			10.19	34.117	10.71	34.110	8.57	34.119	10.93	34.050	8.23	33.402
125m											9.59	34.127	10.21	34.128			10.39	34.061	7.78	33.612
150m											8.34	34.144	9.48	34.128			10.08	34.071	7.82	33.818
200m											6.76	34.137	6.68	34.144			9.63	34.093	3.41	33.474
250m											3.37	34.106	3.58	34.105						
300m											2.03	34.089	1.86	34.088						
400m											1.12	34.077	0.94	34.075						
500m											0.79	34.075	0.67	34.072						
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-28

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	HIK005		HIK0S1		HIK0M1		HIK001		HIK004		HIK003		HIK002		HIK000		HIK014		HIK015	
Latitude:N	41-49.9		41-54.7		41-53.9		41-51.3		41-59.8		42-10.0		42-19.9		42-26.9		42- 9.9		42- 0.3	
Longitude:E	141-20.0		141- 8.9		141-10.5		141-13.6		141-19.9		141-20.0		141-20.0		141-20.0		142-30.1		142-39.6	
Date	1998/06/29		1998/06/29		1998/06/29		1998/06/30		1998/06/30		1998/06/30		1998/06/30		1998/06/30		1998/06/30		1998/06/30	
Time(JST)	16:27		18:29		23:15		03:32		05:21		06:45		08:09		09:07		15:52		18:42	
Weather	B		BC		C		C		C		F		F		F		C		BC	
Air Temp.	19.0		20.0		16.0		16.0		16.0		16.0		16.5		17.0		20.0		15.0	
Bar	1012.0		1008.0		1009.0		1010.5		1011.0		1011.0		1011.0		1011.0		1010.5		1011.5	
Wind Dir	SSE		WNW		WNW		NW		WNW		WSW		CALM		WNW		W		WNW	
Wind Spd/F	S 4		S 1		S 5		S 2		S 3		S 2		S 0		S 1		S 4		S 7	
Transparency	12		11						13		13		11		14		10		9	
Depth	285		172		199		217		300		348		233		80		122		561	
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	32.484	15.5	31.802	14.6	31.913	14.3	32.096	13.6	32.657	14.2	32.815	12.2	32.543	14.2	32.115	13.7	32.306	12.8	32.083
10m	12.15	32.729	11.12	32.559	12.23	32.489			12.50	32.761	11.69	33.287	11.76	32.573	12.32	32.341	10.82	32.396	8.12	32.349
20m	10.75	32.927	10.77	32.937	11.60	32.627			10.38	32.944	11.15	33.454	9.85	32.656	10.51	32.557	8.82	32.411	7.66	32.437
30m	8.25	32.957	9.94	33.010	9.94	32.810			9.97	33.063	6.91	33.030	8.06	32.666	10.21	32.891	7.45	32.528	7.37	32.498
50m	7.78	33.475	8.98	33.391	8.21	33.003			8.62	33.472	6.98	33.487	8.24	33.435	8.87	33.228	6.73	32.682	4.46	32.678
75m	6.25	33.606	6.00	33.500	6.37	33.517			5.85	33.587	5.39	33.509	7.19	33.652			3.88	33.024	2.71	32.839
100m	4.71	33.481	5.55	33.497	5.45	33.490			4.82	33.498	4.47	33.462	5.34	33.522			2.10	33.048	1.80	32.957
125m	3.84	33.406	4.36	33.427	4.37	33.420			4.32	33.467	4.64	33.507	4.31	33.448					1.81	33.073
150m	3.70	33.410	3.86	33.414	3.88	33.417			4.32	33.534	4.37	33.514	4.30	33.487					2.94	33.241
200m	3.73	33.510							3.25	33.528	3.72	33.534	3.20	33.419					3.19	33.358
250m	2.83	33.468							2.91	33.561	2.68	33.501							2.99	33.434
300m											2.73	33.597							2.84	33.539
400m																			3.05	33.741
500m																			3.28	33.914
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-29

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199807	
Station No	HIK015		HIK012		HIK011		HIK010		HIK009		HIK081		HIK082		HIK083		HIK016		HFS115	
Latitude:N	41-57.9		41-50.1		41-40.0		41-30.1		41-20.1		41-10.1		41- 9.9		41- 8.0		41-41.4		42-15.1	
Longitude:E	142-39.2		142-10.2		142- 0.0		141-50.2		141-40.1		141-30.0		141-30.0		141-31.7		140-39.2		141- 0.0	
Date	1998/06/30		1998/07/01		1998/07/01		1998/07/01		1998/07/01		1998/07/01		1998/07/01		1998/07/01		1998/07/02		1998/07/13	
Time(JST)	23:47		06:15		08:01		09:46		11:25		12:52		18:40		23:14		16:52		18:10	
Weather	BC		C		C		C		B		BC		C		C		C			
Air Temp.	15.0		16.5		19.0		21.0		22.0		21.0		20.0		19.0		18.0			
Bar	1011.5		1014.5		1015.0		1015.0		1015.0		1015.0		1014.5		1014.0		1009.0			
Wind Dir	WNW		W		WSW		SSW		CALM		ENE		NE		ESE		SSW			
Wind Spd/F	S 7		S 2		S 4		S 1		S 0		S 2		S 2		S 3		S 6			
Transparency	9		16		13		16		15		10		10				6			
Depth	561		1080		1050		950		764		497		492		520		90			
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	32.083	14.5	33.560	15.0	33.467	15.1	33.381	17.5	33.554	15.6	33.498	15.9	33.557	16.6	33.562	15.3	33.497	16.4	31.54*
10m	11.54	32.377	13.65	33.755	14.60	33.464	13.95	33.418	15.36	33.593	14.66	33.623	14.45	33.668	14.92	33.599	14.71	33.860	12.65	32.428
20m	8.76	32.627	13.46	33.858	13.60	33.537	13.44	33.492	14.61	33.625	14.52	33.768	14.37	33.753	14.50	33.616	14.76	33.915	10.98	32.982
30m	7.21	32.542	13.26	33.840	13.10	33.649	13.06	33.641	14.07	33.628	14.55	33.801	14.27	33.782	14.14	33.618	12.24	34.064	8.43	32.927
50m	4.66	32.660	12.80	33.881	11.74	33.771	12.19	33.736	13.16	33.675	13.72	33.823	13.70	33.861	13.50	33.750	9.73	34.155	8.24	33.371
75m	2.15	32.886	11.48	33.880	11.44	33.868	11.47	33.895	11.41	33.732	13.24	33.809	12.94	33.870	12.06	33.856	9.31	34.132		
100m	1.58	32.978	11.19	33.909	11.05	33.925	10.82	33.937	8.21	33.428	11.47	33.855	12.90	33.889	11.82	33.870				
125m	1.53	33.045	10.66	33.957	10.66	33.916	10.27	33.938	6.64	33.434	10.43	33.932	11.25	33.893	10.10	33.913				
150m	1.61	33.113	10.25	33.963	10.55	33.989	10.09	33.958	6.71	33.608	8.61	33.830	10.04	33.918	9.53	33.895				
200m	2.90	33.341	8.14	33.832	9.19	33.912	8.51	33.832	3.79	33.395	4.15	33.433	5.02	33.508	3.99	33.410				
250m			4.42	33.470	5.74	33.549	3.65	33.353	2.32	33.354	3.24	33.398	3.22	33.398	3.39	33.463				
300m			3.67	33.463	3.59	33.379	2.83	33.354	2.37	33.442	2.35	33.392	2.59	33.391	2.36	33.396				
400m			2.79	33.529	2.70	33.446	2.28	33.490	2.52	33.579	2.70	33.625	2.62	33.602						
500m			3.08	33.828	3.20	33.889	3.02	33.772	2.96	33.781										
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-30

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807		
Station No	HFS116		HFS117		HFS118		HFS119		HFS120		HFS121		HFS122		HFS123		HFS124		HFS125		
Latitude:N	42-10.1		42- 7.6		42- 8.7		42-10.7		42-13.2		42-15.6		42-18.0		42-24.9		42-20.0		42-15.2		
Longitude:E	140-55.1		140-52.7		140-44.8		140-46.9		140-49.8		140-52.8		140-55.8		140-50.1		140-45.1		140-39.9		
Date	1998/07/13		1998/07/13		1998/07/13		1998/07/13		1998/07/13		1998/07/13		1998/07/13		1998/07/13		1998/07/13		1998/07/14		
Time(JST)	18:59		19:25		20:08		20:31		21:00		21:29		22:10		23:10		23:58		00:46		
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	15.5	31.52*	15.4	31.71*	15.4	31.48*	16.3	31.36*	15.5	31.34*	16.5	31.23*	15.9	31.35*	16.0	31.32*	16.2	31.35*	16.6	31.33*	
10m	12.76	31.887	13.45	32.346	14.19	31.748	14.86	32.011	15.31	31.718	13.32	31.777	12.33	32.330	16.01	31.322	14.90	31.461	15.34	31.407	
20m	11.22	32.504	12.16	32.378	11.07	31.846	14.39	32.505	11.91	32.295	10.36	32.438	9.50	32.715	10.56	32.134	13.76	31.575	14.69	31.826	
30m	10.18	32.865	10.84	32.999	8.40	32.442	10.75	32.438	10.04	32.771	8.84	32.664	9.58	33.029	9.15	32.547	12.16	32.161	12.04	32.152	
50m	8.51	33.298	8.66	33.315	6.99	32.899	5.54	32.721	8.28	33.073	7.70	33.065	8.62	33.135			6.65	32.776	6.80	32.860	
75m			4.32	33.203			2.43	32.991												2.97	33.173
100m																					
125m																					
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-31

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807		
Station No	HFS126		HFS127		HFS128		HFS129		HFS130		HFS131		HFS132		HFS133		HFS134		HFS136		
Latitude:N	42-10.4		42-14.8		42-17.4		42-19.9		42-22.3		42-25.0		42-27.4		42-29.9		42-25.1		42-17.6		
Longitude:E	140-35.4		140-30.2		140-32.3		140-34.9		140-37.7		140-40.0		140-42.4		140-35.0		140-30.0		140-25.0		
Date	1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/14		
Time(JST)	01:35		02:25		02:52		03:19		03:47		04:13		04:37		05:22		06:05		07:05		
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	15.2	31.45*	16.9	31.39*	16.5	31.31*	16.5	31.33*	16.5	31.33*	16.5	31.33*	16.5	31.25*	17.3	30.96*	16.8	31.19*	16.6	31.14*	
10m	14.51	31.553	14.76	31.521	15.26	31.388	15.30	31.387	15.80	31.363	16.51	31.332	16.18	31.321	13.99	31.862	15.00	31.577	14.77	31.349	
20m	10.74	31.853	11.70	31.787	12.43	31.779	13.04	31.643	13.03	31.680	12.30	31.707	11.97	31.700	10.00	32.323	10.20	32.124	10.74	32.094	
30m	8.78	32.435	9.65	32.281	10.28	31.923	10.56	31.883	10.48	31.984	10.54	32.139	9.55	32.352	9.60	32.641	8.64	32.418	9.25	32.331	
50m	4.99	32.695	5.05	32.597	6.84	32.763	6.65	32.646	7.80	32.824	5.72	32.656	4.45	32.633	3.57	32.681	4.84	32.648	4.96	32.663	
75m	2.52	32.881	2.52	32.959	2.55	32.880	2.86	32.936	3.16	33.060	2.94	33.015					2.41	32.933			
100m																					
125m																					
150m																					
200m																					
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	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	HFS135		HFS137		HFS138		HFS229		HIK001		HIK016		HAP17		HAP16		HAP15		HAP14	
Latitude:N	42-19.9		42-25.0		42-29.9		42-20.0		41-53.2		41-40.0		41-23.1		41-20.7		41-18.4		41-16.0	
Longitude:E	140-24.9		140-25.0		140-30.0		140-35.0		141-10.1		140-39.8		140-10.6		140-11.0		140-11.7		140-12.4	
Date	1998/07/14		1998/07/14		1998/07/14		1998/07/14		1998/07/15		1998/07/16		1998/07/23		1998/07/23		1998/07/23		1998/07/23	
Time(JST)	07:25		08:01		08:48		10:02		16:55		17:50		14:24		15:01		15:28		16:01	
Weather									B		BC									
Air Temp.									20.0		22.0									
Bar									1013.5		1008.5									
Wind Dir									SES		E									
Wind Spd/F									S 6		S 6									
Transparency									13		13									
Depth									137		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	17.6	30.80*	17.4	31.05*	16.3	31.27*	16.4	31.34*	15.4	31.79*	19.4	33.61*	20.2	33.90*	20.2	33.96*	20.6	34.06*	20.9	33.77*
10m	15.61	31.569	15.70	31.469	14.75	31.589	15.27	31.421	12.52	32.707	18.72	33.695	20.13	33.903	20.18	33.948	18.87	34.141	20.49	33.851
20m	10.67	32.105	10.74	31.893	10.80	31.985	14.58	31.811	10.36	33.001	16.19	33.904	17.46	33.997	15.01	34.200	15.21	34.198	17.55	34.273
30m	9.48	32.387	9.34	32.275	9.41	32.439	10.43	31.930	8.65	32.959	14.95	33.970	13.78	34.229	11.43	34.182	13.03	34.187	13.47	34.384
50m	4.55	32.651	5.46	32.644	4.35	32.680	7.18	32.772	9.86	33.809	13.25	34.040			9.87	34.152	11.62	34.159	11.54	34.203
75m							3.10	33.050	5.77	33.361	11.44	34.114			8.53	34.145	9.99	34.155	10.54	34.168
100m									6.46	33.628	11.36	34.109			6.36	34.127	8.40	34.151	10.19	34.155
125m									5.03	33.439							8.06	34.142	10.19	34.152
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	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807		
Station No	HAP13		HAP12		HAP11		HAP41		HAP42		HAP43		HAP44		HAP45		HAP46		HAP47		
Latitude:N	41-13.6		41-11.0		41- 8.7		41- 8.5		41-10.9		41-13.3		41-15.7		41-18.0		41-20.5		41-23.1		
Longitude:E	140-13.0		140-13.6		140-14.2		140-14.3		140-13.7		140-13.1		140-12.4		140-11.8		140-11.0		140-10.4		
Date	1998/07/23		1998/07/23		1998/07/23		1998/07/23		1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/24		
Time(JST)	16:32		17:02		17:32		23:46		00:16		00:48		01:17		01:49		02:20		02:51		
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	20.8	33.83*	20.0	33.90*	19.8	33.87*	19.8	33.87*	19.8	33.91*	20.7	33.82*	20.9	33.82*	20.6	34.04*	20.5	33.95*	21.4	33.87*	
10m	20.82	33.832	19.86	33.908	19.35	33.921	19.19	33.926	19.79	33.914	20.53	33.835	20.72	33.850	20.59	34.036	20.43	33.963	21.41	33.873	
20m	18.07	34.171	17.94	34.280	17.23	34.050	17.74	33.969	19.51	33.942	20.03	33.911	19.95	34.048	18.91	34.115	20.21	34.000	19.74	33.952	
30m	14.42	34.395	14.95	34.356	16.28	34.271	15.60	34.125	18.88	34.087	18.46	34.131	16.04	34.243	15.44	34.317	17.07	34.153	13.13	34.186	
50m	11.91	34.221	12.18	34.243	13.42	34.277	12.73	34.147	15.00	34.173	14.18	34.335	13.51	34.303	13.84	34.296	12.92	34.208	12.32	34.174	
75m	11.21	34.168	10.85	34.119					11.40	34.131	10.86	34.145	11.90	34.211	11.90	34.217	10.03	34.166			
100m	10.81	34.136									10.72	34.112	10.49	34.122	11.37	34.182	9.17	34.153			
125m													10.41	34.116	10.29	34.156					
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	199807		199807		199807		199807		199807		199807		199807		199807		199808		199808	
Station No	HAP81		HAP82		HAP83		HAP84		HAP85		HAP86		HAP87		HAPR87		H01		P65	
Latitude:N	41- 8.6		41-10.8		41-13.3		41-15.7		41-18.0		41-20.5		41-23.1		41-23.0		41-40.1		41-40.0	
Longitude:E	140-14.4		140-13.7		140-13.1		140-12.5		140-11.8		140-11.2		140-10.5		140-10.6		140-39.9		141-19.9	
Date	1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/24		1998/07/27		1998/07/27	
Time(JST)	12:09		12:39		13:11		13:41		14:14		14:45		15:15		15:20		14:12		16:56	
Weather																			BC	F
Air Temp.																			22.0	20.5
Bar																			1010.0	1010.0
Wind Dir																			ENE	ESE
Wind Spd/F																			S 9	S 3
Transparency																			16	15
Depth																			118	232
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	33.98*	21.7	33.68*	22.2	33.48*	21.9	33.72*	20.9	33.90*	20.8	33.97*	21.3	34.00*	21.3	34.00*	21.4	33.520	18.5	32.09*
10m	19.18	33.984	19.25	34.228	18.28	34.348	21.31	33.719	20.07	34.006	19.63	34.049	21.19	33.992	21.21	33.997	20.14	33.827	14.86	32.764
20m	18.39	34.057	17.35	34.084	17.96	34.256	15.05	34.415	14.23	34.343	15.07	34.302	18.68	34.070	19.86	34.008	17.45	34.009	13.64	32.924
30m	17.27	34.082	16.04	34.131	16.28	34.387	14.73	34.408	13.22	34.303	13.40	34.316	14.18	34.229	13.95	34.246	14.66	34.098	12.05	32.974
50m	15.60	34.168	14.27	34.320	14.33	34.400	12.58	34.273	10.87	34.159	10.39	34.163			12.46	34.180	12.58	34.131	9.24	33.186
75m			12.05	34.193	12.75	34.253	11.02	34.150	9.15	34.161	7.81	34.141					11.21	34.147	10.85	33.829
100m					10.92	34.149	10.33	34.114	8.15	34.168	7.15	34.135					10.66	34.149	9.08	33.830
125m							8.95	34.158	7.94	34.140									8.24	33.867
150m																			6.29	33.744
200m																			2.98	33.508
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-35

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	P66		P56		P55		P54		P53		P52		P51		P60		P61		P62	
Latitude:N	41-30.1		41-20.1		41-30.0		41-40.1		41-50.0		42- 0.0		42-10.0		42-27.0		42-20.0		42-10.1	
Longitude:E	141-20.1		141-40.0		141-50.0		141-59.9		142-10.0		142-19.9		142-30.0		141-20.0		141-20.0		141-20.0	
Date	1998/07/27		1998/07/27		1998/07/27		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28	
Time(JST)	18:12		20:27		22:19		00:24		01:56		03:42		05:19		11:14		12:04		13:17	
Weather	C		C		C		C		C		C		C		C		C		C	
Air Temp.	19.0		19.0		19.0		19.5		19.0		18.5		19.0		22.0		22.0		21.5	
Bar	1010.0		1011.0		1010.5		1010.0		1009.5		1010.0		1010.0		1010.5		1010.0		1009.5	
Wind Dir	ESE		ESE		SSE		ESE		ESE		ESE		NE		SE		E		NNE	
Wind Spd/F	S 5		S 3		S 5		S 6		S 8		S 4		S 2		S 2		S 1		S 1	
Transparency	10												12		7		13		15	
Depth	242		761		950		1050		1000		1000		121		78		244		360	
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	33.88*	18.3	33.23*	18.9	33.50*	18.9	33.51*	18.2	33.43*	16.8	33.070	17.6	33.046	18.5	32.020	18.6	32.978	18.7	32.258
10m	17.27	33.924	18.30	33.409	18.40	33.528	18.22	33.526	17.48	33.530	14.89	33.549	15.69	33.840	15.02	33.202	17.54	33.173	16.95	33.566
20m	16.42	34.030	18.00	33.436	18.13	33.525	17.81	33.529	15.39	33.711	11.66	33.174	14.00	33.879	9.68	32.949	12.91	33.404	15.27	33.921
30m	15.55	34.062	17.30	33.457	17.18	33.577	16.20	33.650	14.14	33.814	12.18	33.642	12.85	34.040	9.73	33.366	12.39	33.953	13.49	34.021
50m	15.11	34.063	14.21	33.675	14.95	33.752	14.71	33.959	13.47	34.114	13.06	34.090	12.17	34.068	9.84	33.803	11.46	34.033	11.39	33.986
75m	14.25	34.071	11.53	33.710	13.86	33.842	14.30	33.980	12.57	34.117	11.67	34.024	11.64	34.066			9.76	33.940	9.52	33.836
100m	13.39	34.125	10.61	33.901	13.52	34.001	12.63	34.045	12.31	34.117	10.91	33.992	10.18	33.979			8.64	33.843	8.83	33.847
125m	12.50	34.142	10.16	33.917	12.08	34.002	11.23	33.951	10.97	34.089	10.51	34.020					7.94	33.777		
150m	12.06	34.133	9.37	33.896	11.16	34.020	10.19	33.955	10.46	34.058	9.71	33.956					7.28	33.728	4.65	33.408
200m	10.23	34.099	4.70	33.410	9.86	33.962	7.41	33.716	7.48	33.784	2.70	33.208					5.06	33.569	5.01	33.569
250m			3.83	33.415	4.27	33.391	4.11	33.436	2.16	33.233	2.82	33.362							4.01	33.509
300m			3.65	33.460	3.37	33.398	2.46	33.325	2.57	33.380	2.59	33.441							2.77	33.479
400m			3.92	33.669	2.35	33.412	2.40	33.426	3.33	33.613	2.66	33.580								
500m			3.12	33.765	2.51	33.556	2.77	33.581	3.30	33.797	3.17	33.861								
600m			3.26	33.958	3.16	33.848	3.01	33.788	3.62	34.060	3.38	34.072								
700m																				
800m																				
900m																				
1000m																				

Table 4-36

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

Stn-prefix	199808		199808		199807		199808		199808		199808		199808		199808		199808		199808	
Station No	P63		P64		HIK916		HIK017		HIK016		HIK116		HIK107		HIK106		HIK105		HIK104	
Latitude:N	42- 0.1		41-50.0		41-40.1		41-14.9		41-40.1		41-40.2		41-30.1		41-40.0		41-49.9		41-59.9	
Longitude:E	141-20.0		141-19.8		140-40.1		139-49.7		140-40.0		140-40.0		141-20.0		141-20.1		141-20.1		141-20.0	
Date	1998/07/28		1998/07/28		1998/07/29		1998/08/03		1998/08/05		1998/08/24		1998/08/24		1998/08/24		1998/08/24		1998/08/24	
Time(JST)	14:36		15:56		16:15		18:50		17:06		11:14		14:27		15:42		16:49		18:08	
Weather	F		F		C		C		C		BC		BC		F		F		F	
Air Temp.	21.0		22.5		20.0		19.0		21.0		26.0		26.0		23.6		23.0		21.0	
Bar	1009.0		1009.0		1010.0		1010.0		1011.0		1011.5		1009.0		1010.0		1010.0		1010.6	
Wind Dir	NE		NE		E		WSW		E		E		ESE		SE		E		SE	
Wind Spd/F	S 1		S 3		S 7		S 1		S 2		S 3		S 5		S 4		S 3		S 1	
Transparency	14		15		13						14		11		13		11			
Depth	308		282		119		900		119		118		244		227		287		299	
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	19.0	31.736	19.0	31.975	19.6	33.82*	24.0	33.90*	23.8	33.79*	21.9	33.535	21.3	33.622	22.8	33.423	21.8	33.428	20.1	32.430
10m	13.27	33.115	16.97	33.164	18.54	33.948	24.06	33.909	22.36	33.737	19.99	33.895	20.35	33.553	22.84	33.398	18.43	33.677	19.79	33.338
20m	12.69	33.923	15.38	33.790	16.11	34.051	19.80	34.102	21.42	33.744	18.82	33.986	18.67	33.802	21.81	33.505	14.62	34.065	17.45	33.820
30m	12.33	34.060	13.42	34.012	14.21	34.131	17.51	34.360	20.01	33.892	17.65	34.047	16.86	33.930	21.48	33.494	12.94	34.044	13.19	34.086
50m	10.93	33.939	11.42	33.942	12.00	34.183	13.30	34.317	14.53	34.167	14.43	34.197	15.00	34.073	19.79	33.688	11.26	33.980	11.94	34.040
75m	9.97	33.906	10.57	34.036	11.34	34.160	11.03	34.197	11.36	34.183	12.51	34.173	13.92	34.152	19.14	33.900	10.27	33.996	11.03	34.030
100m	9.43	33.930	8.87	33.860	10.75	34.159	9.47	34.156	11.23	34.175	12.16	34.171	13.78	34.147	16.67	34.055	9.41	33.941	10.39	34.006
125m	8.69	33.906	8.38	33.895			8.42	34.182					12.11	34.056	10.70	33.996	8.24	33.854	9.30	33.931
150m	8.05	33.862	5.97	33.669			6.82	34.173					11.14	34.102	8.36	33.872	6.83	33.708	8.44	33.859
200m	6.16	33.677	4.46	33.527			3.98	34.122					9.02	33.930	3.36	33.478	4.03	33.452	5.70	33.609
250m	3.87	33.500	3.40	33.470			2.24	34.089									3.35	33.446	3.49	33.461
300m							1.58	34.080												
400m							0.91	34.078												
500m							0.53	34.075												
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-37

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	HIK101		HIK103		HIK102		HIK100		HIK114		HIK113		HIK115		HIK112		HIK111		HIK110	
Latitude:N	41-54.3		42-10.0		42-19.9		42-26.9		42-10.0		42- 0.0		42- 0.2		41-50.0		41-40.1		41-30.1	
Longitude:E	141- 9.5		141-19.8		141-19.9		141-20.0		142-30.0		142-20.1		142-39.9		142-10.2		142- 0.2		141-50.1	
Date	1998/08/24		1998/08/25		1998/08/25		1998/08/25		1998/08/25		1998/08/25		1998/08/25		1998/08/26		1998/08/26		1998/08/26	
Time(JST)	19:31		06:19		07:37		08:36		14:27		15:58		17:52		06:52		08:54		10:38	
Weather	C		R		C		R		C		C		C		R		C		C	
Air Temp.	22.0		22.0		21.0		21.5		23.5		22.5		21.5		22.0		23.5		24.0	
Bar	1009.5		1004.0		1005.0		1006.0		1006.0		1006.5		1006.5		1007.0		1007.0		1008.0	
Wind Dir	SE		E		E		SSE		SSE		SE		E		S		SE		SW	
Wind Spd/F	S 5		S 2		S 1		S 2		S 3		S 2		S 1		S 3		S 3		S 3	
Transparency			14		16		12		14		13		14		13		16		14	
Depth	178		356		240		79				1000		528		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	19.8	32.371	20.0	33.185	20.0	33.384	19.2	32.984	20.1	33.368	20.6	33.430	20.6	33.250	22.0	33.573	21.8	33.530	21.2	33.593
10m	19.25	33.196	19.01	33.534	19.79	33.483	19.59	33.262	19.55	33.465	19.85	33.484	19.85	33.392	20.44	33.555	20.59	33.561	20.29	33.665
20m	16.71	33.482	16.40	33.883	14.79	33.942	18.88	33.565	17.51	33.827	19.13	33.509	18.70	33.535	18.57	33.754	20.32	33.651	20.06	33.672
30m	14.83	33.941	14.83	33.929	13.10	34.069	14.68	33.752	15.33	34.044	18.16	33.704	16.20	33.859	17.83	33.833	19.63	33.692	18.82	33.802
50m	11.61	33.954	12.40	34.045	11.76	34.066	11.36	33.987	12.24	34.045	13.73	34.024	12.23	34.108	16.16	33.876	18.01	33.819	16.84	33.887
75m	10.34	33.945	11.26	34.045	11.28	34.057			11.05	34.046	11.76	34.038	10.44	34.038	14.71	33.945	16.08	34.020	15.89	34.002
100m	9.62	33.961	10.59	34.015	10.49	34.023			9.82	34.003	11.33	34.060	9.02	33.945	13.82	34.097	13.94	33.946	14.50	33.995
125m	8.51	33.870	9.60	33.954	10.02	33.992					10.46	33.996	7.22	33.742	12.70	34.078	12.63	33.903	13.06	33.896
150m	8.17	33.836	8.03	33.832	9.45	33.948					9.57	33.964	4.66	33.548	11.36	34.018	11.89	33.944	12.42	33.993
200m			5.56	33.583	5.99	33.650					5.21	33.534	2.97	33.450	5.82	33.494	10.53	33.997	10.54	33.978
250m			4.06	33.472							3.18	33.433	2.47	33.486	4.82	33.532	7.02	33.689	8.05	33.795
300m			2.88	33.452							2.88	33.596	2.83	33.610	4.11	33.533	3.14	33.349	3.83	33.403
400m											3.26	33.890	3.21	33.842	3.01	33.634	2.12	33.401	2.36	33.432
500m											3.41	34.054	3.32	33.956	3.23	33.858	2.90	33.692	2.78	33.644
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-38

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

Stn-prefix	199808		199808		199808		199808		199809		199809		199809		199809		199809		199809	
Station No	HIK109		HIK108		HIK108		HIK816		HSR17		HSR182		HSR18		HSR19		HSR20		HFS31	
Latitude:N	41-20.0		41- 9.9		41- 9.9		41-39.8		41-15.0		41-18.6		41-16.0		41-16.0		41-27.1		41-27.3	
Longitude:E	141-40.0		141-30.1		141-30.0		140-39.6		139-50.1		137- 0.4		136-59.2		136-59.3		139-48.3		141-28.2	
Date	1998/08/26		1998/08/26		1998/08/26		1998/08/27		1998/08/31		1998/09/01		1998/09/02		1998/09/02		1998/09/03		1998/09/09	
Time(JST)	12:24		14:10		18:01		17:34		19:08		17:05		17:43		18:03		19:17		13:14	
Weather	C		C		C		C													
Air Temp.	25.0		25.0		23.0		23.5													
Bar	1008.0		1008.5		1010.0		1011.0													
Wind Dir	SE		SE		SSE		E													
Wind Spd/F	S 2		S 2		S 3		S 6													
Transparency	14		13		12		13													
Depth	758		500		491		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	21.4	33.570	21.1	33.116	20.7	32.969	22.3	33.837	24.2	32.90*	22.1	33.69*	22.0	33.67*	22.0	33.66*	23.8	33.34*	19.6	33.68*
10m	20.57	33.663	19.94	33.095	20.26	33.097	21.59	33.920	23.96	33.276	22.08	33.691	21.99	33.666	21.99	33.663	23.59	33.752	19.26	33.721
20m	19.78	33.583	19.58	33.568	19.95	33.437	20.69	33.975	23.09	33.903	10.34	34.004	9.83	34.066	10.28	34.013	20.33	34.186	19.18	33.748
30m	18.28	33.465	18.62	33.648	18.90	33.634	18.56	34.046	19.33	34.296	4.35	34.131	3.62	34.144	3.69	34.143	17.63	34.372	19.09	33.788
50m	18.08	33.723	16.60	33.892	15.99	33.952	15.14	34.152	14.99	34.405	2.61	34.091	2.15	34.097	2.16	34.091	13.13	34.314		
75m	16.19	34.001	13.95	34.017	13.75	34.051	12.84	34.175	12.02	34.228	1.89	34.074	1.69	34.081	1.71	34.076	11.18	34.184		
100m	14.32	34.025	11.37	33.756	9.89	33.451	12.25	34.165	10.76	34.150	1.54	34.071	1.48	34.107	1.49	34.077	10.41	34.149		
125m	12.82	34.092	9.59	33.774	9.18	33.584			10.19	34.141	1.48	34.081	1.40	34.118	1.41	34.083	9.67	34.158		
150m	11.95	34.067	9.58	33.904	8.80	33.765			9.83	34.159	1.40	34.088			1.31	34.085	7.61	34.156		
200m	10.09	33.993	5.30	33.503	4.97	33.503			5.02	34.138	1.23	34.090			1.16	34.088	3.05	34.098		
250m	5.56	33.554	4.04	33.449	4.46	33.524			2.45	34.094	1.05	34.085			1.02	34.086	1.90	34.080		
300m	4.08	33.474	3.34	33.501	3.89	33.549			1.66	34.090	0.96	34.086			0.92	34.086	1.26	34.075		
400m	2.66	33.522	3.92	33.748					0.89	34.077	0.74	34.082			0.71	34.080	0.82	34.072		
500m	3.23	33.795							0.56	34.074	0.55	34.077			0.53	34.076	0.57	34.073		
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-39

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809		
Station No	HFS32		HFS33		HFS34		HFS35		HFS36		HFS37		HFS02		HFS08		HFS11		HFS17		
Latitude:N	41-30.5		41-33.8		41-37.2		41-40.6		41-44.0		41-47.0		42- 0.0		41-59.8		42- 4.9		42- 7.4		
Longitude:E	141-25.5		141-22.9		141-20.3		141-17.7		141-15.0		141-12.7		141-15.0		141- 5.1		141- 0.1		140-52.7		
Date	1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		
Time(JST)	13:50		14:30		15:24		16:16		17:02		17:39		19:12		20:13		21:12		22:10		
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	21.3	33.46*	22.3	33.54*	23.0	33.50*	23.3	33.36*	21.3	33.45*	19.9	33.10*	20.9	32.80*	20.7	32.78*	21.3	32.36*	20.2	31.71*	
10m	21.20	33.453	21.70	33.630	22.12	33.579	23.33	33.363	20.93	33.543	18.78	33.345	20.48	32.946	20.55	32.899	20.75	32.890	18.75	32.672	
20m	20.93	33.381	21.23	33.689	21.46	33.613	21.33	33.591	18.37	33.317	17.38	33.553	15.73	34.133	17.80	33.883	17.60	33.931	16.15	32.905	
30m	20.53	33.621	20.09	33.864	20.15	33.802	18.71	33.575	17.83	33.452	16.94	33.582	14.92	34.111	14.04	33.778	15.78	34.052	12.87	32.897	
50m	16.75	33.970	18.73	33.995	20.08	33.815	16.22	33.771	13.23	33.733	12.99	33.715	12.19	34.084	11.42	33.900	13.00	34.044	8.52	32.854	
75m	13.37	34.188	14.48	34.212	14.79	34.203	12.32	34.048	11.30	33.997	10.49	33.756	10.73	34.022	10.15	33.913	10.65	33.935	6.77	33.510	
100m			14.00	34.198	13.69	34.218	10.89	34.027	9.63	33.949	9.64	33.815	10.07	33.969	8.98	33.849					
125m			13.08	34.211	12.80	34.221	9.92	33.939	8.94	33.863			8.50	33.818							
150m			12.68	34.211	10.40	34.008	8.84	33.897	8.58	33.847			4.87	33.450							
200m			11.07	34.172	5.40	33.647	4.24	33.472	6.34	33.673			3.57	33.460							
250m			10.22	34.102																	
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-40

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809			
Station No	HFS19		HFS25		HFS29		HFS34		HFS38		HFS331		HFS311		HFS24		HFS18		HFS191			
Latitude:N	42-10.7		42-14.8		42-19.9		42-24.9		42-29.9		42-30.0		42-25.1		42-20.1		42- 8.7		42-10.7			
Longitude:E	140-46.9		140-40.2		140-35.2		140-30.1		140-30.0		140-34.9		140-39.9		140-45.0		140-45.0		140-47.2			
Date	1998/09/09		1998/09/09		1998/09/10		1998/09/10		1998/09/10		1998/09/10		1998/09/10		1998/09/10		1998/09/10		1998/09/10			
Time(JST)	23:02		23:58		00:53		02:10		02:57		03:33		04:24		05:15		06:38		07:03			
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	20.9	31.87*	20.9	31.59*	20.9	31.63*	21.4	31.56*	21.1	31.73*	21.2	31.54*	21.4	31.58*	21.3	31.63*	-	-	-	-	20.4	32.07*
10m	19.30	32.510	20.56	31.640	20.57	31.665	20.94	31.559	20.75	32.016	21.06	31.541	20.68	31.698	20.23	32.420	-	-	-	-	19.50	32.367
20m	19.01	33.436	15.99	32.616	20.41	31.748	18.52	32.497	19.68	32.447	19.39	32.205	20.35	31.810	18.32	33.589	-	-	-	-	18.75	32.895
30m	16.33	33.369	13.35	32.888	14.76	32.641	15.54	32.599	14.46	32.580	16.20	32.636	13.55	32.672	13.27	33.021	-	-	-	-	18.81	33.461
50m	7.21	32.950	7.26	33.132	6.71	32.938	7.59	32.825	10.11	33.317	10.14	33.372	11.07	33.719	12.53	33.883	-	-	-	-	6.29	32.824
75m	5.22	33.235	4.95	33.386	5.21	33.413	5.32	33.306									-	-	-	-	5.76	33.258
100m																	-	-	-	-		
125m																	-	-	-	-		
150m																	-	-	-	-		
200m																	-	-	-	-		
250m																	-	-	-	-		
300m																	-	-	-	-		
400m																	4.00	33.706				
500m																						
600m																						
700m																						
800m																						
900m																						
1000m																						

Table 4-41

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

Stn-prefix	199809		199809		199809		199809		199810		199810		199810		199810		199810		199810	
Station No	HFS20		HFS21		HFS22		HFS02		H01		P65		P66		P56		P55		P54	
Latitude:N	42-13.1		42-15.6		42-17.8		41-55.0		41-40.1		41-40.0		41-30.0		41-20.0		41-30.0		41-39.9	
Longitude:E	140-49.8		140-52.6		140-55.8		141- 8.3		140-40.0		141-20.1		141-19.9		141-39.9		141-49.9		142- 0.1	
Date	1998/09/10		1998/09/10		1998/09/10		1998/09/10		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28	
Time(JST)	07:33		08:02		08:32		17:22		11:05		13:52		15:14		17:41		19:41		21:33	
Weather									B		B		B		B		B		B	
Air Temp.									21.0		23.5		21.0		21.0		19.0		18.0	
Bar									1024.5		1024.0		1024.0		1024.5		1025.5		1025.5	
Wind Dir									N		N		NNW		N		N		N	
Wind Spd/F									S 5		S 8		S 7		S 5		S 5		S 5	
Transparency									16		17		15							
Depth									118		230		241		750		932		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	20.9	32.76*	21.0	32.29*	21.0	32.35*	21.4	32.58*	22.6	31.955	21.1	33.208	20.6	33.445	20.7	33.437	20.9	33.378	20.9	33.384
10m	20.52	33.244	20.73	32.705	20.65	32.933	20.72	32.955	22.30	33.177	20.57	33.370	20.72	33.456	20.82	33.460	21.23	33.374	21.27	33.354
20m	20.33	33.337	20.09	33.401	20.24	33.408	17.59	33.910	21.96	33.253	17.03	33.801	20.72	33.456	20.84	33.486	21.15	33.382	19.86	33.684
30m	18.39	33.716	17.36	33.730	17.02	33.820	16.10	34.046	18.82	33.829	14.98	34.065	20.72	33.456	20.81	33.482	20.66	33.374	19.33	33.729
50m	12.78	33.854	13.64	34.000			11.49	33.908	15.41	34.177	13.87	34.151	20.72	33.457	20.74	33.503	20.40	33.516	15.39	34.104
75m							10.51	33.912	12.86	34.243	13.64	34.205	15.41	34.177	18.82	33.576	18.52	33.800	14.14	34.060
100m							9.40	33.829	11.27	34.208	12.88	34.130	12.72	34.252	17.60	33.902	16.28	33.934	12.90	34.083
125m							7.58	33.729			10.59	34.008	11.94	34.246	16.34	33.955	13.90	33.963	11.89	34.064
150m							4.58	33.525			4.88	33.554	10.58	34.210	13.51	34.004	13.57	34.116	10.30	34.004
200m											3.54	33.624	9.71	34.181	4.29	33.537	8.65	33.880	8.24	33.925
250m														2.86	33.512	5.40	33.593	4.66	33.572	
300m														2.92	33.618	3.02	33.528	3.27	33.528	
400m														3.37	33.857	3.24	33.732	3.27	33.748	
500m														3.36	33.976	3.41	33.957			
600m														3.35	34.122	3.39	34.088			
700m																				
800m																				
900m																				
1000m																				

Table 4-42

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	P53		P51		P52		P60		P61		P62		P63		P64		HAP17		HAP16	
Latitude:N	41-49.9		42-10.0		42- 0.1		42-27.0		42-20.2		42-10.0		42- 0.1		41-50.1		41-22.3		41-20.6	
Longitude:E	142-10.0		142-29.8		142-20.0		141-20.1		141-20.0		141-19.9		141-20.0		141-20.0		140-11.3		140-10.9	
Date	1998/09/28		1998/09/29		1998/09/30		1998/10/01		1998/10/01		1998/10/03		1998/10/03		1998/10/03		1998/10/06		1998/10/06	
Time(JST)	23:53		22:51		00:26		00:46		01:49		07:48		09:20		10:42		13:23		14:02	
Weather	B		C		C		C		C		B		BC		BC					
Air Temp.	18.0		18.0		18.0		18.0		18.0		16.0		16.0		16.0					
Bar	1026.0		1027.0		1027.0		1022.0		1022.0		1016.0		1016.5		1016.5					
Wind Dir	N		E		ESE		ESE		ESE		NW		WNW		NW					
Wind Spd/F	S 8		S 5		S 5		S 10		S 9		S 7		S 8		S 5					
Transparency											14		15		15					
Depth	1000		120		1000		78		242		359		307		286					
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	19.4	33.528	19.0	33.141	20.2	33.334	19.2	33.142	18.7	33.281	19.1	33.449	18.9	33.569	18.2	33.608	21.0	33.38*	21.1	33.28*
10m	19.50	33.577	19.16	33.112	20.41	33.354	19.42	33.101	19.08	33.283	19.37	33.469	19.11	33.594	18.28	33.573	20.00	33.718	20.53	33.445
20m	18.42	33.653	18.42	33.181	19.95	33.376	19.42	33.118	19.32	33.504	19.37	33.469	19.04	33.598	18.26	33.575	18.43	34.147	20.18	33.638
30m	16.83	33.906	16.21	33.725	17.27	33.881	19.63	33.451	19.06	33.574	19.37	33.468	18.78	33.613	18.26	33.582	13.80	34.289	17.18	34.328
50m	13.72	34.129	13.73	34.133	13.98	34.118	16.13	33.770	15.32	34.043	15.77	34.052	15.34	34.033	14.98	34.103	10.15	34.211	14.14	34.355
75m	11.87	34.061	10.36	34.007	12.11	34.084			12.63	34.041	12.53	34.080	11.75	34.086	12.17	34.102			10.17	34.190
100m	9.84	33.908	7.94	33.830	10.10	33.979			10.72	34.017	11.39	34.064	10.71	34.050	11.11	34.054			5.85	34.132
125m	8.67	33.850			8.04	33.783			8.91	33.879	10.22	34.029	9.68	33.964	9.90	33.989				
150m	6.57	33.646			4.93	33.580			6.03	33.615	8.94	33.895	8.41	33.845	7.87	33.832				
200m	3.49	33.505			3.24	33.592			3.15	33.543	5.43	33.556	5.27	33.558	4.11	33.482				
250m	3.18	33.621			3.18	33.703					3.64	33.493	3.53	33.478	3.21	33.524				
300m	3.30	33.737			3.26	33.800					3.04	33.635	3.13	33.540						
400m	3.38	33.949			3.37	33.946														
500m	3.40	34.099			3.40	34.086														
600m	3.25	34.193			3.24	34.196														
700m																				
800m																				
900m																				
1000m																				

Table 4-43

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810		
Station No	HAP15		HAP14		HAP13		HAP12		HAP11		HAP41		HAP42		HAP43		HAP44		HAP45		
Latitude:N	41-18.2		41-16.0		41-13.5		41-11.1		41- 8.6		41- 8.6		41-10.8		41-13.4		41-15.7		41-18.2		
Longitude:E	140-11.8		140-12.4		140-13.0		140-13.6		140-14.2		140-14.3		140-13.7		140-13.2		140-12.5		140-12.2		
Date	1998/10/06		1998/10/06		1998/10/06		1998/10/06		1998/10/06		1998/10/06		1998/10/06		1998/10/06		1998/10/07		1998/10/07		
Time(JST)	14:34		15:05		15:36		16:08		16:38		22:51		23:21		23:54		00:23		00:55		
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	20.9	33.40*	22.1	33.15*	22.4	32.92*	22.3	32.84*	22.3	32.85*	22.2	32.78*	22.3	32.80*	22.1	32.87*	22.2	32.80*	21.9	33.12*	
10m	20.87	33.396	22.06	33.145	22.38	32.929	22.29	32.850	22.29	32.907	22.25	32.787	22.26	32.801	22.13	32.915	22.10	32.878	21.64	33.180	
20m	20.86	33.395	22.03	33.151	22.30	33.055	22.21	33.042	22.29	32.953	22.25	32.963	22.23	32.806	22.12	33.074	21.69	33.841	21.03	33.256	
30m	20.81	33.395	21.83	33.217	20.86	34.010	22.14	33.462	22.05	33.103	21.07	34.069	22.23	33.831	20.04	34.135	20.94	34.034	20.89	33.253	
50m	20.33	33.549	19.47	34.233	18.14	34.318			18.54	34.281	18.35	34.291	18.91	34.300	17.49	34.349	17.29	34.367	20.47	33.498	
75m	16.78	34.349	16.96	34.375	16.23	34.384	16.44	34.383					16.41	34.381	14.58	34.371	13.30	34.316	17.16	34.257	
100m	12.94	34.308	14.98	34.396	13.42	34.313									12.53	34.267	10.92	34.189	12.51	34.278	
125m	8.20	34.211	10.49	34.195													9.45	34.174			
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	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810		
Station No	HAP46		HAP47		HAP81		HAP82		HAP83		HAP84		HAP85		HAP86		HAP87		HKG005		
Latitude:N	41-20.4		41-23.0		41- 8.6		41-10.7		41-13.3		41-15.7		41-18.1		41-20.5		41-23.1		41-54.4		
Longitude:E	140-11.1		140-10.3		140-14.3		140-13.7		140-13.1		140-12.5		140-11.8		140-11.1		140-10.2		141-10.7		
Date	1998/10/07		1998/10/07		1998/10/07		1998/10/07		1998/10/07		1998/10/07		1998/10/07		1998/10/07		1998/10/07		1998/10/12		
Time(JST)	01:27		01:58		11:15		11:45		12:15		12:48		13:18		13:49		14:20		17:26		
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	21.3	33.28*	20.8	33.35*	22.5	32.85*	22.3	32.98*	22.2	33.06*	21.0	33.30*	20.9	33.31*	20.8	33.08*	20.7	33.37*	18.2	32.78*	
10m	20.69	33.407	20.75	33.370	22.32	32.876	22.24	32.990	22.04	33.139	20.70	33.294	20.89	33.319	20.81	33.080	20.32	33.621	18.11	32.784	
20m	20.44	33.492	19.48	33.818	22.16	32.935	22.23	32.990	21.72	33.240	20.71	33.331	20.87	33.352	20.82	33.461	18.04	34.074	18.68	33.240	
30m	17.37	34.131	18.23	34.138	22.08	32.953	21.94	33.451	21.33	33.788	20.73	33.349	20.86	33.370	15.75	34.363	16.22	34.271	18.70	33.289	
50m	14.90	34.390	12.12	34.285	19.53	34.197	18.64	34.271	17.69	34.362	19.89	33.719	20.52	33.444	13.76	34.305	11.83	34.281	17.05	33.800	
75m	8.74	34.199					16.29	34.415	13.94	34.354	15.47	34.406	18.21	33.993	9.99	34.179			12.82	34.107	
100m	5.66	34.132							12.68	34.273	12.00	34.237	11.89	34.241	8.51	34.165			11.17	34.053	
125m											10.44	34.173	9.39	34.168					10.37	34.022	
150m																			8.56	33.797	
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	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	HKG003		HKG002		HKG001		HKG004		HW002		HW003		HW004		HW005		HW006		HW007	
Latitude:N	42- 4.5		42- 4.9		42- 4.0		42- 4.3		41-29.9		41-39.9		41-49.9		41-59.9		42- 0.0		41-50.1	
Longitude:E	141- 4.1		140-56.9		140-53.0		141- 7.7		139-55.0		139-55.0		139-59.9		140- 0.0		139-40.1		139-30.1	
Date	1998/10/13		1998/10/13		1998/10/13		1998/10/13		1998/10/20		1998/10/20		1998/10/21		1998/10/21		1998/10/21		1998/10/21	
Time(JST)	07:19		08:11		09:06		15:35		22:30		23:58		01:31		02:57		04:55		06:38	
Weather	B		B		B		BC		C		C		F		C		C		BC	
Air Temp.	18.5		20.2		22.0		21.0		13.0		13.0		13.0		13.5		13.0		13.5	
Bar	1029.0		1028.5		1028.5		1025.2		1030.0		1030.0		1030.0		1029.0		1029.0		1029.0	
Wind Dir	NNW		SW		NNE		ESE		W		W		W		W		WSW		SW	
Wind Spd/F	S 5		S 1		S 1		S 3		S 3		S 2		S 2		S 2		S 3		S 3	
Transparency																			15	
Depth	99		84		73		118		230				960		748		900		596	
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	18.1	32.88*	18.1	32.69*	18.2	32.29*	18.4	33.27*	19.7	33.166	19.5	33.171	19.4	33.166	19.6	33.141	19.3	33.087	19.1	33.296
10m	18.35	33.215	18.13	32.694	18.17	32.303	18.44	33.308	20.46	33.226	20.04	33.273	19.92	33.243	20.04	33.226	19.89	33.168	19.58	33.379
20m	18.29	33.304	18.31	32.975	18.19	32.735	18.46	33.405	20.44	33.233	20.05	33.276	19.92	33.244	20.04	33.234	19.89	33.169	19.43	33.403
30m	18.28	33.318	18.41	33.056	18.62	33.256	18.43	33.423	20.32	33.250	20.04	33.278	19.92	33.247	19.97	33.263	19.89	33.169	18.91	33.677
50m	18.44	33.433	17.79	33.705	13.38	33.418	18.47	33.459	17.19	34.303	16.02	34.378	15.66	34.412	16.12	34.387	14.48	34.217	15.47	34.424
75m	15.91	33.978	7.54	33.671			13.46	34.084	11.39	34.202	12.22	34.286	10.93	34.203	11.08	34.211	9.48	34.189	11.93	34.256
100m							9.96	33.857	9.75	34.181	9.55	34.163	8.84	34.159	8.86	34.159	7.43	34.156	8.83	34.180
125m									7.12	34.152	7.59	34.156	7.14	34.146	7.24	34.147	5.33	34.125	6.54	34.151
150m									5.05	34.125	6.30	34.137	6.16	34.132	5.88	34.131	4.05	34.110	4.93	34.122
200m									3.88	34.100	3.67	34.100	4.42	34.109	3.89	34.099	2.41	34.085	2.76	34.089
250m											2.18	34.083	2.77	34.088	2.77	34.087	1.66	34.080	1.94	34.080
300m											1.45	34.077	1.76	34.079	1.70	34.080	1.16	34.077	1.22	34.076
400m											0.88	34.073	1.02	34.074	0.88	34.073	0.75	34.073	0.81	34.072
500m											0.60	34.069	0.65	34.071	0.55	34.070	0.53	34.070	0.62	34.070
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-46

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199811		199811		199811	
Station No	HW008		HW009		HW010		HW011		HW012		HW001		HW100		HFS24		HFS16		HFS17	
Latitude:N	41-50.0		41-40.0		41-30.1		41-30.1		41-20.1		41-20.1		41-41.8		42-15.1		42-10.2		42- 7.6	
Longitude:E	139-44.8		139-40.0		139-30.0		139-39.9		139-40.2		139-54.9		140-40.0		140-59.8		140-55.1		140-52.6	
Date	1998/10/21		1998/10/21		1998/10/21		1998/10/21		1998/10/21		1998/10/21		1998/10/21		1998/11/24		1998/11/24		1998/11/24	
Time(JST)	07:59		09:25		11:05		12:13		13:41		15:07		19:18		16:28		17:13		17:40	
Weather	C		C		C		C		B		B									
Air Temp.	13.5		14.6		15.5		15.0		15.0		15.0									
Bar	1029.5		1029.5		1029.0		1028.0		1027.0		1027.0									
Wind Dir	W		WNW		WNW		CALM		CALM		NE									
Wind Spd/F	S 4		S 3		S 3		S 0		S 0		S 1									
Transparency	15		16		14		19		18		18									
Depth			1424						520		133									
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	19.4	33.289	19.9	33.165	19.6	33.299	20.0	33.192	19.2	33.096	20.0	33.131	19.3	33.24*	10.8	33.79*	11.4	33.61*	11.6	33.61*
10m	19.59	33.383	20.32	33.241	19.83	33.393	20.46	33.277	19.72	33.171	20.67	33.202	19.26	33.252	10.80	33.791	11.25	33.579	11.65	33.744
20m	19.58	33.383	20.32	33.241	19.81	33.406	20.38	33.334	19.66	33.179	20.62	33.197	18.70	33.457	10.78	33.791	11.08	33.551	10.41	33.913
30m	19.59	33.390	20.32	33.242	19.82	33.414	20.31	33.454	19.58	33.197	20.60	33.201	17.91	33.735	10.80	33.848	11.12	33.635	9.90	33.981
50m	15.33	34.416	16.56	34.360	16.08	34.374	16.70	34.329	16.44	34.378	17.39	34.257	17.08	33.940	9.49	33.858	10.04	33.989	9.47	33.949
75m	12.02	34.237	14.35	34.372	12.48	34.320	12.91	34.325	12.24	34.306	13.99	34.376	14.59	34.165					7.79	33.755
100m	10.60	34.136	10.86	34.178	9.96	34.212	10.02	34.181	9.32	34.176	10.52	34.190								
125m	8.81	34.177	8.64	34.168	7.06	34.162	7.56	34.168	7.55	34.160	7.03	34.160								
150m	5.91	34.146	5.87	34.148	4.15	34.124	5.39	34.131	5.65	34.137										
200m	3.16	34.088	2.79	34.088	2.10	34.084	3.27	34.094	3.18	34.090										
250m	1.91	34.083	1.83	34.082	1.40	34.080	2.33	34.086	1.80	34.082										
300m	1.47	34.079	1.37	34.078	1.09	34.075	1.71	34.079	1.13	34.076										
400m	0.88	34.073	0.87	34.074	0.60	34.069	1.18	34.076	0.71	34.070										
500m	0.54	34.069	0.60	34.070	0.45	34.067	0.58	34.069												
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 4-47

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

Stn-prefix	199811		199811		199811		199811		199811		199811		199811		199811		199811		199811		
Station No	HFS18		HFS19		HFS20		HFS21		HFS22		HFS23		HFS24		HFS25		HFS26		HFS27		
Latitude:N	42- 8.6		42-10.6		42-13.0		42-15.4		42-17.9		42-24.9		42-20.1		42-15.1		42-10.0		42-14.9		
Longitude:E	140-45.0		140-46.7		140-49.8		140-52.7		140-55.7		140-50.1		140-45.1		140-40.1		140-35.1		140-30.0		
Date	1998/11/24		1998/11/24		1998/11/24		1998/11/24		1998/11/24		1998/11/24		1998/11/24		1998/11/24		1998/11/24		1998/11/25		
Time(JST)	18:24		18:45		19:15		19:43		20:12		21:09		21:52		22:39		23:25		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	11.0	33.32*	11.0	33.43*	10.7	33.44*	10.6	33.46*	10.7	33.45*	9.9	33.51*	10.8	33.48*	11.0	33.45*	10.9	33.56*	10.7	33.50*	
10m	11.02	33.444	11.08	33.429	10.68	33.442	10.58	33.465	10.55	33.491	10.00	33.563	10.79	33.475	11.00	33.448	10.91	33.556	10.72	33.507	
20m	11.33	33.605	11.08	33.430	10.67	33.441	10.54	33.536	9.84	33.697	9.98	33.593	10.66	33.476	11.00	33.450	10.91	33.555	10.79	33.534	
30m	11.14	33.588	10.85	33.493	10.66	33.440	10.98	33.939	9.80	33.723	9.94	33.591	10.21	33.497	10.98	33.464	9.43	33.708	10.15	33.674	
50m	8.33	33.727	10.42	33.549	9.70	33.721	9.52	33.863	9.73	33.823			9.53	33.864	10.45	33.504	7.75	33.707	8.81	33.835	
75m			7.61	33.709											7.74	33.750			8.01	33.777	
100m																					
125m																					
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-48

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

Stn-prefix	199811		199811		199811		199811		199811		199811		199811		199811		199811		199811	
Station No	HFS28		HFS29		HFS30		HFS31		HFS32		HFS33		HFS34		HFS36		HFS35		HFS37	
Latitude:N	42-17.4		42-19.9		42-22.4		42-25.0		42-27.4		42-29.9		42-26.0		42-17.7		42-19.9		42-24.8	
Longitude:E	140-32.4		140-34.9		140-37.4		140-39.9		140-42.1		140-35.1		140-30.2		140-25.1		140-24.9		140-24.9	
Date	1998/11/25		1998/11/25		1998/11/25		1998/11/25		1998/11/25		1998/11/25		1998/11/25		1998/11/25		1998/11/25		1998/11/25	
Time(JST)	00:56		01:29		02:29		02:59		03:29		04:14		04:54		05:58		06:20		06:57	
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	10.9	33.46*	11.0	33.47*	9.8	33.38*	10.2	33.46*	10.3	33.45*	9.6	33.31*	9.6	33.55*	10.6	33.48*	10.6	33.50*	9.2	33.15*
10m	10.94	33.463	11.01	33.471	9.62	33.397	10.24	33.472	10.28	33.457	9.63	33.532	9.41	33.585	10.57	33.486	10.56	33.503	9.63	33.683
20m	10.94	33.463	11.01	33.477	9.30	33.546	9.97	33.667	10.27	33.464	9.72	33.715	9.50	33.803	10.57	33.494	10.04	33.674	9.99	33.893
30m	10.86	33.516	11.01	33.506	9.48	33.688	9.68	33.741	10.17	33.662	9.69	33.739	9.20	33.812	9.76	33.770	9.42	33.667	9.64	33.886
50m	9.07	33.823	9.71	33.747	8.29	33.694	7.70	33.773	8.68	33.832	8.78	33.859	8.70	33.818	7.99	33.773	9.11	33.818	8.92	33.811
75m	7.45	33.762	7.35	33.720	6.77	33.703							7.96	33.767						
100m																				
125m																				
150m																				
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199811	199811	199811	199811	199811	199811	199811	199811	199811	199811	199811									
Station No	HFS38	HAP6	HAP5	HAP4	HAP3	HAP2	HAP1	HAP17	HAP16	HAP15										
Latitude:N	42-29.9	41-20.7	41-18.3	41-15.9	41-13.5	41-11.0	41- 8.6	41-23.2	41-20.8	41-18.5										
Longitude:E	140-29.8	140-11.1	140-11.7	140-12.4	140-12.9	140-13.6	140-14.3	140-10.4	140-11.0	140-11.9										
Date	1998/11/25	1998/11/25	1998/11/25	1998/11/25	1998/11/25	1998/11/25	1998/11/25	1998/11/26	1998/11/26	1998/11/26										
Time(JST)	07:44	20:53	21:24	21:55	22:27	22:58	23:28	16:23	17:04	17:44										
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	9.1	33.36*	16.5	33.21*	16.5	33.22*	16.7	33.22*	16.8	33.22*	16.7	33.19*	16.5	33.19*	15.5	33.52*	15.7	33.35*	16.1	33.30*
10m	9.11	33.370	16.47	33.210	16.53	33.221	16.71	33.225	16.77	33.217	16.72	33.192	16.55	33.194	15.47	33.526	15.75	33.347	15.98	33.341
20m	9.69	33.682	16.47	33.285	16.54	33.220	16.70	33.224	16.77	33.218	16.73	33.194	16.55	33.193	15.50	33.545	15.82	33.374	15.92	33.343
30m	9.30	33.777	15.87	33.421	16.53	33.220	16.72	33.233	16.65	33.234	16.74	33.211	16.56	33.193	15.33	33.565	16.09	33.687	15.95	33.361
50m	8.41	33.794	15.43	33.559	16.63	33.348	16.70	33.236	16.95	33.422	16.77	33.229	16.58	33.194			15.86	33.918	15.97	33.412
75m			15.53	33.875	16.35	33.719	16.90	33.593	17.09	33.573	16.88	33.281					14.78	33.785	16.26	33.768
100m			14.89	33.984	15.17	33.921	16.42	34.056	16.58	34.162							13.14	34.259	14.76	34.179
125m					13.97	34.127	15.12	34.320												
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	199811		199811		199811		199811		199811		199811		199811		199811		199811		199811		
Station No	HAP14		HAP13		HAP12		HAP11		HAP41		HAP42		HAP43		HAP44		HAP45		HAP46		
Latitude:N	41-15.9		41-13.5		41-11.0		41- 8.6		41- 8.6		41-10.8		41-13.3		41-15.7		41-18.1		41-20.4		
Longitude:E	140-12.3		140-13.0		140-13.6		140-14.3		140-14.3		140-13.7		140-13.0		140-12.5		140-11.9		140-11.2		
Date	1998/11/26		1998/11/26		1998/11/26		1998/11/26		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		
Time(JST)	18:07		18:34		19:05		19:36		01:51		02:22		02:53		03:23		03:56		04:25		
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	16.1	33.37*	16.2	33.33*	16.3	33.23*	16.4	33.26*	16.5	33.23*	16.5	33.21*	16.7	33.33*	16.3	33.29*	16.0	33.37*	15.6	33.45*	
10m	16.05	33.366	16.21	33.333	16.35	33.245	16.45	33.264	16.54	33.230	16.47	33.215	16.69	33.326	16.29	33.291	15.97	33.373	15.57	33.454	
20m	16.08	33.367	16.22	33.335	16.38	33.272	16.44	33.261	16.44	33.287	16.48	33.212	16.70	33.325	16.30	33.291	15.98	33.387	15.58	33.460	
30m	16.08	33.368	16.22	33.337	16.42	33.313	16.49	33.291	16.42	33.311	16.47	33.210	16.70	33.327	16.29	33.292	15.89	33.463	15.57	33.460	
50m	16.18	33.406	16.41	33.436	16.26	33.474	16.44	33.332	16.32	33.347	16.51	33.243	16.73	33.336	17.09	33.647	16.97	33.971	15.54	33.509	
75m	16.19	33.728	16.19	33.679	16.27	33.487					16.28	33.402	16.97	33.606	16.95	33.894	15.33	34.057	13.25	34.249	
100m	16.19	33.977	16.11	33.913									16.31	33.730	15.82	34.170	12.53	34.271	10.29	34.210	
125m	14.53	34.298													13.64	34.252	11.20	34.225			
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	199811		199811		199811		199811		199811		199811		199811		199811		199812		199812			
Station No	HAP46		HAP81		HAP82		HAP83		HAP84		HAP85		HAP86		HAP87		H01		P60			
Latitude:N	41-23.0		41- 8.6		41-10.8		41-13.2		41-15.6		41-18.1		41-20.5		41-23.1		41-40.0		42-26.9			
Longitude:E	140-10.6		140-14.2		140-13.7		140-13.2		140-12.4		140-11.6		140-11.2		140-10.4		140-40.0		141-20.1			
Date	1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/11/27		1998/12/02		1998/12/04			
Time(JST)	05:00		14:14		14:46		15:17		15:47		16:18		16:49		17:22		11:35		09:45			
Weather																			BC	BC		
Air Temp.																			0.0	1.5		
Bar																			1026.5	1029.5		
Wind Dir																			WNW	WSW		
Wind Spd/F																			S 7	S 5		
Transparency																			10	13		
Depth																			118	79		
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	33.48*	16.3	32.97*	16.0	32.81*	16.4	33.12*	16.2	33.07*	16.6	33.22*	16.5	33.22*	16.4	33.26*	13.9	33.627	10.5	33.613		
10m	15.36	33.552	16.52	33.181	16.42	33.168	16.38	33.123	16.16	33.064	16.62	33.222	16.54	33.220	16.30	33.303	14.45	33.721	10.63	33.711		
20m	15.14	33.609	16.55	33.227	16.45	33.186	16.38	33.126	16.18	33.069	16.63	33.224	16.61	33.254	15.73	33.529	14.40	33.737	10.64	33.710		
30m	14.96	33.760	16.36	33.220	16.57	33.229	16.39	33.129	16.18	33.067	16.63	33.225	16.35	33.402	15.20	33.603	14.39	33.753	10.63	33.709		
50m	14.88	33.808	16.29	33.272	16.68	33.357	16.39	33.129	16.41	33.197	16.67	33.640	15.70	33.715	14.84	33.651	14.27	33.864	9.88	33.764		
75m							16.38	33.422	16.05	33.566	15.74	33.630	15.47	33.987					13.75	33.998	8.72	33.718
100m							16.14	33.716	15.89	33.631	16.08	33.947	14.63	33.801					13.24	34.101		
125m									15.50	34.225	13.59	34.303										
150m																						
200m																						
250m																						
300m																						
400m																						
500m																						
600m																						
700m																						
800m																						
900m																						
1000m																						

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199902		199902		199902		199902		
Station No	P61		P62		P63		P64		P65		P66		H011		H012		P65		P64		
Latitude:N	42-20.1		42-10.1		42- 0.1		41-50.0		41-40.0		41-29.9		41-40.1		41-40.1		41-39.8		41-49.8		
Longitude:E	141-20.1		141-19.9		141-19.9		141-20.0		141-20.0		141-20.0		140-40.0		140-40.2		141-20.0		141-20.2		
Date	1998/12/04		1998/12/04		1998/12/04		1998/12/04		1998/12/04		1998/12/04		1999/02/15		1999/02/15		1999/02/15		1999/02/15		
Time(JST)	10:35		17:12		18:40		20:05		21:25		22:50		16:32		16:41		19:56		21:54		
Weather	C		C		C		C		C		C		C		C		C		C		
Air Temp.	0.0		0.5		1.0		1.0		2.0		2.0		2.0		2.0		2.0		3.0		
Bar	1029.5		1030.5		1031.5		1032.5		1032.0		1032.5		1024.5		1024.5		1024.0		1023.5		
Wind Dir	W		W		W		W		WNW		NW		W		W		WSW		W		
Wind Spd/F	S 4		S 7		S 8		S 5		S 7		S 5		S 9		S 9		S 8		S 5		
Transparency	14												14		14						
Depth	250		362		310		286		232		241		120		120		230		287		
Equipment	CTD		STD		STD		STD		STD		STD		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	33.588	10.0	33.505	9.5	33.478	7.6	33.289	12.8	33.679	13.7	33.548	8.0	33.341	8.0	33.91*	3.3	33.349	3.7	33.279	
10m	10.29	33.689	10.09	33.65	9.75	33.65	7.78	33.48	13.27	33.94	14.12	33.72	8.12	33.916	8.12	33.923	3.59	33.282	3.71	33.255	
20m	10.32	33.704	10.10	33.67	9.75	33.66	7.80	33.47	13.17	33.90	14.07	33.75	8.13	33.921	8.13	33.923	3.71	33.299	3.69	33.253	
30m	10.32	33.711	10.04	33.66	9.75	33.65	7.84	33.50	13.05	33.90	13.97	33.83	8.11	33.927	7.96	33.935	3.98	33.342	3.78	33.265	
50m	10.11	33.711	9.66	33.62	9.42	33.60	7.88	33.49	11.94	33.98	13.93	33.93	7.80	33.978	7.81	33.942	4.97	33.484	3.80	33.268	
75m	9.16	33.701	6.54	33.61	9.07	33.57	6.18	33.34	10.02	33.89	13.29	33.96			7.77	33.943	5.68	33.605	4.21	33.326	
100m	7.18	33.660	6.19	33.57	8.16	33.44	5.32	33.46	7.12	33.55	12.06	33.98			7.68	33.954	5.68	33.611	4.27	33.344	
125m	5.90	33.617	8.38	33.77	7.07	33.31	6.85	33.82	5.76	33.40	10.06	33.92					5.49	33.576	4.10	33.332	
150m	5.18	33.558	7.06	33.72	5.42	33.26	4.85	33.66	4.55	33.53	8.85	33.88					6.08	33.672	4.22	33.360	
200m	4.03	33.505	4.96	33.59	5.03	33.64	4.26	33.64	3.25	33.60	4.86	33.70					4.04	33.418	4.32	33.409	
250m																				4.05	33.420
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-53

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	P63		P62		P61		P60		P51		P52		P53		P54		P55		P56	
Latitude:N	41-59.8		42-10.0		42-20.0		42-27.0		42-10.0		42- 0.1		41-50.0		41-40.1		41-30.1		41-19.9	
Longitude:E	141-20.2		141-20.0		141-20.1		141-20.0		142-29.8		142-20.2		142-10.1		142- 0.2		141-50.1		141-40.2	
Date	1999/02/15		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16	
Time(JST)	23:31		01:09		02:34		03:40		09:42		13:38		15:36		18:10		20:56		22:44	
Weather	C		C		C		C		BC		BC		BC		B		B		B	
Air Temp.	3.0		2.0		3.0		3.0		3.0		4.0		4.0		5.0		5.0		7.0	
Bar	1022.5		1021.5		1021.0		1020.0		1021.0		1021.0		1021.0		1021.0		1021.0		1020.5	
Wind Dir	W		SW		SSW		W		W		WNW		E		W		SW		SW	
Wind Spd/F	S 5		S 7		S 5		S 7		S 3		S 8		S 2		S 6		S 5		S 5	
Transparency									14		19		19							
Depth	316		365		257		81		123		970						950		760	
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	33.217	2.1	32.990	2.4	33.052	2.8	33.246	1.2	32.999	5.8	33.525	4.1	33.341	3.4	33.268	3.6	33.358	8.1	33.828
10m	3.37	33.193	2.10	32.955	2.39	33.034	2.83	33.227	1.08	32.766	6.22	33.615	4.10	33.298	3.33	33.204	4.56	33.388	8.27	33.843
20m	3.58	33.219	2.10	32.955	2.39	33.033	2.84	33.230	1.08	32.762	6.23	33.621	4.06	33.299	3.34	33.205	4.69	33.420	8.23	33.838
30m	3.71	33.240	2.37	32.993	2.39	33.033	2.81	33.241	1.09	32.758	6.21	33.621	4.07	33.301	3.35	33.207	5.26	33.506	8.14	33.830
50m	4.31	33.322	4.51	33.313	2.49	33.049	2.79	33.243	5.00	32.121	6.20	33.621	4.12	33.310	3.36	33.210	5.62	33.575	6.37	33.643
75m	4.27	33.333	4.84	33.372	2.75	33.091	2.89	33.264	6.71	33.359	6.17	33.617	4.21	33.333	3.83	33.285	5.80	33.609	5.50	33.530
100m	4.18	33.334	4.77	33.368	2.79	33.101			7.02	33.741	6.14	33.613	3.65	33.275	3.91	33.297	6.28	33.697	5.61	33.544
125m	3.29	33.256	4.97	33.409	2.90	33.120					6.03	33.600	3.89	33.313	4.80	33.434	6.65	33.768	6.27	33.695
150m	3.28	33.248	4.66	33.377	3.28	33.194					4.96	33.453	4.08	33.350	5.13	33.499	6.78	33.800	6.33	33.705
200m	3.48	33.278	4.31	33.366	3.58	33.258					4.22	33.455	4.61	33.469	5.39	33.618	6.70	33.792	6.54	33.756
250m	3.92	33.394	4.15	33.400							3.34	33.467	3.72	33.464	4.43	33.531	6.63	33.786	6.52	33.771
300m	3.35	33.485	3.78	33.463							3.19	33.526	3.35	33.526	3.39	33.466	5.96	33.710	5.46	33.641
400m											3.28	33.713	3.19	33.675	3.02	33.568	3.23	33.520	4.77	33.605
500m											3.56	33.906	3.53	33.887	3.40	33.792	3.30	33.717	3.37	33.741
600m											3.60	34.043	3.59	34.038	3.57	33.947	3.57	33.943	3.53	34.105
700m																				
800m																				
900m																				
1000m																				

Table 4-54

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

Stn-prefix	199902		199903		199903		199903		199903		199811		199811		199811		199811		199811	
Station No	P66		HKG004		HKG003		HKG002		HKG001		HFS101		HFS102		HFS103		HFS104		HFS105	
Latitude:N	41-30.0		42- 5.1		42- 4.8		42- 4.9		42- 5.1		42-17.5		42-15.0		42-10.0		42- 7.6		42- 8.6	
Longitude:E	141-20.2		141- 8.8		141- 3.8		140-56.0		140-51.4		141- 4.8		141- 0.1		140-55.1		140-52.6		140-45.0	
Date	1999/02/17		1999/03/02		1999/03/02		1999/03/02		1999/03/02		1999/03/02		1999/03/02		1999/03/02		1999/03/02		1999/03/02	
Time(JST)	01:33		06:51		07:34		08:29		09:08		12:51		13:23		14:09		14:35		15:24	
Weather	C		B		B		C		C											
Air Temp.	7.0		3.5		3.9		4.8		3.9											
Bar	1019.0		1010.0		1010.0		1010.0		1010.5											
Wind Dir	SSW		W		NW		NWW		WNW											
Wind Spd/F	S 3		S 4		S 7		S 6		S 5											
Transparency																				
Depth	243		124		101		88		58											
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	33.866	99.0	<i>N.D.</i>	3.4	33.21*	3.8	33.29*	2.9	33.24*	2.7	33.24*	3.4	33.25*	3.9	33.33*	2.9	33.24*	3.0	33.29*
10m	8.73	34.122	3.64	33.256	3.45	33.213	3.85	33.296	2.87	33.281	2.72	33.235	3.37	33.254	3.88	33.331	2.90	33.242	2.98	33.289
20m	8.73	33.847	3.65	33.256	3.60	33.241	3.73	33.305	2.91	33.304	2.69	33.235	3.40	33.263	3.88	33.331	2.90	33.245	2.97	33.291
30m	8.73	33.847	3.66	33.258	3.65	33.250	3.80	33.326	3.00	33.333	2.58	33.245	3.41	33.265	3.89	33.332	3.11	33.314	2.92	33.300
50m	8.71	33.845	3.66	33.267	3.81	33.280	3.91	33.342	2.81	33.432	2.84	33.478	3.00	33.357	3.89	33.331	3.15	33.337	2.86	33.452
75m	8.70	33.844	3.61	33.265	3.88	33.303	3.97	33.348									2.98	33.413		
100m	8.66	33.845	3.41	33.245																
125m	8.60	33.843																		
150m	8.44	33.846																		
200m	7.55	33.746																		
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199811		199811		199811		199811		199811		199811		199811		199811		199811		199811		
Station No	HFS106		HFS107		HFS108		HFS109		HFS116		HFS124		HFS123		HFS110		HFS122		HFS121		
Latitude:N	42-10.7		42-13.2		42-15.6		42-17.9		42-24.9		42-27.4		42-25.1		42-22.6		42-20.1		42-17.6		
Longitude:E	140-46.7		140-49.8		140-52.6		140-55.7		140-50.1		140-42.8		140-40.0		140-37.6		140-35.1		140-32.6		
Date	1999/03/02		1999/03/02		1999/03/02		1999/03/02		1999/03/03		1999/03/03		1999/03/03		1999/03/03		1999/03/03		1999/03/03		
Time(JST)	15:50		16:29		17:15		17:49		05:27		06:14		06:38		07:03		07:30		08:56		
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	3.0	33.28*	3.3	33.28*	3.2	33.26*	2.7	33.28*	2.7	33.38*	2.7	33.45*	2.7	33.48*	2.8	33.44*	2.7	33.47*	2.9	33.56*	
10m	3.04	33.279	3.29	33.281	3.24	33.259	2.73	33.300	2.65	33.377	2.73	33.447	2.68	33.489	2.79	33.450	2.72	33.475	2.94	33.563	
20m	3.03	33.284	3.30	33.283	3.24	33.259	2.75	33.305	2.69	33.386	2.74	33.448	2.75	33.511	2.80	33.471	2.82	33.524	2.93	33.564	
30m	3.04	33.282	3.30	33.283	3.21	33.258	2.90	33.365	2.91	33.495	2.76	33.452	2.75	33.510	2.80	33.491	2.82	33.527	2.93	33.564	
50m	3.01	33.361	2.81	33.367	3.20	33.263	2.85	33.510			2.98	33.562	2.85	33.537	2.85	33.521	2.85	33.535	2.93	33.564	
75m	2.85	33.515													2.91	33.549	2.81	33.541	2.94	33.565	
100m																					
125m																					
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

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

Stn-prefix	199811	199811	199811	199811	199811	199811	199811	199811	199811	199811	199903									
Station No	HFS120	HFS119	HFS118	HFS117	HFS111	HFS112	HFS113	HFS114	HFS115	HAP11										
Latitude:N	42-15.1	42-10.1	42-14.8	42-19.9	42- 8.8	42-10.7	42-13.1	42-15.5	42-17.9	41-23.2										
Longitude:E	140-30.1	140-35.0	140-39.9	140-44.9	140-44.8	140-46.7	140-49.7	140-52.7	140-55.6	140-10.5										
Date	1999/03/03	1999/03/03	1999/03/03	1999/03/03	1999/03/03	1999/03/03	1999/03/03	1999/03/03	1999/03/03	1999/03/07										
Time(JST)	09:24	10:07	10:49	11:33	12:50	13:11	13:36	14:02	14:30	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	3.0	33.57*	2.7	33.50*	2.8	33.41*	2.7	33.34*	2.9	33.37*	3.0	33.29*	3.4	33.32*	3.7	33.32*	3.1	33.29*	7.6	33.98*
10m	3.05	33.573	2.70	33.503	2.77	33.419	2.64	33.344	2.87	33.371	2.97	33.289	3.39	33.316	3.74	33.316	3.09	33.294	7.28	33.986
20m	3.04	33.575	2.68	33.506	2.74	33.438	2.64	33.344	2.86	33.380	2.87	33.442	3.39	33.316	3.73	33.316	3.04	33.297	6.59	34.020
30m	3.04	33.575	2.68	33.507	2.70	33.447	2.63	33.345	2.85	33.400	2.83	33.497	3.15	33.330	3.73	33.316	2.68	33.314	6.49	34.025
50m	3.04	33.575	2.68	33.508	2.79	33.497	2.80	33.476	2.85	33.505	2.88	33.531	2.85	33.471	3.68	33.316	2.83	33.455		
75m	3.04	33.575			2.85	33.533			2.92	33.555										
100m																				
125m																				
150m																				
200m																				
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	199903		199903		199903		199903		199903		199903		199903		199903		199903		199903		
Station No	HAP16		HAP15		HAP14		HAP13		HAP12		HAP11		HAP41		HAP42		HAP43		HAP44		
Latitude:N	41-20.7		41-18.3		41-15.9		41-13.5		41-11.0		41- 8.6		41- 8.5		41-10.8		41-13.4		41-15.8		
Longitude:E	140-11.1		140-11.7		140-12.4		140-13.1		140-13.6		140-14.4		140-14.3		140-13.6		140-13.0		140-12.5		
Date	1999/03/07		1999/03/07		1999/03/07		1999/03/07		1999/03/07		1999/03/07		1999/03/08		1999/03/08		1999/03/08		1999/03/08		
Time(JST)	19:51		20:23		20:59		21:27		21:56		22:27		04:43		05:09		05:40		06:12		
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	8.4	33.98*	9.0	33.92*	9.0	33.84*	9.0	33.83*	8.2	33.59*	7.9	33.47*	7.8	33.43*	8.0	33.57*	9.0	33.88*	8.7	33.93*	
10m	8.38	33.977	8.76	33.945	8.97	33.841	9.03	33.831	8.18	33.594	7.97	33.542	8.11	33.562	8.00	33.573	9.03	33.878	8.75	33.930	
20m	8.28	33.977	8.60	33.959	9.13	33.893	9.05	33.833	8.19	33.595	7.96	33.544	8.11	33.570	8.14	33.603	9.03	33.879	8.76	33.931	
30m	8.11	33.975	8.55	33.963	9.17	33.907	9.05	33.835	8.26	33.615	7.96	33.552	8.20	33.593	8.68	33.734	9.03	33.882	8.76	33.931	
50m	7.35	33.986	8.27	33.979	8.87	33.976	9.09	33.856	8.67	33.737	7.99	33.574	7.91	33.571	9.08	33.850	9.00	33.912	8.77	33.945	
75m	6.94	34.008	8.03	33.994	8.47	33.979	9.10	33.863	8.71	33.764				9.01	33.838	8.71	33.943	8.53	33.967		
100m	6.31	34.041	7.56	34.025	8.42	33.982	9.10	33.867									8.64	33.963	8.44	33.973	
125m			7.29	34.036	8.41	33.994													8.39	33.978	
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

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

Stn-prefix	199903		199903		199903		199903		199903		199903		199903		199903		199903		199903		
Station No	HAP45		HAP46		HAP47		HAP81		HAP82		HAP83		HAP84		HAP85		HAP86		HAP87		
Latitude:N	41-18.2		41-20.6		41-23.2		41- 8.5		41-10.8		41-13.3		41-15.7		41-18.1		41-20.5		41-23.1		
Longitude:E	140-11.9		140-11.0		140-10.2		140-14.0		140-13.5		140-13.0		140-12.4		140-11.7		140-11.1		140-10.3		
Date	1999/03/08		1999/03/08		1999/03/08		1999/03/08		1999/03/08		1999/03/08		1999/03/08		1999/03/08		1999/03/08		1999/03/08		
Time(JST)	06:43		07:12		07:45		17:02		17:33		18:05		18:36		19:07		19:39		20:10		
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	8.8	33.91*	8.6	33.89*	8.4	33.96*	8.1	33.60*	8.9	33.82*	8.8	33.94*	8.9	33.95*	8.6	33.93*	7.2	34.01*	7.7	33.98*	
10m	8.75	33.912	8.43	33.948	8.36	33.963	8.16	33.604	8.92	33.814	8.76	33.941	8.93	33.945	8.60	33.935	7.23	34.010	7.71	33.983	
20m	8.74	33.926	8.16	33.980	8.13	33.977	8.28	33.652	8.92	33.819	8.76	33.940	8.94	33.945	8.23	33.976	7.22	34.011	7.69	33.985	
30m	8.60	33.972	8.05	33.988	8.13	33.975	8.81	33.772	8.94	33.822	8.77	33.941	8.90	33.945	8.01	33.992	7.22	34.011	7.63	33.987	
50m	8.33	33.999	7.82	34.004	8.07	33.974	8.88	33.794	9.06	33.866	8.73	33.942	8.40	33.987	7.67	34.005	7.14	34.015	7.14	34.002	
75m	7.42	34.013	7.66	34.006					8.94	33.912	8.61	33.953	8.37	33.981	7.30	34.031	6.88	34.025			
100m	7.28	34.019	7.14	34.004							8.57	33.957	8.22	33.984	7.12	34.038	5.97	34.060			
125m	7.23	34.026											7.66	34.012	6.07	34.057					
150m																					
200m																					
250m																					
300m																					
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 4-59

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	P31		P32		P33		PK21		PK22		P34		P35		PK23		PK31		PK32	
Latitude:N	42-45.0		42-30.1		42-15.1		42-15.0		42- 0.0		42- 0.1		41-30.1		41-30.0		41-29.1		41- 0.1	
Longitude:E	144- 0.1		144- 0.1		143-59.1		143-30.1		143-29.9		143-59.9		143-59.1		143-29.9		143- 0.1		143- 0.0	
Date	1998/04/13		1998/04/13		1998/04/13		1998/04/13		1998/04/13		1998/04/13		1998/04/14		1998/04/14		1998/04/14		1998/04/14	
Time(JST)	10:50		13:01		15:28		17:59		19:38		21:47		01:13		03:29		05:46		08:42	
Weather	C		F		F		C		R		R		R		R		F		C	
Air Temp.	5.0		5.3		4.6		9.1		5.5		3.5		5.6		5.0		5.5		4.9	
Bar	1002.5		1004.5		1003.5		1002.5		1004.0		1005.0		1004.0		1004.5		1006.0		1009.2	
Wind Dir	SSW		SSW		SW		WSW		SW		WSW		SSW		W		N		NW	
Wind Spd/F	F 6		F 5		F 5		F 4		F 5		F 3		F 5		F 4		F 2		F 2	
Transparency	5		5		5												5		8	
Depth	66						70		120		1121									
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	1.8	32.187	2.4	32.627	2.5	32.833	2.3	32.103	1.9	32.337	1.9	32.649	3.4	33.056	2.3	32.802	2.3	32.655	2.7	32.793
10m	1.33	32.222	1.82	32.666	2.24	32.888	1.55	32.190	1.21	32.410	1.50	32.717	2.92	33.059	1.94	32.890	1.98	32.757	2.15	32.860
20m	0.88	32.374	2.30	32.977	2.23	32.897	-0.40	32.566	1.14	32.634	1.51	32.718	2.92	33.065	1.90	32.924	1.96	32.830	2.07	32.909
30m	0.52	32.416	2.34	33.089	2.00	33.029	-0.40	32.568	0.96	32.646	1.76	32.787	2.92	33.066	1.92	32.948	1.96	32.831	2.06	32.912
50m	0.01	32.619	2.07	33.106	1.74	33.083	-0.37	32.635	0.43	32.811	2.28	33.020	2.86	33.069	2.08	33.068	1.41	33.039	1.63	33.058
75m			1.49	33.094	1.84	33.109			0.65	32.936	1.78	33.100	1.24	33.042	1.99	33.162	1.88	33.144	1.37	33.068
100m			1.54	33.110	2.08	33.163			1.00	33.012	1.97	33.140	1.17	33.059	2.58	33.262	2.22	33.215	1.40	33.093
125m			1.64	33.142	2.47	33.256					2.19	33.186	1.12	33.097	2.07	33.320	2.33	33.254	1.93	33.237
150m			1.73	33.158	2.25	33.278					2.10	33.240	1.20	33.154	1.82	33.332	2.34	33.295	2.12	33.343
200m			2.33	33.295	2.29	33.355					2.37	33.331	1.88	33.326	2.44	33.501	2.57	33.365	2.40	33.500
250m			2.36	33.380	2.39	33.449					2.32	33.393	1.71	33.394	2.60	33.586	1.53	33.320	2.58	33.654
300m			2.51	33.469	2.63	33.564					2.42	33.486	3.05	33.620	2.64	33.600	2.28	33.458	3.03	33.799
400m			2.85	33.661	2.79	33.728					2.67	33.667	3.31	33.822	2.92	33.779	3.17	33.774	3.07	33.947
500m					3.23	33.928					3.19	33.865	3.48	34.000	3.15	33.920	3.45	34.007	3.29	34.094
600m					3.23	34.036					3.27	34.029	3.51	34.126	3.31	34.044	3.41	34.120	3.16	34.177
700m											3.27	34.140								
800m											3.10	34.231								
900m											2.90	34.327								
1000m											2.77	34.360								

Table 5-1

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	PKA02		PKA01		PKA03		PKA04		PKA07		PKA10		PKA13		PKA16		PKA19		PKA22	
Latitude:N	40-59.1		40-59.9		40-30.0		40- 0.1		40- 0.0		40- 0.0		40- 0.0		40- 0.0		39-59.1		39-59.1	
Longitude:E	142-30.1		142- 0.1		142-19.9		142-19.9		142-59.9		143-40.0		144-20.0		144-59.1		145-29.9		145-59.8	
Date	1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15	
Time(JST)	10:56		13:08		16:06		18:54		21:48		00:41		03:33		06:26		08:44		11:12	
Weather	C		B		C		C		C		C		C		R		R		R	
Air Temp.	6.5		6.8		8.6		8.3		6.9		5.8		4.4		4.6		4.0		5.8	
Bar	1010.5		1010.5		1011.0		1012.5		1014.0		1014.0		1015.5		1016.2		1016.0		1014.5	
Wind Dir	NNW		NNE		NW		NW		NNW		N		NNE		ENE		ENE		E	
Wind Spd/F	F 4		F 3		F 1		F 3		F 2		F 3		F 4		F 6		F 5		F 6	
Transparency	6		8		15										6		7		12	
Depth	1524																			
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	32.788	3.8	32.771	8.0	33.773	7.4	33.633	5.3	33.131	3.9	32.939	4.1	33.013	3.4	32.915	3.1	32.787	5.1	33.087
10m	2.24	32.855	3.30	32.917	7.80	33.834	7.37	33.742	4.92	33.208	3.44	33.022	3.88	33.100	3.05	32.950	2.72	32.885	4.89	33.203
20m	1.98	32.906	3.06	33.005	7.78	33.836	7.35	33.749	4.90	33.206	3.40	33.021	3.98	33.169	3.02	32.975	3.22	33.000	4.88	33.213
30m	2.03	32.925	1.25	32.976	7.77	33.848	7.39	33.759	4.87	33.204	3.34	33.022	3.84	33.156	3.01	32.978	3.78	33.100	4.81	33.245
50m	1.78	32.946	1.46	33.070	7.66	33.841	7.40	33.769	4.80	33.221	1.69	33.059	3.74	33.255	1.70	33.055	1.72	33.007	4.67	33.278
75m	1.54	33.018	3.19	33.276	7.70	33.849	6.09	33.619	3.83	33.335	1.28	33.047	3.65	33.314	1.42	33.063	1.84	33.054	4.02	33.333
100m	1.49	33.084	3.59	33.345	7.73	33.863	3.80	33.323	4.46	33.444	1.25	33.066	4.25	33.431	3.54	33.317	1.38	33.081	3.99	33.357
125m	1.64	33.190	3.88	33.406	7.68	33.864	3.28	33.278	4.87	33.520	1.38	33.118	4.52	33.478	4.14	33.433	1.71	33.191	3.77	33.364
150m	1.98	33.305	4.31	33.510	7.44	33.841	4.15	33.411	5.24	33.586	4.77	33.503	3.53	33.441	3.76	33.446	2.21	33.339	3.21	33.465
200m	2.49	33.534	4.32	33.535	7.45	33.868	5.28	33.597	5.60	33.659	2.70	33.399	2.79	33.507	3.20	33.579	2.08	33.514	3.17	33.650
250m	2.61	33.651	3.23	33.469	7.14	33.840	4.87	33.579	4.98	33.619	2.68	33.548	3.04	33.663	3.22	33.716	3.18	33.743	3.27	33.784
300m	2.98	33.775	2.03	33.468	4.64	33.503	3.61	33.441	5.00	33.669	2.68	33.635	3.28	33.788	3.39	33.834	3.41	33.892	3.56	33.910
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-2

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	PKA27		PKA30		PKA29		PKA26		PKA21		PKA18		PKA15		PKA12		PKA09		PKA06	
Latitude:N	40- 0.0		40- 0.0		40-29.1		40-29.1		40-30.0		40-30.0		40-29.1		40-29.9		40-30.0		40-29.1	
Longitude:E	146-29.9		146-59.9		146-59.8		146-30.1		146- 0.1		145-30.1		145- 0.0		144-20.1		143-40.1		143- 0.1	
Date	1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16	
Time(JST)	13:45		16:09		18:52		21:17		23:51		02:13		04:28		07:20		10:09		13:01	
Weather	R		R		R		R		R		C		C		C		C		C	
Air Temp.	8.1		8.6		7.5		6.4		3.0		3.0		2.5		2.4		3.5		4.9	
Bar	1012.5		1010.0		1007.0		1006.5		1010.0		1012.0		1013.5		1016.0		1017.2		1016.7	
Wind Dir	E		ESE		SE		SW		N		NNW		N		NNE		N		E	
Wind Spd/F	F 6		F 4		F 5		F 6		F 5		F 4		F 5		F 4		F 2		F 2	
Transparency	10		15												15		9		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	7.5	33.580	6.9	33.407	2.9	32.754	3.1	32.789	2.9	32.769	2.7	32.828	2.8	32.857	2.4	32.756	3.5	32.956	3.4	32.969
10m	7.35	33.647	6.64	33.487	2.50	32.816	2.65	32.871	2.62	32.852	2.47	32.913	2.46	32.907	2.13	32.841	3.10	33.027	3.22	33.056
20m	7.27	33.644	6.37	33.449	2.47	32.830	2.61	32.873	2.61	32.853	2.47	32.913	2.46	32.906	2.13	32.841	3.02	33.028	3.48	33.098
30m	6.84	33.602	6.66	33.515	2.42	32.880	2.59	32.872	2.54	32.870	2.46	32.914	2.45	32.908	2.12	32.842	3.02	33.028	3.90	33.164
50m	5.84	33.523	6.26	33.608	1.50	33.022	1.63	32.975	1.45	33.015	1.92	32.976	1.58	33.001	1.03	33.002	4.31	33.285	6.01	33.546
75m	4.02	33.364	4.51	33.435	1.40	33.076	1.41	33.036	2.00	33.109	1.54	33.004	1.44	33.070	1.03	33.055	3.43	33.302	3.25	33.238
100m	4.00	33.389	3.94	33.388	1.36	33.111	2.15	33.151	1.59	33.143	1.48	33.084	1.59	33.143	1.31	33.127	3.96	33.379	1.76	33.127
125m	4.16	33.431	4.41	33.454	1.65	33.189	2.25	33.292	2.33	33.365	2.31	33.314	2.48	33.340	1.89	33.260	3.63	33.385	3.20	33.346
150m	3.34	33.385	4.91	33.547	1.86	33.342	2.69	33.479	2.81	33.545	2.83	33.496	2.97	33.583	2.43	33.447	4.35	33.496	3.05	33.384
200m	3.18	33.526	4.13	33.512	2.73	33.590	2.98	33.665	2.80	33.725	2.98	33.693	3.09	33.724	2.42	33.577	4.58	33.600	2.18	33.474
250m	3.13	33.634	5.00	33.800	2.88	33.744	3.16	33.791	3.24	33.870	3.30	33.861	3.28	33.842	3.20	33.779	4.61	33.725	2.90	33.667
300m	3.37	33.808	3.58	33.668	3.17	33.868	3.26	33.891	3.28	33.968	3.35	33.957	3.32	33.942	2.88	33.838	2.85	33.657	3.05	33.786
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-3

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	PK24		P36		PK16		P27		PK07		P18		PKA25		PKA28		PKA24		P17	
Latitude:N	41- 0.1		41- 0.0		41- 0.0		41- 0.0		41- 0.1		40-59.1		40-59.1		40-59.1		41-29.9		41-29.9	
Longitude:E	143-29.9		143-59.1		144-29.9		144-59.8		145-29.9		145-59.9		146-29.8		146-59.8		146-29.9		145-59.1	
Date	1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/17		1998/04/17		1998/04/17		1998/04/17		1998/04/17		1998/04/17	
Time(JST)	16:29		18:51		21:15		23:43		02:11		04:44		07:47		10:07		13:28		15:26	
Weather	C		C		C		F		F		C		C		F		F		F	
Air Temp.	4.3		3.2		2.5		2.2		2.2		2.5		2.5		4.5		4.0		3.9	
Bar	1017.5		1018.7		1019.5		1019.5		1020.0		1020.5		1021.0		1022.0		1021.5		1020.5	
Wind Dir	W		WSW		W		SW		SW		WSW		N		W		ENE		ENE	
Wind Spd/F	F 3		F 2		F 2		F 3		F 4		F 2		F 2		F 1		F 2		F 2	
Transparency	12												15		18		10		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	5.6	33.371	2.1	32.554	2.2	32.678	2.3	32.745	2.6	32.858	1.8	32.687	1.9	32.731	3.0	32.820	2.3	32.660	3.2	32.938
10m	5.43	33.386	1.53	32.667	1.91	32.744	2.09	32.816	2.35	32.943	1.33	32.758	1.44	32.803	2.31	32.888	1.72	32.741	2.95	33.005
20m	5.34	33.407	1.46	32.671	1.57	32.749	2.00	32.842	2.14	32.947	1.25	32.781	1.39	32.815	2.30	32.888	1.52	32.736	2.53	32.994
30m	5.29	33.404	1.49	32.760	1.72	32.837	1.99	32.868	2.13	32.954	1.29	32.815	1.39	32.822	2.27	32.898	1.45	32.768	2.55	33.004
50m	5.06	33.375	1.05	33.037	1.58	32.908	1.75	32.944	2.01	32.996	1.53	32.889	1.41	32.869	2.15	32.961	1.90	33.018	2.54	33.196
75m	1.18	33.037	0.78	33.068	0.72	33.031	1.44	33.073	1.91	33.005	1.54	32.998	1.08	33.050	1.55	33.014	1.30	33.037	1.67	33.168
100m	0.94	33.061	0.96	33.131	1.02	33.088	1.41	33.137	1.50	33.062	1.39	33.076	1.34	33.126	1.22	33.045	1.21	33.072	3.41	33.418
125m	1.24	33.117	1.17	33.206	1.57	33.192	1.66	33.224	1.38	33.092	1.31	33.091	1.81	33.276	1.00	33.056	1.62	33.156	4.37	33.559
150m	1.18	33.161	1.04	33.244	2.55	33.419	2.44	33.419	2.04	33.253	1.35	33.211	2.31	33.427	2.03	33.194	1.28	33.168	4.47	33.583
200m	2.11	33.394	1.53	33.354	2.69	33.580	3.06	33.660	2.99	33.591	2.63	33.507	1.82	33.485	2.92	33.649	2.22	33.324	4.98	33.666
250m	1.99	33.508	2.15	33.495	3.04	33.735	3.14	33.782	3.30	33.765	3.08	33.685	2.25	33.601	2.40	33.711	2.15	33.327	4.81	33.652
300m	3.02	33.731	2.01	33.572	3.22	33.833	3.35	33.889	2.75	33.818	3.19	33.818	3.11	33.776	3.20	33.879	1.86	33.339	3.09	33.471
400m	3.30	33.881	3.07	33.890	3.33	33.985	3.31	34.032	3.30	34.007	3.41	33.997							2.65	33.503
500m	3.35	34.048	3.30	34.036	3.29	34.109	3.28	34.136	3.22	34.100	3.37	34.102							2.38	33.601
600m	3.20	34.134	3.24	34.126	3.18	34.192	3.15	34.205	3.22	34.201	3.17	34.175							3.06	33.828
700m											3.10	34.248							3.27	33.980
800m											2.92	34.297							3.31	34.120
900m											2.82	34.338							3.15	34.192
1000m											2.68	34.375							3.05	34.259

Table 5-4

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	PK06		P26		PK15		PK14		PK05		P16		P15		P14		P13		P12	
Latitude:N	41-30.0		41-29.1		41-29.1		41-59.9		42- 0.0		42- 0.0		42-14.9		42-29.9		42-45.0		42-55.0	
Longitude:E	145-30.0		145- 0.1		144-30.1		144-29.9		145-29.9		145-59.9		146- 0.0		145-59.9		145-54.1		145-49.1	
Date	1998/04/17		1998/04/17		1998/04/17		1998/04/18		1998/04/18		1998/04/18		1998/04/18		1998/04/18		1998/04/18		1998/04/18	
Time(JST)	17:54		20:04		22:08		00:52		05:31		08:15		10:16		12:15		14:19		15:55	
Weather	C		C		C		C		C		C		C		C		C		C	
Air Temp.	3.5		3.2		2.5		2.5		3.4		4.0		5.5		5.4		4.6		3.2	
Bar	1020.0		1019.4		1018.5		1018.0		1016.0		1016.4		1016.5		1016.2		1015.0		1014.0	
Wind Dir	ENE		E		ESE		E		ESE		SE		SE		S		SSW		SW	
Wind Spd/F	F 3		F 4		F 3		F 2		F 2		F 2		F 2		F 2		F 2		F 3	
Transparency									15		13		8		8		8		15	
Depth																			1426	
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	2.5	32.795	2.9	32.834	2.4	32.725	2.4	32.791	4.7	33.394	5.5	33.588	5.4	33.527	4.0	33.374	3.4	32.895	1.5	32.447
10m	2.08	32.845	2.28	32.947	2.22	32.803	2.13	32.869	4.46	33.465	5.31	33.648	5.13	33.596	3.68	33.339	3.02	32.842	1.19	32.411
20m	2.25	32.959	2.10	32.955	1.77	32.823	1.85	32.876	4.51	33.475	5.35	33.672	5.24	33.624	3.78	33.367	2.27	32.904	0.17	32.421
30m	2.69	33.063	2.11	32.964	1.78	32.833	1.77	32.873	4.59	33.492	5.31	33.672	5.19	33.646	4.36	33.460	2.21	32.913	-0.21	32.487
50m	2.88	33.147	2.14	32.989	1.45	32.925	1.57	32.965	4.96	33.596	5.30	33.671	5.14	33.649	4.46	33.501	1.66	33.054	-0.33	32.681
75m	3.49	33.399	2.02	33.127	1.09	33.041	0.86	33.051	5.40	33.736	5.24	33.673	5.20	33.668	4.36	33.511	1.62	33.108	-0.06	32.866
100m	4.01	33.495	2.64	33.244	1.11	33.084	1.49	33.131	5.49	33.758	5.24	33.688	5.26	33.692	4.91	33.633	1.56	33.124	1.21	33.039
125m	4.51	33.580	2.66	33.269	1.12	33.141	1.90	33.195	5.53	33.766	5.33	33.727	5.32	33.714	5.03	33.672	1.57	33.143	1.39	33.101
150m	4.61	33.601	3.12	33.371	1.60	33.239	1.20	33.184	5.54	33.770	5.44	33.752	5.47	33.755	5.23	33.708	1.39	33.156	1.70	33.171
200m	5.13	33.692	3.06	33.419	1.96	33.348	2.82	33.398	5.64	33.786	5.57	33.775	5.64	33.788	5.46	33.752	1.49	33.212	2.10	33.287
250m	5.07	33.689	2.55	33.400	1.80	33.401	2.10	33.355	5.62	33.784	5.60	33.781	5.66	33.792	5.63	33.784	2.31	33.362	2.12	33.352
300m	3.21	33.484	2.28	33.408	1.97	33.477	1.56	33.338	5.62	33.784	5.61	33.784	5.68	33.796	5.59	33.780	2.20	33.411	1.45	33.351
400m	2.53	33.491	2.56	33.602	2.60	33.660	2.49	33.541	5.62	33.786	5.76	33.809	5.73	33.805	3.21	33.507	2.90	33.649	2.73	33.688
500m	2.79	33.665	2.61	33.718	3.10	33.866	2.76	33.708	5.63	33.787	5.82	33.820	5.81	33.817	2.60	33.558	2.92	33.801	3.21	33.938
600m	2.86	33.778	3.11	33.927	3.30	34.005	3.01	33.859	2.90	33.546	3.28	33.541	2.89	33.525	2.85	33.696	3.37	34.004	3.23	34.082
700m							3.29	34.026	2.83	33.686	2.87	33.660	2.91	33.691	3.09	33.866	3.38	34.112	3.16	34.165
800m							3.23	34.142	3.19	33.885	2.98	33.807	3.18	33.892	3.27	34.018	3.31	34.201	3.04	34.237
900m							3.07	34.192	3.31	33.998	3.25	33.975	3.31	34.030	3.34	34.109	3.12	34.261	2.94	34.281
1000m							3.02	34.251	3.29	34.116	3.29	34.106	3.29	34.117	3.22	34.190	2.92	34.302	2.86	34.325

Table 5-5

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804					
Station No	P11		PK04		PK03		PK02		PK01		P21		P22		P23		P24		P25					
Latitude:N	43- 4.9		42-15.0		42-30.0		42-44.9		42-54.9		42-55.0		42-45.2		42-30.0		42-15.1		42- 0.1					
Longitude:E	145-44.9		145-30.0		145-29.1		145-29.1		145-29.1		145- 0.1		144-59.1		144-59.1		144-59.1		145- 0.1					
Date	1998/04/18		1998/04/19		1998/04/19		1998/04/19		1998/04/19		1998/04/19		1998/04/19		1998/04/19		1998/04/19		1998/04/19					
Time(JST)	17:23		03:42		05:12		06:46		07:59		10:01		10:57		12:25		14:35		16:28					
Weather	C		F		C		C		F		F		F		F		F		BC					
Air Temp.	2.5		4.0		3.7		3.5		3.0		3.5		3.7		4.5		4.4		3.7					
Bar	1013.5		1013.5		1012.5		1013.0		1012.0		1012.0		1011.2		1011.0		1008.0		1008.0					
Wind Dir	SSW		S		SSW		SSW		SSW		S		SSW		SSW		SSW		SW					
Wind Spd/F	F 4		F 4		F 4		F 4		F 4		F 3		F 4		F 4		F 5		F 6					
Transparency	6				13		6		5		6		5		7		5							
Depth	105								156		65		168											
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	1.5	32.471	4.0	33.221	2.7	32.942	3.0	32.885	1.4	32.497	2.0	32.394	2.1	32.681	3.0	32.975	3.3	33.092	3.4	32.904				
10m	0.35	32.443	3.73	33.139	2.36	32.896	2.66	32.840	0.79	32.445	1.55	32.313	2.05	32.703	2.51	32.917	3.04	33.065	3.04	32.985				
20m	0.22	32.440	3.96	33.301	2.90	33.071	2.21	32.880	-0.07	32.467	0.80	32.375	2.58	32.891	2.11	32.933	2.93	33.101	2.99	32.988				
30m	0.14	32.442	4.57	33.455	2.95	33.113	2.03	32.935	-0.15	32.479	0.46	32.403	1.40	32.837	2.09	32.936	2.86	33.116	2.46	33.012				
50m	-0.08	32.477	4.76	33.560	3.07	33.188	1.62	33.065	-0.39	32.701	-0.08	32.539	0.93	32.966	2.01	32.944	2.95	33.239	3.15	33.219				
75m	-0.44	32.615	5.00	33.636	3.46	33.388	1.61	33.115	0.18	32.886			1.04	33.031	1.44	33.071	3.54	33.407	1.96	33.211				
100m			4.92	33.657	4.08	33.503	1.79	33.169	0.34	32.947			1.15	33.075	1.87	33.177	4.10	33.508	3.84	33.466				
125m			5.19	33.704	4.49	33.581	1.93	33.200	0.38	32.961			1.33	33.119	2.52	33.286	4.67	33.613	4.37	33.558				
150m			5.31	33.726	4.89	33.647	2.21	33.283					1.43	33.158	2.73	33.340	4.92	33.655	4.64	33.607				
200m			5.48	33.756	5.32	33.722	2.43	33.352							2.91	33.421	5.31	33.720	5.07	33.679				
250m			5.51	33.763	5.41	33.742	2.37	33.382							3.00	33.436	5.32	33.728	5.38	33.730				
300m			5.63	33.783	5.57	33.773	2.34	33.444							2.46	33.449	4.66	33.649	4.90	33.676				
400m			5.68	33.794	3.11	33.491	2.66	33.620							2.38	33.515	2.65	33.502	2.53	33.444				
500m			3.99	33.595	2.50	33.554	2.93	33.787							2.58	33.663	2.28	33.570	2.34	33.555				
600m			2.74	33.567	2.67	33.695	3.26	33.974							3.09	33.874	2.53	33.683	2.64	33.699				
700m																				2.98	33.877			
800m																					3.32	34.028		
900m																						3.38	34.157	
1000m																							3.14	34.225

Table 5-6

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

Stn-prefix	199804		199804		199804		199805		199805		199805		199805		199805		199805		199805	
Station No	PK13		PK12		PK11		HA01		SU18		SU19		HA02		SU14		SU15		HA03	
Latitude:N	42-14.9		42-29.1		42-44.9		42-51.6		42-46.0		42-38.8		42-39.8		42-33.7		42-26.4		42-27.6	
Longitude:E	144-30.2		144-29.1		144-30.0		144- 6.6		143-58.1		144-12.9		143-50.8		143-43.8		143-58.5		143-36.6	
Date	1998/04/19		1998/04/19		1998/04/19		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/07		1998/05/08	
Time(JST)	19:46		21:22		22:59		11:58		13:11		14:51		16:59		17:59		19:38		05:29	
Weather	BC		BC		BC		BC		BC		BC		BC		BC		BC		F	
Air Temp.	5.4		4.9		4.6		7.9		7.9		6.0		5.6		5.0		4.1		3.5	
Bar	1008.5		1008.5		1009.5		1024.5		1024.0		1023.5		1023.0		1023.0		1022.5		1014.0	
Wind Dir	WSW		SW		W		SE		SSE		ESE		ESE		ENE		E		NE	
Wind Spd/F	F 5		F 4		F 2		F 3		F 2		F 3		F 2		F 2		F 3		F 4	
Transparency																				
Depth					133		47		46		532		50		53		503			
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	2.5	32.779	3.0	32.779	1.8	32.358	4.0	32.53*	4.0	32.12*	4.5	32.62*	4.0	32.51*	4.2	32.46*	4.1	32.64*	3.7	32.19*
10m	2.15	32.856	2.74	32.850	1.21	32.567	3.06	32.252	4.74	32.078	3.54	32.581	3.09	32.161	3.75	32.123	2.92	32.305	3.40	32.193
20m	2.17	32.882	2.73	32.853	1.52	32.711	2.59	32.288	2.12	32.263	2.50	32.604	2.91	32.196	3.05	32.097	2.89	32.618	3.10	32.202
30m	2.00	32.919	2.25	32.850	1.74	32.759	0.85	32.542	1.01	32.517	2.40	32.758	1.85	32.307	2.25	32.202	3.13	32.731	1.54	32.433
50m	1.62	33.004	1.84	33.016	2.11	32.907					1.78	32.928					0.87	32.927		
75m	1.25	33.073	1.58	33.073	0.99	32.965					1.62	33.047					1.36	33.041		
100m	1.33	33.110	1.66	33.113	1.03	33.040					1.58	33.094					1.65	33.101		
125m	1.28	33.137	2.14	33.217	1.28	33.095					1.73	33.132					1.72	33.158		
150m	1.89	33.235	2.22	33.260							2.01	33.210					1.99	33.235		
200m	2.89	33.413	2.21	33.341							2.25	33.350					2.22	33.376		
250m	1.63	33.324	1.83	33.368							2.69	33.507					2.05	33.399		
300m	1.70	33.368	2.44	33.525							2.83	33.613					2.19	33.457		
400m	2.37	33.564	2.85	33.711							3.02	33.782					2.77	33.667		
500m	2.91	33.769	3.19	33.897							3.23	33.895								
600m	3.22	33.920	3.31	34.044																
700m																				
800m																				
900m																				
1000m																				

Table 5-7

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	SU10		SU11		HA04		SU06		SU07		SU01		SU02		SU03		SU51		SU52	
Latitude:N	42-20.7		42-14.2		42-13.1		42- 5.1		41-55.3		41-34.5		41-50.1		41-34.8		41-43.8		41-51.6	
Longitude:E	143-31.0		143-44.4		143-27.4		143-23.8		143-43.7		143-13.1		143-13.1		143-45.7		143-32.1		143-34.7	
Date	1998/05/08		1998/05/08		1998/05/08		1998/05/08		1998/05/08		1998/05/08		1998/05/09		1998/05/09		1998/05/09		1998/05/09	
Time(JST)	06:28		07:59		11:05		12:10		14:24		20:56		05:56		09:44		12:44		14:43	
Weather	F		R		C		C		C		C		B		B		B		B	
Air Temp.	3.5		3.7		3.5		4.0		4.4		5.3		5.1		6.6		6.6		8.1	
Bar	1023.0		1011.5		1007.0		1005.0		1003.5		1007.0		1001.0		1011.5		1011.0		1010.0	
Wind Dir	NE		N		NNE		NNE		NW		WNW		W		WSW		WSW		WSW	
Wind Spd/F	F 3		F 3		F 4		F 4		F 3		F 5		F 4		F 4		F 4		F 3	
Transparency																				
Depth	52		509		50		53		484		183		49		608					
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	3.9	32.25*	3.9	32.36*	3.7	32.18*	3.6	32.21*	4.5	32.57*	3.6	32.51*	3.8	31.89*	4.2	32.73*	4.0	32.48*	4.0	32.39*
10m	3.64	32.261	3.60	32.411	3.37	32.215	2.86	32.322	4.26	32.527	3.32	32.507	3.27	31.811			3.21	32.481	3.44	32.383
20m	3.43	32.270	2.97	32.679	2.99	32.315	1.64	32.613	4.05	32.556	2.77	32.559	3.21	32.126	3.62	32.741	2.95	32.509	2.95	32.448
30m	2.28	32.348	1.66	32.971	1.77	32.502	1.52	32.622	1.79	32.841	2.16	32.649	2.27	32.332	3.02	32.821	2.66	32.558	2.70	32.500
50m			1.34	33.031					1.40	33.009	0.78	32.863			1.34	33.063	0.93	32.819	1.26	32.958
75m			1.25	33.081					1.33	33.051	0.75	32.944			1.59	33.145	1.40	33.017	1.22	33.028
100m			1.54	33.142					1.58	33.111	1.23	33.041			1.84	33.212	1.61	33.135	1.61	33.123
125m			1.85	33.218					1.74	33.156	1.48	33.121			1.87	33.240	1.78	33.187	2.17	33.289
150m			1.59	33.226					1.91	33.206	1.76	33.195			2.06	33.295	2.21	33.313		
200m			1.70	33.290					2.39	33.337					1.76	33.323				
250m			2.04	33.366					1.97	33.378					1.93	33.393				
300m			1.71	33.392					2.38	33.499					2.30	33.517				
400m			2.58	33.590					2.81	33.676					2.71	33.712				
500m															3.17	33.877				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-8

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	SU53		SU54		SU55		SU56		SU57		HA06		SU23		SU37		HA11		HA10	
Latitude:N	41-55.4		42-32.3		42-30.5		42-32.5		42-39.8		42-53.5		42-38.7		42-59.2		43-12.4		43- 5.9	
Longitude:E	143-40.0		143-51.5		143-51.5		143-55.9		144- 1.2		144-28.9		144-34.1		145-48.7		145-42.5		145-33.7	
Date	1998/05/09		1998/05/10		1998/05/10		1998/05/10		1998/05/10		1998/05/10		1998/05/10		1998/05/11		1998/05/11		1998/05/11	
Time(JST)	16:19		07:24		08:59		10:27		12:52		15:39		17:49		03:45		05:42		06:49	
Weather	B		C		BC		BC		BC		C		C		B		B		B	
Air Temp.	8.3		6.1		7.0		7.6		9.5		7.5		5.5		3.5		4.6		6.0	
Bar	1010.0		1009.5		1010.0		1009.5		1010.5		1013.0		1015.0		1020.7		1021.5		1022.0	
Wind Dir	SW		W		WSW		SSW		SE		NNE		E		W		WSW		SW	
Wind Spd/F	F 2		F 2		F 2		F 4		F 4		F 3		F 2		F 3		F 2		F 2	
Transparency																				
Depth											67						54		49	
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	32.35*	3.8	32.30*	3.7	32.27*	3.9	32.18*	3.9	32.21*	4.2	32.32*	4.1	32.56*	4.2	32.79*	3.8	32.37*	3.4	32.30*
10m	3.38	32.346	2.73	32.388	3.02	32.310	3.43	32.278	3.12	32.289	3.56	32.289	3.79	32.569	4.02	32.789	3.24	32.326	3.07	32.300
20m	3.29	32.344	2.20	32.461	2.80	32.342	3.13	32.312	2.71	32.334	2.77	32.349	3.75	32.651	4.02	32.790	3.13	32.332	2.20	32.356
30m	3.14	32.396	1.88	32.577	2.11	32.438	2.76	32.373	2.22	32.419	0.97	32.533	2.11	32.880	3.07	32.829	2.26	32.376	0.99	32.478
50m	2.10	32.794	1.40	32.714	1.09	32.618	0.88	32.577	1.01	32.841	0.36	32.691	1.44	33.024	2.63	32.859				
75m	1.53	33.094	1.22	32.924	1.29	32.859	1.20	32.878	1.39	33.069			1.93	33.149	1.55	32.987				
100m	1.65	33.164	1.75	33.211	1.70	33.182	1.24	32.933	1.72	33.182			1.82	33.185	1.35	33.021				
125m	1.95	33.225					1.70	33.176					2.08	33.287	1.26	33.097				
150m	2.18	33.292					1.93	33.275					2.15	33.325	1.91	33.202				
200m	2.18	33.374											1.88	33.355	2.07	33.336				
250m	2.40	33.495											2.07	33.421	2.72	33.493				
300m													2.31	33.523	2.44	33.535				
400m													2.99	33.759	2.60	33.669				
500m													3.20	33.903	3.06	33.883				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-9

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

Stn-prefix	199805		199805		199805		199805		199805		199805		199805		199805		199805		199805	
Station No	SU35		HA32		HA30		SU31		HA07		SU27		SU58		SU59		SU60		SU61	
Latitude:N	42-55.0		43- 1.9		43- 0.4		42-47.9		42-54.8		42-40.3		42-45.3		42-41.7		42-44.4		42-42.8	
Longitude:E	145-38.4		145-23.9		145-12.9		145-18.1		144-51.1		144-58.1		144-52.9		144-46.9		144-53.0		144-52.3	
Date	1998/05/11		1998/05/11		1998/05/11		1998/05/11		1998/05/11		1998/05/11		1998/05/19		1998/05/19		1998/05/19		1998/05/20	
Time(JST)	08:30		10:50		11:57		13:56		17:15		19:35		12:34		14:20		16:23		07:52	
Weather	B		B		B		B		B		BC		F		C		C		C	
Air Temp.	5.3		5.5		5.4		6.3		6.5		5.5		8.6		8.6		8.3		6.4	
Bar	1022.5		1022.5		1022.0		1021.0		1020.5		1020.0		1010.0		1010.5		1011.0		1016.5	
Wind Dir	WSW		SW		SW		SW		SW		SW		E		ENE		ENE		CALM	
Wind Spd/F	F 4		F 4		F 4		F 5		F 4		F 5		F 3		F 3		F 4		F 0	
Transparency																				
Depth	518		55		51		528				532									
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	32.82*	3.8	32.30*	4.1	32.28*	4.8	33.03*	3.6	32.16*	4.4	32.95*	5.9	32.53*	5.9	32.53*	6.0	32.58*	5.6	32.71*
10m	4.12	32.824	2.88	32.314	3.20	32.299	4.22	32.811	3.91	32.215	4.20	32.764	4.99	32.633	5.31	32.579	4.15	32.723	4.56	32.671
20m	3.96	32.828	0.97	32.498	1.45	32.424	3.34	32.835	2.32	32.355	3.98	32.813	3.37	32.754	3.14	32.788	3.10	32.746	2.37	32.783
30m	3.23	32.837	0.66	32.566	0.79	32.555	2.86	32.897	1.61	32.484	3.40	32.847	2.19	32.847	2.32	32.833	2.66	32.739	1.95	32.836
50m	2.76	32.895					1.58	32.991			1.56	32.994	1.26	32.986	1.43	32.924	1.47	32.895	1.99	33.029
75m	2.18	32.975					1.49	33.063			1.42	33.120	1.29	33.093	1.31	33.062	1.18	33.027	1.97	33.156
100m	1.73	33.022					1.64	33.175			1.88	33.241	1.39	33.141	1.44	33.157	1.32	33.097	1.62	33.197
125m	1.54	33.044					1.77	33.262			2.56	33.360	1.73	33.233	1.91	33.293	1.63	33.191	1.82	33.271
150m	1.55	33.153					1.94	33.324			2.32	33.365			1.98	33.315	1.75	33.229	1.84	33.278
200m	2.31	33.399					2.04	33.385			2.09	33.401								
250m	2.23	33.497					2.33	33.510			2.32	33.501								
300m	2.55	33.588					2.68	33.660			2.55	33.607								
400m	2.91	33.768					3.08	33.863			3.01	33.791								
500m	3.10	33.875					3.28	34.005			3.19	33.923								
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-10

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

Stn-prefix	199805		199805		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	SU62		SU63		P31		P32		P33		PK21		PK22		P34		P35		PK23	
Latitude:N	42-43.3		42-43.9		42-45.0		42-30.0		42-15.0		42-14.1		41-59.1		41-59.1		41-30.0		41-29.9	
Longitude:E	144-58.1		144-52.5		144- 0.0		143-59.5		143-59.1		143-30.0		143-30.0		143-59.1		143-59.9		143-30.0	
Date	1998/05/20		1998/05/20		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/27		1998/05/28	
Time(JST)	09:28		11:10		10:40		12:19		13:50		15:56		17:19		19:23		22:29		00:47	
Weather	C		C		C		C		BC		C		BC		C		B			
Air Temp.	6.4		7.8		6.6		7.5		7.6		8.1		7.4		7.5		7.5		6.4	
Bar	1016.0		1016.0		1021.5		1021.5		1021.0		1021.2		1021.0		1021.5		1022.0		1022.0	
Wind Dir	NE		E		SE		ESE		SE		SSE		CALM		SSE		ESE		ENE	
Wind Spd/F	F 2		F 1		F 3		F 2		F 3		F 1		F 0		F 3		F 2		F 3	
Transparency					15		18		13		13		11							
Depth					65		463		936		68		123		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	5.7	32.71*	5.6	32.67*	6.5	32.387	7.0	32.638	7.2	32.762	7.5	32.384	7.0	32.474	8.2	32.822	7.7	32.822	5.8	32.440
10m	4.49	32.680	4.77	32.665	5.69	32.397	6.49	32.544	6.71	32.775	6.91	32.428	6.76	32.490	7.99	32.814	7.60	32.820	5.54	32.427
20m	3.29	32.822	1.65	32.865	2.66	32.512	4.93	32.651	5.67	32.778	4.38	32.546	3.20	32.830	6.58	32.856	7.08	32.834	3.64	32.544
30m	2.54	32.909	1.66	32.911	2.34	32.557	2.89	32.798	4.62	32.789	3.41	32.572	2.51	32.912	3.76	32.942	4.96	32.890	1.29	32.891
50m	1.46	33.000	1.30	33.011	2.33	32.802	2.05	32.895	1.90	32.903	1.97	32.773	1.19	32.929	1.91	32.947	1.84	32.973	0.97	32.980
75m	1.24	33.089	1.38	33.101			1.58	33.045	1.25	32.935			1.28	32.980	1.53	33.027	1.53	33.043	1.18	33.035
100m	1.88	33.235	1.53	33.158			1.41	33.117	1.44	33.068			1.38	33.028	1.64	33.088	1.48	33.122	2.47	33.225
125m	1.86	33.267	1.67	33.214			1.58	33.175	1.47	33.170					1.91	33.216	3.01	33.402	1.96	33.226
150m	1.94	33.294	1.70	33.223			1.70	33.217	1.88	33.287					2.38	33.376	2.04	33.389	2.28	33.288
200m							2.15	33.341	2.07	33.419					2.23	33.510	2.96	33.604	2.77	33.418
250m							2.14	33.420	2.48	33.528					2.98	33.690	2.96	33.697	2.17	33.414
300m							2.39	33.526	2.97	33.674					3.33	33.833	3.10	33.808	2.61	33.534
400m							2.57	33.704	3.02	33.810					3.29	33.943	3.28	33.988	2.77	33.718
500m									3.30	33.974					3.29	34.057	3.29	34.045	3.15	33.891
600m									3.33	34.077					3.29	34.128	3.21	34.168	3.33	34.024
700m															3.16	34.204				
800m															3.04	34.253				
900m															2.89	34.317				
1000m															2.79	34.357				

Table 5-11

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	PK31		PK32		PKA02		PKA01		PKA03		PKA04		PKA07		PKA10		PKA13		PKA16	
Latitude:N	41-29.9		40-59.1		41- 0.0		40-59.1		40-29.1		39-59.1		39-59.1		39-59.1		39-59.1		40- 0.1	
Longitude:E	142-59.9		143- 0.0		142-30.0		142- 0.1		142-19.9		142-19.1		143- 0.0		143-39.9		144-19.9		144-59.9	
Date	1998/05/28		1998/05/28		1998/05/28		1998/05/28		1998/05/28		1998/05/28		1998/05/28		1998/05/28		1998/05/29		1998/05/29	
Time(JST)	03:05		05:55		08:15		10:24		13:16		15:51		18:37		21:29		00:20		03:23	
Weather			F		F		F		BC		BC		BC		BC					
Air Temp.	8.1		8.3		8.3		11.1		11.8		12.6		11.1		11.0		11.8		12.3	
Bar	1022.0		1019.0		1023.0		1022.0		1021.0		1020.0		1020.5		1021.0		1020.5		1020.5	
Wind Dir	NE		SSE		S		E		SSE		SSE		S		SSE		SSE		S	
Wind Spd/F	F 3		F 2		F 2		F 2		F 4		F 5		F 4		F 4		F 4		F 4	
Transparency			12		15		13		11		11									
Depth	1168										535									
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	32.553	7.4	32.295	7.5	32.306	12.1	33.738	11.3	33.213	10.8	33.086	8.2	32.571	9.7	32.737	10.8	32.986	10.5	32.963
10m	7.48	32.633	6.73	32.304	5.93	32.424	11.81	33.735	10.75	33.310	10.31	33.023	7.99	32.621	7.09	32.665	10.61	32.954	9.57	33.048
20m	6.64	32.685	2.38	32.612	3.45	32.530	11.58	33.753	10.37	33.519	8.95	33.644	5.12	32.737	6.07	32.666	9.15	32.975	8.02	33.032
30m	8.95	33.887	2.34	32.843	2.04	32.831	11.21	33.804	10.19	33.699	9.23	33.852	3.05	32.838	4.20	32.734	7.93	33.050	5.76	33.259
50m	8.62	33.916	7.91	33.878	1.30	33.002	10.59	33.884	8.21	33.682	8.95	33.954	1.81	32.948	2.15	32.949	2.76	33.106	7.97	33.892
75m	7.42	33.792	7.49	33.862	1.31	33.085	10.31	33.906	8.00	33.815	8.96	33.987	1.62	33.012	1.58	33.003	2.93	33.238	6.37	33.712
100m	4.13	33.388	6.27	33.713	1.65	33.181	10.03	33.925	5.20	33.462	8.88	33.997	1.54	33.082	1.35	33.068	2.91	33.270	4.27	33.439
125m	3.03	33.279	4.78	33.529	1.91	33.244	9.93	33.920	1.44	33.096	7.68	33.869	1.86	33.181	1.49	33.169	3.48	33.372	4.97	33.563
150m	3.85	33.392	4.02	33.488	2.41	33.346	9.48	33.929	3.00	33.307	3.12	33.306	2.59	33.430	1.71	33.255	2.84	33.375	4.62	33.563
200m	1.68	33.260	2.48	33.395	2.15	33.366	9.18	33.914	2.11	33.312	5.00	33.682	3.06	33.698	2.23	33.428	2.84	33.522	4.13	33.566
250m	1.91	33.356	1.87	33.393	2.11	33.421	8.64	33.945	2.58	33.455	2.03	33.414	3.16	33.812	2.43	33.541	3.15	33.662	2.77	33.516
300m	2.08	33.449	2.17	33.490	2.16	33.492	5.82	33.709	2.98	33.655	2.54	33.593	3.24	33.912	3.00	33.718	3.44	33.804	3.48	33.714
400m	2.53	33.625	2.72	33.696																
500m	2.99	33.834	3.05	33.879																
600m	3.27	34.008	3.30	34.043																
700m																				
800m																				
900m																				
1000m																				

Table 5-12

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	PKA19		PKA22		PKA27		PKA30		PKA29		PKA26		PKA21		PKA18		PKA15		PKA12	
Latitude:N	40- 0.1		40- 0.1		40- 0.0		40- 0.1		40-29.9		40-29.1		40-29.1		40-29.1		40-29.1		40-30.0	
Longitude:E	145-29.9		145-59.9		146-30.0		146-59.1		146-59.1		146-30.0		146- 0.0		145-29.1		145- 0.1		144-20.1	
Date	1998/05/29		1998/05/29		1998/05/29		1998/05/29		1998/05/29		1998/05/29		1998/05/29		1998/05/29		1998/05/30		1998/05/30	
Time(JST)	05:43		08:04		10:22		12:28		15:17		17:35		20:00		22:15		00:23		03:15	
Weather	C		C		BC		BC		BC		C		C		C		R		R	
Air Temp.	15.0		15.0		15.3		15.8		12.8		12.8		14.6		14.6		13.1		12.0	
Bar	1020.5		1020.0		1020.0		1018.5		1017.0		1015.5		1014.5		1012.5		1010.0		1006.0	
Wind Dir	S		S		S		SSE		S		SSE		SE		SE		SE		ESE	
Wind Spd/F	F 4		F 5		F 6		F 5		F 4		F 4		F 4		F 4		F 4		F 4	
Transparency	11		12		10		9		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	14.2	34.224	13.2	33.883	12.8	33.688	15.5	34.249	8.8	32.825	11.3	33.287	12.5	34.040	14.8	34.185	10.6	32.858	9.8	32.786
10m	14.59	34.184	12.86	33.822	12.22	33.632	15.15	34.189	7.68	32.775	11.15	33.243	13.35	34.004	14.61	34.136	10.24	32.834	9.52	32.801
20m	14.25	34.193	12.58	33.775	10.94	33.522	11.38	33.627	5.24	32.836	10.41	33.115	13.21	33.976	14.57	34.130	9.97	33.390	6.70	33.163
30m	14.02	34.208	12.07	33.868	11.03	33.698	11.06	33.667	3.75	32.916	8.91	33.233	11.45	33.904	12.01	33.749	7.99	33.387	4.51	33.302
50m	12.24	34.295	10.38	33.729	8.05	33.563	9.94	33.675	2.35	32.982	4.58	33.180	10.70	33.934	11.15	33.805	9.13	34.026	5.29	33.526
75m	10.55	34.260	7.56	33.632	5.19	33.464	8.27	33.819	1.80	33.002	3.40	33.239	9.67	33.914	9.49	33.779	5.68	33.563	4.81	33.508
100m	9.94	34.205	7.32	33.762	4.98	33.515	5.94	33.613	1.71	33.077	3.42	33.300	8.32	33.881	8.54	34.051	3.16	33.294	5.01	33.555
125m	9.36	34.165	5.46	33.542	4.46	33.460	4.91	33.538	1.87	33.206	3.66	33.367	6.59	33.711	6.96	33.819	4.63	33.517	5.28	33.616
150m	9.02	34.140	4.45	33.456	4.24	33.448	5.67	33.677	2.65	33.428	4.23	33.492	5.44	33.576	4.65	33.494	4.06	33.498	5.17	33.638
200m	7.56	33.969	4.10	33.455	5.03	33.630	6.04	33.824	2.95	33.691	3.54	33.527	4.61	33.486	4.37	33.499	2.81	33.445	3.21	33.476
250m	6.55	33.942	4.49	33.601	4.11	33.640	4.17	33.678	3.02	33.825	3.92	33.689	4.67	33.551	4.37	33.562	2.75	33.512	3.68	33.648
300m	5.58	33.917	3.48	33.577	3.96	33.720	3.52	33.695	3.36	33.945	3.39	33.742	3.98	33.579	3.48	33.567	3.24	33.698	3.06	33.685
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-13

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	PKA09		PKA06		PK24		P36		PK16		P27		PK07		P18		PKA25		PKA28	
Latitude:N	40-29.1		40-29.1		40-59.9		41- 0.0		40-59.1		40-59.1		41- 0.0		40-59.1		41- 0.0		40-59.1	
Longitude:E	143-40.1		143- 0.0		143-29.1		143-59.9		144-29.1		144-59.9		145-29.1		145-59.1		146-29.9		146-59.9	
Date	1998/05/30		1998/05/30		1998/05/30		1998/05/30		1998/05/30		1998/05/30		1998/05/30		1998/05/30		1998/05/31		1998/05/31	
Time(JST)	06:06		08:54		12:31		14:51		17:07		19:19		21:31		23:39		02:09		04:20	
Weather	F		F		F		F		F		F		F		C		F		C	
Air Temp.	11.3		11.1		9.8		8.6		9.6		9.8		10.6		11.8		10.0		8.3	
Bar	1003.5		1002.5		1001.5		1003.0		999.5				1000.0		999.5		1000.0		1000.0	
Wind Dir	ESE		ESE		NNW		NNW		NNW		WNW		WNW		WNW		W		W	
Wind Spd/F	F 4		F 2		F 3		F 3		F 2		F 3		F 4		F 5		F 5		F 4	
Transparency	10		12		11		10		10										11	
Depth					2024															
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	32.438	8.0	32.396	8.9	32.641	7.7	32.652	8.2	32.513	10.6	32.782	11.5	33.117	14.0	33.864	8.4	32.586	7.0	32.639
10m	7.20	32.453	7.68	32.585	8.48	32.757	7.43	32.760	7.84	32.667	10.45	32.884	11.38	33.215	13.88	33.942	8.15	32.672	6.75	32.729
20m	6.79	32.498	7.27	32.758	4.77	32.516	7.13	32.736	7.02	32.700	8.15	33.024	13.39	34.092	13.62	33.887	6.33	32.796	4.64	32.855
30m	4.65	32.853	4.91	32.872	1.81	32.795	5.61	32.865	4.34	32.917	6.11	33.137	11.77	34.261	7.65	32.943	3.92	32.905	2.87	32.925
50m	2.30	32.948	2.65	32.932	1.32	32.993	2.21	32.902	2.17	32.968	3.37	33.220	10.79	34.266	10.12	34.127	2.18	32.953	2.02	32.949
75m	1.72	33.026	1.67	32.978	1.73	33.164	1.66	32.955	1.53	33.021	2.83	33.241	9.79	34.162	8.85	34.065	1.98	32.976	1.63	33.022
100m	1.95	33.138	1.77	33.092	1.84	33.252	1.78	33.093	1.54	33.085	3.93	33.399	8.39	33.992	4.29	33.427	1.63	33.058	1.54	33.087
125m	2.72	33.312	2.86	33.281	2.06	33.329	2.00	33.177	1.90	33.199	3.88	33.434	7.30	33.877	4.10	33.422	2.03	33.217	2.08	33.249
150m	2.89	33.445	2.28	33.305	2.21	33.361	3.10	33.369	2.68	33.414	3.41	33.447	7.34	33.972	6.92	33.920	2.64	33.410	2.78	33.446
200m	2.48	33.603	2.38	33.536	2.12	33.418	2.79	33.551	2.48	33.561	3.64	33.605	5.86	33.812	5.93	33.919	3.24	33.706	3.08	33.670
250m	3.21	33.808	2.75	33.656	2.21	33.459	2.73	33.684	3.11	33.770	4.46	33.815	5.94	33.984	5.11	33.925	3.31	33.841	3.16	33.811
300m	3.22	33.907	3.08	33.785	2.50	33.569	3.03	33.809	3.22	33.884	3.48	33.825	5.56	34.044	3.28	33.765	3.48	33.950	3.29	33.924
400m					2.93	33.752	3.25	33.988	3.26	34.052	3.56	33.984	4.40	34.037	4.19	34.065				
500m					3.20	33.898	3.28	34.112	3.25	34.145	3.31	34.088	3.56	34.087	3.68	34.152				
600m					3.55	34.081	3.18	34.185	3.17	34.208	3.42	34.198	3.74	34.225	3.55	34.264				
700m															3.12	34.306				
800m															2.98	34.356				
900m															2.81	34.390				
1000m															2.75	34.412				

Table 5-14

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	PKA24		P17		PK06		P26		PK15		PK14		P25		PK05		P16		P15	
Latitude:N	41-30.1		41-29.8		41-30.0		41-30.1		41-30.0		41-59.1		42- 0.1		42- 0.1		42- 0.2		42-14.1	
Longitude:E	146-29.8		146- 0.3		145-30.1		145- 0.1		144-30.1		144-30.0		144-59.9		145-29.9		145-59.8		146- 0.0	
Date	1998/05/31		1998/05/31		1998/05/31		1998/05/31		1998/05/31		1998/05/31		1998/06/01		1998/06/01		1998/06/01		1998/06/01	
Time(JST)	07:43		10:00		13:43		16:21		18:51		21:52		00:27		03:10		06:03		08:06	
Weather	B		B		B		B		B		BC		BC		BC		B		B	
Air Temp.	9.3		10.3		9.8		10.3		10.1		10.1		10.5		10.1		9.6		10.1	
Bar	1001.0		1001.0		1001.0		1002.0		1003.5		1002.0		1001.5		1001.0		1000.5		999.5	
Wind Dir	W		W		WSW		SW		WNW		WSW		WSW		WSW		SW		WSW	
Wind Spd/F	F 5		F 6		F 5		F 4		F 4		F 5		F 6		F 6		F 5		F 5	
Transparency	12		14		9		9										11		18	
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	32.606	7.1	32.712	8.4	32.628	8.4	32.646	8.1	32.679	8.2	32.698	8.4	32.611	6.7	33.178	6.8	32.578	7.6	32.721
10m	6.99	32.706	6.71	32.800	8.14	32.735	8.23	32.771	7.88	32.800	8.08	32.797	8.31	32.734	6.53	32.695	6.44	32.689	7.26	32.861
20m	6.58	32.722	6.29	32.808	6.92	32.773	6.35	32.752	7.36	32.801	8.09	32.797	8.30	32.734	6.39	32.693	6.43	32.689	7.25	32.859
30m	3.47	32.898	4.31	32.906	4.66	32.869	3.98	32.898	4.75	32.877	5.29	32.872	4.68	32.894	4.55	32.829	5.55	32.671	6.60	32.853
50m	2.05	32.916	2.50	32.970	2.37	32.974	2.07	33.000	2.24	32.987	2.81	32.958	2.75	32.987	2.98	32.923	1.85	32.906	2.65	33.030
75m	2.06	32.956	2.95	33.141	1.69	33.029	1.42	33.035	1.54	33.040	1.59	33.027	1.75	33.045	1.71	32.964	1.22	32.974	2.19	33.201
100m	1.54	33.013	2.06	33.161	1.49	33.092	1.65	33.136	1.46	33.099	1.47	33.083	1.51	33.089	1.62	33.003	1.22	33.075	3.08	33.353
125m	1.58	33.071	2.37	33.255	1.83	33.177	1.97	33.268	2.13	33.276	1.76	33.183	1.96	33.235	1.71	33.124	1.41	33.161	3.63	33.444
150m	2.01	33.206	2.39	33.376	2.57	33.426	2.56	33.452	2.73	33.479	2.53	33.421	2.76	33.485	2.01	33.227	1.47	33.236	4.23	33.550
200m	3.09	33.580	3.19	33.701	2.94	33.676	3.03	33.682	3.01	33.676	3.05	33.690	3.40	33.786	2.91	33.547	1.79	33.343	4.55	33.618
250m	3.50	33.835	3.22	33.818	3.24	33.828	3.18	33.806	3.14	33.815	3.21	33.832	3.21	33.881	3.15	33.725	2.05	33.447	3.35	33.487
300m	3.38	33.918	3.28	33.928	3.33	33.910	3.35	33.908	3.28	33.929	3.27	33.929	3.29	33.955	3.23	33.832	2.41	33.564	2.51	33.428
400m			3.32	34.075	3.33	34.051	3.27	34.037	3.32	34.058	3.31	34.066	3.30	34.085	3.32	33.994	2.87	33.782	2.20	33.531
500m			3.24	34.168	3.23	34.146	3.25	34.143	3.23	34.157	3.23	34.157	3.18	34.173	3.32	34.097	3.26	33.964	2.85	33.754
600m			3.13	34.233	3.13	34.220	3.13	34.217	3.12	34.222	3.08	34.234	3.08	34.235	3.18	34.180	3.30	34.077	3.17	33.915
700m			2.97	34.284							2.97	34.287	2.95	34.293	3.09	34.247	3.23	34.169	3.28	34.054
800m			2.87	34.329							2.83	34.336	2.84	34.342	2.94	34.296	3.13	34.232	3.26	34.153
900m			2.74	34.363							2.69	34.386	2.68	34.376	2.82	34.344	2.97	34.294	3.11	34.228
1000m			2.62	34.399							2.58	34.425	2.62	34.419	2.72	34.385	2.83	34.336	2.99	34.292

Table 5-15

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	P14		P13		P12		P11		PK04		PK03		PK02		PK01		P21		P22	
Latitude:N	42-29.9		42-44.9		42-54.1		43- 4.1		42-15.1		42-29.1		42-44.1		42-54.9		42-54.1		42-45.0	
Longitude:E	145-59.1		145-55.0		145-50.0		145-44.9		145-29.1		145-30.0		145-29.1		145-29.9		145- 0.0		145- 0.0	
Date	1998/06/01		1998/06/01		1998/06/01		1998/06/01		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02	
Time(JST)	10:20		12:16		14:03		15:39		05:21		07:30		09:05		10:14		12:06		13:02	
Weather	BC		BC		C		C		C		BC		C		BC		B		B	
Air Temp.	10.8		10.6		9.5		7.0		5.9		6.5		7.3		6.8		8.8		8.1	
Bar	999.0		999.5		1001.0		1003.0		1012.5		1016.0		1015.0		1015.0		1015.5		1016.0	
Wind Dir	WSW		WSW		NE		NE		NE		NE		NE		NE		SE		E	
Wind Spd/F	F 5		F 4		F 3		F 4		F 5		F 4		F 4		F 4		F 2		F 2	
Transparency	17		11		8		7		9		12		15		13		7		13	
Depth			2439				104										65		166	
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	32.794	7.2	32.656	7.0	32.707	6.4	32.205	6.8	32.584	7.0	32.681	6.8	32.662	6.6	32.692	6.3	32.263	7.8	32.668
10m	7.33	32.916	6.85	32.777	6.27	32.830	6.06	32.348	6.65	32.703	6.91	32.787	6.43	32.766	6.26	32.799	5.99	32.366	7.23	32.770
20m	7.26	32.915	6.72	32.821	5.61	32.801	5.15	32.616	6.57	32.702	6.90	32.788	6.41	32.763	6.15	32.821	4.27	32.476	5.93	32.752
30m	6.54	32.925	4.65	32.880	4.02	32.774	2.94	32.651	3.27	32.830	3.29	32.845	5.51	32.781	6.11	32.827	2.93	32.589	3.73	32.814
50m	4.01	33.140	2.59	33.009	2.05	32.879	1.51	32.787	1.61	32.905	1.65	32.935	1.88	32.915	4.29	32.868	1.95	32.692	2.68	32.938
75m	2.52	33.263	1.41	33.090	1.37	32.978	0.98	32.985	1.39	32.993	1.15	33.029	1.32	32.964	3.79	32.903			1.88	32.985
100m	3.62	33.423	1.85	33.179	1.35	33.080			1.27	33.097	1.69	33.156	1.14	33.022	2.57	32.982			1.95	33.130
125m	4.27	33.541	2.66	33.303	1.55	33.152			1.40	33.171	1.13	33.150	1.38	33.106	1.77	33.039			2.04	33.246
150m	4.55	33.591	3.56	33.452	2.22	33.275			1.57	33.242	2.39	33.305	1.69	33.198					2.14	33.311
200m	5.09	33.691	3.44	33.490	2.66	33.398			2.00	33.377	2.68	33.401	1.58	33.271						
250m	5.10	33.695	2.95	33.451	1.68	33.344			2.14	33.462	2.09	33.393	1.59	33.324						
300m	3.31	33.499	2.14	33.401	2.08	33.440			2.42	33.564	2.07	33.460	2.08	33.438						
400m	2.62	33.531	2.43	33.556	2.44	33.619			3.08	33.823	2.61	33.658	2.45	33.619						
500m	2.67	33.666	2.60	33.699	2.90	33.796			3.23	33.969	3.05	33.848	2.99	33.828						
600m	3.06	33.852	3.10	33.891	3.32	33.981			3.27	34.092	3.30	34.006	3.28	34.005						
700m	3.27	33.994	3.26	34.033	3.32	34.101														
800m	3.29	34.106	3.28	34.133	3.23	34.194														
900m	3.19	34.196	3.16	34.216	3.18	34.268														
1000m	3.03	34.265	3.01	34.279	2.91	34.317														

Table 5-16

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	P23		P24		PK13		PK12		PK11		IK17		IK16		IK15		IK14		IK13	
Latitude:N	42-30.0		42-15.0		42-14.1		42-29.1		42-44.9		41-59.1		41-50.2		41-39.1		41-20.1		40-59.4	
Longitude:E	144-59.1		145- 0.0		144-29.1		144-29.9		144-29.9		143-59.2		143-30.4		142-59.9		142-59.1		142-59.9	
Date	1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/09		1998/06/10		1998/06/10		1998/06/11		1998/06/11	
Time(JST)	14:30		16:29		18:35		20:13		21:50		17:34		04:56		17:38		05:58		17:38	
Weather	B		B		BC		BC		B		C		C		C		R		C	
Air Temp.	10.1		9.5		7.4		7.1		6.8		11.1		9.3		9.6		10.1		11.0	
Bar	1016.0		1017.0		1018.0		1019.0		1019.0		1025.0		1021.0		1017.5		1016.0		1015.7	
Wind Dir	NE		SE		SE		SSE		SE		ESE		NNE		ENE		NE		ENE	
Wind Spd/F	F 1		F 2		F 2		F 3		F 2		F 3		F 3		F 4		F 5		F 4	
Transparency	11		13		14															
Depth											1121		140		152					
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	7.3	32.588	7.8	32.676	8.7	32.641	8.1	32.654	6.7	32.716	9.9	32.73*	7.5	32.64*	7.8	32.69*	9.7	33.02*	10.6	33.09*
10m	6.59	32.661	7.11	32.782	8.43	32.756	8.14	32.765	6.36	32.815	9.75	32.727	5.72	32.591	7.38	32.707	9.61	33.021	10.08	33.164
20m	5.98	32.651	6.65	32.791	7.99	32.755	3.97	32.820	5.04	32.872	8.41	32.725	2.72	32.948	5.02	32.798	9.52	33.089	8.62	32.929
30m	5.32	32.648	4.41	32.874	4.26	32.896	3.68	32.828	3.61	32.936	8.17	32.725	2.38	32.954	4.32	32.811	10.71	33.640	8.20	33.454
50m	2.36	32.895	3.02	32.956	2.43	32.961	2.39	32.947	2.78	32.993	3.65	32.931	1.87	32.988	2.04	32.923	9.20	33.877	6.30	33.520
75m	1.44	32.954	2.05	33.021	1.99	32.994	1.93	32.957	1.94	33.061	2.13	33.012	1.46	33.023	1.62	32.997	7.31	33.715	3.84	33.332
100m	1.38	33.008	1.89	33.068	1.66	33.069	1.80	33.013	1.66	33.131	1.63	33.065	1.47	33.083	1.81	33.187	5.25	33.504	1.82	33.187
125m	1.20	33.066	1.81	33.159	1.71	33.130	1.70	33.109			1.58	33.109	1.54	33.112	1.88	33.238	4.01	33.404	3.25	33.382
150m	1.49	33.162	2.10	33.284	2.10	33.274	2.16	33.264			2.06	33.244					3.69	33.404	2.48	33.341
200m	1.92	33.353	3.01	33.626	2.87	33.635	3.19	33.640			2.85	33.552					3.93	33.538	2.44	33.385
250m	2.37	33.526	3.29	33.799	3.11	33.790	3.24	33.790			3.14	33.781					3.19	33.553	2.00	33.388
300m	3.08	33.735	3.37	33.916	3.25	33.896	3.31	33.899			3.15	33.875					2.94	33.635	2.32	33.482
400m	3.21	33.929	3.35	34.055	3.36	34.046	3.30	34.027												
500m	3.33	34.055	3.24	34.137	3.24	34.146	3.33	34.132												
600m	3.26	34.150	3.16	34.205	3.10	34.218	3.19	34.188												
700m																				
800m																				
900m																				
1000m																				

Table 5-17

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

Stn-prefix	199806	199806	199806	199806	199806	199806	199806	199806	199806	199806
Station No	IK12	IK11	IK10	IK09	IK08	IK07	IK06	IK05	IK04	IK03
Latitude:N	40-59.1	40-59.8	41- 0.0	41- 0.1	41- 0.0	41- 0.2	41-19.9	41-41.3	41-40.0	41-39.1
Longitude:E	143-29.9	143-59.4	144-29.9	145- 0.1	145-29.8	146- 0.8	146- 0.1	146- 0.5	145-30.2	144-59.4
Date	1998/06/12	1998/06/12	1998/06/13	1998/06/13	1998/06/14	1998/06/14	1998/06/16	1998/06/16	1998/06/17	1998/06/17
Time(JST)	06:06	17:40	05:56	17:37	05:26	17:38	14:07	17:32	05:43	17:32
Weather	F	BC	BC	BC	C	C	C	C	BC	BC
Air Temp.	9.6	12.6	13.0	15.8	15.6	14.1	16.6	14.0	13.0	12.1
Bar	1018.0	1018.0	1019.0	1016.7	1014.0	1011.2	1004.0	1003.7	1005.0	1005.4
Wind Dir	ENE	E	SSE	SE	ESE	ESE	SSW	S	WSW	SW
Wind Spd/F	F 3	F 3	F 3	F 4	F 4	F 6	F 1	F 4	F 4	F 4
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	8.7 32.52*	11.3 32.73*	12.8 32.83*	15.6 33.75*	15.7 34.02*	16.2 34.13*	14.4 33.65*	12.1 32.85*	12.1 32.83*	11.4 32.71*
10m	8.48 32.523	10.12 32.732	11.38 32.817	15.30 33.751	15.66 34.020	16.13 34.132	13.92 33.650	11.37 32.891	11.87 32.829	11.06 32.711
20m	6.18 32.767	7.88 32.767	6.56 32.758	14.06 33.895	14.78 33.886	16.11 34.129	13.86 33.691	11.43 33.007	11.02 32.842	10.07 32.732
30m	4.31 33.033	6.36 32.823	5.60 32.816	10.30 33.838	12.90 33.737	12.55 33.613	13.98 33.774	4.88 33.160	4.90 32.893	7.06 32.801
50m	6.67 33.676	2.72 32.963	2.47 32.961	8.40 33.929	8.77 33.827	10.89 34.235	4.16 33.127	2.92 33.183	2.38 32.978	2.40 32.978
75m	4.69 33.491	1.85 32.988	2.07 32.979	4.04 33.354	8.93 34.037	9.28 34.062	4.88 33.432	3.00 33.260	1.85 33.042	1.56 33.014
100m	2.28 33.246	1.72 33.042	1.74 33.035	4.77 33.515	7.14 33.806	8.77 34.062	4.80 33.510	3.45 33.358	1.64 33.099	1.46 33.066
125m	2.58 33.326	1.83 33.150	1.97 33.193	3.47 33.386	6.02 33.702	7.89 33.974	5.11 33.590	3.66 33.416	2.07 33.248	1.87 33.198
150m	3.08 33.409	2.39 33.346	2.49 33.377	3.49 33.449	5.40 33.631	6.02 33.731	3.59 33.437	4.14 33.521	2.53 33.416	2.59 33.449
200m	2.19 33.410	2.95 33.643	3.08 33.687	5.56 33.880	5.27 33.671	3.96 33.493	4.13 33.592	3.55 33.559	2.87 33.634	2.99 33.663
250m	2.24 33.475	3.13 33.776	3.18 33.804	4.23 33.747	6.33 33.934	3.65 33.534	3.69 33.649	3.45 33.633	3.47 33.810	3.10 33.784
300m	2.46 33.556	3.30 33.898	3.24 33.892	3.14 33.740	4.51 33.775	3.55 33.635	3.44 33.712	3.00 33.713	3.65 33.911	3.22 33.891
400m										
500m										
600m										
700m										
800m										
900m										
1000m										

Table 5-18

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

Stn-prefix	199806		199806		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	IK02		IK01		IW01		IW02		IW03		IW04		IW05		IW06		IW07		IW08	
Latitude:N	41-59.9		42-19.9		38-59.9		38-59.1		39- 0.0		39- 0.2		39-19.9		39-39.1		40- 0.2		40- 0.0	
Longitude:E	144-59.1		144-59.1		142-59.5		143-29.8		143-59.8		144-29.1		144-20.0		144-10.1		143-59.8		144-29.9	
Date	1998/06/18		1998/06/18		1998/06/24		1998/06/25		1998/06/25		1998/06/25		1998/06/26		1998/06/26		1998/06/26		1998/06/27	
Time(JST)	04:54		06:52		17:21		07:18		10:02		17:24		07:11		09:46		17:20		07:32	
Weather	BC		BC		C		C		C		C		R		F		F		R	
Air Temp.	10.3		13.8		17.7		18.8		19.8		20.2		18.3		18.2		17.2		19.1	
Bar	1008.0		1009.0		1020.0		1020.5		1020.7		1020.0		1018.0		1016.7		1013.2		1007.0	
Wind Dir	NW		CALM		ESE		S		SSW		S		S		SSE		SSE		SSW	
Wind Spd/F	F 1		F 0		F 2		F 4		F 5		F 3		F 5		F 3		F 3		F 6	
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	9.7	32.70*	11.3	32.74*	14.1	32.66*	17.7	33.95*	18.3	34.03*	19.8	34.07*	17.7	33.89*	15.3	32.82*	15.8	33.08*	17.5	33.71*
10m	9.61	32.710	10.53	32.742	12.80	32.665	17.51	33.949	18.06	34.025	19.09	33.973	17.54	33.893	14.30	32.906	15.92	33.274	17.31	33.734
20m	9.04	32.705	7.54	32.774	10.66	32.691	14.62	33.940	16.42	33.961	12.48	33.188	16.68	33.886	12.39	32.957	16.47	33.739	17.76	33.932
30m	8.11	32.750	3.36	32.925	5.35	32.837	11.99	33.881	12.40	34.021	10.91	33.542	15.86	33.852	4.89	32.901	11.15	33.719	16.85	33.891
50m	3.30	32.980	1.95	32.975	2.88	32.942	9.40	33.836	10.84	34.184	10.32	33.944	11.43	34.147	2.74	32.985	9.16	33.982	10.22	33.840
75m	2.18	33.051	1.47	33.013	1.77	33.058	9.30	34.079	9.49	34.131	8.70	33.917	9.66	34.091	2.27	33.093	7.69	33.885	4.35	33.329
100m	2.00	33.113	1.58	33.100	1.98	33.142	8.03	33.960	8.38	34.022	8.74	34.055	9.10	34.118	2.22	33.143	6.83	33.815	1.53	33.070
125m	2.28	33.206	1.33	33.145	2.16	33.245	9.13	34.261	6.62	33.808	7.80	33.967	7.27	33.908	2.33	33.228	5.99	33.725	2.11	33.184
150m	2.55	33.374	1.84	33.261	2.57	33.390	8.02	34.142	5.61	33.695	6.84	33.864	6.88	33.900	2.33	33.298	5.32	33.646	2.29	33.304
200m	2.98	33.614	1.80	33.381	2.65	33.553	7.04	34.073	5.87	33.843	7.51	34.079	6.21	33.876	2.48	33.453	4.76	33.714	5.29	33.856
250m	3.50	33.796	2.27	33.506	2.89	33.746	6.27	34.061	5.18	33.861	6.24	33.977	3.25	33.579	2.85	33.602	4.74	33.854	5.50	33.990
300m	3.33	33.906	2.68	33.639	3.15	33.849	6.25	34.187	6.06	34.102	4.53	33.808	2.86	33.629	3.04	33.734	4.92	33.991	5.30	34.065
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-19

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

Stn-prefix	199807	199807	199807	199807	199807	199807	199807	199807	199807	199807											
Station No	IW09	IW10	IW11	IW12	IW13	IW14	IW15	IW16	IW17	IW18											
Latitude:N	40- 0.0	40- 0.3	40- 0.1	39-59.1	39-59.8	40-19.9	40-39.9	40-59.9	40-59.1	40-59.1											
Longitude:E	144-59.9	145-30.3	145-59.9	146-29.9	146-59.9	146-50.1	146-40.1	146-30.3	146- 0.2	145-30.1											
Date	1998/06/27	1998/06/27	1998/06/28	1998/06/28	1998/06/28	1998/06/29	1998/06/29	1998/06/29	1998/06/30	1998/06/30											
Time(JST)	10:15	17:20	08:03	10:46	17:17	08:29	11:35	17:20	08:10	10:57											
Weather	R	C	C	C	C	C	C	C	C	C											
Air Temp.	18.7	19.3	19.7	19.5	16.5	14.6	12.6	11.3	12.0	13.8											
Bar	1006.2	1003.7	1002.5	1002.2	1001.0	1001.9	1001.5	1002.5		1008.7											
Wind Dir	SW	SW	W	WSW	NNW	NW	NNW	N	N	N											
Wind Spd/F	F 5	F 4	F 3	F 4	F 4	F 5	F 5	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	16.9	33.45*	19.1	33.94*	17.8	34.23*	17.6	34.27*	18.1	34.20*	18.0	34.23*	18.5	34.20*	16.3	33.77*	14.3	33.44*	14.8	33.51*	
10m	16.63	33.447	18.91	33.948	17.53	34.229	17.08	34.273	17.91	34.203	18.17	34.231	18.72	34.200	16.48	33.775	14.38	33.441	14.61	33.520	
20m	14.09	33.053	16.97	34.503	17.11	34.393	16.67	34.318	17.88	34.196	17.36	34.280	18.72	34.199	16.48	33.774	14.39	33.441	14.61	33.521	
30m	5.28	32.910	16.18	34.608	16.87	34.424	16.29	34.336	13.94	33.750	16.43	34.280	18.68	34.197	12.71	33.789	11.48	33.596	13.75	34.254	
50m	2.64	32.951	13.44	34.273	15.22	34.560	14.98	34.431	12.25	34.304	13.54	34.440	12.92	34.126	10.69	34.083	8.14	33.899	7.67	33.687	
75m	1.90	33.030	11.17	34.145	13.43	34.490	12.61	34.388	10.45	34.221	11.89	34.369	11.34	34.277	4.62	33.357	5.11	33.528	6.48	33.671	
100m	1.73	33.091	11.17	34.356	12.43	34.420	11.66	34.363	9.56	34.179	10.93	34.277	9.68	34.122	5.67	33.594	3.98	33.396	4.78	33.504	
125m	1.90	33.164	9.35	34.119	11.45	34.341	10.99	34.313	8.42	34.004	10.07	34.200	8.98	34.102	6.59	33.786	3.89	33.410	4.17	33.434	
150m	2.23	33.276	8.54	34.062	10.82	34.305	10.41	34.264	5.51	33.628	8.73	34.019	6.17	33.733	6.23	33.805	3.45	33.418	3.45	33.382	
200m	2.81	33.559	6.20	33.774	9.40	34.165	9.40	34.175	5.33	33.657	7.81	34.025	5.72	33.743	4.29	33.618	4.26	33.616	3.51	33.490	
250m	2.75	33.673	4.90	33.671	7.75	34.002	7.31	33.938	5.48	33.799	6.91	33.994	6.26	33.978	4.78	33.810	4.58	33.761	5.19	33.830	
300m	3.18	33.816	2.77	33.522	6.81	33.940	6.61	33.973	5.49	33.921	5.98	33.973	5.75	33.984	5.12	33.955	3.88	33.789	4.48	33.853	
400m																					
500m																					
600m																					
700m																					
800m																					
900m																					
1000m																					

Table 5-20

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

Stn-prefix	199807	199807	199807	199807	199807	199807	199807	199807	199807	199807	199807
Station No	IW19	IW20	IW21	IW22	SM01	SM02	SM03	SM04	SM05	SM06	
Latitude:N	40-59.8	41-19.9	41-39.1	41-59.7	45-29.2	45-59.1	46-29.2	46-29.1	46-29.4	46- 0.1	
Longitude:E	144-59.1	144-50.0	144-40.0	144-29.6	162-29.7	161-40.0	160-59.1	160-20.1	159-29.3	159- 0.0	
Date	1998/06/30	1998/07/01	1998/07/01	1998/07/01	1998/07/13	1998/07/14	1998/07/14	1998/07/15	1998/07/15	1998/07/16	
Time(JST)	17:16	07:09	09:50	17:22	17:31	09:13	17:34	07:38	17:27	09:12	
Weather	B	F	F	F	F	F	C	C	C	F	
Air Temp.	15.3	13.6	13.8	15.1	9.1	10.8	8.8	8.5	8.8	10.5	
Bar	1009.4	1012.0	1012.5	1013.4	1008.0	1009.0	1010.0	1017.5	1015.0	1012.5	
Wind Dir	CALM	W	W	CALM	E	SE	N	NE	ENE	SE	
Wind Spd/F	F 0	F 4	F 3	F 0	F 3	F 2	F 3	F 3	F 4	F 2	
Transparency					25	21	20	24	11	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	15.3 33.60*	15.2 33.41*	13.4 32.72*	14.2 32.82*	8.5 32.93*	8.6 32.93*	8.6 33.16*	8.5 32.90*	8.6 32.91*	9.3 32.77*	
10m	15.41 33.598	15.05 33.418	12.86 32.701	12.26 32.762	8.29 32.935	8.24 32.989	8.22 32.787	8.35 32.828	8.35 32.908	8.88 32.766	
20m	15.16 33.597	15.10 33.495	11.49 32.708	11.97 33.199	7.82 32.998	7.45 33.056	7.36 32.880	7.83 32.842	7.72 32.928	8.10 32.829	
30m	13.27 33.565	15.00 33.503	8.70 32.868	7.64 33.000	7.04 33.032	7.19 33.052	6.35 32.912	5.44 32.929	6.85 32.938	5.93 32.917	
50m	9.36 33.862	10.29 34.094	3.49 32.949	2.80 33.012	4.47 33.087	4.63 33.078	3.60 32.969	3.16 32.987	3.23 33.012	3.45 32.979	
75m	5.89 33.601	8.88 34.041	1.85 33.031	1.98 33.021	4.06 33.107	3.82 33.109	2.50 33.016	2.03 33.033	2.84 33.027	2.08 33.039	
100m	5.55 33.602	7.21 33.825	1.81 33.065	1.75 33.081	4.14 33.339	3.79 33.225	1.81 33.068	1.61 33.095	2.24 33.233	1.80 33.115	
125m	5.09 33.562	5.74 33.651	2.04 33.156	1.98 33.145	4.91 33.556	4.91 33.550	1.64 33.117	1.98 33.239	2.99 33.581	2.32 33.343	
150m	4.79 33.562	5.59 33.657	2.59 33.376	2.13 33.255	4.95 33.617	4.91 33.619	2.23 33.320	2.99 33.593	3.41 33.826	3.09 33.655	
200m	4.01 33.550	5.46 33.744	2.81 33.620	2.69 33.524	4.10 33.650	4.10 33.664	3.43 33.781	3.50 33.883	3.52 33.952	3.51 33.912	
250m	3.88 33.626	4.47 33.742	3.51 33.814	3.11 33.668	3.83 33.736	4.06 33.780	3.52 33.919	3.51 33.980	3.50 34.037	3.51 33.994	
300m	4.77 33.857	4.84 33.919	3.46 33.912	3.05 33.758	3.65 33.812	3.68 33.822	3.46 34.003	3.47 34.056	3.46 34.096	3.47 34.065	
400m					3.51 33.971	3.64 33.985	3.36 34.113	3.38 34.160	3.34 34.181	3.35 34.173	
500m					3.55 34.090	3.59 34.111	3.25 34.193	3.23 34.232	3.17 34.253	3.22 34.235	
600m					3.42 34.188	3.38 34.188	3.14 34.260	3.08 34.285	3.03 34.305	3.03 34.290	
700m					3.22 34.241	3.20 34.256	3.01 34.311	2.93 34.335	2.87 34.348	2.87 34.339	
800m					3.06 34.304	3.05 34.306	2.87 34.353	2.78 34.377	2.70 34.395	2.73 34.380	
900m					2.91 34.346	2.91 34.355	2.73 34.391	2.63 34.414	2.55 34.433	2.62 34.414	
1000m					2.78 34.386	2.71 34.384	2.60 34.423	2.51 34.443	2.44 34.459	2.47 34.450	

Table 5-21

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

Stn-prefix	199807	199807	199807	199807	199807	199807	199807	199807	199807	199807	199807									
Station No	SM07	SM08	SM09	SM10	SM11	SM12	SM13	SM14	SM15	SM16										
Latitude:N	45-30.0	45- 0.0	44-31.1	44- 0.0	43-30.1	42-59.9	42-29.6	42- 0.0	41-29.6	41- 0.1										
Longitude:E	158-28.8	158- 0.2	157-30.7	156-30.3	155-30.0	154-30.2	153-29.9	152-30.1	151-29.2	150-30.1										
Date	1998/07/16	1998/07/17	1998/07/17	1998/07/18	1998/07/18	1998/07/18	1998/07/20	1998/07/21	1998/07/21	1998/07/22										
Time(JST)	17:35	08:37	17:30	10:11	16:08	23:32	17:27	11:03	17:28	11:37										
Weather	R	BC	F	C	R	C	R	F	F	F										
Air Temp.	11.1	13.8	12.8	14.5	15.3	18.2	15.3	17.8	18.0	20.7										
Bar	1009.9	1009.5	1010.5	1013.0	1004.5	1000.5	1015.0	1015.0	1014.0	1016.5										
Wind Dir	ESE	SSW	SW	ESE	ESE	S	ESE	S	S	S										
Wind Spd/F	F 3	F 3	F 3	F 4	F 6	F 5	F 3	F 5	F 5	F 5										
Transparency	20	15	18	11			14	16	14	17										
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	32.99*	12.4	32.96*	12.3	33.07*	14.5	33.22*	15.1	33.53*	16.1	33.67*	14.4	33.69*	15.3	33.39*	15.9	33.28*	19.5	33.97*
10m	8.92	32.807	11.64	33.029	11.80	32.892	14.24	33.220	14.89	33.559	15.87	33.673	14.04	33.526	14.89	33.405	15.12	33.283	19.40	33.872
20m	8.14	32.858	12.02	33.378	10.80	32.989	13.33	33.111	12.75	33.631	15.86	33.697	13.30	33.537	12.88	33.859	12.90	33.294	19.31	33.875
30m	6.75	32.898	4.74	32.979	8.65	32.898	7.29	32.898	11.44	33.883	14.65	33.782	8.47	33.621	11.03	34.162	5.72	32.953	17.58	34.089
50m	3.83	32.971	3.29	32.975	3.37	32.981	3.56	32.927	9.78	33.954	7.44	33.555	6.75	33.630	10.31	34.234	3.44	33.062	13.52	34.318
75m	2.57	33.012	2.40	33.071	2.40	33.034	2.19	33.001	9.11	34.088	6.13	33.634	6.14	33.675	9.18	34.116	1.86	33.017	11.24	34.234
100m	1.97	33.075	2.59	33.211	2.35	33.164	2.04	33.106	8.31	33.994	5.57	33.612	5.80	33.671	8.52	34.069	1.70	33.079	10.51	34.247
125m	2.09	33.248	2.38	33.339	2.42	33.307	2.03	33.201	6.63	33.775	5.32	33.606	5.60	33.667	8.28	34.058	1.60	33.113	9.74	34.162
150m	3.05	33.652	2.92	33.532	2.85	33.498	2.43	33.363	6.29	33.755	5.01	33.591	5.46	33.661	8.14	34.045	1.90	33.199	9.05	34.103
200m	3.42	33.920	3.18	33.733	3.17	33.712	2.80	33.587	6.14	33.809	3.77	33.551	5.43	33.668	7.35	33.934	1.64	33.250	7.30	33.905
250m	3.51	34.019	3.27	33.869	3.34	33.874	3.20	33.803	4.76	33.741	3.72	33.689	5.48	33.686	6.05	33.850	4.80	33.768	6.73	33.931
300m	3.45	34.079	3.33	33.965	3.31	33.953	3.27	33.881	4.42	33.802	4.57	33.906	5.36	33.729	5.38	33.873	4.98	33.913	5.55	33.910
400m	3.35	34.170	3.30	34.086	3.33	34.092	3.35	34.031	4.09	33.963	3.98	33.993	4.40	33.838	5.08	33.998	4.34	34.008	4.60	33.973
500m	3.20	34.243	3.23	34.201	3.23	34.178	3.27	34.135	3.53	34.035	4.09	34.145	3.91	33.965	4.21	34.093	3.26	34.039	3.70	34.014
600m	3.05	34.298	3.09	34.265	3.10	34.248	3.17	34.224	3.44	34.148	3.68	34.210	3.75	34.098	3.79	34.173	3.38	34.156	3.62	34.125
700m	2.88	34.345	2.94	34.319	2.95	34.309	3.00	34.285	3.39	34.235	3.32	34.254	3.52	34.196	3.40	34.240	3.12	34.217	3.54	34.235
800m	2.72	34.392	2.79	34.369	2.81	34.358	2.86	34.338	3.31	34.305	3.10	34.305	3.30	34.263	3.34	34.326	2.97	34.286	3.34	34.299
900m	2.55	34.430	2.63	34.400	2.66	34.400	2.73	34.384	3.13	34.354	2.98	34.358	3.09	34.326	3.04	34.369	3.03	34.357	3.17	34.339
1000m	2.41	34.463	2.52	34.433	2.52	34.436	2.58	34.411	2.92	34.388	2.84	34.388	2.90	34.368	2.72	34.382	2.90	34.395	2.90	34.378

Table 5-22

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

Stn-prefix	199807		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	SM17		P31		P32		P33		PK21		PK22		P34		P35		PK23		PK31	
Latitude:N	40-30.4		42-45.0		42-30.0		42-15.0		42-14.1		42- 0.0		41-59.1		41-29.1		41-29.1		41-29.9	
Longitude:E	149-30.9		144- 0.1		143-59.1		144- 0.0		143-30.0		143-29.1		143-59.9		143-59.9		143-30.1		143- 0.1	
Date	1998/07/22		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/07/31		1998/08/01		1998/08/01	
Time(JST)	17:54		10:59		12:24		13:58		16:15		17:37		19:43		22:44		01:00		03:18	
Weather	BC		C		C		B		C		C		C		C		BC		BC	
Air Temp.	19.6		16.7		16.5		17.3		17.1		16.8		16.3		16.7		16.5		16.6	
Bar	1017.0		1014.5		1014.0		1014.0		1013.5		1013.0		1013.5		1013.9		1013.5		1013.5	
Wind Dir	S		ENE		ESE		ENE		ESE		ESE		SE		ESE		ENE		E	
Wind Spd/F	F 4		F 2		F 2		F 2		F 2		F 1		F 2		F 1		F 1		F 3	
Transparency	14		12		10		16		10		9									
Depth			64		487				66		121		1121							
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	18.2	33.23*	15.9	32.164	16.5	32.686	17.5	32.945	16.5	32.575	17.3	32.839	17.3	33.089	18.4	33.324	16.4	32.871	19.0	33.557
10m	17.85	33.322	14.24	32.565	14.56	32.710	15.86	32.997	15.32	32.627	16.97	32.954	17.18	33.176	18.52	33.487	16.12	32.982	19.03	33.761
20m	14.95	33.279	12.87	32.645	10.46	32.939	11.57	32.839	12.06	32.751	15.13	33.156	13.56	33.070	17.57	33.710	13.58	33.170	18.99	33.783
30m	7.55	33.236	10.21	32.737	8.13	32.930	8.98	32.879	10.24	32.762	11.73	33.009	10.36	33.091	9.37	33.205	11.39	33.275	16.54	33.698
50m	4.80	33.315	6.97	32.801	4.32	32.899	3.40	32.966	6.44	32.784	5.48	32.953	3.83	33.122	5.09	33.348	7.33	33.557	14.41	34.098
75m	5.31	33.554			7.01	33.692	2.14	33.079			3.51	33.150	6.24	33.673	3.63	33.287	3.17	33.212	12.85	33.946
100m	4.96	33.543			6.95	33.774	2.53	33.187			2.31	33.099	5.30	33.586	4.79	33.508	3.62	33.332	11.45	34.010
125m	4.47	33.510			5.39	33.564	2.88	33.296					4.96	33.561	4.94	33.558	3.51	33.370	11.52	34.109
150m	3.85	33.501			4.93	33.583	2.84	33.343					5.03	33.600	4.89	33.594	3.82	33.450	10.51	34.007
200m	4.40	33.693			5.02	33.682	2.51	33.399					4.85	33.698	4.01	33.614	3.42	33.492	2.91	33.318
250m	3.94	33.763			3.98	33.642	2.35	33.455					4.20	33.741	4.67	33.837	2.99	33.501	2.93	33.384
300m	3.59	33.826			2.95	33.620	2.53	33.574					3.89	33.764	4.48	33.923	2.71	33.512	2.51	33.449
400m	4.04	34.046			3.02	33.755	3.03	33.785					3.67	33.936	3.48	33.969	4.17	33.868	2.90	33.698
500m	3.43	34.095					3.38	33.957					3.70	34.057	3.54	34.094	3.45	33.946	3.24	33.909
600m	3.39	34.191					3.39	34.067					3.34	34.120	3.24	34.158	3.38	34.057	3.35	34.060
700m	3.08	34.246											3.40	34.241						
800m	3.03	34.313											3.03	34.263						
900m	2.92	34.362											2.90	34.315						
1000m	2.79	34.401											2.78	34.356						

Table 5-23

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	PK32		PK24		P36		PK16		P27		PK07		P18		P17		PK06		P26	
Latitude:N	40-59.1		40-59.1		40-59.1		40-59.1		40-59.1		40-59.1		40-59.9		41-29.9		41-29.1		41-29.1	
Longitude:E	142-59.1		143-29.9		143-59.9		144-29.9		144-59.9		145-29.1		145-59.1		145-59.1		145-30.1		145- 0.0	
Date	1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/01		1998/08/02		1998/08/02	
Time(JST)	05:58		08:30		11:06		13:26		15:40		17:49		20:04		23:27		02:12		04:26	
Weather	C		C		C		BC		BC		BC		C		C		C		C	
Air Temp.	17.8		18.7		19.7		22.3		21.7		21.1		20.2		18.7		19.0		19.2	
Bar	1013.0		1013.5		1014.0		1014.0		1014.0		1014.5		1015.0		1015.5		1014.5		1014.0	
Wind Dir	E		ESE		ESE		SE		SE		ESE		ESE		ESE		E		E	
Wind Spd/F	F 3		F 3		F 3		F 2		F 2		F 2		F 3		F 4		F 3		F 4	
Transparency	13		15		19		15		16		21								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	18.2	33.392	17.8	33.151	18.2	32.868	19.1	32.629	22.1	33.304	22.3	33.885	21.3	33.773	18.9	32.991	18.8	32.753	18.6	32.635
10m	18.13	33.509	17.52	33.250	18.12	33.259	18.23	32.756	21.27	33.419	21.72	33.983	20.81	34.141	18.57	33.081	18.65	32.856	18.34	32.767
20m	17.67	33.662	15.76	33.277	17.44	33.391	16.21	32.953	19.23	33.911	18.33	34.627	17.89	34.635	10.49	32.896	12.74	32.835	13.83	32.780
30m	14.32	33.829	9.33	33.403	13.40	33.283	12.72	33.023	14.91	34.167	17.34	34.657	16.83	34.636	7.55	33.172	8.34	33.047	7.05	32.857
50m	13.26	34.009	3.27	33.010	4.11	32.989	5.08	32.915	13.02	34.379	16.23	34.694	15.27	34.596	6.78	33.567	2.57	33.023	2.61	32.979
75m	12.23	34.061	2.89	33.258	2.00	33.090	2.17	33.003	11.06	34.227	14.44	34.573	13.75	34.529	3.94	33.293	2.41	33.118	1.74	33.023
100m	11.64	34.064	3.36	33.409	2.66	33.213	1.81	33.065	10.65	34.289	12.97	34.467	12.41	34.423	3.78	33.314	3.10	33.266	1.89	33.112
125m	10.04	33.963	2.82	33.410	2.47	33.262	1.91	33.143	9.85	34.238	10.62	34.126	11.23	34.366	3.36	33.338	3.28	33.348	2.58	33.255
150m	7.74	33.724	2.65	33.428	2.47	33.379	2.16	33.256	8.03	34.005	9.76	34.105	10.24	34.258	3.23	33.402	2.57	33.368	2.97	33.425
200m	2.75	33.327	2.67	33.521	2.83	33.579	2.91	33.601	5.19	33.683	7.66	33.890	6.74	33.779	3.43	33.562	3.27	33.593	2.95	33.621
250m	3.01	33.476	2.67	33.553	3.45	33.743	3.14	33.744	5.47	33.852	5.66	33.706	7.52	34.052	3.47	33.729	3.43	33.722	3.13	33.765
300m	3.84	33.701	2.98	33.643	3.55	33.848	3.29	33.863	4.91	33.905	5.23	33.737	5.34	33.822	3.40	33.805	3.00	33.761	3.09	33.844
400m	3.07	33.783	3.34	33.812	3.37	33.975	3.36	34.008	3.83	33.965	4.85	33.906	4.75	33.969	3.20	33.922	3.30	33.932	3.38	34.010
500m	3.50	33.975	3.37	33.955	3.44	34.114	3.33	34.123	3.48	34.042	4.38	34.051	3.87	34.031	3.57	34.082	4.16	34.188	3.35	34.133
600m	3.35	34.074	3.34	34.081	3.21	34.187	3.31	34.211	3.31	34.147	4.17	34.187	4.16	34.205	3.32	34.156	3.48	34.206	3.57	34.249
700m												3.76	34.269	3.33	34.265					
800m												3.18	34.255	3.15	34.321					
900m												3.16	34.311	3.01	34.364					
1000m												3.07	34.376	2.80	34.393					

Table 5-24

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808			
Station No	PK15		PK14		PK13		PK12		PK11		P21		P22		P23		P24		P25			
Latitude:N	41-29.9		41-59.1		42-14.9		42-29.9		42-44.9		42-54.9		42-45.0		42-30.0		42-15.0		42- 0.1			
Longitude:E	144-30.1		144-29.9		144-29.9		144-30.0		144-29.1		144-59.9		144-59.1		144-59.1		144-59.1		145- 0.0			
Date	1998/08/02		1998/08/02		1998/08/02		1998/08/02		1998/08/02		1998/08/02		1998/08/02		1998/08/02		1998/08/02		1998/08/02			
Time(JST)	06:39		09:32		11:35		13:27		15:05		17:22		18:19		19:45		21:22		23:01			
Weather	C		C		C		C		C		C		C		C		C		C			
Air Temp.	19.2		19.5		19.6		18.1		17.7		16.1		16.7		17.0		17.0		18.3			
Bar	1014.0		1014.0		1014.0		1014.5		1014.0		1015.0		1015.0		1015.0		1015.0		1014.5			
Wind Dir	E		E		E		E		E		E		E		ESE		ENE		ESE			
Wind Spd/F	F 4		F 5		F 4		F 4		F 4		F 3		F 3		F 3		F 3		F 4			
Transparency	18		18		15		13		10		7		9									
Depth									130		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	18.5	32.788	19.0	33.335	17.6	32.995	17.2	33.222	16.4	32.657	15.3	32.634	16.2	32.827	16.3	32.847	16.6	32.746	19.3	33.431		
10m	18.40	32.902	17.71	33.355	16.69	33.224	16.11	33.275	13.52	32.748	12.30	32.628	15.52	32.920	16.18	32.974	15.92	32.836	19.29	33.509		
20m	18.95	33.454	16.56	33.191	14.55	33.203	11.73	33.113	9.34	32.813	10.64	32.554	10.96	32.975	12.85	32.827	15.41	33.246	18.93	33.777		
30m	10.61	32.844	12.71	33.276	13.48	33.568	8.57	33.617	6.92	32.897	8.21	32.630	6.85	33.208	9.26	33.356	9.90	33.224	12.42	33.379		
50m	5.04	33.078	5.57	33.281	6.39	33.322	8.81	34.019	5.13	33.000	5.38	32.908	3.00	33.055	3.47	33.222	3.46	33.112	4.54	33.227		
75m	2.82	33.104	2.52	33.156	3.93	33.346	6.11	33.666	2.92	33.165			5.41	33.436	2.08	33.159	2.86	33.213	3.59	33.295		
100m	2.14	33.151	3.51	33.329	4.56	33.478	4.40	33.462	2.54	33.171			5.79	33.601	4.44	33.476	4.47	33.470	4.33	33.443		
125m	3.95	33.438	3.60	33.398	4.35	33.481	4.95	33.560					4.17	33.427	4.56	33.515	4.18	33.486	3.89	33.443		
150m	3.57	33.501	5.05	33.663	4.36	33.526	4.12	33.493					3.87	33.453	3.88	33.467	3.25	33.440	4.49	33.591		
200m	3.00	33.637	3.78	33.616	3.92	33.625	4.31	33.627							5.36	33.758	2.82	33.499	2.97	33.526		
250m	3.29	33.801	3.60	33.726	3.47	33.652	3.60	33.643							4.49	33.753	3.83	33.733	4.25	33.789		
300m	3.31	33.892	3.41	33.785	2.80	33.684	3.37	33.704							4.01	33.794	3.46	33.790	3.71	33.822		
400m	3.57	34.067	3.52	33.970	3.49	33.927	3.32	33.815							3.66	33.913	3.46	33.960	3.51	33.962		
500m	3.29	34.136	3.44	34.079	3.58	34.071	3.46	33.939							3.41	34.020	3.70	34.121	3.63	34.109		
600m	3.25	34.229	3.67	34.217	3.52	34.183	3.45	34.068							3.64	34.171	3.28	34.171	3.56	34.214		
700m			3.35	34.265																3.42	34.286	
800m			2.96	34.294																	3.14	34.318
900m			2.83	34.334																	2.98	34.367
1000m			2.71	34.375																	2.83	34.402

Table 5-25

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	PK05		P16		P15		P14		P13		P12		P11		PK01		PK02		PK04	
Latitude:N	42- 0.0		41-59.1		42-14.9		42-29.9		42-44.9		42-54.9		43- 4.9		42-55.0		42-45.0		42-14.1	
Longitude:E	145-29.9		145-59.9		145-59.9		145-59.1		145-54.9		145-49.9		145-44.1		145-30.1		145-29.1		145-30.1	
Date	1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/04	
Time(JST)	01:49		04:34		06:31		08:29		10:34		12:12		13:42		15:10		16:11		03:48	
Weather	BC		C		C		C		C		C		BC		BC		BC		R	
Air Temp.	18.2		18.0		16.7		17.1		19.1		19.3		19.7		18.7		18.7		17.1	
Bar	1014.5		1015.0		1015.5		1015.7		1016.0		1015.5		1015.0		1014.5		1014.5		1012.5	
Wind Dir	E		ESE		E		ESE		SE		ESE		SE		S		SE		ENE	
Wind Spd/F	F 4		F 4		F 4		F 4		F 3		F 3		F 2		F 2		F 3		F 3	
Transparency			21		11		17		20		17		5		8		16			
Depth													104		157					
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	18.9	33.677	18.5	33.216	15.8	32.551	17.5	33.090	19.0	33.569	19.2	33.696	11.6	32.717	15.2	32.686	16.3	32.939	17.3	32.532
10m	18.87	33.781	18.49	33.396	15.47	32.636	17.44	33.237	18.83	33.700	18.66	33.749	8.98	32.926	10.89	32.837	16.42	33.041	16.31	32.900
20m	17.61	33.485	16.23	33.493	7.27	32.812	10.98	32.760	11.68	33.150	12.37	33.289	5.70	33.070	6.83	32.989	8.53	32.988	13.56	33.429
30m	9.82	33.143	9.12	33.436	4.65	32.922	4.95	32.959	9.48	33.265	8.01	33.344	5.32	33.070	4.95	33.115	5.13	33.042	6.06	33.038
50m	6.21	33.470	6.58	33.592	4.32	33.247	2.85	32.996	6.77	33.466	2.57	33.040	5.03	33.084	4.34	33.143	2.24	33.065	2.71	33.048
75m	4.61	33.452	4.69	33.455	2.48	33.121	2.10	33.057	2.02	33.079	5.96	33.571	4.50	33.114	3.74	33.159	2.17	33.155	4.96	33.453
100m	4.19	33.444	4.60	33.496	2.05	33.185	1.88	33.131	3.32	33.308	3.32	33.309			3.87	33.354	3.13	33.322	4.53	33.472
125m	4.46	33.518	4.23	33.496	2.16	33.276	1.98	33.224	4.27	33.497	3.43	33.354			3.44	33.425	3.29	33.393	4.66	33.534
150m	4.34	33.575	4.23	33.562	2.07	33.344	2.17	33.327	3.12	33.464	3.20	33.401					2.85	33.379	4.43	33.545
200m	4.44	33.722	3.84	33.615	3.11	33.596	2.74	33.531	2.91	33.533	3.22	33.510					2.65	33.449	2.77	33.534
250m	3.84	33.749	4.06	33.790	3.96	33.809	2.73	33.664	3.90	33.765	3.31	33.621					2.42	33.494	3.35	33.711
300m	3.82	33.853	3.90	33.845	3.03	33.777	3.21	33.834	3.81	33.865	3.50	33.734					2.79	33.610	3.54	33.854
400m	4.08	34.043	3.95	34.036	3.44	33.990	3.46	34.010	3.43	33.961	3.14	33.836					3.29	33.831	3.20	33.962
500m	3.75	34.147	3.39	34.081	3.27	34.075	3.34	34.104	3.28	34.058	3.44	33.999					4.07	34.077	3.25	34.096
600m	3.52	34.226	3.21	34.170	3.28	34.187	3.24	34.188	3.22	34.162	3.49	34.127					3.33	34.097	3.22	34.184
700m	3.21	34.276	3.16	34.242	3.07	34.245	3.41	34.295	3.31	34.262	3.34	34.201								
800m	3.07	34.326	3.01	34.301	2.89	34.291	2.98	34.314	3.14	34.317	3.06	34.271								
900m	2.88	34.365	2.85	34.342	2.83	34.344	2.99	34.378	2.85	34.336	2.92	34.316								
1000m	2.78	34.406	2.71	34.381	2.67	34.388	2.67	34.385	2.75	34.383	2.76	34.369								

Table 5-26

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808			
Station No	PK03		IK09		IK08		IK07		IK06		IK05		IK04		IK03		IK02		IK01			
Latitude:N	42-29.9		42-19.0		42- 0.1		41-40.0		41-40.0		41-39.9		41-39.1		41-40.1		41-59.9		42-20.3			
Longitude:E	145-29.1		145- 0.6		145-29.9		146- 0.0		145-30.2		145- 0.1		144-30.0		144- 0.1		143-59.1		144- 0.1			
Date	1998/08/04		1998/08/21		1998/08/22		1998/08/22		1998/08/23		1998/08/23		1998/08/24		1998/08/24		1998/08/25		1998/08/25			
Time(JST)	05:26		17:55		06:04		17:53		05:27		17:53		05:23		18:02		05:16		18:03			
Weather	R		BC		BC		BC		C		F		F		F		F		C			
Air Temp.	17.5		19.0		17.8		19.3		19.0		20.5		20.2		19.5		19.3		19.2			
Bar	1012.2		1008.5		1014.5		1019.5		1021.0		1017.5		1014.1		1009.5		1005.5		1023.4			
Wind Dir	ESE		WSW		WSW		E		E		ESE		SSE		S		S		SSW			
Wind Spd/F	F 4		F 5		F 4		F 4		F 3		F 3		F 3		F 3		F 4		F 4			
Transparency	11				12		23		20				18		8		9					
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	18.1	32.957	16.7	32.90*	16.7	32.64*	20.1	33.32*	19.8	33.38*	20.2	33.16*	19.3	33.02*	18.2	32.59*	17.6	32.79*	17.8	32.88*		
10m	17.99	33.381	16.49	32.900	16.57	32.636	19.52	33.324	19.78	33.384	20.08	33.159	19.14	33.037	17.13	32.678	16.77	32.838	17.64	32.882		
20m	13.72	32.944	16.48	32.897	16.53	32.678	18.36	33.354	18.22	33.395	20.06	33.152	18.68	33.075	12.13	33.037	14.04	33.237	14.20	32.915		
30m	8.69	33.450	10.91	33.696	10.80	33.425	10.33	33.295	9.35	33.495	15.54	33.186	10.11	33.037	9.28	33.484	8.87	33.211	10.77	33.383		
50m	4.02	33.320	9.72	34.025	2.87	33.138	5.32	33.265	9.75	34.066	5.40	33.132	6.59	33.459	7.66	33.578	6.76	33.365	6.97	33.365		
75m	3.57	33.333	7.84	33.829	2.60	33.174	4.03	33.383	8.84	34.033	3.64	33.269	4.30	33.343	5.44	33.504	7.84	33.745	8.64	33.934		
100m	4.63	33.503	5.57	33.546	2.91	33.287	4.40	33.478	5.45	33.626	3.03	33.295	2.58	33.259	4.58	33.475	4.99	33.449	8.55	34.021		
125m	3.92	33.442	3.26	33.333	3.36	33.401	4.61	33.553	5.37	33.632	3.41	33.400	3.67	33.433	4.06	33.458	4.25	33.427	7.59	33.914		
150m	3.84	33.504	4.46	33.525	3.62	33.516	4.57	33.580	6.01	33.780	5.36	33.733	3.02	33.420	4.10	33.523	4.64	33.505	6.28	33.738		
200m	4.07	33.634	2.52	33.437	3.35	33.617	3.77	33.592	5.91	33.875	3.40	33.609	3.46	33.638	3.84	33.603	3.79	33.483	4.71	33.577		
250m	3.42	33.659	3.41	33.672	3.54	33.791	4.89	33.877	4.97	33.870	4.43	33.894	3.60	33.772	3.63	33.696	3.64	33.571	3.24	33.506		
300m	2.76	33.675	3.90	33.842	3.57	33.875	4.53	33.906	5.09	34.023	4.57	33.998	3.51	33.862	3.74	33.809	2.88	33.574	2.87	33.540		
400m	4.13 34.011																					
500m	3.66 34.077																					
600m	3.53 34.180																					
700m																						
800m																						
900m																						
1000m																						

Table 5-27

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809	
Station No	IW01		IW02		IW03		IW04		IW05		IW06		IW07		IW08		IW09		IW10	
Latitude:N	41-59.3		41-44.1		41-28.8		41-44.9		41-59.0		41-30.1		40-54.9		40-44.1		40-29.5		40-44.9	
Longitude:E	143-59.7		143-30.1		142-59.5		142-30.1		142- 0.3		142- 0.0		141-56.2		142-29.8		142-59.6		143-29.8	
Date	1998/09/02		1998/09/03		1998/09/03		1998/09/04		1998/09/04		1998/09/05		1998/09/05		1998/09/06		1998/09/06		1998/09/07	
Time(JST)	17:32		09:03		17:30		11:13		17:31		09:44		19:25		09:31		17:34		09:16	
Weather	BC		C		C		BC		BC		BC		C		B		BC		C	
Air Temp.	18.0		17.8		19.1		23.5		22.6		22.2		20.8		20.8		19.7		20.6	
Bar	1008.9		1011.0		1010.0		1011.6		1011.0		1012.5		1012.0		1013.0		1012.9		1014.0	
Wind Dir	E		NNE		SE		NW		CALM		CALM		SSE		SSE		SE		SSE	
Wind Spd/F	F 2		F 4		F 3		F 1		F 0		F 0		F 4		F 5		F 3		F 5	
Transparency	14		16		17		16		15		21		16		13		11			
Depth			150																	
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	31.82*	17.5	31.50*	22.4	33.53*	21.6	33.46*	21.2	33.42*	22.1	33.61*	22.4	33.51*	21.6	33.29*	19.8	31.64*	19.6	31.74*
10m	16.90	31.861	17.47	31.551	22.10	33.536	21.14	33.455	18.75	33.841	21.61	33.607	22.24	33.507	21.15	33.482	19.04	31.905	19.40	31.797
20m	14.27	32.739	17.25	32.563	21.99	33.534	21.04	33.511	17.26	33.983	21.46	33.608	20.85	33.392	20.24	33.671	13.15	33.013	17.23	32.678
30m	9.18	33.202	13.16	32.871	21.24	33.594	20.24	33.613	16.12	33.954	21.21	33.627	20.30	33.369	19.40	33.809	8.53	33.256	11.99	33.123
50m	6.09	33.195	6.41	33.194	18.96	33.868	18.55	33.880	14.01	34.091	19.04	33.777	19.48	33.717	17.23	33.964	8.04	33.611	11.25	33.961
75m	6.02	33.500	4.74	33.226	16.11	33.995	14.94	33.992	12.17	34.048	15.78	33.877	17.51	33.893	14.23	34.143	5.48	33.382	9.43	33.941
100m	5.88	33.594	4.70	33.424	14.08	34.097	13.70	34.013	10.85	34.026	13.95	33.856	15.59	33.952	11.78	34.072	4.92	33.450	5.17	33.450
125m	4.98	33.524	4.44	33.496	12.27	34.022	12.92	34.082	9.99	33.960	13.19	33.912	13.63	34.025	10.36	33.972	4.66	33.484	4.64	33.477
150m	4.51	33.516			11.20	34.023	11.98	34.038	8.21	33.816	12.44	33.935	12.74	34.050	8.45	33.804	4.42	33.503	4.14	33.464
200m	3.80	33.522			7.78	33.746	10.41	34.008	4.13	33.510	11.63	34.045	10.32	33.990	4.07	33.426	3.10	33.466	2.89	33.532
250m	2.45	33.442			4.26	33.552	6.79	33.700	3.17	33.510	9.61	33.937	5.71	33.583	3.26	33.415	2.85	33.540	2.96	33.690
300m	2.03	33.480			3.24	33.520	3.64	33.442	3.44	33.656	6.12	33.601	4.27	33.502	3.12	33.518	3.28	33.682	3.44	33.830
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-28

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809	
Station No	IW11		IW12		IW13		IW14		IW15		SM01		SM02		SM03		SM05		SM06	
Latitude:N	41- 0.0		41-14.1		41-29.6		41-59.9		42-29.5		42-18.1		42- 9.1		41-58.3		41- 0.7		40-30.1	
Longitude:E	143-59.3		144-29.9		144-59.5		144-59.1		144-58.1		144-29.2		145-14.7		146- 0.7		146-30.8		146-44.1	
Date	1998/09/07		1998/09/08		1998/09/08		1998/09/09		1998/09/09		1998/09/18		1998/09/19		1998/09/19		1998/09/20		1998/09/21	
Time(JST)	17:32		09:26		17:35		09:59		17:28		17:28		10:02		17:30		17:26		09:38	
Weather	C		BC		BC		B		BC		R		BC		BC		BC		F	
Air Temp.	19.5		22.0		20.6		23.0		20.0		15.5		19.1		18.3		18.8		20.2	
Bar	1013.5		1014.5		1014.5		1016.0		1015.9		1017.5		1014.0		1013.5		1016.0		1017.5	
Wind Dir	SSE		SSE		SSE		SE		SSE		NNE		WSW		WSW		SW		SSW	
Wind Spd/F	F 4		F 5		F 4		F 4		F 3		F 3		F 5		F 5		F 2		F 4	
Transparency	11		15		13		15		15				13						16	
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	19.7	31.67*	21.9	33.42*	18.9	31.89*	18.9	31.72*	19.7	32.48*	17.3	32.70*	16.6	32.86*	17.4	32.65*	17.7	32.51*	18.8	32.98*
10m	19.59	31.716	21.62	33.385	18.64	31.890	18.49	31.733	19.42	32.491	17.19	32.702	16.43	32.864	17.24	32.647	17.66	32.600	19.15	33.195
20m	16.31	33.285	18.51	33.306	16.13	31.976	15.96	32.787	18.26	33.217	16.66	32.755	16.37	32.869	17.23	32.650	17.72	32.664	18.75	33.255
30m	14.54	33.758	14.01	33.738	11.40	33.023	8.08	32.931	8.95	33.290	9.73	33.240	12.72	33.244	16.96	32.716	15.05	32.813	10.50	33.494
50m	8.74	33.295	11.05	34.068	4.00	33.028	2.98	33.008	4.82	33.218	6.11	33.546	8.23	33.920	4.50	33.007	8.97	33.643	10.03	33.916
75m	5.12	33.164	9.51	34.048	4.73	33.359	2.00	33.077	3.65	33.233	5.36	33.568	3.91	33.393	2.20	33.018	7.81	33.792	7.30	33.697
100m	6.04	33.579	8.19	33.942	2.48	33.179	2.07	33.173	3.16	33.239	5.45	33.630	4.65	33.533	1.95	33.111	5.91	33.635	5.65	33.554
125m	4.57	33.506	5.92	33.687	2.75	33.303	2.32	33.279	3.44	33.355	5.21	33.619	4.77	33.596	2.89	33.280	5.00	33.561	4.76	33.506
150m	3.28	33.425	4.97	33.578	2.79	33.366	2.29	33.353	3.10	33.383	5.16	33.674	4.77	33.648	2.36	33.345	4.67	33.549	5.58	33.668
200m	2.54	33.438	4.11	33.573	3.07	33.542	2.57	33.535	2.87	33.503	4.79	33.719	4.28	33.690	3.08	33.680	4.34	33.619	4.58	33.641
250m	2.64	33.532	2.94	33.512	2.95	33.639	2.75	33.666	3.29	33.684	4.66	33.814	4.51	33.843	3.29	33.824	4.20	33.705	4.33	33.721
300m	3.00	33.698	3.23	33.650	3.12	33.717	3.04	33.810	3.29	33.775	4.87	33.932	4.32	33.903	3.61	33.954	4.27	33.817	4.51	33.854
400m											4.38	34.037	4.22	34.063	3.52	34.081	3.73	33.942	4.27	34.003
500m											3.58	34.054	3.82	34.152	3.35	34.157	3.71	34.089	3.64	34.064
600m											3.32	34.131	3.59	34.211	3.15	34.225			3.40	34.142
700m																				
800m																				
900m																				
1000m																				

Table 5-29

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	P31		P32		P33		PK21		PK22		P34		PK14		PK13		PK12		PK11	
Latitude:N	42-45.0		42-30.0		42-15.1		42-14.1		41-59.1		42- 0.0		41-59.1		42-14.9		42-29.9		42-44.9	
Longitude:E	144- 0.1		143-59.1		144- 0.0		143-30.1		143-29.1		143-59.8		144-29.8		144-29.1		144-29.1		144-29.1	
Date	1998/10/01		1998/10/01		1998/10/01		1998/10/01		1998/10/01		1998/10/01		1998/10/01		1998/10/02		1998/10/02		1998/10/02	
Time(JST)	10:44		12:12		13:49		16:01		17:26		20:13		23:50		01:58		03:45		05:29	
Weather	C		C		C		C		C		C		C		R		R		R	
Air Temp.	15.5		15.1		15.3		15.3		15.3		15.8		16.2		15.3		15.1		14.8	
Bar	1020.7		1020.0		1018.5		1017.5		1016.5		1014.5		1013.0		1011.0		1010.0		1009.0	
Wind Dir	E		E		E		ENE		ENE		E		ESE		ESE		ESE		ESE	
Wind Spd/F	F 3		F 4		F 4		F 4		F 5		F 5		F 6		F 6		F 6		F 6	
Transparency	7		12		11		5													
Depth	64		488				65		122		1250		1600						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	15.2	32.390	15.0	32.629	15.4	32.583	15.7	31.010	15.1	32.497	15.4	32.545	16.6	32.566	15.1	32.538	16.0	32.493	15.1	32.550
10m	14.95	32.540	14.77	32.793	15.29	32.709	15.33	32.047	14.99	32.697	15.21	32.677	16.49	32.696	14.90	32.657	15.87	32.622	14.54	32.823
20m	13.87	32.988	12.03	33.165	13.13	32.846	14.55	32.804	14.46	32.952	14.86	32.699	16.47	32.695	14.56	32.668	15.77	32.636	13.76	33.115
30m	13.67	33.178	8.93	33.184	7.72	33.059	13.09	32.983	12.84	33.168	11.20	32.945	14.45	32.778	10.62	32.898	13.86	32.979	13.60	33.229
50m	13.39	33.233	3.98	33.186	3.59	33.204	9.87	33.206	10.11	33.167	5.29	33.303	3.76	33.062	3.80	33.160	6.35	33.107	12.32	33.309
75m			3.24	33.248	2.61	33.167			6.14	33.219	3.16	33.212	2.78	33.063	2.97	33.224	3.61	33.172	7.88	33.288
100m			3.54	33.339	3.66	33.366			4.77	33.416	5.03	33.580	3.56	33.305	3.25	33.329	3.03	33.288	3.68	33.225
125m			3.09	33.342	3.90	33.425					3.04	33.413	3.75	33.389	2.91	33.360	3.27	33.411		
150m			2.88	33.353	4.01	33.496					2.64	33.431	2.42	33.307	3.24	33.441	2.96	33.418		
200m			2.81	33.420	3.26	33.487					2.51	33.483	2.45	33.464	2.55	33.439	2.42	33.430		
250m			2.65	33.491	2.85	33.530					2.56	33.550	3.17	33.652	2.50	33.503	2.55	33.487		
300m			2.69	33.549	2.77	33.591					2.66	33.620	3.23	33.765	2.90	33.630	2.52	33.531		
400m			3.07	33.794	3.23	33.755					2.85	33.731	3.23	33.917	3.37	33.823	2.95	33.740		
500m					3.28	33.957					3.10	33.852	3.37	34.055	3.57	34.006	3.17	33.929		
600m					3.37	34.155					3.35	34.031	3.26	34.147	3.28	34.110	3.35	34.097		
700m											3.32	34.196	3.13	34.219						
800m											3.12	34.262	3.13	34.292						
900m											3.01	34.305	3.03	34.331						
1000m											2.85	34.344	2.97	34.378						

Table 5-30

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	P21		P22		P23		P24		P25		PK05		PK04		PK03		PK02		PK01	
Latitude:N	42-55.0		42-45.1		42-30.1		42-15.1		42- 0.0		41-59.9		42-14.9		42-29.9		42-44.9		42-54.1	
Longitude:E	144-59.9		145- 0.0		145- 0.1		145- 0.0		145- 0.0		145-29.9		145-29.1		145-29.9		145-29.9		145-30.0	
Date	1998/10/03		1998/10/03		1998/10/03		1998/10/03		1998/10/03		1998/10/03		1998/10/03		1998/10/03		1998/10/03		1998/10/04	
Time(JST)	09:24		10:23		11:50		13:26		15:13		17:48		20:13		22:02		23:44		00:57	
Weather	B		B		BC		BC		BC		C		C		BC		C		C	
Air Temp.	16.5		16.1		17.0		17.1		16.8		15.5		15.1		14.6		14.1		13.8	
Bar	1010.0		1010.5		1010.0		1011.0		1012.0		1013.5		1014.5		1014.5		1014.0		1014.5	
Wind Dir	W		W		WNW		WNW		W		ENE		E		ESE		E		ENE	
Wind Spd/F	F 3		F 4		F 3		F 4		F 3		F 3		F 3		F 3		F 2		F 2	
Transparency	4		15		13		12		13											
Depth	64		164																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	14.6	32.632	15.6	32.423	16.3	32.335	15.4	32.453	16.5	32.414	16.0	32.399	15.3	32.434	15.9	32.370	15.7	32.377	14.8	32.496
10m	14.23	32.814	15.36	32.551	16.15	32.477	15.16	32.589	16.24	32.538	15.88	32.554	15.12	32.572	15.88	32.490	15.65	32.507	14.40	32.663
20m	13.91	32.954	15.14	32.563	15.98	32.470	15.02	32.589	16.18	32.583	15.52	32.564	14.95	32.575	15.88	32.490	15.07	32.562	14.12	32.756
30m	13.84	32.992	14.23	32.720	12.64	32.814	14.91	32.593	15.79	32.605	15.12	32.598	11.10	32.823	14.79	32.568	14.18	32.632	13.21	32.852
50m	13.82	33.026	9.42	33.274	4.92	33.357	3.93	33.085	4.99	33.135	4.33	33.303	3.43	33.032	5.65	33.276	5.15	33.251	7.99	33.007
75m			4.90	33.196	4.02	33.360	2.72	33.128	3.09	33.173	3.41	33.330	2.30	33.089	2.81	33.189	3.59	33.314	3.34	33.138
100m			3.21	33.284	4.36	33.458	3.01	33.244	3.69	33.348	3.28	33.385	2.23	33.173	2.91	33.256	4.01	33.421	3.19	33.288
125m			2.88	33.328	4.19	33.474	3.08	33.326	2.84	33.345	3.82	33.521	2.56	33.318	3.22	33.364	3.85	33.444	3.20	33.336
150m			2.76	33.367	3.74	33.472	2.72	33.352	3.23	33.438	3.61	33.534	2.69	33.463	3.30	33.479	3.76	33.483		
200m					2.67	33.446	2.85	33.523	2.63	33.469	3.51	33.619	3.05	33.656	3.26	33.639	3.27	33.521		
250m					3.56	33.667	2.88	33.642	2.62	33.582	2.92	33.648	3.49	33.835	3.28	33.757	2.82	33.562		
300m					3.42	33.728	3.44	33.772	2.97	33.707	3.92	33.881	3.64	33.933	3.49	33.872	3.52	33.719		
400m					3.59	33.931	3.56	33.966	3.53	33.946	3.82	34.025	3.63	34.073	3.49	34.016	3.26	33.862		
500m					3.48	34.040	3.38	34.047	3.69	34.100	3.40	34.097	3.64	34.196	3.44	34.115	3.56	34.052		
600m					3.68	34.188	3.30	34.141	3.74	34.225	3.26	34.183	3.26	34.223	3.23	34.185	3.63	34.172		
700m									3.51	34.295	3.24	34.275								
800m									3.14	34.318	3.11	34.336								
900m									3.00	34.373	2.96	34.382								
1000m									2.73	34.386	2.82	34.421								

Table 5-31

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	P11		P12		P13		P14		P15		P16		P17		P18		PK07		P27	
Latitude:N	43- 4.9		42-54.5		42-45.0		42-30.1		42-15.1		42- 0.0		41-30.1		41- 0.0		41- 0.0		40-59.1	
Longitude:E	145-44.9		145-49.1		145-54.1		145-59.1		145-59.1		145-59.1		146- 0.0		146- 0.2		145-30.1		145- 0.1	
Date	1998/10/04		1998/10/04		1998/10/04		1998/10/04		1998/10/04		1998/10/04		1998/10/04		1998/10/04		1998/10/05		1998/10/05	
Time(JST)	02:33		03:50		05:32		08:03		10:14		12:34		15:58		20:38		00:50		03:42	
Weather	C		C		C		BC		C		C		BC		BC		BC		BC	
Air Temp.	13.3		14.1		14.8		16.1		16.7		16.7		15.5		15.3		14.8		14.5	
Bar	1014.2		1014.5		1013.5		1014.0		1013.0		1011.0		1014.0		1020.0		1022.5		1024.0	
Wind Dir	ENE		SSE		SE		WSW		WSW		W		WNW		NNW		NNW		N	
Wind Spd/F	F 1		F 3		F 4		F 5		F 5		F 5		F 7		F 5		F 5		F 3	
Transparency					12		14		12		9									
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	13.4	32.729	15.5	32.391	15.8	32.339	16.1	32.347	15.8	32.338	15.8	32.293	16.1	32.484	17.0	33.296	18.3	33.904	18.3	33.699
10m	13.49	32.860	15.44	32.530	15.59	32.461	15.80	32.476	15.65	32.450	15.60	32.420	15.93	32.586	17.01	33.416	18.39	33.992	18.32	33.823
20m	12.87	32.914	15.41	32.536	15.58	32.460	15.79	32.477	15.64	32.451	15.50	32.447	15.93	32.584	17.04	33.432	18.39	33.993	18.32	33.828
30m	12.53	32.935	15.29	32.547	15.25	32.503	15.65	32.485	15.60	32.452	13.86	32.604	15.38	32.617	17.00	33.499	18.38	34.003	18.17	33.939
50m	10.93	33.166	5.60	33.162	3.98	33.095	5.71	33.325	5.61	33.252	3.09	33.114	3.42	32.982	12.45	34.230	14.86	34.466	14.47	34.516
75m	8.36	33.233	2.99	33.193	2.70	33.108	3.63	33.263	3.82	33.292	2.43	33.148	3.17	33.179	11.12	34.260	12.64	34.347	13.14	34.446
100m			3.45	33.351	2.91	33.220	3.51	33.321	4.46	33.467	2.99	33.286	2.95	33.224	9.34	34.065	11.51	34.285	12.47	34.424
125m			3.07	33.351	2.61	33.264	4.03	33.453	4.38	33.503	2.55	33.326	2.67	33.301	7.36	33.825	9.25	34.006	11.89	34.382
150m			2.68	33.364	2.99	33.374	3.78	33.476	3.96	33.517	2.74	33.446	2.84	33.415	5.99	33.684	8.80	34.015	11.41	34.367
200m			2.94	33.452	3.18	33.511	3.42	33.552	3.22	33.568	3.34	33.660	3.25	33.590	3.76	33.488	5.98	33.718	10.65	34.297
250m			2.45	33.478	3.08	33.625	3.37	33.656	3.44	33.722	3.32	33.777	3.37	33.752	3.60	33.582	5.02	33.678	9.35	34.151
300m			3.15	33.646	3.22	33.737	3.35	33.786	3.12	33.799	3.30	33.865	3.26	33.844	4.73	33.814	4.46	33.677	6.30	33.742
400m			3.86	33.914	4.04	33.989	3.49	33.956	3.97	34.074	3.81	34.068	3.48	34.012	4.55	33.972	3.00	33.619	2.41	33.416
500m			3.78	34.039	3.51	34.073	3.37	34.068	3.35	34.111	3.36	34.123	3.31	34.114	4.13	34.075	3.28	33.773	3.92	33.776
600m			3.32	34.085	3.54	34.190	3.38	34.177	3.23	34.210	3.20	34.219	3.19	34.214	4.02	34.195	3.36	33.931	3.69	33.929
700m			3.25	34.167	3.19	34.221	3.15	34.248	3.04	34.276	3.03	34.283								
800m			3.17	34.249	3.16	34.297	2.98	34.298	2.90	34.321	2.90	34.334								
900m			2.96	34.294	3.03	34.348	3.03	34.376	2.78	34.363	2.77	34.375								
1000m			2.85	34.359	2.86	34.372	2.85	34.414	2.80	34.416	2.64	34.410								

Table 5-32

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	PK16		P36		PK24		PK32		PK31		PK23		P35		PK15		P26		PK06	
Latitude:N	40-59.9		40-59.1		41- 0.1		40-59.1		41-29.1		41-30.0		41-30.1		41-30.0		41-30.0		41-30.0	
Longitude:E	144-30.1		144- 0.1		143-30.1		143- 0.0		142-59.1		143-29.9		143-59.1		144-29.1		144-59.9		145-29.1	
Date	1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/05		1998/10/06		1998/10/06	
Time(JST)	06:20		08:51		11:08		13:24		17:02		19:15		21:27		23:33		01:38		03:45	
Weather	BC		B		B		BC		B		B		BC		BC		BC		BC	
Air Temp.	14.6		17.1		17.7		15.8		16.8		15.3		15.8		15.8		16.2		16.8	
Bar	1026.0		1027.0		1026.0		1024.5		1022.5		1022.0		1022.0		1021.5		1021.0		1020.5	
Wind Dir	NNW		N		W		SW		SW		SW		SW		SW		SW		SW	
Wind Spd/F	F 5		F 2		F 2		F 4		F 4		F 4		F 5		F 6		F 5		F 5	
Transparency	18		19		14		12		14											
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	18.1	33.717	17.9	33.287	19.2	33.234	16.5	32.597	19.7	33.350	15.0	31.197	17.3	32.959	17.1	32.935	17.2	32.945	16.9	32.899
10m	18.19	33.826	17.89	33.404	17.96	33.361	16.33	32.728	19.87	33.475	14.65	31.919	17.23	33.076	17.08	33.055	17.10	33.075	16.78	33.025
20m	18.20	33.827	17.88	33.413	17.94	33.370	15.80	32.687	19.69	33.439	13.99	32.703	17.23	33.075	17.06	33.063	17.11	33.075	16.78	33.025
30m	18.20	33.826	17.88	33.417	17.99	33.414	15.57	32.651	19.71	33.445	13.85	32.833	16.94	33.035	16.89	33.142	17.11	33.075	16.73	33.025
50m	18.05	33.902	14.63	34.392	14.72	34.006	14.84	32.705	19.14	33.549	10.47	33.215	9.72	33.342	8.93	33.289	11.05	33.321	8.53	33.207
75m	14.30	34.506	12.54	34.346	12.46	34.274	14.20	34.048	16.90	33.938	10.98	34.031	7.87	33.604	7.92	33.637	5.42	33.385	5.14	33.260
100m	12.80	34.419	11.37	34.301	7.10	33.592	12.25	34.080	13.89	34.081	9.91	34.154	5.50	33.454	5.82	33.488	4.63	33.412	4.13	33.357
125m	12.05	34.380	9.49	34.079	4.30	33.351	10.34	33.983	12.43	34.122	7.19	33.775	5.20	33.502	4.68	33.430	4.53	33.450	4.29	33.443
150m	11.24	34.324	8.21	33.962	3.55	33.325	9.30	33.976	11.97	34.131	4.58	33.482	6.72	33.799	4.51	33.454	4.06	33.471	4.49	33.513
200m	10.39	34.261	5.97	33.726	2.61	33.346	4.66	33.559	8.69	33.897	4.31	33.554	5.76	33.764	4.35	33.525	2.71	33.381	4.64	33.642
250m	8.52	34.042	4.94	33.676	2.42	33.408	5.21	33.741	4.51	33.527	4.10	33.643	5.28	33.754	3.86	33.570	2.28	33.384	4.08	33.682
300m	5.40	33.642	3.40	33.561	2.39	33.483	4.48	33.736	3.12	33.522	4.28	33.768	4.69	33.801	4.40	33.718	2.80	33.512	3.54	33.698
400m	4.68	33.788	3.01	33.683	3.50	33.797	3.37	33.761	3.23	33.741	3.77	33.911	4.31	33.878	4.50	33.917	3.62	33.794	3.40	33.866
500m	3.19	33.762	4.00	33.982	3.96	34.041	3.71	33.961	3.46	33.923	3.84	34.058	3.93	33.993	3.70	33.966	3.48	33.949	4.18	34.107
600m	3.53	34.001	3.57	34.062	3.83	34.140	3.59	34.091	3.42	34.080	3.67	34.158	3.83	34.135	3.81	34.111	3.80	34.143	3.62	34.158
700m																				
800m																				
900m																				
1000m																				

Table 5-33

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	IK01		IK02		IK03		IK04		IK05		IK06		IK07		IK08		IK09		IK10	
Latitude:N	43-55.9		43-58.9		44- 1.9		44- 4.9		44- 4.8		44- 7.9		44-10.9		44- 4.3		44- 3.1		44-12.3	
Longitude:E	145-12.1		145-14.9		145-17.0		145-19.9		145-20.0		145-21.9		145-24.9		144-29.1		144-45.0		145-23.3	
Date	1998/10/16		1998/10/16		1998/10/16		1998/10/16		1998/10/16		1998/10/16		1998/10/16		1998/10/17		1998/10/17		1998/10/19	
Time(JST)	20:35		20:59		21:30		22:05		22:13		22:39		23:13		17:15		23:13		17:38	
Weather	BC		BC		BC		BC		BC		BC		BC		C		C		BC	
Air Temp.	14.6		14.8		14.6		14.6		14.6		14.3		14.5		11.6		12.1		11.8	
Bar	1014.0		1014.5		1015.0		1015.5		1015.5		1015.5		1015.5		1022.0		1021.0		1012.2	
Wind Dir	NNW		NNW		N		NNW		NNW		WNW		NW		ENE		SSE		NE	
Wind Spd/F	F 5		F 4		F 3		F 4		F 4		F 3		F 2		F 4		F 5		F 1	
Transparency																				
Depth	82		440		763		567		567						112		280		402	
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	33.33*	15.6	33.49*	15.5	33.73*	15.6	33.86*	15.6	33.69*	15.7	33.77*	15.6	33.76*	15.9	33.76*	15.7	33.84*	15.3	33.68*
10m	15.68	33.331	15.68	33.505	15.50	33.734			15.48	33.687	15.65	33.770	15.60	33.764	16.07	33.763	15.73	33.859	15.40	33.686
20m	15.68	33.336	15.47	33.733	15.50	33.736			15.50	33.703	15.65	33.771	15.60	33.765	15.91	33.793	15.54	33.969	15.39	33.707
30m	14.92	33.787	15.28	33.750	15.44	33.755			15.51	33.710	15.65	33.771	15.60	33.765	15.81	33.820	15.40	34.006	15.19	33.785
50m	13.98	33.880	14.50	33.851	14.74	33.840			13.92	33.883	15.13	33.806	15.33	33.784	15.19	33.929	14.90	34.010	14.16	33.860
75m			13.60	33.866	14.43	33.852	12.68	33.921			12.80	33.929	13.41	33.937	14.88	33.966	14.09	33.987	13.10	33.914
100m			12.27	33.854	12.27	33.891	11.24	33.871			11.43	33.931	11.95	33.955	14.61	33.988	13.71	34.020	11.61	33.929
125m			10.74	33.855	10.12	33.862	9.97	33.916			9.68	33.815	10.58	33.941			12.58	33.995	6.83	33.710
150m			9.25	33.810	9.00	33.797	9.05	33.847			9.00	33.861	8.01	33.722			9.35	33.908	5.62	33.594
200m			5.13	33.510	4.56	33.486	4.08	33.437			4.62	33.502	4.56	33.545			5.56	33.758	4.30	33.529
250m			2.57	33.372	2.59	33.365	1.57	33.269			2.06	33.319	3.36	33.486			4.82	33.688	2.14	33.343
300m			2.05	33.362	1.97	33.367	1.76	33.380			0.93	33.302	1.83	33.372					1.47	33.351
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-34

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199811		199811	
Station No	IK11		SM01		SM02		SM03		SM04		SM05		SM06		SM07		SU01		SU02	
Latitude:N	43-56.9		42-29.5		42-10.0		41-50.1		41-55.1		41-59.9		42-19.9		42-40.3		42-26.3		42-28.8	
Longitude:E	145-14.3		144-29.2		144- 9.1		143-51.5		144-24.9		145- 0.2		145-14.9		145-31.2		143-58.6		143-53.3	
Date	1998/10/21		1998/10/26		1998/10/27		1998/10/27		1998/10/28		1998/10/29		1998/10/29		1998/10/29		1998/11/06		1998/11/06	
Time(JST)	16:17		17:33		09:48		17:29		10:01		06:46		09:26		17:29		18:45		19:34	
Weather	BC				BC				R		BC		BC				BC		BC	
Air Temp.	14.1		11.5		13.1		13.3		12.6		14.1		14.6		13.6		7.5		7.5	
Bar	1024.0		1014.5		1022.0		1019.0		1007.5		1014.5		1014.0		1011.0		1030.5		1030.4	
Wind Dir	NNE		N		S		SW		WSW		S		SSE		WSW		ENE		ENE	
Wind Spd/F	F 3		F 5		F 2		F 3		F 3		F 3		F 3		F 4		F 2		F 3	
Transparency					10				11		15		14							
Depth	112																510		224	
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	33.63*	12.6	32.89*	13.6	32.85*	12.9	32.86*	13.1	32.78*	16.2	33.41*	13.7	32.64*	12.9	32.73*	10.3	33.01*	10.6	33.14*
10m	15.24	33.647	12.61	32.886	13.23	32.822	12.52	32.839	12.97	32.777	16.29	33.411	13.36	32.607	12.71	32.656	10.16	32.994	11.25	33.137
20m	15.20	33.671	12.62	32.874	13.18	32.816	12.00	32.962	12.74	32.805	16.28	33.411	13.26	32.616	12.11	32.766	10.29	33.026	11.25	33.137
30m	15.20	33.672	12.35	32.980	11.31	33.183	10.33	33.373	13.01	33.251	16.25	33.412	12.98	32.654	10.89	33.006	10.36	33.048	11.25	33.137
50m	14.43	33.838	7.18	33.172	4.72	33.176	10.64	34.015	11.18	33.691	12.09	33.693	5.51	33.145	5.81	33.012	7.16	33.137	7.84	33.104
75m	12.27	33.928	4.11	33.234	7.98	33.871	8.99	33.893	9.52	33.894	6.31	33.389	3.53	33.242	3.24	33.122	3.35	33.109	5.11	33.173
100m	11.80	33.913	3.44	33.320	5.16	33.567	7.03	33.729	4.05	33.305	5.58	33.522	3.41	33.288	2.64	33.204	3.13	33.203	3.86	33.184
125m			3.19	33.348	4.22	33.491	4.58	33.486	4.61	33.482	5.93	33.636	3.71	33.394	2.45	33.272	2.88	33.251	3.78	33.374
150m			2.98	33.366	3.68	33.457	4.23	33.499	3.88	33.439	4.66	33.521	3.19	33.394	2.64	33.354	3.20	33.341	3.65	33.395
200m			3.00	33.455	3.00	33.473	3.41	33.500	3.51	33.472	3.94	33.533	2.98	33.484	2.37	33.400	4.18	33.579	3.23	33.426
250m			2.81	33.502	2.59	33.517	2.90	33.529	3.72	33.593	3.48	33.567	3.14	33.611	2.30	33.466	3.26	33.508		
300m			3.12	33.613	2.65	33.577	3.69	33.698	3.17	33.600	4.20	33.755	3.34	33.752	2.50	33.557	3.17	33.574		
400m																	3.16	33.689		
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-35

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

Stn-prefix	199811		199811		199811		199811		199811		199811		199811		199811		199811		199811	
Station No	SU03		SU04		SU05		SU06		SU07		SU08		SU09		SU10		SU11		SU12	
Latitude:N	42-29.0		42-29.8		42-32.7		42-12.4		42-10.4		42- 8.1		42- 7.5		42- 3.8		42- 8.3		42-16.5	
Longitude:E	143-52.3		143-50.6		143-46.3		143-28.8		143-32.5		143-37.0		143-38.2		143-45.7		143-29.8		143-37.4	
Date	1998/11/06		1998/11/06		1998/11/06		1998/11/07		1998/11/07		1998/11/07		1998/11/07		1998/11/07		1998/11/08		1998/11/08	
Time(JST)	19:50		20:11		20:50		08:15		08:43		09:18		09:36		10:38		07:40		09:52	
Weather	BC		BC		C		BC		BC		C		C		C		BC		BC	
Air Temp.	7.5		7.5		7.6		7.3		7.4		8.5		9.3		10.6		9.3		11.3	
Bar	1030.5		1030.5		1030.5		1024.0		1023.5		1022.5		1022.5		1021.0		1009.0		1009.0	
Wind Dir	ENE		E		E		NNW		NNW		NNW		NW		S		N		NNW	
Wind Spd/F	F 3		F 2		F 3		F 3		F 3		F 2		F 1		F 5		F 3		F 3	
Transparency																				
Depth	169		120		70		65		115		168		224		478		100		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	11.2	33.14*	11.6	33.13*	11.4	33.10*	11.4	33.07*	11.5	33.05*	11.3	33.10*	11.2	33.07*	10.2	33.03*	11.2	33.07*	10.9	33.04*
10m	11.40	33.137	11.46	33.136	11.35	33.106	11.39	33.070	11.36	33.058	11.11	33.105	11.00	33.071	10.06	33.037	11.03	33.071	10.64	33.038
20m	11.40	33.138	11.46	33.136	11.35	33.107	11.01	33.140	11.36	33.064	11.11	33.106	11.00	33.072	10.07	33.037	11.03	33.076	10.61	33.048
30m	11.40	33.138	11.46	33.137	11.24	33.122	10.76	33.165	11.35	33.076	11.11	33.107	11.01	33.072	10.06	33.039	10.73	33.136	10.48	33.166
50m	9.12	33.115	8.75	33.217	10.15	33.179	10.60	33.171	9.69	33.138	10.69	33.140	10.98	33.072	5.85	33.130	9.30	33.207	6.38	33.228
75m	5.38	33.151	6.10	33.223					6.80	33.228	5.47	33.226	6.46	33.166	4.82	33.354	7.58	33.237	4.75	33.250
100m	3.95	33.263	4.54	33.347					5.87	33.218	4.93	33.252	4.50	33.259	3.66	33.398			4.59	33.251
125m	3.83	33.377									3.94	33.280	3.48	33.310	3.32	33.417				
150m	3.80	33.374									3.57	33.287	3.32	33.317	3.31	33.448				
200m													2.97	33.385	2.76	33.439				
250m															2.68	33.513				
300m															3.02	33.625				
400m															3.15	33.735				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-36

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

Stn-prefix	199811		199811		199811		199811		199812		199812		199812		199812		199812			
Station No	SU13		SU14		SU15		SU16		PK11		P22		P21		PK01		P11		P12	
Latitude:N	42-17.1		42-19.8		42-32.4		42-30.2		42-45.1		42-45.0		42-54.9		42-54.9		43- 4.1		42-55.1	
Longitude:E	143-38.8		143-43.3		143-52.0		143-55.7		144-30.1		144-59.9		145- 0.0		145-29.8		145-44.9		145-49.9	
Date	1998/11/08		1998/11/08		1998/11/09		1998/11/10		1998/11/16		1998/11/16		1998/11/16		1998/11/16		1998/11/16		1998/11/16	
Time(JST)	11:23		14:02		07:36		12:35		10:26		12:33		13:33		15:36		17:05		18:22	
Weather	B		B		C		B		C		C		C		C		R		R	
Air Temp.	12.6		10.8		13.3		8.1		5.5		5.8		5.9		6.0		4.8		4.4	
Bar	1008.0		1006.5		1000.0		1003.5		1013.0		1012.5		1012.4		1012.5		1013.0		1013.5	
Wind Dir	WNW		S		SW		WNW		E		CALM		SSW		SSW		SSW		SSW	
Wind Spd/F	F 2		F 3		F 6		F 5		F 1		F 0		F 1		F 1		F 3		F 2	
Transparency									14		14		14		13					
Depth	139				110		290		128		167		66		154		103		1350	
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	33.06*	11.0	33.05*	11.1	33.14*	10.8	33.12*	10.0	33.425	10.1	33.589	9.9	33.412	10.2	33.523	10.3	33.472	9.3	33.394
10m	10.68	33.047	10.53	33.024	10.91	33.144	10.77	33.120	9.95	33.365	10.15	33.523	10.08	33.341	10.34	33.469	10.45	33.411	9.29	33.418
20m	10.65	33.064	10.39	33.016	10.48	33.212	10.75	33.122	9.93	33.363	10.13	33.522	10.08	33.342	10.35	33.481	10.45	33.416	9.16	33.403
30m	10.57	33.118	10.61	33.125	10.47	33.219	10.66	33.161	9.93	33.363	10.10	33.517	10.08	33.342	10.35	33.482	10.42	33.447	9.13	33.398
50m	10.43	33.223	9.88	33.235	10.31	33.230	10.40	33.272	9.82	33.353	8.56	33.364	10.08	33.344	9.46	33.429	10.48	33.474	9.01	33.387
75m	5.32	33.271	5.62	33.259	6.48	33.295	10.45	33.353	9.49	33.343	7.79	33.317			7.87	33.374	10.20	33.484	8.48	33.409
100m	4.72	33.270	5.00	33.286			7.77	33.241	8.78	33.370	7.45	33.301			6.62	33.321			5.62	33.159
125m	4.62	33.270	4.34	33.315			6.70	33.231			5.42	33.241			5.65	33.273			4.81	33.265
150m			4.07	33.343			4.04	33.108			2.93	33.221							3.68	33.277
200m							3.03	33.226											2.16	33.246
250m							3.39	33.367											1.96	33.337
300m																			1.97	33.400
400m																			2.36	33.575
500m																			3.20	33.837
600m																			3.31	34.007
700m																			3.41	34.166
800m																			3.17	34.243
900m																			3.05	34.298
1000m																			2.91	34.349

Table 5-37

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	P13		P14		P15		P16		P17		P18		PK07		P27		PK16		P36	
Latitude:N	42-45.0		42-30.0		42-16.1		42- 0.1		41-30.0		41- 0.1		41- 0.0		40-59.1		41- 0.0		41- 0.1	
Longitude:E	145-54.9		145-59.1		145-58.5		146- 0.1		146- 0.0		145-59.1		145-30.1		145- 0.1		144-30.1		143-59.9	
Date	1998/11/16		1998/11/16		1998/11/17		1998/11/17		1998/11/17		1998/11/17		1998/11/17		1998/11/17		1998/11/17		1998/11/17	
Time(JST)	20:50		23:34		03:32		06:01		09:36		12:51		15:26		17:43		20:04		23:41	
Weather	C		R		R		C		C		C		C		C		C		C	
Air Temp.	4.0		5.5		7.4		9.6		13.5		13.3		13.6		11.5		9.8		7.0	
Bar	1012.0		1009.0		1005.0		1000.5		995.5		989.5		986.7		986.0		986.5		991.0	
Wind Dir	ESE		ENE		E		E		E		SSW		S		N		NNE		NW	
Wind Spd/F	F 3		F 4		F 5		F 6		F 3		F 4		F 4		F 5		F 5		F 7	
Transparency									16		16		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	5.8	32.751	8.0	32.730	8.8	32.671	12.1	33.390	14.3	34.071	14.2	33.905	14.3	34.138	13.9	33.777	13.4	33.104	13.2	33.146
10m	5.75	32.827	8.00	32.764	8.81	32.726	12.08	33.442	14.21	34.105	14.13	33.936	14.19	34.177	13.93	33.836	13.09	33.151	13.25	33.184
20m	5.74	32.830	7.98	32.769	8.80	32.728	11.35	33.368	14.21	34.106	14.12	33.934	14.19	34.180	13.93	33.837	13.08	33.151	13.26	33.184
30m	5.73	32.832	7.75	32.782	8.80	32.731	8.41	33.073	14.22	34.107	14.12	33.935	14.18	34.181	13.95	33.840	13.04	33.146	13.26	33.184
50m	5.72	32.835	6.38	32.832	7.03	33.034	9.30	33.707	14.19	34.141	14.13	33.940	14.15	34.177	13.95	33.845	11.82	33.256	13.00	33.209
75m	4.48	32.954	3.90	33.096	3.56	33.217	7.73	33.774	12.51	34.391	12.72	34.379	12.71	34.438	12.82	34.377	7.65	33.634	7.12	33.604
100m	2.96	33.099	2.78	33.192	3.31	33.293	5.86	33.653	11.69	34.380	11.81	34.314	12.10	34.424	11.78	34.253	5.24	33.526	5.54	33.510
125m	2.32	33.203	2.43	33.257	3.14	33.339	4.75	33.526	11.31	34.365	11.21	34.292	11.74	34.398	10.44	34.149	5.15	33.561	4.82	33.521
150m	2.17	33.259	2.71	33.375	3.44	33.436	4.04	33.488	10.99	34.335	10.65	34.261	11.37	34.374	9.36	34.102	4.75	33.559	4.51	33.540
200m	2.49	33.433	2.34	33.471	3.13	33.554	3.86	33.554	9.59	34.168	8.78	34.038	10.81	34.322	5.94	33.659	3.94	33.550	3.67	33.536
250m	2.19	33.512	2.56	33.627	2.92	33.649	4.02	33.671	7.01	33.826	6.37	33.752	9.73	34.203	4.22	33.507	3.96	33.651	3.85	33.688
300m	2.39	33.599	2.82	33.776	3.24	33.761	3.84	33.733	5.37	33.697	4.86	33.644	7.30	33.875	3.57	33.509	3.92	33.722	4.81	33.914
400m	2.98	33.835	3.37	34.015	3.68	33.989	3.51	33.820	3.94	33.706	3.80	33.681	4.39	33.643	4.84	33.914	3.75	33.868	4.06	33.947
500m	3.16	33.963	3.28	34.100	3.39	34.085	3.44	33.964	4.16	33.892	3.70	33.830	3.48	33.681	5.40	34.064	3.41	33.977	3.81	34.058
600m	3.27	34.107	3.27	34.196	3.37	34.199	3.43	34.106	3.79	33.997	3.67	33.997	3.84	33.920	3.70	34.001	3.69	34.133	3.58	34.161
700m	3.18	34.164	3.27	34.272	3.23	34.256	3.26	34.200	3.64	34.099	3.64	34.095								
800m	3.16	34.262	3.00	34.308	3.20	34.339	3.10	34.274	3.62	34.222	3.54	34.207								
900m	3.02	34.333	2.87	34.354	2.99	34.359	3.05	34.345	3.32	34.267	3.34	34.275								
1000m	2.86	34.368	2.79	34.397	2.77	34.396	2.83	34.376	3.07	34.319	3.13	34.339								

Table 5-38

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	PK24		PK23		P35		PK15		P26		PK06		PK05		P25		PK14		P34	
Latitude:N	40-59.9		41-29.9		41-30.1		41-30.0		41-29.1		41-29.1		41-59.9		42- 0.0		42- 0.0		42- 0.2	
Longitude:E	143-30.2		143-30.0		144- 0.0		144-29.9		144-59.9		145-29.9		145-29.9		145- 0.2		144-30.1		143-59.1	
Date	1998/11/18		1998/11/18		1998/11/18		1998/11/18		1998/11/18		1998/11/18		1998/11/19		1998/11/19		1998/11/19		1998/11/19	
Time(JST)	02:42		06:58		09:08		11:22		13:30		15:36		11:15		14:58		18:09		21:03	
Weather	C		BC		BC		BC		C		BC		BC		BC		BC		BC	
Air Temp.	8.1		5.9		6.8		7.4		7.3		7.5		2.5		2.2		1.9		1.2	
Bar	995.2		1000.0		1002.0		1003.0		1004.0		1005.5		1004.5		1015.5		1018.0		1018.5	
Wind Dir	NW		W		W		WNW		WNW		W		WNW		W		WNW		NNW	
Wind Spd/F	F 6		F 7		F 8		F 7		F 8		F 8		F 6		F 6		F 5		F 4	
Transparency									10		9				11					
Depth																			1110	
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	33.175	8.4	33.172	11.8	33.072	12.4	33.576	13.7	34.026	13.4	33.990	7.1	32.744	6.9	32.739	6.8	32.829	9.1	33.272
10m	11.51	33.206	8.49	33.203	11.92	33.093	12.73	33.591	14.04	34.066	14.02	34.047	7.77	32.782	7.06	32.791	6.87	32.878	9.24	33.345
20m	11.51	33.206	8.49	33.204	11.92	33.093	12.73	33.592	14.07	34.075	14.02	34.047	7.77	32.782	7.06	32.792	6.89	32.877	9.27	33.352
30m	11.42	33.208	8.49	33.204	11.93	33.093	12.75	33.600	14.07	34.076	14.04	34.048	7.77	32.782	7.06	32.792	6.94	32.887	9.28	33.353
50m	8.49	33.119	5.88	33.520	9.06	33.714	12.94	33.668	14.07	34.073	14.04	34.050	7.69	32.788	7.05	32.795	6.51	33.015	9.25	33.346
75m	7.13	33.648	4.87	33.484	6.11	33.536	10.78	33.875	13.77	34.307	12.95	34.451	3.80	33.154	3.57	33.071	3.56	33.067	9.31	33.359
100m	4.05	33.384	3.58	33.429	4.96	33.498	8.90	33.909	12.19	34.341	12.23	34.427	2.31	33.177	2.53	33.191	2.97	33.215	3.76	33.175
125m	3.36	33.375	3.23	33.461	4.33	33.486	6.66	33.702	11.30	34.295	11.77	34.394	2.78	33.295	2.16	33.234	2.54	33.275	2.79	33.183
150m	3.61	33.443	2.86	33.468	4.30	33.544	5.12	33.563	10.46	34.228	11.34	34.365	2.50	33.303	2.66	33.323	2.85	33.370	2.34	33.214
200m	3.50	33.515	2.69	33.497	3.87	33.586	4.37	33.544	7.53	33.885	10.21	34.210	2.88	33.408	2.88	33.439	2.40	33.389	2.54	33.336
250m	3.14	33.553	2.77	33.552	3.83	33.680	3.31	33.525	5.20	33.629	7.89	33.928	2.71	33.456	2.40	33.443	2.63	33.485	3.14	33.489
300m	3.24	33.636	2.97	33.631	4.23	33.834	3.76	33.670	4.02	33.559	5.93	33.719	2.49	33.510	2.37	33.541	2.74	33.565	2.33	33.455
400m	3.96	33.907											3.36	33.793	3.37	33.833	3.18	33.764	3.51	33.751
500m	3.84	34.037											3.55	33.976	3.53	34.006	3.44	33.966	3.60	33.913
600m	3.58	34.119											3.48	34.099	3.56	34.109	3.53	34.101	3.78	34.101
700m																			3.62	34.182
800m																			3.25	34.246
900m																			2.99	34.315
1000m																			2.78	34.380

Table 5-39

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	PK22		PK21		P33		PK13		P24		PK04		PK03		PK02		P23		PK12	
Latitude:N	42- 0.0		42-14.9		42-15.0		42-15.0		42-15.0		42-14.1		42-29.9		42-44.9		42-30.1		42-30.0	
Longitude:E	143-31.9		143-29.1		143-59.9		144-30.0		144-59.1		145-29.1		145-30.0		145-29.1		145- 0.1		144-30.0	
Date	1998/11/19		1998/11/20		1998/11/20		1998/11/20		1998/11/20		1998/11/20		1998/11/20		1998/11/20		1998/11/20		1998/11/20	
Time(JST)	23:27		00:55		02:56		05:11		07:23		09:43		11:24		13:06		15:43		18:01	
Weather	BC		BC		BC		BC		BC		BC		BC		BC		BC		BC	
Air Temp.	0.5		0.3		0.3		1.2		2.0		2.4		2.5		2.4		2.5		3.0	
Bar	1019.0		1018.2		1017.5		1017.5		1018.0		1018.0		1017.5		1016.2		1015.5		1016.0	
Wind Dir	NW		WSW		W		W		WNW		NW		W		SW		W		W	
Wind Spd/F	F 3		F 3		F 3		F 2		F 3		F 3		F 3		F 4		F 5		F 5	
Transparency											16		18		15		11			
Depth	135		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	9.2	33.174	9.3	33.120	8.9	33.315	6.9	33.008	5.6	32.807	5.8	32.908	5.9	32.929	5.9	33.009	6.5	33.020	8.6	33.339
10m	9.55	33.230	9.44	33.174	9.29	33.363	6.84	32.941	5.57	32.877	5.71	32.893	5.81	32.979	5.75	32.979	6.69	33.084	8.87	33.375
20m	9.56	33.231	9.43	33.175	9.29	33.363	6.84	32.941	5.57	32.876	5.71	32.894	5.79	32.983	5.75	32.980	6.70	33.085	8.88	33.375
30m	9.56	33.232	9.44	33.175	9.29	33.363	6.84	32.941	5.57	32.877	5.70	32.895	5.79	32.985	5.75	32.981	6.70	33.086	8.87	33.373
50m	9.56	33.232	9.45	33.181	9.28	33.362	6.78	32.951	5.58	32.879	5.69	32.894	5.78	32.995	5.76	32.983	6.69	33.088	8.83	33.368
75m	8.03	33.286			9.17	33.358	4.26	32.992	3.72	33.059	3.00	33.096	2.79	33.063	5.26	33.098	4.10	33.141	5.54	33.061
100m	7.51	33.550			6.27	33.283	3.03	33.066	2.65	33.139	2.68	33.196	2.80	33.201	2.86	33.148	3.15	33.212	5.22	33.251
125m					3.62	33.245	2.46	33.120	2.38	33.228	2.65	33.255	2.93	33.303	2.42	33.205	2.43	33.220	3.40	33.178
150m					2.55	33.203	2.16	33.185	2.11	33.293	2.32	33.323	2.81	33.344	2.33	33.255	2.23	33.257	2.60	33.138
200m					2.84	33.343	2.96	33.378	3.30	33.500	2.22	33.455	2.61	33.454	2.11	33.327	1.91	33.353	2.79	33.335
250m					3.56	33.479	2.13	33.382	2.62	33.521	3.08	33.635	2.69	33.575	2.01	33.398	2.06	33.426	3.18	33.456
300m					2.09	33.385	2.28	33.476	2.80	33.676	3.23	33.754	2.96	33.708	2.30	33.507	2.27	33.517	2.57	33.450
400m					2.94	33.630	3.08	33.739	3.12	33.868	3.38	33.927	3.31	33.920	2.79	33.784	2.84	33.739	2.47	33.574
500m					3.09	33.811	3.37	33.914	3.23	34.029	3.62	34.105	3.19	34.027	3.17	33.978	3.27	33.955	3.26	33.855
600m					3.49	34.030	3.46	34.042	3.33	34.154	3.48	34.174	3.31	34.169	3.24	34.083	3.32	34.088	3.45	34.032
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	P32		P31		SU01		SU02		SU05		SU06		SU07		SU08		SU09		SU10	
Latitude:N	42-29.1		42-44.1		43-54.5		43-56.8		43-58.4		43-59.7		43-57.3		43-58.3		44- 0.6		44- 0.3	
Longitude:E	144- 0.1		144- 0.1		145-15.2		145-10.0		145-13.6		145-11.8		145-17.5		145-18.1		145-13.7		145-16.0	
Date	1998/11/20		1998/11/20		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02	
Time(JST)	20:26		22:03		06:26		07:06		08:10		08:35		09:16		09:31		10:16		10:32	
Weather	BC		BC		C		BC		BC		BC		BC		BC		BC		C	
Air Temp.	2.4		-0.1		-4.6		-4.9		-4.0		-4.1		-3.0		-2.7		-3.7		-3.4	
Bar	1016.0		1016.0		1016.0		1016.2		1017.0		1016.5		1016.5		1016.5		1016.5		1016.5	
Wind Dir	WNW		NNE		W		WNW		WNW		W		WNW		WNW		W		W	
Wind Spd/F	F 4		F 3		F 4		F 5		F 4		F 3		F 6		F 5		F 4		F 5	
Transparency																				
Depth	491		65		79		64		362		212		126		230		120		554	
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	33.238	8.7	33.105	9.5	33.70*	9.8	33.70*	9.4	33.58*	10.1	33.69*	9.4	33.59*	9.6	33.70*	8.9	33.66*	8.7	33.51*
10m	9.33	33.260	8.77	33.088	10.28	33.709	10.41	33.710	9.84	33.574	10.47	33.699	9.72	33.579	10.31	33.705	10.27	33.664	9.40	33.512
20m	9.33	33.261	8.80	33.088	10.27	33.711	10.42	33.712	9.89	33.587	10.47	33.701	9.71	33.571	10.32	33.702	10.26	33.664	9.58	33.546
30m	9.34	33.261	9.12	33.167	10.26	33.712	10.42	33.712	9.87	33.581	10.47	33.702	9.75	33.577	10.31	33.702	10.26	33.665	9.95	33.620
50m	9.34	33.261	9.36	33.285	10.23	33.714	10.42	33.714	9.87	33.582	10.46	33.703	9.74	33.572	10.33	33.701	10.25	33.663	10.18	33.670
75m	7.19	33.237							9.83	33.571	10.46	33.703	9.84	33.594	10.28	33.690	9.92	33.598	10.20	33.676
100m	5.74	33.240							9.85	33.575	10.15	33.687	9.80	33.590	10.04	33.639	9.85	33.613	10.19	33.672
125m	4.63	33.253							10.10	33.702	9.93	33.731			9.85	33.723			9.96	33.727
150m	3.69	33.241							9.25	33.738	9.08	33.751			9.36	33.747			9.40	33.746
200m	3.72	33.435							7.65	33.745	7.70	33.755			7.44	33.738			7.32	33.739
250m	3.25	33.470							5.35	33.611									5.54	33.624
300m	2.83	33.482							4.18	33.531									4.34	33.547
400m	2.94	33.668																	2.35	33.436
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	SU17		SU18		SU19		SU27		SU28		SU29		SU32		SU37		SU38		SU42	
Latitude:N	44- 4.6		44- 4.0		44- 6.7		44-18.5		44-24.2		44-26.8		44-16.6		44-11.3		44- 5.0		44-10.3	
Longitude:E	145-18.7		145-23.5		145-17.4		145-30.7		145-19.5		145-13.2		145-12.3		144-51.4		144-51.3		144-34.6	
Date	1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/02		1998/12/03		1998/12/03		1998/12/03	
Time(JST)	13:07		13:41		14:39		16:18		18:18		19:30		21:34		01:45		02:54		05:06	
Weather	S		S		S		C		S		S		BC		BC		B		B	
Air Temp.	-3.9		-3.2		-3.7		-2.0		-3.0		-2.9		-2.5		-3.0		-3.7		-3.7	
Bar	1017.5		1018.0		1018.5		1018.5		1020.0		1020.5		1021.0		1021.0		1021.5		1020.0	
Wind Dir	W		NW		NW		NW		NW		NNW		W		WSW		W		SW	
Wind Spd/F	F 4		F 5		F 5		F 5		F 6		F 6		F 6		F 4		F 5		F 5	
Transparency																				
Depth	472				379												212		559	
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	33.19*	9.3	33.55*	8.5	33.41*	4.4	32.39*	3.4	32.09*	5.4	33.17*	3.6	32.03*	4.7	32.94*	2.9	32.08*	2.7	32.13*
10m	8.03	33.219	9.48	33.549	8.98	33.417	4.87	32.388	3.79	32.093	5.73	33.167	3.81	32.037	5.02	32.938	3.07	32.086	2.94	32.145
20m	9.09	33.439	9.52	33.557	8.93	33.404	4.86	32.388	3.78	32.109	5.75	33.168	3.83	32.036	5.04	32.946	3.08	32.114	3.47	32.371
30m	9.25	33.463	9.53	33.562	8.89	33.395	4.87	32.389	3.80	32.175	5.75	33.169	3.84	32.037	5.06	32.958	3.09	32.112	3.49	32.426
50m	9.25	33.473	9.65	33.591	9.66	33.578	4.99	32.419	3.74	32.412	5.74	33.169	3.84	32.037	5.20	33.002	3.11	32.116	4.00	32.616
75m	9.52	33.544	9.80	33.623	9.79	33.627	5.31	32.506	3.82	32.460	5.75	33.169	3.85	32.038	5.30	33.026	3.10	32.115	4.99	32.961
100m	9.80	33.627	9.81	33.623	9.76	33.628	6.66	32.803	4.84	32.933	5.75	33.169	3.82	32.037	5.27	33.035	4.44	32.494	5.10	33.025
125m	9.87	33.720	9.85	33.633	9.74	33.631	8.76	33.299	3.98	32.919	3.03	33.242	3.91	32.067	4.18	33.009	5.04	32.928	5.06	33.038
150m	8.53	33.605	9.57	33.661	9.67	33.652	10.13	33.622	3.55	32.900	2.18	33.255	3.21	32.604	1.72	33.159	5.24	33.041	3.85	33.081
200m	6.33	33.467	7.91	33.756	7.14	33.606	9.71	33.595	2.10	33.067	3.38	33.479	1.38	33.094	1.07	33.212			1.00	33.211
250m	5.73	33.629	5.60	33.627	6.00	33.602	6.34	33.634	1.32	33.127	1.92	33.378	0.87	33.117	0.72	33.220			0.98	33.269
300m	4.25	33.540	3.76	33.498	4.54	33.558	2.85	33.440	1.09	33.206	1.62	33.394			1.13	33.288			0.96	33.295
400m	1.96	33.449	1.97	33.441			1.74	33.480	1.23	33.301	1.65	33.516			1.55	33.445			1.30	33.392
500m			1.80	33.536			1.93	33.670	2.00	33.563	1.88	33.639			1.87	33.618			1.83	33.638
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-42

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

Stn-prefix	199812		199812		199812		199812		199812		199902		199902		199902		199902		199902	
Station No	SU41		SU33		SU26		SU25		SU24		P31		P32		P33		PK21		PK22	
Latitude:N	44- 4.5		44-19.3		44-19.3		44-14.9		44-14.7		42-44.1		42-30.2		42-15.1		42-15.0		42- 0.0	
Longitude:E	144-34.5		145- 6.2		145-22.6		145-32.4		145-27.5		143-59.9		143-59.1		144- 0.0		143-30.0		143-30.1	
Date	1998/12/03		1998/12/03		1998/12/03		1998/12/03		1998/12/03		1999/02/15		1999/02/15		1999/02/15		1999/02/15		1999/02/15	
Time(JST)	06:13		08:25		09:49		11:00		11:37		10:45		12:07		13:41		16:01		17:31	
Weather	C		BC		BC		BC		C		BC		BC		BC		BC		BC	
Air Temp.	-3.9		-2.0		-2.2		-1.7		-1.7		-2.4		-0.9		-0.1		-0.4		-0.3	
Bar	1020.0		1020.2		1020.5		1018.5		1019.0		1020.0		1019.7		1018.0		1018.0		1019.5	
Wind Dir	WSW		SW		WSW		W		W		WSW		WSW		WSW		SW		W	
Wind Spd/F	F 5		F 5		F 4		F 4		F 3		F 3		F 4		F 5		F 4		F 6	
Transparency													18		14		15			
Depth	145				225						66		490		932		65		125	
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	31.91*	3.4	32.52*	5.1	32.48*	4.5	32.30*	4.7	32.37*	-0.3	32.445	0.1	32.617	3.1	33.238	0.0	32.500	0.5	32.654
10m	3.59	31.909	3.52	32.523	5.13	32.494	4.52	32.307	4.65	32.372	-0.40	32.513	0.02	32.610	3.34	33.317	0.06	32.587	0.42	32.725
20m	3.62	31.918	4.17	32.731	5.14	32.499	4.52	32.306	4.72	32.392	-0.41	32.513	0.01	32.610	3.35	33.318	0.03	32.590	0.41	32.724
30m	3.69	31.954	5.40	33.101	5.21	32.509	4.51	32.308	4.82	32.420	-0.41	32.513	-0.01	32.610	3.35	33.318	0.00	32.594	0.41	32.722
50m	3.60	31.990	5.98	33.261	5.36	32.537	4.58	32.334	5.01	32.473	-0.43	32.515	-0.01	32.611	3.39	33.322	0.01	32.594	0.44	32.728
75m	3.52	31.986	6.14	33.294	5.42	32.559	5.04	32.469	5.37	32.552			0.12	32.627	3.43	33.326			0.59	32.745
100m	3.54	32.037	6.14	33.296	6.00	32.702	5.69	32.588	5.41	32.575			0.39	32.673	3.61	33.362			0.81	32.780
125m			4.46	33.188	6.36	32.800	8.44	33.226	7.52	33.054			1.19	32.835	3.69	33.378				
150m			1.40	33.196	7.16	33.029	10.07	33.610	9.86	33.600			1.43	32.895	3.76	33.386				
200m			0.80	33.202	2.44	33.189	7.20	33.268	3.86	33.084			1.66	32.986	4.07	33.447				
250m			0.80	33.216			7.00	33.592	2.69	33.236			2.35	33.151	3.38	33.419				
300m			0.99	33.263			3.27	33.461	3.32	33.448			2.51	33.301	3.49	33.525				
400m			1.61	33.434			1.63	33.516	2.04	33.450			3.21	33.667	4.33	33.836				
500m			1.97	33.680			1.97	33.697	1.85	33.615					2.83	33.800				
600m															3.76	34.094				
700m																				
800m																				
900m																				
1000m																				

Table 5-43

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	P34		PK14		P25		PK05		PK06		P26		PK15		P35		PK23		PK24	
Latitude:N	41-59.8		42- 0.0		41-59.1		42- 0.0		41-30.1		41-30.0		41-30.0		41-30.0		41-29.8		41- 0.1	
Longitude:E	144- 0.0		144-29.9		144-59.8		145-29.8		145-29.9		145- 0.2		144-30.3		144- 0.1		143-29.9		143-30.1	
Date	1999/02/15		1999/02/15		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16	
Time(JST)	19:32		22:00		00:40		03:17		08:44		11:35		14:07		16:34		18:57		21:49	
Weather	BC		BC		BC		C		BC		C		BC		B		B		BC	
Air Temp.	1.1		1.7		2.7		2.9		3.2		3.4		4.1		4.0		3.7		4.6	
Bar	1018.5		1019.5		1017.9		1017.0		1019.5		1018.5		1017.0		1017.5		1019.0		1020.0	
Wind Dir	W		W		WSW		WSW		WSW		SW		WSW		W		WNW		SW	
Wind Spd/F	F 7		F 7		F 7		F 7		F 6		F 5		F 5		F 5		F 4		F 4	
Transparency									12		15		10		15					
Depth	1126																			
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	33.418	4.3	33.308	5.0	33.468	2.5	33.092	2.8	33.244	3.2	33.141	3.6	33.340	3.5	33.232	2.1	33.193	3.5	33.278
10m	3.75	33.377	3.92	33.375	5.04	33.542	2.41	33.167	2.72	33.285	3.04	33.254	3.44	33.334	3.36	33.318	1.95	33.059	3.38	33.365
20m	3.77	33.379	3.93	33.375	5.03	33.540	2.41	33.167	2.71	33.286	3.05	33.254	3.43	33.334	3.37	33.319	1.97	33.063	3.38	33.365
30m	3.75	33.377	3.93	33.375	5.05	33.542	2.41	33.167	2.72	33.286	3.04	33.255	3.44	33.339	3.36	33.321	2.01	33.073	3.39	33.365
50m	3.74	33.375	3.92	33.375	5.06	33.544	2.41	33.167	2.72	33.286	3.04	33.255	3.47	33.345	3.40	33.331	2.75	33.213	3.40	33.366
75m	3.97	33.407	3.92	33.375	5.04	33.540	2.42	33.168	2.89	33.316	3.04	33.256	3.48	33.347	3.78	33.390	3.72	33.388	3.43	33.373
100m	3.99	33.412	3.81	33.369	5.03	33.540	2.43	33.170	3.10	33.347	3.06	33.259	3.48	33.348	3.91	33.412	3.72	33.392	3.46	33.381
125m	3.98	33.409	3.58	33.351	5.04	33.541	2.45	33.173	3.24	33.366	3.23	33.375	3.50	33.351	3.88	33.409	3.77	33.399	3.55	33.395
150m	4.14	33.429	3.83	33.398	3.95	33.554	2.55	33.362	3.25	33.369	4.19	33.546	4.03	33.484	3.78	33.408	3.72	33.442	3.64	33.427
200m	4.32	33.505	3.20	33.509	2.62	33.499	2.58	33.512	3.27	33.522	2.31	33.441	4.08	33.618	3.48	33.482	3.66	33.454	3.40	33.520
250m	4.29	33.663	3.60	33.625	2.49	33.572	2.66	33.649	2.47	33.524	2.62	33.583	2.90	33.574	3.44	33.560	3.33	33.486	3.03	33.558
300m	2.78	33.569	3.63	33.760	2.51	33.671	2.84	33.754	2.80	33.694	3.59	33.816	2.75	33.645	3.76	33.742	3.15	33.513	3.21	33.651
400m	2.86	33.731	3.43	33.884	3.34	33.944	3.19	33.948	2.99	33.866	3.11	33.890	4.59	34.031	3.11	33.761	3.03	33.592	3.68	33.872
500m	3.45	33.939	3.31	33.974	3.36	34.078	3.19	34.065	3.22	34.046	3.26	34.038	3.91	34.091	3.78	34.009	3.45	33.903	4.27	34.099
600m	3.81	34.106	3.28	34.078	3.22	34.187	3.29	34.185	3.29	34.165	3.18	34.147	3.52	34.171	3.58	34.105	3.71	34.099	3.79	34.190
700m	3.53	34.185	3.11	34.172	3.21	34.268	3.13	34.251												
800m	3.33	34.240	3.12	34.245	2.97	34.306	3.07	34.305												
900m	3.15	34.287	3.24	34.342	2.87	34.359	2.85	34.342												
1000m	2.99	34.328	3.00	34.382	2.78	34.402	2.81	34.394												

Table 5-44

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	P36		PK16		P27		PK07		P18		P17		P16		P15		PK04		P24	
Latitude:N	41- 0.0		40-59.1		41- 0.1		41- 0.1		41- 0.1		41-29.8		41-59.8		42-15.7		42-15.0		42-14.1	
Longitude:E	143-59.8		144-29.8		144-59.9		145-29.9		145-59.8		145-59.1		146- 0.0		146- 1.1		145-30.1		145- 0.1	
Date	1999/02/17		1999/02/17		1999/02/17		1999/02/17		1999/02/17		1999/02/17		1999/02/17		1999/02/17		1999/02/17		1999/02/18	
Time(JST)	00:08		02:24		04:39		06:56		09:14		12:24		15:29		20:05		23:29		01:49	
Weather	BC		BC		BC		C		BC		BC		C		C		C		C	
Air Temp.	5.4		4.5		4.5		6.0		4.5		5.4		5.1		5.8		3.0		3.2	
Bar	1019.4		1018.5		1018.0		1017.0		1017.0		1012.7		1010.0		1008.5		1007.0		1004.7	
Wind Dir	SW		SSW		SSW		SSW		SSW		S		SW		SW		SW		SW	
Wind Spd/F	F 4		F 4		F 4		F 5		F 4		F 4		F 5		F 4		F 4		F 6	
Transparency							20		23		17		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	4.2	33.422	3.2	33.211	3.4	33.246	5.4	33.524	1.9	32.899	1.9	32.915	1.8	32.954	6.0	33.679	1.0	32.744	-0.7	32.352
10m	4.06	33.509	3.10	33.308	3.25	33.328	5.43	33.601	1.51	32.977	1.55	32.996	1.61	33.016	5.83	33.643	0.86	32.848	-0.93	32.467
20m	4.06	33.509	3.10	33.308	3.26	33.327	5.43	33.601	1.48	32.978	1.48	32.999	1.60	33.017	5.80	33.634	0.86	32.849	-0.88	32.482
30m	4.05	33.509	3.10	33.308	3.28	33.332	5.40	33.596	1.48	32.978	1.49	33.001	1.60	33.022	5.82	33.638	1.16	32.955	-0.83	32.494
50m	4.06	33.510	3.12	33.311	3.70	33.411	5.29	33.579	1.48	32.979	1.55	33.011	1.65	33.037	4.84	33.509	4.53	33.439	0.07	32.791
75m	4.07	33.510	3.15	33.319	4.06	33.476	5.26	33.576	1.87	33.104	1.56	33.013	1.77	33.064	4.52	33.461	5.02	33.520	0.71	32.980
100m	4.06	33.509	3.20	33.326	4.08	33.481	4.86	33.526	2.15	33.153	1.62	33.034	2.00	33.121	4.54	33.468	4.29	33.450	0.96	33.044
125m	4.07	33.511	3.24	33.334	4.08	33.481	4.77	33.511	3.64	33.355	2.39	33.186	2.10	33.198	5.27	33.587	4.33	33.454	1.28	33.092
150m	4.07	33.511	3.12	33.341	4.08	33.481	4.81	33.589	3.53	33.368	2.18	33.204	2.14	33.231	4.14	33.467	5.18	33.646	1.77	33.157
200m	3.67	33.614	2.96	33.442	4.07	33.483	2.57	33.492	2.44	33.345	2.39	33.290	2.53	33.327	2.89	33.412	4.04	33.686	2.12	33.238
250m	3.53	33.691	2.73	33.500	3.72	33.628	2.66	33.617	2.09	33.374	3.02	33.420	2.80	33.450	4.16	33.669	2.77	33.626	2.41	33.370
300m	3.49	33.763	2.92	33.663	3.46	33.724	3.29	33.812	2.59	33.556	3.09	33.560	2.43	33.486	4.30	33.795	3.09	33.773	2.64	33.468
400m	3.55	33.924	3.69	33.913	3.89	33.980	3.31	33.976	2.90	33.801	3.19	33.729	2.66	33.709	2.97	33.821	3.48	33.984	3.05	33.761
500m	3.42	34.144	3.24	34.000	3.65	34.104	3.36	34.089	3.27	34.002	3.57	33.977	3.38	33.938	3.16	33.976	3.58	34.120	3.21	33.934
600m	3.11	34.289	3.52	34.176	3.37	34.182	3.13	34.175	3.21	34.131	3.25	34.069	3.78	34.120	3.20	34.116	3.26	34.176	3.69	34.141
700m									3.03	34.230	3.14	34.180	3.58	34.210	3.12	34.208				
800m									3.26	34.337	3.03	34.229	3.29	34.274	3.01	34.288				
900m									3.03	34.375	2.99	34.303	2.95	34.304	2.84	34.320				
1000m									2.75	34.410	3.02	34.381	2.81	34.347	2.77	34.366				

Table 5-45

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

Stn-prefix	199902	199902	199902	199902	199902	199902	199902	199902	199902	199902										
Station No	PK03	P14	P13	P12	PK01	PK02	P21	P22	SU01	SU02										
Latitude:N	42-30.1	42-30.0	42-44.9	42-54.8	42-55.0	42-45.2	42-54.9	42-45.0	42-32.2	42-28.1										
Longitude:E	145-29.8	145-59.9	145-54.1	145-50.0	145-30.2	145-29.1	145- 0.1	145- 0.1	143-41.7	143-46.4										
Date	1999/02/18	1999/02/18	1999/02/18	1999/02/18	1999/02/18	1999/02/18	1999/02/18	1999/02/18	1999/02/25	1999/02/25										
Time(JST)	04:50	08:14	10:13	11:55	13:48	15:22	17:50	18:47	14:03	14:44										
Weather	C	BC	C	C	C	C	S	S	C	C										
Air Temp.	2.0	4.0	3.5	2.0	1.6	1.5	-2.0	-3.2	0.2	0.3										
Bar	1003.0	1003.0	1002.0	999.0	998.0	998.9	1012.0	1013.5	1014.0	1014.5										
Wind Dir	SW	WSW	WSW	SW	SW	SW	N	NNW	NNW	NNW										
Wind Spd/F	F 4	F 5	F 4	F 4	F 6	F 6	F 4	F 5	F 3	F 3										
Transparency		14	17	16	13	11														
Depth					160			169	50	100										
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		
0m	-0.8	32.352	4.2	33.272	4.1	33.310	1.2	32.860	-0.9	32.261	-0.7	32.471	-0.7	32.309	-0.7	32.316	0.1	32.17*	0.0	32.42*
10m	-0.99	32.478	4.28	33.417	4.05	33.413	0.94	32.951	-1.10	32.407	-0.98	32.442	-0.65	32.428	-0.59	32.444	-0.01	32.177	-0.15	32.420
20m	-0.99	32.477	4.55	33.467	4.06	33.416	1.37	33.066	-1.10	32.407	-0.98	32.444	-0.66	32.429	-0.51	32.467	-0.03	32.380	-0.16	32.423
30m	-0.99	32.477	4.85	33.502	4.08	33.417	1.49	33.102	-1.16	32.414	-0.97	32.450	-0.66	32.430	-0.39	32.507	-0.08	32.503	-0.18	32.429
50m	0.61	32.845	4.94	33.516	3.95	33.405	3.18	33.305	-0.92	32.505	-0.38	32.625	-0.76	32.441	-0.08	32.616			-0.29	32.515
75m	1.19	33.016	4.89	33.511	4.08	33.422	3.73	33.391	-0.66	32.568	1.35	33.066			0.05	32.654			0.01	32.604
100m	1.21	33.081	4.77	33.495	4.23	33.452	3.95	33.428	0.17	32.715	1.14	33.088			0.38	32.718				
125m	0.97	33.161	4.00	33.410	4.10	33.453	2.79	33.310	1.73	33.140	1.62	33.142			1.15	32.860				
150m	1.21	33.185	2.65	33.288	4.22	33.477	1.97	33.249			1.27	33.164			1.72	32.989				
200m	1.55	33.245	2.55	33.441	4.76	33.695	2.32	33.352			1.31	33.190								
250m	2.31	33.426	3.66	33.709	3.84	33.656	2.20	33.405			1.30	33.210								
300m	2.30	33.550	2.71	33.686	4.57	33.853	2.42	33.507			1.53	33.341								
400m	3.21	33.811	3.13	33.899	4.13	33.958	2.92	33.726			2.35	33.601								
500m	3.34	33.991	3.14	34.035	3.62	34.019	3.27	33.910			3.19	33.874								
600m	3.35	34.079	3.19	34.156	3.18	34.093	3.18	34.009			3.37	34.068								
700m			3.15	34.235	3.22	34.199	3.25	34.156												
800m			3.02	34.296	3.22	34.311	3.09	34.227												
900m			2.93	34.351	3.12	34.353	2.96	34.286												
1000m			2.83	34.392	2.85	34.362	2.83	34.350												

Table 5-46

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	SU03		SU04		SU08		SU07		SU06		SU09		SU10		SU11		SU12		PK11	
Latitude:N	42-26.2		42-23.3		42- 3.7		42- 6.1		42- 8.3		41-46.5		41-42.3		41-38.4		41-50.2		42-45.1	
Longitude:E	143-50.3		143-54.9		143-46.6		143-37.2		143-30.4		143-16.1		143-33.3		143-46.5		143-38.4		144-30.0	
Date	1999/02/25		1999/02/25		1999/02/26		1999/02/26		1999/02/26		1999/02/27		1999/02/27		1999/02/27		1999/02/27		1999/03/01	
Time(JST)	15:20		16:00		07:55		09:06		09:55		04:03		05:19		06:23		09:52		07:56	
Weather	C		C		C		C		BC		C		R		C		F		B	
Air Temp.	0.4		0.4		0.5		0.3		1.5		2.5		2.7		2.5		2.4		-0.9	
Bar	1014.2		1014.5		1018.0		1018.0		1018.0		1004.5		1003.0		1002.0		996.4		1011.5	
Wind Dir	NNW		N		NW		N		N		S		S		S		SW		WNW	
Wind Spd/F	F 3		F 3		F 4		F 4		F 2		F 4		F 5		F 4		F 4		F 4	
Transparency																			12	
Depth	200						197		107		107		200				234			
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	32.60*	-0.3	32.54*	-0.1	32.59*	0.3	32.67*	-0.1	32.63*	0.4	32.66*	0.2	32.66*	0.2	32.66*	0.3	32.59*	-0.2	32.467
10m	-0.20	32.597	-0.40	32.540	-0.23	32.596	0.15	32.675	-0.12	32.642	0.39	32.658	0.06	32.658	0.02	32.660	0.11	32.592	-0.32	32.562
20m	-0.24	32.593	-0.41	32.542	-0.17	32.612	0.22	32.685	0.54	32.757	0.38	32.660	0.01	32.659	0.05	32.672	0.10	32.595	-0.28	32.573
30m	-0.24	32.593	-0.41	32.543	0.70	32.814	0.37	32.716	0.66	32.783	0.37	32.661	0.00	32.664	0.09	32.681	0.09	32.605	-0.23	32.587
50m	-0.09	32.617	-0.39	32.553	1.41	32.966	0.90	32.820	0.93	32.844	0.35	32.661	0.20	32.706	0.20	32.702	0.47	32.700	0.17	32.677
75m	0.02	32.644	0.05	32.660	2.28	33.137	1.48	33.011	1.80	33.033	0.39	32.670	0.26	32.720	0.28	32.718	0.93	32.826	0.96	32.858
100m	0.09	32.676	0.47	32.759	3.15	33.294	2.35	33.162	1.97	33.069	0.83	32.784	0.47	32.765	0.68	32.803	1.34	32.945	1.90	33.096
125m	0.27	32.715	1.22	32.920	3.37	33.342	2.52	33.192					0.84	32.852	1.05	32.865	2.09	33.090		
150m	0.87	32.823	1.80	33.048	3.23	33.349	3.04	33.277					1.60	32.970	1.22	32.923	2.45	33.173		
200m			2.97	33.251	3.61	33.426									2.00	33.133	2.97	33.279		
250m			3.45	33.426	3.09	33.441									4.71	33.537				
300m			3.02	33.471	3.02	33.518									5.06	33.604				
400m			2.82	33.615	3.05	33.648									2.58	33.441				
500m					3.38	33.906									3.21	33.794				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 5-47

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

Stn-prefix	199902		199902		199902		199902		199902		199902									
Station No	PK12		P23		PK13		SU13		SU14		SU15									
Latitude:N	42-30.1		42-29.1		42-15.0		41-58.2		42-31.1		42-33.9									
Longitude:E	144-30.1		144-59.9		144-30.1		143-43.3		143-55.3		143-58.2									
Date	1999/03/01		1999/03/01		1999/03/01		1999/03/02		1999/03/02		1999/03/02									
Time(JST)	09:19		11:32		14:01		07:49		12:25		13:56									
Weather	B		B		BC		BC		BC		C									
Air Temp.	-0.1		0.1		1.2		1.9		2.2		2.0									
Bar	1012.0		1012.0		1010.0		1002.0		1002.0		1003.5									
Wind Dir	WNW		WSW		W		SW		SSW		NW									
Wind Spd/F	F 4		F 4		F 5		F 5		F 6		F 5									
Transparency	14		17		16															
Depth							332		226		340									
Equipment	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	-0.2	32.505	0.4	32.757	0.1	32.639	0.5	32.74*	0.2	32.59*	0.1	32.58*								
10m	-0.23	32.593	0.13	32.837	-0.10	32.743	0.36	32.737	-0.09	32.588	-0.11	32.573								
20m	-0.23	32.594	0.12	32.839	-0.16	32.744	0.39	32.744	-0.10	32.589	-0.14	32.573								
30m	-0.20	32.600	0.22	32.869	-0.13	32.753	0.44	32.754	-0.09	32.587	-0.16	32.573								
50m	-0.17	32.605	0.83	32.964	-0.06	32.768	1.17	32.911	-0.11	32.601	-0.17	32.578								
75m	-0.12	32.612	2.53	33.219	0.03	32.783	2.76	33.225	0.20	32.704	0.01	32.645								
100m	0.82	32.826	2.45	33.236	0.21	32.833	3.25	33.329	0.44	32.767	0.52	32.779								
125m	0.79	32.979	3.15	33.325	2.50	33.237	3.36	33.361	1.21	32.977	1.18	32.905								
150m	1.27	33.078	3.57	33.390	1.32	33.159	3.35	33.372	2.58	33.200	1.82	33.049								
200m	1.25	33.142	4.36	33.606	1.57	33.244	3.52	33.446	3.17	33.380	2.96	33.418								
250m	1.36	33.213	2.60	33.506	1.76	33.364	2.69	33.413			2.83	33.440								
300m	1.64	33.289	2.72	33.617	1.90	33.425	3.03	33.544			2.59	33.526								
400m	2.62	33.548	3.01	33.801	2.34	33.614														
500m	2.96	33.764	3.25	33.987	3.17	33.837														
600m	3.37	33.942	3.43	34.133	3.32	33.988														
700m																				
800m																				
900m																				
1000m																				

Table 5-48

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	J101		J102		J103		JA11		JA12		JW12		JA13		JA14		JW14		JW15	
Latitude:N	45-30.1		45-30.1		45-30.0		45- 0.1		44-59.8		45- 0.1		45- 0.0		45- 0.0		45- 0.1		44-59.9	
Longitude:E	141-40.1		141-24.9		141-10.0		141-30.1		141-19.8		141-15.0		141- 9.8		140-59.9		140-39.8		140-20.0	
Date	1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/14		1998/04/15	
Time(JST)	09:38		11:34		13:44		17:57		18:57		19:36		20:16		21:09		22:53		00:23	
Weather	BC		C		BC		BC		BC		BC		C		BC		BC		BC	
Air Temp.	8.8		5.4		5.9		7.4		5.5		5.1		4.8		4.5		4.2		4.1	
Bar	1010.5		1011.0		1011.5		1015.5		1017.5		1018.0		1019.0		1020.0		1021.5		1023.5	
Wind Dir	S		SSW		WSW		W		W		WNW		NNW		N		NNE		NNE	
Wind Spd/F	S 6		S 7		S 6		S 6		S 4		S 4		S 5		S 7		S 5		S 8	
Transparency	54		117		133		67		81		87		94		100		367		152	
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	5.4	32.799	4.4	34.104	4.9	34.106	6.0	33.095	4.6	33.926	4.5	34.037	4.8	34.079	4.9	34.10*	4.9	34.123	5.0	34.113
10m	5.24	32.822	4.33	34.079	4.57	34.104	5.21	33.785	4.31	33.921	4.22	33.980	4.51	34.055	4.82	34.094	4.64	34.113	4.82	34.108
20m	4.76	33.415	4.29	34.078	4.27	34.113	4.91	34.027	4.13	33.945	4.10	33.993	4.13	34.023	4.56	34.094	4.59	34.112	4.77	34.108
30m	4.30	33.738	4.25	34.079	4.13	34.115	4.90	34.049	3.93	33.966	3.84	33.999	4.03	34.030	4.52	34.097	4.43	34.113	4.67	34.109
50m			4.27	34.086	4.12	34.115	4.86	34.060	3.51	34.014	3.81	34.003	4.02	34.048	4.47	34.105	4.41	34.117	4.65	34.109
75m			4.24	34.109	3.98	34.120			3.61	34.034	3.78	34.062	4.41	34.103	4.35	34.124	4.46	34.115		
100m			4.16	34.111	3.79	34.117									4.08	34.129	3.84	34.124		
125m															3.87	34.126	3.80	34.121		
150m															3.62	34.126				
200m															3.00	34.131				
250m															2.16	34.114				
300m															1.64	34.101				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-1

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	JW16		J108		J107		J106		J105		J104		S401		S402		S403		S404	
Latitude:N	44-59.9		45-30.1		45-30.1		45-30.0		45-29.9		45-30.0		45- 8.0		45-12.4		45-19.9		45-30.0	
Longitude:E	140- 0.1		139-40.0		140- 0.6		140-20.1		140-40.2		140-52.9		142-28.1		142-32.4		142-40.0		142-50.1	
Date	1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/15		1998/04/16		1998/04/16		1998/04/16		1998/04/16	
Time(JST)	01:49		04:54		07:29		09:08		11:32		12:47		13:30		14:33		15:59		17:51	
Weather	BC		BC		BC		BC		C		C		C		C		C		C	
Air Temp.	3.5		2.9		3.6		4.3		4.6		4.1		1.3		1.2		0.8		0.4	
Bar	1023.7		1025.0		1026.0		1026.5		1024.5		1024.0		1019.5		1019.5		1019.5		1020.5	
Wind Dir	NE		ENE		NE		ENE		ENE		E		E		ESE		ENE		NE	
Wind Spd/F	S 7		S 5		S 5		S 7		S 9		S 12		S 5		S 3		S 4		S 3	
Transparency																				
Depth	218		840		586		399		551		450		33		62		98		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	4.3	34.121	3.3	34.121	3.5	34.121	3.9	34.121	4.5	34.120	4.7	34.111	4.4	33.343	1.2	33.084	0.6	32.309	0.1	32.038
10m	4.07	34.117	3.26	34.118	3.10	34.119	3.79	34.120	4.18	34.118	4.67	34.107	4.42	33.759	1.46	33.288	0.47	32.303	0.02	32.037
20m	3.54	34.116	3.26	34.118	3.02	34.124	3.70	34.122	4.13	34.119	4.59	34.109	4.32	33.885	2.09	33.753	0.44	32.344	0.09	32.067
30m	3.08	34.118	3.22	34.122	2.97	34.128	3.60	34.123	3.71	34.125	4.32	34.110			2.82	34.003	0.01	32.714	-0.58	32.146
50m	3.02	34.115	2.96	34.132	2.91	34.131	3.36	34.131	3.38	34.132	4.09	34.117			2.92	34.024	1.59	33.603	-1.41	32.488
75m	2.90	34.121	2.50	34.127	2.65	34.130	3.16	34.132	3.16	34.134	4.00	34.127					2.41	33.958	-1.07	32.801
100m	2.03	34.118	2.13	34.117	2.39	34.123	2.75	34.129	2.86	34.130	3.79	34.129							1.85	33.822
125m	1.55	34.092	1.47	34.104	1.88	34.114	2.53	34.123	2.48	34.119	3.30	34.130								
150m	1.45	34.084	1.18	34.094	1.75	34.109	2.11	34.112	1.92	34.103	3.00	34.128								
200m	1.29	34.081	0.98	34.085	1.39	34.098	1.58	34.103	1.46	34.092	2.31	34.116								
250m			0.89	34.082	1.08	34.083	1.11	34.083	1.02	34.079	1.46	34.093								
300m			0.72	34.074	0.96	34.079	0.98	34.079	0.78	34.074	1.08	34.082								
400m			0.52	34.070	0.65	34.072			0.42	34.068	0.54	34.070								
500m			0.38	34.068	0.42	34.069			0.28	34.067										
600m			0.31	34.067																
700m																				
800m																				
900m																				
1000m																				

Table 6-2

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	S397		OA10		S302		S399		S301		S300		S101		S102		S103		JA01	
Latitude:N	45-29.9		45-30.1		45-34.8		45-32.4		45-29.9		45-26.9		45-31.1		45-35.0		45-39.9		45-41.9	
Longitude:E	142-35.1		142-30.1		142-15.2		142-12.5		142-10.0		142- 8.0		142- 0.0		142- 0.1		141-59.9		141-46.7	
Date	1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/16		1998/04/17		1998/04/17		1998/04/17		1998/04/17	
Time(JST)	19:23		20:02		21:30		22:16		23:01		23:25		00:34		01:05		02:08		03:33	
Weather	C		C		C		C		C		C		C		C		C		C	
Air Temp.	0.7		0.9		1.3		1.4		1.4		1.4		1.8		2.0		2.2		2.5	
Bar	1021.5		1021.5		1022.5		1022.5		1022.5		1022.5		1023.1		1023.0		1022.5		1022.6	
Wind Dir	NE		E		ESE		SE		SSE		SE		SSW		SSW		CALM		CALM	
Wind Spd/F	S 3		S 4		S 3		S 4		S 5		S 3		S 3		S 4		S 0		S 0	
Transparency																				
Depth	85		83		48		43		37		21		27		43		53		69	
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	0.7	32.434	2.3	33.763	3.5	34.013	4.1	33.597	4.3	33.611	4.3	33.533	4.4	33.299	4.7	33.199	4.3	33.644	4.4	33.067
10m	0.92	33.051	2.11	33.801	3.51	34.007	4.04	33.767	4.26	33.699	4.33	33.730	4.44	33.385	4.21	33.846	3.50	34.100	4.04	34.020
20m	1.47	33.328	2.24	33.876	3.51	34.008	4.05	33.806	4.25	33.752			4.45	33.504	4.03	34.060	3.50	34.110	3.64	34.108
30m	2.17	33.607	2.39	33.963	3.51	34.008	4.06	33.828	4.24	33.769					4.03	34.066	3.51	34.110	3.60	34.113
50m	2.58	34.037	2.53	34.008															3.61	34.118
75m	2.62	34.056	2.57	34.023																
100m																				
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	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	JA02		JW01		JW02		JW03		S301		O14		OA05		OA04		OA03		OA02	
Latitude:N	45-43.6		45-45.0		45-45.0		45-45.0		45-30.0		45-30.0		45-20.0		45- 9.9		45- 0.0		44-52.5	
Longitude:E	141-33.0		141-19.9		141- 9.9		140-59.9		142-10.0		142-49.8		143-20.0		143-10.0		142-59.9		142-52.5	
Date	1998/04/17		1998/04/17		1998/04/17		1998/04/17		1998/04/20		1998/04/20		1998/04/20		1998/04/20		1998/04/20		1998/04/20	
Time(JST)	04:33		05:33		07:00		07:51		11:41		14:19		16:55		18:11		19:25		20:22	
Weather	C		C		C		C		C		C		BC		C		C		C	
Air Temp.	2.5		2.6		2.4		3.0		11.4		6.0		5.5		4.3		4.4		10.7	
Bar	1022.5		1022.5		1023.0		1022.5		1015.5		1013.5		1013.0		1012.0		1011.5		1011.0	
Wind Dir	SSE		SE		S		S		SSW		SSE		SSE		SE		SE		SSW	
Wind Spd/F	S 1		S 4		S 5		S 4		S 5		S 8		S 9		S 8		S 5		S 9	
Transparency									9		15		9							
Depth	113		127		123		495		37		118		143		132		131		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	4.8	32.243	4.2	33.867	4.2*	34.115	4.5	34.104	6.4	33.269	1.8	32.529	0.6	32.092	2.6	32.393	2.2	32.992	5.2	33.827
10m	4.63	33.192	4.16	34.042	4.21	34.112	4.52	34.102	5.11	33.535	0.93	32.508	0.74	32.055	1.01	32.375	2.03	32.960	4.62	33.818
20m	3.95	34.096	4.13	34.072	4.15	34.113	4.52	34.102	4.66	33.721	0.27	32.522	0.61	32.055	0.72	32.382	1.63	33.042	4.26	33.830
30m	3.88	34.123	4.09	34.101	4.14	34.113	4.53	34.102	4.56	33.859	-0.09	32.558	0.35	32.058	0.07	32.441	1.58	33.459	4.26	33.827
50m	3.86	34.122	4.05	34.112	4.07	34.118	4.50	34.105			0.15	32.815	-1.15	32.527	-0.17	32.735	2.68	33.976	4.25	33.828
75m	3.48	34.118	3.98	34.115	3.96	34.118	4.29	34.116			2.22	33.811	-1.33	32.835	-1.00	32.925	2.81	34.052	4.25	33.831
100m	3.43	34.116	3.84	34.123	3.84	34.120	4.01	34.119			2.70	34.044	-1.43	32.991	0.08	33.147	2.80	34.062		
125m							3.87	34.127					-0.79	33.147						
150m							3.69	34.128												
200m							2.58	34.121												
250m							1.94	34.103												
300m							1.37	34.090												
400m							0.70	34.073												
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-4

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	O22		O23		O24		OA14		OA13		OA12		OA11		O31		O32		O33	
Latitude:N	44-35.0		44-39.9		44-50.1		44-40.1		44-29.9		44-21.0		44-17.5		44- 1.8		44- 9.9		44-20.2	
Longitude:E	143-14.9		143-20.1		143-30.0		144- 0.1		143-50.1		143-40.9		143-37.4		144-19.3		144-19.9		144-20.0	
Date	1998/04/20		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21	
Time(JST)	22:46		00:01		01:44		04:26		05:48		06:55		07:24		10:27		11:22		12:32	
Weather	C		BC		C		C		C		C		C		F		C		C	
Air Temp.	13.3		11.0		8.6		7.6		8.9		10.5		11.7		16.6		17.8		17.0	
Bar	1009.5		1009.5		1008.0		1009.0		1010.5		1011.5		1011.0		1009.0		1003.0		1007.5	
Wind Dir	SW		SW		SW		WSW		NNW		W		W		SSW		ESE		CALM	
Wind Spd/F	S 12		S 10		S 11		S 8		S 2		S 4		S 6		S 7		S 2		S 0	
Transparency											14		13		10		14		8	
Depth	72		113		150		189		167		76		45		31		111		268	
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	2.0	32.849	2.8	33.345	1.8	32.415	2.2	32.502	2.2	32.470	2.0	32.426	3.6	32.562	4.8	32.690	4.9	32.708	3.9	32.232
10m	0.91	32.792	2.37	33.424	1.11	32.392	1.95	32.477	2.45	32.647	1.75	32.550	2.01	32.626	3.27	32.662	3.01	32.720	1.06	32.233
20m	3.96	33.746	2.22	33.685	0.91	32.431	1.49	32.468	2.81	32.706	1.16	33.268	4.67	33.464	3.03	32.667	2.43	32.926	0.68	32.266
30m	4.07	33.793	2.92	33.909	-0.51	32.666	2.25	32.728	2.68	32.788	2.28	33.566	4.69	33.488			2.51	32.981	0.57	32.433
50m	4.10	33.821	3.36	34.009	-0.59	32.881	-0.37	32.955	0.56	33.123	3.41	33.792					2.42	33.272	-0.51	32.669
75m			3.39	34.017	-0.89	33.061	-0.98	33.009	-0.44	33.220							3.71	33.683	-0.37	32.868
100m			3.42	34.025	-0.48	33.193	-0.73	33.076	3.10	34.005							3.75	33.723	-0.64	32.988
125m					2.74	34.012	0.12	33.312	3.23	34.049									-1.37	33.002
150m							2.50	33.965	3.04	34.041									-1.46	33.015
200m																			-1.32	33.076
250m																			2.72	33.907
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-5

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199804		199804	
Station No	O34		OA22		OA21		OA23		OA24		O41		O42		O43		O44		O45	
Latitude:N	44-30.0		44-10.1		44- 1.9		44-20.0		44-30.0		44-22.1		44-29.9		44-39.9		44-50.1		45- 0.1	
Longitude:E	144-19.9		144-50.0		144-50.0		144-49.9		144-49.9		145-20.0		145-20.0		145-20.1		145-19.9		145-20.0	
Date	1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/21		1998/04/22		1998/04/22		1998/04/22		1998/04/22		1998/04/22	
Time(JST)	14:06		17:30		18:56		20:41		21:53		00:13		01:33		03:24		05:29		06:48	
Weather	B		C		C		BC		C		C		C		C		C		C	
Air Temp.	16.9		9.8		8.3		8.0		7.5		7.2		4.7		3.2		2.9		2.7	
Bar	1006.0		1008.0		1011.0		1011.0		1010.1		1014.0		1016.0		1016.0		1017.0		1018.0	
Wind Dir	SW		NNE		ENE		SSW		SSW		NW		WNW		WNW		NW		NW	
Wind Spd/F	S 5		S 7		S 7		S 4		S 5		S 8		S 6		S 6		S 4		S 4	
Transparency	8		12																7	
Depth	868		591		78		1091		1580		127		1695		2200		2300		2550	
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	32.294	3.6	32.701	2.6	32.480	1.3	32.241	2.1	32.417	1.8	32.279	0.6	32.161	0.8	32.329	0.4	32.381	0.4	32.547
10m	0.89	32.283	2.53	32.716	2.35	32.518	0.28	32.246	1.18	32.406	1.45	32.264	0.26	32.150	0.39	32.331	0.04	32.355	-0.55	32.625
20m	-0.16	32.340	2.43	32.724	1.59	32.631	-0.26	32.327	-0.31	32.574	0.76	32.349	1.63	32.335	-0.18	32.366	-1.03	32.679	-0.75	32.680
30m	-0.57	32.543	2.37	32.728	0.97	32.726	-1.13	32.436	-0.97	32.674	0.58	32.388	0.70	32.429	-0.51	32.387	-1.05	32.690	-1.01	32.713
50m	-0.87	32.879	2.23	32.755	1.11	33.148	-0.98	32.722	0.19	32.856	-0.18	32.601	-0.61	32.671	-1.17	32.597	-1.37	32.767	-1.51	32.872
75m	-1.17	32.940	2.02	33.155			-0.76	32.899	0.25	33.066	-0.08	32.832	-0.51	32.917	-1.41	32.762	-1.54	32.883	-1.60	32.959
100m	-1.45	32.981	1.63	33.303			-0.44	32.999	0.25	33.152	0.88	33.087	-0.82	32.987	-0.74	32.904	-1.61	33.012	-1.67	33.025
125m	-1.36	33.008	1.35	33.339			0.26	33.131	0.35	33.237			-0.60	33.050	-0.80	32.958	-1.38	33.048	-1.62	33.039
150m	-0.77	33.057	1.23	33.351			0.65	33.258	0.48	33.274			-0.43	33.103	-0.82	33.031	-1.01	33.100	-1.18	33.102
200m	-1.50	33.067	1.50	33.505			0.55	33.315	0.86	33.373			0.32	33.238	-1.53	33.067	0.12	33.222	-0.25	33.219
250m	-1.57	33.074	1.86	33.606			0.81	33.387	0.91	33.426			0.82	33.356	0.14	33.202	0.61	33.311	0.14	33.298
300m	-0.57	33.158	1.92	33.651			1.09	33.472	1.16	33.501			1.56	33.482	0.47	33.281	0.81	33.374	0.44	33.350
400m	1.19	33.497	2.01	33.727			1.39	33.579	1.49	33.611			1.46	33.594	1.09	33.457	1.13	33.493	1.11	33.461
500m	1.64	33.683	2.19	33.767			1.64	33.700	1.70	33.736			1.83	33.691	1.53	33.623	1.45	33.611	1.33	33.540
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-6

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

Stn-prefix	199804		199804		199804		199804		199804		199804		199804		199804		199805		199805	
Station No	O46		O35		O36		O26		O25		S101A		S102A		S103A		WHK01		WSU01	
Latitude:N	45-10.1		44-49.9		45- 7.9		45- 9.9		44-59.9		45-31.0		45-35.0		45-40.0		45- 1.0		44-40.7	
Longitude:E	145-20.0		144-19.7		144-20.1		143-49.9		143-40.0		141-59.8		142- 0.0		142- 0.1		140-53.0		144- 1.5	
Date	1998/04/22		1998/04/22		1998/04/22		1998/04/22		1998/04/22		1998/04/23		1998/04/23		1998/04/23		1998/05/20		1998/05/26	
Time(JST)	08:08		13:20		15:08		17:24		20:24		10:22		11:30		13:08		18:07		09:13	
Weather	C		C		C		C		C		C		C		C		C		B	
Air Temp.	3.0		6.0		7.6		5.1		4.0		12.0		14.7		11.1				5.6	
Bar	1018.5		1019.5		1019.0		1019.5		1020.5		1015.5		1015.0		1014.0				1008.0	
Wind Dir	NW		SE		S		E		E		WSW		E		SW				WNW	
Wind Spd/F	S 3		S 3		S 4		S 3		S 5		S 5		S 3		S 7				S 2	
Transparency	10		10		9		8				6		10		15					
Depth	2786		152		791		351		171		26		41		57		62		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	0.6	32.330	1.8	32.321	2.1	32.295	2.2	32.222	2.1	32.445	7.0	32.702	6.8	33.936	5.4	34.141	8.4	34.04*	5.5	32.408
10m	0.42	32.322	1.14	32.299	1.13	32.313	0.79	32.223	1.67	32.429	6.38	32.970	4.90	33.981	4.30	34.117	8.18	34.044	5.20	32.396
20m	0.41	32.321	0.82	32.420	0.65	32.575	0.65	32.245	1.61	32.429	6.23	33.048	4.84	33.986	4.20	34.116	8.15	34.045	4.16	32.411
30m	0.37	32.329	-0.96	32.545	0.10	32.645	0.21	32.538	1.67	32.613			4.82	33.993	4.19	34.115	7.62	34.055	2.40	32.647
50m	-0.65	32.460	-0.61	32.765	-1.02	32.819	-0.61	32.792	0.31	32.906					4.19	34.114	6.15	34.064	-0.63	32.807
75m	-1.33	32.679	-1.14	32.937	-1.06	32.927	-1.20	32.899	-0.70	33.007									-0.93	32.967
100m	-1.50	32.851	-1.08	32.987	-1.03	32.960	-1.14	32.981	-0.27	33.115									-1.15	33.031
125m	-1.63	33.020	-1.17	33.030	-1.03	33.038	-1.63	33.026	1.52	33.630									-1.02	33.075
150m	-1.61	33.040			-1.03	33.044	-1.55	33.054	2.72	34.026									-0.46	33.159
200m	-1.28	33.089			-1.16	33.111	-0.48	33.182												
250m	-0.29	33.201			0.59	33.306	0.50	33.343												
300m	0.56	33.331			0.59	33.381	1.06	33.487												
400m	0.96	33.452			1.12	33.551														
500m	1.14	33.518			1.62	33.694														
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-7

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

Stn-prefix	199805		199805		199805		199805		199805		199806		199806		199806		199806		199806	
Station No	WSU02		WSU03		WSU04		WSU05		WSU06		J101		J102		J103		JA21		JA12	
Latitude:N	44-33.4		44-34.0		45- 6.5		45- 9.1		45-30.2		45-30.0		45-29.9		45-29.9		45- 0.0		44-59.9	
Longitude:E	144- 5.6		144- 7.3		143- 7.5		143- 0.6		142-50.0		141-40.2		141-25.0		141- 9.9		141-29.9		141-20.0	
Date	1998/05/26		1998/05/26		1998/05/27		1998/05/27		1998/05/27		1998/06/01		1998/06/01		1998/06/01		1998/06/01		1998/06/01	
Time(JST)	11:59		15:06		09:20		11:01		14:54		10:16		11:45		12:54		17:03		17:47	
Weather	B		B		F		F		F		BC		BC		BC		BC		C	
Air Temp.	8.1		8.7		4.9		6.3		6.0		9.0		8.1		8.3		9.2		8.5	
Bar	1010.1		1012.6		1021.6		1022.0		1021.0		1004.9		1005.0		1006.5		1008.5		1009.0	
Wind Dir	NNW		ENE		SE		SE		SE		E		E		E		ENE		ENE	
Wind Spd/F	S 4		S 2		S 5		S 4		S 6		S 12		S 12		S 11		S 10		S 13	
Transparency																				
Depth	210		227		132		129		119		53		114		130		65		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	5.3	32.408	5.2	32.408	4.1	32.438	4.8	32.495	4.0	32.448	12.5	33.163	10.1	34.097	9.0	34.041	11.2	33.927	10.6	33.849
10m	4.38	32.404	4.49	32.408	4.05	32.432	4.65	32.487	3.87	32.436	12.13	33.293	9.51	34.025	9.46	34.038	11.40	33.904	10.72	33.848
20m	3.24	32.459	3.32	32.482	3.25	32.521	4.46	32.486	3.52	32.437	11.28	33.546	9.22	34.028	9.04	34.047	9.55	33.931	8.91	34.015
30m	0.91	32.615	1.14	32.690	2.18	32.638	0.11	32.612	2.29	32.520	10.40	33.755	7.37	34.066	7.52	34.071	9.09	33.977	7.76	34.005
50m	-0.24	32.823	-0.36	32.827	-0.54	32.892	-1.27	32.965	0.92	32.834			6.02	34.093	6.69	34.090	7.26	33.985	7.19	34.072
75m	-0.53	32.983	-0.60	32.986	-1.22	33.013	2.63	33.598	-0.96	32.979			5.47	34.091	5.14	34.111			5.73	34.042
100m	-0.32	33.067	-0.68	33.044	-0.15	33.257	4.07	34.062	2.12	33.760			4.77	34.104	4.52	34.100				
125m	-0.36	33.099	-0.42	33.102																
150m	-0.21	33.147	-0.35	33.131																
200m	2.55	33.950	0.82	33.415																
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	JA13		JA14		JW13		JW14		JW15		JW16		J108		J107		J106		J105	
Latitude:N	45- 0.0		44-59.9		45- 0.0		44-59.9		45- 0.1		45- 0.1		45-30.0		45-29.9		45-30.0		45-29.8	
Longitude:E	141-15.0		141- 9.9		141- 0.0		140-40.0		140-20.1		140- 0.1		139-40.1		140- 0.0		140-19.9		140-39.9	
Date	1998/06/01		1998/06/01		1998/06/01		1998/06/01		1998/06/01		1998/06/01		1998/06/02		1998/06/02		1998/06/02		1998/06/02	
Time(JST)	18:17		18:44		19:29		20:56		22:30		23:57		04:00		08:10		09:53		11:31	
Weather	BC		BC		BC		BC		C		C		BC		BC		B		B	
Air Temp.	8.2		7.9		7.6		7.8		8.1		8.3		7.3		7.9		8.4		9.1	
Bar	1009.5		1010.5		1010.0		1013.2		1015.0		1016.5		1017.5		1019.0		1019.7		1020.0	
Wind Dir	ENE		ENE		ENE		ENE		ENE		ENE		NE		NNE		NNW		N	
Wind Spd/F	S 13		S 14		S 11		S 9		S 10		S 7		S 4		S 6		S 5		S 4	
Transparency																				
Depth	86		94		100		372		162		283		837		594		402		536	
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	33.968	9.9	33.967	9.7	34.029	10.2	34.004	10.2	33.993	9.8	34.017	8.1	34.035	8.5	34.043	8.5	34.049	8.8	34.061
10m	10.13	33.963	10.07	33.962	9.85	34.019	10.31	33.978	10.54	33.974	10.04	34.015	8.11	34.026	8.36	34.033	8.17	34.034	8.43	34.056
20m	9.40	33.983	9.67	33.981	9.34	34.032	9.37	33.993	10.49	33.976	10.01	34.018	5.91	34.083	6.85	34.062	6.59	34.069	8.19	34.061
30m	8.00	34.008	7.44	34.011	7.02	34.077	7.79	34.058	8.13	34.054	6.83	34.091	4.37	34.116	4.72	34.107	4.53	34.117	5.93	34.112
50m	6.98	34.034	6.80	34.080	5.92	34.094	6.01	34.096	5.81	34.099	5.16	34.118	3.36	34.110	3.58	34.120	3.64	34.132	4.32	34.115
75m	5.72	34.053	5.60	34.062	5.19	34.081	5.43	34.101	4.99	34.111	4.52	34.118	2.27	34.114	2.87	34.119	2.87	34.134	3.25	34.131
100m							5.02	34.108	4.45	34.116	3.87	34.119	1.97	34.110	2.14	34.115	2.68	34.133	2.72	34.128
125m							4.73	34.112	4.23	34.116	3.44	34.122	1.68	34.107	1.89	34.111	2.36	34.120	2.42	34.123
150m							4.24	34.117	4.15	34.115	2.59	34.113	1.36	34.097	1.60	34.103	2.01	34.110	2.06	34.114
200m							3.01	34.119			2.04	34.102	1.09	34.091	1.34	34.100	1.53	34.104	1.53	34.103
250m							2.16	34.114			1.65	34.097	0.91	34.086	1.04	34.090	1.07	34.090	1.10	34.090
300m							1.46	34.101					0.86	34.086	0.88	34.086	0.73	34.081	0.86	34.083
400m													0.59	34.078	0.63	34.079			0.52	34.075
500m													0.42	34.074	0.43	34.075			0.32	34.072
600m													0.34	34.073						
700m																				
800m																				
900m																				
1000m																				

Table 6-9

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	J104		JW03		JW02		JW01		JA02		JA01		S103		S102		S101		S300	
Latitude:N	45-30.1		45-45.1		45-45.0		45-44.9		45-43.5		45-42.1		45-40.0		45-34.9		45-31.0		45-26.9	
Longitude:E	140-53.1		141- 0.1		141-10.1		141-20.1		141-33.2		141-46.7		142- 0.1		142- 0.1		141-59.8		142- 7.8	
Date	1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02		1998/06/02	
Time(JST)	12:42		14:53		15:48		16:35		17:40		18:37		19:29		20:25		21:09		21:53	
Weather	BC		BC		BC		B		B		B		BC		B		B		B	
Air Temp.	10.5		12.9		14.5		14.9		13.4		11.5		9.8		9.2		8.6		8.2	
Bar	1019.5		1019.5		1019.5		1019.5		1019.5		1019.5		1020.0		1020.0		1020.1		1020.5	
Wind Dir	WSW		NNE		N		NE		CALM		CALM		SSE		SSE		SSE		S	
Wind Spd/F	S 3		S 3		S 1		S 1		S 0		S 0		S 2		S 4		S 5		S 4	
Transparency																				
Depth	434		497		123		126		112		69		56		41		23		25	
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	34.047	10.4	34.044	10.8	34.048	10.6	34.055	10.3	34.063	9.9	34.039	11.0	33.945	11.3	33.517	10.7	33.687	9.6	33.820
10m	9.58	34.043	9.32	34.038	9.54	34.038	8.43	34.048	8.54	34.041	9.08	34.034	8.45	34.060	9.97	33.789	11.02	33.694	9.80	33.817
20m	8.49	34.071	9.08	34.042	8.44	34.063	8.28	34.047	8.09	34.056	8.32	34.060	6.30	34.094	8.76	33.942			9.80	33.817
30m	6.86	34.101	7.30	34.079	7.13	34.097	6.64	34.093	6.66	34.090	6.85	34.100	5.89	34.089	8.60	33.954				
50m	5.94	34.102	6.07	34.097	6.08	34.086	5.67	34.103	5.76	34.109	5.17	34.117								
75m	5.08	34.107	5.36	34.107	5.39	34.110	4.87	34.114	4.50	34.112										
100m	4.69	34.109	4.92	34.109	4.12	34.126	4.29	34.116	4.34	34.110										
125m	3.94	34.125	4.48	34.113																
150m	3.62	34.123	4.23	34.114																
200m	2.61	34.124	2.59	34.125																
250m	2.06	34.112	1.49	34.103																
300m	1.20	34.096	1.18	34.092																
400m	0.52	34.076	0.66	34.080																
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-10

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	S301		S399		S302		OA10		S397		S404		S503		S402		S401		O15	
Latitude:N	45-29.7		45-32.2		45-34.7		45-30.0		45-30.1		45-30.0		45-19.5		45-12.4		45- 7.8		45-29.9	
Longitude:E	142-10.1		142-12.5		142-15.1		142-30.1		142-35.0		142-50.0		142-39.6		142-32.6		142-28.0		142-10.2	
Date	1998/06/02		1998/06/02		1998/06/02		1998/06/03		1998/06/03		1998/06/03		1998/06/03		1998/06/03		1998/06/03		1998/06/08	
Time(JST)	22:25		22:55		23:29		00:47		01:18		02:22		05:09		06:13		06:51		13:01	
Weather	B		B		B		C		C		BC		B		B		BC		BC	
Air Temp.	8.5		8.2		7.7		5.4		5.3		5.1		6.4		7.4		8.6		15.5	
Bar	1020.3		1020.5		1020.4		1020.5		1020.5		1021.0		1021.0		1021.0		1021.0		1021.5	
Wind Dir	SSE		SE		SE		S		S		S		SE		ESE		SE		ESE	
Wind Spd/F	S 4		S 4		S 4		S 4		S 4		S 4		S 3		S 4		S 6		S 5	
Transparency																			9	
Depth	35		43		48		83		84		118		96		61		31		36	
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	11.0	33.84*	9.8	33.72*	7.7	33.85*	4.1	33.087	5.6	32.552	5.8	32.359	5.8	32.468	8.6	33.984	10.8	33.658	12.9	33.758
10m	8.65	33.947	7.63	34.051	7.57	34.012	3.75	33.075	3.99	32.733	5.82	32.347	5.42	32.489	8.39	33.990	10.84	33.666	9.84	33.889
20m	8.40	33.965	7.25	34.056	6.79	34.055	3.47	33.426	3.27	33.392	5.10	32.385	-0.57	32.895	7.75	34.025	10.70	33.693	9.23	33.924
30m	8.34	33.968	7.21	34.055	6.46	34.062	3.42	33.626	2.79	33.521	3.40	32.497	0.62	33.083	6.92	34.028				
50m							2.74	33.746	3.21	33.755	-0.68	32.778	2.58	33.526	6.83	34.020				
75m											-1.10	33.003	3.50	34.001						
100m											2.17	33.670								
125m																				
150m																				
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	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	O14		OA05		OA04		OA03		OA02		O22		O23		O24		O25		O26	
Latitude:N	45-30.0		45-20.1		45-10.0		44-59.9		44-52.5		44-35.0		44-40.0		44-49.9		45- 0.1		45-10.0	
Longitude:E	142-50.0		143-20.0		143-10.0		143- 0.0		142-52.5		143-15.1		143-20.1		143-30.1		143-40.1		143-50.1	
Date	1998/06/08		1998/06/08		1998/06/08		1998/06/08		1998/06/08		1998/06/08		1998/06/09		1998/06/09		1998/06/09		1998/06/09	
Time(JST)	15:27		17:41		18:54		20:07		21:03		23:06		00:14		01:45		03:23		04:46	
Weather	BC		BC		BC		BC		BC		BC		F		C		C		C	
Air Temp.	20.4		20.6		14.7		11.9		11.1		10.2		9.8		10.2		9.5		9.1	
Bar	1022.0		1022.5		1023.0		1023.5		1023.0		1023.2		1023.0		1023.0		1023.0		1023.0	
Wind Dir	WNW		WNW		NNW		CALM		ENE		N		NE		NNW		NE		SE	
Wind Spd/F	S 2		S 1		S 2		S 0		S 2		S 1		S 1		S 1		S 1		S 3	
Transparency	8		9																8	
Depth	118		143		133		130		85		74		114		150		172		350	
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	32.346	10.8	32.254	10.5	32.278	9.1	32.524	8.8	32.842	8.5	33.791	9.5	32.842	9.2	32.594	8.1	32.599	8.4	32.433
10m	6.38	32.269	6.22	32.292	6.90	32.322	6.96	33.194	5.39	32.764	8.33	33.918	4.95	33.072	6.55	32.676	7.11	32.588	5.60	32.478
20m	4.18	32.231	5.80	32.314	5.44	32.370	4.56	33.404	5.69	33.445	8.08	33.946	4.20	33.485	4.35	32.783	2.44	32.652	4.64	32.561
30m	1.43	32.333	3.72	32.407	2.34	32.472	1.14	33.245	6.92	33.995	7.72	33.920	4.13	33.748	1.05	32.944	0.08	32.780	2.68	32.577
50m	0.89	32.889	-0.27	32.780	-0.76	32.717	2.78	33.946	6.97	34.016	7.53	33.930	4.28	33.994	-0.08	33.100	0.10	32.975	-0.41	32.747
75m	0.57	33.160	-0.77	32.961	-0.61	32.983	3.02	33.993	6.81	34.021			4.33	34.008	2.07	33.479	-0.56	33.050	-0.93	32.959
100m	2.37	33.834	-0.79	33.050	0.10	33.257	2.92	33.984					4.30	34.018	2.89	33.795	-0.20	33.124	-0.79	33.049
125m			0.53	33.419										2.95	33.898	0.13	33.205	-0.97	33.081	
150m																3.93	33.859	-0.91	33.116	
200m																		-0.56	33.189	
250m																		-0.19	33.246	
300m																		0.66	33.375	
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-12

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	O36		O46		O45		O44		O43		O42		O41		OA24		OA23		OA22	
Latitude:N	45- 7.9		45-10.1		44-59.9		44-50.0		44-39.9		44-30.1		44-22.1		44-30.0		44-20.0		44-10.1	
Longitude:E	144-20.0		145-20.0		145-19.9		145-19.9		145-20.0		145-19.9		145-20.1		144-50.0		144-49.9		144-50.2	
Date	1998/06/09		1998/06/09		1998/06/09		1998/06/09		1998/06/09		1998/06/09		1998/06/09		1998/06/09		1998/06/09		1998/06/10	
Time(JST)	07:40		12:08		13:49		15:08		16:32		18:29		19:38		21:47		23:12		00:53	
Weather	C		C		C		BC		C		BC		BC		BC		BC		BC	
Air Temp.	9.4		8.9		8.9		9.4		9.5		9.4		9.0		9.6		9.7		9.5	
Bar	1024.0		1024.5		1024.0		1023.5		1023.0		1022.5		1023.0		1023.5		1023.2		1023.5	
Wind Dir	S		S		S		S		SSE		SSE		SSE		SSW		SW		SW	
Wind Spd/F	S 4		S 7		S 6		S 7		S 10		S 11		S 8		S 7		S 8		S 4	
Transparency	7		9		8		8		9											
Depth	789		2780		2540		2212		2225		1651		144		1594		1089		591	
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	8.1	32.535	6.5	32.432	4.9	32.285	6.9	32.521	7.6	32.529	6.8	32.526	7.6	32.915	7.5	32.421	6.9	32.650	7.0	32.638
10m	6.89	32.561	6.12	32.428	4.54	32.281	6.78	32.524	6.95	32.529	6.42	32.523	7.05	32.911	7.28	32.419	6.77	32.650	6.88	32.632
20m	5.71	32.947	5.62	32.439	2.55	32.279	3.96	32.557	5.49	32.562	7.75	33.292	7.53	33.278	4.53	32.480	4.41	33.229	6.00	32.639
30m	3.18	32.909	4.02	32.441	1.40	32.313	0.82	32.758	3.57	32.851	4.62	33.092	7.86	33.391	1.30	32.701	5.92	33.620	3.33	32.799
50m	0.68	32.985	0.72	32.656	0.32	32.713	-0.21	32.912	1.09	33.026	6.51	33.634	7.92	33.596	0.22	32.876	3.12	33.421	1.73	33.046
75m	-0.05	33.053	-0.47	32.881	-0.48	32.892	-0.40	33.007	-0.82	33.036	1.44	33.208	7.00	33.596	-0.34	33.013	3.62	33.536	0.79	33.230
100m	-0.62	33.090	0.23	33.018	-0.58	32.976	-0.56	33.073	-1.31	33.048	0.48	33.139	5.48	33.539	0.07	33.111	3.68	33.569	2.64	33.458
125m	-0.38	33.135	0.06	33.077	-0.16	33.056	-0.51	33.114	-1.35	33.066	-1.14	33.062			-0.81	33.108	3.42	33.546	2.46	33.476
150m	0.05	33.185	-0.22	33.102	-0.26	33.103	-0.20	33.168	-0.73	33.123	-0.85	33.105			-0.55	33.150	3.69	33.599	2.46	33.507
200m	-0.14	33.238	0.51	33.224	0.53	33.224	0.54	33.306	0.74	33.317	-0.16	33.210			-0.09	33.244	3.00	33.561	2.47	33.557
250m	0.88	33.372	0.57	33.303	1.01	33.335	1.17	33.421	0.87	33.392	0.83	33.352			0.76	33.383	2.76	33.563	2.51	33.609
300m	1.04	33.442	0.84	33.389	1.29	33.441	1.46	33.493	1.00	33.453	0.96	33.428			1.14	33.483	1.11	33.472	1.89	33.594
400m	1.42	33.585	1.24	33.518	2.20	33.631	1.55	33.610	1.55	33.606	1.95	33.622			1.73	33.629	1.46	33.591	3.02	33.815
500m	1.78	33.731	1.75	33.657	1.76	33.675	1.84	33.719	1.96	33.755	3.15	33.848			1.75	33.704	1.84	33.718	3.05	33.844
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-13

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	OA21		OA20		O32		O33		O34		O35		OA14		OA13		OA12		OA11	
Latitude:N	44- 2.0		44- 5.0		44-10.0		44-20.1		44-30.1		44-50.0		44-40.0		44-30.0		44-22.4		44-17.5	
Longitude:E	144-50.2		144-20.1		144-20.2		144-19.8		144-19.9		144-19.9		144- 0.1		143-50.0		143-42.6		143-37.6	
Date	1998/06/10		1998/06/10		1998/06/10		1998/06/10		1998/06/10		1998/06/10		1998/06/10		1998/06/10		1998/06/10		1998/06/10	
Time(JST)	02:01		04:15		04:48		05:50		06:53		08:54		10:33		11:51		12:48		13:26	
Weather	BC		BC		BC		B		B		B		B		BC		BC		BC	
Air Temp.	9.3		10.9		10.9		11.3		11.7		14.3		15.0		11.0		14.1		14.5	
Bar	1023.0		1023.5		1023.5		1023.5		1023.5		1023.0		1022.5		1021.5		1021.0		1021.0	
Wind Dir	NE		SSE		S		SSW		SSW		SE		NE		ENE		NE		NE	
Wind Spd/F	S 1		S 1		S 3		S 3		S 1		S 1		S 3		S 3		S 3		S 3	
Transparency			7		11		11		9		10		12		8		9		8	
Depth	77		37		115		266		830		153		187		163		91		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	9.5	33.386	10.6	33.516	11.6	33.822	7.5	32.440	8.1	32.442	10.2	32.434	7.9	32.468	11.0	32.626	10.3	32.764	10.7	33.120
10m	8.83	33.321	10.67	33.578	10.24	33.839	7.23	32.442	7.09	32.439	6.70	32.422	6.69	32.468	7.04	32.776	6.25	33.072	10.23	33.738
20m	8.95	33.488	10.78	33.696	4.56	33.233	4.64	32.717	5.86	32.455	3.07	32.567	2.83	32.580	3.41	32.875	6.11	33.752	9.72	33.880
30m	9.08	33.612	8.77	33.716	4.61	33.593	2.18	32.837	3.15	32.696	2.70	32.738	0.79	32.778	0.45	32.923	6.99	33.954	9.53	33.891
50m	9.15	33.745			4.01	33.721	-0.23	32.996	-0.49	32.914	0.72	32.951	-0.91	32.990	0.04	33.106	6.23	33.955		
75m					4.19	33.769	-0.49	33.075	-0.77	33.009	-0.59	33.022	-0.84	33.071	1.97	33.564	6.05	33.966		
100m					4.19	33.772	-0.38	33.140	-1.05	33.057	0.01	33.109	2.33	33.442	3.71	33.967				
125m							0.37	33.225	-0.81	33.115	-0.65	33.132	4.66	33.832	3.72	33.996				
150m							0.14	33.239	-0.88	33.129			4.43	33.911	3.71	33.997				
200m							1.41	33.513	-0.03	33.233										
250m									0.48	33.323										
300m									1.07	33.437										
400m									2.23	33.683										
500m									2.39	33.793										
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-14

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	WSU01		WSU02		WSU03		WSU04		WSU05		WSU06		WSU07		WSU08		WSU09		WTP05	
Latitude:N	44-43.6		44-35.8		44-34.3		45-10.4		45- 3.4		44-59.8		45-26.2		45-25.8		45-15.4		45-30.7	
Longitude:E	143-59.8		144- 1.8		144- 5.3		143-12.5		143-19.3		143-28.9		142-47.3		142-55.6		142-56.0		141- 0.4	
Date	1998/06/16		1998/06/16		1998/06/16		1998/06/17		1998/06/17		1998/06/17		1998/06/18		1998/06/18		1998/06/18		1998/06/23	
Time(JST)	08:50		11:27		14:17		09:17		11:48		14:19		09:06		11:45		14:17		15:42	
Weather	C		C		F		C		C		C		C		C		C		BC	
Air Temp.	9.5		9.6		8.8		11.1		10.3		9.2		11.0		13.1		14.9		14.6	
Bar	1005.5		1005.0		1005.5		1007.0		1007.1		1007.7		1011.5		1012.0		1011.8		1021.0	
Wind Dir	NE		NE		NW		NNW		NW		NW		WNW		NW		N		SW	
Wind Spd/F	S 7		S 3		S 4		S 2		S 5		S 6		S 3		S 1		S 1		S 5	
Transparency																			17	
Depth	185		194		210		136		149		159		120		120		127		79	
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	7.3	32.688	7.5	32.828	7.4	32.732	9.1	32.542	8.7	32.533	7.7	32.502	9.4	32.143	9.0	32.228	9.3	32.437	13.5	33.981
10m	7.04	32.690	7.38	32.831	6.92	32.801	8.80	32.547	8.34	32.540	7.13	32.524	7.84	32.224	7.91	32.230	8.82	32.450	12.98	33.970
20m	2.26	32.677	6.63	32.925	4.25	33.010	1.08	32.723	2.33	32.775	3.07	32.624	4.37	32.188	6.29	32.277	5.16	32.416	12.45	33.990
30m	0.54	32.800	4.08	33.273	0.72	33.076	-0.09	32.842	0.49	32.842	0.39	32.726	2.09	32.377	3.88	32.297	0.83	32.521	10.83	34.034
50m	-0.66	32.970	1.76	33.209	0.38	33.120	-0.82	32.982	-0.85	32.963	-0.92	32.929	-0.73	32.772	1.22	32.590	-0.69	32.776	6.56	34.101
75m	-1.11	33.033	1.89	33.313	-0.25	33.119	-1.10	33.053	-0.87	33.072	-1.14	33.030	-0.78	32.991	-0.50	32.919	0.53	33.138	4.58	34.113
100m	-1.18	33.076	1.44	33.309	-0.10	33.159	-0.01	33.207	0.19	33.245	-0.83	33.093	4.19	33.838	1.70	33.474	4.17	33.946		
125m	-0.68	33.133	1.61	33.388	1.22	33.307	2.60	33.834	3.25	33.967	-0.49	33.184								
150m	1.60	33.388	1.82	33.448	1.42	33.362			3.16	33.933										
200m					2.91	33.813														
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-15

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

Stn-prefix	199806		199806		199806		199806		199806		199806		199806		199806		199806		199806	
Station No	WTP06		WTP02		WTP01		WTP04		WTP08		WTP09		WTP10		WTP11		WTP07		WTP03	
Latitude:N	45-28.9		45-30.1		45-40.1		45-39.9		45-40.0		45-30.0		45-20.1		45-10.1		45- 9.9		45-20.1	
Longitude:E	141- 0.3		141- 9.9		141- 9.9		141- 0.0		140-49.9		140-49.9		140-49.8		140-49.8		140-59.7		141-10.0	
Date	1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/23		1998/06/24	
Time(JST)	16:02		16:49		17:49		18:33		19:19		20:34		21:49		23:02		23:59		01:13	
Weather	BC		BC		BC		BC		BC		BC		BC		BC		BC		BC	
Air Temp.	14.9		17.7		16.2		14.7		13.9		13.4		13.4		13.8		13.8		13.6	
Bar	1020.5		1020.5		1020.0		1019.5		1019.5		1020.6		1020.9		1020.7		1020.5		1020.0	
Wind Dir	SW		SW		S		SSE		SSE		SSE		S		S		S		SSW	
Wind Spd/F	S 4		S 4		S 3		S 4		S 4		S 4		S 4		S 5		S 5		S 9	
Transparency	13		12		10															
Depth	41		128		124		220		751		621		554		394		120		94	
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	13.2	33.885	13.4	33.884	13.1	33.975	13.3	33.877	13.1	33.889	13.0	33.986	13.3	33.996	13.9	33.955	13.7	33.886	12.8	33.961
10m	12.78	33.915	12.56	33.905	12.79	33.962	13.19	33.883	12.90	33.924	12.83	33.998	12.78	34.002	13.53	33.913	13.32	33.888	13.33	33.966
20m	12.29	33.985	12.08	33.947	12.02	34.032	12.79	33.950	12.77	33.949	10.78	34.049	12.53	34.001	12.75	33.966	12.90	33.961	11.11	34.040
30m	11.37	34.026	8.47	34.104	10.21	34.059	10.22	34.072	10.74	34.062	7.58	34.094	8.70	34.133	8.99	34.086	12.42	33.978	7.77	34.084
50m			6.13	34.112	7.05	34.084	6.76	34.097	6.47	34.103	5.26	34.122	5.88	34.144	5.92	34.097	6.86	34.110	6.49	34.089
75m			4.92	34.114	5.67	34.104	5.51	34.105	5.40	34.108	4.19	34.127	4.79	34.126	5.20	34.111	4.39	34.130	5.54	34.098
100m			4.25	34.117	4.63	34.113	4.71	34.112	4.44	34.118	3.05	34.123	4.08	34.123	4.69	34.117	3.17	34.129		
125m							4.22	34.116	3.92	34.117	2.68	34.125	3.48	34.127	4.09	34.120				
150m							2.01	34.135	2.47	34.120	2.22	34.117	2.76	34.120	3.55	34.124				
200m							1.21	34.095	1.93	34.110	1.68	34.107	1.96	34.107	2.62	34.124				
250m									1.44	34.097	1.30	34.096	1.42	34.102	1.94	34.111				
300m									1.09	34.089	1.02	34.088	1.17	34.095	1.28	34.097				
400m									0.68	34.078	0.59	34.076	0.74	34.078						
500m									0.48	34.074	0.39	34.073	0.49	34.075						
600m									0.34	34.073	0.27	34.072								
700m																				
800m																				
900m																				
1000m																				

Table 6-16

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199807		199807		199807	
Station No	WEB01		WEB02		WEB03		WEB04		WEB05		WEB06		WEB07		WEB08		WEB09		WEB10	
Latitude:N	45-17.5		45-16.8		45-15.6		45-13.8		45-14.5		45-12.4		45-13.4		45-11.5		45-12.6		45-14.4	
Longitude:E	140-42.0		140-40.7		140-40.3		140-41.0		140-39.5		140-39.7		140-38.7		140-37.1		140-35.5		140-32.9	
Date	1998/07/06		1998/07/06		1998/07/07		1998/07/07		1998/07/08		1998/07/08		1998/07/09		1998/07/09		1998/07/10		1998/07/10	
Time(JST)	13:56		14:57		10:43		11:25		10:28		11:04		10:05		10:38		09:56		10:38	
Weather	B		C		C		C		R		R		C		C		C		C	
Air Temp.	18.9		18.7		19.2		19.2		17.8		17.7		17.7		17.2		15.2		15.3	
Bar	1016.0		1015.5		1016.0		1016.0		1007.5		1006.5		1001.5		1002.0		1005.5		1005.5	
Wind Dir	SSE		SSE		SSE		SSW		ESE		ESE		SE		ESE		NE		ENE	
Wind Spd/F	S 1		S 4		S 4		S 4		S 7		S 6		S 4		S 4		S 8		S 10	
Transparency																				
Depth	499		479		461				440		416		417		409		403		386	
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	16.1	33.83*	16.3	33.85*	16.3	33.79*	16.6	33.80*	16.5	33.80*	16.6	33.83*	16.4	33.72*	16.3	33.70*	16.1	33.72*	16.2	33.75*
10m	16.01	33.847	16.11	33.840	16.10	33.800	15.76	33.815	16.38	33.809	15.92	33.827	16.37	33.718	16.27	33.708	16.19	33.718	16.29	33.746
20m	15.14	33.856	14.99	33.891	13.73	34.012	12.64	34.032	13.32	34.025	13.72	33.975	14.05	33.975	14.40	33.945	15.44	33.786	13.37	34.010
30m	9.41	34.133	10.05	34.120	9.27	34.142	9.84	34.061	9.18	34.149	9.37	34.113	9.79	34.125	10.76	34.080	11.59	34.052	9.32	34.112
50m	6.36	34.112	6.67	34.100	6.71	34.103	6.96	34.130	6.39	34.129	6.43	34.117	6.69	34.117	6.52	34.125	6.34	34.138	6.22	34.138
75m	5.46	34.113	5.42	34.112	5.68	34.114	5.51	34.111	5.35	34.120	5.44	34.115	5.39	34.115	5.07	34.130	5.17	34.120	5.24	34.118
100m	4.96	34.115	4.96	34.114	4.93	34.119	4.99	34.117	4.77	34.118	4.84	34.117	4.97	34.113	4.43	34.123	4.63	34.119	4.83	34.116
125m	4.53	34.118	4.46	34.120	4.39	34.123	4.53	34.118	4.39	34.118	4.11	34.125	4.42	34.120	3.98	34.123	4.07	34.124	4.29	34.120
150m	3.95	34.124	3.97	34.124	3.87	34.122	3.85	34.123	3.41	34.127	3.43	34.125	3.68	34.126	3.36	34.125	3.32	34.126	3.56	34.123
200m	2.89	34.123	2.86	34.124	2.66	34.123	2.09	34.108	2.48	34.111	2.02	34.114	2.29	34.112	2.24	34.114	2.34	34.115	2.29	34.114
250m	2.12	34.118	1.98	34.115	1.86	34.112	1.61	34.106	1.73	34.109	1.45	34.103	1.67	34.104	1.59	34.105	1.65	34.105	1.52	34.101
300m	1.41	34.102	1.32	34.098	1.30	34.099	1.20	34.093	1.23	34.094	1.02	34.089	1.23	34.095	1.08	34.092	1.21	34.093	1.07	34.091
400m	0.71	34.080	0.67	34.080	0.65	34.081	0.62	34.077	0.64	34.078	0.48	34.075	0.52	34.078	0.52	34.076				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-17

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

Stn-prefix	199807		199807		199807		199807		199807		199807		199807		199808		199808		199808	
Station No	WEB11		WEB12		WEB13		WEB14		WEB15		WEB17		WEB16		J101		J102		J103	
Latitude:N	45-10.2		45- 8.5		45- 6.2		45- 5.6		45- 4.2		45- 1.3		45- 2.7		45-30.2		45-29.9		45-30.0	
Longitude:E	140-35.2		140-35.6		140-37.4		140-38.8		140-39.6		140-44.0		140-42.6		141-40.1		141-25.0		141-10.2	
Date	1998/07/11		1998/07/13		1998/07/13		1998/07/14		1998/07/14		1998/07/15		1998/07/15		1998/07/27		1998/07/27		1998/07/27	
Time(JST)	07:16		10:09		10:44		10:02		10:38		11:46		12:09		10:12		11:29		12:38	
Weather	B		BC		BC		BC		BC		BC		BC		C		C		C	
Air Temp.	14.2		14.2		13.6		17.5		17.5		19.1		19.1		16.7		17.3		16.9	
Bar	1010.0		1017.0		1016.0		1016.0		1016.0		1015.5		1015.5		1014.5		1014.5		1013.5	
Wind Dir	ENE		ESE		ENE		SSW		SSW		SW		SW		SSE		ENE		ESE	
Wind Spd/F	S 14		S 5		S 4		S 4		S 4		S 2		S 2		S 7		S 7		S 6	
Transparency																				
Depth	317				349		368		387		316		316		52		113		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	15.6	33.79*	16.1	33.87*	15.6	33.75*	15.9	33.82*	16.1	33.77*	17.2	33.97*	17.2	34.07*	16.0	33.812	16.2	33.843	16.4	33.807
10m	15.70	33.789	16.10	33.873	15.63	33.746	15.74	33.775	15.62	33.768	16.31	33.759	15.99	33.777	15.84	33.811	17.11	33.841	15.93	33.804
20m	15.61	33.797	15.94	33.859	15.53	33.750	15.30	33.788	15.32	33.801	16.14	33.809	15.71	33.813	14.22	33.875	10.16	34.093	15.80	33.814
30m	8.29	34.142	10.44	34.101	15.50	33.763	15.14	33.778	15.18	33.793	14.69	33.863	15.37	33.785	12.97	33.918	9.72	34.073	11.56	33.994
50m	6.10	34.127	6.80	34.131	7.49	34.142	8.72	34.136	8.90	34.129	8.96	34.040	9.07	34.091			8.64	34.063	8.51	34.085
75m	5.22	34.130	5.31	34.118	5.80	34.110	6.11	34.120	6.27	34.114	6.80	34.131	6.37	34.108			7.22	34.085	6.83	34.117
100m	4.47	34.121	4.57	34.123	5.04	34.121	5.10	34.123	5.24	34.126	5.40	34.127	5.34	34.112			6.06	34.102	5.74	34.108
125m	3.80	34.124	4.10	34.124	4.41	34.122	4.47	34.119	4.52	34.122	4.57	34.122	4.70	34.116					4.26	34.115
150m	3.25	34.121	3.45	34.125	3.75	34.125	4.03	34.122	4.04	34.123	4.25	34.120	3.99	34.124						
200m	2.09	34.107	2.34	34.112	2.17	34.116	2.33	34.107	2.59	34.118	3.14	34.122	2.92	34.120						
250m	1.46	34.101	1.38	34.096	1.45	34.099	1.45	34.100	1.33	34.098	1.78	34.110	1.56	34.105						
300m	1.07	34.090	0.91	34.084	0.94	34.084	1.03	34.087	0.93	34.084	1.23	34.090	0.96	34.084						
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-18

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	JW11		JA12		JW12		JA13		JW13		JW14		JW15		JW16		J108		J107	
Latitude:N	45- 0.0		44-59.9		44-59.9		44-59.9		45- 0.0		45- 0.0		44-59.9		45- 0.0		45-29.9		45-30.0	
Longitude:E	141-30.1		141-19.8		141-14.9		141- 9.9		140-59.9		140-40.0		140-20.1		140- 0.1		139-40.1		140- 0.0	
Date	1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/27		1998/07/28		1998/07/28	
Time(JST)	16:03		16:48		17:16		17:43		18:27		19:49		21:20		22:44		01:46		04:13	
Weather	C		C		C		C		C		R		R		R		C		C	
Air Temp.	18.7		18.0		17.8		17.3		17.5		18.0		17.1		16.9		16.3		16.1	
Bar	1011.5		1012.5		1012.0		1012.0		1011.5		1012.5		1013.0		1012.5		1013.5		1013.5	
Wind Dir	ENE		NNE		NE		ENE		ENE		ENE		ENE		ENE		E		E	
Wind Spd/F	S 9		S 7		S 10		S 10		S 7		S 3		S 9		S 7		S 5		S 4	
Transparency																				
Depth	64		81		85		93				370		153		228		820		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	19.7	33.123	17.9	33.842	18.0	33.744	17.6	33.805	18.0	33.814	18.6	33.804	17.9	33.817	18.5	33.849	16.3	33.905	17.0	33.921
10m	17.59	33.825	17.98	33.838	17.74	33.748	17.56	33.802	18.09	33.805	18.73	33.812	17.97	33.833	18.74	33.868	16.26	33.907	17.14	33.913
20m	12.76	33.948	14.15	33.941	15.03	33.918	17.15	33.811	17.61	33.808	17.31	33.845	16.07	33.877	16.04	33.876	16.22	33.903	11.73	34.094
30m	10.30	34.034	10.07	34.096	10.64	34.033	15.93	33.851	15.31	33.947	12.88	34.079	11.02	34.076	8.53	34.137	12.05	33.990	7.12	34.149
50m	8.76	34.055	7.94	34.122	7.94	34.090	9.62	34.108	10.76	34.178	9.14	34.092	8.79	34.115	4.70	34.137	4.48	34.121	5.03	34.138
75m					6.31	34.107	6.46	34.114	7.68	34.141	7.81	34.139	6.64	34.121	3.21	34.125	3.18	34.123	4.07	34.120
100m											6.10	34.120	4.81	34.121	2.57	34.117	2.46	34.113	3.19	34.116
125m											5.09	34.130	3.74	34.119	2.11	34.113	1.83	34.097	2.72	34.119
150m											3.89	34.121			1.88	34.100	1.47	34.089	2.37	34.119
200m											2.83	34.106			1.63	34.091	1.26	34.093	1.68	34.098
250m											2.07	34.106					0.97	34.083	1.27	34.089
300m											1.04	34.083					0.83	34.079	1.02	34.084
400m																	0.60	34.074	0.70	34.076
500m																	0.44	34.071	0.50	34.072
600m																	0.33	34.070		
700m																				
800m																				
900m																				
1000m																				

Table 6-19

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	J106		J105		J104		JW03		JW02		JW01		JA02		JA01		S103		S102	
Latitude:N	45-29.9		45-30.0		45-30.1		45-45.0		45-45.0		45-45.0		45-43.5		45-41.9		45-39.9		45-35.0	
Longitude:E	140-20.1		140-40.0		140-55.1		141- 0.1		141-10.1		141-19.8		141-33.0		141-46.5		142- 0.3		142- 0.2	
Date	1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28	
Time(JST)	05:54		07:24		08:42		10:18		11:15		12:05		13:17		14:14		15:07		15:51	
Weather	C		C		C		C		C		C		C		C		C		C	
Air Temp.	16.0		16.0		15.8		16.7		17.3		17.3		17.5		17.6		17.0		16.9	
Bar	1013.5		1014.5		1014.5		1014.5		1014.0				1014.5		1013.5		1013.3		1013.6	
Wind Dir	E		ENE		E		E		SE		ENE		ENE		E		E		E	
Wind Spd/F	S 6		S 8		S 8		S 5		S 2		S 3		S 4		S 4		S 4		S 6	
Transparency																				
Depth	397		550		119		490		122		128		111		70		54		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	17.3	33.905	17.7	33.885	17.0	33.813	17.6	33.828	16.7	33.816	16.9	33.837	16.8	33.802	16.8	33.811	17.3	33.799	16.9	33.823
10m	17.42	33.889	17.92	33.876	17.03	33.812	17.65	33.827	16.43	33.815	15.87	33.815	16.86	33.815	16.74	33.818	17.28	33.806	16.93	33.819
20m	13.88	34.005	17.37	33.841	17.02	33.811	17.33	33.836	14.00	33.906	15.20	33.864	16.79	33.867	16.05	33.835	15.66	33.851	11.26	34.006
30m	7.49	34.150	7.76	34.137	11.83	34.125	11.89	34.133	11.18	33.999	12.78	33.973	16.49	N.D.	12.50	33.964	8.96	34.104	10.67	33.998
50m	5.34	34.140	5.11	34.098	9.18	34.098	9.00	34.102	7.40	34.099	8.60	34.063	15.37	N.D.	7.33	34.110				
75m	3.91	34.125	3.45	34.091	7.07	34.112	6.86	34.127	6.37	34.090	7.50	34.071	11.95	N.D.						
100m	3.12	34.122	2.45	34.095	6.31	34.114	6.12	34.111	5.42	34.103	5.78	34.104	9.20	N.D.						
125m	2.45	34.111	2.11	34.100			5.28	34.119												
150m	2.16	34.104	1.88	34.103			4.42	34.117												
200m	1.54	34.094	1.40	34.092			3.67	34.118												
250m	1.23	34.088	1.30	34.089			2.06	34.111												
300m	0.98	34.084	1.05	34.085			1.30	34.094												
400m			0.70	34.076			0.77	34.078												
500m			0.49	34.071																
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-20

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	S101		S300		S301		S399		S302		OA10		S397		S404		S403		S402	
Latitude:N	45-30.9		45-26.8		45-29.9		45-32.4		45-34.9		45-29.8		45-30.1		45-29.9		45-20.0		45-12.4	
Longitude:E	142- 0.1		142- 8.1		142-10.0		142-12.5		142-15.0		142-30.0		142-35.1		142-50.0		142-40.1		142-32.7	
Date	1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/28		1998/07/29	
Time(JST)	16:29		17:09		17:42		18:16		18:48		20:18		20:46		21:52		23:56		00:59	
Weather	C		C		C		C		C		F		F		C		F		C	
Air Temp.	15.9		15.9		15.7		15.6		15.5		14.7		14.7		14.8		14.4		14.0	
Bar	1014.0		1014.0		1014.5		1014.5		1014.5				1015.0		1015.0		1015.0		1014.5	
Wind Dir	E		ESE		SE		E		E		ESE		E		E		ENE		ENE	
Wind Spd/F	S 5		S 5		S 1		S 5		S 5		S 1		S 2		S 2		S 4		S 4	
Transparency																				
Depth	25		20		36		43		48		82		84		118		95		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	13.8	33.917	15.8	33.843	16.7	33.815	16.9	33.736	17.4	33.861	12.1	32.609	14.4	32.266	14.2	32.203	14.3	32.216	13.5	33.162
10m	13.06	33.923	14.78	33.870	16.39	33.818	16.35	33.846	15.86	33.896	7.26	33.473	10.83	32.784	13.82	32.327	11.37	32.495	12.94	33.613
20m					12.03	33.987	11.79	33.998	8.75	34.095	6.00	33.758	6.56	33.729	10.82	32.417	4.61	32.854	13.31	33.719
30m							10.44	34.018	8.62	34.061	5.79	33.822	6.16	33.927	3.04	32.609	5.88	33.331	13.56	33.794
50m											5.95	33.878	6.09	34.009	0.18	32.840	5.77	33.555	12.51	33.929
75m											5.73	33.870	6.10	34.004	-0.61	33.038	6.22	34.018		
100m															0.36	33.294				
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	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	S401		OA05		OA04		OA03		OA02		O22		O23		O24		O25		O26	
Latitude:N	45-10.0		45-20.0		45- 9.9		44-59.9		44-52.4		44-35.0		44-40.1		44-50.0		44-59.9		45- 9.9	
Longitude:E	142-30.2		143-20.0		143-10.0		143- 0.1		142-52.6		143-15.1		143-20.1		143-30.1		143-40.0		143-50.0	
Date	1998/07/29		1998/08/03		1998/08/03		1998/08/03		1998/08/03		1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/04	
Time(JST)	01:23		20:07		21:18		22:28		23:22		01:22		02:14		03:36		05:04		06:21	
Weather	C		F		C		C		C		R		R		F		C		C	
Air Temp.	14.3		18.8		18.6		18.4		18.5		18.6		18.5		18.2		17.5		17.3	
Bar	1014.5		1014.0		1014.5		1014.0		1014.0		1013.5		1014.0		1014.0		1014.0		1014.3	
Wind Dir	ENE		SW		NNW		CALM		ENE		NE		E		NNE		NNE		ESE	
Wind Spd/F	S 4		S 2		S 1		S 0		S 2		F 1		F 1		F 2		S 2		S 1	
Transparency																	15		13	
Depth	47		143		132		130		83		73		113		148		171		350	
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	16.3	33.723	17.3	32.516	17.3	32.475	17.3	32.278	16.9	33.858	17.6	33.686	17.7	33.173	16.5	32.415	16.2	32.582	13.9	32.465
10m	15.24	33.852	12.73	32.883	14.45	32.465	14.41	32.288	15.34	33.880	15.66	33.863	15.02	33.436	12.39	32.735	11.40	32.790	8.37	32.713
20m	15.26	33.851	3.88	32.734	6.52	32.675	7.19	32.462	15.17	33.876	14.73	33.887	6.48	33.294	7.03	32.883	2.33	32.790	2.79	32.850
30m	15.21	33.858	2.63	32.919	2.60	32.771	2.20	32.752	15.14	33.876	14.18	33.900	5.52	33.545	4.23	33.070	1.38	32.924	1.27	32.826
50m			0.55	32.970	-0.20	32.931	5.55	33.516	14.15	33.902	12.03	33.958	5.54	33.720	1.87	33.369	0.91	33.039	0.66	32.961
75m			-0.40	33.034	0.43	33.087	5.18	33.655					6.51	33.984	2.34	33.565	-0.03	33.086	0.86	33.080
100m			-0.65	33.089	0.24	33.200	5.76	34.030					6.32	33.985	3.38	33.819	-0.27	33.113	-0.07	33.099
125m			-0.04	33.235											2.88	33.898	-0.15	33.171	-0.28	33.126
150m																	1.04	33.350	-0.28	33.162
200m																			0.20	33.260
250m																			0.70	33.355
300m																			1.42	33.536
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-22

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	O36		O46		O45		O44		O43		O42		O41		OA24		OA23		OA22	
Latitude:N	45- 7.9		45- 9.9		44-59.9		44-50.0		44-40.1		44-30.1		44-22.1		44-29.9		44-19.9		44-10.0	
Longitude:E	144-20.0		145-20.1		145-19.9		145-20.0		145-19.9		145-20.0		145-20.0		144-50.0		144-49.9		144-50.0	
Date	1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/04		1998/08/05	
Time(JST)	09:29		13:43		14:56		16:06		17:29		18:45		19:57		22:04		23:14		00:26	
Weather	F		BC		BC		BC		BC		BC		BC		C		C		BC	
Air Temp.	17.6		19.2		16.7		15.9		16.1		16.7		16.8		17.5		18.0		18.3	
Bar	1014.5		1014.0		1013.5		1012.7		1013.0		1012.3		1013.0		1013.0		1013.5		1013.0	
Wind Dir	SSE		SSE		ESE		SE		SSE		SSE		S		E		SSE		WNW	
Wind Spd/F	S 2		F 3		F 3		S 7		S 4		S 8		S 6		S 1		S 2		F 1	
Transparency	12		11		12		10		10											
Depth	793		2760		2569		2300		2200		1712		142		1569		1067		589	
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	15.9	32.678	15.8	32.722	15.1	32.734	13.6	33.006	14.8	32.835	15.8	32.680	16.0	33.654	15.3	32.593	15.9	32.706	16.8	33.098
10m	11.10	32.830	14.73	32.720	11.45	32.958	9.73	33.345	5.58	33.162	14.02	32.756	15.12	33.746	9.36	33.219	12.94	33.060	14.19	32.941
20m	8.53	32.980	10.05	33.077	4.88	33.406	4.65	33.372	3.49	33.241	6.78	33.090	14.43	33.792	6.89	33.538	3.91	33.169	8.84	32.905
30m	6.22	33.246	5.92	33.231	2.36	33.300	3.62	33.350	3.75	33.376	5.57	33.415	14.00	33.763	6.89	33.640	1.85	33.157	5.21	33.051
50m	4.85	33.323	3.45	33.334	1.36	33.294	1.44	33.236	1.80	33.277	4.40	33.406	12.47	33.735	2.89	33.311	0.40	33.151	3.36	33.190
75m	3.27	33.319	2.07	33.339	0.43	33.236	1.28	33.256	1.28	33.287	4.52	33.581	7.60	33.467	2.00	33.287	0.40	33.188	1.67	33.165
100m	1.95	33.303	1.90	33.392	1.50	33.349	1.37	33.311	2.40	33.421	5.00	33.698	7.14	33.680	1.43	33.270	1.61	33.329	1.64	33.247
125m	1.23	33.268	2.09	33.470	1.38	33.404	1.16	33.327	2.07	33.430	1.69	33.358	6.18	33.724	1.86	33.352	2.75	33.499	0.78	33.227
150m	2.75	33.446	2.35	33.539	1.90	33.497	1.21	33.367	1.40	33.399	0.89	33.308			1.71	33.372	3.96	33.661	0.80	33.252
200m	1.47	33.392	2.18	33.583	2.17	33.589	1.28	33.453	1.32	33.449	1.22	33.399			1.53	33.408	3.16	33.633	1.80	33.396
250m	0.69	33.328	2.41	33.678	2.35	33.660	2.17	33.595	1.62	33.518	1.78	33.506			1.35	33.453	2.40	33.601	2.73	33.563
300m	1.24	33.434	2.37	33.712	2.24	33.683	1.99	33.622	1.93	33.604	1.89	33.575			1.57	33.522	3.01	33.723	2.92	33.635
400m	1.91	33.613	1.85	33.740	2.13	33.751	2.48	33.775	1.91	33.686	2.92	33.794			1.93	33.656	3.05	33.816	2.27	33.693
500m	1.97	33.716	2.05	33.851	2.26	33.852	2.26	33.815	2.09	33.787	2.46	33.821			2.24	33.765	2.67	33.834	2.90	33.836
600m							2.10	33.928												
700m																				
800m																				
900m																				
1000m																				

Table 6-23

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

Stn-prefix	199808		199808		199808		199808		199808		199808		199808		199808		199808		199808	
Station No	OA21		O31		OA20		O32		O33		O34		O35		OA14		OA13		OA12	
Latitude:N	44- 2.0		44- 2.1		44- 5.1		44- 9.9		44-20.0		44-30.1		44-50.0		44-40.0		44-29.9		44-22.5	
Longitude:E	144-49.9		144-19.9		144-20.0		144-20.2		144-20.2		144-20.1		144-20.0		143-59.9		143-50.0		143-42.4	
Date	1998/08/05		1998/08/05		1998/08/05		1998/08/05		1998/08/05		1998/08/05		1998/08/05		1998/08/05		1998/08/05		1998/08/05	
Time(JST)	01:32		03:37		03:57		04:27		05:29		06:34		08:31		10:11		11:28		12:27	
Weather	BC		BC		BC		BC		BC		BC		C		C		C		BC	
Air Temp.	19.3		19.0		19.0		19.0		19.0		18.4		19.5		19.0		20.0		21.2	
Bar	1012.5		1012.5		1013.0		1012.6		1013.0		1013.2		1013.5		1013.5		1013.5		1013.0	
Wind Dir	SE		ESE		ESE		E		CALM		SSE		ESE		ESE		E		NNE	
Wind Spd/F	F 2				F 1		S 2		S 0		S 2		S 5		S 4		F 2		F 1	
Transparency							15		15		13		12		11		12		12	
Depth	78		34		36		114		268		830		152		187		163		89	
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	17.2	33.822	17.4	33.433	17.6	33.725	18.6	33.333	16.8	32.818	15.7	32.530	16.5	32.487	16.7	32.460	16.8	32.514	19.4	33.786
10m	15.62	33.852	16.82	33.781	16.62	33.616	17.64	33.828	10.54	32.724	10.14	32.632	6.88	32.698	7.08	33.075	13.91	N.D.	14.55	N.D.
20m	14.27	33.857	15.74	33.765	16.30	33.654	15.04	33.883	3.24	32.694	4.52	32.794	1.66	32.799	1.48	32.930	7.17	N.D.	13.91	N.D.
30m	14.20	33.845	14.73	33.799	15.28	33.730	14.31	33.875	1.49	32.796	1.50	32.914	1.00	32.904	0.89	32.972	4.12	N.D.	13.10	N.D.
50m	13.75	33.849					13.47	33.887	0.85	32.937	0.68	32.996	2.91	33.200	0.71	33.051	1.52	N.D.	11.43	N.D.
75m							11.97	33.916	0.94	33.094	0.78	33.141	2.57	33.280	0.38	33.107	0.33	N.D.	8.25	N.D.
100m							8.20	33.830	0.64	33.163	1.10	33.221	1.09	33.268	0.71	33.195	0.82	N.D.		
125m									0.27	33.178	0.99	33.268	1.21	33.286	0.62	33.222	3.17	N.D.		
150m									0.50	33.224	0.92	33.291			1.31	33.311	3.32	N.D.		
200m									1.04	33.334	1.04	33.355								
250m									2.08	33.611	1.25	33.440								
300m											1.50	33.514								
400m											1.97	33.675								
500m											2.01	33.772								
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-24

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

Stn-prefix	199808		199809		199809		199809		199809		199809		199809		199809		199809		199809	
Station No	OA11		AS103		AS102		AS101		AO15		AOA10		AO14		AO13		AO12		AO11	
Latitude:N	44-17.6		45-39.9		45-35.0		45-30.8		45-29.9		45-29.9		45-29.9		45-19.9		45-12.5		45- 7.9	
Longitude:E	143-37.5		142- 0.4		142- 0.2		141-59.8		142-10.1		142-30.1		142-50.0		142-40.0		142-32.5		142-28.0	
Date	1998/08/05		1998/09/07		1998/09/07		1998/09/07		1998/09/07		1998/09/07		1998/09/07		1998/09/07		1998/09/07		1998/09/07	
Time(JST)	13:10		11:25		12:00		12:29		13:12		14:33		15:54		17:07		18:00		18:34	
Weather	BC		C		C		C		C		C		BC		B		B		BC	
Air Temp.	20.6		18.2		17.7		17.5		17.4		17.3		19.6		16.8		17.3		17.6	
Bar	1013.0		1015.5		1014.5		1014.5		1014.5		1014.5		1014.5		1013.5		1013.5		1013.0	
Wind Dir	N		ESE		E		ESE		ESE		ESE		E		ESE		SSE		SE	
Wind Spd/F	F 2		S 10		S 11		S 9		S 10		S 7		F 6		F 3		F 4		F 5	
Transparency	16		18		17				10		10		11		12					
Depth	44		55		43		18		36		83		118		95		60		32	
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	33.847	19.2	33.96*	19.7	33.94*	18.6	33.99*	18.5	33.96*	14.0	33.83*	16.4	32.22*	13.6	32.81*	19.0	33.98*	18.2	33.95*
10m	16.75	33.847	19.18	33.957	19.97	33.941	17.93	34.028	18.52	33.959	13.37	33.916	16.67	32.188	12.79	32.905	18.13	33.983	18.22	33.947
20m	16.10	33.853	19.05	33.966	13.82	34.155			15.08	34.097	10.04	33.988	11.18	32.463	10.60	34.033	17.04	33.994	18.21	33.947
30m	15.99	33.844	10.06	34.181	13.13	34.126					8.11	33.965	3.30	32.664	9.59	34.079	16.65	34.000	18.05	33.948
50m			9.70	34.121							7.07	34.012	0.24	32.858	9.30	34.071	13.03	34.077		
75m											6.97	33.997	-0.82	33.079	7.54	34.030				
100m														3.85	33.566					
125m																				
150m																				
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-25

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809	
Station No	AOA02		AOA03		AOA04		AOA05		AO26		AO25		AO24		AO23		AO22		AOA11	
Latitude:N	44-52.5		44-59.8		45- 9.9		45-20.1		45- 9.9		44-59.9		44-49.9		44-39.9		44-34.8		44-17.9	
Longitude:E	142-52.5		143- 0.0		143-10.0		143-19.9		143-50.0		143-39.9		143-30.0		143-20.1		143-14.8		143-37.2	
Date	1998/09/07		1998/09/07		1998/09/07		1998/09/08		1998/09/08		1998/09/08		1998/09/08		1998/09/08		1998/09/08		1998/09/08	
Time(JST)	20:44		21:45		23:05		00:25		02:48		04:13		05:30		06:41		07:20		09:20	
Weather	BC		BC		BC		BC		BC		B		B		B		BC		BC	
Air Temp.	17.7		17.0		17.3		16.9		16.4		17.0		17.1		18.4		18.5		20.3	
Bar	1013.6		1013.5		1013.5		1013.5		1013.0		1013.0		1012.5		1012.5		1013.0		1012.7	
Wind Dir	ESE		ESE		ESE		ESE		SE		SSE		SSE		SE		SE		S	
Wind Spd/F	S 4		S 4		S 5		S 5		S 6		F 3		F 3		F 3		F 3		S 7	
Transparency													13		13		11		10	
Depth	83		127		133		144		340		173		150		111		68		47	
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	33.97*	15.8	33.45*	16.6	32.519	16.4	32.77*	15.9	32.64*	17.1	32.49*	18.0	32.66*	18.6	33.88*	18.1	33.94*	19.4	33.72*
10m	18.56	33.967	11.51	33.613	16.59	32.540	16.20	32.741	15.89	32.651	16.09	32.744	10.62	32.998	15.88	33.322	17.92	33.970	17.71	33.943
20m	18.02	33.932	8.82	33.905	4.79	32.572	6.36	32.652	3.74	32.886	7.41	33.433	5.45	33.223	11.51	33.291	17.77	33.972	17.17	33.936
30m	14.89	34.021	9.05	34.005	1.55	32.663	2.61	32.797	2.95	33.010	7.35	33.697	4.72	33.421	11.56	33.991	16.96	33.984	16.58	33.959
50m	11.58	34.023	8.56	33.974	1.57	32.983	0.47	32.966	1.84	33.072	3.61	33.341	2.39	33.285	11.00	33.988	15.82	33.987		
75m	11.43	33.987	8.08	33.976	-0.36	33.037	-0.71	33.026	1.44	33.116	1.23	33.161	0.74	33.187	10.61	34.001				
100m			3.79	33.548	1.25	33.208	-0.74	33.111	0.51	33.133	0.45	33.155	0.81	33.229	10.26	33.998				
125m					3.35	33.680	-0.16	33.210	0.37	33.153	0.75	33.214	1.16	33.319						
150m									0.39	33.163	0.81	33.274								
200m									0.75	33.258										
250m									0.83	33.326										
300m									1.00	33.374										
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-26

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809	
Station No	AOA12		AOA13		AOA14		AOA23		AOA24		AO35		AO34		AO33		AO32		AOA20	
Latitude:N	44-22.6		44-29.9		44-40.1		44-20.1		44-30.0		44-50.1		44-29.9		44-20.9		44-10.0		44- 5.0	
Longitude:E	143-42.8		143-50.0		143-59.9		144-49.9		144-49.9		144-19.8		144-19.9		144-20.2		144-20.0		144-19.7	
Date	1998/09/08		1998/09/08		1998/09/08		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09	
Time(JST)	10:00		10:56		12:08		01:14		02:39		05:24		07:28		08:40		09:45		10:19	
Weather	BC		BC		BC				C		R		R		R		R		R	
Air Temp.	20.4		19.4		20.1		18.6		18.1		17.2		17.1		17.4		18.0		18.5	
Bar	1012.7		1013.5		1013.0		1016.5		1016.5		1017.0		1018.0		1017.5		1017.2		1017.5	
Wind Dir	SSE		SSE		SSE		S		S		SSE		SSE				ESE		SE	
Wind Spd/F	S 9		S 11		S 8		S 6		S 6		F 4		F 3				S 6		S 4	
Transparency	11		11		13								11		10		11		10	
Depth	92		163		187		1086		1577		150		839		270		112		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	18.0	33.97*	16.9	32.65*	17.0	32.53*	15.1	32.98*	15.3	32.69*	15.5	32.98*	15.8	32.64*	16.7	32.78*	18.1	33.87*	17.9	33.45*
10m	17.82	33.973	16.66	32.645	13.86	32.683	14.98	32.979	15.19	32.690	10.81	33.692	15.38	32.691	11.12	33.012	17.69	33.964	18.03	33.713
20m	14.85	34.029	7.76	32.896	7.01	33.164	7.86	33.502	7.46	33.373	9.95	33.700	6.42	33.170	7.13	33.136	16.60	33.950	17.26	33.863
30m	14.11	34.014	3.81	32.963	4.46	33.232	6.59	33.571	8.86	33.839	8.59	33.618	4.22	33.158	3.56	33.112	14.41	33.895	16.92	33.880
50m	13.43	33.971	4.40	33.438	2.16	33.177	6.42	33.707	4.72	33.367	4.61	33.309	3.11	33.177	2.60	33.179	12.76	33.976		
75m	12.08	33.983	3.09	33.436	1.72	33.221	4.34	33.490	1.29	33.121	1.92	33.165	1.68	33.139	1.88	33.196	10.78	33.967		
100m			4.67	33.733	2.25	33.335	1.97	33.302	0.20	33.132	1.34	33.163	1.13	33.153	0.56	33.132	10.51	33.949		
125m			5.30	33.852	2.56	33.393	0.35	33.190	0.01	33.160	1.05	33.193	0.81	33.184	1.05	33.233				
150m			5.25	33.871	1.03	33.294	2.02	33.351	0.45	33.228			0.21	33.162	1.69	33.332				
200m							1.84	33.423	0.72	33.323			0.72	33.273	2.05	33.424				
250m							1.15	33.408	1.35	33.448			1.46	33.386	2.33	33.581				
300m							2.62	33.606	1.53	33.522			3.07	33.649						
400m							1.77	33.606	1.71	33.630			2.00	33.625						
500m							2.27	33.768	1.88	33.724			2.10	33.759						
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-27

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

Stn-prefix	199809		199809		199809		199809		199809		199809		199809		199809		199809		199809	
Station No	AO31		AOA21		AOA22		AO41		AO42		AO43		AO44		AO45		AO46		AO36	
Latitude:N	44- 2.1		44- 2.1		44-10.1		44-22.0		44-30.2		44-40.1		44-50.0		45- 0.0		45- 9.9		45- 8.0	
Longitude:E	144-20.0		144-50.1		144-50.0		145-20.7		145-20.0		145-19.9		145-19.9		145-20.0		145-19.8		144-19.9	
Date	1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/09		1998/09/10	
Time(JST)	10:43		12:38		13:25		15:37		16:21		17:31		18:40		20:21		21:33		01:29	
Weather	R		C		C		R		BC		BC		C		BC		BC		BC	
Air Temp.	18.4		17.9		18.7		18.5		18.3		17.9		16.9		16.6		16.8		16.5	
Bar	1018.0		1017.5		1016.5		1017.5		1017.5		1017.5		1017.5		1017.6		1017.6		1017.5	
Wind Dir	SSE		W		SSW		E		SE		SE		SSE		SSE		S		SSW	
Wind Spd/F	S 2		S 6		S 4		S 3		F 6		F 5		F 5		S 8		S 8		S 4	
Transparency	19		8		12		10		10											
Depth	34		78		597		123		1717		2165		2200		2580		2600		792	
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	33.61*	18.5	33.55*	17.0	33.43*	17.4	33.56*	17.7	33.70*	16.6	33.82*	14.6	32.76*	15.2	32.70*	16.1	33.16*	16.0	33.51*
10m	17.94	33.748	18.55	33.547	16.98	33.440	18.02	33.618	17.61	33.711	16.23	32.863	14.50	32.756	15.10	32.714	16.16	33.174	15.99	32.508
20m	17.47	33.865	18.16	33.617	17.06	33.557	17.36	33.676	16.97	33.715	7.67	33.637	6.16	32.893	7.60	33.181	16.42	33.399	9.23	32.920
30m			17.20	33.831	10.68	32.821	14.51	33.867	7.26	33.120	8.59	33.975	2.03	33.015	5.02	33.270	4.37	33.268	6.30	32.991
50m			14.64	33.929	9.05	33.796	12.29	33.991	7.67	33.834	3.97	33.415	2.28	33.137	2.63	33.263	2.79	33.291	2.32	33.087
75m					7.63	33.895	10.89	33.965	7.75	33.948	1.78	33.251	1.93	33.196	1.60	33.255	1.88	33.297	1.07	33.105
100m					7.23	33.910	9.35	33.896	7.52	33.950	3.13	33.440	0.21	33.143	1.59	33.295	1.26	33.293	0.89	33.147
125m					5.99	33.781			3.90	33.478	3.04	33.470	0.18	33.168	1.71	33.356	1.29	33.318	0.51	33.174
150m					5.30	33.716			2.15	33.313	2.30	33.413	0.48	33.225	1.47	33.370	1.42	33.366	0.44	33.209
200m					3.44	33.533			2.13	33.406	1.54	33.407	0.67	33.305	1.56	33.443	1.17	33.391	0.85	33.294
250m					2.46	33.498			2.18	33.508	3.14	33.626	0.67	33.365	1.62	33.498	1.56	33.486	1.14	33.381
300m					1.27	33.442			1.39	33.489	2.53	33.599	0.95	33.437	1.80	33.559	1.56	33.534	1.45	33.467
400m					3.08	33.739			1.89	33.616	2.06	33.666	1.69	33.604	2.20	33.689	2.20	33.706	1.92	33.659
500m					2.36	33.770			2.21	33.773	1.98	33.742	1.94	33.753	2.13	33.806	2.12	33.811	1.99	33.787
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-28

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	S103		S102		S101		O15		OA10		O14		O13		O12		O11		OA02	
Latitude:N	45-39.8		45-35.0		45-30.9		45-30.1		45-30.0		45-30.1		45-20.0		45-12.5		45- 8.0		44-52.4	
Longitude:E	142- 0.3		142- 0.0		142- 0.1		142-10.1		142-30.1		142-50.0		142-39.9		142-32.4		142-28.0		142-52.5	
Date	1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28		1998/09/28	
Time(JST)	11:21		11:52		12:19		12:58		14:07		15:25		16:38		17:31		18:05		20:06	
Weather	B		B		B		B		B		B		BC		BC		BC		BC	
Air Temp.	19.2		18.9		18.4		19.1		20.6		19.9		15.6		15.7		15.4		15.1	
Bar	1024.5		1024.0		1024.0		1023.5		1023.5		1023.5		1024.5		1024.5		1025.0		1026.0	
Wind Dir	WNW		W		W		W		W		WNW		W		WSW		SW		S	
Wind Spd/F	S 3		S 4		S 7		S 7		S 8		S 5		F 4		F 3		F 3		S 4	
Transparency	30		26		13		11		8		13		6							
Depth	58		40		25		36		82		118		95		60		31		83	
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	18.3	33.972	18.5	33.961	17.9	33.892	17.9	33.900	11.6	32.727	14.0	32.276	11.4	33.527	17.1	34.019	17.5	33.927	16.3	33.997
10m	18.04	33.969	17.89	33.963	17.94	33.877	17.86	33.880	9.79	33.841	13.08	32.302	10.86	33.857	17.60	33.964	17.76	33.915	16.42	34.007
20m	11.14	34.199	16.45	34.025			17.79	33.883	9.33	34.097	11.24	32.440	8.90	33.892	17.03	33.989	17.76	33.916	16.42	34.008
30m	10.58	34.159	16.35	34.023					9.34	34.107	7.49	32.615	8.31	33.921	16.10	34.022			16.42	34.008
50m									9.25	34.113	2.22	32.801	8.34	34.008	16.02	34.013			16.19	34.015
75m									9.22	34.112	-0.42	33.085	8.35	34.050					13.99	34.038
100m											1.46	33.297								
125m																				
150m																				
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-29

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	OA03		OA04		OA05		O26		O25		O24		O23		O22		OA11		OA12	
Latitude:N	45- 0.0		45-10.0		45-20.1		45-10.0		44-59.9		44-49.9		44-40.0		44-34.9		44-17.5		44-22.2	
Longitude:E	142-59.9		143- 9.8		143-19.8		143-50.1		143-39.9		143-30.0		143-19.9		143-15.0		143-37.4		143-42.6	
Date	1998/09/28		1998/09/28		1998/09/28		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29	
Time(JST)	21:08		22:28		23:43		02:28		04:07		05:28		06:46		07:27		09:24		10:04	
Weather	BC		BC		BC		B		B		B		B		B		B		B	
Air Temp.	14.7		13.9		13.1		12.2		12.3		12.4		14.0		15.0		14.9		16.9	
Bar	1026.5		1026.1		1026.3		1026.5		1026.5		1027.0		1027.5		1027.5		1027.6		1027.6	
Wind Dir	WSW		CALM		SSE		SE		SE		S		SSE		S		SE		ESE	
Wind Spd/F	S 5		S 0		S 1		S 1		F 2		F 2		F 2		F 2		S 3		S 1	
Transparency													7						18	
Depth	128		131		141		347		170		148		111		71		47		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	13.1	32.480	12.8	32.577	11.7	32.748	12.0	32.761	12.2	32.722	13.1	33.007	12.6	33.662	15.9	34.015	17.3	33.249	16.5	34.000
10m	12.73	32.642	12.69	32.576	10.92	32.782	11.71	32.989	11.32	33.022	12.76	33.040	11.58	33.948	15.89	34.004	17.72	33.700	15.89	33.990
20m	13.40	33.189	11.23	32.773	9.12	32.830	10.10	32.963	10.03	33.175	12.15	33.357	11.71	34.061	15.84	34.005	17.63	33.772	15.58	33.990
30m	10.01	33.074	5.92	33.018	5.47	32.933	7.33	33.009	8.24	33.198	9.78	33.421	11.57	34.069	15.81	34.005	16.52	33.983	15.14	33.996
50m	7.95	33.951	3.56	33.378	1.63	33.137	2.58	33.156	1.84	33.174	3.51	33.380	10.86	34.072	15.73	34.005			14.40	34.005
75m	6.50	33.863	1.34	33.279	1.10	33.177	0.76	33.142	0.86	33.157	3.06	33.451	10.63	34.076					12.94	34.042
100m	5.53	33.734	3.05	33.463	-0.10	33.192	0.38	33.149	-0.05	33.143	2.18	33.414	9.74	34.074						
125m					0.30	33.231	0.27	33.165	0.27	33.199	2.92	33.567								
150m							0.43	33.231	0.57	33.259										
200m							0.68	33.304												
250m							1.31	33.473												
300m							1.65	33.601												
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-30

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	OA13		OA14		O35		O36		O46		O45		O44		O43		O42		O41	
Latitude:N	44-29.8		44-40.0		44-50.0		45- 8.0		45- 9.9		44-59.9		44-49.9		44-39.9		44-29.9		44-22.0	
Longitude:E	143-50.2		143-59.9		144-19.9		144-19.7		145-19.9		145-20.1		145-20.0		145-20.0		145-20.0		145-20.2	
Date	1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/29		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30	
Time(JST)	11:00		12:24		14:09		16:14		23:29		00:43		01:58		03:11		04:24		05:28	
Weather	B		B		B		B		B		B		B		B		BC		BC	
Air Temp.	20.0		23.2		24.0		19.4		12.6		12.8		12.4		12.4		13.5		14.4	
Bar	1027.5		1027.5		1027.0		1027.0		1027.5		1027.0		1027.0		1027.0		1027.0		1027.0	
Wind Dir	ESS		SSE		S		S		SE		ENE		CALM		CALM		S		SE	
Wind Spd/F	S 1		S 3		S 2		F 2		S 1		S 2		S 0		S 0		F 1		F 2	
Transparency	10		15				9													
Depth	158		187		152		793		2780		2560		2225		2182		1613		135	
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	33.392	13.2	32.844	13.9	32.674	13.5	32.793	13.3	32.813	12.9	32.839	12.7	32.907	13.2	33.122	16.1	33.679	17.4	33.429
10m	10.24	33.294	11.75	33.182	11.83	32.760	11.68	32.789	13.14	32.803	12.00	32.910	12.43	33.047	12.42	33.091	15.71	33.538	17.49	33.432
20m	9.91	33.710	10.37	33.221	10.74	32.849	8.58	32.863	12.13	32.858	11.59	32.961	7.96	32.966	11.20	33.538	14.01	33.189	17.46	33.476
30m	10.06	34.051	7.57	33.585	6.40	33.032	5.30	33.024	6.82	33.195	10.53	33.068	3.85	33.166	7.98	33.693	13.86	33.355	16.42	33.814
50m	9.37	34.033	3.74	33.378	2.08	33.172	3.51	33.231	2.75	33.331	2.73	33.310	2.07	33.161	1.73	33.128	9.92	33.547	15.22	33.945
75m	8.36	34.036	3.12	33.417	1.40	33.171	2.04	33.152	1.66	33.343	1.46	33.266	1.04	33.158	4.68	33.567	7.82	33.857	14.25	33.958
100m	7.81	34.029	1.82	33.345	1.01	33.199	1.41	33.181	1.73	33.390	1.57	33.315	0.64	33.199	2.05	33.326	6.48	33.772	13.34	33.961
125m	4.65	33.677	2.67	33.446	0.79	33.225	1.13	33.203	1.78	33.432	1.18	33.321	2.68	33.410	3.18	33.454	2.35	33.358	11.19	33.977
150m	3.24	33.605	1.68	33.374			0.72	33.218	1.78	33.457	1.22	33.345	1.15	33.309	1.62	33.336	1.04	33.223		
200m							0.79	33.293	1.80	33.509	1.56	33.437	1.06	33.347	1.11	33.346	2.36	33.368		
250m							1.36	33.401	1.87	33.568	1.89	33.525	1.18	33.425	1.80	33.483	1.19	33.322		
300m							1.22	33.442	1.90	33.639	1.82	33.572	1.44	33.500	2.01	33.558	1.38	33.418		
400m							2.04	33.659	2.04	33.746	2.17	33.720	1.75	33.616	1.75	33.621	2.07	33.678		
500m							2.14	33.797	2.05	33.871	2.06	33.825	1.95	33.724	1.96	33.729	2.12	33.841		
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-31

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	OA24		OA23		OA22		OA21		O31		OA20		O32		O33		O34		WTC01	
Latitude:N	44-30.0		44-20.1		44-10.1		44- 2.1		44- 2.0		44- 5.0		44-10.0		44-20.0		44-30.0		43- 3.9	
Longitude:E	144-49.9		144-50.0		144-50.1		144-50.2		144-20.0		144-19.9		144-20.0		144-20.0		144-20.2		140-16.6	
Date	1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/09/30		1998/10/08	
Time(JST)	07:38		08:52		10:09		11:10		13:05		13:28		14:00		15:01		16:07		09:12	
Weather	B		BC		BC		BC		BC		BC		BC		BC		BC		C	
Air Temp.	17.5		16.5		17.2		18.2		18.4		17.6		18.5		17.1		16.3		18.1	
Bar	1027.0		1026.9		1026.3		1025.5		1024.5		1024.5		1024.5		1024.5		1024.0		1014.0	
Wind Dir	SSE		SW		N		NNE		ENE		ENE		ENE		ENE		ENE		ESE	
Wind Spd/F	F 1		S 2		S 1		S 3		S 5		S 4		S 5		S 5		F 2		S 6	
Transparency	19		18		14		18		4		6		7		8		10		15	
Depth	1573		1077		590		78		33		36		111		265		878		430	
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	33.931	15.5	33.557	18.5	33.878	18.2	33.856	18.2	31.411	17.9	32.723	17.7	31.632	14.2	33.262	14.4	33.134	19.4	33.505
10m	11.90	33.220	14.08	33.766	17.76	33.868	17.64	33.843	17.29	33.239	17.21	33.369	17.61	33.791	13.33	33.419	12.31	33.107	19.54	33.494
20m	10.36	33.343	9.45	33.832	17.46	33.903	17.49	33.885	17.37	33.522	17.14	33.696	16.33	33.978	9.69	33.817	10.84	33.203	19.08	33.701
30m	7.43	33.342	9.51	34.028	16.97	33.955	17.03	33.956					16.01	33.994	9.89	34.047	9.26	33.499	18.86	33.728
50m	6.77	33.750	9.02	34.006	16.07	33.993	15.75	33.996					15.56	33.973	9.46	34.027	7.42	33.870	18.69	33.853
75m	3.26	33.436	7.60	33.876	13.72	34.022							14.08	33.992	8.48	33.953	4.50	33.565	10.39	34.253
100m	2.29	33.382	5.73	33.697	10.72	34.024							11.26	34.047	2.37	33.260	3.17	33.443	5.87	34.169
125m	3.20	33.507	5.54	33.763	9.91	34.046									1.07	33.251	3.08	33.461	4.65	34.131
150m	1.97	33.413	4.24	33.612	7.62	33.865									2.71	33.445	2.25	33.398	3.26	34.115
200m	1.03	33.384	2.81	33.487	2.54	33.399									2.08	33.427	1.60	33.371	2.16	34.096
250m	2.35	33.564	2.66	33.544	2.54	33.460									1.85	33.498	1.89	33.477	1.71	34.092
300m	2.43	33.627	2.02	33.533	2.39	33.533											1.94	33.544	1.32	34.088
400m	1.87	33.660	1.91	33.622	1.41	33.576											1.82	33.638	0.77	34.079
500m	2.05	33.795	1.95	33.769	2.07	33.772											2.07	33.767		
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-32

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	WTC02		WTC03		WTC06		WTC07		J11		J12		J13		JW01		JW02		JW03	
Latitude:N	41-58.8		42-20.1		43-20.4		43-50.2		45-30.1		45-30.1		45-30.0		45-45.0		45-45.1		45-45.0	
Longitude:E	140- 1.3		139-39.6		140- 7.5		140-55.4		141-40.0		141-25.0		141-10.2		141-20.0		141-10.2		141- 0.1	
Date	1998/10/12		1998/10/12		1998/10/13		1998/10/19		1998/10/27		1998/10/27		1998/10/27		1998/10/27		1998/10/27		1998/10/27	
Time(JST)	08:17		13:21		11:28		16:05		10:12		11:33		12:49		14:28		15:46		17:05	
Weather	B		B		C		C		BC		BC		BC		BC		BC		BC	
Air Temp.	16.3		20.8		18.8		14.7		13.8		12.4		12.8		13.8		12.6		12.6	
Bar	1031.0		1029.0		1027.0		1010.0		1020.5		1021.0		1019.0		1018.5		1018.0		1017.9	
Wind Dir	ESE		WSW		SSE		ENE		SW		SW		SW		WSW		SW		SW	
Wind Spd/F	S 2		S 6		S 4		S 6		S 15		S 10		S 10		S 12		S 10		S 10	
Transparency	18		15		20		18		5		10		15		16		15			
Depth	722		697		528		452		54		112		127		125		123		494	
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	33.299	20.6	33.33*	18.9	33.546	17.6	33.609	15.8	33.680	15.7	33.925	15.4	33.965	15.3	33.965	14.9	33.952	15.4	33.937
10m	20.64	33.294	20.74	33.337	18.93	33.533	17.78	33.588	15.78	33.668	15.74	33.911	15.51	33.935	15.48	33.948	15.22	33.930	15.53	33.933
20m	20.65	33.308	20.43	33.338	18.89	33.533	17.25	33.725	15.92	33.738	15.74	33.911	15.51	33.935	15.49	33.948	15.22	33.930	15.53	33.934
30m	20.66	33.315	20.24	33.320	18.89	33.543	15.92	33.933	15.99	33.802	15.75	33.911	15.51	33.935	15.49	33.948	15.22	33.930	15.52	33.939
50m	20.27	33.403	15.00	34.129	16.26	34.162	11.12	34.215			15.67	33.929	15.10	33.999	14.17	34.076	15.19	33.933	13.29	34.182
75m	15.88	34.145	6.82	34.191	11.77	34.244	8.15	34.180			10.52	34.174	11.39	34.196	11.00	34.182	10.76	34.184	10.60	34.174
100m	11.29	34.228	5.48	34.142	9.68	34.185	6.21	34.150			8.03	34.143	9.39	34.173	9.33	34.170			9.44	34.167
125m	9.12	34.183	4.62	34.121	7.96	34.166	4.78	34.125							7.93	34.409			7.79	34.155
150m	6.88	34.155	4.02	34.110	6.15	34.146	3.49	34.114											5.41	34.141
200m	3.95	34.113	2.74	34.093	3.21	34.108	2.24	34.099											2.92	34.114
250m	2.89	34.092	1.89	34.086	2.04	34.095	1.49	34.086											2.05	34.098
300m	1.72	34.086	1.38	34.082	1.54	34.089	1.09	34.081											1.37	34.093
400m	0.79	34.077	0.75	34.075	0.93	34.081	0.71	34.075											0.81	34.079
500m	0.60	34.073	0.51	34.071	0.48	34.072														
600m	0.49	34.071	0.39	34.071																
700m																				
800m																				
900m																				
1000m																				

Table 6-33

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199810		199810	
Station No	J14		J15		J16		J17		J18		JW15		JW16		J27		J26		J25	
Latitude:N	45-30.0		45-30.1		45-29.9		45-30.1		45-30.2		45- 0.0		45- 0.2		44-30.1		44-30.1		44-29.9	
Longitude:E	140-53.0		140-40.0		140-19.9		140- 0.1		139-40.1		140-20.1		139-59.8		139-29.9		139-59.9		140-19.8	
Date	1998/10/27		1998/10/27		1998/10/27		1998/10/28		1998/10/28		1998/10/28		1998/10/28		1998/10/28		1998/10/28		1998/10/28	
Time(JST)	19:44		21:10		23:04		00:43		02:46		06:53		08:20		12:02		14:06		15:38	
Weather	BC		BC		BC		BC		BC		C		C		BC		BC		BC	
Air Temp.	12.4		12.3		12.0		11.8		11.7		11.8		12.5		13.2		18.4		20.4	
Bar	1018.1		1017.0		1016.9		1015.0		1014.0		1014.0		1014.5		1014.1		1014.0		1014.5	
Wind Dir	SW		SW		SW		SW		WSW		W		W		WNW		W		WSW	
Wind Spd/F	S 11		S 9		S 9		S 6		S 3		S 1		S 1		S 2		S 2		S 2	
Transparency											16		15		15		17		16	
Depth	435		544		398		588		827		158		415		518		567		262	
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	33.954	15.1	33.982	14.7	33.865	13.0	33.952	12.2	33.894	15.9	33.864	14.2	33.892	13.1	33.988	15.8	33.774	15.6	33.771
10m	15.56	33.944	15.30	33.974	15.02	33.856	13.20	33.930	12.38	33.873	16.06	33.860	15.16	33.892	12.63	33.978	15.61	33.760	15.59	33.762
20m	15.57	33.944	15.31	33.974	15.01	33.856	13.20	33.930	12.37	33.872	16.06	33.861	14.96	33.899	12.56	33.973	15.22	33.815	15.54	33.767
30m	15.57	33.944	15.31	33.974	13.88	33.948	9.55	34.113	7.15	34.076	15.98	33.883	14.82	33.901	12.31	33.979	14.17	34.024	14.91	33.846
50m	15.56	33.946	12.45	34.220	10.09	34.173	5.50	34.153	3.17	34.122	12.45	34.177	9.58	34.166	4.50	34.152	10.52	34.190	13.30	34.092
75m	11.13	34.186	10.45	34.165	8.76	34.163	3.90	34.125	2.26	34.109	10.06	34.177	6.61	34.155	3.28	34.116	8.00	34.175	9.99	34.177
100m	9.91	34.163	9.55	34.160	6.23	34.150	3.13	34.114	1.90	34.098	9.04	34.155	5.13	34.129	2.53	34.107	5.63	34.140	8.27	34.162
125m	7.88	34.163	8.09	34.159	5.16	34.132	2.48	34.110	1.65	34.096	6.17	34.151	3.65	34.112	2.20	34.099	4.34	34.119	6.55	34.148
150m	6.49	34.145	6.99	34.148	3.75	34.122	1.93	34.096	1.40	34.093			2.82	34.103	1.77	34.091	3.25	34.109	5.68	34.134
200m	3.83	34.113	4.49	34.127	2.29	34.105	1.39	34.091	1.06	34.086			1.78	34.092	1.34	34.087	2.06	34.097	3.26	34.111
250m	1.86	34.098	3.01	34.110	1.41	34.092	1.12	34.087	0.89	34.082			1.53	34.086	1.14	34.086	1.33	34.085		
300m	1.16	34.088	1.63	34.095	0.92	34.084	0.94	34.085	0.78	34.079			1.08	34.082	0.96	34.085	1.05	34.081		
400m			0.91	34.082			0.74	34.080	0.58	34.075			0.72	34.076	0.70	34.077	0.62	34.074		
500m			0.40	34.071			0.50	34.073	0.42	34.072							0.33	34.070		
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-34

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

Stn-prefix	199810		199810		199810		199810		199810		199810		199810		199810		199811		199811	
Station No	J24		J23		J22		J21		JW11		JW12		JW13		JW14		WTP01		WTP04	
Latitude:N	44-30.1		44-30.1		44-30.1		44-30.0		45- 0.1		45- 0.1		45- 0.0		45- 0.0		45-40.0		45-40.1	
Longitude:E	140-39.9		141- 0.0		141-15.0		141-30.0		141-30.0		141-15.1		141- 0.1		140-40.1		141- 9.9		141- 0.0	
Date	1998/10/28		1998/10/28		1998/10/28		1998/10/28		1998/10/28		1998/10/29		1998/10/29		1998/10/29		1998/11/16		1998/11/16	
Time(JST)	17:07		18:27		19:32		20:33		23:12		00:16		01:18		03:06		12:41		13:38	
Weather	BC		BC		BC		BC		BC		BC		BC		BC		BC		BC	
Air Temp.	15.3		13.8		13.5		13.6		13.5		13.3		12.9		12.0		3.6		2.9	
Bar	1015.0		1015.0		1015.0		1015.1		1015.0		1014.0		1013.9		1013.0		1015.0		1015.0	
Wind Dir	SW		SW		SW		SW		SW		SW		SW		WSW		WNW		WNW	
Wind Spd/F	S 4		S 4		S 6		S 7		S 8		S 6		S 7		S 5		S 5		S 5	
Transparency																	18		13	
Depth	141		198		117		78		65		85		98		367		124		226	
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	33.717	15.5	33.565	16.5	33.526	16.1	33.699	16.0	33.898	15.8	33.868	14.8	34.014	15.4	33.878	11.4	34.022	12.1	34.006
10m	15.83	33.713	16.78	33.643	16.84	33.642	16.17	33.694	16.14	33.882	16.15	33.860	15.37	33.961	15.95	33.858	11.72	34.007	12.39	33.996
20m	15.63	33.755	16.63	33.680	16.82	33.646	16.33	33.798	16.16	33.891	16.11	33.863	15.37	33.965	15.95	33.857	11.69	34.009	12.39	33.999
30m	15.07	33.832	16.63	33.685	16.73	33.660	16.31	33.819	16.13	33.895	16.14	33.893	15.29	33.981	15.95	33.857	11.67	34.007	12.38	34.002
50m	13.66	33.978	16.57	33.840	16.65	33.673	16.27	33.843	16.04	33.904	15.22	34.033	13.95	34.122	15.36	33.957	11.65	34.014	12.34	34.004
75m	10.62	34.177	12.14	34.232	12.91	34.190							10.88	34.166	11.32	34.186	10.76	34.150	11.78	34.123
100m	8.52	34.169	8.75	34.176	8.47	34.180									9.51	34.167	8.60	34.148	9.61	34.171
125m	6.82	34.152	6.42	34.154											6.91	34.156			8.44	34.159
150m			3.98	34.123											4.75	34.137			6.78	34.143
200m															2.70	34.108			2.52	34.110
250m															1.49	34.094				
300m															0.98	34.083				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199811		199811		199811		199811		199811		199811		199811		199811		199811		199812	
Station No	WTP08		WTP06		WTP05		WTP09		WTP10		WTP11		WTP07		WTP03		WTP02		J101	
Latitude:N	45-40.0		45-28.0		45-32.3		45-30.2		45-20.1		45-10.0		45-10.0		45-20.1		45-30.0		45-29.9	
Longitude:E	140-50.0		141- 0.1		141- 0.6		140-50.2		140-50.1		140-50.1		141- 0.1		141-10.1		141-10.1		141-40.3	
Date	1998/11/16		1998/11/16		1998/11/16		1998/11/16		1998/11/16		1998/11/16		1998/11/16		1998/11/17		1998/11/17		1998/11/30	
Time(JST)	14:39		16:28		17:05		19:33		20:58		22:19		23:18		00:30		02:50		10:33	
Weather	C		C		C		C		C		C		C		C		S		C	
Air Temp.	2.0		1.9		1.9		1.3		1.0		1.8		2.0		1.9		2.2		-1.2	
Bar	1015.4		1015.5		1015.0		1015.5		1015.0		1014.0		1013.8		1013.5		1012.5		1021.5	
Wind Dir	WNW		WNW		WNW		NW		NNW		NNW		N		NNW		ENE		W	
Wind Spd/F	S 4		S 6		S 6		S 5		S 4		S 6		S 5		S 5		S 7		S 10	
Transparency	11																			
Depth	749		30		106		611		551		386		118		95		126		52	
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	11.6	33.975	11.7	33.986	12.3	33.950	11.8	34.011	12.8	33.843	13.1	33.776	12.6	33.865	12.3	33.921	11.2	33.997	10.1	33.705
10m	12.46	33.936	12.25	33.976	12.69	33.939	12.33	33.998	13.25	33.799	13.32	33.771	13.07	33.857	12.65	33.904	12.10	33.981	10.32	33.707
20m	12.46	33.936	12.26	33.977	12.71	33.969	12.32	33.999	13.25	33.799	13.32	33.771	13.07	33.857	12.67	33.904	12.08	33.983	10.30	33.705
30m	12.46	33.937			12.47	34.000	12.32	33.999	13.25	33.799	13.31	33.773	13.07	33.857	12.67	33.905	12.00	33.988	10.27	33.702
50m	12.20	34.029			12.44	34.004	12.32	34.027	13.25	33.799	12.36	33.847	13.06	33.857	12.52	33.947	11.95	33.991		
75m	10.27	34.167			12.39	34.033	10.51	34.174	12.20	33.986	11.94	33.979	13.04	33.860	12.47	33.956	11.91	34.024		
100m	8.83	34.162			9.91	34.174	9.54	34.166	9.64	34.176	10.09	34.169	9.90	34.162			9.75	34.166		
125m	6.98	34.155					8.04	34.159	7.55	34.160	8.54	34.165								
150m	5.02	34.135					6.85	34.150	5.77	34.147	6.55	34.155								
200m	2.93	34.109					3.31	34.121	3.60	34.113	3.61	34.123								
250m	1.86	34.098					1.91	34.098	2.73	34.104	2.10	34.100								
300m	1.47	34.092					1.42	34.092	1.60	34.094	1.17	34.087								
400m	0.89	34.082					0.74	34.079	0.78	34.081										
500m	0.68	34.078					0.45	34.073	0.35	34.071										
600m	0.35	34.072																		
700m																				
800m																				
900m																				
1000m																				

Table 6-36

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	J102		J103		JA11		JA12		JW12		JA13		JA14		JW14		JW15		JW16	
Latitude:N	45-30.0		45-29.8		45- 0.0		45- 0.0		45- 0.0		45- 0.0		45- 0.2		45- 0.2		45- 0.0		44-59.9	
Longitude:E	141-25.1		141-10.5		141-30.1		141-20.0		141-15.0		141- 9.9		141- 0.1		140-40.2		140-19.9		139-59.9	
Date	1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/11/30		1998/12/01		1998/12/01	
Time(JST)	12:37		14:31		17:36		18:37		19:13		19:43		20:42		22:31		00:21		01:57	
Weather	C		S		C		C		C		C		C		C		S		S	
Air Temp.	-2.5		-3.1		-2.4		-2.7		-2.7		-2.8		-3.8		-3.8		-4.9		-4.2	
Bar	1021.0		1021.0		1022.5		1023.0		1023.5		1023.5		1022.9		1022.5		1021.5		1022.0	
Wind Dir	W		W		WNW		WNW		WNW		WNW		NW		NW		NNW		NNW	
Wind Spd/F	S 10		S 11		S 9		S 9		S 8		S 7		S 7		S 7		S 7		S 8	
Transparency																				
Depth	112		128		64		79		84		93		99		370		150		237	
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	33.909	9.8	33.922	9.2	33.401	9.8	33.548	9.9	33.600	10.1	33.786	9.5	33.799	9.7	33.495	9.1	33.900	8.3	33.195
10m	10.37	33.915	10.12	33.913	9.65	33.408	10.24	33.549	10.42	33.608	10.49	33.787	10.55	33.800	10.29	33.853	9.10	N.D.	8.91	N.D.
20m	10.38	33.914	10.12	33.912	9.68	33.407	10.25	33.549	10.44	33.612	10.49	33.788	10.54	33.800	10.29	33.854	9.24	N.D.	9.06	N.D.
30m	10.38	33.914	10.12	33.915	9.69	33.408	10.33	33.589	10.48	33.624	10.50	33.787	10.55	33.800	10.29	33.855	9.30	N.D.	9.12	N.D.
50m	10.38	33.914	10.11	33.956	9.69	33.407	10.56	33.764	10.99	33.839	10.51	33.789	10.55	33.806	9.69	33.964	9.34	N.D.	9.16	N.D.
75m	10.40	33.917	10.00	34.053			10.09	34.158	9.39	34.172	9.76	34.095	10.31	34.067	8.85	34.121	8.73	N.D.	9.12	N.D.
100m	10.36	34.008	8.57	34.141											6.23	34.157	7.16	N.D.	7.79	N.D.
125m															4.95	34.139	5.04	N.D.	5.94	N.D.
150m															3.41	34.128			3.43	N.D.
200m															2.06	34.108			2.13	N.D.
250m															1.25	34.099				
300m															0.89	34.092				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-37

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	J106		J105		J104		S103		S102		S101		S301		S403		S402		S401	
Latitude:N	45-30.0		45-30.0		45-29.7		45-40.0		45-34.9		45-31.1		45-30.0		45-20.0		45-12.5		45- 8.0	
Longitude:E	140-20.1		140-40.3		140-53.0		142- 0.0		142- 0.0		141-59.9		142-10.2		142-40.1		142-32.4		142-27.9	
Date	1998/12/01		1998/12/01		1998/12/01		1998/12/07		1998/12/07		1998/12/07		1998/12/09		1998/12/09		1998/12/09		1998/12/09	
Time(JST)	05:41		07:21		08:58		11:30		12:21		12:57		13:27		15:30		17:17		18:19	
Weather	S		C		BC		BC		C		C		S		C		C		BC	
Air Temp.	-5.3		-5.8		-5.2		3.7		2.2		1.6		0.0		-0.5		-0.9		-1.4	
Bar	1021.0		1021.5		1020.5		1033.4		1033.0		1032.5		1014.0		1014.5		1015.5		1017.0	
Wind Dir	NNW		NW		NW		S		S		S		WSW		WSW		W		WSW	
Wind Spd/F	S 11		S 10		S 12		S 5		S 8		S 6		S 12		S 12		S 12		S 11	
Transparency							18		15		16				10		12			
Depth	403		555		448		53		40		26		37		97		62		33	
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	33.872	10.1	33.857	9.4	33.835	8.8	33.990	8.4	33.993	8.2	33.788	8.4	33.857	4.1	32.563	8.0	33.960	7.3	33.933
10m	9.94	33.872	10.80	33.849	10.33	33.829	8.85	33.981	8.45	33.985	8.52	33.770	8.80	33.875	4.28	32.556	8.28	33.955	8.14	33.904
20m	9.94	33.873	10.80	33.849	10.33	33.830	8.85	33.981	8.46	33.985			8.84	33.882	4.33	32.573	8.28	33.955	8.20	33.916
30m	9.88	33.884	10.80	33.850	10.33	33.828	8.86	33.981	8.46	33.985					4.59	32.670	8.28	33.955	8.24	33.922
50m	9.27	34.041	10.80	33.850	10.33	33.828									6.65	33.508	8.27	33.956		
75m	7.22	34.160	10.79	33.850	10.44	33.911									6.90	33.598				
100m	5.13	34.146	8.39	34.107	9.25	34.148														
125m	3.79	34.126	6.32	34.152	8.57	34.152														
150m	2.84	34.116	4.90	34.137	6.48	34.153														
200m	1.76	34.102	1.96	34.110	4.23	34.124														
250m	1.22	34.095	1.41	34.099	2.88	34.114														
300m	0.72	34.087	1.00	34.091	1.51	34.102														
400m			0.69	34.085	0.82	34.087														
500m			0.39	34.079																
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-38

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199812		199812		199812		199812	
Station No	OA03		OA02		O22		O23		OA11		OA12		OA13		O34		O33		O32	
Latitude:N	45- 0.1		44-52.6		44-35.0		44-40.0		44-17.5		44-22.5		44-30.0		44-30.0		44-20.1		44-10.1	
Longitude:E	143- 0.1		142-52.6		143-15.2		143-20.0		143-37.6		143-42.6		143-50.1		144-20.3		144-20.2		144-20.2	
Date	1998/12/09		1998/12/09		1998/12/09		1998/12/10		1998/12/10		1998/12/10		1998/12/10		1998/12/10		1998/12/10		1998/12/10	
Time(JST)	20:21		21:43		23:51		01:05		03:58		04:39		05:37		07:37		08:54		10:02	
Weather	BC		BC		BC		BC		BC		B		BC		BC		BC		BC	
Air Temp.	-1.1		-1.5		-2.2		-2.3		-2.2		-2.3		-1.9		-1.3		-1.3		-2.0	
Bar	1017.0		1018.0		1019.5		1020.0		1022.0		1022.0		1022.0		1023.0		1024.5		1025.0	
Wind Dir	WSW		WSW		WSW		WSW		W		W		W		W		W		SW	
Wind Spd/F	S 13		S 12		S 11		S 13		S 9		S 11		S 14		S 11		S 11		S 5	
Transparency															13		13		15	
Depth	129		84		75		112		47		91		164		859		263		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	3.7	32.447	7.7	33.936	4.2	32.727	1.9	32.083	3.5	32.353	2.4	32.080	1.8	31.943	3.8	33.039	2.1	32.212	2.1	31.984
10m	3.98	32.384	8.32	33.922	4.39	32.741	2.25	32.085	3.62	32.342	2.51	32.078	2.12	31.933	3.97	33.017	2.28	32.212	2.14	31.982
20m	4.14	32.464	8.33	33.922	4.55	32.771	6.11	33.253	3.64	32.347	2.55	32.081	2.12	31.933	4.07	33.058	2.31	32.240	2.14	31.981
30m	4.31	32.542	8.33	33.922	4.77	32.826	7.10	33.558	4.93	32.668	3.34	32.242	2.13	31.936	4.10	33.071	2.37	32.342	2.14	31.981
50m	5.93	33.200	8.33	33.921	6.71	33.451	7.96	33.815			5.99	33.071	2.23	32.045	4.04	33.090	3.27	32.548	2.21	31.999
75m	7.07	33.670	8.34	33.924			7.66	33.796			7.68	33.577	2.88	32.311	3.98	33.083	4.33	32.881	2.55	32.085
100m	7.37	33.736					7.63	33.793					6.90	33.443	3.18	33.113	4.82	33.080	6.26	33.047
125m	7.17	33.704											7.57	33.761	1.00	33.076	4.25	33.122		
150m													7.61	33.771	0.78	33.127	2.61	33.111		
200m															0.37	33.149	0.73	33.107		
250m															0.50	33.171	0.95	33.239		
300m															0.68	33.232				
400m															1.70	33.584				
500m															1.87	33.676				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-39

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

Stn-prefix	199812		199812		199812		199812		199812		199812		199902		199902		199902		199902	
Station No	OA20		O31		OA21		OA22		OA23		OA10		WNN01		WNN02		WNN03		WNN04	
Latitude:N	44- 5.2		44- 2.0		44- 2.1		44-10.0		44-19.9		45-30.1		43-59.0		43-59.1		43-59.0		43-59.1	
Longitude:E	144-20.3		144-19.8		144-50.0		144-50.1		144-50.1		142-29.9		141-38.1		141-37.1		141-35.6		141-30.4	
Date	1998/12/10		1998/12/10		1998/12/10		1998/12/10		1998/12/10		1998/12/11		1999/02/16		1999/02/16		1999/02/16		1999/02/16	
Time(JST)	10:39		11:04		13:00		13:53		15:35		10:45		17:22		17:36		17:52		18:27	
Weather	BC		BC		BC		BC		BC		C		BC				BC		BC	
Air Temp.	-2.1		-2.0		0.0		0.2		-0.7		-1.4		4.3				4.1		3.8	
Bar	1024.5		1024.5		1024.5		1024.5		1025.0		1022.3		1018.5				1018.5		1018.5	
Wind Dir	SSW		S		SW		WSW		WSW		SSW		SW				SW		SW	
Wind Spd/F	S 5		S 3		S 3		S 5		S 10		S 7		S 7				S 10		S 10	
Transparency	8		11		20		12				14									
Depth	40		35		81		589		1076		83		18		29		40		51	
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	2.7	32.071	2.3	31.897	2.6	32.053	2.2	32.041	4.7	33.061	1.8	31.699	2.9	33.393	4.0	33.849	4.2	33.843	3.6	33.699
10m	2.96	32.070	2.71	32.025	2.31	32.049	2.21	32.029	4.86	33.055	2.20	31.778	2.29	33.382	4.10	33.849	4.25	33.842	3.68	33.698
20m	3.17	32.117	2.88	32.108	2.69	32.139	2.64	32.248	5.10	33.102	2.19	31.781			4.10	33.850	4.27	33.846	3.69	33.699
30m	3.23	32.137	2.85	32.113	2.73	32.175	3.06	32.418	5.28	33.133	4.15	32.413					4.31	33.868	3.75	33.707
50m					2.69	32.182	3.29	32.490	5.50	33.170	8.25	33.857								
75m							5.09	32.991	6.49	33.376	8.31	33.916								
100m							7.08	33.430	5.60	33.297										
125m							7.36	33.510	4.57	33.239										
150m							7.39	33.524	2.60	33.181										
200m							3.86	33.197	1.32	33.186										
250m							0.89	33.113	1.48	33.288										
300m							1.14	33.228	1.14	33.326										
400m							1.33	33.368	1.52	33.494										
500m							1.72	33.551	1.73	33.620										
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-40

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	WNN13		WNN12		WNN11		WNN15		WNN16		WNN17		WNN18		J11		J12		J13	
Latitude:N	43-57.1		43-57.1		43-57.0		43-56.0		43-56.1		43-56.0		43-56.0		45-30.2		45-30.1		45-30.0	
Longitude:E	141-32.6		141-35.0		141-37.2		141-37.0		141-36.0		141-34.6		141-28.5		141-25.0		141-25.0		141-10.1	
Date	1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/16		1999/02/22		1999/02/22		1999/02/22	
Time(JST)	18:48		19:04		19:20		19:34		19:45		19:59		20:42		10:11		11:16		12:27	
Weather	BC		BC		BC		BC		BC		BC		BC		S		C		S	
Air Temp.	4.0		4.0		4.1		3.5		3.6		3.2		3.2		-3.2		-2.3		-2.4	
Bar	1018.5		1018.5		1018.5		1019.0		1018.7		1018.5		1018.0		1009.5		1019.0		1009.6	
Wind Dir	WSW		WSW		SSW		SE		SE		SE		SSW		WNW		NW		NW	
Wind Spd/F	S 9		S 8		S 3		S 4		S 3		S 4		S 8		S 4		S 10		S 8	
Transparency															5		10		11	
Depth	49		42		23		21		24		44		53		56		114		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	3.7	33.719	4.0	33.794	2.1	33.343	2.4	33.439	3.4	33.655	3.7	33.725	3.7	33.744	0.7	33.580	3.1	33.913	0.3	33.297
10m	3.83	33.719	4.15	33.814	2.40	33.422	2.55	33.446	3.54	33.658	3.80	33.721	3.76	33.732	1.02	33.585	3.14	33.902	0.51	33.298
20m	3.84	33.719	4.18	33.826					3.55	33.662	3.82	33.727	3.77	33.732	1.07	33.595	3.15	33.902	3.04	33.797
30m	3.84	33.721	4.21	33.841							3.88	33.740	3.76	33.732	1.09	33.599	3.33	33.927	3.16	33.838
50m															1.12	33.605	3.56	33.962	3.69	33.923
75m																	3.60	33.970	3.76	33.943
100m																	3.65	33.979	3.72	33.981
125m																				
150m																				
200m																				
250m																				
300m																				
400m																				
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

Table 6-41

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	J14		J15		J16		J17		J18		JW15		JW16		J27		J26		J25	
Latitude:N	45-30.0		45-30.0		45-30.0		45-30.1		45-30.0		44-59.9		45- 0.0		44-30.0		44-30.0		44-30.0	
Longitude:E	140-53.0		140-40.0		140-20.2		140- 0.2		139-39.9		140-20.1		140- 0.0		139-30.1		140- 0.0		140-20.0	
Date	1999/02/23		1999/02/23		1999/02/23		1999/02/23		1999/02/23		1999/02/23		1999/02/23		1999/02/24		1999/02/24		1999/02/24	
Time(JST)	09:31		10:43		12:37		14:30		17:15		21:08		22:36		02:14		04:30		06:03	
Weather	S		BC		BC		BC		BC		C		C		BC		BC		B	
Air Temp.	-3.5		-2.8		-2.9		-3.6		-4.1		-3.1		-2.7		2.4		-2.3		-2.4	
Bar	1017.0		1017.5		1018.5		1019.6		1021.5		1024.0		1024.5		1025.6		1026.0		1026.5	
Wind Dir	NNW		WNW		NW		NW		WNW		W		W		NW		NW		W	
Wind Spd/F	S 10		S 12		S 11		S 9		S 5		S 6		S 5		S 4		S 5		S 4	
Transparency	14		16		19		25													
Depth	440		546		397		593		844		155		260		501		572		250	
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	3.6	34.037	2.8	34.089	2.4	34.111	2.5	34.108	1.6	34.397	3.1	34.036	3.3	34.090	2.2	34.112	4.3	34.072	4.0	34.073
10m	4.03	34.052	3.02	34.083	2.96	34.083	2.65	34.102	1.87	34.105	4.20	34.082	4.17	34.079	2.35	34.108	4.45	34.072	4.19	34.074
20m	4.03	34.052	3.02	34.082	2.96	34.083	2.64	34.102	1.89	34.105	4.20	34.084	4.17	34.079	2.37	34.108	4.46	34.072	4.20	34.074
30m	4.05	34.058	3.02	34.083	2.96	34.083	2.63	34.101	1.89	34.105	4.20	34.084	4.03	34.083	2.37	34.108	4.45	34.072	4.20	34.075
50m	4.03	34.071	2.96	34.088	2.47	34.100	2.62	34.101	1.89	34.105	4.18	34.085	3.73	34.088	1.95	34.110	4.46	34.072	4.19	34.074
75m	3.90	34.082	2.51	34.104	2.36	34.098	2.62	34.101	1.81	34.102	3.88	34.089	3.66	34.089	1.88	34.107	4.46	34.072	4.12	34.077
100m	3.71	34.085	2.00	34.104	2.34	34.097	2.47	34.098	1.65	34.097	3.72	34.093	3.34	34.095	1.81	34.107	4.29	34.082	4.04	34.082
125m	3.56	34.089	1.79	34.100	2.28	34.098	2.43	34.097	1.43	34.096	3.57	34.094	2.98	34.101	1.79	34.106	3.37	34.099	3.70	34.093
150m	3.41	34.091	1.60	34.099	1.96	34.101	2.40	34.098	1.21	34.098	3.51	34.094	2.92	34.100	1.78	34.106	2.78	34.104	3.11	34.104
200m	2.82	34.096	1.18	34.097	1.27	34.099	2.10	34.100	1.05	34.095			2.24	34.106	1.53	34.102	2.01	34.102	2.37	34.102
250m	2.44	34.097	0.99	34.093	1.08	34.095	1.48	34.100	0.90	34.093					1.06	34.094	1.20	34.094		
300m	1.82	34.100	0.82	34.089	0.86	34.088	1.07	34.095	0.80	34.091					0.87	34.091	1.09	34.090		
400m	0.85	34.087	0.55	34.083			0.73	34.086	0.66	34.087					0.64	34.086	0.81	34.086		
500m			0.35	34.079			0.48	34.081	0.46	34.082							0.57	34.083		
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199902		199902		199902		199902		199902		199902		199902		199902		199902		199902	
Station No	J24		J23		J22		J21		JW11		JW12		JW13		JW14		JW03		JW02	
Latitude:N	44-30.1		44-30.1		44-30.0		44-30.1		45- 0.1		45- 0.0		45- 0.0		45- 0.0		45-45.1		45-45.1	
Longitude:E	140-40.1		141- 0.1		141-15.2		141-30.3		141-30.2		141-15.1		141- 0.0		140-40.0		141- 0.0		141-10.1	
Date	1999/02/24		1999/02/24		1999/02/24		1999/02/24		1999/02/24		1999/02/24		1999/02/24		1999/02/24		1999/02/24		1999/02/24	
Time(JST)	07:29		08:55		10:03		11:06		13:48		15:05		16:20		17:52		22:05		23:04	
Weather	B		BC		BC		BC		BC		BC		BC		BC		C		C	
Air Temp.	-2.2		-0.9		0.6		1.8		1.6		0.8		0.8		0.7		1.3		1.4	
Bar	1027.0		1027.0		1027.0		1027.0		1024.9		1024.1		1023.5		1023.5		1021.0		1020.5	
Wind Dir	W		W		SW		SW		SW		SW		SSW		SSW		SW		SW	
Wind Spd/F	S 5		S 4		S 5		S 7		S 8		S 8		S 8		S 9		S 11		S 11	
Transparency	17		17		16		17		12		15		14							
Depth	145		198		118		78		66		88		100		370		498		124	
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	34.065	4.8	34.057	4.4	34.024	4.0	34.003	2.6	33.854	3.6	34.041	4.0	34.022	4.0	34.071	3.8	34.072	2.9	33.814
10m	4.54	34.064	5.04	34.051	4.57	34.017	3.90	34.000	2.65	33.846	3.94	34.008	4.21	34.020	4.19	34.069	3.92	34.068	2.91	33.807
20m	4.53	34.065	5.03	34.051	4.57	34.017	3.85	33.996	2.66	33.849	3.90	34.006	4.22	34.020	4.18	34.069	3.95	34.063	2.93	33.809
30m	4.52	34.066	5.03	34.050	4.57	34.017	3.84	33.994	2.72	33.859	3.86	34.003	4.17	34.019	4.15	34.072	3.96	34.063	3.04	33.822
50m	4.42	34.068	5.03	34.051	4.57	34.017	3.84	33.994	2.84	33.875	3.79	33.996	4.14	34.018	3.86	34.082	3.91	34.072	3.62	33.922
75m	4.39	34.068	5.00	34.052	4.53	34.017	3.84	33.995			3.77	33.994	4.13	34.020	3.85	34.083	3.90	34.072	4.01	34.001
100m	4.34	34.073	4.98	34.056	4.51	34.022									3.69	34.087	3.82	34.078	3.89	34.010
125m	4.09	34.083	4.74	34.064											3.26	34.094	3.68	34.084		
150m			4.51	34.071											2.88	34.099	3.55	34.084		
200m															1.94	34.100	2.92	34.090		
250m															1.54	34.096	1.92	34.102		
300m															1.10	34.091	1.41	34.096		
400m																	0.99	34.090		
500m																				
600m																				
700m																				
800m																				
900m																				
1000m																				

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

Stn-prefix	199902		199903		199903		199903											
Station No	JW01		WSU01		WSU02		WSU03											
Latitude:N	45-45.1		45-45.3		44-56.0		44-52.8											
Longitude:E	141-20.1		141- 3.1		140-43.2		140-35.5											
Date	1999/02/24		1999/03/01		1999/03/02		1999/03/02											
Time(JST)	23:49		15:29		09:21		12:59											
Weather	C		C		C		C											
Air Temp.	1.3		-1.3		-1.8		-1.7											
Bar	1020.0		1009.5		1010.0		1010.0											
Wind Dir	SW		WSW		WNW		WNW											
Wind Spd/F	S 9		S 8		S 7		S 7											
Transparency			10		19		22											
Depth	130		208		270		345											
Equipment	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	1.8	33.504	2.8	33.826	3.3	34.104	3.6	34.102										
10m	1.76	33.497	2.92	33.836	3.65	34.088	3.98	34.079										
20m	3.03	33.728	2.95	33.842	3.63	34.089	3.98	34.079										
30m	3.48	33.836	3.43	33.935	3.61	34.090	3.94	34.080										
50m	3.65	33.877	3.97	34.022	3.59	34.090	3.58	34.090										
75m	3.58	33.880	4.07	34.043	3.53	34.090	3.39	34.093										
100m	3.54	33.911	4.04	34.045	3.50	34.090	3.21	34.098										
125m			3.64	34.075	3.48	34.089	3.12	34.097										
150m			3.36	34.073	3.46	34.088	3.08	34.097										
200m					2.07	34.102	2.34	34.102										
250m					1.33	34.094	1.35	34.095										
300m							0.92	34.089										
400m																		
500m																		
600m																		
700m																		
800m																		
900m																		
1000m																		

Table 6-44

Part II. Results of Chemical Analyses

Water samples were taken with Nansen bottle cast on R/V Oyashio Maru cruises in West 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 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 m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$		
	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		
199804J31	43-19.9	141-09.8	1998/4/14	10:56	0	6.90	33.868		N.D.	0.01	0.12	N.D.	1.9	7.16	
					10		33.881		N.D.	0.03	0.11	N.D.	2.2	7.84	
					20		33.925		0.9	0.06	0.20	0.4	4.6	6.86	
					30		33.946		1.1	0.07	0.28	0.7	5.4	6.77	
199804JH01	43-21.6	141-21.2	1998/4/14	12:14	0	9.30	19.785		17.3	0.28	0.37	3.6	155.0	0.24	
					10		33.392		1.1	0.09	0.24	1.0	4.6	6.28	
					20		33.566		0.2	0.04	0.17	0.5	2.5	6.86	
199804J32	43-30.0	141-00.0	1998/4/14	16:10	0	7.10	34.035		1.8	0.11	0.31	0.3	6.0	2.45	
					10		34.027		1.7	0.11	0.28	0.4	6.0	2.39	
					20		34.057		1.9	0.13	0.32	0.5	6.9	3.33	
					30		34.119		3.9	0.17	0.43	0.4	10.5	1.86	
					50		34.122		4.7	0.19	0.48	0.3	10.9	0.90	
					75		34.117		5.3	0.24	0.51	0.5	11.0	0.46	
199804J33	43-29.9	140-40.8	1998/4/14	17:58	0	6.10	34.058		2.7	0.15	0.37	0.4	8.3	2.82	
					11		34.058		2.7	0.14	0.36	0.3	8.7	2.85	
					21		34.061		2.8	0.14	0.37	0.2	8.6	3.14	
					31		34.068		3.2	0.14	0.39	0.5	9.6	2.57	
					51		34.091		4.5	0.19	0.48	0.6	10.9	0.96	
					75		34.114		5.8	0.21	0.56	0.7	13.2	0.37	
					100		34.114		6.6	0.21	0.59	0.4	14.4	0.30	
					125		34.114		8.6	0.18	0.73	0.5	14.8	0.16	
					150	3.71	34.115		9.8	0.17	0.80	0.3	19.2	0.09	
					196	2.35	34.105		14.9	0.03	1.17	-	29.7	0.06	
					289	1.26	34.082		20.1	0.03	1.56	-	46.4		
					385	0.86	34.078		21.9	0.02	1.73	-	48.2		
					481	0.66	34.078		23.2	0.03	1.75	-	56.7		
					580	0.56	34.078		23.9	0.03	1.88	0.3	65.6		
199804J35	43-30.0	140-00.0	1998/4/14	22:15	0	6.00	34.114								
					202		3.69	34.135							
					292		1.73	34.087							
					396		0.98	34.084							
					496		0.66	34.066							
					594		0.51	34.077							
199804J38	43-29.9	138-59.9	1998/4/15	3:38	0	5.00	34.121								
					218		2.94	34.130							
					292		1.86	34.093							
					375		1.27	34.090							
					455		1.04	34.079							
					539		0.80	34.080							
199804J46	42-30.1	137-59.9	1998/4/15	16:49	0	4.60	34.073		5.7	0.18	0.59	0.4	15.5	0.62	
					10		4.47	34.068		5.9	0.19	0.59	0.4	15.1	0.61
					20		4.49	34.068		5.7	0.18	0.58	0.5	15.2	0.60
					30		4.28	34.104		5.8	0.19	0.58	0.5	15.6	0.64
					50		3.37	34.140		8.7	0.21	0.75	0.2	18.4	0.19

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$	
	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
					75	2.46	34.101		12.9	0.08	1.02	-	24.4	0.04
					99	2.26	34.103		12.8	0.07	1.02	-	24.4	0.04
					124	1.93	34.094		14.9	0.04	1.16	-	29.8	0.02
					151	1.58	34.085		16.5	0.04	1.27		30.9	0.02
					200	1.21	34.091		17.5	0.02	1.37		34.2	
					302	1.02	34.083		18.7	0.02	1.47		38.3	
					402	0.72	34.075		21.5	0.03	1.70		44.5	
					502	0.56	34.072		23.6	0.02	1.86		54.9	
					602	0.45	34.069		23.9	0.03	1.88		57.7	
199804JC11	43-00.0	140-20.0	1998/4/16	6:35	0	7.60	32.754		0.8	0.07	0.15		9.0	1.27
					10	7.49	33.565		0.3	0.05	0.15		2.9	1.70
					20	7.29	33.918		0.5	0.08	0.20		2.6	2.63
					30	7.15	33.998		1.1	0.09	0.29		3.4	1.98
					50	6.84	34.068		1.8	0.10	0.34		5.0	1.43
					75	6.04	34.112		4.3	0.14	0.52		10.2	0.72
					100	4.34	34.104		9.4	0.16	0.83		18.1	0.27
					125	2.93	34.088		14.4	0.11	1.17		27.2	0.12
					150	2.16	34.077		16.3	0.04	1.29		30.3	0.06
					200	1.65	34.076		18.2	0.06	1.45		36.6	0.03
199806J38	43-29.9	139-00.1	1998/5/26	20:26	0	9.70	34.013							
					199	3.17	34.158							
					300	1.76	34.099							
					395	1.15	34.103							
					496	0.94	34.091							
					595	0.65	34.085							
199806J27	44-30.0	139-30.1	1998/5/28	2:55	0	9.70	34.013							
					206	1.26	34.095							
					280	0.96	34.083							
					360	0.80	34.078							
					403	0.64	34.072							
199806JC11	43-00.1	140-20.0	1998/6/1	14:48	0	13.40	33.937		N.D	0.02	0.13	N.D.	6.6	0.25
					12	12.81	33.934		N.D	0.04	0.11	1.0	3.9	0.33
					22	12.80	33.938		N.D	0.02	0.13	1.5	5.9	0.36
					32	12.36	33.974		N.D	0.02	0.13	0.6	4.9	0.49
					52	11.15	33.981		N.D	0.06	0.14	0.8	6.1	0.49
					76	8.09	34.091		5.5	0.07	0.55	0.2	11.1	0.18
					101	5.72	34.133		5.8	0.03	0.70	0.2	15.8	0.04
					126	4.52	34.116		9.0	0.04	0.79	2.1	20.7	0.01
					149	3.69	34.105		10.4	0.03	0.85	0.3	21.4	0.00
					199	2.27	34.085		15.6	0.04	1.27	-	21.3	0.01
199806J46	42-30.0	138-00.0	1998/6/3	10:10	0	13.60	33.994		N.D	0.01	0.11	N.D.	5.6	0.20
					10	13.59	33.989		N.D	0.02	0.12	N.D.	5.5	0.19
					20	11.87	33.985		N.D	0.03	0.15	N.D.	7.6	0.25
					30	8.52	33.994		1.7	0.16	0.38	N.D.	9.4	1.12

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$	
	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
199806J41	42-30.1	139-40.0	1998/6/8	20:42	50	6.46	34.146		8.3	0.04	0.72	N.D.	16.6	0.19
					74	4.47	34.114		11.3	0.02	0.94	N.D.	25.7	0.00
					99	3.29	34.099		13.2	0.03	1.08	N.D.	23.0	0.00
					124	2.58	34.091		10.4	0.1	N.D.	1.0	27.3	0.01
					157	2.19	34.095		12.2	0.03	0.95	0.4	21.4	0.00
					209	1.49	34.089		17.3	0.03	1.37	N.D.	42.3	0.00
					309	1.10	34.091		18.0	0.02	1.41	N.D.	42.1	
					409	0.86	34.083		20.2	0.02	1.58	N.D.	39.7	
					510	0.61	34.071		23.5	0.01	1.86	N.D.	48.1	
					608	0.49	34.072		24.3	0.04	1.89	N.D.	46.1	
					0	13.80	33.991		N.D.	N.D.	0.02	N.D.	3.2	0.37
					14	13.66	33.979		N.D.	N.D.	0.02	N.D.	2.7	0.34
					24	12.96	33.993		N.D.	0.01	0.05	N.D.	4.7	0.68
					33	12.35	34.004		N.D.	N.D.	0.05	N.D.	4.9	0.87
					52	10.63	34.032		1.5	0.11	0.19	N.D.	5.1	0.87
					76	7.77	34.123		6.3	0.02	0.48	N.D.	7.5	0.11
					99	6.66	34.126		6.2	0.09	0.56	0.6	8.8	
123	5.42	34.125		4.3	0.04	0.50	N.D.	8.2	0.02					
154	3.29	34.107		11.6	0.01	0.88	N.D.	14.9	0.02					
204	2.51	34.100		13.5	0.01	0.98	N.D.	15.9	0.01					
285	1.43	34.091		17.5	0.0	1.36	N.D.	20.9						
373	1.12	34.089		10.1	0.02	0.86	N.D.	8.4						
199806J46D	42-30.0	137-59.7	1998/6/10	21:57	0	14.10	33.999							
					7		34.005							
					15		33.987							
					23		33.989							
					31		34.052							
					50		34.155							
					75		34.131							
					100		34.112							
					150		34.112							
					200		34.092							
					288	1.17	34.087							
					378	0.99	34.085							
					461	0.87	34.079							
					550	0.67	34.075							
					724	0.44	34.072							
909	0.35	34.076												
99806MO1B	42-41.3	139-46.2	1998/6/11	20:04	0	14.00	33.949							
					4		33.952							
					15		33.974							
					24		33.997							
					37		34.019							
					63		34.090							

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$
	Latitude N	Longitude E	Date	Time					$\text{NO}_3\text{-N}$	$\text{NO}_2\text{-N}$	$\text{PO}_4\text{-P}$	$\text{NH}_4\text{-N}$	
					75		34.107						
					100		34.123						
					150		34.111						
					200		34.090						
					299	1.29	34.080						
					394	1.04	34.087						
					488	0.83	34.080						
					586	0.61	34.076						
					778	0.43	34.071						
					972	0.34	34.072						
199808J38	43-29.9	139-00.1	1998/7/28	23:42	0	20.20	33.829						
					198	3.26	34.165						
					296	1.81	34.099						
					396	1.04	34.099						
					498	0.78	34.080						
					596	0.60	34.076						
199808J27	44-30.0	139-30.1	1998/7/30	9:57	0	19.60	33.848						
					200	1.43	34.089						
					300	0.93	34.082						
					400	0.66	34.075						
					450	0.57	34.069						
199808JC11	42-57.9	140-15.1	1998/7/31	1:50	0	21.20	33.970	N.D.	N.D.	N.D.	N.D.	3.3	0.25
					10	21.19	33.965	N.D.	N.D.	N.D.	N.D.	3.1	0.33
					20	21.18	33.969	N.D.	0.05	N.D.	N.D.	3.1	0.36
					30	21.18	33.972	N.D.	0.12	N.D.	N.D.	3.4	0.49
					50	13.04	34.193	N.D.	0.10	0.11	N.D.	4.2	0.49
					75	11.19	34.160	4.1	0.26	0.36	N.D.	5.5	0.18
					100	9.36	34.160	6.9	0.07	0.55	N.D.	10.7	0.04
					125	7.58	34.141	8.4	0.05	0.64	N.D.	15.2	0.01
					150	5.19	34.116	11.5	0.09	0.89	N.D.	20.6	0.00
					200	3.74	34.098	12.9	N.D.	1.02	N.D.	24.7	0.01
199808J41	42-30.1	139-39.9	1998/7/31	6:02	0	20.90	33.993	N.D.	N.D.	N.D.	N.D.	3.5	0.37
					22	20.53	34.011	N.D.	N.D.	N.D.	N.D.	3.7	0.34
					31	17.98	34.162	N.D.	N.D.	N.D.	N.D.	3.7	0.68
					40	15.01	34.362	N.D.	N.D.	0.09	N.D.	5.4	0.87
					58	12.50	34.212	1.8	0.16	0.23	N.D.	5.4	0.87
					80	11.19	34.160	5.0	0.05	0.40	N.D.	5.7	0.11
					102	10.41	34.118	5.4	0.06	0.42	N.D.	7.2	
					125	8.91	34.146	7.4	N.D.	0.58	N.D.	10.5	0.02
					186	3.99	34.099	12.0	N.D.	0.94	N.D.	22.7	0.02
					245	2.49	34.078	13.5	N.D.	1.04	N.D.	25.1	0.01
					333	1.34	34.077	19.7	N.D.	1.54	N.D.	39.5	
					425	0.94	34.079	21.1	N.D.	1.62	N.D.	35.6	
					518	0.76	34.081	21.5	N.D.	1.69	N.D.	44.2	

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$	
	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
199808J46	42-30.0	138-00.0	1998/7/31	15:52	615	0.59	34.074		23.7	N.D.	1.88	N.D.	40.4	
					0	21.60	33.833		N.D.	N.D.	N.D.	N.D.	4.7	0.20
					10	20.65	33.807		N.D.	N.D.	N.D.	N.D.	4.4	0.19
					20	10.37	33.955		N.D.	N.D.	0.25	N.D.	9.0	0.25
					30	8.23	34.150		4.7	0.11	0.47	N.D.	10.2	1.12
					50	6.46	34.146		9.1	0.07	0.73	N.D.	15.0	0.19
					75	4.15	34.119		12.4	N.D.	0.96	N.D.	20.6	0.00
					100	3.08	34.111		11.6	N.D.	0.96	0.1	20.9	0.00
					125	2.43	34.086		13.5	N.D.	1.05	N.D.	24.9	0.01
					150	2.08	34.089		13.6	N.D.	1.04	N.D.	24.5	0.00
					200	1.55	34.081		16.0	N.D.	1.24	N.D.	30.1	0.00
					300	1.08	34.082		18.9	N.D.	1.47	N.D.	35.7	
					400	0.78	34.075		21.5	N.D.	1.69	N.D.	42.6	
					500	0.61	34.074		22.9	N.D.	1.81	N.D.	38.8	
600	0.49	34.072		23.8	N.D.	1.90	N.D.	48.3						
199810J35	43-29.9	140-00.2	1998/9/28	16:31	0	20.30	33.770							
					195	3.50	34.105							
					292	1.62	34.090							
					388	1.12	34.096							
					488	0.89	34.088							
					585	0.69	34.081							
199810J38	43-30.0	139-00.0	1998/9/28	22:00	0	20.20	33.725							
					182	2.34	34.087							
					273	1.45	34.092							
					371	1.09	34.093							
					468	0.81	34.086							
					562	0.60	34.080							
199810JC11	43-00.0	140-20.1	1998/9/29	11:49	0	20.80	33.539		N.D.	N.D.	N.D.	N.D.	2.3	0.23
					14	19.99	33.714		N.D.	0.11	N.D.	N.D.	2.6	0.19
					24	19.35	33.856		N.D.	N.D.	N.D.	0.4	3.4	0.56
					33	17.48	33.979		N.D.	0.17	0.16	N.D.	4.0	0.87
					53	13.21	34.311		3.6	0.13	0.37	N.D.	6.8	0.28
					78	9.70	34.168		7.3	N.D.	0.59	N.D.	8.4	0.04
					102	7.12	34.150		10.2	N.D.	0.80	N.D.	12.8	0.03
					127	4.35	34.113		13.7	N.D.	1.04	N.D.	17.5	0.01
					151	3.24	34.101		15.4	N.D.	1.14	N.D.	20.3	0.02
					200	2.20	34.096		16.6	N.D.	1.26	N.D.	23.1	0.00
199810J41	42-30.0	139-40.0	1998/9/29	16:18	0	21.20	33.474		0.2	0.01	0.07	N.D.	2.3	0.19
					10	21.11	33.467		0.2	0.04	0.06	N.D.	2.5	0.16
					20	20.62	33.594		0.0	0.02	0.06	N.D.	2.5	0.20
					30	20.29	33.735		N.D.	0.02	0.09	N.D.	2.5	0.23
					50	13.28	34.293		3.6	0.07	0.38	N.D.	5.7	0.28
					75	10.59	34.165		6.7	0.04	0.52	N.D.	6.6	0.04
					100	8.13	34.156		9.2	0.03	0.72	N.D.	10.9	0.01

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$	
	Latitude N	Longitude E	Date	Time					NO ₃ -N	NO ₂ -N	PO ₄ -P	NH ₄ -N		Si
					125	6.16	34.136		11.5	0.04	0.86	N.D.	14.5	0.02
					156	4.24	34.110		11.7	0.02	0.85	N.D.	18.0	0.01
					203	2.46	34.089		16.4	N.D.	1.22	N.D.	21.9	0.01
					295	1.26	34.085		22.6	0.02	1.67	N.D.	34.4	
					389	0.79	34.080		25.9	0.03	1.92	N.D.	29.1	
					484	0.56	34.078		27.3	0.03	2.04	N.D.	33.1	
					578	0.47	34.075		28.1	0.03	2.09	N.D.	36.0	
199810J46	42-30.0	138-00.0	1998/9/30	1:27	0	19.20	33.712		0.1	0.01	0.07	N.D.	3.7	0.15
					12	19.37	33.699		0.2	0.06	0.07	N.D.	3.4	0.16
					22	18.89	33.686		0.0	0.02	0.07	N.D.	3.8	0.17
					31	7.19	34.040		N.D.	0.02	0.31	N.D.	10.6	0.40
					51	4.10	34.099		9.0	0.24	0.82	N.D.	14.8	0.73
					76	2.90	34.101		14.2	0.05	1.07	N.D.	19.6	0.13
					100	2.26	34.092		16.3	0.02	1.24	N.D.	23.5	0.04
					125	1.95	34.099		15.7	0.02	1.17	N.D.	22.3	0.00
					151	1.64	34.093		16.8	0.02	1.25	N.D.	24.2	0.00
					199	1.41	34.092		20.3	0.02	1.51	N.D.	31.4	0.00
					291	1.06	34.093		20.8	0.01	1.54	N.D.	31.7	
					390	0.83	34.089		23.4	0.02	1.77	N.D.	36.1	
					484	0.61	34.080		25.1	0.02	1.89	N.D.	42.3	
					581	0.50	34.079		26.9	0.02	2.03	N.D.	46.8	
199812J41	42-30.2	139-40.1	1998/11/26	18:17	0	13.50	33.770		1.0	0.21	0.44	0.2	4.6	0.65
					12	13.81	33.762		1.4	0.30	0.49	0.2	4.3	0.55
					22	13.77	33.777		1.2	0.22	0.50	0.2	4.8	0.50
					31	13.75	33.787		1.4	0.23	0.56	0.2	5.2	0.46
					51	13.70	33.846		1.7	0.19	0.46	0.2	5.3	0.31
					76	12.51	33.950		2.6	0.26	0.75	0.3	6.5	0.14
					100	11.30	34.128		5.2	0.18	0.57	0.4	7.9	0.03
					125	9.77	34.191		7.6	0.12	0.43	0.5	8.7	0.01
					144	7.73	34.165		9.5	0.11	0.59	0.6	12.3	0.01
					191	4.21	34.112		13.2	0.10	0.43	1.0	17.2	0.00
					270	2.10	34.092		18.2	0.05	0.42	1.3	19.6	
					352	1.18	34.089		21.7	0.09	0.45	1.7	35.6	
199812J46	42-30.0	138-00.1	1998/11/27	4:47	0	11.00	33.882		1.1	0.13	0.32	0.2	4.9	0.65
					10	11.33	33.880		1.1	0.13	0.29	0.2	4.8	0.73
					20	11.24	33.884		1.1	0.13	0.41	0.2	5.0	0.69
					30	11.24	33.888		1.1	0.14	0.46	0.2	5.0	0.65
					50	4.82	34.060		5.9	0.28	0.61	0.7	11.6	0.09
					75	2.52	34.093		14.3	0.05	0.35	1.1	18.8	0.02
					100	2.28	34.099		14.2	0.05	0.32	1.1	21.8	0.01
					125	1.85	34.095		15.7	0.05	0.35	1.2	20.9	0.01
					147	1.63	34.104		15.5	0.05	0.30	1.1	-	0.00
					198	1.36	34.100		16.5	0.04	0.30	1.3	25.0	0.00
					297	1.04	34.100		19.4	0.05	0.39	1.4	22.3	

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$
	Latitude N	Longitude E	Date	Time					NO ₃ -N	NO ₂ -N	PO ₄ -P	NH ₄ -N	
199812J27	44-30.0	139-30.2	1998/11/30	17:44	395	0.80	34.091		22.0	0.04	0.46	1.7	34.6
					495	0.61	34.088		23.7	0.05	0.36	1.7	-
					595	0.48	34.082		24.6	0.05	0.41	1.9	41.0
					0	7.40	33.988						
					208	1.16	34.094						
					303	0.89	34.094						
199902J41	42-30	139-40	1999/2/7	11:00	405	0.63	34.088						
					0	7.50	33.968		4.5	0.14	0.42	N.D.	
199902J32	43-30	141-00	1999/2/17	10:25	0	5.80	34.020		5.1	0.14	0.46	N.D.	
					13	5.66	34.015		5.7	0.19	0.49	0.2	
					22	5.66	34.015		5.6	0.17	0.48	N.D.	
					32	5.66	34.018		5.6	0.18	0.49	0.2	
					51	5.56	34.029		4.1	0.14	0.43	0.1	
					75	5.55	34.031		5.8	0.19	0.50	0.2	
199903J41	42-30.1	139-40.0	1999/3/7	18:11	90	5.49	34.034		5.9	0.16	0.51	N.D.	
					0	6.40	34.018						
					10		34.010						
					20	6.63	34.004						
					29	6.65	34.002						
					49	6.61	34.007						
					74	6.58	34.005						
					98	6.20	34.022						
					123	5.12	34.049						
					174	4.21	34.069						
					220	3.01	34.100						
					318	1.41	34.091						
					416	0.91	34.073						
					514	0.54	34.072						
199903J46	42-30.0	138-00.0	1999/3/9	3:25	612	0.45	34.071						
					0	2.00	34.098						
					10		34.097						
					20	2.02	34.099						
					30	1.91	34.097						
					50	1.81	34.099						
					75	1.8	34.091						
					100	1.8	34.089						
					125	1.8	34.090						
					152	1.78	34.097						
					196	1.67	34.096						
					298	1.14	34.090						
					393	0.89	34.086						
					494	0.64	34.076						
199903J33	43-30.0	140-40.0	1999/3/9	20:01	595	0.45	34.077						
					0	5.40	34.012						

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

Station No	Position		Japanese Standard		Depth m	Temperature	Salinity P.S.U.	Dissolved oxygen ml	Nutrients, $\mu\text{g-atoms/l}$				Chlorophyll-a $\mu\text{g/l}$
	Latitude N	Longitude E	Date	Time					NO ₃ -N	NO ₂ -N	PO ₄ -P	NH ₄ -N	
					290	1.51	34.086						
					377	0.95	34.084						
					471	0.75	34.079						
					569	0.63	34.079						
					656	0.51	34.071						
199903J32	43-30.1	141-00.0	1999/3/10	0:51	0	5.10	34.012						
					10	5.62	34.008						
					20	5.65	34.010						
					30	5.66	34.014						
					50	5.58	34.014						
					75	5.54	34.015						
					85	5.52	34.017						
199903J31	43-19.9	141-10.2	1999/3/10	2:54	0	4.80	33.981						
					10	5.08	33.979						
					20		33.977						
					30	5.07	33.976						
199903JH01	43-22.0	141-23.8	1999/3/10	7:28	0	1.60	27.487						
					10		33.133						
					15	3.33	33.183						

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 1998- March 1999

Date	1998/4/16	1998/4/16	1998/5/28	1998/5/28	1998/6/10	1998/6/10	1998/7/31	1998/7/31	1998/9/30	1998/9/30	1998/12/1	1998/12/1
Wire length(m)	100	100	100	100	100	100	100	100	100	100	50	50
Wire angle(°)	-	-	-	-	-	-	-	-	-	-	-	-
RGS No.	2401	2399	2401	2399	1782	1787	1782	1787	2401	1787	1782	1787
Revolution	589	744	968	817	1158*	1130	1090*	1005*	808	1195*	576*	620*
	667*	763*	669*	812*	1182	1138	1000	1025*	806	1147	552	548*
	561	756	1193*	933	1160	1092*	1005	1010	798*	1150	512*	600
	559	724	931	1034	1260	1243*	985*	1010	869*	1112*	558	550
	510*	719*	892	1042*	1330*	1227	1000	1025	857	1134	574	592
Mean revolution per 100m	570	741	930	928	1201	1165	1002	1015	824	1144	1123	1161

Table 8-2. Calibration data of flow-meters used for NORPAC net samplings, Hokushin Maru, April 1998- March 1999 .

Date	1998/4/19	1998/6/2	1998/8/4	1998/10/5	1998/11/19	1999/2/18
Wire length(m)	100	100	100	100	100	100
Wire angle(°)	6-23		8-17	5-8 °	5-10 °	3-17 °
RGS No.	1500	1500	1500	1500	1500	1500
Revolution	1193*	1080	1171*	1171*	1119*	1219*
	942*	1085*	1085*	1038	1058	1111
	1158	1055*	1100	1010*	1050*	1150
	977	1070	1097	1085	1070	1071*
	1050	1060	1092	1079	1060	1143
Mean revolution per 100m	1062	1070	1096	1067	1063	1135

Table 8-3. Calibration data of flow-meters used for NORPAC net samplings, Hokuyo Maru, April 1998- March 1999 .

Date	1998/4/17	1998/4/17	1998/4/17	1998/6/3	1998/6/3	1998/6/3	1998/8/	1998/7/28	1998/7/28	1998/9/	1998/10/	1998/12/	1999/2/22
Wire length(m)	100	100	100	100	100	100	100	100	100	100	100	90	100
Wire angle(°)	17			15	15	4				13	10		
RGS No.	2439	2416	2411	2439	2411	2416	2428	2411	2416	2439	2439	2439	2439
Revolution	947*	724	0	931*	485*	799*	212	1023	816	849*	879*	796*	819*
	955	710*	699	838*	542	744	160	1011	807	865	835	809	945
	981*	711	480	845	593	624	180	1027*	783	914	833	818	987*
	975	734*	780	880	627	583*	265	997*	775*	921*	819*	833	838
	960	726	517	871	674*	610	0	1006	882*	917	840	875*	934
Mean revolution per 100m	963	720	619	865	587	659	204	1013	802	899	836	911	906

Table 8-4. Calibration data of flow-meters used for NORPAC net samplings, Kinsei Maru, April 1998- March 1999 .

Date	1998/4/16	1998/5/26	1998/7/28	1998/10/3	1999/2/16
Wire length(m)	50	100	100	50	100
Wire angle(°)	1	13-24	14-22	17-24	15-19
RGS No.	2427	2427	2427	2427	2427
Revolution	442	919	911*	425	891*
	431	942*	948	416	863*
	445	882	984	411	870
	449*	846*	1009*	429*	872
	427*	862	963	394*	863
Mean revolution per 100m	879	888	965	835	868

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1998 to March 1999.

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 ³)	Wet weight of sample (g)		Permanent Sample No.	Vessel	Remarks	
	Lat N	Long E	Date	Hour					No.	Rev.		per haul	per 1000m ³				
J31	43-20	141-10	1998/04/14	11:07	35	6	35	NGG52	2399	265	5.7	0.98	171	C98019	Oyashio Maru	*1	
J31	43-20	141-10	1998/04/14	11:07	35	6	35	NXX13	2401			7.60			C98020	Oyashio Maru	
J32	43-30	141-00	1998/04/14	16:30	90	30	78	NGG52	2399	1003	21.7	3.12	144	C98021	Oyashio Maru	*2	
J32	43-30	141-00	1998/04/14	16:30	90	30	78	NXX13	2401	871	24.4	5.80	237	C98022	Oyashio Maru	*3	
J33	43-30	140-40	1998/04/14	19:15	154	14	149	NGG52	2399	1314	28.4	3.76	132	C98023	Oyashio Maru	*4	
J33	43-30	140-40	1998/04/14	19:15	154	14	149	NXX13	2401	1023	28.7	10.88	379	C98024	Oyashio Maru	*3	
J34	43-30	140-20	1998/04/14	20:50	150	2	150	NGG52	2399	767	16.6	3.74	226	C98025	Oyashio Maru	*5	
J34	43-30	140-20	1998/04/14	20:50	150	2	150	NXX13	2401	175	4.9	5.16	1050	C98026	Oyashio Maru	*3	
J41	42-30	139-40	1998/04/23	2:24	152	10	150	NGG52	2399	1349	29.2	5.56	191	C98027	Oyashio Maru	*4	
J41	42-30	139-40	1998/04/23	2:24	152	10	150	NXX13	2401	1401	39.3	7.16	182	C98028	Oyashio Maru	*6	
J43	42-30	139-00	1998/04/23	7:00	170	28	150	NGG52	2399	1510	32.6	2.40	74	C98029	Oyashio Maru	*4	
J43	42-30	139-00	1998/04/23	7:00	170	28	150	NXX13	2401	1618	45.4	3.60	79	C98030	Oyashio Maru	*6	
J45	42-30	138-20	1998/04/15	19:50	152	10	150	NGG52	2399			2.26			C98031	Oyashio Maru	
J45	42-30	138-20	1998/04/15	19:50	152	10	150	NXX13	2401			3.60			C98032	Oyashio Maru	*6
J47	42-30	137-30	1998/04/15	13:31	167	26	150	NGG52	2399	5610	121.3	1.24	10	C98033	Oyashio Maru		
J47	42-30	137-30	1998/04/15	13:31	167	26	150	NXX13	2401	1877	52.7	2.24	43	C98034	Oyashio Maru	*6	
J31	43-20	141-10	1998/05/25	10:20	35	6	35	NGG52	2399			2.84			C98035	Oyashio Maru	*7
J31	43-20	141-10	1998/05/25	10:20	35	6	35	NXX13	2401			14.80			C98036	Oyashio Maru	*7
J32	43-30	141-00	1998/05/25	13:05	85	52	52	NGG52	2399	1464	25.2	7.78	309	C98037	Oyashio Maru		
J32	43-30	141-00	1998/05/25	13:05	85	52	52	NXX13	2401	957	16.5	6.04	367	C98038	Oyashio Maru		
J33	43-30	140-40	1998/05/26	11:40	163	23	150	NGG52	2399	1212	20.9	6.92	332	C98039	Oyashio Maru	*8	
J33	43-30	140-40	1998/05/26	11:40	163	23	150	NXX13	2401	1525	26.2	2.64	101	C98040	Oyashio Maru		
J34	43-30	140-20	1998/05/26	13:40	175	31	150	NGG52	2399	1628	28.0	7.84	280	C98041	Oyashio Maru		
J34	43-30	140-20	1998/05/26	13:40	175	31	150	NXX13	2401	1679	28.9	6.92	240	C98042	Oyashio Maru		
J47	42-30	137-30	1998/06/03	7:42	196	40	150	NGG52	2399	2377	40.9	0.68	17	C98043	Oyashio Maru		
J47	42-30	137-30	1998/06/03	7:42	196	40	150	NXX13	2401	2427	41.8	1.40	34	C98044	Oyashio Maru		
J45	42-30	138-20	1998/06/03	13:18	190	35	156	NGG52	2399	2247	38.7	1.68	43	C98045	Oyashio Maru		
J45	42-30	138-20	1998/06/03	13:18	190	35	156	NXX13	2401	2289	39.4	2.70	69	C98046	Oyashio Maru		
J43	42-30	139-00	1998/06/09	12:52	200	43	146	NGG52	1787	3583	49.0	2.06	42	C98047	Oyashio Maru		
J43	42-30	139-00	1998/06/09	12:52	200	43	146	NXX13	1782	3260	43.5	3.84	88	C98048	Oyashio Maru		
J46	42-30	138-00	1998/06/10	12:05	203	43	148	NGG52	1787	3870	52.9	1.56	29	C98049	Oyashio Maru		
J46	42-30	138-00	1998/06/10	12:05	203	43	148	NXX13	1782	3760	50.1	2.72	54	C98050	Oyashio Maru		
J46	42-30	138-00	1998/06/10	22:06	171	29	150	NGG52	1787	2806	38.4	3.38	88	C98051	Oyashio Maru	*9	
J46	42-30	138-00	1998/06/10	22:06	171	29	150	NXX13	1782	2720	36.3	5.04	139	C98052	Oyashio Maru	*9	
J41a	42-41.3	139-46.2	1998/06/11	20:09	156	16	150	NGG52	1787	1748	23.9	3.74	156	C98053	Oyashio Maru		
J41a	42-41.3	139-46.2	1998/06/11	20:09	156	16	150	NXX13	1782	1700	22.7	5.80	256	C98054	Oyashio Maru		
M01	42-41.3	139-46.2	1998/06/11	12:55	159	19	150	NGG52	1787	1995	27.3	3.02	111	C98301	Oyashio Maru		
M01	42-41.3	139-46.2	1998/06/11	12:55	159	19	150	NXX13	1782	1908	25.4	4.90	193	C98302	Oyashio Maru		
J31	43-20	141-10	1998/07/28	12:20	35	4	35	NGG52	1787	405	6.4	0.82	129	C98055	Oyashio Maru	*10	
J31	43-20	141-10	1998/07/28	12:20	35	4	35	NXX13	1782	495	7.9	2.30	290	C98056	Oyashio Maru		

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1998 to March 1999.

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 ³)	Wet weight of sample (g)		Permanent Sample No.	Vessel	Remarks
	Lat N	Long E	Date	Hour					No.	Rev.		per haul	per 1000m ³			
J32	43-30	141-00	1998/07/28	13:40	80	6	80	NGG52	1787	905	14.2	1.40	99	C98057	Oyashio Maru	
J32	43-30	141-00	1998/07/28	13:40	80	6	80	NXX13	1782	910	14.6	2.56	176	C98058	Oyashio Maru	
J33	43-30	140-40	1998/07/28	15:20	157	17	150	NGG52	1787	1830	28.7	2.76	96	C98059	Oyashio Maru	
J33	43-30	140-40	1998/07/28	15:20	157	17	150	NXX13	1782	1895	30.3	4.96	164	C98060	Oyashio Maru	
J34	43-30	140-20	1998/07/28	17:00	200	46	139	NGG52	1787	2870	45.0	1.46	32	C98061	Oyashio Maru	
J34	43-30	140-20	1998/07/28	17:00	200	46	139	NXX13	1782	2880	46.1	6.72	146	C98062	Oyashio Maru	
J41	42-30	139-40	1998/07/31	7:31	177	32	150	NGG52	1787	2210	34.7	3.98	115	C98063	Oyashio Maru	
J41	42-30	139-40	1998/07/31	7:31	177	32	150	NXX13	1782	2165	34.6	4.12	119	C98064	Oyashio Maru	
J43	42-30	139-00	1998/07/31	11:00	162	22	150	NGG52	1787	1905	29.9	0.90	30	C98065	Oyashio Maru	
J43	42-30	139-00	1998/07/31	11:00	162	22	150	NXX13	1782	2032	32.5	3.36	103	C98066	Oyashio Maru	
J45	42-30	138-20	1998/07/31	14:30	150	6	149	NGG52	1787	1673	26.2	0.84	32	C98067	Oyashio Maru	
J45	42-30	138-20	1998/07/31	14:30	150	6	149	NXX13	1782	3710	59.4	1.98	33	C98068	Oyashio Maru	
J47	42-30	137-30	1998/07/31	18:50	160	20	150	NGG52	1787	1753	27.5	0.84	31	C98069	Oyashio Maru	
J47	42-30	137-30	1998/07/31	18:50	160	20	150	NXX13	1782	1691	27.1	2.10	78	C98070	Oyashio Maru	
J31	43-20	141-10	1998/09/28	10:17	35	21	33	NGG52	1787	443	6.2	1.02	164	C98071	Oyashio Maru	
J31	43-20	141-10	1998/09/28	10:17	35	21	33	NXX13	2401	154	3.0	2.18	725	C98072	Oyashio Maru	
J32	43-30	141-00	1998/09/28	11:32	90	18	86	NGG52	1787	978	13.7	3.74	272	C98073	Oyashio Maru	*11
J32	43-30	141-00	1998/09/28	11:32	90	18	86	NXX13	2401	694	13.5	4.76	352	C98074	Oyashio Maru	*11
J33	43-30	140-40	1998/09/28	13:09	156	16	150	NGG52	1787	1932	27.1	1.98	73	C98075	Oyashio Maru	
J33	43-30	140-40	1998/09/28	13:09	156	16	150	NXX13	2401	366	7.1	3.96	555	C98076	Oyashio Maru	
J34	43-30	140-20	1998/09/28	14:51	160	20	150	NGG52	1787	1854	26.0	2.34	90	C98077	Oyashio Maru	
J34	43-30	140-20	1998/09/28	14:51	160	20	150	NXX13	2401	464	9.1	5.20	574	C98078	Oyashio Maru	
J41	42-30	139-40	1998/09/29	17:15	190	38	150	NGG52	1787	2478	34.8	10.18	293	C98079	Oyashio Maru	*12
J41	42-30	139-40	1998/09/29	17:15	190	38	150	NXX13	2401	1909	37.2	10.80	290	C98080	Oyashio Maru	
J43	42-30	139-00	1998/09/29	20:33	177	32	150	NGG52	1787	2783	39.1	6.14	157	C98081	Oyashio Maru	*13
J43	42-30	139-00	1998/09/29	20:33	177	32	150	NXX13	2401	1443	28.2	8.68	308	C98082	Oyashio Maru	*13
J45	42-30	138-20	1998/09/29	23:55	196	40	150	NGG52	1787	3272	45.9	10.68	233	C98083	Oyashio Maru	*13
J45	42-30	138-20	1998/09/29	23:55	196	40	150	NXX13	2401	2169	42.3	8.48	200	C98084	Oyashio Maru	*13
J47	42-30	137-30	1998/09/30	4:31	167	26	150	NGG52	1787	2245	31.5	9.80	311	C98085	Oyashio Maru	*13
J47	42-30	137-30	1998/09/30	4:31	167	26	150	NXX13	2401	1572	30.7	5.32	173	C98086	Oyashio Maru	*13
J31	43-20	141-10	1998/12/01	5:34	35	18	33	NGG52	1787	520	7.2	0.36	50	C98087	Oyashio Maru	
J31	43-20	141-10	1998/12/01	5:34	35	18	33	NXX13	1782	470	6.7	1.42	211	C98088	Oyashio Maru	
J32	43-30	141-00	1998/12/01	3:55	90	28	79	NGG52	1787	1633	22.5	0.54	24	C98089	Oyashio Maru	
J32	43-30	141-00	1998/12/01	3:55	90	28	79	NXX13	1782	1526	21.8	2.22	102	C98090	Oyashio Maru	
J33	43-30	140-40	1998/12/01	2:16	154	14	149	NGG52	1787	2010	27.7	0.84	30	C98091	Oyashio Maru	*14
J33	43-30	140-40	1998/12/01	2:16	154	14	149	NXX13	1782	1975	28.2	1.62	57	C98092	Oyashio Maru	*14
J34	43-30	140-20	1998/12/01	0:38	170	28	150	NGG52	1787	2659	36.7	3.96	108	C98093	Oyashio Maru	
J34	43-30	140-20	1998/12/01	0:38	170	28	150	NXX13	1782	2478	35.4	2.52	71	C98094	Oyashio Maru	
J41	42-30	139-40	1998/11/26	19:40	177	33	148	NGG52	1787	1887	26.0	1.50	58	C98095	Oyashio Maru	*14
J41	42-30	139-40	1998/11/26	19:40	177	33	148	NXX13	1782	1426	20.4	1.86	91	C98096	Oyashio Maru	*14

Table 9-2

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1998 to March 1999.

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 ³)	Wet weight of sample (g)		Permanent Sample No.	Vessel	Remarks
	Lat N	Long E	Date	Hour					No.	Rev.		per haul	per 1000m ³			
J43	42-30	139-00	1998/11/26	23:28	160	20	150	NGG52	1787	2210	30.5	4.20	138	C98097	Oyashio Maru	*13
J43	42-30	139-00	1998/11/26	23:28	160	20	150	NXX13	1782	2328	33.3	5.28	159	C98098	Oyashio Maru	
J45	42-30	138-20	1998/11/27	3:05	152	10	150	NGG52	1787	1865	25.7	3.36	131	C98099	Oyashio Maru	*13
J45	42-30	138-20	1998/11/27	3:05	152	10	150	NXX13	1782	1773	25.3	4.74	187	C98100	Oyashio Maru	
J47	42-30	137-30	1998/11/27	7:52	161	21	150	NGG52	1787	2239	30.9	10.94	354	C98101	Oyashio Maru	*15
J47	42-30	137-30	1998/11/27	7:52	161	21	150	NXX13	1782	1978	28.3	3.40	120	C98102	Oyashio Maru	
J31	43-20	141-10	1999/02/17	13:15	30		30	N54GG	1787	365	5.0	1.38	274	C99001	Oyashio Maru	
J31	43-20	141-10	1999/02/17	13:15	30		30	NXX13	1782	355	5.1	3.44	678	C99002	Oyashio Maru	
J32	43-30	141-00	1999/02/17	10:30	95	35	78	N54GG	1787	550	7.6	0.54	71	C99003	Oyashio Maru	
J32	43-30	141-00	1999/02/17	10:30	95	35	78	NXX13	1782	530	7.6	9.04	1194	C99004	Oyashio Maru	
J31	43-20	141-10	1999/03/10	2:54	37	25	34	NGG52	1787	518	7.8	1.00	72	C99501	Oyashio Maru	
J31	43-20	141-10	1999/03/10	2:54	37	25	34	NXX13	1782	508	7.7	4.24	491	C99502	Oyashio Maru	
J32	43-30	141-00	1999/03/10	0:55	110	38	87	NGG52	1787	1865	28.2	0.56	123	C99503	Oyashio Maru	
J32	43-30	141-00	1999/03/10	0:55	110	38	87	NXX13	1782	1805	27.5	3.80	195	C99504	Oyashio Maru	
J33	43-30	140-40	1999/03/09	20:01	216	46	150	NGG52	1787	3560	53.7	3.46	29	C99505	Oyashio Maru	*34
J33	43-30	140-40	1999/03/09	20:01	216	46	150	NGG52	1787	3310	50.4	5.36	63	C99506	Oyashio Maru	*34
J41	42-30	139-40	1999/03/08	19:17	181	35	148	NGG52	1787	3465	52.3	1.54	85	C99507	Oyashio Maru	
J41	42-30	139-40	1999/03/08	19:17	181	35	148	NXX13	1782	3090	47.1	3.18	107	C99508	Oyashio Maru	*34
J45	42-30	138-20	1999/03/09	1:36	173	30	150	NGG52	1787	3955	59.7	4.42	74	C99509	Oyashio Maru	*35
J45	42-30	138-20	1999/03/09	1:36	173	30	150	NXX13	1782	2810	42.8	5.06	118	C99510	Oyashio Maru	*36
JH01	43-22	141-24	1999/03/10	7:28	20	22	19	NGG52	1787	315	4.8	0.62	130	C99207	Oyashio Maru	*37
JH01	43-22	141-24	1999/03/10	7:28	20	22	19	NXX13	1782	294	4.5	1.84	411	C99208	Oyashio Maru	*37
P11	43-05	145-45	1998/04/18	17:21	99	25	90	NGG52	1500	1189	17.9	15.28	851	K9805	Hokushin Maru	
P13	42-45	145-55	1998/04/18	14:30	157	17	150	NGG52	1500	1760	26.6	8.98	338	K9806	Hokushin Maru	
P15	42-15	146-00	1998/04/18	10:16	155	14	150	NGG52	1500	1750	26.4	3.98	151	K9807	Hokushin Maru	
P16	42-00	146-00	1998/04/18	8:15	152	9	150	NGG52	1500	1415	21.4	1.82	85	K9808	Hokushin Maru	
P17	41-30	146-00	1998/04/17	16:10	151	6	150	NGG52	1500	1445	21.8	11.06	507	K9809	Hokushin Maru	
P11	43-05	145-45	1998/06/01	15:45	96	20	90	NGG52	1500	1437	21.5	5.36	249	K9810	Hokushin Maru	
P13	42-45	145-55	1998/06/01	12:52	168	27	150	NGG52	1500	2255	33.7	10.22	303	K9811	Hokushin Maru	
P15	42-15	146-00	1998/06/01	8:55	159	19	150	NGG52	1500	1330	19.9	17.36	873	K9812	Hokushin Maru	
P16	42-00	146-00	1998/06/01	6:43	196	40	150	NGG52	1500	2100	31.4	20.04	638	K9813	Hokushin Maru	
P17	41-30	146-00	1998/05/31	10:45	168	27	150	NGG52	1500	2470	36.9	16.30	441	K9814	Hokushin Maru	
P11	43-05	145-45	1998/08/03	13:45	92	11	90	NGG52	1500	1132	16.5	2.96	180	K9815	Hokushin Maru	
P13	42-45	145-55	1998/08/03	10:44	155	15	150	NGG52	1500	1650	24.0	17.04	710	K9816	Hokushin Maru	
P15	42-15	146-00	1998/08/03	6:31	157	17	150	NGG52	1500	1741	25.3	3.44	136	K9817	Hokushin Maru	
P16	42-00	146-00	1998/08/03	4:34	159	19	150	NGG52	1500	2408	35.0	3.02	86	K9818	Hokushin Maru	
P17	41-30	146-00	1998/08/01	23:38	155	14	150	NGG52	1500	937	13.6	6.68	490	K9819	Hokushin Maru	
P11	43-05	145-45	1998/10/04	2:40	102	12	100	NGG52	1500	1430	21.4	2.18	102	K9820	Hokushin Maru	
P13	42-45	145-55	1998/10/03	6:20	164	24	150	NGG52	1500	2170	32.4	1.36	42	K9821	Hokushin Maru	

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1998 to March 1999.

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 ³)	Wet weight of sample (g)		Permanent Sample No.	Vessel	Remarks
	Lat N	Long E	Date	Hour					No.	Rev.		per haul	per 1000m ³			
P15	42-15	146-00	1998/10/04	10:55	228	49	150	NGG52	1500	5535	82.8	2.82	34	K9822	Hokushin Maru	
P16	42-00	146-00	1998/10/04	13:22	205	43	150	NGG52	1500	3374	50.5	2.62	52	K9823	Hokushin Maru	
P17	41-30	146-00	1998/10/04	16:30	170	28	150	NGG52	1500	2510	37.5	1.32	35	K9824	Hokushin Maru	
P11	43-05	145-45	1998/11/16	17:07	82	12	80	NGG52	1500	930	14.0	1.36	97	K9825	Hokushin Maru	
P13	42-45	145-55	1998/11/16	20:55	153	12	150	NGG52	1500	1720	26.0	5.72	220	K9826	Hokushin Maru	
P15	42-15	146-00	1998/11/17	4:19	199	41	150	NGG52	1500	1438	21.7	3.38	156	K9827	Hokushin Maru	
P16	42-00	146-00	1998/11/17	6:42	153	11	150	NGG52	1500	1810	27.3	0.52	19	K9828	Hokushin Maru	
P17	41-30	146-00	1998/11/17	9:40	166	25	150	NGG52	1500	3068	46.3	0.32	7	K9829	Hokushin Maru	
P13	42-45	145-55	1999/02/18	10:13		15	150	NGG52	1500	2305	32.4	0.86	27	K9901	Hokushin Maru	
P15	42-15	146-00	1999/02/17	20:05		59	150	NGG52	1500	2950	41.4	1.20	29	K9902	Hokushin Maru	*16
P16	42-00	146-00	1999/02/17	15:29	216	47	147	NGG52	1500	4035	56.6	0.74	13	K9903	Hokushin Maru	*17
P17	41-30	146-00	1999/02/17	12:24	152	10	150	NGG52	1500	2301	32.3	0.66	20	K9904	Hokushin Maru	
P52	42-00	142-20	1998/04/15	5:45	160	20	150	NGG52	2427	1730	31.5	6.04	192	H9804	Kinsei Maru	*19
P54	41-40	142-00	1998/04/15	0:19	188	35	154	NGG52	2427	2910	52.9	13.28	251	H9805	Kinsei Maru	
P56	41-20	141-40	1998/04/14	19:06	160	20	150	NGG52	2427	1562	28.4	7.68	270	H9806	Kinsei Maru	
P52	42-00	142-20	1998/05/26	23:55	177	32	150	NGG52	2427	1788	32.1	8.42	262	H9807	Kinsei Maru	*20
P54	41-40	142-00	1998/05/26	20:31	161	21	150	NGG52	2427	1891	34.0	8.90	262	H9808	Kinsei Maru	
P56	41-20	141-40	1998/05/26	16:47	153	12	150	NGG52	2427	1243	22.3	7.78	348	H9809	Kinsei Maru	
P52	42-00	142-20	1998/07/28	5:41	155	15	150	NGG52	2427	1651	27.2	1.44	53	H9810	Kinsei Maru	
P54	41-40	142-00	1998/07/28	0:23	173	30	150	NGG52	2427	1945	32.1	5.78	180	H9811	Kinsei Maru	
P56	41-20	141-40	1998/07/27	20:26	170	28	150	NGG52	2427	2119	35.0	3.80	109	H9812	Kinsei Maru	
P52	42-00	142-20	1998/09/30	0:50	154	13	150	NGG52	2427	1198	22.8	11.30	495	H9813	Kinsei Maru	*21
P54	41-40	142-00	1998/09/28	22:00	213	45	151	NGG52	2427	3267	62.2	4.28	69	H9814	Kinsei Maru	
P56	41-20	141-40	1998/09/28	18:08	154	13	150	NGG52	2427	1105	21.0	3.08	146	H9815	Kinsei Maru	
P52	42-00	142-20	1999/02/16	11:20	181	34	150	NGG52	2427	2075	38.2	0.22	6	H9901	Kinsei Maru	
P54	41-40	142-00	1999/02/16	18:10	196	40	150	NGG52	2427	1034	19.0	2.54	134	H9902	Kinsei Maru	*22
P56	41-20	141-40	1999/02/16	22:40	160	20	150	NGG52	2427	1392	25.6	1.02	40	H9903	Kinsei Maru	
O22	44-35	143-15	1998/04/20	23:11	80	36	65	NGG52	2439	975	16.3	1.70	105	W9805	Hokuyo Maru	*23
O23	44-40	143-20	1998/04/21	0:24	120	27	107	NGG52	2439	1207	20.1	1.88	93	W9806	Hokuyo Maru	*23
O24	44-50	143-30	1998/04/21	2:15	180	43	132	NGG52	2439	1699	28.3	4.54	160	W9807	Hokuyo Maru	*23
O26	45-10	143-50	1998/04/22	17:36	165	25	150	NGG52	2439	1444	24.1	2.68	111	W9808	Hokuyo Maru	
J11	45-30	141-40	1998/04/14	9:52	55	45	39	NGG52	2416	482	10.7	1.28	120	W9809	Hokuyo Maru	
J13	45-30	141-10	1998/04/14	14:06	146	35	120	NGG52	2416	1328	29.5	2.18	74	W9810	Hokuyo Maru	
J15	45-30	140-40	1998/04/15	11:33	240	52	148	NGG52	2416	2916	64.8	0.94	15	W9811	Hokuyo Maru	
J17	45-30	140-00	1998/04/15	7:29	167	26	150	NGG52	2416	1070	23.8	0.56	24	W9812	Hokuyo Maru	
O22	44-35	143-15	1998/06/08	23:31	65	4	65	NGG52	2439	521	9.6	6.04	630	W9813	Hokuyo Maru	*24
O23	44-40	143-20	1998/06/09	0:12	110	25	100	NGG52	2439	996	18.3	4.56	249	W9814	Hokuyo Maru	*24
O24	44-50	143-30	1998/06/09	1:49	144	14	140	NGG52	2439	1208	22.2	5.44	245	W9815	Hokuyo Maru	*23

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1998 to March 1999.

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 ³)	Wet weight of sample (g)		Permanent Sample No.	Vessel	Remarks
	Lat N	Long E	Date	Hour					No.	Rev.		per haul	per 1000m ³			
O26	45-10	143-50	1998/06/09	4:53	155	14	150	NGG52	2439	1184	21.8	0.80	37	W9816	Hokuyo Maru	
J11	45-30	141-40	1998/06/01	10:29	55	43	40	NGG52	2411	589	16.0	2.46	154	W9817	Hokuyo Maru	
J13	45-30	141-10	1998/06/01	13:04	180	60	90	NGG52	2411	2201	59.7	17.44	292	W9818	Hokuyo Maru	*25
J15	45-30	140-40	1998/06/02	11:31	155	15	150	NGG52	2411	1143	31.0	0.60	19	W9819	Hokuyo Maru	
J17	45-30	140-00	1998/06/02	6:34	202	42	150	NGG52	2411	2043	55.4	2.66	48	W9820	Hokuyo Maru	*26
O22	44-35	143-15	1998/08/04	1:12	70	10	69	NGG52	2428	282	22.6	0.56	25	W9821	Hokuyo Maru	
O23	44-40	143-20	1998/08/04	2:10	106	10	104	NGG52	2428	96	7.7	0.70	91	W9822	Hokuyo Maru	
O24	44-50	143-30	1998/08/04	3:32	142	10	140	NGG52	2428	172	13.8	14.92	1084	W9823	Hokuyo Maru	*27
O26	45-10	143-50	1998/08/04	6:21	152	10	150	NGG52	2428	396	31.7	1.10	35	W9824	Hokuyo Maru	
J11	45-30	141-40	1998/07/27	10:25	67	46	47	NGG52	2411	971	15.4	1.80	117	W9825	Hokuyo Maru	
J13	45-30	141-10	1998/07/27	12:56	125	35	102	NGG52	2411	1087	17.2	3.52	204	W9826	Hokuyo Maru	
J15	45-30	140-40	1998/07/28	7:25	196	41	148	NGG52	2411	1926	30.5	3.04	100	W9827	Hokuyo Maru	*28
J17	45-30	140-00	1998/07/28	4:18	209	45	148	NGG52	2411	2079	32.9			W9828	Hokuyo Maru	*29
O22	44-35	143-15	1998/09/29	7:22	75	30	65	NGG52	2439	732	13.0	0.80	61	W9829	Hokuyo Maru	
O23	44-40	143-20	1998/09/29	6:41	101	7	100	NGG52	2439	839	14.9	6.16	413	W9830	Hokuyo Maru	*30
O24	44-50	143-30	1998/09/29	5:22	155	15	150	NGG52	2439	1299	23.1	2.72	118	W9831	Hokuyo Maru	*31
O26	45-10	143-50	1998/09/29	2:21	183	35	150	NGG52	2439	1890	33.6	3.98	118	W9832	Hokuyo Maru	*32
J11	45-30	141-40	1998/10/27	10:10	60	35	49	NGG52	2439	772	14.7	0.50	34	W9833	Hokuyo Maru	
J13	45-30	141-10	1998/10/27	12:39	157	40	120	NGG52	2439	1994	38.0	2.44	64	W9834	Hokuyo Maru	
J15	45-30	140-40	1998/10/27	21:05	209	45	148	NGG52	2439	2160	41.1	3.38	82	W9835	Hokuyo Maru	
J17	45-30	140-00	1998/10/28	0:38	164	25	149	NGG52	2439	1580	30.1	5.38	179	W9836	Hokuyo Maru	
O22	44-35	143-15	1998/12/10	0:07	100	45	71	NGG52	2439	1222	21.5	0.98	46	W9837	Hokuyo Maru	
O23	44-40	143-20	1998/12/10	1:30	160	53	96	NGG52	2439	1983	34.9			W9338	Hokuyo Maru	*33
J11	45-30	141-40	1998/11/30	10:55	40	40	31	NGG52	2411?	503	8.0	0.16	20	W9839	Hokuyo Maru	
J15	45-30	140-40	1998/12/01	7:30	150	47	102	NGG52	2411?	2396	38.0	1.56	41	W9840	Hokuyo Maru	

Table 9. Data on plankton samples collected by vertical hauls with a paired NORPAC net or a standard NORPAC net, from April 1998 to March 1999.

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 ³)	Wet weight of sample (g)		Permanent Sample No.	Vessel	Remarks
	Lat N	Long E	Date	Hour					No.	Rev.		per haul	per 1000m ³			
J11	45-30	141-40	1999/02/22	9:59	55	25	50	NGG52	2439	399	7.0	0.48	68	W99001	Hokuyo Maru	
J13	45-30	141-10	1999/02/22	12:20	131	40	100	NGG52	2439	1437	25.3	1.12	44	W99002	Hokuyo Maru	
J15	45-30	140-40	1999/02/23	10:38	216	46	150	NGG52	2439	2588	45.5	0.40	9	W99003	Hokuyo Maru	
J17	45-30	140-00	1999/02/23	14:24	183	35	150	NGG52	2439	2287	40.2	0.36	9	W99004	Hokuyo Maru	

- | | | | |
|-----|--|-----|---|
| *1 | Small copepods abundant. | *21 | Gelatinous. |
| *2 | Gelatinous, but well-drained. | *22 | Small euphausiids. |
| *3 | Phytoplankton abundant. | *23 | Large euphausiids appear. |
| *4 | Large zooplankters appear. | *24 | Small copepods abundant. |
| *5 | <i>Parasagitta elegans</i> appear. | *25 | Large copepods abundant. |
| *6 | Phytoplankton scarce. | *26 | <i>Parasagitta elegans</i> abundant. |
| *7 | Excluding one ctenophore (L=4cm) | *27 | Large euphausiids abundant. |
| *8 | Gelatinous. | *28 | Many salps appear. |
| *9 | Large zooplankters abundant. | *29 | Too gelatinous to measure wet weight. |
| *10 | Slightly contaminated by sand. | *30 | Gelatinous. |
| *11 | <i>Creseis aspicula</i> abundant. | *31 | Contaminated by small amount of sands. Euphausiids appear. |
| *12 | Gelatinous. | *32 | Euphausiids appear. |
| *13 | Amphipods abundant. | *33 | Wet weight not measured, because of contamination by sands. |
| *14 | Small amphipods abundant. | *34 | Euphausiids appear. |
| *15 | Gelatinous. | *35 | Large <i>Parasagitta elegans</i> appear. |
| *16 | Euphausiids. | *36 | Phytoplankton poor. |
| *17 | Amphipods. | *37 | Zooplankton poor. |
| *19 | <i>Parasagitta elegans</i> and euphausiids appear. | | |
| *20 | <i>Parasagitta elegans</i> appear. | | |

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