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A-641 Takashi HORII

Occurrence of *Malacobdella japonica* in the pallial cavity of Sakhalin surf clam *Spisula sachalinensis* along Pacific coast of Hokkaido and Nemuro Strait

There is a high possibility that *Malacobdella japonica* lived in almost all Sakhalin surf clams caught in the fishing grounds of the Pacific coast of Hokkaido and the Nemuro Strait. The occurrence of symbiosis increased with the growth of the clam and exceeded 90% for clams with a 60 mm shell length. The maximum wet weight of *M. japonica* was 350.9 mg. The standard symbiotic style was one *M. japonica* per clam, and most of *M. japonica* was juveniles in the case of multiple individuals within one clam. I hypothesized that *M. japonica*, which lived as multiple individuals in the clam, begins living solitarily by the time the wet weight reaches approximately 30 mg, after the battle of survival.

A-642 Hiroshi HOSHIKAWA and Yoshiyuki TAKAYA

Consideration of the parameter indicating the food condition of abalone *Haliotis discus hannai* reared in a tank

We investigated the relationship between actual food intake and the obesity level calculated from each weight (total weight, soft body weight, muscle weight, and muscle dry weight) and shell length, muscle moisture content, muscle glycogen content of Ezo abalone *Haliotis discus hannai* reared individually using raw kelp *Saccharina japonica* as bait and varying the amount of feeding to identify indicators suitable for evaluating the feed environment of abalone fishing grounds. The obesity level accurately reflected the amount of food consumed during a state of food shortage, however but no difference in food intake was detected when the amount of food increased. However, the moisture and glycogen contents more accurately reflected the amount of food consumed under a range of feeding conditions, from starvation to satiation.

A-643 Tetsuya YAMAZAKI, Nobukazu SATO and Shinichi TAKABATAKE

Rearing larval Japanese smelt *Hypomesus nipponensis* fed cultured rotifer

Brachionus plicatilis in low temperature and food size

The activity and feeding size of L-type rotifers on Japanese smelt larvae were investigated under low-temperature and salinity conditions. Additionally, the rearing methods of Japanese smelt at low temperatures (approximately 10°C) were compared between running and stagnant water trials. The long-term activity of the rotifers was confirmed in a culture test at a salinity of 1 PSU. Larvae of hatching after 1 d fed rotifers whose sizes were 194 µm in average lorica length (range 107–265 µm) and average lorica width 128 µm (range 93–156 µm). The survival rate of larvae in the stagnant-water trial (46.0%) was higher than that in the running-water trial (20.6%). These results suggested that high rotifer activity contributes to the high survival rates of larvae in stagnant water-rearing systems.

A-644 Kodai MORITA and Kenji SAKAGUCHI

CPUE of northern shrimp *Pandalus eous* considering target strategy in a shrimp pot fishery in the Sea of Japan off western Hokkaido (Short Paper)

The catch of the northern shrimp *Pandalus eous* by shrimp pot fisheries in the Sea of Japan off western Hokkaido has been declining. We showed that the ratio of the catch of the coon stripe shrimp *Pandalus hypsinotus* and others was high in 2015–2022 because of target changes from northern shrimp to other species. We calculated the directed CPUE as an index for the stock assessment of northern shrimp to remove the bias caused by target species changes.

A-645 Hiroshi HOSHIKAWA and Yoshiyuki TAKAYA

Seasonal impact of Isoyake on the growth of Ezo abalone *Haliotis discus hannai* (Short Paper)

We collected Ezo abalones *Haliotis discus hannai* in spring, summer, and autumn from Furubira in the Sea of Japan, where seaweed denudation is prominent, and from Toyoura in Funka Bay, where kelp *Saccharina japonica* grows until autumn. We investigated condition index (CI), condition index of soft body (CIS), condition index of muscle (CIM), condition index of dried muscle (CIDM), muscle moisture content, and muscle glycogen content, and examined seasonal and inter-fishing ground differences. Furubira summer obesity levels, autumn CIS, and CIDM were lower than those of Toyoura during the same period. The moisture content was higher than that in the other seasons and in Toyoura in

autumn in Furubira only. The glycogen content was significantly higher only in autumn in Toyoura. These results suggested that the amount of food consumed in autumn and the recovery period after spawning may be strongly related to the growth differences between the fishing grounds.

A-646 Mitsuru TORAO

Effect of feeding oil-supplemented diets on the growth rate of chum salmon fry after seawater transfer (Short paper)

The effect of feeding diets supplemented with oil on the growth rate of chum salmon fry, *Oncorhynchus keta*, after seawater transition was examined in a rearing experiment. Supplementation of the commercial diet with fish oil or salmon liquid during freshwater rearing increased the storage of lipids in chum salmon fry. The growth rate of these chum salmon fry was compensated only under extremely poor feeding conditions after the seawater transition. However, the difference in the growth rate was small, at approximately 0.1 mm/day. It is unclear whether this difference in growth rate affects survival, and further investigation is required.