19. Bottom Fish Composition and Food Habits in the Southern Water off the St. Lawrence Island in the Bering Sea

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Abstract

Abundance and species composition of fish in the southern water off St. Lawrence Island in the northeastern Bering Sea were compared yearly relating to bottom water temperature, based on catch obtained by T/S *Oshoro Maru* in late July for years 1992-1997. Size and age compositions, maturity and food habits of walleye pollock were examined on the sample taken at OST. 9608 (61.69N,174.53W) on July 29, 1996.

Dominant fishes belonged to Gadidae, Cottidae and Pleuronectidae. Sampling location was grouped by species composition and CPUE. Distribution of bottom isotherm varied from year to year. The years of 1994 and 1995 were cold, whereas the year of 1997 was warm, as indicated by 1.0! or lower isothems. Vertical profiles of temperature reveal a strong boundary between upper water column and lower one. The bottom fish composition is shown to be closely related to the distribution of bottom isotherm.

Walleye pollock ranged from 10-70 cm in fork length(FL). Ages 1 and 4 were dominant, but age 2 was very scarce. Female maturity varied widely from immature stage to post-spawn stage. Major preys consisted of Copepoda, Amphipoda and Euphasiacea. The relative importance of prey differed by size group of fish, though Amphipoda remained dominant prey organisms. Feeding index (%: stomach contents of body weight) recorded up to 8. The fish with low feeding indices fed mainly on Copepoda, whereas the fish with the high indices relied on Amphipoda, even in the same size range.

The results show that the southern water off the St. Lawrence Island provides peculiar conditions as habitat, feeding and spawning areas for bottom fish. The boundary performed by horizontal and vertical temperatures plays important role in determining the extent of distribution and vertical migration of fish and prey organisms.