

3-3. Feeding Habits and Trophic Interaction (Oral-22)

Feeding Behavior of Pacific Salmon in the Bering Sea and Status of Their Forage Base during 2003-2007 Period

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During the period of BASIS implementation the diverse information on Pacific salmon feeding behavior and plankton community structure was obtained for entire Bering Sea and northern Pacific Ocean. During the period of 1984-2008 over 9000 plankton stations were carried out within Russian EEZ. In addition, approximately 600 plankton stations were carried out during 2003-2007 as the result of BASIS comprehensive international program in the eastern and central Bering Sea. The obtained information allowed to map quantitative distribution of major zooplankton taxa and species over the large regional scale. Distinct spatial and temporal features of plankton communities were elucidated. It has been elucidated that deep-water areas are dominated by large-size plankton fraction (65-95%), whereas shallow zone – by small-size and medium-size fractions (90-55%). However, in 2006 the increase of large-size plankton fraction was observed and resulting decrease of other size-fractions. In 2006 western Bering Sea experienced stably high copepod biomasses, whereas euphausiids and hyperiids biomasses increased to the highs of 2003-2004 (biomass minimum was observed in 2005). In 2006-2007 eastern Bering Sea experienced sharp growth in large-size fraction biomass due to increase abundance of copepods, chaetognaths, and, in a lesser extent, euphausiids. Spatial differences in plankton communities composition influenced peculiarities of Pacific salmon feeding behavior. In pink, chum and sockeye salmon, despite of overall similarity in feeding behavior, species-specific and regional differences in food composition were observed. Among these species, it was only chum salmon that preferred gelatinous zooplankton species (small jellyfishes and ctenophores) and gelatinous zooplankters (appendicularians and *Clione* spp. of Pteropoda). Eastern Bering Sea is noted for a relatively low biomass of forage zooplankton species, as compared to other parts of the Bering Sea. This results in Pacific salmon switching their diets from zooplankton to fish larvae and juveniles and to decapod larvae. In addition, it has been found out that pink, chum, sockeye, coho and chinook salmon (both immature and mature individuals) are characterized by similar diel feeding cycle.