

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

## **Changes of Zooplankton Structure and Bioproductivity in the Bering Sea at the Beginning of the 21st Century**

Elena Dulepova\*<sup>1</sup> and Anatoly Volkov<sup>2</sup>

<sup>1</sup> *Laboratory of Applied Biocenology, Pacific Research Fisheries Centre (TINRO-centre), 4, Shevchenko Alley, Vladivostok, 690950, Russia; E-mail, dep@tinro.ru*

<sup>2</sup> *Laboratory of Hydrobiology, Pacific Research Fisheries Centre (TINRO-centre), 4, Shevchenko Alley, Vladivostok, 690950, Russia; E-mail, vaf413@tinro.ru*

The Bering Sea is highly productive region of the World Ocean and its living resources have great significance for the fishery. The estimation of distribution, structure and production of zooplankton species, which are food resources of pelagic fishes, are of great importance as every year high numbers of pelagic fishes undertake feeding migrations to this sea from other region of the Northwestern Pacific. Six cruises were carried out in the western part of the Bering Sea during 2001-2006 periods in order to study fish and zooplankton communities (species composition, distribution, abundance) in relation to the physical environment. The data obtained also used for functional division of the sampled animals by trophic groups such as “predatory” and “non-predatory” taxa. Trophic and production characteristics of the zooplankton communities were analyzed for the western Bering Sea in the inner shelf, outer shelf and deep water regions for summer and fall. Environmental conditions and zooplankton productivity were highly variable during that time. In the different landscape zones productivity of “non-predatory” zooplankton (herbivorous and omnivorous species) ranged 56-222 g/m<sup>2</sup> in fall and 61-656 g/m<sup>2</sup> in summer period. Productivity of “predatory” zooplankton (mainly sagittas) vary over a wide range too (12-66 g/m<sup>2</sup> in fall and 21-168 g/m<sup>2</sup> in summer period). In whole higher value of zooplankton productivity were observed in deep water region. An analysis of the ice conditions and weather situation on the Bering Sea at the beginning of the 21st century allow to describe as “warm” years (Glebova 2005). Increased inflow of warm Pacific Ocean waters into the Bering Sea has effected growth rates of all plankton species. It was a fact in 2003, when such oceanological situation took place in the Bering Sea (Glebova 2005). In 2000-ies the average weighted value of P/B-ratio was higher compared to that in 1990-ies. The results of this are considerably high values of dominant taxonomic groups’ production and “real” (i.e. production is available for fishes) zooplankton production. In the eastern Bering Sea size and taxonomic structure of zooplankton are different from that in the western part. The production characteristic of the zooplankton communities are known to reflect its structural features. An increase in the abundance of small and medium-size copepods with high growth rate may positively affect the P/B ratio of non-predatory zooplankton in eastern part of Sea.