Russian National Overview of BASIS Research

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Keywords: Nekton community, salmon, biomass, distribution

BASIS research by the R/V *TINRO* was conducted in the fall of 2002 (86 sampling stations) and summer and fall of 2003 (176 sampling stations) in the western Bering Sea and adjacent Pacific waters. Each sampling station included a trawl tow, as well as, hydrobiological and hydrological stations, which were carried out in accordance with standard methods of TINRO-Centre (Temnykh et al., 2004). The results of Russian research within BASIS program (2002 and 2003) are as follows:

1. In 2002 and 2003 the tendency of hydrological processes in the western Bering Sea followed a warm year type. Intensification of water exchange between the Bering Sea and Pacific Ocean was accompanied with the rise of SST and the increase of its discharge through the Kamchatsky Strait (Khen and Basyuk 2005).
2. During the last two years, a marked decrease in plankton biomass through the reduction of copepods abundance was noted for Aleutian and Commander basins within the Russian EEZ. On the other hand, relative abundance of euphausiids has increased (Volkov et al. 2005).
3. Total nekton biomass in the western Bering Sea was estimated as 1.7–2.8 million tons in fall of 2002–2003 and 1.3 million tons in summer of 2003. In the summer of 2003 the biomass of Pacific salmon exceeded 939 thousand tons. During summer-autumn period early 2000-ies a significant increase of Pacific salmon share in total fish biomass in upper epipelagic layer took place (Fig. 1). The biomass of salmon distributed in shelf zone was 10–100 times lower than their abundance in the deeper-water within the Bering Sea basin (Fig. 2) (Temnykh, 2004). According to the diel study at different water strata the major concentrations of salmon are located in the upper 30 m.
4. Comparative analysis of spatio-temporal variability of Pacific salmon's biological characteristics suggests species-specific and age-specific adaptive strategy, which is aimed at the lessening of density-dependent interactions and maximum utilization of available feeding grounds (Sviridov et al. 2004a).
5. Asian stocks of immature age .1 and .2 sockeye salmon dominate within the southwestern Bering Sea and the adjacent waters of the northwest Pacific Ocean in September–October (Bugaev 2003, 2004a, 2004b). There were differences in the interspecies structure in the catches for different age groups that reflects divergence in distribution range among different age regional groupings of salmon during their marine growing period.
6. The rates of different types of traumatization and infestation occurrence are species- and age-specific and are subject to significant spatio-temporal variability (Sviridov et al. 2004b).

Fig. 1. Interannual dynamics of fish communities composition (% of total biomass) in the upper epipelagic layer in the southwestern Bering Sea (within Russian EEZ) in summer 1991-2003.

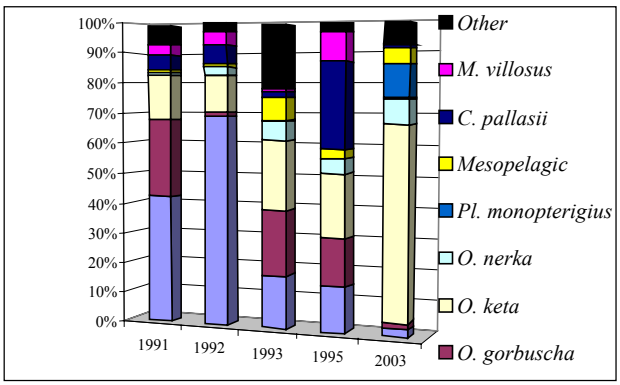
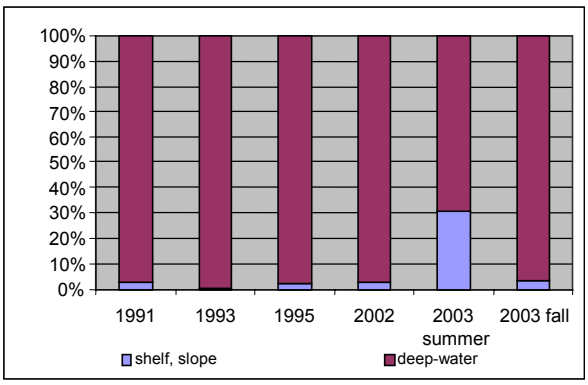


Fig. 2. Ratio (%) of Pacific salmon biomass in shelf and deep-water regions of the western Bering Sea.



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7. Analyses of long-term datasets on salmon food habits in the western Bering Sea suggests that the composition and amount of Pacific salmon ration in 2000s is not significantly different between the 1980s to mid-1990s period (Temnykh 2004; Temnykh et al. 2004; Shuntov and Temnykh 2005; Volkov et al. 2005). In addition, conclusions on considerable food competition between two most abundant Pacific salmon species (chum and pink salmon) are not supported by our data (Dulepova 1998; Dulepova and Dulepov in press; Efimkin et al. 2004; Temnykh, et al. 2004; Shuntov and Temnykh 2005).

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