

3-4. Production Trends and Carrying Capacity of Salmon (Oral-31)

## **Role of Pacific Salmon Juveniles in the Epipelagial Ichthyocenoses of the Eastern and Western Kamchatka**

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Dynamics of the ichthyofauna composition in the upper epipelagial of the Southwestern Bering Sea and East Kamchatka adjacent waters of the Pacific Ocean (Eastern Kamchatka) and of Eastern part of the Okhotsk Sea (Western Kamchatka) has been studied on the base of data of 33 trawl surveys by KamchatNIRO in September-October 1981–2005. Surveys were conducted with specialized midwater trawl (model 54.4/192 m) used for estimation of Pacific salmon juveniles abundance in 0–30 m layer (Karpenko et al, 1997). The observation period of 25 years has demonstrated over 70 species of fish presented in the trawl catches, but the basis of the ichthyocenoses in the Eastern and Western Kamchatka has been made up of several basic species. Juveniles of pink and chum salmon were dominant among Pacific salmon species (37.3% and 16.4% of total fish abundance in the catches, respectively). The total portions of sockeye, coho and chinook salmon juveniles were substantially lower (4.6%, 2.0%, 1.7%, respectively). Besides salmon juveniles, an important role in the composition of both regional shelf ichthyocenoses (in different years) played of walleye pollock juveniles (*Theragra chalcogramma*), and in the offshore waters –Atka mackerel juveniles (*Pleurogrammus monopterygius*). Also in particular years high abundance of threespine stickleback (*Gasterosteus aculeatus*) in the Eastern Kamchatka and Pacific herring (*Clupea pallasii*) in the Western Kamchatka were found. Three periods of the salmon juveniles high abundance with the maximums in 1982, 1990 and 2000 were observed in the Eastern Kamchatka. The abundance fluctuations of salmon juveniles in this area repeated every 8–10 years. The maximum of salmon juveniles abundance in the Western Kamchatka was registered in 1982, 1989, 1997 and 2003 and the fluctuations took place every 7–8 years. The successions of the ichthyocenoses revealed in the regions mentioned are almost similar to the cycles of solar activity of 11 years (it was better observed in the Eastern Kamchatka). In the both regions of Kamchatka it has been demonstrated a peak increase of salmon juveniles percent in the composition of ichthyocenoses (up to 100% of the total fish abundance) followed by an increase of the total abundance of salmon juveniles. In other words, salmon began dominate over the other species in the epipelagial during this periods. In the both regions the periods of salmon high abundance coincided with the periods of high catches of Atka mackerel, but taking place in the antiphase to the periods of walleye pollock high abundance. An increases of salmon juveniles abundance in the epipelagial communities of the Eastern and Western Kamchatka coincided with ichthyocenoses successions and possibly were one of reasons of this successions.