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1. Salmon life history

1-1 Coastal life history of juvenile salmon

High mortality of pink, chum, and others salmon juveniles of 0-class may occur in estuaries and coastal waters of far-eastern regions. The main factors are temperature regime, food supply and predators. The coastal life history is important for the survival mechanism and forming productivity of salmon stocks. Some areas are the main polygon of study these fenomena.

1-2 Offshore distribution, migration and abundance of salmon juveniles

Offshore distribution, migration, abundance and biological data of salmon juveniles collect by research vessels annually, and will be analyzed retrospectively. Major investigation area are the western Bering sea, southern and eastern part Sea of Okhotsk, and north-western Pacific of the Kuril Islands. Meteorological and oceanographic data also will be collected during survey.

1-3 Anadromous migration and abundance of adult salmon

During spring-summer time data will be collected on the salmon research vessels concerning distribution, migration, abundance and biological characteristics of adult and immature salmon in different areas of far-eastern seas and Pacific.

2. Salmon stock identification

2-1 Population genetics and conservation of endangered species

Genetic characterization of main local stocks of Pacific salmon will be continued. The genetic aspects of interaction between natural and hatchery reared populations will be studied. The special attention will be paid to population dynamics and genetics of endangered populations of Parasalmo mykiss. An electrophoretic study of Asian chinook salmon will be continued. Research on distribution of Pacific salmon in the ocean will be focused on genetic stock identification of pink, chum, sockeye, and chinook salmon in mixed collections from the Bering Sea and Pacific.

2-2 Stock identification by scale pattern

To clarify stock composition in the North Pacific Ocean, pink, chum, and sockeye salmon identification will be conducted using scale pattern. For this aim will be used database of Russia and other countries, if it will be possible.

2-3 Stock identification using other materials (otoliths, data on parasites, etc.)

Thermal and "dry" marking programs will be continued at the hatcheries in the northern Okhotsk Sea region. The most part of chum release will be marked. Return of marked maturing

fish will be monitored. In the Yana River portion of hatched salmon will be determined from mixed population.

For correct stock identification we plan to collect new information on otoliths, parasites, morphometric characteristics of some stocks, and also participate international tagging experiments.

3. Salmon population dynamics

3-1 Coastal and offshore environment

Main environmental characteristics of salmon habitat will be monitoring at the 7 main coastal areas off the Sakhalin, Kamchatka, and in northern Sea of Okhotsk, where salmon juveniles migrate in spring-summer season. Data will be collected in shelf and offshore regions during fall season on research vessels. Monitoring program includes water temperature in 500-m layer, salinity, zooplankton, and micronekton biomass estimations, and studies of structure of community.

3-2 Biological monitoring of adult salmon in REEZ

This monitoring study will concern on estimate salmon stock abundance, and population structure during anadromous migration. Biological characteristics of adult Pacific salmon and environmental conditions will be examined before returning to major spawning areas in Russia. In this period different biological and environmental data will be collected.

4. Assessment of salmon stocks

4-1 Salmon stock assessment and forecast

Salmon stocks will be assessed using monitoring of reproduction conditions and abundance in freshwater period for management aims. Data on abundance of juveniles in rivers and coastal waters, their survival, growth, and population structure of returning adults will be used for forecasting of Pacific salmon returns in different regions of Far East.

4-2 Ecosystem of the North Pacific and salmon population dynamics

Feeding of Pacific salmon will be studied during summer and fall expeditions in the far-eastern seas and North Pacific ocean. Also data will be collected in these surveys on other fishes of pelagic community. A comparison between salmon other pelagic fishes in the consumption rates of planktonic/micronektonic organisms will help to estimate the place of salmon in the trophic structure of northwest Pacific pelagic ecosystems. Salmon's role as prey for large predatory fish species and marine mammals will be studied using data of marine surveys.