

An Attempt to Identify Okhotsk Sea Chum Salmon Origin and Life History by Means of Scale Features

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For the period of May 23 - October 10, 1994 scales of chum salmon were sampled that were caught by gillnets in the Pacific Ocean near Kuril Islands (Iturup-Urup-Simushir). For stock identification of the catches chum salmon scales were sampled from rivers Severyanka and Ilyushina (Kunashir), Rybatskaya and Kurilka (Iturup), Naiba (South Sakhalin), Tym (North Sakhalin), Tau and Kukhtui (north coast of the Okhotsk Sea) in 1994, and also from rivers Abashiri and Tokachi (North and South Hokkaido, respectively) in 1993. The most essential distinctions in biology of chum salmon of different populations are observed in terms of juvenile migrations from rivers and coastal feeding conditions. That is why main attention was paid to the peculiarities of scale growth in the area characterizing juvenile's sea life near home coasts. For emphasizing these peculiarities graphs describing the distance between the circuli of the first year of growth from different fish scales were compared so that circuli were being combined in order, from first sea annulus, but not from scale focus. Scales of only 4 yr old chum salmon were used for analysis. Circuli width graphs were identical for chum salmon of different rivers of the same area, but in comparing individuals from different areas, in 20 of 21 cases the distinctions were reliable. Four yr old fish from mixed catches were tested as separate groups with the same number of circuli inside each group. Individual fish

were counted as belonging to a population of chum salmon if the values of its circuli widths lay within the relevant confidence interval. From 474 fishes 224 have been identified, among them 123 - for some one region only, 56 - for two regions simultaneously, 31 - for three, 11 - for four, and 3- for five regions. The adjusted results show that the share of identified fish was less in groups with the most number of circuli, because scales of Hokkaido chum salmon of the 1993 return year and from two rivers only were used for the test.

During four years of observation for size and age composition of fish migrating to the Kuril straits no juvenile chum salmon were found. Probably chum salmon occur in the Okhotsk Sea only during the first and the last years of life. The rivers of South Hokkaido flow into the ocean far from the Okhotsk Sea. However some chum salmon from these rivers enter the Okhotsk Sea twice. Two zones of growth are seen on their scales in the first year of life. The large peak of the graph coincides with that of the Okhotsk Sea fish population. The small "peak", seen synchronously in all groups of chum salmon from Tokachi River, probably reflects fish putting on weight in ocean near Hokkaido. In the south-west part of the sea mature fish with such type of scales have been found in research catches that supports this idea.