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By B.K. Moskalenko

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ON EAST-SIBERIAN COD

By: B.K. Moskalenko

The State Ob-Tasov Branch of the Research Institute of Lake and River Fishery Management (the town of Khanty-Mansiisk, Tumen region)

An article by T.S. Rass published in the journal "Nature" (No. 4, 1958) raises the important question of ways of enriching the ichthyofauna in the seas of the USSR. Among the fish recommended for transplanting, East-Siberian cod (Arctogadus borisovi Drjagin) is mentioned. T.S. Rass considers it possible to plant this fish, which propagates in the Siberian polar seas, in the White Sea, making the reservation, however, that its biology is not known.

During ichthyological research in the coastal region of the Laptev Sea in 1946-48, we succeeded in collecting material giving some idea of this seldom encountered representative of polar ichthyofauna, particularly, its dimensions, age and sex cycle.

The East-Siberian cod strongly avoids the freshened coastal parts of the sea adjoining the mouths of rivers.

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During our summer work in Olenëk Bay, in the region of Tiksi Inlet-Mosty Cape and in Anabar Bay, not one specimen of this fish was noted. Apparently, East-Siberian cod, in its behaviour towards salinity and, possibly, water temperature, differs from Arctic cod (saida), which often appears in the summer in inlets and bays with considerably freshened waters at rather high temperatures (up to 10°).

East-Siberian cod began to appear in the control fishing gear in Anabar Bay at the beginning of autumn, with the beginning of water salinity and decrease in water temperature. One specimen appeared in a trap net on August 29. This was a female with a zoological length of 265 mm and a weight of 157 g. Its gonads were in stage III of maturity. The diameter of its eggs ranged from 0.69 to 0.87 mm. Along with the maturing eggs, the ovary had eggs with a diameter of 0.08 - 0.13 mm. Another female caught on September 23, had a length of 271 mm and a weight of 168 g. Its gonads were also in stage III of maturity; the diameter of the eggs was 0.69 - 0.95 mm. Both fish were 5 years old. More frequently, East-Siberian cod began to appear in nets in December, when the salinity of the water had increased greatly and the temperature had dropped below zero.

Ten specimens of cod were taken from hauls in the first half of December. One of the females, 6 years old with

a length of 309 mm and a weight of 258 g, showed clear traces of recent spawning. During dissection, the gonads seemed to be in a state of emptiness with empty follicles and residual degenerating eggs with a diameter of 1.13 - 1.30 mm. The gonads of three other females, ages 4 and 5 years, were of the same appearance. One female, 6 years of age, had gonads in stage IV of maturity. The diameter of its eggs ranged from 1.08 to 1.30 mm. The length of these fish was 202 - 293 mm and the weight, 167 - 212 g. One female from the same catch was 3 years old, with a length of 153 mm and a weight of 22 g. Its gonads were in stage II of maturity; the diameter of the eggs was 0.13 - 0.26 mm.

From these data, we may conclude that East-Siberian cod grows slowly. In the 5th to 6th year of life, it attains a length of 20 - 30 cm and a weight of 150 - 250 g. Sexual maturity begins in the 4 - 5th year. The pre-spawning development of the gonads (stage III and IV) occurs in the autumn; spawning occurs in the winter (from December). Thus, the sexual cycle of East-Siberian cod, as one would expect, is similar to the sexual cycle of Arctic cod. Apparently, as in Arctic cod, spawning occurs in conditions of high salinity and water temperatures of below zero, close to the edge of the ice. The latter circumstance may explain the fact why both fish disappeared from Anabar Bay at the same time, the end of December - beginning of January, when the entire bay and the adjoining region of the sea was covered with ice.

These fish are also similar in their feeding. Mysids and Amphipods were found in the stomachs of East-Siberian cod in December. Arctic cod fry were found in the stomachs of specimens caught at the end of August. The stomachs of individuals with gonads in the state of emptiness were empty.

The numerical strength of East-Siberian cod is small if we judge by ^{its} rare occurrence in fishing gear in the coastal regions of the sea.

It is necessary to organize more thorough studies of this fish as well as of all ichthyofauna of the Polar Basin, about which we have only the most scant information.