

MORPHOLOGICAL CHARACTERISTICS AND THE BIOLOGY OF ROACH OF DIFFERENT HABITATS ARGAZINSKOE RESERVOIR (CHELYABINSK REGION)

Bostanov R. I., Derkho M. A.

*Federal State Budgetary Educational Institution of Higher Education «South Ural State Agrarian University», Troitsk, Russia
E-mail: rasim-bastanov@mail.ru*

Morphological and biological characteristics of roach, are confined to different habitats Argazinskoe reservoir. From meristic signs the number of beams in thoracic, abdominal, anal, spinal, caudal fins and the number of vertebrae were used. Asymmetry of the signs in the number of rays in the thoracic and abdominal fins was also studied. Branched and non-branched rays were counted. Of plastic signs were made for the measurements: the length and width of paired and unpaired fins, the length of the snout and head, the highest head height, maximum and minimum body height, length of caudal peduncle, distance between fins. Because the structure of the fish body growth and puberty changes, the study was carried out on similar age groups, the age of sexual maturity (2–4 years). The following biological characteristics were studied: features of growth and nutrition. The age of the fish was determined by the annual rings on the scales. The food of fishes were studied qualitatively and quantitatively. Sizes eaten by the organisms was determined using the measuring scale of the binocular microscope MBS-10. Weight food lumps with the help of torsion balance. Feed items were determined to the species and genus. Features of morphology and biology were studied at different Limnology and hydrodynamics habitats: Litoral, profundal, riverbed. Myristicaceae and plastic signs have revealed a large polymorphism of the herd of roaches to different habitats. The number of vertebrae and of rays in the pectoral fins was slightly higher in

fish from profoundly. Asymmetry of signs in the form of rays in paired fins are also manifested to a greater extent in fish from profundal and the river bed. Lack of asymmetry was revealed on biotopes with maximal competition. The highest rates of growth were found on biotopes with the highest rates of fodder base – littoral. On the littoral area in the food lump of roach was dominated by crustaceans, chironomid and also discovered fragments of plants. The river is already dominant were larvae of chironomids and molluscs were also caught caddisflies and fragments of plants. The basis of nutrition of roach from profundal were crustaceans, larvae of chironomids and molluscs. The largest share of plants in the diet of the roach was observed in the littoral sites, which is explained by the relatively greater share of macrophytes and algae in these biotopes. At the same time, the peculiarities of feeding in the period of samples were similar, which can be explained by a single regime of feeding fish from different biotopes in the main feeding period and the determination of herds in the off-season. Elimination of herds can also be timed to coincide with off-season periods of catching fish and transition to the upper trophic links in the form of activation of predators – pike and pike perch. This fact may follow from the absence of asymmetry in the fishes of the intertidal areas, where in the offseason, especially active predators. Plastic features also demonstrate greater functional plasticity of fish from the littoral areas, expressed in the size of unpaired fins. However, the morphofunctional plasticity can also be influenced by the embryonic development phase associated with a particular biotope, which will determine the polymorphism of adult fish regardless of the biotope. Polymorphism of roach from Argazinskoe reservoir allows you to identify features of ecological factors of individual habitats that affect local herds. In General, the growth rate of roach in the reservoir is decreasing compared to the previous decades. Similar to the range of food of roach in different habitats indicates food migrations of herds. At the same time, a diverse range of roach nutrition demonstrates optimal characteristics of the diet.

Keywords: roach, perch, bream, morphological features, asymmetry, Argazinskoe reservoir.

References

1. Nokhrin D. Yu., Gribovskaya Yu., Davydova N. The chemical composition of water number of water reservoirs in South Ural, *Water: chemistry and ecology*, **2**, 2 (2011).
2. Davydova N. A. Nokhrin D. Yu., Gribovskay Yu. G. Effect of the Karabash copper-smelting plant on the content of metals in fish Argazinskoe reservoir, *Water: chemistry and ecology*, **10**, 114 (2012).
3. Magazov O. A. Morphological variability of populations of perch and roach in the water bodies of the Chelyabinsk region, *Abstracts of XII conference of young scientists "Biology of inland waters: problems of ecology and biodiversity" dedicated to the 50th anniversary of the appointment of rear Admiral, twice hero of the Soviet Union I. D. Papanin Director of the Institute of Biology of Inland Waters. On 23-26 September 2002*, 133 (Borok, 2002).
4. Korlakov K. A., Larin I. A., Magazov O. A. Materials on the ichthyofauna of the lake Smolino, nutrition and growth of common fish species, *Vestnik Chelyab. state University, Ecology. The use of natural resources*, **17**, 121 (Chelyabinsk. 2008).
5. Bochkarev N. In., Romanov V. I., Interannual variability of morphological characters in some species of fish from different ecosystems, *Vestnik of North-East scientific center DVO ran.*, **1**, 49 (2009).
6. Antonov A. L. Morphological and ecological peculiarities of roundnose lenok *Brachymystax tumensis* Mori, 1930 from the lake Balakovskogo (basin of the river Onon), *News of Irkutsk state University. Series: Biology. Ecology*, **2**, 1, 62 (2009).

7. Zhuravlev V. B. Changes in population structure and microevolution of fishes by methods of multivariate statistical analysis, *News of Altai state University*, **3**, 077 (2011).
8. Zlotnik D. V., Romanov V. I. Modern state of the herd and morphological characteristics of the bream *Abramis brama* (L.) from the river Chulym river (Ob river basin), *Vestnik of Novosibirsk state agrarian University*, **1**, 34, 132 (2015).
9. Alekseeva Y. I., Makhrov A. A., On the origin of vendace on the Solovetsky Islands: archival documents in the study of microevolution, *Nature*, **7**, 37 (2017).
10. *Atlas of freshwater fishes of Russia*, **1-2**, 378 (Moscow: Nauka, 2002).
11. Pravdin I. F. *Manual on fish study*, 376 (M.: Pisz. prom., 1966).
12. Methodological guide for the study of food and food relations of fish under natural conditions, 254 (M.: Nauka, 1974).
13. Methodical recommendations on collection and processing of materials in hydrobiological studies on freshwater bodies: the zoobenthos and its production, 51 (Leningrad: GosNIORKh, 1984).
14. *Methodical recommendations on collection and processing of materials in hydrobiological studies on freshwater bodies: zooplankton and its production*, 33 (Leningrad: GosNIORKh, 1984).
15. Reshetnikov Y. S. *Ecology and taxonomy of white fish*, 300 (M.: Nauka, 1980).
16. Aleev Yu. G. Functional basis of the external structure of the fish. M.: Izd-vo an SSSR, 247 (1963).
17. Magazov O. A., Dubchak C. A. Biology and commercial importance of the roach *Rutilus Rutilus* (Linnaeus, 1758) Argazinskoe reservoir, *Vestnik Chelyab. state University, Ecology. The use of natural resources. Chelyabinsk*, **17**, 121 (2008).
18. Magazov O. A., Dubchak C. A. Morpho-biological characteristics of roach and perch reservoirs of the Chelyabinsk region, *Bulletin of the Chelyabinsk state University. Series biology*, 28 (2005).
19. Varnavskay T. I., Kulachenko V. P., Litvinov Y. N. Some features of the morphology and physiology of fish in experimental conditions, *Materials of international student conference, Belgorod*, 31 March-01 April, 116 (2015).
20. Ivankov V. N., Ivankova E., Borisovets E. E., Vyshkvartsev D. I. Interpopulation morphological variation reportaway pipefish *Syngnathus acusimilis* Gunther, 1873 (Teleostei: Syngnathidae), *Sea Biology.*, **39**, 5, 339 (2013).
21. Korlakov K. A., Dubchak C. A. Production and parasitological characteristics of the alien swing of fish ponds on the Eastern slope of the southern Urals, *Ecology*, **4**, 312 (2010).