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Aydar-Arnasoy Lake System, Tuzkon Lake Chavok Fish. Ecological Characteristics Of The Aral Chavok Fish (*Rutilus Rutilus Aralensis Berg*)

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Abstract: Today, the growing need for food on a global scale requires the efficient use of the biological potential of inland water bodies, including the rational use of fish stocks, as well as the potential of fish farming and fishing facilities. Due to its geographical location, Uzbekistan is separated from the oceans and seas of the world, due to which its ichthyofauna is in a very poor condition, that is, the list of fish breeding and fishing facilities is very short. The fish facility can be expanded at the cost of migration, but there are certain limits in this regard.

Key words: Fishing facilities, fish breeding

Today, the growing need for food on a global scale requires the efficient use of the biological potential of inland water bodies, including the rational use of fish stocks, as well as the potential of fish farming and fishing facilities. Due to its geographical location, Uzbekistan is separated from the oceans and seas of the world, due to which its ichthyofauna is in a very poor condition, that is, the list of fish breeding and fishing facilities is very short. The fish facility can be expanded at the cost of migration, but there are certain limits in this regard. Today, in order to transfer or introduce fish to any water body, it is necessary to follow the requirements of the International Convention on Biodiversity. According to the requirements of this Convention, the biology of fish transferred from one place to another is thoroughly analyzed and the fish species being transferred does not biologically affect the composition of the local ichthyofauna species. it is allowed only if justified, because of this, in order to meet the needs of the population of our republic for fish and fish products, it is necessary to increase the volume of fish farming, and to increase the volume of fish production, it is necessary to increase the fish productivity of inland water bodies. In order to increase fish productivity, special attention should be paid to the development of fishing technologies that effectively use the natural feed base of water bodies and to the full use of the internal potential of local ichthyofauna species.

Island bream - Rutilus aralensis Berg 1916 - is a very widespread and numerous fish in the water bodies of Uzbekistan (Kamilov, 1973; Amanov, 1985). It is found in large numbers in the Aydar-Arnasoy lake system (AAKT), including Tuzkon lake. The size of this fish is not very large, but it is the largest in number among the fish species found in the water body, and constitutes the main biomass of the water body ichthyofauna. (it should be noted here that fishing statistics do not always accurately reflect the real situation, i.e. fishermen exaggerate the amount of other fish species as this species in order to increase the catch rate, for example, 1 kg of flounder is presented as 10 kg of bream) . This fish species is classified as a low-value fish due to its small body size and short life cycle, although it makes up a significant portion of the catch. For this reason, this research was carried out in order to clarify which form of bream fish is found in the water bodies of Uzbekistan, especially in Lake Tuzkon.

Research resources were collected from October 2018 to January 2020 using set nets with a mesh size of 15-50 mm. During the study, 121 fish were biologically analyzed. The research source was analyzed and processed using generally accepted ichthyological methods and variational statistical methods (Pravdin, 1966).), level of fatness (on Prozorovskaya's 5-point scale). We determined the age and growth rate of fish based on the annual rings on their scales (Chugunova, 1959), and also determined the sex of fish and stages of sexual maturity of sexual products.

To study nutritional characteristics, the coefficient of satiety was determined according to Fulton in relation to body size and age (Fulton, 1902). We used the following formula to analyze the indicators:

$$Q=r*10^2/l^3$$

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Бу ерда, Q – тўйинганлик коэффициенти; r – тана оғирлиги, г; l – стандарт узунлиги.

The average depth in the fishing part of Lake Tuzkon is 3.0 meters, and the maximum depth is 6.7 meters, the depth gradually increases. The level of water clarity was 120 - 470 cm according to the Secki disc.

The water flow of Tuzkon Lake is very slow, the color of the water is turquoise-green, the clarity is 1.3-2.6 m, the bottom of the water basin is black mud mixed with dark-brown sand. Macrophytes are moderately distributed, and the bottom of the water is covered mainly by rdest, and spiked urut (Meriophyllum spicatum) in individual clumps or patches. At the same time, when analyzing their distribution in the water basin; that the dominant complex consists of semi-submerged (hydatophytes), in particular, rdests (Potamogeton crispus, P. pectinatus, P. perfoliatus), urut (Muriophyllum spicatum) and sedge (Ceratophyllum submersum), among which curly rdest and comb-shaped rdest have relatively good development was found to be. In addition, it is possible to witness that the number of hard-leaved rdest (R. perfoliatus) is very large. In the shallow parts of the water basin, you can find representatives of algae belonging to the genus Chara. Common reed (Phragmites communis) (shore - up to 70% covered) and sedge (Typha angustifolia) are very common among plants that grow semi-submerged [Yuldashov, 2019]. It seems that T. angustipholia is adapted to spread in relatively fresh water bays and island zones.

In Lake Tuzkon, bream reach sexual maturity for the first time at the age of 2-4 years, when the body length is 10.5-17.0 cm and the weight is 30-45 grams. females are 3-4 years old) should be noted. Cavak fish lay their eggs at the same time, that is, they do not have an increase in portions. The reproduction period occurs in the last ten days of April, when the water temperature reaches 12-150C. Belonging to the ecological group of phytophilic fishes by the nature of reproduction, they lay their eggs in flooded meadows and bushes. The sex ratio of spawning fish is close to 1:1, with a slight predominance of females.

The coefficient of sexual maturity of females before the breeding season and immediately during breeding is in the range of 17.3-22.0%. When the weight of the body is 12.7-21.1 cm and the weight of the body is 59-243 cm, the weight of the body is 11.1-54.9 thousand and the average is 28.1 thousand.

Because the crayfish mainly feeds on the benthos, it competes with the smaller and more expensive benthic fishes, therefore it is necessary to implement measures aimed at reducing the number of this fish in every way. This fish not only reduces the food of benthic fish, but also feeds on the caviar and larvae of important hunting fish, causing their number to decrease.

Data on the age-size indicators and fatness and satiety coefficient of the caught fish are presented in Table 1.

Thus, as the age of fish increases, their level of fat (from 1 to 2.78 %), and degree of saturation (from 1.9 to 2.31) increases, which is due to the fact that the level of use of natural food reserves expands as fish age and older representatives can be explained by careful preparation for the breeding season.

Table 1

Age-size composition and fat content and saturation coefficient of Aral sea bream (Rutilus aralensis)

Age, year	Average length, mm	Average fat level	Average saturation coefficient	Number of fish studied
Males				
2+	88,25	1	2,22	16
3+	119,60	1,14	2,06	17
4+	138,79	1,88	2,04	19
5+	163,35	2,5	2,31	16
Females				
3+	121,73	1	1,9	16
4+	136,95	1,67	2,20	18
5+	158,61	2,78	2,31	19

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As the age of male fish also increases, the level of fat increases (from 1 to 2.5), and we cannot say that the level of saturation changes in the same way in all age groups (in two-year-olds, this indicator is 2.22, in three-year-olds - 2.06, in four-year-olds - it decreases to 2.04, but in five-year-olds this indicator increases sharply - it is 2.31), it can be concluded as follows; Younger fish grow rapidly depending on their active feeding, and older fish feed rapidly in order to prepare for the breeding season as they get older, at the same time, their food spectrum changes, and the content of their food includes filamentous and algal algae, plant detritus organisms, and terrestrial insects. . The result of comparing the fat level of female and male fish in each age group by t-test ($t=-2.31979$, $p<0.05$) showed that there was a significant difference between four-year-old fish. related to the construction.

As a result of the analysis of the data on the age determined by the study of their coins, based on the literature data, we can conclude that their growth and body weight increase do not deviate from the range of indicators suitable for the species.

Thus, based on the above information, we can conclude as follows; In the studied water basin, the growth picture of the island bream is moderate, it has sufficient natural food reserves, it is developing at a normal level.

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