American Journal of Biodiversity
https://biojournals.us/index.php/AJB
ISSN: 2997-3600

Morphological Indicators Related to Age in Carp Fish

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Received: 2024, 15, Mar
Accepted: 2025, 21, Apr
Published: 2025, 20, May

Annotation: This article presents the results of a comparative analysis of biological indicators of silver carp cultivated in various ecological zones of Uzbekistan. The study examined parameters such as standard body length (cm), total weight (g), eviscerated weight (g), individual absolute fecundity (thousand eggs), and individual relative fecundity (eggs/g). Monthly and regional (district-level) comparisons revealed that ecological factors and seasonal changes significantly influence fecundity and morphometric characteristics. These findings are important for improving selective breeding practices and ensuring the sustainable use of biological resources in aquaculture.

Keywords: gramm, individual absolute fecundity, individual relative fecundity, eggs, silver carp.

Relevance of the topic. Along with other branches of animal husbandry, the demand of our people for fish and fish products is increasing. This, in turn, is leading to the rapid development of fisheries based on new innovative technologies and the widespread implementation of innovative methods of fish farming based on intensive technologies in the industry. As an example, a number of resolutions and orders of our Honorable President are being put into practice. In particular, in accordance with the Resolution of the President of the Republic of Uzbekistan No. PQ-4816 dated August 29, 2020 “On measures to support the fishing industry

and increase its efficiency", in order to support the fishing industry in the Republic, increase the efficiency of fishing and fishing farms, ensure the rational and efficient use of land and water resources in this area, and the widespread introduction of intensive technologies: Starting from 2020, the tax for the use of water resources for fishing farms breeding fish in artificial reservoirs will be calculated at the rates established for irrigation of agricultural land, based on the difference between the volume of water withdrawn from water bodies and returned.

Research object and methods. Our experiments were conducted on carp fish kept in the Akdaryo district of Samarkand region and in the Kattakurgan district of Samarkand region. For the experiments, 15 fish from each farm were selected based on the principle of "similar pairs".

Results and their analysis. When conducting research on the morphological indicators of white bream, the following indicators were obtained:

In group I, it was observed that the standard body length of 3 winter white bream in Akdaryo district was 54 cm, the total body weight was 2350 grams, the body weight without internal organs was 1715 grams, the individual absolute fecundity was 207 thousand pieces, and the individual relative fecundity (of caviar) was 90 grams.

In group II, it was observed that the standard body length of 3 summer white humphead fish from Akdaryo district was 61 cm, the total body weight was 2540 grams, the body weight without internal organs was 2181 grams, the individual absolute fecundity was 211 thousand pieces, and the individual relative fecundity (roe) was 88 grams.

In group III, it was observed that the standard body length of 3 winter white humphead fish from Kattakurgan district, which were intensively reared, was 63 cm, the total body weight was 3590 grams, the body weight without internal organs was 3151 grams, the individual absolute fecundity was 358 thousand pieces, and the individual relative fecundity (roe) was 105 grams.

In group IV, it was observed that the standard body length of 3 summer intensively reared white humphead fish in the Kattakurgan district was 71 cm, the total body weight was 6230 grams, the body weight without internal organs was 5110 grams, the individual absolute fecundity was 598 thousand pieces, and the individual relative fecundity (caviar) was 132 grams.

In group V, it was observed that the standard body length of 4-year-old white humphead fish from the Akdaryo district was 73 cm, the total body weight was 8710 grams, the body weight without internal organs was 6811 grams, the individual absolute fecundity was 1218 thousand pieces, and the individual relative fecundity (roe) was 171 grams.

In group VI, it was observed that the standard body length of 4-year-old white humphead fish raised intensively in the Kattakurgan district was 81 cm, the total body weight was 9780 grams, the body weight without internal organs was 8291 grams, the individual absolute fecundity was 1365 thousand pieces, and the individual relative fecundity (roe) was 149 grams.

In group VII, it was observed that the standard body length of white humphead fish over 4 years old in the Akdaryo district was 84 cm, the total body weight was 11,380 grams, the body weight without internal organs was 9,695 grams, the individual absolute fecundity was 1,710 thousand pieces, and the individual relative fecundity (roe) was 221 grams. In group VIII, it was observed that the standard body length of white humphead fish over 4 years old in the Kattakurgan district, which were intensively reared, was 91 cm, the total body weight was 13,548 grams, the body weight without internal organs was 11,198 grams, the individual absolute fecundity was 2,410 thousand pieces, and the individual relative fecundity (roe) was 251 grams.

315 – 955 thousand caviar in 3-year-old fish

585 – 1450 thousand caviar in 4-year-old fish

1015 – 2975 thousand caviar in fish over 4 years old.

Relative fecundity of white humpback fish in the Kattakurgan reservoir: 77.8 – 321.4 caviar per

1 g of body mass

78.4 – 192 caviar per 1 g of body mass in 3-year-old fish,

91.2 – 221 caviar per 1 g of body mass in 4-year-old fish,

165 – 327 caviar per 1 g of body mass in fish over 4 years old.

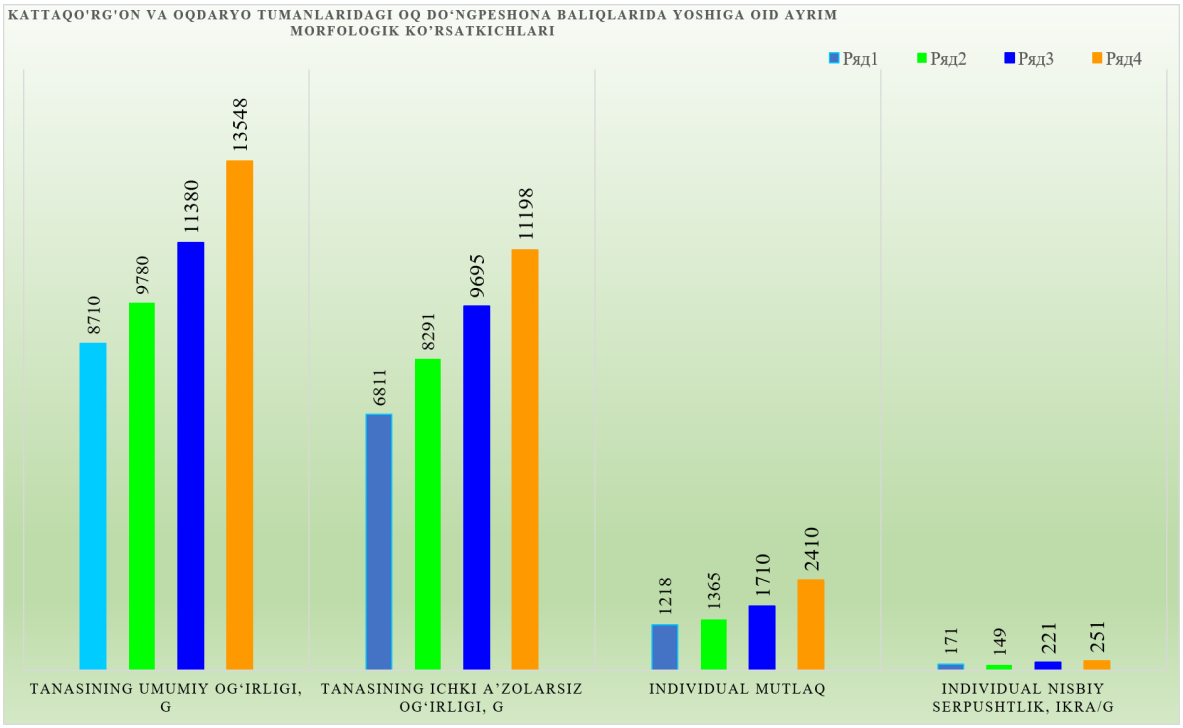

Figure. Some morphological indicators of age in white-headed fish from the Kattakurgan and Akdarya districts.

Relative fecundity of relatively large female fish is relatively high and varies regardless of their age, that is, the indicator does not depend on the age of the fish, but on its length and weight (rins-SL = 0.64 rins-W = 0.69).

Some morphological indicators of age in white-headed fish in the Kattakurgan and Akdarya districts

	Standard body length, cm	Total body weight, g	Body weight without internal organs, g	Individual absolute fertility, thousand units	Individual relative fecundity, eggs/g
1	54	2350	1715	207	90
2	61	2540	2181	211	88
3	63	3590	3151	358	105
4	71	6230	5110	598	132
5	73	8710	6811	1218	171
6	81	9780	8291	1365	149
7	84	11380	9695	1710	221
8	91	13548	11198	2410	251

Conclusion

In conclusion, it was found that the growth and development of fish depend on the conditions of their keeping, and the number, size, fins and morphological structures of their eggs differ from each other depending on the districts and the reservoirs where they are kept. It was found that 3-

year-old fish contained 315 - 955 thousand eggs, 4-year-old fish contained 585 - 1450 thousand eggs, and fish older than 4 years contained 1015 - 2975 thousand eggs.

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