**European Journal of Research Development and Sustainability (EJRDS)**
Available Online at: https://www.scholarzest.com
Vol.2 No.1, January 2021
ISSN: 2660-5570

# BIOECOLOGY OF SOME BASIC FISH SPECIES COMMON IN RESERVOIRS OF THE LOWER REACHES OF THE AMU DARYA RIVER

**Atanazarov K.M., Sultanov B.A.**
Nukus branch of Samarkand veterinary medicine institute.
Nukus state pedagogical institute named after Ajiniyaz
Karakalpakstan republic, Nukus. kural@bk.ru

**Article history:**

**Received:** 11th December 2020
**Accepted:** 30th December 2020
**Published:** 28th January 2021

**Abstract:**

The article describes the bioecological characteristics of some fish species common in the reservoirs of the lower reaches of the Amu Darya river. The fish fauna biodiversity of the Amu Darya river, the basic commercial fish species areas and their rational ways of use are shown.

**Keywords:** Amudarya, water bodies, fishing, fish species, areal**,** Lower Amudarya, fisheries, reservoirs, fish species, range, spawning, carves.

## 1.RELEVANCE.

From the first years of independence, our country has paid more attention to all economy sectors, including fishing. Training of personnel in the fisheries, scientific research has also been accelerated. At a time when the world is facing a crisis, Uzbekistan has set tasks such as the low-labor and technology-based production development, as well as the rational use of natural resources.

The resolution of the President of the Republic of Uzbekistan on April 6, 2018 PRN№3657 "On additional measures for the accelerated development of the fishing industry", the resolution of the President of the Republic of Uzbekistan on January 18, 2017 PR-2731 "On the state program of the Aral sea region development for 2017-2021"[1] as well as water bodies in Karakalpakstan territory play an important role in the tasks implementation set by other regulations in the fisheries, including the fisheries development.

The biodiversity conservation methods of the ichthyofauna of the lower reaches of the Amudarya and the natural population study of fish species, the naturally occurring fish species use in fisheries, bioecological characteristics of fish species and their sustainable ways of use [2,3].

Aquatic organisms in Uzbekistan have been studied by many scientists, including in Karakalpakstan lakes, but in recent years, changes in the water regime of the Amudarya, increasing salinity and bioecological features of fish species have been studied in recent years. remains one of the most pressing issues.

**The main purpose of the research** is to provide a bioecological description of some fish species distributed in the lower reaches of the Amudarya.

## 2.OBJECT AND SUBJECT.

The research object is the study and analysis of fish species in the lower reaches of the Amudarya on the basis of scientific literature and published research materials. Accordingly, the biology, ecological characteristics of fish species, their interdependence determine the work subject.

## 3.SCIENTIFIC RESEARCH METHODS

Were mainly based on the generally accepted hydrobiological, ichthyological methods. The aquatic environment of the lower Amudarya basins, water quality indicators, sanitary-microbiological and hydrobiological indicators were analyzed and studied.

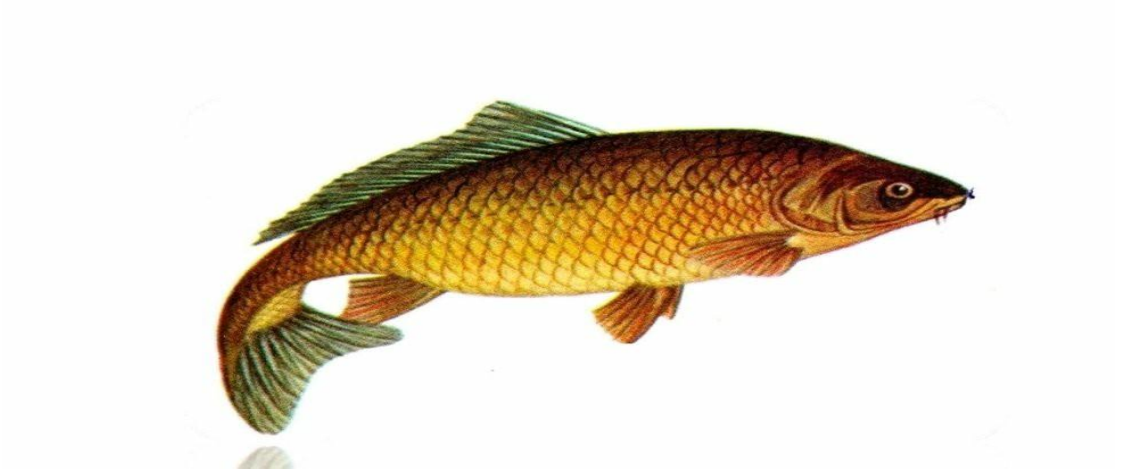
According to the scientific literature, carp, white amur, white silver carp, barbel, chekhon, snakehead, white asp, pike, catfish, and crucian fish are found in the lower reaches of the Amu Darya [2.5].

Ecological protection of water resources helps to preserve mother nature in general, as well as the flora and fauna of all living things that depend on water.

In recent years, the ecological condition of the lake has changed, as the water level in the lower reaches of the Amudarya has decreased dramatically. They are not contaminated with industrial and municipal wastes and collector-drainage waters [5].

[1]. www.lex.uz

The food productivity of the lakes is moderate and consists mainly of phytoplankton, zooplankton and zoobenthos. These are mainly fish feeding objects, and some fish are intermediate hosts of helminths.



The following fish species are mainly found in the lower reaches of the Amudarya, and we would like to describe their main representatives.

**Figure 1. Silver carp. *Cyprinus carpio***

It belongs to the family of carp. Length 50-60 cm, sometimes 1 m, weight 1.8-4.5 kg, sometimes up to 16 kg. The mouth is at the bottom of the head. The strainer have been shown solely to give a proportion sense. The dorsal and anal fins have one toothed bone beam, and a pair of whiskers at the edges of the upper lip and mouth.

It is mainly found in rivers and lakes near the Mediterranean, Black, Caspian and Pacific basins, as well as in the Syrdarya, Amudarya, Zarafshan and Murgab rivers. In addition to the local population, Surkhandarya region was brought to the reservoirs in 1963 from the Ural River and acclimatized. Currently, it is found in all plain rivers of Uzbekistan. It used to be in the Aral Sea. This fish type reaches sexual maturity at the age of 2-5 years. It lays between 98,000 and 1.8 million eggs. It is fed in ponds and is called domesticated carp.

The basis of the skeleton of a sturgeon is the spine, which runs along the body. The spine consists of 39-42 vertebrae that are not fully mobile. The skull is attached to the spine.

The skin of the cod is covered with coins. A thin membrane protruding from the skin glands on the surface of the coin facilitates the fish body movement, reducing its absorption into the water. Prefers oxygen-rich water bodies. It reaches sexual maturity in 2-3 years. The sexual maturity from March to May. There are reports that the cubs are thrown into a built nest and guarded by their males. Fertility up to 1 million calves. The basis of its feed is small fish and crustaceans.

The body length 80 cm, weight up to 16 kg. Occurs in all water bodies of Uzbekistan. Indigenous populations of carp are carp species imported from Russia, Ukraine and Hungary. It used to be in the Aral Sea. They feed on a variety of foods, mainly underwater invertebrates and aquatic plants with zooplankton. Sexually matures at 3-4 years of age. The sexual maturity period is from April to July. It is a true phytophile, with a fertility of up to 500,000 calves. The main hunting species. The cultural form of carp is the main object of carp fishing.

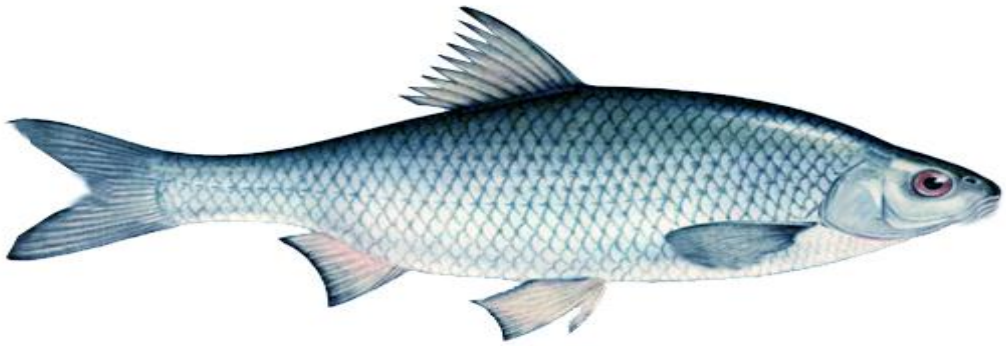


**Figure 2. White amur. *Ctenopharyngodon idella* (Valenciennes).**

The body is elongated. The mouth is half lower. The number of rays on the shoulder blade is 3-7, on the anal fin 3-7-8, on the lateral line 38-45. Its gill columns are 13-16. The teeth of the larynx are two-rowed, pressed at the sides, and strongly incised. It is up to 1 meter long and weighs up to 32 kg.

Natural area - Amur Basin, Chinese watersheds. It is acclimatized in the water reservoirs of Central Asia and Kazakhstan. It is found in all plain rivers of Uzbekistan.

White amur and carpids feed on plants and various invertebrates. In the 1960 s, from climate-friendly herbivorous fish, white amur, which were acclimatized from China, quickly adapted to the local conditions, which led to the rapid development of fish farming. The herbivore white amur is used as a biological reclamation to clear canals and collectors of weeds [2,3].

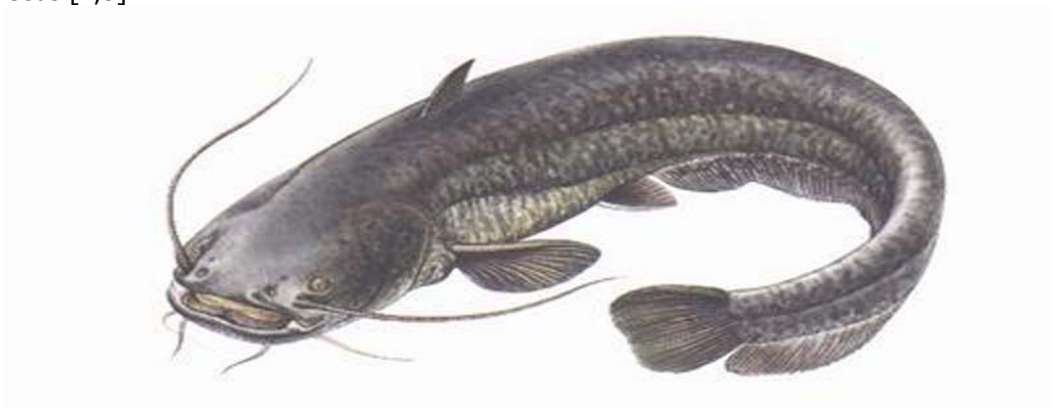


**Figure 3. Sheatfish. *Silurus glanis* Linnaeus**

Precious hunting fish. Fisheries are bred in propagated by succulent fertilization. It is used as a biomeliorator fish in the cleaning of water bodies (canals, ponds) from aquatic plants.

The body length 5 meters, weight up to 300 kg. It is found in all plain rivers of Uzbekistan. The predator feeds mainly on fish and frogs, large bivalve mollusks, and waterfowl. Sexual maturity is 3-4 years at 45-50 cm. Sexual maturity from April to June. Fertility is 1 million calves. The female lays her young on aquatic plants. They protect their babies until they hatch. It is a valuable hunting species.

The head is big, slender. The mouth is large and the jaws have small sharp teeth. Its eyes are small. There are three pairs of mustaches: 1 pair in the upper jaw, 2 pairs in the lower jaw. There are 3-5 rays on the small shoulder filter wing and 70-103 rays on the large anal filter wing. The tail fin is circular. It is up to 5 meters long and weighs up to 300 kg. It is found in all plain rivers of Uzbekistan.

Catfish fish reach sexual maturity at the age of 4-5 years. The seeds are sticky and yellow, 2-3.5 mm in diameter. Seed yield is 20,000 seeds per 1 kg of live weight. The spawning water temperature should be 18-20 ºC, shallow and very slow flowing water.

Catfishes are a promising habitat in pool fishing. They have advantages over other wild fish (white sila, pike). Catfish do not need large pools, they are adapted to the hydrochemical regime at depth, canals, ditches. These fish do not need even winter ponds, but have the ability to spawn and reproduce wherever they are raised. Catfish require a large range of nutrients; tramp hashish uses all available food sources in fish, frogs and large invertebrates as well as in ponds.

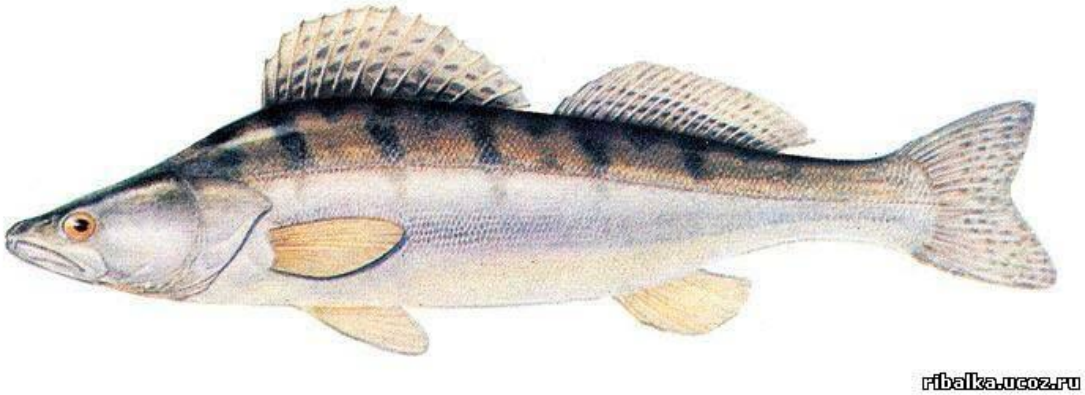



**Figure 4. White zonder. *Stizostedion lucioperca***

**White zonder.** ***Stizostedion lucioperca.*** Its body length is 1.5 m, weight up to 12 kg and more. It distributed in the Baltic, Black, Azov, Caspian basins, Amudarya and Syrdarya and Sarisuv lakes. It was brought to Surkhandarya region in 1963 from the Ural River (Russia) and acclimatized. It is now found in all water bodies. It used to be in the Aral Sea. The basis of its feed is small fish and crustaceans. It reaches sexual maturity in 2-3 years. It grows from March to May, with a fertility of 1 million. It is an important hunting object. In artificial fishing ponds, hake is used as a biomeliorator in the fight against fish. The body is elongated, constricted at the sides. There are pile teeth on the jaws and palate. There are 9-14 transverse lines on the body sides, elongated dark brown, sometimes with greenish spots. The color of the shoulders is greenish-gray, sometimes black. The first shoulder has 12-17 flaps, the second has 23, 17-25 flaps, and the anal flap has 9-14 flaps. There are 80-111 coins on the side line. Length up to 130 cm, weight up to 12 kg and more.

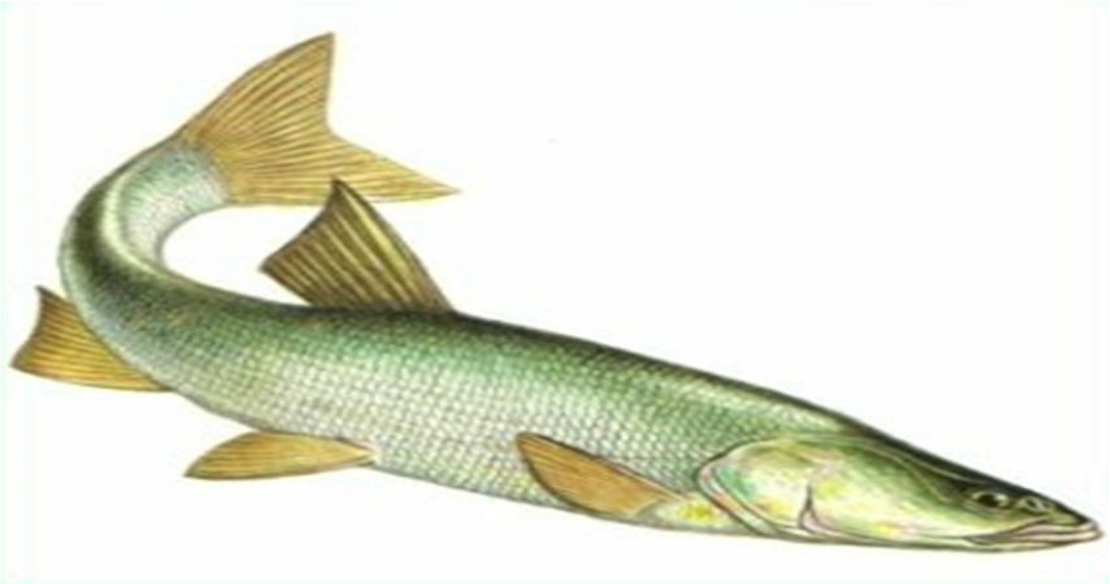


**Figure 5. Pike, white asp. *Aspiolucius esocinus***

**Pike, white asp (*Aspiolucius esocinus*)** body length up to 1 m, weight 10 kg. The middle and lower reaches of the Syrdarya and Amudarya rivers are found in Europe, North Asia, and North America.

There are 79-85 coins in the side row. It is mainly distributed in the middle reaches of the Amudarya and Syrdarya rivers. It is currently protected in the Kyzylkum nature reserve and the Lower Amudarya biosphere reserve. These fish species live in muddy, flowing waters, sandy or rocky deep parts of rivers, and rarely in stagnant waters.

It feeds on wild fish. It matures in 2-3 years. The sowing period is February-March. Fertility up to 100-1000 thousand calves.

Pike fish prefer to grow in slow-flowing, river-flowing and grassy lake-like water bodies, reaching sexual maturity at 3-4 ages. The rapid growth of pike at the first age occurs until puberty. In lakes and rivers, one year-old fish weigh 100 g, two-year-olds 1 kg and three-year-olds 1.5-2 kg. The experiment explained an increase of about 4-5 times in pond fishing. In feed ponds, the average weight of one year old fish was 450 g, some 500 g and even 800 g. Pike are distinguished by their valuable meat in pond establishments and their biological reclamation feature, which increases pond fishing carp production and eliminates competitors. Pike spawn in early spring at 3-6 ºC water temperature. Fertilization rates range from 17.5 to 215,000, with phytophilic seeding, and in some cases individual mother fish producing up to 1 million adult seeds. During the spawning process, the producing fish are divided into several groups, with 2-8 male fish attached to one female mother fish [1,2,5].

**Figure 6. Turkestan barbel. *Barbus capito***

Stable fish reach sexual maturity at the age of 4-5 years and hatch in May-June. Fertility is around 12-129 thousand calves. It feeds mainly on the aquatic insects' larvae, algae and the decaying remains of animals. They live in sandy-rocky areas with 2-3 m depth in the flowing water reservoirs. It spreads in the middle reaches of the Amudarya, Syrdarya, Zarafshan, Kashkadarya, Surkhandarya [4].

Apart from Uzbekistan, there are other subspecies in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, as well as in the Caspian Sea reservoirs. It is protected in Badaytokay, Kyzylkum, Surkhan and Zarafshan nature reserves.

In conclusion, the ichthyofauna of the lower reaches of the Amudarya has a natural distribution and biology of fish species. At present, 37 species of fish belonging to 13 months are distributed on the basis of artificial literature. Carps are dominant in number and population. In the lower reaches of the Amudarya, the most common fish are sazan, white amur, white silver carp, snakehead, pike, catfish and crucian.

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