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**GEOGRAPHICAL LOCATION AND FISH DIVERSITY OF ARTIFICIAL WATER POOLS OF AMUDARYA DOWNSTREAM**

**(literature analysis)**

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**Abstract:** This article mainly talks about the history and ancient structure of the Amudarya, its geographical location and its importance in agriculture, based on the analysis of the literature on the subject of my scientific work. In addition, our main goal is to study the diversity of fish in the lower reaches of the Amudarya and the middle reaches of the Zarafshan River and the helminthic diseases that occur in them.

**Keywords:** Amudarya, Ox, Island, Delta, beginning, end, false shovel, sea, castle, water level, pouring, jackal, steppe agama.

**INTRODUCTION**

In our country, large-scale reforms are being implemented in all areas of agriculture, especially in the fisheries sector. In particular, the Decree of the President of the Republic of Uzbekistan dated May 1, 2017 No. PQ-2939 "On measures to improve the management system of the fishing network", No. PQ-4005 dated November 6, 2018 "Further development of the fishing industry" on additional measures for the development" of August 29, 2020 No. PQ-4816 "On measures to support the fishing network and increase its efficiency" important tasks aimed at the development of fisheries and providing the population with ecologically clean fish products were defined.

A number of programmatic measures have been adopted in the republic to ensure food security of the population, including increasing the volume of production of quality fish products. In the republic, a number of legislative acts on the rapid development of the fishing industry, increasing its volume with the introduction of modern and innovative methods of production of fish products, regulation of the industry are being adopted, and measures are being taken to ensure their quality and thorough implementation.

Currently, in addition to the rapid development of the field, the implementation of scientific and research work on the fight against fish diseases, prevention and veterinary sanitary examination of infected fish is of great theoretical and practical importance. In particular, the hydrobiological (living organisms in water) and hydrochemical (ammonia-NH<sub>3</sub>, nitrite-NO<sub>2</sub>, pH-alkalinity or acidity, carbonic anhydride-CO<sub>2</sub>) water in the "Ichthiopathological Laboratory" of the Fishery Scientific Research Center in Yangiyol District of Tashkent Region and in laboratories in other regions and other substances) and determines fish diseases by laboratory method.

In meeting the population's demand for food products, special attention is paid not only to its quantity indicator, but also to the quality indicator that ensures their health. 18-20 percent of the proteins that humans receive at the expense of meat products belong to aquatic organisms, mainly fish. About 150 types of fish are used as food in the diet of the inhabitants of the earth. The amount of protein in fish is 14-24%, the main proteins are ixtulin, albumin, phosphorus nucleoproteins. 100 grams of fresh carp meat contains 16 g of protein, 5.3 g of fat and 112 kcal.

Vitamins B1, B5, B6, B12, A, C, PP, E; minerals include phosphorus, calcium, magnesium, iron, zinc, sulfur, molybdenum, fluorine, cobalt, manganese, etc.

The content of fish meat and especially its oil is very rich in vitamin D, and the metabolism of Ca and P in the body that consumes enough of it is maintained in a normal way. It is important to prevent rickets in young children, and to treat it when it occurs. In addition, fishmeal prepared from unfit fish and waste from fish processing plants is a valuable additional feed that provides full value in the diet of farm animals and poultry.

Intensive methods of fish breeding: reclamation of ponds, fertilization, additional feeding of fish, creation of highly productive breeds due to selection and breeding, acclimatization of productive fish breeds in regions with different living conditions, wide use of the factory breeding method yish, based on the diversity of the requirements of fish of different ages for their own living and feeding conditions, creating the same conditions for them, establishing a solid feed base, and a number of other activities are necessary for the rapid development of this industry. are the main factors.

Amudarya - the Greeks called Ox. Among local people, the river is known as Jayhun. The length of the river is 2400 km, the river delta is 534,739 km<sup>2</sup>. The Amudarya begins at the confluence of the Panj and Vakhsh rivers at the foothills of the Pamir Mountains in present-day Tajikistan, flows through the territories of Uzbekistan, Afghanistan and Turkmenistan and flows into the increasingly dry Aral Sea.

Amudarya flora and fauna - Amudarya valley and delta are characterized by a forest landscape. Currently, there are 61 types of forest plants in the forests of the lower reaches of the Amudarya. Among them, the main group of grove plants includes orange, willow (5 species), sedge (1 species), yulgun, chingyl, clematis, gospel, licorice. The shrub zone of forests is mainly covered with species associated with constant soil moisture and salinity. These are Yulgun, Ajirig, Alabuta Eshakshora, Parnolistnik, Kermek, Aqbosh, Karabarak and various shoras. In the waters of the Amudarya, there are bald, thistle, Arol molovodori, lakka fish, lech, Chekhon, sharp fin, white carp, silver carp. The river is the only habitat of the endemic Amudarya large shovelnose, which is on the verge of extinction.

There are many jackals in Badaytokai and other forests. A badger lives among the bushes, occasionally a reed cat and a fox are seen. Insectivores in the groves include the short-eared hedgehog and the spotted wasp. Among the rodents, there are many rabbits and house mice; lamellar-toothed rat, diurnal gerbil, etc. are common. Among ungulates, wild boar lives in all parts of the forest, and Bukhara deer live in Badaytokai. The desert chalcopis and the patterned snake are common in the forests. On the edges of the shore live the hawkmoth, the steppe agam and the Central Asian tortoise. There is a water snake in the Amudarya delta and near lakes.

**History of Amudarya** - Amudarya is the largest and most turbulent river in Turkestan. Amudarya was called Okus by the Greeks, Okosos by the Romans, Jayhun by the Arabs, Okuz, Balkh, Vakhsh by the local people, and then Amul. In the Lower and Middle Quaternary period, Amudarya passed through the Karakum desert and flowed into the Caspian Sea. Abu Rayhan Beruni wrote about this in his book "History of Amudarya". In the Upper Quaternary period, Amudarya flowed along its current course. From the 10th to the 2nd millennium BC, it filled the Khorezm bog and partially the Sarikamish bog. Part of its flow flowed to the south, created the current Uzboy basin and poured into the Caspian Sea. During this period, the delta of Sarikamish was formed. Between the 3rd and 2nd millennia BC, the Amudarya flowed north from the current

Tuyamoyun gorge, flowed through the Okchadarya basin to the Aral Sea from its southeast, and the Okchadarya delta was formed. In the 2nd and 1st millennia BC, Amudarya began to flow in its current direction, that is, from the south to the Aral Sea. In the middle of the 1st millennium BC, the current Arolboyi Amudarya delta (Arolboyi delta) began to emerge. Since then, Amudarya has been flowing into the Aral Sea. Sometimes a part of its flow went to Sarikamish Lake. In the 13th century, when the Mongol invaders attacked the Khorezm state, dams and dams on the left bank of the Amudarya were demolished, as a result of which the water of the Amudarya flowed again through the dry valleys of the Dov and Daryalik rivers to the Sarikamish basin. Later, after the dams and dams were restored, the Amudarya began to flow into the Aral Sea again through its former channel. In the 14th century, due to mutual wars, the structures on the shore were damaged, the water flowed back to Sarikamish, and the water in the Uzboy basin even went to the Caspian Sea. At the beginning of the 17th century, when the fences on the left bank of the Amudarya were restored, the water began to flow through the old riverbed, and in the 18th-19th centuries, it is recorded in historical sources that sometimes a part of the stream flowed into Sarikamish. He expelled Amir Olim Khan from Bukhara. Later, the printers suppress the movement and kill Ibrahimbek. A large number of Central Asian refugees, including Turkmens, Tajiks, and Uzbeks, fled to northern Afghanistan. In the 1960s and 1970s, the Soviets began to use the Amudarya and Syrdarya rivers to irrigate large cotton fields in the Central Asian Plain. Until then, water from the rivers was used for agriculture, but not on a large scale. Karakum Canal, Karshi Canal and Bukhara Canal are among the largest irrigation systems. During the Soviet-Afghan War in the 1970s, Soviet troops used the valley to invade Afghanistan through Termiz. In the 1990s, the Soviet Union collapsed and Central Asia fragmented into many smaller states located within or partially within the Amudarya basin.

Geographical location and climate - the upper part of Amudarya flows from the border of Tajikistan and Uzbekistan with Afghanistan, its length is 2540 km (including Vahjir - Vohondarya), the area of its basin is about 465 thousand km<sup>2</sup>, of which 227.3 thousand km<sup>2</sup> belongs to the mountainous part that collects water. Amudarya originates from a glacier at an altitude of 4950 m on the northern slope of the Hindu Kush Mountains in Afghanistan; Vohondarya is called Panj after joining the Pamir River, which originates from Zorko in the Pamirs. The Panj is joined by the Gunt, Bartang, Yazgulom, Vanj, Kyzilsuv tributaries from the right, finally, after joining the largest and shallowest tributary, the Vakhsh river, it gets the name Amudarya; in this part it is joined by Kunduzdarya from the left, Kofarnikhan and Surkhandarya from the right. The water of Sherobodarya reaches the Amudarya from time to time, and the water of the Kohitangdarya west of it is also used for irrigation along the way. After Surkhandarya flows, no other tributary joins Amudarya for more than 1,200 km until it reaches the Aral Sea. Zarafshan and Kashkadarya are ancient tributaries of Amudarya, and their water is used entirely for irrigation. The main water regime of Amudarya is formed in its upper, mountainous part. In this place, Amudarya flows through a narrow, sometimes deep and steep bed. Ozan decreases by 4 million (and in some places even more than 10 million) per km. Due to this, the river flows very fast, the speed of the flow is 4-6 m<sup>3</sup>/sec. The river valley is also narrow, winding through steep rocky mountains that are part of the Pamir mountain system. Vigorous tributaries flow from the mountains. The width of the valley does not exceed 3-4 km. In the places where the Kyzilsuv, Vakhsh, Kofarnihan, and Surkhandarya flows, the river valley is widened and farming is done on the terraces made of flowable rocks, sometimes the terraces

consist of thick orchards. Amudarya begins to flow through the plain after joining Surkhandarya, and the distance from Karki to Pitnakka can be considered as the middle course of the river. When the river reaches the plain, it passes through the Karakum and Kyzylkum deserts and flows into the Aral Sea. The average width of the riverbed in the middle part is 1500 m. The slope of the river in the plain part is low (0.2-0.3 m per km). Due to the high speed of the river flow (2-3 m/s), the bed and its banks are constantly eroded, so the bed is constantly changing. In the middle and lower reaches of the Amudarya, especially in the Khorezm oasis and Karakalpakstan (Urganch, Ellikkala), there is a phenomenon of erosion of the shores. In the next period, the washing of the river bed is also observed. Since the 1990s, when the lower reaches of the Amudarya were controlled by the Tuyamoin reservoir, the impact of the damming phenomenon in these areas has slightly decreased. In winter, in the upper reaches of the river, mainly near the shore, it freezes and creates a slush, and ice flows for a short time, and in the years of severe winter near the city of Karki, the river freezes for 10-15 days. The freezing of the river below the city of Chorjoi will take even longer. Below the city of Nukus, the river freezes completely for almost four months. In early spring, especially in the sharp bends and narrow places, the water level rises sharply due to ice jams and sometimes floods. The width of the Amudarya valley in the plain is 10-15 km, and in some places it reaches 20-25 km. Where the valley widened, three terraces were formed. In places where the river passes between low mountains, the width of the valley does not exceed 350-380 meters. There are Tuyamo'in near Pitnak, Duldulhatlagan and Eljik gorges in the middle. In the plain, on both banks of the river, there are 2-3 km wide sand dunes. The lower course of the Amudarya goes from the Tuyamoin Gorge near Pitnak to the Aral Sea, the length of its lower course is 500 km, of which 325 km is between Nukus and the Aral Sea - the current delta of the river. Amudarya receives water from marshy rivers, glaciers and snows, there are about 1000 glaciers in its basin (including the largest mountain-valley glacier in the world - Fedchenko glacier). Large areas of the catchment area are occupied by snowfields.

Amudarya Sarikamish delta is located in the north of Turkmenistan, it is the ancient delta of Amudarya, a plain that starts from the lower reaches of the river and extends to Lake Sarikamish. This is the place where the ancient state of Khorezm was established in the 6th century BC in an ancient agricultural and irrigated area. The center of Khorezm from the end of the 10th to the end of the 16th century. Currently, it is one of the natural-geographic natural regions of Tashkhovuz region of Turkmenistan.

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