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MAIN LIMNOLOGICAL CHARACTERISTICS OF RESERVOIRS

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ANNOTATION

The article examines the limnological characteristics of the reservoirs of the Southern Aral Sea region. During the research, the chemical composition and mineralization of water in lakes Sudochye, Mezhdurechye, Davutkul.

KEY WORDS: *Protection, mineralization, reservoir, reservoirs, Amu Darya, birds, dynamics.*

At the global level, great attention is being paid to solving the problem of progressive anthropogenic impact on water resources and preservation of biological diversity in aquatic ecosystems. Especially due to the sharp increase in anthropogenic pressure on water ecosystems, the quality of the water environment is becoming increasingly worse, and it is playing an important role in solving the issues of threats to the ecological, food and national security of our country. In this direction, the study of anthropogenic degradation of water bodies is becoming more relevant in the field of ecology, in addition to the creation of laws of rational use of natural water bodies and their protection.

Due to the extraordinary dynamics of the hydrological regime of the Amudarya basin, there is a strong need for up-to-date information in the development of prospective measures of water management, which also applies to information on the composition of biogenic elements. is the result of anthropogenic impact on water ecosystems of this region.

The flow of Amudarya is an important source of fresh water, and it is one of the main routes of pollutant migration in the Amudarya basin. The average content of dissolved phosphorus in Amudarya water and drainage channels varied from 0.004 mg/l to 0.36 mg/l during the considered period. The average annual minimum content of phosphates in collector waste water (KS-1) near the bridge in the area of Shortanbay collective farm of Nukus district and in the area of Kokshiel collective farm of Bozatau district (0.19 mg/l), the maximum in the collector KS-4 of Takhtakopir district and at the "Asha" point (Akpetkey archipelago) (0.32 mg/l). The content of ammonium nitrogen in the Amudarya water near the Takhiatash bridge is around 0.01-0.20 mg/l, Porlytau pos., Muynaq district. Around 0.01-0.32 mg/l.

Lake Sudoche. Lake Sudoche, located in the north-western part of Karakalpakstan, consists of a system of several lakes (big and small Sudoche, karateren, Begdulla aydyn, Omar salym, Qarajar, Qarysjag'ys, Akushpa).

The lake borders the Urga hill (580 30´- 430 35´) to the east (580 38´-430 35´) with the Ustyurt chinki, the eastern border is the Karajar system from the eastern shore of Sudoche lake (580 38´- 430 22´), the western border is Akushpa. hill and passes along Ustyurt plateau (580 22´- 430 32´) from Tayly to Urge hill. The total area is 50,000 ha.

The lake is a breeding ground for many hydrophilic bird species and a stopover for migratory birds on the west-Asian migration route, including rare and endangered birds.

Currently, Sudoche consists of a large number of small water bodies and four large water bodies (Aqushpa, Qarateren, Begdulla-Aydyn and Big Sudoche), as well as the areas adjacent to it. The maximum length of Akushpa is 20 km, width is 6.5 km, depth is not more than 1.5-1.7 m. The area of the lake is 11,600 ha.

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The southern and western shores of the lake, adjacent to the Ustyurt plateau, have a low coastline; the northern and eastern coasts are very high and swampy. The lake is surrounded on all sides by reed groves, the height and density of which decrease towards the southern edge. The shallowest southern end of the lake is rich in open plains and large bays. The clear surface of the lake constitutes 60% of its total area, and the rest of the lake is covered with reed groves.

It should be noted that the water level in the lake has decreased by 50-55 cm compared to 2016. The bird fauna of this area includes 230 species of birds, 117 of which build nests. There are many rare species here, which is why in 2007 Sudoche was included in the list of the most important ornithological area of Uzbekistan (Uz 002) according to criteria A1, A3, A4i, A4i.

Different conditions of water supply and water exchange, as well as the chemistry of the feeding waters, create a polyhaline hydrochemical regime in different areas and lakes of the wetland. For example, this situation occurred in 2005-2010, 2015 and 2017, when the inflow through the collectors decreased or stopped. It was noticed that the lakes are drying up and becoming salty: the mineralization of water increases in all places, especially in stagnant places. Mineralization in the zones of the freshest watercourses corresponds to the mineralization of the feeding stream - 3-4 g/l. 2014 and 2018 this system was also very popular. The area of Lake Tayla has greatly decreased. Water enters the KKS collector in small quantities; the water consumption here is very small. According to our data, its mineralization is about 6 g/l, and the last area near Lake Western Karateren is 14.01 g/l, with the smell of hydrogen sulfide.

Davutkol. The Davutkol lake system, located at the beginning of the "former" delta of the Amudarya, is the largest and oldest limnic ecosystem in the Amudarya basin. It is marked on the map as Dautkol reservoir. The study of this system is of great importance, because, on the one hand, it helps to establish relationships within the basins in lakes located in extreme arid conditions, secondly, it helps to observe the transformation of ecosystems exposed to anthropogenic influence, and thirdly, it is reasonable to distinguish freshwater limnic ecosystems from freshwater limnic ecosystems in the conditions of acute shortage of freshwater in the Amudarya basin. provides an opportunity to develop a strategy of use**.**

The Davutkol lake system is located along the river, 4 km north of the city of Nukus. formed. At this time, water entered the lakes through the Davutkol system and fed the lakes located below it, namely up to the Kuskhanatau hill. The water level is not constant and is characterized by significant fluctuations, often depending on the filling of the river with water. The boundaries of the system were constantly changing, its area varied from 1770 to 2250 hectares. The greatest depth in the system was 5-7 meters in the Kuksu distribution, and unlike other distributions, its boundaries were clearly defined. In the lake, some holes are separated from each other by reeds 0.7-1.5 m high. The lakes are rich in aquatic plants.

According to experts, the main dominant of this ecosystem is reed (Phragmite saustralis), along the coast there are many examples of narrow-leaved sedge (*Typha angustifolia L.*) and sea pig grass (Bolbochoenus maritimus), in the muddy bottoms of shallow lagoons, underwater plant communities urut (*Myriophyllum verticillatum) L.*), also forms dense thickets with rdest (*Potamogetonpectinatus L.*) and (*Potamogeton crispus L.*) species. Reeds (Phragmites australis) make up 85% of the ecosystem of the watershed and in some places are in clumps. The height of reeds in such bundles reaches 200-400 cm. Among reeds, the growth of 90-100 cm tall narrow-leaved sedges (*Typha angustifolia L.*) and reeds (*Schoenoplectuslitoralis* (*Schrad.) Palla*) was recorded. On the banks of the reservoir, specimens of hogweed (Bolbochoenusmaritimus) are rare. Underwater macrophytes consist of rdest (*Potamogetonpectinatus L.*) and (*Potamogetoncrispus L.*), urut (*Myriophyllum verticillatum L.*) and spiky urut (*Myriophyllum spicatum*). When the aquatic and coastal vegetation of the lake was studied, it was noted that it was covered with plants and had a high level of growth.

The lake is shallow and consists of numerous clumps of reeds (Phragmitesaustralis). The bottom of the lake is muddy and sandy. Thick reed beds grow along the shore and form isolated clumps of dense reed beds in the lake's water area. The bottom is thickly covered with myriophyllum spicatum species. Above the bottom of the lake and on the surface of the water spiral spirogyra (Sphaerocysti) formed a light green layer. The vegetation cover of the coastal part of the lake was dominated by plants such as sedge (Kareliniacaspica) and heather (*Tamarix hispida*) [69, 47-51 p.; 70, www.aknuk.uz.]. The dominant of this ecosystem is reed (Phragmites australis). It formed dense thickets and isolated islands. Underwater plants are represented by spiky urut (Myriophyllum spicatum). The species composition of the ecosystem is represented by only 2 types of aquatic plants. It is covered with reeds and its growth is high, and the coastal zone is also thickly covered with urut. Dominants of the coastal area are halophytes - plants such as sedge and rush.

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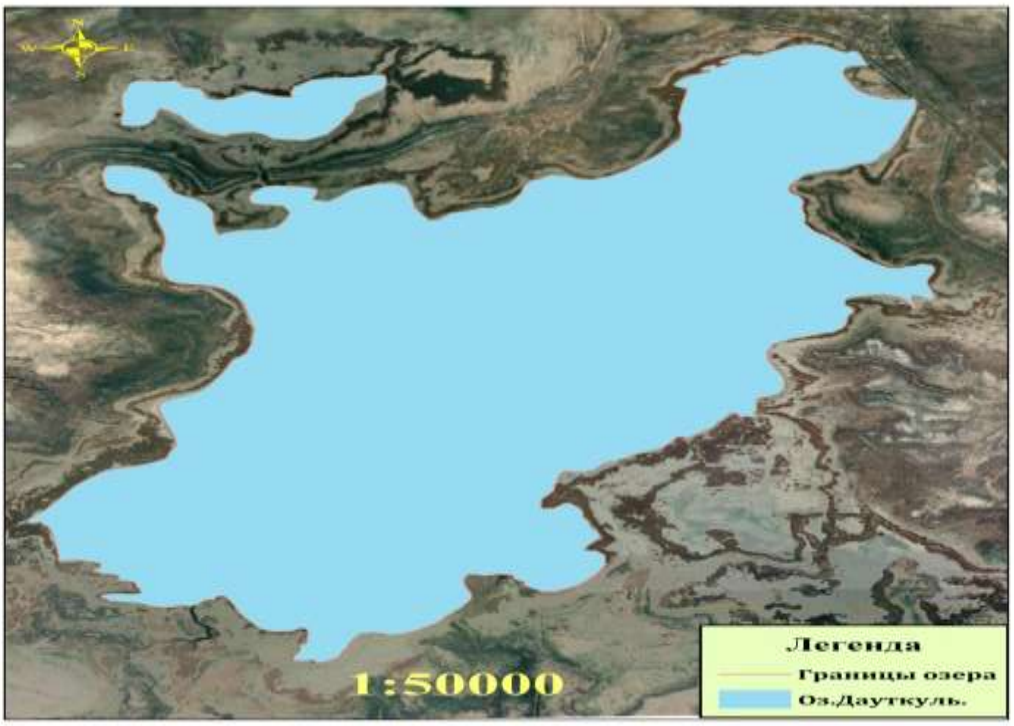

Geographical location of Davutkol (www.uzeconet)

A change in the hydrological situation in the region, a sharp decrease in the total water flow of the Amudarya in the delta, as a result of the transition to another source of water supply led to the transformation of the lake system into a basin formed in the deepest water areas with a single water surface. Irrigation is carried out by pumping water from the Erkindarya canal and tributaries of the Sapaqkol-Birkulok lake system. The water supply of the water basin is very irregular, as a result of which, even in a short period of time, there are sharp changes in the water level and significant changes in the area. vegetation was observed only in the open expanses of the plains.

Not too high clarity is characteristic for Davutkol water. Sometimes it reached 3-4 m and more, water clarity decreased due to contamination with various debris on the shores of the lake and when approaching the dam, as well as a strong bloom of algae.

In the case of Dautkol (1995-2000) (Fig. 3.2), it was found in the study of the seasonal dynamics of mixed substances that the content of seston in the water of the circular canal flowing into Dautkol was 0.662 mg/l in the spring. In Dautkol water, the content of seston in the upper layer of water is 0.634 mg/l, in the lower layer of water at the bottom of the water is 0.603 mg/l. In winter, the concentration of seston decreases significantly, which is probably caused by the process of destruction and sedimentation. The content of seston in the upper layer of Dautkol water is 0.88-0.95 mg/l, in the lower layer it is 0.45-0.47 mg/l. The analysis of the amount of seston concentration shows that the concentration of mixed dissolved substances in the lake can vary significantly from year to year.

Lake Mejdureche. Mejdureche is located in the northwestern part of the reservoir, between Kipchakdarya and Okdarya. The water source is Amudarya. The total area of the water basin is 3000 ha, its length is 9-10 km, and its width is 2-3 km. The maximum depth is 3.5 m, the deepest place is 1.3-1.8 m.

The waters of Amudarya flowing into the lake are characterized by high mineralization and general pollution, which increases along the entire river due to collector-drainage and industrial water discharge. The clarity of the water in Shegekol varies depending on the season and is 0.50-0.80 m. Water mineralization in Shegekol undergoes drastic changes, minimum as well as maximum indicators were recorded during all periods of observations in the warm time of the year. In summer it is 1274-2124 mg/l, and in autumn it is 1240-1270 mg/l.

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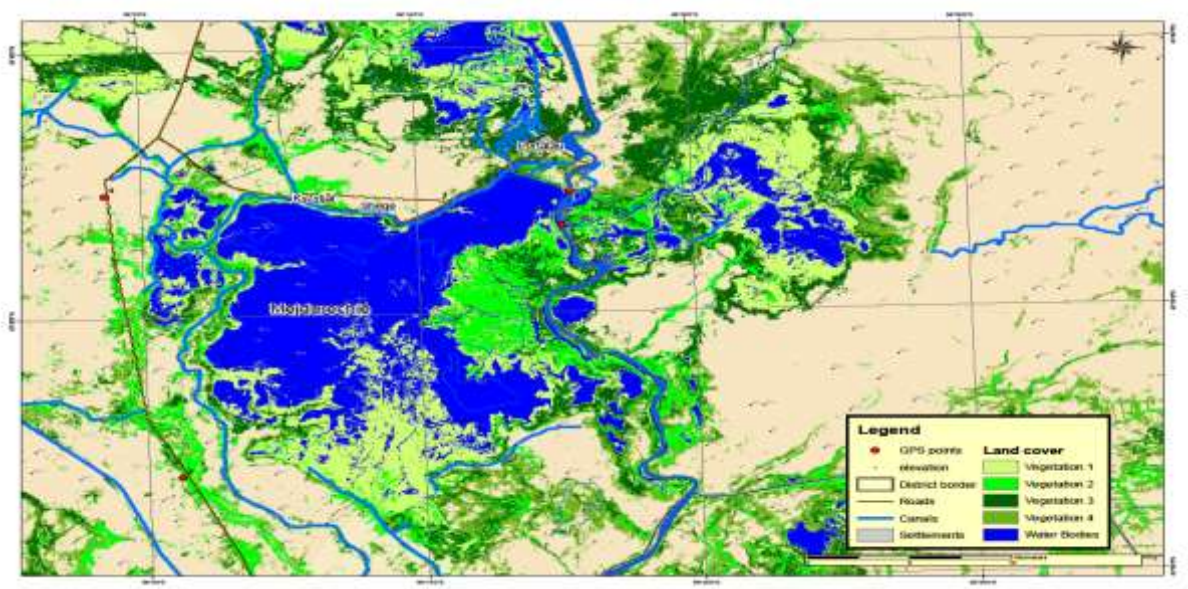

Geographical location of Lake Mejdureche

The concentration of dissolved substances in the water area of the lake is different and changes depending on the season. The content of dissolved substances in the summer season was 0.012-0.556 mg/l, in autumn - 0.310 mg/l (1998), in spring (1999) 0.104-0.671 mg/l, in summer from 0.0093 mg/l to 0.568 mg/l. It should be noted that the maximum amount of seston was recorded in the hypolimnion part of the water layer of the lake.

2013-2019 The analysis of the amount of seston concentration during the period shows that the distribution of dissolved mixed substances is not uniform and its variability probably depends on the internal regime of the water basin and the introduction of seston by the river flow.

Water environmental factors that lead to the degradation of water ecosystems are formed depending on the intensity and amount of biogenic elements entering water bodies and create certain conditions at the level of a specific biological regime and production and destruction processes that lead to their accumulation in ash.

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