

Akhmadjonova Y. T

Assistant of the Department of Chemistry

Jizzakh Polytechnic Institute

Jizzakh city, Uzbekistan

HYDROLOGICAL DESCRIPTION AND HYDROCEMICAL ANALYSIS OF THE AYDAR-ARNASOY LAKE SYSTEM

Annotation: *The Aydar-Arnasay Lake System (AALS) is a lake that has been formed since the 1960s as a result of the rapid expansion of irrigated land in the Central Asian Republic. The generated return water accumulates in the natural basins of the plains of the region, forming a new type of irrigation lakes. Lake Aydar is saturated with Akbulak in the Jizzakh region, the Qli outlet of the Sangzor River, the Chordara Reservoir, and the Central Mirzachol Outflow into the Arnasay.*

Keywords: *Aydar-Arnasay lake system (AALS), Arnasay, Tuzkon, Aydarkol, hydrological indicators, hydrochemical analysis*

Ахмаджонова Ё. Т.

ассистент кафедры химии

Джизакский политехнический институт

ГИДРОЛОГИЧЕСКАЯ ОПИСАНИЕ И ГИДРОХИМИЧЕСКИЙ АНАЛИЗ ОЗЕРНОЙ СИСТЕМЫ АЙДАР-АРНАСОЙ

Аннотация: *Айдар-Арнасайская озерная система (ААОС) – озеро, образовавшееся с 1960-х годов в результате быстрого расширения орошаемых земель в Среднеазиатской Республике. Образовавшиеся возвратные воды скапливаются в естественных водоемах равнин области, образуя новый тип оросительных озер. Озеро Айдар насыщается Акбулаком в Джизакской области, Клийским впадением реки Сангзор,*

Чордаринским водохранилищем, Центральным Мирзачолским впадением в Арнасай.

Ключевые слова: *Айдар-Арнасайская озерная система (ААОС), Арнасай, Тузкон, Айдарколь, гидрологические показатели, гидрохимический анализ.*

Relevance of the topic. The Aydar-Arnasay lake system is located on the territory of Jizzakh and Navoi regions. is a body of water created by driving water using a drainage system.

Since 1993, when water abstraction from Chordara has increased again, the water level has risen to 8.7 meters. By the summer of 2003, the total area of the lake system was 3,491 km², with an average annual flow of 3.0 km. reached.

As a result, 180,000 hectares of land (2004) were flooded in Jizzakh and Navoi regions. Today, the Aydar-Arnasay Lake System (AALS) is one of the newest and largest lake systems in the Republic of Uzbekistan.

The main part. The AAKT is located on the left bank of the Syrdarya River and is bordered on the northwest by the Kyzylkum Desert, on the east by Mirzachol, and on the south by the Nurata Range.

Morphologically, the AACT is divided into three components: the Eastern region - Arnasay, the Southern region - Tuzkon, the Western region - Aydarkol.

Water from 6 sewers is directly supplied to the Arnasay system. Of these, the Kyzylkum, Central and Kugayli collectors discharge water into the Arnasay, the Akbulak collector and the Qli River into the Tuzkon. According to the Central Asian Hydrometeorological Research Institute, sewage for 4 years (1991-94) from 10-11 m to 1292 m increase was observed. Today, the AAKT is fed mainly by the Akbulak in the Jizzakh region, the Qli outlet of the Sangzor River, the Chordara Reservoir, and the Central Mirzachol outflow into the Arnasay. On the left bank of the Syrdarya, on the south-western side of the Chordara reservoir, there are lakes Arnasay. The total area of these lakes is

180,000 hectares, including Tuzkan 36,000 hectares, Aydar 140,000 hectares and Arnasay 6,000 hectares. These lakes are filled with sewage and water from the Chordara reservoir.

Tuzkan Lake was previously closed, no water was connected to the basin, the salinity of the water reached 90 g / l. In 1969, Lake Tuzkon was connected to Aydarkol by a narrow and flowing road.

The water clarity of Aydarkol Lake is 2.6-6.0 m, mineralization is 14-18 g / l, the amount of dissolved oxygen in the water is 110.9% on the surface, 29.3 - 91.6% in the bottom. The pH of the water is 8.2.

Today, the salt content of water in different parts of Lake Aydarkol is 4-16.5 g / l, with an average of 10.2 g / l. The salinity of the water varies from 3.2 to 12.2 g / l. The highest salinity is in the spring. Gradually, the amount of salt ions in the water of this basin is increasing. According to the classification of the general mineralization of the water of Lake Aydarkol belongs to the type of water with sodium sulfate. Aydarko'ning sath rejimida mavsumiylik kuzatiladi. This seasonality, especially after sewage irrigation observed in time. According to the Central Asian Hydrometeorological Institute the highest water level is in March-April and the lowest in November-December.

Hydrological indicators. As the saturation properties of the three areas of the Aydarkol Lake differ from each other in depth, their water clarity levels also vary. The territorial division of this basin is morphologically consistent with its hydrology. The maximum clarity level in the central part of the Arnasay is 1-1.5 m, while in Tuzkon the average clarity level is 1-2.5 m. The maximum water level in Aydarkol is 2.5-6 m. Observations show that the water level in Aydarkol is clear especially high in summer and low in spring and autumn. Hydrochemistry. Aydarkol waters contain sulfate and sodium

The high content of ions indicates that it has a salty taste. The water is greenish-blue. The salinity of the water varies from 3.2 to 12.2 g / l. Gradually, the amount of salt ions in the water of this basin is increasing. Today, the salt

content of water in different parts of Lake Aydarkol is 4-16.5 g / l, with an average of 10.2 g / l. The ionic composition of Aydarkol water is close to that of ocean water. According to the Central Asian Hydrometeorological Research Institute, in 1990 the salinity of water in 2005 was 17 g / l in the eastern region and 12.2 g / l in the western region. , Up to 5 g / l.

The pH of the water is 8.6 in Aydarkol, 8.8 in Tuzkon and Arnasay 8.9 ga teng. These indicators show that the strength of Aydarkol water is alkaline indicates that. The Aydar-Arnasay lake system is saturated with local sewage and drainage. Over the years, the lack of fresh water in the lake has led to increased salinity, which has negatively affected the natural reproduction of fish.

Conclusion. As the Aydar-Arnasay lake system and its impact on the environment is one of the most pressing issues, the Aydar-Arnasay lake system and its coastal areas are to be studied on a scientific basis. "Study of the formation, dynamics and environmental impact of the Arnasay lake system, increase and decrease of water salinity, detection of heavy metal ions in the water" is being studied in a comprehensive manner. The research we have included in the project is complex and covers the development of the Aydar-Arnasay lake system from its inception to the present day, as well as water regime, hydrochemistry, water-salt balance, flora, fauna and their interaction. due to the formation of the geosystem of the lakes, the effects of lakes on the climate, soils, vegetation, groundwater of the surrounding areas are studied. Of course, the data obtained earlier are of great scientific value. We will draw conclusions by comparing the data we have now with the data we have received in the past. Study of hydrology and hydrochemistry of the Aydar-Arnasay lake system (AALS), ie analysis of water volume, composition, mineralization, oxygen, nitrogen compounds and heavy metals, scientific study of the morphology and biological potential of the region. and plays an important role in the development of ecotourism.

References

1. Ziyatovna, Y. Z., Tojimurodovna, A. Y., & Akhmedovna, S. S. (2021). The Concept and Principles of Nature Pollution Monitoring. *Annals of the Romanian Society for Cell Biology*, 1038-1043.
2. Akhmadjonova, U. T., Akhmadjonova, Y. T., & Yakhshieva, Z. Z. (2021). Technogenic Transformations of the Aidar-Arnasay Lake System and Their Geological Consequences. *Annals of the Romanian Society for Cell Biology*, 3271-3275.
3. Яхшиева, З. З., & Ахмаджонова, Ё. Т. (2020). Воздействия тяжелых токсичных металлов на качество вод. *Science and Education*, 1(4).
4. Yakhshieva, Z. Z., & Akhmadzhonova, Y. T. (2020). Ecological condition of Aydar-Arnasay lakes and its improvement. In Problems and prospects of innovative technology and technologies in the field of environmental protection//International scientific and technical on-line conference Part-I (pp. 38-140).
5. Яхшиева, З., & Ахмаджанова, Ё. Экономика и Социум. Экономика, (9), 882-887.
6. Яхшиева, З. З., & Ахмаджанова, Ё. Т. Токсиканты загрязняющие сточные воды.
7. Ахмаджанова, Ё. Т., & Яхшиева, З. З. (2021). Анализ воды Айдар Арнасайского озера на содержание тяжелых металлов. Журнал естественных наук, 1(4).
8. Tojimurodovna, A. Y., & Tojimurodovna, A. U. (2021). Sustainable Development of Fishing, Increasing Production Volume, Strengthening Food Base. *Academic Journal of Digital Economics and Stability*, 551-557.
9. Akhmadjonova, Y. T., & Akhmadjonova, U. T. (2021). Development of agroindustrial complex. Development issues of innovative economy in the agricultural sector, 761-763.