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ECOLOGICAL CONSEQUENCES OF WATER LEVEL DECREASE IN THE AYDAR - ARNASOY LAKE SYSTEM

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ABOUT ARTICLE

Key words: Aydar-Arnasoy lake system, ecological problem, local, regional, analysis, ecological situation, environment, biological diversity, landscape.

Abstract: In this article, the changes in the environmental conditions of the surrounding landscapes due to the decrease of the water level in the Aydar-Arnasoy lake system in recent years were thoroughly studied and analyzed.

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3INTRODUCTION

On February 16, 2023, at the meeting of the Oliy Majlis of the Republic of Uzbekistan Senate on Development Issues and Ecology Committee of the Aral Bay Region, the ecological problems of the Aydar-Arnasoy lake system and its surroundings were discussed on a large scale. So, it is said that the environmental problem of the Aydar-Arnasoy lake system and its surroundings has risen from a local problem to a regional problem. For this reason, it should be noted that special attention has been paid to the ecological situation of the Aydar-Arnasoy lake system and its surroundings, and several decisions and decrees have been developed to improve the environment.

In particular, regarding the rational use of the Aydar-Arnasoy lake system and its protection, the Cabinet of Ministers of the Republic of Uzbekistan No. 124 of March 7, 2017 "On organizational measures to ensure the rational use of biological resources of the Aydar-Arnasoy lake system" and June 11, 2019 The implementation of the tasks defined in the Decision No. 484 "On approval of the strategy for the preservation of biological diversity in the Republic of Uzbekistan for the period of 2019-2028" and other regulatory legal documents related to this activity is determined.

DISCUSSION AND RESULTS

Regarding the improvement of the ecological situation of the Aydar-Arnasoy lake system and its surroundings, the "Uzdaverloyiha" state scientific-projecting institute surveyed the areas adjacent to

the lake system of Jizzakh and Navoi regions. A preliminary electronic map of lake water protection regions has been created.

According to Uzg hydrometeorology, the water volume of the Aydar-Arnasoy lake system was 42.1 billion m 3 in 2006. In recent years, the water level in the lake system has decreased to 2 m, and the volume of water has decreased to 36.8 billion m 3, due to the change of climate and the decrease in the amount of fresh water discharged from external water sources in some years and a number of other factors . As a result, the level of mineralization of lake water has increased. This, in turn, has a negative effect on some types of fish and algae.

In the Aydar-Arnasoy lake system, due to the decrease of the water level, the shores receded by 15-50 m, and a salt layer of 15-20 cm, in some places even more, appeared. The consequences of this are manifested in the changes in the ecosystem of the lakes and their surroundings, including the decline of the unique flora and fauna of the wetlands.

According to the experts, about 400 birds, including 13 international species and 24 species included in the "Red Book" of Uzbekistan, fly to the Aydar-Arnasoy lake system every year for wintering. Changes in the lake and its surrounding ecosystem can also change the migratory routes of these birds and cause them to disappear.

11 tourism development projects have been launched in Jizzakh region, more than 15 billion soums have been appropriated by domestic tourism facilities.

In addition, in the spring season of 2022, 200 hectares of protective forests will be established in the area, and control by the "Ecopatrol" system will be established to limit cattle breeding within 2 km.

In order to maintain the water volume of the Aydar-Arnasoy lake system, a "smart water" device was installed at the control point of the Mirzachol collector, and water accounting was started. As a result of eco-control works, the lake system was saturated with 1 billion 918 million m 3 of internal collector-drainage water during 2022.

Uzgidrometeorology, until February 10, 2023, more than 500 million m 3 of fresh water was released from external water sources into the Aydar-Arnasoy lake system. Also, in the future, practical work is being continued on the issue of receiving an additional 1 billion m 3 of fresh water from external sources into the lake system.

CONCLUSIONS

If special attention is not paid to the balance of water input and output in the Aydar-Arnasoy lake system, the fate of the Aral Sea may be repeated in the future. The following proposals and recommendations were developed after studying the ecological problems of the lake system and its surroundings from a scientific and practical point of view.

- Study of the Aydar-Arnasoy lake system and the surrounding landscapes as a whole geosystem, from the point of view of the impact of changes in the water volume in the lakes on the surrounding landscapes;
- Determination of landscape features by studying the geological-geomorphological structure of the Aydar-Arnasoy lake system and its surrounding landscapes, as well as changes in components such as soil, plants, and animals, and the natural geographical processes taking place;
- In recent years, in the water balance of the Aydar-Arnasoy lake system, the output part (4.4 km3) has increased compared to the input part (2.5 km 3) , and as a result, the water has decreased. Another 1.9 km 3 of water is needed to maintain the lake level at 245 m . It was determined that if the water balance is not balanced, the lake level will decrease by an average of 30 cm per year;

- In the study of the changes in the surrounding landscapes due to the decrease of lake water, V.A. Nikolaev's (1979) landscape forecasting method and short (3-5 years), medium (6-29 years) and long-term (30-70 years) forecasts with its replenishment were used. developed;
- If the reduction of water in the Aydar-Arnasoy lake system continues at this level, the nature of some coastal landscapes will not change in the short term, in the medium term it will change from hydromorphic to semi-hydromorphic, and in the long term to automorphic. Landscape types within 10 km of the coast will change from semi-hydromorphic to automorphic in the medium term. Other types of landscape are automorphic, and even if water decreases in the Aydar-Arnasoy lake system, there are no significant changes in the landscape structure.

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