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HYDROCHEMICAL REGIMES AND CHEMICAL COMPOSITION OF WATER IN IRRIGATED RIVERS IN SOUTH WESTERN UZBEKISTAN.

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Annotation. This article describes in detail the hydrochemical status of rivers in the southwest of the country. In Samarkand, Navoi, Bukhara, Kashkadarya and Surkhandarya regions of the country, rivers in irrigated agricultural areas and their hydrochemical regime and chemical composition were analyzed. In addition, the dynamics of rivers and reservoirs in the region were studied by landscape-halogeochemical methods.

Keywords. Hydrochemical regime, chemical composition, rivers, ditches, reservoirs, mineralization of water.

A brief description of the natural conditions of the south-west of the Republic of Uzbekistan includes Samarkand, Navoi, Bukhara, Kashkadarya and Surkhandarya regions (the article does not provide a natural map of the regions). During the study, data on irrigated lands were analyzed and studied.

The area under study consists of the transboundary Zarafshan basin (the upper reaches of the river are located in Tajikistan), as well as the Kashkadarya and Surkhandarya basins.

The influence of irrigated agriculture on the formation of the hydrological and hydrochemical regimes of the middle and lower reaches of the three basins is characterized by the outflow of large volumes of collector-drainage water from irrigated lands.

Industrial river effluents are also affected by industrial effluents, including the Anzob Mining Combine (AGDK) in Tajikistan.

It should be noted that despite a number of scientific studies, the hydrochemistry of the surface waters of Uzbekistan is still poorly understood, especially in the south-western region, and this problem needs to be addressed.

Various hydrochemical aspects of river water in the basins under review, published by Uzhydromet "Chronicles of surface water quality" (1990-2017), "Regional branches of the State Committee for Nature", collected by the author in the field studied on the basis of.

The study looked at the current quality of river water on the basis of 20 stvor data from rivers, taking into account 19 ingredients: mineralization, head ions, some heavy metals, phenol, petroleum products SPAV, BPK and IPC, and pesticide levels. studied. Based on the data of 1990-2017 on the separated "initial" and "closing" storages, the perennial dynamics of some characteristic chemical ingredients, the relationship between water mineralization and water consumption, mineralization and head ions were considered. Graphs were drawn and a map “Mineralization and

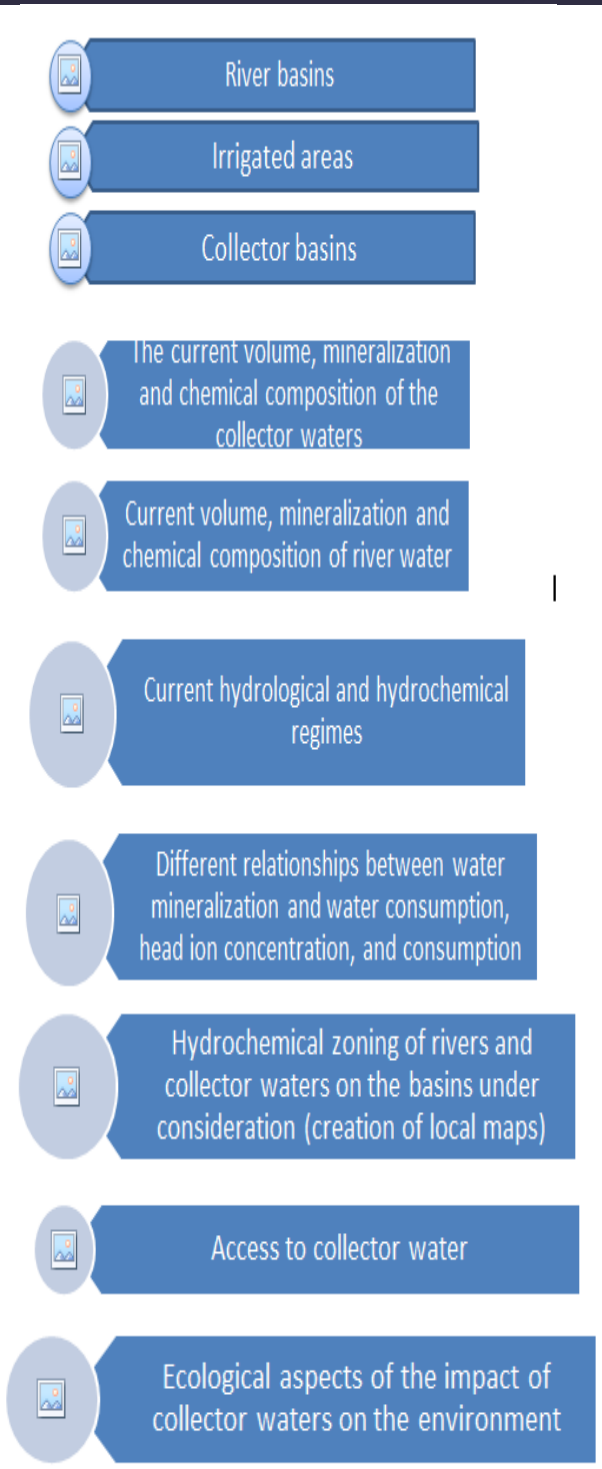
chemical composition of river waters of the south-western part of Uzbekistan" was drawn up.

Various aspects of the hydrochemistry of collector-drainage waters located in the studied river basins were considered on the basis of hydrogeological expeditions, regional branches of the State Committee for Nature and materials of researchers.

I.N. Stepanov and E.I. The "Basin landscape-halochemical" method proposed by Chembarisov (1978) was used as the main method in the study of hydrochemistry of rivers and collectors.

The main points of this method are shown in Figure 1. To solve this problem, the current approximate water-salt balance for the irrigated areas in the studied basins was studied, large reservoirs with an average annual water consumption of 3.0 m3 / sec were identified. . The annual distribution of water consumption and mineralization was studied. The relationship between water mineralization and water consumption was analyzed, and a map of "Hydrochemical zoning of irrigated areas in the south-west of the Republic of Uzbekistan" was developed.

The forecast of changes in the amount of water mineralization in the basins by 2022 has been made in connection with the future growth of irrigated lands. The "Basin" method, which is used in our research, was used to assess changes in the mineralization of river and collector water. (Figure 1)



Picture. Dinamics of minerisation of the dynamics of river and collector waters by the basin landscape-halogeochemical method, the main conditions in the study of chemical composition.

Hydrochemical regime and chemical composition of rivers in the irrigated area of

southwestern Uzbekistan. The analysis of Uzhydromet data revealed the hydrochemical regime of rivers and various characteristics of the chemical composition of water.

The chemical composition of the Zarafshan River has been determined in recent years on the basis of 8 storva data.

The mineralization of water in the lower stratum of the Pervomay dam (Ravotkhoja) fluctuates between 0.35 and 0.50 g / l throughout the year. NK) type, river water is polluted with 6-valent chromium, zinc, copper.

According to the stvor near Navoi (below in the effluent from Navoiazot), the mineralization of the river water is between 0.11 and 1.93 g / l during the year, and the amount of magnetic, sodium and sulfate ions in the water increases. In terms of chemical composition, it belongs to the class of hydrocarbonate - sulfate-calcium - magnesium - sodium (GS-KMN). The river water is contaminated with the above ingredients.

The analysis shows that the most polluted river water was in 1984-1995, and in recent years the level of river pollution has decreased significantly.

The upper reaches of the river are characterized by a decrease in mineralization as water consumption increases throughout the year. The law is violated as a result of the flow of various discharges in the lower storks. This can be seen in the relationship between water mineralization and water consumption.

The chemical composition of Kashkadarya water is determined on the basis of 7 stvor data.

Varganzi q. the mineralization of water in the adjacent stew fluctuates between 0.23 and 0.37 g / l throughout the year. Chemically, it belongs to the hydrocarbonate-magnesium-calcium (G-MK) class, and the water is almost non-polluting.

The mineralization of Kashkadarya water will increase to 0.38-0.51 g / l near Chirakchi village, and to 0.83-1.21 g / l in Chimkurgan. Chemically, it belongs to the class of hydrocarbonate - sulfate - sodium - magnesium - calcium (GS-NMK). The water is contaminated with GXSG, 6-valent chromium, copper. Due to the scarcity of water samples, the relationship between the annual distribution of mineralization and the hydrological regime has not been studied.

The chemical composition of the rivers of the Surkhandarya basin is studied in 6 estuaries.

In the upper reaches of the river, the mineralization of water at the post of Shurchi village varies between 0.31 and 0.94 g / l per year, and its chemical composition is sulfate-hydrocarbonate-magnesium-calcium (SG-MK).

The river water is polluted with petroleum products, phenol, chromium, GXSG, nitrites.

According to the sturgeon near the city of Termez in Surkhandarya, the mineralization of water varies between 1.12-1.47 g / l during the year, the concentration of magnesium, sodium, chloride, sulfate ions in the water increases, the river water is based on the above stor (Shurchi). contaminated with ingredients.

Chemically, it belongs to hydrocarbonate-chloride-sulfate-calcium-magnesium-sodium (GXS-KMN) water.

At the upper end of the Surkhandarya River, there is an inverse relationship between water mineralization and water flow, but at the confluence of the river, this

connection is complicated by the outflow of highly mineralized collector-ditch water.

In addition to the Atlas of Environmental Protection (2008) and the Ecological Atlas of Uzbekistan, a map of mineralization and chemical composition of rivers in the south-western part of Uzbekistan has been compiled. It was compiled using hydrochemical data from 2000-2017 for 44 hydrological posts.

Based on the average annual data, this map is divided into the following zones in terms of mineralization: a) up to 0.2; b) from 0.21 to 0.5; (c) 0.51 to 1.0, g) greater than 1.0 g / l (obtained in g / l), the chemical composition of the water was determined for individual sections of the river, and ions with more than 10% were given in its name. This card can be used not only for scientific but also for practical purposes.

Future changes in the hydrochemical characteristics of surface waters. Using the "Basin Landscape-Galochemical" method, the forecast of changes in the mineralization and chemical composition of river and collector waters by 2022 in the irrigated areas of the studied river basins was assessed. Irrigation zones in river basins were considered to be large "flow areas".

In forecasting the salinity of river water, initial and catchment strata and "effective" irrigated areas have been identified. The mineralization of collector-drainage waters was predicted to depend on the size of their area.

Forecasting of mineralization and chemical composition of river water and section 2 Navoi stvori and below. According to the forecast, the average salinity of the lower reaches of the river will increase to 1.27 g / l in 2022 (from 1.53 g / l in 2013-2017). For Kashkadarya and Surkhandarya, calculations were made for the lower reaches of the river.

By 2022, the average water salinity in Kashkadarya will be 1.31 g / l (current - 1.23 g / l) and the chemical composition in Surkhandarya will be almost unchanged to 1.06 g / l (current - 0.98 g / l).

According to estimates, the average salinity of collector-drainage water at the exit of the Zarafshan River from the Samarkand oasis is 0.88 g / l (currently 0.85 g / l), below the Navoi oasis - 3.36 g / l (currently 3.27 g / l).

From the irrigated lands of Kashkadarya below 4.78 g / l (currently 4.75 g / l), in the lower part of Surkhandarya 1.59 g / l (currently 1.54 g / l), collector-drainage water the chemical composition is almost unchanged.

References

1 E.I.Chembarisov, S.R.Shodiyev, E.E.Chembarisov. Contents and perspectives of hydroecological monitoring of the basin of the Aral Sea Vestnik Kaz NU. Geographic series. Almaty, № 2 (19), 2004 p. 155 - 158.

2 Chembarisov E.I, Shodiyev S.R, Reymov A.R. Application of ecological indicators in the Republic of Uzbekistan. Sb. nauch. st. mejdun. scientific conference. "Innovation - 2006", Tashkent, TGPU, 2006, p. 351 - 353.

3 Chembarisov E.I., Atanazarov K. Collector-drainage waters of the Kashkadarya region of the Republic of Uzbekistan. Nauchno-tehnicheskiy zhurnal, Vodnyye resursy i vodopolzovaniye, Kazakhstan, №5 (172) 2018, 46-48p.

4 *Chembarisov E.I., Raximova M.N., Shodiyev S.R.* Dynamics of changes in the quality of water in Uzbekistan. In the collection: Prioritetnye napravleniya sovremennoy nauki,

obrazovaniya i tehnologiy sbornik nauchnyx trudov po materialam mejdunarodnoy nauchno-prakticheskoy konferensii. 2020. S. 201-205.