

Water Supply of the Population in the Conditions of Anthropogenic Eutrophony of Volga Reservoirs

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1. Abstract

The problem of providing the population with high-quality drinking water under the conditions of anthropogenic eutrophication of surface water bodies becomes more and more urgent every year [1]. This problem is particularly acute in the reservoirs of the Middle and Lower Volga, where in summer due to the massive development of blue-green algae ("blooming" of water) there is a sharp deterioration in water quality (phytoplankton abundance and biomass, color, pH, dissolved oxygen, redox potential) in drinking water sources. At the same time, the traditional water treatment methods existing in the Volga cities do not allow bringing the water supplied to the population to the standard quality for oxidability of permanganate (PO), (5.0 mgO/dm³) [2-4].

The average value of oxidability in water p. Volga in the area of the Zhiguli Dam for the period 2000-2016. was 7.73 mgO/dm³. At the same time, the intra-annual changes in software had a pronounced seasonal variation (**Figure 1**). The highest value of oxidizability was observed in July during the period of mass development of blue-green algae (8.60 mgO/dm³), and the smallest-in-December (7.00 mgO/dm³) when the growing season ended.

The excessive content and significant intra-annual fluctuations of organic substances in the water of water supply sources indicate the need to develop additional measures for the protection of water bodies and the improvement of existing water treatment technologies in Volga cities. In the future, an increase in nutrient load and an increase in global water temperature will contribute to the intensification of the eutrophication process, an increase in organic pollution and the deterioration of drinking water supply sources. In this regard, we recommend measures aimed at reducing the load on the reservoirs through the introduction of regional standards for water quality, which take into account the natural features of water bodies.

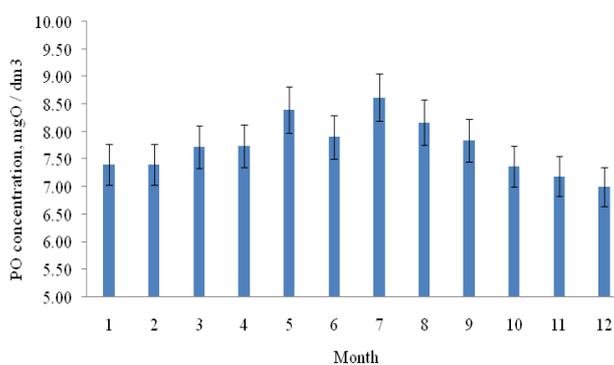


Figure 1: Intra-annual changes in oxidability

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References

1. Selezneva AV, Bespalova KV, Seleznev V.A. Evaluation of seasonal variability of water quality in the surface source of drinking water supply. *Urban planning and architecture*. 2018; Vol. 8. No. 2 (31): Pp. 20 -6.
2. Selezneva AV, Bespalova KV, Seleznev V.A. Formation of water quality in the Volga reservoirs under abnormal weather conditions. *Water Industry of Russia*. – 2013; No. 5: p. 4 - 14.
3. Seleznev VA, Bespalova KV, Selezneva A. V. Seasonal Variability of Phosphate Content in Volga Water Under Conditions of Anthropogenic Eutrophication of Reservoirs. *Journal of Water Chemistry and Technology*. 2018; Vol. 40. No. 5: P. 1 - 5.
4. Selezneva AV, Bespalova KV and Seleznev V.A. The content of dissolved inorganic phosphorus in the water of the Kuibyshev reservoir. *Water Industry of Russia: problems, technologies, management*. 2018; No. 2. S: 35 - 45.