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MINERAL FORMS OF BIOGENIC COMPONENTS IN THE WATERS OF THE MIDDLE NISTRU

N. Goreaceva, V. Gladchi, E. Bunduchi, R. Borodaev, A. Lis

Chemical and Chemical Technology Faculty of the State University of Moldova, 60 A. Mateevici str., Chisinau, Republic of Moldova

This paper summarizes the results of years of research in the Nistru water content of nutrients in the 2005-2010 years. The purpose of research is the identification of the spatial and interannual dynamics of mineral forms of nitrogen and phosphorus content with the evaluation of the influence limiting on the phytoplankton development. In the Nistru waters near Naslavcia for the research period the forms of nitrogen NO_3^-, $NO_2^-$and phosphorus - PO_4^{3-}, P_2O_5 were constantly present. In 2005-2006 ammonium nitrogen was episodically absent.

The tendencies of the average concentration changes of inorganic nitrogen and phosphorus for the period by the length of river portion from the Naslavchia to Dubasari hydroelectric power station (HPP) dams and by years has been revealed. The average total nitrogen (N_{tot}) and phosphorus (P_{tot}) content in Naslavcia was 1.896 and 0.14 mg / L, respectively. Downstream of Cosauts there was reduced the total amount of mineral nitrogen up to 1.712 mg/L and phosphorus in Mereshovca and the HPP dam to respectively 0.11 – 0.12 mg/L. Fluctuations by years of N_{tot} and P_{tot} average concentrations in the waters to Naslavcia and Dubasari reservoir had the appearance of the trend polynomial with the coefficients of 0.59 and 0.36 respectively.

Estimation of influence of mineral biogenic elements on phytoplankton development was performed in accordance with the Forsberg method by the ratio N_{tot} / P_{tot} [1]. According to the analysis in the Naslavcia shutter of Nistru waters for 2005-2006 years the ratios N_{tot} / P_{tot} <10 in 2007 and N_{tot} / P_{tot}> 20 in 2009 were received. This indicated that in the first case the limitant of primary production was mineral nitrogen, in the second - phosphorus. In the Dubasari reservoir nitrogen was limited the algae development in 2005, 2007, 2009 years, phosphorus - in 2008.

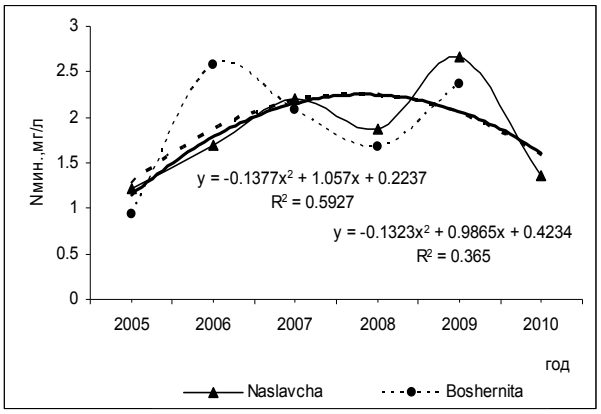

Fig.1 Dynamics of annual values of the ratio N_{tot}/ P_{tot}

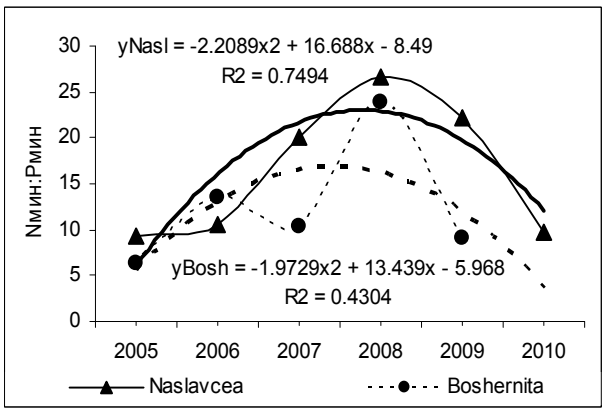

Fig.2 Trend of the ratio N_{tot}/ P_{tot} in 2005-2010

References:

[1] Forsberg, C. Die physiologischen Grundlagen der Gewassereutrophierung. In: Z. Wasser-und Abwasser Forsch. 1979. Bd.2, H. 2.