

# ENVIRONMENTAL STATUS OF SMALL AND MEDIUM BARRIER LAKES

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## Abstract

Water Framework Directive introduces a new concept on the state of water bodies heavily modified, represented by the ecological potential and chemical state. The ecological potential is achieved on the basis of biological, physicochemical quality elements and specific pollutants, whereas the chemical status is evaluated based on the impact of priority/priority hazardous substances (non-synthetic and synthetic substances) represented by heavy metal ions and organic micropollutants. In the case of barrier lakes there are defined two classes of ecological potential: maximum and good ecological potential, firstly, and moderate ecological potential, secondly. In determining the ecological potential there is considered the "worst-case establishes quality status" principle. Thus the worst potential of barrier lakes is the moderate one. The environmental objective for a barrier lake is considered to be achieved when the monitored water body falls into good ecological potential. There were analyzed qualitatively several small and medium-sized barrier lakes in the catchment Prut - Barlad, by integrating the following quality elements: biological (phytoplankton and phytobenthos), physico-chemical (nutrients, salinity, acidification status, oxygenation conditions ) and specific pollutants (synthetic and non-synthetic). After monitoring a total of 17 small and medium barrier lakes in the catchment it was found that in the years 2012, 2013, 2014 the ecological potential was moderate or good, being mostly maintained the moderate potential. However there is observed a removal of the elements that lead to the blocking in the attainment of environmental goals. Since 2012, the environmental objective has been reached for 3 of the 17 monitored barrier lakes, while in 2014 the number reached 6. To determine the chemical status of these small and medium barrier lakes, for each monitored substance there was calculated the annual average concentration and annual maximum concentration for those substances that are set quality standards for the environment, because any excess in quality standards for these concentrations can lead to poor chemical status. For the monitored barrier lakes there was observed an improvement in the chemical status since in 2012 only 6 lakes had good chemical status, while in 2014 their number increased to 9.

**Key words:** ecological potential, chemical status, barrier lakes quality monitoring, quality elements.

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