

BIOTA OF HYPERHALINE LAKES OF THE SOUTH OF WESTERN SIBERIA

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Studying of hyperhaline lakes causes a particular interest that is bound to feature of their biota. The natural stock of self-regulation and self-preservation of water ecosystems of hyperhaline lakes is limited owing to a combination of an unstable hydrology in a combination with high extent of natural accumulation of mineral and organic matters, and also a low species variety of hydrobionts. As a part of a phytoplankton are noted high rates of a biomass at the expense of development of 1-2 main species. The zooplankton in the majority of lakes is presented by a monoculture of a crustacean from the sort *Artemia* Leach, 1819, class *Branchiopoda*. The practical value of *Artemia* consists in use its diapausing eggs as a starter feed for a larvae of valuable species of fish and crustaceans. *Artemia*'s cysts is highly demanded, and possibilities of preparation of this valuable resource in hyperhaline lakes are very high. Their total stock in lakes of the Altai territory is estimated at the level of 6-7 thousand tons.

Hyperhaline lakes of Western Siberia are settle down in the extensive inland falls surrounded with heights and a massif. Classical example is the southern Areas of West Siberian Plain surrounded with a massif of Altai, Ural and Sayan Mountains, heights of the Average-Siberian plateau and the Kazakhstan folded country. Salt lakes occupy drainless hollows. Zones of arrangement of salt lakes usually coincide with internal artesian pools, and mineral underground waters play a part in a mode of land reservoirs.

Hyperhaline lakes are located rather compactly in the arid and semi-arid zones of the West Siberian lowland; they are subordinated to zonal regularities of climatic conditions of salt and organic accumulation and have a common tendency to the succession.

Natural complexes of hyperhaline lakes are in close connection with climatic conditions which form heat and water balance, conditions of activity of organ-

isms. Environment in the latitudinal zones influences on the formation of a biota of lakes, lacustrine accumulation and chemical composition of water.

The considerable proportion of hyperhaline reservoirs of Russia (1,2 – 1,3 thousand sq.km) is located in the Altai territory and dated for areas with poor moisture content and excess heat availability. There are three categories of lakes, based on the ecological and economic importance. The largest in the Russian Federation hyperhaline lake Kulundinskoe (the water area of 728 sq.km) gets into to reservoirs of the highest category, and the most deep-water salt lake having world value – the lake Bolshoye Yarovoye (the water area of 66,7 sq.km) also belongs to the highest category. Reservoirs of the first category include 13 lakes, the lakes Maloye Yarovoye (the water area of 35,2 sq.km) and Malinoye (the water area of 11,4 sq.km) are the most valuable of them. To the second category belong hyperhaline lakes with the water area more than 1,0 sq.km.

For hyperhaline lakes limiting natural factors are temperature and a common mineralization of water, also a derivative of hydrological conditions on the drainage basin and in the reservoirs – the mode of water level determines the sizes of the «inhabited» zone of crustaceans and their diapausing eggs.

In the territory of an arrangement of hyperhaline lakes the sum of the active air temperatures more than 10 °C fluctuates within 2000-2400 °C.

The mode of water level of the major part of hyperhaline lakes is changeable and exposed to the considerable fluctuations, up to the thorough drying of shallow reservoirs and noticeable reduction the areas and depths in larger ones (regression phase of water content). At the improvement of environment begins the flood of lakes, comes a transgression stage of the mode of water level. Therefore the number of lakes, their linear dimensions, coastline outlines, level of a mineralization of a brine are in integral dependence on water content conditions.

In the described territory for the last decade such periods are noted: 2001-2005 – a transgression phase of water content, 2006-2013 – a regression phase.

Mineralization of water of lakes varies in the wide range: from 30 to 320 g/l. On type of their hydro-chemical composition, majority of hyperhaline lakes fall into the chloride class (Bolshoye Yarovoye, Krivaya Puchina, Kurichye etc.). Some lakes fall into to the mixed chloride-sulfate class (Kulundinskoye, Belenkoye, Mormyshanskoye etc.). Also there is a small amount of carbonate lakes (Tanatar, Petukhovo). In most cases a group of water is the sodium.

The zooplankton, in the majority of lakes, is presented by a monoculture of halophilic crustacean from the genus *Artemia* Leach, 1819. One of the features of *Artemia* is ability to beget as cyst (with thin and thick-shell), and nauplii. *Artemia*'s thick-shell eggs (cysts) are valuable object of trade. In lakes of the highest category there are about three-four generations of the crustacean during the warm period.