



## EFFECT OF AGGRADATION OF SAND ON COMMUNITY OF PHYTOPSAMMON IN ODESSA GULF (THE BLACK SEA)

**Snigireva A.A.**

*Odessa National University named after I. I. Mechnikov, Hydrobiological Station, Champansky lane, 2, Odessa 65058, Ukraine*

Odessa coast is characterized with abrasion processes that lead to its destruction. An aggradation of sand as one of the measures of stabilizing the landslides was held on the coast of the Odessa Gulf in October 2007. One of the most important factors for the formation of psammon community is the size of sand particles; therefore the study of its effect on microalgae is of current interest.

Investigation was carried out at 13 sampling sites where the aggradation occurred and 3 control sites without it in September 2007 and 2008. Samples of psammon were collected in the surface 2-cm layer of sand in 1 m distance from the water edge. To determine the size of sand grains a gradation factor (Mdk) was calculated (Vorobieva, 1992).

To carry out the aggradation it was used the sand, its grains' size being much smaller than on the Odessa coast. As a result, the size of sand grains on the Odessa beaches has decreased by 53 % on average. The aggradation led to the death both of the inhabitants of psammon on Odessa coast, and hydrobionts removed from the sand, taken on the Odessa bench land. After the aggradation of sand the content of nutrients and dissolved organic matter increased sharply in the pore water (Garkusha, 2009), which led to increase in the total number of algae in 2008 ( $99 \cdot 10^3$  cells/sm<sup>3</sup>).

A 6 times increase in abundance of myxotrophic algae, Dinophyta (*Prorocentrum*, *Gymnodinium*) and Cryptophyta (*Cryptomonas*) indicates the reorganization in algological community and is connected with changes in the hydrochemical parameters of water. For example, the abundance of Dinophyta ranged from 1 to  $4 \cdot 10^3$  cells/cm<sup>3</sup> in 2007 and from 1 to  $36 \cdot 10^3$  cells/cm<sup>3</sup> in 2008.

However, a threefold reduction in abundance of Dinophyta at control sites emphasize on low trophic conditions in 2008. In case of high trophic conditions, abundance of Dinophyta as a result of aggradation could increase not 6 but 18 times more.

Abundance of Cyanophyta didn't changed on control sites, while it increased 3 times and reached  $65 \cdot 10^3$  cells/cm<sup>3</sup> (52 % of total abundance of algae) at sites where aggradation took place. Abundance of diatoms at sites with aggradation was lower than at the control sites, and amounted to 30 and 45 % respectively.

On the basis of correlation analysis it was concluded that fine sand (1,4-2,0 Mdk) corresponds to the optimum of the development of Dinophyta, Cryptophyta and Cyanophyta.