



Commission on the Protection  
of the Black Sea Against Pollution

## 2nd BIENNIAL AND BLACK SEA SCENE EC PROJECT JOINT CONFERENCE



CLIMATE CHANGE IN THE **BLACK SEA** –  
**HYPOTHESIS, OBSERVATIONS, TRENDS,**  
SCENARIOS AND MITIGATION STRATEGY  
FOR THE ECOSYSTEM

6 – 9 October, 2008  
Sofia, Bulgaria

# Paper Abstracts



[www.blacksea-commission.org/bs-hot](http://www.blacksea-commission.org/bs-hot)

**ANALYSIS OF BIODIVERSITY OF PHYTOPLANKTON ON THE UKRAINIAN BLACK SEA SHELF (THE END OF XX – BEGINNING OF XXI CENTURY).**

Derezyuk Nataliya<sup>1, a</sup>, Volodymyr Mednets<sup>1, b</sup>

<sup>1</sup> Odessa National Mechnikov University  
7, Mayakovskogo lane, Odessa, 65082, Ukraine

<sup>a</sup> e-mail: derezyuk@eurocom.od.ua

<sup>b</sup> e-mail: mednets@te.net.ua

**Key words:** phytoplankton, biodiversity, long-term changes, Black sea

It is known, that global climatic changes influenced on all biological processes especially in marine environment.

The main goal of our investigations was to find quantitative and correlation connections between climatic and phytoplankton community changes in the Black Sea during the last 30 years.

As primary data, we used the results of processing of phytoplankton's samples collected in 1985-2007 in the framework of research and monitoring projects in the Ukrainian part of the Black Sea which carried out by the Ukrainian Scientific Centre of Ecology of the Sea and Odessa National Mechnikov University.

Phytoplankton sampling and sample processing were performed as per method guidelines [0, 0]. The analysis of phytoplankton alpha-diversity was carried out as per method guidelines [0].

The connection between abiotic ecosystem factors and phytoplankton algae is investigated using the alpha-diversity of microalgae as biological indicator of long-term changes in the Black Sea.

It is shown that the phytoplankton community is comprised of microorganisms belonging to the phyla Bacillariophyceae, Dinophyceae, Chlorophyceae, Cyanophyta (Cyanobacteria), Cryptophyceae, Chrysophyceae, Euglenophyceae. Changes in the structure of species composition that resulted from long-term alterations in hydrochemical (trophic status of water), and hydrophysical (climatic) parameters were observed in various regions of the northwestern Black Sea shelf [0]. Analysis of 30 years data shows that during the last 5-7 years the increased contribution of thermophilic algae of subtropical and subtropic-boreal genesis was found to be typical feature of the phytoplankton on the northwestern shelf. At the same time psychrophilic algae of arctic-boreal origin have decreased their role. The results of the fulfilled bioindication analysis are discussed. Positive trends exist for the total number of species and for diversity of phytoplankton community within the open North-Western part of the Black Sea up to 20-75 m depths and within the coastal regions up to 5-15 m depths.

It is proposed to develop a program for long-term observations of phytoplankton biodiversity in the Black Sea and to use the Zmeiny Island as Ukrainian reference station, typical for the north-Western part of the Sea.

**References**

Guidelines for Biological Methods Analysis of Marine Water and Bottom Sediments. Ed. A.V.

Tsiban. Leningrad, Gidrometeoizdat, 1980. p. 100-105. (In Russian).

Standard Methods for the Examination of Water and Wastewater. 20th Edition. 1998. 10010. App. By Standard Methods Committee, 1994, p.10:1-62.

Barinova S.S., Medvedeva L.A., Anisimova O.V. Diversity of algal indicators in Environmental Assessment. - Israel, 2006. - 498 p.

State of Black Sea Environment. National Report of Ukraine 1996-2000. -Odessa. Astroprint, 2002. - P. 55-57.