

## **THE BALTIC SEA TO REVEAL ITS MYSTERIES AND TO DEMONSTRATE HIGH BIOLOGICAL DIVERSITY**

The 8<sup>th</sup> Baltic Sea Science Congress was held on August 22-26, 2011 in St.Petersburg, Russia being the traditional international biennial forum for the scientists of the Baltic Sea region. Russia was hosting the Congress participants for the first time that laid a high responsibility on organizers. Usually, this forum is organized by the three informal scientific communities: the Conference of Baltic Oceanographers (CBO), Baltic Marine Biologists (BMB), and Baltic Sea Geologists (BSG). Representatives from these communities made part of the Local Organizing Committee based on Russian State Hydrometeorological University. It is the Local Organizing Committee that was to bear the major burden of organizing and holding the Congress. The Scientific Programme of the Congress was formed by the members of the International Scientific Steering Committee, including members of the communities mentioned, and in cooperation with the representatives of BONUS Programme and Russian specialized research institutes and organizations (P.P.Shirshov Institute of Oceanology, RAS, Zoological Institute, RAS, A.P.Karpinsky All-Russia Geological Research Institute, etc.)

As it was noted at the previous 7<sup>th</sup> BSSC, that was held two years ago in Tallinn, Estonia, “the pace and scale of anthropogenic pressures upon the Baltic Sea ecosystem are faster and larger than the development of knowledge needed to estimate and predict ecological and socio-economic consequences”. To eliminate the delay in the scientific development and to provide the sustainability and safety of marine and coastal ecosystems, the 8<sup>th</sup> Congress collected scientists and experts on the Baltic Sea problems together with the young scientists under the motto: “Joint research efforts for sustainable ecosystem management”. The scientific themes of the 8<sup>th</sup> Baltic Sea Science Congress included various interdisciplinary directions of integrated physical, geological, chemical, biological, climate and socio-economic research. The programme included in total 6 invited lectures (3 by Russian scientists) and 20 plenary lectures. The main work was held during the 18 thematic sessions where 204 oral and 134 poster presentations were given.

For the first time in the Congress history the following sessions were organized: Geology and Archaeology: Submerged Holocene Baltic landscapes, Production, transport, and emission of trace gases, Mechanisms behind biological variability in the Baltic Sea environment, Environmental geology and geological hazards of the Baltic Sea bottom and its coastal zones, Modeling as support for management, Managing the scientific knowledge on the Baltic Sea environment.

One more innovation of the 8<sup>th</sup> Congress was the informal meeting of the Baltic young scientists where in a game mode the themes of the future Congress have been discussed; the next Congress is planned to be held in Klaipeda, Lithuania on the basis of Klaipeda University.

The main scientific sensation of the Congress was the revision of the concept of a low level of biological diversity of the Baltic Sea ecosystem. This concept was developed as far as in 1930s by the German researchers with A.Remane at the head, who explained this low number of biological species adapted to life in the Baltic water by the “uncomfortable” salinity for the organisms. In the Baltic Sea being a so called brackish water body the water is too saline for freshwater organisms and at the same time too fresh for marine ones. However, the joint research of Russian and German scientists carried out during the last years showed that at the microorganism level (one-celled, bacteria and protists) the level of biodiversity of the Baltic Sea ecosystem is very high; thus to say that the sea is “poor” in species means to make a high ecological mistake. Of course, the assessment of diversity of microorganisms is possible only using the special equipment, that was actually shown in the presentation of Irena Telesh, Hendrik Schubert and Sergey Skarlato. For a regular observer without the special instruments this microworld remains unreachable for study. In spite of their invisibility, microorganisms play a very important, and probably - leading role in all the processes in the Baltic Sea – such as formation, transfer and decomposition of organic matter. This “hidden diversity” of microorganisms must be taken into account when planning any type of activity as well as it is

important to consider possible consequences of microbial activity. And the concept of low biodiversity of the Baltic Sea ecosystem is evidently now out of date.

It is interesting to mention that the German delegation had come to St.Petersburg onboard the RV “Elizabeth Mann Borgese” that was moored at the “Morskoy Vokzal” Passenger Terminal during the time of the Congress. The vessel was named after the daughter of the German literature classic Thomas Mann, who devoted all her life to the investigation of the World Ocean. Professor Elizabeth Mann Borgese is the author of several books and tutorials on marine ecology that are translated into many European languages, including Russian.

The 8<sup>th</sup> Congress noted a high level of scientific presentations the significant part of which was touching upon the various aspects of the HELCOM Baltic Sea Action Plan.

Based on the presentations of the Congress a publication of special issues of the 2 peer-reviewed journals is planned: “Journal of Marine Systems” and “Oceanology”.

*Vladimir Ryabchenko*, Head of Scientific Steering Committee  
*Mikhail Shilin*, Member of Scientific Steering Committee  
*Tatjana Eremina*, Scientific Secretary of the Congress