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5th Baltic Sea Science Congress. 'The Baltic Sea – a changing ecosystem' (Sopot, Poland, 20–24 June 2005). Brief report

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The Baltic Sea, an internal sea of the European Community, is one of the largest bodies of brackish water in the world. In many respects it is quite unique, both in its natural features and in the cultural, political and socio-economic patterns of the countries bordering it.

After nearly 40 years of separate meetings of physicists/chemists, biologists and geologists, it was decided to hold joint scientific conferences in order to meet and discuss general and specific aspects of the Baltic Sea, to exchange information, to integrate our research efforts, and to get to know and understand each other better. The Sopot Congress, which was preceded by Rønne (1997), Warnemünde (1999), Stockholm (2001) and Helsinki (2003), was the fifth joint CBO, BMB and BSG meeting. All the earlier congresses showed that the integration idea was a good one, and that we, the Baltic Oceanographers, Baltic Marine Biologists and Baltic Sea Geologists, should continue to work together even more closely.

The meeting in Sopot focused on a broad spectrum of problems, from large-scale processes related to climate change, to local, small-scale questions specific to the Baltic Sea. Other no less important subjects were

tackled as well: modelling as a research tool and as a means of providing services and forecasting certain phenomena, operational oceanography, man's impact on the Baltic Sea environment and its resources.

We extend our deepest gratitude to our Scientific Committee for their unstinting work in recent months in sorting and selecting interesting contributions to all the sessions and posters, thereby ensuring that the congress was of a high standard. We also thank the Polish Academy of Sciences and the Sopot municipal authorities for their financial support.

We hope that the discussions during this combined congress will bear fruit in the form of new contacts and joint ventures.

A total of 274 papers were submitted, 115 of which the International Scientific Committee selected for oral presentation – 30 at plenary sessions and 85 at thematic sessions. 151 papers were presented as posters. 8 invited lectures covered broad questions such as climate change, global fisheries, and changing ecosystems.

In addition, five workshops were held on the following topics:

- Sea level change
- The IODP project
- Ventilation of deep waters in the Baltic Sea
- The Helsinki commission (HELCOM)
- The Baltic Sea Network (BONUS)

The main topics presented and discussed at the Congress:

- **Climate change** in the Baltic Sea area in connection with changes in the North Atlantic and Arctic Oceans
- **Variability** – long-term and short-term: changes in physical parameters and water dynamics, changes in the ecosystem; seasonal and interannual variability
- **Processes**: eddies, fronts, surface and internal waves, relations between trophic levels, plankton dynamics and eutrophication
- **New prospects in marine biology**, genetics, biomarkers, palaeobiology
- **Bioinvasions**, alien species and their relation to host species
- **The role of man in ecosystem changes**
- **Management and conflicts**
- **New research methods**
- **Modelling**

The most interesting results:

- Changes on a global scale have been shown to be taking place in the Baltic Sea, too: they include unusual warm saltwater inflows in summer and very cold ones in winter, a rise in temperature of surface and intermediate water layers, and ecosystem changes.
- Substantial progress in our understanding and modelling of the ventilation of deep waters in the Baltic Sea.
- The very interesting results emerging from research into mesoscale eddies and mixing.
- New data on past climate obtained from bottom sediment analyses.
- The downward trend in the concentrations of some dissolved heavy metals such as cadmium.
- The problem of alien species (non-indigenous species – NIS) 'imported' by shipping, and their impact and effects on the ecosystem.