Baltic Earth - Gulf of Finland Year 2014 Modelling Workshop

Using modelling as a tool to ensure sustainable development of the Gulf of Finland-Baltic Sea ecosystem

A scientific workshop in support of the Gulf of Finland Declaration

Finnish Environment Institute SYKE, Helsinki
24-25 November 2014

Idea

The scientific themes of the Gulf of Finland Year 2014 (bio- and geodiversity, maritime spatial planning, maritime safety especially in winter conditions, fish and fisheries and ecosystem health) fit very well with the Grand Challenges of Baltic Earth programme, as they relate to natural and anthropogenic impacts on the biogeochemistry and ecosystem of the Gulf of Finland. In both programs, modelling is an important tool to study different processes and the linkages between them.

The workshop will be organized back-to-back with the trilateral Finnish-Estonian-Russian Forum for the investigations of the Gulf of Finland ecosystem.

Issues to be covered

To assess our common knowledge of modelling various processes in the Gulf of Finland, Baltic Sea, a joint Baltic Earth-Gulf of Finland Year 2014 Workshop is proposed to cover the following modelling issues:

- the role of physical forcing on the GoF ecosystem
- biogeochemical modelling of the Baltic Sea (Gulf of Finland)
- effects of climate change on (Gulf of Finland) ecosystems
- eutrophication and cost-effective nutrient load reduction
- natural and anthropogenic hazards like coastal erosion, cyclonic storms, oil spills and other accidents and their impacts on ecosystems

Linkage to the Gulf of Finland Declaration

An important goal of the workshop is to inform decision-makers of our main knowledge gaps concerning the listed themes, and to discuss with them possible actions to be carried out to ensure a sustainable development of our Gulf of Finland in the future. Now is a suitable time for such a dialog.

One of the key results of the Thematic Year will be the Gulf of Finland Declaration, signed by the Ministers of Environment of Finland, Russia and Estonia in early 2015. In the Declaration, the most important actions to substantially and quickly improve the state of the Gulf will be listed. It is important that the scientific opinion of the entire Baltic Sea research community will be taken into account. The participation of representatives of the involved Ministries in this workshop is envisaged.

The Workshop

At the Baltic Earth Gulf of Finland Workshop, there will be invited keynote lectures, breakout working groups on different topics, and a summary section. Posters presentations are invited. The workshop on Monday 24 and Tuesday 25 November will be organized back to back to the joint Finnish-Estonian-Russian Trilateral Forum which is a two-day event (26-27 Nov).

Registration and Posters

There will be no fee but registration is compulsory by 31 October 2014. Register via the workshop website, also indicating your intention to show a poster related to the Workshop topic:

www.baltic-earth.eu/GoFWorkshop2014

A similar forum could be organized, also in connection of the Trilateral Forum in 2015, with the possibility to submit related manuscripts to a special issue in Journal of Marine Systems.

Preliminary Programme (subject to change)

Day 1: Monday 24 November

Overall introduction

11.00 **Opening**
Representative of the Finnish Ministry of Environment

11.10 **The scientific goals of the Gulf of Finland Year and linkages to Baltic Earth**
Kai Myrberg, SYKE, Finland

11.30 **The Gulf of Finland Year Declaration**

Scientific talks

11.50 **General physical forcing of the Gulf of Finland area, and how the forcing affects the ecosystems**
Urmas Lips, Tallinn University of Technology, Estonia

12.10 **Eutrophication and cost-effective nutrient load reductions (BSAP)**
Bo Gustafsson, Baltic Nest Institute, Sweden

12.30 **Biogeochemical modelling of the Baltic Sea and related challenges**
Markus Meier, SMHI, Sweden

12.50 *Lunch*

13.50 **Major natural hazards in the Gulf of Finland**
Tarmo Soomere, Tallinn University of Technology, Estonia

14.10 **Major human threats in the Gulf of Finland (oil spills, shipping accidents)**
Pentti Kujala, Aalto University, Finland

14.30 **The effects of climate change to the Gulf of Finland ecosystem**
Markku Viitasalo, SYKE, Finland

14.50 *Coffee*

15.20 Discussion and division to working groups

15.40 Workshops devoted to the Gulf of Finland Declaration

Thematic groups

A. Cost-effective nutrient load reductions, main findings
B. Preventive methods and forecasting of oils spills and other marine accidents, new methods
C. The impacts of climate change on physics and biogeochemistry, main effects

Questions to be answered:

1. What is our knowledge of the environmental state of the Gulf now? How vulnerable is the Gulf towards anthropogenic impacts?
2. Which fundamental research gaps are there and what kind of new scientific innovations/modelling tools do we need in Gulf of Finland studies in the future to learn more about the ecosystem functioning?
3. What is our message to decision makers? What should our common research and modelling efforts be directed to in order to support environmental protection activities?

Recommendations to the Declaration: How can the state of the Gulf be improved rapidly and cost-effectively? Which concrete actions do our modelling results indicate?

18.00 Poster Session

19.00 Grand Evening Party (with Poster Session)

21.00 Helsinki by Night

Day 2: Tuesday 25 November

09.00 Finalizing the work of the Thematic Groups

10.30 Wrapping-up the main findings

11.30 Discussion

12.00 Closure

Workshop Committee:

Kai Myrberg, Finnish Environment Institute, Helsinki, Finland
Markus Meier, Swedish Meteorological and Hydrological Institute, Norrköping, Sweden
Andreas Lehmann, GEOMAR, Kiel, Germany
Marcus Reckermann, International Baltic Earth Secretariat, Helmholtz-Zentrum Geesthacht, Germany
Vladimir Ryabchenko, P.P. Shirshov Institute of Oceanology, St. Petersburg, Russia
Tarmo Soomere, Tallinn University of Technology, Estonia
Urmas Lips, Tallinn University of Technology, Estonia
Jari Haapala, Finnish Meteorological Institute, Helsinki, Finland
Gregor Rehder, Baltic Sea Research Institute, Warnemünde, Germany
Karol Kulinski, Institute of Oceanology, Sopot, Poland