

The Gulf of Finland and Eastern Baltic Sea Science Days 2023
“The future of our co-operation: A nucleus to transboundary nurture of the
marine environment in transition”

Estonian Academy of Sciences, Tallinn, 16–17 November 2023

Programme

Day 1: Thursday 16th November

9:30–10:00 Coffee and registration

10:00–10:15 Opening words

- **Professor Tarmo Soomere**, President of the Estonian Academy of Sciences

10:20–11:30 Session 1

Chair: Professor Tarmo Soomere

- **KEYNOTE: Improving Gulf of Finland wave forecasts and statistics**
Hedi Kanarik, Laura Tuomi, Veera Haapaniemi (Finnish Meteorological Institute)
Jan-Victor Björkqvist (Norwegian Meteorological Institute, Finnish Meteorological Institute)
Lauri Niskanen, Markus Kankainen (Natural Resources Institute Finland)
- **Enhancement of Estonian-Finland regional and cross-sectoral cooperation in marine monitoring for the Gulf of Finland on the example of determining the trend of hazardous substances from sediments**
Mailis Laht, Krista Mõts (Estonian Environmental Research Centre)
Martin Liira, Sten Suuroja (The Geological Survey of Estonia)
- **Sustainable Flow of Goods and Decreased Emission of Transportation**
Ulla Tapaninen, Seçil Gülmez, Mari-Liis Tombak, Jonne Kotta (Tallinn University of Technology-Estonian Maritime Academy)
- **Trans-national use of existing research infrastructure in monitoring and scientific research in Gulf of Finland: Using R/V Aranda to combine environmental monitoring and marine science between Finland and Estonia**
Juha Flinkman (Finnish Environment Institute)

11:30–12:00 Coffee

12:00–13:00 Session 2

Chair: Professor Pentti Kujala

- **Sustainable Coastal Management Strategies for the South Baltic Sea: A Bayesian Network-Based Analysis of Key Factors and Solutions**
Loreta Kelpsaite-Rimkiene, Egle Baltranaite, Ilona Sakurova, Vitalijus Kondrat (Klaipeda University, Marine Research Institute)



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- **Breaking down silos: Transboundary and intersectoral cooperation must be strengthened**
Anna-Stiina Heiskanen (Finnish Environment Institute); Harry Liiv (Ministry of Climate, Estonia)
- **Quantification of longshore sediment transport and compartments in urban areas: A case study of shores of Tallinn, the Baltic Sea**
Maris Eelsalu, Tarmo Soomere, Kevin Parnell, Katri Pindsoo (Tallinn University of Technology)
- **Modelled rates of potential bulk and net sediment transport along the Gulf of Riga coastlines**
Mikolaj Z. Jankowski, Maris Eelsalu (Tallinn University of Technology)
Kevin Parnell (Tallinn University of Technology, James Cook University)
Tarmo Soomere (Tallinn University of Technology, Estonian Academy of Sciences)
Maija Viska (Latvian Institute of Aquatic Ecology)

13:00–14:00 Lunch

14:00–15:15 Session 3

Chair: Professor Hans Bihs

- **KEYNOTE: Simulation tool for winter navigation decision-support in the Baltic Sea**
Pentti Kujala (Aalto University, School of Engineering, Department of Mechanical Engineering, Tallinn University of Technology)
Ketki Kulkarni, Mashrura Musharraf, Lu Liangliang, Aleksandr Kondratenko (Aalto University, School of Engineering, Department of Mechanical Engineering)
- **Artificial intelligence based digital twin models to monitor ship safety and efficiency**
Mingyang Zhang, Spyros Hirdaris (Aalto University)
Pentti Kujala (Aalto University, School of Engineering, Department of Mechanical Engineering, Tallinn University of Technology)
- **Towards sustainable biofouling management for recreational boating in the Baltic Sea Region**
Robert Aps, Jonne Kotta, Liisi Lees (University of Tartu, Estonian Marine Institute)
- **Underwater Soundscape of the Gulf of Finland**
Aleksander Klauson, Mirko Mustonen (Tallinn University of Technology)

15:15–15:45 Break

15:45–17:15 Panel discussion: continuation of environmental co-operation in the Gulf of Finland and eastern Baltic Sea.

Moderator: Professor Tarmo Soomere

Participants: Pentti Kujala, Kai Myrberg, Hans Bihs, Aivo Lepland, Loreta Kelpsaitė-Rimkienė

18:30 Evening snack at the Pub Hell Hunt (Pikk 39, Tallinn)



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The conference is co-organised by the Estonian Academy of Sciences and Finnish Environment Institute
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Day 2: Friday 17th November

9:30–10:00 Coffee

10:00–11:45 Session 4

Chair: Kai Myrberg

- **KEYNOTE: A new non-hydrostatic coastal model for simulating waves at the Baltic coast**
Hans Bihs, Widar Wang, Ronja Ehlers, Fabian Knoblauch, Ahmet Soydan (NTNU Trondheim)
- **Finnish-Estonian Collaborative Research Project: Utilizing Passive Samplers in Pharmaceutical Research in the Gulf of Finland**
Ville Junttila, Heidi Ahkola, Jukka Mehtonen, Lauri Äystö, Ljudmila Vesikko, Kai Myrberg (Finnish Environment institute)
- **Evaluating the vulnerability of the shores of the eastern Baltic Sea with respect to extreme water levels**
Katri Viigand, Maris Eelsalu, Tarmo Soomere (Tallinn University of Technology)
- **Phase-resolved wave modelling at the Baltic harbours and shores**
Widar Wang, Ronja Ehlers, Fabian Knoblauch, Ahmet Soydan and Hans Bihs (NTNU Trondheim)
- **Should we invest more in research or use resources for additional policies?**
Jaana Haavisto (University of Helsinki)
- **Seafloor iron-manganese precipitates and pockmarks of the Gulf of Finland: formation controls and possible genetic links**
Aivo Lepland (Geological Survey of Norway, Geological Survey of Estonia, Tallinn University of Technology, Tartu University)
Beata Szymczycha (Institute of Oceanology, Polish Academy of Sciences)
Wei-Li Hong (Stockholm University)
Michael E. Böttcher (Leibniz Institute for Baltic Sea Research)
Joonas Virtasalo (Geological Survey of Finland)
Martin Liira (Geological Survey of Estonia, Tartu University)
Hannah Mikenberg, Vladimir Karpin, Atko Heinsalu (Tallinn University of Technology)
Johanna Maria Ojap, Markus Ausmeel, Krete Roopõld (Tartu University)
Sten Suuroja (Geological Survey of Estonia)

11:30 Closing words. Professor Tarmo Soomere (Estonian Academy of Sciences)

12:00–13:00 Light lunch



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Poster Presentations:

	Title	Authors
1	Black Sea initiative and the role of the ports of Odesa, Chornomorsk and Pivdennyi	Iryna Labunets
2	Baltic Sea Wave Climatology Dataset: high-resolution validation and comparison of the wave properties calculated using two input winds for the period 1979–2022	Andrea Giudici, Mikolaj Zbigniew Jankowski, Rain Männikus, Fatemeh Najafzadeh, Tarmo Soomere
3	Plastic contamination in Estonia: novel plasticizers and microplastics in Estonian wastewater treatment plants	Margit Heinlaan, Ayankoya Yemi Ayankunle, Heiki Vija, Natalja Buhhalko, Erki Lember, Karin Pachel



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