



Baltic Marine Environment Protection Commission

Seventh meeting of Joint HELCOM/Baltic Earth Expert Network on
Climate Change

EN CLIME 7-2021

Online, 18 January 2021

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| Document title | Status of work and author lists |
| Code | 3-1-Rev.3 |
| Category | CMNT |
| Agenda Item | 3 – Finalization of key messages |
| Submission date | 18.1.2021 |
| Submitted by | Secretariat |

Background

This document contains links to the latest versions of key messages, status of summary and map texts for all (relevant) parameters, as well as information on leads and lists of authors for each parameter (see pages 3 and 5), as of 12 January 2021.

This revised version includes new links to revised key messages.

Action requested

The participants are invited to read all key messages prior to the Meeting and the Meeting is invited to approve the key messages as ready for submission to HELCOM State and Conservation for review and approval (submission deadline 22 January).

The lead authors of missing parameters are invited to provide the revised texts to the Secretariat (petra.kaaria@helcom.fi) as soon as possible and at latest **by 15 December**.

The participants are invited to review the lists of authors (pages 4 and 5) based on the parameter key messages. The listed authors will be included as contributors in the final publication.

The participants are invited to consider additional names under 'Acknowledgements' for the final publication.

Direct parameters (+ Oxygen)

Yellow highlighted texts missing

| Team | Parameter | Lead(s) | Key messages | Summary text | Map text NR=not relevant | Comments |
|-----------------------------|--|--------------------|----------------------|--------------|-----------------------------|----------|
| Energy Cycle | 1. Air temperature | Anna Rutgersson | Link | | NR | |
| | 2. Water temperature | | Link | | | |
| | 3. Large Scale Atmospheric Circulation | | Link | | NR | |
| | 4. Sea ice | | | | | |
| | 5. Solar radiation and cloudiness | | Link | | NR | |
| Water Cycle | 6. Salinity and saltwater inflows | Jukka Käyhkö | Link | | NR | |
| | 7. Stratification and ocean circulation | | Link | | NR | |
| | 8. Precipitation | | Link | | | |
| | 9. River run-off | | Link | | NR | |
| Carbon and Nutrient Cycles | 10. Carbonate chemistry | Karol Kulinski | Link | | NR | |
| | 11. Riverine nutrient loads and atmospheric deposition | | Link | | NR | |
| | 12. Oxygen (<i>indirect parameter</i>) | | | | missing | |
| Sea level and Wind Extremes | 13. Sea level | Christian Dietrich | Link | | NR | |
| | 14. Wind | | Link | | NR | |
| | 15. Waves | | Link | | NR | |
| | 16. Sediment transportation | | Link | | NR | |

Indirect parameters

Yellow highlighted texts missing

| Team | Parameter | Lead(s) | Key messages | Summary text | Map text NR=not relevant | Comments |
|---|--|-----------------------------------|--|--------------|-----------------------------|----------|
| Biota & Ecosystems | 1. Microbial community and processes (or Bacterioplankton) | Klaus Juergens and Johan Wikner | | | NR | |
| | 2. Benthic habitats | Antonia Sandman | Link | | | |
| | 3. Pelagic and demersal fish | Örjan Östman, Jens Olsson | Link | | NR | |
| | 4. Coastal and migratory fish | Örjan Östman, Jens Olsson | Link | | NR | |
| | 5. Waterbirds | Volker Dierschke | Link | | NR | |
| | 6. Marine Mammals | Anders Galatius | Link | | NR | |
| | 7. Non-Indigenous Species | Ari Laine | | | NR | |
| | 8. Marine Protected Areas (MPA's) | Markku Viitasalo, Ari Laine | | | NR | |
| Health & Safety | 9. Nutrient concentrations and eutrophication | Bärbel Müller-Karulis | Link | | missing | |
| | 10. Coastal protection 11. Offshore structures | Jukka Käyhkö | Link Link | | NR | |
| Services | 12. Ecosystem function | Örjan (unofficially) | Link | | NR | |
| | 13. Shipping | Anna Rutgersson | Link | | | |
| | 14. Tourism | Kari Hyytiäinen | Link | | NR | |
| | 15. Fisheries | Meri Kallasvuo | Link | | NR | |
| | 16. Aquaculture | Anders Kiessling Martyn Futter | | missing | NR | |
| | 17. Blue carbon storage capacity | Dorte Krause-Jensen | | | NR | |
| 18. Coastal and marine ecosystem services | Arturas Razinkovas-Baziukas | Link | | NR | | |

Authors of direct parameters

| | | |
|----------------------------|--|---|
| Energy Cycle | Air temperature | Anna Rutgersson, Uppsala University Affiliation of expert |
| | Sea temperature | Christian Dieterich, SMHI Markus Meier, IOW Jonas Pålsson, SwAM |
| | Large Scale Atmospheric Circulation | Claudia Frauen, Leibniz Institute for Baltic Sea Research Warnemünde Anna Rutgersson, Uppsala University Florian Börgel, Leibniz Institute for Baltic Sea Research Warnemünde Markus Meier, Leibniz Institute for Baltic Sea Research Warnemünde and Swedish Meteorological and Hydrological Institute |
| | Sea ice | Jürgen Holfort, Federal Maritime and Hydrographic Agency, Germany |
| | Solar radiation and cloudiness | Anna Rutgersson, Uppsala University Thomas Carlund, SMHI |
| Water Cycle | Salinity and saltwater inflows | Markus Meier, IOW and SMHI |
| | Stratification and ocean circulation | Matthias Gröger, Leibniz Institute for Baltic Sea Research Warnemünde Markus Meier, Leibniz Institute for Baltic Sea Research Warnemünde and Swedish Meteorological and Hydrological Institute Urmas Lips, Tallinn University of Technology |
| | Precipitation | Erik Kjellström - SMHI |
| | Run-off | Jukka Käyhkö, University of Turku, Finland |
| Carbon and Nutrient Cycles | Carbonate chemistry | Karol Kuliński – Institute of Oceanology Polish Academy of Sciences Gregor Rehder – Leibniz Institute for Baltic Sea Research Warnemünde Anna Rutgersson – Uppsala University |
| | Riverine nutrient loads and atmospheric deposition | Oleg Savchuk, Baltic Sea Centre, SU, Sweden Michelle McCrackin Baltic Sea Centre, SU, Sweden Mikhail Sofiev, Finnish Meteorological Institute, Finland |
| | Oxygen (indirect parameter) | Markus Meier, IOW and SMHI Jacob Carstensen, Aarhus University Oleg Savchuk, Stockholm University |
| Sea level and Wind | Sea level | Christian Dieterich, Swedish Meteorological and Hydrological Institute Jürgen Holfort, Federal Maritime and Hydrographic Agency, Germany Andreas Lehmann, Helmholtz Center for Ocean Research, GEOMAR, Germany Peter Löwe, Federal Maritime and Hydrographic Agency, Germany Markus Meier, Leibniz Institute for Baltic Sea Research Warnemünde, Germany, IOW Jani Särkkä, Finnish Meteorological Institute Ralf Weisse, Helmholtz Center for Material and Coastal Research, HZG, Germany Eduardo Zorita, Helmholtz Center for Material and Coastal Research, HZG, Germany |
| | Wind | Mika Rantanen, Terhi Laurila, Finnish Meteorological Institute Erik Kjellström, Swedish Meteorological and Hydrological Institute Anna Rutgersson, Uppsala University |
| | Waves | Ralf Weisse, HZG Christian Dieterich, SMHI |
| | Sediment transportation | Wenyan Zhang, HZG Joonas Virtasalo, Geological Survey of Finland |

Authors of indirect parameters

| | | |
|--------------------|---|---|
| Biota & Ecosystems | Microbial community and -processes | Klaus Jürgens, Leibniz Institute for Baltic Sea Research Warnemünde (IOW) Johan Wikner, Umeå University |
| | Benthic habitats | Antonia Nyström Sandman, Markku Viitasalo, Jesper Philip Aagaard Christensen, Mats Blomqvist, Christina Halling, Ari Laine, Georg Martin. |
| | Fish | 1. Swedish University of Agricultural Sciences, Skolgatan 6, SE-74242 Öregrund: Örjan Östman, Jens Olsson, Noora Mustamäki, Rahmat Naddafi 2. Natural Resources Institute Finland (Luke), Latokartanonkaari 9, FI-00790 Helsinki: Meri Kallasvuo, Sanna Kuningas, Antti Lappalainen 3. University of Tartu: Lauri Saks |
| | Waterbirds | Volker Dierschke, Gavia EcoResearch, Tönnhäuser Dorfstr. 20, 21423 Winsen (Luhe), Germany, volker.dierschke@web.de Morten Frederiksen, Aarhus University, Dept of Bioscience, Frederiksborgvej 399, 4000 Roskilde, Denmark, mfr@bios.au.dk Elie Gaget, Department of Biology, University of Turku, 20014 Turku, Finland, elie.gaget@gmail.com Diego Pavón-Jordán, Department of Terrestrial Ecology, Norwegian Institute for Nature Research (NINA), P.O. Box 5685 Torgarden, N-7485 Trondheim, Norway, diego.pavon-jordan@nina.no |
| | Marine Mammals | Anders Galatius, Department of Bioscience, Aarhus University, Denmark (corresponding author) Markus Ahola, Swedish Museum of Natural History, Stockholm, Sweden Ida Carlén, Coalition Clean Baltic Antti Halkka, University of Helsinki, Faculty of Biological and Environmental Sciences, Helsinki, Finland Mart Jüssi, ProMare, Estonia |
| | Non-Indigenous Species | Rahmat Naddafi ¹ , Katarzyna Spich ² , Isa Wallin ¹ , Örjan Östman ¹ , Maiju Lehtiniemi ³ and Ari Laine ⁴ ¹ Swedish University of Agricultural Sciences, Sweden ² National Marine Fisheries Research Institute, Poland ³ Finnish Environment Institute, Finland ⁴ Metsähallitus Parks & Wildlife Finland, Finland |
| | Marine Protected Areas (MPA's) | Dieter Boedeker ¹ , Gesine Lange ¹ , Örjan Östman ² and Ari Laine ³ ¹ German Federal Agency for Nature Conservation (BfN) ² Swedish University of Agriculture ³ Metsähallitus Parks & Wildlife Finland |
| Health & Safety | Nutrient concentrations and eutrophication | Bärbel Müller-Karulis, Bo Gustafsson, Stockholm University, Jacob Carstensen, Aarhus University |
| | Coastal protection and offshore structures | Jukka Käyhkö, University of Turku, Finland |
| Services | Ecosystem function | Swedish University of Agricultural Sciences, Skolgatan 6, SE-74242 Öregrund: Örjan Östman, Rahmat Naddafi, Jens Olsson, with input by Agnes ML Karlsson and Magnus Huss |
| | Shipping | Anna Rutgersson, Uppsala University Stuart Ross, European Community Shipowners' Associations Jonas Pålsson, Swedish Agency for Marine and Water Management |
| | Tourism | Kari Hyytiäinen, Department of Economics and Management, University of Helsinki, Finland Jarkko Saarinen, Geography Research Unit, University of Oulu, Finland Janika Laht, Climate Department, Ministry of the Environment, Estonia |
| | Fisheries | Meri Kallasvuo, Sanna Kuningas, Antti Lappalainen, Natural Resources Institute Finland (Luke) Örjan Östman, Jens Olsson, Rahmat Naddafi, Lena Bergström, Swedish University of Agricultural Sciences (SLU) Oksana Glibko, St. Petersburg State Geological Unitary Enterprise "Specialized Firm Mineral" Antanas Kontautas, Marine research institute, Klaipėda University |
| | Aquaculture | Martyn Futter, SLU, Anders Kiessling, SLU, Juha Koskela, LUKE, Ari Laine, Metsa, George Martin, UT, Jari Niukko, LUKE, Lauri Niskanen, LUKE, Markus Kankainen, LUKE, Martin Karlsson, Ecopelag, Knut-Olof Lerche, Raisio, Martin Reutgård, Ecopelag, Jouni Vilma, LUKE, |
| | Blue carbon storage capacity | Dorte Krause-Jensen, Århus University |
| | Ecosystem services | Artūras Razinkovas-Baziukas, Marine Research Institute, Klaipėda University, Lithuania |