



Outcome of the eighteenth meeting of the Intersessional Network on Eutrophication (IN-EUTROPHICATION 18- 2020)

Background

0.1 In accordance with the outcome of the 17th Meeting of HELCOM Intersessional Network on Eutrophication (IN Eutrophication 17-2020), the 18th Meeting of the HELCOM Intersessional Network on Eutrophication (IN Eutrophication 18-2020) was held online on 5 November 2020 10:00-13:00 EET.

0.2 The Meeting was chaired by Ms. Vivi Fleming

0.3 Mr. Joni Kaitaranta and Ms. Laura Kaikkonen from the HELCOM Secretariat acted as secretaries of the Meeting.

The list of participants is contained in **Annex 1** to this Outcome.

Agenda Item 1. Opening of the meeting and adoption of the agenda

- 1.1. The Meeting adopted the agenda (**document 1-1**).
- 1.2. The Meeting took note of the information that Sweden has started the public consultation on the programme of measures and that the programme contains measures to manage internal nutrient reserves.

Agenda Item 2. Eutrophication confidence assessment

- 2.1. The Meeting took note of the development in the eutrophication confidence assessment as presented by Germany (**presentation 1**)
- 2.2. The Meeting supported the suggested further steps in the work.
- 2.3. The Meeting agreed on the decision to use means instead of minima for the temporal confidence assessment.
- 2.4. The Meeting discussed new data types and how to consider them in the confidence assessment.
- 2.5. The Meeting took note of a suggestion that the confidence assessment should be performed in an R environment so that it is transparent how the data is processed and how the confidence assessments and calculations are produced.
- 2.6. The Meeting noted that many indicators use multiple types of data (such as chl *a*) that should be treated jointly, creating a need to consider the confidence of multiple data sources in the assessment.
- 2.7. The Meeting agreed to change the data period for the further status and confidence test assessments to the period of HOLAS III (2016-2021), so that it can be used to check the data included in order to close possible data gaps early before the upcoming assessment.
- 2.8. The Meeting took note of a suggestion to have the entire HEAT procedure in GitHub to better illustrate how the different data sources are dealt with.

- 2.9. The Meeting noted a suggestion to use the Baltic Data flow project for including the remote sensing and ferrybox data flow into the R code that would be publicly available from GitHub.

Agenda Item 3. Oxygen indicator development

- 3.1. The Meeting took note of the oxygen test assessment in selected HELCOM sub-basins following the German approach for oxygen assessment in shallow waters ([presentation 2](#)). If existing difficulties and gaps can be resolved, this could support a pragmatic approach for the oxygen assessment in HOLAS III.
- 3.2. The Meeting took note that Denmark is also developing a shallow water oxygen indicator in their national waters.
- 3.3. The Meeting discussed the need to separate naturally anoxic areas in the indicator development and testing in the context of classifying monitoring stations into stratified and well oxygenated stations.
- 3.4. The Meeting noted that since coastal areas may naturally experience anoxic conditions, this needs to be considered in target setting. In the coastal areas where upwelling events are the main cause of oxygen deficiency, oxygen concentrations might not be an adequate indicator of eutrophication.
- 3.5. The Meeting agreed that it is important to identify places with naturally oxygen deficient areas in the Baltic Sea and that identifying seasonally affected areas is particularly important in the coastal areas.
- 3.6. The Meeting took note that in the Gulf of Bothnia there are areas where oxygen concentrations are decreasing, but due to the hydrographic characteristics of the sub-basin, concentrations will not fall below levels that would completely deplete the bottom fauna. The Meeting took note that it would be interesting if signs of eutrophication could be observed from the oxygen indicator also in such areas.
- 3.7. The Meeting discussed threshold values for the oxygen concentration with reference to biologically relevant threshold values and took note of a review published in 2008 (Vaquer-Sunyer & Duarte 2008).
- 3.8. The Meeting discussed the implications of using additional oxygen data from the ICES database. This might result in changes of the overall assessment result as shown for German part of Bay of Mecklenburg which would change sub-GES to GES. It was found important to consider the number of measurements per station to avoid bias in the overall assessment. Weighting of stations based on single or repeated sampling could be a possibility to outweigh the imbalance between few stations with time series and (many) other stations with single measurements. When combining stations, only those with slightly different coordinates should be combined to one station for the assessment. It was also suggested to look at trends and at absolute minimum.
- 3.9. The Meeting took note that in Germany an attempt has been made to seek for additional funding to extend the oxygen monitoring under the MSFD, but thus far these attempts have not been successful. The Meeting further took note of ongoing research by Germany on improving spatial and temporal modelling of the oxygen concentrations and connecting the modelling results to the *in-situ* monitoring. A further aim of the work is to examine continuous timeseries and to identify temporal trends in oxygen deficiency, as temporal variability is very strong in shallow areas.
- 3.10. The Meeting agreed that the progress in the oxygen indicator development should be speeded up and thanked Germany for their efforts in bringing the development work forward.
- 3.11. The Meeting took note of the position of Finland that SYKE would like to have more time to work on the indicator development until spring 2021 to ensure a robust assessment process.

- 3.12. The Meeting took note that Sweden further supports having more time to work on the indicator development and supports defining threshold values on the basis of biologically relevant oxygen concentrations.
- 3.13. The Meeting agreed that while there are many interesting scientific considerations to be dealt with in more detail, the aim is to produce an operational indicator to be included in HOLAS III.
- 3.14. The Meeting agreed to set up an intersessional workshop for Contracting Parties working on the oxygen indicator in spring 2021, potentially after Easter, to carry on the work that will hopefully lead to a product that can be presented in autumn 2021 for State & Conservation.
- 3.15. The Meeting took note of a suggestion from Denmark to focus on the methodology how to integrate temporal and spatial dimensions into the assessment, and to consider the thresholds at a later stage, as these are strongly dependent on local conditions.
- 3.16. The Meeting took note that the existing dataview developed for the HOLAS II assessment will not be modified for HOLAS III, and further noted that GitHub allows versioning and accessing several versions of the code and thus preserving data and scripts used in previous assessments.
- 3.17. The Meeting welcomed the offer from ICES to give a presentation at the next meeting on the functioning of GitHub.
- 3.18. The Meeting briefly revisited the Eutrophication indicator work plan (**document 3-1**) and agreed that the work plan will be reviewed in detail at the next meeting to update on progress and consider if the plan needs revision. The Meeting took note of the key 'final' deadline for all indicator work to enter HOLAS III, with approval at the relevant Working Group meeting needed in autumn 2021 and also relevant approval at HOD (e.g. threshold values) during 2021.

Agenda Item 4. Upcoming HELCOM projects relevant to eutrophication assessment

- 4.1. The Meeting took note of the information on Projects supporting Eutrophication data flows and assessment as presented by the Secretariat (**document 4-1**).

Agenda Item 5. Any other business

- 5.1. The Meeting took note of a proposal for splitting Bornholm Basin into two assessment units for the eutrophication assessment through the separation of the Pomeranian Bight as presented by Germany (**document 5-1**, [presentation 3](#)).
- 5.2. The Meeting welcomed the proposal and supported it in general. The Meeting agreed to have a commenting round via correspondence on the details.
- 5.3. The Meeting invited IN-Eutrophication to provide comments on the proposal by **4 December 2020** to the Secretariat (laura.kaikkonen@helcom.fi). In case of conflicting views, these could be discussed at the next meeting. The proposal will be then further submitted to State & Conservation 14-2021 for endorsement.
- 5.4. The Meeting took note of a presentation on a German research project on modelling eutrophication aspects in the Western Baltic Sea in support of the implementation of the Baltic Sea Action Plan ([presentation 4](#)).
- 5.5. The Meeting agreed that the next meeting of IN-EUTROPHICATION will be held in February 2021 and will focus on issues to be put forward to State a& Conservation, such as the suggestion for splitting assessment units, improvements in the HEAT assessment procedure such as indicator aggregation, scaling of indicators and further work on the confidence assessment, an update on the Baltic data flow project and planning the kick-off workshop for the oxygen indicator work. The next meeting will in addition focus on how to include data from 2021 in HOLAS III, provided that some Contracting Parties will be unable to deliver data for this year.
- 5.6. The Meeting invited the Secretariat to circulate a doodle poll to decide on the date for the next meeting.

Adoption of the Outcome

The Outcome of the Meeting was adopted via correspondence and published on the [Meeting's website](#).

Annex 1 List of participants

Representing	Name	Organisation	Email address
Countries			
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* Chair