



Online, 26 August 2021

Notes from the Workshop on the HELCOM Integrated biodiversity assessment tool, BEAT (BEAT WS 1-2021)

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Notes from the Workshop on the HELCOM Integrated biodiversity assessment tool, BEAT (BEAT WS 1-2021)

Introduction

0.1 With reference to the [Outcome](#) (paras 4J.178 to 4J.184) of the 14th Meeting of the Working Group on the State of the Environment and Nature Conservation (STATE & CONSERVATION 14-2021), the Workshop on the HELCOM Integrated biodiversity assessment tool, BEAT (BEAT WS 1-2021) was held on 26 August 2021.

0.2 The Workshop was attended by experts from all Contracting Parties to the HELCOM Convention except the European Union and Russia. Furthermore, representatives of the HELCOM BLUES and Baltic Data Flows projects took part in the Workshop. The List of Participants is contained as **Annex 1**.

0.3 This Workshop was moderated by Owen Rowe, Project Manager. Florent Nicolas, Associate Professional Secretary and Jana Wolf, Project Coordinator at the HELCOM Secretariat acted as secretaries of the Workshop.

Agenda Item 1 Adoption of the Agenda

1.1 The Workshop adopted the Agenda.

1.2 The Workshop took note that the aim of the Workshop is to review the need for adjustment and development of the existing BEAT tool (e.g. where indicators may be now available or issues were noted during HOLAS II) and not to reinvent the tool itself.

Agenda Item 2 The BEAT tool and indicators for HOLAS III

2.1 The Workshop took note of the presentation on the BEAT tool by Henrik Nygård ([Presentation 1](#)). The Workshop also took note that the spatial aggregation using area-based weighting was not used in HOLAS II and the clarification that scoring of confidence is done per indicator. Detailed instructions on this process will be provided to the indicator leads and are included in the BEAT instruction manual.

2.2 The Workshop discussed the component on birds, and clarifications that BEAT is generally integrating indicators wherever possible utilising the agreed and ecologically relevant assessment scales from the indicators, and that birds were assessed at the full Baltic scale (i.e. Scale 1) in HOLAS II. The Workshop took note of the information that the scale is expected to be adjusted to aggregated Scale 2 for HOLAS III.

2.3 The Workshop took note of the information that expert judgment for the confidence is used within BEAT and highlighted that this is key information required from the indicator leads and experts. There is an option to include also standard error, but it should be discussed if this is a reasonable solution for some indicators as it may address broader factors than a single confidence category in the tool.

2.4 The Workshop took note of the information that the integration of values for eutrophication indicators, e.g. Chlorophyll, were challenging during the HOLAS II process. All eutrophication-related indicators will come with EQR values for HOLAS III and will thus be already scaled between 0-1 and should be easier to integrate for BEAT in this assessment.

2.5 The Workshop took note of the information that the 4 different confidence aspects will be used for HOLAS III and currently no changes are planned to it, but suggestions are welcome on this aspect.

2.6 The Workshop took note of the information that for HOLAS II in the HEAT tool confidence assessment, status confidence (temporal coverage of data) and target confidence were used (threshold value setting, etc.), but nothing more on spatial coverage or methods used were incorporated. This is aimed to be changed for HOLAS III making the tools increasingly harmonised.

2.7 Participants welcomed efforts to align HEAT and BEAT in similar ways for confidence class settings in the future, and noted that similar developments were being explored under the Baltic Data Flows

project related to CHASE (though major differences in the underlying data were also relevant to consider in such processes).

2.8 The Workshop took note of the possibility to include an accuracy aspect (for confidence assessment) in BEAT, noting that Monte-Carlo simulation is used in a similar tool, NEAT, though that is possible due to the data sources used in that tool (i.e. not the HELCOM indicators status assessment values directly). It was considered that for some components analysed in BEAT it may be possible in the future to include standard error.

2.9 The Workshop took note of the clarification that this was not applied so in HOLAS II but could be possible in the future and can be explored in further detail.

2.10 The Workshop took note of the information that IN-EUTRO will discuss confidence assessment aspects next week in a meeting and will notify changes to BEAT lead.

2.11 The Participants discussed the decision process for using OOA as applied for seals in HOLAS II, due to a qualitative approach being considered more appropriate via the OOA and to integrate 3 seal species more conservatively instead of averaging them.

2.12 The Workshop took note of the information on the HELCOM indicators overview submitted to STATE & CONSERVATION 14-2021 ([4J-16-Rev.1](#)) which highlights the aims towards adjustment of existing indicators or development of new indicators for HOLAS III.

2.13 The Workshop briefly discussed the lack of indicators for some ecosystem components or assessments and the data availability. The Workshop highlighted that BEAT, as an integrated assessment, is a summary of the existing indicators, which aims to give an overall picture, though noted that such tools were not all encompassing (e.g. if indicators or components were not available) and that such issues were reflected in the thematic assessments. The Workshop also highlighted that some indicators are already built using multiple component parts to form the overall assessment (e.g. seal distribution).

Agenda Item 3 Compatibility with MSFD Art. 8 guidance

3.1 The Workshop took note of the information that possible guidance from the EU should be available later in 2021 related to the integration under MSFD Article 8 and that this may have relevance for harmonisation of BEAT with the MSFD. The Workshop noted that this is expected to be draft guidance.

3.2 The workshop took note that a publication by the JRC on the integration of MSFD biodiversity assessments is available under (<https://op.europa.eu/en/publication-detail/-/publication/a4d8c685-a3da-11eb-9585-01aa75ed71a1/language-en>).

3.3 The Workshop agreed to continue the work to further develop BEAT for HOLAS III and noted that where relevant the further developed guidance related to MSFD Article 8 will be taken into account at a later stage, once available.

Agenda Item 4 Ecosystem components and the BEAT tool

4.1 The Workshop took note of the information on issues pertinent for each BEAT ecosystem components related to its use in HOLAS III ([Presentation 2](#)). The Presentation served as background information for discussing the further developments of BEAT for HOLAS III. These discussions served as basis for the proposal to be submitted to STATE&CONSERVATION 15-2021, available as **Annex 2** of these notes. The **Annex 2** reflects a brief summary of the key issues or open questions related to BEAT preparations for HOLAS III.

4.2 The Workshop took note of the information on marine mammals and the inclusion of new indicators for harbour porpoise (i.e. abundance, distribution and bycatch) in BEAT for HOLAS III and highlighted that it is an important topic to be raised during STATE&CONSERVATION 15-2021. The Meeting also highlighted that the experts' advice on the inclusion of these indicators in BEAT is important and that open issues should also be discussed during a meeting of the Expert Group on Marine Mammals (EG MAMA).

4.3 The Workshop took note of the information on the upcoming workshop on Status Assessment of Commercial Fish (ComFish WS 1-2021) to be held on 28-29 September 2021, noting that this will influence the specific components that may be available to integrate under BEAT.

4.4 The Workshop discussed the spatial characteristic of breeding birds (i.e. related to coastal areas) and the new developments expected under wintering waterbird indicators (addition of open sea areas), noting that the issue of integrating these should be considered by the relevant experts.

4.5 The Workshop discussed the topic of pelagic habitats and the different options of integrating phytoplankton and zooplankton indicators and the relation between state (i.e. biodiversity component) and pressure indicators (i.e. eutrophication) ([Presentation 3](#)). The Workshop also discussed the usability of the WFD indicators for pelagic habitats in coastal areas.

4.6 The workshop expressed the opinion that the eutrophication parameters should be utilized where biodiversity components were not available, that the eutrophication parameters should be utilized to support the assessments, but that the biodiversity and eutrophication parameters should be separated within BEAT.

4.7 The Workshop considered the topic of benthic habitats and the possible integration of two additional indicators in BEAT (i.e. cumulative impact on benthic biotopes and shallow water oxygen) and utilizing WFD indicators for coastal areas (Presentation 2).

4.8 The Workshop discussed the importance of distinction between state and pressure/impact indicators for a status assessment and how a result from a pressure/state indicator could be translated into the state assessment.

4.9 The Workshop considered to include broad habitat types in the assessment (i.e. mud, sand, mixed, coarse and hard substrates in different depth strata) as a step in BEAT for benthic habitats, and supported this approach for HOLAS III.

4.10 The Workshop noted that the appropriate application of the BEAT tool for benthic habitats remained a complex topic (e.g. should BEAT be applied towards addressing MSFD D6C5 (noting possible overlap with developments related to the Condition of benthic habitats indicator work) or more focused towards MSFD D1). The Workshop concluded that this issue would need continued review and that application similar to HOLAS II, but adding new developments may be the most practical intermediate solution.

Agenda Item 5 Next steps

5.1 The Workshop took note of the information to review the notes and **Annex 2**. The document was made available online to be reviewed by the Workshop participants.

5.2 The Workshop took note that **Annex 2** will form the basis of a document for STATE&CONSERVATION 15-2021 that will aim to summarise the key developments planned under BEAT for HOLAS III as well as request input on key open issues.

Agenda Item 6 Outcome of the Workshop

6.1 The Workshop participants adopted the draft Outcome (i.e. notes) of the Workshop via correspondence.

6.2 The final adopted Outcome of the Workshop was made available in the HELCOM Meeting Portal, as well as the documents and the presentations.

Annex 1 List of participants of BEAT WS 1-2021

Representing	Name	Organisation	E-mail
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Annex 2: Proposal for the use of the BEAT tool in HOLAS III

This annex contains the proposal from the Workshop for the use of BEAT in HOLAS III. As outlined in the [document 4J-84](#) submitted to STATE&CONSERVATION 14-2021, the following ecosystem components and their indicators were discussed during the Workshop:

1. Marine mammals,
2. Fish,
3. Waterbirds,
4. Pelagic habitats,
5. Benthic habitats (including Cuml).

The issues raised are closely linked to those presented in Presentations [2](#) and [3](#) in the [BEAT WS 1-2021 Meeting Site](#).

General BEAT adjustments from HOLAS II towards HOLAS III, general aspects

- Alignment of the BEAT and HEAT in terms of confidence assessments.

Proposals to STATE&CONSERVATION 15-2021 on the use and adjustment of BEAT in HOLAS III for ecosystem components:

1. Marine mammals

- New indicators for harbour porpoise (i.e. abundance, distribution and bycatch) would be added to BEAT.
- Appropriate addition of bycatch indicator for all mammals (and waterbirds) needs to be addressed (e.g. should it be included in the same level and weighted appropriately, should it directly filter under abundance and influence that strand, or should it be added after integration at a higher level (e.g. an overlay aspect?).
- Data for full bycatch assessment is limited, therefore, should risk assessment and those areas where threshold values are applied be handled differently.
- Should hunted and oiled marine mammals, if not already addressed in the bycatch work, be considered in BEAT as a mortality component.
- To apply a weighting method for these indicators or the OOA method needs to be considered, and the relevance to the EU Habitats Directive. This topic should also be discussed during STATE&CONSERVATION 15-2021 and EG MAMA.

2. Fish

- For coastal fish species, the indicator on length distribution (i.e. L-90) could be added to BEAT if available by HOLAS III. L-90 could be given equal weight to the current species components (key species and key groups) or placed as a subsidiary component under key species. This placement should be confirmed with the indicator lead (and/or FISH PRO III).
- For the open sea fish species, the non-commercial species will be added for open sea areas (both for pelagic and demersal) if data and assessments being developed become available and are approved. The HELCOM BLUES project will work on the non-commercial species and it was noted that if possible

the assessment should be applied based on ICES statistical rectangles to make it compatible for integration with other fish assessments.

- Other fish integration aspects (e.g. migratory fish) will be handled as in HOLAS II.
- Other parameters possible to derive from ICES data streams for commercial fish (e.g. size and age structure) should also be included if possible to develop by HOLAS III. It was noted that this aspect was dependent on the outcomes of the planned HELCOM ComFish Workshop.

3. Waterbirds

- The aggregated assessment units at scale 2, instead of scale 1, are proposed to be used in HOLAS III, but deciding on the scale needs further discussion with possible test cases (e.g. to get State and Conservation approval but also to confirm the potential differences caused by this application).
- Application of the BEAT tool based on functional groups in HOLAS III.
- Integration via BEAT of new indicators: breeding success, habitat quality, bycatch (if the development goes as planned) can be implemented.
- If available, suggestion to have breeding success and habitat quality weighted the same as wintering and breeding indicators.
- Suggestion for bycatch to be integrated into wintering and breeding (i.e. open sea / coastal) components to reflect the influence on the population indicators as an additional 'layer' (i.e. bycatch influences those parameters prior to their weighted integration)
- Noted that data for full bycatch assessment is limited, therefore, should risk assessment and those areas where threshold values are applied be handled differently.
- Should hunted and oiled marine birds, if not already addressed in the bycatch work, be considered in BEAT as a mortality component.

4. Pelagic habitats

- The separation of the biological (state) or eutrophication (pressure) indicators should be performed in BEAT. Indicators related to status (i.e. biodiversity) should have more weight than pressure indicators (i.e. eutrophication) as a minimum, or pressure indicators should be used only where biodiversity ones are not available.
- The assessment scale needs further discussion with possible test cases required to see if the aggregation of phytoplankton (assessed at HELCOM Scale 3), or disaggregation of zooplankton assessments (assessed at HELCOM Scale 2) influences the outcomes.
- Inclusion in BEAT of new indicators: water clarity (in both open sea areas and coastal areas).
- Applying some test cases may be valuable to see if the possible options presented (Presentation 3) provide similar outcomes and if key factors are driving the outcomes. This could also address if any correlations or confounding factors are influencing the assessment structure, and thus infer the best selection of structure in BEAT.
- The seasonal successional of dominating phytoplankton groups HELCOM indicator should be used where possible, but in coastal areas WFD assessments can be supplemented where the regional indicator is absent (as applied in HOLAS II).
- Further guidance will come from the pelagic team under BLUES, based on Presentation 3, to support the best test cases to consider.

5. Benthic habitats

- Consider new indicators into the assessment: cumulative impacts on benthic biotopes and shallow water oxygen indicator.
- Apply the benthic Broad Habitat Types in the assessment (BHTs).
- For coastal areas: the assessment will be done as for HOLAS II (i.e. link with WFD).
- A number of open issues remain including if to focus on addressing MSFD D6C5 approaches (e.g. as proposed under EN Benthic for example), or if to focus on a biodiversity aspect only (e.g. towards

MSFD D1). Should the BEAT integration be separate from the MSFD D6C5 approach that may be directly addressed via adaption of the existing Condition of Benthic Habitats HELCOM pre-core indicator.

- How to incorporate loss also uncertain. Should it simply be portrayed on the BEAT outputs (e.g. maps) based on the loss data layers derived in other processes.
- Incorporation of the Cumulative impact on benthic biotopes (CumI) indicator in BEAT remains uncertain. Including, even with weighting (which may not be appropriate) CumI at the same level as other state indicators may not be appropriate since it is a risk-based evaluation. Further, CumI is a spatial assessment showing areas potentially impacted by physical pressures, but do not have defined thresholds for sub-basins. It may be more appropriate to include it directly at the BHT level at which CumI results could be derived, and possibly this would be overlaid as a risk element that influences the final BEAT outcomes.