



Baltic Marine Environment Protection Commission

Working Group on the State of the Environment and Nature
Conservation

STATE & CONSERVATION
15-2021

Online, 4-8 October 2021

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| Document title | Proposals to STATE & CONSERVATION 15-2021 on the use and adjustment of BEAT in HOLAS III |
| Code | 3J-48 |
| Category | DEC |
| Agenda Item | 3J-Progress of relevant HELCOM expert groups and projects |
| Submission date | 13.9.2021 |
| Submitted by | HELCOM BLUES project |

Background

Since HOLAS II development on both existing and new indicators have taken place and thus, there is a need to adjust the assessment structure in BEAT. This document is based on proposals from the regional HELCOM Workshop for the use of BEAT in HOLAS III (proposed as a workshop under the Baltic data flows and HELCOM BLUES projects, and endorsed by State and Conservation 14-2021 – [Outcomes paragraph 4J-178](#)). The document also considers the subsequent discussions from the BLUES project regarding pelagic habitats (where the relevant indicator leads are also involved). In general, it is foreseen that BEAT will be used as in HOLAS II, including the confidence assessment, providing integrated assessment results for the following ecosystem components: Marine mammals, Fish, Waterbirds, Pelagic habitats, Benthic habitats.

The document outlines a proposal for how the integrated biodiversity assessment could be done in HOLAS III, listing also issues raised and discussed in the BEAT WS 1-2021. The issues raised are closely linked to those presented in Presentations [2](#) and [3](#) in the BEAT WS 1-2021 [Meeting Site](#).

Action requested

The Meeting is invited to:

- endorse the use of the BEAT tool for the integrated assessment of biodiversity in HOLAS III, as proposed in this document;
- advice and endorse how to handle indicator results essentially giving only a risk assessments, i.e the Cumulative impact from physical pressures on benthic biotopes and the bycatch indicator in certain areas. The proposal is to include the risk-based assessments as an additional map overlay.

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

The structure and a visual presentation of the BEAT assessment and structure are provided in presentations from the recent [BEAT workshop](#).

1. Marine mammals

Proposal for HOLAS III:

The assessment will be done per species based on the core indicators. Harbour porpoise will be added to the assessment in areas where indicators are ready. A first step in integrating the species will be to species groups (seals and small toothed cetaceans), and a second step to mammals.

In areas where threshold values for bycatch are available the indicator could be included in the BEAT assessment for seals and harbour porpoise. In areas where the bycatch indicator only gives a risk assessment, i.e. no threshold values applied, bycatch can be incorporated as a map overlay, but not influencing the BEAT assessment directly.

How to include the bycatch indicator in the integration is still an open issue; should it be used with similar weights as other indicators, or should it be included as an indicator influencing the species abundance indicators directly.

Discussion from the BEAT WS:

- 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).
- Noted that data for full bycatch assessment is limited, therefore, should risk assessment and those areas where threshold values are applied by 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 OOAO 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.

STATE & CONSERVATION 15-2021 is invited to guide the appropriate application of BEAT for the assessment of mammals, in particular the appropriate reflection of bycatch.

2. Fish

Proposal for HOLAS III:

Coastal areas will be assessed as in HOLAS II, i.e. using the key species and key functional groups indicators. If the size distribution indicator is ready, it can be added as an indicator with equal weight to the current 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).*

Migratory fish will be handled separately, as in HOLAS II, and following the same procedure.

In open sea areas, ICES statistical rectangles will be used as spatial assessment units. Commercial fish species will be assessed as in HOLAS II, using F/FMSY and SSB based on the most recent ICES fisheries overview and dividing the species according to species group. If other indicators, including those on non-commercial fish species, are available (based on the outcomes of the HELCOM ComFish Workshop, 28-29 September, 2021), they will be added with equal weight to the commercial fish species in respective species group. Discussion from the BEAT WS:

- 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.

STATE & CONSERVATION 15-2021 is invited to provide input and endorse the proposed approach.

3. Waterbirds

Proposal for HOLAS III:

Waterbirds will be assessed on the basis of spatial assessment level 2 (i.e. the 7 aggregated assessment units used in the indicators) and at species group level. If available, new indicators (breeding success, habitat quality and bycatch) can be included. It is not anticipated at this stage that the breeding success or habitat quality components would be ready for inclusion in BEAT by HOLAS III, thus it is anticipated that the BEAT integration will focus on the two existing core indicators.

Regarding bycatch the same issues as for mammals are unresolved, i.e. should the indicator be used with similar weight as other indicators, or should it be included as an indicator influencing the species abundance indicators. In areas where only a risk assessment is done for bycatch, this could be indicated as a map overlay.

Discussion from the BEAT WS:

- 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 by handled differently.

- Should hunted and oiled marine birds, if not already addressed in the bycatch work, be considered in BEAT as a mortality component.

STATE & CONSERVATION 15-2021 is invited to guide the appropriate application of BEAT for the assessment of waterbirds, in particular the appropriate reflection of bycatch.

4. Pelagic habitats

Proposal for HOLAS III:

The assessment of pelagic habitats will include both biological indicators (Zooplankton Mean Size and Total Stock and Phytoplankton Seasonal Succession of Dominating Groups) and eutrophication indicators (Chlorophyll-a, Water clarity and Cyanobacterial Bloom Index). The BLUES Pelagic group that includes the indicator leads, outlined two options, based on the discussion at the BEAT Workshop and the HELCOM Pelagic Habitats Workshop ([Pelagic WS 1-2021](#)). One option is to make an integration in BEAT giving equal weight to the biological 'block' and the eutrophication 'block'. The other option is to integrate biological and eutrophication indicators separately and combine them via a descriptive discussion text.

The proper spatial assessment scale will need to be tested to see if the different indicator assessment scales (2 for zooplankton and 3 for phytoplankton) influences the outcomes (this was not considered to be a problem in HOLAS II). In coastal areas WFD indicators can supplement the assessment where HELCOM indicators are absent.

Discussion from the BEAT WS:

- 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 pressures 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, or disaggregation of zooplankton assessments 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).
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- Further guidance will come from the pelagic team under BLUES, based on Presentation 3, to support the best test cases to consider.

STATE & CONSERVATION 15-2021 is invited to guide the appropriate application of BEAT for the assessment of pelagic habitats, and endorse the planned approach.

5. Benthic habitats

Proposal for HOLAS III:

Open sea areas will be assessed using the State of the soft-bottom macrofauna community and Oxygen debt indicators. Preferably the assessment should be done for the MSFD broad habitat types.

A proposal is to present physical loss of benthic habitats and potential impact from physical pressures (CumI) as a separate map layer in connection with the status assessment map.

In coastal areas the assessment will be done as in HOLAS II, i.e. utilizing WFD indicators.

Discussion from the BEAT WS:

- 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.

STATE & CONSERVATION 15-2021 is invited to guide the appropriate application of BEAT for the assessment of benthic habitats and endorse the planned approach.