Baltic Marine Environment Protection Commission

Working Group on the State of the Environment and Nature Conservation

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STATE & CONSERVATION 15-2021

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Background

The document below provides a template filled by indicator leads to provide an overview of progress to STATE & CONSERVATION 15-2021. Key aspects such as methodologies, spatial extent changes, assessment scales and threshold values are presented, identifying ongoing work and other relevant issues towards HOLAS III. This process builds on the prior review of indicator development carried out under STATE & CONSERVATION 14-2021 (summarised in document 4J-16 Rev.1, and detailed within numerous documents under agenda item 4J). The focus of these development works is the completion of indicator development and adjustment work for HOLAS III by the end of 2021, as previously agreed under HOD 57-2019 (document 4-20, Outcomes paragraph 4.51).

The aspect of threshold values in particular is a key issue as threshold value approval will be carried out at HOD 61-2021, with these same templates being submitted to HOD at the same stage as submission to State and Conservation 15-2021 (to allow for the longer national processes required that culminate in approval at HOD).

The document below addresses a single indicator and as well as the generic 'action requests' relating to endorsement of the proposed application in HOLAS III (and the threshold values proposals, where relevant), specific additional requests or statements are also indicated within the separate sections of the document to help guide where further input/discussion/guidance may be needed.

This template aims to report the indicator development for HOLAS III, allowing for technical guidance and endorsement by STATE & CONSERVATION 15-2021 and also simultaneously to facilitate the threshold value approval process by HOD 61-2021.

Action requested

The Meeting is invited to:

- provide further technical guidance to the indicator leads and experts, including specific requests defined within the document;
- consider and endorse the proposed developments of the indicator for use in the HOLAS III assessment.

Integrated Biological Effects of Contaminants (I-BEC)

Indicator name

Integrated Biological Effects of Contaminants (I-BEC)

This document provides an update on progress and ongoing work towards HOLAS III, following the decision at State and Conservation 14-2021 to support the inclusion of **biological effects of contaminants (BEC)** as supporting contextual information in the HOLAS III Thematic Assessment (State and Conservation 14-2021, Outcomes paragraph 4J.258).

The State and Conservation meeting is invited to take note of further progress towards producing supporting contextual information related to BEC for HOLAS III.

Scale of assessment for HOLAS III and rational

The assessment scale is expected to be scale 2 (possibly 3) if data in the planned test cases allows.

Spatial coverage of the indicator for HOLAS III

In this pilot approach, spatial coverage is not anticipated to represent all of the Baltic Sea. The ongoing work towards developing test cases and studies for HOLAS III is currently focused on the Bothnian Sea, Gulf of Riga, Gulf of Finland and Kattegat areas. If further BEC data become available and time allows, other test cases will be explored for HOLAS III.

Methodology to be applied for HOLAS III and rationale

The applied methodology will be closely aligned with the work carried out in OSPAR on the BEC, and, specifically, the integration of data. As the main exercise, the overall concept follows the Integrated Biomarker Response (IBR) index approach where the “sum” of BEC will utilise the individual parameter assessments carried out nationally using established methodologies. These nationally accepted methodologies are based on published scientific papers and reports, including those presented as separate candidate and pre-core indicators in HELCOM, and those advocated by ICES WGBEC. The available threshold values or threshold value setting approaches in those methodologies will be applied to the data collected in the HELCOM region; these results will be standardised, and multiple biological effect markers will be integrated into the IBR index to provide a summary for BEC in the assessment area.
In addition, novel approaches for BEC data treatment and integration will be explored. During the past decades the development of the BEC assessment has been largely based on the same methodologies and approaches applied for chemicals. However, fundamental differences are evident between assessments based on the measurement of chemical concentrations in environmental matrices (water, sediment and biota) in comparison to those based on complex biological functions in biota dependent on the different species, life stages, longevity, etc., which themselves already encompass the variability in the chemical environment through factors affecting bioavailability. Thus, new insights, and possibly a paradigm shift, is needed to direct BEC monitoring and assessment in terms of not only the selection of the parameters monitored but also of how to make the best use of all the data available. To look for new avenues in integration and interpretation of BEC data is the aim of the pilot exercise, including the combination of the new approaches with chemical data in an updated integrated chemical-biological monitoring and assessment.

Threshold value setting logic and rationale

No threshold value setting is specifically required in this current approach. In some cases, each of the methodologies to be integrated into the index of BEC already has an established threshold value or a threshold value setting approach. To provide an initial BEC overview as contextual supporting information for the HOLAS III Thematic Assessment of hazardous substances, the outcomes of these methodologies will be integrated.

Threshold value(s)

Not relevant, no specific threshold values will be applied in this process.

Other significant issues that need to be addressed or presented to State and Conservation

At the EN-HZ 16-2021 meeting, the following issues were highlighted: 1) the EU welcomed the ongoing work on BEC and supported regional progress on the issue, 2) the BEC assessment has been identified as necessary under current EU processes (including the MSFD review) and will be considered in further development work related to hazardous substances and discussions within the MSFD Expert Network on Contaminants (the lack of harmonisation under MSFD D8C2 being noted), and 3) that the EU considers the application of integrated assessments (combining chemical contaminant and BEC data) that allow a complete assessment of risks through chemicals, to be a major development need in the field.

The EN HZ BEC team emphasized that they will make a serious effort to progress with the work but that resources (i.e., ability to allocate dedicated time to the work) is the major limiting factor in the process. The team identified that even a small project or some designated time with funding allocated to the process would guarantee the achievement of markedly more useful results by the time of HOLAS III.

Latest indicator report or (for new indicators) initially completed indicator template

No prior iterations of this work/indicator exist in HELCOM. The only comparable work is the “Reproductive disorders: malformed embryos of amphipods” indicator that was used as a supplementary indicator in HOLAS II.