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;
- endorse the indicator as a candidate indicator;
- consider and endorse the proposed developments of the indicator for use in the HOLAS III assessment.

Abundance of non-commercial offshore species (three-spined stickleback, flounder, brill and dab)

Indicator name
Abundance of non-commercial offshore species (three-spined stickleback, flounder, brill and dab).
Scale of assessment for HOLAS III and rational
Scale 1 or 2 depending on the spatial delineation of each species.
Spatial coverage of the indicator for HOLAS III
The spatial coverage of the assessment will follow the distribution and data availability for the assessed species. For stickleback, this is preliminarily ICES SD 25-30 and 32, with separate assessments for SD 25, SD 26-29 and 32, and SD 30. For flounder three assessments including SD 24-25, SD 26 and 28, and SD 27 and 29-32, and for brill and dab one assessment per species covering SD 22-32, in accordance to the advice from ICES.
Methodology to be applied for HOLAS III and rational
The methodology for evaluating the status of the indicator will be developed in the HELCOM BLUES-project. In brief, however, the rationale for the assessment is to apply the recently developed ASCETS-approach (Östman et al. 2020) for selected open sea species where ICES do not provide analytical assessments. The ASCETS-methodology offers a refined approach to infer threshold values through analysing structural changes in time-series, and it also gives estimates on the confidence of an apparent change in the indicator state. Thus, by applying ASCETS, it will be possible to derive robust threshold values for addressing a change in status and a developed assessment of the confidence of the derived status. Further, the overall assessment methodology will follow that of the for coastal fish core indicators used in HOLAS II, see for example https://helcom.fi/wp-content/uploads/2019/08/Abundance-of-key-coastal-fish-species-HELCOM-core-indicator-2018.pdf and the reporting for the indicator *Abundance of key coastal fish species.* Due to delays in recruiting the expertise to carry out the analyses within the BLUES-project and to develop the methodology, no more details on the indicator is available at present. A more developed proposal is anticipated by end of 2021. The current progress regarding threshold values is outlined below.
Threshold value setting logic and rational
Threshold values will be developed in the HELCOM BLUES-project during autumn 2021, and will to large extent follow the outline for coastal fish indicators HOLAS II, see for example https://helcom.fi/wp-content/uploads/2019/08/Abundance-of-key-coastal-fish-species-HELCOM-core-indicator-2018.pdf for further details. In brief, the threshold values will be derived (one threshold value per delineated spatial scale of each species) using available time-series data by implementing the recently developed ASCETS-methodology by Östman et al. (2020). More specifically the ASCETS-methodology uses a bootstrapped distribution (from observed monitoring data) of potential indicator during a reference period. Based on the indicator values during the reference period, the specific threshold value is set based on the X^{th} and XX^{th} percentile values of the bootstrapped distribution. Hence, the specific threshold values will be based on the data that is entered to a given assessment, as these define the percentiles. As for the coastal fish core indicators used in HOLAS II, the status of the reference period used to evaluate the current status of the stock will be defined (using additional data and/or expert judgement) as representing either a good or poor environmental state. See Östman et al. (2020) for further details on this.
Threshold value(s)

Threshold values will be developed in the HELCOM BLUES-project during autumn 2021. We consider that the indicator of flounder, brill and dab should be above a threshold value to reflect good ecological status, whereas the indicator for stickleback should be below or within one or two threshold values.
The general logic behind the development of threshold values for flounder, dab and brill follows this concept:

- **If the status during the reference period is perceived as GOOD**, then the **median indicator value during the assessment period** (2016-2021) **MUST BE ABOVE THE Xth PERCENTILE** (to be defined later) of the median distribution of the indicator values during the reference period to reflect **good status (GS),** i.e. no change in status. If the **median indicator value during the assessment period** (2016-2021) **are equal to or below the Xth percentile** (to be defined later) of the median distribution of the indicator values during the reference period, **the status** has deteriorated and **is perceived as not good (nGS).**
- **If the status during the reference period is perceived as NOT GOOD**, then the **median indicator value during the assessment period** (2016-2021) **MUST BE ABOVE THE XXth PERCENTILE** (to be defined later) of the median distribution of the indicator values during the reference period to improve and reflect **good status (GS)**. If the **median indicator value during the assessment period** (2016-2021) **are equal to or below the XXth percentile** (to be defined later) of the median distribution of the indicator values during the reference period, **the status** has not changed and **is perceived as not good (nGS).**

For stickleback, this logic and concept will be followed:

- **If the status during the reference period is perceived as GOOD**, then the **median indicator value during the assessment period** (2016-2021) **MUST BE BELOW THE XXth PERCENTILE** (to be defined later) of the median distribution of the indicator values during the reference period to reflect **good status (GS),** i.e. no change in status. If the **median indicator value during the assessment period** (2016-2021) **are equal to or above the XXth percentile** (to be defined later) of the median distribution of the indicator values during the reference period, **the status has deteriorated** (increase in indicator values) **and is perceived as not good (nGS).**
- **If the status during the reference period is perceived as NOT GOOD**, then the **median indicator value during the assessment period** (2016-2021) **MUST BE BELOW THE Xth PERCENTILE** (to be defined later) of the median distribution of the indicator values during the reference period to reflect **good status (GS),** i.e. a decrease in abundance. If the **median indicator value during the assessment period** (2016-2021) **are equal to or above the Xth percentile** (to be defined later) of the median distribution of the indicator values during the reference period, **the status is perceived as not good (nGS),** i.e. no change in status.

For more information, see https://helcom.fi/wp-content/uploads/2019/08/Abundance-of-key-coastal-fish-species-HELCOM-core-indicator-2018.pdf where a similar approach is used.

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

As described above, there have been delays in the HELCOM BLUES-project and it has not yet been possible to carry out the analyses needed to suggest a threshold value for the different species and spatial scales. This work will instead be carried out during fall 2021, and during January to March 2022. We aim to have well-documented and robust threshold values to propose as early as is possible.
During this work, the extent of assessment data will also be clarified, that is, whether data for 2021 is readily available to use in May 2022 or not.

The work within the HELCOM BLUES-project will also consider the discussions and decisions on the methodologies and species for consideration during the upcoming workshop on assessment of commercial fish in HOLAS III to be held 28-29 September 2021.
Latest indicator report or (for new indicators) initially completed indicator template
As the indicator is still under development, no indicator report is available.