Baltic Marine Environment Protection Commission

Working Group on the State of the Environment and Nature Conservation

Online, 4-8 October 2021

STATE & CONSERVATION 15-2021

Document title	Seasonal succession of dominating phytoplankton groups
Code	3J-20
Category	DEC
Agenda Item	3J - Progress of relevant HELCOM expert groups and projects
Submission date	13.9.2021
Submitted by	Secretariat

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.

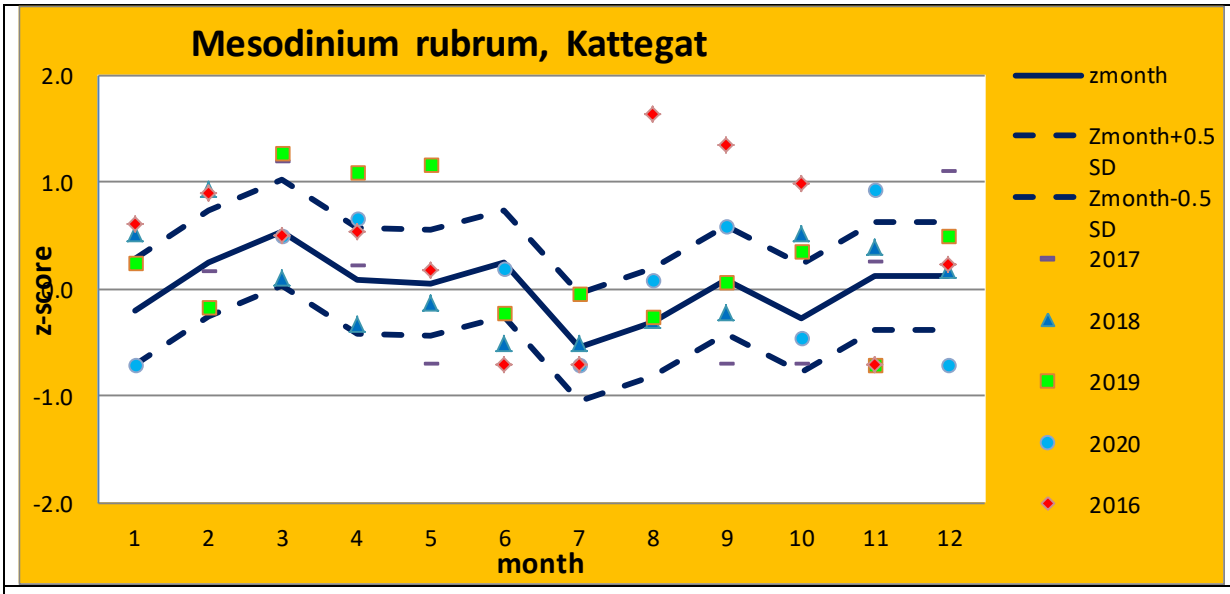
Action requested

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.

Seasonal succession of dominating phytoplankton groups (SSDPG)

Indicator name
Seasonal succession of dominating phytoplankton groups (SSDPG)
Scale of assessment for HOLAS III and rational
Scales 2 or 3 are used. Unit 12 (Gulf of Finland Estonian Coastal waters) is divided into western and eastern parts due to salinity gradient and phenology. *For HOLAS II data from Mecklenburg Bight German Coastal waters were aggregated to scale 2. Updated data series enable analysing coastal and open sea areas separately.*
Spatial coverage of the indicator for HOLAS III
Due to better data availability, the number of assessment units included in this indicator has increased since the HOLAS II. In coastal areas (scale 3), threshold values are proposed for 14 units and in open sea areas (scale 2) for 12 units. *Moreover, there are 12 coastal units where data is available, but time series are still too short to define reference periods and threshold values. For the time being, Danish phytoplankton data are not received. Data compilation is still in progress and preliminary results may be available at the end of 2021.* *There are also a few assessment units over the Baltic Sea where phytoplankton monitoring is not carried out.*
Methodology to be applied for HOLAS III and rational
Calculations and data requirements are described in the indicator report: *www.helcom.fi/Core%20Indicators/Seasonal%20succession%20of%20dominating%20phytoplankton%20groups%20HELCOM%20core%20indicator%202018.pdf*
Threshold value setting logic and rational
The concept for evaluating good environmental status using the succession of dominant groups in the phytoplankton community is structured around a reference status succession and the acceptable deviation from that pattern. *The indictor result value is based on the number of data points falling within the acceptable deviation range set for each monthly point of the reference growth curve (between dotted lines in the figure below) and expressed as the percentage to the total number of data points. The percentage of such data points calculated for the predefined reference period is considered as threshold value.* *The values calculated for the assessment period are then compared to regionally relevant threshold values. Good status is achieved when the indicator result (number of data points that fall within the established acceptable variation range) is equal or above the regionally defined threshold value.*



Threshold value(s)

An excel file is provided as annex that includes assessment units on the appropriate scales.
Threshold values may change if there is a need for redefinition of the reference period (the years with lower biomass values and lower interannual variability).

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

Data for the indicator has been submitted directly by national contacts. An R-script is already developed for the assessment but not yet operationalised.
For the indicator work, data has been requested on an aggregated form (biovolume per division group). In the COMBINE database, phytoplankton data is reported as single species (sometimes groups or complexes) measurements and the biovolume information needed for the aggregation may not always be reported and readily available. The R-script should transform the current COMBINE phytoplankton view in ICES into the desired aggregated structure. ICES can contribute to this work, but it will require resource and know-how from phytoplankton experts to develop this in a good and sustainable way.

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

www.helcom.fi/Core%20Indicators/Seasonal%20succession%20of%20dominating%20phytoplankton%20groups%20HELCOM%20core%20indicator%202018.pdf