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<b>Document title</b>	Summary of indicator development, post-State and Conservation 15-2021
<b>Code</b>	5-2-Rev.1
<b>Category</b>	DEC
<b>Agenda Item</b>	5 – Preparatory work for HOLAS 3 assessment
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<b>Reference</b>	

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This document has been updated to reflect progress made since State and Conservation 15-2021. Additional information is provided in red text within the document. This document gives an overview of all indicator development towards HOLAS 3 (both threshold and non-threshold value related), with special emphasis on development which has occurred after STATE&CONSERVATION 15-2021. Please note that information directly related to the approval of threshold values/threshold value setting methodologies is addressed under document 5-1 Rev.1 and the associated attachments (hyperlinks to the latest attachments under 5-1 rev.1 have been provided in the summary table).

## Background

This document aims to provide an update on the HELCOM indicator development and approval processes towards HOLAS 3, reflecting the discussion at State and Conservation 15-2021. It applies the dashboard overview approach showing the indicators available, being adjusted, or under development towards HOLAS 3 as summarized in [document 3J-18](#) to State and Conservation 15-2021. In addition, the document below also includes links to the relevant detailed indicator specific documents reviewed at State and Conservation 15-2021 and the ongoing threshold value approval process under HOD 61-2021. This current overview of the state of play related to the HELCOM indicators builds on the more detailed information presented in the indicator progress reports and aims to summarise and give an overview of status and progress in relation to steps taken under the *Future work on HELCOM indicators process* (as summarised under [document 4-20](#) to HOD 57-2019, and the topic specific work plans developed within that process).

At this stage of the process the following aspects are also relevant:

1. The Cyanobacterial Bloom Index documentation was initially identified as addressing threshold values, however once the technical issues related to accessing the document were solved it became clear that no new threshold values were to be proposed. This indicator will consequently not be presented under the current HOD 61-2021 threshold value approval process (i.e. there will be no ATT.16 placed in the workspace).
2. At this stage no new indicators for which threshold value approval (numeric values or approach) have been added to the HOD 61-2021 process (c.f. document 5-1).
3. Where open issues or issues raised at State and Conservation 15-2021 are possible to resolve or where progress has been made, this will be addressed in supporting documentation or revision of existing documentation at the latest by the 3-week decision deadline to HOD 61-2021.
4. Several of the issues raised on indicators also have direct or indirect links to the Targeted Assessment Methodology Workshops proposed by State and Conservation 15-2021 for spring 2022 (topic of a separate document to HOD 61-2021). These workshops are in essence proposed to address the overall and/or integrated assessments related to, for example: BEAT (mammals, waterbirds, and fish), HEAT, pelagic habitats, and benthic habitats, once the overall constellation and type of available indicators is finalised (i.e. based on HOD 61-2021 processes).

Within the summary overview provided in the table below the following colour coding is applied:

- Green highlight indicates application essentially unchanged from HOLAS II.
- Cream highlight indicates area of development for the relevant indicator or issues raised and currently being addressed
- Orange highlight indicates where threshold values or the threshold value setting approach are addressed (and in all cases these are part of the ongoing process initiated under HOD 61-2021).

The table has been modified slightly to move additional links to earlier documents. The column previously (in original document, 5-1) providing links to State and Conservation 15-2021 documents has been deleted and the links to those earlier documents is now provided under the brief overview from State and Conservation 15-2021 column (column 2).

### Relevant study reservations that need to be addressed (from State and Conservation 15-2021).

The following list provides an overview of study reservation stemming from State and Conservation 15-2021. Where relevant the numbers identifying the study reservations in the list below have been introduced in the Summary overview table with a reference of 'Study res X.'. For the majority of the topics covered by study reservations progress has been made intersessionally to address the identified issues. Where progress has been made it is indicated within the updated attachments to document 5-1, or, for non-threshold related issues, in the Annexes to this document. Already lifted study reservations are indicated in gray text. Should any of the remaining reservations be lifted prior to HOD 61-2021 an updated of this document will be prepared. The remaining study reservations need to be formally considered and, if concerns have been appropriately addressed, lifted in the HOD meeting.

All known study reservations emanating from State and Conservation are presented in the list below, however those related directly to threshold value issues or indicators where threshold values are addressed are to be addressed under document 5-1 Rev.1 and the associated workspace attachments. The two main study reservations to be addressed under this document (number 2 and 6 in the list below) are presented in bold text.

1. State and Conservation 15-2021 [Outcomes paragraph 3J.77](#) (general): The Meeting noted the statement by Denmark that Danish representatives to the Meeting will consider only the scientific and technical aspects of the indicators and threshold values. The final position will be given at HOD 61-2021 and therefore Denmark has a study reservation placed on the use of indicators and threshold values for HOLAS 3.
2. **State and Conservation 15-2021 [Outcomes paragraph 3J.7](#) (on Harbour seal LRL and management units): The Meeting supported the rationale and scientific basis for the proposal, however noted the study reservations by Sweden and Denmark on implementing the division until the limit reference level (LRL) approach and its application in the indicator and recommendation for these management units has been clarified (i.e. an alternative numerical value has been approved).**
3. State and Conservation 15-2021 [Outcomes paragraph 3J.92](#) (on Seasonal succession of dominating phytoplankton groups): The Meeting noted that Germany placed a study reservation on the threshold values until HOD 61-2021.
4. State and Conservation 15-2021 [Outcomes paragraph 3J.176 and 177](#) (on the LRL issue from harour seals related to bycatch): The Meeting took note of concerns expressed by Denmark and Finland regarding the reliance of the indicator on the agreed Limit Reference Levels (LRL) for seal populations as currently the LRL applied for some populations, especially in relation to the proposed splitting of the management units for harbour seal (see para. 3J.6-3J.7), are considered unrealistic from an ecological perspective. The Meeting noted that the approach proposed in the bycatch indicator was not incorrect, but that the problem lies with the LRL values themselves. The Meeting took note of study reservations by Finland, Estonia and Denmark on the seal threshold values and invited Finland, Estonia, and Denmark to inform the Secretariat of their position as soon as possible, and not later than before the HOD 61-2021 (by 28 October 2021).
5. State and Conservation 15-2021 [Outcomes paragraph 3J.216](#) (on Total Nitrogen): The Meeting took note of the information by Germany that under the current mandate Germany cannot endorse the use of the TARGREV threshold values for the Arkona basin and thus placed a study reservation on the value. The Meeting invited Germany to clarify their position until HOD 61-2021.
6. **State and Conservation 15-2021 [Outcomes paragraph 3J.225 and 3J.226](#) (on Cyanobacterial Bloom Index): The Meeting noted that Poland and Germany are not in the position to agree on changing the status of the indicator as limited development has taken place since its use in HOLAS II. 3J.226 The Meeting noted that Denmark has a study reservation on the indicator and will aim at lifting it during the ongoing national consultation process prior to HOD 61-2021.**
7. State and Conservation 15-2021 [Outcomes paragraph 3J.225 and 3J.243](#) (on Copper): The Meeting noted a study reservation by Poland and Germany on the proposed threshold value, noting that Germany needed more time to complete national consultation processes. The Meeting noted the suggestion by Poland to replace proposed EQS 30 milligrams/kg with 40 milligrams/kg to reflect higher natural background concentrations. The Meeting invited Poland to be in direct contact with the Secretariat and EG HAZ experts involved in the indicator development at their upcoming meeting (20 October 2021) and invited Germany and Poland to clarify their respective positions by in advance of HOD 61-2021.
8. State and Conservation 15-2021 [Outcomes paragraph 3J.225 and 3J.247](#) (on TBT and ImPOSEX): The Meeting noted that Poland will need more time to consider the new threshold value and that Finland would need additional time for national consultation. The Meeting further noted that Sweden would prefer retaining the previously approved threshold value and placed a study reservation on the proposed threshold value.
9. State and Conservation 15-2021 [Outcomes paragraph 3J.253](#) (PAHs and their metabolites): The Meeting noted a study reservation by Estonia, as more time is needed to finalise national consultation processes, and the aim for it to be lifted prior to HOD 61-2021 and noted that Denmark has a study reservation on the application of one threshold value for anthracene in sediment in their national waters.

NOTE: This study reservation has since been lifted via correspondence, as reflected in the relevant document.

10. State and Conservation 15-2021 [Outcomes paragraph 3J.276](#) (Litter on the seafloor): The Meeting endorsed the proposed approach to establish threshold values for use of the indicator in the HOLAS 3 assessment as indicated in the corresponding document (document 3J-72), pending the study reservation by Poland.
11. State and Conservation 15-2021 [Outcomes paragraph 3J.286 and 288 and 289](#) (Continuous noise): The Meeting noted the view by several Contracting Parties and CCB expressing the importance of setting threshold values for the indicator and supported conducting a qualitative assessment on the indicator, in case threshold values cannot be set, pending the study reservation by Germany and clarification by Poland. The Meeting took note of the amendment of the continuous noise assessment as proposed by Germany (document 3J-93). The Meeting agreed to set up an intersessional State and Conservation meeting with the involvement of the relevant noise experts on 4 November 2021 to come to a conclusion about the German proposal presented in document 3J-93, which is linked to the German study reservation, and invited the Secretariat to organise the meeting.

### Action requested

The Meeting is invited to:

- take note of the information provided;
- consider the updates provided, in particular details under Annexes 1-5;
- address relevant study reservations emanating from State and Conservation 15-2021.

## Summary of HELOCM indicators towards HOLAS 3, post State and Conservation 15-2021.

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
Distribution of Baltic seals	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NO	NO	NA
Population trends and abundance of seals	Application as in HOLAS II (but using HOLAS 3 assessment period data). The issue of Limit Reference Level (LRL) application was raised in relation to proposed new management units for harbour seals ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.6-3J.9</a> ). Currently anticipated that the LRL issue would not be possible to address prior to HOLAS 3 but needs a dedicated process under EG MAMA, thus the approach used in HOLAS II would be retained for the current assessment. Document: <a href="#">3J-89 relevant to LRL issue</a> .	NO	Methodological - LRL issue.	See Annex 1 in this document, below.  <b>Study res. 2</b>
Nutritional status of <del>marine mammals seals</del>	General application as in HOLAS II (but using HOLAS 3 assessment period data). Where data are present but not applicable for the threshold value approach (or for species other than grey seal as threshold values only available for grey seals) they will be summarised in the report in tabulated or trend form. Endorsed ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.162-3J.165</a> ). Significant development still required in longer term (i.e. towards HOLAS IV). Document: <a href="#">Document 3J-40</a> .	NO	Methodology and spatial extent.	See column 2 for latest document or details.
Reproductive status of <del>marine mammals seals</del>	General application as in HOLAS II (but using HOLAS 3 assessment period data). Where data are present but not applicable for the threshold value approach they will be summarised in the report in tabulated or trend form. Endorsed ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.166</a> ). Significant development still required in longer term (i.e. towards HOLAS IV). Document: <a href="#">Document 3J-41</a> .	NO	Spatial extent.	See column 2 for latest document or details.
Harbour porpoise distribution	Proposed approach endorsed for HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.171</a> ). Document: <a href="#">Document 3J-43</a> .	NO	Methodology, assessment units and spatial extent.	See Annex 2 in this document, below.
Harbour porpoise abundance	Proposed approach endorsed for HOLAS 3 and additional guidance and data provided or to be submitted by Contracting Parties to support this. Further update on the Belt Sea trend analysis expected in early 2022. Contracting Parties that border the Belt Sea population and are also in OSPAR to discuss best approach to ensure clear or harmonised assessment under HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.167-3J.170</a> ).	NO	Methodology, assessment units and spatial extent.	

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
	Document: <a href="#">Document 3J-42</a> .			
Abundance of waterbirds in the breeding season	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NO	NO	NA
Abundance of waterbirds in the wintering season	Application as in HOLAS II (but using HOLAS 3 assessment period data), and with the inclusion of open sea bird count data. Developments endorsed ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.145-3J.148</a> ). Documnet: <a href="#">Document 3J-36</a> .	YES	Methodology, assessment units and spatial extent.	Workspace <a href="#">ATT.01</a> .  See Document 5-1 Rev.1. No additional information.
Breeding success of waterbirds	Test cases being developed towards HOLAS 3 endorsed and additional technical guidance provided ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.149-3J.154</a> ). Document: <a href="#">Document 3J-37</a> .	YES	Methodology and assessment units.	Workspace <a href="#">ATT.02</a> .  See Document 5-1 Rev.1. No additional information.
Waterbird habitat quality	Issues raised related to the ability of the indicator to provide a clear assessment, although the model approach itself and the data strands are acknowledged as well formulated. Ongoing process to explore solutions and possible options for further development towards HOLAS 3 (and beyond). Meeting between Denmark, Germany and the Secretariat to be held on the issue ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.155-3J.161</a> ). Document: <a href="#">Document 3J-39</a> .	NO	Methodology and assessment units.	See Annex 3 in this document, below.
Number of drowned mammals and waterbirds in fishing gear  <i>Note: this indicator is of direct relevance to mammals and waterbirds sections.</i>	Support for general development towards HOLAS 3. The LRL issue, if management units for harbour seal were changed, noted to impact on the issue and the focus of study reservations. Differing opinions were also expressed related to specific threshold values to be applied for grey seas (50 or 70% of K), further review of the ongoing mPR and PVA work on Balt Sea harbour porpoises and waterbirds considered valuable, and the proposal that the indicator should be used to carry out a test evaluation noted ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.175-3J.183</a> ). Document: <a href="#">Document 3J-45</a> .	YES	Methodology, assessment units and spatial extent.	Workspace <a href="#">ATT.03 Rev.1</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1.  See also Annex 1 in this document, below (LRL issue)  <b>Study res. 4</b>
Abundance of coastal fish key functional groups	Application as in HOLAS II (but using HOLAS 3 assessment period data, 2021 data not possible) except application of improved methodology (ASCETS). Endorsed for use in	YES	Methodology and spatial extent.	Workspace <a href="#">ATT.04</a> .

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
	HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.131-3J.132</a> ). Will only include cyprinids and/or mesopredators (not piscivores). Document: <a href="#">Document 3J-30</a> .			See Document 5-1 Rev.1. No additional information.
Abundance of key coastal fish species	Application as in HOLAS II (but using HOLAS 3 assessment period data, 2021 data not possible) except application of improved methodology (ASCETS). Endorsed for use in HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.125</a> ). Document: <a href="#">Document 3J-28</a> .	YES	Methodology and spatial extent.	Workspace <a href="#">ATT.05</a> .  See Document 5-1 Rev.1. No additional information.
Size structure of coastal fish (L90)	General support for ongoing development work and technical guidance provided being considered by the leads. Endorsed as a pre-core indicator for HOLAS 3 noting that if threshold values can not be derived there is value in providing information on trends or relevant data summaries ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.126-3J.130</a> ). Document: <a href="#">Document 3J-29</a> .	YES	Methodology and spatial extent.	Workspace <a href="#">ATT.06 Rev.1</a> .  See Document 5-1 Rev.1.
Abundance of salmon spawners and smolt	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NO	NO	NA
Abundance of sea trout spawners and parr	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NO	NO	NA
Fishing mortality (F/FMSY)	Focus of State and Conservation 15A-2021 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.137-3J.144</a> ). Documents <a href="#">3J-33</a> , <a href="#">3J-102</a> , and <a href="#">3J-103</a> relevant. Outcomes of <a href="#">State and Conservation 15A-2021</a> .	NO	NA	These are addressed under the Commercial Fish Assessment, see Planned Assessments and analyses for HOLAS 3.
Stock size (spawning stock biomass)		NO	NA	
D3C3 aspects such as size, age, condition.		NO	Methodological	
Abundance of non-commercial offshore species (three-spined stickleback, flounder, brill and dab)	Potential overlap identified with species also proposed under the draft commercial fish list and further discussion expected after the State and Conservation 15A-2021 meeting focussing on ComFish. Importance of assessing sticklebacks noted for some Contracting Parties ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.133-3J.135</a> ). Work ongoing in HELCOM BLUES. Document: <a href="#">Document 3J-88</a> .	YES	Methodology, assessment units and spatial extent.	Workspace <a href="#">ATT.07 Rev.1</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1.
Zooplankton mean size and total stock	One new threshold value defined. Further work ongoing towards threshold values in other areas and will be presented as soon as possible. National consultation and review processes underway. Core indicator for HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.96-3J.98</a> ). Document: <a href="#">Document 3J-21</a> .	YES	Spatial extent.	Workspace <a href="#">ATT.08 Rev.1</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1.

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
Seasonal succession of dominating phytoplankton groups	Extensive development carried out and threshold values proposed in all areas where data are viable. Further development may need to be considered, including the issue raised related to how threshold values are derived (e.g. relatedness of selected periods to good environmental status). Supported as a pre-core indicator towards HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.90-3J.95</a> ). Documents: <a href="#">Document 3J.20</a> and <a href="#">3J.20 ATT.1</a> .	YES	Spatial extent and assessment units.	Workspace <a href="#">ATT.09</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1. No additional information.  Study res. 3
Diatom/Dinoflagellate index (Dia/Dino index)	Proposal from PEG and Germany to further develop the indicator. Further development supported to develop test cases where possible in a pre-core indicator towards HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.87-3J.89</a> ). Document: <a href="#">Document 3J-19</a> .	YES	Methodology and spatial coverage.	Workspace <a href="#">ATT.10</a> .  See Document 5-1 Rev.1. No additional information.
State of the soft-bottom macrofauna community	Application as in HOLAS II (but using HOLAS 3 assessment period data). Ongoing work to explore if the eutrophication divisions of the Bornholm basin can also be applied and are relevant. Feasibility study related to application of eutrophication divisions. Targeted data call to improve data/assessment flows by correction of some parameters to be established ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.109-3J.115</a> ). Document: <a href="#">Document 3J-24</a> .	NO (unless aspects raised at S&C 15 can be addressed).	Spatial extent.	See Annex 4 in this document, below.
Cumulative impact on benthic biotopes (CumI) Cumulative impact from physical pressures on benthic biotopes (CumI)	Use as a core indicator for HOLAS 3 and endorsed name change to: 'Cumulative impact from physical pressures on benthic biotopes (CumI)'. Longer term development work also acknowledged ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.104-3J.107</a> ). Document: <a href="#">Document 3J-23</a> .	YES	Methodology and assessment units.	Workspace <a href="#">ATT.11</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1. No additional information.
Condition of benthic habitats	Issues raised related to link with overall assessment of benthic habitats and to ongoing work under EU TG seabed. Ongoing work supported, including test cases, though with a longer-term perspective (i.e. HOLAS IV) to increase harmonisation ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.116-3J.117</a> ). Document: <a href="#">Document 3J.25</a> .	NO	Methodology, assessment units and spatial extent.	See column 2 for latest document or details.
Dissolved inorganic nitrogen (DIN)	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland and Bornholm Basin/Pomeranian Bay harmonisation ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Documents: Document <a href="#">3J-87</a> and <a href="#">3J-91</a> .	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ).  See Document 5-1 Rev.1.
Dissolved inorganic phosphorus (DIP)	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland and Bornholm Basin/Pomeranian Bay harmonisation ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ).	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ).

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
	Documents: Document <a href="#">3J-87</a> and <a href="#">3J-91</a> .			<b>See Document 5-1 Rev.1.</b>
Oxygen debt	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Estonia new lead ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.230</a> ). Documents: Document <a href="#">3J-87</a> and <a href="#">3J-91</a> .	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ).  <b>See Document 5-1 Rev.1.</b>
Water transparency	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Documents: Document <a href="#">3J-87</a> and <a href="#">3J-91</a> .	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ).  <b>See Document 5-1 Rev.1.</b>
Chlorophyll a	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland and Bornholm Basin/Pomeranian Bay harmonisation ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Documents: Document <a href="#">3J-87</a> and <a href="#">3J-91</a> .	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ).  <b>See Document 5-1 Rev.1.</b>
Total nitrogen concentrations	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland and Bornholm Basin/Pomeranian Bay harmonisation ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Threshold values for Kiel Bay and Mecklenburg Bay endorsed and Germany evaluating options for Arkona Basin ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.215-3J.217</a> ). Documents: Document <a href="#">3J-49</a> , <a href="#">3J-87</a> and <a href="#">3J-91</a> .	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ) and <a href="#">ATT.14 Rev.1</a> .  <b>See Document 5-1 Rev.1.</b>
Total phosphorus concentrations	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland and Bornholm Basin/Pomeranian Bay harmonisation ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Threshold values and developments in Kiel Bay, Arkona Basin and Bay of Mecklenburg endorsed and process to address Eastern Gotland Basin established ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.218-3J.219</a> ). Documents: Document <a href="#">3J-50</a> , <a href="#">3J-87</a> and <a href="#">3J-91</a> .	YES	NA	Workspace <a href="#">ATT.12 Rev.1</a> and <a href="#">ATT.13 Rev.1</a> ( <a href="#">ANNEX 1</a> and <a href="#">2</a> ) and <a href="#">ATT.15 Rev.1</a> .  <b>See Document 5-1 Rev.1.</b>
Cyanobacterial bloom index	Application as in HOLAS II (but using HOLAS 3 assessment period data). New threshold values endorsed for the divisions of the Gulf of Finland ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.207-3J.213</a> ). Change to core status not endorsed at this stage as further development considered needed towards HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.223-3J.227</a> ). Document: <a href="#">Document 3J-53</a> .	NO (*Please note this was previously identified as a YES)	Methodological clarity issues.	Workspace <a href="#">ATT.16</a> . This ATT will not be provided*. Gulf of Finland division addressed in <a href="#">ATT.13</a> .  <b>See Annex 5 in this document, below.</b>

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
	*Once technical difficulties in accessing the document (prior to placement on the HOD 61 workspace) were resolved it became clear that no new threshold values were to be proposed as the remaining areas were considered 'not applicable'.			Study res. 6
Shallow-water bottom oxygen	Importance of the topic noted and process proposed to maintain ongoing work towards HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.228-3J.229</a> ). Germany, Finland, and Denmark leading the process under IN Eutrophication (EG Eutrophication). Document: <a href="#">Document 3J-54</a> .	YES	Methodology, assessment units and spatial extent.	Workspace <a href="#">ATT.17 Rev.1</a> . See Document 5-1 Rev.1.
Phytoplankton spring bloom intensity based on chl-a	Developments towards a pre-core indicator for HOLAS 3 endorsed ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.222</a> ). Document: <a href="#">Document 3J-52</a> .	YES	Methodology, assessment units and spatial extent.	Workspace <a href="#">ATT.18 Rev.1</a> and <a href="#">ANNEX 1</a> . See Document 5-1 Rev.1.
Baltic Sea acidification	Development towards an Element indicator endorsed at S&C 14-2021 ( <a href="#">Outcomes paragraph 4J.302</a> ).	NA	Ongoing development of indicator report.	NA
Inputs of nitrogen and phosphorous to the sub-basins	Application as in HOLAS II with relevant developments under PLC incorporated.	NA	NA	NA
Hexabromocyclododecane (HBCDD)	Development work endorsed. Application much the same as in HOLAS II (but using HOLAS 3 assessment period data) ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.258</a> ). Document: <a href="#">Document 3J-66</a> .	NA	Method and spatial coverage.	See column 2 for latest document or details.
Metals	Approach towards HOLAS 3 endorsed, including division into three separate indicator reports ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.240-3J.241</a> ). Document: <a href="#">Document 3J.61</a> .	YES	Methodology.	Workspace <a href="#">ATT.19</a> . See Document 5-1 Rev.1. No additional information.
Polybrominated biphenyl ethers (PBDE)	Development work endorsed. Application much the same as in HOLAS II (but using HOLAS 3 assessment period data) ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.259</a> ). Document: <a href="#">Document 3J-67</a> .	YES	Methodology.	Workspace <a href="#">ATT.20</a> . See Document 5-1 Rev.1. No additional information.
Perfluorooctane sulphonate (PFOS)	Development work endorsed. Application much the same as in HOLAS II (but using HOLAS 3 assessment period data) ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.260</a> ). Document: <a href="#">Document 3J.68</a> .	NO	Spatial extent.	See column 2 for latest document or details.
Polychlorinated biphenyls (PCB) and dioxins and furans	Development work endorsed. Application much the same as in HOLAS II (but using HOLAS 3 assessment period data) ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.261</a> ). Document: <a href="#">Document 3J-69</a> .	NO	Spatial extent.	See column 2 for latest document or details.

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
TBT and imposex	The proposed plan towards HOLAS 3 was supported but issues related to threshold values were raised. A subsequent meeting of EN-HZ proposed that the new threshold value of 1.3 µg /kg dw sediment (5% TOC) should be used in HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.246-3J.251</a> ). Document: <a href="#">Document 3J-63</a> .	YES	NA	Workspace <a href="#">ATT.21 Rev.1</a> .  See Document 5-1 Rev.1.  Study res. 8
Polyaromatic hydrocarbons (PAH) and their metabolites	The proposed plan towards HOLAS 3 was supported and at a subsequent meeting of EN-HZ the Estonian study reservation was addressed with the clarification made that several Contracting Parties were expected to have metabolite data available for HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.252-3J.253</a> ). Document: <a href="#">Document 3J-64</a> .	YES	Methodology.	Workspace <a href="#">ATT.22 Rev.1</a> .  See Document 5-1 Rev.1.
White-tailed sea eagle productivity	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NO	NA	NA
Reproductive disorders: Malformed amphipod embryos (supplementary, only FI&SE)	The proposed developments towards HOLAS II were endorsed and it was noted that the issue of a core or surveillance indicator at this stage were not agreed on and that the indicator should not be part of the CHASE integrated concentrations assessment ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.255-3J.257</a> ). Document: <a href="#">Document 3J-65</a> .	YES	Spatial extent and assessment units.	Workspace <a href="#">ATT.23 Rev.1</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1.
Diclofenac	Approach towards HOLAS 3 endorsed and new lead identified (Finland) ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.238-3J.239</a> ). Document: <a href="#">Document 3J-60</a> .	YES	NA	Workspace <a href="#">ATT.24 Rev.1</a> .  See Document 5-1 Rev.1
Biological Effects (lead via EN-HZ topic team)	Approach toward HOLAS II endorsed and need for resources to support the work discussed ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.264-3J.265</a> ). Document: <a href="#">Document 3J-70</a> .	NO	Methodology, spatial extent and assessment units.	NA
Radioactive substances: Cesium-137 in fish and surface waters	New threshold values endorsed ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.236</a> ). Document: <a href="#">Document 3J-59</a> .	YES	NA	Workspace <a href="#">ATT.25</a> and <a href="#">ANNEX 1</a> .  See Document 5-1 Rev.1. No additional information.
Oil-spills affecting the marine environment	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NO	NA	NA
Copper	Support for development of the indicator and issues noted related to threshold value setting (in particular with relevance to natural background concentrations) ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.242-3J.245</a> ). A subsequent meeting of EN-HZ Experts reviewed the issues raised, in particular by Poland, and propose to maintain 30 mg/kg sediment value (5% CORG) and detailing specific further development needs and issues relating to	YES	Methodology, spatial extent and assessment units.	Workspace <a href="#">ATT.26 Rev.1</a> .  See Document 5-1 Rev.1.  Study res. 7

Indicator name	Brief summary overview of any known issues or current use/approach for HOLAS 3 (post State and Conservation 15-2021)	Are threshold values addressed?	Other aspects addressed? See overview	Information relevant to the Rev.1 version of this document and linkages with HOD 61-2021 document 5-1 Rev.1 and workspace attachments
		See overview in <a href="#">document 3J-18</a> from State & Conservation 15-2021.		
	background concentrations within the report for HOLAS 3. A summary will be provided to HOD. Document: <a href="#">Document 3J-62</a> .			
Hazardous substances screening	Ongoing – sampling underway.	NA	NA	NA
<b>Beach litter</b> (lead by EN Marine Litter)	Indicator threshold values awaiting approval.	YES	Methodology, spatial extent and assessment units.	Workspace <a href="#">ATT.27</a> .  See Document 5-1 Rev.1. No additional information.
Litter on the seafloor	Additional technical discussion and guidance provided, endorsed threshold value setting approach and support for trend no significantly >0 as threshold value ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.271-3J-277</a> ). Document: <a href="#">Document 3J-72</a> .	YES	Methodology, spatial extent and assessment units.	Workspace <a href="#">ATT.28 Rev.1</a> .  See Document 5-1 Rev.1.
Microlitter in the watercolumn	Testing and development underway but no indicator evaluation by HOLAS 3.	NO	NA	NA
Continuous low frequency anthropogenic sound	The links to ongoing EU processes were raised, in particular the need for the framework to establish threshold values to be 'in place' when discussing threshold values. The proposal on solutions raised at GEAR 24-2021 were recalled and the meeting supported a qualitative assessment if further progress can not be achieved in closely linked processes by HOLAS 3. In addition the issue will be further discussed in a follow up meeting of S&C ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.282-3J-289</a> ). Document: <a href="#">Document 3J-74</a> .	YES	Methodology, spatial extent and assessment units.	Workspace <a href="#">ATT.29 Rev.1</a> .  See Document 5-1 Rev.1.
Distribution in time and space of loud low- and mid-frequency impulsive sounds	The links to ongoing EU processes were raised, in particular the need for the framework to establish threshold values to be 'in place' when discussing threshold values. The proposal on solutions raised at GEAR 24-2021 were recalled and the meeting supported a qualitative assessment (e.g. trends) if further progress can not be achieved in closely linked processes by HOLAS 3 ( <a href="#">S&amp;C 15-2021 Outcomes, paragraphs 3J.278-3J-281</a> ). Document: <a href="#">Document 3J-73</a> .	YES	Methodology, spatial extent and assessment units.	Workspace <a href="#">ATT.30</a> .  See Document 5-1 Rev.1. No additional information.
Trends in arrival of new non-indigenous species	Application as in HOLAS II (but using HOLAS 3 assessment period data).	NA	NA	NA

### Annex 1. Population trends and abundance of seals.

EG MAMA 15-2021 discussed the need to revise the management units for harbour seals and provided a proposal to State and Conservation 15-2021 on the topic ([document 3J-89](#)). The proposal entailed applying four management units for harbour seals, as opposed to the two currently applied management units. The proposal was justified based on telemetry data, different population abundance trends in the areas, genetic evidence, the spread of the influenza A epidemic, and different levels of hazardous substances between these management areas. While it was noted that the proposal would not influence the ability to run the indicator evaluations for HOLAS 3 it was noted that the proposal had a clear impact on the application of the Limit Reference Level (LRL).

State and Conservation 15-2021 supported the proposal in principle, noting that it was well a well-justified rational and scientific basis, but noted that the potential consequences of applying this adjustment in relation to the LRL could be significant for HOLAS 3 ([Outcomes paragraphs 3J.6 – 3J.9](#)). The need to also update the division of management units in the Recommendation (HELCOM RECOMMENDATION 27-28/2) was also discussed, should this be applied. The Meeting invited EG MAMA to provide a proposed solution to addressing LRL issue for consideration at HOD 61-2021, should the new management unit division be used for HOLAS 3. The Meeting noted that should that proposal not be considered appropriate, the approach applied in HOLAS II would be maintained also for HOLAS 3 ([Outcomes paragraphs 3J.9](#)).

Further discussion amongst the EG MAMA experts involved with the preparation of the proposal submitted to State and Conservation 15-2021 concluded that the process of revising the LRL and subsequent adjustments to relevant Recommendation(s) was not a process that could be achieved within the timeframe of HOLAS 3. It was also considered that such a process should be carried out via a designated review and evaluation under EG MAMA, starting with revisiting key documentation from the original process (e.g. [document 5-2 from SEAL 4-2010](#) and [document 4-1 from SEAL 5-2011](#)). On this basis the subject will be revisited under the agenda of the next EG MAMA meeting with a view to developing an improved approach for HOLAS IV. Thus, for the purposes of HOLAS 3 the same approach used in HOLAS II will be maintained.

## Annex 2. Harbour porpoise indicators

State and Conservation 15-2021 discussed the harbour porpoise distribution and harbour porpoise abundance indicators, as presented in documents [3J-42](#) and [3J-43](#), and endorsed the work being carried out towards HOLAS 3. The Meeting also noted that some Contracting Parties would submit details related to additional data sources to the leads to support the ongoing work and that Denmark would provide some technical input on the work (this has since taken place and will be taken into account by the leads as the work is finalised towards HOLAS 3). In addition it was noted that the Contracting Parties that are members of both OSPAR and HELCOM would convene at a later date to discuss how best to carry out the Belt Sea population analysis for HOLAS 3 ([Outcomes paragraphs 3J.167 – 3J.172](#)).

The work underway in the HELCOM BLUES project is at an advanced stage and will be finalised towards HOLAS 3 (both the qualitative study and the trend analysis). Further work is underway on newly identified information to support the qualitative study and for the final trend analysis it is anticipated that it will be completed early in 2022. The trend analysis for the Belt Sea population should be seen as an important piece of information, however, the outcome of the trend analysis will not be assessed against a threshold value since the abundance indicator in its current form is not yet operational. This information will be reviewed by the harbour porpoise team (within EG MAMA) and all progress on this topic will be presented to subsequent State and Conservation (and other relevant HELCOM) meetings to allow Contracting Parties to guide the appropriate use and presentation within the indicator reports for HOLAS 3.

### Annex 3. Waterbird habitat quality

State and Conservation 15-2021 discussed the proposed candidate indicator for waterbird habitat quality ([document 3J-39](#)). It was noted that some Contracting Parties saw value in the indicator and were supportive for the further development and that the indicator was reliant on existing data channels (i.e. abundance and distribution of species, and human activities). The meeting also noted some additional development aspects that could be considered in the future work and that the name of the indicator may need to be adapted to better reflect the focus or spatial risk assessment carried out. However, the meeting also noted the statement from Denmark that despite their appreciation of the work carried out they are not currently in a position to support the work on this topic as an indicator, and candidate indicator status was therefore not endorsed. The Meeting agreed to explore other options as to how the ongoing work could be utilised in HOLAS 3 and invited the Secretariat, Denmark, and Germany to hold a meeting on this issue ([Outcomes paragraphs 3J.155 – 3J.161](#)).

The follow up discussion after State and Conservation 15-2021 reviewed the general methodology of the indicator and discussed some scientific or technical issues considered relevant. The meeting also directly addressed potential solutions towards HOLAS 3 and clarified that Denmark were not at this stage prepared to support the development on this topic as an indicator of any description (i.e. those defined within the [HELCOM indicator manual](#)). On this basis the possibility to include further developments of this work under the HOLAS 3 Thematic Assessment of Biodiversity was discussed. The meeting supported the ongoing work towards the HOLAS 3 Thematic Assessment of Biodiversity on the basis that the work was not currently considered as an indicator but that an evaluation or overview could be included within the Thematic Assessment as supporting contextual information under the relevant section/chapter addressing waterbirds. The specific format and formulation of this overview (i.e. text and figures, and a suggested textbox) within the HOLAS 3 Thematic Assessment and review of the final outputs would become clear via the established review and approval processes for HOLAS 3, and in the mean-time the leads on the work (indicator) would aim to further develop test cases or the broadest spatial coverage of the Baltic Sea for this purpose.

#### Annex 4. State of the soft-bottom macrofauna community

State and Conservation 15-2021 discussed the State of the soft-bottom indicator ([document 3J-24](#)), an opportunity to improve the data quality via a targeted data call was identified and a feasibility study related to applying assessment unit divisions from eutrophication work was also requested. In addition, the possibility to develop threshold values and assessments for this indicator for areas where newly endorsed eutrophication-relevant assessment units exist was also endorsed. The indicator was endorsed towards HOLAS 3 ([Outcomes paragraphs 3J.109 – 3J.115](#)). The GEAR 25-2021 meeting also considered the feasibility study related to assessment units ([document 5-12](#)) and supported testing of these eutrophication derived assessment units in certain indicators where such changes may be supported scientifically (e.g. aspects also associated with eutrophication) to evaluate threshold values (Outcomes currently under final review).

The indicator leads and relevant national experts are currently exploring the possibility to further develop threshold values in the Pomeranian Bay and Bornholm Basin area and if possible to achieve will submit proposals on 20 December 2021 for endorsement at HELCOM 43-2022, as proposed under State and Conservation 15-2021 ([Outcomes paragraphs 3J.113](#)). Any subsequent progress will be provided will be provided by the decision deadlines for State and Conservation 16-2022 and HELCOM 43-2022.

## Annex 5. Cyanobacterial Bloom Index.

The Cyanobacterial Bloom Index HELCOM indicator was tested in HOLAS II. No new threshold values are proposed towards HOLAS 3 as areas where no threshold values are applied are deemed not applicable for the indicator. There has however been significant progress made on defining areas where adjustment or further development in the methodology or presentation of the methodology and results is needed. Progress on the indicator and the proposed improvement work, based on discussions between experts within IN Eutrophication and the Phytoplankton Expert Group (PEG), were presented to State and Conservation 15-2021 ([document 3J-53 and Annex](#)).

State and Conservation 15-2021 discussed the indicator and its application in HOLAS 3 and concluded that in the current state it should be maintained as a pre-core indicator as aspects related to the issues raised in the document annex needed to be directly addressed ([Outcomes paragraphs 3J.223 – 3J.227](#)). The Meeting also noted that Denmark has a prior study reservation on the indicator and will aim at lifting it during the ongoing national consultation process prior to HOD 61-2021.

The annex to State and Conservation 15-2021 [document 3J-53](#) considers issues that can be addressed by HOLAS 3, based on discussion between indicator leads, IN Eutrophication and PEG experts and progress on these issues will be presented to State and Conservation 16-2022 for endorsement. The following issues, extracted from the document annex, will be addressed with the aim of these improvements within the report being included by HOLAS 3:

1. Satellite data for the Bay of Mecklenburg evaluated (if available) and if not the assessment will be carried out on biomass data alone – with clear methodological description added to the report. Progress will be presented to State and Conservation 16-2022.
2. Where available satellite data will be accompanied by cell counts (where possible from integrated water samples) so that biomass and satellite are clearly presented together. Progress will be presented to State and Conservation 16-2022.
3. Weighing of the in-situ biomass data (proposed to have higher weighting) compared to the satellite data will be discussed at the next IN Eutrophication meeting and the outcomes of that discussion implemented into HOLAS 3 assessments. Progress will be presented to State and Conservation 16-2022.
4. The options to also carry out an assessment for the newly derived Pomeranian Bay assessment unit will also be addressed at the IN Eutrophication meeting. Progress will be presented to State and Conservation 16-2022.
5. A process of validation between in-situ and satellite data will be carried out. Experts from Finland and Germany will explore this aspect to determine if threshold values need further adaptation in the future. Initial findings will be presented to State and Conservation 16-2022.
6. A confidence assessment, aligned with HEAT and the other eutrophication indicators (i.e. addressing spatial, temporal and methodological confidence) will be implemented. PEG will support the relevant development for data reliant on in-situ biomass. The structure/methodology will be presented to State and Conservation 16-2022 in readiness for HOLAS 3.
7. The description of the methodology within the indicator report will be improved in readiness for HOLAS 3.
8. The description of the threshold values within the indicator report will be improved in readiness for HOLAS 3.
9. The application of satellite data and the underlying methodology (i.e. how it identifies and differentiates different pigments/blooms) will be better described within the report for HOLAS 3.

10. The link between the eutrophication pressure and the occurrence of cyanobacterial blooms will be better defined in the updated report for HOLAS 3. This will be supported by the new indicator template where a designated section addresses Drivers, Activities and Pressures.