



Document title	Approval of threshold values and threshold value setting methodologies for HELCOM indicators towards HOLAS 3
Code	5-1 Rev.1
Category	DEC
Agenda Item	5 - Preparatory work for HOLAS III assessment
Submission date	17.11.2021
Submitted by	Secretariat
Reference	

This document has been updated to reflect where, after discussion at State and Conservation 15-2021, attachments relating to decisions on threshold values/threshold value setting methodologies have been updated.



To provide an easily accessible overview, a listing of relevant study reservations stemming from STATE&CONSERVATION 15-2021 to be addressed is also provided in the background section and the link to a study reservation has been introduced to the corresponding indicator. Changes are shown with red text. The threshold values column in the table has been updated to reflect where revised documents have been added within the workspace.

Background

In line with the agreed timeline and work process for the preparatory phase towards HOLAS 3, and directly addressing Step 5 ('Execute') of the 'Future work on HELCOM indicators' process as outlined in [document 4-20](#) and approved at HOD 57-2019 ([Outcome paragraphs 4.46-4.51](#)), this document presents the progress made by the indicator leads and relevant Expert Groups towards new or adjusted indicator threshold values or threshold value setting methodologies for use in HOLAS 3.

Approval process

During the 'Future work on HELCOM indicators' process, and as indicated in the '[HELCOM indicator manual](#)', it was lifted that some national approval processes for threshold values or threshold value setting methods exceed the customary three week deadline for decision documents for HELCOM meetings. Thus, in line with the request by the Contracting Parties and the timeline for the HOLAS 3 preparatory phase, the new or further-developed threshold values/threshold setting methodology proposed for use in HOLAS 3 is hereby presented for approval (**Attachment 1-30** to this document) to the HELCOM Heads of Delegation the required three months in advance of the relevant meeting, in this case HOD 61-2021. In line with the agreed process foreseen changes to indicators not related to thresholds (e.g. spatial extent, methodology and changes in assessment units), as well as other relevant HOLAS 3 documents will be submitted to HOD 61-2021 for approval in due course, following the normal submission procedures in HELCOM.

Contracting Parties are invited to note that due to the meeting schedules and the request for an extended approval period related to threshold values, the attachments to this document are concomitantly submitted as documents to STATE & CONSERVATION 15-2021, presented for endorsement. This provides the Contracting Parties the opportunity to lift and discuss any immediate or unclear issues encountered in the review process, using State&Conservation WG as a platform (see process flow in Figure 1). Following the STATE&CONSERVATION 15-2021 meeting this document will be updated to include the relevant outcome of the meeting, and any threshold values conclusively not endorsed will be removed from the list of threshold values for approval. The only document not concomitantly submitted to STATE& CONSERVATION 15-2021 is

the document related to beach litter threshold values as this was already addressed and endorsed at STATE & CONSERVATION 14-2021.

Contracting Parties are invited to submit remaining comments or concerns regarding the proposed threshold values and/of threshold value setting methodologies in writing to the Secretariat (owen.rowe@helcom.fi) by **16 November 2021**, enabling their submission to the HOD 61-2021 meeting by the comment document deadline. This provides other Contracting Parties, as well as the indicator leads, with the possibility to consider and, where possible, provide clarification prior to the meeting (see process flow in Figure 1)

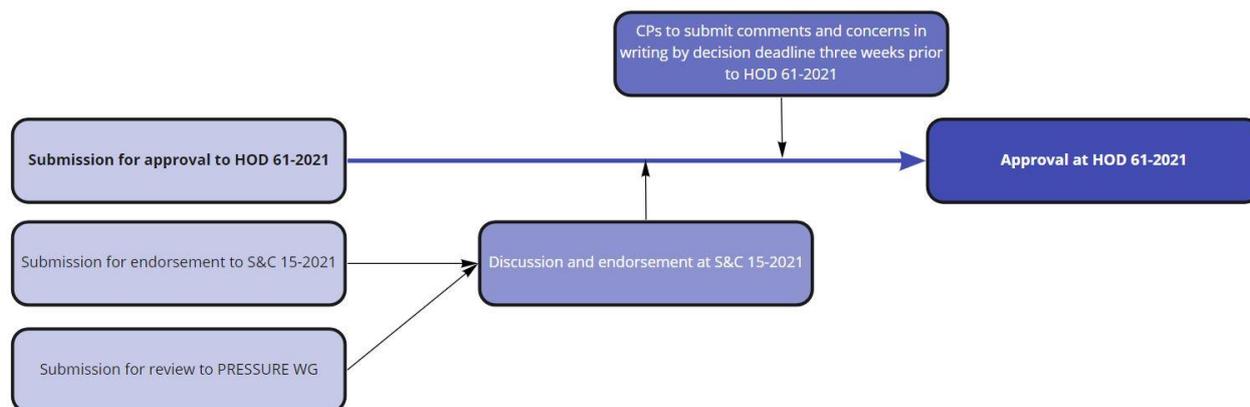


Figure 1. Overview of threshold value and/or threshold setting methodology approval process

Content of this document

Contained in this document is an overview of all indicators anticipated to be available for use in HOLAS 3. Where approval of threshold values and/or threshold setting methodologies are known this is identified within the table (see column named 'Threshold value(s)'), thus providing a summary overview of which indicators threshold value require related approval. An overview summary of other relevant foreseen changes is also provided within the table. This builds on the progress reported to and discussed at STATE & CONSERVATION 14-2021 (e.g. [4J-16 Rev.1](#), [4J-17 to 4J-55](#), and [4J-91 to 4J-101](#)) and the guidance received ([Outcomes section 4J](#)). This information was also discussed at GEAR 24-2021, where further guidance was provided ([document 5-9](#), [Outcomes paragraphs 5.24-5.32](#)).

To account for the large number of indicators included in the HOD threshold value review and approval process a designated workspace has been established ([Indicator threshold values workspace](#)). Included within this workspace are all the attachments to this document. Each attachment corresponds to one of the indicators identified in the summary table below as having open issues related to threshold values.

In the majority of cases the attachments to this document apply a standardized template that was developed to facilitate the approval process, where the major development areas are addressed in a consistent way. Within the template there are two designated sections that directly address threshold values (and in some cases where threshold values are numerous an annex is also included) and are the focus of this approval process. These two sections within the template are titled: '**Threshold value setting logic and rational**' and '**Threshold value(s)**'. In these sections the approach for setting and applying the threshold values is defined and where specific numeric threshold values can be clearly defined these are also presented. There are however a few exceptions which do not follow this template and these address eutrophication threshold values for the recently divided assessment units in the Gulf of Finland, recently divided assessment units in the Bornholm Basin (for further information on the proposed assessment unit change for HOLAS3 please see document X-X to STATE&CONSERVATION 15-2021), and the threshold values for beach litter.

In cases where it has not been possible to complete the work by the established deadline the leads and experts completing or reviewing the templates have provided estimates of when the final information is expected to be available, or identified the issues preventing the development of threshold values.

Please note that the attachments to this document provided in the workspace are identical to those submitted to STATE & CONSERVATION 15-2021. This is done to ensure that the documents can easily be linked within the endorsement and approval process and to avoid any versioning issues.

Relevant study reservations stemming from State and Conservation 15-2021

The following list provides an overview of study reservations 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 this document, or, for non-threshold related issues, in the Annexes to document 5-2 to this meeting. 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. Those related directly to threshold value issues or indicators where threshold values are addressed are to be addressed under this document and the associated workspace attachments. Two additional study reservations (strikethrough) are not relevant for this document and subsequently considered under document 5-2 Rev.1.

Document 5-2 Rev.1 to this meeting provides an overview of the issues raised at State and Conservation and revised workspace attachments (links provided in the document below) reflect how the issues raised have been addresses.

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.

PROGRESS: Denmark is carrying out further national consultation to clarify their position by HOD 61.

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). (addressed in document 5-2 to this meeting)~~

~~*PROGRESS: The LRL issue and a solution for HOLAS 3 is addressed under Annex 1 of document 5-2 Rev.1.*~~

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 by HOD 61-2021.

PROGRESS: Discussion between indicator leads and representatives from Germany has been initiated and is ongoing.

4. State and Conservation 15-2021 [Outcomes paragraph 3J.176 and 177](#) (on the LRL issue from harbour 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.

PROGRESS: Discussion was initiated post-State and Conservation 15-2021 with the EG MAMA experts involved in drafting the initial harbour seal management unit proposal (the aspect relevant to the LRL issue) and the outcomes (proposed solution) of this are reflected in Annex 1 of document 5-2 Rev.1.

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 by HOD 61-2021.

PROGRESS: Germany is carrying out further national consultation to clarify their position by HOD 61.

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. (addressed in document 5-2 to this meeting)~~

~~*PROGRESS: The issues raised are addressed under Annex 5 of document 5-2 Rev.1. The issue will also be further discussed at the November meeting of IN/EG Eutrophication.*~~

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.
PROGRESS: This was addressed at a meeting of EN-HZ where experts discussed the issues raised. The expert-based proposed solution is provided in the updated Workspace ATT for this document (Workspace ATT.26 Rev.1).
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.
PROGRESS: This issue was addressed at a meeting of EN-HZ where experts discussed the issues raised. The expert-based proposed solution is provided in the updated Workspace ATT for this document (Workspace ATT.21 Rev.1).
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.
PROGRESS: This study reservation has since been lifted via correspondence, as reflected in the relevant document, based on discussion within EN-HZ.
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.
PROGRESS: Discussion has been initiated with Poland to clarify the situation.
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.
PROGRESS: State and Conservation 15B-2021 was established to address the issues raised. The State and Conservation 15B-2021 meeting agreed on revisions within the text to address the issues raised and these are reflected in the updated Workspace ATT for this document (Workspace ATT.29 Rev.1).

Action requested

The Meeting is invited to:

- address the study reservations emanating from State and Conservation 15-2021 related to indicators in this threshold value/threshold value setting methodologies approval process.
- approve the threshold values/threshold value setting methodologies proposed for application in HOLAS 3 (as provided in the attachments within the [workspace](#)).

Summary overview of indicators towards HOLAS 3

Summary table of all indicators available or under adjustment/development with a view to being utilised in HOLAS 3 (either as full indicator evaluations or to provide supporting contextual information). The purpose of this table is to provide a rapid overview of the ongoing work and proposals by indicator leads and relevant Expert Groups. All developments identified (e.g. threshold values, methodologies etc) in this table are pending approval at State and Conservation and/or HOD, as required, the details of which are provided under the separate documents that address each indicator also submitted to this meeting. The role of indicator leads (lead country approach) is not influenced by the information provided here as this table aims to summarise ongoing work towards operational indicators for HOLAS 3 and the update of indicators for HOLAS 3 will take place via the standard HELCOM procedure (i.e. leads, co-leads, and relevant Expert Groups).

The following codes are used in this summary table:

Green fill indicates expected in HOLAS 3, but as applied in HOLAS II.

Yellow fill indicates improvement of existing indicator via ongoing development/adjustment work towards HOLAS 3.

Orange fill indicates new for HOLAS 3 (i.e. not used in HOLAS II).

Indicator names provided in **bold** indicate where there are known issues related to lead countries being in place. Summary information on the known issue(s):

- **Beach litter** – under development with identified leads currently being the HELCOM BLUES project and EN Litter.
- **Biological Effects** – no official lead (but also not an official indicator currently), but sub-group under EN-HZ (including FIN, DMK, EST, LAT, SWE) taking responsibility for the work.
- **Diclofenac** – no lead in place.
- **Shallow-water bottom oxygen** – possible co-lead as IN Eutrophication.

The final four columns indicate general areas under which the work currently being carried out is placed, including general categories such as threshold values or methodology development that require approval. Areas where developments are expected are highlighted in **light red**. The following codes provides some additional information on the scope of development:

¹Possible, pending development work underway and the outcomes of it.

²Expected due to implementation of new indicator or expansion of data applied in the existing indicator evaluation.

³Pending external processes such as work under EU TGs or EQS review processes.

⁴Existing methodology will incorporate more data and improve confidence across broader region.

Please note that more detailed information for each indicator can be found under the separate indicator progress reports provided to this meeting.

Indicator name	AUs	MRUs ⁵	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
<i>Marine mammals</i>									
Distribution of Baltic seals	2	17 max	Not currently	As applied in HOLAS II.	Ongoing discussion related to Precautionary Approach Level (PAL) and threshold setting	NA	NA	NA	NA
Population trends and abundance of seals	2	17 max	Not currently	As applied in HOLAS II.		NA	NA	NA	NA
Nutritional status of marine mammals seals	2	17 max	Adjustment	Generally similar to HOLAS II – improved spatial coverage, species coverage, and inclusion of data from more Contracting Parties expected.	Longer-term development ongoing also.	NA ¹	X	X ²	NA
Reproductive status of marine mammals seals	2	17 max	Adjustment			NA ¹	NA	X ²	NA
Harbour porpoise distribution	2	17 max	Development	Qualitative assessment of absolute distribution for Baltic Proper.	Development under the HELCOM BLUES project, in association with EG MAMA.	NA ¹	X	X ²	X ²
Harbour porpoise abundance	2	17 max	Development	Qualitative assessment of absolute abundance for Baltic Proper. Possible indicator and trend assessment for Belt Sea.		NA ¹	X	X ²	X ²
<i>Waterbirds</i>									
Abundance of waterbirds in the breeding season	1/2	1-7	Not currently	As applied in HOLAS II.		NA	NA	NA	NA

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Indicator name	AUs	MRUs ⁵	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
Abundance of waterbirds in the wintering season	1/2	1-7	Adjustment	Inclusion of offshore waterbird data.	Work carried out under or in direct cooperation with JWG BIRD.	X Workspace ATT.1	X	X ²	NA
Breeding success of waterbirds	1/2	1-7	Development	Test cases of methodology. Development towards a possible indicator and/or possible contextual information in HOLAS 3.		X ¹ Workspace ATT.2	X	NA	X
Waterbird habitat quality	1/2	1-7	Development			NA ¹	X	NA	X
<i>Bycatch</i>									
Number of drowned mammals and waterbirds in fishing gear <i>Note: this indicator is of direct relevance to mammals and waterbirds sections.</i>	2	17 max	Adjustment	Implement pilot cases based on OSPAR-HELCOM joint workshop, further develop risk mapping approach.	Integrate work carried out under HELCOM ACTION project and also ongoing work under HELCOM BLUES. Cooperation with formation of data call for HOLAS 3.	X Workspace ATT.3 Rev.1 and ANNEX 1 Study Res 4	X	X ²	X ²
<i>Fish – coastal (non-commercial)</i>									
Abundance of coastal fish key functional groups	3	40	Adjustment	Implementation of improved methodology (ASCETS) and improved spatial coverage if possible.	Development under HELCOM BLUES and in close cooperation with FISH-PRO 3. Input to HELCOM ComFish WS related to	X Workspace ATT.4	X	X	NA

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Indicator name	AUs	MRUs ¹	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
Abundance of key coastal fish species	3	40	Adjustment	Implementation of improved methodology (ASCETS) and improved spatial coverage if possible.	methodologies also anticipated.	X Workspace ATT.5	X	X	NA
Size structure of coastal fish	3	40	Development	L90 methodology being developed for application under HELCOM BLUES project.		X Workspace ATT.6 Rev.1	X	X	X
<i>Fish – coastal/migratory</i>									
Abundance of salmon spawners and smolt	2	17	Not currently	As applied in HOLAS II.		NA	NA	NA	NA
Abundance of sea trout spawners and parr	3	40	Not currently	As applied in HOLAS II.		NA	NA	NA	NA
<i>Fish – commercial</i>									
Fishing mortality (F/FMSY)	2	17	Not currently	As applied in HOLAS II?	Pending planned work under the HELCOM ComFish WS, planned for autumn 2021.	Pending planned work under the HELCOM ComFish WS			
Stock size (spawning stock biomass)	2	17	Not currently	As applied in HOLAS II?					
Other?			Development						
<i>Fish – open sea non-commercial</i>									
Abundance of non-commercial offshore species (three-spined stickleback, flounder, brill and dab)	1/2	1-17	Development	Development ongoing under HELCOM BLUES and linked to Fish PRO 3 experts.	Cooperation with the ComFish WS also anticipated.	X ¹ Workspace ATT.7	X	X	X

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Indicator name	AUs	MRUs ⁵	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
						Rev.1 and ANNEX 1			
<i>Pelagic habitats</i>									
Zooplankton mean size and total stock	2	17	Adjustment	Improved data flows and spatial coverage (including threshold values)	Work ongoing under the HELCOM BLUES and Baltic Data Flows projects	X Workspace ATT.8 Rev.1 and ANNEX 1	NA	X	NA
Seasonal succession of dominating phytoplankton groups	3	40	Adjustment	Improved data flows and spatial coverage (including threshold values)	Work ongoing under the HELCOM BLUES and Baltic Data Flows projects	X Workspace ATT.9 and ANNEX 1 Study Res 3	NA	X	X ¹
Diatom/Dinoflagellate index (Dia/Dino index) <i>Note: Inclusion for HOLAS 3 proposed to S&C 15-2021.</i>	2	17	Adjustment	Further development from pre-core indicator tested in HOLAS II . Focussing on selected areas to start.		X ¹ Workspace ATT.10	X	X	NA
<i>Benthic habitats</i>									
State of the soft-bottom macrofauna community	4/2	40?	Adjustment	Improved data flows and spatial coverage (including threshold values). Clarity on application (e.g. in relation to halocline).	Work ongoing under the Baltic Data Flows project. Sub-group under EN Benthic formed to consider possible progress. However, this indicator falls under D6C5	NA ³	NA ¹	X	NA ¹

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					therefore, process also tied to work in EU TG Seabed.				
Cumulative impact on benthic biotopes (Cuml)	2	17	Development	Development ongoing under EN BENTHIC. Target to make a 'core' indicator for HOLAS 3.	Cooperation underway to define/harmonise data needs for HOLAS 3 data call.	X Workspace ATT.11 and ANNEX 1	X	NA	X
Condition of benthic habitats	2	17	Development	Sub-group under EN Benthic established to consider approach and compatibility with other related assessment schematics.	Possible test cases as contextual information at HOLAS 3. Full assessment process also tied to work in EU TG Seabed.	NA ³	X ³	X ²	X ²
Eutrophication									
Dissolved inorganic nitrogen (DIN)	4	320	Not currently			X ⁵ Workspace ATT.12 Rev.1 and 13 Rev.1	NA	NA	NA
Dissolved inorganic phosphorus (DIP)	4	320	Not currently			X ⁵ Workspace ATT.12 Rev.1 and 13 Rev.1	NA	NA	NA

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Oxygen debt	4	320	Not currently	Possible increased spatial coverage and application of the indicator, where relevant.	Lead identified.	X ⁵ Workspace ATT.12 Rev.1 and 13 Rev.1	NA	NA	NA
Water transparency	4	320	Not currently			X ⁵ Workspace ATT.12 Rev.1 and 13 Rev.1	NA	NA	NA
Chlorophyll a	4	320	Adjustment	Final developments to include Ferry Box data.		X ⁵ Workspace ATT.12 Rev.1 and 13 Rev.1	NA ⁴	NA	NA
Total nitrogen concentrations	4	320	Adjustment	Threshold values for basins where missing.		X + X ⁵ Workspace ATT.12 Rev.1 and 13 Rev.1 and 14 Rev.1 Study Res 5	NA	NA	NA
Total phosphorus concentrations	4	320	Adjustment	Threshold values for basins where missing.		X + X ⁵	NA	NA	NA

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						Workspace ATT.12 Rev.1 and 13 Rev.1 and 15 Rev.1			
Cyanobacterial bloom index	4	320	Adjustment	Target to make a 'core' indicator for HOLAS 3. Way forward on study reservation.		X Workspace ATT.16	NA	NA	NA
Shallow-water bottom oxygen (possible lead by IN Eutrophication)	4	320	Development	Develop approach and threshold values. Ongoing work.	IN Eutrophication ongoing work.	X Workspace ATT.17 Rev.1	X	X ²	X ²
Phytoplankton spring bloom intensity based on chl-a	4	320	Development	Approach and threshold values to be developed.	IN Eutrophication ongoing work.	X Workspace ATT.18 Rev.1	X	X ²	X ²
Baltic Sea acidification	4	320	Development	Ongoing work via associated project (OMAI). Update to next IN Eutrophication meeting planned. Possible supporting contextual information in HOLAS 3.		NA	X	X	X

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Inputs of nitrogen and phosphorous to the sub-basins	2agr		Not currently	To be utilised based on developments taking place under PLC and PRESSURE (e.g. application of nutrient 'ceilings').		NA	NA	NA	NA
<i>Hazardous substances</i>									
Hexabromocyclododecane (HBCDD)	4	320	Possible minor adjustments			NA	X ¹	X ²	NA
Metals	4	320	Adjustment	Division into three separate metals rather than amalgamated version currently used.		X Workspace ATT.19	X ¹	NA	NA
Polybrominated biphenyl ethers (PBDE)	4	320	Possible minor adjustments	Threshold values linked to EU processes.		X ³ Workspace ATT.20	X ¹	NA	NA
Perfluorooctane sulphonate (PFOS)	4	320	Possible minor adjustments			NA	NA	X ²	NA
Polychlorinated biphenyls (PCB) and dioxins and furans	4	320	Possible minor adjustments			NA	NA	X ²	NA
TBT and imposex	4	320	Adjustment	Target to make a 'core' indicator for HOLAS 3, pending study reservation on threshold value.		X Workspace ATT.21 Rev.1	NA	NA	NA

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¹Possible, pending development work underway and the outcomes of it.

²Expected due to implementation of new indicator or expansion of data applied in the existing indicator evaluation.

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Indicator name	AUs	MRUs ⁵	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
						Study Res 8			
Polyaromatic hydrocarbons (PAH) and their metabolites	4	320	Adjustment	Aim to include metabolites aspect, pending study reservation on threshold value.		X Workspace ATT.22 Rev.1 Study Res 9	X	NA	NA
White-tailed sea eagle productivity	3	40	Not currently			NA	NA	NA	NA
Reproductive disorders: Malformed amphipod embryos (supplementary, only FI&SE)	3	40	Adjustment	Possible request to make a 'core' indicator for HOLAS 3 based on increased spatial application. Option to include more species.		X Workspace ATT.23 Rev.1 and ANNEX 1	NA	X ¹	X ¹
Diclofenac	x		Not currently		Threshold values linked to EU processes.	X ³ Workspace ATT.24 Rev.1	NA	NA	NA
Biological Effects (lead via EN-HZ topic team)	x		Development	Proof of concept under development to develop a broader overview or integrated assessment of biological effect.	Sub-group in EN-HZ developing test cases and viable approach. Close alignment with OSPAR processes on the topic.	NA	X ¹	X ¹	X ¹

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Indicator name	AUs	' MRUs'	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
				Supporting contextual information in HOLAS 3 anticipated.	Cooperation with HOLAS 3 data call.				
Radioactive substances: Cesium-137 in fish and surface waters	2	17	Adjustment	Dose based threshold values under development to update the indicator.		X Workspace ATT.25 and ANNEX 1	NA	NA	NA
Oil-spills affecting the marine environment	2	17	Not currently			NA	NA	NA	NA
Copper	4	320	Development	Indicator development underway. Addresses offshore pollution/inputs. Sediment focus, but water and biota also addressed.	Cooperation with EN-HZ, EU groups/processes, and HOLAS 3 data call.	X Workspace ATT.26 Rev.1 Study Res 7	X	X	X
Hazardous substances screening	x		Development	A 'surveillance indicator' for HOLAS 3 identifying key messages as an outcome of the HELCOM screening project and NEFCO funded Pre-EMPT project.	Cooperation with NORMAN anticipated.	NA	X	X	X
<i>Litter</i>									

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Indicator name	AUs	MRUs ¹	Adjustment/development expected by HOLAS 3	Key areas	Other relevant information	Threshold value(s)	Methodology	Spatial extent and coverage	Assessment unit changes and/or new assessment
Beach litter (lead by EN Marine Litter)	3	40	Development	Development towards a 'core indicator' under HELCOM BLUES.		X ⁵ Workspace ATT.27	X	X	X
Litter on the seafloor	2	17	Development	Development towards a 'core indicator'.	Development of threshold values tied to ongoing work in EU TG Marine Litter.	X ³ Workspace ATT.28 Rev.1 Study Res 10	X	X	X
Microlitter in the watercolumn	x		Development	Development under HELCOM BLUES. Supporting contextual information for HOLAS 3 anticipated.		NA	NA	NA	NA
<i>Noise</i>									
Continuous low frequency anthropogenic sound	2	17	Development	Development towards a 'core indicator' under HELCOM BLUES.	Development of threshold values tied to ongoing work in EU TG Noise.	X ³ Workspace ATT.29 Rev.1 Study Res 11	X ³	X	X
Distribution in time and space of loud low- and mid-frequency impulsive sounds	2	17	Development	Development towards a 'core indicator' under HELCOM BLUES.	Development of threshold values tied to ongoing work in EU TG Noise.	X ³ Workspace ATT.30	X ³	X	X
<i>Non-indigenous species</i>									

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Trends in arrival of new non-indigenous species	1	1	Not currently	As applied in HOLAS II.		NA	NA	NA	NA

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