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Background

At HOD 54-2018 a HELCOM plan for future indicator work, developed based on input by Contracting Parties, including GEAR considerations with regard to technical follow up of the Commission Decision (EU) 2017/848, was presented and approved (HOD 54-2018 document 4-5). The plan incorporates the ideas and needs expressed by Contracting Parties with regards to indicator development into a viable time line that enables a review of the current indicators to be carried out, a policy discussion to take place, and the specific planning of future work to meet policy requirements and technical capacity to be initiated. The overall process is further guided by [document 5-4 \(page 6 in particular\) of GEAR 19-2018](#), in particular the following criteria for prioritization of HELCOM indicator work as agreed by GEAR 19-2018:

- address primary criteria before secondary criteria
- address criteria requiring threshold before criteria for which no thresholds are required
- address lists of elements before threshold values and methodological standards
- consolidate existing indicators before developing new indicators develop new indicators for major gaps relating to criteria requiring threshold values (i.e. where so far no assessment has been possible at all) before developing complementary indicators or indicators not requiring threshold values
- use opportunities for cooperation with OSPAR or other EU marine regions on indicators before starting parallel work
- focus on work in accordance with and complementary to EU technical work, using EU standards etc. where relevant to avoid unnecessary efforts and overlaps.

The plan for future indicator work approved by HOD 54-2018 follows a structure based on five major steps: **Review, Define, Confirm, Prepare, and Execute**. A two-stage HOD approval process was agreed for the plan: 1) HOD 54-2018 - for the review and planning phase (Review, Define, Confirm and Prepare) followed by 2) approval in 2019 for the Execute phase (i.e. the start of the planned and agreed indicator development). The structure provides a framework for the process to further develop and consolidate of HELCOM indicators and at each step the specific details have been further developed in connection with relevant Working Groups. In accordance with the approved plan this document contains the outline of final step of the structure: Execute which is presented for approval at this meeting.

Progress of the HELCOM Plan for Future work on Indicators

Work on HELCOM indicators, in line with the Future work on HELCOM indicators approved at HELCOM HOD 54-2018 ([Outcomes paragraph 4.25, document 4-5](#)), has been steadily progressing. An interim report providing a brief update on progress to date and the plans for the next stages of the work was presented at HOD 56-2019 ([Outcomes paragraph 3.77, document 3-20](#) and [3-20 ATT.1](#)) and below the work conducted under each of the steps is outlined.

STEP 1: Review – Analyze current status by mapping to policy documents

The initial review step of the future work on HELCOM indicators process, a matching between HELCOM indicators and relevant policy initiatives (BSAP, MSFD and SDGs), has been completed (HOD 56 [document 3-20](#) and [3-20 ATT.1](#) (note this has since been updated, see below)).

To support work at the First HELCOM Indicator Workshop ([HELCOM Indicator Workshop 1-2019](#) 14-15 May 2019 in Berlin) and to ensure that the information provided by indicator leads and expert networks through the indicator questionnaire was fully utilized, eleven topic summaries were also developed. These Topic Summaries (available in the [document library](#)) cover major themes for which an assessment of the Baltic Sea marine ecosystem is relevant, e.g. by-catch, fish, mammals, hazardous substances, litter, etc. Each topic summary contains a brief aims section that provides an overview of the ultimate objective, and the short- and long-term aims for future indicator and assessment developments. The aims sections for each Topic Summary were reviewed at the First HELCOM Indicator Workshop and have subsequently been updated based on the comments received. These updated aims are provided for information collated in a single document (HOD 56-2019 [document 3-20, Attachment 2](#)).

STEP 2: Define - Policy based discussion of mapped indicators

The First HELCOM Indicator Workshop (WS 1) focused on defining priority areas for future work on HELCOM indicators, utilizing the HELCOM indicator-policy match evaluation and known assessment gaps based on national assessments and reporting, as well as the 2018 State of the Baltic Sea report. In addition, other topics that were deemed to be important for future discussion were identified, such as the aim of the overall assessment in the Third Holistic Assessment with regard to indicators, aspects defined as requiring detailed discussion to clarify or develop appropriate assessments and ways forward. The workshop also agreed on preliminary policy-based priority areas and the topics identified for discussion at the Second HELCOM Indicator Workshop and drafted Terms of Reference (ToRs) for the second Workshop, which provide a detailed introduction to the second workshop, its purpose, aims, required preparatory work, and organizational aspects (HOD 56-2019 [document 3-20, Attachment 3](#)).

STEP 3: Confirm – Outline general working structure

The work outlined for step 3 focuses on the development of a clear indicator management document (agreed between GEAR and State and Conservation) that defines the indicator development structure and process within HELCOM. This will include the role of expert networks, the stages required during development of individual indicators, and the planned approval process (e.g. threshold approval at HODs etc.), and other relevant aspects. The aim is to ensure that the indicator development and management process and associated responsibilities are clearly outlined to ensure the smooth and coherent development, adjustment and update of indicators in the future. The manual will also form the basis for updating the terms of reference (ToRs) of existing expert groups and is to be supplied to all indicator leads and expert groups.

While this work was already approved by HOD 54-2019 it was agreed at the First Indicator Workshop (Notes paragraph 28) that such a document would be important in setting the scene and defining how indicators should be developed and hosted once the work ahead had been established (i.e. steps 1, 2 and 4). This document will be drafted in spring 2020 and shared with GEAR and State and Conservation Working Groups.

STEP 4: Prepare - Joint policy-technical-expert workshop for common focus

The [Second HELCOM Indicator Workshop](#) (WS 2) took place in Copenhagen on 16-18 October 2019. The Workshop addressed the aspects raised in the policy-focused review of HELCOM indicators stemming from the First HELCOM Indicator Workshop. Preliminary policy priority identification, and identification of important topics (as established in the [Terms of Reference](#)), was carried out based on a [review and policy matching spreadsheet/document](#) (latest version) linking the existing HELCOM indicators (and other

indicator related proposals) to the Baltic Sea Action Plan (BSAP), Marine Strategy Framework Directive (MSFD) and an initial linkage to the UN Strategic Development Goals (SDGs).

In addition to addressing areas identified as preliminary policy priority, the Second Indicator Workshop participants were asked to provide input on a range of other topics, such as: proposed structure, function and presentation of the HELCOM indicators, the application of a causal framework, how to improve the third holistic assessment of the ecosystem health of the Baltic Sea (HOLAS III), what could be expected per topic by HOLAS III, what resources are required to achieve the proposed work, and to document a [Workplan](#) (per topic, see Table 1 below) that could complement the previously developed Topic Summaries (see [documents 1-11](#): on By-catch, Fish, Waterbirds, Marine mammals, Pelagic habitats, Non-indigenous species (NOTE: no NIS work plan developed at the Workshop), Benthic habitats, Hazardous substances, Marine Litter, Underwater noise, and Eutrophication). Additionally, interlinkages between Biodiversity-Eutrophication and Biodiversity-Pollution are also considered in independent workplans.

When developing the work plans, participants were requested to consider all aspects in the Workshop ToRs, including the [guidance](#) (page 6 in particular) provided by HELCOM Contracting parties that are also EU Member States via the GEAR Working Group.

Following the workshop the Work plans have been revised for certain topics (see links provided in Table 1) based on comments received from HELCOM Expert Groups, Indicator Leads and State and Conservation or GEAR representatives, in advance of, or at, the GEAR 21-2019 meeting. Where possible these work plans aim to provide an overview of longer-term aims, what is aimed for by HOLAS III (i.e. autumn 2021 deadline for operationalization), and the resource requirements for the proposed work (especially by HOLAS III). The identified resources are considered to be separate from existing work within Expert Groups and required to achieve improved functionality by HOLAS III. Resource aspects intrinsically related to indicator work, e.g the possible resources associated with the role as lead of existing indicators, national processes related to indicator work (e.g. within Expert Groups), or data handling and data flows are generally not directly addressed, with a focus of resource identification being on the development phase of the work. Resource aspects are provided where knowledge has been made available, however it is worth to note that the level of information differs between topics and where specific financial or time estimates have not been provided by the experts other broader resource needs are identified.

The major outcomes from the Second HELCOM Indicator Workshop are included in the information summarized in this document. More detailed information is available within the work plans and links provided in this document. The responses to the general questions discussed at the workshop are summarized as brief bullet points in [Document 5-7](#) (GEAR 21-2019).

Future work

In accordance with the plan for future work on HELCOM indicators, as approved by HOD 54-2018, this document contains an updated overview of the remaining step (step 5: Execute) of the plan. It also outlines and provides links to the detailed workplans per topic, as well as the preliminary policy priority, which will function as the basis of the work planned under step 5. In table 2 a summary of the preliminary prioritization, proposed work and estimated resource requirements is presented for consideration.

One of the main aims of the work conducted has been to identify what indicator development/consolidation is needed and feasible for HOLAS III, and to ensure that indicators to be included in the assessment are ready and operational by autumn 2021 in order to prevent overlap of development of indicators with indicator evaluation processes under HOLAS III. Any indicators not operational by the end of 2021 will not be included in the HOLAS III assessment.

Action requested

The Meeting is invited to:

- consider the indicators identified to be of high priority by the first indicator workshop (outlined in table 2 with dark grey color), consider the topic specific workplans and associated resource requirements (also outlined in table 2), and agree on the areas of priority where development work is to be carried out for HOLAS III.
- approve the work outlined in Step 5 of the future work on HELCOM indicators process, in line with the agreed prioritization and plans outlined under each topic.

Plan for Future work on HELCOM Indicators

In accordance with the plan approved by HOD 54-2018 the remaining step (step 5: Execute) is presented for approval at this meeting. The policy priority and the topic-specific work plans developed so far (as outlined in this document) function as the backbone of the work planned under step 5. An overview of the plan for step five is presented below.

Other specific approval processes (e.g. threshold values) will occur throughout the process as developments take place. Expected dates are, where possible, outlined in the topic-specific work plans.

The indicator manager will be tasked with overseeing the process described in this document from the Secretariat side and take on the responsibility of maintaining the existing indicators currently established in HELCOM. Resources for this task have been committed from the HELCOM budget covering the period until autumn 2021, and tentatively extending into 2022 (HOD 54-2018 [Outcomes paragraph 4.25](#))

Due to time limitations GEAR 21-2019 did not have the possibility to consider the document on future work on HELCOM Indicators, which contains the recommendations of the Workshops together with detailed work plans per topic (provided as links under each section and available through the document library of the [Second HELCOM Indicator Workshop site](#)) (GEAR 21-2019 [document 5-7](#)). As a result, he planned revisiting of the policy priority, taking into account the technical and resource estimates, has not taken place outside of the two indicator workshops. However, GEAR 21-2019 agreed that the document outlining HELCOM indicator work for step 5 (details of which are outlined below) should be submitted to HOD 57-2019 for consideration and approval, with the intention that the work commence in early 2020.

GEAR 21-2019 also did not have the possibility to consider the additional information on indicators (GEAR 21-2019 [document 5-8](#) and [ATT.1](#)) which simplifies and summarizes the information from both WS 1 and WS 2 using the table for policy matching prepared for the first workshop. The policy match table summarizes all indicators in the context of HOLAS III, while table 2 in this document only focuses on those indicators which were identified as priorities in WS 1 or where resources requirement have been identified as a result of the work in WS 2.

STEP 5: Execute – initiate work program on indicator development and adjustment

Plan: Initiate the work to develop new indicators and adjust existing indicators by activating the respective expert groups and indicator leads/co-leads, in accordance with the plan developed for the relevant topic. Review and adjust the structure, presentation and causal framework suggested for the indicators, in line with the endorsed suggestions from the Second Indicator Workshop and State and Conservation 11-2019. This step, as well as indicator maintenance will be led by the State and Conservation Working Group.

Aim: This will be a longer program of work and will have a target of end of 2021 so that consolidation and development is completed in advance of the third holistic assessment (for which indicator evaluations are timetabled in 2022). This plan would ensure that, in line with the wishes of the CPs, indicator development took place in advance of the assessment and reporting phases in the current preliminary plan for HOLAS III.

Action: Initiate the program of work to consolidate and develop the identified indicators based on the outcome of the process which has taken place under steps 1-4. The outcome of the process is represented by the final output of the joint policy-technical workshop, i.e. the topic workplans (an overview of which are included in this document). Specific thematic workshops for topics could be implemented where needed, targeted towards defined themes.

Timeline: Document to HOD 57-2019 in December 2019 for approval on program of work. Planned work initiated in early 2020, ongoing till autumn 2021.

Detailed workplans (per topic/theme)

The following topics developed work plans at or after the Second HELCOM Indicator workshop:

- By-catch,
- Fish,
- Waterbirds,
- Marine mammals,
- Pelagic habitats,
- Benthic habitats,
- Hazardous substances,
- Marine litter,
- Underwater Noise,
- Eutrophication,
- Foodwebs,
- Biodiversity-Eutrophication linkages,
- Biodiversity-Pollution linkages.

Each work plan was asked to address the following issues and maintain a focus based on the guidance provided (as outlined above in 'background'):

- What is the optimal assessment?
- What will be achieved by HOLAS III (e.g. operational indicators by autumn 2021), and how?
- What aspects of the identified work represent the highest priority?
- Is the proposed assessment policy relevant and ecologically relevant?
- What are the resource needs (and period) to 1) carry out the work by HOLAS III (autumn 2021), and 2) for longer-term development issues (post-HOLAS III)?
- What integration of the indicators (i.e. those defined in question 2) is foreseen in HOLAS III?
- What across-theme issues exist (e.g. links between biodiversity and eutrophication) and how will these be considered in future assessments? NOTE: this latter section is commonly discussed in separate specific 'linkages' documents, see below.

Several of the work plans were updated based on comments from the Workshop participants, Expert Networks, Indicator leads or via State and Conservation or GEAR representatives following the drafting of the plans at the Second Indicator Workshop. Those that have been updated contain red text and are marked as Rev.1.

Table 1. Links to workplans (per topic)

By-catch (Rev.2)	Pelagic habitats	Benthic habitats	Foodwebs
Fish (Rev.1)	Underwater noise (Rev.1)	Eutrophication (Rev.1)	
Waterbirds (Rev.1)	Hazardous substances (Rev.1)	Biodiversity-Eutrophication linkages	
Marine mammals (Rev.1)	Marine litter (Rev.1)	Biodiversity-Pollution linkages	

Maintenance of workplans

During the actual development phase (i.e. early 2020 till autumn 2021) there will likely be developments, adjustments or correction needed within the work plans. Changes could be foreseen for example due to increased scientific knowledge or due to insurmountable obstacles being encountered. To account for this, it is proposed that all Expert Groups and Indicator leads maintain the relevant work plans as 'living documents' and that changes are reported to relevant HELCOM Working Groups. Where changes are minor this could be done on the basis of the Working Group meeting cycles.

However, where changes are considered to be significant i.e. change the approved aim of achieving an operational indicator or development step or influence the resource allocation (e.g. require more or result in surplus), then these changes should be reflected in an updated workplan that is shared immediately with the relevant Expert Group, Working Group and GEAR.

Outlined Resource Needs Identified by Experts (per topic/theme)

The resource needs to carry out the proposed work were documented by the experts where there was sufficient information available. These resource needs do not specifically address issues related to national processes (e.g. data reporting), roles of existing leads/co-leads, data flows, or the actual updating of indicators (i.e. for HOLAS III); but focus in general on the resources required for adjustment/development work itself during 2020-2021. It should also be noted that the resource estimates provided are based on best available knowledge from the Workshop participants and are presented irrespective of if other funding sources (national, project, or HELCOM that may have been applied for, on the basis that there is to date no clearly assigned funds available).

Summary of prioritization, proposed work and estimated resource requirements

The summary of prioritization, proposed work and estimated resource requirements is presented in table 2. It should be noted that this table considers indicators that have been identified by experts as 'can be developed/operationalized' in general (i.e. the list is not exhaustive, does not include other already operational indicators) and those aspects identified as preliminary policy priority at the First HELCOM Indicator Workshop or priority for practical solutions/identified by certain Contracting Parties as a priority. Other work and resource issues related to developing supporting contextual information to provide a broader scientific thematic assessment by HOLAS III only are covered in the Workplans. Greater detail is provided in the workplans (see links in Table 1, above).

Based on the work plans the following colours are assigned:

Policy relevance column:

Preliminary policy priority (as identified at the First HELCOM Indicator Workshop)

Priority for practical solutions/priority by certain Contracting Parties

No assigned colour in Policy Relevance column indicates aspects not specifically prioritized in the policy-focused First HELCOM Indicator Workshop.

Proposed development column:

Operational indicator/approach anticipated

Assessment or test cases possible, though not fully operational

Descriptive summary of information most likely

Not possible by HOLAS III

Table 2 Resource needs identified by experts (per topic/theme)

Indicator name/topic		Policy relevance (prioritization, see colours)	Proposed development	Resource needs (further details on work involved provided in the workplans)
By-catch	By-catch (currently considers birds and mammals, not fish)	BSAP – Biodiversity MSFD – D1C1	Test cases and risk maps (as in OSPAR-HELCOM By-catch Workshop)	<ul style="list-style-type: none"> Time for leads for updating and test assessments Input from species/species group experts Allocated time to test approaches Workshop for cetaceans (75-100 days preparatory time) Risk maps and incorporation (e.g. via output of ACTION Project)
Marine mammals	Harbour porpoise abundance	BSAP – Biodiversity MSFD – D1C2	Assessment based on key sites and management unit level assessments.	<ul style="list-style-type: none"> 30,000 Euros for FRV and GES threshold value modelling National resource implications for data preparation and delivery Further developments include 80,000 Euros for trend analysis and optimal monitoring design
	Harbour porpoise distribution	BSAP – Biodiversity MSFD – D1C2	Assessment based on key sites and management unit level assessments.	<ul style="list-style-type: none"> As above
	Habitat for marine mammals	BSAP – Biodiversity MSFD – D1C5	Not possible for HOLAS III.	<ul style="list-style-type: none"> Proposal prepared within HELCOM Research and Science needs process.
Pelagic habitats	Pelagic habitats – seasonal succession of dominating phytoplankton groups	BSAP – Biodiversity MSFD – D1C6	Expanded to be operational and have improved coverage. Improved connection to zooplankton assessment.	<ul style="list-style-type: none"> 3 months for leads to update and expand coverage National support with data and sub-regional input
	Pelagic habitats – zooplankton Mean Size and Total Stock	BSAP – Biodiversity MSFD – D1C6	Expanded to be operational and have improved coverage. Improved connection to phytoplankton assessment.	<ul style="list-style-type: none"> 3 months for leads to update and expand coverage National support with data and sub-regional input
Foodwebs	Foodwebs	BSAP – Biodiversity MSFD – D4C1 and D4C2	Likely descriptive in HOLAS III, possible test cases (see proposed plan). Initial steps towards an indicator).	<ul style="list-style-type: none"> Establish a HELCOM CG FOODWEB Workshop in 2020 Possible Baltic Sea test cases to follow up on Workshop Review of available data, information and OSPAR work Input to HOALS III
Seafloor/ Benthic habitats	Seafloor integrity/Benthic habitats – physical loss	BSAP – Biodiversity (and Maritime activities) MSFD – D6C1	As a minimum, similar to HOLAS II.	<ul style="list-style-type: none"> Improved habitat maps. Development as clarified (e.g. via EU TG Seabed, though output expected at end of 2021) or national data reporting etc as carried out in HOLAS II for relevant data layers
	Seafloor integrity/Benthic habitats – physical disturbance	BSAP – Biodiversity (and Maritime activities) MSFD – D6C2	As a minimum, similar to HOLAS II.	<ul style="list-style-type: none"> Improved habitat maps. Development as clarified (e.g. via EU TG Seabed, though output expected at end of 2021) or national data reporting etc as carried out in HOLAS II for relevant data layers
	Seafloor integrity/Benthic habitats – Cumulative impact on benthic biotopes	BSAP – Biodiversity (and Maritime activities) MSFD – D6C3	Operational indicator/approach anticipated.	<ul style="list-style-type: none"> Improved habitat maps. Adjustment likely needed to reflect outcomes of EU TG Seabed, though output expected at end of 2021 Sub-regional input on sensitivities National resources likely needed to support development (in particular related to sub-regional interpretation and application)

Indicator name/topic		Policy relevance (prioritization, see colours)	Proposed development	Resource needs (further details on work involved provided in the workplans)
	Seafloor integrity/Benthic habitats - Condition of benthic habitats (?)	BSAP – Biodiversity (and Maritime activities) MSFD – D6C4	Specific indicator and broad benthic habitat assessment approach further discussed at EN BENTHIC 3-2019. Further discussion needed via EN-BENTHIC, including on conceptual approach.	<ul style="list-style-type: none"> Workshop in spring 2020 to define possible overall approach for benthic habitats/seafloor assessment (including possible revision of relevant indicators, or alternative approach) Improved habitat maps Case studies would be valuable Research projects also needed to address this topic
	Seafloor integrity/Benthic habitats – State of soft-bottom macrofauna community (?)	BSAP – Biodiversity (and Maritime activities) MSFD – D6C5	Specific indicator (more suited to eutrophication in current form) and broad benthic habitat assessment approach further discussed at EN BENTHIC 3-2019. Further discussion needed via EN-BENTHIC, including on conceptual approach.	
Fish	Fishing mortality (commercial fish)	BSAP – Biodiversity (and Maritime activities) MSFD – D3C1	Needs clear planning but similar to HOLAS II, or more, should be possible.	<ul style="list-style-type: none"> Needs further discussion with ICES and relevant experts Initial discussion between relevant people (planning), possibly followed by a workshop Solution/agreement with ICES regarding data may be needed Leads for relevant indicators once clear
	Spawning stock biomass (commercial fish)	BSAP – Biodiversity (and Maritime activities) MSFD – D3C2		
	Age and size distribution (commercial fish)	BSAP – Biodiversity (and Maritime activities) MSFD – D3C3/D1C3		
	Fish demographic factors – L90 coastal fish (commercial fish above)	BSAP – Biodiversity MSFD – D1C3	Possible test cases and application in some areas.	<ul style="list-style-type: none"> Support for ongoing work in FISH PRO III
	Fish distribution	BSAP – Biodiversity MSFD – D1C3	Not possible at this stage.	<ul style="list-style-type: none"> Could be addressed as a starting point in workshop proposed above
	Fish habitat	BSAP – Biodiversity MSFD – D1C3	Possible descriptive information based on Pan Baltic Scope Essential Fish Habitats work?	<ul style="list-style-type: none"> Expert input at relevant stage during HOLAS III
	Abundance of key coastal fish species	BSAP – Biodiversity MSFD – D1C2	Improved EATS approach and trends in new areas.	<ul style="list-style-type: none"> Ongoing support of FISH PRO III, including time of national experts to facilitate the work within FISH PRO III
	Eel and Sturgeon	BSAP – Biodiversity MSFD – D1C2	Supporting descriptive information in thematic assessment possible.	<ul style="list-style-type: none"> Expert knowledge/time during HOLAS III report phase Possible data input
Waterbirds	Abundance of waterbirds in the wintering season	BSAP – Biodiversity MSFD – D1C2	As in HOLAS II but improved by inclusion of offshore data where possible.	<ul style="list-style-type: none"> Offshore data collection at appropriate scale and frequency needed (especially in long-term) Maintaining/improving scale and level of data for existing assessments National implications for the above Improved data flows also needed

Indicator name/topic		Policy relevance (prioritization, see colours)	Proposed development	Resource needs (further details on work involved provided in the workplans)
	Breeding productivity of waterbirds	BSAP – Biodiversity MSFD – D1C3	First assessment in some areas may be possible, test cases.	<ul style="list-style-type: none"> Ongoing work in JWG BIRD
	Waterbird habitat quality	BSAP – Biodiversity MSFD – D1C5	First assessment in some areas may be possible, test cases.	<ul style="list-style-type: none"> Ongoing work in JWG BIRD
Hazardous substances	Hazardous substances concentration indicators (multiple)	BSAP – Hazardous substances MSFD – D8C1	As in HOLAS II but improvements expected to coverage (spatial and temporal) and application.	<ul style="list-style-type: none"> Adjustment of MIME and CHASE (circa 8-12,000 Euros estimated) Lead country for diclofenac indicator Joint meeting of pressure-state persons Multiple small projects of 3-6 months to initiate work on each of the following: review of priority substances, screening data, sediment core data, review of biological effects information, review of contaminants in food stuffs Review of conversion factors for trophic levels (6 months initial project plus 18 month longer-term) Project for longer term review and proposal related to optimal monitoring (circa 18 months)
	Biological effects – in general, White-tailed sea eagle productivity, Malformed embryos of amphipods (sup)	BSAP – Hazardous substances MSFD – D8C2	Named indicators as in HOLAS II, potential for improved coverage.	<ul style="list-style-type: none"> Workshop back-to-back with EN-HZ spring 2020 to review questionnaire responses, develop initial overview and consider appropriate ways forward.
	Contaminants in food stuffs	BSAP – Hazardous substances MSFD – D9C1	Possible descriptive information based on data available and conversion factor testing.	<ul style="list-style-type: none"> Review of contaminants in food stuffs (3-6 month project)
Litter	Beach litter	BSAP – ‘Hazardous substances’ (Pollution/Hazardous substances and litter) MSFD – D10C1	Operational indicator is the aim.	<ul style="list-style-type: none"> Guidelines (1 week per national expert) Maintained participation in expert groups and ideally participation of common persons at all relevant expert fora Threshold value finalization (coordinated with EU TG ML) Methodology for historical data from different monitoring approaches (1-2 weeks per expert in a smaller group) Longer-term work on biological impacts
	Litter on the seafloor	BSAP – ‘Hazardous substances’ (Pollution/Hazardous substances and litter) MSFD – D10C1	Operational indicator is the aim (at least where monitoring exists).	<ul style="list-style-type: none"> As above
	Microlitter in the watercolumn (sediments)	BSAP – ‘Hazardous substances’ (Pollution/Hazardous substances and litter) MSFD – D10C2	Possible descriptive information based on data available	<ul style="list-style-type: none"> Microlitter guideline Microlitter workshop Longer-term work on biological impacts

Indicator name/topic		Policy relevance (prioritization, see colours)	Proposed development	Resource needs (further details on work involved provided in the workplans)
Noise	Distribution in time and space of loud low- and mid-frequency impulsive sounds	BSAP – ‘Hazardous substances’ (Pollution/Hazardous substances and litter) or Maritime Activities MSFD – D11C1	Operational indicator is the aim	<ul style="list-style-type: none"> National resources to ensure effective and full reporting to noise registry Threshold value finalization (coordinated with EU TG Noise) Physical EN Noise meeting to discuss threshold values prior to PRESSURE 12-2020
	Continuous low frequency anthropogenic sound	BSAP – ‘Hazardous substances’ (Pollution/Hazardous substances and litter) or Maritime Activities MSFD – D11C2	Operational indicator is the aim	<ul style="list-style-type: none"> National resource issues for full reporting of data Threshold value finalization (coordinated with EU TG Noise) Production of soundscape maps for HOLAS III (see State and Conservation 8-2018 (document 3MA-5, table 4)) Physical EN Noise meeting, as above
Linkages	Biodiversity-Pollution linkages (cross-cutting and interlinkages across themes)	Overall, including holistic BSAP overview and specific aspects within MSFD	Possible descriptive information and initial development of the overall topic.	<ul style="list-style-type: none"> Thematic workshop(s) dedicated to the topic during HOLAS III
Eutrophication	Total nutrients – Total Nitrogen and Total Phosphorus	BSAP – Eutrophication MSFD – D5C1	Fully operational indicator(s) and spatial coverage is the aim.	<ul style="list-style-type: none"> Time for dedicated work and preparation of eutrophication experts An annual physical meeting of the group
	Oxygen – Shallow water oxygen	BSAP – Eutrophication MSFD – D5C5 (D5C8)	Building on work in national projects. Aim for operational indicator.	<ul style="list-style-type: none"> Project to include modelling into the shallow water oxygen assessment by HOLAS III.
	Oxygen – Oxygen debt (and State of the soft-bottom macrofauna community)	BSAP – Eutrophication MSFD – D5C5 (D5C8)	As in HOLAS II but improved overview and link between the indicators.	<ul style="list-style-type: none"> Bringing together national project outputs related to shallow water needs to take place Securing time for dedicated work and preparation of eutrophication experts An annual physical meeting of the group.
	Cyanobacterial bloom index	BSAP – Eutrophication MSFD – D5C3	Review and aim for fully operational indicator.	<ul style="list-style-type: none">
	Phytoplankton spring bloom intensity based on chl-a	BSAP – Eutrophication MSFD – D5C4	Aim for operation indicator, dependent of review and harmonization work.	<ul style="list-style-type: none"> Resources are needed for the phytoplankton spring bloom intensity based on chl-a indicator
	Biomass ratio of opportunistic and perennial macroalgae	BSAP – Eutrophication MSFD – D5C6	As applied in HOLAS II, in supporting role in some coastal areas.	<ul style="list-style-type: none">
	Integration rules for indicators (e.g. direct and indirect effects)	BSAP – Eutrophication MSFD – D5 overall	Improved summary and integration of eutrophication indicators.	<ul style="list-style-type: none"> 4-6 months to test suitable alternatives and validate the approach, including presenting/discussing at IN Eutrophication
	Possible sub-division of identified sub-basins	BSAP – Eutrophication MSFD – D5 overall	Improved assessment in identified sub-basins (Gulf of Finland, Bornholm Basin).	<ul style="list-style-type: none"> Expert time to test and validate appropriate sub-divisions and threshold values, including presenting/discussing at IN Eutrophication

Indicator name/topic		Policy relevance (prioritization, see colours)	Proposed development	Resource needs (further details on work involved provided in the workplans)
Linkages	Biodiversity-Eutrophication linkages (cross-cutting and interlinkages across themes)	Overall, including holistic BSAP overview and specific aspects within MSFD	Descriptive information and initial development of the overall topic.	<ul style="list-style-type: none">• Thematic workshop(s) dedicated to the topic during HOLAS III• 6 month project to develop potential approach and test two possible indicators