



Document title	Plan for the update of the first version of the “State of the Baltic Sea” report
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Background

By June 2018, the ‘State of the Baltic Sea’ report produced within HOLAS II will be further updated and a finalized version will be published. In that process a number of revisions and improvements are planned.

The updating process includes the addition of new and complementary data, in particular for the year 2016 in order to extend the assessment period to 2011-2016. During the preparation of the first version of the report, a number of additions and improvement were also identified as desired by the Contracting Parties, HELCOM working groups and experts, but were not feasible to fully implement and accommodate at that time.

The identified remaining issues have been specified and noted (e.g. a non-exhaustive list of additional improvement at HOD 52-2017 based on the input by State and Conservation 6-2017 and Gear 16-2017). In the updated report, there is also an aim to include a chapter on the conclusions and a future outlook, based on an analysis of the first results and on considerations within HELCOM, in particular in association to the upcoming HELCOM Ministerial Meeting on 6 March 2018.

HELCOM is carrying out a regional consultation of the first version of the ‘State of the Baltic Sea’ report, encouraging international and intergovernmental organizations to give feedback on the report. The report is also available for use by the HELCOM countries in national consultation. The comments received through the national and regional consultations will be considered concomitant with the updating of the report or material thereof.

The planned updating process of the ‘State of the Baltic Sea’ report was discussed and endorsed, in principle, by State and Conservation (Outcome of State and Conservation 7-2017, para. 3J-11 and document 3J-8-Rev.1).

GEAR 17-2017:

- took note of the overall strategy for updating the first version of the ‘State of the Baltic Sea’ report, discussed the timeline of the ‘State of the Baltic Sea’ update with the inclusion of the GEAR 18-2018 meeting, and agreed on it. Further, Denmark lifted their study reservation and the Meeting endorsed the submission of the plan to HOD-53-2017 including information on discussed updates to sections on marine litter and noise as well as updated ESA section.
- noted the three reports on marine litter developed in the frame of Theme 2 of the SPICE project with the support and guidance of the HELCOM Expert Network on Marine Litter (cf. document 3-5) and the same document has also been submitted to the upcoming HOLAS II meeting to be held on 28-29 November 2017 for consideration.

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- noted that the results of the Theme 2 of the finalized SPICE project are planned to be published as a project report (along with other results).
 - noted that EU welcomes the work conducted on marine litter as reflected in document 3-5 and their request to make this work available to EU work on marine litter through TG Litter.
 - considered how these results could be used in the update of 'State of the Baltic Sea report, June 2017' in view of the proposals contained in the document.
 - welcomed the document and the work conducted within theme 2 of the SPICE project, but considered it too soon to decide on how to include contributions from the project as contained in document 3-5, in the update of the marine litter section in the 'State of the Baltic Sea' report, also noting that the issue will be discussed further at the upcoming HOLAS II 8-2017, to be held on 28-29 November.
 - emphasised the need to have a parallel process with State & Conservation contacts for technical evaluation of the results and quality assurance of the SPICE results related to marine litter, in order to consider how to utilize these results as such in other HELCOM work.
 - invited the HOLAS II project to further develop a proposal in cooperation with the experts, on how the results from the SPICE project Theme 3 [Social and Economic Analyses] could be included in the update of 'State of the Baltic Sea report, June 2017', noting that the proposal will be evaluated further in upcoming meetings of HOLAS II and State & Conservation.
 - noted the information on the process of developing weighting values of aggregated pressure layers for use in the BSII index (document 3-7). The Meeting noted that a workshop to agree on weighting factors for use in HOLAS II is to be held on 7 December 2017.
 - welcomed the efforts made to improve the methodology, however, requested the Secretariat to explore the possibility of calculating the BSII both with the original values and the weighted values and presenting both results to the workshops on validating the results of the BSPI&BSII for evaluation by experts of the Contracting Parties.

This document contains the same plan as submitted to GEAR 17- 2017 but with the following updates:

- addition of GEAR 18-2018 meeting to be held on 16-17 April 2018 in Berlin, Germany,
- updated section on social and economic analysis based on the work in the HELCOM coordinated and EU co-financed SPICE project,
- updated proposals on marine litter as presented in document 3-5 to GEAR 17-2017 and information that there are no foreseen changes to the section on underwater noise,
- the intention to present two versions of the results of the BSPI for approval, one with and one without the use of weighting factors.

Furthermore, information on corrections to the HEAT tool calculations for the northern regions of the Baltic Sea has been added.

All the listed updates are marked in **yellow**.

Action requested

The Meeting is invited to consider and approve the plan for the update of the first version of the "State of the Baltic Sea" report.

Planned updates and timeline for the 2018 State of the Baltic Sea Report

The HELCOM HOLAS II project has the task to produce the 2nd HELCOM Holistic Assessment of the Ecosystem Health of the Baltic Sea. The first version of the assessment report, with the short name 'State of the Baltic Sea', was published in June 2017. The report is now subject to both national and regional consultations. The status assessments included in the first version of the report are primarily based on data from 2011-2015.

In 2018 the report will be updated to include monitoring data from the year 2016. Additionally other improvements will be made, as outlined in more detail below. In addition, comments received through the consultation process will be considered in the updating process. Any new or revised threshold values and new core indicators during 2017 will tentatively be included, based on approval by the Heads of Delegation.

1. Envisioned final deliverables of the HOLAS II Project

Results from the HOLAS II project have been made available at different levels of detail in the first version of the report. These show direct HOLAS II outputs as well as contributions of several HELCOM projects/networks/expert groups supporting HOLAS II (Fig. 1).

- The most detailed information is made available in core indicator reports and spatial data fact sheets, to provide a specific understanding how the data and indicator evaluations going into the HOLAS II assessment were derived. The core indicator reports and fact sheets give information on underlying data and assessment logic.
- Method descriptions for the applied analyses are presented in supplementary reports, covering the integrated analyses, the assessment of cumulative impacts, and the economic and social analyses. These reports also give more details on the assessment results. Hence, the supplementary reports give a more technical understanding and more information on the assessment results that underlie the conclusions presented in the summary report.
- The summary report presents results at the overarching level. It provides key messages from all assessments covered by HOLAS II, and from other HELCOM results where relevant. The summary report is available as downloadable pdf, as a printed version and a web version adapted for online reading.
- HELCOM results that are not produced in connection to the HOLAS II product, but which fill the purposes by providing key information are here referred to as supporting material.

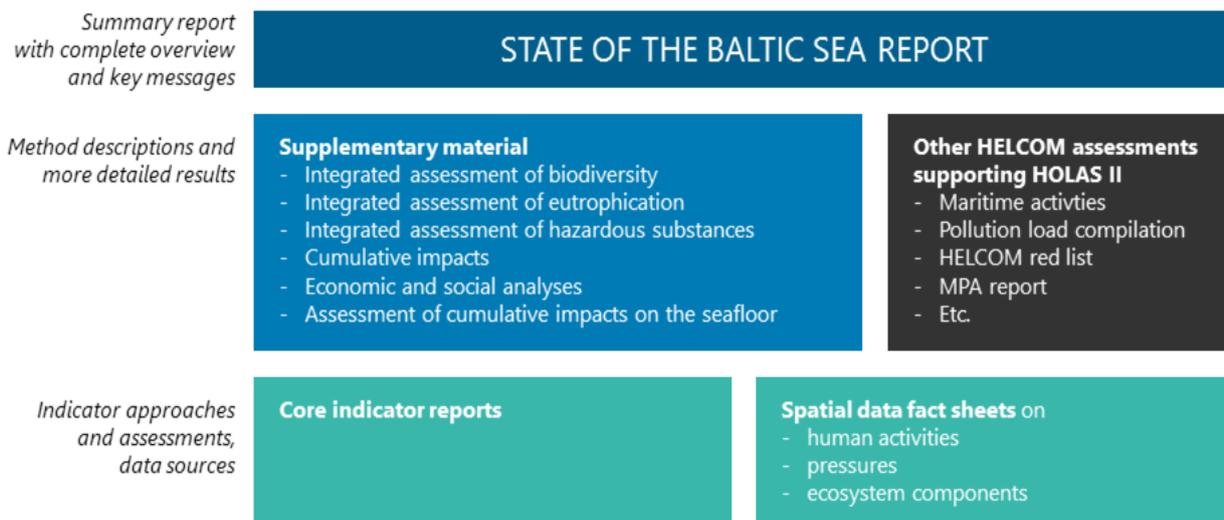


Figure 1. Overview of HOLAS II deliverables. These products, as presented in the first version of the report by June 2017, can be downloaded [here](#).

1.1 Summary report: State of the Baltic Sea

The updated summary report will be published in June 2018, and will give full coverage of the components of the HOLAS II assessments, with a focus on key messages and conclusions. It should be possible to read the summary report in order to get a full overview about the results of the assessments and the conclusions. The summary report has a limited page number and will not have details on assessment methods or data. The more detailed information will be given in other form (see below).

1.2 Other publications

1.2.1 Supplementary reports

Supplementary reports are published in parallel with the summary report. These reflect the same results as presented in the summary report, but give more details on the results. The supplementary reports also give information on the assessment methods, data and indicators used. The main purpose of the supplementary material is to provide information on how the assessments have been carried out from a more technical perspective in order to provide full transparency on the methods and data used. Currently available first versions of the supplementary reports can be found here: [Biodiversity assessment](#), [Eutrophication assessment](#), [Hazardous substances assessment](#), [Cumulative Impacts](#), and [Socioeconomic analyses](#).

1.2.2 Core indicator reports

Core indicator reports that are reflected in the summary report will be updated to be based on 2016 data by State & Conservation 8-2018 (document deadline 23 April). The updated core indicator reports will be made available on the HELCOM web-site (living documents, meaning they will change over time), and on the State of the Baltic Sea website as PDFs (will not be updated after publication of the State of the Baltic Sea report), at the time of publication of the summary report.

1.2.3 Supporting material

The supporting material consists of other contributing HELCOM products, recognizing the fact that the HOLAS II assessment builds on data and indicators produced by a large number of projects, expert groups and networks. The supporting material will e.g. include fact sheets on the spatial distribution of human

activities, pressures and ecosystem components. Other examples of supporting material are the upcoming Maritime assessment and the Sixth Periodic Pollution Load Compilation.

1.2.4 Web pages

The results of the updated State of the Baltic Sea report will be presented on the [dedicated web site](#), which was launched in unison with the first version of the State of the Baltic Sea Report. The web site will present the updated results from the summary report online and will also be an access point to all updated HOLAS II publications, which can be downloaded as pdf:s, to underlying data bases and assessment workspaces. All results will be made available online as web-material and/or pdfs, and the updated version of the summary report to be prepared by 2018 will also be printed.

2. Process of the update for the 2018 State of the Baltic Sea report

The updated and finalized version of the summary report will be put forward for adoption by the 54th meeting of the Heads of Delegation, tentatively agreed to be held on 14-15 June 2018. Following the adoption of the report, it will be published. The updating and finalization process includes a number of planned revisions and improvements, including addition of new and complementary data, in particular for the year 2016, extending the assessment period to 2011-2016.

During the preparation of the report, a number of additions and improvement to the report have also been identified as desired by the Contracting Parties, HELCOM working groups and experts, but were not feasible to fully implement and accommodate in the first version of the report. The identified remaining issues have been specified and noted (e.g. a non-exhaustive list of additional improvement at HOD 52-2017 based on the input by State and Conservation 6-2017 and Gear 16-2017, see section 2.3 Editorial updates). In the updated report, the aim is to include a chapter on the conclusions and a future outlook, based on an analysis of the first results and on considerations within HELCOM, in particular in association to the upcoming HELCOM Ministerial Meeting on 6 March 2018.

HELCOM is carrying out a regional consultation (1 October-31 December) of the first version of the 'State of the Baltic Sea' report, encouraging international and intergovernmental organizations to give feedback on the report. The report is also available for use by the HELCOM countries in national consultation (ending on the 1 March). The comments received through the regional consultation will be considered concomitant with the updating of the report or material thereof.

Lists of 1) Planned data updates, 2) methodological updates and 3) Identified remaining overall/editorial updates are presented below. A timeline for the process is provided in Annex 1.

2.1 Data updates

2.1.1 Indicators

Underlying data for indicators should be updated to include data from 2016 when the 'State of the Baltic Sea' report is updated in 2018. The deadline and data arrangements for the update are indicated in Table 1. A full overview of the data updates can be found in document 3J-7.

The update of indicator evaluations and integrated assessment will follow the similar approach as for the first version. The overall process is outlined as follows;

- based on the updated data submitted by Contracting Parties, indicator evaluations and core indicator reports will be updated by Lead Countries or Expert networks by **1 December 2017** at the latest.
- approval of indicator evaluations by Contracting Parties will take place between **16 January-23 February 2018**.
- integrated assessment of biodiversity, eutrophication and hazardous substance assessment will be updated in March 2018 based on the agreed methodology. Workshops will be convened as needed

(see Annex 1 for preliminary dates) to validate the results. It is proposed that State and Conservation and Pressure contacts participate as relevant in the workshops.

- based on these updates the associated figures and result related text of the State of the Baltic Sea report will be updated in April 2018.
- endorsement of the updated indicator report text by State and Conservation WG.

Table 1. Schedule for data reporting for the update of the 'State of the Baltic Sea' report to be completed by mid-2018.

Data group	Database	Reporting deadline
Eutrophication	COMBINE	1 September 2017
Waterborne input of nutrients (annual data)	PLC database	31 October 2017
Hazardous substances	COMBINE	1 September 2017
Radioactivity	HELCOM MORS	1 September 2017
Illegal oil discharges	RESPONSE database	Data for 2016 already collected
White-tailed eagle productivity	No database – ad hoc data call	1 September 2017
Zooplankton	COMBINE	1 September 2017
Phytoplankton	COMBINE	1 September 2017
Zoobenthos	COMBINE	1 September 2017
Coastal fish	HELCOM Coastal Fish database	31 March 2017 (issued by Chair of FISH-PRO II)
Migratory fish	No database – collected ad hoc by ICES WG BAST	Data for 2016 already collected, (considered at ICES WGBAST meeting in March 2017)
Commercial fish	Based on ICES advice in 2017	Based on ICES advice in 2017
Birds	HELCOM Bird database	30 June 2017 (data call issued 12 May)
Seals – abundance/distribution	HELCOM Seal database	4 October 2017
Seals – condition	No database – ad hoc data call	1 September 2017
Beach litter	No database – ad hoc data call	1 September 2017 (data call issued 22 May)
Litter on the seafloor	ICES DATRAS	Data for 2016 already collected
Impulsive noise events	OSPAR/HELCOM registry at ICES	8 September 2017
Non-indigenous species	AquaNIS Database	1 September 2017

Deposit of dredged material	HELCOM Dredged material database	1 September 2017
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2.1.1.1 Tentative additional indicator evaluations and planned update

HOD 51-2016 agreed on the following regarding the use of indicators in the updated version of ‘State of the Baltic Sea’ report: “if pre-core indicators will be shifted to core indicators or if core indicators will become operational for additional assessment units during 2017, to consider including them in the final version of HOLAS II by mid-2018” (para 6.2).

The HELCOM pre-core indicator for diclofenac, having been updated within the HELCOM CG PHARMA group, has been endorsed as a pre-core test indicator for inclusion in the final State of the Baltic Sea report (STATE & CONSERVATION 7-2017 outcome 3J-54).

Based on discussions with relevant indicator leads and co-leads, as well as within relevant expert networks and intersessional networks, no adoption of new indicators on Beach litter’ or ‘Condition of benthic habitats’ are foreseen in time for the HOLAS II update.

Regarding operationalization in additional assessment units, relevant indicator leads and co-leads have been contacted and discussion held within relevant expert networks and intersessional networks, but no operationalisation of indicators in additional assessment units is anticipated. An update of all indicators in their existing form with the inclusion of data from 2016 is envisaged.

2.1.2 Human activities and Pressures for BSPI and BSII – gap filling and corrections but no additional data call

The development of a majority of spatial layers on human activities and pressures for BSPI and BSII in the first version of ‘State of the Baltic Sea’ report has required dedicated data collection activities, albeit some data were already collected within ongoing HELCOM activities.

For the 2018 update of the ‘State of the Baltic Sea’ report, no general data update of those human activity layers that were collected via ad-hoc data call is planned. This is based on the assumption that any changes occurring in the distribution of human activities within one year’s time would have limited influence on the results. Thus, there has been no new national data call for human activity sets. However, updated data from existing HELCOM data collection activities (e.g. reporting of impulsive noise, dredged material depositing, illegal oil discharges) are utilized if improving the data quality. Gaps and possible errors noticed in the consultation process or otherwise will be taken into account as far as the data or corrections are made available by Contracting Parties.

All the indexes (BSPI, BSII and Benthic impact index) will be recalculated for the updated version of the report. Updates to underlying datasets and some fine-tuning to data aggregation methodologies will be carried out prior to calculation. In the first version the final index calculations were done with a software called EcoImpactMapper at SYKE (Finnish environment institute). For the June 2018 version GIS based calculation method will be developed and the index will be calculated by the Secretariat.

Selected human activity/pressure layers will be further developed and fine-tuned, pending resources and taking into account the work and review by relevant working groups. The following human activities datasets will be updated for the 2018 version:

- **Bathing sites:** Bathing sites will be removed as an underlying dataset from “physical disturbance” and “Physical loss” datasets. This is due to the fact that the existing layer does not separate between natural beaches and bathing sites that are artificially made. Natural beaches are not a physical pressure to the sea. As the geometry type for this data is ‘point’, it also reflects poorly the extent of this activity, giving too much pressure to one location of the beach and too little pressure for the rest. This layer will remain in the aggregated pressure layer “Disturbance of species due to human presence”.

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- [Cables](#): This dataset includes some cables for which the spatial accuracy is not sufficient for the scale used in the indexes. Cables that have only an approximated location will be removed from the dataset.
 - [Dredging](#): Methodology will be updated based on the suggestions presented in the [Outcome](#) of the EN DREDS 3-2017. New annual reporting data will be included, as well as fine-tuned datasets from Finland and Sweden.
 - [Depositing of dredged material](#): The methodology will be updated based on the suggestions in the [Outcome](#) of the EN DREDS 3-2017. New annual reporting data will be included.
 - Leisure boating: The Finnish environment institute (SYKE) is developing a new enhanced dataset to be used in the calculations.
 - Extraction of [marine mammals](#) and [seabirds](#): New dataset will be developed that will not reach so far to the open sea.
 - [Extraction of fish](#): Updated data from ICES will be integrated into the individual datasets.
 - [Fishing intensity](#): Updated data obtained through HELCOM requested ICES advice will be used.
 - [Illegal oil discharges](#): New values from HELCOM Illegal oil discharges database will be added.

The following aggregated pressure layers will have data and methodologies updates:

- [Input of hazardous substances](#): New data from 2016, reported through Combine monitoring programme, will be added to the dataset. Also additional data from Estonia and Latvia will be added to fill in data gaps.
- [Input of nutrients](#): Additional data sources and data processing techniques will be investigated.
- [Physical loss](#): Grid cells and all layers will be clipped with coastline before calculating area lost in one 1km² grid cell to get more precise values.

Gaps in the underlying datasets are creating a biased distribution of some pressures and lowering the confidence of the indexes. At the moment following human activities datasets have the biggest gaps or differences in the reported data:

- [Coastal defense](#): Data missing from Latvia, Russia and Sweden. Missing data is making dataset unbalanced, due to comprehensive data from other countries.
- [Cables](#): Dataset unbalanced. More detailed level of information from Finland than other countries.
- [Dredging](#): Dataset unbalanced. More detailed level of information from Finland than other countries.
- [Fishing intensity](#): Data missing from Russia. Dataset has a large extent and intensity value and thus high effect on the index.
- [Land claim](#): Data missing from Sweden and Russia
- [Pipelines](#): Dataset unbalanced. More detailed level of information from Finland than other countries.

Contracting parties are asked to consider these gaps and the possibilities to fill in additional data. The final deadline for submissions of corrections is set to **1st January 2018**.

To identify and indicate any remaining gaps in the data layers the Secretariat will scrutinize different possibilities to visualize these gaps as a confidence map of the BSII.

In addition, selected human activity/pressure layers are under consideration for further development and fine-tuning, taking into account the work and review by relevant working groups. This includes following datasets:

- “Dredging” human activity layer used in aggregated pressure layer “Physical loss” and “Physical disturbance”
- “Cables” human activity layer used in “Electromagnetism”
- “Fossil fuel energy production” human activity layer used in aggregated pressure layer “Input of heat”
- Layers representing concentrations of nutrients and hazardous substances and complementing these layers with additional data, as identified by the State and Conservation 6-2016.

2.1.3 Ecosystem component spatial data – further development of selected layers

The ecosystem component layers developed for HOLAS II are used in the Baltic Sea Impact Index (BSII) and are thus meant to provide an estimate of e.g. approximate distribution or relative abundance of species. In the cumulative impacts assessment (the BSII) this information is combined with georeferenced information on pressures, using sensitivity scores that estimate the potential impact of each assessed pressure on specific ecosystem components included in the analyses. A prerequisite for including ecosystem components in the BSII is that the maps are Baltic-wide, otherwise there will be a bias towards higher impact in areas where more ecosystem components are included.

In the preparation of the updated version of ‘State of the Baltic Sea’ report the development towards more precise maps continues for selected data layers, pending available data.

The following data sets have been identified as in need of an update/improvement following the data approval process. Links to the current versions of the maps and their metadata can be found in table 2.

Mammals

- Distribution maps for grey seal and harbor seal have been updated to reflect the more detailed information on occurrence in coastal areas provided by Germany. The updated maps were submitted to SEAL EG 11-2017 for consideration ([Document 4-2](#)). Please note that maps on the HELCOM Map and Data Service (link in table 2) have not been updated yet to reflect the proposal. The SEAL EG 11-2017 suggested further modifications on the distribution maps (see paragraphs 4.7-4.17 in the [Outcome](#)). The Secretariat will update the maps to reflect the comments by the SEAL EG 17-2017. In addition, a Participatory-GIS (PGIS) survey for the seal experts is underway, and the results will be used for drawing new distribution maps for the seal species. The updated maps and the maps resulting from the PGIS exercise will be compared and subjected to comments from the SEAL Expert Group.
- Harbour porpoise maps have not yet been published in the HELCOM Map and Data Service as approval to publish the data (by one of the dataset providers) is still pending.

Pelagic habitats

- Productive surface waters (Chl-a): The plan is to update the map for the second version of HOLAS II with better EO data (Sentinel-3) which should be available in time for processing.

- Deep water habitat (Bottom oxygen) will be updated to include data from 2016, and to include data from the Gulf of Finland.

In addition, the following datasets have been identified to be potentially improved, pending on available data and/or improved methods.

Broadscale habitats

- The current version of broadscale habitats is based on EUSeaMap data (1:250 000 scale), and national datasets from Estonia and Germany. If other countries have developed compatible national datasets, those could be incorporated into the maps.

Fish

- The abundance maps of cod, herring and sprat are the only ecosystem component maps that are based on averages over time and could be updated with latest data (2015-2016).
- Pikeperch and perch recruitment areas are results of model runs and could be improved by utilizing further localized parameters as it was done for Perch recruitment area in Danish waters.

Habitat forming species

- The benthic species maps are based on national data and in general have good coverage. If new mapping has been carried out, the new data could be incorporated. For example, the Ålands Landskapsregering (Åland islands government) has delivered species data from surveys and mapping projects in the Åland archipelago and Finnish marine inventory programme VELMU will deliver data from 2016. HELCOM RED LIST data will be used in addition to any species data that may become available for the update.

Natura 2000 habitats

- In general the dataset coverage on the Natura 2000 habitats is good for the countries that are EU member states and therefore use the Habitats Directive habitat classifications.

Table 2 Links to the Ecosystem component maps and their metadata.

<u>Theme</u>	<u>Ecosystem component map</u>	<u>Map</u>	<u>Metadata</u>
Benthic species	Charophyte distribution	link	link
	<i>Fucus</i> distribution	link	link
	<i>Furcellaria lumbricalis</i> distribution	link	link
	<i>Mytilus</i> distribution	link	link
	<i>Zostera marina</i> distribution	link	link
Birds	Breeding areas for birds	link	link
	Wintering areas for birds	link	link
Broadscale habitats	Circalittoral hard substrate	link	link
	Circalittoral mixed substrate	link	link
	Circalittoral mud	link	link
	Circalittoral sand	link	link
	Infralittoral hard substrate	link	link
	Infralittoral mixed substrate	link	link
	Infralittoral mud	link	link
	Infralittoral sand	link	link
Fish	Cod abundance	link	link
	Cod spawning areas	link	link
	Herring abundance	link	link
	Perch recruitment area	link	link
	Pikeperch recruitment area	link	link
	Sprat abundance	link	link
Mammals	Grey seal distribution	link	link
	Harbour seal distribution	link	link
	Ringed seal distribution	link	link
Natura habitats	Baltic Esker islands (1610)	link	link
	Boreal Baltic islets and small islands (1620)	link	link
	Coastal lagoons (1150)	link	link
	Estuaries (1130)	link	link
	Large shallow inlets and bays (1160)	link	link
	Mudflats and sandflats (1140)	link	link
	Reefs (1170)	link	link
	Sandbanks (1110)	link	link
	Submarine structures made by leaking gas (1180)	link	link
Pelagic habitats	Deep water habitat (Bottom oxygen index)	link	link
	Productive surface waters (Chl-a)	link	link

2.1.4 Economic and Social Analyses

The findings of the economic and social analyses, reported in the first version of the 'State of the Baltic Sea' report, will be included in the 2018 version of the report. Updates entail possible additional topics and results, developed in the EU-funded HELCOM SPICE project, via a planned data call to the Contracting Parties in the spring 2018, and expert comments to the supplementary report on economic and social analyses.

Planned updates

A comment on Chapter 3 "Human activities and the ecosystem" of the summary report: "Investigate possibility to include overview of other economic sectors for instance summaries per key indicator (value, employment etc.) to show the relative importance of the different sectors to each country and the region as a whole." (HOD 52-2017)

Summary information could be presented for the indicators 'gross value added' and 'employment' for some of the included sectors. At present, for both of these indicators, the information is available for sectors: fish and shellfish harvesting, finfish aquaculture, and freight and passenger water transport (with some data limitations regarding Denmark and Germany). The comparison could potentially be presented together with the results on the ecosystem services approach from the SPICE project (see further below).

Expected updates from the SPICE project

- development of the ecosystem services approach for the economic and social analysis of the use of marine waters, i.e. linking activities in the marine environment to ecosystem services (how activities impact ecosystem services, and how activities are dependent on ecosystem services)
- principles and approaches for developing a regional business and usual scenario (how the state of the sea changes over time due to changes in activities and existing legislation and regulation) for economic and social analyses, outlining also the benefits of including this aspect in further regional assessments

Expected updates from the national data call

- covering additional activities and indicators for the use of marine waters analysis
- covering additional degradation themes and ecosystem services in the cost of degradation analysis

Expected updates from expert comments

- no comments received thus far

The updates can be included in both the summary report and the supplementary report on economic and social analyses, as deemed appropriate.

2.1.5 Marine litter

Proposed updates on marine litter are based on the result of the work conducted within Theme 2 of the SPICE project, which has been guided by the HELCOM EN-Marine Litter. The results of the project are summarised in three reports, submitted as background information to the [HELCOM SPICE ML WS 1-2017](#). It has not been decided yet how to include contributions from the project in the update of 'State of the Baltic Sea report, June 2017', and HOLAS II project will further develop a proposal in cooperation with experts in this regard with the aim that the proposal is evaluated further in upcoming meetings of HOLAS II and State & Conservation.

The SPICE results related to marine litter as such will be in parallel submitted to State & Conservation contacts for technical evaluation in order to consider how to utilize these results in other HELCOM work

Beach litter

It is proposed the section on marine litter on the beach is to be improved by including better quantitative estimates of beach litter in the Baltic Sea region, as were based on available monitoring data from HELCOM countries using the method proposed by Danish experts. The numbers presented are to be understood as statistics parameters such as mean, median, standard deviation and relative standard deviation determined for each category of litter material and a sum of all items for specific beach types.

Top litter items on beach litter according to type of beach have also been identified using the ranking method as advised by the HELCOM EN-Marine Litter. All data provided by countries, except Latvia, were used in the analysis. The analyses provide top litter item –lists.

Litter on the seafloor

In relation to litter on the seafloor, HOD 52 requested "to include categories of litter on the seabed, if available by the 2018 update ([document 2-9-Rev.1](#))". It is therefore proposed to include information on the proportion (%) of material categories in hauls in different sub regions (summed overall years), and on the 15 most common types of items (in terms of number and weight) found in trawl hauls for all 9 sub-regions combined. These are to be presented as text or tables, to highlight the findings of the SPICE project on this specific topic (see [report](#)).

Microlitter

Finally, the text on microlitter in the watercolumn can be improved emphasising that research and pilot monitoring is very active in many countries at the moment. With this in mind it can be expected that after 1-2 years significantly more data will be available for assessing microlitter and microplastics in the Baltic Sea environment. However, there are several issues which need to be solved in relation to this. Most importantly methods for both sampling and analyses must be regionally harmonized and targeted for the Baltic Sea specifically (see [report](#)).

2.1.6 Underwater noise

There are no foreseen changes to the section on underwater noise.

2.2 Methodological updates

The integrated assessments are foreseen to follow the same approaches as already agreed on for use in HOLAS II.

Based on discussions at S&C 6-2017, the assessment of commercial fish will be revisited based on the latest advice from ICES. This will be taken up for consideration at the HOLAS II 8-2017.

2.2.1 BSII

The assessment of cumulative impacts (BSII) will also follow the already agreed approach but different ways of calculating the impact will be compared as part of the process to evaluate the robustness of the results (e.g. using sum of impact or mean impact).

The further development of the BSII process also involves exploring a method for weighting of aggregated pressure layers. Currently, the BSII calculation is based on aggregated pressure layers and ecosystem components and the sensitivity scores linking these datasets. All these layers have the same values (scale 0-1) in the beginning. This means that all the aggregated pressure layers have equal impact, e.g. hunting of seals is considered to have the same impact than physical loss.

For the updated version of BSII the aggregated pressure layers would be preferred to be ranked relative to each other in order to get more realistic and harmonized intensity distribution of pressures. In addition to relative comparison, the ranking should reflect the spatial extent of layers; if extent is overestimated the weighting factor should be smaller. This in practice means that each dataset will be given a weighting factor to scale the pressure down if it is overestimated. The weighting is similar to what was done when aggregating human activities datasets to the pressure layer on physical disturbance ([supplementary report on cumulative impacts](#) table 2.)

The process will include following steps.

- The secretariat will draft the initial weighting factors for the aggregated pressure layers based on literature and observations from the end result of the BSII
- A table with weighting factors and reasoning for the conclusions will be produced
- A separate workspace will be established for comments and discussion and an online workshop will be held to make a decision of the final weighting factors

The Secretariat will produce initial values for weighting factors by **1 November 2017** and upload this document to the workspace. Contracting parties are kindly asked to nominate a national expert to take part in this work by **3 November 2017**. An online workshop will be held in the **7 December 2017** to propose the final values.

The possibility of calculating the BSII both with the original values and the weighted values will be explored with the aim of presenting both results to the workshops on validating the results of the BSPI&BSII for evaluation by experts of the Contracting Parties.

2.2.1.1 Calculating the impacts of individual human activities dataset

Further, under the EU funded HASPS II (Horizontal Action Spatial Planning Support under the EU Strategy for the Baltic Sea Region) project the HELCOM Secretariat plans to calculate the impact intensity of individual human activities datasets in order to be able to backtrack their proportion on cumulative impacts. This will help to explore the extent and intensity of the pressure from different human activities occurring at sea. The results will be proposed for addition to the updated version of the supplementary report on cumulative impacts. In addition this information can be used when prioritizing future work on monitoring and data collection. Since several datasets will still be updated and aggregation methodologies

developed for the June 2018 version, it is not feasible to do the analysis now based on the June 2017 datasets, and it will be done in spring 2018 using updated data.

2.2.2 Ecosystem component maps

Modify the O₂ concentrations calculations by using hydrogen sulphide for the calculation of oxygen conditions, as this means there is less interannual variability as well as an alternative data source and data for 2016.

2.2.3 Economic and Social Analyses

The structure and the methodology in the economic and social analyses will remain the same in the 2018 update of the 'State of the Baltic Sea' report, meaning that use of marine waters analysis will rely on the marine water accounts and ecosystem services approaches, and cost of degradation analysis on the thematic and ecosystem services approaches.

2.2.4 Corrections to HEAT tool output

A need for a correction for HEAT outputs for C3 (indirect effects) has recently been noted. C3 should have been calculated only based on Zoobenthos indicator for Åland Sea, Bothnian Sea, The Quark, and Bothnian Bay due to the oxygen debt indicator not being suitable those areas (following State & Conservation outcome).

Therefore the following correcting actions should now be taken:

- HEAT needs to be re-run for 2011-2015 assessment and also for the 2011-2016 so that C3 is based only on Zoobenthos indicator for Åland Sea, Bothnian Sea, The Quark, and Bothnian Bay.
- Based on the corrected results, following figures/data will be corrected as well:
 - o Tables 2 and 7 of supplementary report: To replace ER value for O₂ to "N" (not applicable) for Åland Sea, Bothnian Sea, Bothnian Bay
 - o Figures 5-7 of supplementary report to be adjusted after corrected results.
 - o "Integrated eutrophication status assessment" map in HELCOM Map and Data service to be updated with new HEAT values for those areas.

2.3 Editorial updates

During the finalization of the 'State of the Baltic Sea' report a number of desired additions and improvement to the reports have been expressed by the State and Conservation Working Group and Contracting Parties that have not been possible to accommodate for the 2017 version of the report. This section lists the remaining issues identified so far based on the non-exhaustive list of additional improvement list revised at HOD 52-2017, and based on the input by State and Conservation 6-2017 and Gear 16-2017.

Editorial changes and updated text for the report will, when possible, be made available for interrim commenting for the HOLAS II Core Team and GEAR in spring 2018 (see meeting dates in Annex 1.

Specific remaining issues that have not been feasible to fully implement for the 2017 version of the 'State of the Baltic Sea' report include:

- Overall:
 - o reflect as far as possible the change in status since HOLAS I (HELCOM 2010), acknowledging that there are new methods and indicators introduced,
 - o reflect and interpret relationships between the individual chapters, providing for a more holistic assessment.
 - o include as feasible an analysis on why the objectives of the BSAP have not been reached.
- Executive summary: a more narrative approach could be taken to the summary and key messages for policy makers should be developed Chapter 1, Figures 1.4-1.6. (trends in sea ice, temperature, salinity): layout to be modified to distinguish trends in the figures
- Chapter 1: add figure on long-term trends of oxygen concentration
- Chapter 1, Figure 1.8 (spatial information on oxygen conditions); update the map and include also oxygen situation on the Gulf of Finland. Maps to show extent of O₂-deficiency areas or O₂-free zones instead of the distribution of O₂ concentrations.
- Chapter 3: Investigate possibility to include overview of other economic sectors for instance summaries per key indicator (value, employment etc.) to show the relative importance of the different sectors to each country and the region as a whole.
- Chapter 4.1 (Eutrophication). Add outcome from HELCOM PLC-6, e.g. source apportionment.
- Chapter 4.3 (Marine litter). Categories of litter on the seabed to be included if available by the 2018 update.
- Chapter 4.4 (Underwater sound). Add figures from the BIAS project on soundscape maps.
- Chapter 4.4. Add table to impulsive events as reported to the regional registry
- Chapter 4.5 (Non-indigenous species). Some Contracting Parties have identified the need to update the AquaNIS data base, at the latest when 2016 data are added as a basis for updating the indicator evaluation.
- Chapter 4.7 (Seabed loss and physical disturbance): Consider including the proposed figure on 'Relative distribution of human activities connected with pressures causing physical disturbance in the Baltic Sea sub-basins' in 2018 (currently the figure is excluded from the chapter due to uncertainties in some data layers).
- Chapter 5.3 (Fish): to be updated based on ICES 2017 Advice.

- Chapter 5.4. (Mammals: consider updated information on harbor porpoise in the Kattegat-Belt Sea-Waster Baltic based results of SCANS survey.
- Chapter 5.4. The text for the ringed seal refers mostly to the population of the Gulf of Bothnia, therefore it should be checked if the development over time could be shown for the whole Gulf of Bothnia and not just for Bothnian Bay (Doc 2-6, Fig 5.4.7. page 147)
- Chapter 5.5 (Birds): Include figure on trends in the bird indicator
- o Chapter 6: The colour scheme of the map of the BSPI/BSII should be revised (for a better understanding it would be good if low impact is light grey, so there is a smooth transition to white with no impact/ no data)
- New chapter on conclusion and future outlook, included future policy perspectives.

Annex 1: Preliminary timeline for the 2018 State of the Baltic Sea Report. Meetings are presented in the end of the table. Red highlights represent holidays (Christmas and Easter).

Tasks	November	November	November	November	December	December	December	December	January	January	January	January	February	February	February	February	February	March	March	March	March	April	April	April	April	May	May	May	May	June	June	June	June	Dates		
Indicators																																				
Compiled data and indicator evaluations ready for approval process (Experts Leads, Expert Networks)																																				by 1 December
Update of core indicator reports (Experts/Secretariat)																																				2 December-6 April
Approval of indicator evaluations and associated data (Contracting Parties)											*																									8 January- 16 February *8 January – 31 January
Updating of indicator report metadata and maps (Secretariat)																																				19 February-20 April
Approval of core indicator reports (State & Conservation)																																				23 April-18 May
Prepare indicator reports for online publication (Secretariat)																																				18 May-publication
Integrated Assesments																																				
Implementation of all integrated assessments (Secretariat and HOLASII project)																																				19-23 February
Workshops to validate results: Eutrophication (Nominated experts from Contracting Parties)																																				19 March
Workshops to validate results: Biodiversity (Nominated experts from Contracting Parties)																																				20 March
Workshops to validate results: Hazardous substances (Nominated experts from Contracting Parties)																																				21 March
ESA																																				
Tentative workshops to validate results: ESA (Nominated experts from Contracting Parties)																																				Back to back with ESA network, date still to be set.
BSPI/BSII																																				
Remaining Issues clarified, including input from S&C (Secretariat)																																				by 1 November
Initial values for weighting factors ready (Secretariat)																																				1 November

Tasks	November	November	November	November	December	December	December	December	January	January	January	January	February	February	February	February	March	March	March	March	April	April	April	April	May	May	May	May	June	June	June	June	Dates
Preparations for running the index (Secretariat and HOLAS II project)																																6 November- 30 November	
Online workshop to review values for weighting factors (Nominated experts)																																7 December	
Metadata descriptions improved as needed (Secretariat)																																By 3 November	
Submission for correction to human activity layers (Contracting Parties)																																By 1 January	
Data layers available for review in shared workspace (Contracting Parties)																																until 8 February	
Run BSII (Secretariat)																																8 January-5 February	
Workshops to validate results: BSPI&BSII (Nominated experts from Contracting Parties) including approval of updated data layers																																8 February	
Summary Report																																	
National Consultation (Contracting Parties)																																deadline 1 March	
Regional Consultation (Stakeholders)																																1 October-31 December	
Updates to report content (Secretariat and experts)																																8 January-23 April	
Ready for partial review by 19 February (HOLAS II Core Team)																																12 March-9 April	
Ready for review by 23 April, and approval of report content 14-18 May (State& Conservation)																																23 April-18 May	
Ready for review by 24 Ma, and approval of report content 15 June (HoD)																																24 May-15 June	
Supplementary reports																																	
Deadline for commenting on supplementary reports (Contracting Parties)																																	by 21 November
Updates to report text (Secretariat and experts)																																8 January-23 April	
Ready for partial review by 12 March (HOLAS II Core Team)																																12 March-9 April	
Ready for review by 23 April, and approval of report content 14-18 May (State& Conservation)																																23 April-18 May	
Website																																	

Tasks	November	November	November	November	December	December	December	December	January	January	January	January	February	February	February	February	March	March	March	March	April	April	April	April	May	May	May	May	June	June	June	June	Dates	
Updating of the dedicated website																																	15 March to date of publication	
Meetings linked with the HOLAS II process																																		
HOLAS II Core Team-8 2017	■																																28-29 November	
HoD-53 2017			■																															12-13 December
Suggested online HOLAS II core team meeting on issues to clarify, review of first results 2018									■																								24 January	
HELCOM Ministerial Meeting 2018														■																			6 March	
HOLAS II Core Team-9 2018																																		9-10 April
GEAR 18-2018																																		16-17 April
PRESSURE 8-2018																																		18-20 April
State & Conservation 8-2018																																		14-18 May
HoD-54 2018 (adoption of the report)																																		14-15 June

*EN-HZ indicator evaluations to be completed by 31 January 2018. This includes evaluation for the following indicators: HBCDD, Metals, PBDE, PFOS, PAHs, PCBs dioxins and furans, TBT and imposex, and white-tailed eagle.