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## Background

The HOLAS II project will develop a first version of the 2<sup>nd</sup> Holistic Assessment of the Baltic Sea Ecosystem by mid-2017 and an updated version by mid-2018. Updated indicator evaluations are therefore needed in early 2017 as well as early 2018 to cater for integrated assessments that will be carried out under HOLAS II in spring 2017 and updated in spring 2018. National data for the updated indicator evaluations have been identified as needed by autumn 2016 to support the finalization of first version of the 2<sup>nd</sup> Holistic Assessment.

This document contains current information on by when and to which databases that reporting of national data to be used in HOLAS II will take place. It is structured around groups of data that often cater for more than one indicator. For a few data sets the reporting is not yet decided and ad hoc data calls may be arranged for the purpose of providing input to HOLAS II. Table 1 summarizes the planned arrangements for data reporting.

Note that for pressure data this document only refers to data to be reported by Contracting Parties while some pressure data sets will be gathered from other sources (e.g. cables and windfarms) or projects (e.g. continuous underwater noise, BIAS project).

**Table 1. Summary of planned data reporting for HOLAS II.**

Data theme	Reported (host)	By when
<b>Reporting to the COMBINE database</b>		
Eutrophication (offshore areas)	COMBINE (ICES)	September 2016
Eutrophication, WFD assessment results (coastal areas)	Eutrophication assessment dataset (ICES)	Contracting Parties to complement as needed data gathered in EUTRO-OPER by June 2016
Hazardous substances (excl. radioactive substances)	COMBINE (ICES)	September 2016
Hazardous substances, WFD assessment results (coastal areas)	HELCOM Secretariat; by use of template	Data call to be issued with deadline 3 June 2016
Phytoplankton	COMBINE (ICES)	September 2016
Zooplankton	COMBINE (ICES)	September 2016, tbc
Zoobenthos, (indicator 'State of the soft-bottom macrofauna community', offshore areas)	COMBINE (ICES)	September 2016
<b>Reporting to databases hosted by the HELCOM Secretariat</b>		
Birds	HELCOM Secretariat (new database developed as part of BalticBOOST)	Data call to be issued with deadline of coastal data 30 April 2016

Coastal fish	HELCOM Secretariat (new database developed as part of BalticBOOST)	FISH-PRO II agreed to report data by autumn 2016, precise date pending finalization of new database
Seals	HELCOM Secretariat (new database developed as part of BalticBOOST)	SEAL EG 9 agreed for countries to report before next meeting of the group to be held 5-7 October 2016
Radioactive substances (concentrations and discharges)	MORS (HELCOM Secretariat)	September 2016
Input of nutrients and hazardous substances	PLC (BNI/EMEP)	September 2016
Oil discharges	HELCOM Secretariat	March 2016
Dredged material	HELCOM Secretariat	September 2016
<b>Other data sources or ad hoc data calls</b>		
Marine litter	Tbc MARLIN project database / Marine Litter Watch database EEA	Data call to be issued for at least some Contracting Parties
Underwater noise - impulsive	Regional impulsive noise registry (ICES)	April 2016
Spatial human activity and pressures data call	HELCOM Secretariat	Data call submitted with deadline 15 April 2016
Extraction of sand and gravel	tbc	Pressure 4-2016 (19-21 April) to conclude
White-tailed eagle productivity	tbc HELCOM bird database/ national database (HELCOM Secretariat)	September-October 2016
Non-indigenous species	tbc AquaNIS/COMBINE	tbc Clarified by May 2016
Migratory fish	WGBAST (ICES)	March 2016
Offshore fish	Demersal - DATRAS (ICES), Pelagic – tbc	March 2016 tbc
Incidental by-catch in fisheries	Indicator Lead Country (HELCOM Secretariat)	Information to be provided if monitoring is initiated, no additional reporting required
Habitat related spatial data	HELCOM Secretariat	Data call submitted with deadline 14 March 2016
Phytobenthos	HELCOM Secretariat	tbc
<b>Data from other assessments</b>		
Maritime activities related data/assessment	HELCOM Secretariat	No additional reporting needed
Hazardous submerged objects	HELCOM Secretariat	No additional reporting needed
Underwater noise – continuous noise	BIAS project database	No additional reporting needed

**Follow-up of requests related to data from STATE & CONSERVATION 3-2015**

STATE & CONSERVATION 3-2015 invited the HELCOM expert network on hazardous substances: *“to review the mandatory data fields and the quality screening criteria under COMBINE with the view of considering if all fields/criteria are needed for the core indicators and second holistic assessment, as well as to investigate whether some critical data/information fields are missing. Based on this review the issue of use of EIONET data will be revisited”* (Outcome, para 3MA.5). **The expert network recommends to STATE & CONSERVATION 4-2016 to report all monitoring data through COMBINE, as critical differences in the major fields were identified in the EIONET metadata** ([Outcome of Outcome of HELCOM BalticBOOST workshop on the HOLAS II hazardous substance assessment](#), para 22).

In relation to reporting to the COMBINE database, STATE & CONSERVATION 3-2015 *“took note of the need to review the other currently valid data submission templates (e.g. for biology and hydrochemistry) with regard to missing information for the proposed assessment of the core and pre-core indicators (3MA.6”*). ICES together with representatives for development of phytoplankton indicators have examined and proposed amendments to the format for reporting phytoplankton data to COMBINE taking into account requirements of the phytoplankton indicators currently being developed. A preliminary reporting format is presented in document 3MA-3. The reporting format for zooplankton and zoobenthos have been shared with relevant experts.

**Action requested**

The Meeting is invited to:

- take note of the information, and
- consider and agree on the reporting of data according to the document.

## Data reporting for HOLAS II assessment

Reporting of data for use in HOLAS II will as far as possible take place through the HELCOM COMBINE database hosted by ICES or other database solutions provided by HELCOM. In some cases, ad hoc data calls may be required.

In autumn 2016 data is needed, as a minimum, from the years 2011-2015 to form the basis for the first version of the 2<sup>nd</sup> HELCOM holistic assessment to be prepared by mid-2017.

### Reporting to the COMBINE database

Normal reporting procedures applies for reporting of 2015 monitoring data, taking place at the latest in September 2016. In cases where data has not been reported for the previous years required for the HOLAS II assessment period (2011-2016), **backlogged data can be reported at any time**. At STATE & CONSERVATION 2-2015 Contracting Parties confirmed the intention to submit backlogged data to the COMBINE database as soon as possible, and by mid-2016 at the latest (para 3MA.7). Questions regarding the technical aspects of data reporting are to be directed to [accessions@ices.dk](mailto:accessions@ices.dk).

### Eutrophication related data

Eutrophication related data will be reported to COMBINE using regular procedure i.e. by September 2016.

The data will support the evaluation of the core indicators:

- Dissolved inorganic nitrogen and phosphorus
- Chlorophyll a
- Secchi depth
- Oxygen debt

The pre-core indicators on total nitrogen and phosphorus, in case approved for use in HOLAS II, will also be based on data reported to COMBINE. Pre-core indicators 'Cyanobacterial surface blooms' and 'Phytoplankton spring bloom intensity based on chl-a' will be based on earth observation and ship of opportunity data and supported by in-situ observations reported to COMBINE.

Latest WFD assessments of coastal waters should be provided as calculated indicator results. Submissions have already taken place through EUTRO-OPER and Contracting Parties are requested to check and complement the information by June 2016 using the eutrophication assessment data reporting workspace. This also applies to the biological indicators used in the assessment of Good Ecological Status under the WFD. The Secretariat will inform in more detail how to check and complement the information.

### Hazardous substances

Hazardous substances data are to be reported to COMBINE using regular procedure i.e. by September 2016.

The data will support evaluation of the core indicators:

- Hexabromocyclododecane (HBCDD)
- Metals
- Polybrominated biphenylethers (PBDE)
- Perfluorooctane sulphonate (PFOS)
- Polyaromatic hydrocarbons (PAH) and their metabolites
- Polychlorinated biphenyls (PCB) and dioxin and furans, and

- TBT and imposex.

The data will also support the evaluation of the pre-core indicators on bio-effects, however supplementing the COMBINE data with further data from national databases has been indicated as a possible need by the Lead Countries due to the current COMBINE format not supporting all sub-lists of e.g. reproductive parameters:

- Reproductive disorders: malformed eelpout and amphipod embryos
- Lysosomal membrane stability (LMS)

The HELCOM BalticBOOST workshop on HOLAS II hazardous substance assessment was of the opinion that the best way to ensure compatibility with the MSFD reporting requirements on the coastal areas is to compile the assessment results of the WFD assessments from Contracting Parties. Compiling this information for the transitional- and coastal waters will enable comparison with use of CHASE tool integration results.

Contracting Parties are requested to deliver:

- by **10 May 2016** the full list of substances assessed nationally as part of the WFD reporting as a first step ([lana.avellan@helcom.fi](mailto:lana.avellan@helcom.fi)), and
- by **3 June 2016** at the latest deliver the assessment shapefiles per substance together with associated concentrations and national targets used in the reporting and further specifying the rules for grouping and/or extrapolation if such have been used to the HELCOM Secretariat. Technical guidance for this reporting will be provided by the Secretariat.

The data will support evaluation of the substances included in the core indicators (as listed above) and further provide assessments of additional substances assessed in the WFD that can be included in HOLAS II according to information provided by Contracting Parties, this could for example be applicable for River Basin Specific Pollutants.

### Phytoplankton

Phytoplankton related data are to be reported to COMBINE using regular procedure i.e. by September 2016.

Representatives for development of phytoplankton indicators have together with ICES examined and proposed amendments to the format for reporting phytoplankton (Document 3MA-3). The proposal will be addressed at the annual meeting of PEG (25-29 April 2016).

There are no agreed HELCOM core indicators on phytoplankton yet, however, data reported to COMBINE can support assessment of these pre-core and candidate indicators that are judged to be ready for consideration and approval by December of 2016:

- Seasonal succession of functional phytoplankton groups
- Phytoplankton community composition as a food web indicator

### Zooplankton

Zooplankton data are to be reported to COMBINE using regular procedure i.e. by September 2016.

The data will support the evaluation of the core indicator:

- Zooplankton mean size and total stock.

The COMBINE data format supports the requirements of data needed in the core indicator calculation. However, the number of [zooplankton checks](#) on the reported data (i.e. required fields, required metadata) has been kept low for the zooplankton data in order to make submission easier. This has resulted in a

situation where Contracting Parties not always included all relevant information in the reporting. To ensure that all relevant information is included through the reporting e.g. the so called reference field (REFSK) could be made mandatory which would e.g. require the information on used biomass values to be reported. The reporting format will be further analysed together with ICES.

Reporting of zooplankton data to COMBINE is relatively limited (see Document 3MA-1). If the required zooplankton data has not been reported to COMBINE in time to produce the relevant data view (extraction) by the meeting of the ZEN ZIIM project (autumn 2016), then an ad hoc solution might be required where national representatives bring the data for the assessment period 2011-2015 to the meeting.

### Zoobenthos

Zoobenthos data for the offshore assessment units are to be reported to COMBINE using regular procedure i.e. by September 2016. For the offshore areas, the COMBINE reporting format will be further analysed to ensure compatibility with the needs of the HELCOM indicator 'State of the soft-bottom macrofauna community'.

For coastal assessment units the tentative approach is to use national WFD assessment results of the equivalent national coastal indicators. National indicators are generally reported in relation to eutrophication in the WFD context. Contracting Parties are requested by June 2016 to review and complement as needed the information that was previously submitted to the EUTRO-OPER project on national eutrophication related national WFD indicators (see section above on eutrophication). The Secretariat will provide guidance on how to submit information related to missing WFD assessments that will also cover the relevant national benthic invertebrate indicators.

The data will support the evaluation of the core indicator:

- State of the soft-bottom macrofauna community.

The other agreed HELCOM core indicator on zoobenthos, 'Population structure of long-lived macrozoobenthic species', is not anticipated to be ready for approval for use in HOLAS II.

### Reporting to databases hosted by the HELCOM Secretariat

#### Birds

The database and data reporting will be established in the BalticBoost project during 2016. A data model is currently being drafted and will be verified by the experts to store data resulting from coordinated bird surveys. A data call will be issued in March 2016 that will focus on coastal areas reporting deadline of 30 April 2016. Options to report offshore data will be available in 2016. However, as the first joint survey was only carried out in February 2016 the data might not yet be available for reporting, and this data will at the latest be required in 2017. The reported data will be included in the database which is under development and will thus form the first data entry.

The data will support the following core indicators:

- Abundance of waterbirds in the breeding season
- Abundance of waterbirds in the winter season

### Coastal fish (COOL)

The database will be established in the BalticBOOST project during 2016 and data reporting will take place by autumn 2016. A data model is currently being drafted and will be verified by the experts to store data resulting from coastal fish monitoring. The data will support following core indicators:

- Abundance of coastal fish key functional groups
- Abundance of key coastal fish species

A data call has not been issued yet as the data model is currently under development but data is expected to be submitted in autumn 2016 as discussed at FISH-PRO II. Data from previous years will be transferred from the existing dataset to the new database.

### Seals

The database and data reporting will be established in the BalticBOOST project during 2016. A data model is currently being drafted and will be verified by the experts to store data resulting from seal monitoring. The data will support following core indicators:

- Distribution of Baltic seals
- Population trends and abundance of seals

Data required for the core indicators on 'Nutritional status of marine mammals' and 'Reproductive status of marine mammals' can be included in the future.

A data call has not been issued yet due to ongoing development of data model, however SEAL EG 9 agreed for countries to report 2015 data before next meeting to be held 5-7 October 2016. Data from previous years will be transferred from the existing dataset to the new database.

### Radioactive substances (concentrations and discharges)

Radioactive substances data (both environmental concentration and discharges) will be reported HELCOM MORS database following established procedures (September 2016), guidelines and formats and approved by HELCOM Expert Group on Radioactive Substances (MORS EG).

HELCOM MORS database supports the following indicator:

- Radioactive substances: Cesium-137 in fish and surface waters

### Input of nutrients and hazardous substances

Data on waterborne inputs of nutrients and hazardous substances are reported to the HELCOM PLC database and made available for the PLC6 assessment (September 2016). Airborne inputs of nutrients and hazardous substances are modelled by EMEP and included in PLC6 assessment.

PLC database support the following indicator:

- Inputs of nitrogen and phosphorus to the basins

### Oil discharges

Illegal and accidental oil spills data from aerial surveillance and reports by the countries will be reported to HELCOM Secretariat (March 2016) and approved by HELCOM Informal Working Group on Aerial

Surveillance (IWGAS) meeting in March 2016 and HELCOM RESPONSE and MARITIME meetings in autumn 2016.

The Illegal oil discharges dataset supports the following core indicators:

- Oil spills affecting the marine environment

#### Dredged material

Activities related to dredging and dumping of dredged material is collected to HELCOM managed dataset as described in [HELCOM guidelines for management of dredged material at Sea](#). [PRESSURE 4-2016 meeting](#) is to verify the submitted data and applicability of current reporting format for the purposes of HOLAS II.

The data will provide input to the evaluation of the pre-core indicator:

- Cumulative impact on benthic biotopes

#### Ad hoc data calls and other data compilation solutions

##### Marine litter

Currently there is no agreed HELCOM monitoring programme on marine litter and no joint regional database for the monitoring that still takes place in several countries. For the purpose of HOLAS II it is proposed to explore the use of data from MARLIN project database for the beach litter indicator, as well as the database from Marine Litter Watch hosted by EEA for those HELCOM members being also EU Members States. Since the MARLIN database currently only holds data from Estonia, Finland, Latvia and Sweden, and the EEA database also from Denmark, it is foreseen as necessary to make a data call from remaining countries specifically for HOLAS II. A proposal and tentative data call will be developed in cooperation with the EN-Marine Litter by mid-May coordinated by Poland.

The data will provide input to the evaluation of the pre-core indicator:

- Beach litter

##### Underwater noise - impulsive

The [impulsive noise events registry](#) in support of OSPAR and HELCOM hosted by ICES has recently been launched. HELCOM members have been invited to inform of their national arrangements in order to deliver data to the registry for the use in HOLAS II in the upcoming PRESSURE 4-2016 (19-21 April 2016).

The data could be used to evaluate the candidate core indicator:

- Distribution in time and space of loud low- and mid-frequency impulsive sounds

##### Spatial human activity and pressures data call

HELCOM Secretariat made a data call in February (deadline in 15 April 2016) to Contracting Parties requesting spatial data on human activities with the aim of assessing the distribution of main activities, pressures and impacts in the Baltic Sea, for use in the 2nd Holistic Assessment of the ecosystem health of Baltic Sea (HOLAS II) and for other HELCOM purposes. The data call consisted of 11 spatial datasets which were selected since they are not covered by other HELCOM reporting requirements and cannot be compiled from open or other data sources (e.g. international organisations).



Dataset	Attribute and unit
Shellfish mariculture	<b>Area:</b> Area (km <sup>2</sup> ) of the shellfish mariculture <b>Annual production:</b> tons/unit area per year for each species <b>Nutrient load:</b> P and N tons/unit area per year; if available
Finfish mariculture	<b>Area:</b> Area (km <sup>2</sup> ) of the finfish mariculture <b>Annual production:</b> tons/unit area per year for each species <b>Nutrient load:</b> P and N tons/unit area per year; if available
Mussels and scallop dredging	<b>Effort:</b> hours/ unit area per year <b>Intensity:</b> number of sweeps/unit area per year <b>Catches:</b> tons/unit area per year for each target species or species group <b>Area:</b> Dredged area (km <sup>2</sup> )
Maerl and Furcellaria harvesting	<b>Amount:</b> dredged tons/unit area per year for each species <b>Area:</b> Dredged area (km <sup>2</sup> )
Game hunting of seabirds	<b>Amount of hunted birds:</b> number of hunted birds/unit area per year for each target species (eider, long tailed duck, common scoter and velvet scoter)
Predator control of seabirds	<b>Amount of hunted birds:</b> number of hunted birds/unit area per year for each target species (cormorant)
Land claim	<b>Area:</b> area (km <sup>2</sup> ) <b>Construction year:</b> year of construction, especially if built between 2011-2015
Watercourse modification	<b>Modification structure type:</b> canalisation, culverting/trenching, damn/weir <b>Construction year:</b> year of construction, especially if built between 2011-2015
Coastal defence	<b>Modification structure type:</b> sea walls, breakwaters, groynes, flood protection <b>Length:</b> length of modified coastline (m) <b>Area:</b> area (km <sup>2</sup> ) <b>Construction year:</b> year of construction, especially if built between 2011-2015
Hydropower dams	<b>Discharge:</b> average discharge (m <sup>3</sup> ) for each month of the year
Input of seismic waves (Seismic surveys)	<b>Activity occurrence:</b> frequency of the activity on average for each month of the year <b>Sound level:</b> dB re 1µPa (or other unit, if available)

#### Extraction of sand and gravel

Data on extraction of sand and gravel is not regularly reported to HELCOM but the discussion in relation to the recommendation on compiling this data are planned for the next [PRESSURE 4-2016 meeting](#) (19-21 April 2016). The meeting is expected to conclude on whether the information is to be called for as an input for HOLAS II or if there is to be a regular reporting to HELCOM. A potential data call will be issued through Pressure WG Contacts.

The data could support the evaluation of the pre-core indicator:

- Cumulative impacts on benthic biotopes

#### White-tailed eagle productivity

An ad hoc approach to collating the productivity data for the white tailed eagle indicator is anticipated. Lead Country Sweden is working on exploring the most suitable data model based on models used in Co-Lead Country Finland's national database, which will be concluded in August 2016. The Lead Country will coordinate the call for data in September-October based on the format. Tentatively the data can be included in the Birds database developed under BalticBOOST.

The data will support the evaluation of the core indicator:

- White-tailed eagle productivity

#### Non-indigenous species

An ad hoc approach to retrieving all relevant data may be needed to compile data from several sources. The option to retrieve data from AquaNIS database is currently being explored by the Lead Country Finland on the NIS trend indicator. AquaNIS is considered to be a suitable database to provide input to the assessment as expert verified entries are made whenever new detections are made ensuring that all nationally scattered data are available and up to date in one database, and the open database allows anyone to browse how many species have appeared in an area during a specified period by which vector. The availability or relevant data reported through COMBINE procedures is also being explored as well as the relevance of data reported to the HELCOM-OSPAR Aliens database supporting the granting of ballast water exemptions. The lead Country Finland together with the Secretariat will make a proposal on how to retrieve data by May 2016.

The data will support the evaluation of the core indicator:

- Trends in arrival of new non-indigenous species

#### Migratory fish

The Lead Country for the core indicators Finland, is exploring the possibility to calculate the indicator evaluations based on the data brought by national experts to the April 2016 meeting of ICES WGBAST.

The data will support the evaluation of the core indicators:

- Abundance of salmon spawners and smolt
- Abundance of sea trout spawners and parr

#### Offshore fish communities

Contracting Parties report monitoring data from demersal BITS trawl surveys to the ICES DATRAS database according to normal procedures. The HELCOM project BalticBOOST WP 1.3, where ICES is the Lead partner, is developing data arrangement for demersal trawl data stored in the ICES DATRAS database for offshore fish communities that will allow for a centralized regional approach to data-arrangements and indicator calculation.

Lead Country Sweden for the indicator 'Proportion of large fish in the offshore community' together with ICES and the HELCOM Secretariat are exploring how pelagic BIAS trawl catches and/or pelagic acoustic abundance estimates can be used in HOLAS II. ICES participates in a project (AtlantOS) that is developing methods for processing and storing acoustic data, however the timeline for delivery is not in line with HOLAS II. Thus an ad hoc solution to collating nationally pre-processed results may be required for pelagic data.

The data will support the evaluation of the core indicator:

- Proportion of large fish in the offshore community

#### Incidental by-catch in fisheries

The Lead Country Germany is compiling information available from different sources to provide some initial indicator results by the FISH 4-2016 meeting. The HELCOM Fish WG works on following up on availability of monitoring data, and if monitoring data become available in any Contracting Party at any time this is to be informed.

The data will support the evaluation of the core indicator:

- Number of drowned mammals and waterbirds in fishing gear

#### Habitat related spatial data

Spatial data on the distribution of benthic habitats and biotopes is being collated in the TAPAS project (benthic distribution maps and pressures). Baltic wide maps of habitats will be developed based on a previous HELCOM data call for ecological components of benthic species and habitats which was issued to State and Conservation WG on 4 February 2016 with a deadline of 14 March 2016.

The spatial distribution of benthic habitats is expected to be complemented by the EUSeaMap2 modelled spatial information, anticipated to become available in June 2016.

No habitat related indicators have been agreed, but this data could provide input to the evaluation of the pre-core indicators:

- Cumulative impact on benthic biotopes
- Distribution, pattern and extent of benthic biotopes

#### Phytobenthos

Phytobenthos is only relevant to assess in coastal assessment units. STATE & CONSERVATION 2-2015 (para 4J.12 point 3) recommended to use WFD assessments for the topic in HOLAS II as the main option, in addition to developing a common core indicator.

National WFD assessment results of the equivalent national coastal indicators are thus to be compiled. National indicators are generally reported in relation to eutrophication in the WFD context. Contracting Parties are requested by June 2016 to review and complement as needed the information that was previously submitted to the EUTRO-OPER project on national eutrophication related national WFD indicators (see section above on eutrophication). The Secretariat will provide guidance on how to submit information related to missing WFD assessments that will also cover the relevant national phytobenthos indicators.

The data will support the evaluation of the pre-core indicator:

- Lower depth limit distribution of the macrophyte community.

#### Data from other assessments

##### Maritime activities related data/assessment

HELCOM Maritime assessment will cover the data on monthly shipping density per ship type for years 2011-2015. In addition to shipping activity, there are datasets on recreational boating and sports and fishing harbours to be planned to derive through maritime assessment but with no confirmation on really succeeding as the input on the data are still discussed e.g. in cooperation with HELCOM FISH-PRO II.

##### Hazardous submerged objects

Submerged assessment will include chapter on hazardous wrecks but it is still unclear whether there is going to be any spatial data available. The assessment will also contain data on dumped chemical munitions, however these data will be based on older compilations and it is not anticipated that updated data for the

HOLAS II assessment period will be available. No data is currently believed to become available in time to be an input to HOLAS II on dumped hazardous waste.

#### Underwater noise - continuous

Regarding continuous noise, calculated data from the BIAS project (not raw data) could be available for distribution to HELCOM provided that data arrangements are defined, not only for the present data but also for the future, considering that further arrangements of the current database may be required.

The data will provide input to the evaluation of the pre-core indicator:

- Continuous low frequency anthropogenic sound