
Document title	Future work on HELCOM indicators - Fish
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Background

The following document contains a brief topic summary that addresses the overall aim of indicator work and assessments on the given topic. It outlines, the current status, and gives an indication of the work needed to adjust/develop the identified indicators. Potential avenues of cooperation avenues are also described. Where possible the information has been compiled based on responses received from the HELCOM indicator questionnaire process and revised based on comments received at the 1st HELCOM Indicator Workshop. This is, particularly the case for the section on the aims of the work, which was that were a focus of attention at that 1st indicator workshop.

Action requested

The Workshop is invited:

- to take note of the information and use it as needed to support the discussion
- provide comments or corrections as needed

Fish

Future work on HELCOM indicators – towards the 3rd Holistic Assessment of the Baltic Sea 2023.

Indicators under discussion

1. Abundance of sea trout spawners and parr
2. Abundance of salmon spawners and smolt
3. *Abundance of key coastal fish species
4. *Abundance of coastal fish key functional groups
5. **Fishing mortality
6. **Spawning stock biomass (of cod, dab, sole, herring, sprat)

*Completed indicator questionnaires received.

**Indicator questionnaire not sent out for these two indicators.

These indicators appear in the additional document that considers the HELCOM indicator-policy match and scoring (Document 17 - HELCOM indicator-policy matching and draft scoring, and annex).

Aim

An assessment of all Baltic Sea fish based on regionally agreed species lists. The compilation/revision of such lists needs to be carried out to ensure it represents a suitable assessment. The assessment should cover relevant coastal and open sea fish and the by-catch of selected non-commercial fish. Demersal, pelagic, and where applicable, deep-sea fish, need to be addressed. Additionally, commercially exploited fish need to be assessed, per species, and established data sources should be utilized, with necessary agreements developed, such as Common Fisheries Policy (CFP) data via ICES.

In the short term abundance or where relevant spawning stock biomass should be considered, accompanied by size distribution per species or stock.

In the longer-term the assessments need to cover aspects such as abundance and demographic aspects, as well as habitat and distribution (where possible), with species/species group assessments made, including integrated assessments. Relevant ecological scales that are compatible with assessments under the Baltic Sea Action Plan (BSAP), the EU Marine Strategy Framework Directive (MSFD) and Habitats directive (HD) need to be considered. Distinct quantitative threshold values, and suitable application of reference areas, are needed to facilitate the implementation of appropriate management approaches. Wherever possible, and relevant indicators are applicable, assessments should be fully operational and include the widest spatial coverage by the next assessment date.

General introduction and current status

[Four of the listed indicators](#) were updated in 2018 and have generally high spatial coverage, though in several cases an evaluation was not completed in all areas, with gaps commonly occurring in more southerly regions of the Baltic Sea. These indicators were also summarised in the [2018 State of the Baltic Sea report](#). The fishing mortality and spawning stock biomass indicators were utilised in the [2018 State of the Baltic Sea report](#), though these indicators currently lack a formal process for development and update. An integrated assessment of fish in the Baltic Sea was carried out using these indicator assessments in the [2018 State of the Baltic Sea report](#). In general abundance is the only parameter currently assessed, except assessment of spawning stock and mortality (e.g. MSY).

Relevant species (regional lists of species for the assessment)

In the 2018 assessment of [coastal fish key functional groups](#) considered piscivores (differed between assessment area: Perch, Pike, Pikeperch, Burbot, Cod, Turbot) and cyprinids/mesopredators, and the [coastal fish key species indicator](#) addressed Perch or Flounder depending on area specific information. Indicators for migratory fish consider [salmon](#) and [seatrout](#) address these species and their juvenile stages. Different commercial fish were assessed dependent on area in the [2018 State of the Baltic Sea report](#), including the following species: Cod, Dab, Flounder, Plaice, Sole, Herring, Sprat, Salmon and Eel. A clear regional list of species that require assessment may be valid. A recent reference list of MSFD species and habitats compiled by the Joint Research Council (JRC) covers these species for the Baltic Sea region, accompanied by the JRC Technical Report documenting the approach used (Document 13 - Supporting information - JRC's reference lists of MSFD species and habitats, and annexes). These species are also linked to the 2012 HELCOM Check List (Document 14 - Draft HELCOM species list matching) and matched against (EU) 2016/1251 Table 1D. *Please note that both of these documents can be considered as 'drafts' at this stage, and updates or corrections by experts from the Contracting Parties will be warmly welcomed.*

Development/adjustment work

Indicators for fish provide critical information on the Baltic Sea ecosystem due to their importance as a food source for top predators and since they are a commercially harvested resource. Further work is needed to adjust existing indicators and to develop indicators for aspects that are currently not addressed.

Abundance of key coastal fish species and Abundance of coastal fish key functional groups: The indicator is operational but there are gaps in the current assessment due to aspects such as a lack of data or data reporting (e.g. Lithuanian, Russian and German areas) and due to short time series (e.g. Poland). Future development steps include developing an assessment protocol that does not require time-series data covering 10 or more years. The protocol would include spatial reference values and threshold values as a compliment to the existing one that relies on time-series data covering 10 or more years. This requires statistical analyses and modelling of already collected data. Time and resource issues to carry out this development are a consideration. Development of the coastal fish data base COOL to enable calculation of the indicator in a more automated way would be a beneficial development and possibilities to link the indicator to assessments of commercially exploited fish could be examined (though for MSFD purposes consideration should be given to the point the assessment of a single species in multiple descriptors is generally not accepted).

Abundance of sea trout spawners and parr: The indicator is operational though monitoring data and thus assessment do not give complete spatial coverage. The indicator assessment is carried out via ICES working group WG BAST, though no official agreement is currently in place.

Abundance of salmon spawners and smolt: The indicator is operational though monitoring data and thus assessment do not give complete spatial coverage. The indicator assessment is carried out via ICES working group WG BAST, though no official agreement is currently in place.

Fishing mortality: This indicator was produced for use in the final State of the Baltic Sea report with data support from ICES. No clear HELCOM agreement or structure is established related to their long term function or update and they do not exist as 'actual' HELCOM indicator reports.

Spawning stock biomass (of cod, dab, sole, herring, sprat): This indicator was produced for use in the final State of the Baltic Sea report with data support from ICES. No clear HELCOM agreement or

structure is established related to their long term function or update and they do not exist as 'actual' HELCOM indicator reports.

Note: many of the above issues or potential obstacles also have resource implications.

Potential obstacles

Potential obstacles for coastal fish indicators have been identified. Currently the main obstacle for performing assessments on a Baltic wide scale is national support for assessment work and coastal fish monitoring. National funding is lacking in some countries and currently all analyses and data compilation are dominantly carried out by Sweden.

Frequency

The coastal fish indicators could be developed to adopt an annual update frequency, though major updates should be times with relevant HELCOM and other policy relevant deadlines (e.g. 6 year MSFD cycle). Other indicators would likely require clearer data flows, clarification on roles of groups hosting them and improved assessment methodologies (e.g. automation) to make regular updates viable.

Potential for cooperation

HELCOM FISH PRO III and research institutes to which coastal fish experts are affiliated. Potentially a link to ICES WGs and OSPAR, though OSPAR currently focusses only on off-shore and sensitive species in their current assessments.

Other issues

The workshop is invited to document other aspects they consider to be relevant to the development of this specific indicator category.

A number of issues raised previously (though not an exclusive list) that may be relevant for discussion include: integration rules, appropriate coordination with MSFD CIS processes, and appropriate coordination with OSPAR.