Document title	Defining the appropriate scale of assessment for benthic habitats
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Background

Defining the appropriate scale for the assessment of benthic habitats is needed both for the HELCOM indicators (e.g. developed under HELCOM and to address the Baltic Sea Action Plan, BSAP), but also for those HELCOM Contracting Parties that are also EU Member States, for work related to EU TG Seabed and under the Marine Strategy Framework Directive (MSFD).

The document below addresses a few alternative proposals that have been developed and discussed under different fora, and an annex also provides a recent discussion document presented at the EU TG Seabed 6 meeting. Under EU TG seabed there is a process to evaluate and establish the appropriate scale for assessment (and the justification behind the selected scale) and this document aims to ensure regional input via HELCOM can be provided to that process, as well as harmonization between work under the EU TG Seabed and HELCOM.

The recent discussion document from TG Seabed is included as document 2-1 Att.1.

Action requested

The Meeting is invited to consider the information provided and agree on the appropriate scale of assessment to be implemented for the assessment of benthic habitats in the Baltic Sea region (including indicators and overall or integrated assessment).

Defining the appropriate scale of assessment for benthic habitats

The aim of this process is to agree on the appropriate scale of assessment for benthic habitats in the Baltic Sea region and provide a regional expert evaluation to Stata and Conservation for their endorsement. The proposed approach/scale would also be provided to TG Seabed to ensure harmonization between HELCOM and EU processes can be achieved.

What is the appropriate scale of assessment for benthic habitats?

The following proposals on scales of assessment for Baltic Sea benthic habitats have been made under different fora. The specific approach in defining these scales differs greatly due to the aim of the assessment being carried out (as defined in the figure legends).

The aim in this process at EN BENTHIC is to agree on a suitable scale of assessment for the status assessment of benthic habitats (i.e. including indicators and other integrated assessments).

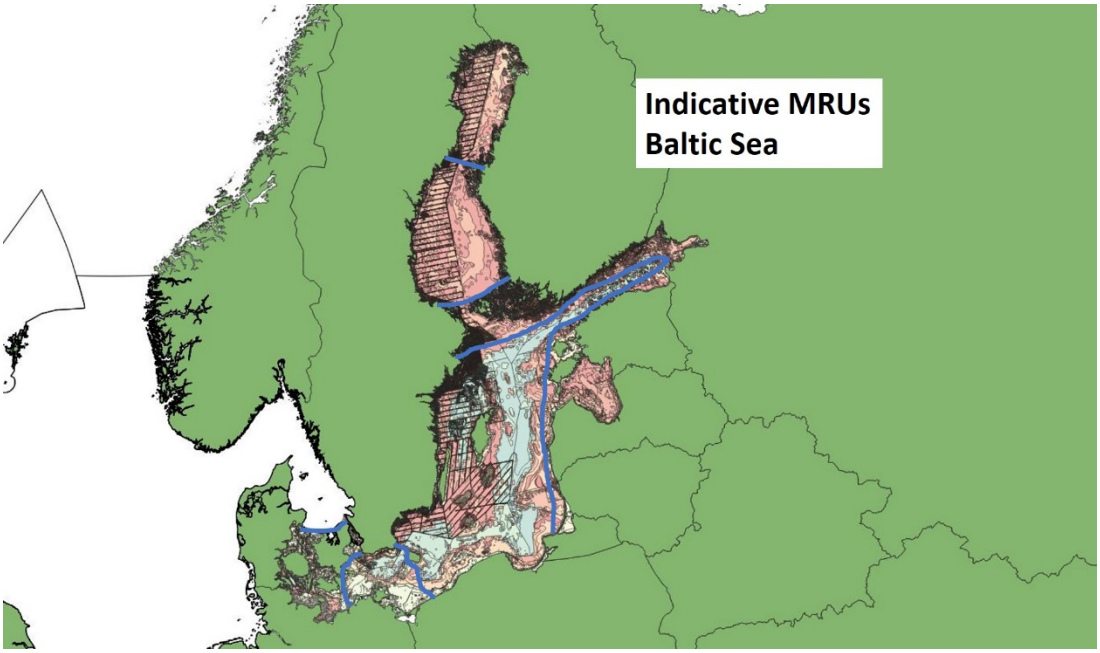

Figure 1. Initial idea based on TG Seabed sub-group discussions. The division is based on salinity, temperature and other gradients including a general grouping of Broad Habitat Types (BHTs).

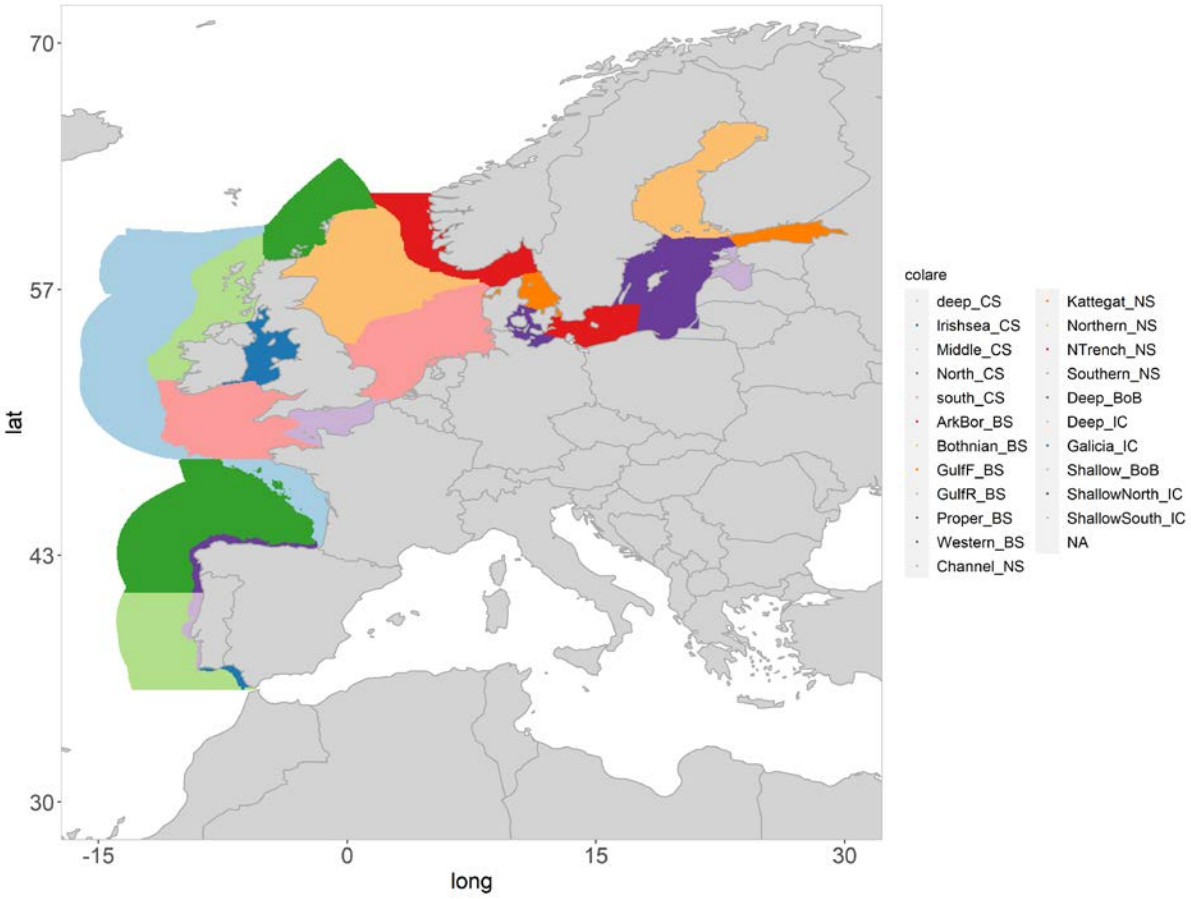

Figure 2. Six/Seven MRUs considering WKTRADE3 work (ICES). Preliminary proposal for assessment areas from ICES WKTRADE3 workshop to present fishing pressure, impacts and economic benefits (per BHT) for trade-off analyses.

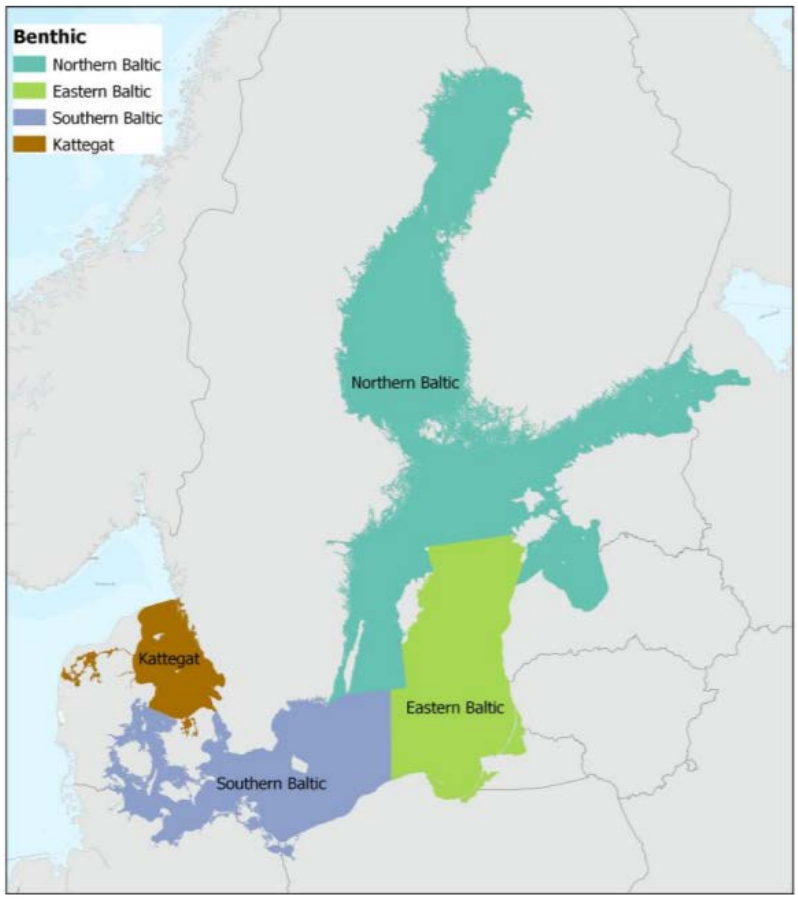

Figure 2. Spatial division of the Baltic Sea used for state assessments for benthic habitats. The four sub-areas are: Kattegat; Southern Baltic (The Sound, Great Belt, Kiel Bay, Bay of Mecklenburg, Arkona Basin, Bornholm Basin); Eastern Baltic (Gdansk Basin, Eastern Gotland Basin); and Northern Baltic (Western Gotland Basin, Gulf of Riga, Northern Baltic Proper, Gulf of Finland, Åland Sea, Bothnian Sea, The Quark, Bothnian Bay).

Figure 3. Four aggregated HELCOM sub-units (aka MRUs) as utilised in the HELCOM Sufficiency of Measures (SOM) work. Note, this division was developed based on presence/absence of activities/pressures and did not directly address habitat or species aspects.

Assessment scales in the Baltic Sea (HELCOM) region?

HELCOM applies a series of nested assessment units at different scales in all indicator and assessment work. These assessment units broadly address major factors such as hydrogeographic boundaries.

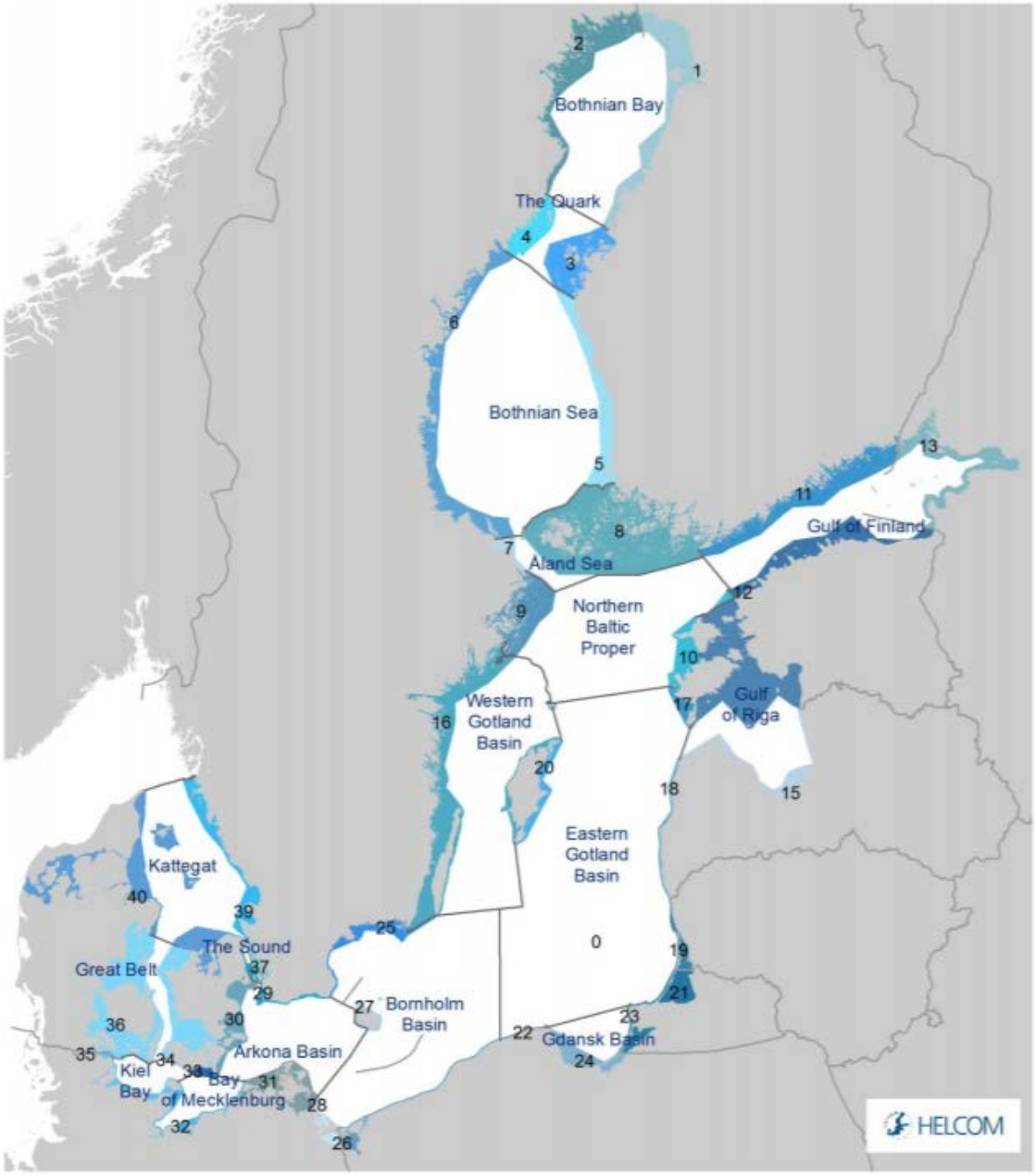

Figure 1. Map of the Baltic Sea presenting the HELCOM sub-division into 17 open sea sub-basins and 40 coastal areas. The names of the open sea sub-basin and coastal areas are provided in Tables 1 and 2, respectively.

Figure 4. Scale 3 HELCOM Assessment Units taken from the HELCOM Monitoring and Assessment Strategy (see attachment 4 of that document). This Scale addresses the 17 HELCOM sub-basins and division of the coastal areas in these. Further divisions (Scales) are also available, as presented in the HELCOM Monitoring and Assessment Strategy, Scale 1 being the whole Baltic Sea, Scale 2 being the 17 sub-basins (no coastal division) and scale 4 also including the Water Framework Directive coastal waterbodies.

For the purposes of benthic habitat assessment, it would appear that Scale 2 or 3 HELCOM assessment units would represent an appropriate initial scale for the assessment (dependent on if division to include coastal waters separately is considered needed). From this starting point aggregations of those units could be considered.

For example, factors of potential relevance for aggregation of smaller assessment units may include similarities in: temperature, salinity, species composition or broad benthic habitat type (e.g. as defined under the MSFD - EMODnet).

Issue to consider:

1. What is the ecologically relevant scale of assessment for benthic habitats and what are the justifications for these divisions (i.e. ecological relevance etc).

Further implications to consider

The following issues may be relevant in the process, or at least for downstream application.

How does the aggregation of smaller assessment units (e.g. Scale 2 or 3) influence national reporting or application of the assessment (e.g. under the MSFD)?

Since aggregation of smaller assessment units scales to achieve ecological relevance implements an assessment across large spatial areas that may traverse national or administrative boundaries, can this create issues for national reporting for example under the MSFD?

How does the aggregation of smaller assessment units (e.g. Scale 2 or 3) influence the ability to implement measures/actions?

By aggregating smaller assessment units into broader areas the results of the assessments may lose direct application in management terms, i.e. in how to nationally or sub-regionally (or at specific locations/zones) implement measures.

Possible solution 1: Since the ecologically relevant scale of assessment is a critical pillar of assessments under both the BSAP and the MSFD then the solution could simply be to take the existing assessment at the applied ecologically relevant scale and divide/cut the area to the national boundaries for reporting purposes while maintain the assessment status (i.e. the assessment applied at the ecologically relevant scale).

Possible solution 2: Firstly, apply the above logic in solution 1. Secondly, carry out the assessment via a series of steps that would allow the specific details to be unpicked and thereby applied to management. Step 1 – collate the data for activities/pressures in a gridded format at the lowest possible scale (e.g. fisheries activities, dredging activities etc), Step 2 – carry out the assessment to the relevant threshold value at the appropriate ecologically relevant scale (e.g. 6 assessment areas based on aggregations of HELCOM assessment units at Scale 3), Step 3 – apply the assessment at smaller scales (e.g. Scale 3 HELCOM assessment units) to allow for smaller scale identification of status.

Note that threshold values may need to be adjusted based on the scales of assessment (in particular where spatial extent factors are included) and another option where spatial extent values are not included could be to apply Steps 2 and 3 in reverse order.

National reporting could then be applied based on steps 2 and 3 with measure implementation extracted from step 1.