Baltic Marine Environment Protection Commission

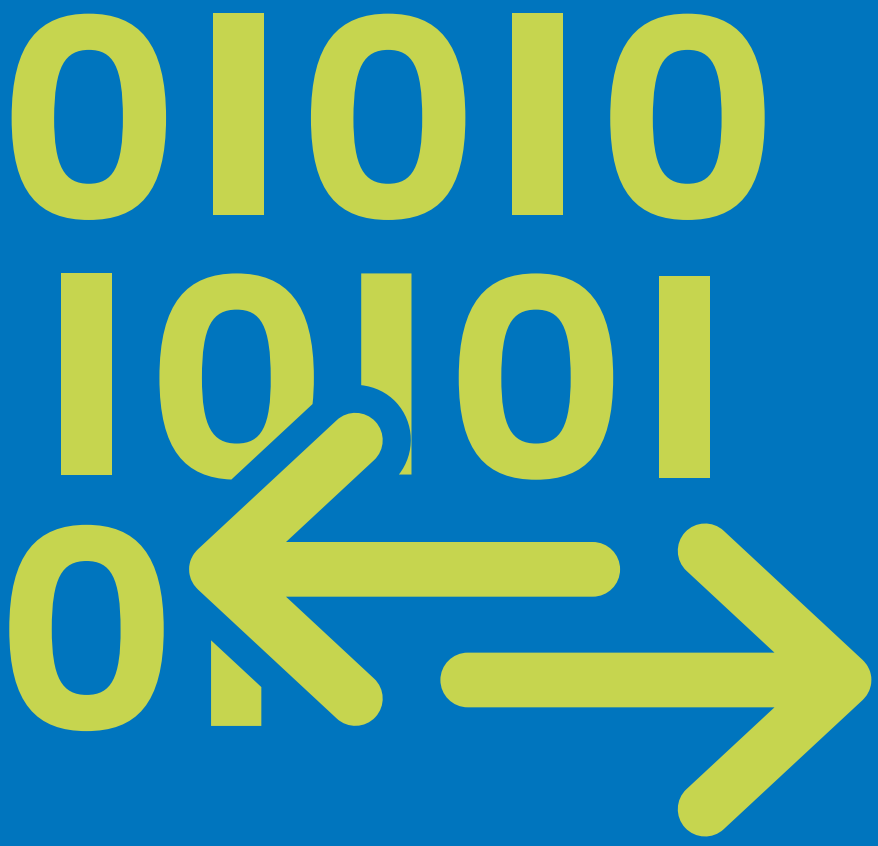
A5
Data accessibility
Main report

BLUES

Co-funded by the European Union

Activity 5– Data accessibility

2023



HELCOM

BLUES

Co-funded by the European Union

This publication has been produced as part of the project "HELCOM biodiversity, litter, underwater noise and effective regional measures for the Baltic Sea (HELCOM BLUES)". Running from January 2021 to January 2023, HELCOM BLUES is a Helsinki Commission (HELCOM) coordinated project that is co-funded by the European Union. The project is designed to support the third holistic assessment of the ecosystem health of the Baltic Sea (HOLAS 3) as well as the implementation of the HELCOM BSAP. The outcomes can also be used by HELCOM Contracting Parties, that are also EU Member States, to fullfil requirements for their MSFD reporting such as the EU MSFD Initial Assessment and Programmes of Measures (PoMs). Information and views expressed in this publication are the authors' own and might vary from those of the Helsinki Commission or its members.

HELCOM BLUES project website
Baltic Sea Action Plan 2021 (BSAP)
HOLAS 3

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General information about the HELCOM BLUES project

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Kiel Institute for the World Economy (IfW)
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Swedish Meteorological and Hydrological Institute (SMHI)
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Start date and end date of the project
25/01/2021 – 24/01/2023

A5- Data accessibility final report

In order to support data sharing and accessibility for HELCOM HOLAS 3 assessment, following subtasks were outlined in HELCOM BLUES project Activity 5.

Results summary on subtasks

Task 5.1 Improving capacity for biodiversity data reporting

5.1.1 Further develop BioBase to incorporate count information

HELCOM Biodiversity database was updated during the project based on gathering requirements on indicator data usage and across BLUES project Activity 2 (biodiversity). The indicator data format was specified and included in HELCOM HOLAS3 Data Call (https://portal.helcom.fi/meetings/STATE%20-%20CONSERVATION%2014-2021-824/MeetingDocuments/4J-11Att1%20HOLAS%20III%20Data%20call.pdf, pages 10-11, including attachments), including reporting excel template (https://portal.helcom.fi/workspaces/HOLAS%20III-DATA-190/Shared%20Documents/Observations_SealAbundanceDistribution.xlsx?Web=1

Data conversion and harmonisation needs of specific topics and regional harmonisation were utilized wherever possible and the database model extended to take up new data, e.g. haul-out data for seals (in line with format used in OSPAR) and acoustic monitoring data for Harbour porpoise. Improvements were presented and input collected from HELCOM EG MAMA. The data model was further developed to allow flexibility to report on haul-out site level and on preferrable aggregation levels e.g. on ICES rectangle as preferred by some data providers. HELCOM BioBase database data model has been extended with additional attributes to cater for all seal abundance, health and bird indicator data types.
For coastal fish indicator data, the established reporting format was used and the developed data validation and upload tool enables the species-level data to be uploaded to the HELCOM Biodiversity database.
Regular annual or periodic reporting system has been developed and is based on the defined data models and developed data validation and upload tool to HELCOM Biodiversity database.

Based on the defined data model, HELCOM Biodiversity database backend (ESRI File Geodatabase) was updated as well as Biodiversity web application front end available at https://maps.helcom.fi/website/biodiversity/. The additional count-related attributes were included in the data model.

The update included also developing data validation and quality control tools to be used in house by the secretariat. The previous ArcGIS Pro Data Interoperability workbenches were replaced with developed data validator online tool (https://maps.helcom.fi/website/BDB-admin-secure/), which can be used by authenticated user to validate various datatypes (figure 1) reported to HELCOM Biodiversity database, e.g. seal and bird data reporting templates developed in Tasks 5.1.1 and 5.1.2.

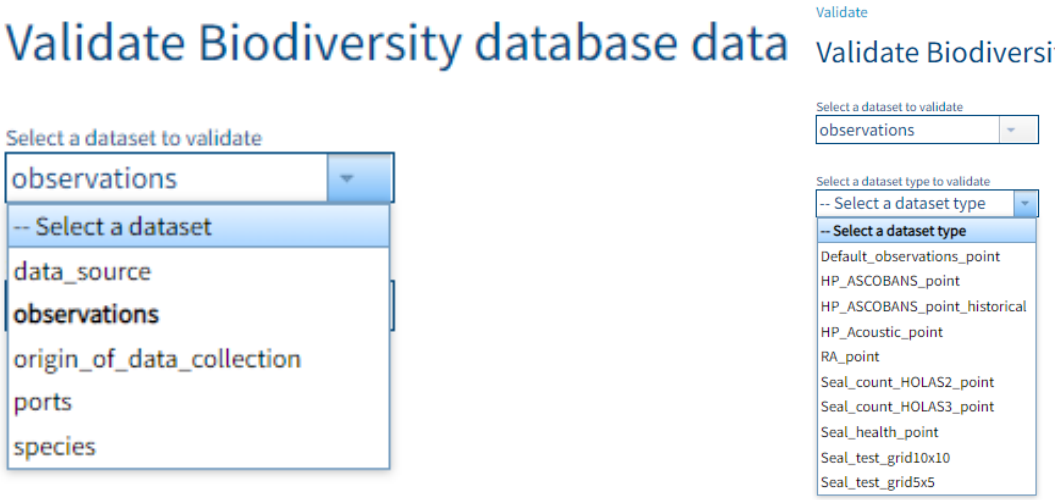

Figure 1. Validation online tool dataset input selection

The following updates were done to the Biodiversity web application:

- Inclusion of count related attributes (Count value, Count unit, Count method) (Figure 2)
- Clustering of point observations in map view (Figure 2)
- Grey scale to display number of observations for gridded data (Figure 3)

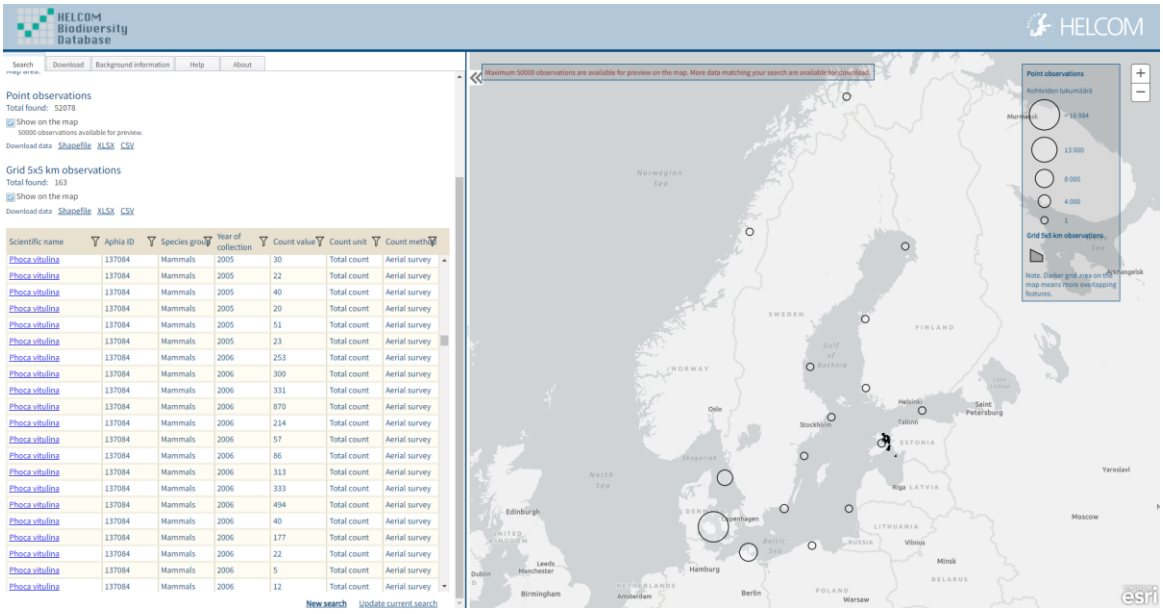

Figure 2. Count attributes in table (left) and clustering of point observations (right).

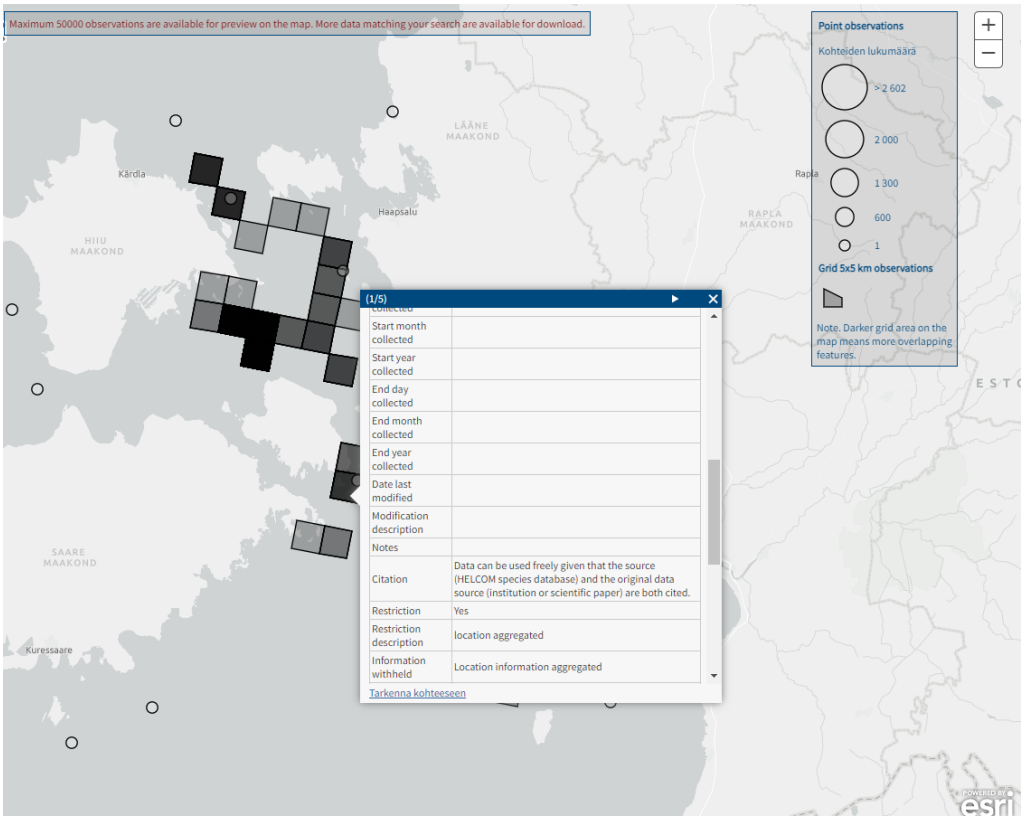

Figure 3. Shading of overlapping grid cells.

Related HELCOM Core indicator results on seal abundance and health and snapshot of underlying data will be made publicly available by end of March 2023 in HELCOM Map and Data service following the HOLAS3 result publication timeline. The reported underlying data will be also included in HELCOM Biodiversity database.

5.1.2 At sea seabird data (offshore surveys)

Reporting guidance was developed and updated according to coastal and offshore bird data requirements and included as part of HELCOM HOLAS 3 Data call.
https://portal.helcom.fi/workspaces/HOLAS%20III-DATA-190/Shared%20Documents/BirdSurveyDataGuidanceDocument.docx

Reporting templates were developed for targeted species separately for coastal observations:
https://portal.helcom.fi/workspaces/HOLAS%20III-DATA-190/Shared%20Documents/AbundanceCoastalTemplate.xlsx?Web=1
and Offshore surveys:
https://portal.helcom.fi/workspaces/HOLAS%20III-DATA-190/Shared%20Documents/AbundanceCoastalTemplate.xlsx?Web=1

Offshore survey data model,based on ESAS offshore count data model, (European Seabirds At Sea) was mapped to updatethe Biodiversity data model and dataset type validation rules were added in the validator configuration file for coastal and offshore bird data observations.

Related HELCOM Core indicator results on bird wintering and breeding indicators and snapshot of underlying data will be made publicly available by end of March 2023 in HELCOM Map and Data service following the HOLA S3 result publication timeline. The reported underlying data will be also included in HELCOM Biodiversity database in spring 2023.

Task 5.2 Provisioning external data products for assessments

This task included defining the fishing effort data requirements (VMS and logbook data) for following data needs:

- HELCOM Core indicator on Cumulative impact from physical pressures on benthic biotopes (CumI) used in HOLAS3
- HELCOM Spatial Pressure Impact Assessment (HOLAS3 SPIA)
- Bycatch risk assessment (BLUES Activity 2.1)

Data needs for the above mentioned use cases were identified, in collaboration with the relevant indicator leads and experts, in relation to fishing effort and with defining the fishing effort data requirements (VMS and logbook data). Service request specifications was delivered to ICES (subcontract signed June 2021), with initial data delivery to HELCOM by June 2022 and with final corrected versions to be available for analysis in August 2022.
The Fishing effort and intensity maps have been made publicly available and downloadable at HELCOM Metadata catalogue: https://metadata.helcom.fi/geonetwork/srv/eng/catalog.search#/metadata/cb3684c7-72e7-48ec-98d3-158d7debd64a. Aligning the data needs of bycatch and CumI indicator as well as SPIA was taken into account during the process.

Task 5.3 Developing tools for beach litter data flow and assessment

5.3.1 Developing the required mechanism to ensure reporting of national beach litter monitoring data to EMODnet

HELCOM HOLAS3 Data call defined the reporting of beach litter to take place via EMODnet Chemistry. The data call included definition and scope of data to report to EMODnet.

Data outputs provided by EMODnet Chemistry was analysed during the project for review of quality and completeness in collaboration with national data providers. Beach litter dataset was included in the HOLAS3 Data review process, which revealed gaps and inconsistencies in the data (e.g. related to completeness of the data as well as ensuring the use of correct monitoring data) which were researched and fixed in collaboration with EMODnet Chemistry.

5.3.2 Tool for developing beach litter assessment

Discussion on assessment needs and output tools for beach litter were done with the relevant experts and beach litter lead. LitterR software was agreed as suitable for the analyses but required data visualization aspects for HELCOM core indicator on Beach litter data was considered as lacking in the current LitterR software. Therefore the focus of the litter assessment tool was on visual display and categorization of litter data.

Categorization of litter data extract file received from EMODnet was carried out by categorizing the beaches to relevant HELCOM Assessment unit level by applying ArcGIS Pro spatial join functionality with 500 m buffering enabled.

A specific ArcGIS Pro project was created applying HELCOM Visual identity for Beach litter key message map (Figure 4) as well as for display of underlying beach type pointwise data (Figure 5).

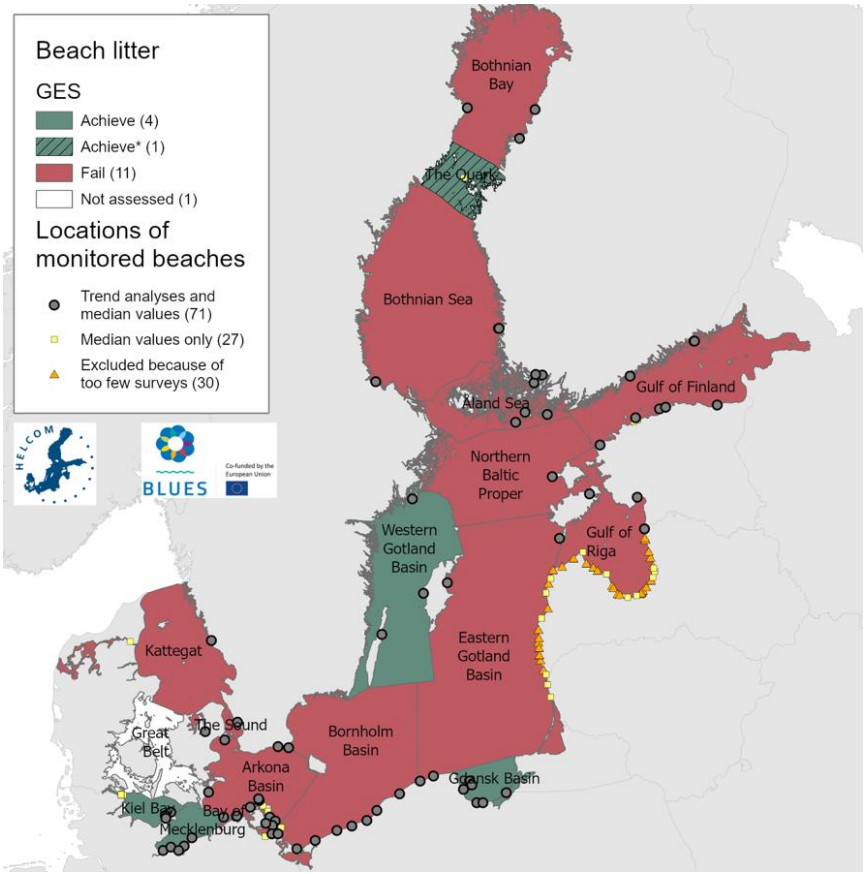

Figure 4. Beach litter results and beach locations.

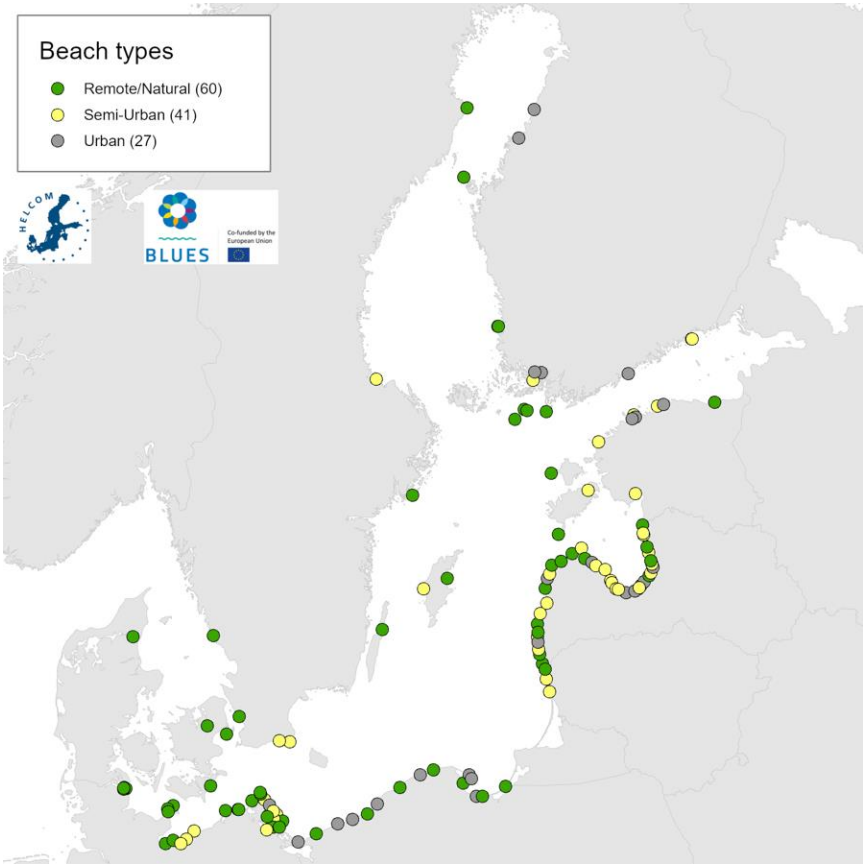

Figure 5. Beach types.

Litter software was used to create time series visualization of pointwise locations (Figure 6).

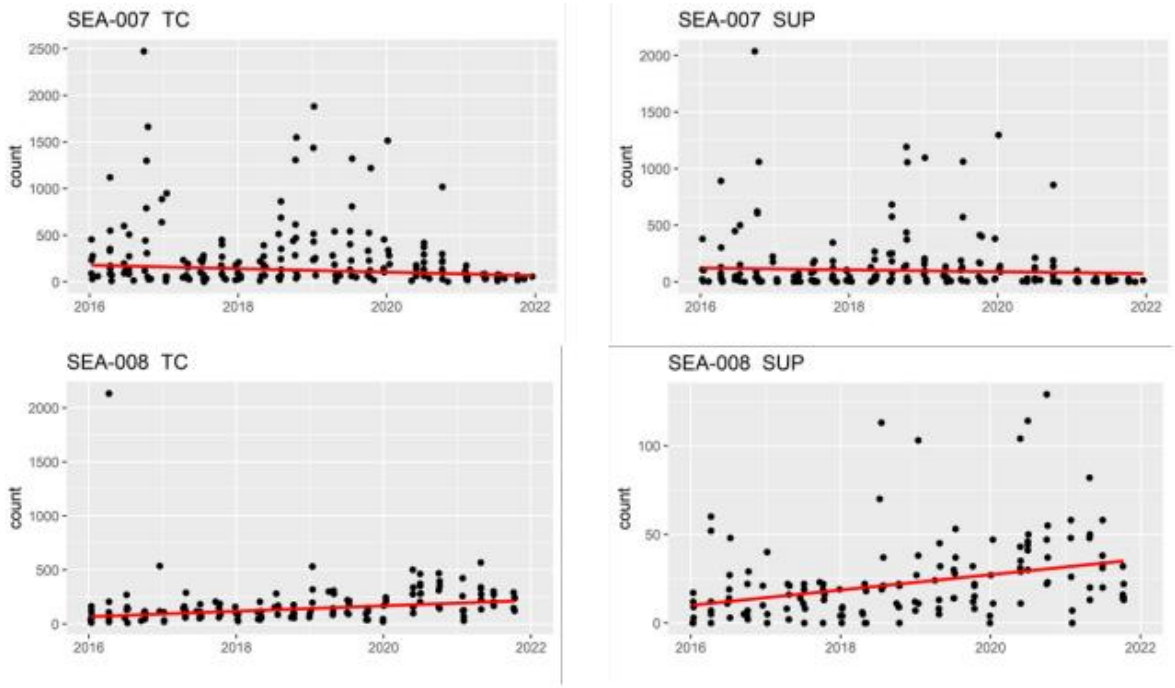

Figure 6. Time series visualisation.

HELCOM Core indicator on Beach litter results and snapshot of underlying data will be made publicly available by end of March 2023 in HELCOM Map and Data service following the HOLAS3 result publication timeline. The beach litter indicator report is available as document A3.1 Annex 1.

Key messages

1) There is still a need to carry out ad hoc data call within HELCOM to obtain required observation data on seals and birds for core indicators. Establishment of regular annual reporting of data would increase quality and availability of data and ultimately confidence of the assessment.
2) Biodiversity data is still provided in various formats and resolutions. This is a challenge for harmonization and coherence across regional seas.
3) When gathering data from external sources, resources are needed for data review and quality control procedures to assure that correct monitoring data is used for assessment (Beach litter).

Use of results

The work carried out in Activity 5 supports:

- Availability of all HELCOM collected biodiversity data via improved HELCOM Biodiversity database web application.
- Collection and harmonization of data for HOLAS 3. This has enabled new and improved indicators, most notably for bycatch (A2.1 Annex 2) and beach litter (A3.1 Annex 1) and the underlying data for the HOLAS 3 thematic assessment on biodiversity and marine litter.
- Improved data flows and data collation enables assessments for MSFD reporting for those HELCOM countries that are also members of the EU, the results can be used for MSFD reporting; Art. 8. Contribute to the Baltic Sea Action Plan (BSAP) in the implementation of action S48

Acknowledgements

- HELCOM Expert Group on Marine Mammals (EG MAMA)
- ICES Data Center
- EMODNet Chemistry
- Keep Sweden Tidy