



Baltic Marine Environment  
Protection Commission



BLUES



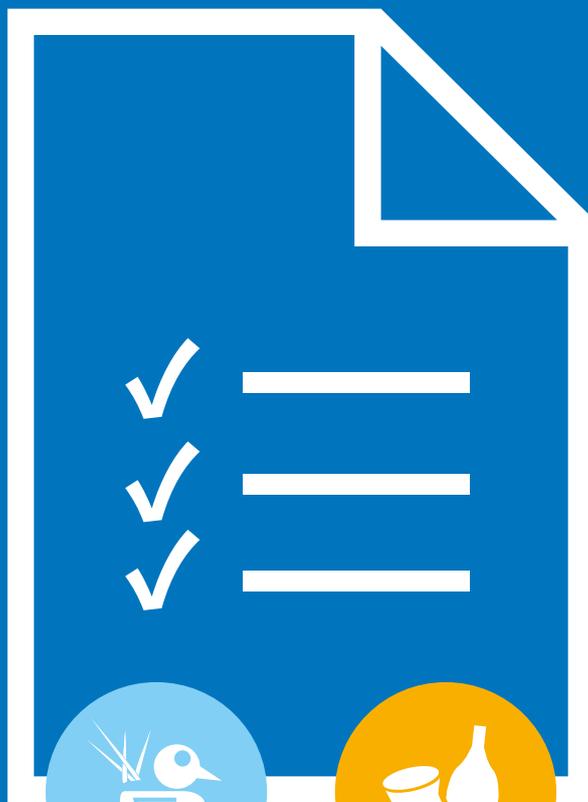
# Final summary report

HELCOM biodiversity, litter,  
underwater noise and  
effective regional measures  
for the Baltic Sea  
(HELCOM BLUES)

Activity 7- Project coordination



2023





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 fulfil 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](#)

This publication is a deliverable of the HELCOM BLUES project’s activity 7 project coordination.

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For bibliographic purposes this document should be cited as: Final summary report: HELCOM biodiversity, litter, underwater noise and effective regional measures for the Baltic Sea. HELCOM BLUES (2023)

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## General information about the HELCOM BLUES project

### EU programme concerned

Marine Strategy Framework Directive: Support to the preparation of the next 6-year cycle of implementation

### Reference number of the call for proposals

DG ENV/MSFD 2020 call

### Title of the project

HELCOM biodiversity, litter, underwater noise and effective regional measures for the Baltic Sea (HELCOM BLUES)

### Grant agreement number

110661/2020/839624/SUB/ENV.C.2

### Name of beneficiary of grant agreement

Baltic Marine Environment Commission – Helsinki Commission (HELCOM)

### Official legal form

Intergovernmental Organisation

### Official registration number

Not applicable

### Official address

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### Name and title of the project manager

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Kiel Institute for the World Economy (IfW)  
Latvian Institute of Aquatic Ecology (LIAE/LHEI)  
Natural Resources Institute Finland (LUKE)  
Swedish University of Agricultural Sciences (SLU)  
Swedish Meteorological and Hydrological Institute (SMHI)  
Stockholm University (SU)  
Swedish Agency for Marine and Water Management (SwAM/HaV)  
Finnish Environment Institute (SYKE)  
Tallinn University of Technology (TalTech)  
University of Veterinary Medicine Hannover (TiHo)  
Center for Earth System Research and Sustainability, University of Hamburg (UHAM-CEN)  
University of Tartu (UT)

### Sub-contractors

AKTiivs Ltd (AKTiivs)  
International Council for the Exploration of the Sea (ICES)  
Gavia EcoResearch (GAR)  
Quiet-Oceans (QO)  
Meereszoologie (MZ)  
Keep Sweden Tidy (KST/HSR)  
Swedish Natural History Museum (NRM)

### Start date and end date of the project

25/01/2021 – 24/01/2023

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## General Information

**Legal basis for call of proposals:** Regulation (EU) No 508/2014 on the European Maritime and Fisheries Fund (EMFF)

**Programme concerned:** MARINE STRATEGY FRAMEWORK DIRECTIVE: SUPPORT TO THE PREPARATION OF THE NEXT 6-YEAR CYCLE OF IMPLEMENTATION

**Reference number of the call for proposals:** DG ENV/MSFD 2020 call

**Title of the project:** HELCOM biodiversity, litter, underwater noise and effective regional measures for the Baltic Sea (HELCOM BLUES)

**Grant agreement number:** No. 110661/2020/839624/SUB/ENV.C.2

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**Official registration No.:** Not applicable

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**Name of partners in the project and abbreviations used:**

1. Baltic Marine Environment Protection Commission - Helsinki Commission (HELCOM), coordinator
2. Kiel Institute for the World Economy (IfW)
3. Luonnonvarakeskus/Natural Resources Institute Finland (LUKE)
4. Universitaet Hamburg/Universität Hamburg (UHAM)
5. Swedish University of Agricultural Sciences, Department of Aquatic Resources (SLU Aqua)
6. Suomen ympäristökeskus/Finnish Environment Institute (SYKE)
7. Stockholms universitet (SU)
8. University of Tartu (UTARTU)
9. Swedish Agency for Marine and Water Management (SwAM)
10. VšĮ Aplinkos apsaugos politikos centras (AAPC)
11. Swedish Meteorological and Hydrological Institute (SMHI)
12. Latvian Institute of Aquatic Ecology, Agency of Daugavpils University (LIAE)
13. Tallinn University of Technology (TALTECH)
14. University of Veterinary Medicine Hannover, Foundation (TiHo)

**Sub-contractors:** AKTiIVS Ltd., GaviaEcoResearch (GAR), Meereszoologie (MZ), Swedish Natural History Museum (NRM), Keep Sweden Tidy (KST), International Council for the Exploration of the Sea (ICES), QuietOceans (QO)

**Start date and end date of the reporting period:** 25/01/2021 – 24/01/2023

**Start date and end date of the project:** 25/01/2021 – 24/01/2023



## A brief overview of the HELCOM BLUES project

### HELCOM BLUES project – general objectives and structure

The aim of the HELCOM BLUES project was to support regional capacity, coordination and cooperation with regards to developing effective measures to secure good status of the marine environment. This included provisioning, and making available, necessary knowledge to advance the development and implementation of joint measures addressing common pressures, as well as to provide concrete support to the decision-making process within the Baltic Sea region. The project specifically focused on the priority areas identified for the Baltic Sea under the Funding Call, namely the development of effective regional measures to reduce existing pressures to the Baltic Sea, considering the state of play of HELCOM's sufficiency of measures (SOM) analysis. This was incorporated through the project work on improving the analyses to support effective regional measures, which functions as the overarching theme of the project as a whole.

As the development of measures is dependent on information on the state of the environment and pressures, the priorities identified for all EU regions in the Call (biodiversity, marine litter and underwater noise in relation to supporting the regional assessment of the extent to which GES had been achieved) were included as integral Activities in the project. Assessment of state and pressures for the identified priority topics required operational assessment methods, indicators and threshold values. Thus, the further development of regional assessment methodologies and indicators for biodiversity, marine litter and noise were targeted by the HELCOM BLUES project. All the tasks included under the Activities were clearly linked to gaps identified following the work on the 'State of the Baltic Sea' report from HOLAS II (HELCOM 2018), and priorities identified during the planning and preparatory work building up the Third Holistic Assessment of the Baltic Sea (HOLAS 3), which covers the assessment period 2016-2021 and took place in the interval 2022-2023.

Accordingly, the improvements and further developments included in the work under HELCOM BLUES supported the overall implementation of the BSAP and the MSFD (and the implementation of the 2017 GES Decision) by providing needed improvements to the regional assessment of status as well as improved analyses to identify in the future new effective regional measures to fill gaps where good status had not yet been achieved.

The BLUES project will specifically address the following issues, via designated activities (A):

- A1: Analyses to support effective regional measures and policies
- A2: Improved regional assessment of biodiversity
- A3: Support for, and harmonisation of, regional work on Descriptor 10: marine litter
- A4: Support for, and harmonisation of, regional work on Descriptor 11: underwater noise
- A5: Data accessibility
- A6: Dissemination
- A7: Project coordination

The supervision of the project took place through the regular HELCOM working arrangements i.e. through guidance and review by HELCOM technical groups and expert groups during the course of the project. Through this arrangement the project results were also be directly available to national policy leads for the MSFD in the Baltic Sea region, who were accordingly enabled to follow the project and ensure that it remained relevant for requirements of the MSFD.



The methodological framework developed in the project is expected to be applicable also in other marine regions and dissemination through MSFD CIS and other Regional Seas Convention, in particular OSPAR, took place during the course of the project.

### General structure of this final summary report of HELCOM BLUES

This overall project report of HELCOM BLUES briefly summarizes the seven different activities as well as their (sub-)tasks and achieved deliverables.

At the end of each activity section, an overview table is provided with the activity-specific (sub-)task, involved partners, the deliverables and the accomplished outputs. Links to relevant HELCOM meetings and workshops are provided for each (sub)task at the end of the appropriate text sections of this summary report.

Each of the five key activities (A1-A5) has a main report, providing a short summary, key messages (for science/policy makers) and outline of the use of results (now and in the future) as part of HELCOM, BSAP, MSFD, and other international processes and conventions.

Please note that A6 and A7, providing support for successful project implementation, via dissemination and coordination, do not have these main reports and are described in this project summary report.

### HELCOM meetings

#### Input to the project

The supervision of the project took place through the regular HELCOM working arrangements i.e. through input into the project via dedicated Expert Groups (EG), as well as guidance and review by HELCOM Working groups (WG). Regional approval was ensured for any project outcomes such as adjusted and new developed methodology, threshold values, indicators and evaluations, by approval via Heads of Delegation (HOD). Through this arrangement the project results are also directly available to national policy leads for the MSFD in the Baltic Sea region that can follow the project and ensure that it remains relevant for requirements of the MSFD.

Alignments and harmonisation of HELCOM BLUES processes and regional work has been ensured by inviting relevant experts (e.g., from sister projects such as NEA PANACEA) to meetings, and participating in EU meetings (such as TG Noise, TG Litter, JRC Pelagic habitat, and sister projects meetings). Several of the project partners are also actively involved in groups of both HELCOM and OSPAR (DE, DK, SE) which facilitates information exchange and harmonisation of work even further.

#### Meetings and informal consultation sessions

Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. However, due to the geopolitical situation, HELCOM has been in a strategic pause since March 2021 until further notice. This means that official meetings of all HELCOM Working and Experts Groups and other subsidiary bodies are postponed due to the HELCOM strategic pause until further notice. However, informal consultation sessions, without Russian participation, could be organized and hosted by a Contracting Party. These informal consultation workshops can process and discuss documents and provide guidance and recommendations as to how to progress work. Meetings and informal consultation sessions, with relevance to the HELCOM BLUES project, are listed at the end of each of the activity (sub-)task sections, with links to the individual meeting portal site.



## Summary of project output

In general, the HELCOM BLUES project achieved following outputs:

- 47 documents for final reporting (41 pdf, 3 excel files, 1 media package, 1 model package, 1 PowerPoint)
- 6 newly developed (pre-)core indicators for biodiversity, marine litter and underwater noise (2 harbour porpoise; 1 coastal fish size; 2 underwater noise; 1 beach litter)
- 2 approved monitoring guidelines for microlitter (sea bed and water column)
- 5 further advanced indicators (1 bycatch; 2 coastal fish (species and groups); 1 zooplankton; 1 phytoplankton)
- New developed [indicator website](#)
- Test cases for food webs and pelagic habitats in the Baltic Sea (first time)
- Improved methodology for various indicators, BEAT, economic and social analyses
- Input to various chapters of the HOLAS 3 thematic assessment reports for [ESA](#), [biodiversity](#), and [pollution](#)
- 1 new expert group at HELCOM (EG FOODWEB)
- Bonus output: Socioeconomic assessment of the Baltic Sea marine ecosystem services for assessing well-being impacts of marine protection and management policies (Pakalniute et al. 2023)
- 6 project videos (2 on HELCOM BLUES; 3 on central themes (i.e. indicators, ESA, and holistic assessments); 1 final project video)
- [Project website](#) with all material (project overview on activities and partners; videos; media pack; brochure; interviews; news; final conference material)
- Several dozen of workshops/meetings/IC sessions to give input, guide and approve the process
- Scientific publications (3 published, 3 manuscripts, many more in preparation)
- Coding done (e.g. on BEAT and SOM)
- Data flows/reporting improved
- Sharing knowledge with regional and European colleagues, e.g. via sister projects and TG groups (and various other meetings)

More detailed information on the outputs can be found in the table overview section for each Activity/task of the project, as well as in the summary reports of Activity 1-5.

## HELCOM BLUES project objective and support on the next implementation cycle

The aim of the HELCOM BLUES project has been to support regional capacity, coordination and cooperation with regards to developing effective measures to secure good status of the marine environment. This included provisioning, and making available, necessary knowledge to advance the development and implementation of joint measures, as well as to provide concrete support to the decision-making process within the Baltic Sea region.

Activity 1 contributed to the development and implementation of effective regional measures for the EU MSFD and HELCOM 2021 BSAP by further advancing the framework, methodology and data to systematically and transparently assess the effectiveness, sufficiency and socio-economic aspects of measures. The analysis builds on the approaches and data developed for the sufficiency of measures (SOM) and cost-effectiveness analysis conducted by HELCOM and the ACTION project. The activity further enabled inclusion of benefit estimates to the analysis and conducted a cost-benefit analysis of achieving good state for selected environmental topics. The framework enabled region-level analysis for the Baltic Sea, such as estimation for



cost of degradation and willingness to pay, both of which are needed in 2024 for the reporting under Art.8 MSFD. In the longer term, the approaches and results produced within BLUES are also foreseen to contribute directly to the development of effective measures in the Baltic Sea, both through the BSAP and national PoMs under the MSFD.

Activity 2-4 support implementation of the 2017 GES Decision by advancing and developing new indicators, threshold values and underlying integration rules for the topic of biodiversity, marine litter and underwater noise (e.g., new pre-core indicator on harbour porpoise, beach litter and impulsive/continuous noise, as well as integrated biodiversity tool, i.e. BEAT). Consequently, previous identified shortcomings and gaps in previous assessments have been addressed and topics advanced.

The project also facilitated regional cooperation of member states and enhanced synergies and efficiency between activities conducted under the regional sea conventions and the EU MSFD process, thus avoiding duplication of effort. Cooperation with e.g., OSPAR has taken place across several topics, such as for Harbour porpoise, bycatch, food webs and pelagic habitat. Cooperation with sister projects under the same call has also been established and exchange of approaches and methodology ensured (especially NEA PANACEA on various topics, and HARMONIZE on underwater noise). Generally, the methods and tools developed are also usable in other marine areas.

The outcomes across activities were designed to support the third HELCOM holistic assessment of the state of the Baltic Sea (HOLAS 3) and EU MSFD Assessment, as well as the implementation of the HELCOM BSAP and national EU MSFD Programmes of Measures (PoMs). Overall, work has been carefully aligned with and provided concrete support to the national MSFD reporting of the HELCOM Contracting Parties who are also EU Member States, with much of the HELCOM BLUES work moving directly from the project to regional approval processes and being incorporated in the 2023 status assessment. The project ensured that timelines of all processes (from data collation, over expert meetings, to decision and approval processes) were adjusted for accommodation of national MSFD processes. All indicator evaluation results and assessments done under BLUES are available for the Baltic Sea EU Member States to use for national reporting purposes, enabling reporting results at an ecologically appropriate level, where this extends beyond national borders. Where direct results are not used, e.g. additional national data is included or modifications are needed, the methodology and tools are available for use, supporting coherence in MSFD reporting. The work done in the HELCOM BLUES project has thus benefited and supported the preparation of the next 6-year cycle of implementation.

## A1 Analyses to support effective regional measures

Activity 1 contributed to the development and implementation of effective regional measures for the EU MSFD and HELCOM BSAP by further advancing the framework, methodology and data developed in former HELCOM projects and activities to systematically and transparently assess the effectiveness, sufficiency and socio-economic aspects of measures. The activity further developed the existing assessment framework, collected improved data, included benefit estimates to the analysis and conducted a cost-benefit analysis of achieving good state for selected environmental topics. The framework enables region-level analysis for the Baltic Sea, while the general methods and tools will be usable also in other marine areas. The outcomes were designed to support the next HELCOM holistic assessment of ecosystem health (HOLAS 3) and EU MSFD Initial Assessment, as well as the implementation of the HELCOM BSAP and national EU MSFD Programmes of Measures (PoMs). In the longer term, the approaches and results produced within BLUES Activity 1 will further contribute to the development of effective measures in the later cycles of the BSAP and PoMs.

The BLUES project received active input through the existing working arrangements in HELCOM, which included the relevant Expert Groups, Networks and Working Groups and HELCOM HOD. Each of these groups consists of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project are relevant and usable for Contracting Parties, from a scientific and policy perspective. In particular, Activity 1 was being developed under the guidance of the HELCOM GEAR Group and EN ESA as the relevant Expert Network. Furthermore, Activity 1 utilised the outputs and expertise from Activities 2, 3 and 4 to ensure that the approaches are relevant and appropriate to each environmental topic and that all results are interpreted correctly.

HELCOM meetings and informal consultations (IC) sessions, which have discussed and provided input to the work of Activity 3 are listed at the end of each task section below, including the link to the relevant Meeting Portal site, where all documentation is available. Please note that IC sessions, however, require a user registration to access the content.

### A1: Task 1.1 Developing the assessment framework

This task worked on the improvement of the assessment framework for sufficiency, effectiveness and socio-economic impacts of measures for the Baltic Sea Region to enable a more extensive and accurate consideration of the environmental and economic effectiveness of measures and was thus the premise for an updated, improved and more complete regional assessment (A1.4). The task was divided into four different subtasks:

#### 1.1.1 Develop the general framework

The framework used in the previous ACTION project has been reviewed and improvements decided for the application of the model. Changes were taken into account for the model framework development, including e.g. taking into account input for benefits, spatial aspects, joint and transboundary effects. These include, e.g. including the North Sea for transboundary effects, improved links between pressure inputs, pressures and state, to decide where joint effects can be improved, climate change impacts and many more (please see report (A1.1 Annex 1 for details). The implementation of the general framework into the SOM model (A1.4.2) has been delayed due to some challenges in receiving the previously used model code from the ACTION project as well as a need to redevelop many of the model parts to better fit the existing HELCOM data structures (please see detailed report on this in A1.4.2 Annex 1). Discussions of the framework have taken place in the relevant HELCOM Meetings (please see meeting list below). Adjustments to the general



framework are listed in the document A1.1 Annex 1 and coding description on the model framework can be found in A1.4.2 Annex 2.

#### 1.1.2 Include consideration of benefits

A conceptual approach for including economic benefits of measures to the assessment framework based on benefit studies as well as the DPSIR/DAPSIM framework was developed (please see document A1.1 Annex 1 on inclusion of benefits into the framework). The consideration of benefits were used in different parts of the project such as the cost of degradation, cost-benefit, and use of marine waters analyses.

Under subtask 1.1.2 (and related to Task 1.3), efforts were made towards the implementation of the ecosystem services (ES) approach, with the aim to support the integration of economic and social analyses and environmental assessments for HOLAS 3, e.g. in joint analysis of the supply and demand of ES in collaboration with the HELCOM MetDev project. Under this work strand, a general framework for marine and coastal ES assessments has been outlined, and ES classification and tentative examples for illustrations of potential results were selected. Furthermore, BLUES has supported the work on ecosystem accounting, taking mainly place in the MetDev project. The related output is available as additional output, A1.4 Bonus Annex 1).

#### 1.1.3 Improve consideration of spatial aspects

Spatial divisions and improvements on spatial resolution were discussed and decided, i.e. spatial division of marine areas consider also HELCOM scale 2 subbasins with national divisions (42 total areas), as well as catchment areas and national boundaries. Implementations of better spatial division like country/subbasin areas were implemented and considerations also made to account for smaller divisions and better spatial resolution. Consideration of spatial aspect improvements for the model framework are part of the report of A1.1. Annex 1 (coding description on the model framework for spatial aspects can be found in A1.4.2 Annex 2).

#### 1.1.4 Improve consideration of joint and transboundary effects

Improved consideration of the joint and transboundary effects have been included into the conceptual model framework and were implemented. This includes e.g. links between pressure inputs, pressures and state, and inclusion of a separate spatial unit for the North Sea. More detailed information is available as A1.1. Annex 1 and A1.4.2 Annex 2, on the model framework).

For more details on the deliverables in tasks 1.1.1-1.1.4., please see the A1 specified main report and annexes as stated above and in the A1 summary table below.

The task 1.1 “Developing the assessment framework” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).



Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 25-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [EN ESA 11-2021](#); [EN ESA 12-2021](#); [EN ESA 13-2021](#); [EN ESA 14-2021](#)

IC Sessions: [IC BLUES 1-2023](#); [IC GEAR 2-2022](#); [IC BLUES 1-2023](#)

## A1: Task 1.2 Improved data for the assessment

This task gathered and adapted data to enable a more rigorous and comprehensive analysis of the effectiveness of measures in the future, by building additional linkages within the assessment framework for measures. This task was divided into three subtasks:

### 1.2.1 Improve pressure input – pressure links

Improvements on the relationship between pressure inputs, pressures and state components were explored and discussed with the HELCOM expert groups (please see below). Changes include, e.g. new links between input of nutrients and effects of eutrophication, as well as climate change related pressures. Improved links were established conceptually and are considered for the model framework and implementation. Model improvements made in subtask 1.1.1 also benefit this task through improved flexibility of links between pressures (see also documents A1.1. Annex 1 and A1.4.2 Annex 2).

### 1.2.2 Add indicators and GES thresholds

Planning of new and revised topics structures was done and finalised, while discussions with relevant experts were incorporated. Improvements to topics were explored and implemented, e.g. for marine mammals, birds and coastal fish, including e.g. new/revised measures, data sources, or threshold values. Some experts have been asked for direct input (e.g. bird experts from JWG BIRD), while more elaborate changes have been discussed at official EG meetings (e.g. at EG MAMA, please see meeting below).

In this process, Zooplankton was added to the model including full topic structure and survey. New development of GES threshold values (e.g. beach litter) were considered and ready for incorporation. The topic of marine mammals received a full topic structure review and update. Waterbirds received a partial topic structure review and update. Information is also listed in documents A1.1. Annex 1 and A1.4.2 Annex 2.

### 1.2.3 Improve data on effectiveness and costs of measures

Work on improving the data on effectiveness of measures was completed, e.g. improvements for structural changes to the measure types and effectiveness of measures data have been done e.g. to the topic of marine mammals (discussions at EG MAMA 15-2021) and birds (correspondence with some selected experts from JWG Bird and the BLUES project). Discussions on weighting schemes for marine mammals were done and input from relevant experts received (e.g. with EG MAMA experts). For the costs of measures, relevant literature/data were identified and collated (including ACTION and ACTeon). Data were aligned and harmonised, with implementation of structural changes taken into consideration.

Collaboration with HELCOM BLUES sister projects have been sought but after scoping discussions, it became apparent that the projects will not be aligned with one another by differences in either topic focus or timelines for the deliverables. Collation on data on effectiveness and cost of measures done and utilised for adjustments of e.g. topic surveys. Details are available in A1.1 Annex 1 and A1.4.2 Annex 2 and A1.2 Annex 1.



The task 1.2 “Improved data for the assessment” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 25-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [EN ESA 11-2021](#); [EN ESA 12-2021](#); [EN ESA 13-2021](#); [EN ESA 14-2021](#); [EG MAMA 15-2021](#); [PLC-8 IG 3-2021](#)

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC BLUES 1-2023](#)

### A1: Task 1.3 Estimation of benefits

The work in this task enabled a more encompassing analysis of the efficiency of policies by collecting existing information to enable the assessment of benefits of implementing measures and achieving environmental objectives. This task was divided into two subtasks:

#### 1.3.1 Conduct literature review

Literature on recent benefit estimates were identified, collected and reviewed, and recording relevant information from the studies for benefit estimation for Task 1.4 completed. Collaboration was established with the BONUS ROSEMARIE project to share data with HELCOM BLUES, and ACTeon also shared their data on MSFD benefits. Details are available in A1 report and in A1.3 Annex 1.

#### 1.3.2 Produce benefit estimates

An approach for producing (region-wide) benefit estimates was developed with input from EG ESA, which enabled value transfer and scaling of benefit estimates. The suggestion on how to deal with value transfer for regional assessment was discussed and agreed with Contracting Parties (e.g. STATE&CONSERVATION 15-2021 and GEAR 25-2021). Based on the received feedback, the approach was further developed and implemented. The output is available as A1.4 Annex 1 [Thematic Report on Economic and Social Analyses for HOLAS 3](#), as part of Annex 1.1 (Improved approach for assessing regional benefits) and as part of Chapter 4 (Regional benefit estimates of achieving good environmental status).

The task 1.3 “Estimation of benefits” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).



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Expert Group Meetings: [EN ESA 11-2021](#); [EN ESA 12-2021](#); [EN ESA 13-2021](#); [EN ESA 14-2021](#)

IC Sessions: [IC BLUES 1-2023](#)

## A1: Task 1.4 Effectiveness of measures and policy-support

This task conducted regional analyses aimed at supporting the effective implementation of marine policies and the third State of the Baltic Sea report (HELCOM HOLAS 3) by building on the improved and developed approached from the other three tasks (1.1-1.3). This task was divided into five subtasks:

### 1.4.1 Conduct use of marine waters analysis

The work applied both the marine waters accounts and ecosystem services approaches to characterize the economic impacts from the use of marine waters, employing the regional approach developed in the TAPAS and SPICE projects. Review and discussions on the previously used approach, used in HOLAS II, were completed, and main activities to conduct the economic and social analysis of use of marine water identified. Possibilities for including updated data were explored – mostly via the started HOLAS 3 data call and collaboration with the MetDev and Baltic Data Flow project (both HELCOM projects). Most required data were gathered within the BLUES project, the HELCOM Data Flow project, and in cooperation with EG ESA. Plans for the scope of the analyses were discussed and received input from EG ESA and the two working groups (GEAR and STATE&CONSERVATION) incorporated into the work. The performed assessment was able to include updated data for the analyses for topics that were available in HOLAS II for the assessment. Furthermore three completely new human activities could be included into the assessment for HOLAS 3, namely “Extraction of oil and gas”, “Extraction of minerals”, and “Waste treatment and disposal”. Other activities that were deemed relevant for future assessments, are also listed. The detailed assessment can be found as [HOLAS 3 thematic assessment report on ESA](#). The document is available as A1.4 Annex 1, Chapter 3.

### 1.4.2 Carry out improved effectiveness of measures analysis

Review of previously done work in the ACTION project on the effectiveness of measures were completed and improvements identified for various parts, such as topic structures, spatial aspects etc., and changes discussed in close cooperation with topic experts e.g. for birds and marine mammals (Tasks 1.1 and 1.2). Premise of completing the general framework development was finalized (based on Task 1.1) and data collection finished (in Task 1.2). Please note that, due to several challenges, the deliverable for this task could only be partially accomplished.

Incorporation of improvements into the coding model for analysis is partially achieved and thus the analysis not run. Descriptions on challenges and discussion on status of the work and how to proceed in the future are available as report A1.4.2 Annex 1. The code, its implemented improvements, as well as instructions for continuation are available as A1.4.2 Annex 2.

### 1.4.3 Conduct cost of degradation analysis

In HOLAS II, cost of degradation analysis used a combined thematic and ecosystem services approach, based on the methods developed in the TAPAS and SPICE projects. Review of the used approach for cost of degradation analysis in HOLAS II was performed and cost of degradation estimates carried out for all Contracting Parties. Please note that for several of the CP a benefit transfer was required to generate



estimates for the analyses (uncertainties discussed for this approach). Reaching GES by 2040 was estimated to give overall benefits of around 5.6 billion €/year to the regions' population. The region is also estimated to be missing out on 9 billion euros in recreational benefits per year due to degraded environmental conditions. Please note that these two different estimates should not be summed and represent different, overlapping perspectives.

All plans and developments were discussed and received input from EG ESA and the two working groups (GEAR and STATE&CONSERVATION) and improvements were incorporated accordingly. The detailed assessment can be found as [HOLAS 3 thematic assessment report on ESA](#). The document is available as A1.4 Annex 1, Chapter 4.

#### 1.4.4 Conduct cost-benefit analysis for selected topics

Review of any existing information on costs and benefits of achieving GES was performed and tentative topics for running a cost-benefit analyses were reviewed. During this process, major knowledge gaps for each of the tentative environmental topics became apparent, preventing a full-scale cost-benefit analysis. Thus, as written already in the progressive report, the subtask was refocused slightly towards developing a practical approach for implementing a Baltic Sea scale cost-benefit analysis, compiling existing data on effects, costs and benefits to support future evaluations of measures, outlining knowledge gaps, and demonstration of an example analysis for one topic. Thus, instead of focusing on 1-2 environmental topics, an available data review with gaps was done for all 9 topics. This information is e.g., included in an overview for "Indicative evaluation of general information conditions for cost-benefit analyses by topic", which showcases different levels of information (environmental, socio-economic etc) for each topic. The following example analysis (done on marine litter) lists requirements, challenges and recommendations for each of the steps to carry out a full Baltic Sea marine litter CBA. This change of focus was supported by EG ESA 14-2021. All plans and developments were discussed and received input from EG ESA and the two working groups (GEAR and STATE&CONSERVATION) and improvements were incorporated accordingly. The detailed information can be found as [HOLAS 3 thematic assessment report on ESA](#). The document is available as A1.4 Annex 1, Chapter 6.

#### 1.4.5 Incentives and implementation of measures

Planning for identifying existing incentive structures and regulations in the Baltic Sea region on nutrient mitigation was done and a survey designed and shared with CP on policy instruments and implementing efficient protection for the Baltic Sea. Network overview was incorporated from 2 scientific publications (please see table below, supportive information) and information on this task is available in more detail in the A1 main report and especially as the report "The role of policy instruments in planning and implementing efficient protection for the Baltic Sea" (A1.4.5 Annex 1).

For more details on the deliverables in tasks 1.4.1-1.4.5, please see the A1 specific Effectiveness of measures and policy-support main report and its annex. This dedicated report has a more detailed summary of the different subtasks as well as overall key messages for science and policy. Furthermore, a section on use of results (e.g., in relation to the specific BSAP actions, MSFD criteria, and other EU processes) is included. Individual deliverables and outputs such as separate reports, gathered data, publications etc. are annexed to the A4.1 report and are also outlined in the table below.



#### A1.4 Bonus output: Report on the Socioeconomic Assessment of Ecosystem Services

The Ecosystem Service (ES) approach was utilised under several of the tasks as part of Activity 1 in the project. Collating information and results in relation to ES was a necessary and beneficial aspect for facilitating the work on many of the other A1 (sub-)tasks. Information and approaches were also communicated to the relevant HELCOM expert group (EG ESA) for input and guidance. The done work addressed the gaps and identified needs for further development of the ES approach and assessments to support the Baltic Sea policies. Thus, the written report highly facilitated the work for the [thematic assessment of HOLAS 3 for ESA](#) and is available as a bonus output of Activity 1 in BLUES. More information and details are available in the A1 main report and in the report A1.4 Bonus Annex 1.

The task 1.4 “Effectiveness of measures and policy-support” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 25-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [EN ESA 11-2021](#); [EN ESA 12-2021](#); [EN ESA 13-2021](#); [EN ESA 14-2021](#); [EG MAMA 15-2021](#); [EN ESA 15-2022](#)

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC GEAR 2-2022](#); [IC EG ESA 1-2022](#); [IC S&C 2-2022](#); [IC GEAR 3-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

In general, the information related to the progress of Activity 1 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables.



Tabular summary of A1

Activity 1: Task 1.1 Developing the assessment framework (Lead: Luke)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
1.1.1 Develop the general framework	Luke AKtiVS HELCOM	- general development of the existing assessment framework - take input and development ideas of SOM into account - improve flexibility of analysis (to allow topic specific conditions and features & improve usefulness of results)	<b>Completed</b>  <b>Output</b> Framework has been reviewed and further developed, details are available as A1.1 Annex 1 and A1.4.2 Annex 2.
1.1.2 Include consideration of benefits	Luke IfW AAPC AKtiVS SwAM	- incorporate the assessment of environmental and ecosystem service benefits of implementing measures and achieving environmental objectives	<b>Completed</b>  <b>Output</b> Framework has been reviewed and includes ecosystem service benefit considerations, details are available as A1.1 Annex 1. Extra output available as document A1 Bonus Annex 1.
1.1.3 Improve consideration of spatial aspects	Luke HELCOM	- identify topics and elements for which improving the spatial resolution of the analysis would be the most relevant to the effective development and implementation of regionally coordinated measures - evaluate how increasing spatial resolution of the analyses could contribute to policy implementation - evaluate how generalizable are the effectiveness estimates of spatially limited measures	<b>Completed</b>  <b>Output</b> Framework of spatial resolution has been reviewed and further developed to include better spatial resolution, details are available as A1.1 Annex 1.
1.1.4 Improve consideration of joint and transboundary effects	Luke HELCOM	- develop conceptual approaches for considering the potential multiple, synergistic and antagonistic, as well as transboundary effects of measures	<b>Completed</b>  <b>Output</b> Framework of spatial resolution has been reviewed and further developed, details are available as A1.1 Annex 1.



*Activity 1: Task 1.2 Improved data for the assessment (Lead: HELCOM)*

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
1.2.1 Improve pressure input – pressure links	Luke HELCOM	- improve the current evaluation of the relationship between pressure inputs and pressures - improve the coverage and accuracy of the assessments of measure effectiveness (by adding several pressures).	<b>Completed</b>  <b>Output</b> Improvements discussed and incorporated. Details are available in A1.1 Annex 1 and A1.4.2 Annex 2.
1.2.2 Add indicators and GES thresholds	Luke HELCOM	- include new indicators and GES thresholds to enable proper assessment of sufficiency and effectiveness of measures	<b>Completed</b>  <b>Output</b> New topics and adjustments of previous ones made. Details are available in A1.1 Annex 1 and A1.4.2 Annex 2.
1.2.3 Improve data on effectiveness and costs of measures	Luke IfW AKtiivS SwAM HELCOM	- improve the utilization of existing literature and model-based data on the effectiveness and costs of measures - collect additional data on the effectiveness and costs of measures	<b>Completed</b>  <b>Output</b> Collation on data on effectiveness and cost of measures done and utilised for adjustments of e.g. topic surveys. Details are available in A1.1 Annex 1 and A1.4.2 Annex 2 and A1.2 Annex1.

Activity 1: Task 1.3 Estimation of benefits (Lead: Luke)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
1.3.1 Conduct literature review	Luke IfW AKtiiVS AAPC	- review of recent benefit estimates in published and grey literature	<p><b>Completed</b></p> <p><b>Output</b> Collation on literature completed and data available as A1.3 Annex 1.</p>
1.3.2 Produce benefit estimates	Luke IfW AAPC AKtiiVS SwAM	<p>- produce benefit estimates that can be incorporated into the assessment framework (via collected valuation studies)</p> <p>- develop and apply approach for adjusting the benefit estimates for different levels of changes in environmental state</p>	<p><b>Completed</b></p> <p><b>Output</b> Benefit estimates and value transfers completed with ready developed and applied approaches available as A1.4 Annex 1 Thematic Report on Economic and Social Analyses. -Annex 1.1 (Improved approach for assessing regional benefits) and -Chapter 4 (Regional benefit estimates of achieving good environmental status).</p>



Activity 1: Task 1.4 Effectiveness of measures and policy-support (Lead: Luke)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
1.4.1 Conduct use of marine waters analysis	Luke AAPC AKtiVS HELCOM	- conduct an economic and social analysis of the use of marine waters - provide information on the future development of the activities (within frame of HOLAS 3)	<b>Completed</b>  <b>Output</b> Described in more detail in the A1 main report. Report on the analyses for use of marine waters available as A1.4 Annex 1, Chapter 3. (part of the <a href="#">HOLAS 3 thematic assessment of ESA</a> )
1.4.2 Carry out improved effectiveness of measures analysis	Luke IfW AKtiVS HELCOM	- carry out an improved effectiveness and sufficiency of measures analysis	<b>Partially completed</b> Done: -review of previous work -improvements identified and methodology updated via task 1.1 and 1.2 for updating the model  Partially done: -model updates for incorporating new improvements for analysis  <b>Output</b> Description on challenges and discussion on status of the work available as report A1.4.2 Annex 1 The code, its implemented improvements, as well as instructions for continuation are available as A1.4.2 Annex 2.
1.4.3 Conduct cost of degradation analysis	Luke IfW AAPC AKtiVS HELCOM	- conduct a cost of degradation analysis based on benefit estimates (within the frame of HOLAS 3 work)	<b>Completed</b>  <b>Output</b> Described in more detail in the A1 main report. Report on the analyses for cost of degradation available as A1.1 Annex 1, as Chapter 4. (part of the <a href="#">HOLAS 3 thematic assessment of ESA</a> )

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
1.4.4 Conduct cost-benefit analysis for selected topics	Luke IfW AAPC AKtiivS SwAM HELCOM	- develop a conceptual approach for a regional cost-benefit analysis of achieving good status of the marine environment implement the analysis for 1-2 selected environmental topics	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A1 main report. Report on the analyses for cost-benefit available as A1.4 Annex 1, Chapter 6 (part of the <a href="#">HOLAS 3 thematic assessment of ESA</a>)</p>
1.4.5 Incentives and implementation of measures	Luke AAPC HELCOM	- provide an overview of the network of existing incentives and evaluate how they could benefit from more systematic monitoring and data collection	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A1 main report. Network overview and questionnaire with CP done. Report finished, available as A1.4.5 Annex 1 Supportive information as 2 (not public yet, please see below)</p>
<p>The work achieved progress and results of the work under HELCOM BLUES A1.4 have also supported the following bonus output:</p> <ul style="list-style-type: none"> <li>• A1.4 Bonus Annex 1: Socioeconomic assessment of the Baltic Sea marine ecosystem services for assessing well-being impacts of marine protection and management policies (Pakalniute et al. 2023)</li> </ul> <p>The achieved work under HELCOM BLUES A1.4.5 has enabled following supportive information:</p> <ul style="list-style-type: none"> <li>• Iho and Ahtiainen 2023 (manuscript). MANAGEMENT OF BALTIC SEA EUTROPHICATION. To be published by Water Encyclopedia by Elgar</li> <li>• Iho and Ahtiainen 2023 (manuscript). ENVIRONMENTAL ECONOMICS FOR EFFICIENT MARINE PROTECTION: THE EXAMPLE OF THE BALTIC SEA. To be published by Water Encyclopedia by Elgar</li> </ul>			

## A2 Improved regional assessment of biodiversity

Activity 2 addressed a series of key biodiversity elements that were identified, through regional review processes, as areas where improvements in the assessment of state were needed by HOLAS 3. The identified themes, represented as separate Tasks, were highly mobile species groups (e.g. mammals, birds and fish), under-reported groups (cetaceans and non-commercial fish), and other priority topics, which were identified in recent HELCOM review processes to be knowledge/assessment gaps and/or aspects of high regional priority. Consequently, the work carried out was practically oriented (directly relevant for assessment), resulted in concrete outcomes, and provided a basis to contribute to the implementation of the MSFD (e.g. improved MSFD D1 assessment (as well as touching on D3 and D4) via HELCOM indicators). The process also ensured regional cooperation and contributed directly to the regional status assessment work done under HELCOM (e.g., indicator reports and HOLAS 3).

The BLUES project received active input through the existing working arrangements in HELCOM, which included the relevant Expert Groups, Working Groups and HELCOM HOD. Each of these groups consists of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project were relevant and usable for Contracting Parties, from a scientific and policy perspective. In particular, Activity 2 was developed under the guidance of the working group STATE&CONSERVATION. Expert groups that provided input and guidance on the work in support of the regional assessment of biodiversity are as follows: Expert Group on Marine Mammals (EG MAMA), Joint Working Group on Birds (JWG BIRD), Correspondence Group on Fisheries Data (CG FISHDATA), Fish Pro III, Phytoplankton Expert Group (PEG), Zooplankton Expert Network (ZEN), and Correspondence Group on Food Webs (CG FOODWEB). Please note, despite CG FISHDATA currently not being an active group due to completion of its last ToRs, interaction and input has been maintained with key persons in that group via correspondence by BLUES members.

HELCOM meetings and informal consultations (IC) sessions, which have discussed and provided input to the work of Activity 2 are listed at the end of each task section below, including the link to the relevant Meeting Portal site, where all documentation is available. Please note that IC sessions, however, require a user registration to access the content.

### A2: Task 2.1 Bycatch

Overall, the work in this task aimed for the further development and operationalisation of a HELCOM state indicator, with the goal to achieve an improved and more complete regional assessment. This task was divided into two different subtasks:

#### 2.1.1 Further development of risk area mapping

Work in this subtask was carried out on data requested for fishing effort and bycatch from ICES, under Activity 5 (as signed in June 2021). Data from ICES were delivered in June 2022, and other available data (HOLAS3, literature, other sources from CP etc) was also incorporated into the work. Data limitations caused uncertainty and limitations in the analyses of risk mapping areas, and enhanced data sharing and collection is strongly encouraged to improve future evaluations in the Baltic Sea region. This related both to better (e.g., higher frequency or resolution) species distribution data as well as more complete fishing effort data (e.g., for smaller vessels). The work (data, methodology, preliminary results) was discussed, and input received at a regional workshop on bycatch (IC BLUES BYCATCH 1-2022), with received input incorporated into the work.



Plans and progress on the bycatch assessment were endorsed by STATE&CONSERVATION with regional input received from JWG BIRD, EG MAMA, FISH and GEAR (please see meeting list below).

Overall, application of risk mapping in this task was performed for 3 seal species and 11 waterbird species in the Baltic Sea, allowing the work to identify some (species-specific) areas of high bycatch risk. Some more details on use of results and key messages are available in the A2.1 main report. Details on data, methodology, results and discussion can be found in the risk map report, available as document A2.1 Annex 1.

#### 2.1.2 Evaluating bycatch assessment approach developed in OSPAR-HELCOM by-catch workshop

Work in this subtask was focussed on applying relevant proposals on threshold value setting approaches in an indicator concept, based strongly on the previous conclusions of the joint OSPAR-HELCOM WS on bycatch (2019). Developments on approaches and threshold values were presented at various Expert Groups events and at a dedicated consultation session on bycatch (IC BLUES BYCATCH 1-2022). Received input was taken into account and further guidance received from HELCOM WG meetings (STATE&CONSERVATION), with approval of methodology, threshold values and final indicator reports on bycatch by HOD (please see full meeting list below).

As a consequence of the regional review and input process collaboration also developed with external experts (e.g. experts that were not full project members, for example DTU Aqua) and experts from BLUES A2.4. These collaborations resulted in an even stronger development of the work as more advanced approaches were also possible to consider. These included model-based evaluations of 'modified' Potential Biological Removal (mPBR) for the harbour porpoise (Belt Sea population), PBR (Potential Biological Removal) for a number of seal species (and management areas), and Population Viability Analysis (PVA) for birds (though could not be fully applied due to a lack of appropriate regional data). In addition, where appropriate, threshold values were also developed for species or management areas where the populations were endangered (e.g., Red Listed).

Data for this work was received via a data request on bycatch to ICES and to HELCOM Contracting Parties (via the HOLAS 3 process), and from literature. The lack of (monitoring) data still causes challenges in this work as even in cases where a threshold value can be shown to be exceeded it can remain a poor representation of the overall impact of bycatch. It is thus considered vital that agreed regional monitoring is implemented in the future.

However it was possible to develop an indicator assessment (indicator report on bycatch included in HOLAS 3), approved by all Contracting Parties for 6 marine mammal populations (or management areas) and 11 waterbird species, all showing that Good Environmental Status is not achieved. More information can be found in the A2.1 main report, including key messages and use of results. Details on data, methodology, results and discussion can be found in the indicator report on bycatch, available as A2.1 Annex 2. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with a dedicated chapter on bycatch.

The task 2.1 "Bycatch" discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into "informal consultation sessions", which are currently not openly accessible to but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).



Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [FISH 13-2021](#); [STATE & CONSERVATION 15-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [BEAT WS 1-2021](#); [IND INF 1-2021](#); [EG MAMA 15-2021](#)

IC sessions: [IC STATE & CONSERVATION 1-2022](#); [IC GEAR 2-2022](#); [IC HOD 1-2022](#); [IC BLUES BYCATCH 1-2022](#); [IC S&C 2-2022](#); [IC GEAR 3-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

## A2: Task 2.2 Non-commercial fish

This task focused on ecological assessments of coastal and offshore fish for which ICES does not provide full analytical reference points (i.e. no reference assessments). The work was divided into two different subtasks:

### 2.2.1 Improved assessment approach for coastal fish

The benefits of applying the published scientific methodological framework (ASCETS) on coastal fish stock on a Baltic Sea scale was presented to the various relevant HELCOM Expert groups (FISH PRO III, ComFish) and Working Groups (STATE&CONSERVATION, GEAR) which provided feedback and guidance on the proposed work (please see full meeting list below). Furthermore, a data call about available data on coastal fish stocks, as part of HOLAS 3, was requested within FISH PRO III group.

Site specific as well as species specific threshold values were developed, based on a new and improved ASCETS methods, and input from various EGs and WGs incorporated into the work; with subsequent approval by HOD of all developments and threshold values. Confidence values were also developed, one of the key benefits of applying ASCETS as compared to earlier approaches, and these were site/species specific and went through the guidance and approval procedure by EGs, WGs and HOD.

Important coastal fish species, such as perch, pikeperch, whitefish, pike, and cyprinids, but also species in offshore areas lacking data for full analytical stock assessment models, mainly flat fish species such as flounder, brill, dab, turbot, but also three-spined stickleback, were addressed. The work has resulted in the application of an improved method (the ASCETS-methodology) and wider spatial coverage, for status assessment based on abundance of coastal, as well as offshore, fish species to address change in stock status over time (indicator report “Abundance of key coastal fish species, A2.2 Annex 1 and “Abundance of coastal fish key functional groups”, A2.2 Annex 2). Where relevant, the work on offshore fish was incorporated to support the HOLAS 3 evaluation of commercial fish, based on regionally agreed species lists.

Overall, results for coastal fish species were very variable for species and sites. When comparing the two best represented key species, perch and flounder, good status was generally more often reached in areas in the northern and eastern parts of the Baltic Sea where perch is the key species. In the western and southern areas of the Baltic Sea where flounder is the key species, the status was more often not good. For pike, pikeperch, whitefish, and eelpout, the more limited data does indicate that the status for pike and whitefish tend to be poor in the majority of locations, while pikeperch and eelpout both achieved good status in two thirds or more of monitoring locations. Integration of the results of all key species over HELCOM assessment units using the One-Out-All-Out principle showed that good status was achieved in 6 of 22 evaluated units.

Results for coastal fish key functional groups (cyprinids and mesopredators, A2.2 Annex 2), showed that overall good status was achieved in 20 of the 32 monitored locations, but integration of the results of all key species over HELCOM assessment units using the One-Out-All-Out principle, showed that good status was achieved in only 4 of the 14 evaluated assessment units. In the majority of the monitoring locations (24 locations) cyprinids were evaluated, and in 13 of these the threshold was met. For mesopredators the status appeared to be better as the threshold was met in 7 of the in total 9 locations evaluated. In the locations classified as not good, the abundance of cyprinids and mesopredators was too high in all but 2 two of the 12 locations.



Generally, good status was not achieved in more central parts of the Baltic Sea including the Swedish part of the Quark, Åland Sea, Northern Baltic Proper and Western Gotland Basin, in more southern Finnish coastal waters (Archipelago Sea and Gulf of Finland), and in Estonian and Latvian coastal waters.

A summary of results as well as key messages and use of results are available in the main report for A2.2, with more detailed information on the two indicators in reports A2.2 Annex 1 and 2. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with a dedicated chapter on fish.

Concerning non-commercial offshore species, the initial analyses have applied the recently developed ASCETS approach (Östman et al. 2020) for analysing structural changes in time-series data of survey data for fish stocks lacking analytical reference points. Analyses were presented at the HELCOM ComFish Workshop to show the potential application of the tool. The following species and areas were explored: three “stocks” of stickleback (SD 25, SD 26-29 and 32, and SD 30), four stocks of flounder (SD24-23, SD 24-25, SD 26 and 28, and SD 27 and 29-32), for brill and dab one assessment per species covering SD 22-32.

In the regional development process towards HOLAS 3 a review of commercial fish was carried out (via the HELCOM ComFish Workshop) with the aim of agreeing on a list of species to be considered as commercial and thus addressed under MSFD Descriptor 3 processes initially. This process took place after the project application had been completed and the species intended to be targeted were in general included in the listing of species agreed to be considered as commercial. Since the work focused on species or stocks where there were no full analytical stock assessment models available, the work carried out was utilised to fill gaps in the evaluation of commercial fish and utilised in the overall HOLAS assessment (approved by [IC STATE & CONSERVATION 1-2022](#)). The one exception to this is the stickleback for which it was decided that achieved progress should be presented separately as an information box in the [HOLAS 3 thematic assessment report for biodiversity](#) as it was not included in the agreed list of commercial species.

### 2.2.2 Development of a size-based assessment for the same species and communities

The initial ideas and methodological framework (using the size indicator L90, i.e. the length of the fish at the 90th percentile of the size distribution) were presented at, and received feedback from, FISH PRO III as well as guidance and endorsement by STATE&CONSERVATION. Furthermore, a data call on size distributions of coastal fish species was carried out via FISH PRO III experts, and all available data collated and organized for evaluation. Final approval on methodology, threshold values and assessment results were carried out by HOD (please see full meeting list below).

Analyses within the HELCOM BLUES-project were developed for this size-based indicator and results showed that, in general, good status was achieved in only half of the monitoring locations for perch. However, flounder showed stable L90-values over time in 11 out of the in total 12 evaluated monitoring locations. Pikeperch showed stable values over time in 2 out of 3 evaluated monitoring locations, with one area showing an increasing trend over time. Integrated results for perch over HELCOM assessment units using OAO, showed that good status is achieved in only 4 out of 15 evaluated units. Good status is achieved in the Finnish coastal waters of the Quark, in the Bothnian Sea, and in the Estonian coastal waters of the Gulf of Riga.

This newly developed indicator is operational in the coastal waters of most countries bordering the Baltic Sea, except Denmark, Germany, and Russia. In the future, in line with increasing knowledge, the indicator might undergo further development, specifically thresholds for determining good environmental status may be developed for flounder, pikeperch, and other key species in the coastal area.



More information can be found in the A2.1 main report, including key messages and use of results. Details on data, methodology, results and discussion can be found in the indicator report on “size structure of coastal fish” (A2.2 Annex 3).

Overall, the task 2.2 “Non-commercial fish” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [STATE & CONSERVATION 15-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [BEAT WS 1-2021](#); [IND INF 1-2021](#); [ComFish WS 1-2021](#); [FISH PRO III 3-2021](#); [CG FOODWEB 4-2021](#); [HOLAS3 COMFISH 2-2022](#)

IC sessions: [IC STATE & CONSERVATION 1-2022](#); [IC GEAR 2-2022](#); [IC HOD 1-2022](#); [IC S&C 2-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

## A2: Task 2.3 Pelagic habitats

This task focused on work towards the operationalisation (i.e., implementation of threshold values and regional-scale spatial coverage) of indicators and development towards a specific assessment of pelagic habitats. This directly addressed identified known gaps (e.g., indicator work plan on pelagic habitats) and supported improving the regional assessment under MSFD D1. To achieve this objective, the task was divided into four different subtasks:

### 2.3.1 Complete operationalisation of the HELCOM Zooplankton Mean Size and Total Stock (MSTS) indicator

A review of the data availability and suitability across the region (focussed on gaps where no assessment has been conducted previously) was carried out. Collaboration with the Baltic Data Flow project was established and carried out, focusing on the required data formats and amendments to the HELCOM COMBINE monitoring methodology regarding the biomass assessment. Data from several CP were collected and assembled for an extension of spatial coverage for the zooplankton indicator (input from ZEN received) and evaluation completed.

The operationalisation of MSTS was expanded from six sub-basins in HOLAS II to ten sub-basins in HOLAS 3, where the indicator-based status evaluation has been completed for the following sub-basins: Bothnian Bay, Bothnian Sea, Åland Sea, Gulf of Finland, Northern Baltic Proper, Western Gotland Basin, Gulf of Riga, Eastern Gotland Basin, Gdansk Basin and Bornholm. The extended spatial coverage, with developed threshold value proposals included, was submitted to, and input received from, STATE&CONSERVATION and approved by HOD (please see meeting list below). More detailed information is available in the A2.3 main report. The indicator report on Zooplankton is available as A2.3 Annex 1. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with a dedicated chapter on pelagic habitats.



### 2.3.2 Complete operationalisation of the HELCOM Seasonal succession of dominating phytoplankton groups indicator

Collaboration with the Baltic Data flow project was established and carried out on the required data formats. The data call via HELCOM PEG was completed to support the development and proposals for threshold values as well as reference periods. The availability of data for the purposes of this indicator as well as the suitability of data for setting threshold values was evaluated for the entire Baltic Sea region (as presented to STATE&CONSERVATION 15-2021). Compared to the previous assessment period (HOLAS II), the spatial coverage was increased from seven to 13 sub-basins in the open sea and from six to 13 units in coastal sea. The extended spatial coverage with developed threshold values proposals was submitted and input received from STATE&CONSERVATION and approved by HOD (please see meeting list below). More detailed information is available in the A2.3 main report. The indicator report on Phytoplankton is available as A2.3 Annex 2. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with a dedicated chapter on pelagic habitats.

### 2.3.3 Develop an approach to combine the operationalised indicators

This section of work was developed based on input and from the HELCOM Pelagic WS 1-2021, the HELCOM BEAT WS 1-2021 and STATE&CONSERVATION 15-2021. Collaboration with the NEA PANACEA project (a sister project in the OSPATR region) was established and participants attended workshops for FOODWEB and PELAGIC habitat (with invited ZEN and PEG experts) to provide input on harmonisation with OSPAR and achieved/ongoing assessments in relation to pelagic habitat (task 2.3.3 and 2.3.4.). The JRC pelagic habitat Workshop (February and March 2021) and HELCOM WSs on indicator evaluation and integration were attended to ensure input from other ongoing processes can be taken into account for the work in 2.3.3 (please see meeting list at the end of section 2.3). Discussions with the colleagues from task 2.5. explored BEAT tool options for combining the zooplankton and phytoplankton indicators and how to incorporate relevant eutrophication indicators (such as chlorophyll-a, water clarity and cyanobacterial bloom index). The final developed approach for the integrated assessment of pelagic habitats aligns closely with the WFD structures and to the requirements of the MSFD, where the eutrophication components are 'to be taken into account'. Thus, in the approach developed in BLUES for HOLAS 3, and subsequently approved by HELCOM Contracting Parties, the biodiversity and eutrophication parameters are maintained as separate components and integrated mainly via a description of the interactions between the two. When assessing only the biodiversity components together, GES is only achieved in Kiel Bight German coastal waters, Mecklenburg Bight German coastal waters, Gulf of Riga Latvian Coastal waters and The Quark Swedish Coastal waters. The eutrophication components, combined with the biodiversity components indicate that the whole Baltic Sea is assessed as below GES from a eutrophication perspective. More detailed information is available in the A2.3 main report. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with a dedicated chapter on pelagic habitats.

### 2.3.4 Evaluation of unified pelagic habitat assessment approaches and development towards a viable assessment in the Baltic Sea

Collaboration with NEA PANACEA was established and participants attended workshops on FOODWEB (JRC pelagic habitat in February and March 2021) and PELAGIC habitat (with invited ZEN and PEG experts, please see full meeting list below) to provide input on harmonisation with OSPAR and achieve/ongoing assessments in relation to pelagic habitat. The conclusions of the PELAGIC WS 1-2021 indicated that the paired approach developed in the OSPAR region and being further developed under NEA PANACEA would likely be the most effective approach for the Baltic Sea region for the long-term development. It was also noted that it would



be important to test the applicability of the approach and that in the future it would be vital to adapt the approach to the Baltic Sea region (e.g., specific pairings of species or groups for the Baltic Sea). Thus, broad-scale application may be difficult, considering the low-diversity of the ecological communities and the availability of suitable monitoring data, especially without full regional input. Possible test case options were thus explored, with a testing of the *PH1/FW5* approach carried out to evaluate the potential of the tool in the Baltic Sea region, as well as explore potential harmonisation with OSPAR tools. PH1/FW5 identified significant changes in plankton communities between the assessment period in the Baltic Sea, and the comparison period for all the studied sub-basins and lifeform pairs, implying high sensitivity of the approach to the changes in the community. The general approach is recommended for further development in the future, based on appropriate lifeform pairs in each subbasin (requiring regional and sub-regional expert input), and the general conclusions are that the approach showed promise for future usability and applicability for an assessments of pelagic habitats in the Baltic Sea. More detailed information is available in the A2.3 main report. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with a dedicated chapter on pelagic habitats, to highlight the potential for future development.

The task 2.3 “Pelagic habitats” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [BEAT WS 1-2021](#); [IND INF 1-2021](#); [Pelagic habitat WS 1-2021](#); [CG FOODWEB 1-2021](#); [CG FOODWEB 3-2021](#); [CG FOODWEB 5-2022](#); [HOLAS3-BLUES PELAGIC 1-2022](#);

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC GEAR 2-2022](#); [IC HOD 1-2022](#); [IC S&C 2-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

## A2: Task 2.4 Harbour porpoise

This task worked on the development of indicators and assessment methods for harbour porpoise, with data that were available for the species and focused on providing the basis for a qualitative assessment for HOLAS 3. Further input and guidance from EG MAMA and STATE&CONSERVATION was taken into account and final products approved for use as newly developed indicator reports for HOLAS 3 took place via HOD. To achieve this, the task was divided into three different subtasks:

### 2.4.1 Improved harmonisation between HELCOM and OSPAR regarding indicators on abundance

A dedicated Workshop ([HELCOM BLUES WS 2.4.1-2021](#)) was held with invited experts from OSPAR to ensure harmonisation between HELCOM and OSPAR regarding indicators on abundance, particularly for the Belt Sea population that occurs in both the HELCOM and OSPAR regions. Experts from HELCOM EG MAMA, HELCOM BLUES, STATE&CONSERVATION, and OSPAR MMEG discussed if the OSPAR approach for M4 (Cetacean abundance and distribution) and possible threshold values would be applicable for harbour porpoise populations in the HELCOM area. The workshop participants concluded that the threshold value setting for



the North Sea population needed to be adapted to be suitable for the Belt Sea population. Different options for development and threshold setting approaches were discussed (including the approach for threshold values setting from OSPAR, as well as LRL approach, which is more closely aligned with work in HELCOM marine mammals for seals). Nevertheless, experts agreed that either approach would still need some development (in particular regarding setting threshold values), both being beyond the possibilities of the current project and also beyond the timeframe of HOLAS 3. However, other analyses, such as Bayesian trend analyses (harmonised with the OSPAR approach), were agreed to be tested on harbour porpoise abundance for the Belt Sea population as a part of HELCOM BLUES (see Task 2.4.2 below) to provide the possibility for an evaluation in HOLAS 3 and provide options for further development in the future in relation to methodologies and threshold values. More details are available in the A2.4 main report.

#### 2.4.2 Assessing the trend in abundance of the Belt Sea population

Data from SCANS and MiniSCANS surveys were compiled and analysed via the agreed approach from the WS in task 2.4.1 (trend Bayesian analyses). Since the experts agreed that the threshold value settings in the North Sea population is not suitable for the Belt Sea population and threshold values need more dedicated long-term development it will not be possible to present threshold values within the current process. Accordingly, the work focused on a trend evaluation, which was discussed and approved for use in HOLAS 3 in the relevant EGs and WGs (please see meeting list below). Based on the work in this task it was possible to establish for the first time a qualitative assessment on harbour porpoise abundance in the Baltic Sea (please see A2.4 main report for more information). This document is available as “Abundance and population trends of harbour porpoises” (HELCOM Pre-core indicator), A2.4 Annex 1. Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with dedicated section on harbour porpoise in the chapter on marine mammals.

#### 2.4.3 Expert-based qualitative assessment of Baltic Proper population

Historical data for the qualitative assessment of abundance and distribution of the critically endangered Baltic Proper population have been compiled (both pre-existing and newly located reports of harbour porpoises from the late 1800s until present) and input requested from EG MAMA and STATE&CONSERVATION. Draft reports were discussed and adjusted for final approval for use in HOLAS 3. Based on the work in this task it was possible to establish for the first time a qualitative assessment on harbour porpoise distribution in the Baltic Sea (please see A2.4 main report for more information). This deliverable is available as “Abundance and population trends of harbour porpoises” (HELCOM Pre-core indicator), A2.4 Annex 1 and as “Distribution of harbour porpoises”, as A2.4 Annex 2 (HELCOM Pre-core indicator). Additionally, the evaluation information was incorporated into the [HOLAS 3 thematic assessment report for biodiversity](#) with dedicated section on harbour porpoise in the chapter on marine mammals.

The task 2.4 “Harbour porpoise” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).



Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [BEAT WS 1-2021](#); [IND INF 1-2021](#); [HELCOM BLUES WS 2.4.1-2021](#); [EG MAMA 15-2021](#)

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC EG MAMA 1-2022](#); [IC S&C 2-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

## A2: Task 2.5 Integrated biodiversity (BEAT) and preliminary food web approach

This task worked on the development of the previously used BEAT tool, to advance it further and make it usable for the HOLAS 3 assessment. Furthermore, work was carried out to address food webs in the Baltic Sea. Accordingly, this task was divided into two different subtasks:

### 2.5.1 Further development of the BEAT tool

An evaluation of the assessment structure used in HOLAS II for Biodiversity Assessment Tool (BEAT) was completed and changes suggested to the relevant Expert groups and Working groups, taking also new development of indicators into account (meeting list please see below). This topic was also the focus of regional workshop on BEAT (BEAT WS 1-2021). Developments on data input for indicators and how to incorporate them into BEAT, for existing and newly established indicators, were discussed and guidance and approval received from EGs and WGs, and also relevant approval processes (e.g. via HOD). Where relevant, adjusted and newly developed integration rules for BEAT were made with an improved alignment to MSFD Art. 8 guidance. The BEAT script was further developed in a synergistic process by BLUES and the [BDF project](#), and is publicly available on [GitHub](#). More details are described in the main report A2.5 and as part of A2.5 Annex 1. The final approved BEAT approach included the biodiversity topics for marine mammals, pelagic habitats, waterbirds, and fish. The outputs were used for [HOLAS 3 Thematic assessment of biodiversity](#).

### 2.5.2 Exploratory work towards and assessment of food webs

The BLUES project has played an active role in the recently established HELCOM CG FOODWEB group, which developed into a fully established expert group at HELCOM (EG FOODWEB). A summary table of different approaches on food webs has been compiled, including, e.g. options from HELCOM BEAT, BONUS BLUEWEBS, BONUS XWEBS, ASCETS etc. Various meetings for the work on food webs were held (please see below list with invited experts from PEG, ZEN, EG MAMA, Fish; JWG Bird, BEAT, Pelagic habitats and NEA PANACEA/OSPAR) to advance the work on food webs and utilise information from other projects and OSPAR. The initial proposed application of a re-structured BEAT approach was identified to contain potential weaknesses when reviewed regionally under CG FOODWEB 1-2021 and the guidance received suggested that BLUES work should focus on alternative approaches. After further regional discussion in CG FOODWEBS 2, 3 and 4 it was proposed that the application of an Integrated Trend Assessment (ITA) approach, as utilised under the ICES WGIAB group, and that utilising an underlying ASCETS evaluations of individual data series would be the best approach. This approach was selected as it offered the greatest potential for detecting changes across trophic guilds and in food webs (i.e., more policy relevant, for example applicable for the MSFD), thus facilitating the development of broad scale assessments that may in the future be possible to apply across the Baltic Sea region. A test case in the Bothnian Sea, based on the ITA approach, was carried out in cooperation with colleagues from SLU Aqua (Sweden) and discussed in the subsequent EG meetings (please see list below).



The work from this task received input and was endorsed by the Working Group S&C. More details are described in the main report for A2.5 and as part of A2.5 Annex 1.

A review of indicators addressing food web aspects, analysing temporal trends of food web components and make use of already developed food web models were considered to be the best options for evaluating food webs in HOLAS 3. The relevant chapter on food webs is available in [HOLAS 3 Thematic assessment of biodiversity](#).

The task 2.5 “Integrated biodiversity (BEAT) and preliminary food web approach” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 25-2021](#); [HOD 61-2021](#); [CG FOODWEB 5-2022](#); [HOLAS3 COMFISH 2-2022](#)

Expert Group Meetings: [BEAT WS 1-2021](#); [IND INF 1-2021](#); [ComFish WS 1-2021](#); [EG MAMA 15-2021](#); [CG FOODWEB 1-2021](#); [HELCOM BLUES WS 2.4.1-2021](#); [CG FOODWEB 2-2021](#); [CG FOODWEB 3-2021](#); [CG FOODWEB 4-2021](#); [Pelagic habitat WS 1-2021](#); [EN BENTHIC 7-2021](#); [HOLAS3-BLUES PELAGIC 1-2022](#)

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC GEAR 2-2022](#); [IC CG FOODWEB 1-2022](#); [IC HOD 1-2022](#); [IC EG FOODWEB 2-2022](#); [IC EG MAMA 1-2022](#); [IC S&C 2-2022](#); [IC EG FOODWEB 3-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

In general, the information related to the progress of Activity 2 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables.



Tabular summary of A2

Activity 2: Task 2.1 Bycatch (Lead: HELCOM)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
2.1.1 Further development of risk area mapping	HELCOM SLU GAR	- risk-based assessment (risk maps) for key species, covering as many bird and mammal species as possible -interim assessment (with confidence) to reflect the underlying data	<b>Completed</b>  <b>Output</b> More details available in the main report for A2.1. The report on bycatch risk maps is available as A2.1 Annex 1.
2.1.2 Evaluating bycatch assessment approach developed in OSPAR-HELCOM by-catch workshop	HELCOM GAR MZ	- testing of threshold setting approaches -improved bycatch indicator - improving the assessment of by-catch for HOLAS 3	<b>Completed</b>  <b>Output</b> More details available in the main report for A2.1. The indicator report on bycatch is available as A2.1 Annex 2.  Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with dedicated chapter on bycatch.



Activity 2: Task 2.2 Non-commercial fish (Lead: SLU)

SUBTASK	WHO	DELIVERABLES	STATUS and OUTPUT
2.2.1 Improved assessment approach for coastal fish	SLU HELCOM	<ol style="list-style-type: none"> <li>1. Applying an improved and newly developed Methodology for coastal fish</li> <li>2. Increasing spatial extent of assessments of Baltic Sea coastal fish</li> <li>3. Suggesting a method for trend-based assessments only when time series are less than 12 years</li> <li>4. Suggesting the same methodology for selected non-commercial offshore fish species (no reference point from ICES stock assessments)</li> <li>5. confidence assessment of underlying data</li> </ol>	<p><b>Completed</b></p> <p><b>Output</b>                      More details available in the main report for A2.2.                      The indicator report on costal fish key species is available as A2.2 Annex 1.                      The indicator report on costal fish key functional groups is available as A2.2 Annex 2.</p> <p>Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with dedicated chapters on fish and also food webs.</p>
2.2.2. Development of a size-based assessment for the same species and communities	SLU HELCOM	<ol style="list-style-type: none"> <li>1. Size-based indicator development</li> </ol>	<p><b>Completed</b></p> <p><b>Output</b>                      Full details available in the main report for A2.2.                      The indicator report on the size structure of costal fish is available as A2.2 Annex 3.</p> <p>Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with dedicated chapters on fish and also food webs.</p>
<p>The achieved progress and results of the work under HELCOM BLUES A2.2 have also supported the following outputs:</p> <ul style="list-style-type: none"> <li>• Östman et al. (in review) <i>Size-based indicators of coastal fish – useful tools for assessments of ecological status in the Baltic Sea?</i></li> <li>• Bolund et al. (in prep) <i>An approach for deriving threshold values of the size distribution for data-limited coastal fish species in the Baltic Sea.</i></li> </ul>			

Activity 2: Task 2.3 Pelagic habitats (Lead: SMHI)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
2.3.1 Complete operationalisation of the HELCOM Zooplankton Mean Size and Total Stock (MSTS) indicator	SU LIAE UT HELCOM	-Methodology on indicator calculation, assessment protocol and threshold values (across whole Baltic region)	<b>Completed</b>  <b>Output</b> More details available in the main report for A2.3. The indicator report on Zooplankton is available as A2.3 Annex 1. Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on pelagic habitats.
2.3.2. Complete operationalisation of the HELCOM Seasonal succession of dominating phytoplankton groups indicator.	LIAE UT HELCOM	- assessment approach and threshold values across the Baltic Sea region	<b>Completed</b>  <b>Output</b> More details available in the main report for A2.3. The indicator report on Phytoplankton is available as A2.3 Annex 2. Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on pelagic habitats.
2.3.3. Develop an approach to combine the operationalised indicators	SU LIAE UT HELCOM	- unified assessment with confidence evaluation	<b>Completed</b>  <b>Output</b> More details available in the main report for A2.3. Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on pelagic habitats.
2.3.4. Evaluation of unified pelagic habitat assessment approaches and development towards a viable assessment in the Baltic Sea	SMHI SU LIAE UT HELCOM	-reviewing established and published assessment approaches -test conceptual applicability & data availability -evaluate possibility for multimetric indices & compare with other approaches	<b>Completed</b>  <b>Output</b> More details available in the main report for A2.3. Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on pelagic habitats.



SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
<p>The achieved progress and results of the work under HELCOM BLUES A2.3 have also supported the following outputs:</p> <ul style="list-style-type: none"> <li data-bbox="181 240 2119 304">• Magliozzi et al.2021. Pelagic habitats under the MSFD D1: scientific advice of policy relevance, EUR 30671 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-35958-6, doi:<a href="https://doi.org/10.2760/081368">10.2760/081368</a>, <a href="https://doi.org/10.2760/081368">JRC124882</a>.</li> <li data-bbox="181 316 2119 379">• Labuce, A., Gorokhova, E., 2023. A script-based workflow to calculate zooplankton community indicator for environmental status assessment in the Baltic Sea. Ecological Informatics 74, 101965. <a href="https://doi.org/10.1016/j.ecoinf.2022.101965">https://doi.org/10.1016/j.ecoinf.2022.101965</a></li> <li data-bbox="181 391 2119 454">• Magliozzi et al. 2023. Status of pelagic habitats within the EU-Marine Strategy Framework Directive: Proposals for improving consistency and representativeness of the assessment. Marine Policy 148, 105467. <a href="https://doi.org/10.1016/j.marpol.2022.105467">https://doi.org/10.1016/j.marpol.2022.105467</a></li> </ul>			



Activity 2: Task 2.4 Harbour porpoise (Lead: HELCOM)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
2.4.1 Improved harmonisation between HELCOM and OSPAR regarding indicators on abundance	NRM (sub-contracted to SwAM)  HELCOM	Online workshop to propose a harmonized approach for assessment of trends in abundance	<b>Completed</b>  <b>Output</b> Details are described in the main report A2.4 and Workshop ( <a href="#">HELCOM BLUES WS 2.4.1-2021</a> ) with <a href="#">Outcome</a>
2.4.2. Assessing trend in abundance of the Belt Sea population	TiHo HELCOM	Trend in population abundance. If possible: assessment of abundance.	<b>Completed</b>  <b>Output</b> Details are described in the main report A2.4 and as indicator report for harbour porpoise abundance, A2.4 Annex 1.  Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on marine mammals
2.4.3. Expert-based qualitative assessment of Baltic Proper population	NRM (sub-contracted to SwAM)  HELCOM	Qualitative assessment of the abundance and distribution of the Baltic Proper population (to include in HOLAS 3)	<b>Completed</b>  <b>Output</b> Details are described in the main report A2.4 and as indicator report for harbour porpoise abundance, A2.4 Annex 1 and as indicator report for harbour porpoise distribution, A2.4 Annex 2.  Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on marine mammals



Activity 2: Task 2.5 Integrated biodiversity (BEAT) and preliminary food web approach (Lead: SYKE)

SUBTASK	WHO	DELIVERABLES	STATUS and OUTPUT
2.5.1 Further development of the BEAT tool	SYKE HELCOM	-incorporation of all operational&approved indicators  -explore improved automation	<p><b>Completed</b></p> <p><b>Output</b> BEAT evaluation done and updated with all HOLAS 3 indicators. Details are described in the main report A2.5 and as part of A2.5 Annex 1. The BEAT script is publicly available on <a href="#">GitHub</a>. Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a></p>
2.5.2. Exploratory work towards and assessment of food webs	SYKE UT LIAE HELCOM	-evaluate approaches to address food webs	<p><b>Completed</b></p> <p><b>Output</b> BEAT evaluation done and updated with all HOLAS 3 indicators. Details are described in the main report A2.5 and as part of A2.5 Annex 1. Additionally, the evaluation information was incorporated into the <a href="#">HOLAS 3 thematic assessment report for biodiversity</a> with a dedicated chapter on food webs</p>

## A3 Support for, and harmonisation of, regional work on Descriptor 10: marine litter

The work under Activity 3 aimed to provide support to the work of EU TG Litter, as well as promoting the harmonisation of regional work on marine litter indicators and threshold values with EU TG Litter work. Activity 3 aimed to conduct an assessment of the status of the Baltic Sea in terms of beach litter, as well as to produce Standard Operating Procedures (SOPs) for monitoring microlitter. The SOPs were intended to cover both the water column and the sediment, so that a more holistic perspective of the input of microlitter to the Baltic Sea could be obtained at a later stage.

The BLUES project received active input through the existing working arrangements in HELCOM, which includes the relevant Expert Groups and Working Groups and HELCOM HOD. Each of these groups consists of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project are relevant and usable for Contracting Parties, from a scientific and policy perspective. In particular, Activity 3 operated under the guidance of the working groups STATE&CONSERVATION, and GEAR. The relevant expert group that provided input and guidance on the work on the harmonisation of regional work on marine litter was EG Marine Litter.

HELCOM meetings and informal consultations (IC) sessions, which have discussed and provided input to the work of Activity 3 are listed at the end of each task section below, including the link to the relevant Meeting Portal site, where all documentation is available. Please note that IC sessions, however, require a user registration to access the content.

### A3: Task 3.1 Beach litter

The work on beach litter, supported by experts from EG Marine Litter and in alignment with EU TG Litter, was divided into two different subtasks (please see below and in the dedicated main report on A3.1 for beach litter):

#### 3.1.1 Translation of historical litter data

This task was a prerequisite to enable carrying out an assessment of beach litter. For this, information on currently used protocols was collected from all HELCOM Contracting Parties and compared for their litter categories; each protocol was compared with the EU Joint List of Litter Categories for Marine Macrolitter Monitoring. Discussion with data portal executives from EMODnet took place to ensure the use of the correct data for the assessment. Evaluation for harmonisation of different protocols was carried out e.g., clustering of categories. Harmonisation with other Regional Sea Conventions was also sought, e.g., by attending meetings on beach litter data (OSPAR ICG-ML meeting and OSPAR Beach Litter Expert Group meetings in 2021). A draft conversion list was shared with the HELCOM indicator co-lead and experts from EG Marine litter. Further development was done in accordance to the received input, and approved to use for the assessment in task A3.1.2. The list is part of the HELCOM indicator report for beach litter (A3.1 Annex 1, appendix 3).

#### 3.1.2 Execute assessment of beach litter

National data collection was conducted in HELCOM BLUES (in collaboration with task 5.3) with data collection from EMODnet. Data evaluation/discussion have been ensured (e.g., on the use of the Litter R software), as well as general discussions on assessment methodology and threshold values, and a HELCOM beach litter



threshold value has been agreed by all CP, namely 20 litter items per 100 metres of coastline (median without fragments < 2.5 cm and chemicals like paraffin, wax, oil and other pollutants).

Furthermore, discussion under the auspice of HELCOM BLUES have enable discussion and agreement on the different types of beaches to use in the assessment, which are aligned with those contained in the EU Monitoring Guidelines under revision.

Finally, this process has achieved a first-time quantitative assessment of beach litter for the Baltic Sea, with the approved indicator report on beach litter being included as A3.1 Annex 1. The obtained relevant information on beach litter was also used and included for parts of the [HOLAS 3 thematic assessment reports](#).

For more details on the beach litter deliverables, please see the A3.1 specific beach litter report and its annex. This dedicated report has a more detailed summary of the different subtasks on beach litter as well as overall key messages for science and policy. Furthermore, a section on use of results (e.g., in relation to the specific BSAP actions, MSFD criteria, and other EU processes) is included. Individual deliverables and outputs such as separate reports, gathered data, publications etc. are annexed to the A3.1 report and are also outlined in the table below.

Task 3.1 “Beach litter” has discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [EG Marine Litter \(11 February 2021\)](#); [EG Marine Litter \(26 March 2021\)](#); [EG Marine Litter \(23 August 2021\)](#); [EG Marine Litter \(24 January 2022\)](#); [EG Marine Litter \(23 February 2022\)](#); [EG Marine Litter \(2 May 2022\)](#); [EG Marine Litter \(16 August 2022\)](#); [EG Marine Litter \(8 December 2022\)](#);

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC S&C 2-2022](#); [IC HOD 2-2022](#); [IC BLUES 1-2023](#)

### A3: Task 3.2 Progress development of microlitter indicator

This task focused on progress for the development of an indicator for microlitter in seabed sediments (SS) and the water column (WC) as well as producing Standard Operating Procedures (SOPs) for monitoring microlitter.

Data from applied and planned monitoring in regard to microlitter in WC and SS was collected from HELCOM Contracting Parties. Discussion with relevant experts was conducted and ensured via dedicated workshops and expert group meetings, and all processes approved via relevant Working group meetings (please see the list of meetings for A3.2 recorded below). Based on discussion from the collected data and surveys, draft monitoring guidelines for microlitter in SS and WS were prepared and finally approved in autumn 2022 (annex 1 and 2 to the A3.2 main report). Thus, the original aim of SOPs was surpassed by achieving agreed monitoring guidelines for microlitter.

Data collection on microlitter from HELCOM Contracting Parties was done via a literature survey and available data from EMODnet for both SS and WC. For SS it became apparent that the data is few and too inconsistent for a meaningful comparison (e.g., data does not allow for calculation of baseline/does not match the criteria set out in the monitoring guidelines). Also, collated data (EMODnet and literature survey) relating to WC, is



still very few and difficult to compare (A3.2 Annex 4). However, a screening study was conducted in accordance with the drafted monitoring guidelines on SS and WC in German waters. This served as a validation of the monitoring guidelines and showcasing their applicability and feasibility in real environmental sampling. The results shown an existing trend for decreasing microlitter concentrations with further distance from the coastline (see A3.2 Annex 5).

Challenges and prerequisites for future monitoring for microlitter identified during this project are summarised in Annex 4 and were discussed also at a dedicated meeting in December 2022 with relevant experts.

For more details on the microlitter deliverables, please see the A3.2 specific microlitter report and its annexes. This dedicated report has a more detailed summary of the different subtasks on microlitter as well as overall key messages for science and policy. Furthermore, a section on use of results (e.g., in relation to the specific BSAP actions, MSFD criteria, and other EU processes) is included. Individual deliverables and outputs such as separate reports, gathered data, publications etc. are annexed to the A3.2 report and also outlined in the table below.

Task 3.2 “Progress development of microlitter indicator” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [GEAR 24-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [EG Marine Litter \(11 February 2021\)](#); [HELCOM BLUES 3.2 WS 1-2021](#); [EG Marine Litter \(23 August 2021\)](#); [EG Marine Litter \(24 January 2022\)](#); [HELCOM BLUES WS 3.2-2022 \(8 February 2022\)](#); [EG Marine Litter \(23 February 2022\)](#); [EG Marine Litter \(2 May 2022\)](#); [EG Marine Litter \(16 August 2022\)](#); [EG Marine Litter \(8 December 2022\)](#)

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [HELCOM BLUES 3.2 WS 1-2021 IC WS BLUES 3.2-2022](#); [IC S&C 2-2022](#); [IC BLUES 1-2023](#)

Furthermore, representatives from HELCOM BLUES A3 joined the following EU TG Litter meetings: MSFD TG ML (22-23 June 2021); MSFD TG ML (15-16 December 2021); MSFD TG ML (28-30 June 2022); MSFD TG ML (13 December 2022)

In general, the information related to the progress of Activity 3 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables.



Tabular summary of A3

Activity 3: Task 3.1 Beach litter (Lead: HELCOM)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
3.1.1 Translation of historical litter data	KST HELCOM	- Harmonisation of data (for further assessment in HOLAS 3)	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.1 and part of A3.1 Annex 1 (as Appendix 3)
3.1.2. Execute assessment of beach litter	KST HELCOM	- Conduction of the assessment of the state of the Baltic Sea in relation to beach litter -Testing of the EU threshold value for coastline -if data available: gain an overview of the effectiveness of actions on marine litter in the region	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.1 Assessment as indicator report on beach litter available as A3.1 Annex 1 Information on beach litter was also utilised on relevant sections as part of the <a href="#">HOLAS 3 thematic assessment reports</a> .

Activity 3: Task 3.2 Progress development of microlitter indicator (Lead: UHAM-CEN)

TASK	WHO	DELIVERABLES	STATUS and OUTPUT
3.2 a) Review / evaluation of current approaches applied for the water column (WC) and seabed sediment (SS)	UHAM-CEN LIAE HELCOM	Data on currently applied or planned monitoring methods for microlitter in the WC and SS by HELCOM countries	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.2 and part of a dedicated workshop discussion <a href="#">HELCOM BLUES 3.2 WS 1-2021</a>
3.2 b) Drafting of Standard Operating Procedures (SOPs) for the detection of microlitter in the water column and seabed sediments	UHAM-CEN LIAE HELCOM	SOP draft on microlitter monitoring in the water column in WC and SS	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.2 and contained as A3.2 Annex 1 and 2: Microlitter monitoring guidelines in the <a href="#">water column</a> and in <a href="#">sediments</a> .
3.2 c) Data collection from HELCOM countries on microlitter in the water column and seabed sediments	UHAM-CEN LIAE HELCOM	Collate and evaluate available data on microlitter (literature, survey)	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.2 and part of A3.2 Annex 4
3.2 d) Specification of prerequisites for the monitoring of microlitter in the water column and seabed sediments	UHAM-CEN LIAE HELCOM	Recommendation on monitoring strategies	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.2 and A3.2 Annex 3
3.2 e) Screening study on microlitter in the water column (LV) and seabed sediments (DE)	UHAM-CEN LIAE HELCOM	Datasets Validation of SOPs (SS), and desktop study (WC)	<b>Completed</b>  <b>Output</b> Described in more detail in main report A3.2 and part of A3.2 Annex 4 and Annex 5



## A4 Support for, and harmonisation of, regional work on Descriptor 11: underwater noise

The impact of anthropogenic underwater noise on marine ecosystems is recognized as a vital problem, both at the global and regional levels. This regional problem can only be addressed by a joint effort of coastal countries with the help of a common impact assessment methodology. In recent years, both measuring instruments and modelling capacities have significantly improved, as has the understanding about the effects of underwater noise on marine biota. Activity 4 supported the implementation of GES assessment methodology according to Descriptor 11 of the EU MSFD. Activity 4 aimed to conduct a quantitative assessment of the status of the Baltic Sea in terms of continuous and impulsive noise. Furthermore, the harmonisation of regional work on underwater noise indicators and threshold values with EU TG Noise work was promoted.

The BLUES project received active input through the existing working arrangements in HELCOM, which included the relevant Expert Groups and Working Groups and HELCOM HOD. Each of these groups consists of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project would be relevant and usable for Contracting Parties, from a scientific and policy perspective. In particular, the Activity 4 was developed under the guidance of the working groups STATE&CONSERVATION, PRESSURE, MARITIME, FISH and GEAR. Expert groups that provided input and guidance on the work on the harmonisation of regional work on underwater noise were EG Noise and EG MAMA.

HELCOM meetings and informal consultations (IC) sessions, which have discussed and provided input to the work of Activity 4 are listed at the end of each task section below, including the link to the relevant Meeting Portal site, where all documentation is available. Please note that IC sessions, however, require a user registration to access the content.

### A4: Task 4.1 Support for assessment of continuous noise

All work strands within the HELCOM BLUES project were carefully developed to harmonise the ongoing developments with other RSC and with EU processes by actively participating in joint meetings. This task was divided into three different subtasks:

#### 4.1.1 Development of new soundscape maps

National data from HELCOM countries were collected to the continuous noise database and the process facilitated via a technical Workshop to support the upload of available data ([Technical WS on Continuous Underwater Noise](#)). Based on the available data, discussion with the expert group EG Noise, the year 2018, for three frequencies (63 Hz, 125 Hz, and 500Hz) was decided to be used for the following analyses. The subcontractor Quiet-Oceans was hired for modelling the noise maps. Data exchange arrangements and storing of the soundscape maps on a hosted [ICES-website](#) were arranged to make the maps publicly available. The new soundscape maps were developed based on the agreed year and frequencies and produced for total sound pressure levels (natural and shipping sound), as well as excess sound levels (excess shipping sound above natural sound). More information is available as part of the A4.1 main report.

Soundscape maps were reviewed and approved by Contracting Parties for usage in the subsequent assessment (4.1.2.) of underwater noise in HOLAS 3.



#### 4.1.2 Develop and execute assessment on noise sensitive species

The distribution maps for noise sensitive species were updated based on, discussions with experts (e.g. EG MAMA and BLUES 2.4 colleagues). Reference levels and methods for the quantitative assessment both for absolute values and excess levels, were discussed within the EG Noise and HELCOM Working Groups, and the input received taken into consideration. Thus, two options on calculations, both for behaviour (absolute thresholds) and masking (dynamic thresholds) for HOLAS 3 assessments on noise sensitive species were discussed and input received at relevant EGs and WGs meetings (please see meeting list below). Exploring and conducting both options within BLUES was deemed beneficial to compare tentative differences between the two methodologies and have the best possible assessment. Soundscape maps, available from task 4.1.1, were used for extracting, both absolute and dynamic threshold values. The actual analysis was done during 2022 in alignment with the methodology developed in TG Noise for the establishment of threshold values. More information is available as part of the A4.1 main report. The developed and executed assessment on continuous underwater noise is available as indicator report as part of HOLAS 3 and contained as Annex 1 to the A4.1 report.

Additionally, the obtained relevant information on continuous noise was also included in a dedicated section on underwater noise in the [HOLAS 3 thematic assessment report on Hazardous Substances, Marine Litter, Underwater Noise and Non-indigenous Species](#).

#### 4.1.3 Improve calibration standards for monitoring of continuous noise

This work was mainly developed in 2022. Thus, a dedicated workshop for the discussion of needed improvements for calibration standards on continuous noise monitoring was arranged in November 2022 ([IC WS BLUES A4 – 2022](#)). Experts from EG Noise participated and discussion focused on calibration of equipment, selection of monitoring sites and deployment of rigs. The output of the discussions in the workshop are to support the drafting of future calibration standards improvements. More information is available as part of the A4.1 main report.

For more details on the continuous noise deliverables, please see the A4.1 specific underwater noise report and its annexes. This dedicated report has a more detailed summary of the different subtasks as well as overall key messages for science and policy. Furthermore, a section on use of results (e.g., in relation to the specific BSAP actions, MSFD criteria, and other EU processes) is included. Individual deliverables and outputs such as separate reports, gathered data, publications etc. are annexed to the A4.1 main report and are also outlined in the table below.

The task 4.1 “Support for assessment of continuous noise” discussed the plans and progress of the work, and received input from the following HELCOM meetings, as outlined below.

Please note that meetings from January 2021 – February 2022 are openly accessible to anyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see the beginning of this final report sections for more detailed explanation on this matter).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [PRESSURE 14-2021](#); [GEAR 24-2021](#); [HOD 61-2021](#)



Expert Group Meetings: [EN-Noise meeting, online, 25 February 2021](#); [EN-Noise meeting, online, 12 May 2021](#); [EN-Noise meeting, online, 21 June 2021](#); [OSPAR ICG-Noise and HELCOM EN-Noise 3-2021](#); [EG MAMA 15-2021](#); [EG Noise meeting, online 14 January 2022](#)

IC Sessions: [IC PRESSURE 1-2022 \(26-29 April 2022\)](#); [IC PRESSURE 3-2022 \(18-21 October 2022\)](#), [IC EG MAMA 1-2022 \(13-15 September 2022\)](#); [IC STATE & CONSERVATION 1-2022 \(9-13 May 2022\)](#); [IC S&C 2-2022 \(10-14 October 2022\)](#); [IC WS BLUES A4 - 2022 \(17 November 2022\)](#); [IC HOD 2-2022 \(30 November – 2 December 2022\)](#); [IC BLUES 1-2023 \(17 January 2023\)](#).

Furthermore, representatives from HELCOM BLUES A4 joined the following EU TG Noise meetings: 17th EU TG Noise meeting, 23 February 2021; EU TG Noise meeting, 11 May 2021; Online technical workshop on EU threshold values for underwater noise, 13-14 September 2021, EU TG Noise meeting, 26 October 2021; Online technical workshop on EU threshold values for underwater noise, 17 February 2022; EU TG Noise meeting, 22 March 2022; EU TG Noise meeting, 24 May 2022; and EU TG Noise meeting, 11 October 2022.

#### [A4: Task 4.2 Support for assessment of impulsive noise](#)

All work strands were carefully developed to harmonise the ongoing developments within the HELCOM BLUES project with other RSC and with EU processes by actively participating in joint meetings. This task is divided into two different subtasks:

##### 4.2.1 Further develop the HELCOM registry of impulsive noise events

Analyses completed for the entire data time frame for the impulsive noise assessment (2016-2021) and suggestions for improvements of data usability/accessibility were shared with EG Noise. A document with suggestions for improvements (e.g. improvement of data submission, collection and submission of seismic data and many technical improvements) was shared and discussed with EG Noise, while taking on input via HARMONISE (sister project) which had also been working on suggestions to improve the registry. Final suggestions for the improvement of the impulsive noise registry were shared with ICES and a number of changes were implemented based on the recommended improvements. The report with recommended improvements is available as A4.2 Annex 1.

##### 4.2.2 Develop method and execute assessment

In close cooperation with EG Noise, BLUES A4 submitted a proposal to S&C 14-2021 for a methodological approach to establish threshold values for use of the indicator in the HOLAS 3 assessment. The proposal was further developed and submitted for consideration to S&C 15-2021 as well as a German suggestion on how to incorporate important habitats for noise sensitive species into the continuous noise assessment (please see meeting list below). Discussions continued in close connection with the ongoing discussions on the matter in the frame of EU TG Noise, to align developed approaches. The conducted assessment was based on impulsive noise events reported to the HELCOM registry (hosted by ICES). A quantitative evaluation, including two threshold values (short term and long term) were agreed upon for the impulsive noise indicator for HOLAS 3 (please see indicator report on impulsive noise as A4.2 Annex 2).

Additionally, the obtained relevant information on continuous noise was also included in a dedicated section on underwater noise in the [HOLAS 3 thematic assessment report on Hazardous Substances, Marine Litter, Underwater Noise and Non-indigenous Species](#).



For more details on the impulsive noise deliverables, please see the A4.2 specific underwater noise report and its annexes. This dedicated report has a more detailed summary of the different subtasks as well as overall key messages for science and policy. Furthermore, a section on use of results (e.g., in relation to the specific BSAP actions, MSFD criteria, and other EU processes) is included. Individual deliverables and outputs such as separate reports, gathered data, publications etc. are annexed to the A4.2 report and are also outlined in the table below.

The task 4.2 “Support for assessment of impulsive noise” discussed the plans and progress of the work, and received input from the following HELCOM meetings outlined below.

Please note that meetings from January 2021 – February 2022 are openly accessible to anyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [PRESSURE 14-2021](#); [GEAR 24-2021](#); [HOD 61-2021](#)

Expert Group Meetings: [EN-Noise meeting, online, 25 February 2021](#); [EN-Noise meeting, online, 12 May 2021](#); [EN-Noise meeting, online, 21 June 2021](#); [OSPAR ICG-Noise and HELCOM EN-Noise 3-2021](#); [EG Noise meeting, online 14 January 2022](#)

IC Sessions: [IC PRESSURE 1-2022 \(26-29 April 2022\)](#); [IC PRESSURE 3-2022 \(18-21 October 2022\)](#), [IC EG MAMA 1-2022 \(13-15 September 2022\)](#); [IC STATE & CONSERVATION 1-2022 \(9-13 May 2022\)](#); [IC S&C 2-2022 \(10-14 October 2022\)](#); [IC WS BLUES A4 - 2022 \(17 November 2022\)](#); [IC HOD 2-2022 \(30 November – 2 December 2022\)](#); [IC BLUES 1-2023 \(17 January 2023\)](#).

Furthermore, representatives from HELCOM BLUES A4 joined the following EU TG Noise meetings: 17th EU TG Noise meeting, 23 February 2021; EU TG Noise meeting, 11 May 2021; Online technical workshop on EU threshold values for underwater noise, 13-14 September 2021, EU TG Noise meeting, 26 October 2021; Online technical workshop on EU threshold values for underwater noise, 17 February 2022; EU TG Noise meeting, 22 March 2022; EU TG Noise meeting, 24 May 2022; and EU TG Noise meeting, 11 October 2022.

In general, the information related to the progress of Activity 4 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables.



Tabular summary of A4

Activity 4: Task 4.1 Support for assessment of continuous noise (Lead: TalTech)

SUBTASK	WHO	DELIVERABLES	STATUS and OUTPUT
4.1.1 Development of new soundscape maps	TalTech QO HELCOM	New soundscape maps calibrated by ambient sound monitoring data -comparison of ambient sound levels in 2014	<b>Completed</b>  <b>Output</b> Described in more detail in the A4.1 main report. The regionally agreed and produced soundscape maps are hosted on the ICES database for continuous noise: <a href="https://underwaternoise.ices.dk/continuous/viewonmap">https://underwaternoise.ices.dk/continuous/viewonmap</a>
4.1.2. Develop and execute assessment on noise sensitive species	TalTech HELCOM	Quantitative continuous noise assessment for HOLAS 3 -address potential for masking effects and reduction of the communication ranges of the sound sensitive species	<b>Completed</b>  <b>Output</b> Described in more detail in the A4.1 main report. The quantitative assessment on continuous noise produced as indicator report on continuous noise in A4.1 Annex 1.  Additionally, the obtained relevant information on continuous noise was also included in a dedicated section on underwater noise in the <a href="#">HOLAS 3 thematic assessment report on Hazardous Substances, Marine Litter, Underwater Noise and Non-indigenous Species</a> .
4.1.3. Improve calibration standards for monitoring of continuous noise.	TalTech HELCOM	Improved standards for calibration of equipment, selection of monitoring sites and deployment of rigs	<b>Completed</b>  <b>Output</b> Described in more detail in the A4.1 main report. Workshop held to discuss improvements on calibration standards <a href="#">IC WS BLUES A4 – 2022</a> .

Activity 4: Task 4.2 Support for assessment of impulsive noise (Lead: TalTech)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
4.2.1 Further develop the HELCOM registry of impulsive events	TalTech ICES HELCOM	Improved ICES impulsive noise registry to increase its accuracy and allow for estimate of the effect of mitigation measures	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A4.2 main report. Report on suggested improvements for the noise registry available as A4.2 Annex 1 Proposed changes included in the <a href="#">ICES database on impulsive noise</a></p>
4.2.2. Develop method and execute assessment	TalTech HELCOM	Quantitative impulsive noise assessment for HOLAS 3	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A4.2 main report. Indicator report on impulsive noise available as A4.2 Annex 2 Additionally, the obtained relevant information on continuous noise was also included in a dedicated section on underwater noise in the <a href="#">HOLAS 3 thematic assessment report on Hazardous Substances, Marine Litter, Underwater Noise and Non-indigenous Species</a>.</p>

## A5 Data accessibility

The work under Activity 5 improved data reporting arrangements for those part of the assessment for which data provisioning had been challenging for the Second HELCOM State of the Baltic Sea report (2018) and which were not yet covered for the upcoming Third State of the Baltic Sea report (HOLAS 3). The activity aimed to develop data flow solutions for selected Descriptor 1 (biodiversity) indicator data flows which were lacking regular and fully functional data flow arrangement within HELCOM (mammals and birds). Concrete achievements include establishment of a regular annual or periodic reporting system of species observation supporting assessments of mobile species, based on the underlying data model and developed validation/upload tool. The activity achieved also support for Activity 2 on extending biodiversity assessments by providing a platform for additional data collection on e.g. coastal fish and harbour porpoise. The Activity also prepared specifications for requesting and acquire fishing effort and intensity datasets to support cumulative impact assessment. Furthermore, Activity 5 supported the D10 (Litter) related work by liaising and making use of the beach litter data collection activities happening at international and European level and by developing a regional assessment tool for Beach litter.

The BLUES project received active input through the existing working arrangements in HELCOM, which included the relevant Expert Groups and Working Groups and HELCOM HOD. Each of these groups consists of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project will be relevant and usable for Contracting Parties, from a scientific and policy perspective. In particular, the Activity 5 is being developed under the guidance of the working groups STATE&CONSERVATION, PRESSURE, and GEAR. Expert groups that provide input and guidance on the work on the harmonisation of regional work on underwater noise are EN-Litter, JWG BIRD and EG MAMA.

HELCOM meetings and informal consultations (IC) sessions, which have discussed and provided input to the work of Activity 5 are listed at the end of each task section below, including the link to the relevant Meeting Portal site, where all documentation is available. Please note that IC sessions, however, require a user registration to access the content.

### A5: Task 5.1 Improving capacity for biodiversity data reporting

This task was divided into two different subtasks:

#### 5.1.1 Further develop BioBase to incorporate count information

Reporting format for mammals and birds (i.e. mobile species) abundance and distribution was developed in collaboration with the HELCOM BLUES Activity 2 team (biodiversity), as well as indicator leads and included in HOLAS 3 data call (sent in April 2021). 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 have been presented and input received at the relevant expert meeting (e.g. EG MAMA, please see list below) and was further developed intersessionally during autumn 2021 regarding flexibility to report on haul-out site level and on preferable aggregation levels e.g. on ICES rectangle as preferred by some data providers. HELCOM BioBase database data model was extended accordingly with additional attributes to cater for all seal abundance, health and bird indicator data types.



Following this process, the [BioBase web application](#) end user interface and development of data import and quality control tools were updated and implemented. Here, previous workbenches were replaced with a newly developed data validator online tool (<https://maps.helcom.fi/website/BDB-admin-secure/>) to harmonise and automate data processing., These can be used by authenticated user to validate various datatypes reported to HELCOM Biodiversity database, e.g. seal and bird data reporting templates developed in Tasks 5.1.1 and 5.1.2.

#### 5.1.2 At sea seabird data (offshore surveys)

Reporting format for birds (ESAS offshore count format) was developed in collaboration with the HELCOM BLUES Activity 2 team (biodiversity), as well as the indicator leads and members of JWG BIRD and included in HOLAS 3 data call (sent in April 2021). Data conversion and harmonisation needs of specific topics and regional harmonisation were utilised wherever possible and the database model extended to take up new data (count format). Improvements were presented and input received from indicator leads taken onboard for the development. The [BioBase web application](#) end user interface and development of data import and quality control tools was completed successfully (<https://maps.helcom.fi/website/BDB-admin-secure/>) to harmonise and automate data processing.

The task 5.1 “Improving capacity for biodiversity data reporting” has discussed the plans and progress of the work, and received input from the following HELCOM meetings outlined below.

Please note that meetings from January 2021 – February 2022 are openly accessible to anyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 24-2021](#); [PRESSURE 14-2021](#)

Expert Group Meetings: [EG MAMA 15-2021](#)

IC Sessions: [IC EG MAMA](#) [IC STATE & CONSERVATION 1-2022](#)

#### A5: Task 5.2 Provisioning external data products for assessments

This task included defining the fishing effort data requirements (VMS and logbook data) for both cumulative impact assessment (HELCOM BSII/BSPI) and for other purposes (e.g. bycatch risk assessment).

Data needs for HOLAS 3 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) for cumulative impact assessment and other purposes like e.g. bycatch estimation (collaboration with BLUES Activity 2.1) and for CumI indicator. Aligning the data needs of bycatch and CumI indicator as well as BSII was taken into account during the process. Service request specifications has been made to ICES (subcontract signed June 2021), with data delivery to HELCOM by June 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>.



The task 5.2 “ Provisioning external data products for assessments” has discussed the plans and progress of the work, and received input from the following HELCOM meetings outlined below.

Please note that meetings from January 2021 – February 2022 are openly accessible to anyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 24-2021](#); [PRESSURE 14-2021](#); [FISH 13-2021](#)

Expert Group Meetings: input was received via direct communication with experts from the Expert Groups EG MAMA and JWG BIRD, who are also part of HELCOM BLUES Activity 2.

IC Sessions: [IC BLUES BYCATCH 1-2022](#)

## A5: Task 5.3 Developing tools for beach litter data flow and assessment

This task is divided into two different subtasks:

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

Data call was defined, with input from experts and indicator leads, and collaboration with EMODnet established, so that litter data could be reported/extracted here for MSFD and regional purposes. Monitoring data from CP were requested to be reported to EMODnet via HOLAS 3 data call and the according data received for 2016-2020 from EMODnet (received during summer 2021). After data checking, some adjustments were agreed with EMODnet and a second delivery of corrected dataset was received from EMODnet during September 2021 and used successfully for beach litter assessment and writing of indicator report (A3.1 Annex 1).

### 5.3.2 Tool for developing beach litter assessment

General discussion on assessment needs and data outputs were held with indicator lead/experts and EMODnet Chemistry. Experts were investigating the suitability of the data outputs for assessment and the LitterR software (to be in alignment with OSPAR approach) and preparations for first time quantitative HOLAS 3 beach litter assessment were accomplished. Data visualisation tool was lacking in the LitterR software and results visualised via this task by creating a specific ArcGIS Pro project, which resulted in maps for the indicator report for beach litter (A3.1 Annex 1).

The task 5.3 “Developing tools for beach litter data flow and assessment” has discussed the plans and progress of the work, and received input from the following HELCOM meetings outlined below.

Please note that meetings from January 2021 – February 2022 are openly accessible to anyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).



Working Group Meetings: [STATE & CONSERVATION 14-2021](#); [STATE & CONSERVATION 15-2021](#); [GEAR 24-2021](#); [PRESSURE 14-2021](#)

Expert Group Meetings: [EN-Marine Litter \(11 February\)](#); [EG Marine Litter \(2 May 2022\)](#); [EG Marine Litter \(16 August 2022\)](#)

In general, the information related to the progress of Activity 5 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables.



Tabular summary of A5

*Activity 5: Task 5.1 Improving capacity for biodiversity data reporting (Lead: HELCOM)*

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
5.1.1 Further develop BioBase to incorporate count information	HELCOM	<ul style="list-style-type: none"> <li>- extend existing BioBase to cater for biodiversity core indicators for mammals and birds</li> <li>-extend data model</li> <li>-review database and datamodel in accordance to data collection needs for A2</li> <li>-analyse data conversion and harmonisation needs</li> <li>-updated BioBase webapplication</li> </ul>	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A5 main report. Biobase data model updated and online validation tool developed for data upload, available <a href="#">here</a> Biobase web application updated, available <a href="#">here</a></p>
5.1.2. At sea seabird data (offshore surveys)	HELCOM	<ul style="list-style-type: none"> <li>- explore current database solutions against indicator data requirements</li> <li>-explore requirements for storing large amounts of abundance and distribution data</li> <li>-explore storing of 0 count observations in accordance with indicator calculation requirements</li> </ul>	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A5 main report. Biobase data model updated and online validation tool developed for data upload, available <a href="#">here</a> Biobase web application updated, available <a href="#">here</a></p>

*Activity 5: Task 5.2 Provisioning external data products for assessments (Lead: HELCOM)*

TASK	WHO	DELIVERABLE	STATUS and OUTPUT
5.2 Provisioning external data products for assessments	HELCOM ICES	<ul style="list-style-type: none"> <li>- defining the fishing effort data requirements (VMS and logbook data) for cumulative impact assessment and other purposes (e.g. bycatch estimation)</li> <li>-fishing effort and intensity maps via ICES</li> </ul>	<p><b>Completed</b></p> <p><b>Output</b> Described in more detail in the A5 main report. Maps are made publicly available <a href="#">here</a></p>



*Activity 5: Task 5.3 Developing tools for beach litter data flow and assessment (Lead: HELCOM)*

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
5.3.1 Developing the required mechanism to ensure reporting of national beach litter monitoring data to EMODnet as well as its extraction for regional purpose	HELCOM	- liaise with EMODnet and national data providers to evaluate the possibilities of using EMODnet as a data host for monitoring beach litter data -establish needed data flow for reporting and extraction of data (MSFD and regional purposes)	<p><b>Completed</b></p> <p><b>Output</b>                      Described in more detail in the A5 main report.                      Data flow enabled A3.1 to use data for beach litter indicator report (A3.1 Annex 1).</p>
5.3.2 Tool for developing beach litter assessment	HELCOM	-develop assessment tool to create assessment results and data products based on reported litter data -testing LitterR software with Baltic datasets for source characterization and trend analyses	<p><b>Completed</b></p> <p><b>Output</b>                      Described in more detail in the A5 main report.                      Data visualization performed by creating a specific ArcGIS Pro project, the resulting maps are included in the beach litter indicator report (document A3.1 Annex 1).</p>

## A6 Dissemination

The work under Activity 6 – communication and dissemination – provided support to the other project activities to facilitate their work and to assist in reaching their respective objectives, as an operational support enabling flow of information and communication within the project and with all its partners and stakeholders. Furthermore, this activity promoted the visibility of the project among stakeholders who may have an interest in the project and its outcomes or who may want to stay informed about its progress and/or final outputs. Finally, this activity also disseminated the overall outcomes of the project, publicising and promoting the results in manner and formats best suited for further usage by the intended beneficiaries.

The BLUES project received active input through the existing working arrangements in HELCOM, which included the relevant Expert Groups and Working Groups and HELCOM HOD. Each of these groups consists of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project are relevant and usable for Contracting Parties, from a scientific and policy perspective. In particular, the Activity 6 is being developed under the guidance of the HELCOM Secretariat and HOD but working groups and expert groups were also involved for input and guidance on certain communication related aspects, e.g. the new development of website presentation of indicators.

HELCOM Meetings, which have so far discussed and provided input to the work of Activity 6, are the following, as outlined below. Please note that meetings from January 2021 – February 2022 are openly accessible to everyone interested. Due to the geopolitical situation, meetings from March 2022 onwards have been changed into “informal consultation sessions”, which are not openly accessible to everyone but are accessible after registering as a HELCOM Meeting Portal user to the relevant IC session site (please see beginning of this final report sections for more detailed explanation on this).

Working Group Meetings: [STATE & CONSERVATION 15-2021](#)

Expert Group Meetings: [IND INF 1-2021](#)

IC Sessions: [IC STATE & CONSERVATION 1-2022](#); [IC S&C 2-2022](#); [IC BLUES 1-2023](#)

### A6: Task 6.1 Project accompanying communication activities

This task provided communication support to the project in order to facilitate the work of the other activities within the project. Furthermore, this task served to promote the visibility of the project. The task entailed the development of an overall communication strategy and plan, as well as the establishment of communication tools to implement and support the strategy.

This task was divided into seven different subtasks:

#### 6.1.1 Communication Strategy

Since the start of the project, HELCOM had developed and used a Communication Strategy to communicate the project goals and progress to relevant HELCOM Working groups, Experts groups, EU, stakeholders, journalists, and social media (e.g., released news and interviews via the project website and public outreach to social media like Twitter, LinkedIn etc.). The Communication Strategy was shared with all HELCOM BLUES partners via the internal Microsoft Teams site (A6.1 Annex 1).



### 6.1.2 Visual identity

Visual identity guide, design elements (such as logo) and document templates were created (A6.1 Annex 2) and shared on the internal workspace (Microsoft Teams) and via the project website: [here](#)

### 6.1.3 Project website

A dedicated project website was created and filled with general information about the project activities, partners, resources, and news: <https://blues.helcom.fi/>

### 6.1.4 Social media strategy

Since the start of the project, HELCOM had developed and used a social media strategy to communicate the project goals and progress to relevant HELCOM Working groups, Experts groups, EU, stakeholders, journalists and social media (e.g., released news and interviews via the project website and public outreach to social media like Twitter, LinkedIn etc.). The social strategy was shared with all partners to help them advertise any (intermediate) results and deliverables. The social media strategy was shared with the HELCOM BLUES partners via the internal Microsoft Teams site (A6.1 Annex 1). Please note that the social media strategy is contained in the main communication strategy document (same as for task A6.1.1). Other communication tools and products are shared via the internal Teams site and [project website](#) under the resource tab ([social media postcard template](#) and [instructions](#)) and was e.g. utilised by partners for the -1-year-project social media outreach.

### 6.1.5 Content

Several interviews were published on the project website on the “[news tab](#)” and on social media. Questions and instructions have also been sent out to partners and a project video been executed and published on the HELCOM Channel on YouTube and via social media. Additionally to the [video interview about the project](#), also a second video about the connection between the [BLUES project and good environmental status](#) was published.

Also, the [final project conference video](#) was executed and shared via the HELCOM Channel and social media.

### 6.1.6 Newsletter

HELCOM discontinued its newsletter and switched to having more constant outreach on social media and its [project website](#) to inform about the project activities, progress and key achievements. This task was ongoing throughout the project and major news advertisement was done for the project anniversary and the final conference of the project. Major social media channels included Twitter, Facebook, LinkedIn, Instagram and YouTube.

### 6.1.7 Press and media

A media pack/briefer has been designed and shared with the project partners via the Teams site (zip package as A6.1 Annex 3). Press release about the project launch has been sent out, along the media briefer to selected journalists. Press and news releases were done via the project website, social media channels and the two major news blasts to journalists (anniversary and final stakeholder event) throughout the project time. On the occasion of the BLUES Final Conference on 17 January 2023, a specific media event was organized for journalists and media representatives specializing in Baltic Sea and/or environmental issues. The media advisory (A6.1 Annex 4) was sent to 136 contacts in total, covering the entire Baltic Sea region and



beyond. The outcome of the Conference was shared in all HELCOM social media channels (Twitter, Facebook, LinkedIn, Instagram, YouTube) as well as the HELCOM news.

## A6: Task 6.2 Project outcome dissemination and promotion

The dissemination task focused on packaging the project deliverables in a fit-for-purpose format, and on disseminating them to their intended recipients. This task mainly focused on presenting the results (indicators) on a dedicated website and developing and testing a template for indicator fact sheets. Both these products were made publicly available to all relevant stakeholders for further use and promoted using a variety of communication tools. This task is divided into five different subtasks:

### 6.2.1 Topic briefs

A template for indicator factsheets was developed and tested for the first findings generated by notably indicators on marine litter and underwater noise. The factsheets for these indicators were shared via the HELCOM BLUES project website ([resource tab](#)) and on the [new developed indicator website](#) (A6.2 Annex 1a, 1b, 1c). If received well and beneficial, the indicator fact sheets will also be used to advertise other indicators in the future.

### 6.2.2 Indicator webpage

Ideas for the indicator website have been developed and discussed during IND INF 1-2021 with relevant experts and indicator leads, as well as with STATE&CONSERVATION 15-2021 and IC S&C 2-2022. Input was taken into account for the further planning, and the new indicator website successfully developed. The website was ready developed by January 2023 and available as [internal version](#) (until end of March). The website will be populated with the approved indicator reports for HOLAS 3 during March 2023 and afterwards becomes publicly available via <https://indicators.helcom.fi>.

### 6.2.3 Promotion

This task aimed to promote the project and its themes, such as selected key indicators for online promotion during the project.

Videos on project-specific themes were developed and showcased during the final project conference. As the three major themes for BLUES, indicators, economic and social analyses (ESA), and holistic assessments were chosen. The three videos are publicly available on the project website and via YouTube

[Video on indicators](#)

[Video on ESA](#)

[Video on holistic assessments](#)

Additionally, the videos were used for advertisement in Social media channels as a build up to the publication of HOLAS 3 related products, like the [new indicator website](#) and thematic assessment publication.

### 6.2.4 Reporting

A [project brochure](#) has been designed (pdf and print) and shared at the project website, on social media, as well as at physical meetings, e.g. the HELCOM Ministerial Meeting 2021 and other physical meetings. The project reports were developed with visual identity design of the project specific activities (templates part available at the [project website](#) and also distributed to BLUES project partners). The brochure is also part of the media package (A6.1 Annex 3). The final summary reports of each of the five major activities (A1-5) also contain key messages geared towards policy makers and scientists.



### 6.2.5 Stakeholder conference

The stakeholder conference was shifted from the originally anticipated time (November 2022) to 17<sup>th</sup> January 2023 to give partners time to advance and finalise their results and deliverables. A media event was organised and the respective media advisory is available as A6.1 Annex 4. The final conference ([IC BLUES 1-2023](#)) was advertised on social media and all Contracting Parties of HELCOM. The summary results of the final deliverables, as well as key messages to policy makers and science, and use of the results for the major 4 activities (A1-4) on indicators, assessments and economic and social analyses were disseminated. The [final conference video](#) is available online to anyone interested on the HELCOM Channel on YouTube.

In general, the information related to the progress of Activity 6 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables



Tabular summary of A6

Activity 6: Task 6.1 Project accompanying communication activities (Lead: HELCOM)

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
6.1.1 Communications Strategy	HELCOM	- develop a communication strategy for the project	<b>Completed</b>  <b>Output</b> HELCOM BLUES Communication and social media strategy, available as A6.1 Annex 1
6.1.2 Visual Identity	HELCOM	- Project visual identity, graphic guidelines and identity toolbox	<b>Completed</b>  <b>Output</b> <a href="#">HELCOM BLUES Visual Identity</a> , available as A6.1 Annex 2
6.1.3 Project website	HELCOM	- setting up a dedicated project website	<b>Completed</b>  <b>Output</b> Projects website created and content added <a href="https://blues.helcom.fi/">https://blues.helcom.fi/</a>
6.1.4 Social Media Strategy	HELCOM	-Social media strategy	<b>Completed</b>  <b>Output</b> Social Media Strategy produced, available as A6.1 Annex 1
6.1.5 Content	HELCOM	- develop contents and messages (news articles, interviews, infographics, presentations)	<b>Completed</b>  <b>Output</b> Project news and interviews published on the <a href="#">project website</a> . Project videos available at the HELCOM Channel: project video <a href="#">1</a> and <a href="#">2</a> . <a href="#">Final project conference video</a>
6.1.6 Newsletter	HELCOM	- regularly including relevant project information in the HELCOM institutional newsletter	<b>Completed</b>  <b>Output</b> HELCOM has discontinued its newsletter and switched to have more constant outreach on social media and the <a href="#">project website</a> to promote HELCOM BLUES and inform about progress.

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
6.1.7 Press and media	HELCOM	- establishing and managing press and media relations	<p><b>Completed</b></p> <p><b>Output</b>                      Public outreach done via social media channels                      Media pack briefer available as A6.1 Annex 3                      Media advisory available as A6.1 Annex 4</p>

*Activity 6: Task 6.2 Project outcome dissemination and promotion (Lead: HELCOM)*

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
6.2.1 Topic briefs	HELCOM	- develop topic briefs to present the content and findings	<p><b>Completed</b></p> <p><b>Output</b>                      Fact sheets template developed and tested for the first time indicators on beach litter and underwater noise. Available on the HELCOM BLUES project website (<a href="#">resource tab</a>) and as documents A6.2 Annex 1a, 1b, 1c</p>
6.2.2 HELCOM indicator webpage	HELCOM	- develop a HELCOM indicator webpage, facilitating various usages and visualisation	<p><b>Completed</b></p> <p><b>Output</b>                      Until March 2023 the indicator website is available as internal version (<a href="https://helcom.mediapool.dev/">https://helcom.mediapool.dev/</a>) and after that becomes publicly available with all indicator reports for HOLAS 3 to everyone via <a href="https://indicators.helcom.fi">https://indicators.helcom.fi</a>.</p>
6.2.3 Promotion	HELCOM	-online promotion via videos and webinars on project-specific themes (such as selected key indicator)	<p><b>Completed</b></p> <p><b>Output</b>                      Three project themes videos were produced and disseminated  <a href="#">Video on indicators</a>  <a href="#">Video on ESA</a>  <a href="#">Video on holistic assessments</a></p>

SUBTASK	WHO	DELIVERABLE	STATUS and OUTPUT
6.2.4 Reporting	HELCOM	- designing a project report and brochures	<p><b>Completed</b></p> <p><b>Output</b>  <a href="#">Project brochure</a> designed, printed and distributed.                      Report templates available at the <a href="#">project website</a> and distributed to partners.                      The final summary report of each of the five major activities (A1-5) also contain key messages geared towards policy makers.</p>
6.2.5 Stakeholder conference	HELCOM	- presenting the project outcomes during a final stakeholder conference including a media event	<p><b>Completed</b></p> <p><b>Output</b>                      Project outcomes disseminated at the <a href="#">final conference video</a>                      Special focus was given to summary of the results, key messages to science/policy makers, and use of results. A media event was organised and media advisory is available as A6.1 Annex 4</p>

## A7 Project Coordination

The work under Activity 7 provided support to the internal project coordination as well as established a project-policy interphase for successful implementation, direct dissemination of progress and secured usability of the results during the project and in the future. Generally, the following tasks were entailed in Activity 7:

- Administrative support and coordination of workflows
- Appropriate flow of information across and between the various Activities
- Direct dissemination
- Timely delivery of results
- Technical reporting to the EU
- Financial coordination

To fulfil these tasks, the activity was divided into three different tasks, each with their own focal point.

The BLUES project received active input through the existing working arrangements in HELCOM, which includes the relevant Expert Groups and Working Groups and HELCOM HOD. Each of these groups consist of officially nominated representatives of the Baltic Sea countries and the EU, thus ensuring the progress and deliverables of work from the HELCOM BLUES project was and will be relevant and usable for Contracting Parties, from a scientific and policy perspective. Activity 7 was actively involved in all the Meetings listed for Activity 1-6 to ensure input and guidance was being received for all Activities and tasks within the HELCOM BLUES project.

### A7: Task 7.1 Project coordination

The Project Coordination maintained the overall coordination of the project work, handled administrative tasks and ensured information flow inside and outside of the project. The internal technical project coordination involved close follow-up of the individual Activities and tasks to ensure timely delivery of results. This work was facilitated via organised Activity meetings and workshops, as well as joint partner meetings. Arranging timely delivery for the required technical reporting to the EU was ensured by the coordinator (inception report, progress report and final reporting).

### A7: Task 7.2 Project policy-interphase

The project policy interphase was implemented – throughout the entire project time – by communicating the progress and (interim) project results to relevant entities (including EU, national and HELCOM subsidiary bodies and information exchange with sister projects) for review and guidance, and ensure best practices of regional cooperation.

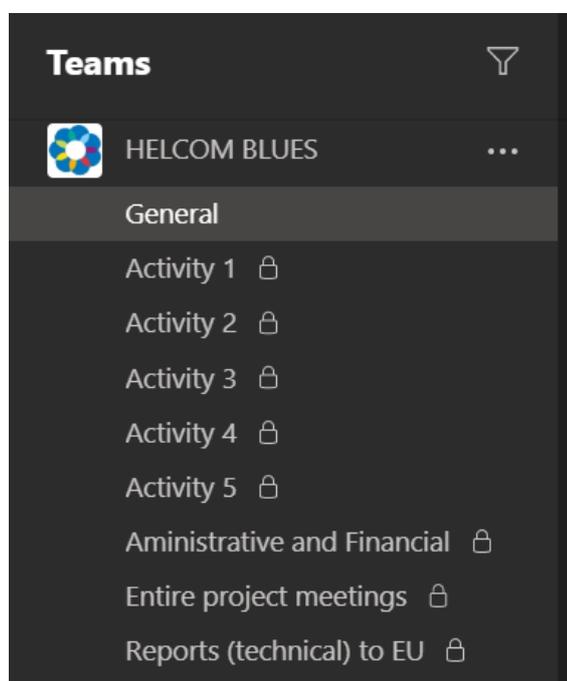
### A7: Task 7.3 Financial coordination

A financial coordinator supported the reporting requirements to the EU, with a HELCOM BLUES Administrative meeting being held in June 2021 to discuss financial reporting, guidelines, time sheets and any open questions by partners.



### Summary overview A7.1-A7.3

All files and presentations for guiding this work were shared via the (project internal) Microsoft Teams site.



Screenshot of the Microsoft Teams meeting site, designated to the HELCOM BLUES project, with different channels aimed to facilitate communication and sharing of documents for all project members together (General), as well as within the respective activities (A1-5), and also for technical/financial reporting as well as project meetings.

A [joint kick-off event](#) for the BLUES project was successfully held 2-4 February 2021 (online), with the setup planned to provide an improved focus, and lay the foundations for a solid regional understanding and acceptance of the work developed within the project, which in turn will ensure long term sustainability of the results. Furthermore, the joint meeting intended to tie the work closely to national and regional requirements and their commitments of HELCOM Contracting Parties under the MSFD and BSAP. The invitation of sister projects and other pan-European experts aimed to establish a basis for information exchange and, where possible, improve commonality across developed approaches also interregionally. (The [HELCOM Meeting site](#) – with open accessible documents and presentations regarding the BLUES kick-off workshop, including e.g. the project overview, activity-specific presentations, communication guide and a tentative meeting list – can be found [here](#)).

Furthermore, a dedicated HELCOM BLUES website has been developed which was updated throughout the project with e.g. relevant news about meetings and ongoing work via partner interviews: <https://blues.helcom.fi/>. Please note that the advertisement of meetings was discontinued when HELCOM switched to replacing its meetings to informal consultation sessions due to the geopolitical situation. Furthermore, the produced three videos (themed on HELCOM BLUES topics: [indicators](#), [ESA](#), [holistic assessments](#), please see A6.2.3) were shared on the project website, as well as information on the final project conference and many other documentation, related to Activity 6. The final project reports will also be shared on the project site, once approved by EU.



The final project conference ([IC BLUES 1-2023](#)) was organised as a stakeholder conference for advertising and showcasing the project outcomes and deliverables.

In general, the Information related to the progress of Activity 7 is provided as a short summary in the tables below, based on the deliverables, outlined from the project proposal and previous inception/progress report and with the according main report and annexes that address the deliverables.



Tabular summary of A7

Activity 7: Project coordination (Lead: HELCOM)

TASK	WHO	DELIVERABLE	STATUS and OUTPUT
7.1 Project coordination	HELCOM	<ul style="list-style-type: none"> <li>- appropriate flow of information across and between the various Activities</li> <li>- administrative support and coordination of workflows</li> <li>-set up working arrangements to ensure that the respective national and regional cooperation processes will be able to contribute to and benefit from the envisaged work</li> <li>-direct dissemination.</li> <li>- timely delivery of results.</li> <li>- technical reporting to the EU.</li> <li>- financial coordination</li> </ul>	<p><b>Completed</b></p> <p><b>Output</b></p> <ul style="list-style-type: none"> <li>-3 technical reports to EU (inception, progress, final)</li> <li>- for internal, national and regional cooperation: information exchange via meetings, workshops, IC sessions (please see meeting lists of A1-6), Teams project site and <a href="#">BLUES project website</a></li> <li>-financial reports delivered</li> <li>-various meetings and events as part of HELCOM EG and WG structure, with other RSC and EU (please see meeting list in individual activities)</li> </ul>
7.2. Project-policy interphase	HELCOM	<ul style="list-style-type: none"> <li>- communicating the progress and interim project results to relevant entities (EU, national and HELCOM subsidiary bodies) for review and guidance</li> <li>-ensure best practices of regional cooperation</li> </ul>	<p><b>Completed</b></p> <p><b>Output</b></p> <ul style="list-style-type: none"> <li>-joint kick-off event, <a href="#">HELCOM BLUES WS 1-2021</a></li> <li>-stakeholder conference held, <a href="#">IC BLUES 1-2023</a></li> <li>-various meetings and events as part of HELCOM EG and WG structure, with other RSC and EU (please see meeting list in individual activities)</li> </ul>
7.3. Financial coordination	HELCOM	<ul style="list-style-type: none"> <li>- fulfill reporting requirements to EU</li> </ul>	<p><b>Completed</b></p> <p><b>Output</b></p> <ul style="list-style-type: none"> <li>-established Teams Channel on financial matters to share templates</li> <li>-BLUES meeting in June 2021 for discussion of questions</li> <li>-financial reports delivered</li> </ul>

