

Roadmap for continued HELCOM work on economic and social analyses (ESA)

Economic and social analyses in HOLAS II

The development of regional economic and social analyses in the Baltic Sea region for HOLAS II has in 2016 been taken forward with the use of resources of the EU-funded TAPAS project. The work includes analyses on 1) the use of marine waters and 2) cost of degradation.

Use of marine waters

The use of marine waters analysis describes the economic importance of human activities and sectors present in the marine environment to illustrate the benefits derived from the use of marine waters. The analysis is connected to the assessment of activities and pressures within HOLAS II, as the ESA component complements the existing spatial information on pressures and activities in the Baltic Sea region by linking economic and social data to these activities.

The use of marine waters analysis attempts to collect regionally comparable data on the economic importance of marine uses for the Baltic Sea and connect this to the activity-pressure assessment. At this stage, the data on the pressures and activities are spatially detailed, and related economic and social data is presented at the country level. Later, there are possibilities to present the economic and social indicators also in spatially detailed manner when such data are available.

The regional framework for the use of marine waters analysis utilizes the marine water accounting approach, gathering economic indicators and data for the activities and sectors from national and regional statistics. The focus is on sectors that:

- create significant pressure to the marine environment
- derive significant benefits from the use of marine waters, and/or
- are dependent on the environmental state of the Baltic Sea.

In TAPAS, the selected sectors include fish and shellfish harvesting, aquaculture, tourism and recreation, energy production and transport. Economic indicators, e.g. gross value added and employment, are used to describe the activity in terms of the economic benefits. Statistics are complemented with non-market values when possible as suggested in the ecosystem services approach. In addition to the economic indicators, the use of marine waters analysis describes the dependence of the sectors on the state of the marine environment and assesses trends in the activities over time based on national strategies for these activities.

The framework is complemented with examples using Finnish and Estonian data. Pending resources to the ESA network or external funding, the analysis will be expanded to the regional scale for the HOLAS II report by mid-2017.

Cost of degradation

Cost of degradation is defined as the consequences to human well-being from the degradation of the marine environment, and it can be assessed based on the benefits forgone or damages resulting from not achieving the good environmental status (GES). Cost of degradation can be presented in monetary, quantitative or qualitative terms.

In HELCOM HOLAS II work, the cost of degradation is assessed in monetary terms, using information from economic valuation studies valuing the benefits of improving the state of the Baltic Sea. The cost of degradation can be presented for selected degradation themes/descriptors of Good Environmental Status (e.g. eutrophication) and ecosystem services (e.g. recreation), depending on data availability. The results of

the analysis illustrate what the consequences to human well-being from the degradation of the marine environment are in monetary terms.

The assessment of data availability has revealed that the cost of degradation for HOLAS II could be assessed for the following descriptors and ecosystem services:

- eutrophication
- biodiversity and food webs
- non-indigenous species
- recreation (ecosystem service).

In the TAPAS project, the analysis is limited to an example for the cost of degradation resulting from eutrophication. The cost of degradation estimates are expressed at the national and Baltic Sea region level. The aim is to include additional descriptors/ecosystem services in the HOLAS II report.

Rationale for further development of economic and social analyses in HELCOM

Economic and social analyses provide a set of tools to examine the benefits from the use of marine waters, and the costs and benefits of achieving a healthy marine ecosystem. They support a sustainable blue economy and use of marine resources. Economic and social analyses provide answers to questions such as the following:

- What is the Baltic Sea's input to economic growth and human well-being?
- How much does the degradation of the marine environment cost us?
- What are the minimum costs of achieving a healthy marine ecosystem?
- Are the economic benefits of achieving a healthy marine ecosystem higher than its costs?

Economic and social analyses are needed to fully apply ecosystem-based management in the Baltic Sea. They can provide valuable information in marine management, marine spatial planning, pollution mitigation and better integration of policies and their implementation.

HELCOM Ministerial Declaration from Copenhagen, 2013, recognized this gap and includes an agreement to *"initiate or intensify the work to attribute economic value to marine and coastal ecosystem services and their contribution to societal, cultural and ecological well-being, [...] with a view to starting more comprehensively embracing an ecosystem accounting approach"*. Contracting Parties also decided *"to cooperate with institutions having leading expertise on economic and social analysis of the use of the Baltic Sea and the cost of degradation of the marine environment in order to contribute to the holistic assessment's socio-economic analysis"*.

Proposed roadmap for further economic and social analyses

TAPAS ESA activities will end in December 2016. An immediate further need is to contribute to HOLAS II beyond 2016 and until mid-2018.

Further, the ESA outcomes in HOLAS II will offer a foundation for a continuous and joint development work, based on national needs and with the aim to deliver advanced ESA for marine management that can also be utilized for e.g. maritime spatial planning. Year 2021, five years from now, could serve as a suitable timeframe for further developing the economic and social analyses in HELCOM.

The TAPAS project has developed a conceptual framework for the regional ESA with the focus on the use of marine waters and cost of degradation approach (Table 1), which can also support the reporting of MSFD Article 8¹. The project has aimed to operationalize the framework and tested it using available data sets and

¹ Economic and social analyses (ESA) requested by the MSFD Article 8 include two components: use of marine waters and cost of degradation. The evaluation of the MSFD Article 8 reporting in 2012 revealed a strong lack of coherence by EU Member States in the Baltic Sea region. The economic and social analyses were carried out using various approaches and from national perspectives, whereas the regional viewpoint was missing.

existing research results. Data have been collected for selected countries, sectors (use of marine waters) and descriptors of GES (cost of degradation). The further work is needed to supplement these data to cover all Baltic Sea countries and additional sectors and descriptors. The aim is to conduct as much of the work as possible by mid-2017, however it can already be foreseen that the efforts need to continue by mid-2018 for the updated HOLAS II.

Table 1. Supporting HOLAS II until mid-2018: Conceptual framework for social and economic analysis.

Questions to which different economic analyses provide answers	By the end of 2016 (TAPAS project)	First HOLAS II by mid-2017 (Part time project researcher in the Secretariat and [SPICE project proposal])	Updated HOLAS II by mid-2018 ([SPICE project proposal])
Article 8.1	Conceptual framework	Regional data	Updates, additions
Use of marine waters	Examples using marine water accounting approach	Regional scaling of data for few selected sectors and applying the results in the HOLAS II report	Updating data and covering additional activities of importance
Cost of degradation	Example analysis (eutrophication) for all contracting parties using stated preference and benefit transfer methods	Regional scale data on few additional selected descriptors/ themes and applying all the results in the HOLAS II report	Updating data and covering additional descriptors/themes

Other actions that could be started in 2017 to support HOLAS II and the regional ESA

1. Develop and agree on common principles for the regional ESA

The TAPAS project has developed a conceptual framework for regional ESA. The aim has been to support HOLAS II analysis, but the framework also corresponds well to the MSFD Article 8. A lesson learnt at the TAPAS work is that the operationalization of the framework was only partly possible. Thus, an essential step for future work is to agree on common principles for the regional ESA in the Baltic Sea region.

2. Work with the national statistical agencies to provide data in standard format on the economic benefits derived from the economic sector's use of marine waters

After the common principles have been agreed, a common data collection according to standard format would be possible. Collaboration with national statistical agencies could facilitate this. This would support e.g. use of marine waters analysis.

3. Develop a common understanding on baseline

An essential part of a common regional analysis is to agree on a regional baseline (how the state of the marine environment will develop in the future), including the time frame of the analysis and certain key assumptions underlying the ESA. This would support e.g. cost of degradation analysis.

4. Establish team with pressure-impact researchers and ESA network

ESA is an interdisciplinary exercise. Paramount for the work is to understand how the economic sectors are using the sea and how a change in the state of the Baltic Sea feeds back to the economic sectors and affects human well-being.

5. Engage with different BONUS and other projects

BONUS projects are conducting valuable research for ESA work. Ways to utilize this new knowledge should be explored. This would reveal some knowledge gaps that could be filled with a regional study.

Tasks in table 1 and tasks 1-5 are considered priority.

It is proposed that economic and social analyses in the Baltic Sea region will continue beyond the release of the updated HOLAS II. The work on items 2-5 above would need to continue to fully operationalize the regional conceptual ESA framework for future use in the regional assessments. The future work would also focus on developing additional socio-economic tools for regional policy analysis, contributing to the economic and social analyses related to the costs and benefits of measures to improve the state of the marine environment. For Contracting Parties being EU Member States, this would contribute to cost-effectiveness and cost-benefit analyses of the Programmes of Measures required by the EU MSFD Article 13. The work should also focus to link cost of degradation and use of marine waters when more data becomes available.

Potential further activities for developing economic and social analyses to be further developed

6. Investigate the possibilities to conduct regionally coordinated valuation studies

Coordinated valuation studies would provide comparable information on the benefits of reaching GES to support cost of degradation and cost-benefit analysis, and also marine spatial planning. Currently, benefit information that covers the entire Baltic Sea region is available for very few descriptors and ecosystem services.

7. Conduct cost-effectiveness analysis of measures to improve the marine environment

The work would include identifying a transboundary set of collective measures (regional scale) to improve the state of the marine environment and performing cost-effectiveness analysis of the measures. This is important for finding the least-cost ways to improve the state of the Baltic Sea, and would support programmes of measures analysis.

8. Conduct cost-benefit analysis for selected descriptors/themes

Cost-benefit analysis could be performed of commonly agreed themes when there is information on both the benefits and costs of collective improvement measures. Cost-benefit analyses would also support analyses related to the programmes of measures.

It is foreseen that new research projects are needed to support points 6-8.

Table 2. Timing of potential next actions for developing regional economic and social analyses

Potential action	Potential time frame
Regionally coordinated valuation studies	2018 -2020
Identifying a transboundary set of measures and cost-effectiveness analysis	2018-2019
Cost-benefit analysis	2020-2021

[Resources for addressing economic and social analyses](#)

The work carried out so far has been possible thanks to the TAPAS project, ending 2016. Further, the ESA network has been established under the HOLAS II project.

The ESA network has so far been project-based and could be further strengthened by participation of all Contracting Parties who could nominate their experts to the network, building an interdisciplinary team. Terms of Reference for the network is under development. The network will continue to be responsible for the ESA development work within HELCOM.

No funding or other resources have been allocated yet to the ESA work beyond the TAPAS except for part-time employment of Project Researcher in the Secretariat (until mid-2017).

A new HELCOM project proposal SPICE, if approved for financing by EU, would make it possible to supplement the use of marine waters and cost of degradation analyses for HOLAS II and start work on points 2-4 in this document (work with the national statistical agencies, develop a common understanding on baseline, establish team with pressure-impact researchers and ESA network, and engage with BONUS projects).