Document title	Development of a framework for economic and social analyses
Code	3-5
Category	CMNT
Agenda Item	3 – Activities of relevant HELCOM projects or processes
Submission date	19.4.2016
Submitted by	Secretariat and TAPAS project Theme 3
Reference	

Background

In 2016, the Economic and social analyses (ESA) in HOLAS II are supported by the TAPAS project, which is co-financed by a direct grant to HELCOM from the EU under the call "Assistance in the preparation of a regionally-coordinated assessment for the Baltic Sea region (Art. 8 and Art. 17 MSFD) and establishing links to WISE-Marine". Theme 3 of TAPAS aims to develop a framework for economic and social analyses (ESA) in the Baltic Sea region.

Guidance to the TAPAS theme on economic and social analyses is provided by the HOLAS II core team and by expertise from the HELCOM Contracting Parties through workshops.

Two workshops on Economic and social analyses are planned to be held within the project. The first workshop (HELCOM TAPAS ESA WS 1-206) will be held on 11-12 May, 2016 in Helsinki, Finland. More information on the TAPAS theme on economic and social analyses can be found in the Annex and here.

Action required

The meeting is invited to:

- take note of the work plan of TAPAS theme on economic and social analyses
- provide guidance and support as appropriate.

Aims and work plan of the TAPAS project to develop a framework for economic and social analyses (ESA) in the Baltic Sea region

Background

Economic and social analyses (ESA) have so far had a limited role in HELCOM regional collaborations but its further development has been highlighted in existing agreements. The evaluation of the MSFD Article 8 reporting in 2012 revealed a strong lack of coherence by the 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 view point was missing. A central element for achieving a harmonized approach to ESA is to develop a common framework for the analyses. Draft outlines for a framework have been presented based on an initial workshop carried out in 2015 (HOLAS II ESA 1-2015; document 6-1 of HOLAS II 4-2015).

Aims

The project will contribute to the development of regional economic and social analyses (ESA) in the Baltic region. The work is also set to support a coherent MSFD ESA reporting by Baltic EU member states in 2018, with respect to 1) the use of marine waters and 2) cost of degradation. The conceptual framework combines components of the Marine Water Accounting approach and the Ecosystem services approach, and will hence be an amalgamation of the two approaches used by HELCOM countries in the 2012 MSFD reporting.

Partners

The work is led by Finland (SYKE) with Estonia (SEI Tallinn) as partner. In addition, the project supports extra research resources at the Secretariat for the development work. The Secretariat also has the role to ensure that the developing framework is aligned with the work of the other key components of HOLAS II.

Workshops

The framework will be elaborated by the project partners in close interaction with other experts of the region. The development will take place interactively and iteratively, and the results will also be presented in two two-day workshops, where all HELCOM countries have the possibility to participate directly, to evaluate and give feedback in a wider context.

The first workshop will be held in Helsinki on 11-12 May, 2016 (see Annex 1). The Workshop will contribute have a particular focus on analyses of the use of marine waters. More specifically the Workshop will:

- Propose economic sectors to be included in a regional assessment based on regional relevance and data availability
- Elaborate on how to account for non-market values in the use of marine waters analysis
- Outline more specifically the proposed analyses of the use of marine waters and its potential linkages to the assessment of human activities and pressures

The second workshop is tentatively planned for August/September in Tallinn, and it will focus on the Ecosystem Services approach and cost of degradation.

Expected results

The project will propose how to conduct regional ESA that will also support the MSFD Initial Assessment reporting in 2018, including advice on a common data collection format. A document on how to apply the framework will be tested, focusing on a common data collection as the first step towards quantitative application. The framework will also show the linkages between the economic analyses required by the Initial Assessment and the Programme of Measures, opening up for future continued alignment of the framework with economic analyses of the Program of Measures

Hence, the project allows for a common regional development of the approaches, but does not include carrying out the actual analyses.

Key questions for the development work

Linkages to human activities, status and pressures

One main conclusion from the previously held workshop HOLAS II ESA 1-2015 was the need to develop the economic analyses hand in hand with the assessments of status and pressures. The use of marine waters analyses is planned to be linked to the assessment of human activities and pressures within HOLAS II, also developed in the TAPAS project (theme 1), and ways forward to achieve this will be further elaborated on at the upcoming workshop HELCOM TAPAS ESA WS 1-2016.

Interactions with the HOLAS II ESA work strand

The project is designed to take place in close interaction with experts in the Baltic Sea region, in order to share experiences and to make sure that the work of the theme is aligned with national needs. A work strand of HOLAS II ESA has been established and includes nominated representatives of the Contracting Parties and leading economists of the field. The works strand still lacks representation from some Contracting Parties. The current list of HOLAS II ESA experts holds participation from Denmark, Estonia, Finland, Germany, Poland, and Sweden.

Data needs and data collation

As a first and necessary step in the application of the common framework, the regional analyses calls for a common view on data collection. The two approaches to be applied within the ESA framework have different perspectives and thus require different types of data. The Marine Water Accounting approach identifies the key usages of the sea, and opens the possibility to develop economic indicators based on national statistics. The application of the Ecosystem Services approach relies on the existing and expanding literature and on collaboration with research projects. The TAPAS project aims to base the development of the regional approaches on real data, so that potential data issues may be identified and potential solutions be proposed as part of the outcome of the project.

Delineation of study area and sectors to focus on

The scope of the project does not allow for complete analyses but will focus on some sectors in order to have a more realistic aim. The project has proposed that the analyses should preferably be conducted at the full regional scale, and to focus the use of marine waters analyses on the sectors of recreation and fisheries.

Annex 1. Background document for the HELCOM TAPAS Workshop to develop the economic and social analyses (ESA) within HOLAS II

Background

The Project for Developing the Second Holistic Assessment of Ecosystem Health in the Baltic Sea (HOLAS II) will assess the overall environmental status of the Baltic Sea and evaluate progress in relation to the goals of the Baltic Sea Action Plan (BSAP). It will be developed so that it can also be used by Contracting Parties also being EU Member States in reporting under the EU Marine Strategy Framework Directive (MSFD).

In 2016, the Economic and social analyses (ESA) in HOLAS II is supported by the TAPAS project, which is co-financed by a direct grant to HELCOM from the EU under the call "Assistance in the preparation of a regionally-coordinated assessment for the Baltic Sea region (Art. 8 and Art. 17 MSFD) and establishing links to WISE-Marine". Theme 3 of TAPAS aims to develop a framework for economic and social analyses (ESA) in the Baltic Sea region. Guidance to the TAPAS theme on economic and social analyses is provided by the HOLAS II core team and by expertise from the HELCOM Contracting Parties through workshops. Two workshops on ESA are planned to be held within the project.

Economic and social analyses (ESA)

Economic and social analyses (ESA) requested by the MSFD Article 8 include two components: use of marine waters and cost of degradation. ESA have so far had a limited role in HELCOM regional collaborations but their further development has been highlighted in existing agreements. 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.

A central element for achieving a harmonized approach to ESA is to develop a common framework for the analyses. Draft outlines for a framework have been presented based on an initial workshop carried out in 2015 (HOLAS II ESA 1-2015). The draft conceptual framework amalgamates the two components of 1) the use of marine waters and 2) cost of degradation. The current workshop will focus on further developing a framework and paving the way for the regional analysis of the use of marine waters, whereas a workshop focusing on the cost of degradation is planned for autumn 2016.

Use of marine waters

In this workshop, we will address the ESA of the use of marine waters using the accounting approach (marine water accounting) and the ecosystem services approach. Both approaches were utilised by countries in the previous Initial Assessments. In principle, the accounting approach is straightforward as it relies on standardised statistics. However, this limits the analysis to market values and to sectors which benefit economically from their use of marine waters. To appropriately describe and quantify the economic value, we need to also consider non-market values, as well as sectors which use the sea as a sink.

The MSFD requires EU Member States to estimate the level of human impacts on their marine waters. HOLAS II will do so using the Baltic Sea pressure index and Baltic Sea impact index (BSPII) (Halpern, Walbridge et al. 2008, HELCOM 2010, Halpern, Longo et al. 2012, Korpinen, Meski et al. 2012, Andersen, Halpern et al. 2015). The human activities of HOLAS II are aligned with the activities list in the revised MSFD Annex III. Spatial data sets on human activities and the pressures to which they are linked will be used to derive the indexes. In a

later phase the index will also be linked to the environmental targets in order to obtain Good Environmental Status (GES). The data sets related to human activities and pressures will be collated by HELCOM during 2016.

In addition to their impact on the sea, these activities can be characterized using economic indicators that illustrate their economic importance. To this end, the analysis of human activities and pressure in HOLAS II can be extended to include the economic and social analysis (ESA) of the use of marine waters. This requires economic indicators to be identified for the economic sectors and activities included in the HOLAS II Activities – Pressures analysis. The MSFD requires each EU country to perform an ESA for the Initial Assessments. TAPAS is developing a framework for the regional ESA of the use of marine waters with the idea that the ESA could be performed together with the pressure assessment. This would mean, for example, presenting information on the economic indicators together with the activity maps, and assessing verbally/graphically how the economic sector or activity depends on the state of the sea.

Marine waters accounting

Below are the uses and human activities affecting the marine environment which are included in the Revised MSFD Annex III, as well as used by HOLAS II for the Activities – Pressures analysis. We have included also in the table examples of the Finnish, Estonian and Danish uses and human activities themes mentioned in the previous Initial Assessment. One can note they are well aligned and also are not far off from the revised human activities themes (HOLAS II / MSFD revised).

Table 1. Human activities in or affecting the marine waters, with examples from the Finnish, Estonian and Danish Initial Assessments (IA).

	Theme (Source: Annex 1 HOLAS/ proposed for MSFD Revision, Annex III)	**Activity**	**Finland (Source: IA 2012)**	**Estonia (Source: IA 2012)**	**Denmark (Source: IA 2012)**
Direct use	Transport	Transport infrastructure Transport - shipping	Transportation and traffic	Passenger and freight transport	Transport of goods and passengers
	Extraction of living resource	Fish and shellfish harvesting Hunting	Fishing and hunting	Fishing	Fisheries
	Cultivation of living resources	Aquaculture			Present aquaculture production
	Tourism and leisure**	Tourism and leisure infrastructure Tourism and leisure activities	Tourism	Sea tourism	Coastal tourism, leisure fisheries
	Production of energy	Renewable energy generation Non-renewable energy generation	Energy production and industrial water use	Wind power	Offshore wind power, oil and gas offshore
		Transmission of electricity and communications	Underwater pipelines and cables	Underwater cables and other marine infrastructure	Underwater cables

	Extraction of non-living resources	Extraction of sand and gravel Oil Platforms Pipelines	Use of natural resources from the sea bed	Mining of mineral resources from the seabed	Extraction of sand and stone from the sea bottom
	Security/defense	Military operations	Defense	Marine military use	No
				Ice roads	
	Physical restructuring of rivers, coastline or seabed (water management)	Land claim Canalization Coastal defense and flood protection Restructuring of seabed			Seabed; extraction of stone from stone reefs, sand Artificial stone reefs Coastal protection by physical constructions
				Shipbuilding	
Indirect use	Tourism and leisure*	Tourism and leisure infrastructure Tourism and leisure activities	Recreation		
	Urban and industrial uses	Urban uses Waste treatment and disposal	Sewage	Public sewerage services	
	Education and research**			Research and educational activities	
	Other		Marine protection and cultural heritage	Marine protected areas	
	Other		Agriculture and Forestry	Agriculture	

* Tourism and Leisure listed two times to correspond with both Tourism and Recreation themed uses in FI and EE.
** Included in MSFD Revision, Annex III proposal (https://circabc.europa.eu/sd/a/d42c40d9-17a5-400b-9dc5-c981eadf6d02/GES_14-2015-06_RevisionMSFDAnnexIII_technicalbackground.doc)

As these sectors use the marine waters, they are dependent on the state of the marine waters to various degrees. For example, while the security and defense use is not very dependent on the state of marine waters, the extraction of living resources (e.g. fishing industry) and recreation are very dependent. In the Table 2 below, we present examples of indicators used in the Initial Assessments of Finland, Estonia and Denmark to describe the fishing and recreation activities. The goal is to identify key indicators to describe the activity in terms of the economic benefits of that sector. If that sector is, in fact, dependent on the state of the marine environment, then the economic benefits gained from that activity are also dependent on the state. It should be noted that there have been some exercises to link NACE codes to these use themes and activities (GES-REG INTERREG project, WG GES).

Table 2. Examples of economic indicators linked with fisheries and recreation (Source: Initial Assessments of FI, EE, DK)

	Finland	Estonia	Denmark
Fisheries	Value of production, €/year *	Value of production €/yr	Turnover DKK/year Total Economic value ** DKK/year for North Sea and Baltic Sea together
	Number of jobs*	Number of jobs	Employment , number of jobs in fisheries and aquaculture separately
	Number of person years		Not specified if jobs are full or part time
		Employment, income and value-added tax from fisheries, aquaculture and the fishing industry	
Recreation	Tourism Satellite Account (no separation e.g. coastal areas from inland areas and thus the indicators like the EUR tourists spent were for the whole country and they do not describe the importance of the Baltic Sea.)	Tourism services exported – Foreigners' payments to Estonian tourist companies (Source: Bank of Estonia)	Number of jobs Turnover DKK/year for tourism and recreation from Visit Denmark, measured as overnight stays and consumption per day Total Economic Value** for Baltic Sea and North Sea measured together
		Value added from tourist sector (for the counties that are bordering the sea (Source: Statistics, Estonia)	Leisure fisheries: WTP per trip (gear and travel costs), multiplied with number of recreational fishermen as a measure of TEV
			Leisure boating: WTP for leisure boating estimated as the sum of harbor fees, tax payment (a percentage of the market value of the boats) and maintenance costs per boat, multiplied by number of boats

* These statistics are produced according to the EU's data collection framework directive, thus they should be easily available from all the countries in a standardized format.

Ecosystem services approach

In the analysis of the use of marine waters, the water accounts approach is, in principle, straightforward, as it utilizes national statistics that should be available. However, these statistics do not include information on uses that are outside economic sectors, i.e. non-market values. The ecosystem services approach is more comprehensive than the water accounts approach, as it entails assessing also other direct uses, indirect uses

and non-use, that is, non-market values. Information on these non-market values is available from economic valuation studies.

Several economic valuation studies have been conducted in the Baltic Sea area, focusing on the monetary benefits of an improved state of the marine environment and ecosystem services. Literature reviews of these studies are provided by, for example, Söderqvist & Hasselström (2008), Turner et al. (2010), COWI (2010), Ahtiainen & Öhman (2014) and Hasler et al. (2016).

Economic valuation studies can be used for two purposes in economic and social analyses of the use of marine water and costs of degradation: 1) to assess the importance of those uses of marine waters that are outside market values and economic sectors, and 2) to assess the cost of degradation in the Baltic Sea.

Use of marine waters: Valuation studies may help reveal the importance of uses that are outside economic sectors, i.e. non-market uses and values, such as the value of recreation in the Baltic Sea and its coast. The valuation studies conducted in the Baltic Sea area have been linked to ecosystem services (Söderqvist & Hasselström 2008, Turner et al. 2010, Ahtiainen & Öhman 2014). Although this is generally straightforward, the benefit estimates often include the value of several ecosystem services (such as recreation, landscape and biodiversity), and it is often difficult to separate the value of a single ecosystem service from the total value estimate. However, there is country-level aggregate information for assessing the value of recreation for the Baltic Sea countries (Czajkowski et al. 2015).

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 if GES is not reached. The review by Hasler et al. (2016) revealed that existing valuation studies can be directly linked to several MSFD descriptors of GES and HELCOM BSAP strategic goals, but that using these studies to estimate the benefits of reaching GES is difficult. The main problem is that the benefits are estimated for a specific environmental change and geographical area, which do not, in many cases, correspond to the change and area relevant for policy analysis. Moreover, it may be difficult to link the benefit estimates to the attributes/indicators used to further describe the MSFD descriptors and BSAP goals. The situation is the most promising for the benefits of reduced eutrophication, which have been studied at the Baltic Sea level (Ahtiainen et al. 2014). Thus, there should be enough evidence to assess the benefits of reaching a good environmental status with regard to eutrophication in the Baltic Sea.

Literature

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