

Report on Impacts on the environment and importance to society -workshop

Cumulative effect assessment and socioeconomic analyses in maritime spatial planning

Pan Baltic Scope Opening conference, June 2018

Preface

The overall aim of the joint workshop of Pan Baltic Scope activities 1.2.3 and 1.2.5, organized 20 June in Malmö, Sweden, was to discuss how cumulative impact assessment and economic and social analyses can be used to support and improve regionally coherent maritime spatial planning. In the workshop, the following topics were guiding the discussion:

- Existing experiences in how cumulative impact assessment and socioeconomic analyses can be used in MSP, and bottlenecks to be passed in order to advance them further
- Methods for estimating impacts on society when doing MSP, using ecosystem services, territorial monitoring and other approaches
- Key issues for transboundary aspects and for advancing seamless transnational cumulative impact assessments as a joint collaborative effort

The presentations produced for background of the discussions are briefly described in section 1 of this report. The presentations were followed by discussions documented in section 2. Program and participant list are found in annex I and II.

1. Background

Cumulative effects assessments address impacts on the environment from co-occurring human activities, based on information on the spatial distribution of pressures from human activities, and on species or habitats. In MSP, outputs from different scenarios can be compared, and the assessments can be linked to economic and social analyses to address probable impacts on human well-being.

The socioeconomic impacts originate from two ends: from the use of marine waters and the state of the marine environment. Human activities in the sea bring economic benefits on national economy and employment, and more broadly on citizens' well-being, but are in many cases also dependent on the state of the sea. Hence, actions to protect the marine environment may also create socioeconomic benefits, at larger temporal or spatial scale. The components are cornerstones in the ecosystem approach and for the sustainable use of maritime space and marine resources.

Speakers

Lena Bergström (HELCOM): Marine ecologist, researcher. Activity lead cumulative impacts

Maija Holma (HELCOM): Environmental and resource economist. Activity lead economic and social analyses

Stefano Menegon (ISMAR-CNR, Italy): Senior research-technologist working on the design and development of geospatial tools to support integrated coastal zone management and MSP. His research includes cumulative impact assessment, trade-off synergies analysis, spatial socio-economic analysis and marine ecosystem services.

Kari Hyytiäinen (University of Helsinki, Finland): Professor in economics of Baltic Sea protection. He coordinated the BONUS BALTICAPP-project that studied the long-term prospects for protecting the Baltic Sea by analysing the impacts of changing society and climate on the future provision of ecosystem services and the consequent societal benefits and damages.

Triin Lepland (Ministry of Finance, Estonia): GIS specialist at Estonian Ministry of Finance spatial planning department and is working with Estonian national MSP. In the framework of the Estonian National MSP, an economic model and cumulative impact online tool has been developed to support impact assessment in MSP.

Pan Baltic Scope activities

Activity 1.2.3 on cumulative impacts is set to advance the implementation of cumulative impact assessments as a tool in MSP, building on existing regional and national experiences.

Activity 1.2.5 on socioeconomic analyses will establish a shared basis for inclusion of social and economic analyses in MSP.

Presentations

Lena Bergström and Maija Holma (HELCOM)

Lena Bergström and Maija Holma presented the background of the cumulative impact assessment and economic and social analyses in Pan Baltic Scope, as well as the workshop aims and program (Annex I; [Presentation 1](#)).

Stefano Menegon (ISMAR-CNR, Italy)

Tools4MSP is an open source webplatform with MSP-oriented data and knowledge-sharing within the Adriatic-Ionian Sea. The platform consists of different Geospatial tools that can assist in decision-making within MSP. The tools take a case study approach. Examples are given on the assessment of ecosystem services, supply and demand of recreational services, current and future conditions due to environmental pressures and the impacts from them. Ecosystem service supply and demand is analysed to identify spatial matches and mismatches. The cumulative effect assessment uses a similar basic approach as the Baltic Sea Impact Index (BSII). The human activities are analysed as sources of pressures. The information supports transboundary collaboration and knowledge sharing. Some of the bottlenecks that have been identified are the need for harmonized indicator specifications and methods that better take into account Marine Natural Capital and its direct and indirect benefits to maritime activities (Presentation 2).

Kari Hyytiäinen (University of Helsinki, Finland)

BONUS Balticapp is an integrated model for describing causal human-nature-human interactions. The model will help in planning for long term sustainable use of marine assets so that values are maximized but taking into account the impact on marine ecosystems. The aspect of time is important, and a long time horizon has to be applied in MSP. How do humans affect nature and how does nature react in terms of ecosystem services? The Balticapp uses data and shows projections of maritime areas in a long time perspective to establish the relationship between human activities, pressures on ecosystems and wellbeing of humans. Shared socioeconomic pathways are connected to trajectories of pressures, which are then connected to economic assessment. Scenario analysis for current state and two future developments is conducted ([Presentation 3](#)).

Triin Lepland (Ministry of Finance, Estonia)

Estonia is in its preparational phase in MSP. Ongoing work on MSP is supported by two tools; an economic model and a cumulative impact online tool. The economic model is based on empirical data from literature, expert interviews and spatial data. It combines profits and expenses in territorial waters and EEZ and has four themes: energy, fishing, transport and aquaculture. For example, the model can visualise the maximum profit from aquaculture in different sea areas. The cumulative impact online tool is based on real monitoring data, and it can visualise how different human activities put pressure on different ecosystem elements. The next step is to combine the two models in order to get results from both economic and environmental impacts of different sea areas, and to develop a user friendly web-interface. In combining the two models harmonizing the level of detail in the environmental and economic model presents a challenge, as the economic model is based on expert opinions and existing literature, whereas the environmental model is based on monitoring data ([Presentation 4](#)).

Discussion

Discussions on key bottlenecks for advancement of CEA and ESA in connections to MSP, key conclusions on methods for estimating impacts on society and key issues for transboundary aspects and advancing seamless transnational cumulative impact assessment were raised. The discussions were moderated by Lena Bergström (HELCOM). Below is a brief outline of discussions. A summary of discussions conducted in smaller groups is presented in Annex III. A summary of the three most important conclusions is available in [Presentation 5](#).

Key bottlenecks for advancement of CEA and ESA in connection to MSP?

Unlike the forest sector, for example, management of marine and coastal values focuses very much on “destroying less or as little as possible” rather than improving and developing. The focus need to shift to the development of marine values, and science will play a part in that change. For example, instead of aiming to not overstepping the carrying capacity of fisheries, can we aim at increasing the value?

It is important to identify land-based sources of pressures on the marine environment as they are a large part of the impacts. Therefore a collaboration with WP 1.3: Land-

sea interaction is desirable. Integrating the planning systems of land- and sea-based management could be useful.

There are not only conflicts between human activities and the environment but also between different human activities, for example the need for renewable energy production and fisheries. There currently a lot of focus on the negative impacts and little on the potential positive impacts from human activities.

Good examples on how to implement available data in models and tools have been presented in this workshop. The workshop also discussed how is the overall quality of the data? For politicians and other stakeholders to be able to use the results and the models in decision making, the uncertainties have to be reduced when possible, and in other cases explained and made visible. Sensitivity analysis is an important tool to show the uncertainties, or using ensemble modeling to see what are the general commonalities. How well do we know the state of the sea? Even bigger uncertainty comes with predicting the future, economic models are not predictions but usually scenario based.

Key conclusions on methods for estimating impacts on society

How will a specific project will affect the status of the environment? The ecosystem services approach is linked to human activities that can provide wellbeing but on the other hand also cause harm to the environment. The Estonian economic model is a good example of a way forward to combine activities and the economic effects. It is a challenge to link an indicator to the plans in regionally coherent way.

Key issues for transboundary aspects and for advancing seamless transnational cumulative impact assessments as a joint collaborative effort

It is important to not only focus on negative impact but also on benefits. We need to identify indicators that can be studied from different perspectives and also show benefits. The way forward is to use a model where both environmental impacts and socioeconomic benefits, such as human wellbeing, is integrated. Focus is currently much on environmental impacts and it is very important to include benefits to society as well.

In identifying common indicators, it would be important to root them in the MSFD.

It is important when identifying common indicators to take differences between countries into account. A harmonization may not be possible, due to different nature of the countries' MSPs. Not all plans look alike and the countries are in different stages of planning, for example. One conclusion is to aim for coherence rather than harmonization.

The availability and quality of data differs among the countries and this is also an important factor to take into consideration. How do we handle the heterogeneity of data in models? The abundance and quality of data is a major challenge for the transnational CEAs.

Wrap up and closing words

The workshop sought to answer the following questions:

- What are the key bottlenecks that need to be passed in order to advance the analyses of cumulative impacts and socioeconomic analyses?
- What are priority work and next steps to advance the estimation of impacts on society?
- What are priority work and next steps to advance transboundary coherence and collaboration?

The three most important conclusions from the workshop are that:

- The work onwards need to focus on achieving coherence and on assessing benefits, not only impacts.
- In order to advance the estimation of impacts on society the next steps are to focus on identifying key impacts and to conduct several testings.
- The prioritized next steps to advance transboundary coherence and collaboration should be to look at common future aims, and make sure that existing knowledge is used in improving collaboration and coherence.

Annex I: Agenda

TIME	TOPIC	SPEAKERS	OBJECTIVES
12:30	INTRODUCTION TO THE WORKSHOP	LENA BERGSTRÖM AND MAIJA HOLMA	AIMS OF THE DAY WHAT IS PAN BALTIC SCOPE DOING? WHAT DO WE KNOW SO FAR, AND WHAT DO WE WANT TO ACHIEVE?
13:00-13:45	PRESENTATIONS (8-10 MINUTES EACH)	STEFANO MENEGON	EXISTING EXPERIENCES IN HOW CUMULATIVE IMPACT ASSESSMENT AND SOCIOECONOMIC ANALYSES CAN BE USED IN MSP, AND BOTTLENECKS THAT NEED TO BE PASSED IN ORDER TO ADVANCE THEM FURTHER AT VARIOUS SCALES
		KARI HYYTIÄINEN	
		TRIIN LEPLAND	
13:45	DISCUSSION ON KEY CONCLUSIONS ON METHODS FOR ESTIMATING IMPACTS ON SOCIETY	ALL	WHAT ARE THE KEY CONSIDERATIONS - WHAT IS THE PRIORITY WORK AND NEXT STEPS?
14:05	SUMMARY DISCUSSIONS ON KEY ISSUES FOR TRANSBOUNDARY ASPECTS AND FOR ADVANCING SEAMLESS TRANSNATIONAL CUMULATIVE IMPACT ASSESSMENTS AS A JOINT COLLABORATIVE EFFORT	ALL	WHAT ARE THE KEY CONSIDERATIONS - WHAT IS THE PRIORITY WORK AND NEXT STEPS?
14:25	WRAP UP AND CLOSING WORDS	LENA BERGSTRÖM AND MAIJA HOLMA	SELECTING THREE MOST IMPORTANT TOPICS TO BE PRESENTED FOR THE OPENING CONFERENCE AUDIENCE
14:30	END		

Annex II: Participant list

Name	Organisation
Nickolaj Bock	EEA
Peeter Vissak	CCB / Estonian coast working area
Maciej Cehal	Maritime Office in Szczecin
Magdalena Matczak	Maritime Institute in Gdańsk
Owen Rowe	HELCOM
Anna Szegvari-Mas	Regional Council of Reunion Island
Elin Celik	SWAM
Sine Heltberg	DMA
Maher Al-Quhali	WMU
Annika Koch	BSH
Christine Bonn	Regional Council of Ostrobothnia
Ann Holm	Regional Council of Ostrobothnia
Niels Jonas Olsen	DMA
Trine Skovgaard Kirkfeldt	Aalborg University
Kajsa Tönnesson	SIME
Ann Ideon	Hendrikson&Co Estonia
Thomas Johansson	SWAM
Triin Lepland	Estonian Ministry of Finance
Leena Laamanen	Finnish Environment Institute
Robert Dobak	County administrative board Kalmar
Marie Hallberg	SwAM
Kari Hyytiäinen	University of Helsinki
Leo de Vrees	NL Ministry I&W
Henning Sten Hansen	AAV
Stefano Menegon	ISMAR-CNR
Jonas Pålsson	SwAM
Goncalo Carneiro	SwAM
Michael Kull	Nordregio
Lena Bergström	HELCOM
Maija Holma	HELCOM

Annex III: Summary of group discussions

	Harmonize language	Standardized data	Coherent modeling	Data quality & lack of data	Communication between/with sectors & users	Assessing benefits – not only negative
What are the key bottlenecks that need to be passed in order to advance the analyses of cumulative impacts and socioeconomic analyses?	Harmonization of language/usage of terms	Harmonization of data sets (resolution, time, format etc.)	Harmonized way to calculate socioeconomic effects and value	Data quality - too big uncertainty of results and analyses	Stakeholder involvement and discussions measuring impact of activities (economic, environmental and social)	Are all economic sectors or uses of marine environment included in analysis?
	Maybe there is a mismatch in terminology and communication between MSP planners & CEA/SOA experts?	Harmonization/s tandardization of data (environmental and socioeconomic)	Bottleneck: complex and highly dynamic system leads to difficulty to fit into model	MSP planners need to be aware of its uncertainty	Involvement from sectors or/and other geographical scales (other than MSP areas)	2 of 3 benefits is explained in euro? We have to have all in same description
			How to connect environmental status with impact assessment - is the result?	% of uncertainty should accompany all results	"Easy" to handle conflicts but much more challenging to handle synergy issues!	Connections between benefits: fish and shellfish harvesting perhaps contribute to marine and coastal recreation. Common grid, metadata description and values in the common work
				Monitoring data is from small area and is it enough to make assumptions out of it for the whole sea area?	MSP is also on communication with sectors. Do they believe/are involved in CEA & ESA?	We know more about land to sea interactions, but we don't know so much about sea to land interactions.
				Lack of data	Joint Fact Findings is key (scientists, users/sectors, government)	Swedish point of view: How should we apply analyses within the "new" MSP and compare them with the "old" Swedish national interests?
						Robust data/spatial Consideration of the mandate and constraints of MSP
What are priority work and next steps to advance the estimation of impacts on society?	Using existing models	Use of indicators	Trade-off analysis	Estimation of impacts	Beyond current methods	
	Promoting/facilitating uptake and use of existing models by relevant stakeholders	Not indicator. Try to estimate impacts in Euro	The influence from one sector to another, especially when it is non-sustainable (i.e. bad oil drilling will negatively influence fisheries, recreation, nature)	Critical reflection of what impacts are relevant to measure in a given context/planning area.	Look beyond ecosystem service approach when it comes to society and culture	
	Develop data sets do not forget about the knowledge!	Find appropriate indicators, e.g. how to calculate		To pinpoint different key elements of	The impact on economy and social wellbeing is	

		effect on recreational quality influenced by offshore windfarms		impacts and how we can take them all into account.	obvious but what is the impact if we pass the tipping point where harm to there is harm to the ecosystem? Leading to less ecosystem service!	
	Data collection Stakeholder involvement - socioeconomic analysis Estimation of the system as a whole Assessment= how to work with what we have assessed	Finding, justifying and validating indicators		Include stakeholder associations to the estimation of impacts (not to calculate and estimate only by economists...)		
		Defining social indicators, taking into consideration that society opinions are different		We have to be very good in the way we are explaining the connection between sea uses and consequences to the environment		
		Raise awareness among the needed parties and from that develop correct indicators		Focus on key impacts – and test, test, test		

What are priority work and next steps to advance transboundary coherence and collaboration?	Look at common future aims and using existing knowledge	Comparing approaches	Using existing knowledge	Share information on Espoo-process	Engage other sectors	
	CEA in MSP and future scenarios - do we share the same timeframe for future planning	Finding the least common denominator Operationalize the SDGs	Make the best possible use of knowledge and data accumulated by HELCOM. Try to apply CEA models at national scale	Coordination of information and hearing the consultation neighbor countries Espoo - summary outcome	Pursue efforts to engage the political level in processes related to MSP	
	Are the planners planning for the same future? Different cumulative analyses	To develop CEA (and SEA) methods further and see/combine pros and cons from different approaches	To watch different examples and works (in Baltic Sea and other sea areas) and from that ground give recommendations that countries can adapt to their national needs. Not to drown into harmonization, everything doesn't need to be harmonized.			
	Resolving maritime boundary disputes	Incorporate also sector's view	Collection and analysis of existing tools/models - similarities and differences			

<p>1. Decide on areas where transnational coherence is needed. 2. Decide jointly on definite criteria in the decided areas. 3. Use or agree on common tools for dedicated areas. Transnational dictionary very important!</p>	<p>Cross WP/activity work -> ESP. With WP 1.3 on LSI</p>	<p>Promote: -Best practice or good examples that different countries have experienced in their MSP process -Share problems that have arisen or solutions that have not worked, other MSP's could learn from them</p>			
	<p>Facilitating exchanges about good practices and lessons learned... but mindful of contextual specifics.</p>	<p>Sharing of in depth knowledge/experiences WRT planning methods, tools, data, planning & governance context etc.</p>			