



BOOK OF ABSTRACTS

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I. SESSION DESCRIPTION

ID: O6

A Sustainability Compass to support sustainable governance of Baltic Sea

Hosts:

	Title	Name	Organisation	E-mail
Host:	Dr.	Maurizio Sajeve	Pellervo Economic Research PTT	maurizio.sajeve@ptt.fi
Co-host:	Dr.	Anda Ruskule	Baltic Environmental Forum	anda.ruskule@bef.lv

Abstract:

The Baltic Sea represents an environmental system at risk, which would require urgent and effective intervention for assuring resilience of marine ecosystem and sustainable development of local communities and countries in the Baltic Sea region. The Baltic Sea and the regions it concerns represent a highly complex and interconnected ecological system, characterized by high vulnerability and critical relevance for both humans and the environment. The simultaneous presence of high complexity of the socio-ecological system and of the urgency of producing effective action make the situation particularly challenging.

On the one hand, there is a need to understand the complexity of the socio-ecological system. A harm produced in one region can easily propagate in non-linear, intricate and unpredictable cascading effects onto other areas (unknown unknowns) and even generate irreversible (ecosystem recovery is impossible) or unrecoverable (ecosystem recovery is possible but too costly for any institution) impacts. Assessment methodologies, which are more adequate to reflect the complexity of natural and human systems interactions, e.g. the flows of resources, in terms of substances and materials extracted and released, are needed.

On the other hand, decision-making remains urgent for assuring the sustainable use of resources as well as the maintaining of the regulating services that are needed for the survival of ecological systems, often earlier disregarded, in an especially critical and interconnected environment.



However, the socio–ecological system concerned exceeds the scope of action and responsibility of single administrative areas. Isolated management planning for exclusive economic zones, might end up in an uncoordinated action by a multiplicity of decision–makers or private organisations.

In order to face the twofold challenge of complexity and urgency described above, the Sustainability Compass, a multi–dimensional and systemic evaluation in pursuit of Sustainable Development Goals (SDGs), has already been proposed for newly funded MAREA project: From MARine Ecosystem Accounting to integrated governance for sustainable planning of marine and coastal areas.

The session will focus on two thematic areas:

1) Trans–disciplinary knowledge integration and transfer for sustainable Baltic communities

There is a large amount of scientific knowledge available from different scientific fields. The main challenges are related to the integration of different sciences and scientific cultures, in order to build a holistic and coherent picture of sustainable development. The thematic area welcomes contributions related to integration of interdisciplinary scientific evidence, especially aiming to moving towards the realisation of Agenda 2030 Sustainable Development Goals (SDGs) as well as the communication and knowledge transfer of scientific knowledge to support evidence–based decision making and accountable governance. This area can include, for instance, interactive tools for communication or other kind of scientific contribution in support of policy making or general societal awareness and understanding of the sustainable use of common/joint natural resources in the Baltic Sea area.

2) Marine sustainable planning and governance

The thematic area welcomes contributions on governance and decision formation, especially referred to improvement towards the achievement of SDGs. This involves the action of administrators for promoting competitive strategies and policies that would incentivise sustainable innovation and create the basis for virtuous competition towards the SDGs but is also referred to innovation design in the private sector for continuous improvement. This area also refers to contributions on processes of social–learning, joint cooperation and governance for establishing and managing common goals, or choice of more adequate indicators for and more robust evidence about non–negotiable needs and systems’ limits for sustainable human–nature system functioning.



Goals and objectives of the session:

The goal of the session is to understand how to integrate and transfer science' and build evidence-based decision making and accountable governance, in pursuit of human-nature systems integration in the Baltic sea.

The objectives of the session address the above described thematic areas:

- To introduce the Sustainability Compass - a multi-dimensional, systematic tool for assessment of developments in relations to the Sustainable Development Goals (SDGs)
- To present other interdisciplinary scientific evidence as well as communication and knowledge transfer experience in relation to SDG and maintenance of the Baltic Sea communities
- To share experience in marine sustainable planning and governance, including decision-support tools and innovations supporting improvement towards the achievement of SDGs
- To discuss the approaches for knowledge integration and transfer to support evidence-based governance strategies of the Baltic Sea and define of these bases in the last part of the session, joint practical suggestions

Planned output / Deliverables:

For each of the thematic areas:

- Presentations (of the Sustainability Compass and of the other contributions) will be shared (about 1 hour, about 10 minutes per presentation)
- On the basis of the presentations, a moderated discussion for social-learning and co-creation will take place (about 30 minutes)
- Joint conclusions will be drawn about evidence-based governance strategies for marine planning in pursuit of sustainable and integrated human and environmental systems in the Baltic sea (about 30 minutes)

Related to ESP Working Group/National Network:

Other

II. SESSION PROGRAM

Date of session: Monday, 7 June 2021

Time of session: 15:30 – 17:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
15:30	Maurizio	Sajeva	Pellervo Economic Research	Introduction
15:45				Evidence-based science for informing ethical decision making: a Sustainability Compass towards sustainable development
15:45	Henning Sten	Hansen	Aalborg University	BONUS BASMATI - decision support for maritime spatial planning
15:55	Robert	Aps	University of Tartu	Participatory mapping of marine ecosystem services in support of sustainable maritime spatial planning
16:05				Spatially explicit modelling of ecosystem services to support sustainable governance of the Baltic Sea
16:05	Francisco	Barboza	University of Tartu	Linking marine and coastal ecosystem service supply to well-being of coastal communities in Latvia
16:15	Rafael			
16:15	Anda	Ruskule	Baltic Environmental Forum	Lesson learned: The development of policy relevant literature syntheses through stakeholder participation
16:25	Tinka	Khun	Leibniz University Hannover	Moderated discussion about evidence-based governance strategies for marine planning in pursuit of sustainable and integrated human and environmental systems in the Baltic sea
16:35				
16:35	Maurizio	Sajeva	Pelervo Economic Research PTT	
17:00				

III. ABSTRACTS

Abstracts are ordered based on the session program. The first author is the presenting author unless indicated otherwise.

1. Type of submission: Abstract



O. Open sessions: O6 – A Sustainability Compass to support sustainable governance of Baltic Sea

Evidence-based science for informing ethical decision making: a Sustainability Compass towards sustainable development

Presenting author: Maurizio Sajeve

Other author(s): Jonne Kotta, Anneliis Kõivupuu, Anda Ruskule

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Already about 30 years ago the issue of interfacing science and society had a central role at the European Commission level. Science was advocated to come down from their disciplinary silos to build interfaces with society and inform evidence-based decision making. In ‘science for policy’ Nobel laureate Amartya Sen reports about a confusion between means and goals of sustainable development. Economic and social structures are the means through which the goals, i.e. human freedom, needs and capabilities are achieved. On the contrary, the Sustainable Development Goals include both, some product of consensus (socio-economics) and some related to reproducible evidence (ecosystems and human needs). However, interfacing science and society does not mean summing them together. While socio-political processes are based on preferences and consensus, science roots on verifiable and reproducible results and is not democratic. Just one scientist can refute the theses of many. Uncertain science leaves room to political claims, and evidence-based decision making is challenged. Interfacing science and society cannot happen by a contradictory ‘consensus-based science’, possibly ending up in dangerous dogmas, in presence of non-adequately supported arguments. Uncertainty should not be hidden by consensus, rather highlighted, and an Aristotelian vision of precaution, ethics and moral virtue can guide the political good man. This vision is implemented through a Sustainability Compass, evidence-based tool applied to specific cases, to help understanding scenarios towards sustainable development. It performs an integrated evaluation of human needs and capabilities within environmental boundaries by key indicators of best practices in the use of the means, i.e. socio-economic structures, for the realisation of the goals, i.e. human well-being and capabilities in harmony with ecosystems functions.

Keywords: ecosystems, well-being, science and society, sustainable development, integrated assessment



2. Type of submission: Abstract

O. Open sessions: O6 – A Sustainability Compass to support sustainable governance of Baltic Sea

BONUS BASMATI – decision support for maritime spatial planning

Presenting author: Henning Sten Hansen

Other author(s): Lise Schroeder

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Marine space is under increasing pressure from human activities harming the marine ecosystems. Maritime spatial planning (MSP) is a governance approach, which aims at intensifying the sustainable use of the seas and oceans. In accordance with the EU Directive on Maritime Spatial Planning, the goal of MSP is to ensure, that the increased use of the marine space takes place in a way that is consistent with the sustainable development of the marine environment, and it is required to follow an ecosystem-based and thus holistic approach. This rather new, complex, and quite demanding discipline is also a comprehensive collaborative learning process requiring multi-level governance, cross-border consultations, and a participatory approach. The BONUS BASMATI project (2017–2020) has focused on developing concepts, frameworks, and tools for decision support in MSP covering various aspects of the MSP process including a comprehensive package of map-based tools to facilitate stakeholder dialogue and to assess the environmental impacts of societal activities regarding different maritime spatial planning proposals. The focus on achieving sustainable use of the sea space while maintaining blue growth, poses challenges for maritime spatial planning in the Baltic Sea Region and has increased the demand for more holistic impact assessment frameworks, addressing the integrated social, economic, and environmental impacts of plan proposals. Among the outcomes of the BONUS BASMATI project, is a sustainability assessment framework, developed to support structuring and selection of the relevant indicators for evaluating the integrated impacts of plan proposals and to facilitate discussions on planning issues among stakeholders. This also includes socio-cultural and distributional aspects in order to address the ecological, social, and economic impacts in a coherent way.



Keywords: maritime spatial planning, stakeholder involvement, ecosystem-based approach, multi-level governance, indicator systems

3. Type of submission: Abstract

0. Open sessions: O6 – A Sustainability Compass to support sustainable governance of Baltic Sea

Participatory mapping of marine ecosystem services in support of sustainable maritime spatial planning

Presenting author: Robert Aps

Other author(s): Jonne Kotta, Mihhail Fetissov, Liisi Lees

Affiliation: Estonian Marine Institute, University of Tartu, Tallinn, Estonia

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EU Roadmap for Maritime Spatial Planning (MSP) considers MSP as a tool for improved decision-making. MSP looks to arbitrate between human activities and their resulting effects on the marine environment aiming to balance sectoral interest and achieve sustainable use of marine resources. Public authorities and stakeholders need to cooperate to apply a coordinated, integrated and trans-boundary approach. Spatial decision support systems (SDSS) help to allocate sea space for different human uses without compromising sustainability. SDSS are designed to assist decision-makers and stakeholders by illustrating different possible outcomes. Under the INTERREG Central Baltic project “From MARine Ecosystem Accounting to integrated governance for sustainable planning of marine and coastal areas (MAREA)” we develop the GIS technology based advanced participatory mapping and mutual learning tool in support of MSP related collaborative participatory negotiations. Mutual learning refers to increasing both individual and group understandings of a marine ecosystem services (MES) specific phenomenon regarding facts, values and interests. The participatory argumentation maps of MES provide the theoretical foundations of the GIS tool supporting deliberative aspects in sustainable spatial decision-making. The developed tool is a free-to-use resource, available online for use by marine managers, policy makers and stakeholders without scientific backgrounds and based on the best available scientific data. The aim of the tool is to enable the planners and stakeholders to apply



the MES related participatory argumentation maps in support of geographically referenced discussions and provide for explicit links between arguments and the geographic objects they refer to. The analysis of argumentation processes related to the participatory mapping of marine ecosystem services is a way to discover, use, and archive the rationale in sustainable decision-making problems.

Keywords: marine ecosystem services, participatory mapping, mutual learning, spatial decision support system, sustainable maritime spatial planning

4. Type of submission: Abstract

O. Open sessions: O6 – A Sustainability Compass to support sustainable governance of Baltic Sea

Spatially–explicit modelling of ecosystem services to support sustainable governance of the Baltic Sea

Presenting author: Francisco Rafael Barboza

Other author(s): Jonne Kotta, Robert Szava–Kovats, Anneliis Kõivupuu, Holger Jänes, Kristjan Herkül, Elina Virtanen, Louise Forsblom

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Ecosystems are linked to human well-being through the flow of ecosystem services. Each ecosystem is characterised by its biophysical structure and its ecological processes, which dictate the capacity of the ecosystem to deliver ecosystem services. To date, the mapping and assessing ecosystem service supply is limited largely by both the availability of data and scientific insight. Typically, only the elements of ecosystem structure are mapped, and they are then interpreted in relation to their potential supply of ecosystem service. Here, we developed and tested novel concepts of modelling of ecosystem services to generate an extensive set of maps depicting the indicators of ecosystem services in two transnational pilot areas: Finland–Estonia in the Gulf of Finland and Estonia–Latvia in the Gulf of Riga. These maps characterized ecosystem structure (e.g. biomasses of key habitat forming species) and functions (e.g. filtration of coastal water, provisioning of material, feed or food). The generated maps are fed into an environmental



accounting database and assessed with respect to environmental sustainability using a synthetic decision-support geoportal capable of developing sustainable planning solutions.

Keywords: ecosystems, well-being, spatial modelling, sustainable development, integrated assessment

5. Type of submission: Abstract

O. Open sessions: O6 – A Sustainability Compass to support sustainable governance of Baltic Sea

Linking marine and coastal ecosystem service supply to well-being of coastal communities in Latvia

Presenting author: Anda Ruskule

Other author(s): Kristina Veidemane, Ivo Vinogradovs, Agnese Reķe, Marta Štūbe

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Marine and coastal ecosystem service mapping and valuation is becoming acknowledged as essential contribution to ecosystem-based marine management and maritime spatial planning. It is supposed to help explaining complexity of the socio-ecological system and support decision making on sustainable use of marine areas. Therefore, studies on supply of marine ecosystem service have been expanding recently across Europe and worldwide providing input to maritime spatial planning process. However, there is little evidence on linking marine and coastal ecosystem service supply to well-being of coastal communities. A case study of Land-Sea-Act project aimed to develop proposals for balancing national interest in the offshore wind park development with that of local communities in preserving the landscape and boosting coastal tourism and recreation. The study is exploring the Southwestern coastal area of Latvia in the Kurzeme Region, includes a terrestrial part, up to 10 km inland from the shoreline, as well as marine a part, comprised of the adjacent territorial waters and EEZ. Multiple values of terraqueous landscapes area assessed by applying an ecosystem service approach, including biophysical mapping based on existing data and field surveys as well as participatory methods to incorporate people's experiences and perceptions. Interlinkages between ecosystem condition, service supply and well-being categories (security, material living standards, leisure, health,



social relationships, education/learning from nature and stable ecosystem) are analysed, involving results from a social survey. The study is supported by the Interreg Baltic Sea Region Programme project “Land–Sea–act” (#R098).

Keywords: coastal ecosystems, land–sea interactions, human well–being, maritime and coastal policies, Latvia

6. Type of submission: Abstract

[O. Open sessions: O6 – A Sustainability Compass to support sustainable governance of Baltic Sea](#)

Lesson learned: The development of policy relevant literature syntheses through stakeholder participation

Presenting author: Tinka Kuhn

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Literature reviews are a key element of the scientific realm to describe the evidence base of a specific topic as well as to identify knowledge gaps and future research needs. The development towards systematic review methods intends to reduce bias and increase repeatability. Involving policy makers and other relevant stakeholders in the review process aims for the development of policy relevant results and supports the transfer of knowledge from the research community to practise. We carried out three participatory systematic reviews involving members of the HELCOM GEAR group. The reviews' foci were on marine and coastal ecosystem services of the Baltic Sea (Kuhn et al. 2021), their interrelation with human health and well–being (Storie et al. 2020), and the analysis of applied valuation methods. The presentation will emphasis on 1) the main outcomes of the three syntheses; 2) the lesson learned concerning the transdisciplinary approach and the operationalisation of the ecosystem services concept in marine management; 3) our reflections on the experience and implications for future research.

Keywords: marine and coastal ecosystem services, Baltic Sea, HELCOM region, literature review, science–policy communication