

Maritime Spatial Planning Forum

Global  
Meets  
Regional



# ECOSYSTEM-BASED APPROACH IN PRACTICE

Moderator Jan Schmidtbauer Crona  
Swedish Agency for Marine and Water Management



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European Maritime and  
Fisheries Fund of the  
European Union



# To strengthen EBA in MSP

## How can it be done?

More guidelines?

More best practices?

More political pressure?

More actual integration in MSP?

Which are the bottlenecks for EBA implementation?

How do we address them?

Just a few questions to bring along...



[mdi.screen.io/mspforumw1](https://mdi.screen.io/mspforumw1)





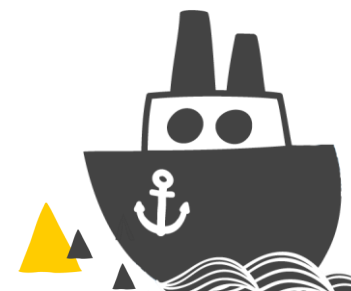
# Session agenda 11.00-12.30

## *Presentations*

- The Ecosystem-based Approach in the Baltic Sea Region - two good examples  
Jan Schmidtbauer Crona, Swedish Agency for Marine and Water Management
- The Ecosystem Approach to MSP – What does the science say?  
Aron Westholm, Gothenburg University
- The Ecosystem-based Approach in MSP – a SEA inclusive handbook  
Susanne Altvater, s.Pro
- Baltic Explorer – a collaborative web-map tool for MSP  
Juha Oksanen, Finnish Geospatial Institute
- Ecosystem-based Approach in Maritime Spatial Planning in Transboundary areas of Bay of Biscay  
Kemal Pınarbaşı, AZTI. Gestión Ambiental de Mares y Costas.

## *Discussion*

Panel and participants



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## EBA in the Baltic Sea Region - two good examples

Jan Schmidtbauer Crona

Swedish Agency for Marine and Water Management



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# Two good Baltic examples of EBA in MSP



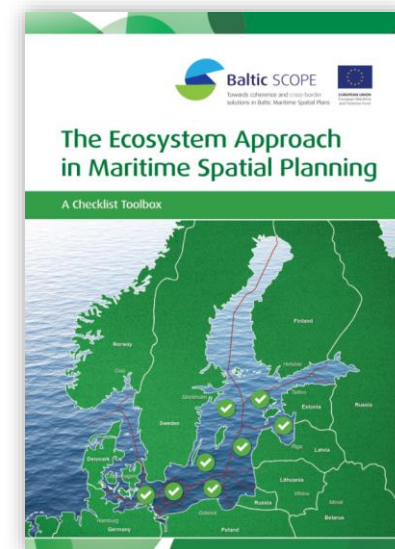
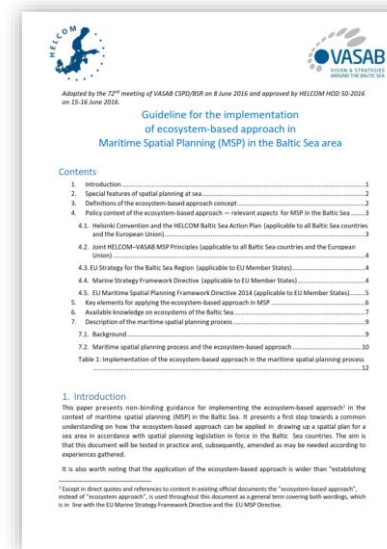




# Ecosystem Approach in Finnish and Åland Maritime Spatial planning- a workshop



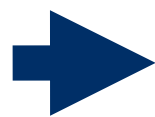
- MSP-experts and marine management experts in workshop 25 April 2019
- Aim to develop and support EBA in Finnish and Åland MSP
- Aim to test the HELCOM/VASAB guidelines and part of Baltic Scope EBA checklist toolbox in the Finnish and Åland MSP context



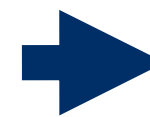


# EBA-key elements and tools – How to do even better

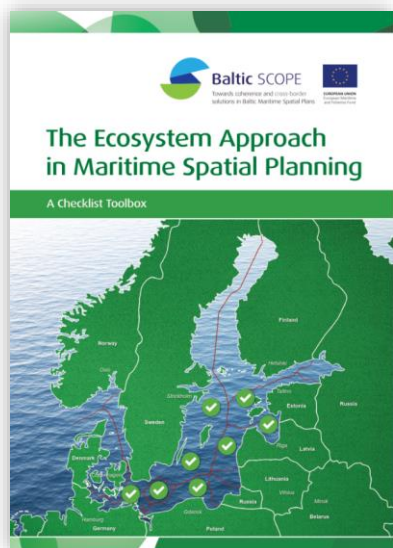
1. EBA key elements  
process evaluation



2. Inventory of EBA-  
tools and bottlenecks

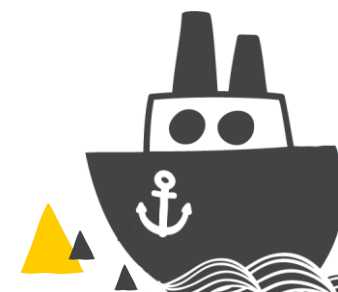


3. EBA-to-do-list incl  
develop/use and/or  
coordinate



- Environmental objective: Good environmental status (GES)
- Best knowledge and practice
- Precaution
- Alternative development
- Identification of ecosystem services
- Mitigation
- Relational understanding
- Participation and communication
- Subsidiarity and coherence
- Adaptation

#MSPforum Global Meets Regional | 19-21 November 2019 | Riga, Latvia





# Swedish Polish Maritime Spatial Planning Strategic Environmental Assessment workshop



- MSP across borders needs SEA across borders
- Swedish Polish offshore wind focused SEA-workshop in Gdynia 17 October 2019
- MSP-, SEA- and environmental experts on Birds and Harbour Porpoise experts participating
- Identifying common knowledge, evaluation of impact, options for mitigation, identification of knowledge needs
- Feeding back into national MSP SEA work







# Swedish Polish Maritime Spatial Planning Strategic Environmental Assessment workshop



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# Key messages

- EBA in MSP needs a systematic approach
- Simple EBA-checklists can be useful
  - Contribute to a structured EBA in MSP discussion
  - Provides for integration between MSP AND Environmental Management
  - Makes it easy to identify areas needing more attention
- True EBA in MSP is transnational
  - Future SEAs of MSP may need sea basin scope
  - Cumulative crossborder impact assessments
  - First step: Bi- or multilateral Strategic Environmental Assessment cooperation contributing to a more holistic knowledge base and evaluation of spatial cumulative impacts
- EBA-challenges with "Environment" vs "Environment" – Offshore wind vs Marine environment



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**The Ecosystem-  
based approach for  
future proofed MSP**

Listen to your  GES

**Thank you!**



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## The Ecosystem Approach to MSP – What does the science say?

Aron Westholm

University of Gothenburg



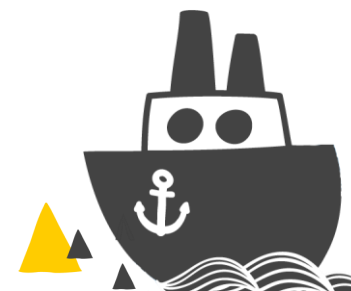
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# Background to the presentation

- Publication of a synthesis report of research with a focus on the application of the ecosystem approach in marine spatial planning published in recent years, and
- The analysis of the results was based on the version of the ecosystem approach conveyed by the Malawi principles and the Helcom/Vasab guideline for implementation of EBA in MSP.

• Authors: David Langlet and Aron Westholm

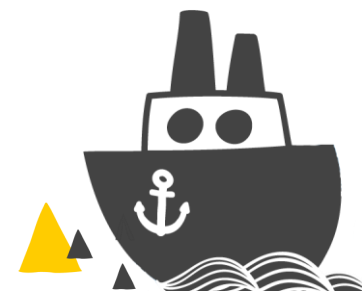






# Structure of the presentation

- Method
- Structure
- Ecosystem approach (EA) – what is it (in relation to MSP)?
- What does the literature say?





# Method – what we did for the report

- Synthesis of major views from the relevant scientific literature, selected reports and guidance documents.
- Material identified through searches in relevant databases and on Google scholar, using terms such as ‘ecosystem approach’, ‘Malawi principles’, ‘maritime spatial planning’, ‘HELCOM’, ‘Vasab’ search terms have been checked against known relevant MSP-literature.
- Texts frequently citing or cited in the above sources have been identified and checked for relevance.





# Structure of analysis

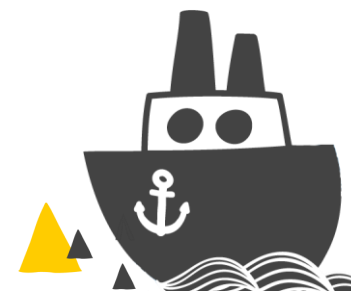
- The analysis is structured based on six themes generally corresponding to the ‘key elements of the ecosystem-based approach’ of the HELCOM-VASAB Guideline:
  - Access to and use of best available knowledge and practice;
  - Development and implementation of development alternatives and mitigation measures;
  - Identification of Ecosystem Services
  - Analysis and management of anthropogenic effects and interactions between human activities and the ecosystems, incl. cumulative effects;
  - Principles and processes for participation and communication;
  - Degree of subsidiarity and coherence in planning;
  - Flexibility and adaptability of the planning.





# The Ecosystem Approach

- ‘Political/legal definitions, e.g. Malawi principles, OSPAR/HELCOM
- Scientific definitions – characteristics identified in the literature
  - But many avoid defining the concept as such





# Different definitions

- ‘a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an **equitable way**.’ It further ‘requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning’ (CBD, COP Decision V/6).
  - Elaborated through the Malawi principles
- ‘the comprehensive integrated management of **human activities** based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of marine ecosystems, thereby achieving sustainable use of **ecosystem goods and services** and maintenance of ecosystem integrity’.
  - (OSPAR/HELCOM statement 2003).

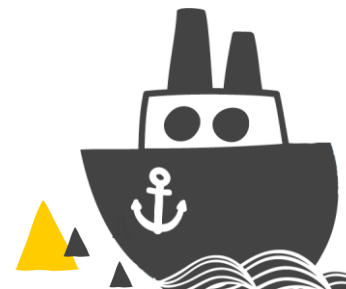






# Different definitions

- A number of concepts with similar or overlapping content: ‘ecosystem management’, ‘ecosystem-based management’, ‘ecosystem-based fisheries management’
  - no statistically relevant differences in how they related to e.g. inclusion of humans in ecosystems, complexity, ecosystem goods and services, precaution (Arkema 2006)
- Defining characteristics identified by Murawski (2007, 682)
  - i.a. geographically specified, adaptive, takes into account ecosystem knowledge and uncertainties, strives to balance diverse societal objectives, incremental
- Relative vagueness seen as both a strength and a problem





# Access to and use of best available knowledge and practice

- Need for recognizing and dealing with uncertainty in a systematic manner
- Uncertainty it not a problem to be solved by a condition to be managed and communicated
- '[e]mbrace uncertainty by making it apparent, but do not let it distract attention from the things that are known' (UNEP 2011)
- Need for integrating knowledge on "the human dimension"
- Easy to focus on topics where there is "hard" (and spatial) data.





# Development alternatives and mitigation measures

- Should result in human activities staying within ecological boundaries (OSPAR/HELCOM 2003; Directive 2008/56/EC).
- What is a desirable state of the ecosystem is ultimately a matter of societal choice (Malawi principle 1)
- Increased transparency concerning trade-offs among users and interests associated with alternative planning scenarios
- e.g. by use of ecosystem services evaluation
- Management processes to operate in accordance with clear goals and objectives





# Identification of ecosystem services

- A natural corollary to the integration of humans and human activities in the ecosystem.
- Can be used to increase transparency concerning trade-offs
- Risks perpetuating 'resourcism'
- Problems with diverging evaluation and prioritization of socio-cultural values between different stakeholders
- Often problem with inconsistent collection of social, economic, and ecological data





# Interactions between human activities and the ecosystems

- Considering humans as parts of the ecosystem is central
- But concerns that inclusion of humans as part of the ecosystem could justify a prioritization of short-term (often economic) interests
- A lack of ‘frameworks, tools and data’ to standardize socio-economic effects

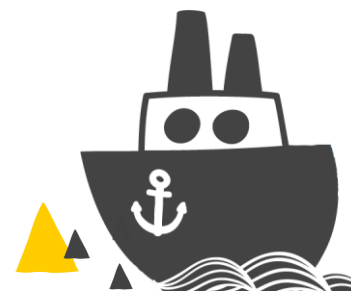






# Principles and processes for participation and communication

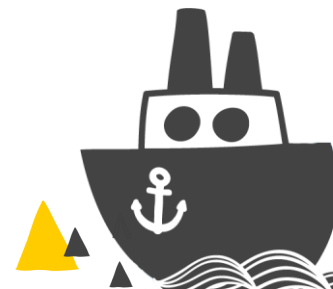
- Participation is both a knowledge acquisition process and a means of ensuring the engagement of concerned actors
- ‘a striking lack of institutionalised structures for stakeholder participation and communication, particularly at the regional level’ (Boström et al. 2016)
- Stakeholders must not be presented with readymade alternatives
- ‘strong leadership and binding timelines’ (UNEP 2011) needed for participation processes not to stall
- Risk of strong actors circumventing formal processes





# Degree of subsidiarity and coherence in planning

- Meaningful ecosystem boundaries starting point for marine plans but planning units must also reflect the reality of socio-political and administrative considerations
- Unlikely to be one 'best' or 'most appropriate' level of MSP
- The nature and focus of the institution that is given responsibility for a particular task is likely to have an impact on the outcome
- Considering 'land-sea-interaction' is challenging but necessary
- Consideration of how and by whom plans are to be implemented should permeate the planning process





# Flexibility and adaptability of the planning

- Knowledge is provisional and management is a learning process
- Different temporal scales challenging in spatial planning
- Need for a system for considering new information and changing circumstances outside of the formal MSP revision process
- Planning processes are evaluated as they occur so that lessons can be drawn without delay when the processes finish



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## The Ecosystem-based Approach in MSP – a SEA inclusive handbook

Susanne Altvater, s.Pro



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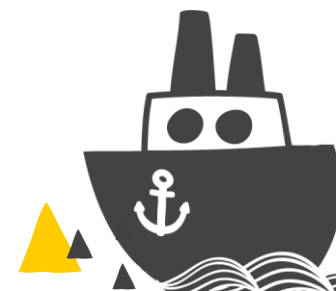


# The EBA in MSP handbook

- Aims to be a practical tool for the daily planners' work in a trans-boundary environment – in the Baltic Sea and beyond.



- Addresses the implementation of an EBA, guiding through the comparison of different Strategic Environmental Assessments (SEA) and linking MSP to other key policies like the EU Marine Strategy Framework Directive (MSFD)

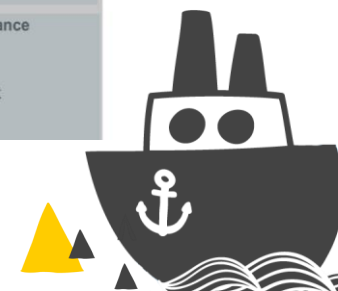




# Elements of EBA and their linkage with steps/requirements of MSP

- Review of possible EBA principles
- Resulted in collection of common principles according to MSP stage
- link of final selection of EBA principles with MSPD requirements

|            | MSP stage<br>(link to UNESCO steps)   | EBA principles/elements  | MSP Directive requirements  |
|------------|---|--|---|
| Defining   | <ul style="list-style-type: none"> <li>Initiate &amp; Scope (Step 1 to 4)</li> <li>Organizing MSP process (general)</li> <li>Defining principles</li> <li>Defining goals &amp; SMART objectives</li> </ul>  | <ul style="list-style-type: none"> <li>Initiate &amp; Scope</li> <li>Support achievement/ contribution to the GES</li> <li>Integrated management/ precautionary principle considered</li> <li>Is participation &amp; communication ensured in planning including the SEA</li> </ul>          | <ul style="list-style-type: none"> <li>Initiate &amp; Scope</li> <li>Take into account the precautionary principle</li> <li>Balance socio-economic &amp; ecological factors in goals/objectives</li> <li>The MSPD does not address public participation in direct EBA requirement, but is integral to EBA and MSP (Art 9)</li> </ul>                            |
| Developing | <ul style="list-style-type: none"> <li>Stocktaking &amp; Analyzing (Step 5 to 6)</li> <li>Current status environment, human activities, conflicts &amp; compatibilities</li> <li>Spatial &amp; temporal needs of future use (alternative scenario's) and preferred scenario</li> <li>Developing (Step 7)</li> <li>Identifying &amp; selecting alternative spatial &amp; temporal management measures</li> <li>Developing the zoning plan</li> </ul> | <ul style="list-style-type: none"> <li>Stocktaking &amp; Analyzing</li> <li>Sound knowledge base</li> <li>Alternatives used</li> <li>Developing</li> <li>Appropriate spatial &amp; temporal scales (incl. Cross-border)</li> <li>Balance socio-economic &amp; ecological factors</li> </ul>  | <ul style="list-style-type: none"> <li>Stocktaking &amp; Analyzing</li> <li>Taking into account the availability of data and information at sea basin level</li> <li>Key ecological elements and human pressures considered?</li> <li>Developing</li> <li>Adapted to the specific ecosystems and other specificities of the different marine regions</li> </ul> |
| Assessing  | <ul style="list-style-type: none"> <li>Assessing (Step 7)</li> <li>Assessing (SEA) &amp; approving the plan</li> </ul>  | <ul style="list-style-type: none"> <li>Assessing (Step 7)</li> <li>Ecological integrity (structures/ processes);</li> <li>Ecosystem services &amp; benefits</li> <li>Interactions (land/sea, cross-border)</li> <li>Achievement GES supported (by tackling (cumulative) pressures</li> </ul> | <ul style="list-style-type: none"> <li>Assessing</li> <li>The capacity of marine ecosystems to respond to human-induced changes is not compromised</li> <li>The collective pressure of all activities is kept within levels compatible with the achievement of good environmental status</li> <li>Sustainable use of marine services in the future</li> </ul>   |
| Implement. | <ul style="list-style-type: none"> <li>Implementing (Step 8)</li> <li>Implementing &amp; enforcing</li> </ul>   | <ul style="list-style-type: none"> <li>Implementing</li> <li>Precautionary principle &amp; mitigation</li> <li>Integrated management</li> </ul>  | <ul style="list-style-type: none"> <li>Implementing</li> <li>Take into account the precautionary principle and take preventive measures</li> <li>Elements of MSP process further into force</li> </ul>  |
| Follow-Up  | <ul style="list-style-type: none"> <li>Monitoring &amp; evaluating performance (Step 9-10)</li> <li>Developing &amp; evaluating performance monitoring</li> <li>Revision &amp; adapting the plan</li> </ul>   | <ul style="list-style-type: none"> <li>Monitoring &amp; evaluating performance</li> <li>Appropriate monitoring</li> <li>Acknowledge uncertainty/Improve sound knowledge base</li> <li>Adaptation considered</li> </ul>   | <ul style="list-style-type: none"> <li>Monitoring &amp; evaluating performance</li> <li>Effective monitoring</li> <li>Evaluate performance</li> <li>Allow for an adaptive management</li> </ul>   |



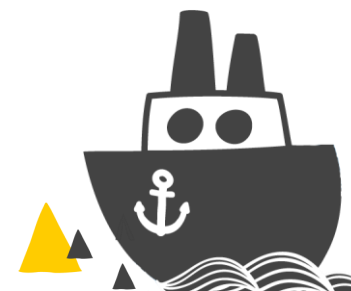


# Comparison of national MSFD and SEA approaches

- The MSFD and the SEAs can contribute to the implementation of EBA in MSP
- But extent of integration of administrative processes of MSP, MSFD and SEA varies related to national implementation

Nevertheless, these processes

- ✓ are mutually informing
- ✓ pre-determined connection points
- ✓ supportive for an effective transfer of information



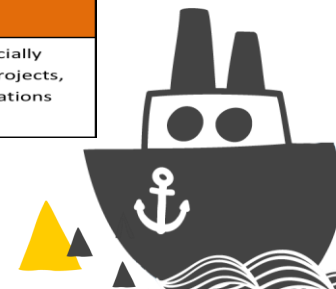


## Step 1

# Trans-boundary aspects of national MSP

- Comparison

|  | DE  | PL   | SE  | DK  |
|--|---|--|---|---|
| <b>General questions</b>   |   |  |   |   |
| <b>Dimensions/scales covered</b>   | Federal EEZ plan for the Baltic Sea and the two-State plans (up to 12nm).   | National plan  | Three regional plans covering only the national waters.   | National plan   |
| <b>Activities and the environment of the neighbouring country considered during the planning process</b> | Focus is on main transboundary relevant issues – shipping, linear infrastructure, fixed infrastructure (OWF) on both sides of the border (cumulative aspects). But dependent on availability of information on planning objectives and measures in neighbouring countries | Environmental features and data especially for the marine parks and species protection i.e. at the border with Germany.  | For each sector the plan describes possible cross-border effects of a given development and cooperation mechanisms with the neighbouring countries. For example, the cross-border impact consists of negative impacts from sand extraction (Sandflyttan on the border with Denmark), wind power (South- eastern Baltic Sea bordering on Poland), and commercial fishing and shipping (South-western Baltic Sea together with Denmark and Germany, or in the Southern and South-eastern Baltic Sea with Denmark and Poland) and positive environmental impacts from areas with <i>particular consideration to high nature values</i> . | Even on the national level, the plan will contain the different rules for the North Sea and Baltic given the different environment. Environmental data in these two sea basins is shared between the countries esp. in the EU projects. |
| <b>Consideration of lines/borders/polygons going along the border</b>                                    | This is not so much about cartographic / spatial depiction, but about actual functional impact of planning, i.e. when it comes to decisions being made based on MSPs  | N/A  | Data coherence is being worked out through the cooperation projects including the Pan Baltic SCOPE.   | Currently only the national coherence is being worked out (i.e. standardised approach for maritime and land planning).  |
| <b>Sectors of relevance in cross-border planning</b>   | Offshore wind energy, shipping, environmental protection  | Offshore wind future developments, shipping, environment, fishing and to a certain extent the underwater cultural heritage as discussed in the Baltic RIM project. | Mostly shipping as well as fishing to some extent. The lack of data on foreign vessels fishing in SE or SE vessels landing in foreign ports constraints the transboundary analysis on fishing. Offshore wind development in one country if close to ports in another country may also require cross-border planning<br>Environment is also relevant in this context - transboundary migratory components, shared Baltic wide species such as cod, dolphin, birds, etc.  |   |
| <b>Process</b>   |   |  |   |   |
| <b>At what stage the cross-border aspects come in to play</b>  | In informal and formal stages of planning: a) pre-drafts and status report, b) first full draft, c) second full draft etc.  | Throughout the process   | Second stage  | Throughout the process, especially through the EU cooperation projects, as well as through the consultations  |





# Trans-boundary aspects of national MSP

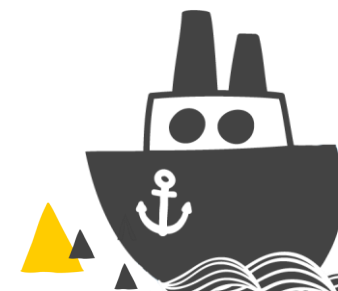
Result:

A Translation

Matrix

to facilitate MSP  
coherence

| Terminology                       | Countries where used | Definition  | Differences in defining the term  |
|-----------------------------------|----------------------|---|---|
| Spatial management approaches     |                      |   |   |
| Priority areas                    | DE, PL, SE           | In these areas one use is given priority over other uses  | In SE: Sea Uses;  |
| Reservation areas                 | DE, PL, SE           | Areas where special importance is attached to certain uses (other uses are not ruled out per se). Namely, in these areas one use is given special consideration in a comparative evaluation with other spatially significant planning tasks, measures and projects. | In SE: Particular considerations  |
| Considered uses                   | DE, PL               | Uses not regulated (no assigned zone) by the plan but considered in the process of establishment of priority and reservation areas.   |   |
| Development zones                 | DK                   | Zones for specific development goals with a focus on Blue Growth  |   |
| General use zones                 | DK                   | Description for all sea uses  | In SE: Description of sea use in each area will be described per use; same in DE and PL |
| Most appropriate use area         | SE                   | Uses judged in the MSP process to be the most appropriate, and as such have priority over other uses. Other uses within the area must be adapted to the conditions and needs of the specified uses in management, planning and licensing examinations               | Not used in other countries   |
| Area of particular considerations | SE                   | Within the area particular consideration must be made of the interests of the specified use in management, planning and licensing examinations  | Not used in other countries   |
| Environmental terminology         |                      |   |   |
| Effect                            | SE                   | Change in the environment that the impact entails on an ecosystem component (ecosystems or individual flora and fauna). Effects can be direct or indirect, cumulative, positive or negative, or long or short term  |   |
| Impact                            | SE                   | Change in physical conditions that the plan's implementation entails (e.g. that an area is claimed, water clouding, noise).   |   |
| Pressure                          | N/A                  | The mechanism through which an activity has an effect on any part of the ecosystem. The nature of the pressure is determined by activity type, intensity and distribution.  |   |
| Ecosystem components              | SE                   | Living environments, species, or groups of animals and plants that constitute a part of the marine ecosystems.  |   |





# Overview of national SEAs

- Comparison
- Selection of EBA elements in national SEAs
- Detailed description of EBA elements

| EBA element                          | Germany | Poland  | Sweden | Denmark |
|--------------------------------------|---------|---------|--------|---------|
| Best knowledge and practice          | Yes     | Yes     | Yes    | N/A     |
| Precaution                           | Yes     | Unclear | Yes    | N/A     |
| Alternative development              | Yes     | No      | Yes    | N/A     |
| Identification of ecosystem services | No      | No      | Yes    | N/A     |
| Mitigation                           | Yes     | No      | Yes    | N/A     |
| Relational understanding             | Yes     | Yes     |        | N/A     |
| Participation and communication      | Yes     | Yes     | Yes    | N/A     |
| Subsidiarity and coherence           | Yes     | Yes     | Yes    | N/A     |
| Adaptation                           | Yes     | No      | Yes    | N/A     |







# SEA terminology

Result:

A Translation

Matrix

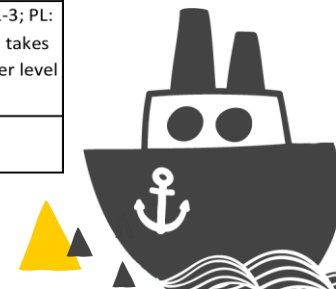
to facilitate trans-

boundary

collaboration on

MSP

| Terminology  | Countries where used | Definition  | Difference effects (what the different effect for MSP, sectors, ...)   |
|--|----------------------|---|--|
| SEA process  |                      |   |  |
| At which stage SEA comes into play                                     | DE, PL, SE           | In parallel with MSP development  | -  |
| Are consultation processes done in parallel / part of the SEA process? | DE, PL, SE           | The plan and the SEA are conducted in parallel including the public consultation. Multiple national and international meetings have been held. In addition, there were a number of consultative meetings regarding specific sectors. Like technical infrastructure, offshore wind farms, fisheries, environmental protection. | -  |
| Effects on MSP   | DE, PL               | Uses not regulated (no assigned zone) by the plan but considered in the process of establishment of priority and reservation areas.   |  |
| Effects on sectors   | DE                   | So far only for DE effects can be measured; SEA outlines alternatives; in practice no changes of original plan so far   |  |
| Environmental terminology  |                      |   |  |
| Alternative  | DE, PL; SE           | Change in the environment that the impact entails on an ecosystem component (ecosystems or individual flora and fauna). Effects can be direct or indirect, cumulative, positive or negative, or long or short term  | PL: the alternative is defined as 'no plan', and the options are therefore the proposed plan; DE: the alternatives are considering the implications of not implementing the plan |
| Impact   | SE                   | Change in physical conditions that the plan's implementation entails (e.g. that an area is claimed, water clouding, noise).   |  |
| Cumulative impacts   | DE, PL, SE           | Different levels of stressors related to the planned activity, other equal activities, other non-equal activities, other transboundary non-equal activities   | DE: has taken into account all aspects of levels 1-3; PL: recognises some aspects of levels 1, 2 and 3; SE: takes all aspects into account, except gas storage under level 3     |
| Ecosystem components   | SE                   | Living environments, species, or groups of animals and plants that constitute a part of the marine ecosystems.  |  |





### Step 3

# Link between MSFD and MSPD

- **Relevant descriptors for MSP processes**
- **Different entry points to link MSFD and MSP**
- **Further options for linking MSFD and MSP Directive's aims exist through (examples):**
  - An adequate design of monitoring programs for measuring MSFD indicators, assessing predominant pressures and impacts and environmental status of marine waters;
  - An adequate evaluation of pressures and impacts produced by activities, including cumulative impact assessments;
  - Setting adequate targets for indicators;
  - Considering ecosystem boundaries, instead of administrative ones;
  - Taking into account the assimilative capacity (carrying capacity of the system before breaching GES);





## Step 4

# Development of a modular concept for planners

- Selection of relevant sources for EBA tools under each of the steps of a MSP

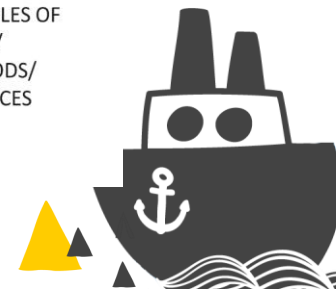
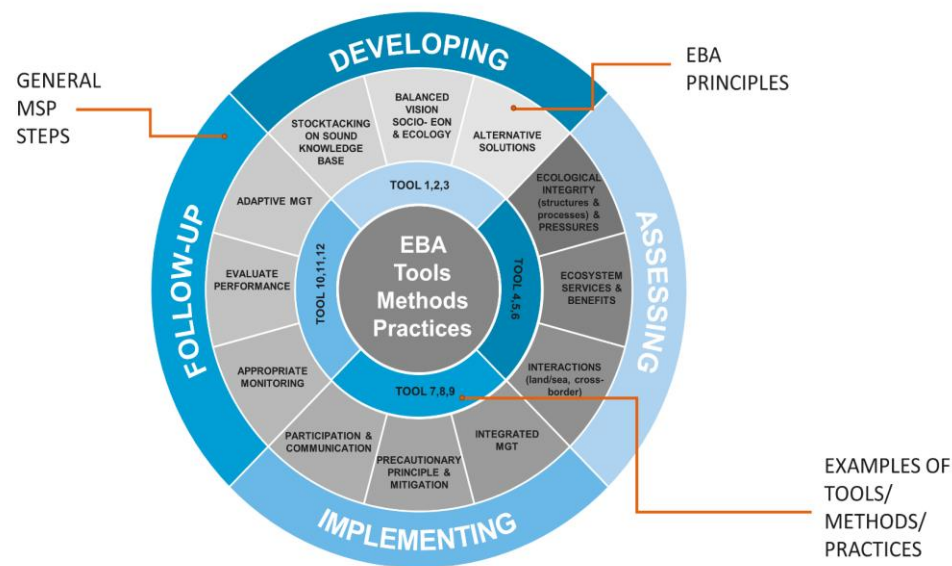
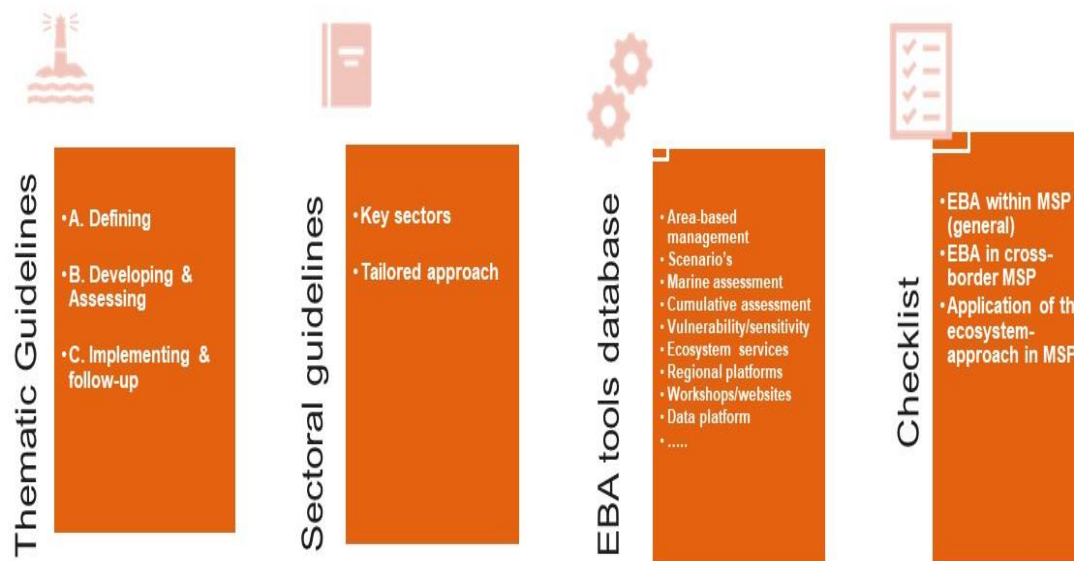
|  |
|--|
| <b>Initiation &amp; Scope (Step 1-4) Relevant Elements: MSP/EBA principles and objectives, MSP indicators, precautionary principle.</b>  |
| The Handbook on Developing indicators in MSP (MSP for Blue Growth Study developed by the EU MSP Platform) provides a methodology for setting up SMART MSP objectives and indicators  |
| EcAp/IMAP ecological objectives (11 EO) and indicators for MSP applied in Montenegro   |
| Eionet Reporting Obligations Database  |
| <b>Stocktaking and analysing (Step 5-6) Relevant Elements: consideration of ecological elements and human pressures</b>  |
| Approaches implemented to assess the limit of carrying capacity and develop sensitivity maps, including the NOAA – coastal sensitivity maps (index) on oil spills (US), DEFRA - marine sensitivity assessments (UK), Scottish Government - Fishery Sensitivity maps (UK), Plan4Blue project - The Gulf of Finland marine and coastal environmental risk profile (FI and EE) <sup>1</sup> , Wildlife Sensitivity Maps (many Member States, as well as cross border approaches) <sup>2</sup> |
| Latvia stocktaking of conditions and ecosystem components for MSP (HELCOM, national surveys)   |
| The Netherlands National Water Act where GES acts as the baseline towards which the Strategic Environmental Assessment should be measured  |
| Swedish Agency for Marine and Water Management application of a SYMPHONY tool, used in MSP to understand and illustrate the environmental pressure on ecological values  |
| <b>Developing (Step 7) Relevant Elements: Defining spatial and temporal scales, identifying and selecting alternative spatial options</b>  |
| The Netherlands five steps compensation scheme which includes choosing the location and assessing requisite space and time   |
| Portuguese MSP tool for identifying priority conservation areas  |
| The PLASMAR - INDIMAR tool (DSS) to identify best marine areas for setting up different maritime activities – according to group of parameters   |
| The ECODUMP project guidelines explicitly dealing with the influence of MSP and EBA principles on the search and assessment of new disposal sites at near-shore of Lithuania.  |
| The projects BALANCE, BalticSCOPE and Pan Baltic Scope outline the concept of blue corridors and how to work with it during practical marine spatial planning processes.   |
| ADRIPLAN, SimCelt and TPEA projects all provide techniques and methods based on the EBA for practically implementing MSP in the sea basin and macro regional scales  |
| ECOMAGIS project complex GIS for an ecosystem-based management through integrated monitoring and assessment of the status of flora and fauna in the Romanian part of the Black Sea   |
| MareFrame Decision Support Framework for a pragmatic planning process for Ecosystem Approach to Fisheries Management (Scenario visualization tools, MultiCriteria Analysis tool, Bayesian Belief Net tool)   |





# Development of a modular concept for planners

- The EBA tools/methods/practices collected is presented in a scheme using multiple classification elements:
- The structure of the module set to guide planners which toolkit and element to use in which context is flexible:





# Basic assessment of EBA tools

- Example: Polish SEA Heuristic forecasting method

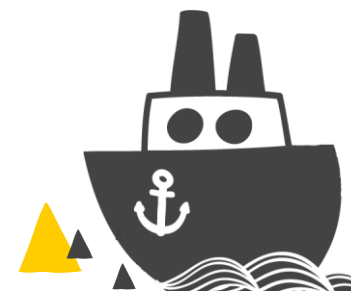
| Basic assessment                                     |   |
|--|---|
| Assessment criteria                                  | Response options  |
| Link to the stage of a MSP Process                   | Assessing; the method was applied as part of the SEA  |
| Type of element                                      | Heuristic forecasting method (Kruk-Dowgiałło et al. 2011), which uses the knowledge and experience of specialists of the interdisciplinary team of authors. It is based on rational, scientific premises, it has a definite time horizon and a qualitative character.   |
| Link to other Directive and administrative processes | Applicable for the implementation of other directives and based on the assessment of the state of the environment according to the MSFD and WFD indicators and was carried out mainly on the basis of the results of the Sea Water Monitoring Program implemented according to the HELCOM COMBINE guidelines, including monitoring of radioactive contamination (HELCOM MORS PRO) as well as measurements and observations carried out at the IMGW-PIB Maritime Department statutory activity of the Oceanography and Hydrosphere and Atmosphere Monitoring Center (in the scope of: water mixing, water exchange, exposure to waves, etc.). The underwater noise was characterized based on HELCOM data and the European BIAS (Baltic Sea Information on Acoustic Soundscape) project. |





# Extended assessment of selected EBA tools

- Aim: to find out more details about the relevance of the tools for the application of EBA in (transboundary) MSP processes, also related to linkages to other directives.
- Assessment follows questions like
  - To what extent does the method address key human pressures?
  - To what extent the method has linkages to GES or the Programme of Measures of MSFD?
  - Have there clear targets set for the application of the method?
  - To what extent the method addresses environmental risks?

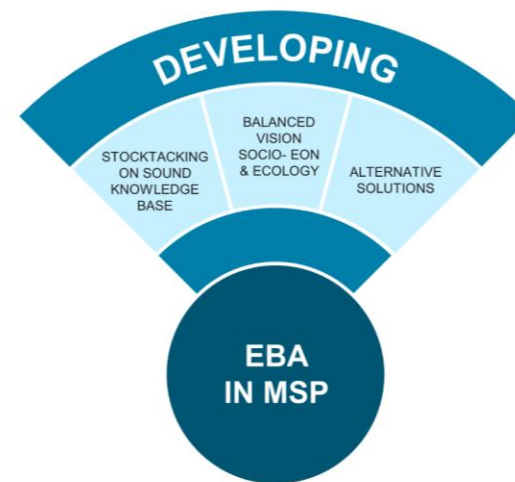






# MSP stage 1 - Development

- Tool 1: Assessment of the limit of carrying capacity and development of sensitivity maps
- Tool Example: Marine Evidence based Sensitivity Assessment (MarESA)  
-> Selection criteria for planners



#### Tool Example: Marine Evidence based Sensitivity Assessment (MarESA)

The MB0102 sensitivity assessment methodology was developed by Tillin et al. (2010) to create a pressure vs. feature sensitivity matrix to support marine and coastal management. Due to the project MB0102 timescales, the approach relied on expert judgement to create sensitivity assessments at two workshops. The methodology was modified to introduce a detailed evaluation and audit trail of evidence on which to base the sensitivity assessments. The revised methodology (henceforth termed **MarESA**) was subsequently applied to Ecological Groups based on species characteristic of offshore, circa-littoral biotopes and to biogenic habitats. The methodology involves the following stages: (1) Define the key elements of the feature (in terms of life history, and ecology of the key and characterizing species); (2) Assess the feature's resistance (tolerance) and resilience (recovery) to a defined intensity of pressure (the benchmark); (3) Combine resistance and resilience to derive an overall sensitivity score; (4) Assess the confidence in the sensitivity assessments; (5) Document of the evidence used; and undertake quality assurance and peer review. The method was applied in England where a total of 88 birds, 13 fish (and a crustacean) and 5 marine mammal species were assessed for their sensitivity to 36 anthropogenic pressures. All species were notified features of existing or planned MPAs in British waters. All features were assessed against the same standardised list of human pressures as defined by the Inter-sessional Correspondence Group on Cumulative Effects, 2011.

Selection criteria for planners: Method requires a solid baseline data - the assessment of sensitivity should be guided by the presence of key structural or functional species/assemblages and/or those that characterize the biotope groups.

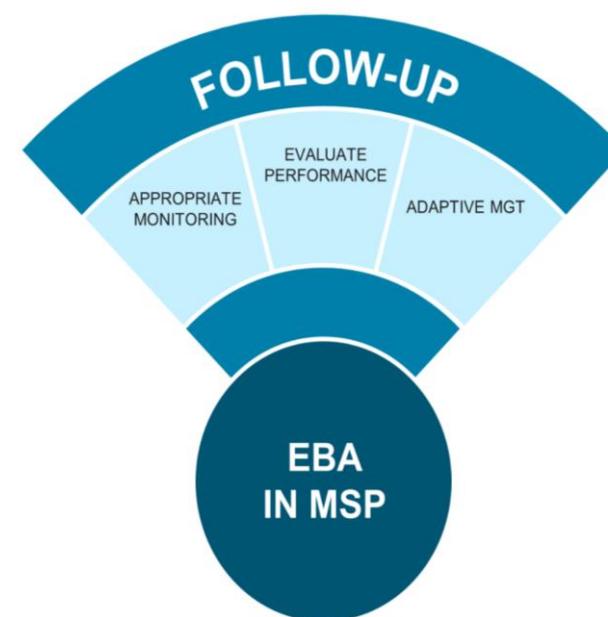
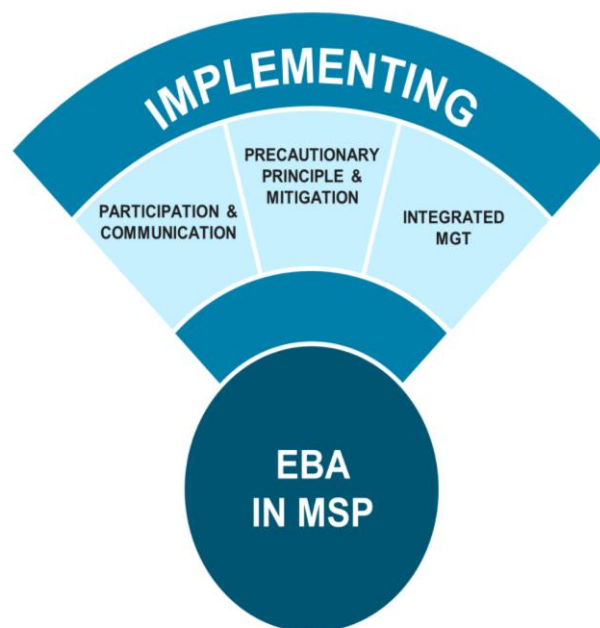
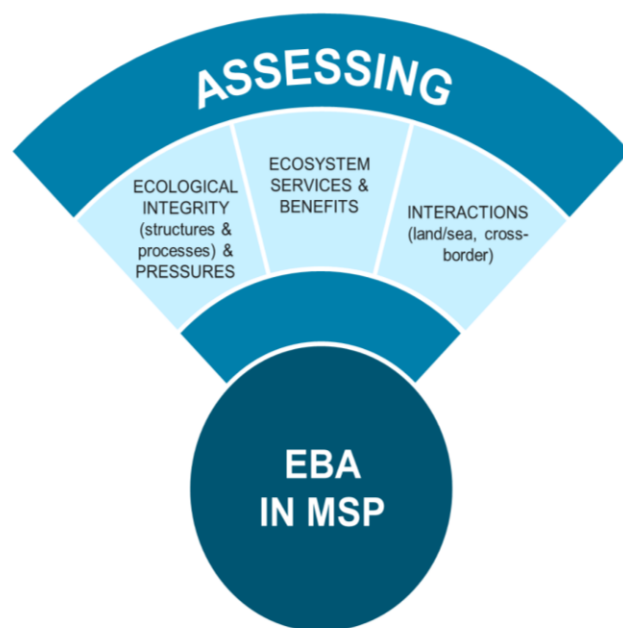
Selection criteria for planners: The method has two versions that may be applied depending on the available time and resources.





# MSP stage 2, 3, 4

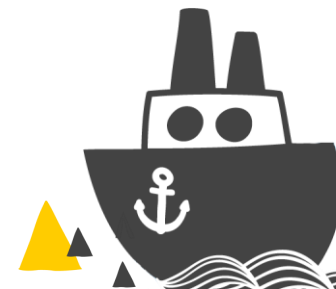
## - Assessment, Implementation, Follow-up





# Key Messages

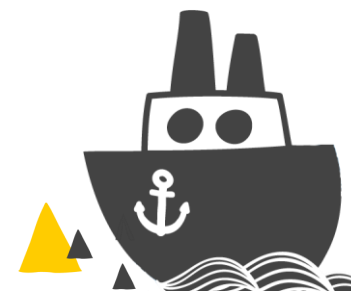
- **What is needed to strengthen EBA implementation in MSP at a practical level?**
  - Easy to handle approaches and translation matrices *across boundaries* for planners
    - Basis for bi-multilateral or even sea basin-wide cooperation on (cumulative) assessments (SEA and EIA)
    - To overcome a fragmented system of measures (MSFD) relevant for MSP and to coordinate them among Member States to reach GES
  - Practical application of EBA tools and exchange of experiences *across all planning stages*





# Key Messages

- Which specific contributions to EBA does your tool/approach provide?
- ✓ Provides comparisons of terminologies and approaches to increase understanding across countries on their MSP processes
- ✓ Suggests entry points for linkages between MSFD and MSP processes like for then environmental targets, programmes and measures and the assessment of the environment
- ✓ Provides a flexible modular concept to organise the EBA implementation in MSP – as needed in individual processes



# Maritime Spatial Planning Forum

## Global Meets Regional



## Thank you!



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Maritime Spatial Planning Forum

# Global Meets Regional



**BONUS BASMATI**  
Baltic Sea Maritime Spatial Planning  
for Sustainable Ecosystem Services

## Baltic Explorer – a collaborative web-map tool for MSP

Prof. Juha Oksanen

Finnish Geospatial Research Institute

National Land Survey of Finland



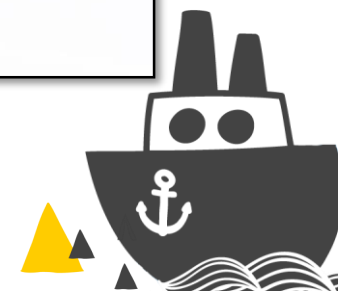
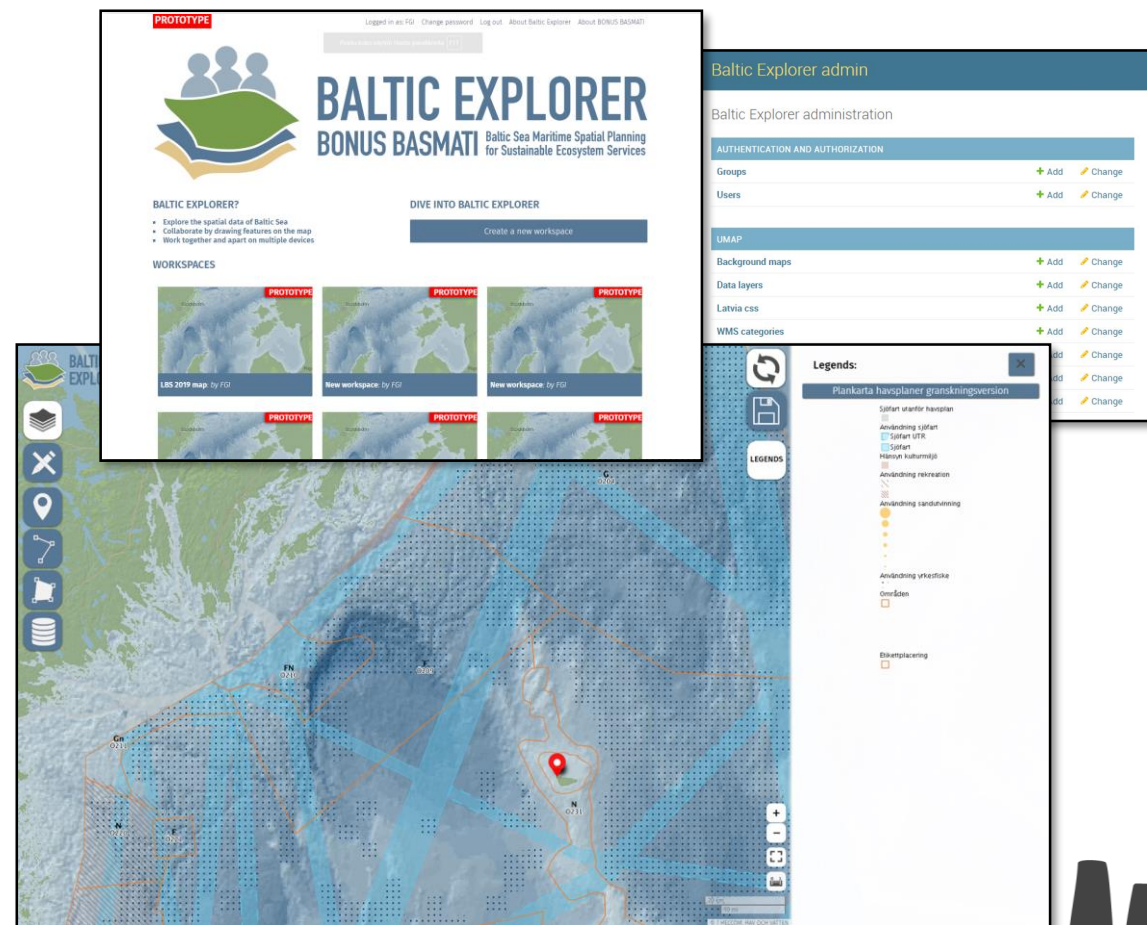
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# What is Baltic Explorer?

- Web-based interoperable map-application to manage spatial data and facilitate stakeholder discussions and engagement in collaborative Maritime Spatial Planning
- Research prototype developed in BONUS BASMATI project





# What is BONUS BASMATI?

[www.bonusbasmati.eu](http://www.bonusbasmati.eu)





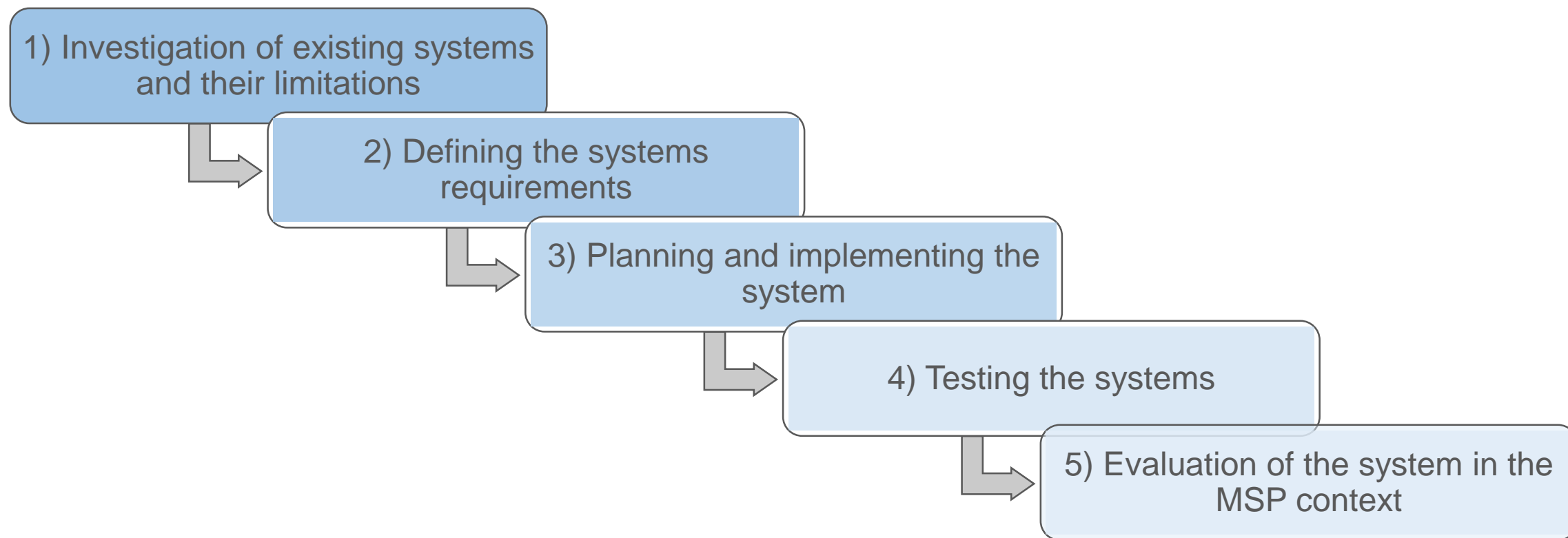
# Goals for our research

- Seeking innovations related to relevant functionalities and properties of collaborative GIS in Maritime Spatial Planning
  - What types of tools are needed? Why many GIS tools have failed?
  - How tools should function taking into account the skills and knowledge level of the potential users?
  - What properties of the whole system are relevant for successful tool development?





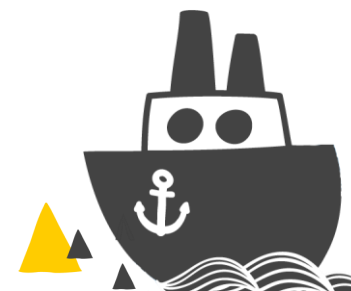
# Steps in Design Science Research and Baltic Explorer development





# Limitations in current MSP-related GIS tools

- Aimed at single user at a time
- Systems are complex and functionalities are difficult to understand – lack of transparency
- Poor usability
- Lack of flexibility, e.g. in terms of interoperability
- Expensive licences
- Sometimes strict hardware requirements







# What came up? **balticexplorer.eu**

- Collaborative web-map tool for MSP
- Cross-platform support
  - (i.e. works on multiple different devices)
- Workspaces can be used by multiple users simultaneously
- View overlay data from different sources
  - e.g. HELCOM, Hav och Vatten, own data...
- Draw and edit features in collaboration









# Preliminary results from user studies

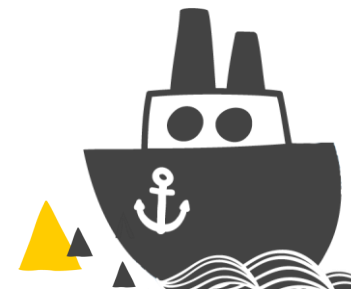
- ca. 30 participants in 2 workshops
- General feedback very positive for collaborative setting
- Visual overlays the most important feature
- Feature commenting supports constructive discussion
- Different devices have different role in the negotiation process:
  - Personal devices – elaboration of ideas
  - Shared devices – presentation and discussion about the ideas





# Future of Baltic Explorer

- Focus on support of BONUS BASMATI's case studies
- New implementation ideas:
  - Chat box – already wished in stakeholder workshops
  - Efficient analytical functionalities to support transparency
- Research on new user settings – VGI, remote use
- Will be published as open source in summer 2020





# Baltic Explorer Team@FGI & BONUS BASMATI partners

- Christian Koski
- Mikko Rönneberg
- Dr. Pyry Kettunen
- Dr. Lassi Lehto
- Prof. Juha Oksanen



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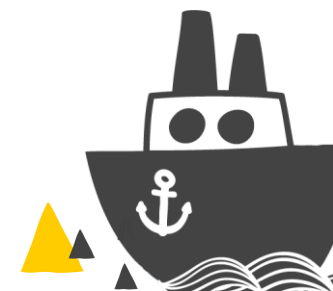
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