MAREA POLICY BRIEF II / 2022

PlanWise4Blue geoportal for sustainable maritime spatial planning

The PlanWise4Blue (PW4B) Geoportal is a decision support tool aiming to maintain the sustainable management of common natural resources in the Baltic Sea region.

PW4B geoportal is available at www.sea.ee/marea

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KEY MESSAGES

1. **The main purpose of the PW4B geoportal is to support the sustainable management of common natural resources in the Baltic Sea region and provide advice for blue economy opportunities based on marine resources.**
2. **PW4B geoportal provides dynamic links between novel concepts of ecosystem services (ES) mapping, environmental accounting and sustainability compass to form a geo-spatial tool tailored for key actors and stakeholders. The tool is developed jointly with important actors and stakeholders of the central Baltic Sea region.**
3. **PW4B geoportal integrates modelled data layers of natural values, ES, socio-economic systems and human activities (current and future) as well as calculation algorithms (i.e. knowledge of the potential impact of human activities on ES in a specified marine area).**
4. **The PW4B analyses are based on complex models but are easy-to-use, thereby improving science-policy integration by linking documented evidence and citizen knowledge into joint decision support.**
5. **The portal enables stakeholders to run tailored models (e.g. quantifying blue carbon stocks and their values) based on the best available spatial data (existing data layers in the portal) and user specified input values (e.g. carbon market value).**

PlanWise4Blue geoportal

Ecosystem services (ES) represent the benefits people derive from natural systems, such as provision of food or recreational opportunities. The ES concept helps to better portray the association between humans and the natural world in three broad overlapping spectrums: (1) provisioning, (2) regulating and maintenance and (3) cultural services.

Many marine activities such as fishing or shipping depend on the sea's natural capital or assets. These activities can impact marine ecosystems and their associated ES.

Maritime Spatial Planning (MSP) is increasingly used to allocate space for human activities and to maintain sustainable development in marine areas. An inventory of ES helps planners incorporate ecological considerations, thereby maintaining sustainability in environmental planning. Natural capital accounting (NCA)[1] is another recent tool that integrates information on ES into an economic system.

For ecosystem-based management of marine resources and sustainable blue economy development, it is important that ecosystems are integrated to the MSP process.

The PW4B geoportal is a decision support tool which aims to support the sustainable management of common natural resources in the Baltic Sea region. Maps of ES were produced for Estonia, Finland and Latvia. These map layers are crucial input for ecosystem-based management and support the transition from expert judgment to data driven assessment with which to produce data usable for NCA.

Functional components of PW4B geoportal:

Tool for cumulative impact assessment on ecosystem services: While numerous benefits are received from coastal ecosystems, people also impact these ecosystems. Cumulative impacts signify impacts on the environment resulting from pressures of several human activities acting together, as caused by past, present or possible future actions. Cumulative effects assessment reduces complexity and provides a clear assessment of uncertainty, readily provides scientific analysis to a science-policy interface, thereby bridging the gap between science and decision-making in ecosystem-based management. Cumulative impacts are assessed directly on predefined ecosystem services with the results displayed on high-resolution online maps.

Tools for customized socio-economic models: The geoportal links databases and algorithms into dynamic modelling tools. The users can run tailor-made models, e.g. quantifying blue carbon stocks and their values that uses the best available spatial data under different scenarios. Such modelling tools allows decision-makers to consider trade-offs between alternative management strategies. Consideration of trade-offs among stakeholders is necessary for maritime management, which must navigate administrative and political relationships while attempting to fulfil conservation, development, and human welfare goals.

Tools for linking established evidence and citizen knowledge into joint decision models: Citizen scientists provide empirical data and knowledge to assess the provision and flow of ES and associated cumulative anthropogenic impacts. This information is added to the existing map layers of ES to provide baseline information on coastal ecosystems' extent, condition, and physical properties of coastal ecosystems. Users can use the portal to self-assess their actions. Each assessment is added to a publicly accessible collection: a Sustainability Compass that allows users to assess their current and future state of sustainability. As a result, different actors can attain a common understanding of sustainability, develop a shared vision to achieve sustainability and assess the regional level of sustainability.

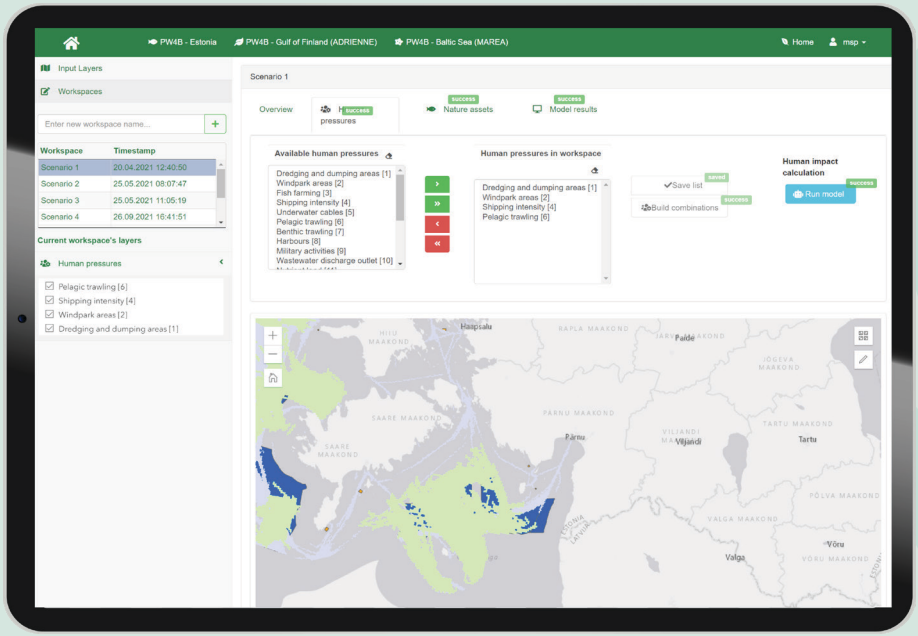

FIGURE 1 PlanWise4Blue cumulative impact assessment is operational with defined linkages to ecosystem services

Why use PW4B geoportal?

- Integration of the best available scientific data and scientific analysis into a science-policy interface, thereby bridging the gap between science and decision-making in ecosystem-based management
- Open-source online tool with an easy-to-use intuitive interface, the user does not have to have special background
- Communication tool for decision-makers, allowing participation and continuous updates of knowledge, data and analyses
- The tool quantifies spatial-explicitly cumulative human impacts on key ecosystem features
- PW4B assists in considering trade-offs between alternative management strategies and provides an indication of the best practices for improvement and alternative scenarios in support of joint decision-making
- All map layers and analyses tools are harmonized for the central Baltic Sea region
- Geoportal provides access to the nature data and analysis tools to all stakeholders in programme area countries
- Users can maintain their own workspace and create custom scenarios

Potential application of PW4B

- **Selecting an optimal scenario for decision-making, e.g. choosing a location for a wind park**
- **Negative impact mitigation**
- **Produce data that are useable to compile natural capital accounts, e.g., regulating ES estimation for ES supply accounts or simulate future ES flows for the monetary ecosystem asset accounts**
- **Assist conservation planning: assess the possible change of an ecosystem and its value in a given conservation area**

REFERENCES

1. European Environment Agency (EEA) and Petersen, J (2019). Natural capital accounting in support of policy-making in Europe: a review based on EEA ecosystem accounting work. Luxembourg: Publications Office of the European Union. doi: 10.2800/192703

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More information on the project: http://marea.balticseaportal.net/

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