



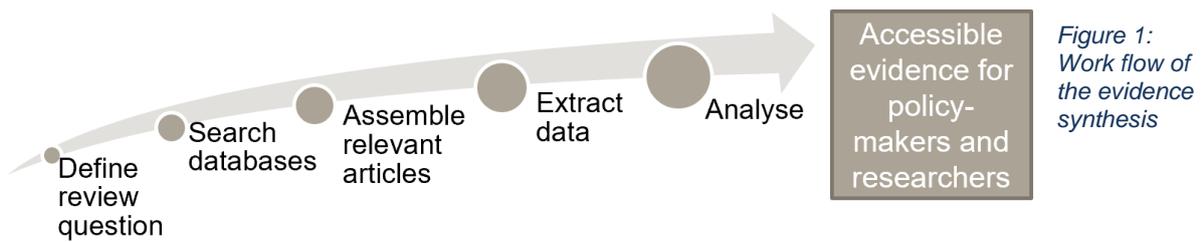
See the BONUS ROSEMARIE animation on [www.youtube.com/watch?v=Pd2Sp7SE3go](https://www.youtube.com/watch?v=Pd2Sp7SE3go)

## SCIENTIFIC EVIDENCE ON MARINE AND COASTAL ECOSYSTEM SERVICES IN THE BALTIC SEA

*Ecosystem services knowledge provides the Baltic Sea policies and management decisions a possibility to strengthen benefits that good status of the sea supplies to human wellbeing and health*

### KEY MESSAGES

1. In a participatory systematic map, 57 scientific studies were found on marine and coastal ecosystem services (ES) in the Baltic Sea region.
2. The most researched ecosystem services are the regulation of nutrients, the provision of fish and recreational aspects of human interactions with nature.
3. The integration of the good ecological status of the Baltic Sea ecosystems and the supply of ecosystem services is, however, still missing.
4. Few studies are embedded in the context of marine policies like the Marine Strategy Framework Directive (MSFD) or the Baltic Sea Action Plan (BSAP).
5. Stronger implementation of ES in Baltic Sea policies is recommended as a framework to analyse the interrelationship of human actions, environmental conditions and human well-being.



## PARTICIPATORY SYSTEMATIC MAPPING OF SCIENTIFIC EVIDENCE

Systematic maps and reviews are methods to synthesize the evidence base on a specific question and to identify research gaps and knowledge clusters for scientists and policy makers alike. Defining the review question in collaboration with knowledge producers and knowledge users can enhance societal relevance of the results. Systematic syntheses are carried out based on pre-defined standards and aim to be objective, transparent and repeatable (Figure 1).

In this systematic map, 1006 scientific publications were screened and 57 articles about marine and coastal ecosystem services (ES) in the Baltic Sea region were identified (Figure 2).

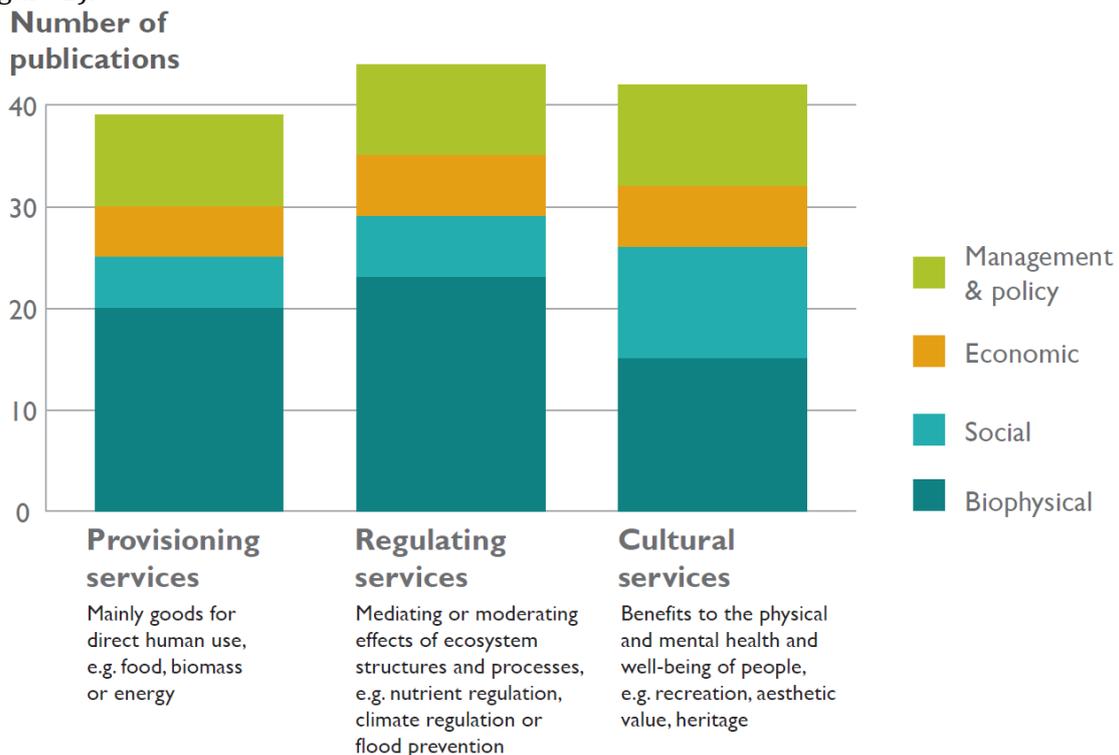


Figure 2: Types of ecosystem services researched and research focus within the 57 synthesized publications

## ECOSYSTEM SERVICES IN BALTIC SEA POLICIES

The European Union Marine Strategy Framework Directive (MSFD) incorporates the ES concept to integrate ecological and socio-economic objectives. However, marine policies such as the MSFD and the HELCOM Baltic Sea Action Plan (BSAP) mainly focus on the ecosystem approach and target ecosystem processes and functions with the goal to reach and maintain good environmental status of the marine ecosystems. The ES that these ecosystems provide to human well-being and the influence human actions have, are often not a priority in policy development and application.

## ECOSYSTEM SERVICES IS A CONTINUOUSLY GROWING FIELD OF RESEARCH IN THE BALTIC SEA

The regulation of nutrients, the provision of fish and recreational opportunities are the most studied ES in the Baltic Sea region, while other ES are often overlooked.

The link between the Good Environmental Status, ES, and human well-being has barely been established in the literature. Efforts in the context of the EU process of Mapping and Assessment of Ecosystems and their Services (MAES) are also limited for Baltic Sea ecosystems. Another current restriction is the limited use of standardised ES classification systems, resulting in numerous definitions and terms. Research on ES synergies and trade-offs is missing. However, this knowledge would be highly valuable for sustainable marine resource management to foster socio-economic development and healthy ecosystems by a better understanding of their interrelations.

The majority (57.9%) of publications comes from Swedish (13), Finnish (10) and German (10) institutes. About half of all publications are based on the cooperation of researchers from different institutions and countries, indicating successful funding mechanisms fostering co-publication.

## THE ROSEMARIE PROJECT

This policy brief was provided by the BONUS ROSEMARIE project. A participatory systematic review method, based on Collaboration for Environmental Evidence (CEE) guidelines, was used to conduct three separate syntheses on the existing scientific knowledge of ecosystem services, human health and well-being and monetary and non-monetary valuation methods, related to the Baltic Sea. Iterative stakeholder dialogue with the HELCOM GEAR group was an essential part of the project. The BONUS ROSEMARIE research group is sincerely grateful for this science-policy dialogue. The project partners were the Finnish Environment Institute, the Royal Institute of Technology in Sweden, the Estonian University of Life Sciences and Gottfried Wilhelm Leibniz University Hannover, Germany. The project received funding from BONUS (Art. 185), funded jointly by the EU and the Swedish Research Council Formas and the Estonian Research Council.

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## FURTHER READING

A compilation of the reviewed articles can be found in: <http://hdl.handle.net/10138/316227>

## FEW ECOSYSTEM SERVICE STUDIES ARE SET IN THE CONTEXT OF MARINE POLICIES

Very few publications explicitly connect ES research and marine policies. Few studies refer to one or more descriptors of the MSFD (21%) or goals of the BSAP (12%). Reference to other environmental policies, such as the EU Water Framework Directive, the EU policy on Maritime Spatial Planning and EU Biodiversity Strategy to 2020 are scarce.

## RECOMMENDED ACTIONS

1. Linking ecosystem conditions, ES and human actions, including pressures and policy outcomes, is needed, to sustainably integrate human activities without compromising the goal to achieve or maintain the good environmental status of the Baltic Sea ecosystems.
2. The assessment of ES lays the foundation for ES valuation. Intensified research on ES synergies and trade-offs is therefore needed to quantify the benefits of marine protection actions to societies.
3. Consequently, a strong promotion and utilisation of the ES concept in marine policies with intensified science-policy communication has a major role in improving linkages between research and decision-making and advancing the actions for the sustainable management of the Baltic Sea.