



# Ecosystem Services of the German Baltic Coast and Sea

Miguel Inácio<sup>1</sup>, Marion Kruse<sup>2</sup>, Phillip Paysen<sup>1</sup>, Gerald Schernewski<sup>1</sup> & Felix Müller<sup>2</sup>

<sup>1</sup>Leibniz Institute for Baltic Sea Research Warnemuende, Germany

<sup>2</sup>Kiel University, Germany

Project Website: <http://secos.deutsche-kuestenforschung.de/>

## Spatial classification as assessment units for the marine environment

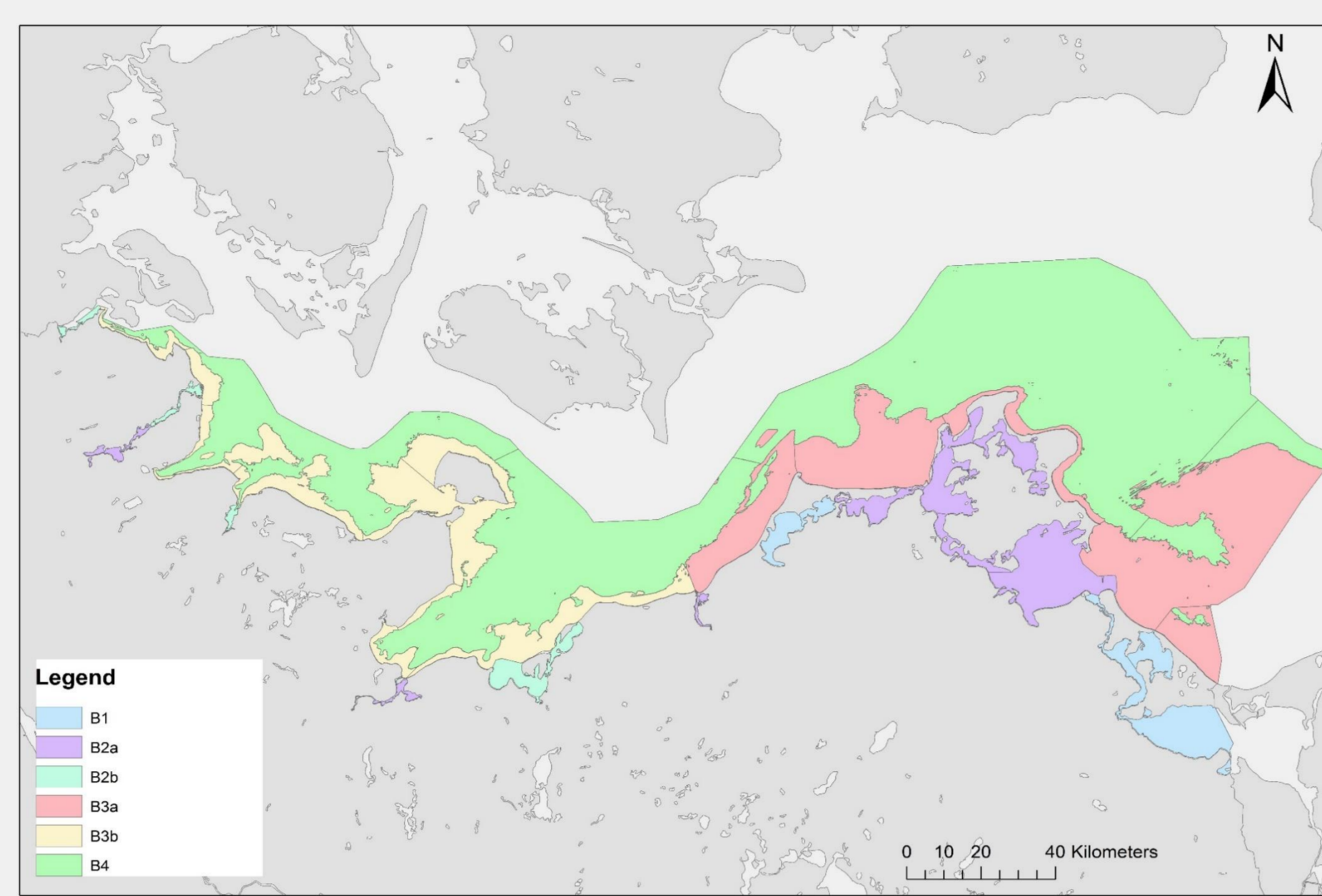
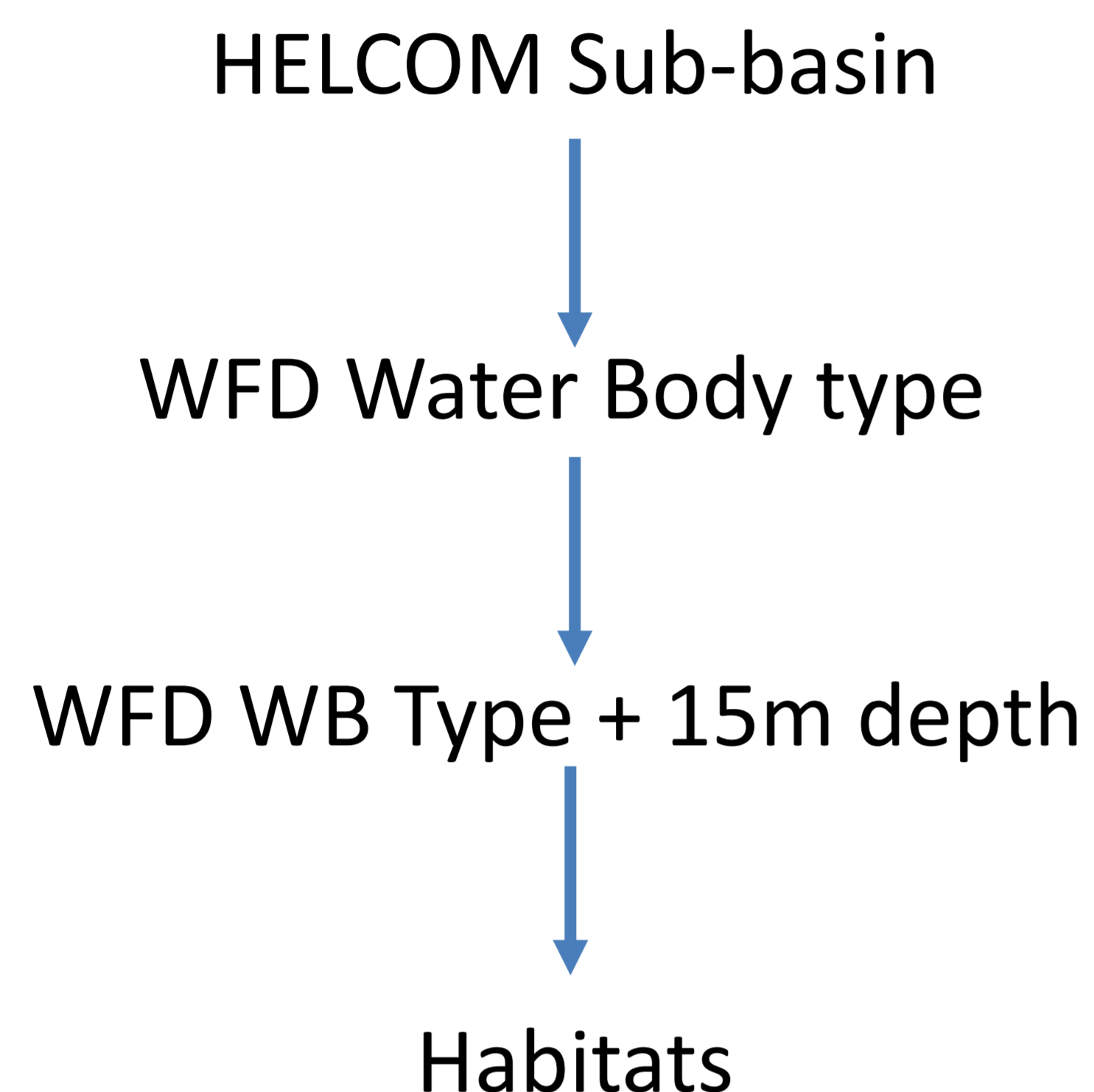


Fig. 1 – Water Body extension to 15m depth line. Adapted from HELCOM Data

## Example application to Schlei

- Located in **North of Germany**
- Connected to the Baltic Sea it is extending northwest into the mainland for **43 km length and 52.06 km<sup>2</sup>**.
- Shallow system with a mean **depth of 2.7 m**
- **Important for human well-being** with many cities and settlements around the lagoon depending on agriculture and tourism

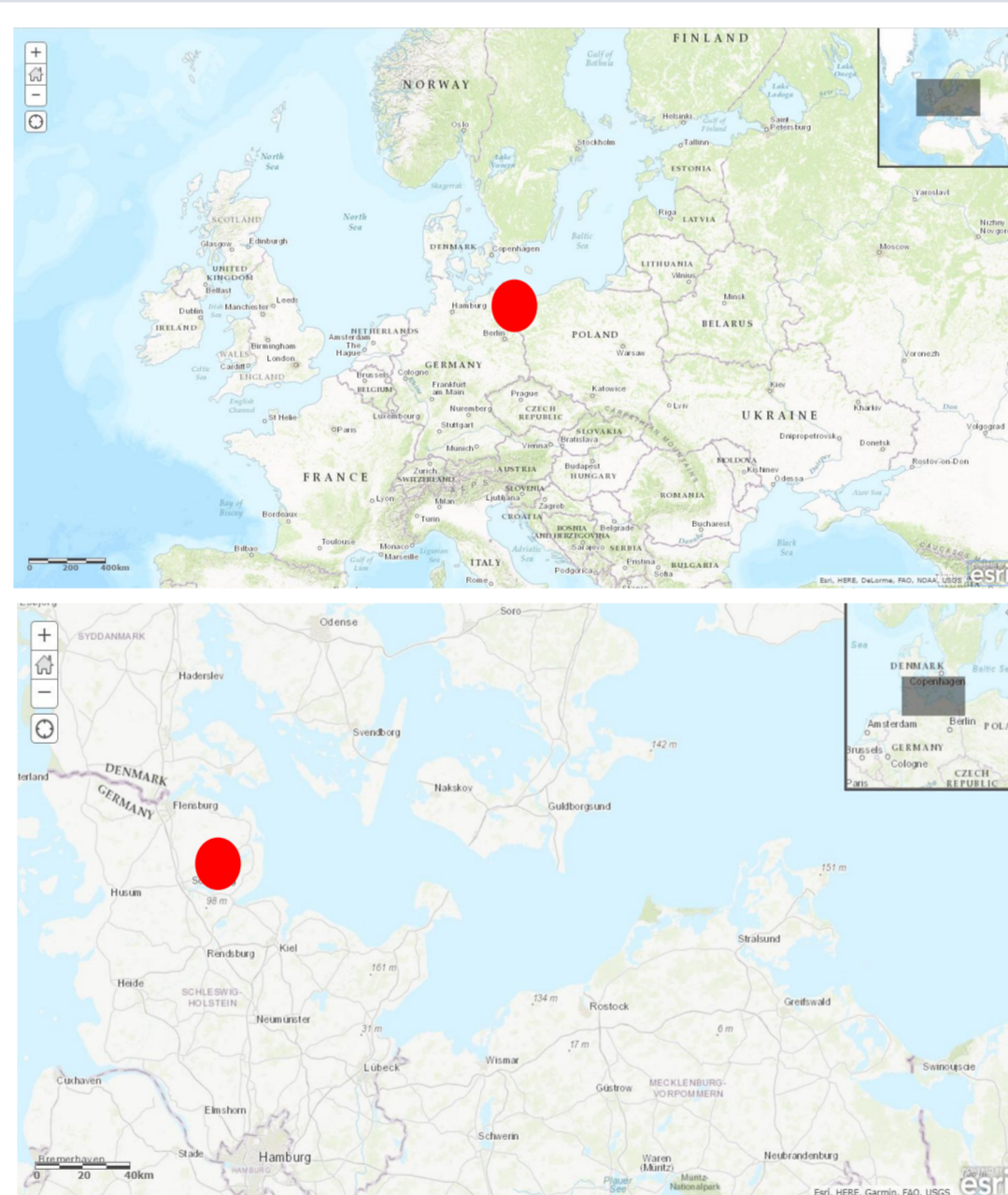


Fig. 2 – Location of Schlei. Credits: ESRI

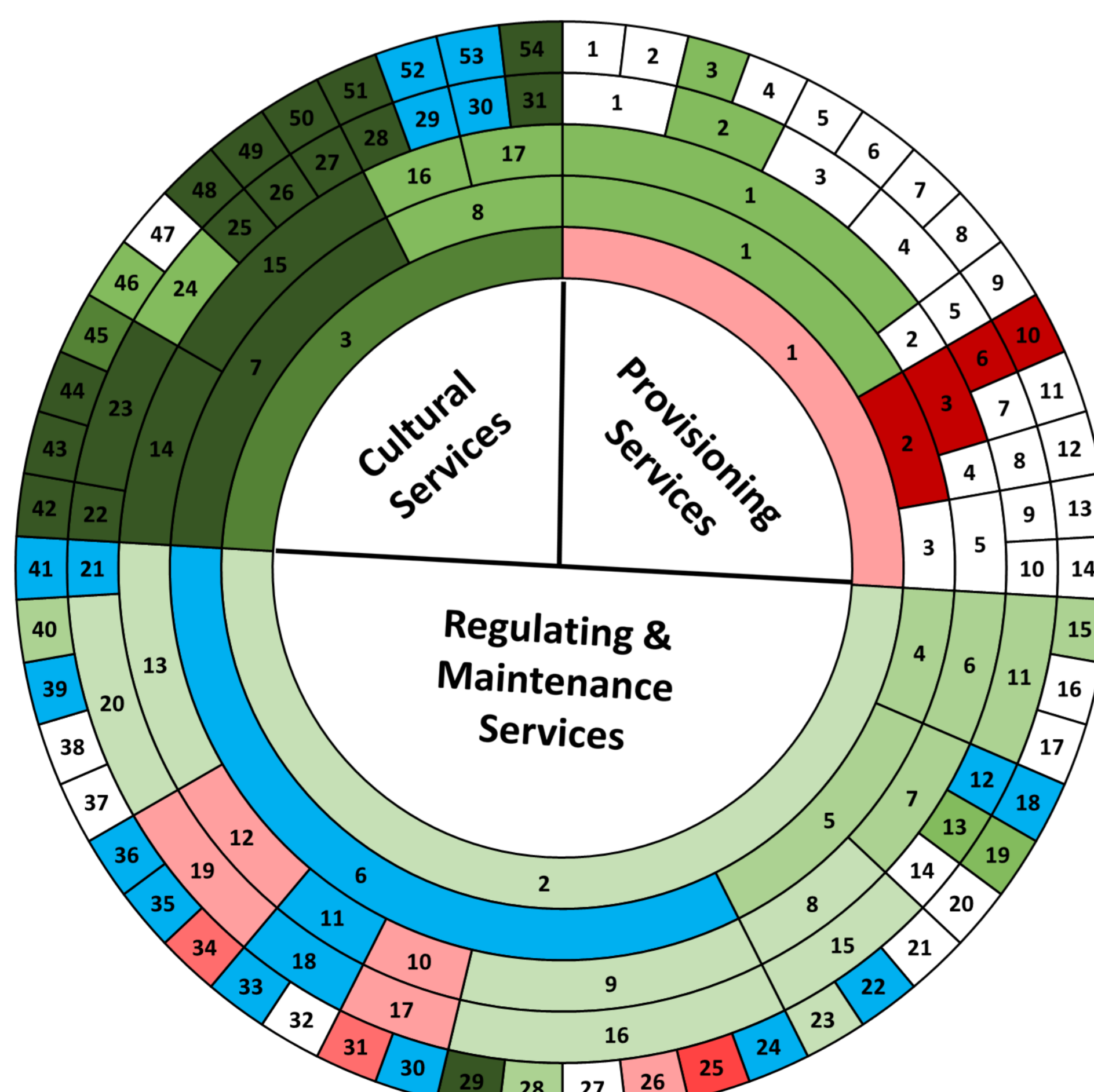


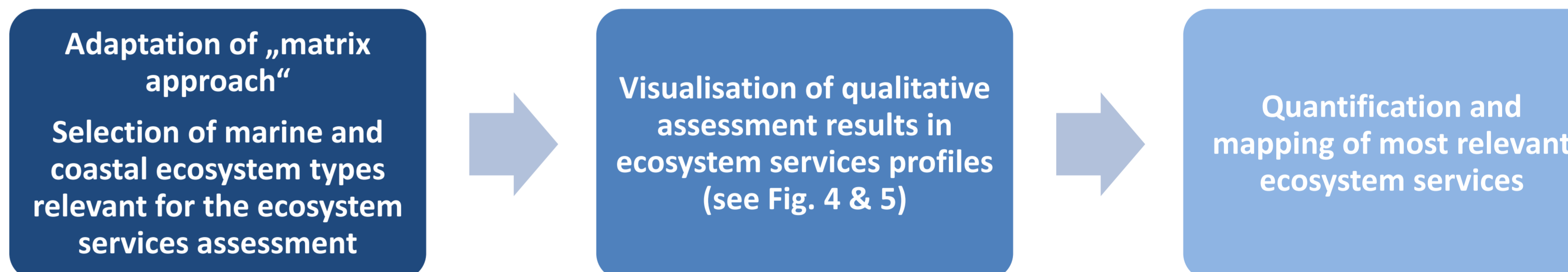
Fig. 3 – Assessment of services following classification hierarchy

Overall decrease in Provisioning. Overall slight increase in Regulating & Maintenance, and a high increase in Cultural Services from the past to present

## Spatial Ecosystem Services Assessment in the German Baltic Sea

The valuation of ecosystem services requires different steps and a combination of methods due to the complexity of socio-ecological systems. The main objective of the work package 4.1 of SECOS-Synthese is the transfer of the primarily terrestrial “matrix approach” to marine ecosystems and the following application for a regionalized valuation of provisioning, cultural and regulating ecosystem services. After the first working step of a qualitative, expert-based valuation (Fig. 4 & 5), the most relevant ecosystem services results will be optimized on the basis of the measuring and modelling outputs of SECOS. The final output are ecosystem services maps.

In cooperation with BACOSA II, a joint terrestrial-coastal-marine platform will be developed which enables the valuation of ecosystem services for the entire German Baltic coast.



## Qualitative assessment of ecosystem services

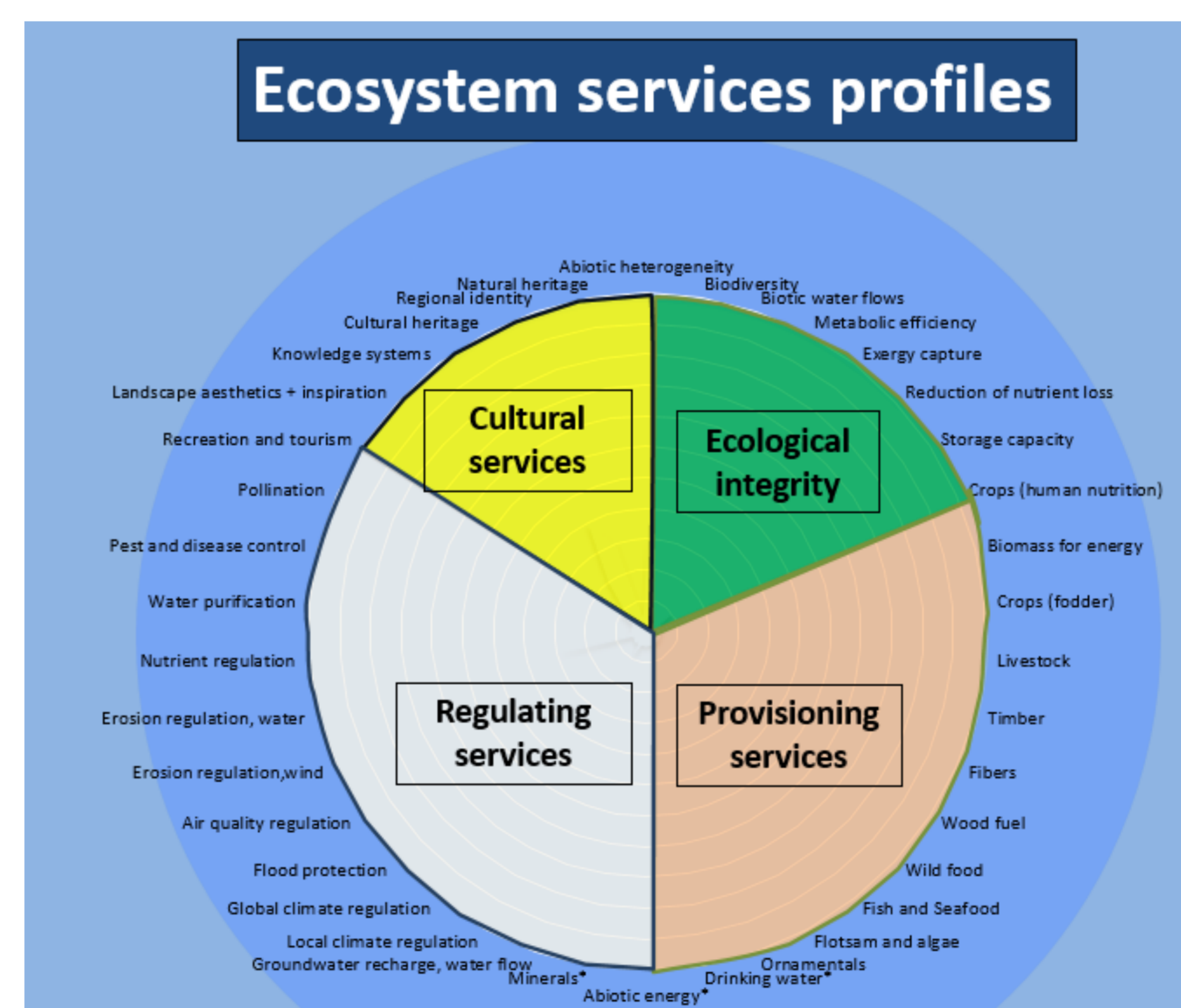


Fig. 4: Overview of assessed ecosystem services and ecological integrity

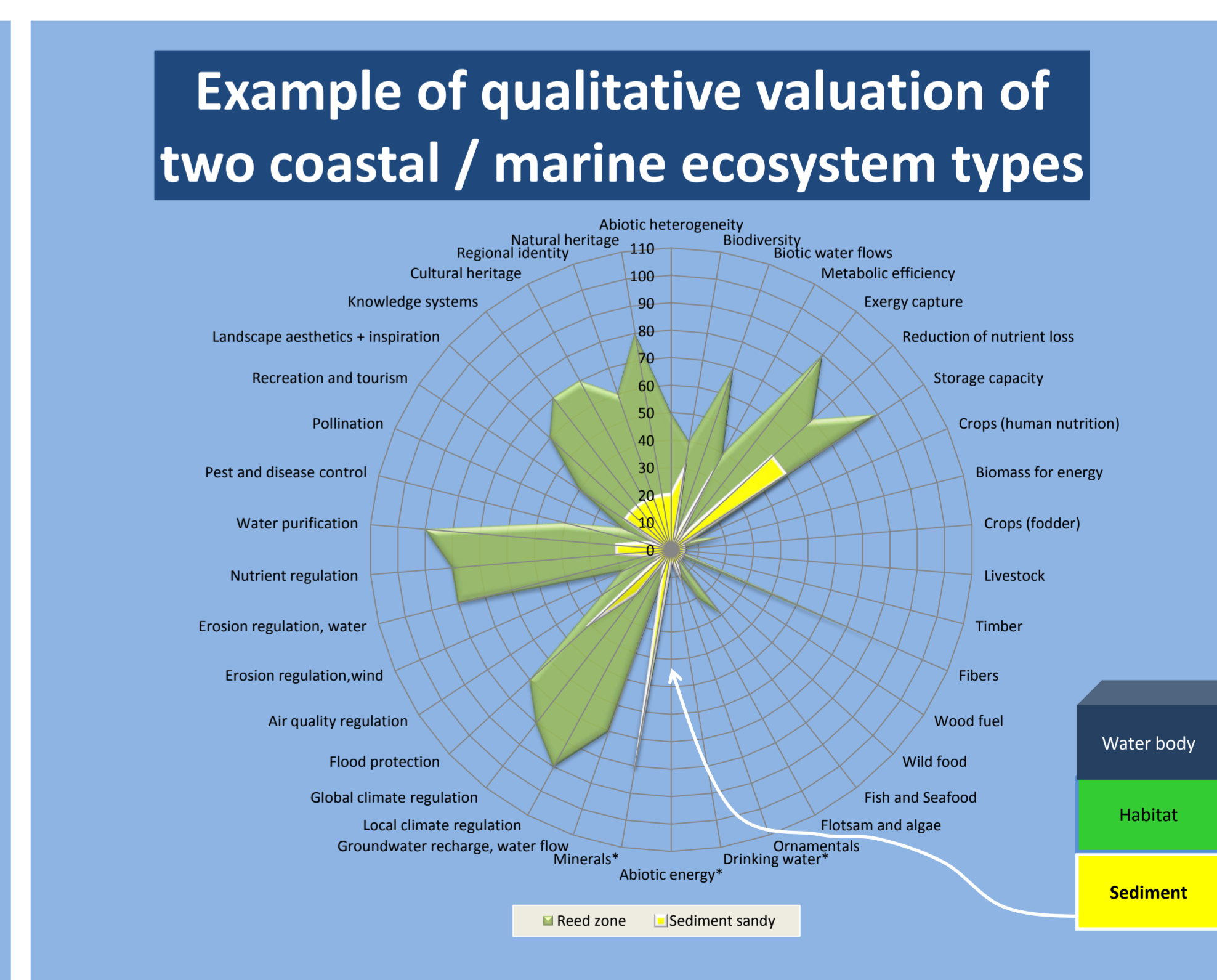


Fig. 5: Exemplary profile to show the different supply (scoring 0-100; no to very high) of ecosystem services / ecological integrity in different ecosystems. By comparing all existing ecosystem types, information for decision-making can be derived

## Partners

