# WOBEC

## Weddell Sea Observatory of Biodiversity and Ecosystem Change

DURATION
**1/04/2024 – 30/06/2027**

BUDGET
**211 811 €**

PROJECT DESCRIPTION

The Weddell Sea in Antarctica plays an important role in global climate regulation and constitutes a potential sanctuary for unique Antarctic species. Therefore, the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) is developing a Weddell Sea Marine Protected Area (WSMPA) to ensure the future protection of its biological treasures. In recent years, there is increasing evidence of accelerating climate change all around Antarctica, prompting the need for sustained monitoring to assess how ecosystems will change under progressing sea-ice decline, ocean warming and ocean acidification.

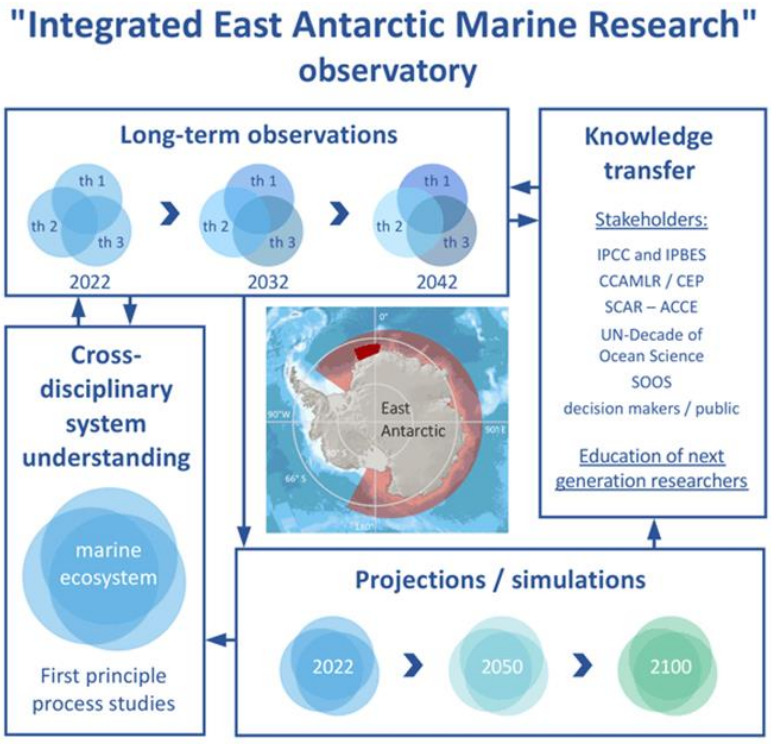


Figure 1. Need of integrated ecosystem observations in the Eastern Weddell Sea (Gutt et al. 2022)

Realizing that the Eastern Weddell Sea is a notoriously understudied region with respect to biodiversity and ecosystem health, the Weddell Sea Observatory of Biodiversity and Ecoystem Change (WOBEC) aims to establish the “DNA” for a systematic ecosystem monitoring framework and to create a baseline of the current state of the ecosystem against which change can be measured. The objectives of WOBEC are

I. Making the baseline biodiversity and ecosystem knowledge of the Eastern Weddell Sea globally accessible to the public.

II. Engaging stakeholders in a participatory process to develop a scientific monitoring framework with potential application in the WSMPA process.

III. Crafting and implementing an innovative multiscale monitoring strategy that integrates traditional methods with cutting-edge technology.

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WOBEC builds on a comprehensive co-design process to develop a monitoring framework considering the latest state of scientific knowledge and societal demands in close collaboration with CCAMLR, other stakeholders from economy and conservation, and further monitoring initiatives in the Southern Ocean and beyond. To provide the necessary knowledge base, we will inventory historic, recent and new ecosystem data and make them available through publicly accessible data portals, e.g. OBIS and EMODnet. Furthermore, we will assess and apply available technologies for their suitability for long-term monitoring across spatial and temporal scales, including autonomous observatories, Earth Observation and traditional ship-bases methods. Finally, we will analyse ecological data to generate scientific products, such as statistical models and maps, facilitating an iterative process to inform and refine the co-design process of the WOBEC monitoring framework.

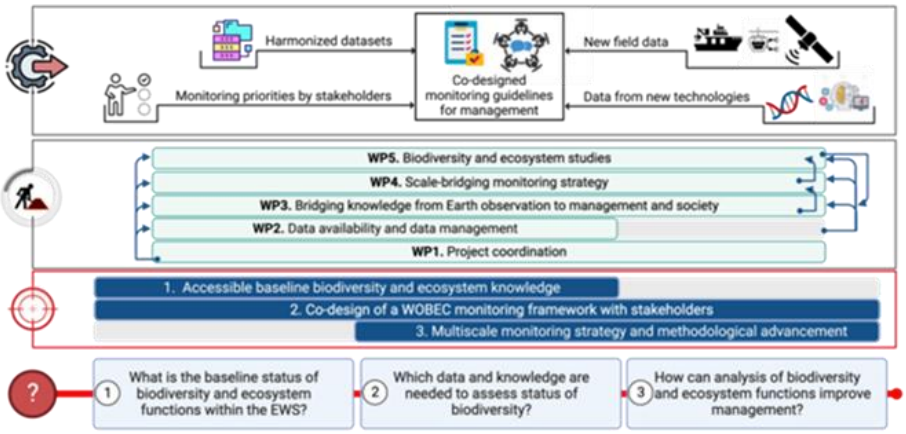


Figure 2. Interrelationships between research questions, objectives, work packages (WP) and outputs of WOBEC.

We will achieve these tasks in five interconnected work packages (WP). In WP1 we will ensure communication between the WPs and their consortium members and monitor progress. In WP2 we will develop a data management plan (DMP) to ensure long-term accessibility of data from the EWS. In WP3 we will conduct a co-production process with stakeholders for developing a monitoring framework with high legitimacy and define Essential Variables (EVs) for monitoring. In WP4 we will assess and implement the DMP (WP2) and the monitoring framework (WP3) with a multiscale sampling strategy, applying advanced technology at different spatial and temporal scales. In WP5 we will analyze data from WP2 and WP4 to develop scientific products (statistical models and maps) needed to iteratively inform WP3.
With a unique knowledge co-production process ensuring societal relevance, WOBEC will spawn a transnational partnership of scientists and stakeholders which will contribute to harmonizing marine biodiversity monitoring in the Southern Ocean and beyond and has the potential for a long-term legacy.

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## LINKS

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