Summary of the project

This Biodiversa+ project aims to lay the foundation for a transnational Weddell Sea Observatory of Biodiversity and Ecosystem Change (WOBEC) in the Eastern Weddell Sea/King Haakon VII Sea (EWS) in the Southern Ocean. The Weddell Sea is important for global ecosystem services such as climate regulation and food provision and is home to many species with conservation status. Recognizing this unique ecological value, the EU and other members of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) are working to establish a Weddell Sea Marine Protected Area (WSMPA). There is growing evidence in the EWS of a transition from a period of relatively muted climate change to an era of environmental transformation with significant impacts on biodiversity and ecosystem services. Until present, however, the ecosystem of the EWS has remained notoriously under-studied. WOBEC will contribute to several transnational goals in marine biodiversity conservation and climate change mitigation by laying the groundwork for systematic ecosystem monitoring in the EWS, including the UN Sustainable Development Goals, the EU Biodiversity Strategy for 2030, and the post-global biodiversity framework, by aggregating existing data and establishing a baseline of the current state of biodiversity and ecosystems against which change can be measured. The main objective of WOBEC is to develop the basic framework of a transnational cross-disciplinary observatory of biodiversity and ecosystem change, aiming to:

I. Make EWS baseline biodiversity and ecosystem knowledge, including the underlying data, publicly accessible

II. Co-design a WOBEC monitoring framework with stakeholders ensuring strong legitimacy, high societal relevance and application in the WSMPA process

III. Develop and apply a multiscale monitoring strategy that integrates established methods with advanced technology

We will address these objectives 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 knowledge coproduction 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.