## COMPASS IN A NUTSHELL

The overarching goal of COMPASS is to optimise the sustainability of OWF designs, for both bottom-fixed and floating technologies, across their entire life cycle and multiple sea basins.

## OUR OBJECTIVES

- Involve OWF developers, consultants, regulators, NGOs and communities in a co-creation process, ensuring that the platform reflects real decision-making needs and supports social acceptance.
- Advance **environmental and social impact assessment** for offshore wind by tailoring and improving Life Cycle Assessment, Social LCA and Life Cycle Costing to the specificities of OWFs.
- Develop an integrated socio-ecosystem framework that combines life-cycle methods, ecosystem models, socio-economic analysis and ecosystem services to capture cumulative impacts of OWFs.
- Build a **modular, adaptive decision-support platform** that can be configured for different sea basins, technologies, data availability and user profiles, reducing the time needed for robust sustainability assessments.
- Provide multi-criteria design **recommendations to minimise negative environmental and social impacts while maximising economic and societal benefits**, including nature-inclusive options and circular strategies.

## HOW THE COMPASS PLATFORM WORKS

At the core of COMPASS is a **digital twin** of offshore wind farms, built from technical data on turbines, foundations, layout, grid connection, nature-inclusive features and circularity options. This digital representation feeds a set of specialised assessment modules that quantify impacts and performance over all life-cycle stages: manufacturing, installation, operation, maintenance and decommissioning. Through an intuitive interface, users can compare scenarios (locations, designs, co-activities, circularity options), visualise indicators and trade-offs, and explore optimisation options that improve overall sustainability.

## REAL CASE STUDIES, REAL DECISIONS

COMPASS is grounded in multiple **real OWF case studies** across European sea basins, covering different technologies, foundation types, turbine sizes and co-activity configurations. These case studies, provided by leading industry partners, will be used to prototype, test and validate the platform, ensuring it directly supports tenders, permitting and long-term planning.

**Our partners**

The COMPASS consortium gathers 14 partners (research institutes, universities, SMEs and industry partners) from 8 European countries. This transdisciplinary team combines expertise in offshore engineering, ecology, economics, environmental and social sciences, modelling, software development and stakeholder engagement.

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