

Analyzing the feasibility, risks, and cobenefits of ocean-based negative emission technologies for stabilizing the climate

Humanity cannot limit global warming to 1.5 °C unless much more action is taken. In addition to the primary effort of reducing greenhouse gas emissions to nearly zero, society must also actively remove CO₂ from the atmosphere. However, our understanding of Carbon Dioxide Removal (CDR) or Negative Emissions Technology (NET) potentials, feasibilities, and risks is limited. Up to now the research focus has mostly been on land-based NETs and much less is known about the ocean-based NETs. The OceanNETs project brings together the expertise needed to answer major open questions concerning the viability of using ocean-based NETs for climate stabilization.

What are the specific objectives of OceanNETs?

- ▶ Determine the most effective ocean-based NETs with low environmental and ecological risks (e.g., to biodiversity, ecosystem services) and high cobenefits.
- ▶ Identify the degree of (and factors affecting) social and political acceptance, affordability, and societal impacts and risks (e.g., to food security, human safety) for different ocean-based NETs.
- ▶ Comparatively assess ocean NETs – by combining new multi-disciplinary data, stakeholder knowledge, and case study assessments – and provide this information to society and policymakers to increase their capacity to enable and design optimal medium-to-long-term sustainable mitigation pathways.

Work package 1: Economic prospects and incentives

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- ▶ Prof. Adriaan Perrels // Finnish Meteorological Institute

Work package 2: Governance, policy, and international law

- ▶ Dr. Stefan Schäfer // Institute for Advanced Sustainability Studies
- ▶ Prof. Alexander Proelß // Universität Hamburg

Work package 3: Public perception

- ▶ Dr. Christine Merk // Kiel Institute for the World Economy
- ▶ Dr. Gisle Andersen // NORCE Norwegian Research Centre

Work package 4: Simulations

- ▶ Dr. Helene Muri // NTNU
- ▶ Dr. Jörg Schwinger // NORCE

Work package 5: Ocean alkalization biogeochemistry and ecosystem impacts

- ▶ Prof. Jens Hartmann // Universität Hamburg
- ▶ Prof. Ulf Riebesell // GEOMAR

Work package 6: Ocean alkalization case studies

- ▶ Dr. Phil Renforth // Heriot-Watt University
- ▶ Dr. Javier Lezaun // University of Oxford

Work package 7: Stakeholder dialogue and the provision of knowledge

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- ▶ Dr. Judith Meyer // GEOMAR

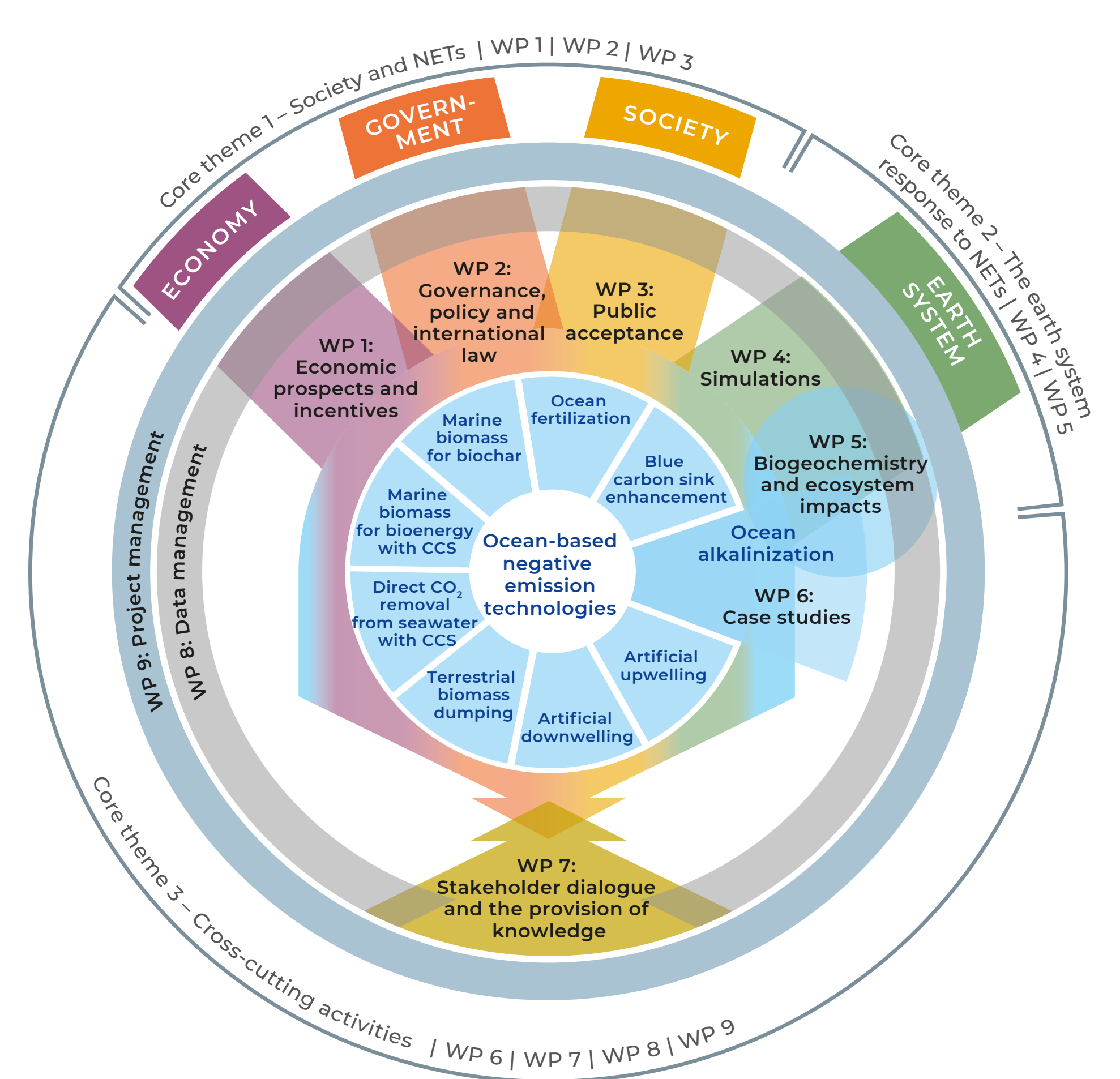
Work package 8: Data management

- ▶ Dr. Carsten Schirnack // GEOMAR
- ▶ Lisa Paglialonga // GEOMAR

Work package 9/10: Project management & ethics

- ▶ Dr. David Keller // GEOMAR
- ▶ Dr. Judith Meyer // GEOMAR

OceanNETs structure



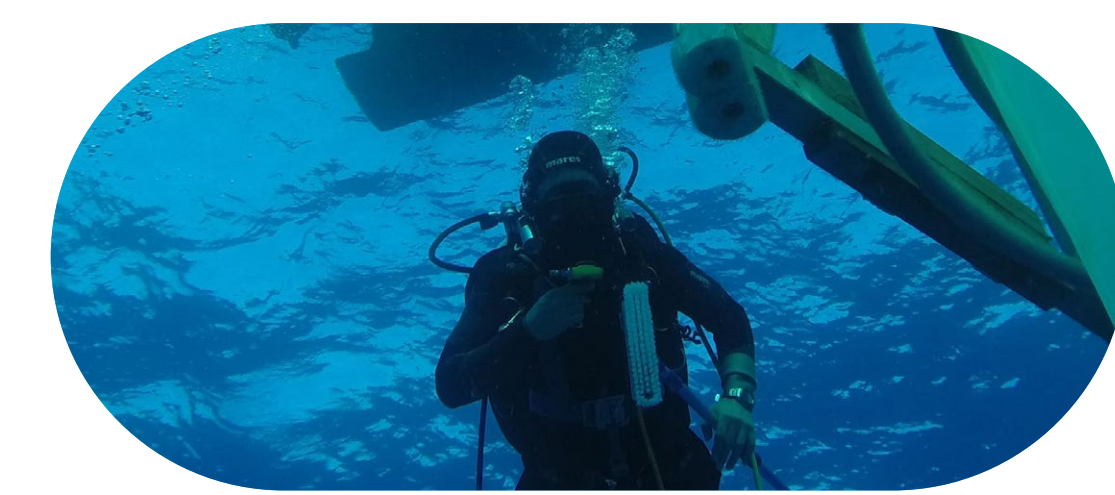
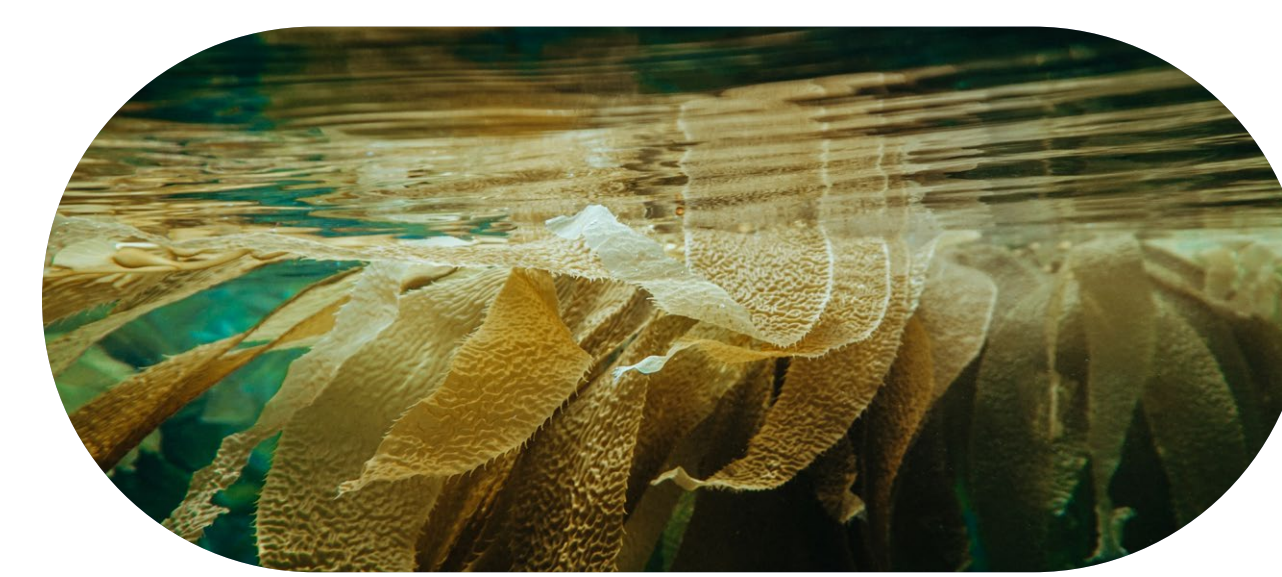
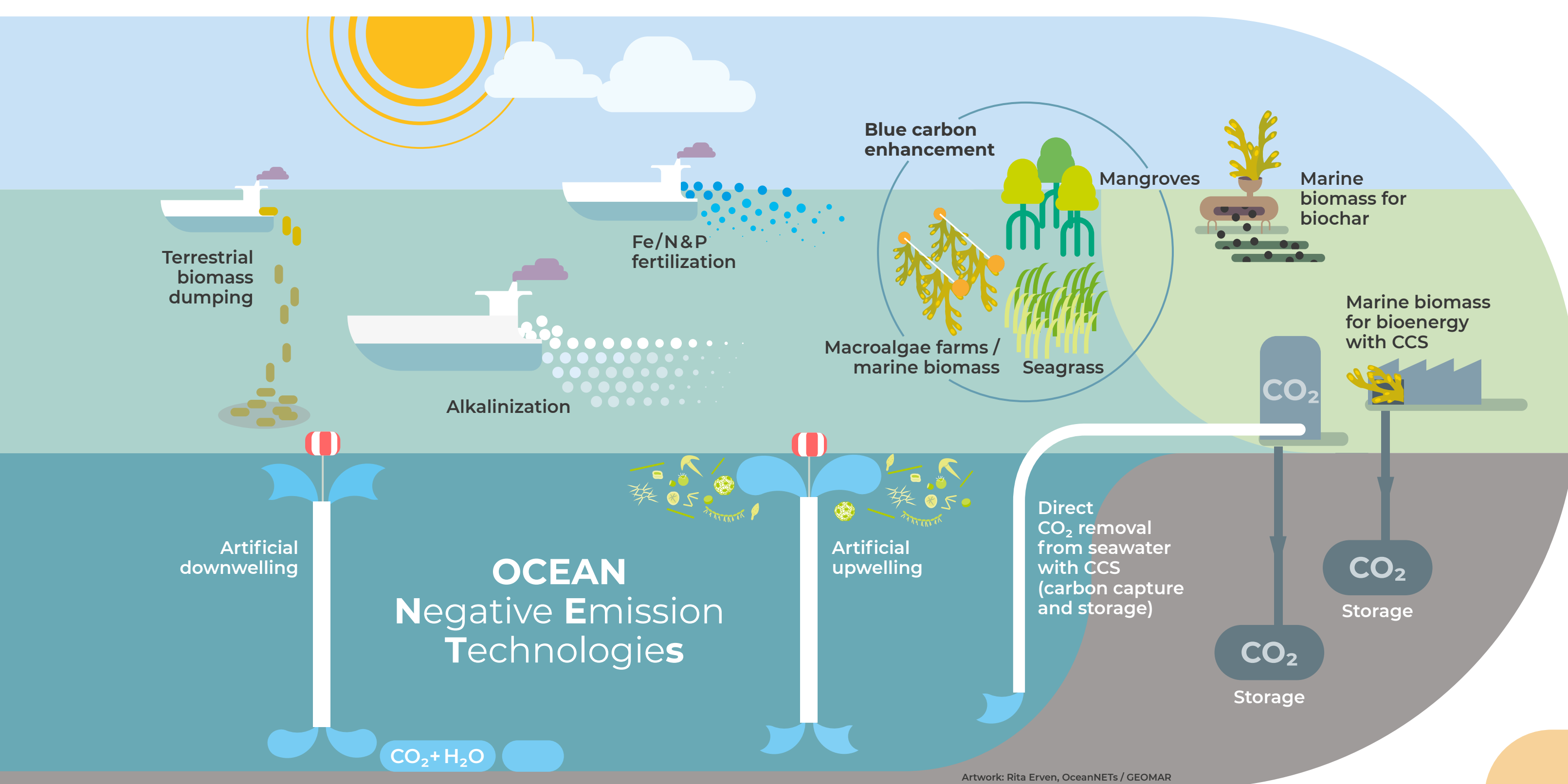
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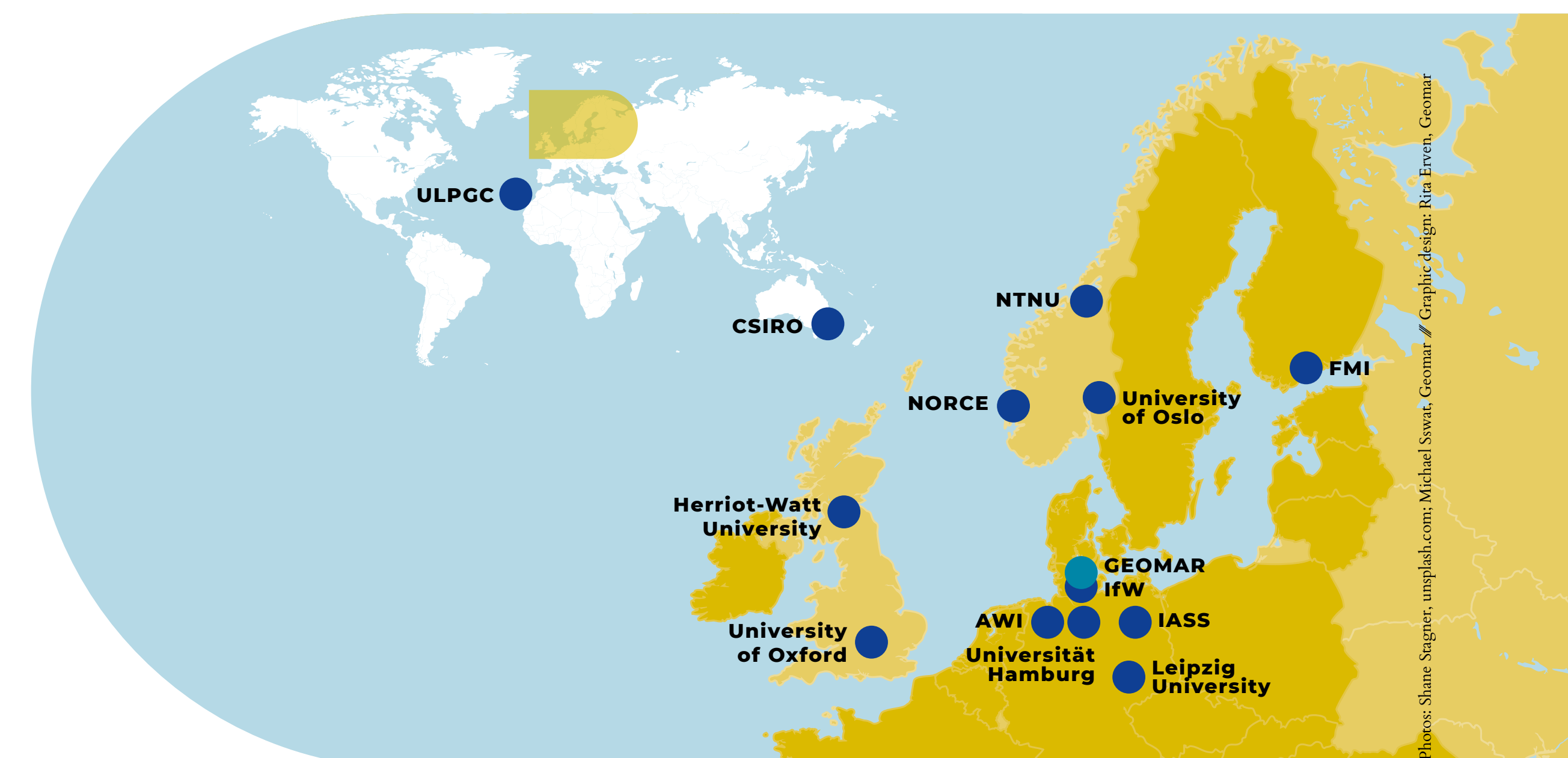
Project and stakeholder manager

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	July 2020 – June 2025
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Number of partners:	14
Coordinating institute:	GEOMAR



Participating institutions



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