Carbon to Sea Initiative

July 13, 2026

Public Consultation on the European Ocean Act

Carbon to Sea (CTS) is the largest non-commercial initiative evaluating if and how marine carbon dioxide removal (mCDR) could be part of the global response to climate change. We explored multiple potential carbon removal solutions before deciding to focus on accelerating the evaluation of ocean alkalinity enhancement (OAE), which, in the view of leading scientists, offers high potential for safety, efficacy, and scale.

We have committed more than US$30 million in research and technology development projects across the globe to address whether OAE is safe for people and the environment, effective at removing legacy carbon from the atmosphere, and can scale to be a climate-relevant solution. Our grantees include dozens of world-leading experts at academic institutions and at companies on subjects ranging from geochemistry to ecotoxicology to physical oceanography. We also engage civil society and coastal communities. After several years of intensive work on the interplay of research, technology, and governance related to OAE, we believe governments have a critical — and time-sensitive — role in ensuring the quality and integrity of carbon removals by OAE and other mCDR pathways.

CTS applauds the efforts of the European Commission to develop an Ocean Act to implement key elements of the Ocean Pact. Among broader benefits for ocean governance, an Ocean Act containing the following components would support development of effective and safe mCDR pathways:

- Modernization of the Maritime Spatial Planning Directive.
- Improved governance of European ocean observations.
- Establishment of a clear governance framework to manage and fund the research, development, and demonstration in the water needed to advance the technological readiness of these approaches.

Update Marine Spatial Planning to Meet the Climate Challenge

The Marine Spatial Planning directive has been an important driver for the development of first-generation national marine spatial plans that strive to balance development and environmental conservation. It has created a community of practice and has engaged marine stakeholder communities. However, the lack of specificity in the directive has led to a degree of diversity in approaches and implementation that can compromise effectiveness of plans, and complicate regional coordination on matters of vital national and international importance, such as climate change adaptation and mitigation.

A second generation of marine spatial plans driven by the Ocean Act should:

- Provide greater specificity and guidance for the development and revision of marine spatial plans.
- Ensure that planning is ongoing and adaptive.
- Identify and promote adoption of common measures and methods for regional, basin-scale coordination for transboundary issues.
- Fully integrate mitigation of and adaptation to climate change into new and revised plans.
- Provide for the spatial and temporal requirements of ocean-based climate mitigation approaches, including emerging technologies such as ocean alkalinity enhancement.

Enhance European Ocean Observation

Establishing a strong governance framework for European ocean observation, in support of the OceanEye initiative, is equally critical for the advancement of sustainable and responsible mCDR. A broad array of physical, chemical, and biological measurements is necessary to establish the baselines against which CO_2 removal from the atmosphere and potential environmental effects (both positive and negative) from technologies such as OAE must be measured. Fully assessing the safety and effectiveness of such approaches requires monitoring and modeling at spatial and temporal scales that are often beyond the scope and capacity of individual projects, and may span international maritime boundaries. Such cross-boundary monitoring and modeling is essential to support robust monitoring, reporting, and verification (MRV) of potential larger scale CDR. To ensure that this information is readily available and of maximum utility to all potential users, the Oceans Act should promote:

- Identification by Member States of shared strategic priorities for ocean observations and common needs for technology;
- Funding for necessary technology development, research infrastructure, and large-scale data collection; and
- Development of standardised, openly accessible data reporting practices and infrastructure.

Clarify mCDR Governance and Permitting

Because of their potential for scale, mCDR pathways, particularly ocean alkalinity enhancement, may contribute significantly to the broad portfolio of CDR approaches that will be needed to meet Europe's climate goals. To this end, additional research, in particular carefully regulated and documented field trials, is required to identify which approaches are safe and effective. However, legal authority over mCDR is unclear and fragmented across the European Union. Development of the Ocean Act provides an appropriate and timely opportunity to create a dedicated strategy to systematically explore and advance responsible mCDR in Europe. The strategy should cover both

nature-based and engineered approaches and should ensure that research, demonstration, and potential future deployment align with climate targets, maintaining or restoring good status of marine ecosystems, and protection of biodiversity.

Such a strategy would also provide important guidance for setting priorities for research funding. In this way, the Oceans Act would complement and enhance the research and innovation initiatives for oceans and water resilience that are currently under development by the Commission.

We appreciate the consideration of our views and look forward to working with the Commission to ensure that the Ocean Act provides a governance framework conducive to exploring the potential for mCDR to contribute safely and effectively to meeting Europe's climate goals.

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