Carbon to Sea Initiative

Who We Are

Carbon to Sea is a philanthropic initiative to evaluate and accelerate research and development of one of the most promising marine carbon dioxide removal (mCDR) pathways — ocean alkalinity enhancement (OAE). We bring together leading scientists, engineers, field builders, and market shapers to systematically assess whether and how OAE can be a safe, scalable, and permanent carbon removal method.

Carbon Dioxide Removal Matters

CDR is an essential complement to support decarbonization efforts. The private sector has already invested billions of dollars towards net decarbonization, pointing to the massive market potential of carbon removal. mCDR could help preserve coastal livelihoods by creating new, well-paying jobs, as well as boost domestic manufacturing opportunities across the country.

The Ocean's Powerful Carbon Removal Role

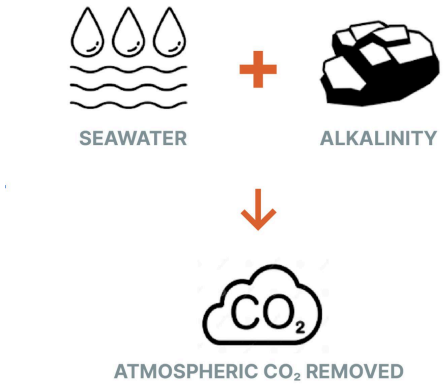
The ocean naturally absorbs carbon dioxide and holds over 50 times more carbon dioxide than the atmosphere, making it the world's largest natural carbon sink. OAE could safely accelerate the ocean's natural ability to permanently remove carbon dioxide from the atmosphere. The world's leading scientific bodies, including the National Academies of Science, have identified OAE as one of the most promising and permanent ways to reduce carbon dioxide in the air at climate-relevant scales. But we need research funding to help answer questions about effectiveness and safety.

The Ask

The U.S. is a global leader in mCDR, but other countries are rapidly catching up. Congress can take several steps for FY27 to support the safe development of mCDR and contribute substantially to the goal of achieving gigaton-scale capacity for safe and effective CDR by the end of the decade:

- **Support CJS Appropriations and Language for mCDR.** Provide no less than $25,000,000 to the National Oceanic and Atmospheric Administration (NOAA) to support research and development of diverse mCDR approaches.
- **Support E&W Appropriations and Language for mCDR.** Provide no less than $42,000,000 to the Department of Energy (DOE) to support research and development of mCDR. Direct NOAA and DOE to enhance coordination, research, and technology development for the advancement of mCDR science.
- **Cosponsor the reintroduction of the bipartisan ReSCUE Oceans Act (S.3910; H.R.7656).** Led by Sens. Brian Schatz (D-HI) and Lisa Murkowski (R-AK) and Reps. Suzanne Bonamici (D-OR-01) and Buddy Carter (R-GA-01), this bill will bolster federal mCDR research and development, and enhance coordination across federal agencies.

Alkalinity enhancement mimics a natural process by temporarily boosting pH, helping permanently store atmospheric CO2.



Learn more at **CarbonToSea.org** or contact our Senior Manager, Policy, Priyanka Hooghan, at **priyanka@carbontosea.org**

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Carbon Dioxide Removal Economic Opportunities

- The CDR industry is estimated to be worth between hundreds of billions to over a trillion dollars by 2050.[1]
- CDR is predicted to create **300,000 new jobs** in the United States by 2050.[2]

Ocean Alkalinity Enhancement Job Opportunities [3]

- Create an average of **150 annual jobs** over a 2-year construction period per OAE project, and up to 210 ongoing jobs over project lifetime.
- An OAE project could generate jobs in transportation, machine installation, maintenance and repair technicians, operators and production occupations, mining and quarry workers, and engineers.
- OAE projects at scale will create 13,000-17,500 ongoing jobs, in addition to 4,500-6,000 average annual project investment jobs.

There is growing bipartisan support for exploring ocean-based solutions that address carbon pollution and protect ocean health [4,5]

- **Eighty percent of voters** support adding naturally occurring alkaline materials to the ocean to address carbon pollution.
- **Only forty-five percent of voters** are aware that mineral weathering naturally helps counteract ocean acidification. As voters learn more about how natural processes work, support for carefully enhancing them may grow even stronger.
- Nearly nine in ten voters agree the United States should explore additional ways to protect ocean health, as long as the approaches are tested and safe.
- Seventy-nine percent of Republicans, seventy-nine percent of Democrats, and eighty-two percent of Independents supporting adding naturally occurring minerals to help oceans address carbon pollution.

Pictured above, in 2025, the Woods Hole Oceanographic Institution (WHOI) successfully completed an EPA-approved, small-scale research trial in the Gulf of Maine. (Photo courtesy of WHOI)

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[1] McKinsey & Company, "Carbon removals: How to scale a new gigaton industry," December 2023. .https://www.mckinsey.com/capabilities/sustainability/our-insights/carbon-removals-how-to-scale-a-new-gigaton-industry
[2] National Oceanic and Atmospheric Administration. "Carbon dioxide removal: NOAA State of the Science factsheet." September 19, 2024. https://www.climate.gov/news-features/understanding-climate/carbon-dioxide-removal-noaa-state-science-factsheet
[3] Rhodium Group. The Benefits of Innovation: An Assessment of the Economic Opportunities of Highly Durable Carbon Dioxide Removal. January 14, 2025. https://rhg.com/research/the-benefits-of-innovation-an-assessment-of-the-economic-opportunities-of-highly-durable-carbon-dioxide-removal/
[4] Rainey Center, Marine Carbon Dioxide Removal. May 2025. https://www.raineycenter.org/policy-brief/marine-carbon-dioxide-removal
[5] Rainey Center, Voters Support Ocean-based Carbon Solutions. February 2026. https://www.raineycenter.org/policy-brief/voters-support-ocean-based-carbon-solutions