

Report Outlines Research Agenda for Potential Phytoplankton Carbon Solutions

The ocean's smallest organisms could help fight climate change, improve ocean health

WASHINGTON, DC, UNITED STATES,
September 30, 2025 /

EINPresswire.com/ -- Ocean Visions today released a [draft report](#) outlining a prioritized research agenda for phytoplankton-based carbon dioxide removal. This potential set of climate solutions would build on the enormous productivity of ocean phytoplankton to capture and sequester additional carbon dioxide (CO₂). The draft report, developed through extensive expert

consultation and literature review, identifies what is known and still unknown about this marine carbon dioxide removal (mCDR) pathway, and where the highest priority research and development is needed to close knowledge gaps and inform risk-benefit assessments. We are currently seeking [feedback and response](#) to the draft report and its recommendations until October 30, 2025.

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*Ocean Visions Senior Fellow
Eric Schwaab*

Carbon dioxide pollution is disrupting the climate and driving ocean overheating and acidification, devastating marine life and diminishing the ocean's ability to support life. While reducing emissions is urgent and paramount, it is no longer enough; we must also remove large amounts of the CO₂ pollution already in our atmosphere to meet climate targets (according to the Intergovernmental Panel on Climate Change (IPCC)). The ocean—covering 70 percent of the planet and already a major cyler of planetary carbon—will likely have to play a role in that

removal.



Phytoplankton carbon dioxide removal involves adding nutrients to nutrient-limited parts of the ocean to stimulate growth of phytoplankton—the base of the ocean food web. Phytoplankton take up CO₂ via photosynthesis, and then lock it away when they die and sink to the deep ocean.

“Phytoplankton are among the most productive organisms on the planet, with great promise in helping clean up carbon pollution, but our understanding of many critical science questions is still insufficient. We need rigorous scientific research to close key knowledge gaps,” said Ocean Visions Senior Fellow and report co-author Eric Schwaab. “This report proposes a research road map to determine whether these potential approaches can be among the solutions needed to clean up the pollution that is currently causing so much damage to our climate and our ocean.”

The draft report maps the current landscape of phytoplankton-based carbon solutions, including ongoing science work, emerging approaches, and the scientific, technological, and socio-economic questions that remain. It identifies eight priority areas for research, proposes methods to reduce uncertainty, and recommends a phased decision-making structure. The request for public comment outlines a number of questions where we are seeking additional expert opinion.

Ocean Visions will host three public webinars on October 14, 2025 at 9:00 AM EDT, 12:00 PM EDT, and 7:00 PM EDT to accommodate diverse global participation. Input will inform the final research and development program, expected to be released in November.

“This initiative is all about building a robust and objective knowledge base to guide informed decisions by the public, stakeholders, and policymakers,” said Schwaab. “We must move ahead quickly with the research needed to determine which carbon removal pathways will meet society’s needs, and which should be discarded.”

Development of this draft report was closely guided by an international group of advisors bringing interdisciplinary scientific perspectives including oceanography, conservation, climate sciences, chemistry, and social sciences:

- Mattias Cape, Marine Biogeochemical Scientist, Environmental Defense Fund
- Leticia Cotrim da Cunha, Associate Professor and Coordinator of Laboratório de Oceanografia Química, Universidade do Estado do Rio de Janeiro
- Anna-Maria Hubert, Assistant Professor, University of Calgary Faculty of Law
- Tom Lawton, Senior Staff Scientist, John Hopkins Applied Physics Laboratory
- Terre Satterfield, Professor of Culture, Risk and the Environment, The University of British Columbia
- Brad Warren, Chief Executive Officer, Global Ocean Health
- Angelicque White, Associate Professor, University of Hawai'i at Mānoa

For more information and to access the report and feedback form, visit:

<https://oceanvisions.org/phytoplankton-carbon-solutions/>

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ABOUT OCEAN VISIONS

Ocean Visions was created to develop and advance solutions to protect and restore the ocean. We focus on the biggest driver of dangerous change – the climate disruption that is increasing ocean temperatures and levels of acidification. We mobilize a diverse network of collaborators and leverage cutting-edge science and innovative technologies to build ocean-based solutions that reduce climate stressors and restore ocean ecosystems. In short, we work to stabilize the climate and regenerate ocean health.

Eric Schwaab

Ocean Visions

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