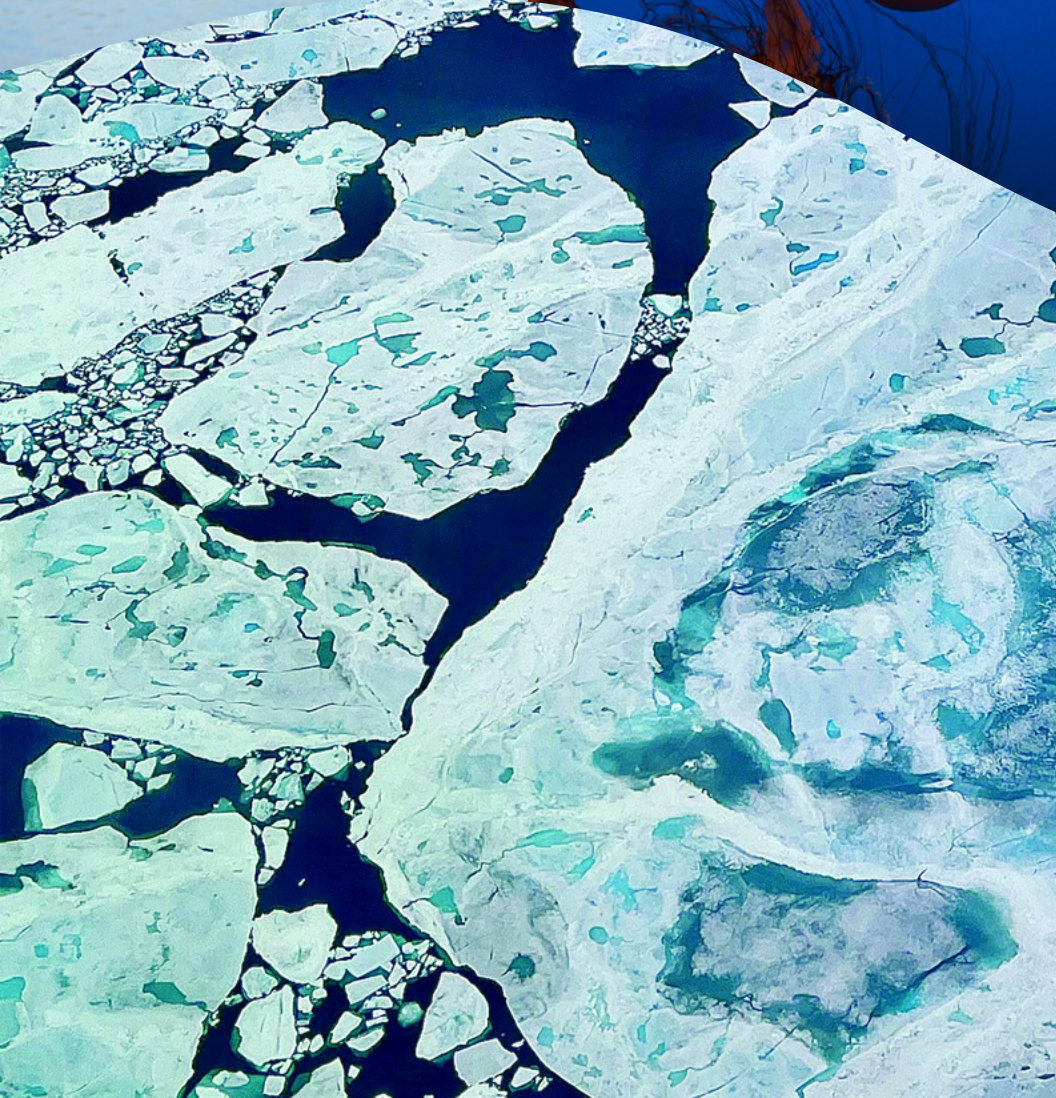




OCEAN VISIONS

Annual Report
2024



The mission of Ocean Visions is to develop innovative and durable solutions to complex challenges facing our ocean.

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LETTER FROM THE CEO



Dear friends and colleagues,

2024 was both very challenging and somewhat hopeful for those working to preserve a livable planet for people and nature. This past year's news left no doubt about the urgency of abating the climate crisis as the overwhelmingly highest priority for conservation of biological diversity—and the ocean. 2024 brought near daily evidence and data about the expanding scale and accelerating pace of the climate disruption our economic model has created. And, at the same time, we also saw the emergence of a number of new potential solutions and a wider and more thoughtful dialogue about the breadth and scope of the responses that will be needed to slow and ultimately stop that disruption.

At Ocean Visions, 2024 only served to stiffen our resolve to advance a bold, forward-thinking ocean conservation agenda that seeks to directly confront this global climate disruption from an ocean lens, and that focuses on and leverages the power of human ingenuity.

Events of 2024 illuminated the immense challenges before us. The snail's pace of international collaboration, the rise of climate denialism at the highest levels, and the enormous technical complexity and vested interests' resistance to achieving global emissions reductions at the pace required all signal the difficulty of the road ahead. However, at the same time there was growing recognition of the imperative to expand our climate action agenda, the ocean's vast potential as an ally in that expanded effort, and a growing cohort of innovators and inventors working on many aspects of the challenges.

On the front lines of this work, Ocean Visions continued in 2024 to catalyze innovative initiatives at the intersection of the ocean and climate crises. We maintained the focus of our work around four necessary and interdependent pillars of an ocean-climate agenda: reducing global CO₂ emissions, removing legacy CO₂ pollution from the environment, repairing and rebuilding damaged marine ecosystems, and growing an inclusive global community of innovators and

practitioners. I'm proud to say that 2024 has been a year of substantive progress for Ocean Visions across all four of these pillars.

Our team redoubled our hallmark efforts to accelerate and scale research for marine carbon dioxide removal (mCDR) approaches, marked by a full refresh of our signature [mCDR road maps](#), the creation of a second cohort of our [accelerator program Launchpad](#), and the development of our [Ocean Iron Fertilization Site Suitability Tool](#) to guide the design and siting of effective field trials.

To advance the restoration of ocean ecosystems that are foundational to a stable climate, we released the first-ever [assessment of potential pathways to slow the loss of Arctic sea ice](#). Representing the culmination of more than a year's worth of research, and guided by a global advisory board, the assessment was published as an interactive digital road map. It identifies 21 potential approaches to prolong and rebuild sea ice, reviews what we know and don't know about them, and lays out a set of priorities for action to increase our collective understanding of the potentials of each to forestall continuing

losses of ice and avoid ocean-climate tipping points. We also launched the [Arctic Sea Ice Restoration Research Fund](#) to fund the highest priority research in this arena.

And, to further increase the role the ocean must play in the needed transition away from a high carbon emissions economy, we concluded a comprehensive landscape analysis of more than 20 [ocean-based decarbonization solutions](#) to better understand their mitigation potential and help inform where Ocean Visions' investments could bear the greatest results in this sector.

Critical across all areas of our work, we've continued to inform, activate, and nurture a global community of ocean-climate solvers, by [engaging at key international ocean and climate forums](#) as well as through the continued development of our [Global Ecosystem for Ocean Solutions \(GEOS\) program](#). This year GEOS welcomed 18 new projects from 16 countries into its network, launched an international fellowship program with fellowships awarded in Kenya, Tanzania, and Colombia, and supported the establishment of four ocean-climate innovation hubs.

You can learn more about these initiatives and others on the following pages of this annual report.

In 2025, we are committed to advancing these and other strategies, with several exciting new initiatives planned. We also look forward to our 2025 Summit in March, to continue to galvanize the broader ocean-based climate community working to advance practical, responsible, and scalable ocean-climate solutions.

As we set our sights on 2025 and beyond, we know that we face a very difficult political landscape for ocean and climate action. This challenges us to find solutions that transcend politics, which in turn reinforces the importance of an organization like Ocean Visions. We focus on the power of human ingenuity, and serve as a convener and activator, bringing together a broad set of multisectoral and interdisciplinary partners. Together we work relentlessly for the creation of new solutions for those at the front lines of the ocean-climate nexus.

We are ready to rise to the challenges of 2025. We hope you are too! Together, we have a far better chance to overcome the barriers ahead, seize the opportunities before us, and advance progress towards a sustainable, thriving future for the ocean and all that depend on it.

In closing, I'm deeply grateful to our [board](#), [Network leadership team](#), [funders](#), [partners](#), and [staff here at Ocean Visions](#)—without whom our progress would be impossible. I am also grateful for your support, your dedication, and your partnership in this critical work. Now is the time to accelerate the transition to a low-carbon, resilient future—one where the ocean and all of its magnificence can thrive!

Yours in the beauty and power of the ocean,



Brad Ack
CEO, Ocean Visions



WHO WE ARE

LEADERSHIP

Board of Trustees

Emanuele Di Lorenzo, Chairman & Co-Founder of Ocean Visions and Professor at Brown University

Paul Bunje, Co-Founder and President of Conservation XLabs

Nancy Knowlton, Sant Chair in Marine Science Emerita, Smithsonian National Museum of Natural History

Fiorenza Micheli, Co-Director of Stanford's Center for Ocean Solutions and of Hopkins Marine Station, and the David and Lucile Packard Professor of Marine Science at Stanford University

Julie Pullen, Climate tech investor and Adjunct Research Scientist at Columbia Climate School

Brad Ack, CEO at Ocean Visions

Leadership Team (as of January 2025)

Clark Alexander, Director of the University of Georgia's Skidaway Institute of Oceanography

Andrew Babbín, Associate Professor of Chemical Oceanography and Marine Microbiology Mission Co-director, MIT Climate Project: Restoring the Atmosphere, Protecting the Land and Oceans

Jim Barry, Senior Scientist and Chair of the Research Division at the Monterey Bay Aquarium Research Institute (MBARI)

Annalisa Bracco, Professor and Associate Chair, School of Earth & Atmospheric Sciences at Georgia Tech

Nicolas Cassar, Professor of Biogeochemistry at Duke University's Nicholas School of the Environment

Giovanni Coppini, Director of Global Coastal Ocean Division at the Euro-Mediterranean Center on Climate Change

Jennifer Dianto Kemmerly, Vice President of Global Oceans at Monterey Bay Aquarium

Rob Dunbar, Professor at Stanford Doerr School of Sustainability

Daniela V. Fernandez, Founder and CEO of Sustainable Ocean Alliance

Jack Gilbert, Professor and Associate Vice Chancellor for Marine Science at UC San Diego

Debora Iglesias-Rodriguez, Professor of Biological Oceanography at the University of California, Santa Barbara

Kristin Kleisner, Lead Senior Scientist and the Associate Vice President for Oceans Science at EDF

Kate Moran, President & CEO, Ocean Networks Canada

Tuba Ozkan-Haller, Dean of Oregon State University's College of Earth, Ocean, and Atmospheric Sciences & Professor in the Colleges of Earth, Ocean, and Atmospheric Sciences and Engineering.

Christopher Pearce, Principal Marine Geoscientist, National Oceanography Centre

Millicent Pitts, Chief Executive Officer and Director, The Ocean Exchange

Patrick Rafter, Assistant Professor of Chemical Oceanography at the University of South Florida's College of Marine Science

Akash Rastogi, Chief Strategist, Ocean Frontier Institute

Mark Shimamoto, Director, Global Outreach Programs, American Geophysical Union

Rohit Shukla, Founder and CEO, Larta

Eric Siegel, Chief Innovation Officer, Ocean Frontier Institute & Executive in Residence, Creative Destruction Lab—Oceans

Jill Storey, Ocean Carbon Dioxide Removal Advisor at World Ocean Council

Benjamin Van Mooy, Senior Scientist and Interim Deputy Director and Vice President for Science & Engineering at the Woods Hole Oceanographic Institution

Dawn Wright, Chief Scientist of the Environmental Systems Research Institute (ESRI)

Emanuele Di Lorenzo, Ex Officio

Brad Ack, Ex Officio

STAFF

(as of January 2025)

Brad Ack
Chief Executive Officer

Amelia-Juliette Demery, PhD
Program Officer

Ruth Driscoll-Lovejoy
Program Director

Marilu Cristina Flores
Communications Associate

Jessica Keith
Senior Communications Director

David Koweek, PhD
Chief Scientist

Sarah Mastroni
Program Officer

Courtney McGeachy
Program Director

Nikhil Neelakantan
Senior Program Officer

Kerry Nickols, PhD
Senior Program Officer

Lisa Oosterom
Director of Finance and Administration

Bridget Shayka, PhD
Program Officer

Leonardo Valenzuela Pérez, PhD
Director of International Partnerships, GEOS Program Director

OUR PROGRAM

Ocean Visions leads a cutting-edge agenda to address climate impacts to the ocean. We mobilize and support inventors, scientists, policy makers, and others to develop and advance innovative ocean-based solutions that reduce climate-based stressors, restore ocean ecosystems, and reverse climate disruption. We focus on critical arenas of needed actions that are underinvested, and we catalyze efforts to develop, test, and ultimately scale innovations to the most pressing challenges at the ocean-climate nexus.

Our work is based on a comprehensive strategy to address the interlocking ocean and climate crises. This strategy, from an ocean's lens, is focused on four interdependent elements—or the 4 “Rs” for short:



REDUCE

Society must quickly and dramatically reduce overall levels of CO₂ emissions globally. The ocean has enormous potential to provide more of the low-carbon goods and services needed by humanity, such as food, energy, and materials.



REMOVE

Atmospheric CO₂ is already beyond safe levels for the ocean and people. The only way back to safety from the dangerous zone where those levels eventually peak is to physically remove CO₂ from the air and water. The ocean offers multiple potential pathways to safely remove the legacy emissions needed to rebalance the earth system.



REPAIR

The massive heat energy imbalance on the planet, most of which is accumulating in the ocean, is pushing key parts of the earth system towards tipping points that, if surpassed, will dramatically affect people and nature. Forestalling these tipping points by rebuilding key ecosystems and their climate stabilizing functions in the ocean and the cryosphere is critical at the same time we work to rebalance global energy and reduce climate pollution.



REACH

This massive human endeavour to restore the ocean and climate requires major mobilization of diverse talent, sectors and cultures. Success will depend on engaging a wide range of people, disciplines, and sectors in the race to develop innovations and enabling frameworks to deploy effective and just ocean-climate action.

24 PATHWAYS ASSESSED
in the landscape analysis of
ocean-based carbon dioxide
emission reduction opportunities.



“As a nonprofit that brings startup innovation, academic rigor, and scientific grounding together, Ocean Visions is committed to collaboration and catalyzing solutions—without profit motives or partiality to particular products or technologies, but with the aim of illumination.”

—DR. JULIE PULLEN, oceanographer, climate tech investor, and Ocean Visions board member

OUR WORK IN 2024

REDUCE CO₂ EMISSIONS

Maximize low-carbon food, energy, and transportation from the ocean



The ocean offers numerous pathways for decreasing global emissions of carbon dioxide. These pathways include but are not limited to: ocean-based renewable energy, expanded supply of low-carbon, ocean-based sources of food, production of ocean-based feedstocks for industrial materials and processes, and low-carbon shipping.

Undertaking a Landscape Analysis

A landscape scan and analysis was conducted in the latter half of 2024 that assessed 24 ways in which the ocean could contribute to reducing global greenhouse gas emissions. Ocean Visions held more than 40 interviews to better understand their potential, and then studied where our investments could bear the greatest results—ultimately determining to commence initiatives that would advance research and development in areas of marine renewable energy and the utilization of marine biomass for low-carbon products such as biostimulants, biofuels, and plastics. In 2025, we will begin by publicly sharing our analysis of the 24 ocean-based approaches to reduce global greenhouse gas emissions. We will also commence work on the two focus areas. This will include road mapping exercises in one or both areas to bring together stakeholders and further illuminate knowledge gaps and opportunities.



DIVE DEEPER

REMOVE CO₂ EMISSIONS

Engage the size and power of the ocean to draw down and safely store carbon pollution



In addition to the urgency for reducing and eventually eliminating greenhouse gas emissions, large-scale carbon dioxide removal (CDR) is required to have any chance of holding temperatures to a 1.5°C increase and/or returning to lower temperatures. As the largest carbon reservoir on the planet, the ocean holds enormous potential to safely draw down and sequester additional carbon dioxide. To chart the way forward to research and develop these technologies, Ocean Visions, with experts from around the globe, developed a series of road maps to assess various technologies and identify the obstacles and first-order priorities to advance responsible R&D. Our attention is now focused on catalyzing broad-based effort against these priorities.

“Ocean Visions’ Launchpad program has broadened Captura’s access to key technical and oceanographic expertise that complements that of mine and my teams’.”

—DR. SOPHIE CHU, chemical oceanographer and Principal Oceanographer and Director of Monitoring, Reporting, and Verification (MRV) at Captura

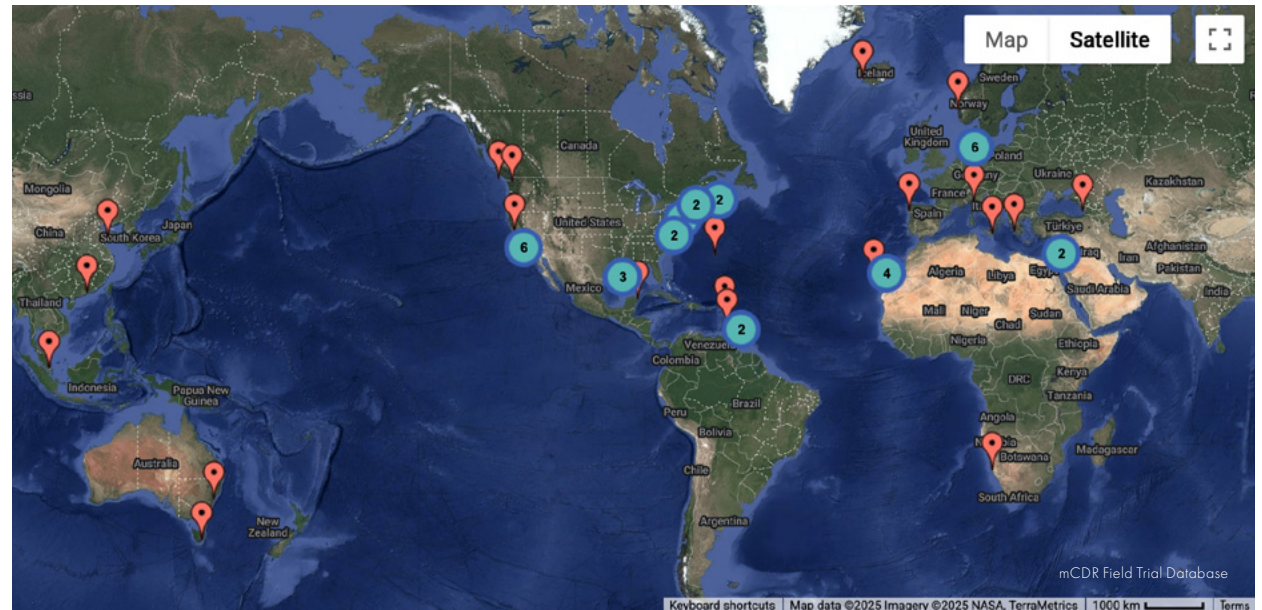
New Database of Marine Carbon Dioxide Removal Field Trials

Field trials are critical to improving our understanding of the potential efficacy and impacts of marine carbon dioxide removal (mCDR) at scales that matter to address the climate crisis. To increase awareness of the state of development and improve knowledge-sharing across the ocean-climate community, Ocean Visions built a database of mCDR field trials. The first of its kind, the tool includes information on the different mCDR pathways being tested, their scale and potential, associated monitoring, reporting and verification strategies, and lessons learned.



EXPLORE THE DATABASE

56 FIELD TRIALS TRACKED
in the mCDR field trial database

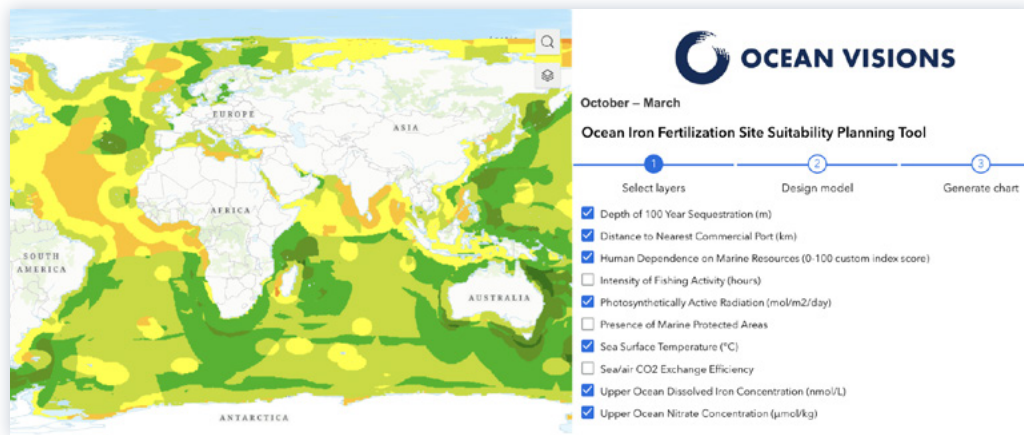


Second Cohort for the Launchpad Program

Developed in 2021, the Ocean Visions Launchpad program supports innovators working on marine carbon dioxide removal (mCDR) pathways, as well as those who are enabling or improving our understanding of these pathways. The goal of the one-year-long Launchpad program is to provide scientific and engineering advice and review to help innovators optimize their technologies and to fully measure, understand, and minimize negative environmental effects. We help by connecting innovators with expert advisors drawn from the [Ocean Visions Network](#) who have deep experience in areas ranging from oceanography and engineering to environmental evaluation and beyond. The second cohort of our Launchpad program includes eight innovative companies focused on marine carbon dioxide removal and enabling technologies. Custom advisory teams have been formed and are meeting regularly with companies to provide expert support.



MEET THE SECOND COHORT



Ocean Iron Fertilization Site Suitability Planning Tool

Ocean Visions and Esri collaborated to create a first-of-its-kind spatial planning tool to support studies of ocean iron fertilization (OIF), one of the leading options for marine carbon removal. After nearly 30 years of scientific investigation, estimates of the potential for OIF to contribute to carbon dioxide removal remain inconclusive. The new planning tool offers researchers a multidimensional and holistic picture of possible locations for OIF field trials that would help answer the remaining critical scientific questions regarding durability of carbon sequestration and associated environmental impacts.

 [EXPLORE THE TOOL](#)

\$1.5M Funding Opportunity for mCDR Environmental Impact Assessment Framework

In order to better understand the potential for marine CDR, much more research is necessary to answer the critical questions that remain about impact on marine systems and communities that rely on them. In partnership with the [Ocean Resilience and Climate Alliance \(ORCA\)](#), a philanthropic initiative that seeks to identify and fund ocean-climate solutions, Ocean Visions is administering a \$1.5 million funding opportunity to develop a comprehensive environmental impact assessment framework that will accelerate the advancement of this much-needed research. The finished framework is intended to support planning, decision making, and execution of mCDR research and development projects, field trials, and potential deployment.

 [LEARN MORE](#)

Updated Marine Carbon Dioxide Removal Road Maps

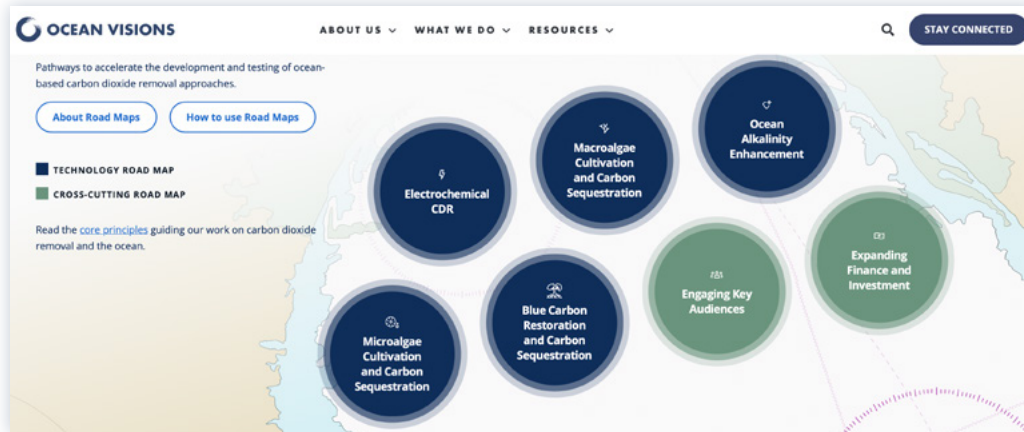
Ocean Visions' marine carbon dioxide removal road maps assess the state of various approaches and knowledge gaps in order to improve our collective understanding and identify first-order priorities. In 2024 we conducted a full refresh of these road maps to reflect the significant advancements and increased activities in the mCDR space over the last year. Complemented by the [mCDR Field Trial Database](#), the road maps are a valuable resource for both newcomers and experts exploring this dynamic field.

 [EXPLORE THE MCDR ROAD MAPS](#)

“It would take much longer to find out the feasibility of various mCDR methods without the industry connections facilitated by Ocean Visions.”

—DR. KATE MORAN, ocean engineer and President of Ocean Networks Canada

\$1,500,000 OF FUNDING AVAILABLE to develop a comprehensive environmental impact assessment framework

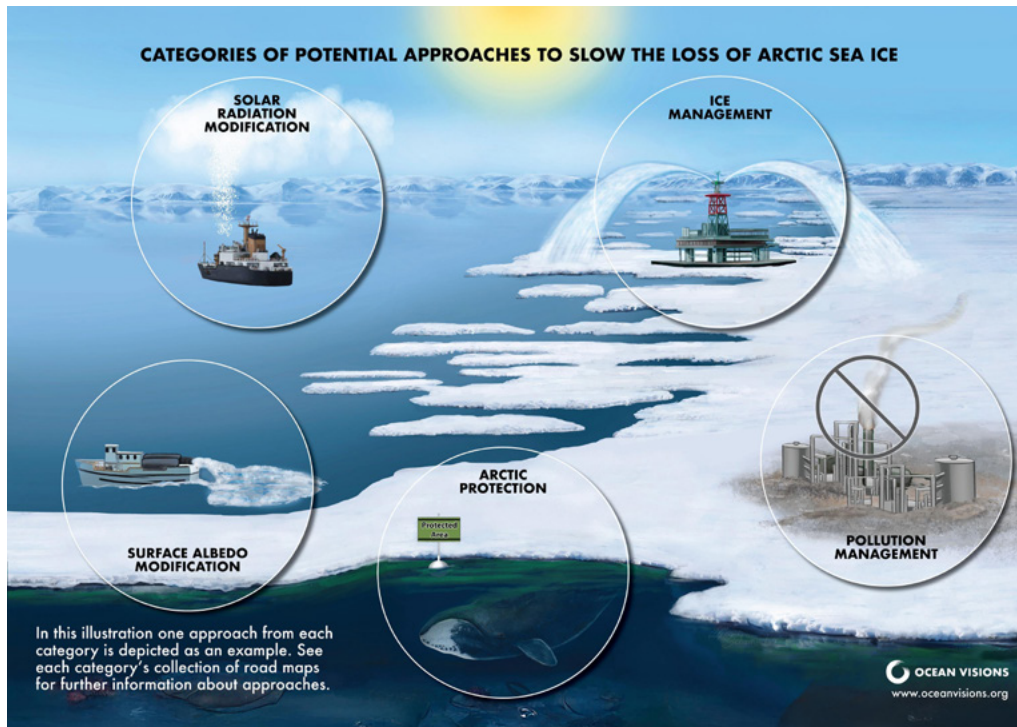


REPAIR

Develop interventions to avoid loss of critical marine ecosystems while we rebalance global carbon cycles



Increased ocean temperatures and changing chemistry have triggered a host of consequences for marine ecosystems, from widespread coral reef damage, oxygen-deficient dead zones, and—perhaps most seriously—a diminishing cryosphere, which plays a pivotal role in global ocean and climate regulation. The best available science highlights the risk that neither decarbonization nor negative emissions, alone or combined, will cool the planet in time to prevent state shifts in critical ecosystems and functions. Given the enormity of the risk, Ocean Visions is researching interventions that may be able to forestall the passing of tipping points.



First-Ever Assessment of Potential Pathways to Slow the Loss of Arctic Sea Ice

In partnership with an international, multidisciplinary team of experts, Ocean Visions has created a first-ever assessment of potential pathways to slow Arctic sea ice loss. Released as an interactive digital road map, the assessment identifies potential approaches, reviews what we know and don't know about them, and lays out a set of priorities for action to increase our collective understanding. The road map reinforces the importance of accelerating and scaling up investment into must-have actions—including global greenhouse gas emissions reductions, especially methane, carbon dioxide removal, and reducing localized black carbon emissions caused by shipping and wildland fires. However, recognizing that the current pace of progress in these areas will likely not be enough to prevent continuing loss of Arctic sea ice, the road map points to a number of additional pathways that merit investment in further research.



INTERACT WITH THE ROAD MAP

Arctic Sea Ice Restoration Research Fund

Ocean Visions' new Arctic Sea Ice Road Map identifies existing knowledge gaps and first-order priorities—the most important next set of actions needed to further advance our understanding of each approach. To move forward with responsible exploration of the most promising approaches, Ocean Visions created the Arctic Sea Ice Restoration Research Fund, which received \$1.65M in initial gifts late in 2024 (with a target of \$5M to launch).

The Fund will pool resources from donors to provide critical financial support necessary for the research needed to increase societal knowledge of these potential options. It will support only scientifically rigorous research that is conducted transparently, with information-sharing and a clear line of sight to related issues, such as governance, equity, risks, and justice.



LEARN MORE

100+ individuals and organizations
Ocean Visions connected with in developing
the Arctic sea ice road map

REACH

Build a global community to innovate and develop ocean-climate solutions



Expanding the community of “solvers” at the ocean-climate nexus is critical to developing the new generation of innovative solutions we need to address climate disruption. Ocean Visions is building initiatives to broaden and deepen diverse engagement around the globe in identifying and advancing ocean-based climate solutions.

The Ocean Visions Biennial Summit 2025

Staff have been working throughout 2024 to prepare for the next Ocean Visions Biennial Summit, to be held March 25-27, 2025 in Vancouver, crafting an interactive program that will engage a wide range of people, disciplines, and sectors at the forefront of innovation at the ocean-climate nexus. The Summit occurs every two years and is a one-of-a-kind opportunity for the ocean-climate community to come together and explore, develop, and build a comprehensive, cutting-edge agenda to address dangerous climate change from an ocean perspective.

 [LEARN MORE](#)

Global Ecosystem for Ocean Solutions (GEOS) Program

Endorsed by the UN Ocean Decade, the Global Ecosystem for Ocean Solutions (GEOS) is an international program led by Ocean Visions. GEOS serves as the programmatic hub for 25 UN-endorsed projects with partners distributed across five continents, including academic institutions, government units, and advocacy groups. Two key initiatives are at the heart of the GEOS program: creation and operation of Ocean-Climate Innovation Hubs and the Ocean-Climate Innovation Fellowship Program. Hubs are intended to serve as regional and local catalysts for the advancement of ocean-climate solutions. They are founded on the principle that effective and equitable development and implementation of ocean-climate solutions will require

a global community of actors collaborating across diverse geographies, sectors, and disciplines. Ocean Visions proudly supported the launch of four hubs in 2024 (Chile, Colombia, Costa Rica, and Ghana; in addition to Kenya and Tanzania launched in 2023). The Fellowship program supports emerging leaders at the Hubs who are accelerating the understanding, development, and adoption of emerging ocean-climate solutions in the Global South. It offers a year-long program of funding, coaching, co-designed capacity-building, and collaboration opportunities to develop and implement innovative solutions, enhance scientific collaborations, promote entrepreneurship, and foster equity and global connections in addressing ocean and climate challenges. Three fellows—from Colombia, Kenya and Tanzania—were announced in 2024.

 [LEARN MORE](#)



“The climate crisis is affecting us all over the world—and no one should be left out of the conversation. Folks often say that there’s few ocean scientists in the Global South. But the real question is, are we being invited?”

—**DR. MARIAM SWALEH**, Ocean Visions’ Ocean-Climate Innovation Fellow & Ocean-Climate Innovation Hub Kenya Project Lead



Expanding the Global Dialogue

Ocean Visions is committed to advancing a bold new conservation agenda for the ocean, focusing on ocean-based solutions that can directly address the climate crisis—the top threat to ocean health. We actively share our perspective and ideas at key international ocean and climate events, which in 2024 included such events as Capitol Hill Ocean Week, the World Ocean Summit, Climate Week, COP29, CBD COP16, London Convention/ London Protocol, the UN Ocean Decade Conference, and the Ocean Sciences Meeting. Ocean Visions captured key takeaways from discussions about the linkages between action on climate change and ocean health in a year-end perspective piece.

 [READ THE BLOG](#)

3
FELLOWSHIPS
AWARDED
to support
emerging leaders
of Ocean-Climate
Innovation Hubs

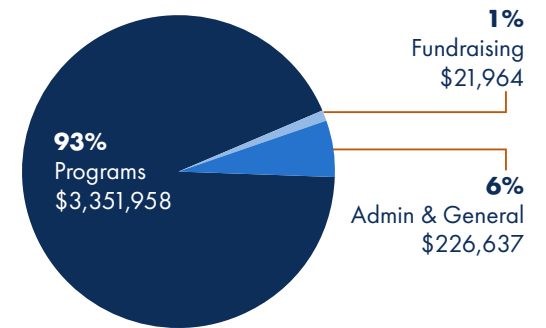
FINANCIAL SUMMARY & OCEAN VISIONS NETWORK

The Ocean Visions Network

Ocean Visions sits at the center of a wider network of partners who work together to advance research, innovation, development, and testing into scalable solutions to address the interlocking ocean-climate crisis. Ocean Visions was proud to welcome the following members in 2024: Centro Euro Mediterraneo sui Cambiamenti Climatici (The Euro-Mediterranean Center on Climate Change), Oregon State University, Duke University, and Environmental Defense Fund.



2024 Functional Expenses



Functional Expense—\$3,600,559

Ocean Visions is grateful for the generous support it received for 2024 from the following:

- Astera Institute
- Bernard and Anne Spitzer Charitable Trust
- Builders Initiative
- ClimateWorks Foundation
- Georgia Aquarium
- Georgia Tech
- ICONIQ
- Jeremy and Hannelore Grantham Environmental Trust
- Kissick Family Foundation
- Radhika & Ambarish Malpani Foundation Inc
- The Navigation Fund
- Schmidt Marine Technology Partners