

Charter for Responsible mCDR Ocean Iron Field Research

ExOIS Field Research Coalition

Preamble

The Members (signatory parties) of the ExOIS Field Research Coalition ("Coalition Members" herein) recognize the urgent need to advance scientific understanding of climate solutions that may contribute to mitigating climate change. While rapid reductions in greenhouse gas emissions remain the highest priority, the current scientific consensus is that carbon dioxide removal (CDR) is also required to achieve long-term climate goals. Among the approaches under investigation, ocean iron fertilization (OIF) has the potential to meaningfully contribute to marine CDR (mCDR), but substantial scientific uncertainties remain regarding its efficacy, durability, environmental impacts, and societal implications.

The Coalition Members further recognize that the credibility of OIF research depends not only on the quality of the science, but also on the manner in which that science is conducted^{1,2}. Research must therefore be guided by independent science, transparency, and meaningful engagement with society.

Through this Charter, the Coalition Members establish the Exploring Ocean Iron Solutions (ExOIS) Field Research Coalition, ("ExOIS Field Research Coalition" for short), convened and stewarded by the ExOIS program, to advance collaborative OIF research within a common framework of responsible scientific practice.

1. Purpose

The purpose of this Charter is to establish a shared framework for collaborative field research on OIF undertaken by members of this Coalition. OIF field research is defined here as studies in the ocean that increase phytoplankton biomass through the addition of external iron sources for the primary purpose of mCDR. This may include consideration of co-limitations beyond iron, and/or processes that enhance the storage of carbon in the ocean interior.

The coalition seeks to generate robust scientific evidence regarding the potential role of OIF in mCDR through research that is scientifically rigorous, environmentally responsible, transparent, and conducted in the public interest. This would include consideration of net uptake of atmospheric CO₂ at the surface, the durable storage of C in the ocean interior, and impacts on the ecology. This Charter is intended to guide collaborative research and strengthen consistency across coalition activities. It does not constitute an endorsement of future deployment or commercialization of OIF.

2. Nature of the Charter

This Charter is a voluntary, non-binding agreement that expresses the Coalition Members' shared intentions.

Nothing in this Charter creates legal obligations, financial commitments, or a partnership among the Coalition Members. Each organization retains full responsibility for its own governance, personnel, funding, legal obligations, and scientific decision-making.

11th September 2026

Version 1

3. The ExOIS Field Research Coalition

The ExOIS Field Research Coalition brings together organizations with complementary expertise to improve understanding of OIF through coordinated scientific research.

Recognizing that many questions surrounding OIF require multidisciplinary investigation, the coalition provides a forum for collaboration across oceanography, ecology, biogeochemistry, modeling, engineering, governance, and social science.

ExOIS leads and stewards the ExOIS Field Research Coalition by recognizing Coalition Members via this Charter, facilitating collaboration, maintaining this Charter, and coordinating its periodic review. ExOIS does not direct the scientific program of Coalition Members; rather, it supports a collaborative environment in which independent institutions pursue shared scientific objectives under a common set of principles and commitments.

4. Shared Principles and Commitments

Scientific Excellence

Coalition Members are committed to conducting research that is scientifically rigorous, reproducible, and transparent. Research should be designed using robust methodologies, communicated openly, and evaluated through appropriate scientific peer-review and permitting frameworks. Coalition Members recognize that scientific progress depends upon honest reporting of the methods used, results and uncertainties, and the disclosure of findings that challenge prevailing assumptions or fail to support original hypotheses.

Environmental Stewardship

Coalition Members recognize that protecting marine ecosystems is fundamental to responsible OIF research. Research should proceed cautiously, but with responsible urgency, including experimental design, environmental monitoring, and adaptive management proportional to the questions being investigated. Activities should seek to minimize environmental risk while improving understanding of ecological responses and long-term carbon sequestration through the measurement of key carbon and environmental parameters. Consistent with the guiding principle of "first, do no harm," scientific advancement should never come at the expense of responsible environmental practice.

Transparent and Independent Scientific Integrity

Coalition Members support open scientific inquiry and recognize that public confidence depends upon transparency throughout the research process that aims to minimize or eliminate conflicts of interest. Research objectives, methodologies, funding sources, and findings should be communicated openly whenever appropriate, and data should be shared in accordance with applicable legal, ethical, and contractual obligations. Scientific conclusions should remain independent of political, commercial, or institutional interests and should be subject to independent evaluation wherever practicable (e.g. peer-review, public comment etc.). To establish scientific independence, the Coalition Members commit to not seeking financial and/or economic gain arising directly from their research activities during the experimental phase (e.g. selling carbon credits or offsets).

Collaboration and Shared Learning

Coalition Members recognize that advancing understanding of OIF requires collaboration across institutions, disciplines, and national boundaries. The ExOIS Field Research Coalition members therefore commit to sharing expertise, supporting applications for field research permits, promoting interoperability of research where appropriate, and fostering an environment of mutual learning that strengthens both individual projects and the collective scientific evidence base.

Public Interest

Coalition Members acknowledge that OIF research carries implications for society beyond the scientific community. Coalition activities should therefore be conducted with openness, respect for diverse perspectives, and meaningful engagement with rightsholders and communities appropriate to the scale and context of the research. Coalition Members recognize the importance of considering Indigenous knowledge, local communities, and broader societal interests in building public trust and informing future decision-making. Sharing of outreach materials and messaging priorities, and participation in others' engagement activities shall be encouraged, but conducted independently and not subject to approval by any of the Coalition members. Furthermore, Coalition members are encouraged to highlight that they are part of the ExOIS Field Research Coalition when appropriate.

5. Implementation

Coalition Members will endeavor to conduct their own independent research in a manner consistent with the principles described in this Charter. Research undertaken under the auspices of the Coalition, and for the purposes laid out in Section 1, should clearly define scientific objectives, identify and evaluate potential environmental and societal risks, incorporate appropriate monitoring and assessment, and contribute to the broader scientific understanding of OIF through timely publication and responsible communication of findings.

Coalition Members further recognize that the science and governance of mCDR will continue to evolve. Accordingly, this Charter is intended to serve as a living framework that may be reviewed and updated periodically by consensus of the Coalition Members, coordinated by ExOIS, in light of new scientific knowledge, emerging best practices, and lessons learned through the members' activities.

6. Participation

Participation in the ExOIS Field Research Coalition is voluntary and open to organizations that support the principles and objectives of this Charter. Approval for participation will be made by the ExOIS Executive Director and Steering Committee members, in consultation with existing Coalition Members. Additional Coalition Members may join the coalition through this same process. Any Coalition Members may withdraw from the coalition at any time by providing written notice to ExOIS.

7. Effective Date

This Charter shall become effective for a Coalition Member upon their representative signing this Charter, and shall remain in effect until amended or concluded by mutual agreement.

Endorsements

Organization	Field Program(s)	Representative	Title/Position	Signature	Date
Exploring Ocean Iron Solutions (ExOIS)	North Pacific Carbon Study (NPCS)	Ken Buesseler	Executive Director	Signature kept on file with ExOIS	15-Sept-2026
Growing Oceans	Pacific Sunrise (PACSUN)	Seth John	Director and Chief Scientist	Signature kept on file with ExOIS	21-Sept-2026
Oceanry	North Atlantic Ocean Iron Replenishment, Proof-of-concept	Tomi Nyman	Co-Founder	Signature kept on file with ExOIS	15-Sept-2026
Southern Ocean field experiment consortium	Southern Ocean	Finn Ross	Consortium leader	Signature kept on file with ExOIS	12-Sept-2026

¹Buesseler, K., Leinen, M., Ramakrishna, R. (2022) Removing carbon dioxide: first, do no harm. Nature, 606, 7916: 864. doi.org/10.1038/d41586-022-01774-0

²NGO statement (2026) Recommendations for Responsible Assessment of Engineered Marine Carbon Dioxide Removal Approaches. <https://oceanconservancy.org/wp-content/uploads/2026/05/eNGO-consensus-statement-v2.pdf>