



FY23 NOPP Marine Carbon Dioxide Removal Awards

The FY23 [National Oceanographic Partnership Program](#) (NOPP) Marine Carbon Dioxide Removal funding opportunity supports 17 projects that advance marine carbon dioxide removal research.

Project PI: [Andreas Andersson](#), Scripps Institution of Oceanography

[Satoshi Mitarai](#), Okinawa Institute of Science and Technology (OIST)

[Loretta Roberson](#), Marine Biological Laboratory (MBL)

[Reggie Spaulding](#), Sunburst Sensors

[Adrienne Sutton](#), NOAA Pacific Marine Environmental Lab

Carbon capture and ocean acidification mitigation potential by seaweed farms in tropical and subtropical coastal environments

Award amount: \$1,451,575

Funding source(s): NOAA Ocean Acidification Program and NOPP

IRA funding? No

Project duration: 3 years

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Project PI: [Andrew Dickson](#), Scripps Institution of Oceanography

Dr. [Robert Richardson](#), Pacific Rim Design & Development

Dr. [Nina Bednaršek](#), Oregon State University Cooperative Institute for Marine Resources Studies

Dr. [Richard A. Feely](#), NOAA Pacific Marine Environmental Laboratory

Assessing chemical and biological implications of alkalinity enhancement using carbonate salts obtained from captured CO₂ to mitigate negative effects of ocean acidification and enable mCDR

Award amount: \$995,891

Funding source(s): NOAA

IRA funding? Yes

Project duration: 3 year

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Project PI: [Burke Hales](#), Oregon State University

[Yvette Spitz](#), Oregon State University

[Kelsey Stoerzinger](#), Oregon State University

[George Waldbusser](#), Oregon State University

[Dick Feely](#), NOAA Pacific Marine Environmental Laboratory

[Simone Alin](#), NOAA Pacific Marine Environmental Laboratory

Electrolysis-driven weathering of basic minerals for long-term ocean buffering and CO2 reduction

Award amount: \$2,000,000

IRA funding? No

Funding source(s):

Department of Energy [Office of Fossil Energy and Carbon Management](#), [Water Power Technologies Office](#)

Project duration: 3 years

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Project PI: [Dennis McGillicuddy](#), Woods Hole Oceanographic Institute

[Ken Buesseler](#), Woods Hole Oceanographic Institute

[John Dunne](#), NOAA Geophysical Fluid Dynamics Laboratory

[Kristen Krumhardt](#), National Center For Atmospheric Research

[Matthew Long](#), National Center For Atmospheric Research

[Weifeng \(Gordon\) Zhang](#), Woods Hole Oceanographic Institute

[Charles Stock](#), NOAA Geophysical Fluid Dynamics Laboratory

Multiscale observing system simulation experiments for iron fertilization in the Southern Ocean, Equatorial Pacific, and Northeast Pacific

Award amount: \$1,983,731

IRA funding? No

Funding source(s): NOAA Global Ocean Monitoring and Observing (GOMO), NOAA Ocean Acidification Program (OAP), National Science Foundation

Project duration: 3 years

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Project PI: [Jaime Palter](#), University of Rhode Island

[Jason Grear](#), Environmental Protection Agency

[David Ho](#), University of Hawai'i, Manoa

[Robert Pockalny](#), University of Rhode Island

[Rebecca Robinson](#), University of Rhode Island

[Samantha Siedlecki](#), University of Connecticut

[Hongjie Wang](#), University of Rhode Island

An opportunity to study Ocean Alkalinity Enhancement, CDR, and ecosystem impacts through coastal liming

Award amount: \$1,538,452

IRA funding? Yes

Funding source(s): NOAA

Project duration: 3 years

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Project PI: [Kevin Kroeger](#), United States Geological Survey

[Grace Andrews](#), Vesta Corporation

[Sophia Fox](#), National Park Service

[Shannon Meseck](#), NOAA National Marine Fisheries Service

[Timothy Smith](#), National Park Service

[Robert Sohn](#), Woods Hole Oceanographic Institute

[Nathaniel Walworth](#), Vesta Corporation

[Aleck Wang](#), Woods Hole Oceanographic Institute

Tidal wetlands as a low pH environment for accelerated and scalable olivine dissolution

Award amount: \$1,895,531

IRA funding? Yes

Funding source(s): NOAA

Project duration: 4 years

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Project PI: [Adam Subhas](#), Woods Hole Oceanographic Institution
[Kay Bidle](#), Rutgers University
[Kimberlee Thametrakoln](#), Rutgers University

Assessing the laboratory and field responses of diatoms and coccolithophores to ocean alkalinity enhancement

Award amount: \$1,026,045

IRA funding? Yes

Funding source(s): NOAA

Project duration: 3 years

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Project PI: [Laura Haynes](#), Vassar College
[Jennifer Fehrenbacher](#), Oregon State University
[Emily Osborne](#), NOAA Atlantic Meteorological Laboratory

Determining the Influence of Ocean Alkalinity Enhancement on Foraminifera Calcification, Distribution, and CaCO₃ Production

Award amount: \$510,359

IRA funding? Yes

Funding source(s): NOAA

Project duration: 3 years

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Project PI: [Melissa Meléndez](#), University of Hawai'i, Manoa
[Keisha Bahr](#), Texas A&M Corpus Christi
[Hannah Barkley](#), NOAA Pacific Islands Fisheries Science Center
[Nick Hawco](#), University of Hawai'i, Manoa
[Conall McNicholl](#), University of Hawai'i, Manoa
[Lisa McManus](#), University of Hawai'i, Manoa
[Christopher Sabine](#), University of Hawai'i, Manoa

Assessing the effects and risks of ocean alkalinity enhancement on the physiology, functionality, calcification, and mineralogy of corals and crustose coralline algae in the Pacific

Award amount: \$1,999,835

IRA funding? No

Funding source(s): Department of Energy [Office of Fossil Energy and Carbon Management](#)

Project duration: 4 years

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Project PI: [David Nicholson](#), Woods Hole Oceanographic Institution

[Adam Subhas](#), Woods Hole Oceanographic Institution (WHOI)

[Yui Takeshita](#), Monterey Bay Aquarium Research Institute (MBARI)

[Robert Todd](#), Woods Hole Oceanographic Institution (WHOI)

[Katherine Zaba](#), MRV Systems, LLC

Assessing Carbon Dioxide Removal and Ecosystem Response for an Ocean Alkalinity Enhancement Field Trial

Award amount: \$1,877,644

IRA funding? Yes

Funding source(s): NOAA

Project duration: 3 years

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Project PI: [David Ho](#), University of Hawaii

[Danielle Bianchi](#), University of California Los Angeles

[Matthew Eisaman](#), Ebb Carbon, Inc.

[Alicia Karspeck](#), Convergent Research, LLC

Matthew Long, Convergent Research, LLC

[James McWilliams](#), University of California Los Angeles

[Sara Nawaz](#), American University

[Mallory Ringham](#), Ebb Carbon, Inc.

Assessing efficacy of electrochemical ocean alkalinity enhancement at an existing outfall using tracer release experiments and oceanographic models

Award amount: \$1,915,600

IRA funding? Yes

Funding source(s): NOAA, ClimateWorks Foundation

Project duration: 3 years

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Project PI: [Jeremy Testa](#), University of Maryland Center for Environmental Science

[Wei-Jun Cai](#), University of Delaware

[Ming Li](#), University of Maryland Center for Environmental Sciences (UMCES)

[Yuanyuan Xu](#), Planetary Technologies, Inc.

Quantifying the Efficacy of Wastewater Alkalinity Enhancement on mCDR and Acidification Mitigation in a Large Estuary

Award amount: \$1,864,561

IRA funding? Yes

Funding source(s): NOAA

Project duration: 3 years

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Project PI: [Kelly Kearney](#), University of Washington (CICOES)

[Brendan Carter](#), University of Washington

[Kristen Krumhardt](#), National Center For Atmospheric Research

[Darren Pilcher](#), University of Washington

Biotic calcification impacts on marine carbon dioxide removal additionality

Award amount: \$1,250,482

IRA funding? Yes

Funding source(s): NOAA

Project duration: 4 years

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Project PI: [Cristina Schultz](#) (Northeastern University) & [Jessica Luo](#) (NOAA GFDL)

[Damien Brady](#), University of Maine, Walpole

[Enrique Curchister](#), Rutgers University

[Samantha Siedlecki](#), University of Connecticut

[Charles Stock](#), NOAA Geophysical Fluid Dynamics Laboratory

[Jeremy Testa](#), University of Maryland Center for Environmental Sciences (UMCES)

Developing a coupled benthic-pelagic biogeochemical model to evaluate the effectiveness of mCDR interventions

Award amount: \$1,258,967

IRA funding? Yes

Funding source(s): NOAA

Project duration: 4 years

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Project PI: [Fiona Hogan](#), Responsible Offshore Development Alliance

[Roger Griffis](#), NOAA Office of Science and Technology (OST)

[Sarah Schumann](#), Shining Sea Fisheries Consulting, LLC

Engaging U.S. Commercial Fishing Community to Develop Recommendations for Fishery-Sensitive mCDR Governance, Collaborative Research and Monitoring, and Outreach to Fishing Communities

Award amount: \$99,591

IRA funding? No

Funding source(s): Office of Naval Research, ClimateWorks Foundation

Project duration: 2 years

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Project PI: [Katherine Hornbostel](#), University of Pittsburgh

[Matthew Green](#), Arizona State University

[Mou Paul](#), National Renewable Energy Laboratory

[Abhishek Roy](#), National Renewable Energy Laboratory

[Jennifer Yang](#), University of California, Irvine

Coupling Desalination with Novel mCDR Membranes

Award amount: \$1,403,802.00

IRA funding? No

Funding source(s): Office of Naval Research

Project duration: 2 years

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Project PI: [Galen McKinley](#), Columbia University

[Thea Hatlen Heimdahl](#), Columbia University

[Adrienne Sutton](#), NOAA Pacific Marine Environmental Laboratory

Data requirements for quantifying natural variability and the background ocean carbon sink in mCDR models

Award amount: \$589,464.00

IRA funding? No

Funding source(s): National Science Foundation, NOAA Ocean Acidification Program

Project duration: 3 years

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