

# FY23 Marine Carbon Dioxide Removal Research Portfolio

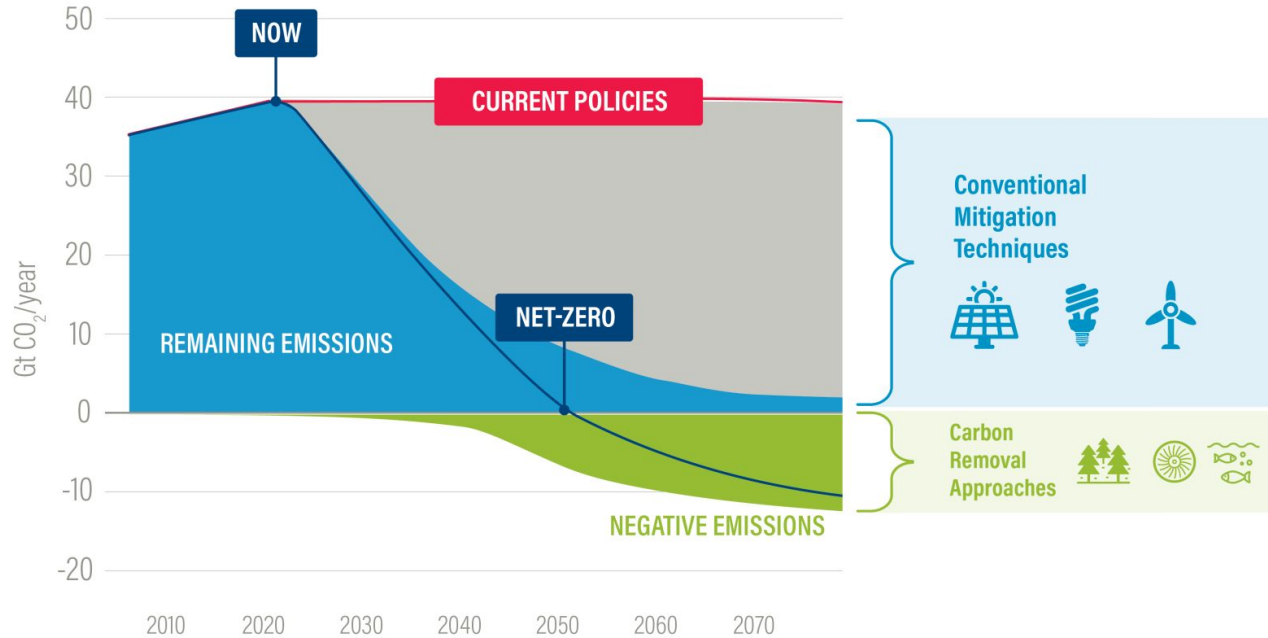
Gabriella (Gabby) Kitch, PhD  
Carbon Dioxide Removal Program Lead  
NOAA Ocean Acidification Program/UCAR



NOAA OCEAN ACIDIFICATION PROGRAM



The Intergovernmental Panel on Climate Change states that manually removing CO<sub>2</sub> from the atmosphere through carbon dioxide removal is critical to stabilizing climate change at 1.5 °C.



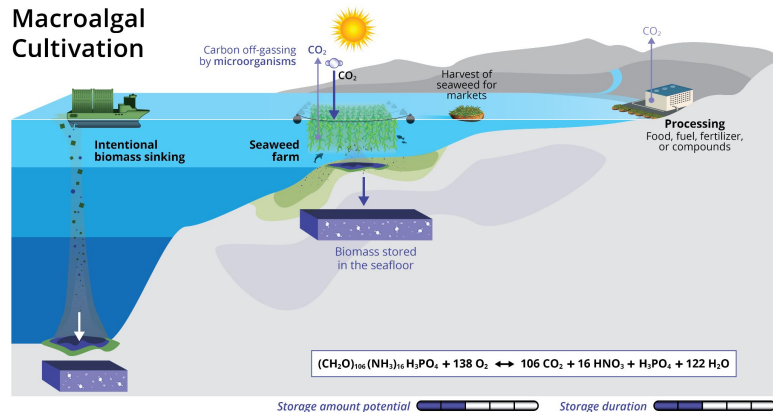
Source: Based on IPCC (2018) and CAT (2021).



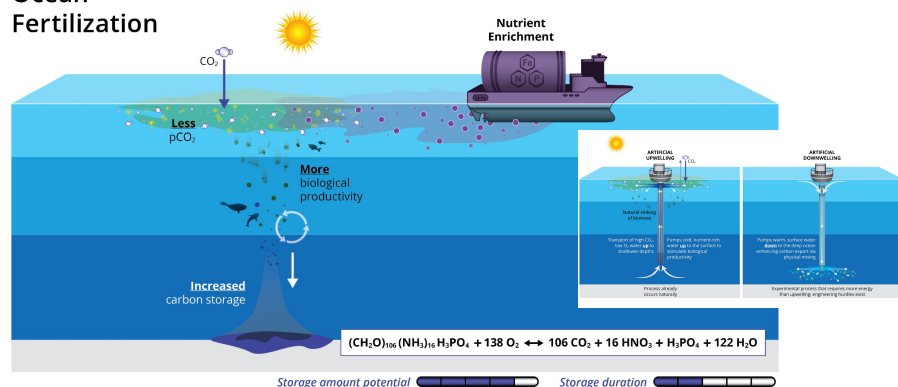
WORLD RESOURCES INSTITUTE

# Types of mCDR

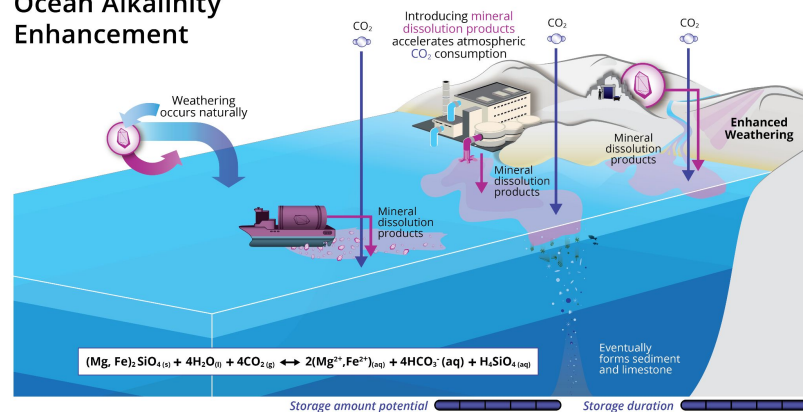
## Macroalgal Cultivation



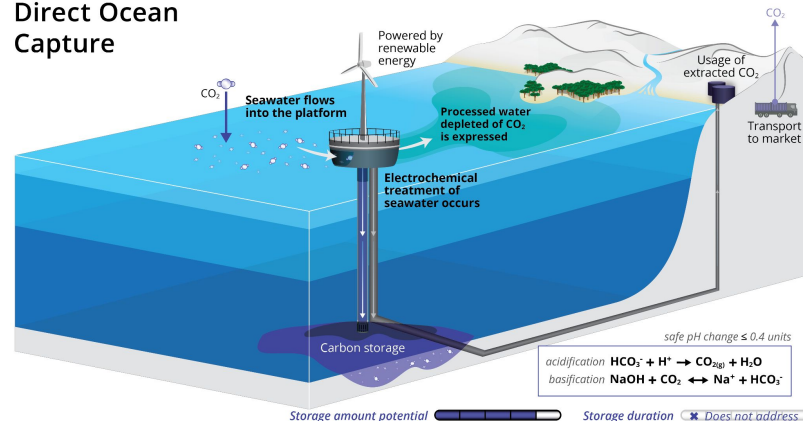
## Ocean Fertilization



## Ocean Alkalinity Enhancement



## Direct Ocean Capture



Images from NOAA's CDR Strategy



The National Oceanographic Partnership Program (NOPP) facilitates partnerships between federal agencies, academia, and industry to advance ocean science research and education. Through this collaboration, federal agencies can leverage resources to invest in priorities that fall between agency missions or that are too large for any single agency to support.

# Funding partners and amount

\$24.3M fundraised by interagency and philanthropic partners

This includes NOAA funding received from the Inflation Reduction Act



# The Inflation Reduction Act and mCDR

Today, the Department of Commerce and NOAA announced \$24 million for projects that will tackle the climate crisis by researching marine carbon dioxide removal strategies, as part of President Biden's Investing in America agenda. \$14 million from the Inflation Reduction Act (IRA), the largest climate investment in history, will go toward 10 projects that examine how effectively and safely strategies like enhancing ocean alkalinity or sinking seaweed remove carbon from the atmosphere.

An additional \$10 million in funding, provided by NOAA's appropriation for the [National Oceanographic Partnership Program](#); NOAA's [Ocean Acidification Program](#); NOAA's [Global Ocean Monitoring and Observing Program](#); the [Department of Energy's \(DOE's\) Office of Fossil Energy and Carbon Management](#); DOE's [Water Power Technologies Office](#); the [Office of Naval Research](#); the [U.S. National Science Foundation](#) and the [ClimateWorks Foundation](#) [↗](#) will support seven more marine carbon dioxide removal research projects.

"As part of the Biden-Harris Administration's commitment to addressing the climate crisis and making our country more climate resilient, we need to understand all of the tools available to us," said Secretary of Commerce Gina Raimondo. "Making smart investments in America is a key pillar of Bidenomics, and this funding will support critical research to help us develop new and innovative solutions to pressing climate challenges."

Press release

<https://oceanacidification.noaa.gov/fy23-nopp-mcdr-awards/>

<https://ioos.noaa.gov/about/governance-and-management/inflation-reduction-act/>





The National Oceanographic Partnership Program (NOPP) facilitates partnerships between federal agencies, academia, and industry to advance ocean science research and education.

**Total Number of Projects**

**17**

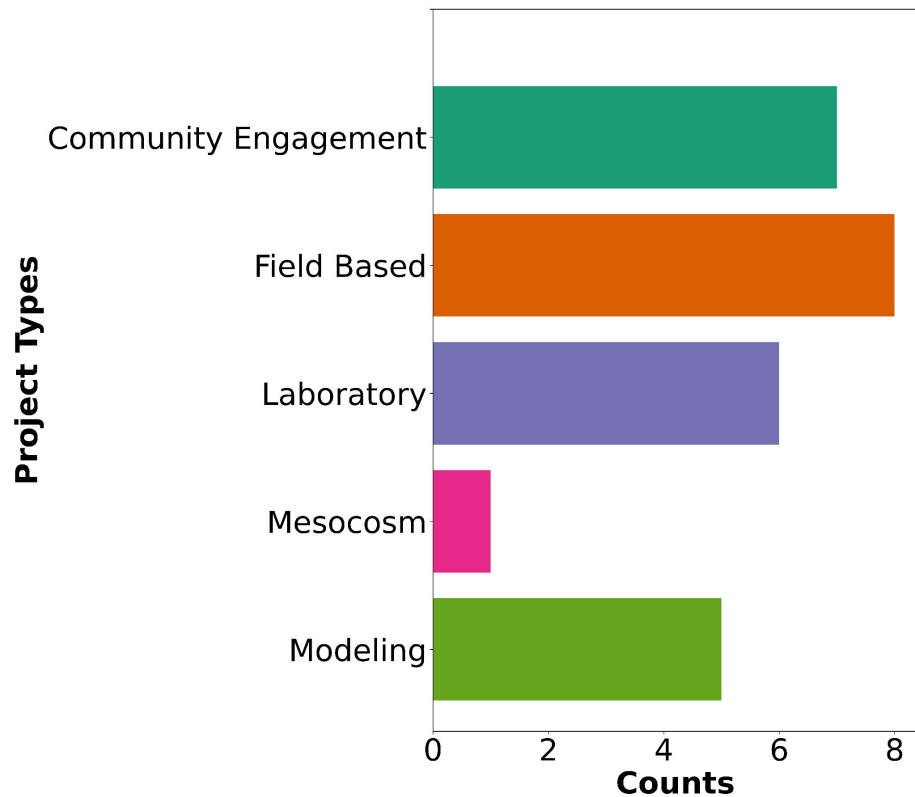
**Unique Institutions**

**47**

**Unique Principal Investigators**

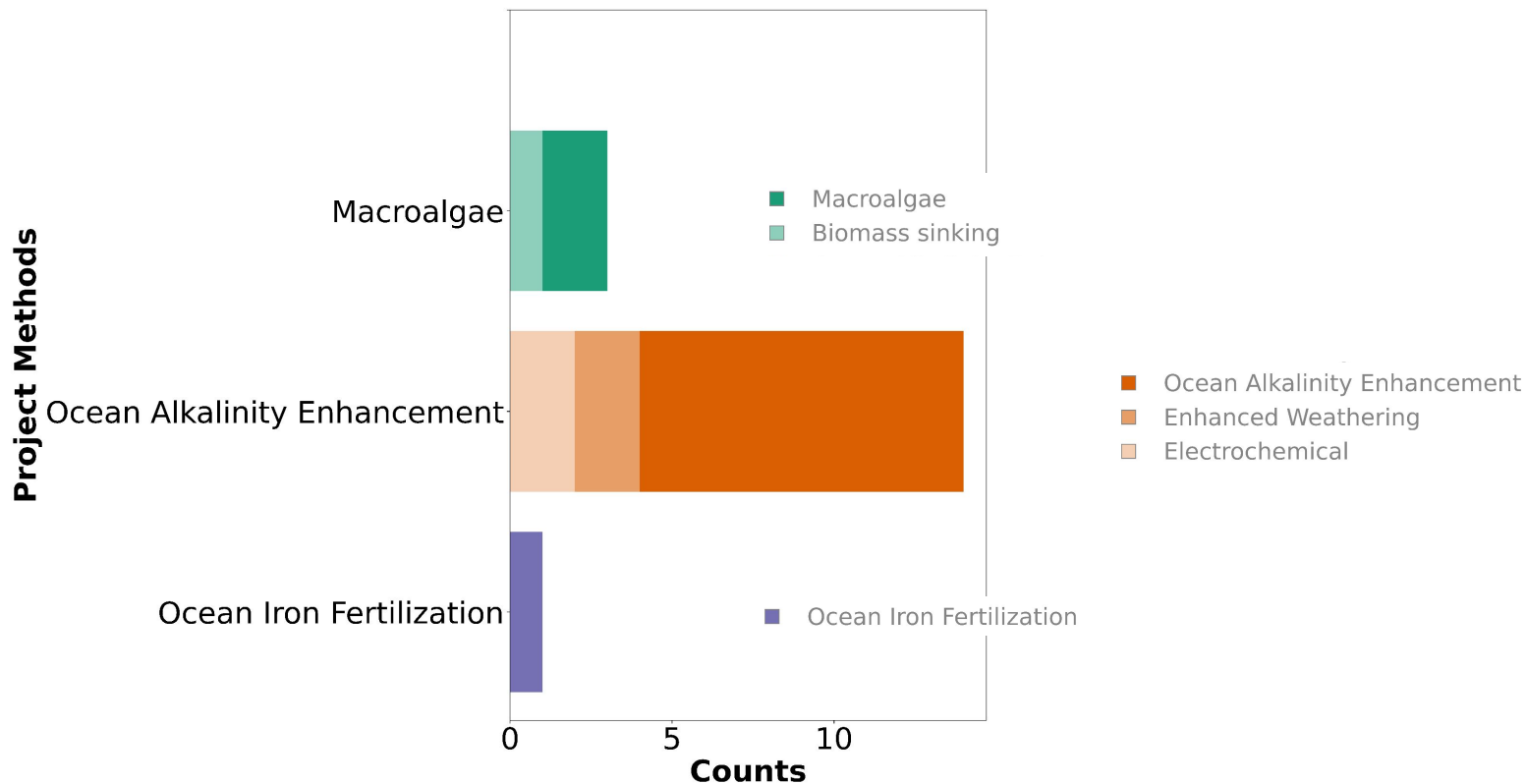
**79**

# NOPP portfolio project types

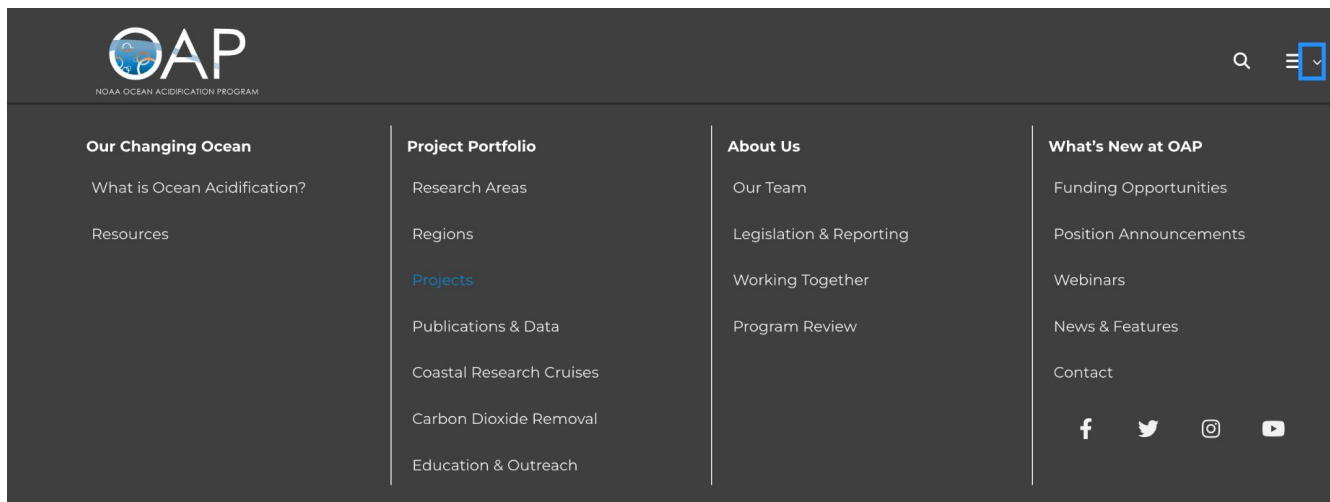




# NOPP portfolio mCDR method types



# Interested in learning more?



☒ Carbon Dioxide Removal (17)

## Region

- ☐ New England & Mid-Atlantic Bight Acidification Research (9)
- ☐ West Coast Acidification

Award amount: \$1,451,575 Duration: 3 years Funding agency: NOAA Ocean Acidification Program (OAP), National Oceanographic Partnership Program (NOPP) Why we care Growing seaweed in the ocean could be one way to alleviate some..

[PROJECT SUMMARY >](#)



<https://oceanacidification.noaa.gov/project-search>

# Questions?

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# Supporting slides

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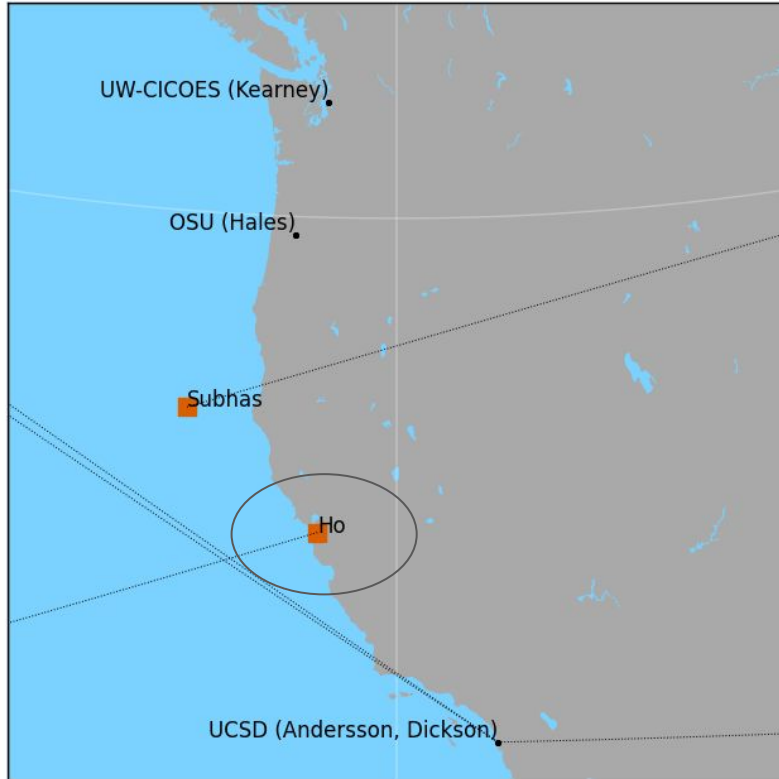
# NOPP PIs and co-PIs



Graphics thanks to Kalina Grabb, NOAA OAP



## Field Only with labels - primary PIs only



Note, black dots reference PIs institutions that may not be field based. Only those with colors indicate field trials. Field trials includes those taking samples for lab experiments. Those that are completing mCDR projects are circled.

- Macroalgae
- Ocean Alkalinity Enhancement
- Enhanced Weathering

# Regional field work locations with labels



See notes from previous slide for more guidance on reading this map.

- Macroalgae
- Ocean Alkalinity Enhancement
- Enhanced Weathering

# Regional fieldwork continued



See notes from  
slide 21 for more  
guidance on  
reading this map.

- Macroalgae
- Ocean Alkalinity Enhancement
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