The Science and Funding for Blue Carbon Projects in New Jersey

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Metthea Yepsen,

Division of Science and Research

Anthony Bevacqua, PhD

Division of Climate Change Mitigation & Monitoring

Presented September 9, 2025 | NJ Coastal Resilience Collaborative | Coastal Ecological Technical Workshop

Agenda

- *Introduction*
- *Natural Climate Solutions Grant Program*
- *What makes a good Blue Carbon Project*
- *Blue Carbon Project Highlights*
- *Project Monitoring*
- *Q&A*

Division of Science and Research

Our Mission

The function of the Division of Science and Research is to help ensure that the Department's **decision-making is based upon the best possible scientific information**. We provide information that supports its technical and policy needs in the identification, analysis and resolution of environmental issues. In addition, the division **performs research, develops tools**, and identifies **emerging concerns.**

- Env. Trends
- Invasive Species
- Private Wells
- Fish Consumption Advisories
- Env. Standards
- Wetlands!
- Quality Assurance

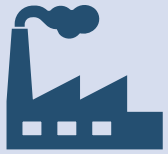
Bureau of Climate Change and Clean Energy

Our Mission

Provide technical, planning and policy support towards greenhouse gas mitigation, assisting the state in achieving a reduction in greenhouse gas emissions.

RGGI

Natural Climate Solutions



GHG Monitoring

Climate Change

Clean Energy

Clean Buildings

Research, Reports & Tools

NCS Opportunity in New Jersey

Over $2M
Acres of Forested Land

290,000
Acres of Saltwater Wetlands

1,800
Miles of Tidal Coastline

$2B
Forest Ecosystem Services

$420M
Urban Greenspace Ecosystem Services

$9B
Wetland Ecosystem Services

Natural Climate Solutions Program Objectives

Support projects that **create, restore, and enhance New Jersey's natural carbon sinks.**

Project types Include:

- Living Shorelines
- Restoring Flows in Tidal Wetlands
- Tidal Salt Marsh Vegetation Restoration
- Forest Restoration Urban Forest Canopy and Water Quality Enhancement

Round 1 Summary

$24.3M
RGGI Funds Spent

14
Projects

$42.2M
Total Project Costs

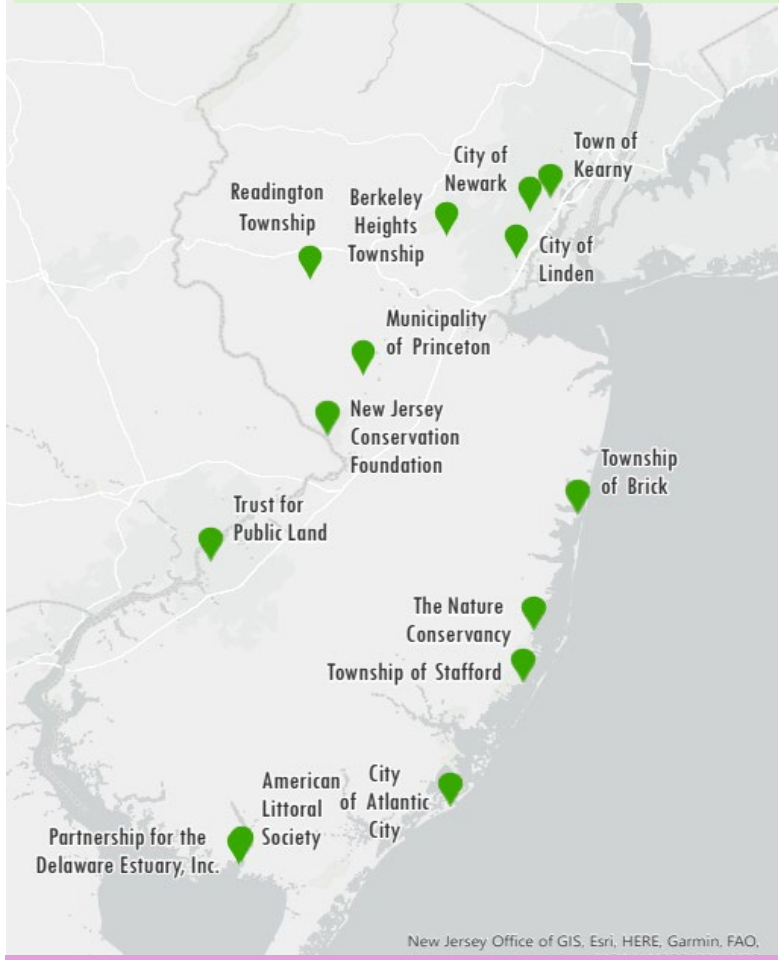
41
Project Partners

33,000
MT C02e Est. Lifetime Reductions

212
Acres Restored

17,305
Trees Planted

9 Green Carbon Projects



5 Blue Carbon Projects

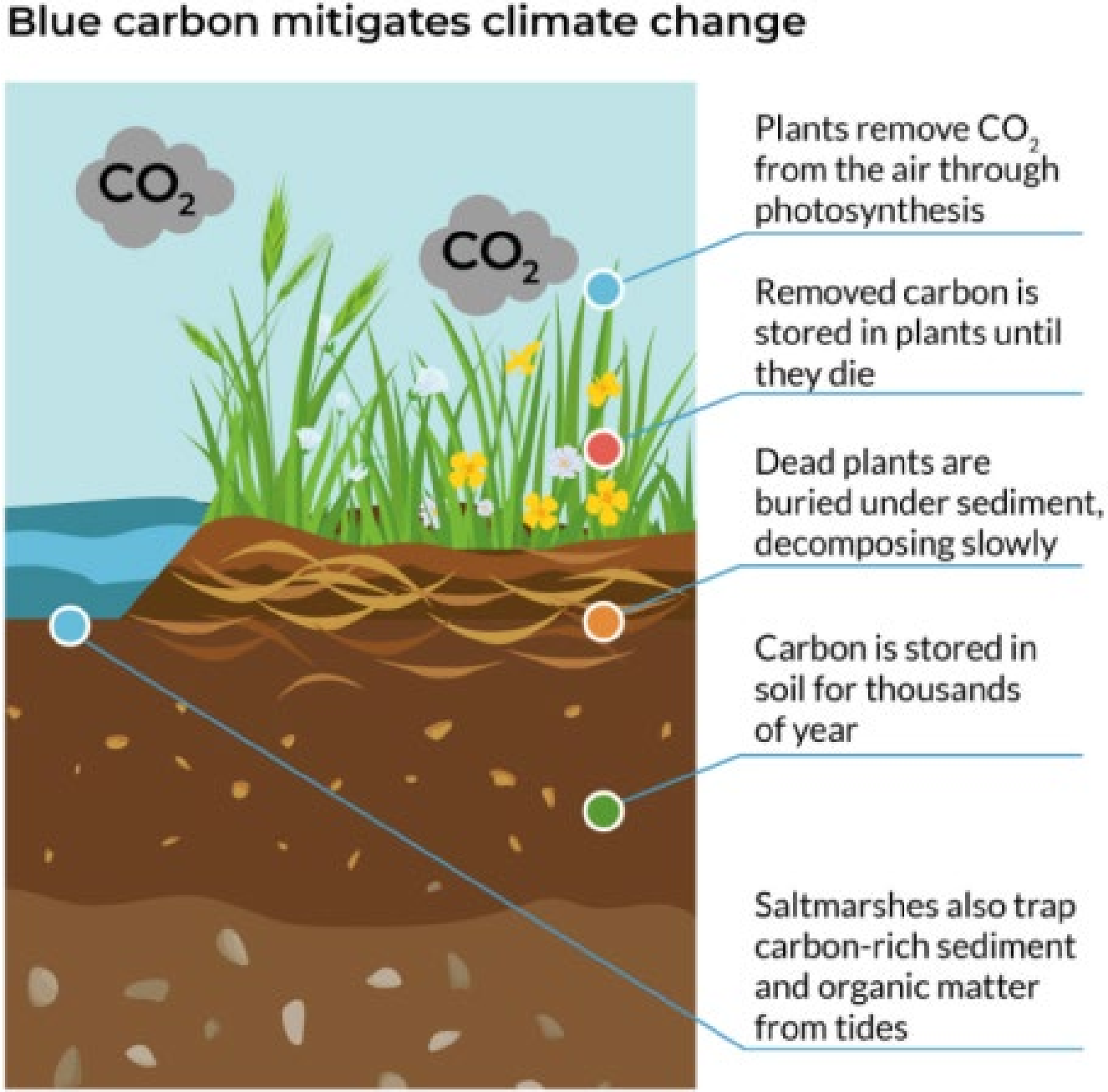
Second Funding Round

Project Type	Funding Available	Project Scope Duration	Funding Minimum Per Project	Funding Cap Per Project
Blue Carbon Projects	$15,000,000	3-5 Years	$250,000	$5,000,000
Green Carbon Projects	$15,000,000	3-5 years	$250,000	$5,000,000
Total Available Funding	**$30,000,000**			

The Department reserves the right to transfer funding between blue and green carbon project carve-outs after January 31, 2026.

What Makes a Good Blue Carbon Project?

HOW DO SALT MARSHES SEQUESTER CARBON?

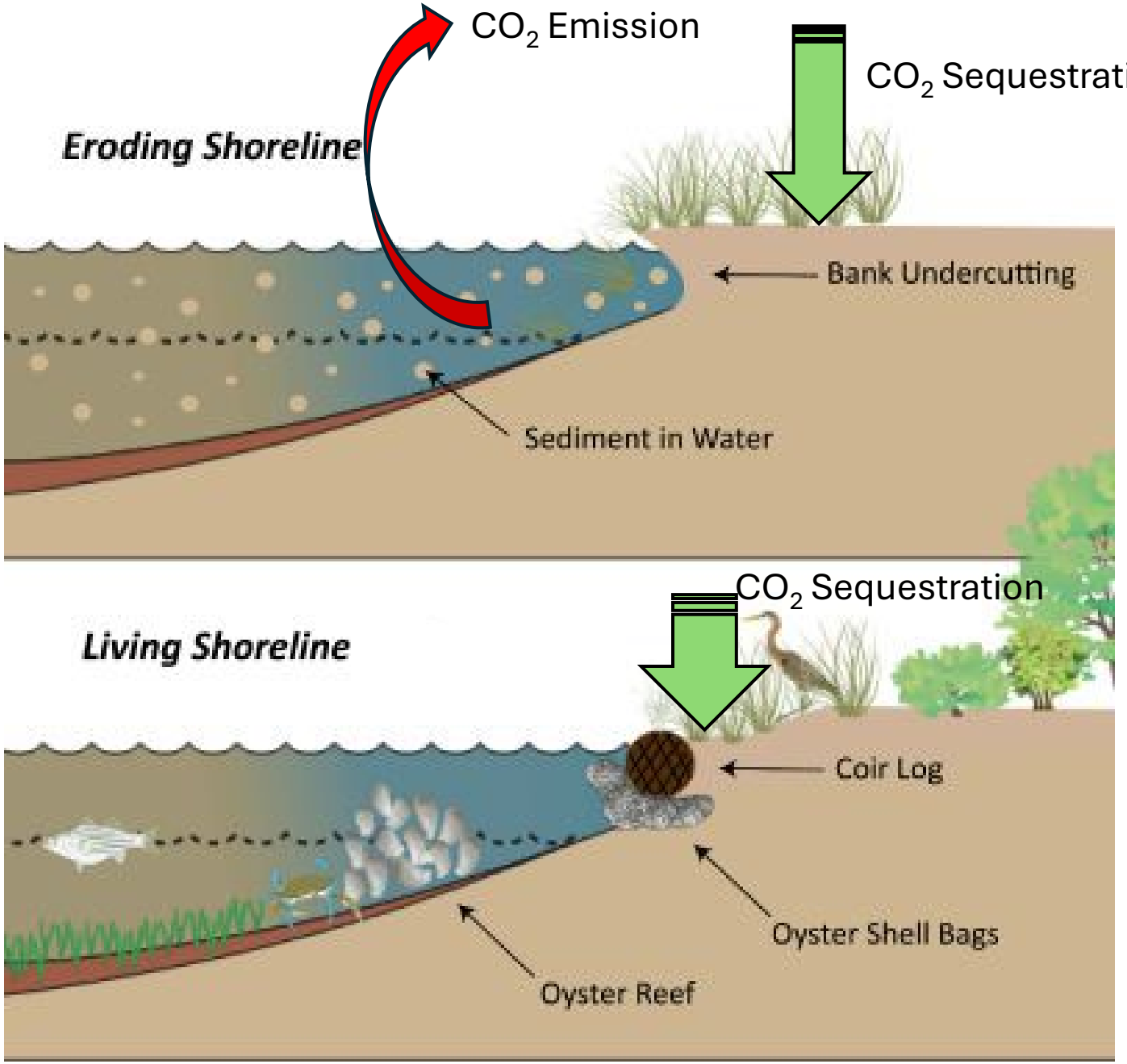


https://www.ceh.ac.uk/our-science/projects/uk-saltmarsh-code/saltmarsh-blue-carbon

HOW DO *BLUE CARBON* EFFORTS REDUCE EMISSION OF GHG?

LIVING SHORELINES

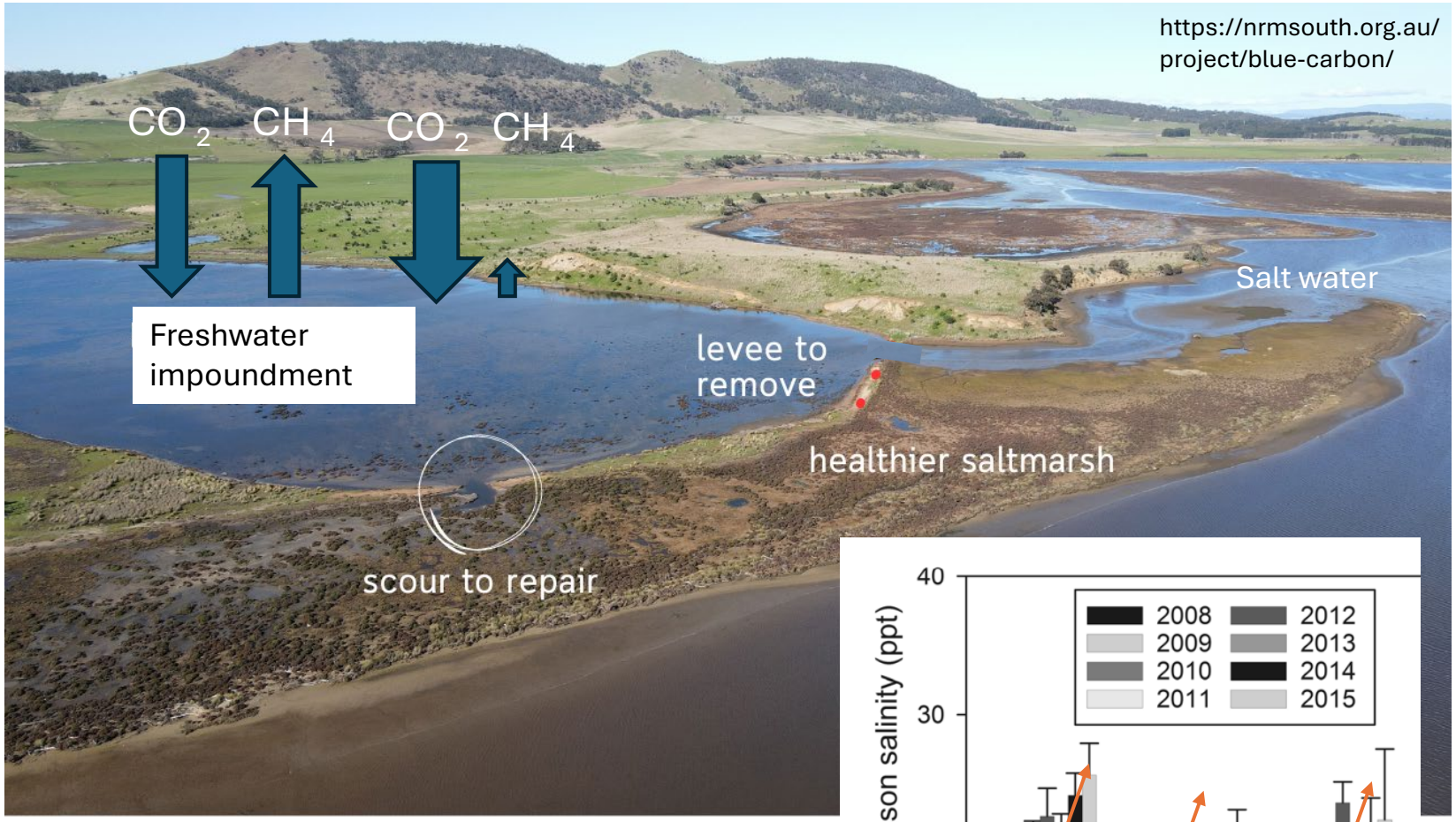
- Prevent reemission of stored soil carbon
- Prevent loss of marsh vegetation that sequester carbon
- Any salinity
- Any materials

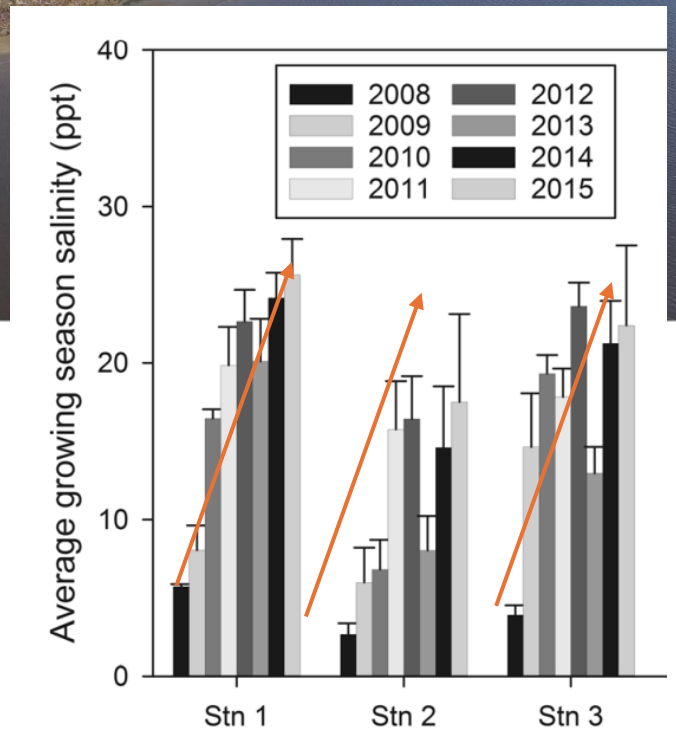


HOW DO *BLUE CARBON* EFFORTS REDUCE EMISSION OF GHG?

RESTORING TIDAL FLOWS IN TIDAL WETLANDS TO INCREASE SALINTY

- Reduces methane emissions
- Must significantly increase salinty
- Methane is 28x the GHG as CO_2





Karberg et al. 2018

HOW DO *BLUE CARBON* EFFORTS INCREASE CARBON SEQUESTRATION?

SALT MARSH REVEGETATION

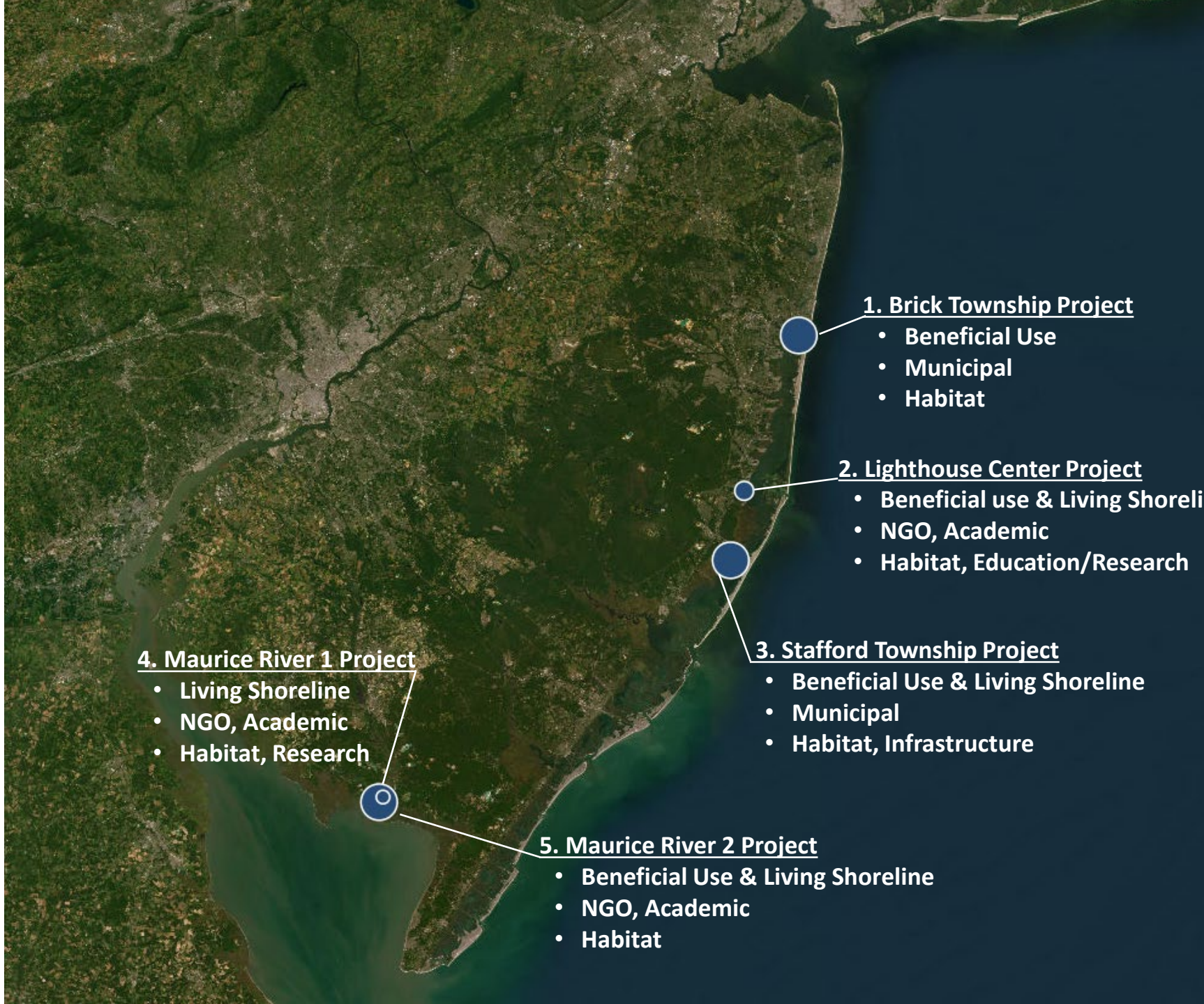
- Increase area of saltmarsh vegetation that is trapping and sequestering carbon
- Must be in brackish or saltwater area
- Several tactic options and can be combined

Photo: NOAA Slough's Gut Marsh: restoring a more natural network of tidal channels, replacing the old mosquito ditches

Photo: Partnership for the Delaware Estuary Living shoreline revegetated eroded marsh

Blue Carbon Project Highlights

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION



Restoring Marsh at the Mouth of the Maurice River

The American Littoral Society is collaborating with Stockton's University Coastal Research Center, ACT Engineering, and Wildlife Restoration Partnerships to restore the mouth of the Maurice River, located in the Delaware Bay. Previous farming practices have damaged over half of the Delaware River's marsh, leaving coastal ecosystems and communities vulnerable to ongoing erosion, storms, and sea level rise. This project aims to restore 19.5 acres of tidal salt marsh and potentially an additional 40 acres of marsh habitat by creating 18 hybrid breakwater structures across Northwest Reach and the eastern edge to prevent further erosion.

Funding Amount $4,999,946

Living Shorelines Salt Marsh Carbon Sequestration at Matt's Landing

The Partnership for the Delaware Estuary is collaborating with Rutgers University Haskins Shellfish Research Laboratory, Ducks Unlimited, Stevens Institute of Technology, the U.S. Fish and Wildlife Service, and NJDEP Fish and Wildlife to restore an eroding marsh in the Maurice River at Matts Landing. This project will capture and protect stored carbon by constructing a living shoreline. Objectives include implementing cusps and breakwaters that reduce wave action and utilizing reef-life structures, which will protect existing carbon as well as enhance vegetation growth that sequesters carbon.

Funding Amount $766,442

Stafford Township Popular Point Restoration Project

Stafford Township, in collaboration with the New Jersey Department of Transportation and the U.S. Fish and Wildlife Service, will enhance more than 33 acres of tidal salt marsh wetland as part of a living shoreline project. Using around 150,000 cubic yards of dredge material, the project aims to restabilize the shoreline to reduce wave impact and protect against erosion. This restoration will increase carbon sequestration as well as enhance coastal ecosystems, wildlife, and habitats.

Funding Amount $4,998,109

Restoring Salt Marsh Habitats at Lighthouse Center

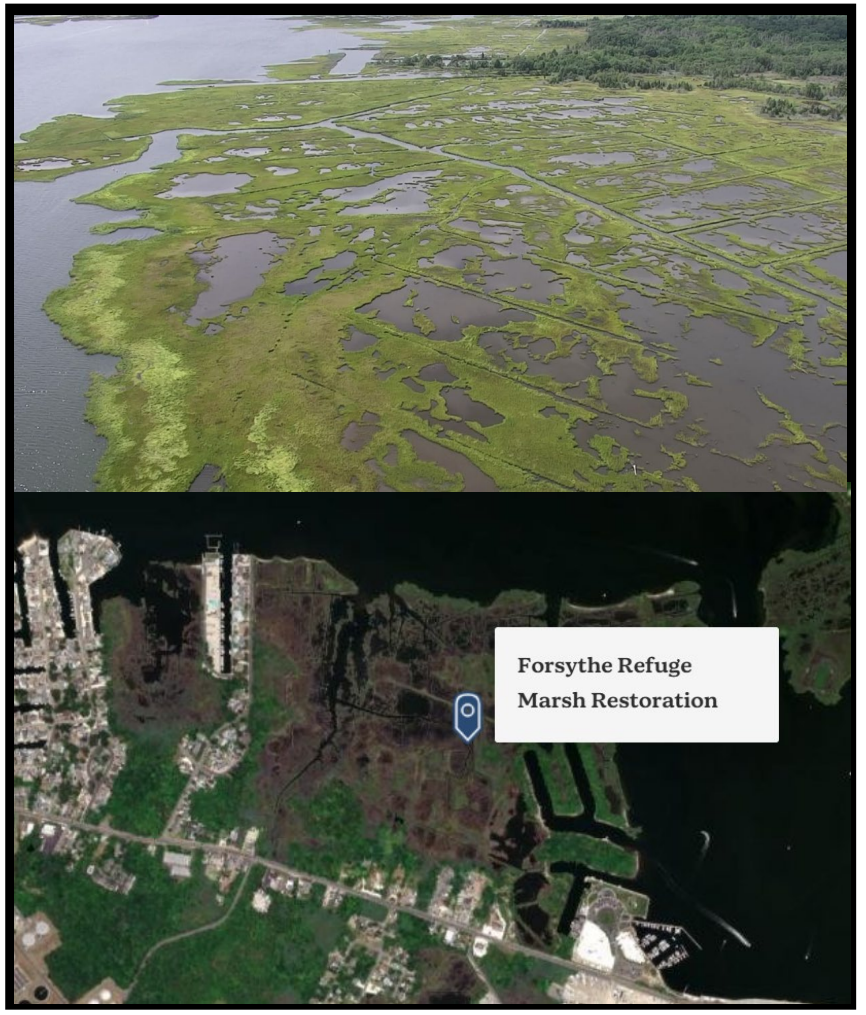
The Lighthouse Center in Waretown is owned by the DEP's Division of Fish and Wildlife as part of the Upper Barnegat Wildlife Management Area, and the area has experienced significant marsh loss due to erosion, sea level rise, and increased storm events. With restoration designs and strategies developed based on data collection and assessment, the project aims to rebuild 7.58 acres of salt marsh and increase carbon sequestration through erosion control, improved hydrology, and increased elevation levels to sustain a healthy marsh.

Funding Amount $928,056

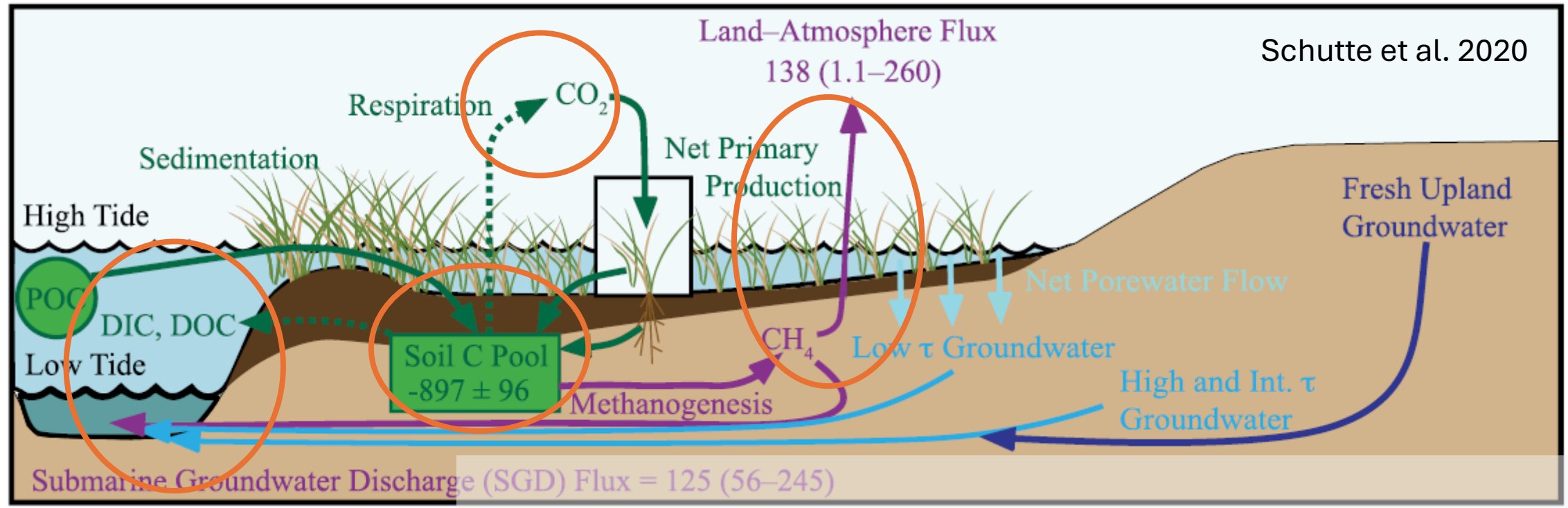
Forsythe Refuse Marsh Restoration

The objective of this project is to advance coastal wetland restoration of the U.S. Fish and Wildlife Service's Edwin B. Forsythe National Wildlife Refuge in Brick Township. The project will place more than 120,000 cubic yards of suitable dredged sediment into a series of 13 cells to increase tidal salt marsh elevation, protecting the marsh from drowning. The total area of sediment placement is approximately 95 acres of marsh. Added protective measures will be used to contain placed sediment and strengthen shorelines. The elevated marsh will be planted in areas that did not previously contain vegetation to ensure recolonization of vegetation occurs to ultimately restore the health of the marsh.

Funding Amount $4,997,124



ADDITIONAL EFFORTS AT NJDEP TO QUANTIFY BLUE CARBON BENEFITS OF RESTORATION PROJECTS

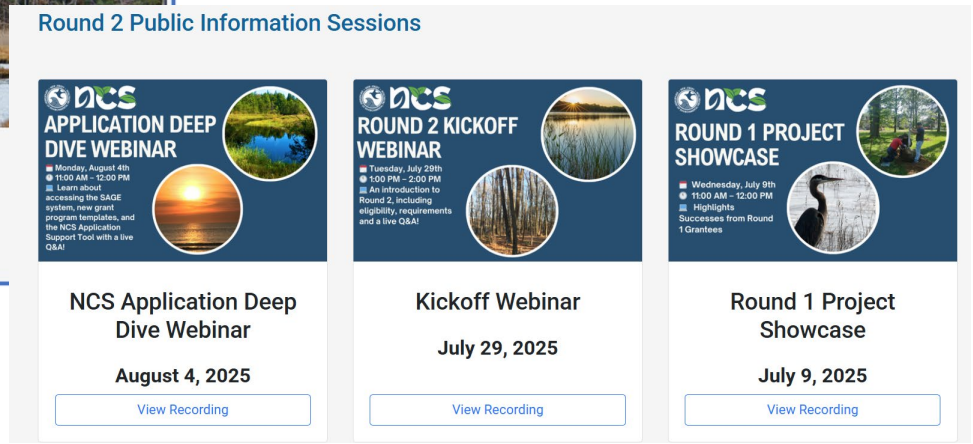


Yikes!!

It is complicated!

New project starting this year to measure fluxes of GHGs in NCS projects and in mature projects.

Additional Resources



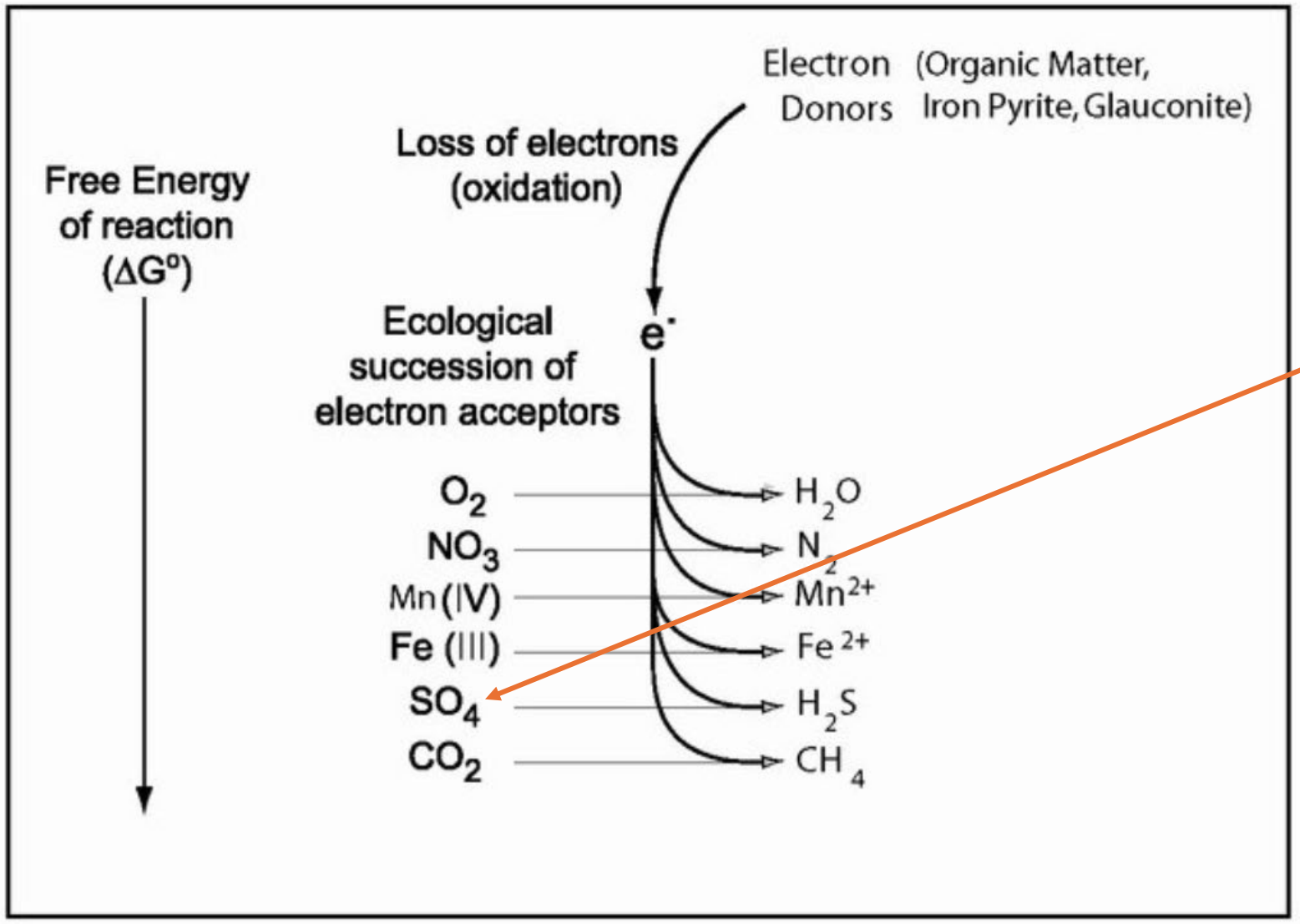
NJDEP Climate Website

NCS Program Website

CERAP Carbon Map

DSR Website

Why is methane production higher in freshwater wetlands?



- Low sulfate concentration in freshwater and high in ocean water
- Enough sulfate in salt water that bacteria does not need to use Carbon dioxide as an electron acceptor. CO_2 is less efficient than SO_4
- Low SO_4 freshwater means that methanogens (methane-producing microbes) out compete Sulfate-reducing bacteria

Rissmann et al. 2011