

Build It But Will They Come? Assessing the Benefits of Nearshore Restoration for Ecosystem Approaches to Fishery and Habitat Management

Bruce Vogt, NOAA, Moderator

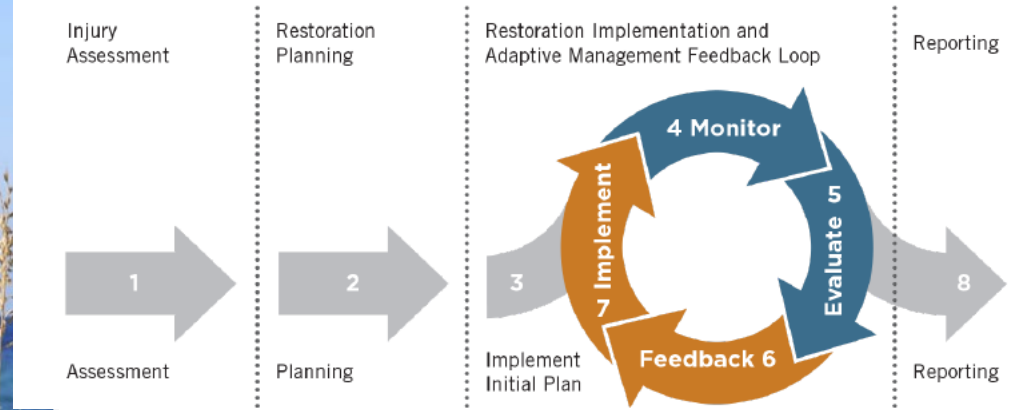
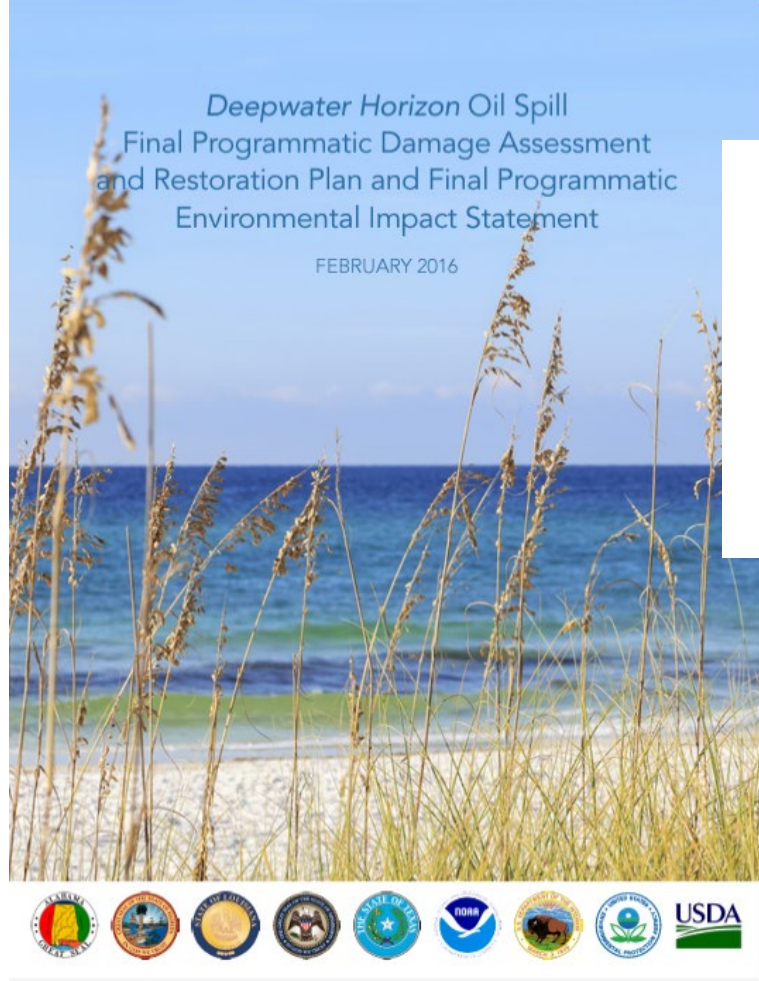
Ian Zink, NOAA, Panelist

Jessica Coakley, MAFMC, Panelist

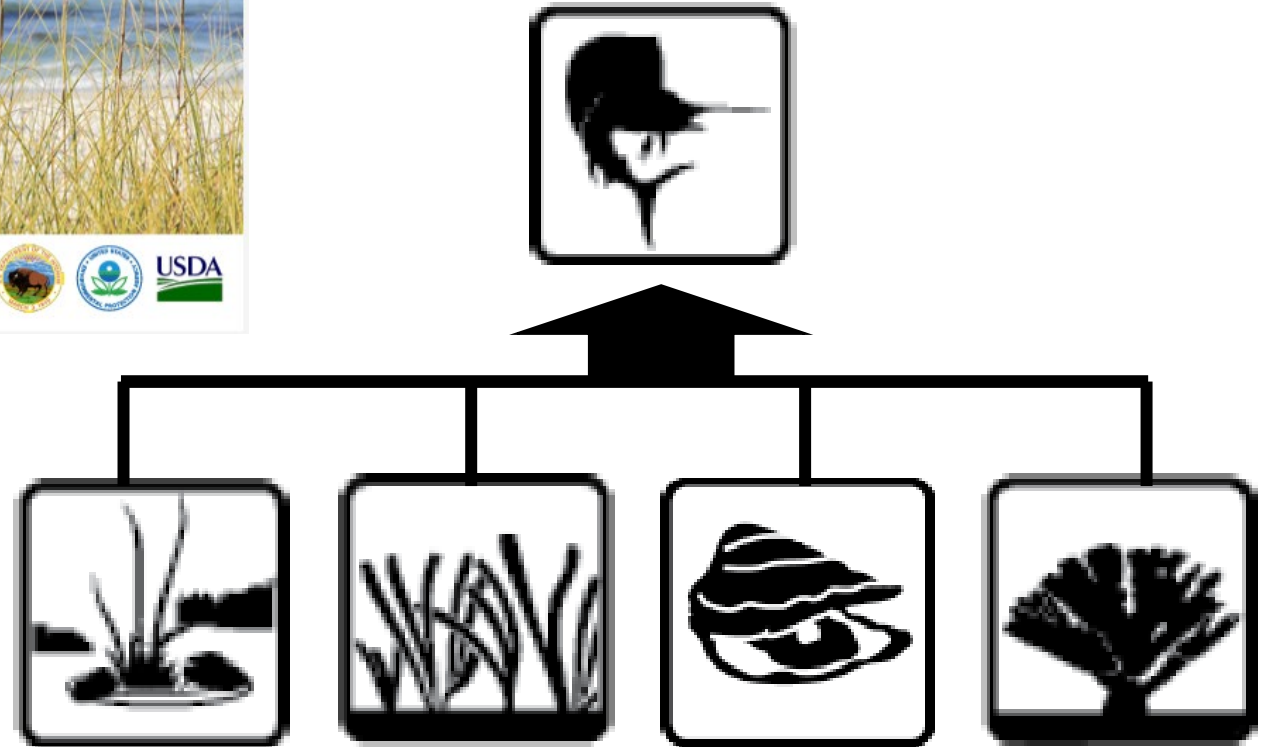
Lydia Olander, Duke University, Panelist

NCER, April 16, 2024





Ian Zink
NOAA
Restoration
Center -
DWH Program



Monitoring the Effects of Coastal Wetland Restoration on Fish and Invertebrates

Project ID: 299 | Project Status: In Progress



Description:

This project consists of two major components that will 1) analyze existing fisheries independent monitoring data and 2) develop and implement a field sampling plan to conduct three years of new fish and invertebrate monitoring to determine the abundance, community composition, diversity, and density of fishes and invertebrates using natural and restored marshes of various ages in Barataria and Terrebonne Bays, Louisiana. Analyses from these two components will be used to develop Reference Ranges and Restoration Targets for target fish and invertebrates as well as their communities in

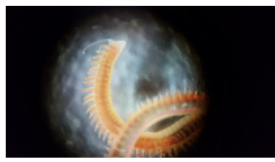
This Monitoring and Adaptive Management project will perform data aggregation and data analysis, make data available for reporting, and perform monitoring to

Recent Update:

In 2023, the project began developing independent data is ongoing.

LA TIG-Lower Trophic Level Inventory

Project ID: 269 | Project Status: In Progress



Description:

The project will improve understanding of the food web foundation through inventory and assessment of the lower trophic levels of the Barataria estuary.

Lower trophic level (LTL) organisms include phytoplankton and animals such as zooplankton, worms, and small clams. They form the base of the estuarine food web and are an especially important food source for juvenile fishes that live in the estuary. Additionally, they help to break down detritus, oxygenate sediments, and maintain healthy levels of nutrients in sediments. Organisms that live in the sediment also serve as excellent biological indicators of environmental

conditions, including ecological recovery and ongoing impacts of buried Deepwater Horizon oil. This project is divided into two phases. The first phase developed a plan to conduct an inventory and assessment of lower trophic levels in Barataria Bay and the second phase is implementing that plan.

Recent Update:

In 2023, an implementation plan was submitted to LA TIG and approved for funding. Preparation for fieldwork is in-progress.

Large Scale Barataria Marsh Creation – Upper Barataria Component

Project ID: 124 | Project Status: In Progress

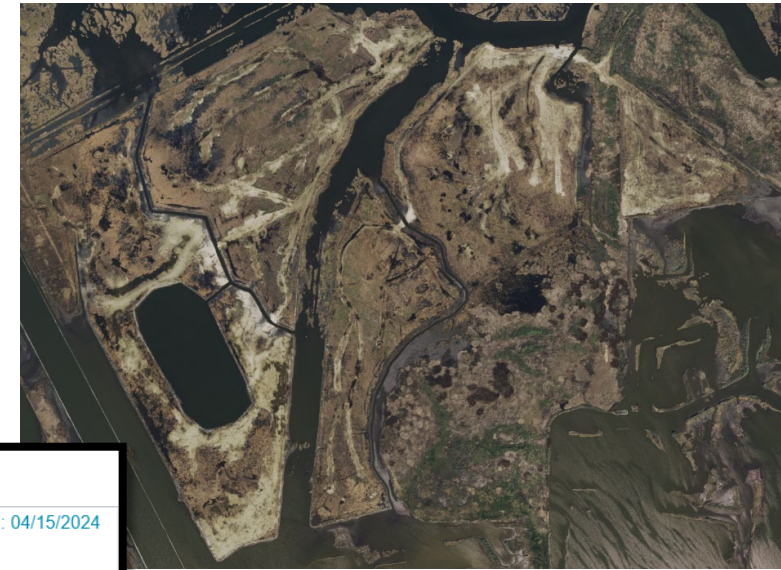


Description:

The project constructed up to 1,190 acres of wetland habitat in the Barataria Basin in Louisiana in an area of open water and highly degraded marsh. Material was dredged from the Mississippi River and pumped via a long-distance sediment pipeline over 13 miles to build a new wetland platform.

Recent Update:

In 2023, construction of the project was completed and a final inspection of the project was held.



Deep-Sea Benefits - Outcomes of Mesophotic and Deep Benthic Community Restoration

Project ID: 350 | Project Status: In Progress



Description:

This project will collect and analyze data to directly assess benefits to Fish and Water Column Mammals, and Sea Turtles associated with Mesophotic and Deep Benthic Community restor. Ocean restoration area. This project will collect three years of new data to quantify connectio Mammal, Sea Turtle, Fish and Water Column Invertebrate and Mesophotic and Deep Benthic monitoring species distributions, abundances, habitat use, community composition, and tropl locations in the Gulf of Mexico. Data collection will consist of Multiple Opening and Closing N System (MOCNESS) tows and CTD deployments, which will provide samples for the charact communities, gut contents, stable isotope composition, and eDNA of target species in the wa will also be a combination of ship-based active acoustic, as well as deployed passive and ac record marine mammal and nekton community activity. This monitoring will inform project pla benefits to multiple resources from ongoing and

Recent Update:

In November 2023, the MAM activity funding resolution was approved.

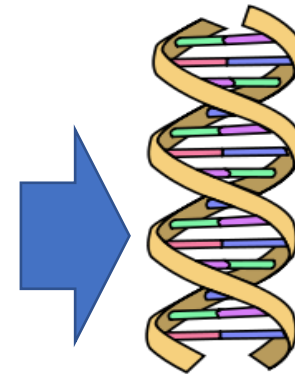
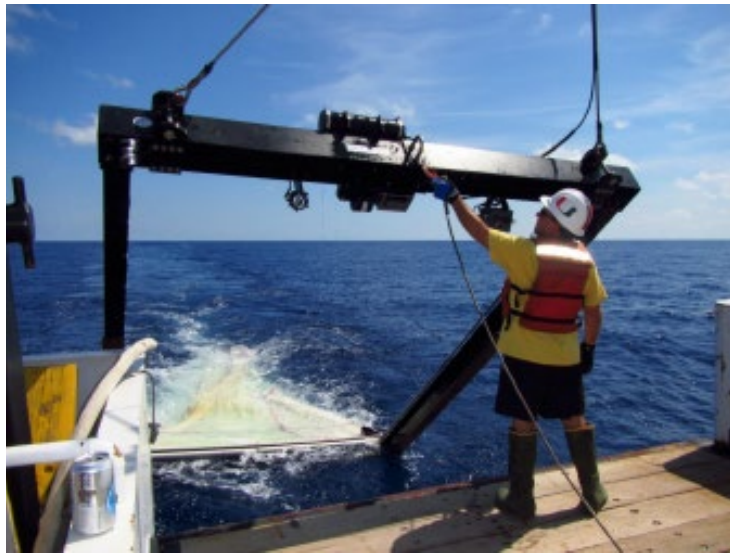
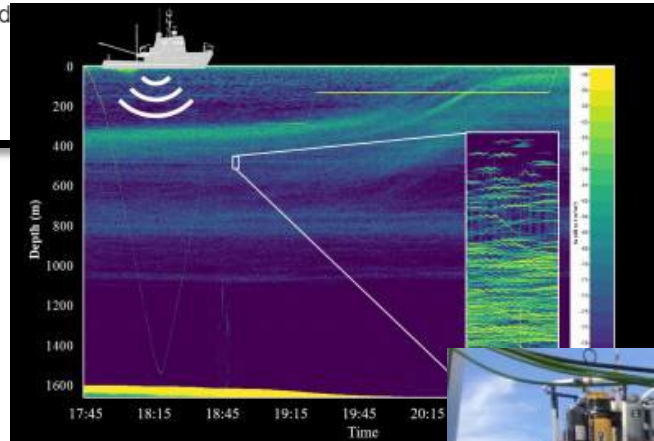
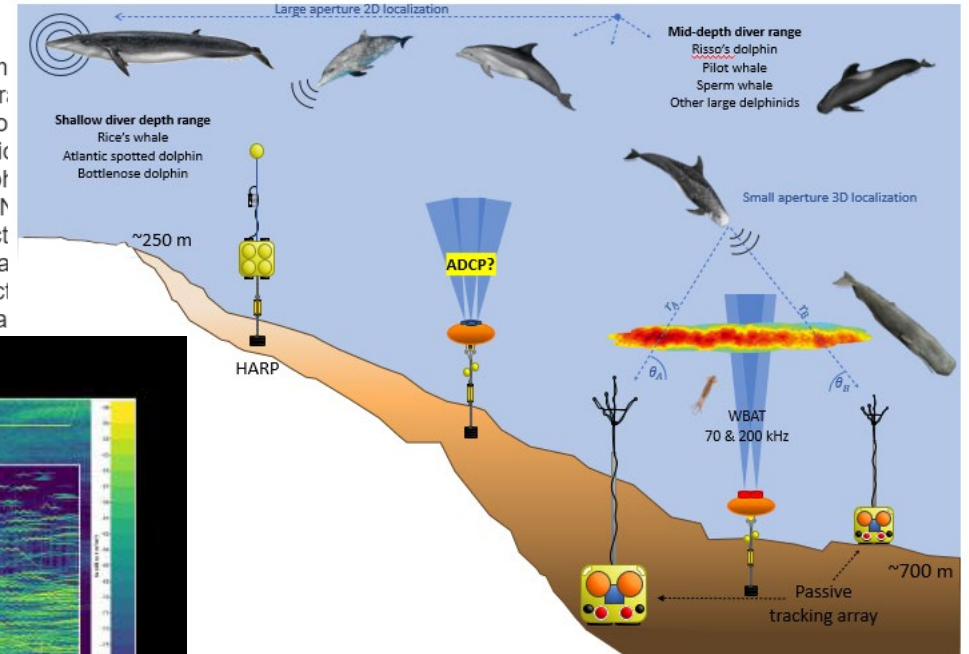


Image Source: americanoceans.org



Image Source: NOAA Fisheries



Image Source: NOAA Fisheries



Jessica Coakley



U.S. Fisheries Management



- **Inland Waters**
 - Department of the Interior (US F&WS)
- **Inland & State Waters (to 3 mi)**
 - State Natural Resource Agencies
 - Fishery Commissions
- **Marine Federal Waters (> 3mi-200 mi)**
 - Department of Commerce (NOAA Fisheries/8 Councils)



Mid-Atlantic Council

7 States



64+ Species

7 Fishery Management Plans



Longfin Squid



Shortfin "Illex" Squid



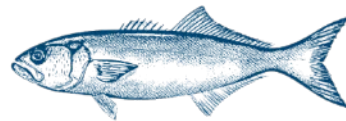
Butterfish



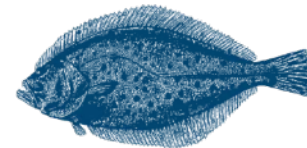
Atlantic Mackerel



Chub Mackerel



Bluefish



Summer Flounder



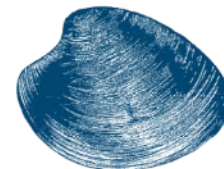
Black Sea Bass



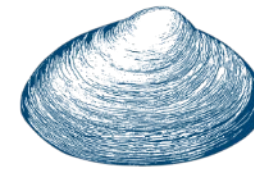
Scup



Golden Tilefish



Ocean Quahog



Atlantic Surfclam



Blueline Tilefish



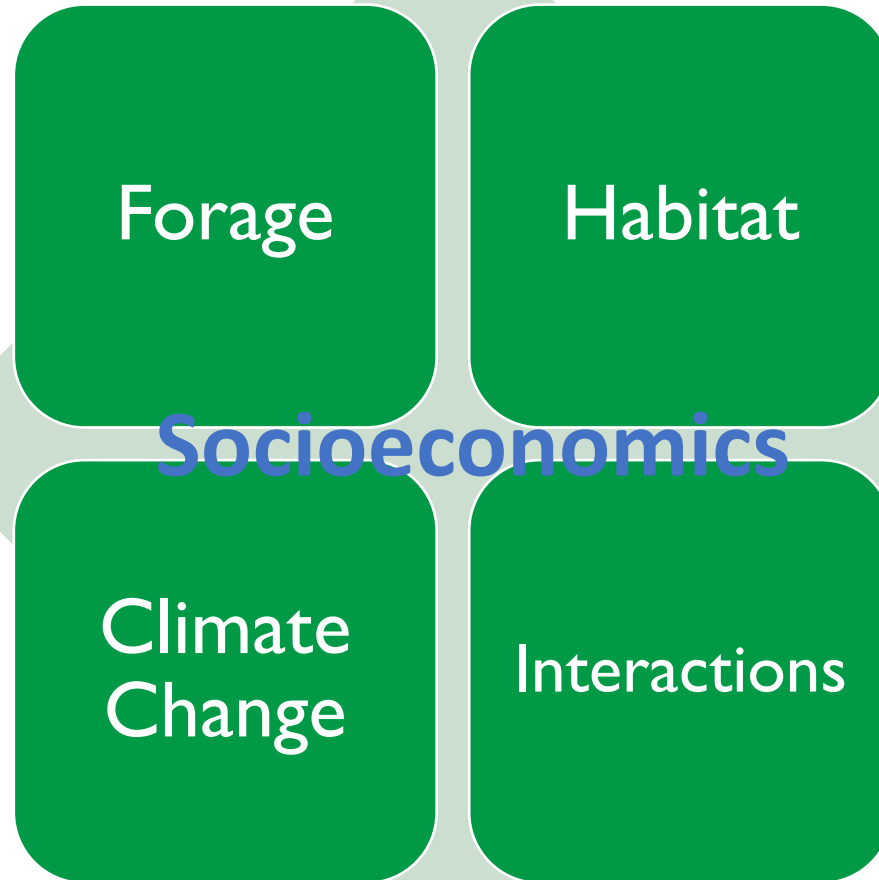
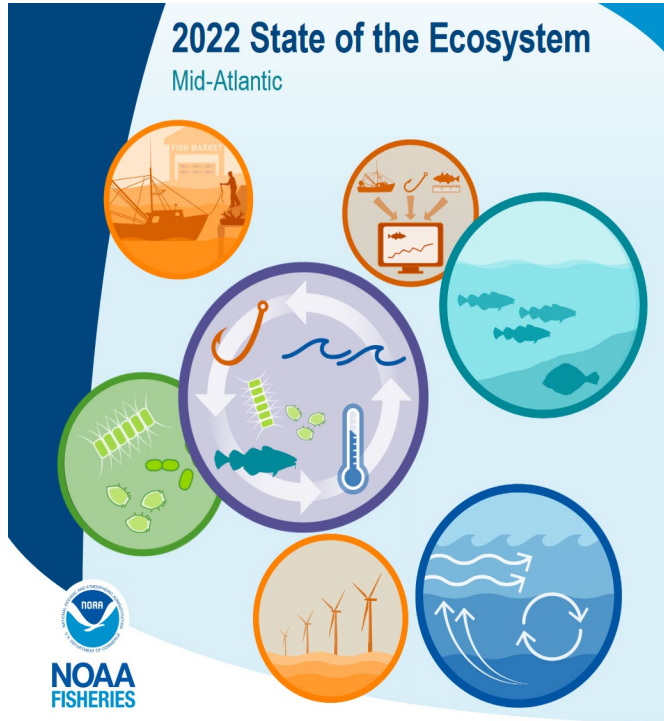
Spiny Dogfish



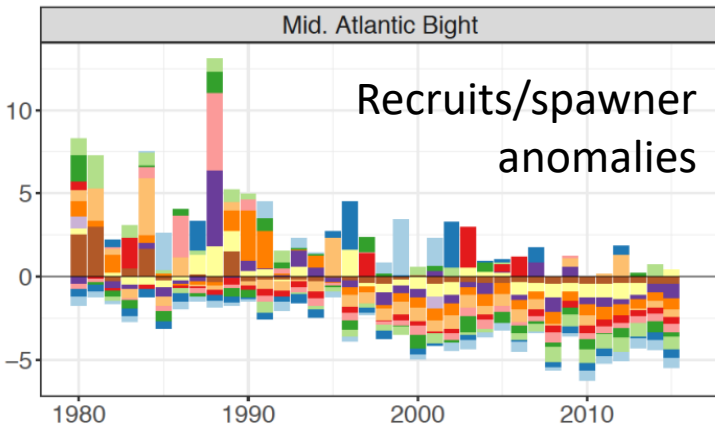
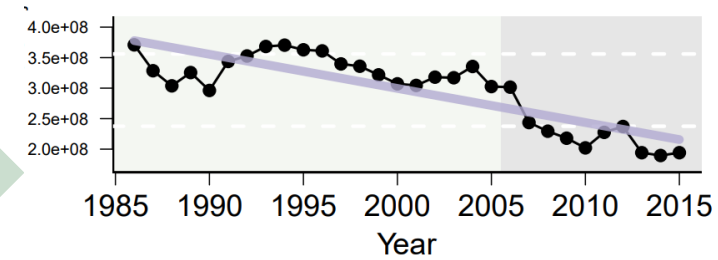
Monkfish

+ 50 species as Ecosystem
Component Species
(Unmanaged Forage)

Ecosystem Approach to Fisheries



Aggregate Fish Species Revenues



Lydia Olander, PhD



- Nature-based solutions
- Ecosystem Services
- Climate Resilience/Adaptation

Duke  NICHOLAS INSTITUTE
for ENERGY, ENVIRONMENT
& SUSTAINABILITY

Fueling ambitions. Powering networks. Accelerating solutions.

What Are Nature-Based Solutions (NBS)?

*Nature-based solutions are actions to protect, sustainably manage, or restore natural or modified ecosystems to address societal challenges, simultaneously providing **benefits for people and the environment.****

- *Provide a common vision & term*
- *Elevate NBS as go to tool for climate, nature & equity*
- *Decades of experience – Ready to scale*
- *Strategic path for acceleration*
- *With special attention for areas with federal investment – infrastructure & climate*

* Definition from White House Report 2022.

THE WHITE HOUSE

**OPPORTUNITIES TO
ACCELERATE NATURE-
BASED SOLUTIONS:
A ROADMAP FOR CLIMATE
PROGRESS, THRIVING
NATURE, EQUITY, &
PROSPERITY**

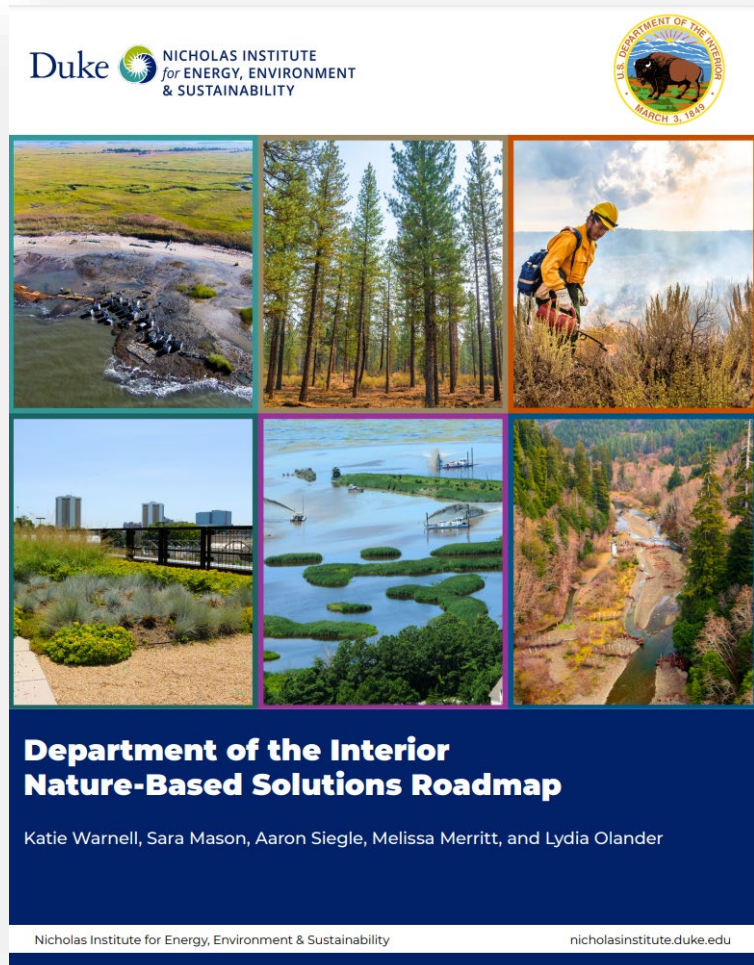
A REPORT TO THE
NATIONAL CLIMATE TASK FORCE
NOVEMBER 2022

Block with evergreen

Shade A/C Unit

Locate tree or east of

Department of Interior Nature-based Solutions Roadmap



Habitat category	# of strategies included	Example strategy
Coastal	9	Living shorelines
Riverine	5	Floodplain reconnection
Forests	3	Thinning
Human habitats and gray/green infrastructure	4	Urban stormwater & runoff management
Inland wetlands	2	Peatland restoration
Grasslands/sagebrush	2	Sagebrush restoration
Multiple habitats	4	Prescribed burn

- Definition of the strategy
- Technical approach – general methodology, site suitability, operations & maintenance
- Tools, training, and resources
- Likely benefits
- Strategy-specific barriers and solutions for practitioners
- Example projects
- Fact Sheets

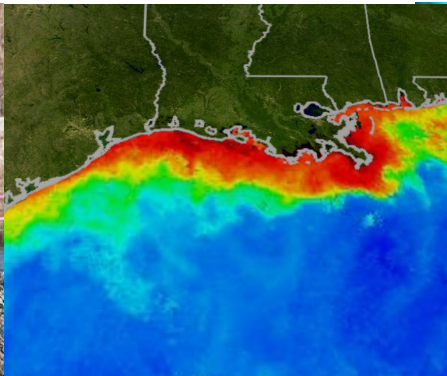
Measuring social and economic impact of coastal restoration in the Gulf of Mexico

Billions of dollars are being spent on restoration of Gulf ecosystems.

Developed **common metrics and measurement protocols** to guide assessment and reporting of restoration progress and effectiveness for the broad set of social and economic goals shared by the many institutions working in the Gulf.



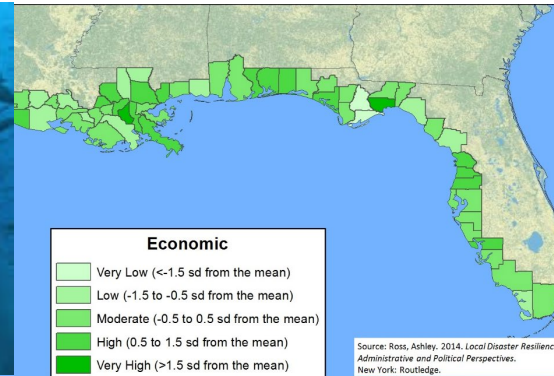
HABITAT RESTORATION



WATER QUALITY IMPROVEMENT



MARINE RESOURCE PROTECTION



COMMUNITY RESILIENCE



ECONOMIC REVITALIZATION

Equity



Protocols for measuring who is impacted by the outcomes of a project

Ask questions about ...

- Who has access to the site or resources?
- Who is participating in relevant activities (e.g., fishing, education, jobs)?
- Is this participation representative of the population of people who would like to?

Equity of access and distribution

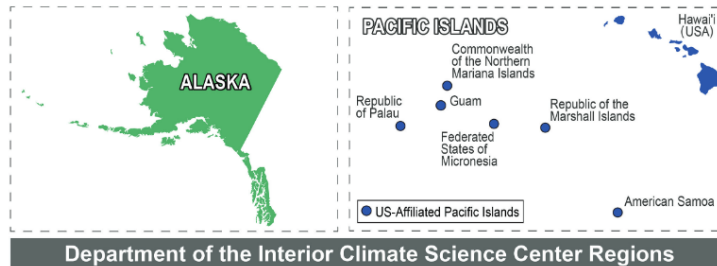
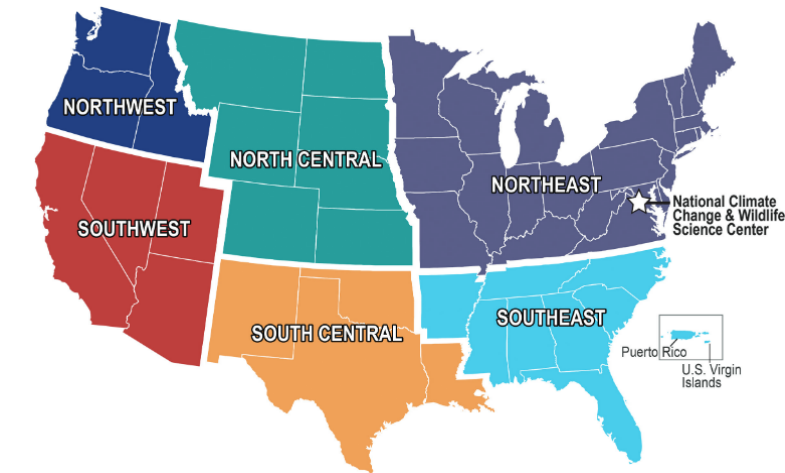
Use methods like...

- Stakeholder Assessment - who would like access, resources or participation
- Participatory mapping - where benefits are relative to communities, barriers, etc.
- Demographics of stakeholders - who are these people
- Surveys, workshops or focus groups - who has access, benefits, or is harmed; what are possible barriers or reasons

New Project: Metrics for evaluating the effectiveness of NBS

Information for:

- Project evaluation & reporting
- Storytelling, awareness building, and making the business case for return on investment
- Parameterizing models for...
- Design and engineering standards
- Measuring and valuing the climate resilience dividend NBS can provide by reducing risks (e.g., lowering insurance costs)



Two types of information:

- Risk reduction
- Species/habitat benefits

Nature-based solutions being discussed for initial inclusion:

- Coastal wetlands
- Oyster reefs
- Bank stabilization
- Enhanced floodplain water storage

