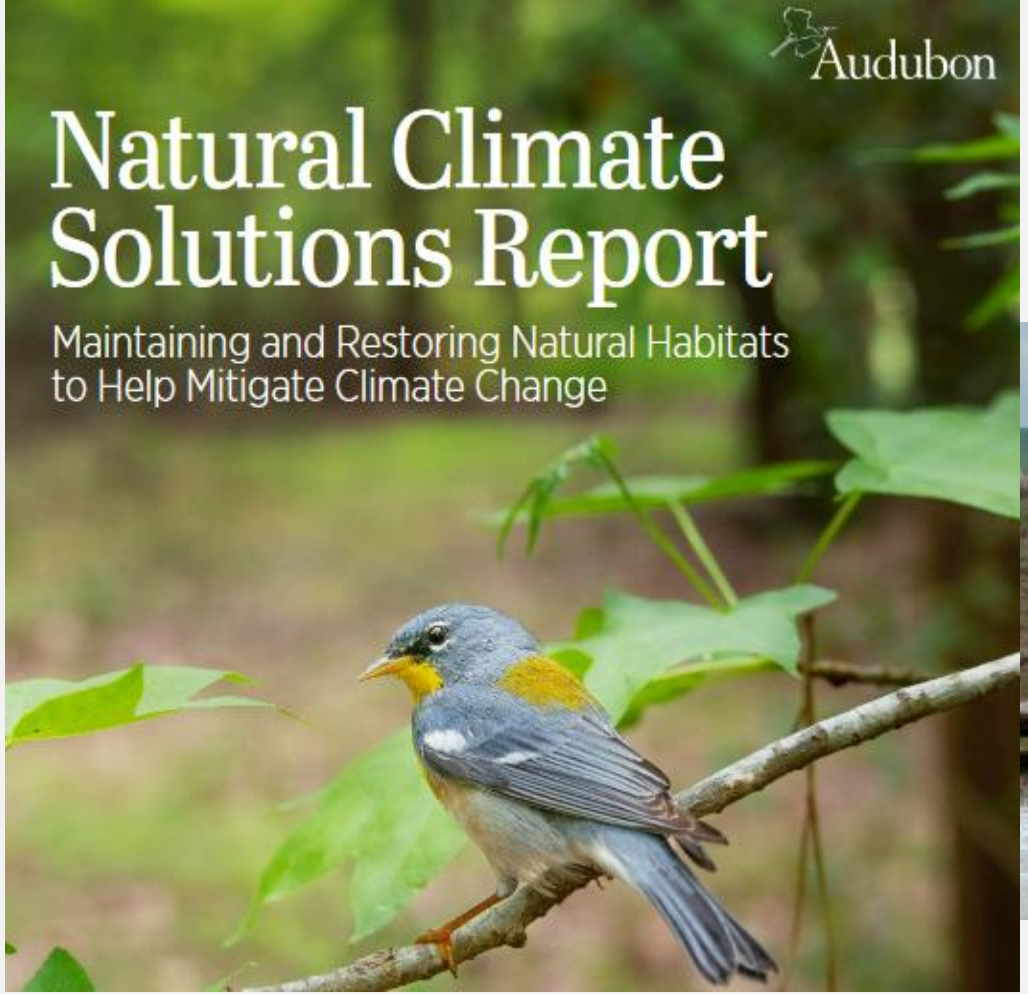

[Natural Climate Solutions Report]

Marshes are 1st Line of Defense for *Flood & Erosion Control*

R. LaFrance, National Audubon Society (CT)

COASTAL WETLAND NATURAL CLIMATE SOLUTIONS
DR. BROOKE BATEMAN, AUDUBON'S DIRECTOR OF CLIMATE SCIENCE

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Natural Climate Solution	Description
Restore coastal wetlands	Plant native plants, restore natural hydrology (e.g., via water control structures or improved drainage), and improve nutrient management practices; facilitate adaptation potential of salt marshes for sea level rise through raising marsh profile or providing passage for marsh migration, restoration of seagrass beds
Avoided coastal wetland conversion	Establish new protected areas, expand the Coastal Barrier Resource System, improve land tenure, and enforce land-use laws
Reduce anthropogenic nutrient inputs	Improve agricultural practices and treatment of municipal wastewater, improve habitat upstream through re-vegetation to reduce sediment inputs, and better control runoff from storm sewers
Living shorelines	Use plants or other natural elements for stabilization to reduce soil erosion, reduce flooding, and improve coastal resilience

http://naturalclimatesolutions.org

COASTAL WETLAND NATURAL CLIMATE SOLUTIONS

- Coastal wetlands store the most carbon per acre, and can drawdown 2.5 times more carbon per year with restoration efforts
- Get BOTH Mitigation and Adaptation Benefits
- Restoration of coastal wetlands will build resilience against Sea Level Rise for birds like Saltmarsh Sparrow

CT POLICY SOLUTIONS

- GC3 – Finance Report / Gov.'s EOs
- ACC CLIMATE CHANGE ADAPTATION (2021)
- State-dedicated funds to leverage federal funds
- New Federal Funding Opportunities

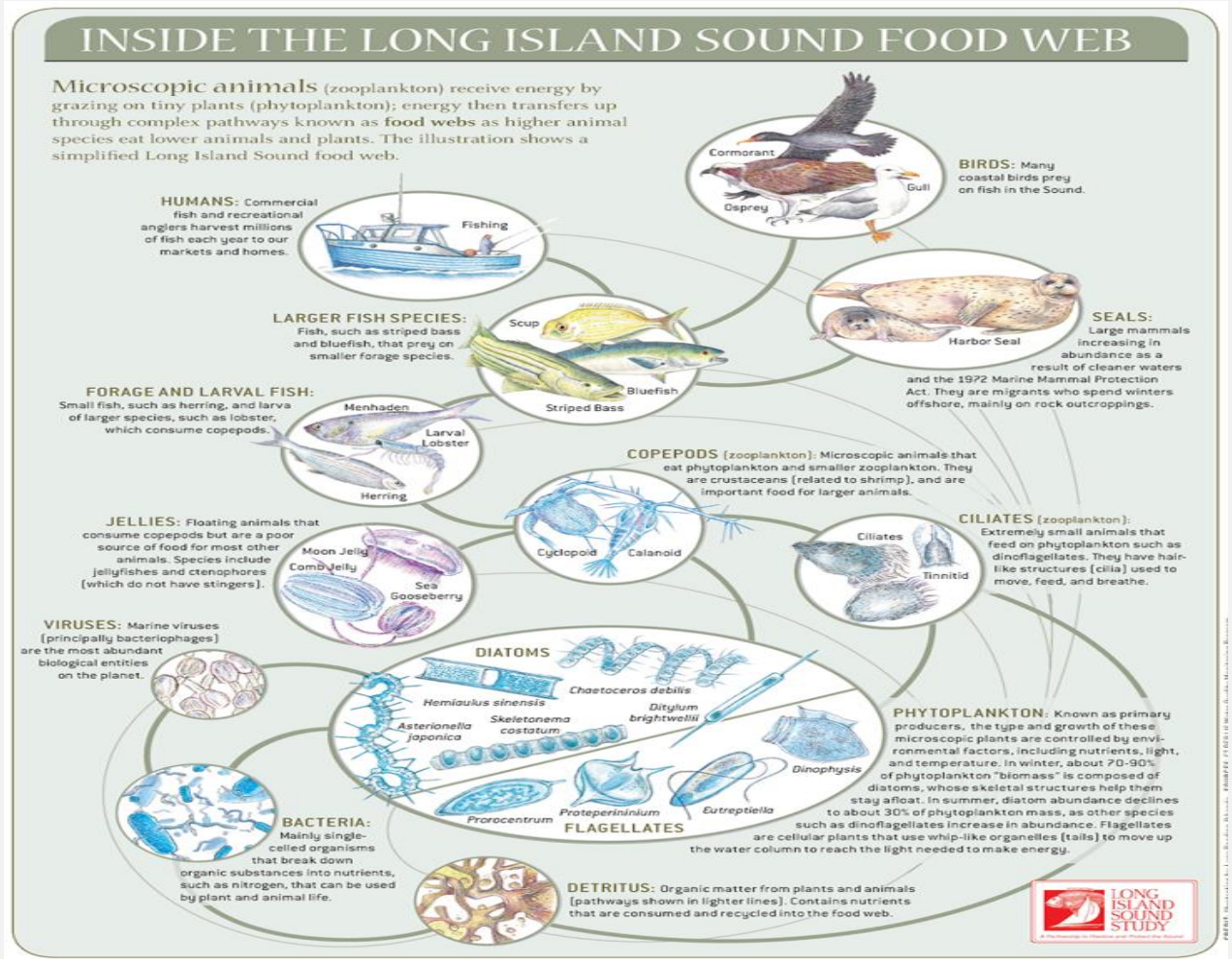
$4M Marsh Restoration Project Launches in Stratford

Progress made on freshwater ponds at Great Meadows Marsh

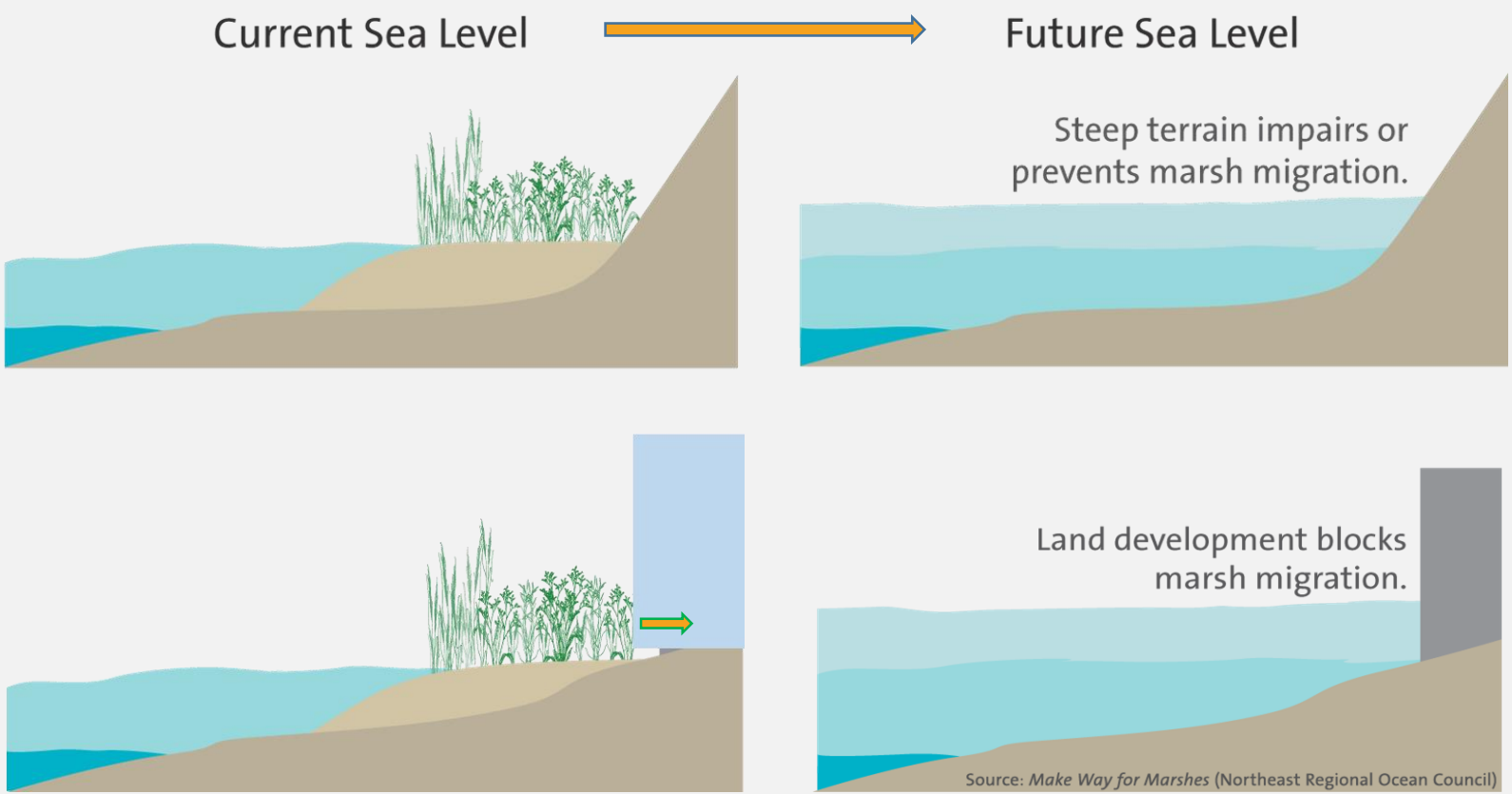
Corrie Folsom-O'Keefe, Director of Bird Conservation

Audubon is "in the game" in Stratford

Why Care About Marshes?



BARRIERS TO MARSH MIGRATION → MARSH LOSS



What Does Marsh Change Look Like?

High Marsh

Low Marsh

No Marsh

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CT'S FUTURE SALTMARSHES UNABLE TO KEEP PACE WITH SEA LEVEL RISE (NEAR AUDUBON'S SALT MEADOWS SANCTUARY IN GUILFORD)

PARTNER - MENUNKATUCK AUDUBON SOCIETY

CHALLENGE

East River Marsh is threatened by sea-level rise.

SOLUTION

Preserving upland areas will enable the marsh to migrate and naturally adapt.

BENEFITS

Every acre of new marsh adds at least $13,951 in ecosystem benefits to the region, annually.

Photos: Carl Harvey/Menunkatuck Audubon Society

Table 1. Annual, per acre benefits from the East River Marsh.[6]

BENEFIT	LOW MARSH	HIGH MARSH
RESILIENCE		
FLOOD PROTECTION	$506	$506
STORM PROTECTION	$5,872	$14,680
ENVIRONMENT		
CARBON SEQUESTRATION	$2,203	$4,047
EXISTENCE VALUE[7]		$1,748
HABITAT VALUE	$1,232	$1,232
WATER QUALITY	$2,803	$2,803
COMMUNITY		
AESTHETIC VALUE	$952	$952
RECREATION	$382	$382
ANNUAL TOTAL	$13,951	$26,350

Earth Economics Report

Audubon

DEEP CLIMATE RESILIENCE FUND

HTTPS://PORTAL.CT.GOV/CONNECTICUTCLIMATEACTION/EXECUTIVE-ORDER/DEEP-CLIMATE-RESILIENCE-FUND

DEEP CLIMATE RESILIENCE FUND

- Track 1: Planning
- Applicants can seek up to $250,000 to fund climate resilience planning that addresses the impacts of climate-related hazards, including how climate change increases weather-related risks.

- **Eligible Applicants include:** Municipalities, Councils of Government, Non-Profit Organizations, Academic Institutions, and private sector entities.

DEEP CLIMATE RESILIENCE FUND

- **Track 2: Project Development**
- Applicants can seek funds to advance resilience project scoping and development that leads to federal funding for implementation. While there is no cap on the amount of funding that can be requested, DEEP expects to fund most project development grant application requests in a range of $300,000 to $700,000.

- **Eligible Applicants include** Municipalities, Councils of Government, Non-Profit Organizations, Academic Institutions, and private sector entities.

- The early decision deadline for Track 2 applications is Friday, October 21. Final deadline for all Track 2 applications is 11:59 pm, Thursday, December 1.

CLIMATE RESILIENCE PROJECT PIPELINE

- A primary outcome of this program is to help Connecticut communities develop a climate resilience project pipeline that can win competitive federal grant funding to substantially fund those projects' implementation and construction.
- Federal resilience grant competitions for communities include, but are not limited to:
- Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) program
- FEMA Hazard Mitigation Grant Program (HMGP)
- FEMA Flood Mitigation Assistance Program (FMA)

CLIMATE RESILIENCE PROJECT PIPELINE (CONT.)

- National Fish and Wildlife Federation (NFWF) National Coastal Resilience Fund (NCRF)
- NFWF Long Island Sound Futures Fund (LISFF)
- National Oceanic and Atmospheric Administration (NOAA) Transformational Habitat Restoration and Coastal Resilience Grants
- NOAA Coastal Habitat Restoration and Resilience Grants for Underserved Communities
- Connecticut's Clean Water Fund - Reserve for Construction of Green Infrastructure and Reserve for Construction of Resiliency Projects

NATURAL INFRASTRUCTURE

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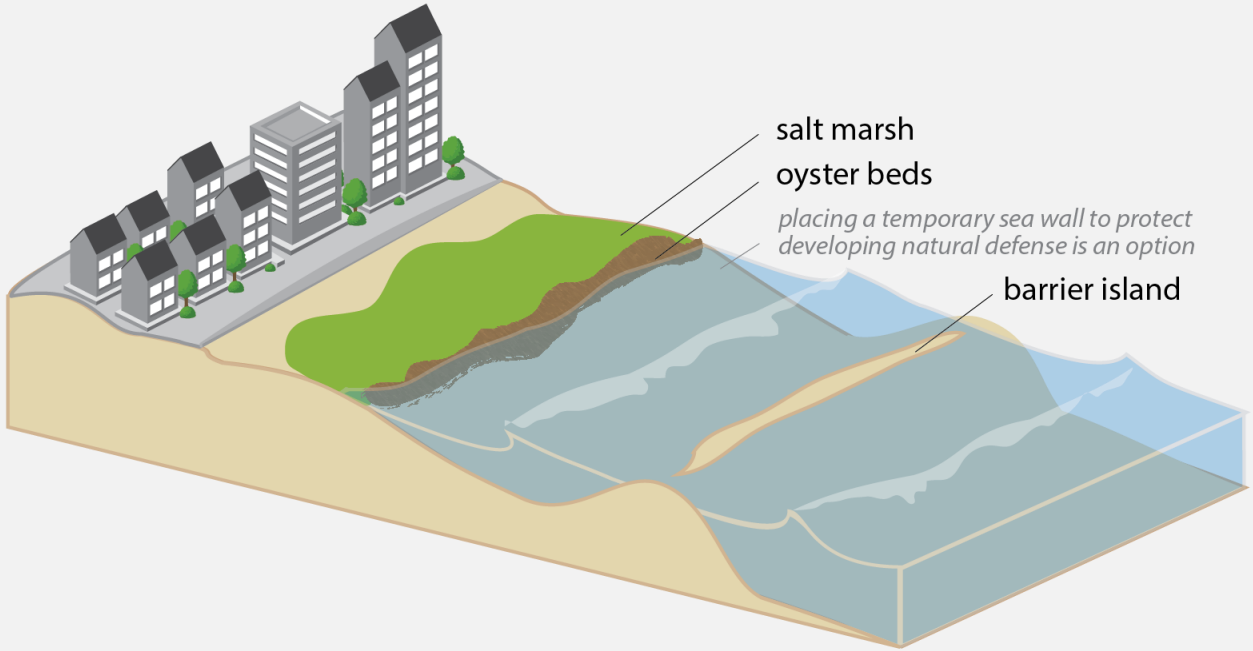
- Benefits of Natural Infrastructure:
  - Can strengthen with time
  - Can be self-maintaining and has the potential for self-repair after storms
  - Can grow and keep pace with sea level rise
  - Can be more cost-effective
  - Provides benefits all the time



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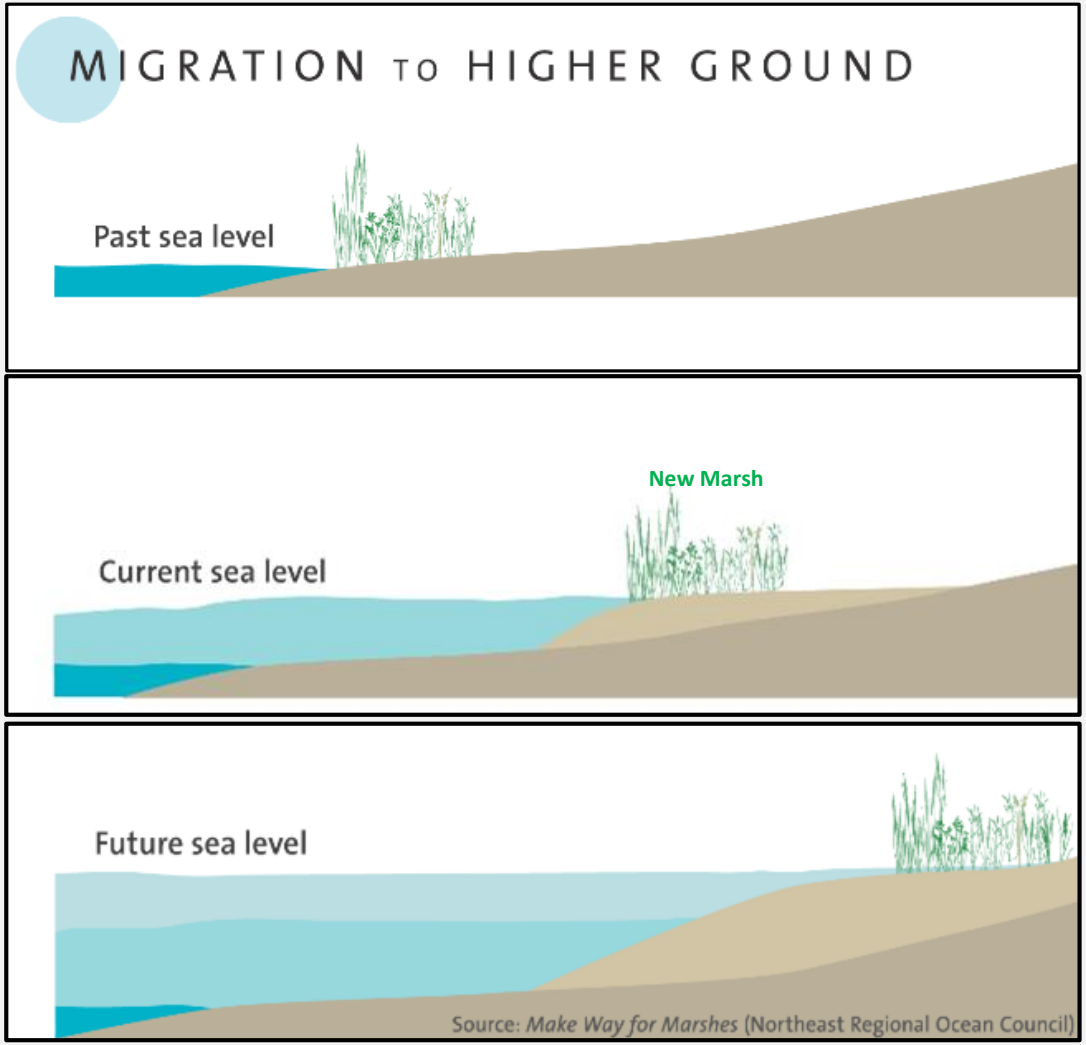
ADDITIONAL COASTAL ECOSYSTEM SERVICES

Examples of additional benefits:

1. Fisheries (recreational and commercial)
2. Recreation & tourism
3. Water filtration
4. Cultural services
5. Habitat for other species


MIGRATION TO HIGHER GROUND
Past sea level
New Marsh
Current sea level
Future sea level
Source: *Make Way for Marshes* (Northeast Regional Ocean Council)

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GRAY (BUILT) INFRASTRUCTURE

Sea Wall

Sea Wall and Riprap

Levee

Dike

Natural Infrastructure

Salt Marsh

Coral

Mangrove

Oyster

Dunes

National Fish and Wildlife Foundation's

National Coastal Resilience Fund (NCRF)

Joanne Throwe, Field Liaison

NCRF Program Overview

- Administered by NFWF, est. 2018
- Supports nature-based projects that enhance resilience of coastal communities ***AND*** enhance habitat for fish and wildlife
- Historic federal investment of ~$30M. Anticipated federal investment of ~$140M in 2022
- Leverages federal funding with additional private sector contributions

2021 Partnerships

- NFWF
- NOAA
- US Dept. of Defense
- EPA
- AT&T
- TransRe
- Shell
- Occidental Petroleum

NCRF Priority Categories

1. **Community Capacity Building & Planning (CCBP)**

Planning-Level Grant

OR

2. **Site Assessment & Preliminary Design (SA/PD)**

OR

3. **Final Design & Permitting (FD/P)**

OR

4. **Restoration and Monitoring (R&M)**

Project-Level Grants

Notes:

- Pick **ONE** priority category based on desired outcome
- Pipeline intended to prepare you for next stage

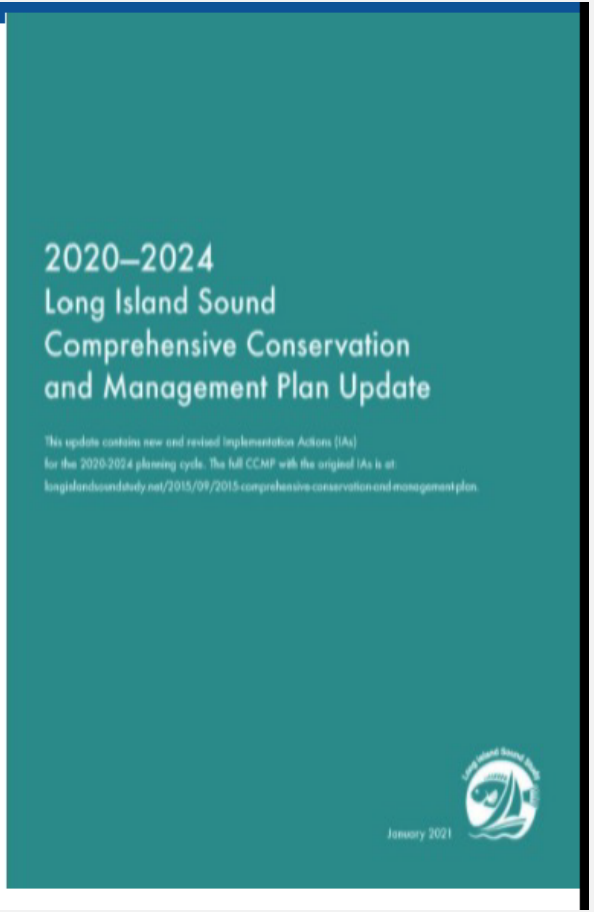

LISFF 2022 Sources of Funding
~$10 million > More $s in 2022. Lower Match.
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Springfield-MA
Long Island Sound Study
A Partnership to Restore and Protect the Sound
U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR
NATIONAL FISH AND WILDLIFE FOUNDATION
NFWF

Principles & Priorities

CCMP Cross cutting principles: Resilience, Sustainability, Environmental justice

CCMP Theme: Clean Waters & Healthy Watersheds: Improve wq by reducing nitrogen pollution, CSOs, impervious cover, stormwater and point sources of pollution

- ***Examples: Focus N reduction or prevention***
  - Plans for or implementation of…
    - Low Impact Development/Green Infrastructure
    - Wastewater treatment onsite or treatment plant retrofits
    - Riparian and forested buffer and channel bank vegetation enhancement to slow and intercept polluted surface runoff
    - Stream channel reconnection to floodplains and adjacent wetlands to promote nutrient removal and reduce erosion



Grant Guidelines

Project Performance Period

- Start w/in 6 months complete w/in 24 months after grant award
- Large-scale **implementation** projects start w/in 6 months & complete w/in 36 months after grant award
- Grant award notice November 2022
- Project start date not before October 1, 2022

Match

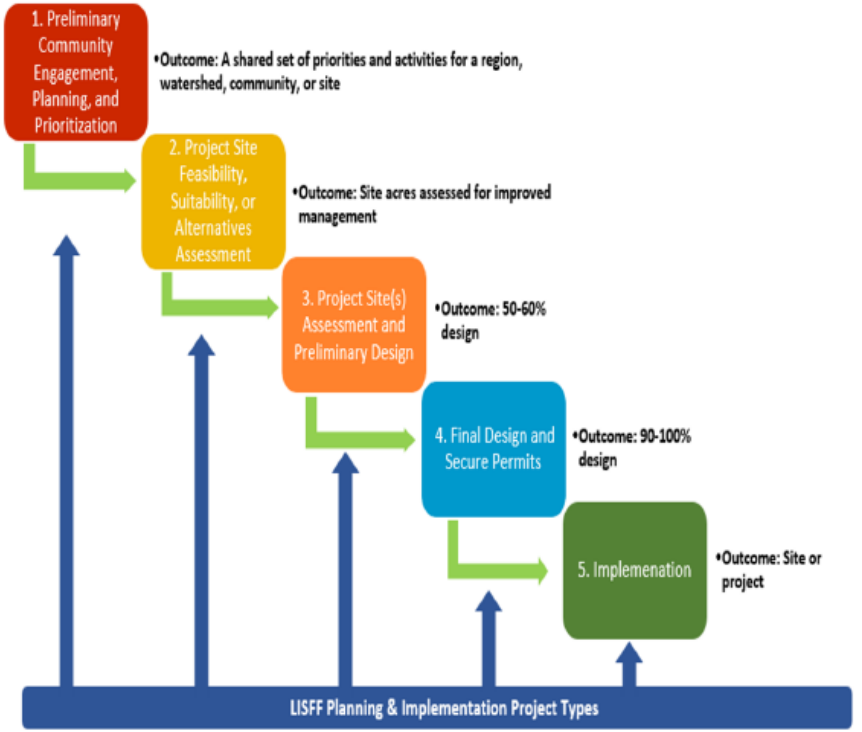
- **Much lower match in 2022. Watch for news.**
- **Non-federal** cash funds and/or in-kind services
  - *Examples: In-kind contributions of staff/volunteer time, materials/services donated or other tangible contributions to the project*
- **May be from applicant or partners**
- *Must* be deployed during start and end date of LISFF project

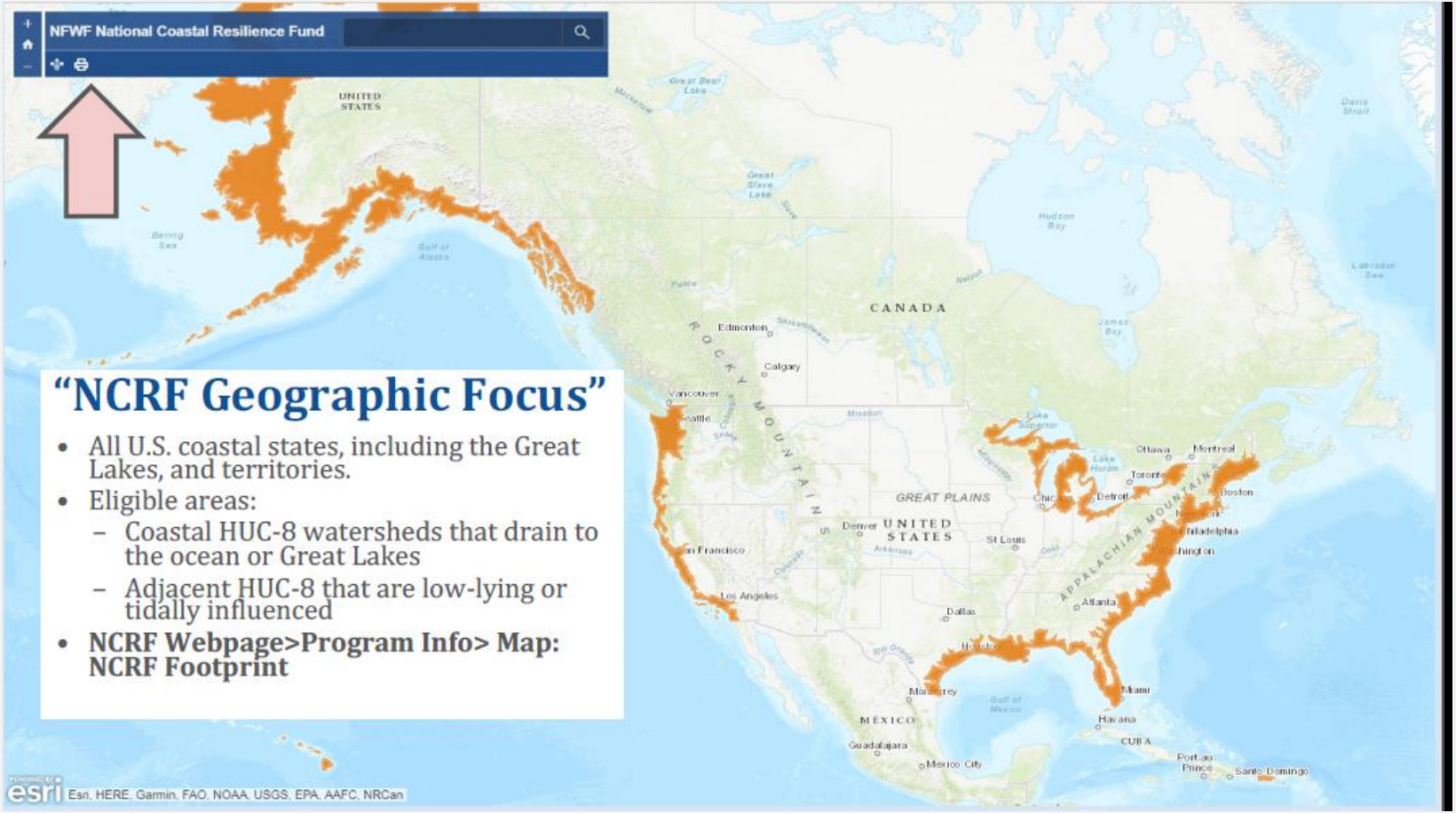
Range of Funds for Grants

Design/Planning: $50,000 to $500,000

Implementation: $50,000 to $1.5m

Public Participation, Education (only in CT): $50,000 to $100,000





"NCRF Geographic Focus"

- All U.S. coastal states, including the Great Lakes, and territories.
- Eligible areas:
  - Coastal HUC-8 watersheds that drain to the ocean or Great Lakes
  - Adjacent HUC-8 that are low-lying or tidally influenced
- **NCRF Webpage>Program Info> Map: NCRF Footprint**

NCRF Eligibility

Eligible

- State, tribal, territorial agencies
- Municipal government
- Non-profits
- Educational institutions
- For-profit organizations*
- Semi-federal orgs./federal partnerships*

Ineligible

- Federal agencies or employees of federal agencies
- Foreign organizations
- Foreign public entities
- Unincorporated individuals

NCRF: Things to Note

- Competitive Applications **MUST**
  - Invest in nature-based solutions (NBS);
  - Have clear benefits to community resilience (i.e, reduced flooding and erosion); **AND**
  - Have clear benefits to fish, wildlife, and habitat

NCRF Priority Categories

1. **Community Capacity Building & Planning (CCBP)**
2. Site Assessment & Preliminary Design (SA/PD)
3. Final Design & Permitting (FD/P)
4. Restoration and Monitoring (R&M)

- **Avg. project length:** ~2yrs
- **Estimated avg. award amounts:** ~$300K-$350K
- **Outcome:** Plan with prioritized nature-based strategies and projects
- **Key components:**
  - Stakeholder engagement, capacity-building
  - Planned resilience projects that include nature-based features

NCRF Priority Categories

1. Community Capacity Building & Planning (CCBP)
2. **Site Assessment & Preliminary Design (SA/PD)** →
3. Final Design & Permitting (FD/P)
4. Restoration and Monitoring (R&M)

- **Avg. project length:** ~1yr
- **Estimated avg. award amount:** ~$250K-$500K
- **Outcome:** Preliminary design (30-60%), "go-no go" decision, determines appropriate site(s)
- **Key components:**
  - Projects prioritized in previous planning activities
  - Focus on specific assessment
  - Preliminary permitting conversations
  - May include baseline monitoring

NCRF Priority Categories

1. Community Capacity Building & Planning (CCBP)
2. Site Assessment & Preliminary Design (SA/PD)
3. **Final Design & Permitting (FD/P)**
4. Restoration and Monitoring (R&M)

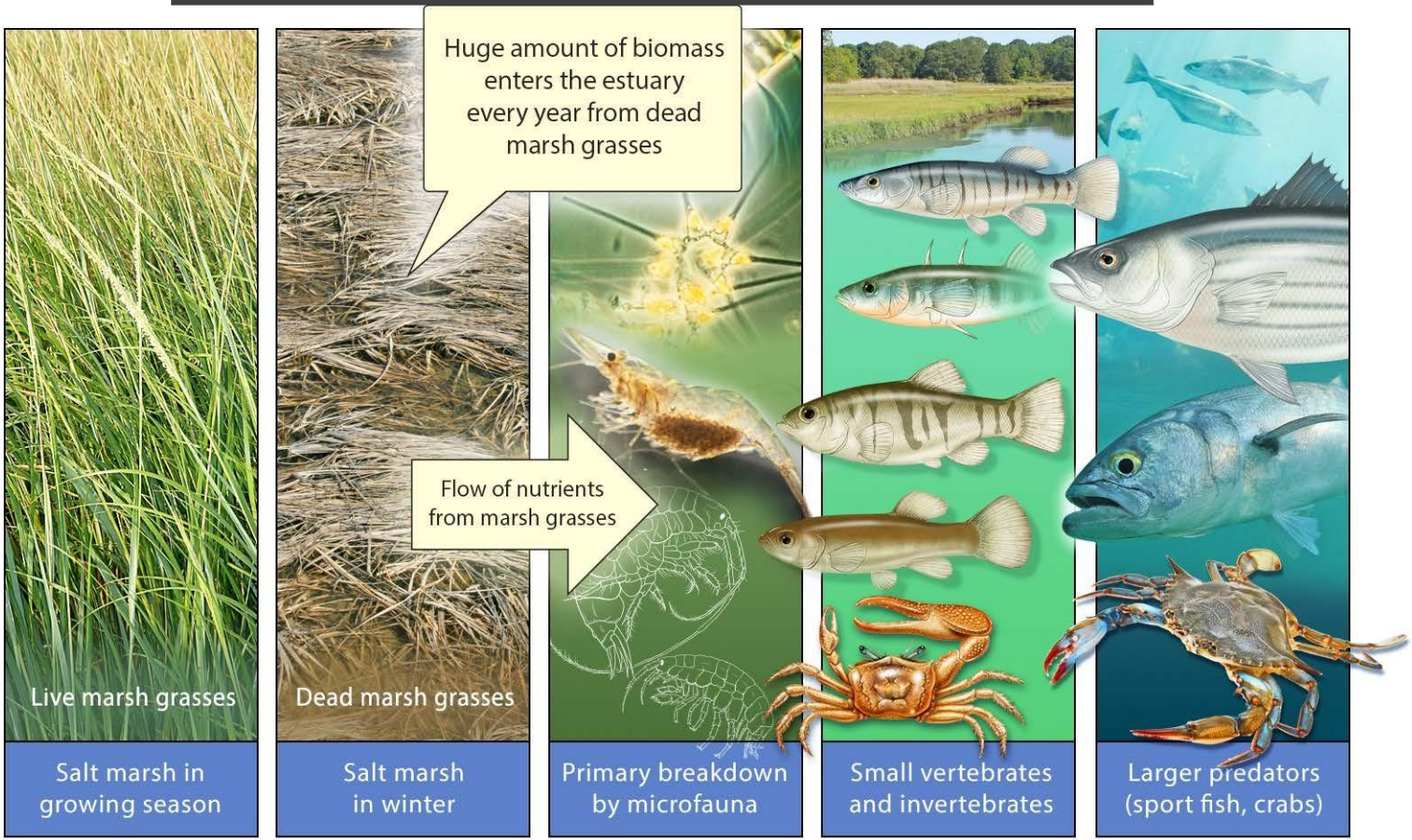
- **Avg. project length:** 1.5yrs
- **Estimated avg. award amount:** ~$500K-$750K
- **Outcome:** Final design (90-100%), permitting conversations
- **Key components:**
  - Position projects for restoration-ready implementation
  - Readiness for permitting
  - May include baseline monitoring

NCRF Priority Categories

1. Community Capacity Building & Planning (CCBP)
2. Site Assessment & Preliminary Design (SA/PD)
3. Final Design & Permitting (FD/P)
4. **Restoration and Monitoring (R&M)**

- **Avg. project length:** ≤3yrs + 1yr monitoring
- **Estimated avg. award amount:** ~$5M-$10M
- **Outcome:** Implementation and monitoring
- **Key components:**
  - Projects prioritized in previous planning activities
  - Completed assessments & designs
  - Clear understanding of permitting requirements

WHY SALTMARSH CONSERVATION PLANNING?



Source: A Field Guide to Long Island Sound, Patrick Lynch