Nature based solutions:
Opportunities and challenges for shellfish restoration and living shorelines

Nantucket Coastal Conference

June 12, 2023

Steve Kirk

Coastal Program Director

The Nature Conservancy

THE NATURE CONSERVANCY'S 2030 GOALS

3Gt CO_2e

AVOIDED OR SEQUESTERED PER YEAR

TACKLING CARBON EMISSIONS

WHAT: We will avoid or sequester 3 billion metric tons of carbon dioxide emissions (CO2e) annually—the same as taking 650 million cars off the road every year.

HOW: Using the power of nature and strength of policy and markets to store carbon, support the renewable energy build-out, and reduce emissions equivalent to nearly 10% of global emissions from fossil fuels.

650M

HECTARES CONSERVED

SAVING HEALTHY LANDS FOR A HEALTHIER PLANET

WHAT: We will conserve 650 million hectares of lands, such as forests and grasslands—an area twice the size of India.

HOW: Partnering with communities across the globe to restore and improve management of working lands, support the leadership of Indigenous Peoples as land stewards, and conserve critical forests, grasslands and other habitats rich is carbon and biodiversity.

100M

PEOPLE BENEFITTED

HELPING PEOPLE ON THE FRONT LINES OF THE CLIMATE CRISIS

WHAT: We will help 100 million people at severe risk of climate-related emergencies such as floods, fires and drought.

HOW: Protecting and restoring the health of natural habitats—from mangroves and reefs to floodplains and forests—that help protect communities from storm surge, extreme rainfall, severe wildfire and sea level rise.

1M

KM OF RIVERS CONSERVED

30M

HA OF LAKES & WETLANDS CONSERVED

CONSERVING THE WORLD'S FRESHWATER

WHAT: We will conserve 1 million kilometers of river systems and 30 million hectares of lakes and wetlands—enough river length alone to stretch across the globe 25 times.

HOW: Engaging in collaborative partnerships and promoting innovative solutions and policies that improve the quality and amount of water available in freshwater ecosystems and to communities.

4B

HECTARES CONSERVED

DEEPENING SOLUTIONS FOR OUR OCEAN

WHAT: We will conserve 4 billion hectares of ocean—more than 10% of the world's ocean area.

HOW: Making sure the ocean thrives through new and better-managed protected areas, global-scale sustainable fishing, innovative financing and positive policy changes to how the world governs the seas.

45M

PEOPLE SUPPORTED

WORKING ALONGSIDE LOCAL LEADERS WHO ARE LIGHTING THE WAY

WHAT: We are supporting the leadership of 45 million people from local and Indigenous communities whose well-being and livelihoods depend on healthy ocean, freshwater and lands.

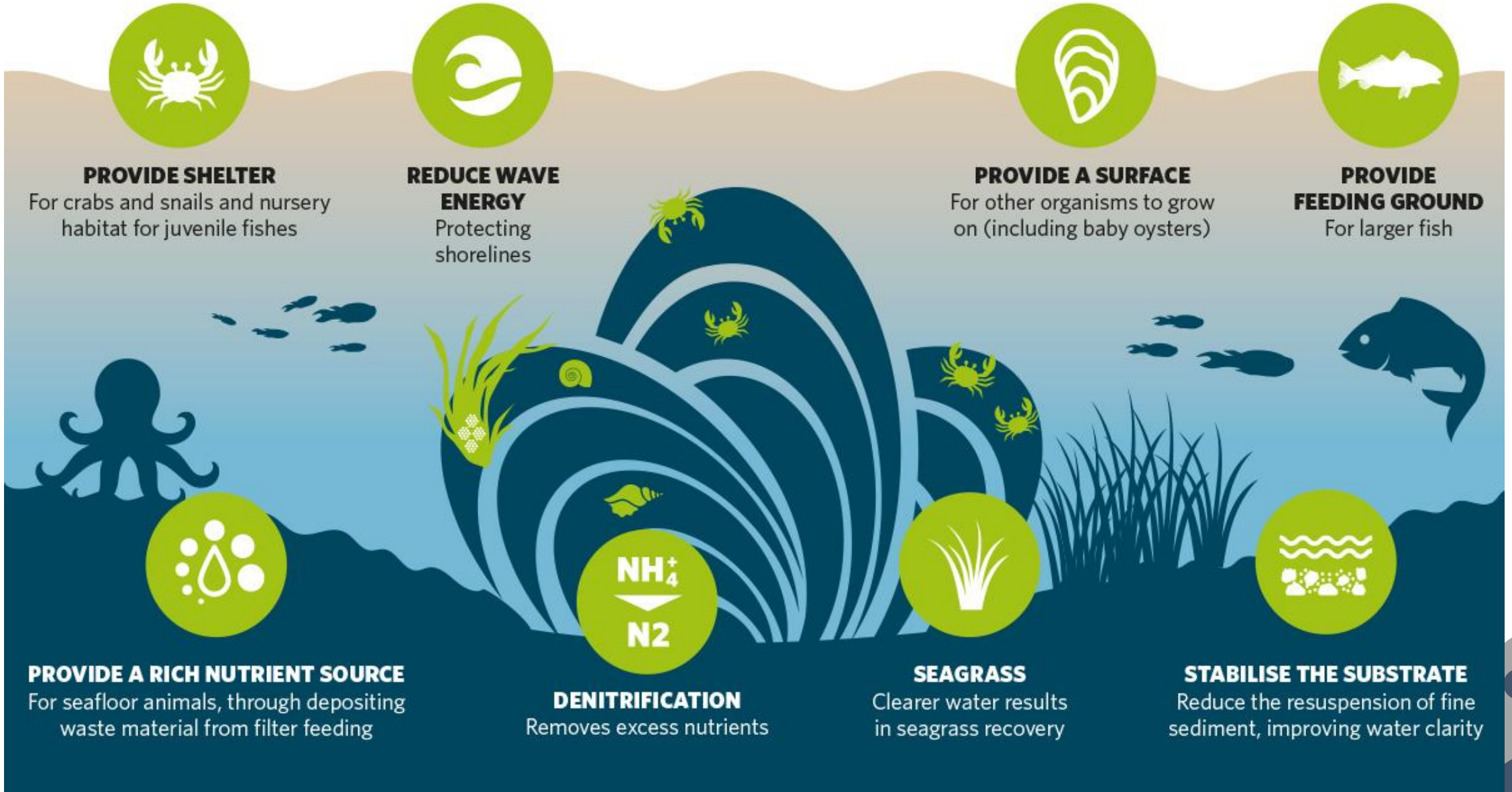
HOW: Partnering with Indigenous Peoples and other communities to learn from and support their leadership in stewarding the environment, securing rights to resources, improving economic opportunities, and shaping their future.

Estuary health

- Blue Carbon
- Water
  - SLR, Storm Surge, Wave Attenuation
- Nursery
  - Biodiversity, Seafood

- Threats
  - Development
  - Coastal Squeeze
  - Nutrient Pollution

The importance of shellfish for estuaries



THE BENEFITS OF OYSTER AQUACULTURE

SHELLFISH PLAY A CRITICAL ROLE IN COASTAL MARINE HABITATS. THEY CAN:

IMPROVE WATER QUALITY

excess algae & nutrients

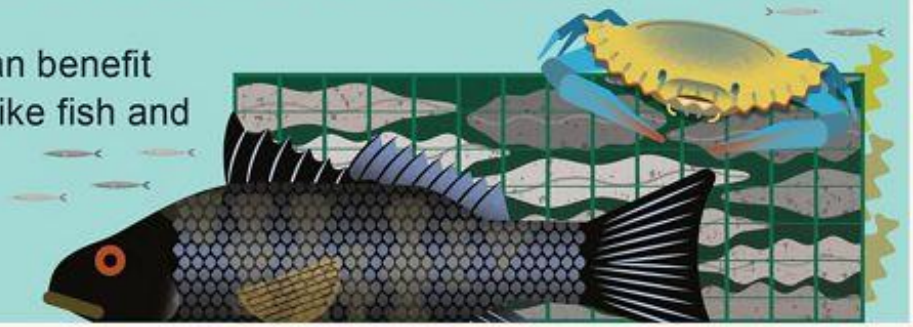
One adult oyster can filter up to **50 gallons** of water a day

clean water

AQUACULTURE= farming plants and animals in water

PROVIDE HABITAT & INCREASE BIODIVERSITY

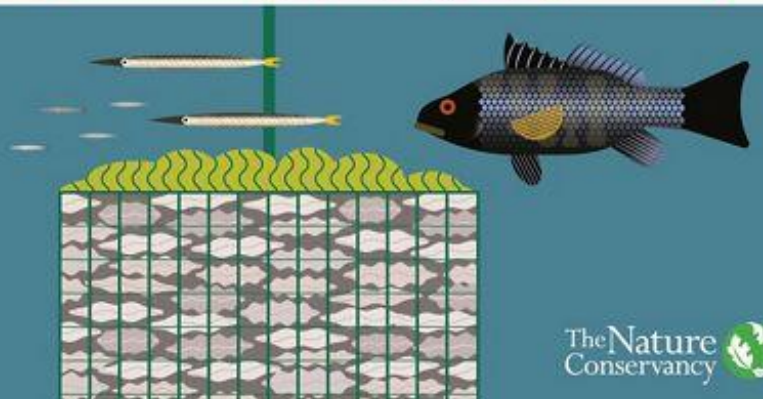
Oyster farming can benefit other marine life like fish and crustaceans.



PROVIDE FOOD & SUPPORT LIVELIHOODS

The Nature Conservancy is working to maximize the benefits of restorative aquaculture and strengthen oyster reefs to support healthy coastal ecosystems and the communities that rely on them.

Learn more at: nature.org/massaquaculture



The Nature Conservancy

Supporting Oyster Aquaculture and Restoration

- PHASE 1 – Covid Relief
  - 7 states – 3.5M oysters, 250 Jobs, 40 acres
  - MA – 460k oyster, 10 farms, 3 acres
- PHASE 2 – Replicate
- Phase 3 - Scale

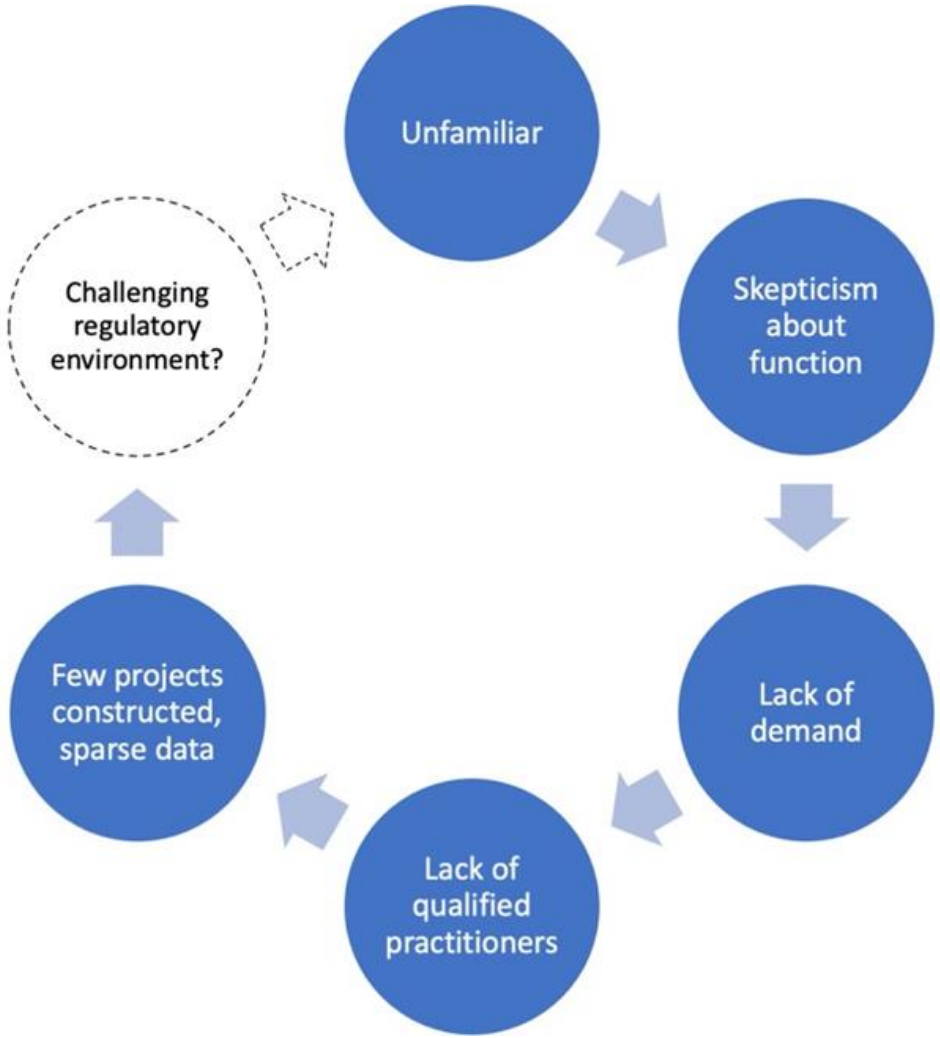
USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

Living Shorelines

Coastal Hazards Resilience Committee

Advancing living shorelines in New England - Phase 3

- Contract: The Nature Conservancy
- Possible Partners: USACE & USFWS
- Products:
  - Refined regulatory guidance
  - Workshop summary with potential suitable habitat tradeoffs
  - Updated guide on monitoring techniques
  - Possible fact sheet on effective design & construction tips



Regulatory Challenges and Opportunities for Living Shorelines in New England

Suggested citation: Davenport. T.M., S.J. Kirk., and A.A. Bowden. 2022. Regulatory Challenges and Opportunities for Living Shorelines in New England. Boston, MA: The Nature Conservancy.

The Nature Conservancy

NOAA

NROC Northeast Regional Ocean Council

March 2022

U.S Army Corps – General Permit Massachusetts

- June 5, 2023

- **GP 20. LIVING SHORELINES** (Authorities: §10 and §404) Construction and maintenance of living shorelines to stabilize banks and shores in tidal waters. In nontidal waters that are not subject to the ebb and flow of the tide, nature-based bank stabilization techniques such as bioengineering and vegetative stabilization may be authorized by GP 9. This GP authorizes those maintenance and repair activities in-kind that are necessary to address changing environmental conditions.

Thank you

- www.Nature.org/Massaquaculture
- www.Nature.org/SOAR
- NROC – Living Shorelines

- Steve Kirk, Coastal Program Director
- Stephen.kirk@tnc.org