Accelerating the Pace of Wetlands Restoration



SNEP Network webinar
June 26, 2025

Heidi Ricci, Director of Policy and Advocacy

Mass Audubon

SNEP NETWORK

Mass Audubon 2021-26 Action Agenda

Ambitious, Interconnected Goals

Goal 1



Protect and Steward Resilient Landscapes

Goal 2



Advance Inclusive and Equitable Access to Nature

Goal 3



Mobilize to Fight Climate Change

Mass Audubon

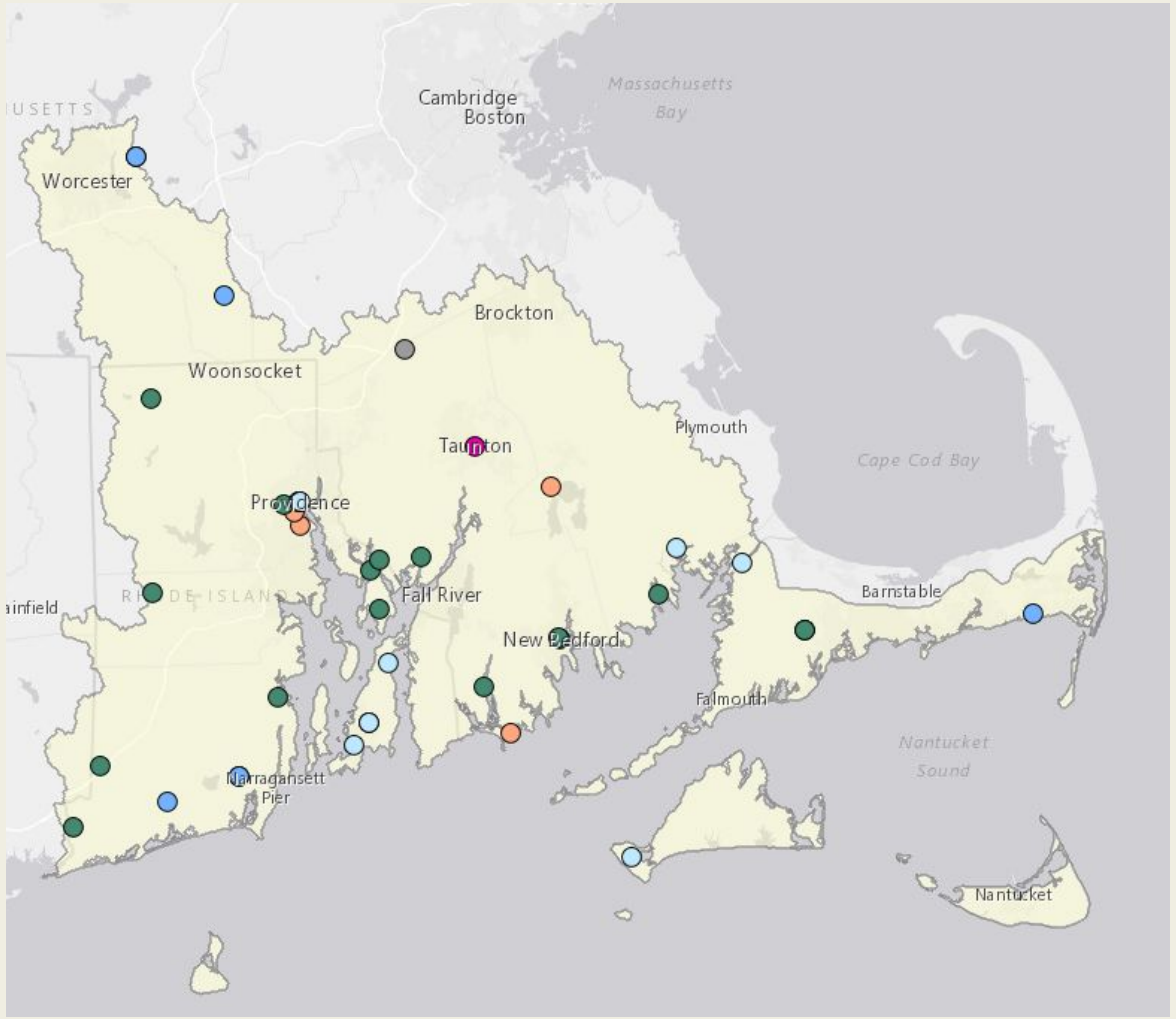
Southeast New England Program Network

Who We are

A geographic program of US EPA

The Network is **collaborative of 16+ local and regional experts** that provides FREE Training and Technical Assistance to build local capacity of SNEP communities and Tribes

www.snepnetwork.org



Audience poll

Who is in the audience? What categories of stakeholders are represented?



Takeaways from today:

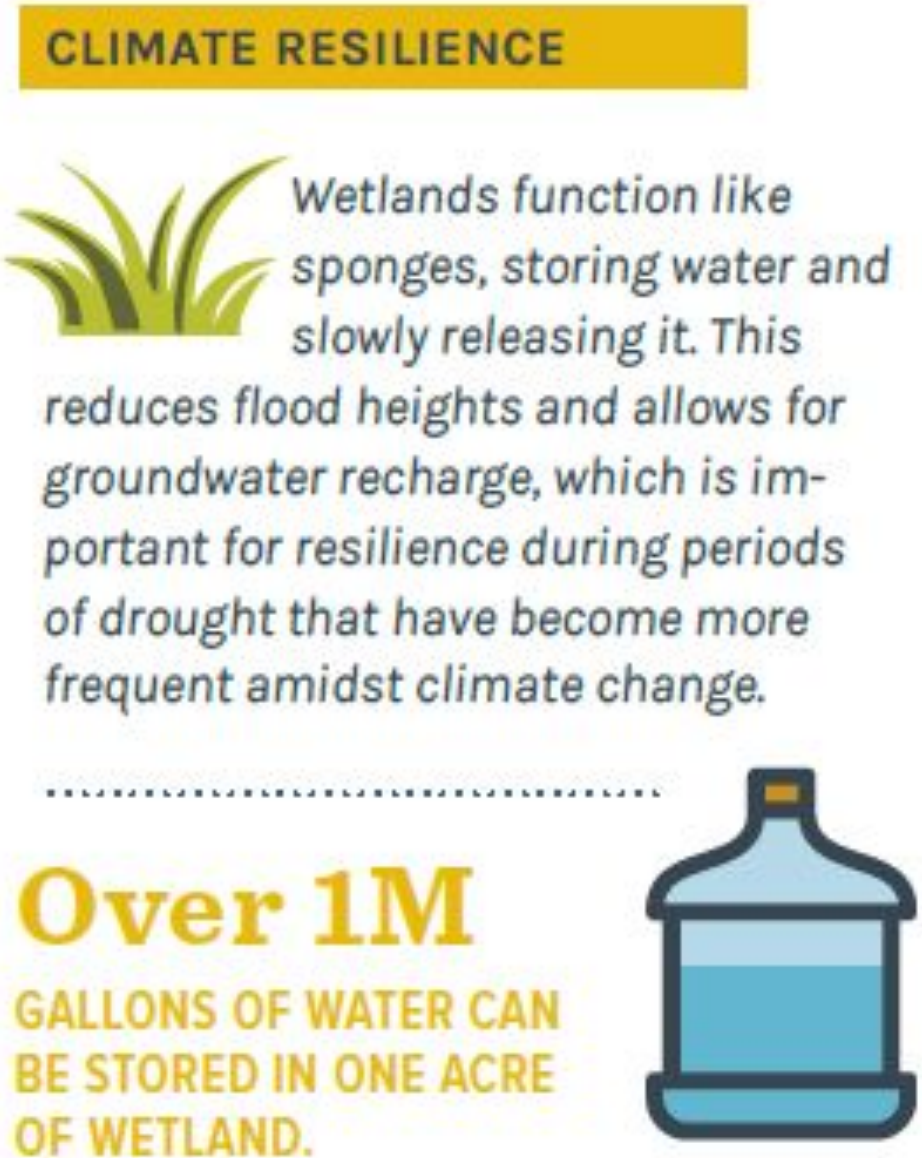
1. Restoration heals
2. Permitting delays and costs
3. New approach needed





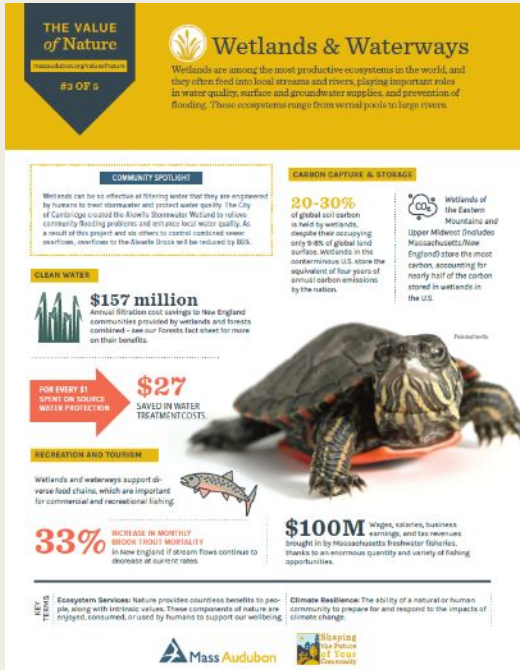
Photos of rivers and wetlands by Alex Hackman @ Mass Audubon and MA Division of Ecological Restoration unless noted

Wetlands Restoration is a Nature-based Solution



- Flood prevention
- Carbon Sequestration and Storage
- Clean and Abundant Water
- Habitat – diversity and connectivity
- Quality of Life

www.massaudubon.org/valueofnature



What is ecological restoration?

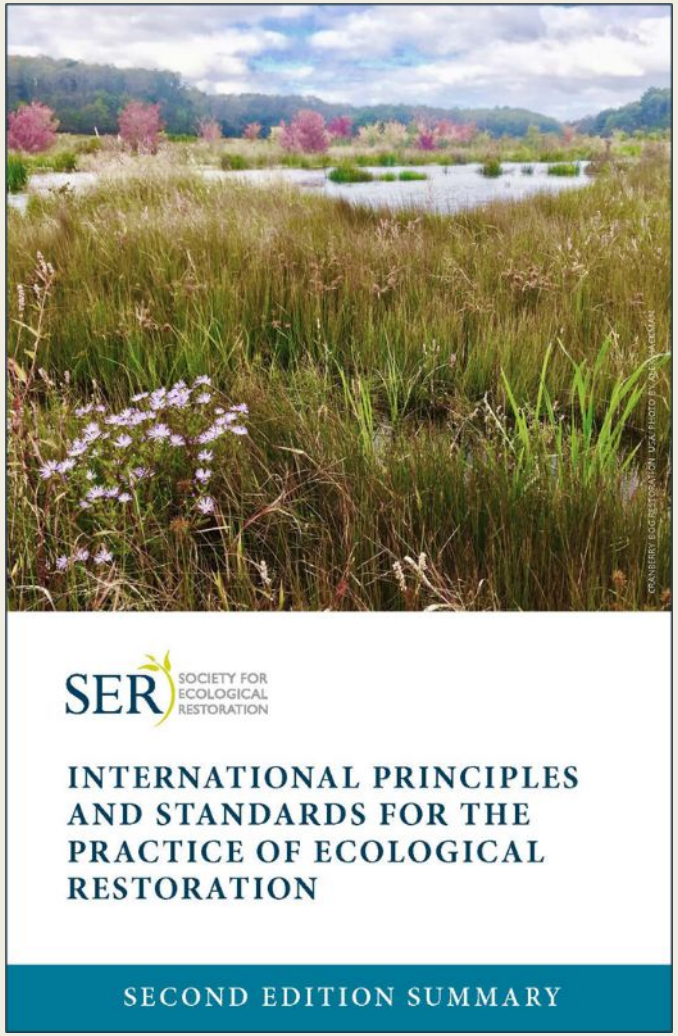


Recent dam removal downstream. Restored channel and floodplain upstream here.

Ecological Restoration

The process of assisting the recovery of an ecosystem that has been damaged, degraded, or destroyed

Massachusetts ecosystems are **severely damaged and degraded**



Range of Impacts

Damage refers to an acute and obvious harmful impact such as invasions of non-native species.

Degradation refers to chronic impacts resulting in the loss of biodiversity and the disruption of ecosystem functions, such as long-term agricultural impacts or presence of dams in rivers.

Destruction is the most severe level of impact, when degradation or damage removes all macroscopic life and commonly ruins the physical environment, such as urbanization and mining.

Source: https://ser-rrc.org/what-is-ecological-restoration/





Responses tailored to impacts

Restoration actions can be as simple as removing an invasive species and planting native vegetation; or, as complicated as altering landforms, changing the hydrology, and reintroducing wildlife.

*Note: Our focus today is on the more complicated types of actions





Assisting in recovery means…

- Repairing processes
- Restoring connectivity
- Involving people

1. **Help nature to take care of itself**

   Identify stressors that limit recovery, carefully plan and take actions to repair key processes, monitor changes, and help ecosystems heal themselves.

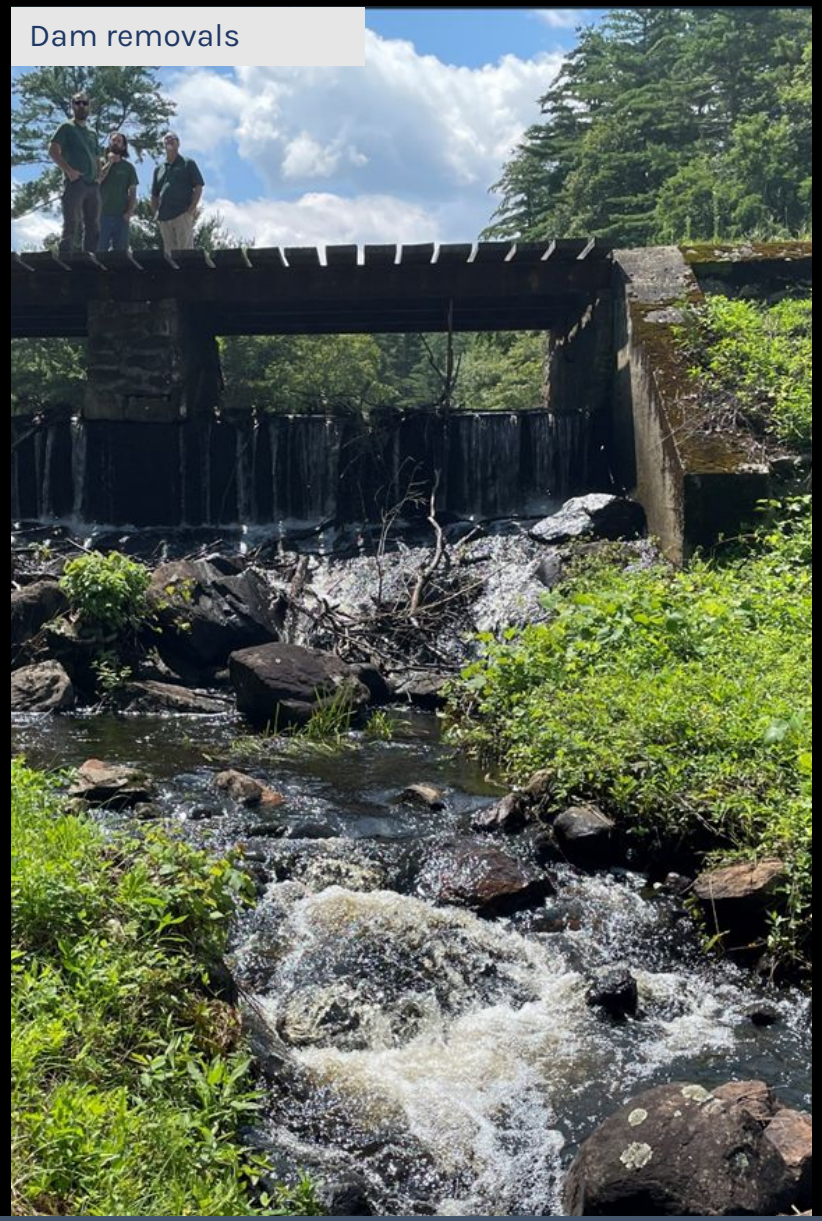
2. **Remove barriers to re-connect ecosystems**

   Well-connected ecosystems allow organisms, energy, and material to flow freely across the landscape within and between different habitats.

3. **Engage people for wisdom and long-term care**

   We succeed by listening to and working with neighbors, farmers, Tribes, watershed groups, politicians, and many others.

Dam removals



Salt marshes



Invasive plant removal



Cranberry bogs



Most of these actions are **LOW RISK** compared to ongoing impacts

Higher risk projects are easily identified (e.g., pollutants, invasives, T&E species)

Example: Cranberry Bog




CAT





Wetlands ~1 year after restoration at former cranberry farm [Tidmarsh Wildlife Sanctuary, Plymouth]





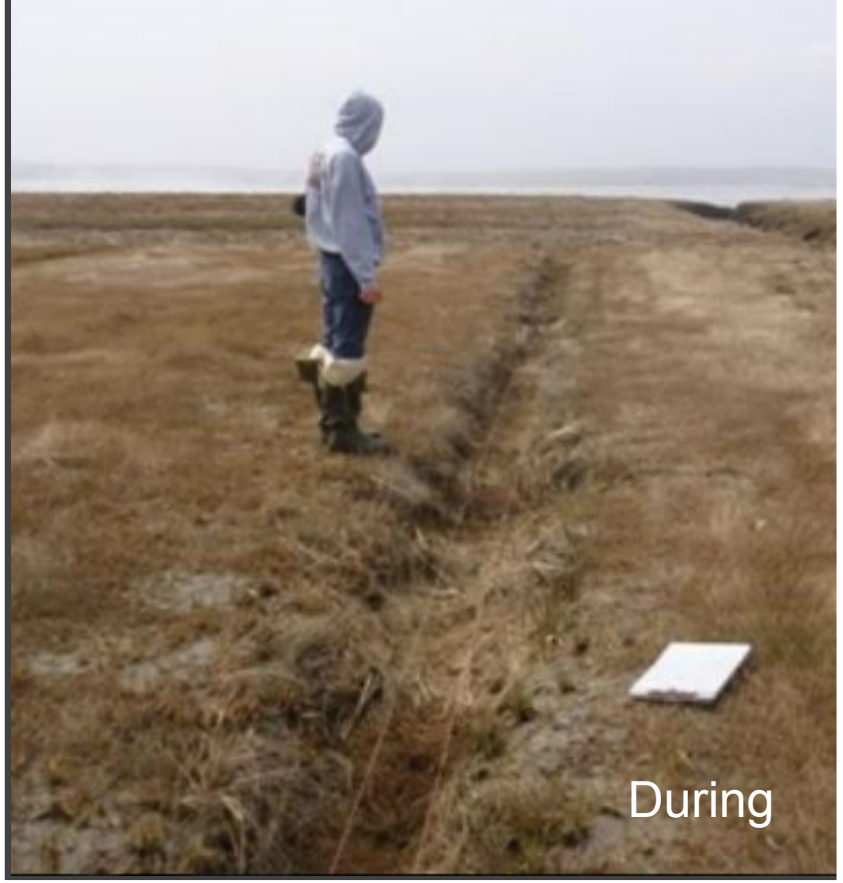




Salt marshes: Human alterations accelerate flooding and marsh loss

Credit: USFWS







Ditch Remediation

Credit: USFWS

DAMAGING EFFECTS of DAMS

OARS

DEGRADES WATER

Slow-moving or still waters heat up & accumulate nutrient buildup, affecting sensitive species, & leading to algal blooms, & decreased oxygen levels.

BLOCKS PASSAGE

Prevents fish migration & limits their ability to access spawning habitat, food resources, & escape predation

Dam!

SLOWS FLOW

Disorients migrating fish & destroys seasonal flow variations that trigger reproduction cycles

https://oars3rivers.org/

Culverts









Clockwise from top left:
First replacement crossing (2009); catastrophic culvert failure due to Tropical Storm Irene (2011); "emergency temporary replacement" crossing (2011); replacement bridge (2016).

Recommendations for Improving The Efficiency of Culvert and Small Bridge Replacement Projects

Prepared by the Massachusetts Culverts and Small Bridges Working Group for Senator Hinds and the Massachusetts Legislature

Sept. 2020

Restoration has so many co-benefits.

Climate change mitigation: Wetlands as significant carbon sinks, biodiversity hotspots, e.g.

Climate adaptation and resilience: Wetlands capture and filter floodwater, trees and vegetation help cool surroundings and improve air quality, dam removal can restore floodplains to reduce flood risk, and more.

And so much more! Increase access to nature, provide important habitat and enhance biodiversity, provide recreation opportunities, and more.





Big Plans and Large Scope of Restoration Needs

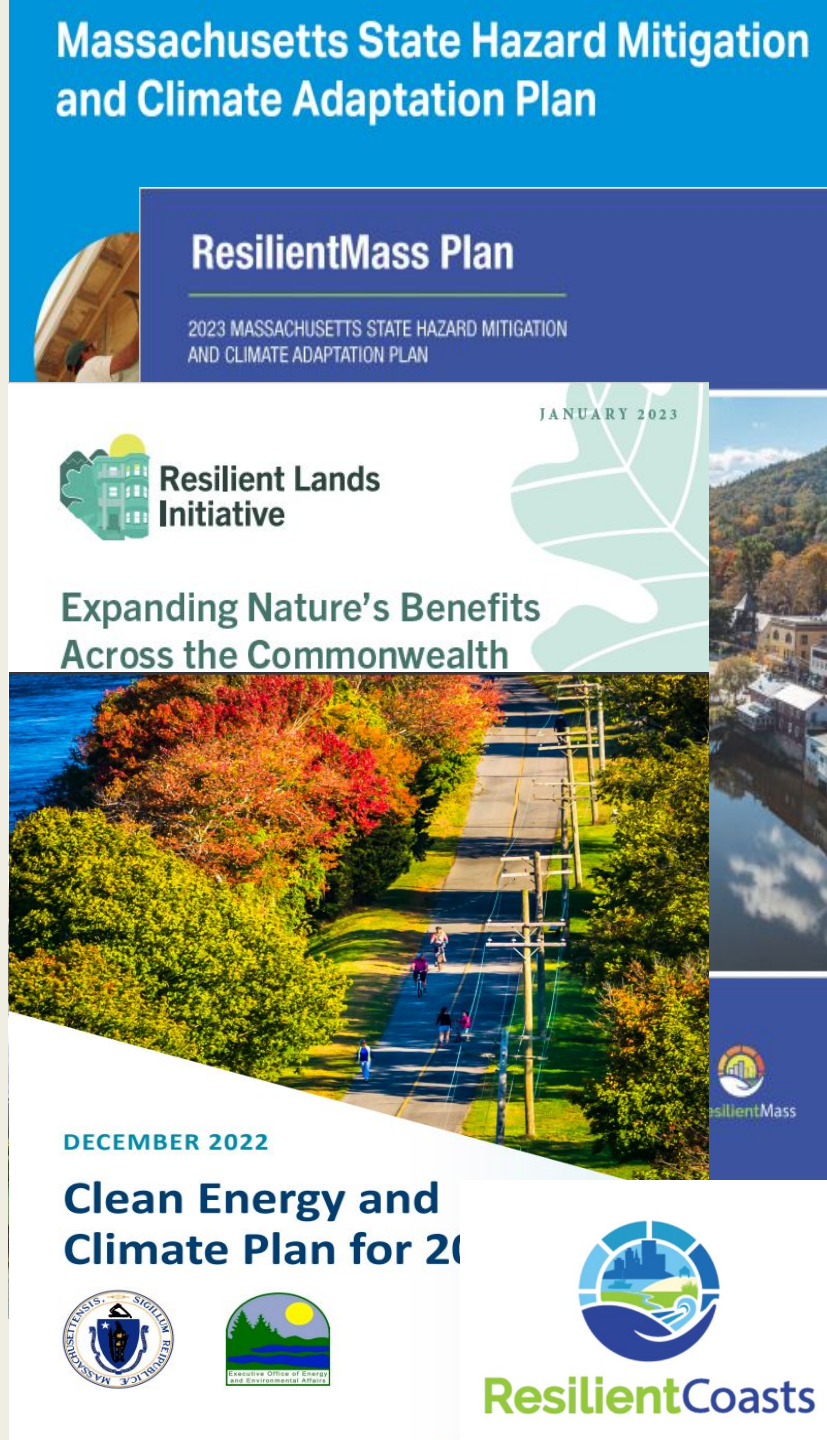
State Policy & Planning Context

Restoration helps achieve many of our broader state goals.

- ★ Climate adaptation and resilience
- ★ Climate change mitigation
- ★ Enhancing biodiversity
- ★ Ensuring environmental justice

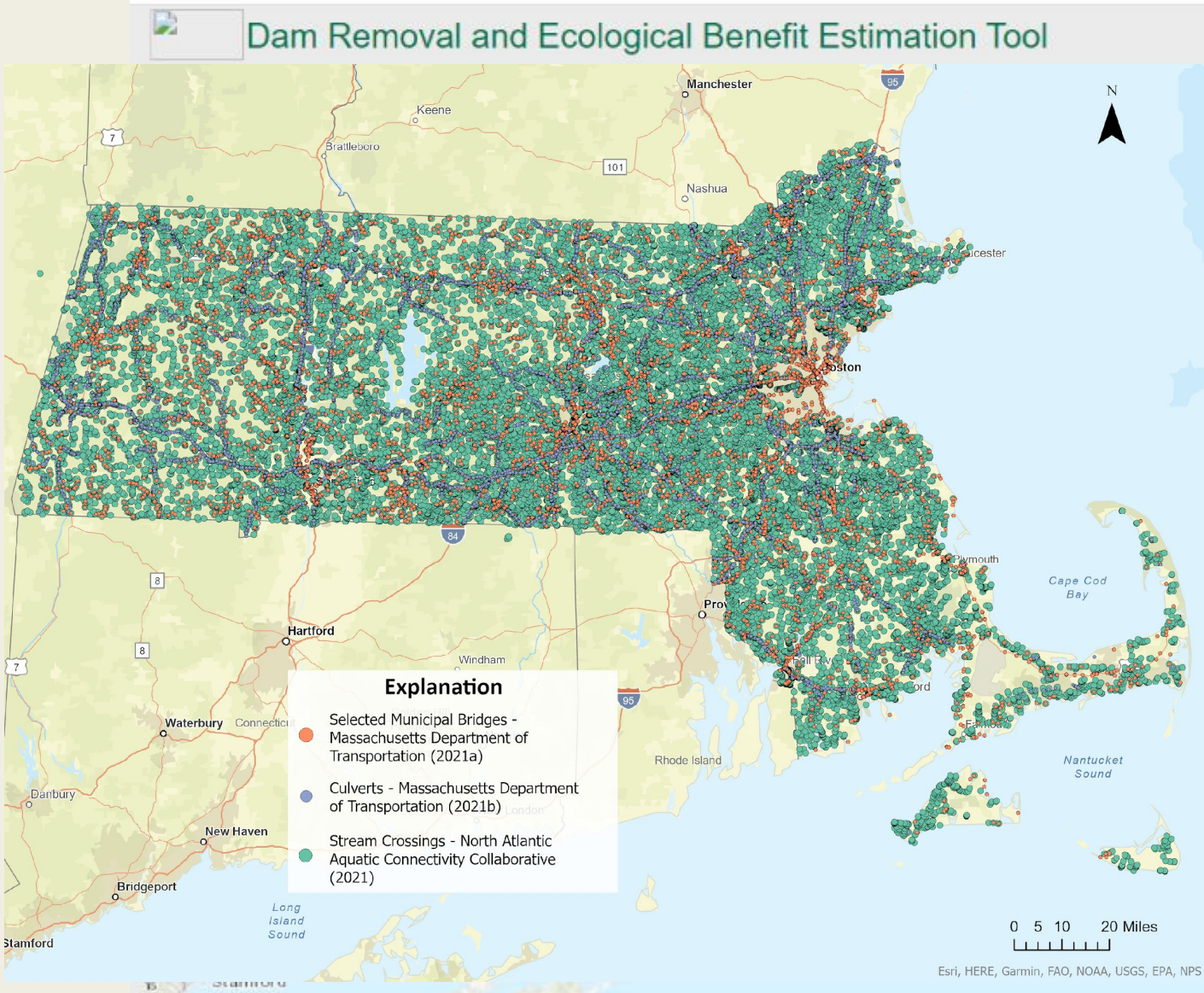
…"the Department [of Fish and Game] recognizes a need to collaborate with municipal, state, and federal agencies to improve and streamline permitting pathways and guidelines to accelerate the pace of ecological restoration, climate mitigation, and climate adaptation projects."

DFG Strategic Plan, 2024



The Need: Increase Scale, Pace of Restoration

- **Salt Marshes**
  - 45,000 acres remaining
  - 41% lost historically
  - Thousands of acres need immediate restoration
- **Dams**
  - 3,000
  - Many obsolete, poor condition
- **Culverts**
  - 25,000 – 30,000
  - Barriers to fish and wildlife
  - Increasing risk of road washouts
- **Cranberry bogs**
  - Thousands of acres no longer in production
  - Prime opportunities especially along coast



Goal: Restore and Reconnect



- Restore stream connectivity – dams and culverts
- Remove fill, water control structures
- Restore buffers and shorelines around wetlands, ponds, lakes, rivers and the coastline
- Restore channelized rivers and streams
- Reconnect floodplains

Barriers to doing more

What are the barriers?

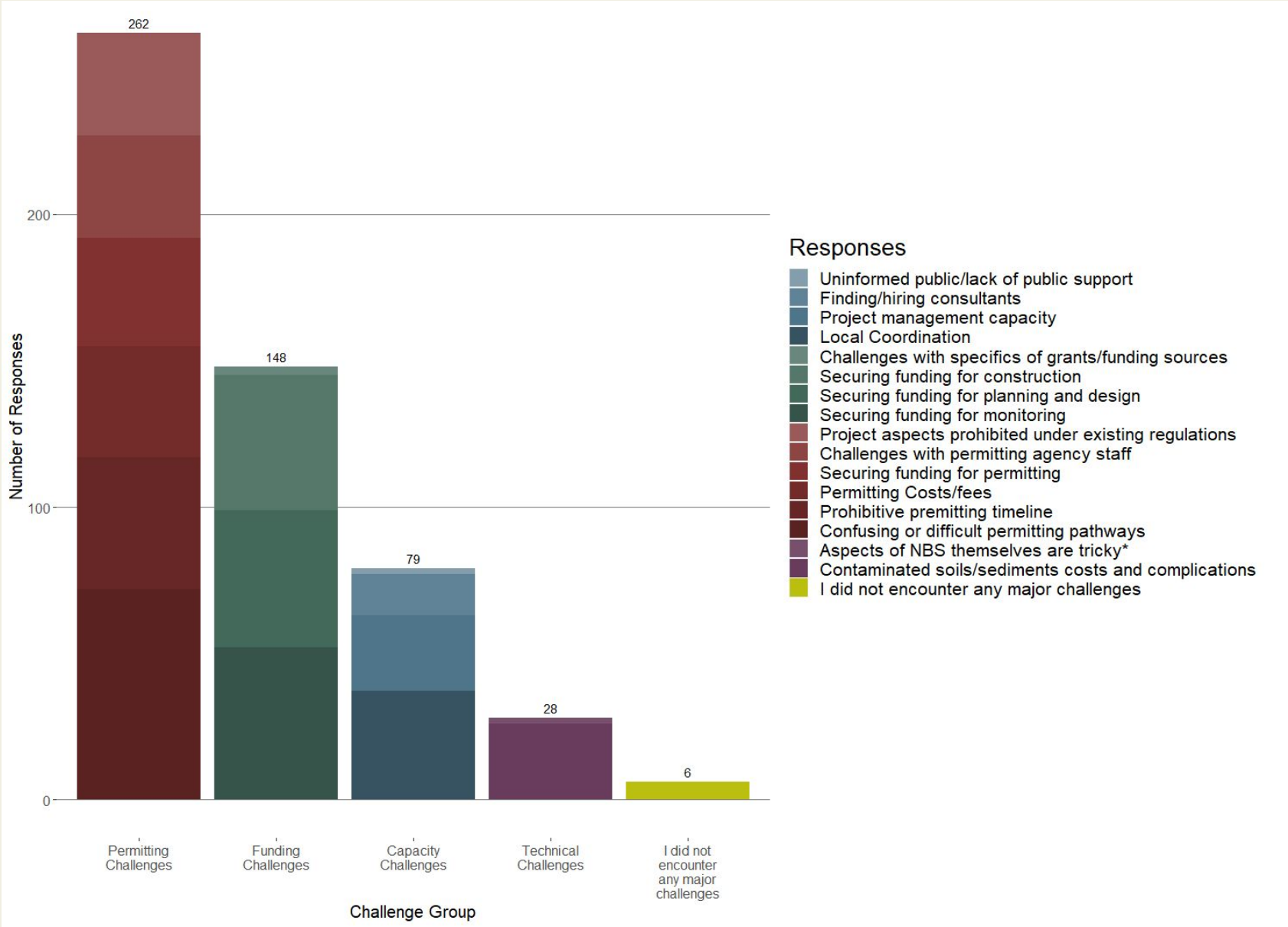
CLF and Mass Audubon conducted research to understand barriers to this work

- Survey with 139 respondents across multiple sectors
- Additional in-depth interviews to dig in more



Major barriers:

- Most common is confusing or difficult **Permitting**
- **Funding** and **Capacity** were also frequently cited



Takeaways

- A sense of **urgency** and a **need to innovate**
- A **lack of coordination and consistency** from agencies
- A **desire for more partnership** between practitioners and regulatory agencies
- **Challenge of balancing** strong environmental protections while also supporting and moving forward beneficial projects

"The permitting system, the regulatory system, needs to **allow innovation** to proceed, but not just give it a blank check."

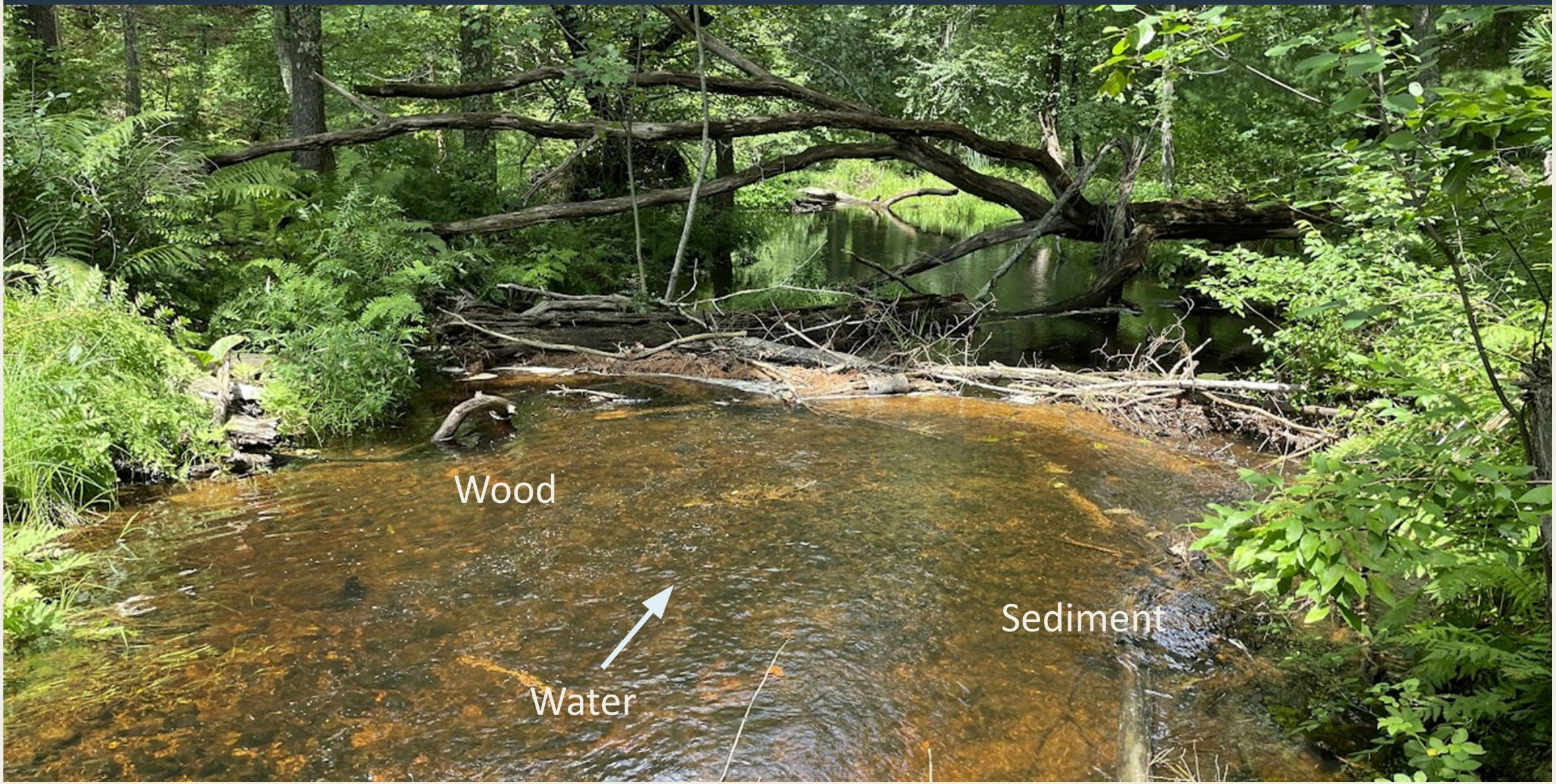
"Quite frankly, it's not just simply tweaking how the regulatory world operates and the applicants work, but more literally a true partnership. **We need a new model** that says we're gonna work together to solve the problem, pool our land pool, our resources, our knowledge."

New Approach Needed

Now: Easy to overlook damage to ecosystems; difficult to repair damage

Future: Easy to repair damage to ecosystems; difficult to allow ongoing damage to continue

Framing question: How do healthy rivers make habitat?



Bartlett Rod Shop Co. Dam (c. 2012) looking upstream
Amethyst Brook, Pelham, MA



Bartlett Rod Shop Co. Dam Removal (c. 2012) looking downstream
Amethyst Brook, Pelham, MA



For 150+ years…sediment and wood trapped upstream; fish unable to reach cold headwaters
"Degraded" = long term negative impact.

The good news: This dam WAS REMOVED

Engineered by Stantec Consulting Services. Constructed by SumCo Eco-Contracting



Project Partners

NOAA

CLEAN WATER ACTION

U.S. FISH & WILDLIFE SERVICE

TOWN OF PELHAM TOWN SEAL MASSACHUSETTS

FISHAMERICA FOUNDATION

Mass DEP

American Rivers
Thriving By Nature

HRD PRESS

COMMONWEALTH OF MASSACHUSETTS
Division of Ecological Restoration

MASSACHUSETTS ENVIRONMENTAL TRUST

Following dam removal, sea lamprey returned for first time in decades



Contents lists available at ScienceDirect

Geomorphology

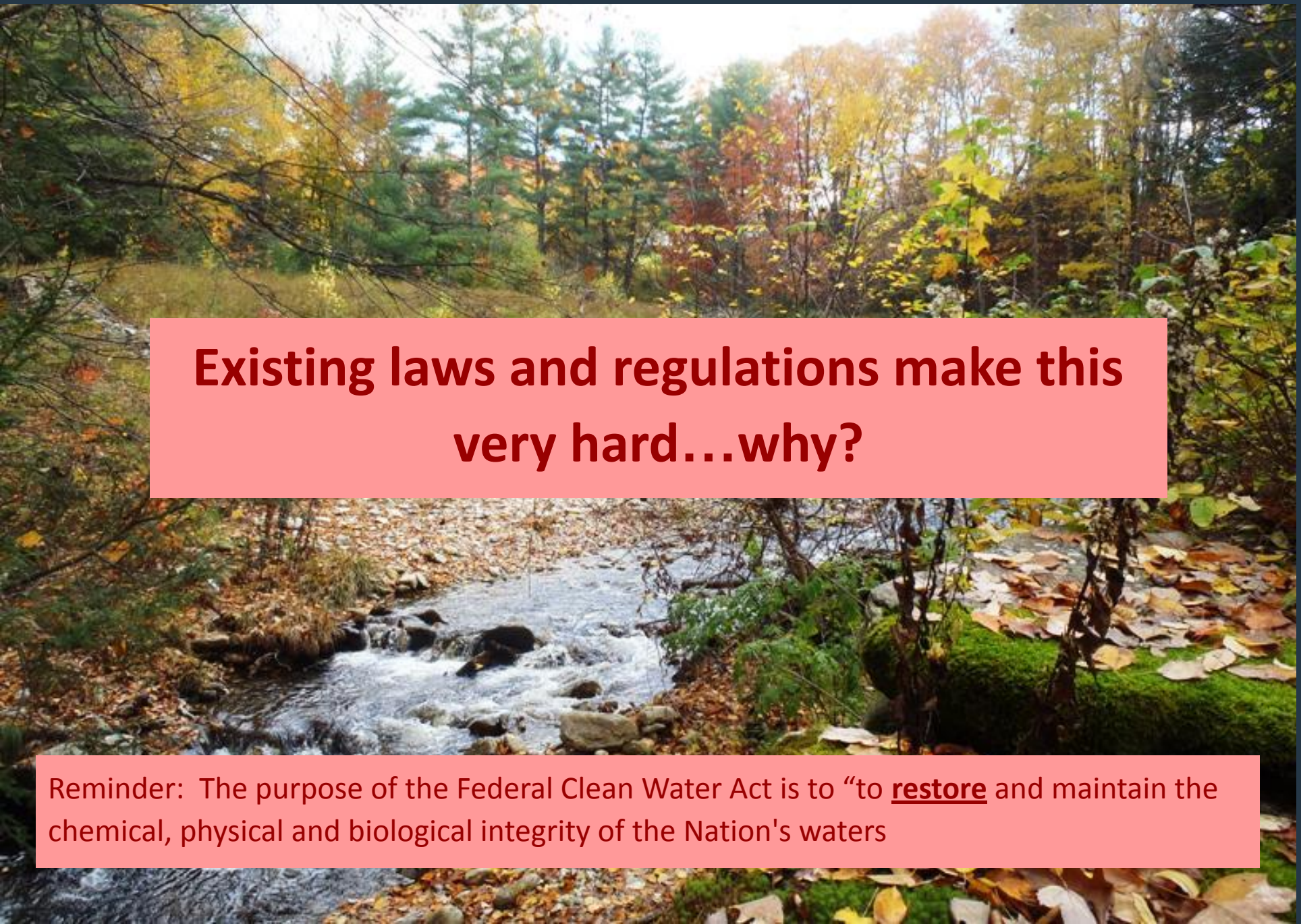
journal homepage: www.elsevier.com/locate/geomorph

Immediate changes in stream channel geomorphology, aquatic habitat, and fish assemblages following dam removal in a small upland catchment

F.J. Magilligan [a,*], K.H. Nislow [b], B.E. Kynard [c], A.M. Hackman [d]

[a] Department of Geography, Dartmouth College, Hanover, NH, USA
[b] USDA Forest Service: Northern Research Station, Amherst, MA, USA
[c] Department of Environmental Conservation, University of Massachusetts, Amherst, MA, USA
[d] Massachusetts Division of Ecological Restoration, Boston, MA, USA

2 years later: Critical river processes restored, healthier river, and no negative impacts



Existing laws and regulations make this very hard…why?

Reminder: The purpose of the Federal Clean Water Act is to "to **restore** and maintain the chemical, physical and biological integrity of the Nation's waters

How much effort?

Note: Approximate based on Alex's recollection as the project manager!

- 5 public hearings
- 10 grant applications
- 7+ permits and approvals taking > 1 year

What if doing harm like this was not allowed?

- Dams that serve no purpose must be removed
- Abandoned cranberry bogs must responsibly decommissioned (i.e., close ditches, remove water controls)
- Salt marshes with collapsing platforms must have ditches healed and excess water drained

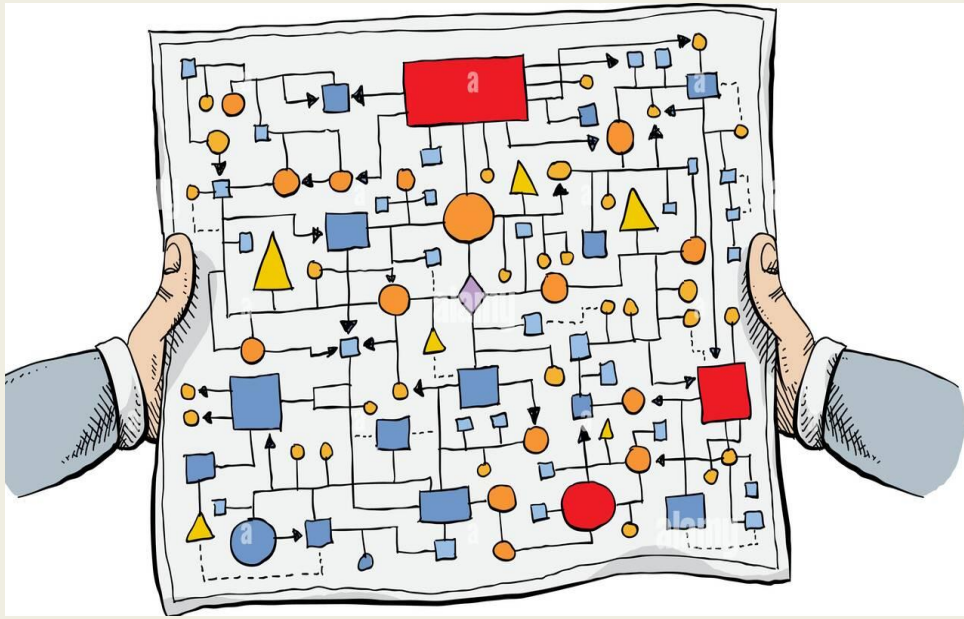
This would require **systems change**.

Permit reform is essential to achieve systems change

What is happening now for permit streamlining?

Regulatory Framework: Complex, Costly, Time-Consuming

- DEP Wetlands Protection Act and local bylaws
- DEP 401 Dredging and WQ Certification
- DEP Ch. 91 Tidelands
- CZM federal consistency review
- Areas of Critical Environmental Concern
- NHESP MA Endangered Species Act
- Wetlands Restriction Orders
- Massachusetts Environmental Policy Act
- Army Corps of Engineers – General Permit

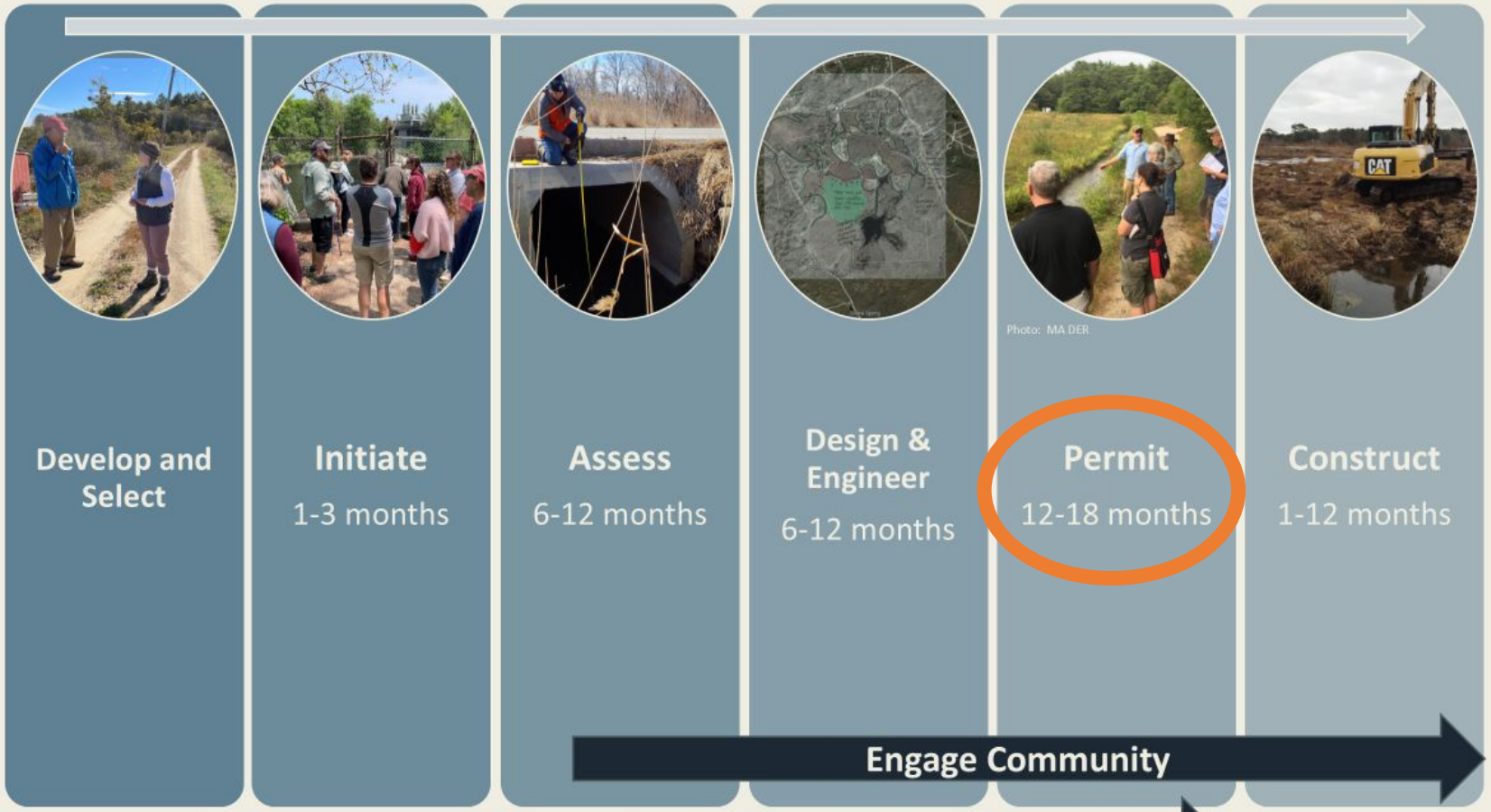


Regulatory Barriers:
Complex, Costly, Time-Consuming Permits

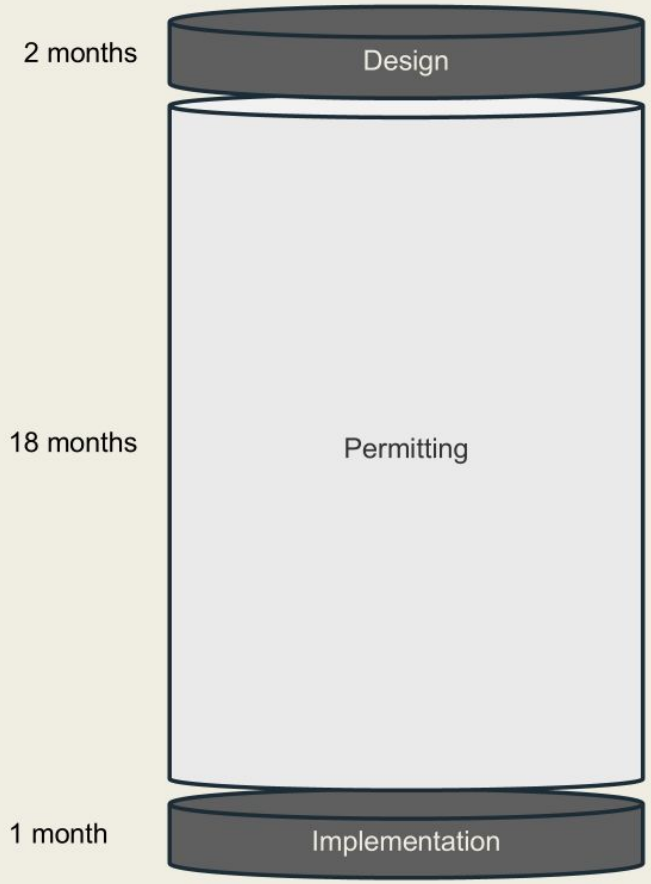
- **Complex:** Up to a dozen permits
- **Costly:** Tens to hundreds of thousands of $$$
- **Time Consuming:** 1-5 years, plus post-construction monitoring
- **Particularly burdensome for:**
    - EJ or under-resourced communities and NGOs, and
    - Urban greening, riverfront and shoreline restoration projects that already face high land costs, contamination, demo/removal of pavement.

Projects typically unfold in these phases

Overlapping and iterative



The Need: Efficiency
Match Capacity to Goals



How do we fix the Oreo?



Wetlands and Waterways Multi-Agency Permit Streamlining Initiative

- Interagency Discussions
- External Stakeholder Group

- Encompasses all permitting for all types of projects – housing, roads and other infrastructure, restoration

- Year 1 is wrapping up, will continue for Year 2



Wetlands and Waterways Multi-Agency Permit Streamlining Initiative

Tier 1 Minor Alterations	Tier 2 General permits	Tier 3 Typical Permitting Pathway
• Administrative improvements and coordination • Expedited review • 30 days	• Pre-application consultation • Eligibility requirements • 90 days	• Pre-application consultation • Improve agency alignment across programs • Timeline TBD likely 120-150 day

Goals/Objectives?

Restoration “impacts” vs. ongoing damage and impacts of status quo

General permits – requires statutory change (Mass Ready Bond), then regulations

Ecological Restoration Project provisions are still burdensome

Recommendation: Convene agencies and restoration practitioners together to discuss and problem-solve



Need a Fresh Approach

Other states are innovating - Massachusetts can too!

FUNDING NATURE, NOT PAPERWORK

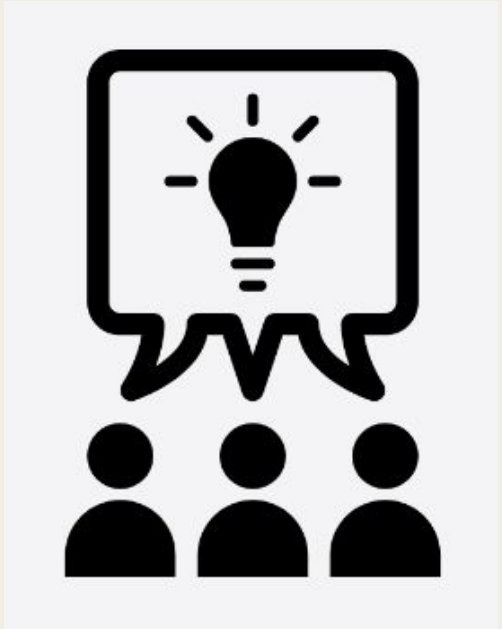
Policy and Programmatic Pathways to Speed Restoration Permitting

[Streamlined Permitting Database]

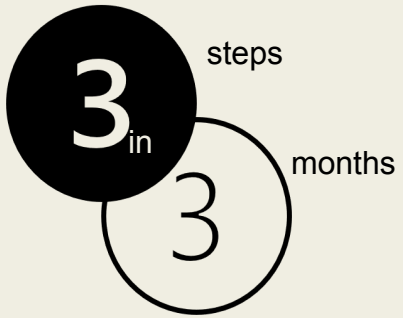
ENVIRONMENTAL POLICY INNOVATION CENTER

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

Cutting the Green Tape



Vision: Radically simplified permitting for Ecological Restoration Projects in Massachusetts

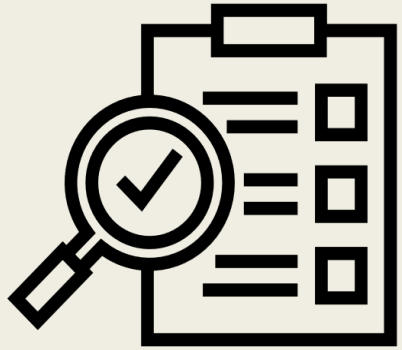


Thresholds & Screening

Guidance Docs



Single Application



Coordinated Review
(all agencies)



Joint Approval

3 months

Mass Audubon
Heidi Ricci and Alex Hackman, Mass Audubon (and many partner organizations)
June 2024

Potential Streamlining Models

Exemptions/Notification Only

- For low risk, low impact work
- Eliminate unnecessary, duplicative reviews (e.g. Chapter 91 where the site is restored to natural condition)
- Qualified professionals design and oversee projects, state audits a subset

Watershed or Project Category-Based Permitting

- Bundle many projects together

Consolidated Review

- Single application, one agency coordinates input from other agencies

Immediate Actions: Establish Vision, Goals and Interagency/Practitioners Proces





www.massaudubon.org/wetlandrestoration

Sign up today!

Questions

This is a time of big challenges that need big solutions.

How to do turn these headwinds into tailwinds?





Resources

Environmental Policy Innovation Center - *Funding Nature Not Paperwork* and Streamlined Permitting Database

CLF and Mass Audubon Research Memo

MA Division of Ecological Restoration

ResilientMA/Municipal Vulnerability Preparedness (MVP)
- funding sources spreadsheet

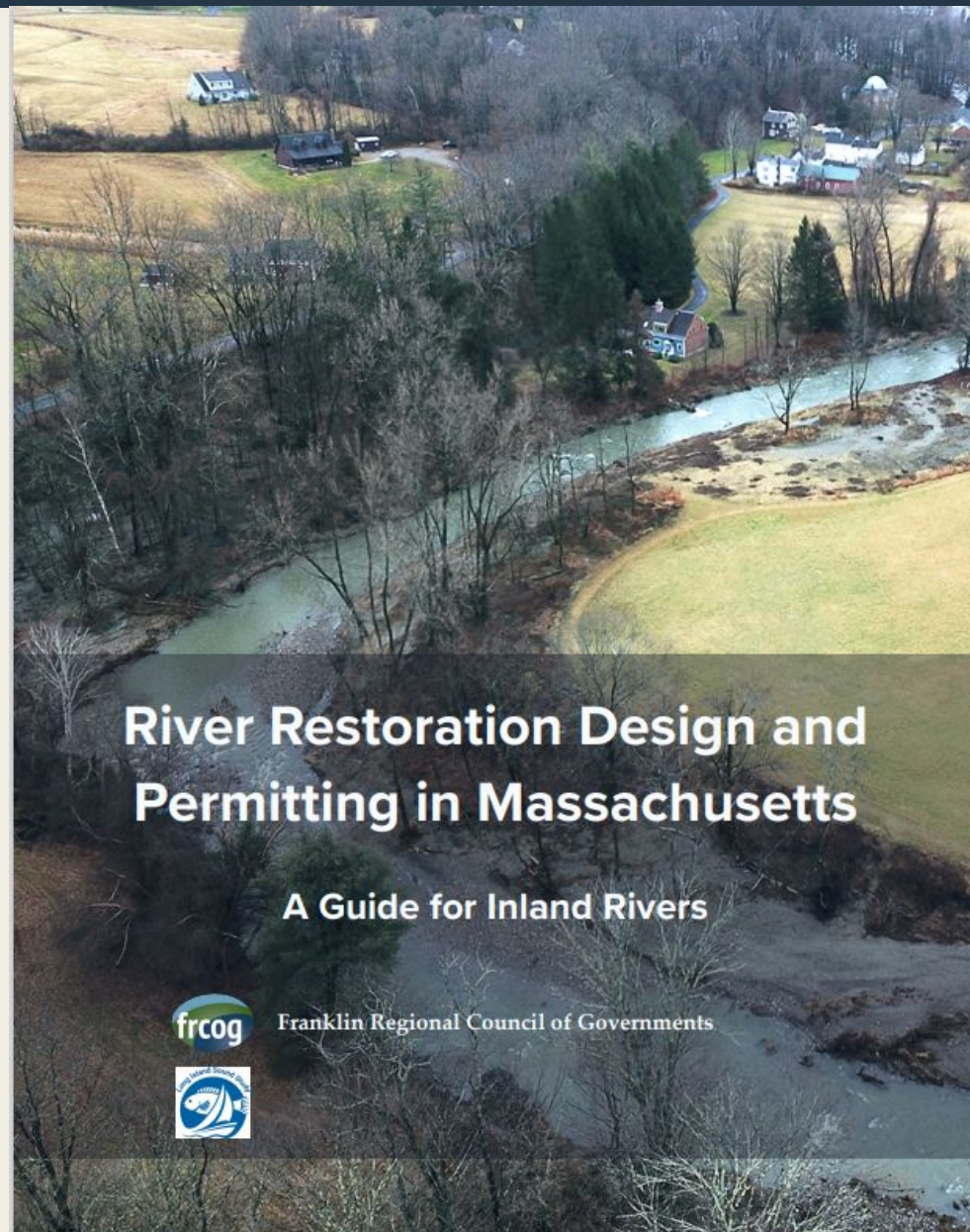
River Restoration Design and Permitting in Massachusetts: A Guide for Inland Rivers – FRCOG – New!

MassRivers Dam Busters

American Rivers – Restoring Damaged Rivers

thedamatlas.org (Narragansett Bay watershed)

SNEP Network



Thank You!



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