FROM PLANNING TO PASSAGE

Aquatic Connectivity in the Narragansett Bay Region



EVENT SUMMARY

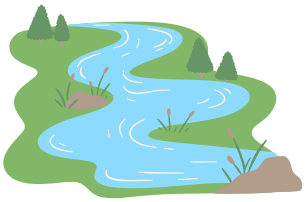
NARRAGANSETT BAY ESTUARY PROGRAM

MONDAY, OCTOBER 27, 2025

Cumberland Public Library
Hayden Center
1464 Diamond Hill Rd.
Cumberland, RI 02864


BOSTON
WORCESTER
Blackstone River
BROCKTON
MASSACHUSETTS
RHODE ISLAND
NARRAGANSETT BAY
WATERSHED
Taunton River
TAUNTON
PROVIDENCE
CONNECTICUT
Pawtuxet River
FALL RIVER
Wood River
LITTLE NARRAGANSETT
BAY WATERSHED
NEWPORT
Narragansett Bay
Pawcatuck River
COASTAL SALT PONDS
WATERSHED
WESTERLY
Salt Ponds
Little
Narragansett Bay
N
0 5 10 20
Miles
Kilometers
0 5 10 20
Map by Mariel Sorlien, NBEP 2024
Coordinate System: NAD83 UTM Zone 19N

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Acknowledgements

The Narragansett Bay Estuary Program would like to thank our partners and our speakers for creating a fantastic event. The **Cumberland Public Library** provided a great space for the meeting, and made the work seamless.

Photo credits belong to: Our Speakers; Ayla Fox for NBEP; Creative Commons; and NBEP Staff.



Thank you!

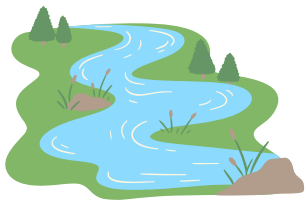
Event Partners

Roger Williams University

EPA United States Environmental Protection Agency

This event has been funded by the United states Environmental Protection Agency under Assistance Agreement CE00A01306 to Roger Williams University on behalf of the Narragansett Bay Estuary Program. The contents of this event do not necessarily reflect the views and policies of the USEPA, nor does the USEPA endorse trade names or recommend the use of any products, services, or enterprises mentioned during this event.

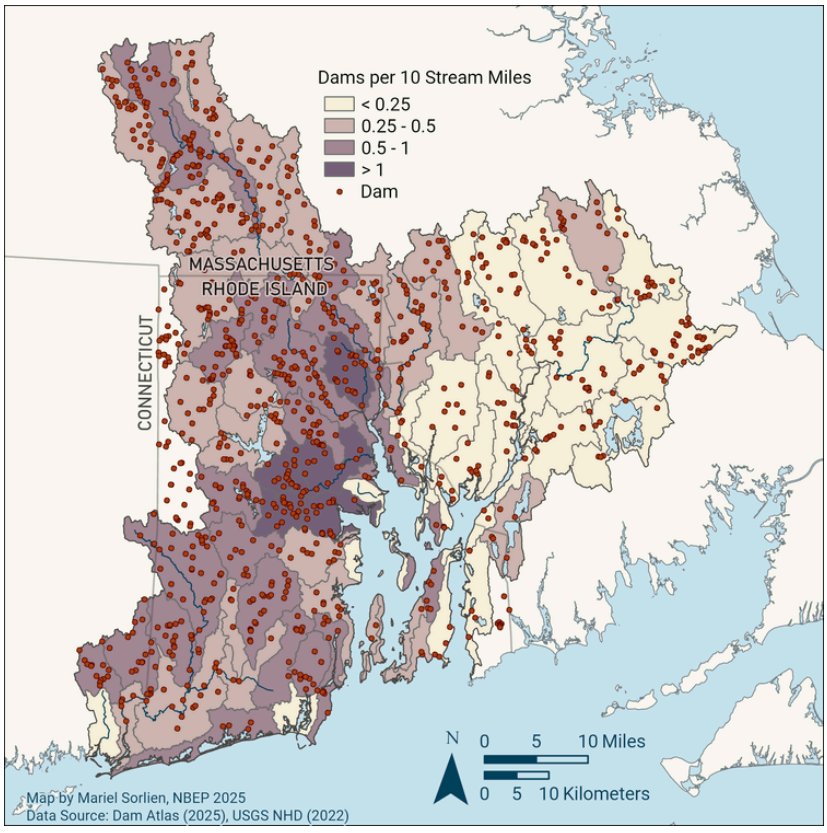
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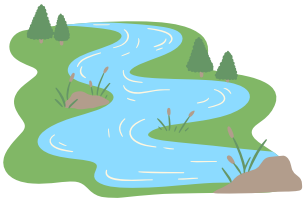
The Narragansett Bay region encompasses a **network of 4,000 miles** of rivers and streams moving from forest and marshes to riparian zones, rivers, estuaries, and eventually reaching the Atlantic Ocean. Humans built barriers throughout the system, such as dams, tide gates, levees, and culverts. These **barriers disrupt natural flows throughout of the watershed and have wide-ranging ecological impacts**, such as inhibiting migration of important diadromous fish species, increasing in-stream temperatures, and altering sediment delivery regimes. Collaborative work throughout the Narragansett Bay region is **focusing on reconnecting aquatic habitats** by removing or retrofitting barriers and restoring in-stream and riparian habitat.

On October 27th, 2025, NBEP and its partners **celebrated successes in the region, provided peer-learning opportunities, and worked toward improvements and solutions to further propel connectivity projects**. We learned from case studies and relevant tools in the region, took a deep dive into ways that sediments in an area may affect projects, and convened to identify challenges, responses, and solutions to facilitate aquatic connectivity work in the region.



NBEP would like to thank all participants for coming together for this event, and looks forward to continuing conversations around this work.

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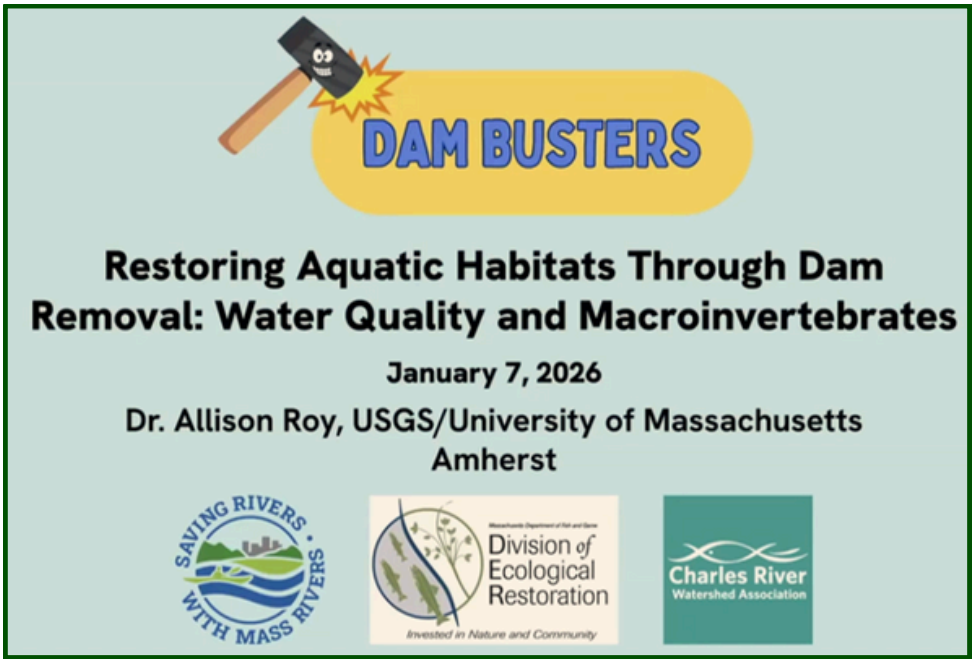
Keynote Address

Restoring Aquatic Habitats Through Dam Removal: Water Quality and Macroinvertebrates

Allison Roy, Unit Leader
United States Geologic Survey & University of Massachusetts - Amherst

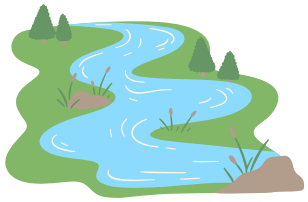
Dr. Allison Roy was scheduled to be the Keynote Address for the event. Unfortunately she was unable to attend due to the federal government shutdown.

On January 7, 2026 Allison shared her experience in a **webinar** for the **Massachusetts River Alliance Dam Busters Working Group**. Please click on the image below to watch her webinar, and enjoy the work she wanted to share at our event.



Click here to view the webinar!

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Case Studies Summary

Restoring Town Brook: A Watershed Approach

David Gould, Director of Energy and Environment, Town of Plymouth, MA

This case study focused on Town Brook in Plymouth, MA, a small, 1.7-mile stream with 7 dams and numerous mill complexes. Realizing that removing all 7 dams at once would be near-impossible, Plymouth tackled the smallest project first to gain experience for more complex projects and build momentum and community support for future projects. They updated infrastructure (e.g. replaced roads and bridges), developed parks and bike trails, and created opportunities for learning (e.g. the Herring Festival). So far, 17 projects to remove dams, expand culverts, protect open space, repair/replace fishways, and install green infrastructure solutions have been completed or are in progress.

Restoring the Kickemuit Estuary

Wenley Ferguson, Director of Restoration, Save The Bay
David Borkman, Shellfish Water Quality Program Supervisor,
Rhode Island Department of Environmental Management

Two aging dams on the Kickemuit River were removed in 2023/2024 because they were no longer serving their intended purposes of creating a public water supply. Now, collaborative partnerships work together to monitor various environmental factors including water quality (e.g., dissolved oxygen), hydrology (e.g., water level), and biological response (e.g., vegetation) before and after dam removal. Initial results indicate a shift from a freshwater/brackish system to a saltwater system. More data are being collected and analyzed.

The Kickemuit River has 10 stations included in RIDEM's shellfish sanitation program, which measures bacterial concentrations throughout the year. The Kickemuit River is currently prohibited for shellfishing at the stations closest to the site of the former Lower Dam. Data from these stations can track changes in bacterial concentration after dam removal. The data from 2022 to 2025 (pre- and post-dam removal) show that during wet weather, the number of fecal coliform exceedances has decreased since the dam has been removed. While these are preliminary data, the results show that benefits of stream connectivity projects can have further reaching ecological and recreational benefits.

Canoe River Pilot: Watershed Scale Prioritization of Nature-Based Solutions to Address Climate Hazards

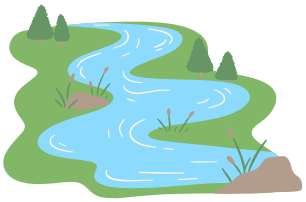
Kimberly Groff, Massachusetts Network Liaison,
Southeastern New England Program (SNEP) Network

The Canoe River aquifer in Southeastern MA is an important source of drinking water for nearby towns. These towns developed Municipal Vulnerability Preparedness (MVP) plans to identify priority projects for each town. The SNEP Network took a 4-step approach that first involved developing a geo-referenced database of MVP projects, assessing the community priorities, identifying nature-based solutions to address the community priorities, and ultimately prioritizing projects.

Through public engagement throughout the process, 15 projects were prioritized, including the Mulberry Meadow Brook Watershed in Easton, MA. Some key lessons learned from the Canoe River project included:

- Significant long-term investment of time and effort is needed to move from identified problems to solutions.
- An involved and active local community and local champions are critical.
- Model projects (like the Mulberry Meadow Brook) can be used to educate communities and increase support for future projects.
- There are benefits to working at the watershed scale because there are more project opportunities that can have large impacts. Multiple interventions and benefits create more competitive grant applications.

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Expert Panel Summary

Dirt on the Dirt: Discussion on Sediment Testing, Removal, Reuse, and Release During/After Dam Removal

After lunch, a four-person panel answered questions about natural sediment systems in rivers, how sediment release or removal can impact connectivity projects, and what types of new systems could be put in place to reduce the technical and financial burdens involved with sediment management in dam removal projects. The panel identified the following key takeaways:

- Sediment movement, along with wood and water, is a natural way that rivers and streams create habitat. Sediment also nourishes coastal habitats like salt marshes.
- Areas in the Narragansett Bay region are sediment-starved; very little sediment makes it from rivers to the coasts.
- Natural sediment movement is largely ignored in regulations and practices.
- There is a need to develop risk assessments on the amount of regulations needed for projects; a small dam removal may not need the same regulations as more complex projects.
- The volume of sediment in the impoundment and the pollutant loading (types of contaminants and the total mass) determines if sediment is released downstream or removed. Passive release or partial release may be available if the pollutant load downstream is similar to the impoundment.

Project-based advice

- Engage with regulatory agencies early and often
- Develop risk assessment/sediment management plans
- Consult available guidance documents from MADER, New Hampshire, New York, RI CRMC, and MA 401 Water Quality Regulations

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Resource Cafe Summary

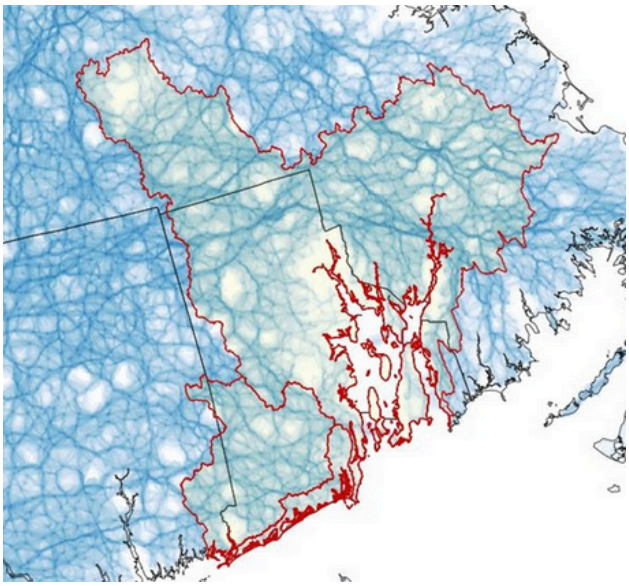
Terrestrial Connectivity for Wetland and Semi-Aquatic Wildlife

Scott Jackson, Extension Professor, University of Massachusetts, Amherst

The Designing Sustainable Landscapes (DSL) lab at the University of Massachusetts developed multiple tools to support prioritization and planning for connectivity projects in the northeast:

EcoConnect looks at regional ecosystem connectivity which is independent of defined conservation cores and available at multiple scales. It uses the Index of Ecological Integrity and develops connections between neighboring nodes which are ecologically similar and avoids developments and roads. EcoConnect looks at forests, ridgetops, wetlands, and floodplain forests compared to the region, state, and watershed.

Terrestrial Connectivity for Wetland and Semi-aquatic Wildlife



EcoAssess brings EcoConnect and the Index of Ecological Integrity together into one tool. Reports are generated on a parcel basis (either drawn in the tool or an uploaded shape file). The reports include the index of ecological integrity and the ecoConnect systems, and a narrative explanation for the methods and results. EcoAssess helps determine both the longitudinal and latitudinal integrity of connectivity projects.

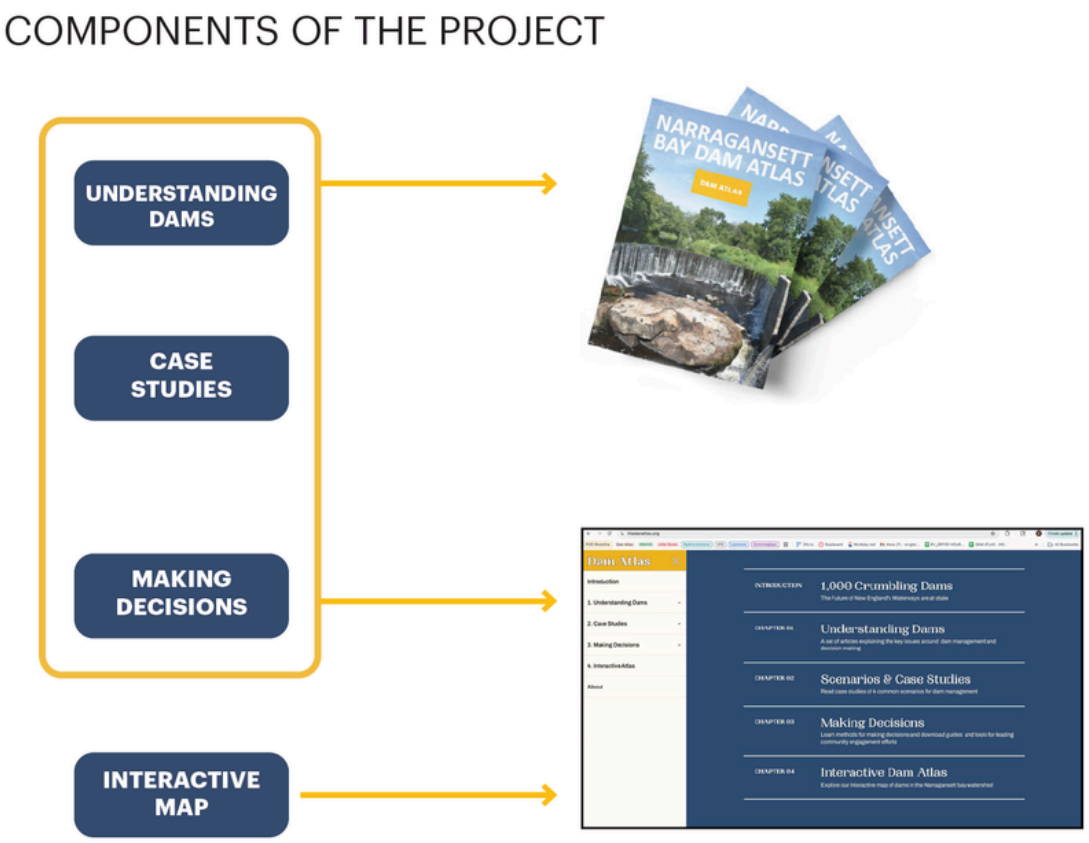
- **Designing Sustainable Landscapes (DSL):https://umassdsl.org**
- **EcoConnect: https://umassdsl.org/data/ecoConnect/**
- **EcoAssess: https://umassdsl.shinyapps.io/EcoAssess/**

Dam Atlas Decision Support Tools: Cultivating Environmental Democracies

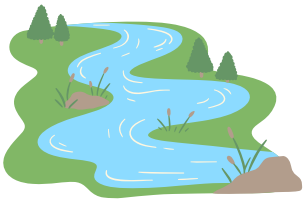
Emily Vogler, Associate ProfRhode Island School of Design

The **Narragansett Bay Dam Atlas** is a decision support tool that takes an interdisciplinary approach to the environmental, economic, and sociological aspects of dam removal. The Dam Atlas provides case studies and meeting aides to provide creative social practices to bring people together at local levels to discuss viewpoints and fully consider the social and environmental repercussions of individual and community beliefs, identities, and actions. The project includes a guide to understanding dams, case studies, decision-making support tools, and an interactive map. The Dam Atlas uses structured decision-making to allow for transparent evaluation of alternatives to dam removal based on how well each alternative meets the connectivity project objectives.

- **Narragansett Bay Dam Atlas: https://thedamatlas.org/**



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Participatory Activity Summary

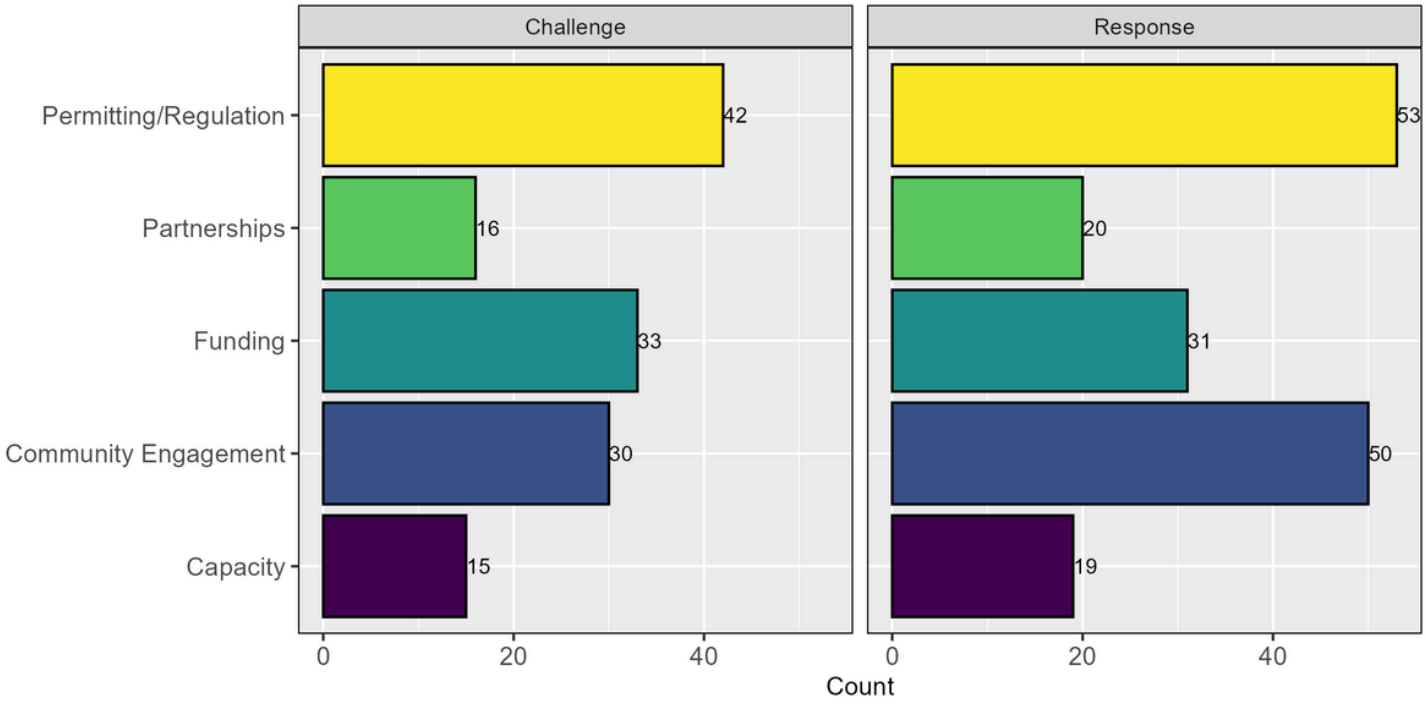
Project Challenges, Responses, and Solutions

During lunch, participants were prompted to:

1. **brainstorm and record challenges** they had experienced during past or ongoing aquatic connectivity projects from their individual perspectives.
2. **identify and record the responses to those challenges** that were implemented in those instances, or note if the challenges were unresolved.

Challenges and responses were assigned into one of five major categories:

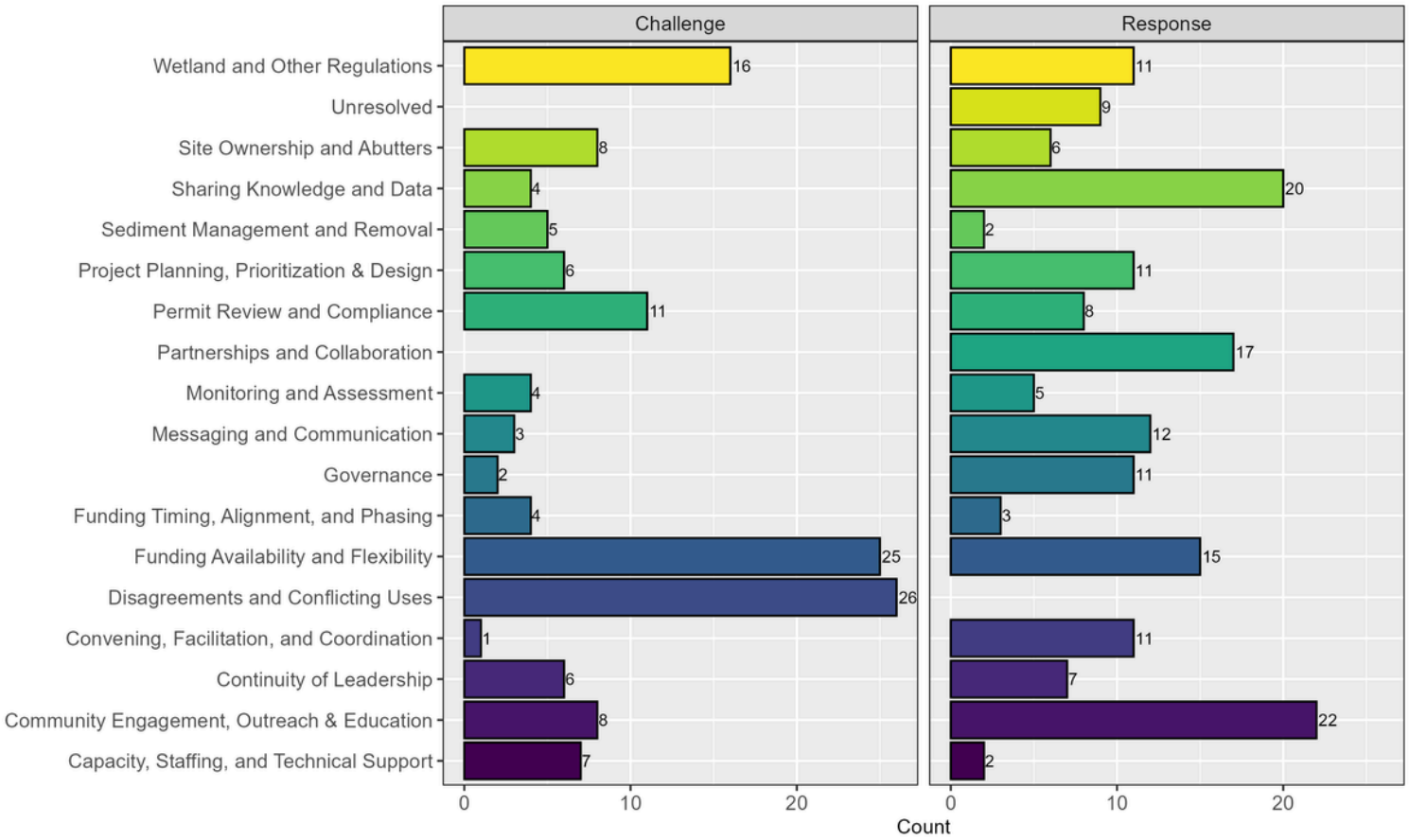
- Permitting and Regulation
- Community Engagement
- Funding
- Partnerships, and
- Capacity



The number of challenges (left) and responses (right) that were identified in each category during the working lunch session.

Each of the recorded and categorized challenges, responses, and solutions were transcribed into a spreadsheet (Appendix A). Then, more refined subcategories were identified to further describe the challenges and responses.

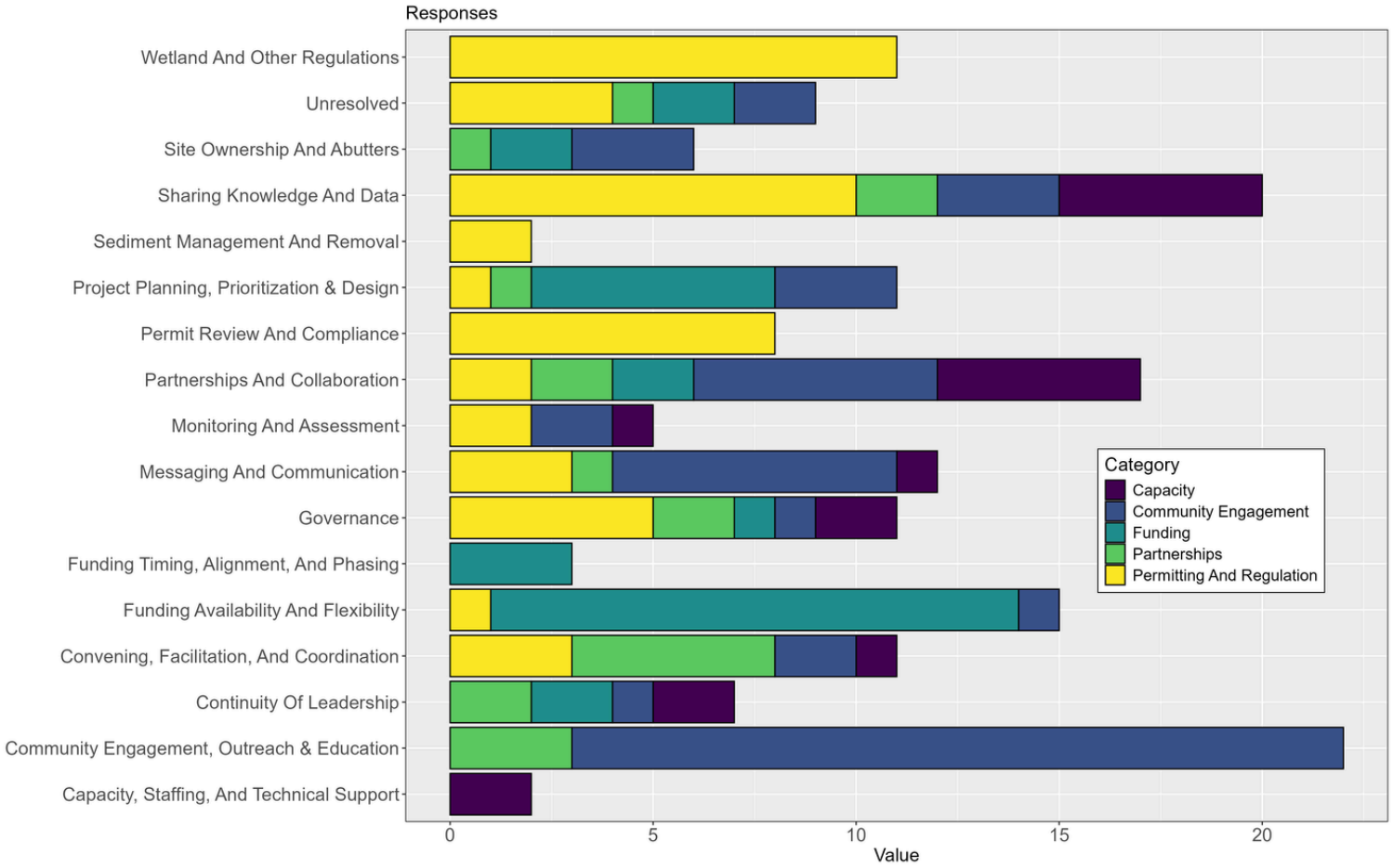
There were **16 subcategories for problems and 17 subcategories for solutions**. The goals of this activity were to identify common challenges and responses that a newly created working group on aquatic connectivity can help to solve, and to brainstorm systems-level solutions to commonly encountered challenges.



The number of challenges (left) and responses (right) that were identified in each subcategory during the working lunch session.

In the afternoon, workshop organizers facilitated discussions among workshop participants in small groups to address the categorized challenges and responses. In many cases, **certain actions at the subcategory level could solve problems across many of the five major categories, suggesting potential as 'systems-level solutions'**.

Appendix A includes a full summary and analysis of the participatory activity.



Subcategories of responses that fell within each of the 5 major response categories. For example, there were four 'unresolved' issues relating to permitting and regulations.

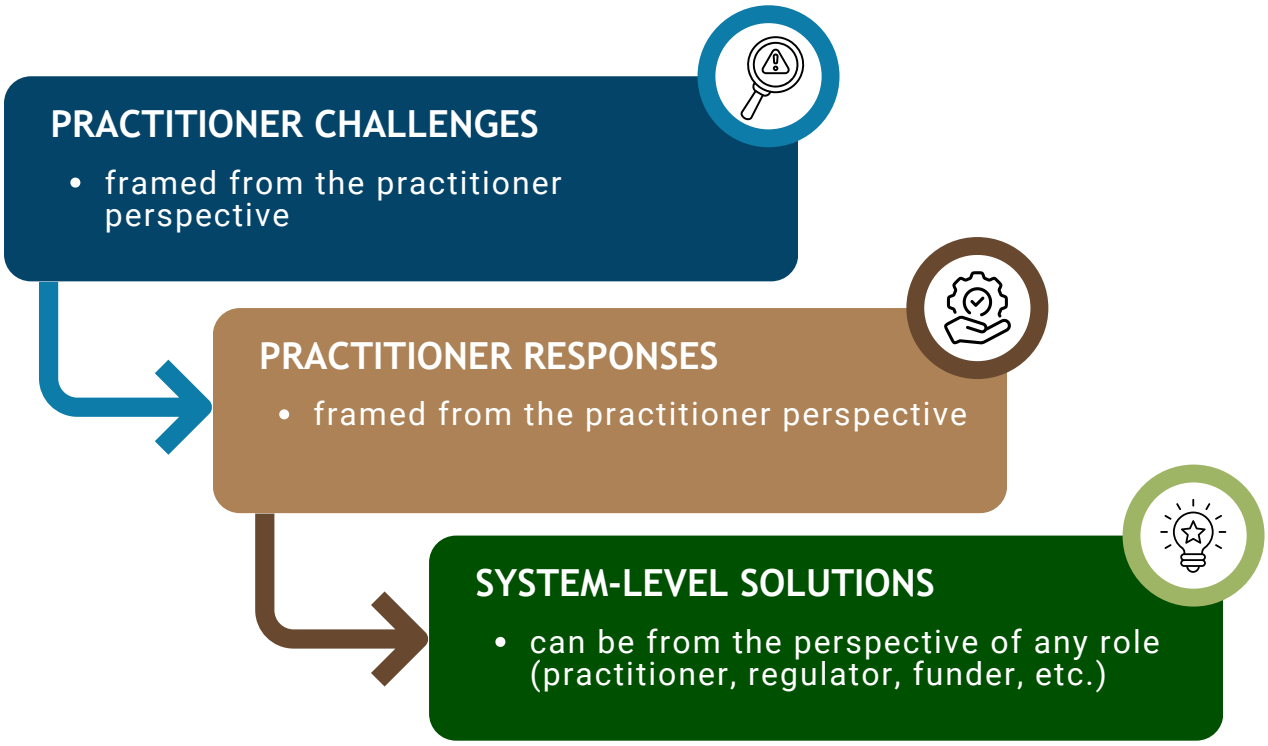
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Systems-Level Change Summary

The following graphics summarize:

- the top 2-3 challenges identified in each major category,
- the top responses to those challenges, and
- potential systems-level solutions to accelerate progress.



Partnerships



Funding

PRACTITIONER CHALLENGES

- Common struggles to access flexible funds for project start-up and preconstruction steps
- Timing of opportunities do not often line up with current project stages; funding freezes and cancellations impact project timelines
- Contaminated sediment removal is often too expensive to pursue

PRACTITIONER RESPONSES

- Pursue diverse funding sources, including private
- Work with partners to co-create innovative solutions for project funds
- Have multiple projects queued up to be responsive to RFPs

SYSTEM-LEVEL SOLUTIONS

- Convene funders to plan actions that ease hurdles for applicants, e.g.,
  - publicly-accessible funding calendars
  - common funding applications
- Regional funders should maintain or increase focus on capacity funding
- Alternate funding schemes should be explored, especially for wicked problems like contaminated sediment
- Organizations should collaborate to pursue new funding streams and recognition of the Region's restoration potential

Capacity

PRACTITIONER CHALLENGES

- Inconsistent project contacts / leaders
- Lack of collaboration opportunities at the necessary topics and scales
- Knowledge management

PRACTITIONER RESPONSES

- Support project leadership by stable groups that want to lead and have the capacity and mission to do so
- Ad-hoc collaboration
- Develop ‘how-to’ manual with contacts, organizations, partnerships needed for projects
- Share resources - permit applications, QAPPs, proposals, SOPs

SYSTEM-LEVEL SOLUTIONS

- Must develop human and resource capacity:
  - within individual organizations to lead projects
  - collaborative capacity among organizations to coordinate at watershed scales
- Develop working group(s) to:
  - provide opportunities to collaborate at appropriate scales and consider the bigger picture
  - convene upon key action items to effect changes
  - identify lead organization(s) with capacity to house and share information

Community Engagement

PRACTITIONER CHALLENGES

- Conflicting uses - sociological, recreation, industrial, economic
- Misinformation and lack of understanding
- Lack of clarity about who to engage and when

PRACTITIONER RESPONSES

- Engage neutral facilitation to approach projects as full river restorations with dam removal as one option, not the decided option
- Aim for meaningful two-way engagement
- Do homework early to identify owners, abutters, partners, and known environmental challenges
- Develop project FAQs

SYSTEM-LEVEL SOLUTIONS

- Meaningful, two-way community engagement connects with people over time rather than intermittently
- Sharing restoration co-benefits and success stories, engaging with youth, and expanding the tent is important
- Meeting early and often, ideally where people are and before restoration solutions have been chosen, can help
- Partners should work to expand the pool of neutral facilitators through trainings

Permitting and Regulation

PRACTITIONER CHALLENGES

- Permitting timeline is lengthy and lacks clarity
- QAPPs, required assessments, cultural / historical needs
- Multi-agency coordination
- Continuity in regulatory interpretation / application
- Site conditions: contaminated sediment, invasive and endangered species

PRACTITIONER RESPONSES

- Hold pre-application meetings with regulatory agencies
- Clarify specific challenges and pathways to justifying alterations to freshwater wetlands
- Clarify pathway to minor freshwater wetlands alteration permit
- Share QAPPs, permit applications, and other resources

SYSTEM-LEVEL SOLUTIONS

- Pursue variety of pathways to speed and clarify restoration project permitting:
  - link pre-application to later full application
  - create dedicated / rapid response permit review teams for restoration projects
  - operationalize RI natural heritage database
  - propose interdepartment, interagency, and interstate meeting(s) to discuss dam removal
  - consider policy mechanisms to recognize benefits of dam removal and other restoration efforts in wetlands regulations
  - consider sediment release based on downstream conditions

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Initial Action Items

Aquatic Connectivity Working Group

The following list of potential action items for the new NBEP Aquatic Connectivity Working Group was derived from workshop discussions. NBEP will convene the working group in the first quarter of 2026 for a kickoff meeting to determine priority action items. To join the working group, please email Jennifer Rogers, jrogers@nbep.org or sign up for the kickoff meeting using this link (no password required).

Funding

1. Convene funders to consider how to coordinate opportunities.
2. Approach private foundations with specific needs that are not well-served by existing funding opportunities.

Community Engagement and Communication

1. Identify desired qualifications of community meeting facilitators and training opportunities to build desired skills; expand list of qualified facilitators by offering trainings to new people.
2. Develop polished case studies demonstrating restoration successes and challenges to share with regulators, funders, and the public.
3. Create template messaging to appeal to new partners that are primarily interested in co-benefits like water quality, recreation, resilience, shellfishing, and safety.
4. Develop template project Frequently Asked Questions with information about the regional need for aquatic connectivity, dam removal benefits, etc.

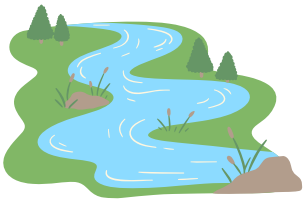
Information Sharing

1. Create knowledge and data sharing tools and procedures:
    a. Identify host organization and platform to host and share materials, including approved dam removal and culvert upgrade QAPPs and wetland permit justifications
    b. Create dashboard for barrier removal projects
2. Work to quantify and communicate water quality benefits of dam removal projects:
    a. Share data demonstrating how impoundments cause thermal pollution downstream,
    b. Identify barrier removals that could contribute to Total Maximum Daily Load (TMDL) implementation
    c. Share information about Kickemuit dam removals and Rhode Island shellfish program data through a white paper and/or other means.

Wetland Regulations and Permitting

1. Compile and share information used to justify dam removal in freshwater wetlands permit applications vis-à-vis protecting the function and value of altered wetlands.
2. Clarify and share information about the pathway for “insignificant alteration” permits on smaller dams; gather and share information about projects that have qualified for this type of permit.
3. Review, finalize, and share the Rhode Island dam removal permitting chart developed for the Narragansett Bay Dam Atlas.
4. Approach Rhode Island Department of Environmental Management leadership about convening a Rhode Island interagency / interdepartmental meeting to share dam removal successes and co-benefits such as water quality, recreation, resilience, shellfishing, and safety as well as highlight regulatory/bureaucratic challenges to restoration projects (use case studies listed below, including project costs); demonstrate the increasing interest in these projects and the need to streamline the permit process.
5. Coordinate a meeting between key Rhode Island Department of Environmental Management staff and the Massachusetts Division of Ecological Restoration and the Massachusetts Department of Environmental Protection Wetlands program to learn about the Massachusetts permitting process for dam removals, including the Ecological Restoration Project Notice of Intent process.

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