Appendix A: Project challenges, responses, and solutions: participatory activity

During the lunch workshop, participants were prompted to brainstorm and record challenges they had experienced during past or ongoing aquatic connectivity projects from their perspectives as practitioners, funders, regulators, or other roles. Then they were prompted to identify and record the responses to those challenges that was implemented in those instances, or note if the challenges were unresolved. These challenges and responses were assigned into one of five major categories that are important during aquatic connectivity projects (Permitting and Regulation, Community Engagement, Funding, Partnerships, and Capacity, Figure 1).

In the afternoon, workshop organizers facilitated discussions among workshop participants in small groups to address the categorized challenges and responses. The purpose of the activity was to identify a small number of 'systems level' solutions that could be applied to solve many of the identified challenges and scale up the identified project-specific responses.

To summarize this information, each of the recorded and categorized challenges, responses, and solutions were transcribed into a spreadsheet (Appendix 1). Then, more refined subcategories were identified to further describe the challenges and responses. For example, the recorded challenges "changing people as project goes on" and "projects take longer to implement than political terms last" were first categorized as "Partnerships" and then were further subcategorized as "Continuity of Leadership". The recorded responses "coordinate with permitters early and often" and "early and often coordination with regulators" were first categorized as "Permitting and Regulation" and then were further subcategorized as "Convening, Facilitation, and Coordination". There were 16 subcategories for problems and 17 subcategories for solutions (Figure 2). 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.

Activity Results

Ultimately, 136 challenges were identified (130 unique), 129 responses were identified (126 unique), and 44 systems-level solutions were identified (44 unique).

Challenges

- At the major category level, the most challenges were categorized as Permitting and Regulation, followed by Funding, Community Engagement, Partnerships, and Capacity (Figure 1).
- At the subcategory level, the top challenges reported were related to Disagreements and Conflicting Uses, followed closely by Funding Availability and Flexibility. Other commonly reported challenges included Wetland and Other Regulations, Permit Review and Compliance, and Site Ownership and Abutters combined with Community Engagement, Outreach and Education (Figure 2).
- Disagreements and Conflicting Uses challenges fell mostly within either the major categories of Partnerships (e.g., "internal conflict between partners" or Community Engagement (e.g., "cultural/ industrial / recreation uses (conflicting uses)".
- Funding Availability and Flexibility challenges was the second most commonly reported subcategory and were often related to accessing project start-up funds (e.g., match, cash on hand for reimbursement grants, and organizational capacity).
- Funding challenges were sometimes placed in the major category of Permitting and Regulation and subcategorized as Permit Review and Compliance or regulation (e.g., "regulatory permits - process is too expensive" or Wetland and Other Regulations (e.g., "complex, costly, time consuming regulations. Not designed for restoration"). But more often, Funding challenges were within the Funding major category.
- Timing issues arise through challenges within the major categories of Capacity, Funding, Community Engagement, and Permitting/Regulation. Example challenges related to timing include "timing of grant opportunities relative to project needs (e.g., fiscal years)" (Funding), "crushing regulations that slow projects" (Permitting and Regulations), and "timing - funding expires before it can be used" (Funding).
- Within the Permitting and Regulation category, participants reported challenges with permit review timelines (e.g." project permitting timeline for restoration takes forever") and with freshwater wetlands regulations that do not recognize the benefits of dam removal projects that significantly impact freshwater wetlands (e.g. "freshwater wetland regulations weren't written for restoration").
- The following subcategories were spread across three or more of the five major categories, suggesting that help with these problems can have wide ranging benefits for aquatic connectivity projects: Site Ownership and Abutters, Sharing Knowledge and Data, Project Planning, Prioritization, and Design, and Continuity of Leadership.

Responses

- The most responses were categorized as Permitting and Regulation, followed by Community Engagement, Funding, Partnerships, and Capacity (Figure 1).
- The top response subcategories were Community Engagement, Outreach and Education, Sharing Knowledge and Data, Partnerships and Collaboration, Funding Availability and Flexibility, and Messaging and Communication (Figure 2).
- Nine responses were listed as being unresolved (Figure 2), which included things like “frustration” and “internal screaming”. The greatest number of unresolved responses were associated with Permitting and Regulations challenges (Figure 3).
- Participants commonly not surprisingly identified Permit Review and Compliance and Wetland and Other Regulations responses to Permitting and Regulation challenges. However, participants also identified other responses to Permitting and Regulation challenges. For example, some were subcategorized as Sharing Knowledge and Data, such as “creating a usual flow diagram to keep track of where you are in the process and next steps” and “written down guidance and standards” (Figure 3).
- Project Planning, Prioritization, and Design can help overcome issues with Funding (Figure 3). For example, “being well prepared for application periods”, “preparing projects, just in case funding becomes available” and “long term planning and multiple funding sources” were all solutions to Funding challenges.
- While many subcategory responses fell within a single major category (e.g. Wetland and Other Regulation subcategory only addressed Permitting and Regulation challenges) other subcategories responses could address many of the major category challenges. For example, Partnerships and Collaboration can solve problems across all five major categories. Similarly, Sharing Knowledge and Data, Governance, Convening Facilitation and Coordination, among others, also helped at least four categories of challenges. (Figure 3).
- Several responses that fell withing the Messaging and Communication subcategory described the potential to bring in more project partners (e.g., “appeal to stakeholders interests (flooding, money, fish, recreation”) and improve community engagement by communicating project co-benefits, for example: “make the financial connection (tourism?) how to make this case?”, “discuss ancillary benefits - long term maintained, improved flood protection” and “recreation vs removal” (Figure 3).
- Many community engagement responses were general, simply stating the need to do more of it, example: “community discussion and compromise”, “community

engagement (early and often) and respond to 'asks'" and "robust community engagement"

Systems-Level Solutions

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'. For example, Sharing Knowledge and Data was a response to many Permitting and Regulation problems, but also to problems related to Partnerships, Community Engagement, and Capacity (Figure 3). Responses recorded as "envision a pre-approved QAPP manual - users could select approved methods from a menu and edit for project" and "grant or permit requirement to upload data to public database" were all Permitting and Regulation responses that were subcategorized as related to Sharing Knowledge and Data. Similarly, responses recorded as "create public repository of data links" and "knowledge management systems" were considered to be Capacity (major category) and subcategorized as Sharing Knowledge and Data.

NBEP further summarized systems-level solutions in each major category (reference flow charts here). Many of these solutions are proposed as initial actions for the Narragansett Bay Region Aquatic Connectivity Working Group (reference summary section with actions).

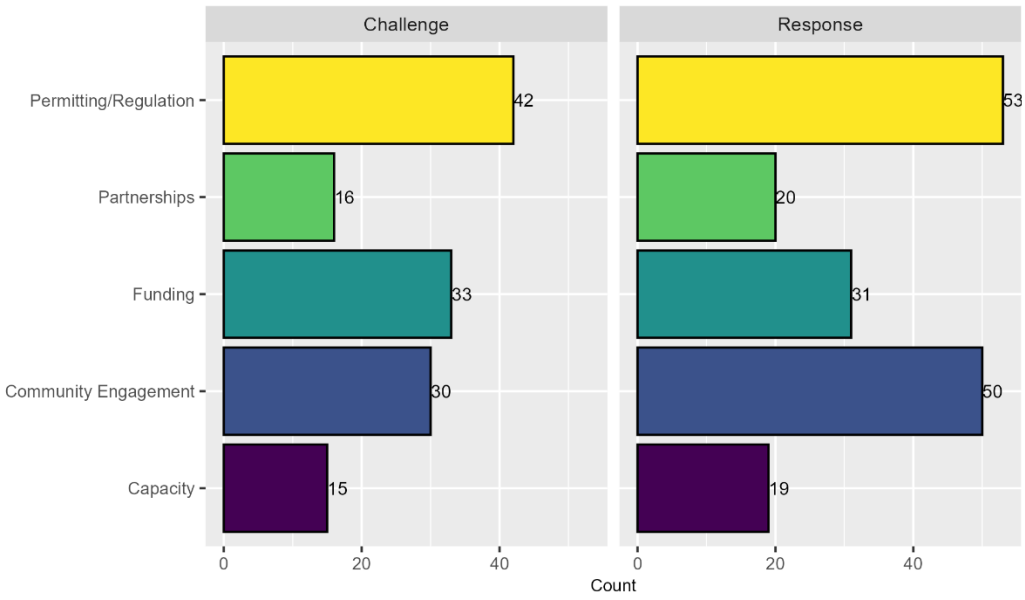


Figure 1: The number of challenges (left) and responses (right) that were identified in each category during the working lunch session.

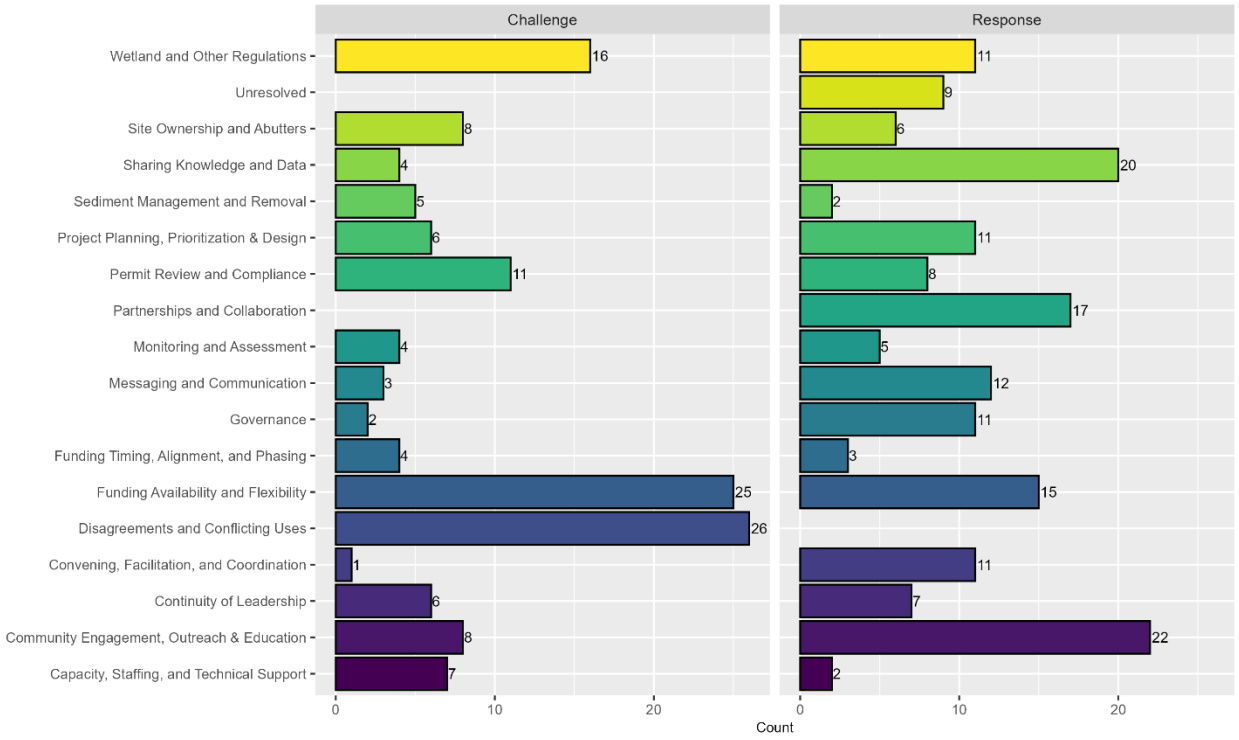


Figure 2: The number of challenges (left) and responses (right) that were identified in each subcategory during the working lunch session.

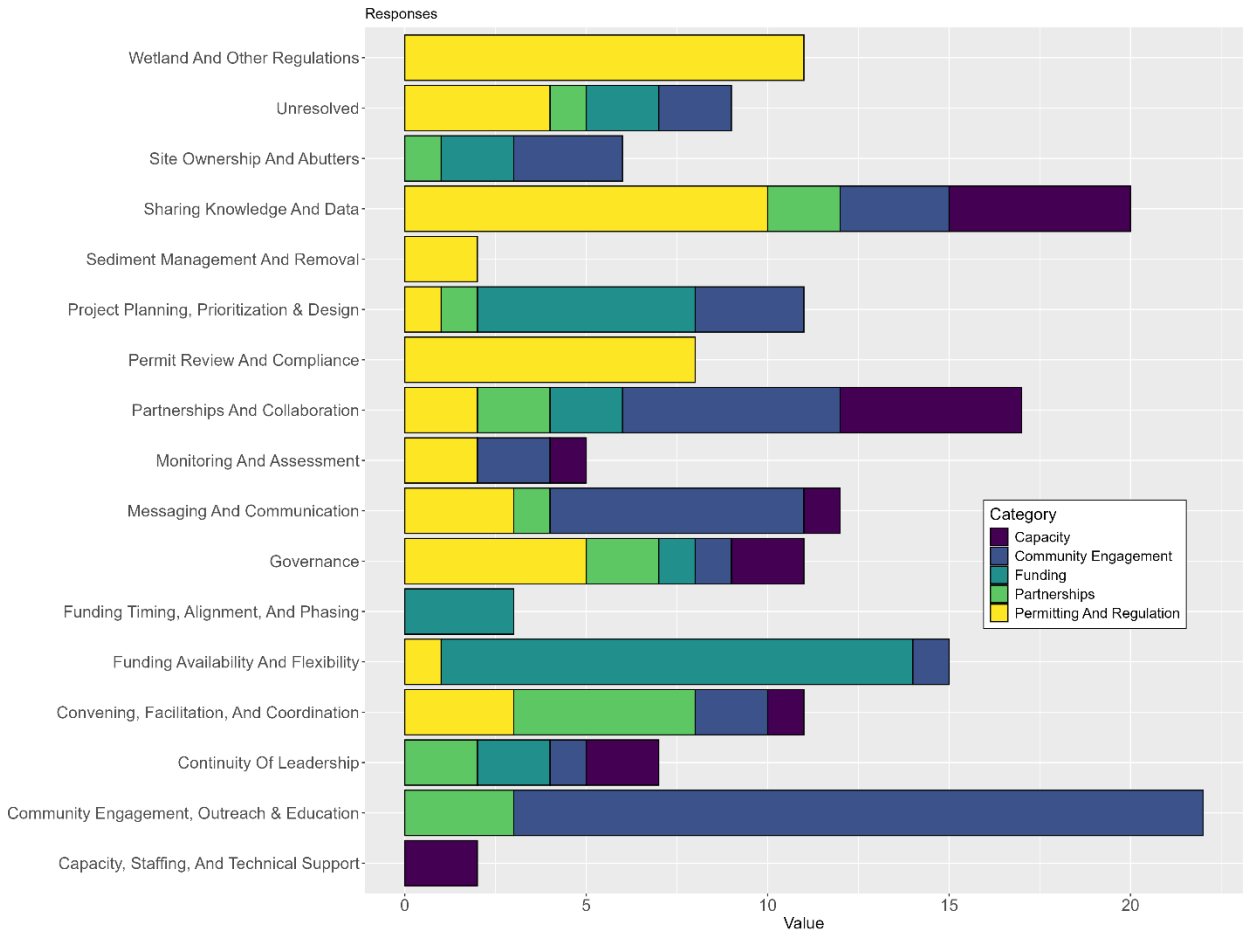


Figure 3: Subcategories of responses that fell within each of the 5 major response categories. For example, there were four ‘unresolved’ issues relating to permitting and regulations.

Appendix 1

Table 1: The full list of digitized sticky notes from the connectivity workshop. Status refers to whether the participants were writing a challenge, response, or solution. Major category refers to the group of five topics that workshop organizers originally assigned to each sticky note. The subcategory reflects the more refined categories for each sticky note that workshop organizers identified. The original sticky note column shows the original writing.

Status	Major category	Subcategory	Original sticky note
challenge	funding	Capacity, Staffing, and Technical Support	funding/capacity
challenge	capacity	Capacity, Staffing, and Technical Support	academic - community work is difficult, moving a lot, limited time for engagement
challenge	capacity	Capacity, Staffing, and Technical Support	capacity constraints
challenge	capacity	Capacity, Staffing, and Technical Support	capacity and project prioritization
challenge	capacity	Capacity, Staffing, and Technical Support	capacity
challenge	capacity	Capacity, Staffing, and Technical Support	capacity - nonprofits often lack technical or staff capacity but may take on dozens of projects in lieu or municipal, state, and federal programs.
challenge	capacity	Capacity, Staffing, and Technical Support	lack of capacity to support more projects (tidal connectivity)
response	capacity	Capacity, Staffing, and Technical Support	more time
response	capacity	Capacity, Staffing, and Technical Support	volunteer more time for the cause
challenge	community engagement	Community Engagement, Outreach & Education	demonstrating project progress to funders and public, they are so long term
response	partnerships	Community Engagement, Outreach & Education	community discussion and compromise
response	partnerships	Community Engagement, Outreach & Education	strong public, intersectional engagement
solution	partnerships	Community Engagement, Outreach & Education	Dam atlas interest vs position early on with stakeholders
challenge	permitting and regulation	Community Engagement, Outreach & Education	community level confusion regarding permitting and authority
challenge	community engagement	Community Engagement, Outreach & Education	communication and public outreach
challenge	community engagement	Community Engagement, Outreach & Education	community buy in
challenge	community engagement	Community Engagement, Outreach & Education	outreach/ community engagement
challenge	community engagement	Community Engagement, Outreach & Education	getting 'real' community input on projects how to get people to come [to input sessions]
challenge	community engagement	Community Engagement, Outreach & Education	lack of public understanding
challenge	community engagement	Community Engagement, Outreach & Education	public understanding
response	community engagement	Community Engagement, Outreach & Education	community engagement and discussion
response	community engagement	Community Engagement, Outreach & Education	engage community early and often. Relate the project to issues the community care about
response	community engagement	Community Engagement, Outreach & Education	create different pathways for communication and community input
response	community engagement	Community Engagement, Outreach & Education	robust community engagement
response	community engagement	Community Engagement, Outreach & Education	community engagement (early and often) and respond to 'asks'
response	community engagement	Community Engagement, Outreach & Education	more engagement/community organization/flexibility in design
response	community engagement	Community Engagement, Outreach & Education	meeting people where they are gathering and expanding the input of the community

response	community engagement	Community Engagement, Outreach & Education	finding more advocates and messengers
response	community engagement	Community Engagement, Outreach & Education	labor unions
response	community engagement	Community Engagement, Outreach & Education	education
response	community engagement	Community Engagement, Outreach & Education	focused community outreach
response	community engagement	Community Engagement, Outreach & Education	repeated engagement with the community by different professionals
response	community engagement	Community Engagement, Outreach & Education	brochures and community meetings
response	community engagement	Community Engagement, Outreach & Education	persistent outreach
solution	community engagement	Community Engagement, Outreach & Education	understand local community before you go in. State/local watershed association engagement, with work nonprofit steering committees, mainstream dam atlas, time for community to decide
solution	community engagement	Community Engagement, Outreach & Education	let the community reach the conclusions - removal versus lots of money vs risk.
solution	community engagement	Community Engagement, Outreach & Education	informational meeting and materials before the solution is decided
solution	community engagement	Community Engagement, Outreach & Education	ecological restoration curriculum k-12
solution	community engagement	Community Engagement, Outreach & Education	focus on people on the fence
challenge	funding	Continuity of Leadership	leadership not seeking funding
response	funding	Continuity of Leadership	local champion
response	funding	Continuity of Leadership	early adopter
challenge	partnerships	Continuity of Leadership	changing people as project goes on
challenge	partnerships	Continuity of Leadership	complexity - lots of partners, ownerships, technical, timing, and on history
challenge	partnerships	Continuity of Leadership	projects take longer to implement than political terms last
response	partnerships	Continuity of Leadership	contract engineering firm to create single contact
response	partnerships	Continuity of Leadership	building relationships and long lasting connections
challenge	capacity	Continuity of Leadership	project length is longer than political terms, which change project outcomes and needs
challenge	capacity	Continuity of Leadership	lack of municipal personnel to manage and provide continuity within and between projects
response	capacity	Continuity of Leadership	project control in 3rd party (like watershed groups) to maintain continuity
solution	capacity	Continuity of Leadership	identify local champion to ensure continuity
response	community engagement	Continuity of Leadership	engaging the public early from community level, not just consultant level.
response	partnerships	Convening, Facilitation, and Coordination	get everyone in a room on project team and make it up
response	partnerships	Convening, Facilitation, and Coordination	time and money - continue to convene, meet, patience,
response	partnerships	Convening, Facilitation, and Coordination	facilitated conversations to identify objectives
solution	partnerships	Convening, Facilitation, and Coordination	frequent structured informal (if possible) team meetings
solution	partnerships	Convening, Facilitation, and Coordination	meeting facilitators, not project managers or technical staff
response	capacity	Convening, Facilitation, and Coordination	working group/partnership convening to initiate planning efforts
response	permitting and regulation	Convening, Facilitation, and Coordination	try to engage regulators as early as possible. Try to get regulator to attend site visits - can be challenging
response	permitting and regulation	Convening, Facilitation, and Coordination	early and often coordination with regulators

response	permitting and regulation	Convening, Facilitation, and Coordination	coordinate with permitters early and often
challenge	community engagement	Convening, Facilitation, and Coordination	getting key stakeholders in the same room (state, town, abutters)
response	community engagement	Convening, Facilitation, and Coordination	during construction, open line of communication between contractor and shot caller and or regulator to avoid project delays and increase costs
solution	community engagement	Convening, Facilitation, and Coordination	have a neutral facilitator - can't be project advocate and facilitator. Landscape architects are uniquely positioned to be neutral facilitators.
challenge	partnerships	Disagreements and Conflicting Uses	stakeholder disagreements
challenge	partnerships	Disagreements and Conflicting Uses	different priorities among stakeholders
challenge	partnerships	Disagreements and Conflicting Uses	internal conflict between partners
challenge	partnerships	Disagreements and Conflicting Uses	partners have different priorities
challenge	partnerships	Disagreements and Conflicting Uses	perceived issues between different groups
challenge	partnerships	Disagreements and Conflicting Uses	multiple opinions on project and difficulty getting everyone in the same room
challenge	partnerships	Disagreements and Conflicting Uses	multiple opinions on project team
challenge	partnerships	Disagreements and Conflicting Uses	multiple requirement/ opinions interagency and intra agency that cause back and forth
challenge	partnerships	Disagreements and Conflicting Uses	convincing a municipality to upsize rather than replace a culvert
challenge	community engagement	Disagreements and Conflicting Uses	the loudest public voices tend to be the ones opposing the change
challenge	permitting and regulation	Disagreements and Conflicting Uses	multiple agencies (state and federal) in permitting and conflicting viewpoints and priorities
challenge	community engagement	Disagreements and Conflicting Uses	conflicting uses of impoundment
challenge	community engagement	Disagreements and Conflicting Uses	riverbank homeless
challenge	community engagement	Disagreements and Conflicting Uses	community resistance
challenge	community engagement	Disagreements and Conflicting Uses	cultural/ industrial / recreation uses (conflicting uses)
challenge	community engagement	Disagreements and Conflicting Uses	competing community interests
challenge	community engagement	Disagreements and Conflicting Uses	hesitancy of community and conservation commission
challenge	community engagement	Disagreements and Conflicting Uses	community supported culvert replacement but not road removal - in coastal tidal system
challenge	community engagement	Disagreements and Conflicting Uses	disinformation and environmental issues
challenge	community engagement	Disagreements and Conflicting Uses	disinformation
challenge	community engagement	Disagreements and Conflicting Uses	misinformation
challenge	community engagement	Disagreements and Conflicting Uses	stubborn long standing community opposition based on historical attachment to the dam
challenge	community engagement	Disagreements and Conflicting Uses	the historical discussion with dams
challenge	community engagement	Disagreements and Conflicting Uses	actual vs perceived risks of dam removal (Hopkinton)
challenge	community engagement	Disagreements and Conflicting Uses	political and public pushback with dam removal
challenge	permitting and regulation	Disagreements and Conflicting Uses	water intake upstream impacted by dam removal
challenge	funding	Funding Availability and Flexibility	funding initial design
challenge	funding	Funding Availability and Flexibility	funding shortfall
challenge	funding	Funding Availability and Flexibility	funding sources for removal and restoration

challenge	funding	Funding Availability and Flexibility	reimbursement grants - how to front large amounts of money
challenge	funding	Funding Availability and Flexibility	funding for design and construction
challenge	funding	Funding Availability and Flexibility	funding early project stages - feasibility, design, permitting
challenge	funding	Funding Availability and Flexibility	funding
challenge	funding	Funding Availability and Flexibility	find appropriate grants/ fundraising
challenge	funding	Funding Availability and Flexibility	external funding for grant writers, project managers, and community outreach facilitators
challenge	funding	Funding Availability and Flexibility	cost and efficiency
challenge	funding	Funding Availability and Flexibility	fish passage options
challenge	funding	Funding Availability and Flexibility	difficulty matching federal dollars for federal grants
challenge	funding	Funding Availability and Flexibility	lack of state level funding
challenge	funding	Funding Availability and Flexibility	traditional academic funding doesn't tend to take continuum perspective
challenge	funding	Funding Availability and Flexibility	NSF doesn't fund coastal zone as much
challenge	funding	Funding Availability and Flexibility	not enough money to get the project started/completed
challenge	funding	Funding Availability and Flexibility	funding shortfall
challenge	funding	Funding Availability and Flexibility	funding
challenge	funding	Funding Availability and Flexibility	funding
challenge	funding	Funding Availability and Flexibility	early project funding
challenge	funding	Funding Availability and Flexibility	loss of federal funding
challenge	funding	Funding Availability and Flexibility	funding
response	funding	Funding Availability and Flexibility	creative funding options
response	funding	Funding Availability and Flexibility	diverse funding sources that can award up front (private)
response	funding	Funding Availability and Flexibility	Save the Bay, NBEP, RI coastal habitat trust for design
response	funding	Funding Availability and Flexibility	in MA, DER funds some feasibility studies
response	funding	Funding Availability and Flexibility	applied for more funds from new and existing funding sources
response	funding	Funding Availability and Flexibility	diversifying funding sources
response	funding	Funding Availability and Flexibility	federal, state, local grants, and capital budgets
challenge	funding	Funding Availability and Flexibility	no match funds
response	funding	Funding Availability and Flexibility	diversifying funding sources
response	funding	Funding Availability and Flexibility	pilot payment legislation for mitigation fund
response	funding	Funding Availability and Flexibility	use as many grant opportunities as possible, but that's not always sustainable for reliable
response	funding	Funding Availability and Flexibility	fund without match
response	funding	Funding Availability and Flexibility	large enough funding for project
solution	funding	Funding Availability and Flexibility	payment for ecological lift
challenge	funding	Funding Availability and Flexibility	fiscal challenges
challenge	permitting and regulation	Funding Availability and Flexibility	fiscal challenges
response	permitting and regulation	Funding Availability and Flexibility	public sediment cleanup fund
solution	community engagement	Funding Availability and Flexibility	money for long term maintenance
challenge	funding	Funding Timing, Alignment, and Phasing	timing of grant opportunities relative to project needs (e.g., fiscal years)

challenge	funding	Funding Timing, Alignment, and Phasing	timing disconnect - timing vs project being ready
challenge	funding	Funding Timing, Alignment, and Phasing	timing - funding timeline doesn't align with lengthy permitting process
challenge	funding	Funding Timing, Alignment, and Phasing	timing - funding expires before it can be used
response	funding	Funding Timing, Alignment, and Phasing	regional grant applications between municipalities and organizations
solution	funding	Funding Timing, Alignment, and Phasing	long term funding models
solution	funding	Funding Timing, Alignment, and Phasing	collaborative funding applications
response	funding	Governance	fund and increase capacity to support permitting
response	partnerships	Governance	close coordination between agencies to develop plan
solution	partnerships	Governance	RI make a DER
response	capacity	Governance	agency agreements to streamline permitting
solution	capacity	Governance	state needs to think of non profits as flow through to distribute state funds for technical assistance (like SNEP network)
challenge	permitting and regulation	Governance	getting bounced around multiple state and federal agencies for permitting and losing track of what the next step is
challenge	permitting and regulation	Governance	bureaucracy
response	permitting and regulation	Governance	eco futurism! Image a different way for reporting and permission
response	permitting and regulation	Governance	create restoration permit that requires state partnerships, creates quicker path
response	permitting and regulation	Governance	RIDEM water resources TMDL requires communities to implement practices to improve water quality - dam removal a potential action
response	permitting and regulation	Governance	interagency meetings to discuss different view points
solution	permitting and regulation	Governance	list of barrier removal that could contribute to TMDL plans
solution	community engagement	Governance	state or tribe level guidance on how to deal with unknown ownership. Can state or tribe take ownership if no one claims ownership after an ad (or similar) this needs a precedent
response	partnerships	Messaging and Communication	appeal to stakeholders interests (flooding, money, fish, recreation)
solution	community engagement	Messaging and Communication	controlling the messaging long before formal public involvement begins
response	capacity	Messaging and Communication	pointing out upstream and downstream benefits
challenge	permitting and regulation	Messaging and Communication	scope of need much larger than pace of projects
challenge	permitting and regulation	Messaging and Communication	confronting the "river miles" argument for fish passage on the Blackstone
solution	permitting and regulation	Messaging and Communication	need strong advocacy to high level administration
solution	permitting and regulation	Messaging and Communication	make the financial connection (tourism?) how to make this case?
solution	permitting and regulation	Messaging and Communication	co-benefits connectivity
challenge	permitting and regulation	Messaging and Communication	dam removals happing too slowly and too few - out of scale with problem
response	community engagement	Messaging and Communication	recreation vs removal
response	community engagement	Messaging and Communication	discuss ancillary benefits - long term maintained, improved flood protection
response	community engagement	Messaging and Communication	dream about system changes that allow for 100 dam removals a year, not five

response	community engagement	Messaging and Communication	potential removal to reduce [increase?] flood resilience
solution	community engagement	Messaging and Communication	Open the conversation to the whole river system. Don't start off talking about the individual dam - prevent people from getting too defensive.
solution	community engagement	Messaging and Communication	unify messaging from different stakeholders
challenge	capacity	Monitoring and Assessment	how do we increase efficiency to collect data, monitor, and share info?
challenge	capacity	Monitoring and Assessment	long term monitoring may be lacking
response	capacity	Monitoring and Assessment	more enforcement and identify sources of funding (regarding long term monitoring)
response	permitting and regulation	Monitoring and Assessment	more study and evaluation
response	permitting and regulation	Monitoring and Assessment	RI lacking natural heritage data like MA has
challenge	community engagement	Monitoring and Assessment	flooding
challenge	community engagement	Monitoring and Assessment	quantify water quality changes
response	community engagement	Monitoring and Assessment	students can help with monitoring
solution	community engagement	Monitoring and Assessment	monitoring
response	funding	Partnerships and Collaboration	building partnerships
response	funding	Partnerships and Collaboration	broaden partners involved in a project / application
response	partnerships	Partnerships and Collaboration	project team
solution	partnerships	Partnerships and Collaboration	make the tent bigger - involved more people!
response	capacity	Partnerships and Collaboration	collaboration (MVP or RRC)
response	capacity	Partnerships and Collaboration	programs with technical experts activity involved in projects - MADER, MACZM, NOAA, USFW, etc.
response	capacity	Partnerships and Collaboration	Narragansett Bay prioritization allow DER to make connections with on the ground partners and identify potential projects (first step in long term goal)
solution	capacity	Partnerships and Collaboration	partner with local universities and academia to collect data and monitor
solution	capacity	Partnerships and Collaboration	lean into tangential partnerships (health, shellfish, beaches, parks and recreation, etc.)
solution	permitting and regulation	Partnerships and Collaboration	need coordinated advocacy from more groups
response	community engagement	Partnerships and Collaboration	working with towns regarding housing
response	community engagement	Partnerships and Collaboration	centralizing legal expertise
response	community engagement	Partnerships and Collaboration	build strong local advocacy
response	community engagement	Partnerships and Collaboration	get people out of their silos - federal , academic, state, URI water watch
response	community engagement	Partnerships and Collaboration	public/private partnerships
response	community engagement	Partnerships and Collaboration	work with town DPW to help outreach to identify
response	permitting and regulation	Partnerships and Collaboration	lots of modeling, coordination with water suppliers, built solutions, contingency plans
challenge	funding	Project Planning, Prioritization & Design	timing - permitting, phasing, how to crack the start
response	funding	Project Planning, Prioritization & Design	being well prepared for application periods
response	funding	Project Planning, Prioritization & Design	perseverance
response	funding	Project Planning, Prioritization & Design	phasing

response	funding	Project Planning, Prioritization & Design	preparing projects, just in case funding becomes available
response	funding	Project Planning, Prioritization & Design	balancing grant opportunities and not applying too soon
response	funding	Project Planning, Prioritization & Design	long term planning and multiple funding sources
response	partnerships	Project Planning, Prioritization & Design	creating reasonable phases
challenge	capacity	Project Planning, Prioritization & Design	projects are time consuming
challenge	capacity	Project Planning, Prioritization & Design	lack of broad scale planning and prioritization (statewide)
challenge	capacity	Project Planning, Prioritization & Design	piecemeal approach to dam removal - no watershed scale
response	permitting and regulation	Project Planning, Prioritization & Design	paused because of expense
challenge	community engagement	Project Planning, Prioritization & Design	how to control runoff in the upstream watershed that could impact the renovation of a dam?
challenge	community engagement	Project Planning, Prioritization & Design	understanding dam liability
response	community engagement	Project Planning, Prioritization & Design	alternatives analysis
response	community engagement	Project Planning, Prioritization & Design	weigh benefits and downsides and be realistic
response	community engagement	Project Planning, Prioritization & Design	able to move forward on replacement unfortunately had to table road removal (lessons learned regarding community on resilience vs restoration)
challenge	permitting and regulation	Wetland and Other Regulations	lack of understanding of regulations
challenge	permitting and regulation	Wetland and Other Regulations	crushing regulations that slow projects
challenge	permitting and regulation	Wetland and Other Regulations	RI general wetlands permit doesn't distinguish between development and restoration
challenge	permitting and regulation	Wetland and Other Regulations	how to you address the moving target of changing climate
challenge	permitting and regulation	Permit Review and Compliance	permitting
challenge	permitting and regulation	Permit Review and Compliance	many different permitting processes boxes to check
challenge	permitting and regulation	Wetland and Other Regulations	change functions and values of waterbody
challenge	permitting and regulation	Wetland and Other Regulations	dam removal will change functions and values of wetlands.
challenge	permitting and regulation	Wetland and Other Regulations	historical fill and water controls allowed to remain in place when no longer used
challenge	permitting and regulation	Wetland and Other Regulations	complex, costly, time consuming regulations. Not designed for restoration
challenge	permitting and regulation	Permit Review and Compliance	project permitting timeline for restoration takes forever
challenge	permitting and regulation	Permit Review and Compliance	EPA QAPP review process and federal shutdown delaying field work schedule (it's a short field season)
challenge	permitting and regulation	Permit Review and Compliance	project delays - section 106 cultural needs, section 408 MA lands need to be saved for flood resilience
challenge	permitting and regulation	Wetland and Other Regulations	permitting processes net loss of wetlands vs quality of wetland conservation
challenge	permitting and regulation	Wetland and Other Regulations	regulatory uncertainty
challenge	permitting and regulation	Permit Review and Compliance	handling endangered species movement and relocation
challenge	permitting and regulation	Wetland and Other Regulations	legacy water systems vs natural (i.e. Blackstone Canal)
challenge	permitting and regulation	Permit Review and Compliance	permitting repetitive and timeline
challenge	permitting and regulation	Wetland and Other Regulations	chapter 91 (MA)

challenge	permitting and regulation	Permit Review and Compliance	permitting
challenge	permitting and regulation	Wetland and Other Regulations	human made wetlands treated the same and protected in the same way as natural wetlands
challenge	permitting and regulation	Permit Review and Compliance	red tape - having to get permits for dam removal
challenge	permitting and regulation	Permit Review and Compliance	regulatory permits - process is too expensive
challenge	permitting and regulation	Permit Review and Compliance	permitting is confusing
challenge	permitting and regulation	Wetland and Other Regulations	exemption for dam removal within wetland regulation
challenge	permitting and regulation	Wetland and Other Regulations	wetland permits - no one can removal a dam because wetlands behind it, even if wetlands due to dam
challenge	permitting and regulation	Wetland and Other Regulations	freshwater wetland regulations weren't written for restoration
response	permitting and regulation	Wetland and Other Regulations	RI regulatory reform - fund culverts specifically and change regulations to require better stream crossing standards
response	permitting and regulation	Wetland and Other Regulations	could water quality improvements mitigate changes to freshwater wetlands function
response	permitting and regulation	Wetland and Other Regulations	legislative and regulatory reforms
response	permitting and regulation	Wetland and Other Regulations	local bylaws?
response	permitting and regulation	Wetland and Other Regulations	different criteria for human altered wetlands - MA Audubon is experimenting with this
response	permitting and regulation	Permit Review and Compliance	permit reform (ongoing discussion)
response	permitting and regulation	Permit Review and Compliance	permitting one stop application
response	permitting and regulation	Permit Review and Compliance	work with regulatory authorities to streamline
response	permitting and regulation	Wetland and Other Regulations	change the wetland regulations
response	permitting and regulation	Wetland and Other Regulations	conservation projects of dam removal section of regulations, change through legislation
response	permitting and regulation	Wetland and Other Regulations	require holistic approach
response	permitting and regulation	Wetland and Other Regulations	significant wetland alteration permit includes a review of water quality, assess benefits of dam removal towards TMDL goal
solution	permitting and regulation	Permit Review and Compliance	in addition to pre permit meetings, we need a special staff member and process streamlined for restoration
solution	permitting and regulation	Wetland and Other Regulations	restoration permits
solution	permitting and regulation	Permit Review and Compliance	work through some RI general permits for restoration projects - part of RI new wetland rules
solution	permitting and regulation	Permit Review and Compliance	set up a meeting with Ron Gagnon and Wenley to follow up and think through paths forward
solution	permitting and regulation	Wetland and Other Regulations	clarify regulatory roadblocks: wetland changes (CWA) and state specific
solution	permitting and regulation	Permit Review and Compliance	Applications with state partner get fast tracked - similar to MA DER priority projects
solution	permitting and regulation	Permit Review and Compliance	DEM thinks wetland regulations need to be changed through regulation. Until then, permitting staff prioritize their work: 1 pile for restoration and 1 pile for alterations.
challenge	permitting and regulation	Sediment Management and Removal	transporting impounded sediment is expensive
challenge	permitting and regulation	Sediment Management and Removal	contaminated sediment
challenge	permitting and regulation	Sediment Management and Removal	too expensive due to contaminated sediment

challenge	permitting and regulation	Sediment Management and Removal	dam owners and partners require to pay for sediment cleanups - solve 100+ years of watershed pollution
response	permitting and regulation	Sediment Management and Removal	seek opportunities to use drawdown and downstream release or upland placement onside for sediment management
challenge	permitting and regulation	Sediment Management and Removal	large sediment volume and sensitive mussels downstream
response	permitting and regulation	Sediment Management and Removal	staged removal, close coordination with regulators, 3 years
challenge	partnerships	Sharing Knowledge and Data	data availability and sharing - partners gathering information but not putting into public databases
challenge	partnerships	Sharing Knowledge and Data	data availability and sharing
response	partnerships	Sharing Knowledge and Data	develop relationships with people to explain and require data upload
solution	partnerships	Sharing Knowledge and Data	SOP - if publicly funded, data upload is required
challenge	capacity	Sharing Knowledge and Data	unsure who and what data exist and who has that knowledge
solution	capacity	Sharing Knowledge and Data	dashboard to do list with current projects, current data, current monitoring
solution	capacity	Sharing Knowledge and Data	create public repository of data links
solution	capacity	Sharing Knowledge and Data	knowledge management systems
solution	capacity	Sharing Knowledge and Data	re: culvert assessment - expand NAACC use
solution	capacity	Sharing Knowledge and Data	expand dam atlas to highlight up and down stream barriers to project
challenge	permitting and regulation	Sharing Knowledge and Data	phragmites disposal in urban area - how is this done??
response	permitting and regulation	Sharing Knowledge and Data	response to sediment challenge : better data/none
response	permitting and regulation	Sharing Knowledge and Data	FRCOG guidance document currently reading - contains a lot of good information
response	permitting and regulation	Sharing Knowledge and Data	written down guidance and standards
response	permitting and regulation	Sharing Knowledge and Data	envision a pre-approved QAPP manual - users could select approved methods from a menu and edit for project
response	permitting and regulation	Sharing Knowledge and Data	grant or permit requirement to upload data to public database
response	permitting and regulation	Sharing Knowledge and Data	creating a usual flow diagram to keep track of where you are in the process and next steps
response	permitting and regulation	Sharing Knowledge and Data	improve data collection and access
response	permitting and regulation	Sharing Knowledge and Data	permitting model by state and town: here are the steps plus a legal and permitting resource
response	permitting and regulation	Sharing Knowledge and Data	map permitting process
response	permitting and regulation	Sharing Knowledge and Data	review other states regulations
response	community engagement	Sharing Knowledge and Data	produced legal white paper on dam liability and funded digital tool to identify at risk dams
response	community engagement	Sharing Knowledge and Data	show them a similar nearby success then implement together
solution	community engagement	Sharing Knowledge and Data	really clear FAQ
challenge	funding	Site Ownership and Abutters	money for dam removal - state and privately owned
challenge	funding	Site Ownership and Abutters	funding removal of privately owned barriers
response	funding	Site Ownership and Abutters	work with town to discuss ownership
response	funding	Site Ownership and Abutters	private landowner
challenge	partnerships	Site Ownership and Abutters	identifying partners and funding for ownership and support for project

challenge	partnerships	Site Ownership and Abutters	bringing a partner/owner on board
solution	partnerships	Site Ownership and Abutters	remove control/oversight participation by local government
challenge	capacity	Site Ownership and Abutters	how to support private landowners and infrastructure owners that want to restore their property
challenge	community engagement	Site Ownership and Abutters	navigating needs of abutters
challenge	community engagement	Site Ownership and Abutters	finding dam owners that are willing to consider removal
challenge	community engagement	Site Ownership and Abutters	unclear ownership of barriers
response	community engagement	Site Ownership and Abutters	exploring possibility of paying for an abutters cost (e.g. sinking a new well) to keep project moving forward
response	community engagement	Site Ownership and Abutters	Incentives for owners
response	community engagement	Site Ownership and Abutters	interview abutting landowners
response	funding	Unresolved	internal screaming
response	funding	Unresolved	no response
response	partnerships	Unresolved	not sure
response	permitting and regulation	Unresolved	no solution yet
response	permitting and regulation	Unresolved	no solution
response	permitting and regulation	Unresolved	no response
response	permitting and regulation	Unresolved	solution being sought
response	community engagement	Unresolved	unresolved
response	community engagement	Unresolved	unresolved
response	permitting and regulation		looking outwards instead of upstream