

**Project Title: Quinapoxet Dam Removal**

**Type of project (protection, enhancement, restoration): Restoration**

**Project Location (State, County, Town): MA, Worcester, West Boylston**

**Congressional District of Project: MA-2**

**Congressional District of Applicant: MA-7**

**NFHP/EBTJV Funding Request: \$50,000**

**Total of Other Federal Funding Contributions: \$1.3M (requested)**

**Total of Non-Federal Funding Contributions: \$1.0M**

**Total Project Cost: \$2.35M**

**Applicant**

Project Officer: Rebecca Weidman / Michael Gove

Organization: Massachusetts Water Resources Authority (MWRA)

Street: 100 First Avenue

City, State, Zip: Boston, MA, 02129

Telephone Number: (857) 259-1036 / (857) 270-8082

Email Address: rebecca.weidman@mwra.com / michael.gove@mwra.com

**Briefly describe the mission of your organization:**

MWRA's mission is to provide reliable, cost-effective, high-quality drinking water and sewer services that protect public health, promote environmental stewardship, maintain customer confidence, and support a prosperous economy. The MWRA serves more than 3.1 million people across 61 cities and towns in Massachusetts.

MWRA is partnering with several state agencies to carry out this important ecological restoration project, including the Department of Conservation and Recreation (DCR), and the Department of Fish and Game, Division of Ecological Restoration (DER). These agencies serve to protect and enhance recreational opportunities while preserving and restoring natural areas across the Commonwealth of Massachusetts.

## PLEASE REFER TO 2023 EBTJV PROJECT APPLICATION INSTRUCTIONS

### 1. Project narrative (12 points)

#### A: Statement of Project Need

The Quinapoxet Dam is owned by the DCR Division of Water Supply Protection (MADWSP), and was constructed in the early 1900s as part of the Wachusett Reservoir construction project. The existing dam is a stone masonry structure that is 135 feet long and 9 feet high (see Attachment B). The earthen embankment portion of the dam is limited to the southern abutment, adjacent to a granite block Quabbin Reservoir transfer aqueduct at the Oakdale Power Station. A concrete pool/weir type of fishway is located along the northern abutment. The fishway was retrofitted in the 1930's and is presently in deteriorated condition, this type of fishway structure is poorly suited for brook trout and other species residing in the reservoir.

The Quinapoxet Dam impounds the Quinapoxet River adjacent to the Quabbin Aqueduct and Oakdale Power Station. The Reservoir and Aqueduct are both vital infrastructure for MWRA's drinking water supply system. According to the most recent dam safety inspection, this Dam was found to be in "Fair" condition and classified as having a "Significant Class (2)" hazard potential. The Office of Dam Safety (ODS) reclassified the dam as Nonjurisdictional based upon the most recent site inspection.

The Quinapoxet Dam has been identified by the DER to have a high potential for removal and river channel restoration. The model score is dependent on the dam's location within the watershed, the ecological integrity surrounding the dam, and the potential improvement in connectivity if the dam were removed. Out of a possible 100 points, the Quinapoxet Dam had a score of 95, suggesting the removal of the Quinapoxet Dam would provide significant environmental benefit and improved habitat for key fish species, including Brook Trout.

#### B: Project Purpose(s)

Removal of the Quinapoxet Dam will provide upstream fish access to the Wachusett Reservoir where existing populations of Brook Trout and Landlocked Salmon are considered to be genetically isolated as the Dam restricts vital migratory patterns. Dam removal will provide upstream fish access to high-quality coldwater habitat, restore river processes for downstream benefits (e.g., sediment and organic matter transport), eliminate safety concerns and liability issues directly related to the existing dam, and to provide the public access to the river. In addition to restoring connectivity in the river by removing the dam, this project will improve access to the river by adding a path to and platform on the river bank. All pathways and platforms will comply with American Disability Act (ADA) guidelines for accessibility and will include new interpretive signage.

### C: Objectives

The main objectives of the Quinapoxet Dam removal project are to: restore vital upstream coldwater habitat for Brook Trout and other coldwater fish species, restore river processes for sediment and organic matter transport, restore bordering vegetated wetlands, eliminate safety concern and liability issues, and enhance public access to a popular fishing and recreation area.

### D: Deliverables

Funding from this grant would be utilized for the installation of a new pathway, platform and signage for the project, as well as the associated construction oversight and planning, and an evaluation of public usage of the river following construction. This new public access will be ADA compliant and will allow for additional access to the river from fishing and recreation. Photographs of the dam removal in its completed state will be shared with the EBTJV. In addition, the project will be highlighted in social media (Twitter, Instagram) by the project partners with credit to EBTJV.

Ultimately, the removal for the Quinapoxet Dam will result in the following outcomes:

<b>Deliverable</b>	<b>Outcome</b>
Removal of Quinapoxet Dam	35 miles of riverine made accessible to coldwater fish
Streambank Stabilization and Rehabilitation	0.2 miles of stream habitat restored
Riparian Planting	1 acre of riparian habitat restored
New Public Access Path and Platform	Expanded ADA compliant access Access to restored coldwater fish habitat for fishing and recreating
Signage Installation	Permanent educational resource to site visitors

## E: Methods/Approach

The Dam Removal will be accomplished by removing the full vertical extent of the stone masonry spillway, leaving remnants of the abutments for structural support of associated embankments. Additional channel grading will be performed to ensure protection of the adjacent Quabbin Reservoir aqueduct outlet and ensure safe fish passage.

A pathway will be cleared to allow for pedestrian access to the river bank that will be ADA compliant. A platform will be built along the riverbank and signage will be developed and installed throughout the newly created access areas. Costs will be reduced by on site material reuse, sediment management, intensive water quality monitoring during and after construction, and in-kind services from project partners.

## F: Evaluation/Monitoring plan

All dam removal projects in Massachusetts must be permitted under the Commonwealth's Wetlands Protection Act. This law requires that permittees complete *at minimum* as built plans depicting the completed work and photo-station monitoring for two years following completion. In addition to this, DER, a technical partner for this project, is developing a monitoring plan in accordance with the Gulf of Maine Council on the Marine Environment monitoring protocols<sup>1</sup>. This plan will be included in permit applications and will monitor parameters such as fish community composition, sediment transport, and vegetation response. The project will be permitted by the local Conservation Commission, which will require its own Order of Conditions and a Certificate of Completion, as well as Federal U/S. Army Corps of Engineers 401 and 404 Permit requirements for sediment and water quality. The project will comply with the requirements of the ACE Act for post construction monitoring as required in the RFP.

MWRA will also complete an evaluation of the public usage of the new access pathway and platform the summer following the completion of the project (anticipated summer 2024). This evaluation will attempt to quantify additional use of the river by the public and how and how frequently individuals are accessing the river.

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<sup>1</sup> Collins, M., K. Lucey, B. Lambert, J. Kachmar, J. Turek, E. Hutchins, T. Purinton, and D. Neils. 2007. Stream barrier removal monitoring guide. Gulf of Maine Council on the Marine Environment. [www.gulfofmaine.org/streambarrierremoval](http://www.gulfofmaine.org/streambarrierremoval).

## 2. Project Planning (6 points)

### A: Brief Timeline

Planning and design for this project is currently underway. MWRA has included funding for the removal of the Dam in its fiscal year 2024 (FY24) Capital Improvement Program (CIP). Permitting is expected to be complete by February 2023, MWRA's FY24 CIP funding will be available in the summer of 2023, construction is anticipated to begin in October 2023 and extend through the spring of 2024, culminating with as-built plans and permitting closeouts. Post construction monitoring will begin in summer 2024 with fish passage verification in fall of 2024. Additional monitoring activities, as required by permits, will continue for two years.

- Environmental Permitting: February 2022-January 2023
- Final Design: March 2023
- Construction Bid: May 2023
- Start of Work: October 2023
- Demolition of Dam Structure: November 2023
- In-stream Restoration: December 2023-March 2024
- Site Cleanup, Restoration, and Demobiliation: April-November 2024
- Public Access Evaluation: Summer 2024
- Post-construction monitoring: Spring 2024 through Spring 2026

### B: Project Milestones

Planning for this project has been underway for many years. In June 2007, a Phase I Dam Safety Inspection was completed by DCR, which informed the development of this project. In 2016, DER completed a Quinapoxet Dam Removal Feasibility Study. This study found that the ecological goals of restoring fish passage and river function were attainable while protecting the existing aqueduct and its associated MWRA drinking water infrastructure.

Following the 2016 Dam Removal Feasibility Study, MWRA completed an investigation of the impacts of the Dam Removal on the structural integrity of the Quabbin Aqueduct. This study found that there would be limited/no impact to the Quabbin Aqueduct and MWRA moved forward with developing a 60 percent design for the removal of the Quinapoxet Dam in 2020. A sediment management plan for the removal project was completed in late 2021. The project is entering the environmental permitting phase and is progressing toward final design which will begin in March 2023.

## C: Environmental Compliance Review Requirements

In August of 2021 the Massachusetts Environmental Policy Act (MEPA) office concluded its review of the project's Expanded Environmental Notification Form document (see Attachment D). This review process involved review and comment from multiple state and federal agencies, NGOs, and the general public. Support letters for the project were received by MEPA from:

- Massachusetts Audubon
- Trout Unlimited, Central Mass Chapter
- Massachusetts Rivers Alliance
- Nashua River Watershed Association
- Water Supply Citizens Advisory Committee

The project was granted a Certificate by the Secretary of Energy and Environmental Affairs, Kathleen Theoharides and cleared to enter agency-specific permitting (see Attachment D). These permits are listed in "D" below. To date, in addition to the MEPA certificate, the project has received clearance from the MA Historical Commission through its review of a Project Notification Form submitted in October 2020. The Commission required an extensive archaeological survey and report which was conducted over the summer of 2021 and completed in September 2021. The Commission finalized its approval of the survey in October 2021, concluding its review.

Upcoming state and federal submissions that the project team are working on include:

- MA Wetlands Protection Act Notice of Intent (anticipated submission in winter 2022);
- MA Waterways License (Chapter 91) (anticipated submission in summer 2022);
- MassDEP Clean Water Act Section 401 (anticipated submission in summer 2022);
- USACE Clean Water Act Section 404 (anticipated submission in summer 2022); and
- Section 106, Historical Preservation Act (ongoing coordination).

MWRA has not currently received any federal funds to support this work. In anticipation of potentially receiving federal funds, MWRA will begin working with partners to comply with all federal laws and permitting requirements, just as we have done with at the state level.

D: Describe the status of the project planning and permitting

The MWRA has contracted with SLR International, a renowned and experienced ecological restoration firm to complete design plans and permit applications for the project. This work is being overseen by MWRA as well as experienced staff from DCR and DER. In addition to this work, project partners have engaged with the community both informally and through outreach presentations to get input from stakeholders who fish, paddle, or passively enjoy the Quinapoxet River.

The project team has completed a 60 percent design for the removal of the Quinapoxet Dam and subsequent habitat restoration. The final design plans are anticipated to be completed in March 2023.

The permitting process is underway, as stated above. The project has received its MEPA certificate and the team is currently reviewing drafts of various state and federal permit applications including MA Wetlands Protection Act Notice of Intent, MA Waterways License, Clean Water Act 401, and Clean Water Act 404.

E: Provide letter of support from the state/federal fish and wildlife agency (required) and access letter from landowner if the project is located on private land.

See Attachment C

Letter from Director Mark Tisa, PhD, Massachusetts Division of Fisheries and Wildlife

### 3. Partner information (2 points)

A: Key Project Personnel:

John Gregoire, Program Manager, MWRA

Rebecca Weidman, Director of Environmental and Regulatory Affairs, MWRA

Michael Gove, Environmental Analyst, MWRA

Nicholas Wildman, Ecological Restoration Specialist, MA DER

Jamie Carr, DCR Division of Water Supply Protection

B: Partner Information Table:

Partner Name	Non-Federal Contributions		Federal Contributions		Partner Category*
	In-Kind Contribution (In-hand or Requested)	Cash Contribution (In-hand or Requested)	In-Kind Contribution (In-hand or Requested)	Cash Contribution (In-hand or Requested)	
MA Water Resources Authority (MWRA)		\$1,000,000 (Committed)			State Agency
MA Dept. of Ecological Restoration (DER)	TBD	\$200,000 (Committed)			State Agency
MA Department of Conservation and Recreation (DCR)	\$9,000 (Committed)				State Agency
MA Department of Fisheries and Wildlife (DFW)	TBD				State Agency
United States Fish and Wildlife Service (USFW)				\$1,300,000 (requested)	Federal Agency

\*Partner Categories - Federal Agency, State Agency, Local Government, Conservation Group (Local), Conservation Group (National), Native American Tribe, Private Landowners, Corporations/Businesses

**4. Project Budget (12 points)**

a. Budget category	b. Partner name or contractor	c. Task or Item	d. EBTJV Request	e. Non-federal contribution		f. Federal contribution		g. Total contribution (e + f)	h. Acres/miles affected
				In-kind	cash	In-kind	cash		
<b>Administration/technical services</b>									
Design									
Task 1: Design Administration & Management	MWRA/SLR				\$25,090			\$25,090	
Task 2: Preliminary Design	MWRA/SLR				\$33,420			\$33,420	
Task 3: Permitting and Final Design	DER/SLR				\$190,535			\$190,535	
Task 4: Bid Support	DER/SLR				\$13,990			\$13,990	
Task 5: Design Services During Construction	MWRA/SLR				\$112,410			\$104,410	
Task 6: Technical Assistance	MWRA/SLR				\$50,000			\$50,000	
Travel									
Other									
Indirect									
<b>Supplies/Equipment</b>									
<b>Construction</b>									
Engineer Oversight	MWRA/To be det.		\$8,000		\$172,000			\$180,000	
Construction materials									
Construction Labor									
Item 1: Site Preparation, Maintenance & Temporary Facilities	To be det.						\$234,720 (requested)	\$234,720	
Item 2: Water Control	To be det.						\$235,000 (requested)	\$235,000	
Item 3: Demolition & Removals	To be det.						\$280,000 (requested)	\$280,000	35 miles of riverine habitat made accessible

Item 4: Earthwork	To be det.					\$160,800 (requested)	\$160,800	
Item 5: Bank Slope Treatments	To be det.					\$177,000 (requested)	\$177,000	
Item 6: Instream Features	MWRA/To be det.				\$93,700	\$93,700	\$187,400	
Item 7: ADA - Public Rail Trail and ADA Overlook	To be det.		\$34,000				\$34,000	
Item 7: Site Restoration	MWRA/To be det.				\$67,625	\$67,625	\$135,250	
Item 8: Structural Monitoring	MWRA/To be det.				\$20,915	\$20,915	\$41,830	
Volunteer labor								
<b>Contractual</b>								
<b>Other</b>								
Dam Removal Feasibility Study (Completed )	MWRA/MMI/SLR				\$130,000		\$130,000	
Public Outreach	DCR/DER				\$8,000		\$8,000	
Sediment Management and Turbidity Monitoring	MWRA/To be det.				\$60,000		\$60,000	
Post Construction Public Use Survey	MWRA		\$8,000				\$8,000	
<b>TOTAL</b>			<b>\$50,000</b>		<b>\$1,000,000 (committed)</b>	<b>\$1,300,000 (requested)</b>	<b>\$2,350,000</b>	

Add rows or sub-categories as needed. Indicate if project partner contributions are in-kind or cash along with which funds are in-hand (committed) and which have been requested but are still pending. Estimated Value of Volunteers In-Kind contributions is \$27.20 per hour (**Source**). For each of the project partner funds or in-kind contributions, please specify whether the funds/contributions are from a federal source or non-federal source. To meet the 1:1 non-federal match requirement, non-federal funds contributions must not come from, be matched to, or otherwise tied to a federal source. If indirect costs are requested, successful applicants will need to submit a NICRA or accept the de minimis rate, at the time of the grant agreement.

***MWRA intends to provide at least a 1:1 match for any EBTJV funds received. The remainder of the match will be reserved to provide match for other anticipated, federal grant funds to be received***

5. List the specific EBTJV range-wide habitat goal(s) and objective(s) addressed by the Project and describe how the Project will contribute towards achieving them (refer to the list of EBTJV range-wide habitat goals and objectives in the Appendix B). (2 points)

This project will restore 7.6 miles of river channel, reconnect 7 miles of a high-quality riverine system to the Wachusett Reservoir outlet, and will provide coldwater refugia for resident and migratory fish during periods of seasonal thermal stress. As such the goals and objectives associated with this project include:

GOAL	OBJECTIVE
Maintain the current number of wild Brook Trout patches (i.e. no net loss)	<ol style="list-style-type: none"> <li>1. Retain at least 6,022 allopatric wild Brook Trout patches (1.1) across the EBTJV geographic range by the year 2024*.</li> <li>2. Retain at least 3,838 sympatric wild Brook Trout patches (1.2, 1.3, and 1.4) across the EBTJV geographic range by the year 2024*.</li> </ol>
Increase connectivity within and among wild Brook Trout catchments	<ol style="list-style-type: none"> <li>3. Complete Aquatic Organism Passage projects within 45 wild Brook Trout catchments by 2024*.</li> </ol>
*Estimated project completion year when goals are achieved	

The Quinapoxet Dam Removal will achieve the three listed objectives of the EBTJV. The project will do that by:

Objective 1- Wild brook trout in the Quinapoxet River and tributaries are genetically isolated from populations in the Stillwater River and other tributaries of the Wachusett Reservoir. By removing the Quinapoxet Dam, these fish will be free to move into other systems and promote genetic diversity.

Objective 2- By removing the Quinapoxet dam and allowing for wild brook trout to move into and out of the Wachusett Reservoir and other tributaries, this project will provide access to feeding, spawning, and low flow refugia habitat that would be otherwise unavailable.

Objective 3- The Quinapoxet River basin is a wild brook trout catchment. Restoring passage for these fish will reconnect these fish with populations in the Stillwater River and other tributaries to the Wachusett Reservoir.

6. List the EBTJV key conservation action(s) the Project addresses (refer to the list of EBTJV key conservation actions in the Appendix C). (2 points)

This project has been developed in coordination with the Massachusetts Division of Fisheries and Wildlife with technical support from the US Fish and Wildlife Service to be commensurate with the following EBTJV conservation actions:

- Conserve and/or increase habitats that support robust wild Brook Trout populations.
- Restore and reconnect suitable habitats adjacent to robust wild Brook Trout populations.
- Conserve genetic diversity of wild Brook Trout populations.
- Increase recreational fishing opportunities for wild Brook Trout.

7. List which of the National Fish Habitat Partnership's National Conservation Strategies the Project addresses (Appendix C) (2 points)

This project aligns with the following Conservation Strategies:

- Restore hydrologic conditions for fish
- Reconnect fragmented fish habitats

8. Provide a Map of The Project Area. Provide the GPS Coordinates for the project site. Please use WGS 84. Note: this is the Datum used when you search an address in Google maps. (requirement)

42.387219, -71.802578

See Attachment A

9. Provide Photograph(s) of the Project Area and signed USFWS Copyright Release Agreement. (requirement)

See Attachment B

**10.** What are the EBTJV Feature ID# and Classification Code for the catchment(s) where the Project work will be implemented (see Appendix for a description on how to determine both items)? (5 points)

- a. Catchment Feature ID#: 24902238
- b. Catchment Classification Code: 1.1

**11.** Is/are the catchment(s) where the Project work will be implemented located in a Wild Trout Patch; if so what is the Wild Trout Patch Feature ID# and Classification Code (see Appendix for a description on how to determine both items)? (5 points)

- a. Wild Trout Patch Feature ID#: 2.4902238E7
- b. Wild Trout Patch Classification Code: 1.4

**12.** Will the Project result in re-establishing wild Brook Trout within the catchment? (10 points)

The main objective of this project will enhance genetic diversity between existing Brook Trout populations within the Wachusett Reservoir, Stillwater River, and the Quinapoxet River. DER has observed brook trout migrating between the Stillwater River and the Reservoir. It is anticipated that these populations would then also utilize the Quinapoxet River for upstream habitat as it shares many of the same ecological characteristics of the Stillwater River.

**13.** Are there invasive fish species within the Project site or have access (no barrier) to it? (2 points)

There are no known invasive fish species within the project area.

**14.** Are hatchery-reared salmonids stocked at the Project site or have access (no barrier) to it? (5 points)

The Massachusetts Division of Fisheries and Wildlife does strategically stock the Quinapoxet River with Trout depending on hatchery resources. The Division also stocks other streams in the larger Wachusett Reservoir system. Those fish could, conceivably interact with wild fish in the Quinapoxet as a result of this project.

**15.** Will the Project benefit any federally listed threatened or endangered species? Please list only those most closely tied to the project objectives. (3 points)

There are no federally listed species that will benefit from this project.

- 16.** Will the Project benefit any state listed threatened or endangered species or species of greatest conservation need (other than brook trout)? (3 points)

The Massachusetts Natural Heritage and Endangered Species Program maintains lists of rare species that may inhabit each town in Massachusetts. Review of the protected species that potentially inhabit the project area and might be affected by the proposed project identifies:

Bald Eagle, *Haliaeetus leucocephalus*, Bird

As a result of expanded trout habitat, Bald Eagles will benefit from an increased forage area as more trout are expected to travel upstream. MWRA and project partners will coordinate with the Natural Heritage program during and in advance of permitting to ensure that construction phase work has a de minimus impact on Bald Eagle habitat.

Wood Turtle, *Glyptemys insculpta*, Reptile

Past dam removal projects in Massachusetts have been shown to benefit wood turtle by allowing for freer passage through the river corridor. The MWRA and project partners will continue to coordinate with the Natural Heritage program during and in advance of permitting to ensure no short-term impacts to the local population.

- 17.** Is the Project foot print located on/along private or public land? (Project site = footprint of the conservation action and does not include the surrounding areas upstream or downstream). Is the land currently under any form of protection in perpetuity (e.g. fee simple, public ownership, development restrictions, easements etc.)? Approximately what % of the land is protected in perpetuity? (3 points)

The project footprint is located entirely on public land and is owned by the Massachusetts Department of Conservation and Recreation (DCR). All of the land associated with the project footprint is protected in perpetuity.

- 18.** What percentage of the *watershed* above the project site is protected in perpetuity (public ownership, development restrictions, easements etc.)? (3 points)

The catchment area above to the project site to the Quinipoxet River, per the project team's analysis is 35,682 acres. The total preserved area is 16,801 acres or 47.1%, of this total, 16,294 acres or 45.7% is protected in perpetuity, DCR owns and manages 5,377 acres or 15.1%.

- 19.** Does/ will the public have access at the project site? Will the project increase or maintain public access to land or water for fish or wildlife-dependent recreational opportunities? If so, describe. (4 points)

Yes, the public has access to the site and access will be increased as a result of the project. A core component of the project is to create an Americans with Disabilities Act (ADA) compliant access location where the public will be able to approach the water's edge to fish. MWRA and its partners have prioritized creating an accessible connecting trail, new accessible fishing platform, fencing, and alterations to existing site features as needed based on conditions determined from 60 permit construction design review. Design of these facilities will incorporate direction from the DCR Universal Access Program for ADA compatibility as outlined the Commonwealth of Massachusetts Code of Massachusetts Regulations (CMR) Title 521.

- 20.** What are the root causes of degradation in the catchment(s) where the project is located and which of these are addressed by the project? (3 points)

The degradation in the catchment is a result of fragmentation of habitat. The Quinapoxet Dam was constructed in the early 1900s and has become obsolete over the years with modernization of the water supply infrastructure supporting the Wachusett Reservoir.

- 21.** Does the Project support any goals in existing action plan(s) (e.g. state fish & wildlife, watershed protection, water quality improvement, land or water-use plan(s), or other regional plan(s))? (2 points)

This project complements the Migratory Fish Restoration Project and River Continuity Program p. 137 under Section E. Habitat Restoration and Management, Chapter Seven: Overview of Conservation Strategies, of the 2005 Massachusetts Comprehensive Wildlife Conservation Strategy, Massachusetts Division of Fisheries and Wildlife.

In addition, the project complements the Land Use Priority section of the Central Massachusetts Regional Planning Commission's Regional Plan (December 2014).

- 22.** Describe the ways in which this project will improve public recreational fishing opportunities for wild Brook Trout. How will the improvement(s) be measured? (5 points)

The project has a substantial public access component which will create a new ADA compliant access point for recreational fishing and general river access. MWRA will conduct a study during the summer of 2024 to assess number of unique individuals accessing the site and the frequency with which each individual intends to or did access the

site. In the signage, MWRA will also provide opportunities to link to other educational materials and number of times those websites are visited will also be tracked.

- 23.** Describe the outreach or educational components associated with the project; do these target the local and/or regional community? (3 points)

A key component of this project is educational signage on site. In addition to the on site signage, project partners have and will continue provided outreach to gather public input through the following:

MWRA- published a press release and set up a project webpage, found at:  
<https://www.mwra.com>

DCR and MWRA- outreach to the West Boylston Conservation Commission (various). These conversations have covered project goals, ecological concerns of the commission, and regulatory elements to be included in project planning.

DER- public presentation hosted by the Nashua River Watershed Association (March 2021). PowerPoint presentation of the project with Q&A from Association members and the general public. DER will also post about the project on its twitter and Instagram accounts before, during, and after construction.

- 24.** Describe the plans for evaluating the project functionality and measuring the biological, ecological, economic, recreational, or other results of the project. According to the ACE Act, a plan must be in place for a project to be funded. Discuss both short and long term results. (6 points)

All dam removal projects in Massachusetts must be permitted under the Commonwealth's Wetlands Protection Act. This law requires that permittees complete *at minimum* as built plans depicting the completed work and photostation monitoring for two years following completion. In addition to this, the Division of Ecological Restoration who is supporting the project as a technical partner is developing a monitoring plan in accordance with the Gulf of Maine Council on the Marine Environment monitoring protocols<sup>2</sup>. This document will be included in permit applications and will be designed to documents parameters including fish community composition, sediment movement, and vegetation response.

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<sup>2</sup> Collins, M., K. Lucey, B. Lambert, J. Kachmar, J. Turek, E. Hutchins, T. Purinton, and D. Neils. 2007. Stream barrier removal monitoring guide. Gulf of Maine Council on the Marine Environment. [www.gulfofmaine.org/streambarrierremoval](http://www.gulfofmaine.org/streambarrierremoval).

The project team has also developed a Sediment Management Plan to identify sediment and erosion control measures to minimize turbidity and preserve water quality during construction.

#### **SUPPORTING DOCUMENTATION:**

- **Literature Cited**
- **References to published interagency fishery or aquatic resource management plans**

Collins, M., K. Lucey, B. Lambert, J. Kachmar, J. Turek, E. Hutchins, T. Purinton, and D. Neils. 2007. Stream barrier removal monitoring guide. Gulf of Maine Council on the Marine Environment. [www.gulfofmaine.org/streambarrierremoval](http://www.gulfofmaine.org/streambarrierremoval).