

Mystic River Watershed Steering Committee Meeting: Malden River Focus

Meeting held April 12, 2018

200 Rivers Edge Drive, Medford, MA

**MEETING IN BRIEF**

At its April meeting, the Mystic River Watershed Steering Committee (steering committee) heard updates on recent activities related to restoring the Malden River, a tributary of the Mystic River. The meeting included presentations on: the Malden River Vision Plan, a U.S. Army Corps of Engineers restoration project for the Malden River oxbow, a new predictive model for bacteria in the river, a sediment contamination study for proposed boat launches, and recent activities of the Friends of the Malden River (a local non-profit). During the meeting, participants asked questions of and provided input to the presenters. Participants also had an opportunity to share relevant updates and announce upcoming events. Presentation slides from the meeting can be found at <https://mysticriver.org/epa-steering-committee> and <https://www.epa.gov/mysticriver/mystic-river-watershed-initiative#MeetingsEvents>. A list of meeting participants can be found at the end of this document.<sup>1</sup> For more information about the steering committee and current efforts to restore the Mystic River watershed, please visit [www.epa.gov/mysticriver](http://www.epa.gov/mysticriver).

**ACTION ITEMS**

Who	What
All	<ul style="list-style-type: none"> <li>• Suggest topics of interest and possible venues for upcoming meetings to Caitlyn Whittle (USEPA).</li> </ul>
EPA	<ul style="list-style-type: none"> <li>• Work with Coordinating Committee to draft agenda for next meeting, continue to disseminate information as appropriate, plan annual report card event.</li> </ul>
Karen Peltó (MA DEP)	<ul style="list-style-type: none"> <li>• Speak with Amber Cristoffersen (MyRWA) about contacts for PanAm Railways.</li> </ul>
MyRWA and USACE	<ul style="list-style-type: none"> <li>• Meet to discuss respective efforts near the Wynn and National Grid Sites.</li> </ul>
Coordinating Team	<ul style="list-style-type: none"> <li>• Plan the next meeting agenda.</li> </ul>
CBI	<ul style="list-style-type: none"> <li>• Draft meeting notes.</li> </ul>

**UPCOMING MEETINGS AND EVENTS**

Event	Date	Venue
Committee meeting	June 14, 2018, 10am-12pm	TBD
Committee meeting	Sept/Oct TBD, 2018, 10am-12pm	TBD
Committee meeting	Nov. 2, 2018, 10am-12pm	TBD

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<sup>1</sup> This summary was prepared by the Consensus Building Institute.

## DISCUSSION – KEY THEMES

This summary focuses on the main themes and discussion points covered during the meeting.

### Malden River Vision Plan

#### Presentation

Amber Christoffersen (MyRWA) presented on the collaborative effort of the cities of Malden, Medford, and Everett with the Mystic River Watershed Association (MyRWA) to engage the public and evaluate opportunities for connectivity and park improvements along the Malden River.

MyRWA partnered with cities, local developers, community groups, and citizens to develop a vision for a series of connected parklands and public spaces along the Malden River called the Malden River Greenway. The goal of this effort is to bring Malden, Medford, and Everett together to see the river as an asset. Due to historic development along the river, the project partners will need to address a number of challenges including sections without public access, development close to the shoreline, and legacy pollution.

MyRWA and its partners have sought community input on the Greenway through an online survey, public meetings, and walking tours. They collected input on public perceptions of the river, concerns about the restoration effort, and ideas of what citizens would like to see addressed in this effort. The Framework Plan developed from this dataset has three sections: Malden Center to Little Creek, Little Creek to Revere Beach Parkway, and Rivergreen/Rivers Edge to Malden River Basin. Key pieces of the Plan include improving pedestrian access to the Orange Line via the Wellington Connector and a pedestrian bridge between Everett and Medford, installing boating access points, and joining two parklands around the National Grid Site.

Next steps for this effort include the following activities:

- Malden Center to Little Creek: Chapter 19 (licensing and enforcement), design standards, Department of Public Works site/redevelopment.
- National Grid Site: Chapter 19 advocacy.
- Wellington Connector: Feasibility study, PanAm research.
- Environmental: Cleanups, sediment study, public outreach re: health risks.

#### Discussion

During the discussion period, participants asked the following questions and made the following comments. Responses from Amber are in italics.

- What are the ownership patterns along the planned Greenway? Most of the land is privately owned or owned by MA DCR. A big challenge is the privately-owned Route 16 North bridge. Because of this large amount of private property, Chapter 91 is one of our main legal tools to make this vision a reality.

- For the development of the Wellington connector, what information have you found about PanAm Railways' rights to freight use? I believe they have freight use rights. I am working to reach out to them.
  - Karen Peltó (MA DEP) can help identify contacts at Pan-Am Railways.
- The City of Medford wants to see this project move forward. What other things can we get done while we work with Pan-Am Railways?

## Ecosystem Restoration Project at the Malden River Oxbow

### Presentation

Adam Burnett (USACE) presented on the proposed aquatic ecosystem restoration project in the oxbow vicinity in Everett and Medford.

In partnership with the Mystic Valley Development Commission (MVDC), the U.S. Army Corps of Engineers (USACE) designed restoration work in the oxbow vicinity in Everett and Medford.<sup>2</sup> This area was intertidal wetlands as shown on a 1903 USGS map, but was filled in with a variety of materials, including industrial waste, through the mid-20<sup>th</sup> century. Additionally the channel was dredged various times over the last 150 years, and a federal navigation channel straightened the oxbow. The construction of the Amelia Earhart Dam in the 1970s impounded the river and removed tidal flow. USACE would like to restore native wetlands but must address major challenges including invasive Phragmites, polluted fill soils and sediments, impounded conditions, and a lack of tidal flow.

The total project cost is estimated at \$3 million (65% federal, 35% non-federal from sponsor). A feasibility study for this project was completed in 2008 and a project partnership agreement was signed with MVDC in 2009. The initial restoration plan identified in a 2009 feasibility study was revised this year with a Concept Restoration Plan (CRP) with a smaller scope that removed an ambitious dam operations component. The CRP will (1) create emergent and shrub wetlands in the oxbow area and (2) control Phragmites and replant native plant species. The project will also include:

- Addressing property issues related to the Wynn Site and the National Grid Site.
- Acquisition of a property parcel along the river from Wynn by MVDC.
- Adding fill in two areas on the banks of the oxbow to create emergent wetland habitat while retaining some water flow through the oxbow.
- Improving public access to the river.

USACE aims to complete the restoration work by 2020 and to monitor the results between 2021 and 2024.

### Discussion

During the discussion period, participants asked the following questions and made the following comments. Responses from Adam, Jeff Nangle (Nangle Consulting

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<sup>2</sup> The oxbow is directly across the river from 200 Rivers Edge Drive.

Associates), Nick Pernice (Malden Redevelopment Authority, representing MVDC), and other participants are in italics.

- Why does MVDC need to own the parcel currently owned by Wynn? Couldn't Everett own it? Why pay the additional money for this legal work? We want to ensure the sponsor, who will be responsible for operations and maintenance on the site, has full control. The USACE regulations require the sponsor to acquire the land in question, though in some situations USACE Headquarters may agree to permanent easement agreements. We could bring Everett in as a co-sponsor for this site, and MVDC and Everett would then both be responsible for maintaining the project restoration. The costs of acquisition and value of contributed real estate are counted toward the non-federal funds match requirement.
- This effort is much appreciated. I would like to see herring return to the river.
- Given this project's and the Malden River Greenway effort's overlapping interests with the National Grid Site, USACE and MRWA should meet to discuss their respective efforts.
- Phragmites eradication is a long-term battle. How long will USACE treat Phragmites on this site? We are considering a two-year treatment program, which was successful on another project along the Mill River in Stamford, CT. The sponsor would then be responsible for long-term spot treatment to keep Phragmites from returning.
- What is MA DEP wetland division's opinion on the proposed filling of part of the river? In this case you are trying to create wetland habitat by filling in degraded open water. We met with MA DEP staff, and their only major concern is that the culvert flow pattern be maintained.
- How will this project affect chronic flooding along the bike path caused by storm runoff down Everett's South Creek? We are working with the City of Everett on this issue. For this project, our work will be focused on the mouth of the creek only to restore wetland habitat. A separate project under different funding could look into opening the creek up again to address the flooding issues.

## Predictive Bacteria Modeling and Sediment Study

### Presentation

Andy Hrycyna (MyRWA) presented results of the effort to develop a predictive bacteria model for the Mystic River watershed and an update on the sediment study for nine proposed boat launches.

The Mystic River Watershed Association, in collaboration with Jeff Walker (Walker Environmental Research, LLC), Nathan Sanders (data scientist and MyRWA committee member), and the lab of Professor John Durant (Tufts University), developed a modeling tool called the Daily Boating Advisory System to predict daily water quality in the Mystic River watershed. The project seeks to answer the question, "Is it safe to row/boat today?" In the past, this question has been difficult to answer because bacteria data is highly variable. Bacteria levels in urban water bodies, however, are generally

higher after it has rained because the mechanisms for contamination (e.g. runoff) are enhanced during rain events.

Funded by a grant from the Massachusetts Environmental Trust (MET), the project team undertook two seasons of intensive sampling, and utilized the relationship between bacteria levels and environmental variables (e.g. rain patterns, temperature, barometric pressure change) to develop a model that can predict water quality on a daily basis.

The project team created a tailored model for three recreational sites in the watershed with sufficient data: the Mystic River, Shannon Beach at Upper Mystic Lake, and the Malden River. Each site model relies on the environmental variables that were shown to best predict water quality during the initial data analysis.<sup>3</sup> For example, water quality at Shannon Beach can be predicted using one variable: flow from the Aberjona River. Inches of antecedent precipitation is a predictor at other sites.

Using the customized predictors, each model calculates the probability that the bacteria level on a given day exceeds boating standards (i.e. the probability of exceedance). Cyanobacteria blooms, however, may override an otherwise low bacteria probability of exceedance and cause the prediction to increase. This probability of an exceedance is translated into one of four public-facing predictions of water quality, updated daily: good, advisory, uncertain, and not available.

The daily results are made available to the public throughout the recreational season on the MyRWA website (<https://mysticriver.org/recreationadvisory>) and via a Twitter feed. To spread the message further, the project team is exploring opportunities to display the daily readout on electronic signs in boathouses and other venues along the river. A report on the technical details behind the models is available at <https://myrwa-api.org/api/recflag/rmd/models.html>.

Andy also briefly discussed the results from a sediment study conducted at nine locations for potential boat launches along the river, in support of a broader recreational health risk assessment for the Malden River currently underway. In addition to sediment sampling, MyRWA also collected water column samples to analyze levels of non-bacteria contaminants (e.g. heavy metals, pesticides, PCBs). The sediment and water quality report should be completed by August 2018.

### Discussion

During the discussion period, participants asked the following questions and made the following comments. Responses from Andy and other participants are in italics.

- Can the models be applied to the swimming standards models at Shannon Beach? Our foundation model cannot perform well for swimming standards nor

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<sup>3</sup> The model's input data will be updated frequently to reflect data collected each year.

does it work for areas with consistently low bacteria levels. We had to choose the locations where the model worked. We could not develop a model for every location we explored because we needed to meet certain model standards.

- Can this model produce midday updates? The daily advisory is posted in the morning but summer thunderstorms often occur in the afternoon. We have set the model to produce daily updates that are released in the morning. The website, however, will make it clear that if it has rained a lot recently, water quality has probably decreased. It can also be overridden in cases of known CSO discharges.
- Can this model contribute to our understanding of the causes of poor water quality, rather than just an empirical relationship? This data shows us diffuse contamination from the stormwater system. It is harder to identify discrete pollution sources (i.e. specific stormwater catchments) with this sort of model. But both MyRWA and all municipalities have other monitoring efforts that attempt to find illicit discharges when possible.
- This is a great practical application of modeling. Rowing coaches are saying this tool is what they need to show rowers' parents. People will have a more accurate picture of water quality in the Malden River and be more confident using the river because we have this tool.

## Update from Friends of the Malden River

### Presentation

Karen Buck (Friends of the Malden River (FMR)) provided an update on her organization's recent efforts to raise awareness of the Malden River.

FMR is a five-year old grassroots effort to increase awareness of the Malden River in the cities of Medford, Everett, and Malden. This group is engaged with the visioning effort for the Malden River Greenway, applying for community preservation action funds to improve access to the river, and cleaning up trash on the river. Karen emphasized the need for funding for a new boat to collect trash from the trash boom installed by the Malden Water Authority in 2007. She also noted that the trash boom is fed by trash entering the Malden River via large stormwater outlets southwest of the intersection of Canal Street and Charles Street, indicating that stronger stormwater control regulations are needed.

### Discussion

During the discussion period, participants asked the following questions and made the following comments. Responses from Karen and other participants are in italics.

- How was the Charles River trash boat funded and what is its status? I believe it was funded by the Duck Tours company and some companies in the Kendall Square area. But my understanding is that this boat is no longer operating because the boat operator passed away.
- MyRWA is working with EPA on a larger grant to conduct a trash study in the Mystic watershed. This would be a land-based assessment with volunteers in April 2018. On Earth Day, we will do a quantitative trash assessment in

MacDonald Park. We also plan to deploy a trash boom the week before Earth Day and measure the amount of trash collected on Earth Day. We will also look at where this trash is coming from. This would only be a pilot study but we hope to build on it.

- The trash boom Karen spoke about collects a lot of plastic bottles. This supports the argument that we need to pass a bottle bill in Massachusetts.
- The cities FMR works in are very diverse. Have you found resources for doing public outreach in multiple languages? The Chinese Cultural Connection helped us translate our brochure.
  - MA DEP has a language bank to help translate outreach materials as well as a state-wide contract for translation services. Participants should speak with MA DEP about this resource and consider including it in funding proposals.

MEETING PARTICIPANTS

Name	Affiliation
Karen Buck	Friends of the Malden River
Adam Burnett	USACE
Bryan Carignan	Town of Winchester
Clay Carsen	Groundworks Somerville
Chris Cole	Town of Reading
Eileen Coleman	Town of Burlington
Mel Cote	USEPA
Conrad Crawford	Groundworks Somerville/CRA
Amber Cristoffersen	MyRWA
Melissa Cryan	EEA-DCS
Catherine Daly Woodbury	Cambridge DPW
Sean Dixon	USEPA
Rebecca Gilbert	Consensus Building Institute
Chris Goodwin	MWRA
Patrick Herron	MyRWA
Karl Honkonen	US Forest Service
Emily Hopkins	Town of Burlington
Andrew Hrycyna	MyRWA
Alicia Hunt	Medford
Rachel Kelly	Everett
Lise Marx	MWRA
Hillary Monahan	MWRA
Claire Moss	Wakefield
Jeffrey Nangle	Nangle Consulting Associates
Karen Peltó	Mass DEP NRD
Nick Pernice	Malden Redevelopment Authority
Tom Philbin	Everett
Nikhil Selarka	Mass DEP NRD
Michael Sprague	Town of Lexington
Kathy Vandiver	Friends of the Malden River/MIT Center for Environmental Health Sciences
John Walkey	GreenRoots
Caitlyn Whittle	USEPA



For questions regarding this meeting summary, please contact Caitlyn Whittle at EPA ([whittle.caitlyn@epa.gov](mailto:whittle.caitlyn@epa.gov)) or Rebecca Gilbert at the Consensus Building Institute ([rgilbert@cbi.org](mailto:rgilbert@cbi.org)).