Mass.gov

# Ebb&Flow Summer 2019

## DER's quarterly newsletter - Summer 2019

TABLE OF CONTENTS

()

# DER's New Engineering Group

DER is pleased to announce the formation of its Ecological Restoration Engineering Group. This group is responsible for developing and implementing approaches to ensure proper design, integrity, and climate resiliency for DER's ecological restoration projects. A primary focus of the Engineering Group is to oversee and provide engineering technical assistance to DER Priority Projects and potential future projects, municipal projects supported by DER's Stream Continuity Program, and to our various partners and project stakeholders. The Engineering Group is also responsible for affirming that our river, tidal, and freshwater wetland restoration projects are technically sound and balance ecological objectives with the built environment. Finally, the Engineering Group provides leadership for other DER ecological restoration activities and internal and external capacity-building, with a focus on infrastructure and ecological restoration engineering.

The Engineering Group is led by Kristopher Houle, P.E., Senior Ecological Restoration Engineer, and supported by Carley Przystac, Ecological Restoration Engineer who joined DER in June.

Carley Przystac, Ecological Restoration Engineer

Ms. Przystac provides engineering technical assistance to DER staff and partners for projects including culvert replacement, dam removal, tidal and freshwater wetland restoration, and other areas of mutual interest. Carley is a graduate from Mount Holyoke College and UMass Amherst. She earned a B.A. in Ecosystem Science and a B.S. in Civil Engineering, respectively. She is also currently working toward an M.S. in Environmental

Engineering and Science from John Hopkins University. Over the last three years, Carley has served as a water resource specialist at VHB. She is skilled in hydrologic & hydraulic modeling, relevant areas of civil engineering design, and is experienced with communicating results to technical professionals and the general public. Prior to her time at VHB, Ms. Przystac interned with CDM Smith and MassDOT. In her spare time, Carley volunteers with Save the Bay and University of Rhode Islands's Watershed Watch to educate the public about climate change and aquatic habitats.

## DER's 10th Anniversary: An Urban River Restoration Retrospective

Imposing granite blocks crowned by a dreary concrete wall. This was the backdrop of DER's first urban river restoration and an apt illustration of the imagination and vision inherent in urban river advocates. The river was the North Nashua. The location: an isolated pocket park in the middle of Fitchburg's downtown. Prior to the formation of DER, the Riverways Program had begun several forays into urban river work expanding to include restoration under DER.

The City and the watershed had a storied history of river advocacy. Locals including Marion Stoddart were instrumental in passing the 1974 federal Clean Water Act - initiating the modern era of water quality protection. They championed – and achieved- water quality improvements for the Nashua River and worked to raise the stature of the river in the community. Not an easy task given the North Nashua's stubborn label of 'dead river' acquired when an image of the river, an alarming brick red, graced the cover of *National Geographic* in the 1960's. The advocates' work was further complicated by miles of those granite blocks and concrete walls hemming in their river and isolating the waterway from the city and its residents.

It is hard to celebrate a river when it takes rappelling gear to access the river's edge. The wish to reintroduce the North Nashua River to the community launched a years-long effort to identify access options and opportunities. The City of Fitchburg and a diverse coalition of river advocates worked with DER to host a community visioning session. The ideas generated by the attendees served as the catalyst for a *river master plan*.

The City's new Riverfront Park was the ideal pilot restoration project. Both access to and views of the North Nashua River were blocked by the flood walls built decades earlier by the Army Corps of Engineers. Creating river access was the goal but equally important was maintaining or increasing the level of flood protection afforded by the flood walls. Fortunately the site offered its own elegant solution. Riverfront Park was a small sliver of green squeezed between the flood wall and an active rail line. Building up an earthen berm just a bit higher than the flood wall, adjacent to the railroad tracks, easily replicated the flood containment offered by the walls while providing the bonus of buffering the park from the passing trains.

A number of unanticipated hurdles kept the project 'lively' but six years after the community gathered to dream of an accessible river, a section of flood walls came down. A grassed slope and a trail inviting people to the river's edge replaced the concrete wall blocking river views and access. The North Nashua River rightfully became a focal point of Riverfront Park and a green gap in the restrictive granite and concrete walls lining the river.

The work on the North Nashua and the burgeoning focus on urban rivers across the country provided momentum to continue urban river restoration projects in the Commonwealth. Urban river restoration offers unique benefits including improving access to and recreation on and along a waterway in densely developed areas, addressing a range of water quality issues, and improving and reintroducing overlooked natural resources amenities to environmental justice communities. A good illustration of this was DER next urban river undertaking- the Spicket River, another tributary of the Merrimack River.

The river had long ago been straightened and channelized as it flowed through Lawrence - unintentionally creating a flood prone waterway that inundated the adjacent neighborhoods during heavy rains. An assessment identified an impressive list of assets in and along this urban waterway, some challenges and several feasible restoration opportunities. DER worked with the city and local community advocates to implement restoration projects to address bank erosion, create in-channel habitat, reduce instability and provide dedicated access to the river's edge. These river restorations complemented several other river-focused initiatives to improve the river and adjacent neighborhoods including a riverside trail. The Spicket River was and continues to be a multi-faceted revitalization hub within the city.

Each urban river project provides a wealth of learning opportunities and inspirations. The North Nashua Project and other urban river projects across the country spurred local community activists in North Adams to explore restoring their concrete-constrained river. DER has a new undertaking offering dual benefits that tap a range of our restoration interests. The City of Chicopee applied for priority project status to remove a failing dam, explore a second dam removal and consider measures to improve water quality and habitat in and along Abbey Brook. The City welcomed the suggestion by DER to determine the feasibility of daylighting a portion of Abbey Brook just downstream of the dam removal to extend the community amenities possible with this unique urban waterway- a strategy many cities have shown to be economic and social success.

Urban river projects offer special rewards including being a party to the inspiration and dedication of the local communities. Restoration projects across the planet are proving the resiliency and worth of focusing on these often discounted waterways.

## $932,000 in Grants Awarded to 16 Cities and Towns to Upgrade Road-Stream Crossings

DER awarded $932,000 to support culvert replacement projects that improve municipal roads and river health. Fourteen of the sixteen grants are provided through our Culvert Replacement Municipal Assistance grant program. The grants strengthen community preparedness for large storm events, protect fisheries and river habitats, and promote smart investments in climate-ready infrastructure. In addition, the grants help municipalities deal with the ever-pressing cost of aging road infrastructure.

16 projects were awarded grants:

- City of **Attleboro** will conduct field data collection for a culvert replacement on the Chartley Brook.
- The Town of **Braintree** will conduct field data collection for a culvert replacement located on Smelt Brook, a tributary of the Monatiquot River.

- The Town of **Boxford** will replace an undersized culvert on a tributary to the Parkers River on Valley Road with a structure meeting improved stream crossing and engineering design standards.
- Trout Unlimited, the Town of **Chester** and other project partners will use the grant funds to construct a structure to replace an undersized and failing culvert on Kinne Brook Road.
- The Town of **Clarksburg** will conduct field data collection and analysis, design and engineering, and permitting for a culvert replacement on Bear Swamp Brook.
- The Town of **Cummington** will complete design and engineering tasks for the culvert replacement on the North Branch of the Swift River.
- The Town of **Essex** will conduct field data collection and analysis, design and engineering, and permitting for the replacement for replacement of a culvert on a tributary to the Essex River.
- The City of **Holyoke** will conduct field data collection and analysis, design and engineering, and permitting for the replacement of a culvert on Broad Brook.
- The City of **Leominster** will conduct field data collection and analysis for the replacement of a culvert on Toad Mill Brook.
- The Town of **Leverett** will conduct field data collection and analysis, design and engineering, and permitting for the replacement of a culvert on a tributary to Roading Brook, a coldwater fishery.
- The Town of **Pepperell** will conduct field data collection and analysis, design and engineering for the replacement of a culvert on Sucker Brook.
- The Town of **Sharon** will conduct field data collection and analysis, design and engineering, and permitting for a culvert replacement.
- The Town of **Sheffield** will conduct final engineering and design and permitting for a culvert replacement on Dry Brook.
- The Town of **Uxbridge** will conduct field data collection and analysis, design and engineering for a culvert replacement on Farrel Brook.

- The Town of **Walpole** will conduct field data collection and analysis for a culvert replacement project on Traphole Brook, a designated coldwater fishery resource.
- The Town of **Windsor** will replace an undersized and deteriorated culvert on a tributary to the East Branch of the Westfield River with a larger, safer structure that meets road-stream crossing standards.

Two projects were awarded funds from the Blackburn and Union Privileges Superfund Site Natural Resource Damage (NRD) settlement. **Read the full press release** (/news/baker-polito-administration-helps-cities-and-towns-upgrade-road-stream-crossings-0).

## The Tel-Electric Dam Removal Starts Construction

The City of Pittsfield will start work for the removal of the Tel-Electric Dam (also known as the Mill Street Dam) and the revitalization of the West Branch Housatonic River.

The dam is located on the west branch of the Housatonic River within a developed mill complex at 105 Hawthorne Ave. The project's goal is to protect surrounding infrastructure, eliminate a public safety hazard, and reduce area flooding. It will restore river ecological conditions by removing a barrier to fish and wildlife movement, improve water quality, and dredge polluted sediments.

Support for this project comes from the National Fish and Wildlife Foundation, the U.S. Department of the Interior Office of Restoration and Damage Assessment, the Massachusetts Executive Office of Energy and Environmental Affairs Dam and Seawall Repair and Removal Program, the Department of Environmental Protection, and the MASubCouncil of the Housatonic River Trustee Council, in addition to contributions from the City, the dam owner and DER.

For more information about the project, you can **watch a video** (https://www.youtube.com/watch?v=_cfwKWNOPO0&feature=youtube) that features City staff, the dam owners, and local partners and reasons for removing this dam.

# Cranberry Bog Program - Summer Updates

In June, and under contract to DER, **Living Observatory** (http://www.livingobservatory.org/) completed the first elements of a *Preliminary Benefits Assessment* to help document lessons learned to date from wetland restoration projects on retired cranberry farmland. The goal of this work is to summarize the state of science on this emerging wetland restoration practice, organize multiple lines of on-going research, and coordinate scientists in the region to seek answers to pressing questions moving forward. The next and final phase of this report will be completed in 2020.

Cranberry Bog Program staff continues to make technical presentations around the region to grow a network of partners and interested landowners. Within the past several months, talks have been provided to the NRCS technical advisory committee, U.S. Geological Survey (USGS), Massachusetts Institute of Technology (MIT), MA Natural Heritage and Endangered Species Program (NHESP), and Nantucket Conservation Foundation. Interest in this work continues to grow around the region. Next up this fall: a workshop with the Southeastern Regional Planning & Economic Development District (SERPEDD) for local communities to help consider wetland restoration projects as part of their Municipal Vulnerability Preparedness (MVP) planning processes.

Lastly, DER is beginning to advance GIS-based tools to help plan cranberry bog restoration work in the region. DER intern, Xinyi Zeng, worked closely with DER Ecological Restoration Specialist, Eivy Monroy, to identify and digitize long retired cranberry bogs. Many of these are covered with forests today and hard to identify, yet need to be mapped to evaluate potential restoration of the historical wetlands. Development of a broader prioritization tool is underway.

# Jones River Restoration Activities

*DER's Streamflow Data Informs Construction of a New Fish Ladder*

DER has been collecting streamflow data downstream of the Forge Pond Dam on the Jones River in Kingston for many years to document and understand flow stress. The river historically supported prolific runs of diadromous fish, which spawned in Silver Lake at the

river's headwaters, but dams and water management have prevented fish from spawning here in recent history. As dams have been removed downstream, diadromous fish have started to reach up to the Forge Pond dam but have been unable to enter Silver Lake due to the dam and lack of a fish ladder. In late spring this all changed when the MA Division of Marine Fisheries (DMF) installed a temporary fish ladder at the dam to enable passage. The fish ladder was identified as part of a feasibility study done by DMF in 2012 in partnership with DER, the Jones River Watershed Association (JRWA), NOAA, and the City of Brockton to study options to provide fish passage to Silver Lake. Shortly after installation, herring were observed using the ladder and entering Silver Lake. We look forward to our continued work with DMF, JRWA, and other partners to help ensure there is sufficient streamflow to continue to allow passage and sufficient habitat.

*The head-of-tide Elm Street Dam comes down*

Removal of the Elm Street Dam on the Jones River in Kingston is underway. Located at the head of tide (first dam from the ocean), removal of the dam will restore connectivity to over 24 miles of river habitat and restore habitat and passage for target species including: alewife, blueback herring, and rainbow smelt. DER has been working with the Jones River Watershed Association (JRWA), the Town of Kingston, DMF, MassWildlife, National Marine Fisheries Service, NOAA and other project partners on this removal. Work started in mid-August and is targeted for completion by the end of September. This is the second dam removal DER has been a part of on the Jones River – the first was Wapping Road Dam, removed in 2011. DER also has been working through its Streamflow Restoration Program to improve streamflow along this river.

## Kent's Island Tidal Restoration is Complete

MassWildlife has completed work to install a new bridge at the Kent's Island Salt Marsh, part of the William Forward Wildlife Management Area in Newbury. The previous bridge spanning Kent's Island Creek was severely dilapidated and material from the bridge and banks had filled in the creek, exacerbating the existing tidal restriction. The new bridge restores tidal flow to the 47 acre coastal salt marsh and provides improved safe access for wildlife management activities including management of shrub and grasslands and

pheasant stocking. In addition to improving habitat in the salt marsh, Kent's Island offers walk-in access. Parking is at the Nancy Begin Salt Marsh Overlook parking area. DER provided technical assistance and funding in support of this work. The project was also supported through a USFWS NAWCA Grant.

## New Priority Dam Removal Projects Gain Momentum

Working with our partners, DER is advancing three priority dam removal and restoration projects. Traphole Brook in Norwood, Sucker Brook in Pepperell, and Osgood Brook in Wendell have all begun preliminary design phase. DER and our consultants have been busy in the field collecting sediment, survey, historical, fisheries, and wetlands data. We have also been gathering other key information that will inform modeling, design, and permitting efforts. All three projects benefit coldwater fisheries and freshwater mussel resources. We are excited about these new dam removal projects and will continue to provide updates as the projects progress.

Some Highlights:

We were excited to join our colleagues at MassWildlife for electrofishing last month at Osgood Brook to collect fisheries data. DER also deployed temperature loggers to assess the impacts the dam impoundment has on water temperature on this coldwater fishery.

Our partners at Neponset River Watershed Association, Town of Norwood, U.S. Fish and Wildlife Service, and Massachusetts Department of Environmental Protection, helped host a meeting at the Norwood Public Library last month to share information and hear from the local community about the Traphole Brook project. We had a great conversation with community members and town representatives and look forward to working with them throughout the project.

We were joined by the Town of Pepperell and Squan-a-Tissit Trout Unlimited for a day of field work at Sucker Brook alongside our consultants collecting sediment samples, depth profiles, and survey data.

## Parkers River and Seine Pond Restoration About to Begin Construction

The Parkers River is located in the Town of Yarmouth. Originating in Long Pond, a 63-acre headwater pond, the Parkers River flows south through Seine Pond, and then into Nantucket Sound. Route 28, an east-west highway, divides the Parkers River estuary and restricts flow into the upper estuary. For over 120 years, the undersized bridge crossing on Route 28 has severely restricted the natural tidal flow into the Parkers River estuary, impairing ecological function. Water quality concerns in Seine Pond in the upper reach of the river have been reported for years. The restricted tide has also reduced average salinity and the amount of sediment that can be transported into the estuary - both are needed for the salt marsh to keep pace with sea level rise. High flow rates under the bridge limit passage by marine and diadromous fish during portions of the tide cycle, and the undersized opening causes storm surge to be held for extended periods, increasing the likelihood for economic damage during coastal storms.

After years of thoughtful work, construction to install a larger structure on Route 28 begins in the fall. Replacing the existing tidally- restrictive bridge over the river will restore natural tidal hydrology to this 219-acre estuarine system. This will greatly improve ecosystem health and enhance water quality. Additionally this restoration will improve fish passage for herring - the Parkers River and Seine Pond are part of the migration route for river herring spawning in upstream Long Pond. The Town of Yarmouth has worked closely with MassDOT and is supported by DER, NRCS, the NOAA Restoration Center, and the USFWS.

## Work Continues to Restore 500 acres of Wetlands on Retired Cranberry Farmland

DER is currently working with local, state, and federal partners to advance eight (8) active restoration projects (~500 acres) on retired cranberry farmland. In addition, our staff is working closely with the USDA Natural Resources Conservation Service (NRCS) to develop the next wave of potential projects. Highlights include:

- Foothills Preserve and West Beaver Dam Brook Restoration Project (Plymouth) – DER continues to support the Town of Plymouth, USDA NRCS, and Mass Audubon to restore wetlands on this approximately 50-acre former farm site. DER recently awarded $75,000 in grant funding to the Town to support final engineering design, permitting, and bid phase services. The project is expected to move into implementation in early 2020.
- Mill Brook Bogs Restoration Project (Freetown) – Under contract to DER, Stantec Consulting Services completed preliminary engineering plans, a basis-of-design report, and cost estimates for this large project in June 2019. Approximately 200-acres of historic wetlands and surrounding transitional areas will be restored. New project partner, Save the Bay, is working with DER to develop vegetation monitoring. DER expects to issue a bid request for final design and permitting service in September to carry the momentum forward.
- Coonamessett River Restoration Project (Falmouth) – Contractor bids were just received by the Town of Falmouth for Phase 2 of project implementation. A groundbreaking event is scheduled for late October - stay tuned for more details. This phase of work will restore an additional 30+ acres of riparian corridor and 3,000 linear feet of the Coonamessett River, remove a valley-spanning earthen dike, and replace an undersized culvert along John Parker Road. This work serves to complement Phase 1 of the project, which included restoration of over 10 acres of riparian corridor and 1,600 linear feet of stream, and removal of the first dam from the ocean.
- Robert F. Smith Cold Brook Preserve (Harwich) – The project team is collecting new data and updating models to help evaluate various design elements with respect to future sea level rise for this low-lying former cranberry bog.
- Childs River Restoration Project (Falmouth and Mashpee) – DER is providing support in a variety of forms to the landowner, Falmouth Rod and Gun Club, and other partners. In June, under contract to DER, a preliminary historical study was completed by the Public Archeological Lab and sediment sampling and large wood delivery to the site were completed by Inter-Fluve, Inc. DER will contract for the next phase of historical assessment this fall. The Association to Preserve Cape Cod is providing project management assistance to help advance this work. Once completed this project will restore wetlands on two small retired cranberry farms, replace a culvert,

remove an old dam, and restore fish habitat and passage in this small coastal watershed.

- New potential projects – DER completed the first wave of conceptual design studies for new potential projects in June. All three sites (Plymouth, Carver, and Wareham) are currently in the land protection phase with NRCS, and will make excellent future wetland restoration projects. Thanks to the three firms that worked closely with DER to complete this work: Fuss and O'Neil, Milone & MacBroom, and Beals & Thomas.

## Thirteen Dam Removal Site Reconnaissance Studies Completed

In July 2019, DER completed site reconnaissance and concept design studies for thirteen potential dam removals across the Commonwealth. DER worked with interested partners in Clinton, Dartmouth, Dracut, Haverhill, Hatfield, Monson, Oxford, Pittsfield, and Uxbridge to assess preliminary feasibility of removal. Sites were selected for their combined public safety and ecological benefits. DER's work has helped owners determine the best next steps for their dams and several of the sites will soon be advancing toward eventual removal. Funding for these studies was provided by the U.S. Department of the Interior and administered by the National Fish and Wildlife Foundation as part of the Hurricane Sandy Coastal Resiliency Competitive Grants Program.

DER regularly provides technical assistance to dam owners interested in pursuing removal and each year facilitates the completion of site reconnaissance level studies at no cost to the owners. If you own a dam and are interested in learning more about the removal process, please visit DER's Guide for *Deciding to Remove Your Dam* at: **https://www.mass.gov/guides/deciding-to-remove-your-dam** (/guides/deciding-to-remove-your-dam).

## Restoration Resources

**Grant – Eastern Brook Trout Joint Venture**

(https://easternbrooktrout.org/funding-opportunities/2020-ebtjv-fws-nfhp-project-funding-opportunity)

The Eastern Brook Trout Joint Venture (EBTJV) is requesting project proposals that restore and conserve habitat necessary to support healthy and productive populations of wild brook trout. The deadline for this funding opportunity is 5:00 p.m. Eastern time on October 4, 2019. **For more information** (https://easternbrooktrout.org/funding-opportunities/2020-ebtjv-fws-nfhp-project-funding-opportunity).

### William P. Wharton Trust (http://www.williampwhartontrust.org/)

The William P. Wharton Trust was established to support projects that directly promote the conservation, study, and appreciation of nature. The Trust's next preliminary application **deadline** is **Sunday, September 15**. For more info, **click here** (http://www.williampwhartontrust.org/instructions.htm).

### Environmental License Plates (/environmental-license-plates)

The Massachusetts Environmental Trust (MET) provides funding to many river, wetland and other water resources protection and restoration projects throughout the Commonwealth. A major source of MET's funding comes from the sale of environmental license plates. Getting an environmental plate is easy and can be done **on-line** (https://secure.rmv.state.ma.us/SpecialPlates/intro.aspx), or in person at your local Registry of Motor Vehicles office.