Massachusetts Department of Fish and Game
Division of Ecological Restoration
Invested in Nature and Community

Ebb & Flow

Ronald S. Amidon, Commissioner
Beth Lambert, Director
Hunt Durey, Deputy Director

Spring 2019

Friends and colleagues,

I'm thrilled to tell you that DER is expanding its technical assistance to communities and landowners across Massachusetts. Four new staff joined DER this spring, bringing much-needed capacity to our dam removal, culvert replacement, cranberry bog restoration, and procurement activities. These staff are already taking on new restoration projects, accelerating our work to restore habitat and help people and nature adapt to climate change.

I'm also excited to let you know that on May 8th the US Fish and Wildlife Service announced that DER will receive $2 million from the National Coastal Wetlands Conservation Grant Program for two freshwater wetland restoration projects: the Foothills Preserve in Plymouth and the Cold Brook Restoration in Harwich. Together, the projects will result in over 100 acres of restored wetlands.

Finally, 2019 is DER's 10 Year Anniversary. In honor of that, we'd love to collect and then share your stories about the rivers and wetlands you care about. Read more here and stay tuned for other celebrations later in the year.

See you on the river!

Beth Lambert, *Director*

In this issue:

Share Your Rivers and Wetlands Stories!

In celebration of our 10 year anniversary we'd love to hear (and share) your stories about the wetlands and the rivers you love. What makes this place special? Why is protecting these natural areas important to you? If interested in sharing your story and a photo, please visit this site and fill out the short form included there and tell us about your favorite river or wetlands. Or contact Megan Sampson at megan.sampson@mass.gov.

New Staff Join DER



Left: New staff Ryan (2nd from left) and Joe (3rd from left) in the field with NRCS; Middle: New staff Jacob; Right: New staff Eivy (1st from left) in the field with consultant Robin MacEwan from

We are excited to announce that four new staff have joined DER's team. These new staff are helping us expand our assistance to communities with dam removal, culvert replacement, and other restoration and climate adaptation projects.

Ryan Barney, Program Assistant – Ryan supports all of DER's restoration work. He comes to DER from the National Parks of Boston Education & Youth Engagement Team where he worked administratively as well as on the ground at 3 park sites to design and coordinate place-based education programs.

Joseph Gould, Ecological Restoration Specialist – Joe is working in our dam removal practice area. Joe comes to us from a position as Director of Ecological Programs for the Buffalo Niagara Waterkeeper. In this role, Joe managed restoration projects and coordinated with partners to plan larger initiatives.

Jake Lehan, Stream Crossing Assessment Coordinator – Jake is working in our Stream Continuity Program. As a certified North Atlantic Aquatic Connectivity Lead Observer, he is experienced in road-stream crossing assessments as well as has a variety of academic and professional experience related to aquatic ecosystems.

Eivy Monroy, Ecological Restoration Specialist – Eivy has joined DER's Cranberry Bog Program. Eivy has over a decade of professional experience in engineering, wetland science, watershed planning, and GIS. Most recently, Eivy worked for the Narragansett Bay Estuary Program and was a lead analyst on their State of the Bay publication.

Wetlands - A Shifting Focus

Muddy Creek Salt Marsh Restoration, before and after.

While we are on the eve of our 10th anniversary as a Division, the State's proactive wetland restoration efforts started in the mid 90's. In 1994, the Massachusetts Executive Office of [Energy and] Environmental Affairs, along with numerous state, federal, and other partners, signed a *Resolution to Restore Massachusetts Wetlands*. The Resolution committed the signatories to help restore the Commonwealth's degraded wetlands by supporting a comprehensive strategy that covered planning, policy, funding, education, and project implementation. Concurrently, first of its kind, the Wetlands Restoration and Banking Program (WRBP), was established to further implement the state's policy of "no net loss of wetlands in the short-term and a net gain in the long-term." Early on, the WRBP recognized the need for proactive wetland restoration separate from regulatory-required wetlands mitigation, giving rise to the Massachusetts Wetlands Restoration Program (WRP) in 2000.

During its formative years, the WRP made great strides in educating the public on the need for restoration, as well as identifying opportunities to restore wetlands degraded by human activities. While early wetland restoration efforts included both freshwater and coastal habitats, the WRP quickly focused on restoring tidally restricted wetlands. This early focus on coastal wetlands and salt marshes degraded by the disruption of natural tidal flow was the result of advances in technologies that made it easier to remotely identify stressors and catalog restoration opportunities. Working with a number of partners, the WRP contributed to producing regional Tidal Atlases that documented tidal wetland restoration opportunities by region. These Atlases were a key tool, helping to catalyze salt marsh restoration efforts in Massachusetts.

In 2009 WRP merged with the Riverways Program to become the MA Division of Ecological Restoration. Since that time, DER has continued to engage in the restoration of our coastal wetlands. To date, with more than 90 wetland restoration projects completed and 1800 acres restored, DER continues on-the-ground projects to restore our coastal and tidal wetlands. However, as our understanding of these complex systems has evolved, based on the latest research, DER finds itself shifting focus from restoration primarily through addressing tidal

restrictions to include new approaches toward identifying and addressing stressors to improve wetland functioning and health.

The impacts of Climate Change, including rising sea levels and increases in the frequency and duration of coastal storm events, are placing greater pressures on the health and resilience of our marshes. It is no longer sufficient to simply restore our existing natural resources; we must look to promoting conditions that allow these dynamic systems to respond and adapt to change.

Within DER, collaboration across practice areas will facilitate a wholistic approach to restoring coastal habitats. Dam removals at the head of tide, culvert replacements in brackish and tidal freshwater environs and restoration of retired coastal cranberry bogs may secure corridors for future migration of marshes. Understanding the impacts of past ditching activities that may be less visible yet have the potential to alter thousands of acres of marsh hydrology and sediment processes through science-based investigation will aid in the development of innovative restoration tools. As the challenges facing our coastal wetlands have changed, DER's approach to tidal wetlands restoration is evolving, and we are hopeful our program will continue to contribute toward a vibrant and strong coastal community.

Division of Ecological Restoration Program and Project Updates

Dam Removal Creates Jobs, Stimulates the Economy

Left and Middle: Work on the Cotley River Restoration, Barstowe Dam Removal Right: The Third Herring Brook Restoration, Tack Factory Dam Removal

This year DER investigated the economic impact of the removal of Barstowe's Pond Dam in Taunton and the Tack Factory Dam on the border of Hanover and Norwell. Applying standard economic analysis methods, DER found that the two projects created 17 jobs and $2.8 million in economic activity. The two projects also saved the dam owners costly dam repairs, inspections, and maintenance. The results build on a 2012 study by DER which found that restoration projects such as dam removals create or maintain 12.5 jobs and $1.75 million in economic activity for every $1 million spent.

Removal of the obsolete Tack Factory Dam in 2017 reconnected nearly 7 miles of eastern brook trout habitat in Third Herring Brook, a tributary to the North River estuary. The nonprofit Cardinal Cushing Centers faced a $535,000 cost to repair the dam, plus additional future costs for

safety inspections and maintenance. DER, the North and South Rivers Watershed Association, NOAA Fisheries, and the US Fish and Wildlife Service helped the dam owner through the removal process. Removing the dam cost approximately $489,000. Federal and state grants and technical services from DER greatly reducing the cost to the dam owner. This project generated approximately 6 jobs and $1 million in economic activity.

Taunton Barstowe's Pond Dam was an unwanted, unsafe, high hazard dam that blocked the Cotley River, a tributary to the nationally-designated Wild and Scenic Taunton River. The owner faced nearly $980,000 in costs to repair the dam, with additional future costs for inspections and maintenance. DER and partners, including the Taunton Development Corporation, the Mashpee Wampanoag Tribe, and Save the Bay, removed the dam for approximately $650,000. Federal and state grants and technical services from DER greatly reduced the cost to the dam owner. The project generated approximately 11 jobs and $1.8 million in economic activity.

Cranberry Bog Program Updates

The goal of DER's Cranberry Bog Program is to restore wetlands and streams on retired cranberry farmland. In the absence of restoration, many of these lands will persist in a severely degraded state owing to legacy agricultural impacts including a sand fill layer and ditching. With 3 completed projects to date, we have developed promising practices to rejuvenate wetland conditions on these sites.

DER instructing a class with Mt. Holyoke College and Living Observatory at the Tidmarsh Wildlife Sanctuary in April.

DER has seven (7) cranberry bog restoration projects in planning, representing approximately 500 acres of future restored wetlands. With the continuing economic crisis in the cranberry industry, we continue to hear from landowners who are interested in pursuing a conservation and restoration exit strategy. Over a dozen new potential projects lie on the horizon, representing almost 1,000 acres of restored wetlands. Limited capacity and resources are the biggest challenge preventing more beneficial restoration work at this time.

To increase our capacity, we continue to pursue a strategy to grow evidence, partners, and funding. To that end, program manager Alex Hackman has delivered numerous talks aimed at recruiting partners in the past few months, including as a keynote speaker to the Southeastern Massachusetts Watershed Action Alliance (video link), USGS Northeast Water Science Center, Mass Association of Conservation Commissions, Buzzards Bay Coalition board of directors, Mt. Holyoke College, and more. We have also worked with other Divisions within the Department of Fish and Game to put forth a vision for a 'green exit strategy' for interested landowners involving land protection, wetland restoration, and open space management. We continue to seek new funding for these needed services.

Internal capacity at DER has recently increased through the hiring of Eivy Monroy. Without skipping a beat, she is already involved in restoration projects and broader analyses of restoration opportunities. DER staff are in the field extensively these days to support the above-referenced projects, build new partnerships, and meet with landowners about new potential projects. Please feel free to contact Alex Hackman for additional information: alex.hackman@mass.gov.

Left: New potential project in Carver during an inspection with NRCS in April. Right: Restored stream And wetlands at Tidmarsh

Municipal Culvert Replacement Training

As part of our Stream Continuity Program, DER offered two free trainings this spring on culvert replacement design. Public works staff members from 16 towns attended the training programs. Trainings where held in Brookfield and Boxford where DER is working with the towns on culvert replacement projects that serve as case studies and training sites. Each training covered components of the critical early phases of a culvert replacement project with the goal of saving towns time and money. The training was led by Brian Kelder, DER's Stream Crossing Specialist. DER will be offering more training opportunities this year (sign up for our Culvert Connection newsletter to make sure you get notice of these trainings and other key news for culverts).

DER's Brian Kelder leads a training to talk about the early phases of a culvert replacement project.

Kent's Island Creek Restoration (Newbury) Goes to Construction

The Kent's Island Restoration project is underway! DER has been partnering with MassWildlife on this project to improve tidal flow and restore 47 acres of salt marsh located in William Forward Wildlife Management Area associated with Kent's Island Creek in Newbury. Restoration work will allow tidal waters to flow more naturally upstream, reducing scour and erosion.

Restoration work underway at Kent's Island in Newbury

Construction began late this winter. This project is also supported by a grant from the US Fish and Wildlife Service's North American Wetlands Conservation Act Grant Program.

Holmes Dam Removal Celebration (Plymouth)

On Earth Day (April 22), DER joined Governor Baker, Congressman Keating, US Fish and Wildlife Service, NOAA Fisheries, the Town of Plymouth and other partners in celebration of the last major step in the Town Brook Restoration - the Holmes Dam Removal and replacement of the Newfield Bridge. With 4 dams removed and a modern fish ladder installed at the Jenney Grist Mill, river herring can once again reach high quality spawning habitat in the 269 acre Billington Sea in the headwaters of Town Brook. The project also improves public safety by eliminating the risk of a failing dam, and helps the Town of Plymouth build resilience to climate change. Funds invested by the Division of Ecological Restoration, EEA's Dam and Seawall Fund, and the PARC program leverage substantial federal grants for the project from NOAA Fisheries and the US Fish and Wildlife Service. The Town of Plymouth began removing dams on Town Brook in 2002, long before most dam owners realized dam removal was possible. You can explore over 20 years of dam removal and other restoration work through this storymap.

Left: Governor Baker, DFG Commissioner Ron Amidon, DER Director Beth Lambert and DER Deputy Director Hunt Durey at Holmes Dam Removal Earth Day celebration. Right: Town Brook site of the former Holmes Dam.

Stony Brook Streamflow Restoration Priority Project

DER recently accepted the Stony Brook Flow Restoration as one of its newest Priority Projects. This project is focused on Stony Brook as it flows through Littleton and Westford, passing through a series of surface water impoundments before it enters the Merrimack River in Chelmsford. The goal of the restoration project is to improve streamflow in the watershed through coordinated releases from the dams during periods when streamflow is low, without compromising in-lake uses. Dam operation will be based on an online decision support tool - informed by streamflow data, lake level, precipitation forecast information, and model results.

Left. The outlet of Forge Pond. Right: DER's Kate Bentsen shows partners how to measure streamflow.

The project has received two grants from MassDEP's Water Management Act program to further planning and implementation. Funding in 2018 was used to expand the monitoring network and develop a decision support model. Funding in 2019 is being used to finalize flow release strategies; submit permit applications; field-validate streamflow data; conduct testing of the low-flow releases; and conduct a desktop optimization of Littleton and Westford's 12 groundwater wells.

Project partners include Littleton Water Department, Westford Water Department, Geosyntec consultants, and various dam owners and lake associations. DER's role in the project will focus on assisting with streamflow and biotic monitoring, as well as project implementation. We look forward to working with a great group of partners on this unique project to improve streamflow!

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 has provided $70,000 in cash grant funding to the Town to support engineering design and permitting services. Project engineer Inter-Fluve, Inc. has recently completed draft preliminary designs. Armed with a recently issued MEPA certificate the next steps are permitting, which DER will support with in-house expertise.

Foothills Preserve and West Beaver Dam Brook site

Mill Brook Bogs Restoration Project (Freetown)

Working for landowner MassWildlife and conservation easement holder NRCS, DER is providing lead project management services for restoration of this 125-acre retired commercial cranberry farm. Stantec Consulting Services is under contract to DER to develop preliminary engineering plans by the end of June 2019. This work builds upon initial

DER Eivy Monroy & Robin MacEwan of Stantec Consulting Services at the Mill Brook Bogs Restoration Project

restoration concepts developed by DER, and continued thinking about how to heal the land and invite visitors into this public open space. Over the next few months, DER will file numerous grant applications to help support the next phases of engineering as well as project implementation. DER expects to prepare and file MEPA documentation this coming summer, leading next to project permitting.

Coonamessett River Restoration Project (Falmouth)

The project is poised for implementation! Final funding and contracting details are being resolved now. Expect the start of restoration in the next several months, and stay tuned for more updates.

Childs River Restoration Project (Falmouth and Mashpee)

The Falmouth Rod and Gun Club, which owns the restoration area, has secured the MEPA Certificate for the project, including wetland restoration on two small former cranberry bogs, removal of a dam, and replacement of a culvert. The project enjoys broad partner support, including from the Association to Preserve Cape Cod (APCC), who is assisting with overall project management. Grant funding from DER is supporting additional data collection this spring by project engineer Inter-Fluve, Inc. Permitting and additional fundraising steps are up next.

Childs River site

Robert F. Smith Cold Brook Preserve (Harwich)

Landowner Harwich Conservation Trust (HCT) has secured the MEPA certificate for the project. The project team, including DER, US Fish and Wildlife Service, Town of Harwich, and UMass Dartmouth, are now considering design changes to help best accommodate future sea level rise for this low lying former cranberry bog. Additional data collection to help inform design is scheduled for this spring and summer. Final design changes will occur prior to the start of project permitting this fall. Fundraising is also in progress to support implementation.

The Robert F. Smith Cold Brook Preserve

Mattapoisett Bogs (Mattapoissett)

The Buzzards Bay Coalition (BBC) recently hired GZA GeoEnvironmental, Inc. to develop conceptual design alternatives for wetland restoration and visitor experience on this large public open space. DER grant funding and technical assistance support this work, and help build upon preliminary data collection and design by USDA NRCS. In the months ahead, expect more updates on public meetings, design alternatives, and a preferred approach that will emerge.

Six DER Priority Projects Awarded Over $2,450,000 in New Grant Funding

DER was recently awarded grants from the United States Fish and Wildlife Service (USFWS) and the National Fish and Wildlife Foundation for six ecological restoration Priority Projects. This includes $2 million from the National Coastal Wetlands Conservation Grant Program for two restoration projects – Tidmarsh Farms Phase 3 in Plymouth (the western portion of the past cranberry farm, now Foothills Preserve) and the Cold Brook Restoration in Harwich.

The six projects restore coastal and riverine habitats and help communities build resiliency to climate change. On average, each state dollar invested in a project by DER leverages 7 grant dollars. DER and our project partners work hard to secure grants that maximize and stretch the value of limited local and state restoration dollars. We are grateful to our partners and funders for supporting these important projects.

- **Project:** Foothills Preserve (Plymouth)
  Funding: $1,000,000, DOI/USFWS National Coastal Wetlands Conservation Grant Program

- **Project:** Cold Brook (Harwich)
  Funding: $1,000,000, DOI/USFWS National Coastal Wetlands Conservation Grant Program

- **Project:** Coonamesset River Restoration (Falmouth)
  Funding: $360,000, DOI/USFWS, Sandy Disaster Relief Appropriations Act

- **Project:** Manhan River Restoration, Lyman Pond Dam Removal (Southampton)
  Funding: $51,000, DOI/USFWS, National Fish and Wildlife Foundation Establishment Act

- **Project:** Town River Restoration**,** High Street Dam Removal (Bridgewater)
  Funding: $25,000, DOI/USFWS, Partners for Fish and Wildlife Program

- **Project**: Eagle Neck Creek Salt Marsh Restoration (Truro)
  Funding: $15,000, DOI/USFWS, Partners for Fish and Wildlife Program

DER Awards Grants to Five River and Wetland Restoration Priority Projects

Left: Site visit as part of the Great Marsh Restoration project. Middle: View of the Tel-Electric Dam. Right: Culvert Replacement Training being held at the Rice Corner Culvert in Brookfield

DER awarded **$1,600,000** in state and federal grant funds for Ecological Restoration Priority Projects that support river and wetland habitat restoration and climate adaptation. Each project restores healthy habitat while also helping communities prevent storm damage, address aging infrastructure, and improve outdoor recreation.

Tel-electric Dam Removal and West Branch Housatonic River Revitalization, Pittsfield
Award: City of Pittsfield, $1,500,000
The grant supports the deconstruction of the obsolete 20 foot high, 40 foot wide Tel-electric Dam on the West Branch of the Housatonic River in downtown Pittsfield. Removing the dam will reduce upstream flooding, restore river connectivity for fish and other wildlife, and improve water quality.

Abbey Brook Revitalization Project, Chicopee
Award: City of Chicopee, $25,000
This grant helps the City of Chicopee plan two dam removals and create public access to Abbey Brook in Szot Park. The City of Chicopee is exploring the removal of the two Bemis Pond dams located in Szot Park. Removal of the dams will improve water quality in the brook, remove an ongoing maintenance burden carried by the City, and improve resilience to extreme storms.

Rice Corner Road Culvert Replacement, Brookfield
Award: Town of Brookfield, $5,000
This grant supports final design, permitting and construction bidding for a culvert replacement project in Brookfield. Replacing the failing culvert at Rice Corner Road will provide passage for resident brook trout and other aquatic species, and will improve Brookfield's road network and resilience to floods.

Mattapoisett Bogs Restoration, Mattapoisett
Award: Buzzards Bay Coalition, $30,000
The grant supports the restoration of 220 acres of freshwater wetland habitat in Mattapoisett. The Buzzards Bay Coalition aims to restore connectivity, diversify natural habitats, and improve recreational opportunities. This grant will support the design process and leverage over $1.6 million for construction that has been secured from the USDA Natural Resources Conservation Service, as well as a MassTrails grant secured for future recreation improvements.

Cow Yards Salt Marsh Restoration Project
Award: Dartmouth Natural Resources Trust, $15,000
This grant supports engineering and design for The Cow Yards Salt Marsh Restoration Project in Dartmouth. Restoration of this coastal wetland will reduce conditions that have impaired the growth of native Spartina grasses and facilitated the loss of marsh habitat. This grant will complement $55,000 in Buzzards Bay Watershed Municipal Mini-grant funding and Dartmouth Natural Resources Trust matching funds.

Great Marsh Restoration Project
Award: Trustees of Reservations, $30,000
This grant will help the Trustees of Reservations pilot new restoration techniques to increase the Great Marsh's resilience to climate change and sea level rise. As part of the pilot restoration project, DER will assist the Trustees with review and development of monitoring protocols and baseline data collection.

Resources

DER's New Dam Removal Video

In case you missed it, DER recently released *Dam Removal in Pittsfield: Different Reasons, One Goal*, a five-minute video about the upcoming removal of the Tel-Electric Dam on the West Branch of the Housatonic River. The video features City staff, the dam owners, and local partners. Together they make the case that the dam removal will restore river health, improve public safety, and build community resilience in Pittsfield. This film is part of a multi-year endeavor, in partnership with the University of Massachusetts Amherst's Science Media Collaborative. The project has culminated in a six part film series entitled *River Run – A Story of Dam Removal in Massachusetts*. Be on the lookout for the additional five films that will be released later in 2019.

Trainings

NAACC Field Training

DER will be offering NAACC Field Training for assessing Aquatic Connectivity in Non-Tidal Streams. After completing the online protocol training, the Field Training is the second step toward becoming a NAACC Lead Observer. The North Atlantic Aquatic Connectivity Collaborative (NAACC) supports planning and decision-making by providing tools and information on where restoration projects are likely to have the greatest aquatic connectivity benefits and resiliency benefits.

Current Field Trainings
May 21, 2019 in Dighton, MA
May 29, 2019 in Southampton

Spots for training sessions are limited so please RSVP with your contact information including address to Jacob Lehan (Jacob.lehan@mass.gov).

Grants

CZM's Coastal Pollutant Remediation (CPR) Grant Program

The CPR program—which is administered by CZM—provides funding to Massachusetts municipalities to assess and treat stormwater pollution from impervious surfaces and to design and construct commercial boat waste pumpout facilities. Applications are due by May 24 at 5:00 p.m. The CPR Grant Program is open to municipalities located within the boundaries of the Massachusetts coastal watershed, which encompasses 220 cities and towns in eastern

Massachusetts. See eligible municipalities. For more info visit CPR program website or view the RFR and download required forms, on the COMMBUYS website.

CZM's Coastal Resilience Grant Program

CZM is seeking proposals for innovative and transferable local projects to address coastal flooding, erosion, and sea level rise under the Coastal Resilience Grant Program. See the Request for Responses on the COMMBUYS website for eligibility requirements, project categories, and evaluation criteria. Proposals are due by 4:00 p.m. on June 3.

FFY 2020 Section 319 Nonpoint Source Pollution Competitive Grants Program

This grant program is authorized under Section 319 of the federal Clean Water Act for implementation projects that address the prevention, control, and abatement of nonpoint source (NPS) pollution. Many of the projects require a watershed-based plan - to assist with this, Geosyntec has developed a free online tool to develop a watershed-based plan. Application Deadline: June 3rd

Hazard Mitigation Grant Program (HMGP)

Massachusetts Emergency Management Agency (MEMA) is extending the deadline to the application period for the Hazard Mitigation Grant Program resulting from the federal disaster declarations (FEMA-4372-DR & FEMA-4379-DR). The deadline to submit project applications has been extended to June 4, 2019 at 11:59PM.

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