

Restoration in Action for People and Nature

2020 Annual Report



Massachusetts Department of Fish and Game

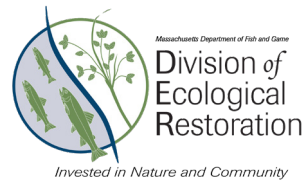
Division of
Ecological
Restoration

Invested in Nature and Community

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF FISH & GAME
DIVISION OF ECOLOGICAL RESTORATION

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Kathleen A. Theoharides, Secretary
Ronald S. Amidon, Commissioner
Beth Lambert, Director
Hunt Durey, Deputy Director





2020 Annual Report

Restoration in Action for People and Nature

Dear friends and colleagues,

We are proud to share the accomplishments of the Division of Ecological Restoration (DER) and our partners over the last year.

The COVID-19 pandemic hit just as complex construction projects reached their mid-points, municipal culvert replacement grant applications were due, and DER was about to issue a Request for Responses for new Priority Projects. All at once, DER's staff, municipal and nonprofit partners, and volunteers were grappling with what the epidemic might mean for them and their families in the coming year.

We could not foresee the unimaginable challenges that would be faced by people throughout the U.S. and the world. We knew, however, that DER's projects bring benefits to communities that are important in both the near and long term. Healthier rivers and wetlands, improved access to nature, safer roads and bridges, job creation, and resilience to climate change are critical now and into the future.

DER and its municipal, state, federal, and nonprofit partners swung into action to ensure that important restoration projects were not jeopardized by the pandemic. As a result, all projects were able to continue under rigorous new safety protocols, with no major construction delays. In addition, DER leveraged over \$13 million in new federal and other non-state funds during the pandemic. These investments support projects that restore habitat, improve public safety, spur economic recovery, and help communities adapt to climate change.

Demand from communities for assistance with restoration continues to grow, and DER continues to ramp up its work to meet the need. Thank you for your continued partnership, even during the most difficult of times.

Sincerely,

Beth Lambert, *Director*

Hunt Durey, *Deputy Director*

Ronald S. Amidon, *Commissioner*

An Introduction to DER

The Division of Ecological Restoration (DER) is a division within the Massachusetts Department of Fish and Game with a mission to restore and protect rivers, wetlands, and watersheds for the benefit of people and the environment. In 2009, leaders in the Department of Fish and Game and the Executive Office of Energy and Environmental Affairs established DER to bring greater statewide attention, momentum, and capacity to river and wetland restoration. Since then, DER and partners have completed nearly 70 projects, with over 40 projects in planning at any time, and leveraged over \$100 million in federal and non-state grants. DER's work includes the restoration of wetlands and floodplains, urban river revitalization, dam removal, culvert replacement, and streamflow and water quality restoration, with a focus on restoring healthy habitat while also helping communities prevent storm damage, address aging infrastructure, and improve outdoor recreation. Our projects take place through strong partnerships with communities, state and federal agencies, regional organizations, and non-profit groups.



A glimpse of DER at work in the field. Here, DER's Stream Continuity Restoration Planner Carrie Banks poses with staff from the Massachusetts Department of Transportation, Department of Environmental Protection, and Division of Fisheries and Wildlife while filming a training video in the restored stream channel upstream of the Bartlett Pond Dam removal site in Lancaster. (Credit DER)

2020 By the Numbers

DER worked with partners from municipalities, nonprofits, and other organizations to ensure that restoration and adaptation projects continued safely and efficiently during the pandemic.



4
projects
completed



8
new projects

recommended for Priority Project
designation in Carver, Falmouth,
Nantucket, Northampton,
Plymouth, and Worcester

111.5
acres
of wetland habitat
restored



60
acres
of river herring
spawning habitat now
accessible

18 river miles reconnected



10
restoration projects
under construction in Chester,
Easthampton, Falmouth, Hanover,
Newbury, Pittsfield, Plymouth,
Windsor, and Yarmouth

303
acres
of salt marsh restored



1
culvert
replaced

2
dams
removed

144
towns
received technical assistance
from DER staff



\$13.6 million
leveraged
in federal & non-state funds
for community-based
restoration projects

How Habitat Restoration Creates Jobs, Improves Access to Nature, & Builds Resilience to Climate Change

Through job creation, the establishment of new public open spaces, public safety improvements, climate change adaptation, and more, the Division of Ecological Restoration's (DER's) river and wetland restoration projects benefit communities in many ways. DER's work demonstrates a model for economic recovery that combines ecological restoration with the creation of jobs, climate resilience, and improved access to nature for all residents of the Commonwealth. The following pages highlight examples of DER's 2020 work that illustrate the multiple benefits achieved by investing in restoration.

Jobs

DER's work stimulates the economy and leads to a steady stream of job creation or security, which is critical for Massachusetts communities recovering from the impacts of COVID-19. On average, for every million dollars spent through DER restoration projects, 12.5 jobs are created or maintained and \$1.75 million in economic activity is created.¹

In June of 2020, the City of Pittsfield, with support from DER, completed construction work on the Tel-Electric Dam Removal Project. This project, spanning a total of about 15 years and costing approximately \$3.9 million, removed the obsolete and hazardous Tel-Electric (or Mill Street) Dam, located on the West Branch of the Housatonic River. Using metrics developed in DER's restoration economy research, DER estimates that the project created or maintained over 48 jobs in several fields including engineering and construction, and supported \$6.8 million in economic activity. In addition to these economic benefits, this project also strengthened community resilience to the impacts of climate change, restored natural river processes, and improved the ecological health of the river.

On average, **for every million dollars spent** on DER restoration projects, **12.5 jobs** are created or maintained and **\$1.75 million** in economic activity is created.



Access to Nature

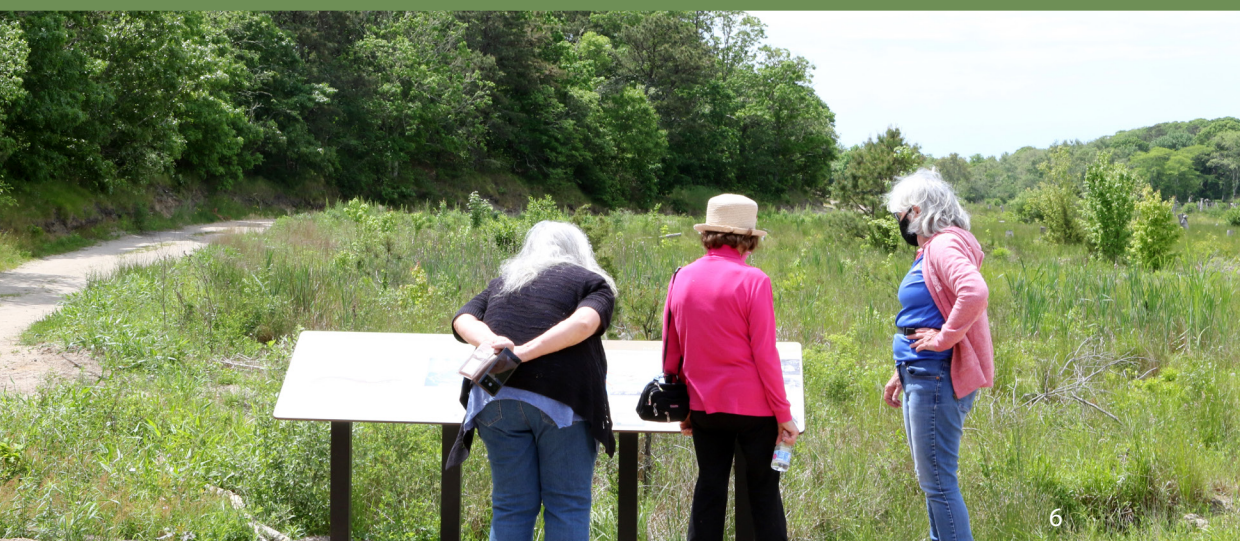
DER's restoration projects often result in either new open space for residents to enjoy or improvements to existing conservation land. This work also improves public safety at many of these sites, so people can experience their natural surroundings safely.

One such example is the Coonamessett River Restoration Project in Falmouth, which catalyzed the development of a new public Greenway Heritage Trail along the river corridor. This restoration site serves as the southern gateway to the Coonamessett Greenway Heritage Trail and is available for enjoyment by the public, often utilized by school groups and those simply looking to disconnect in nature. Following the restoration of the river and wetlands which was completed in 2020 and resulted in more than 55 acres of wetlands restored and over two miles of upstream river re-connected, the Town of Falmouth chose to capitalize on the restoration work and build new boardwalks. These boardwalks span across the restored wetlands and the river, providing opportunities for the public to observe and enjoy the newly restored habitats. The Town also installed interpretive signs along the Greenway Heritage Trail, as well as a new parking area, viewing platform, and outdoor seating area which provides opportunities for interpretive programs accessible to all residents and visitors.



"Over the last year, people and communities have **realized how important open space is** for both physical and mental health."

- Beth Lambert, DER Director



Through DER's urban river revitalization work, we champion the potential of these often-overlooked waterways and promote their value as natural and community resources in the midst of a built environment. Urban rivers can play a significant role in improving the livability of our cities and DER works with communities to help address the unique challenges and varied needs of urban rivers and their stewards.²

In 2020, DER advanced work on the Abbey Brook Restoration and Revitalization project in Chicopee, an urbanized area that was also identified by the 2010 census as an environmental justice community. DER awarded the City of Chicopee \$25,000 in 2019 for this work, which aims to remove two dams in Szot Park and open up a segment of Abbey Brook that is currently piped underground. Removal of these dams will eliminate the public safety risk they currently pose, making it easier for residents to safely access Abbey Brook, which flows through an urbanized watershed from Springfield to its confluence with the Chicopee River. The dam removal will also improve water quality in the brook, remove an ongoing maintenance burden carried by the City, and improve resilience to extreme storms. The removal of the lower dam is currently moving forward.



DER works with communities to help address the **unique challenges and varied needs of urban rivers** and their stewards.

Climate Resilience

DER's work helps communities to prepare for the impacts of climate change and improve their resilience to its effects. Through wetland and salt marsh restoration, DER creates and protects these areas which can help store flood waters and reduce the effects of severe storms. Removing undersized and deteriorating dams and culverts helps reduce flood risk during periods of intense rain, and restoring coldwater habitat can delay the negative impacts of rising temperatures on coldwater species.

One specific example of DER's climate resilience work in action is the 2020 project at the Assawompset Ponds Complex (APC) in Middleborough and Lakeville. Flooding is a frequent issue in this area, with past events causing evacuations and severe property damage. In December 2019, DER awarded \$100,000 to the Southeastern Regional Planning and Economic Development District (SRPEDD) to work with a team of technical experts and a group of local stakeholders to design a floodwater management plan for the APC, incorporating green infrastructure and nature-based solutions to flooding. This included studying and prioritizing the most promising methods for improving the ecological functions of the APC in order to alleviate floodwater impacts. In July 2020, Governor Charlie Baker joined Lieutenant Governor Karyn Polito, State Senator Michael Rodrigues, Representative Norman Orrall, Representative Paul Schmid, Energy and Environmental Affairs Secretary Kathleen Theoharides, other state and local officials, and project partners to celebrate this work. This event recognized the efforts of the project team, which served as a springboard for additional action by project partners, who are now pursuing implementation of their recommended methods for mitigating flooding in the APC.³



"Climate change is expected to worsen flooding issues in [the Assawompset Ponds Complex] area, and this state and local partnership will ensure the region is **prepared for climate change** while protecting public safety and wildlife habitat."

- Massachusetts Governor
Charlie Baker



2020 Accomplishments

DER and partners continued to restore and protect rivers, wetlands, and watersheds in Massachusetts throughout 2020. Here are our shared accomplishments over the last year:

- DER worked with many partners throughout the Commonwealth to continue to advance **over 40 restoration projects** through their various phases of restoration as part of the Priority Projects Program. This Program is one of the vehicles by which DER pursues wetland and river restoration, urban river revitalization, and streamflow restoration projects that present the greatest benefit to the Commonwealth ecologically, socially, and economically.
- Working with municipal, state, federal, and other partners, DER saw **construction underway** at ten river and wetland restoration projects in 2020. This included three cranberry bog restoration projects in Plymouth and Falmouth, two culvert replacement projects in Windsor and Chester, two salt marsh restoration projects in Newbury and Yarmouth, two dam removals in Pittsfield and Hanover, and a floodplain forest restoration project in Easthampton. These efforts resulted in the restoration of 18 river miles, 111.5 acres of wetland habitat, and 303 acres of salt marsh, as well as about 60 acres of river herring spawning habitat made newly accessible.



- In 2020, DER worked toward our goal of building the capacity of watershed organizations and other regional groups to lead and support ecological restoration by **creating a new Partnerships Program**. This new Program, led by a DER Ecological Restoration Partnerships Specialist, works to empower partners throughout the state to successfully complete ecological restoration activities by building capacity, and is anticipated to launch in 2021.



Culvert Replacement

- Through the **Culvert Replacement Municipal Assistance Grant Program**, DER awarded \$750,000 in new grant awards to 12 communities, after receiving over 70 applications to 2020's Request for Responses. These grants support local culvert upgrade projects that address important municipal infrastructure needs and improve river health. DER also awarded \$56,880 in grants to two communities through the Culvert Replacement Training Initiative, through which DER provides direct technical assistance and funding to municipalities to advance the replacement of select municipally-owned culverts at strategic locations throughout Massachusetts to provide convenient, centralized learning locations for local road managers.⁴

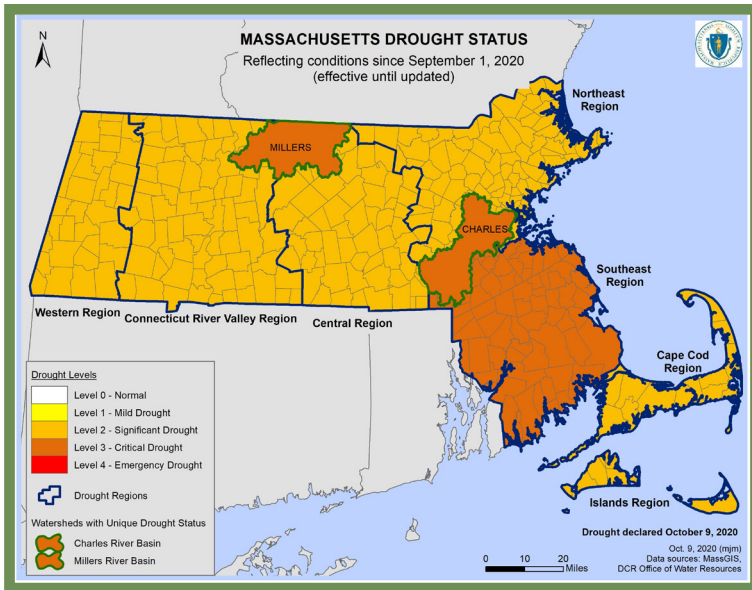
- In June 2020, DER and partners completed a years-long project in Chester to **replace an undersized and failing culvert** with a larger, safer structure that allows full upstream and downstream movement of aquatic species and reduces the risk of road damage and failure in flood conditions. This work restored 8.5 miles of interconnected habitat within the watershed and as a high-quality coldwater tributary to the Middle Branch (a major tributary of the Westfield River), this effort also benefits trout and other coldwater-dependent species in a 10-mile-long reach of Kinne Brook.
- DER, partnering with the North Atlantic Aquatic Connectivity Collaborative (NAACC), **provides advanced training on surveying culverts** to determine if they are barriers for fish and wildlife.⁵ Despite a difficult year for in-person training, 18 people were trained and certified and over 200 surveys were entered by the public into NAACC's online public database.
- DER was one of many organizations involved in the creation and distribution of the **Massachusetts Culverts and Small Bridges Working Group's report**, "Recommendations for Improving the Efficiency of Culvert and Small Bridge Replacement Projects." This report highlights the challenges associated with culvert and small bridge replacement projects and provides recommendations for future projects. DER provided support and technical expertise, while the Department of Fish & Game had a lead role in this effort, with DFG Commissioner Ron Amidon acting as co-chair for the working group.⁴



Dam Removal

- After removal of the Mill Pond Dam and the Tack Factory Pond Dam in 2014 and 2016, both in Hanover on Third Herring Brook, DER was pleased to partner with the North and South Rivers Watershed Association and the Hanover Mall to **remove Peterson Pond Dam** as the third phase of this effort in November 2020. Third Herring Brook flows into the North River, the Commonwealth's only designated State Scenic Protected River. DER and partners have worked to address a series of dams and culverts that impair the ecological function of Third Herring Brook and its tributaries. Small dam removal can improve water quality and river health, as shown in recent research by the University of Massachusetts Amherst,⁶ and the removal of the Peterson Pond Dam in Hanover also opened an additional 1.3 miles of instream habitat for fish and allowed for future passage upstream to 59 acres of river herring spawning habitat.
- After many years of work, DER, the City of Pittsfield, and other partners **removed the obsolete and hazardous Tel-Electric (or Mill Street) Dam** in February 2020. Located on the West Branch of the Housatonic River, this effort restored 4.9 miles of river. The removal of this dam has also strengthened community resilience to the impacts of climate change, restored natural river processes, and improved the ecological health of the river.





Streamflow

- **Severe drought conditions** impacted all regions of the Commonwealth for much of 2020, starting with drought onset in May and ending in December. Throughout the drought, the Streamflow Program provided updates to the Drought Management Task Force on conditions observed in streams and wetlands at DER sites.⁷ One way the Streamflow Program works to mitigate the impacts of drought on aquatic ecosystems is by providing streamflow releases from managed dams, such as was done through the Stony Brook Priority Project in 2020.

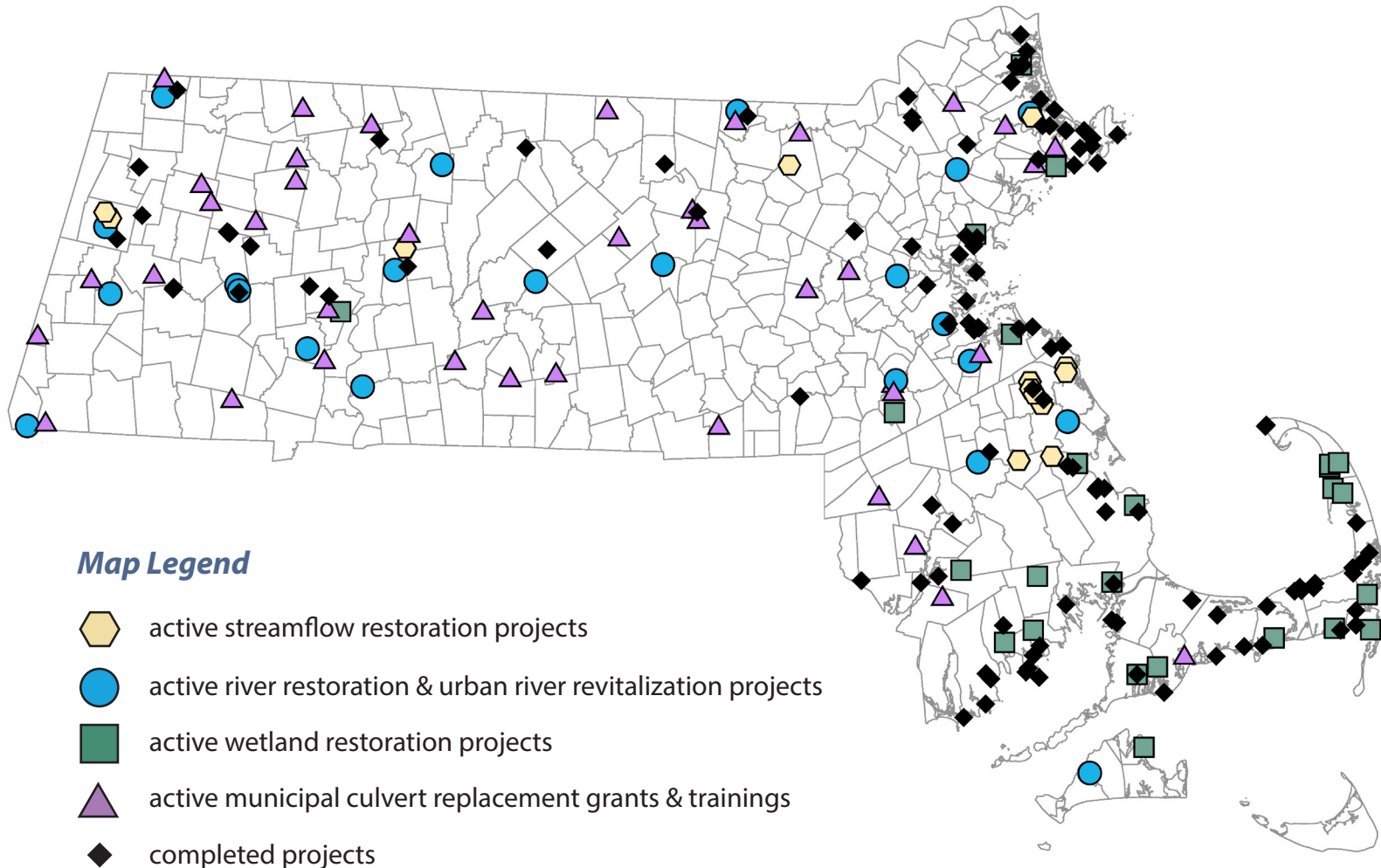


Cranberry Bog Restoration

- DER **secured \$10 million in federal grant funds** through the United States Department of Agriculture Natural Resources Conservation Service (NRCS) to support a partnership-based effort to protect open space and restore streams and wetlands on former cranberry farmland in southeastern Massachusetts. DER is working with 17 partner organizations and landowners across the region to protect and restore over 1,000 acres of retired cranberry farmland, including efforts to document outcomes via monitoring and evaluation.⁸
- DER worked with the Town of Falmouth to **complete the second phase of the Coonamessett River Restoration Project** in 2020. This work, when combined with the first phase that was completed in 2019, resulted in the removal of the first dam from the ocean along the Coonamessett River, restored the river channel and former cranberry bog to a naturalized wetland and river complex, removed a valley-spanning dike, and replaced an undersized culvert with a larger, safer structure. The second phase of this project was completed in June and resulted in 0.6 river miles restored and 39 acres of restored wetland habitat.

Where We Work

DER has more than 100 active river and wetland projects across the state, including dam removals, wetland restoration, culvert upgrades, urban river revitalization efforts, and floodplain and streamflow restoration. All of DER's projects work to restore healthy habitat and help communities adapt to climate change. Learn more about these projects by visiting DER's interactive project map on the DER website.⁹



Who We Are

The Division of Ecological Restoration (DER) restores and protects the Commonwealth's rivers, wetlands, and watersheds for the benefit of people and the environment. DER works with many partners across a variety of aquatic systems— from freshwater to saltwater— to restore the ecological integrity of degraded habitats.



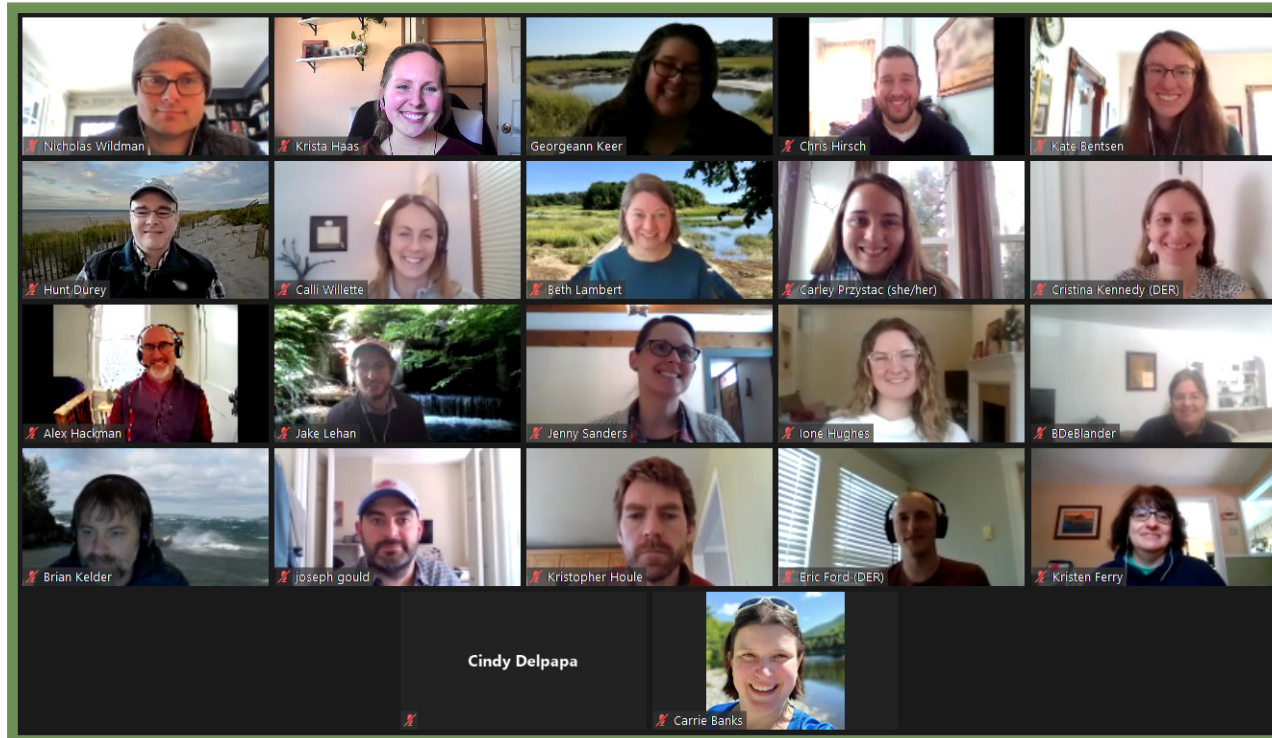
www.mass.gov/der



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@MassEcoRestore



Although it was necessary to transition most work to a virtual environment, DER continued working hard throughout 2020.

DER Staff

Beth Lambert, *Director*

Hunt Durey, *Deputy Director*

Carrie Banks	Bernadette DeBlander	Eileen Goldberg	Chris Hirsch	Brian Kelder	Jenny Sanders
Kate Bentsen	Cindy Delpapa	Joseph Gould	Kris Houle	Cristina Kennedy	Nick Wildman
Jessica Cohn	Kristen Ferry	Krista Haas	Ione Hughes	Jacob Lehan	Calli Willette
	Eric Ford	Alex Hackman	Georgeann Keer	Carley Przystac	

Looking to the Future

DER will continue to ramp up restoration in 2021 and beyond.
Here are some of the endeavors we look forward to:

- DER will continue to support strong ecological restoration projects in 2021. Already, eight new river and wetland restoration projects have been designated as Priority Projects as part of our Priority Projects Program,¹⁰ six current Priority Projects have recently received additional funding to advance their work,¹¹ and new opportunities such as grant funding through DER programs like the Culvert Replacement Municipal Assistance Grant Program¹² are upcoming.
- Several ongoing projects are poised to go to construction this year. DER anticipates dam removals in Braintree and Southamptton, as well as two Culvert Replacement Training Sites where culvert replacement efforts will commence while simultaneously training local road managers.
- DER's Cranberry Bog Program will launch six new wetland conservation and restoration projects around the region and advance another seven existing projects using the newly-secured \$10 million grant funding through the United States Department of Agriculture Natural Resources Conservation Service (NRCS).⁸ These projects include hundreds of acres of new protected open space, trails, and restored historic wetlands and streams.
- DER will officially launch its new Restoration Partnerships Program in 2021, with the goal of awarding funds to regional partnership efforts that aim to pursue projects which align with DER's ecological restoration priorities. This effort is expected to increase the pace at which DER's partners are able to carry out high-value restoration-adaptation projects.
- DER anticipates launching our statewide culvert replacement toolkit as a web-based resource. The toolkit provides tools and resources for municipalities and other partners to assist them through the various stages of replacing aging, undersized culverts to meet the Massachusetts Stream Crossing Standards.

References

- ¹ Massachusetts Division of Ecological Restoration. (2019, May 10). *Dam Removal Creates Jobs, Stimulates the Economy*. <https://www.mass.gov/news/dam-removal-creates-jobs-stimulates-the-economy>
- ² Massachusetts Division of Ecological Restoration. *Urban River Revitalization*. <https://www.mass.gov/urban-river-revitalization>
- ³ Massachusetts Executive Office of Energy and Environmental Affairs. (2020, July 17). *State and Local Officials Highlight Climate Resilience Efforts in Southeastern Massachusetts*. <https://www.mass.gov/news/state-and-local-officials-highlight-climate-resilience-efforts-in-southeastern-massachusetts>
- ⁴ Massachusetts Executive Office of Energy and Environmental Affairs. (2020, September 14). *Baker-Polito Administration Awards Over \$800,000 to Municipalities for Improvements to Road-Stream Crossings*. <https://www.mass.gov/news/baker-polito-administration-awards-over-800000-to-municipalities-for-improvements-to-road>
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- ⁶ Zaidel, P. A., Roy, A. H., Houle, K. M., Lambert, B., Letcher, B. H., Nislow, K. H., & Smith, C. (2021) Impacts of small dams on stream temperature. *Ecological Indicators*, 120, article 106878. <https://doi.org/10.1016/j.ecolind.2020.106878>
- ⁷ Massachusetts Drought Management Task Force. <https://www.mass.gov/orgs/drought-management-task-force>
- ⁸ Massachusetts Executive Office of Energy and Environmental Affairs. (2020, April 23). *Baker-Polito Administration Announces \$10 Million in Federal Funds for Ecological Restoration of Former Cranberry Bogs*. <https://www.mass.gov/news/baker-polito-administration-announces-10-million-in-federal-funds-for-ecological-restoration>
- ⁹ Massachusetts Division of Ecological Restoration. *The Division of Ecological Restoration Project Map*. <https://www.mass.gov/service-details/the-division-of-ecological-restoration-project-map>
- ¹⁰ Massachusetts Executive Office of Energy and Environmental Affairs. (2021, January 20). *Baker-Polito Administration Designates Eight New Priority River and Wetland Restoration Projects*. <https://www.mass.gov/news/baker-polito-administration-designates-eight-new-priority-river-and-wetland-restoration>
- ¹¹ Massachusetts Executive Office of Energy and Environmental Affairs. (2021, March 9). *Baker-Polito Administration Announces Grants for River and Wetland Restoration Projects*. <https://www.mass.gov/news/baker-polito-administration-announces-grants-for-river-and-wetland-restoration-projects>
- ¹² Massachusetts Division of Ecological Restoration. *Culvert Replacement Municipal Assistance Grant Program*. <https://www.mass.gov/how-to/culvert-replacement-municipal-assistance-grant-program>

Photos

- *cover*: Construction equipment at the site of the Tel-Electric Dam removal in Pittsfield. (Credit: DER)
- *page two*: Ione Hughes, DER's Program Coordinator, looks at a stream blocked by a beaver dam. (Credit: DER)
- *page three*: DER's Stream Continuity Restoration Planner Carrie Banks poses with staff from the Massachusetts Department of Transportation, Department of Environmental Protection, and Division of Fisheries and Wildlife while filming a training video in the restored stream channel upstream of the Bartlett Pond Dam removal site in Lancaster. (Credit: DER)
- *page four, top left*: A backhoe operates at the site of the Peterson Pond Dam removal. (Credit: DER)
- *page four, top right*: River herring swim upstream. (Credit: J. Prezioso, NOAA Northeast Fisheries Science Center)
- *page four, center left*: Kayakers enjoy the meandering Ipswich River. (Credit: DER)
- *page four, center*: A backhoe operates at the site of the Foothills Preserve Restoration Project. (Credit: DER)
- *page four, bottom right*: A concrete culvert is lowered into position at the site of the Crescent Marsh Restoration project. (Credit: Massachusetts Department of Transportation)
- *page four, bottom center*: The sun casts a golden glow on the Great Marsh. (Credit: DER)
- *page five*: Construction workers at the site of the Tel-Electric Dam removal in Pittsfield. (Credit: DER)
- *page six, top right*: A person and their dog enjoy the pathway available at the site of the Coonamessett River Restoration Project in Falmouth. (Credit: DER)
- *page six, bottom left*: New signage at the site of the Coonamessett River Restoration Project in Falmouth helps to educate visitors. (Credit: DER)
- *page six, bottom right*: Two people enjoy a scenic overlook at the Mass Audubon Tidmarsh Wildlife Sanctuary in Plymouth. (Credit: DER)
- *page seven*: The Hoosic River winds its way through North Adams, contained by tall concrete walls. (Credit: DER)
- *page eight, top right*: Governor Charlie Baker addresses the crowd at an event to celebrate work at the Assawompset Ponds Complex. (Credit: Joshua Qualls, Governor's Press Office)
- *page eight, bottom*: Governor Charlie Baker, Secretary of Energy & Environmental Affairs Kathleen Theoharides, Department of Fish & Game Commissioner Ron Amidon, Representative Norman Orrall, and several other officials and partners discuss work to address flooding in the Assawompset Ponds Complex while standing on the shores of Assawompset Pond. (Credit: Joshua Qualls, Governor's Press Office)

Photos *continued*

- *page nine, top right:* Workers operate a backhoe and oversee restoration construction at the Childs River Restoration site in Falmouth. (Credit: Dennis Martin)
- *page nine, bottom left:* A volunteer plants a tree in Northampton as part of an effort to restore a floodplain forest at Mass Audubon's Arcadia Wildlife Sanctuary. (Credit: DER)
- *page ten, top left:* DER's Stream Continuity Restoration Planner Carrie Banks explains a newly-funded culvert replacement project in Becket to Secretary of Energy & Environmental Affairs Kathleen Theoharides. (Credit: DER)
- *page ten, bottom right:* Several people participate in a training exercise at a concrete culvert. (Credit: DER)
- *page eleven, top right:* DER's Ecological Restoration Specialist Joseph Gould collects data ahead of the Peterson Pond Dam removal in Hanover. (Credit: DER)
- *page eleven, bottom right:* A backhoe operates during construction on the Tel-Electric Dam removal project in Pittsfield. (Credit: DER)
- *page twelve, top left:* A graphic depicts the drought status across the Commonwealth in the fall of 2020. (Credit: Massachusetts Drought Management Task Force)
- *page twelve, bottom right:* Cranberries grow at the Childs River Restoration project site in Falmouth. (Credit: DER)
- *page fourteen:* The DER team virtually gathers for a team meeting. (Credit: DER)
- *page fifteen:* A stream winds peacefully through the woods in Littleton. (Credit: DER)