## 2022 MA Division of Ecological Restoration Annual Report Invested in People & Nature

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

Maura T. Healey, Governor • Kimberley Driscoll, Lieutenant Governor • Rebecca L. Tepper, Secretary Thomas K. O'Shea, Commissioner • Beth Lambert, Director • Hunt Durey, Deputy Director • Alyssa Sciuto, Assistant Director

## A MESSAGE FROM DER's **Directors & Commissioner**

Dear friends and colleagues,

We are proud to share the 2022 accomplishments of the Division of Ecological Restoration (DER) and its partners. This issue of the annual report, Invested in People and Nature, showcases the hard work of landowners, communities, agencies, and DER over the last year to restore rivers and wetlands for the benefit of people and the environment. Restoring rivers and wetlands improves public safety, builds resilience to climate change, sequesters carbon, creates new public open space, and many other benefits. This report discusses the many co-benefits and provides specific examples from the past year.

In 2022, DER and partners advanced 67 Priority Ecological Restoration Projects throughout the state. We started construction on 14 river and wetland restoration projects, completing 11 of them. With support from the legislature and the Administration, DER secured over \$40 million in leveraged funds, including \$35 million in American Rescue Plan Act funding. These funds have already been invested in restoration projects across the Commonwealth that will begin construction in 2023 – 2025. DER's funding and technical assistance fill the capacity gap that many communities and landowners face.

Interest in restoration continues to grow. Communities want to remove dams, upgrade culverts, and many other restoration actions, but lack the resources to do so. Over the course of the Baker-Polito Administration, DER awarded over \$63 million to restoration projects throughout Massachusetts. This reports showcases the many benefits that result from that investment. We look forward to further serving Massachusetts' people and environment into 2023 with the Healey-Driscoll Administration.

Sincerely,

Beth Jamber

Hunt Durey

Alyssa Sciuto

Alyssa Sciuto, Assistant Director

Thomas & D'Slew

Thomas K. O'Shea, Commissioner

Beth Lambert, Director

Hunt Durey, Deputy Director









# **About DER**





@MassEcoRestore



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#### The Division of Ecological Restoration (DER) restores and protects rivers, wetlands, and watersheds in Massachusetts for the benefit of people and the environment.

Leaders in the Department of Fish and Game<sup>1</sup> and the Executive Office of Energy and Environmental Affairs<sup>2</sup> established DER in 2009 to bring greater statewide attention, momentum, and capacity to river and wetland restoration. Since then, DER and partners have completed nearly 90 projects, with over 40 projects in planning at any time, and leveraged over \$140 million in federal and non-state grants. DER's work includes the restoration of wetlands and floodplains,<sup>3</sup> urban river revitalization,<sup>4</sup> cranberry bog restoration,<sup>5</sup> dam removal,<sup>6</sup> culvert replacement,<sup>7</sup> and streamflow and water quality restoration,<sup>8</sup> with a focus on restoring healthy habitat while also helping communities prevent storm damage, address aging infrastructure and public safety concerns, and improve outdoor recreation. Our projects take place through strong partnerships with communities, state and federal agencies, regional organizations, and non-profit groups.



# Where We Work

DER works throughout Massachusetts, with over 130 river and wetland restoration projects underway. These projects restore healthy habitat and help communities adapt to climate change. Learn more by visiting DER's interactive project map<sup>9</sup> on the DER website.<sup>10</sup>



Regional Restoration Partnerships boundaries

# **2022 Accomplishments**

DER worked with partners from municipalities, nonprofits, government agencies, and other organizations to accomplish restoration and adaptation goals throughout 2022.



# **River & Wetland Restoration Benefits People & Nature**

The following examples of DER's 2022 accomplishments demonstrate the multiple benefits river and wetland restoration can bring. 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.



## **Restoration & Greenhouse Gas Reduction**

Habitat restoration is an important component of the Commonwealth's Clean Energy and Climate Plan for 2025 and 2030.<sup>11</sup> Restoring degraded salt marshes, for example, reduces methane emissions and increases the capture and storage of atmospheric carbon dioxide. Healthy salt marshes can sequester approximately 1,940 pounds of carbon per acre per year.<sup>12</sup> Over the last two years, DER has worked with federal, state, and local organizations to restore over 120 acres of salt marsh wetlands. Currently, DER and partners are working on coastal wetland restoration projects that will restore more than an additional 900 acres of salt marsh.

### CASE STUDY

The **Eagle Neck Creek Restoration Project was completed** in 2022, restoring a severely-degraded 16-acre tidal marsh. The restored marsh will protect the Town of Truro from the effects of coastal storms and sea level rise. It will also benefit shellfish, finfish, and many other coastal wildlife species.

Partners: Town of Truro; USDA Natural Resources Conservation Service; National Park Service's Cape Cod National Seashore



## **Restoration & Climate Adaptation**

River and wetland restoration uses the power of nature to help communities adapt to climate change. For instance, removing undersized and deteriorating dams and culverts helps reduce flood risk during periods of intense rain. Wetland and salt marsh restoration creates and protects areas which can help store flood waters and buffer communities from the effects of sea level rise. Restoring coldwater habitat can delay the negative impacts of rising temperatures on coldwater species.



#### CASE STUDY <sup>7</sup>



In 2022, DER and partners **removed the Lyman Pond Dam** from the Manhan River in Southampton as part of the broader

Manhan River Restoration Project. The dam was in poor condition and under stress from large storms associated with climate change. A catastrophic blowout would have damaged or destroyed neighboring businesses and a nearby watermain. Removing the dam increased community resilience to climate change and reconnected 27 miles of high-quality coldwater habitat for fish and wildlife.

Partners: private dam owner; American Rivers; Mass Audubon; The Nature Conservancy; US Fish and Wildlife Service; US Department of Agriculture Natural Resource Conservation Service; Town of Southampton; Natural Heritage Endangered Species Program

#### CASE STUDY 2

DER and the Town of Windsor **replaced a perched**, **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. The culvert is located on an important thoroughfare and its replacement enhanced public safety and storm resiliency by reducing the risk of road flooding or failure during a storm.

Partners: Town of Windsor

## **Restoration & the Economy**

Ecological restoration stimulates the economy by creating and securing jobs and generating economic output for Massachusetts communities. A 2012 DER study<sup>13</sup> determined that for every million dollars spent on DER restoration projects, 12.5 jobs are created or maintained and an additional \$1.75 million in economic activity is created. Since then, several studies have backed up that figure. A 2015 study<sup>14</sup> reported as many as 33 jobs supported by \$1 million in restoration spending and \$2.6 million in economic output per million dollars spent. These studies also show that ecological restoration generates jobs at a similar rate as the oil and gas, crop and livestock agriculture, and outdoor recreation industries and may include occupations such as engineers, construction workers, and biologists. Using the conservative estimates from DER's 2012 study, DER estimates that the \$35 million in ARPA funds that DER awarded across the state in 2022 will generate over 435 jobs and an additional \$61 million in economic activity for the Commonwealth.

#### CASE STUDY

In August 2022, **DER awarded \$22,670,000 to the Town of Wellfleet for the Herring River Estuary Restoration Project**,<sup>15</sup> the largest tidal restoration ever undertaken in the northeastern United States. This award leveraged \$29 million in federal funds from the US Department of Agriculture's Natural Resources Conservation Service and will support the construction phase of the project, which begins in early 2023. The total investment in the project's construction phase, which is currently estimated at approximately \$70 million, is expected to generate between \$112 and \$126 million in regional economic output and create between 1,120 and 1,680 jobs. Additional economic benefits will result from the project's effects on activities such as tourism, recreation, and commercial and recreational fishing. This project will restore up to 890 acres of salt marsh and other estuarine habitats, improve water quality, enhance migratory fish access to hundreds of acres of spawning ponds, and increase coastal resilience to the effects of climate change and sea-level rise.

Partners: Town of Wellfleet; National Park Service; USDA Natural Resources Conversation Service; NOAA Restoration Center; US Fish & Wildlife Service; Friends of Herring River; and many others



## **Restoration & Community Capacity-Building**

In 2021, DER launched the Regional Restoration Partnerships Program.<sup>16</sup> This Program helps non-profit organizations and Regional Planning Agencies increase their capacity to lead and support restoration through financial and technical assistance. Pairing partner strengths with the state's investments empowers networks of partners to restore rivers and wetlands and help people and nature adapt to climate change. Three Partnerships are currently supported through this Program and are dedicated to ecological restoration in the Buzzards Bay region, the Merrimack watershed, and the Hoosic, Housatonic, and Farmington River watersheds.





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## **Restoration & Environmental Justice**

DER strives to ensure that the benefits of restoration reach all people and are distributed equitably across the state. Currently, almost 60% of DER's restoration projects are located in or within one mile of an environmental justice neighborhood. DER is committed to continuing to learn how best to serve all communities in Massachusetts and to bring the benefits of restoration equitably across the Commonwealth.

CASE STUDY



In February 2022, the **Mill Pond Dam was removed** as part of the Traphole Brook Restoration Project, located in an environmental justice neighborhood in Norwood. A WBUR story covered the removal.<sup>17</sup> The project restored habitat for coldwater species such as Eastern brook trout and within months of project completion, fish surveys showed that target species had already returned to the restored stream section. The project also improved public safety for those residing both upstream and downstream, and trails provide access to the restoration area for neighborhood residents.

Partners: Town of Norwood; Neponset River Watershed Association; Greater Boston Trout Unlimited; US Fish & Wildlife Service; Massachusetts Department of Environmental Protection; MassWildlife; Municipal Vulnerability Preparedness Program; Natural Resources Damages Program





## **Restoration & Recreation**

Access to public open space is critical to both physical and mental health.<sup>18</sup> DER's work supports the creation or improvement of public open space, creation of additional access to natural spaces, and improvement of public safety so those areas can be safely enjoyed. Many restoration projects include new public trails, accessibility improvements, and other important public investments.

#### CASE STUDY 1

Design and permitting for the Cold Brook Restoration Project wrapped up in 2022. The goal of this project is to restore a healthy, selfsustaining wetland and stream system within over 50 acres of a former commercial cranberry bog in Harwich. Construction is expected to start in early 2023 and when complete, walking trails and an accessible path will be available for the public to enjoy this open space. Many cranberry restoration projects include the addition of walking trails and come with conservation easements, combining land protection with restoration and ensuring more space for people to get outside and enjoy nature.

Partners: Harwich Conservation Trust, the Town of Harwich, US Fish & Wildlife Service



### CASE STUDY 2

In the fall of 2022, DER partnered with the Massachusetts Ecosystem Climate Adaptation Network (Mass ECAN) and the Municipal Vulnerability Preparedness grant program (MVP) on a series of free field trips to recentlycompleted restoration sites. Participants learned about restoration best practices and spent time outdoors at these picturesque locations. Each one of the three sites visited offer public recreational opportunities, from simply appreciating nature while enjoying an ice cream cone at the Lyman Pond Dam removal site in Southampton, to walking the trails at the Sucker Brook Restoration in Pepperell or appreciating the scenic overlook at the Coonamessett River Restoration in Falmouth. Partners: Mass ECAN; MVP

# **Looking to the Future**

DER is diving into 2023, which includes the following anticipated activities:

- DER will continue to oversee over 65 active projects as part of the Priority Projects Program.<sup>19</sup> Thirty of these projects are supported in part through \$35 million in American Rescue Plan Act (ARPA) funds that DER was awarded and has granted to project proponents and partners.
- The Herring River Restoration Project starts construction, estimated to take four years. This project will restore up to 890 acres of coastal wetlands.
- Nine additional restoration projects will start construction in 2023. This includes three dam removals, two culvert replacements, and the restoration of one coastal estuary habitat and three retired cranberry bogs. When complete, these projects are anticipated to open over 45 river miles and restore almost 140 acres of wetlands.
- DER issues its annual request for proposals for municipalities that want to upgrade undersized or failing culverts through our Culvert Replacement Municipal Assistance (CRMA) Grant Program.<sup>20</sup>
- DER will launch a new statewide culvert replacement toolkit as a web-based resource in 2023. The toolkit will provide tools and resources for municipalities and other partners to assist them through the various stages of replacing aging and undersized culverts to meet the Massachusetts Stream Crossing Standards.<sup>21</sup> As part of the toolkit, DER will also be releasing four informational videos.



- DER will continue to advance post-restoration adaptive management and monitoring efforts, working with partners to maintain restoration efforts, learn about project outcomes, and improve restoration projects over time. This includes continued monitoring at completed cranberry bog restoration sites and post-restoration adaptation at the site of the Mill River Restoration Project, where revegetation and invasive species management efforts continue.
- DER will be collaborating with the Department of Fish and Game's In-Lieu Fee Program<sup>22</sup> to develop a restoration cost analysis tool to help assess and guide future restoration work.
- In 2023, DER will use an internal "Tidal Atlas Database" to help prioritize potential high quality tidal restoration sites and identify new projects. DER developed this database in 2022 with Geosyntec by compiling data on tidal crossings, or places where roads or other infrastructure cross tidal waterways.



Restoration work like the replacement of this culvert in Windsor (left: before; right: after) makes future wildlife passage possible, as evidenced by this newt seen traveling through the new culvert (far right).



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# **Photo Captions & Credits**

- *cover:* Construction equipment can be seen on-site at the removal of the Mill Pond Dam from Traphole Brook in Norwood in February 2022. (*Credit: DER*)
- *page two:* Almost nine months after the removal of the Sucker Brook Dam in Pepperell, Sucker Brook meanders through lush greenery where the dam impoundment used to be. (*Credit: DER*)
- page three, top left: DER staff in November 2022. (Credit: DER)
- page three, bottom right: DER staff and construction crews oversee a culvert replacement underway in Leyden in May 2022. (Credit: DER)
- page five, left: The beautiful Kent's Island Salt Marsh in Newbury. This is the site of a restoration project that completed in 2019 and for which post-restoration monitoring continues. (Credit: DER)
- page five, right: Volunteers assist with planting at the site of the Eagle Neck Creek Restoration Project in Truro in May 2022. (Credit: DER)
- page six, left: Construction equipment can be seen onsite at the Lyman Pond Dam Removal in Southampton in May 2022. (Credit: DER)
- *page six, top right:* Construction crews implement water control practices at the site of the Lyman Pond Dam Removal in Southampton in June 2022. (*Credit: DER*)
- page six, bottom right: A new structure that meets road-stream crossing standards can be seen in Windsor following a culvert replacement that completed in 2022. (Credit: DER)
- page seven, left: Department of Fish and Game Commissioner Ron Amidon speaks at an event celebrating the award of \$22.67 million in funding for the Herring River Estuary Restoration Project in Wellfleet in September 2022. (Credit: DER)
- page seven, right: An aerial view of the large Herring River Estuary Restoration Project site. (Credit: DER)
- *page eight, top:* Nine months after the removal of the Sucker Brook Dam, state officials and partners look out over the restored Sucker Brook during a grant announcement event in July 2022. (*Credit: DER*)
- page eight, bottom: Training participants watch a demonstration during a Stream Smart Crossing Workshop in late 2022. (Credit: DER)

page nine, top: Construction equipment works to remove the Mill Pond Dam from Traphole Brook in Norwood in February 2022. (Credit: DER)

page nine, bottom: DER's Chris Hirsch stands at the site of the Traphole Brook Dam Removal Project in Norwood in June 2022, following the dam removal in February. (Credit: DER)

page ten, top: A group of people kayaking on the Ipswich River. (Credit: DER)

page ten, bottom left: Measurements are taken at the site of the Cold Brook Restoration Project. (Credit: DER)

page ten, bottom right: DER's Joe Gould speaks to field trip participants at the site of the Lyman Pond Dam Removal Project in Southampton. (Credit: DER)

page eleven: DER staff assess the site of the Church Manufacturing Co. Dam Removal in Monson in June 2022. (Credit: DER)

page twelve, left: A culvert in Windsor, before replacement by a structure that meets the road-stream crossing standards. (Credit: DER)

page twelve, middle: A new structure that meets road-stream crossing standards can be seen in Windsor following replacement of the old culvert. (Credit: DER)

*page twelve, right:* A newt crosses under the road through a new culvert in Windsor following the replacement of the old structure, which prohibited such wildlife passage. (*Credit: DER*)