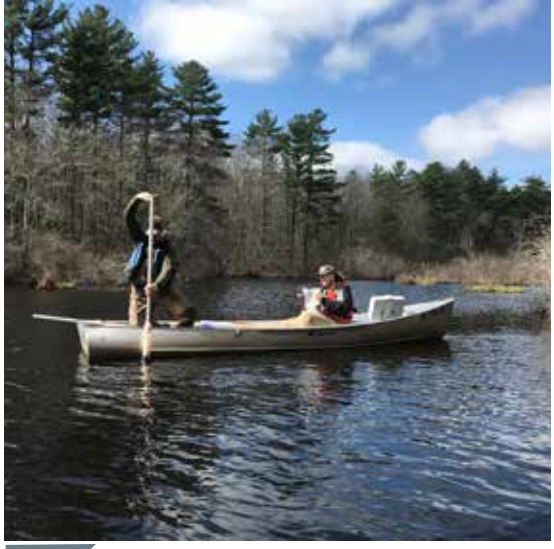



2017
Annual Impact Report
Partnerships




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
Matthew A. Beaton, Secretary
Ronald S. Amidon, Commissioner
Mary-Lee King, Deputy Commissioner
Beth Lambert, Director
Hunt Durey, Deputy Director

Commonwealth of Massachusetts
Division of Ecological Restoration
Invested in Nature and Community

2017 Annual Impact Report
Working Together

Dear Partners,

We are pleased to introduce the new Director of the Division of Ecological Restoration, Beth Lambert. While new to this position, Beth is not new to the Division. She's worked with DER since 2009, first as the River Restoration Scientist and more recently as the Aquatic Habitat Restoration Program Manager, overseeing DER's on-the-ground restoration work. Beth brings over twenty years of experience in aquatic habitat restoration, program management, relationship building, and fund-raising to the Director position. She has played an integral role in building the Division over the past eight years and is now excited to lead the DER team, working in collaboration with our many partners to advance ecological restoration across the Commonwealth.

Since its inception eight years ago, the Division of Ecological Restoration has completed over 80 projects across Massachusetts, and one common thread ties them all together: we did none of them alone. Partnerships drive the Division's work. Whether we're overseeing a dam removal in Southampton, supporting a water conservation campaign in Wenham, or restoring retired cranberry bog wetlands in Plymouth, our work brings individuals and organizations together around common-sense solutions for people and nature.

The Division partners with landowners, municipalities, watershed groups, state and federal agencies, and many others to plan and implement projects that restore rivers and wetlands. All of this work requires the efforts of many dedicated people who contribute their vision, knowledge, energy, and resources to get projects done. By working together in strategic ways to advance shared goals, we make the best use of partner talents and resources to restore and protect our communities and natural environment.

So in this, our 2017 annual report, we salute all of our partners and the spirit of collaboration that brings restoration to life. Enjoy!

Sincerely,

Beth Lambert, *Director*

Ronald S. Amidon, *Commissioner*

Hunt Durey, *Deputy Director*

Mary-Lee King, *Deputy Commissioner*

Municipal Partner

DER's partnership and technical expertise kept the Coonamessett River Restoration Project moving forward steadily so that we could break ground this year. The restoration of the river will result in multiple ecological and social benefits in the years to come, and it simply would not have happened without DER. We are very grateful.

Betsy Gladfelter, Town of Falmouth

2017 Accomplishments

Regional Planning Partner

A partner is someone who joins you in an undertaking, riding it out through the peaks and valleys, seeing it through to the finish. DER is such a partner. I have worked with DER for many years, and without them, projects like the Mill River Restoration in Taunton – a twelve-year journey involving 3 dam removals, the reclamation of over 30 acres of floodplain habitat, and the restoration of 30 miles of open river – would never happen.

Bill Napolitano
Southeastern Regional Planning and Economic Development District

- DER leveraged over $6.5 million in newly awarded external funds for community-based restoration projects. The grant funds will pay for engineering, design, and construction work taking place in communities across the Commonwealth.
- DER provided technical support to municipal staff, watershed groups, landowners, and other organizations in more than 193 communities across 26 major watersheds.
- DER Volunteers worked in 90 communities, devoting more than $70,000 worth of labor towards protecting and restoring our rivers and wetlands.
- Working with more than 30 partners, DER removed 7 dams, opening up more than 40 river miles, restoring 30 acres of wetlands, and reconnecting more than 900 acres of spawning habitat.
- DER signed Cooperative Agreements with Sponsors of 11 new Priority Projects and began project scoping and planning. The projects include dam removals, culvert replacements, urban river revitalization efforts, floodplain enhancement, and streamflow restoration.
- DER published an on-line dam removal decision support tool for use by federal, state, and local partners. The tool evaluates the expected ecological benefits of removing any known dam in the Commonwealth.
- DER launched its new Culvert Replacement Municipal Assistance Program by awarding $905,000 in grants to 13 towns for projects that replace undersized culverts.

Nissitissit River about a year after dam removal.

- DER piloted a community-based social marketing program in the Ipswich River Watershed to encourage voluntary reductions in residential water use.

Undersized culvert on Benton Hill Road in Becket leads to a road being washout during Hurricane Irene. Crossing was replaced in 2017 to meet the stream crossing standards with funds from a MEMA Hazard Mitigation Grant.

Culvert Replacement Municipal Assistance Grant Program

In Massachusetts more than 30,000 culverts and bridges allow rivers and streams to flow beneath while traffic passes overhead. When designed well, road-stream crossings provide seamless passage for fish, wildlife, and – occasionally – raging flood waters, without impacting the road.

However, the majority of culverts in Massachusetts are undersized, deteriorating, and/or poorly positioned. Many of these crossings impede the movement of fish and wildlife, and can also threaten public safety when overtopped by flood waters that cause washouts, culvert failure, and road closures.

In 2015 DER surveyed municipal highway and public works directors across Massachusetts to identify challenges to building better culverts that provide fish and wildlife passage and are resilient to floods. Respondents cited a lack of technical expertise and resources to design, permit, and construct improved stream crossings as major obstacles.

In response, this year DER launched the Culvert Replacement Municipal Assistance Grant Program by awarding grants to 13 communities. Through this program DER provides funds and technical assistance to support local culvert replacement projects that improve river health and public safety. The Culvert Replacement Municipal Assistance Grant Program encourages and helps municipalities replace existing undersized culverts with crossings that meet modern design standards, known as the Massachusetts Stream Crossing Standards.

Installing culverts that meet these Standards supports two goals: 1) improved passage for fish and wildlife; and 2) improved community resilience to large storms. In addition, these projects can save towns money - recent studies have found that culverts designed to meet the Standards are often less expensive than in-kind culvert replacements, when evaluated over the lifespan of the structure.

Partial support for this program in the SuAsCo Watershed was provided by the Department of Environmental Protection, through the Nyanza Natural Resources Damages settlement. The New England Forests and Rivers Fund, administered by the National Fish and Wildlife Foundation, provided technical assistance support for projects in the Deerfield River Watershed.

Meet our Grantees

Site of culvert on Walkeen-Koziol Road over Taylor Brook in Warren, one of 13 towns that were awarded a grant. The other towns include: Bernardston; Boxford; Brookfield; Colrain; Framingham; Lancaster; Mashpee; Princeton; Sheffield; Washington; Wenham and Weston.

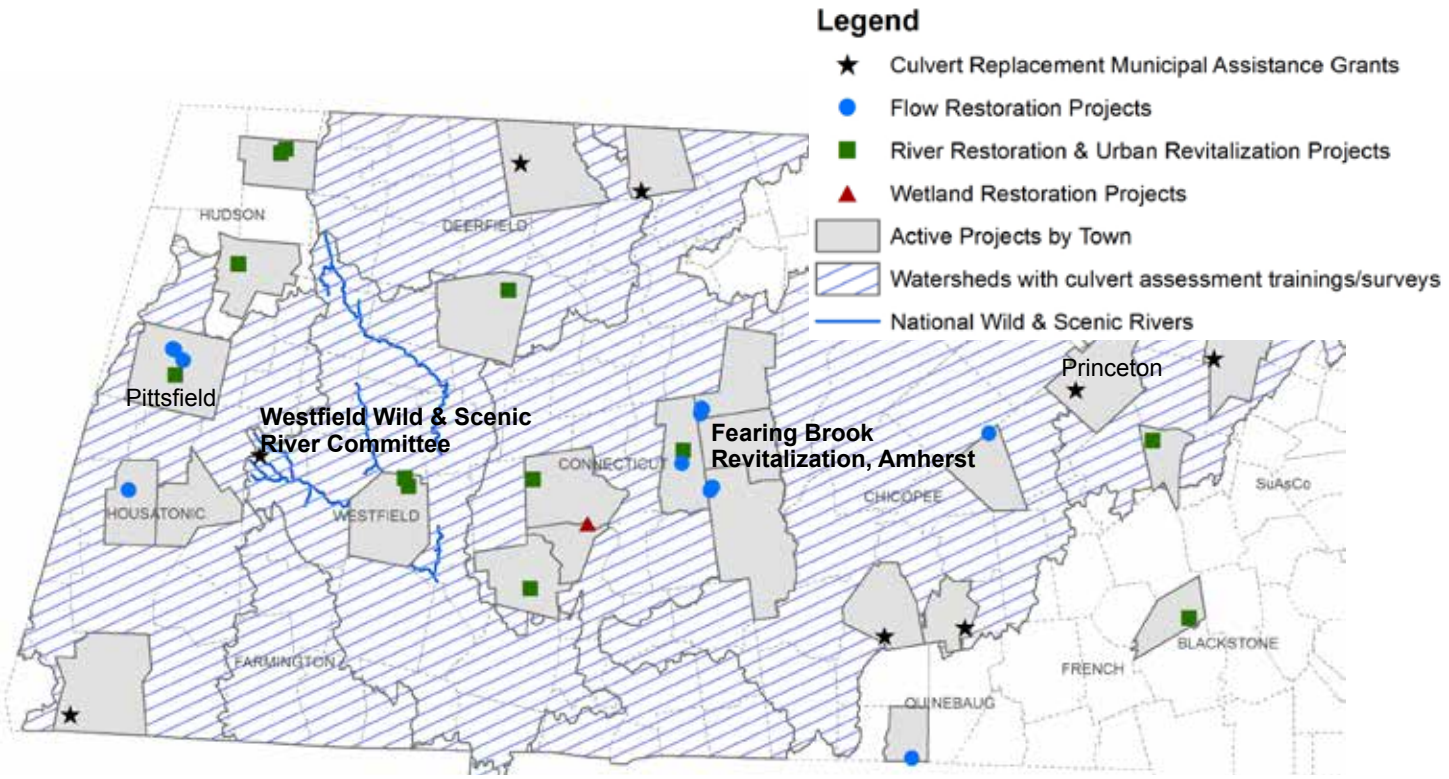
Washington – Aging infrastructure coupled with intense rain events over the last 10 years means that Tom Johnson, Washington's Highway Superintendent, has to keep a close eye on several culverts in town, including the culvert on Frost Road over Savery Brook. Two years ago, the culvert inlet began to fail. In recent storms, this culvert became completely blocked, causing Savery Brook to overtop the road. Savery Brook is part of the National Wild & Scenic Rivers system and supports native brook trout. Replacing this failing culvert with a larger, safer structure will restore access to this important headwater stream while alleviating a flood hazard.

Warren – An avid outdoorsman, Tom Boudreau, Warren's Highway Surveyor, is excited to receive DER's support to help fish populations and coldwater fisheries, as well as public safety. Frequent seasonal flooding caused by an undersized, degraded culvert on Walkeen-Koziol Road detours traffic and disrupts bus routes and emergency services. With 63 miles of roadway and numerous culverts and bridges, the Highway Department's budget is simply not enough to fund all of Warren's infrastructure needs. DER's grant will allow the Town to implement a long-term solution to the flooding issues.

Mashpee – There is some good news for sea run eastern brook trout (a.k.a. salters) in the Santuit River. Once home to an abundant population, no evidence of this fish was found during a MassWildlife survey in 2015. This May, after enhancing habitat features, MassWildlife re-introduced eastern brook trout to the Santuit River. Replacing the deteriorated Sampson's Mill Road crossing will improve the brook trout's chances for survival by enhancing access to critical habitat in the Santuit River and the nearby estuary. Catherine Laurent, Mashpee's DPW Director, is excited to use DER's grant to develop design and engineering plans which then can be used to apply for construction funds from other grant sources.

Where We Work

Out West



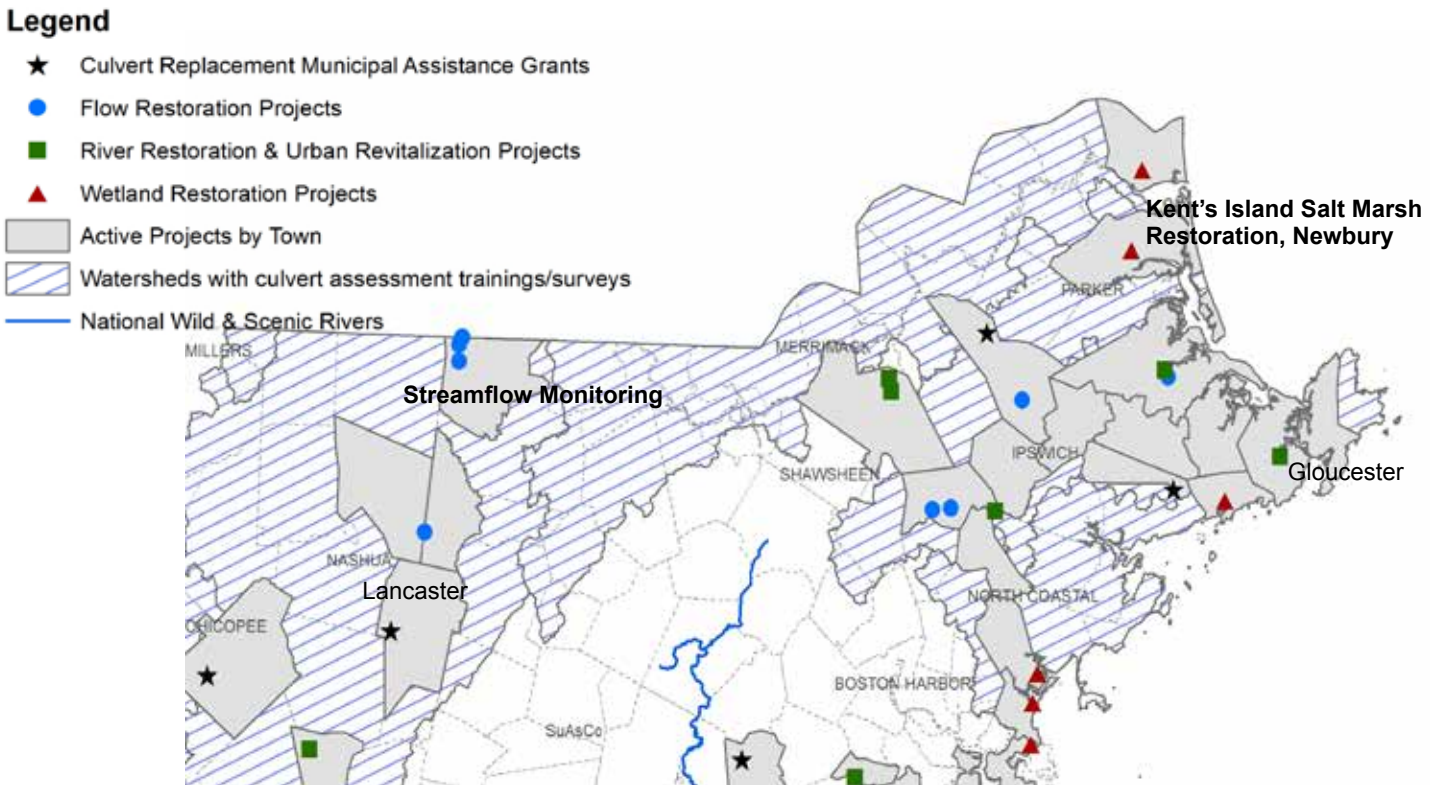
Fearing Brook Revitalization, Amherst

Fearing Brook is an urban stream in downtown Amherst. The majority of the brook is buried in culverts and the above-ground segments are significantly degraded. After awarding provisional status as a DER Priority Project in 2016, we have now begun to assess the feasibility and challenges for restoration at this site. DER is working with Amherst toward the goal of improving water quality in Fearing Brook to protect the significant aquatic resources in Fort River and to improve the health and sustainability of the brook for the benefit of the community.

Westfield Wild & Scenic River Committee

DER is an integral member of the Westfield Wild & Scenic River Committee. As part of this work, DER participates in the Committee's Riparian Conservation Grants process. Each year this Committee awards grants for projects that help to protect and restore riparian areas along the Westfield River. Riparian areas provide important habitat for wildlife and also help provide flood protection to surrounding areas. Grants to date have supported projects that have led to the protection and restoration of nearly 2,000 acres and more than 27,000 feet (5 miles) of stream frontage.

Up North



Kent's Island Salt Marsh Restoration, Newbury

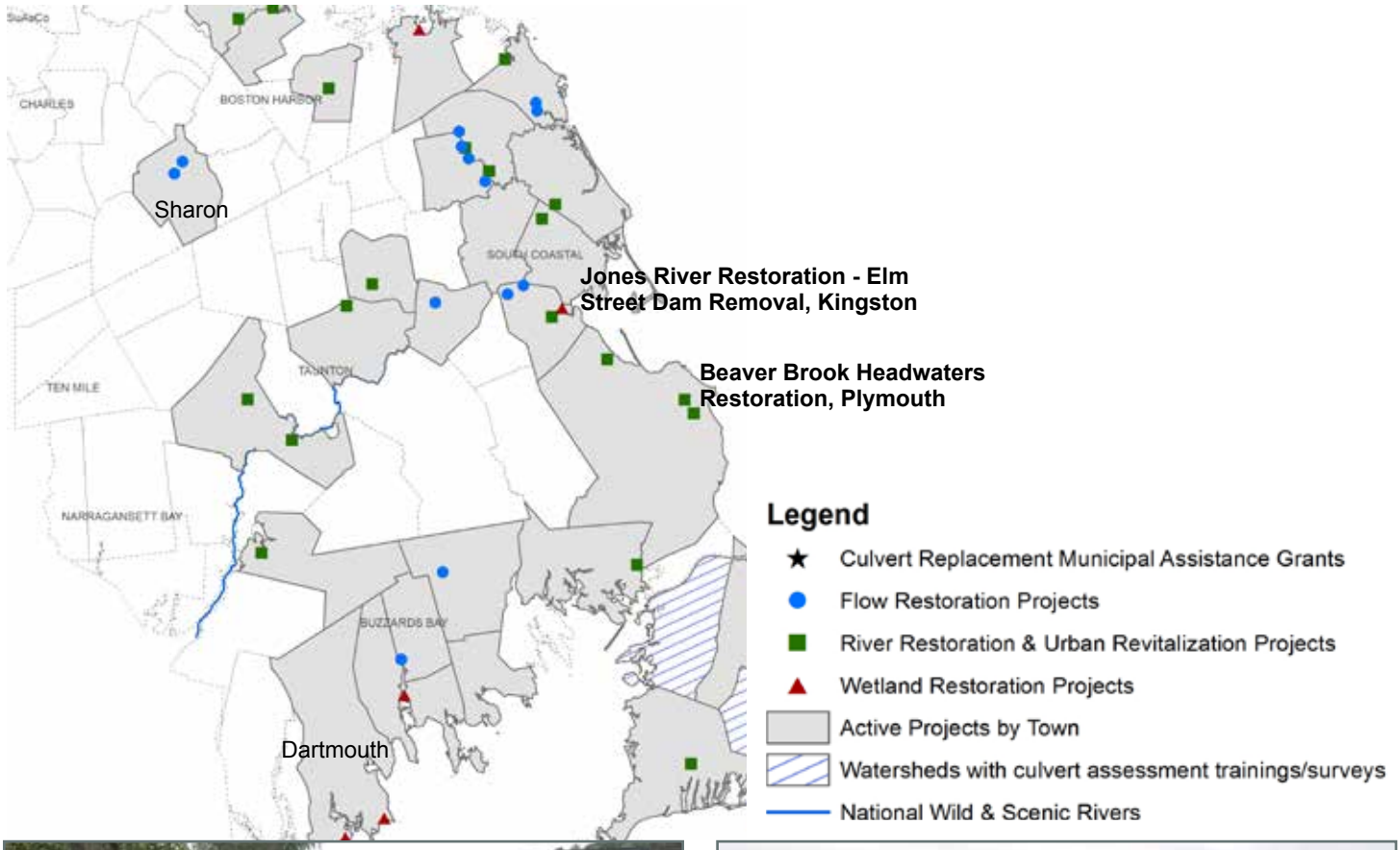
The Kent's Island Salt Marsh Restoration is part of MassWildlife's William Forward Wildlife Management Area in Newbury. DER is working with MassWildlife to restore this 47 acre coastal tidal saltmarsh. The bridge spanning Kent's Island Creek is severely dilapidated and materials from the bridge and banks have filled in the creek, restricting tidal flow into the marsh. Upgrading the crossing at Kent's Island Road will remove the tidal restriction while maintaining and improving access to Kent's Island. Final design and permitting are underway for a new crossing.

Streamflow Monitoring

Streamflow monitoring helps us better understand the causes of unnatural streamflows, inform and support policy and actions that restore and maintain healthy streamflows, document restoration successes, and understand the impact of climate change on streams. DER maintains a network of stream gages across the state and works with a variety of partners (watershed and lake associations, water departments, US EPA, other state agencies) to collect high quality streamflow data. The program currently monitors 30 sites, including many in the northeastern part of the state such as Gulf Brook, Martins Brook, Fish Brook and the Ipswich River.

Where We Work

Down South



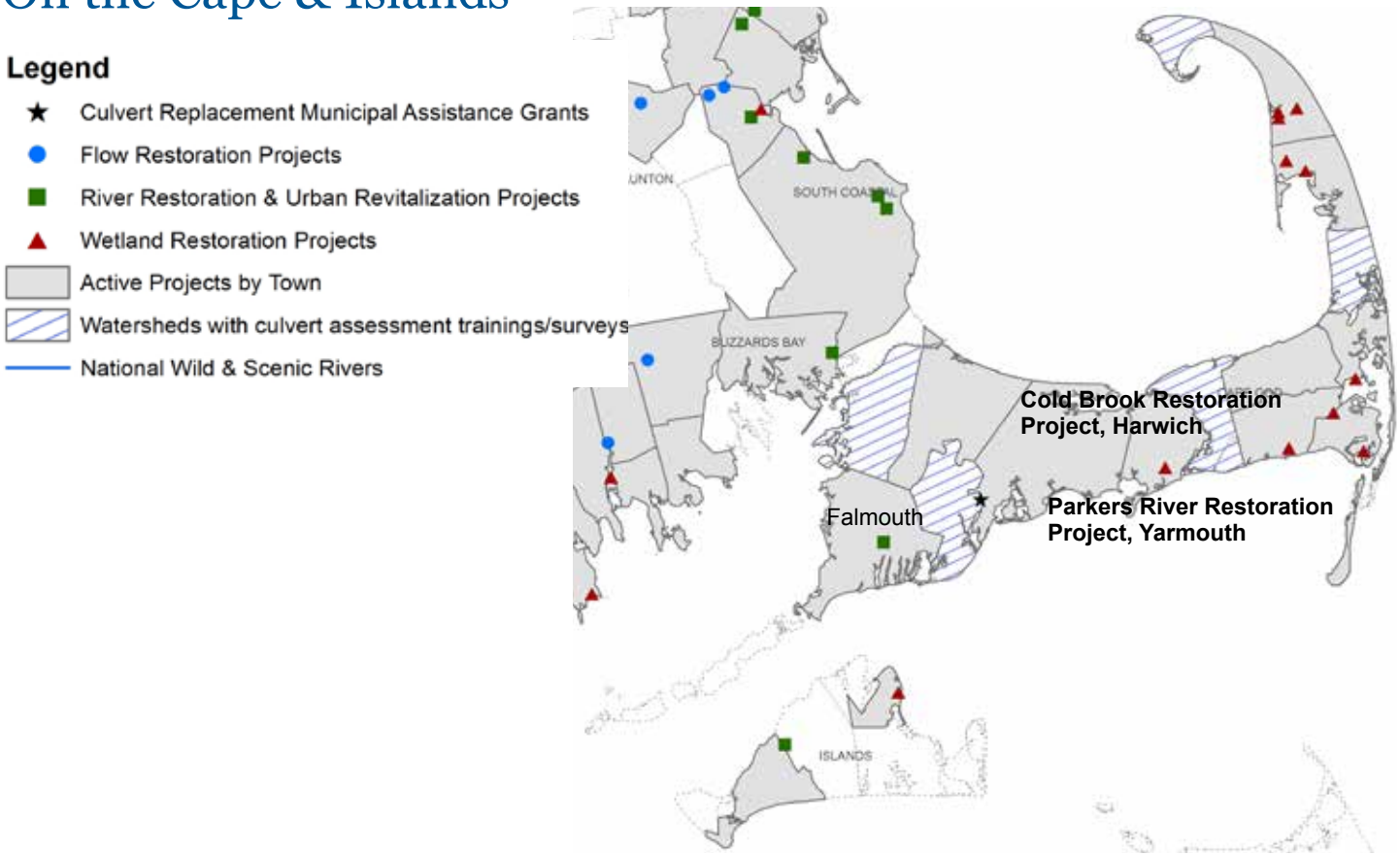
Elm Street Dam Removal, Kingston

DER is working with the Jones River Watershed Association (JRWA) and the Town of Kingston to remove the Elm Street Dam on the Jones River. The Elm Street Dam is just downstream of the site of the Wapping Road Dam, removed in 2011, and is the first dam from the ocean. Its removal will address current flooding as well as a projected future increase in flooding from extreme storm events. It will also restore this important head-of-tide habitat for native and migrating fish species. Engineering, design, and permitting are currently underway. Funding and support is being provided by JRWA, Town of Kingston, NOAA, Massachusetts Dam and Seawall Repair or Removal Program, and Patagonia.

Beaver Brook Headwaters Restoration, Plymouth

Restoration design is now underway on the western side of Tidmarsh Farms. Now owned by the Town of Plymouth as public open space, future restoration actions will address the legacy effects of cranberry farming and restore wetland and stream habitat across the site. Partners include USDA NRCS, Ducks Unlimited, and Mass Audubon. This work builds upon the completed wetland restoration project on the eastern side of the farm, which recently opened as a new Mass Audubon Wildlife Sanctuary. In the future, visitors to the site will be able to experience a linked trail system with access to approximately 250 acres of restored wetlands.

On the Cape & Islands



Cold Brook Restoration Project, Harwich

DER is assisting the Harwich Conservation Trust as it restores the downstream reaches of Cold Brook in Harwich Port. Nearly $200,000 has been secured to date from DER, the Massachusetts Environmental Trust, and the United States Fish and Wildlife Service to restore the existing stream channel and adjacent fallow cranberry bogs within the Robert F. Cold Brook Preserve, with the goal of creating a self-sustaining, high-quality freshwater wetland and tidal stream system. Implementation is slated for 2019.

Parkers Rivers Restoration Project, Yarmouth

This year DER and partners submitted 100% Design Plans to MassDOT for near-final review for the Parkers River Tidal Restoration Project. Once approved, this project will go to bid with an anticipated construction start of late fall 2018. For over 120 years, the undersized bridge crossing on Route 28 has severely restricted natural tidal flow, impairing the ecological function of the salt marsh. Increasing the size of the crossing to 30 feet will restore tidal flow, enabling more saltwater and sediment to be transported into the estuary. This will help the salt marsh grow and keep pace with sea level rise. Additionally, fish passage will be improved, and the bridge will be more resilient to storms.

The Blackstone River Coalition is piloting social marketing techniques to encourage people to rediscover the river.

A Community Approach to Improving Water Quality

Massachusetts is fortunate to have many watershed groups working toward healthier and more livable watershed communities. One of the largest of these volunteer-based programs - the Blackstone River Coalition - monitors the Blackstone River and its tributaries.

During the industrial revolution the Blackstone River was significantly manipulated and exploited, leaving a legacy of polluted sediments and dammed and impounded sections of the river. While the river has made significant gains in water quality and ecological health, it still contends with a number of issues that impact water quality, including combined sewer overflows and nonpoint source pollution.

The Blackstone River Coalition has been monitoring water quality for more than a decade at over 80 sites along the river. This work relies on lots of volunteer hours to keep the program running smoothly. DER staff offers advice, helps develop and update the program's monitoring plan, and provides a crucial annual quality control assessment of the program and data.

Recently, the Blackstone River Coalition successfully applied for DER funding to pilot social marketing in the Blackstone River watershed. The goal is to work with the Blackstone volunteers to explore new outreach tools to help promote the river and their monitoring program through two campaign concepts. One will encourage people to rediscover the river as a clean, healthy and beautiful regional asset. The other campaign will explore the best outreach method to encourage homeowners to modify stormwater management on their property in ways that reduce pollution in the river.

The campaigns are designed to evaluate performance by comparing the methods and level of effort expended to the results achieved. For Blackstone River advocates, understanding how to balance cost with outcomes is a valuable tool that will allow the groups to maximize their effectiveness. The campaigns also explore a range of nontraditional outreach methods.

Many Massachusetts rivers face issues similar to the Blackstone. The lessons learned from adopting these new social marketing approaches will help increase awareness about the health of the Blackstone River system and can also be used to help other groups and rivers.

Partners to Protect Wild & Scenic Rivers

In 2018, we celebrate the 25th Anniversary of the National Wild & Scenic River designation on the Westfield River – Massachusetts' first National Wild & Scenic River – and the 50th Anniversary of the National Wild & Scenic Rivers Act. As we near a quarter century of protecting the Westfield River, we celebrate the partnerships which have kept our rivers wild and scenic.

In Massachusetts, there are three National Wild & Scenic Rivers (and counting!) - the Westfield River (1993); the Sudbury, Assabet & Concord Rivers (1999); and the Taunton River (2009). Currently the Nashua River is working to achieve this designation.

Each river is managed by a local committee comprised of local, regional and state partners to which DER staff provides technical support.

Federal funding provided by the National Park Service's Partnership Wild & Scenic Rivers Program helps leverage additional funding and in-kind support from state, local and private sources.

Beyond the committees and communities, this partnership river model has allowed DER to support academic programs building on the concepts of ecological restoration.

Working with faculty and students at Westfield State University, and using the Westfield River watershed as the focal point, DER fosters and mentors students pursuing careers in the restoration field while tapping their skills to support our on-going culvert replacement and dam removal work within the watershed and surrounding area.

The Westfield Wild & Scenic Committee tours the Kinne Brook Restoration Project area.

Watershed Partner

The Blackstone River Coalition partners are excited about the social marketing campaign we have begun thanks to the funding and technical assistance from DER. Through the campaign we are finding ways to let people know the Blackstone is a great place for families. I recently had the opportunity to introduce the Blackstone River to a class of first graders and overheard one child gushing, "this is my first picnic. I have never been on a picnic before." This is what it is about, bringing children and families back to nature in their own backyards and celebrating the return of the Blackstone River as a clean, beautiful and healthy resource for the watershed.

Peter Coffin
Blackstone River Coalition Coordinator

Partners gather for start of Tack Factory Dam removal in Norwell.

Working Together to remove 7 dams in 2017

DER works in partnership with property owners, non-governmental organizations, municipalities, and federal and state agencies to restore habitat connectivity to rivers and wetlands across Massachusetts. Each partner contributes an essential role, from hosting community forums on dam removal to granting funds for construction to coordinating among Town departments. Here are the 2017 highlights:

Shawsheen River Restoration

DER and partners completed the Shawsheen River Restoration Project wrapping up the removal of Balmoral and Marland Place Dams in Andover. The dam removals opened up five miles of river to migratory fish and brought together the Town, Atria Senior Living, NOAA, US Fish and Wildlife Service (USFWS), Massachusetts Environmental Trust (MET), American Rivers, and the Center for Ecosystem Restoration.

Old Mill Dam Removal

DER supported the Town of Bellingham and the Charles River Watershed Association in the removal of the Old Mill Dam on the Charles River. The project reconnects 9 miles of river habitat and is the first full dam removal on the mainstem of the Charles River.

Third Herring Brook Restoration

With assistance from DER, the North and South Rivers Watersheds Association, NOAA, and USFWS, the Cardinal Cushing Center removed Tack Factory Dam on Third Herring Brook in Norwell. This project reconnected 8.4 miles of river habitat to the North River estuary, including a critical coldwater tributary. The Sea Run Brook Trout Coalition, Southeast Chapter of Trout Unlimited, and MET were also key supporters and partners for this project.

Additional support for these projects was provided in part by the National Fish and Wildlife Foundation's Hurricane Sandy Coastal Resilience Grant Program; Massachusetts Dam and Seawall Repair or Removal Program; Corporate Wetlands Restoration Partnership; and Atlantic Coastal Fish Habitat Partnership.

Bound Brook Restoration

The Town of Scituate, DER, USFWS, NOAA, Office of Coastal Zone Management, Massachusetts Bays National Estuary Program, private land owner, and the Gulf River Association worked together to remove the head-of-tide Hunters Pond Dam on Bound Brook in Scituate. Removing this dam reconnected five river miles to the Gulf River Estuary and improved access for river herring to 200 acres of spawning habitat in the headwaters.

Coonamessett River Restoration

The Town of Falmouth, DER, and partners kicked off the Lower Coonamessett River Restoration Project, encompassing the removal of Lower Dam and restoration of 11 acres of former cranberry bog. Partners include the Coonamessett River Trust, 300 Committee, Botany Club of Cape Cod and the Islands, MET, NOAA, National Fish and Wildlife Foundation, and many others.

Satucket River Restoration

DER, The Nature Conservancy (TNC), Town of East Bridgewater, NOAA, USFWS, Plymouth County League of Sportsmen, Division of Marine Fisheries and private dam owner worked together to remove Cotton Gin Dam, the first dam from the ocean on the Satucket River. The Satucket River is an important tributary to the dam-free Taunton River, and dam removal reconnected 13 river miles and 700 acres of river herring spawning habitat to the Taunton River, Narragansett Bay, and the ocean.

Old Mill Dam Removal on Charles River in Bellingham, before and after.

Federal Partner

The DER's emphasis on ecological restoration, the technical expertise of its staff, and the Division's comprehensive experience in managing projects has provided invaluable assistance to the U.S. Fish and Wildlife Service, towns, agencies, and non-governmental organizations. Of particular note is leadership that the DER is providing for the planning, and construction of coastal storm resiliency projects supported through the Disaster Relief Appropriations Act of 2013 (Hurricane Sandy). These projects fulfill the objectives of increased ecological resiliency in the face of future storms and the concurrent reduction in risk to Massachusetts residents.

Eric Derleth, U.S. Fish and Wildlife Service

Watersheds are stressed during a drought.

Many Tools to Address Stress on Our Streams

At certain times of the year, many streams in Massachusetts do not have enough water to support healthy streamflow. These streamflow deficits can impact aquatic ecosystems, drinking water supplies, fishing, and recreation. Many factors can contribute to altered and unnaturally low streamflow, including water withdrawals, dams, and impervious surfaces.

To improve and restore streamflow, a variety of tools are needed to address the multitude of stressors placed on our streams. DER is working to help partners develop and test innovative, non-regulatory tools and approaches to protect and restore healthy streamflow.

Water conservation in Ipswich River watershed

Reducing non-essential water use, especially in the summer, is an important tool to protect our rivers and maintain drinking water supplies. DER is working with the Towns of Wenham and Middleton and the Ipswich River Watershed Association to pilot water conservation strategies targeted at reducing residential summer outdoor water use. The campaign utilizes Community Based Social Marketing, a method that goes beyond traditional education campaigns and uses marketing concepts with other approaches to influence behaviors.

Several strategies were tested this summer, including a campaign that compared an individual household's summer water use to average use in town and provided targeted information and feedback on how to reduce use. The effectiveness of these campaigns will be evaluated by comparing water use data of those that received materials with those in control groups.

Water Rates Study with DCR

Effective water rates can encourage efficiency and conservation in water use while ensuring the long

term sustainability of water supplies through cost recovery and protecting affordability of water for essential needs. DER is working with the Department of Conservation and Recreation (DCR) to provide support to water suppliers who are trying to restructure water rates to meet these various goals.

In August, we surveyed Massachusetts water suppliers to better understand their goals, obstacles, and outcomes when setting water rates. This winter we will be working with many of the respondents to develop case studies of successful rate setting, including lessons learned and challenges overcome.

The goal of the project is to identify the factors that help water suppliers set and adopt effective water rates and develop tools and resources to help towns meet their goals.

Dam Release Prioritization Tool

Dams and the management of water releases from surface water impoundments can have significant impacts on streamflow, including increased duration of low-and no-flow periods, decreased variability, and rapid rates of change. While dam removal is a priority for DER, not all dams are suitable for removal, including those that maintain water supply reservoirs and recreational lakes.

DER has worked successfully with several dam owners to develop plans for streamflow release and dam management that improve streamflow and ecological conditions. In an effort to expand this work, we are creating a GIS based tool to screen and prioritize dams for potential changes to water release regimes based on metrics that evaluate ecological benefit and feasibility.

DER staff measure flows in the Parkers Brook.

Watershed Partner

Organizations like the Ipswich River Watershed Association rely on strong partnerships. We are fortunate to have the Division of Ecological Restoration providing this support to nearly all our programs. Their leadership with an active social-based marketing study will provide critical information to expand water conservation outreach.

The DER has been instrumental in guiding river restoration projects at two mainstem dams on the Ipswich. The Division is active in the Parker-Ipswich-Essex Rivers Partnership and provided critical support to our “regional barriers to flow” analysis. We could go on! Thank you to the DER staff; we couldn’t do our work without you!

Ipswich River Watershed Association

Commonwealth of Massachusetts
Division of Ecological Restoration
Invested in Nature and Community

Website: www.mass.gov/der
Twitter: @MassEcoRestore
Flickr: http://www.flickr.com/photos/der_riverways/

The Division of Ecological Restoration 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.

State Agency Partner

The Massachusetts Department of Transportation Highway Division (MassDOT) and DER have been partners through the Massachusetts Stream Continuity Partnership for over a decade. The agencies work together on improving aquatic connectivity and transportation infrastructure resiliency, and on the restoration of rivers, streams, and coastal habitats. These initiatives range from the development of site specific project solutions, to collaboration on design guidance, educational programs and municipal outreach efforts across the state. By working with the DER, as well as the other Divisions within the Department of Fish and Game, MassDOT is better able to provide a safer, environmentally friendly and more resilient transportation network, that strengthens the Commonwealth's economy and quality of life.

Tim Dexter, MassDOT

Balmoral Dam removal on the Shawsheen River, Andover.

DER STAFF

Beth Lambert
Director

Hunt Durey
Deputy Director

Eileen Goldberg
Assistant Director

Carrie Banks
Stream Team & Wild & Scenic Westfield River Coordinator

Kate Bentsen
Streamflow Restoration Specialist

Michelle Craddock
Flow Restoration Program Manager

Cindy Delpapa
Riverways Program Manager

Kristen Ferry
Habitat Restoration Specialist

Eric Ford
Restoration Specialist

Alex Hackman
Restoration Specialist

Kris Houle
Ecological Restoration Specialist

Georgeann Keer
Project Manager

Megan Sampson
Program Administrator

Nick Wildman
Restoration Specialist

Printed by Massachusetts Correctional Industries