

COMMONWEALTH OF MASSACHUSETTS  
 Department of Fish & Game  
 Division of Ecological Restoration



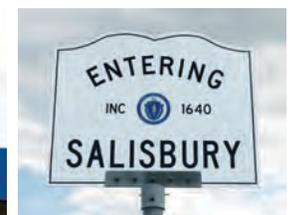
# 2012 Annual Report

## Focus on Partnerships Helping Cities & Towns in Massachusetts



*Town Creek Restoration, Salisbury    Amethyst Brook Restoration Celebration Event, Pelham*

*Removing river fill at Castle Neck Marsh, Essex*



“With thousands of dams and culverts in poor condition posing a threat to public safety, the Division of Ecological Restoration is an invaluable resource, providing cities and towns with access to funding and technical assistance to remove unsafe and obsolete dams and replace substandard culverts. This work saves municipalities money by removing liability and maintenance costs, and enables freshwater wildlife and plants to thrive by improving water quality and restoring wetlands.”

— Tom Philbin, Massachusetts Municipal Association

**The Commonwealth of Massachusetts**  
 Deval L. Patrick, Governor  
 Timothy P. Murray, Lt. Governor

**Executive Office of Energy and Environmental Affairs**  
 Richard K. Sullivan, Jr. Secretary

**Department of Fish and Game**  
 Mary B. Griffin, Commissioner

**Division of Ecological Restoration**  
 Tim Purinton, Director

**The mission of the Division of Ecological Restoration is to restore and protect the Commonwealth's rivers, wetlands, and watersheds for the benefit of people and the environment.**

# KEY DIVISION ACCOMPLISHMENTS

## DIRECTORS



Tim Purinton, *Director*  
Eileen Goldberg, *Assistant Director*  
Hunt Durey, *Acting Deputy Director*

Dear Colleagues and Partners,

It's a simple truism: the better the partners, the better the project. Some of our best partners in 2012 and years past have been the staff from the cities and towns of Massachusetts. Together we have restored hundreds of wetland acres and dozens of river miles. With dwindling resources, cash-strapped communities need the lift that a state program like DER can give to improve water quality, protect watershed lands, adapt to climate change, and restore critical habitats by upgrading or eliminating costly and unsafe infrastructure.

From the rural hamlets of the Berkshires to historic Cape Cod towns, the small DER staff has directly assisted with projects in one-third of the state's cities and towns and provided technical assistance to over three-quarters of the state's municipalities, an incredible reach for such a small division. While we count in our corner many groups that help advance our partnership projects (in particular the watershed associations), cities and towns are increasingly seeking DER's help to improve the quality of life of Massachusetts' residents, and we are happy to assist!

Thank you for your support. See you on the water.

Sincerely,

Mary B. Griffin, *Commissioner*, Department of Fish & Game

Tim Purinton, *Director*

Hunt Durey, *Acting Deputy Director*

## DER & Partners 2012 Key Accomplishments

- Massachusetts ranked 2<sup>ND</sup> in the nation for number of dams removed, 9 dams were removed in 2012 to improve ecological conditions.
- Provided technical assistance and guidance to people from over 245 Massachusetts communities in all 27 major watersheds.
- 465 volunteers working in 235 communities devoted over \$182,000 worth of labor toward protecting and restoring the Commonwealth's rivers and wetlands by reading stream gages, conducting river continuity and stream surveys, collecting monitoring data, and participating in restoration planning.
- Leveraged \$5 million in external funds.
- Completed the restoration of 3 wetland projects spanning 91 acres.
- Over 1,040 stream crossings surveyed.

*For More Information:* [www.mass.gov/dfwele/der](http://www.mass.gov/dfwele/der)

Check out our interactive project map, highlighting over 80 active and completed projects.



@MassEcoRestore



[http://www.flickr.com/photos/der\\_riverways/](http://www.flickr.com/photos/der_riverways/)

# HABITAT RESTORATION

DER works with many partners to complete river and wetland restoration projects across the Commonwealth. Projects include dam removal, culvert and bridge replacement, fill removal, in-stream habitat enhancement, and stream daylighting. In addition to their significant environmental benefits, these projects support many engineering, construction, and other jobs throughout the region and bring several million dollars of competitive federal funding into the Massachusetts economy every year.

## Estuaries

In 2012, DER helped partners restore over 90 acres of degraded coastal wetlands by enhancing tidal flow to three marshes where culverts and tide gates restricted the ocean's influence. Not only do these projects set the stage for recovery of productive habitats and human uses, but they also improve the marshes' ability to accumulate sediment to keep up with sea level rise. One of these projects, the 8-acre Red River Beach Salt Marsh Restoration in **Harwich**, exemplifies the continued progress resulting from the Cape Cod Water Resources Restoration Project funded by the Natural Resources Conservation Service (NRCS). It also demonstrates the value of local project contributions, as the Harwich DPW donated staff and equipment to complete the project, leveraging the bulk of the construction funds from NRCS.

2012 was also a year of intensive design and permitting activity for what is shaping up to be a very busy 2013 construction season. Seven projects are expected to begin construction in 2013, restoring over 350 acres of coastal wetlands. These include two dual-purpose, projects: the first in **Salisbury** to restore tidal habitats while mitigating future flood damage in the Town Creek floodplain; and the second in **Ipswich** and **Essex** to improve natural drainage while reducing mosquito breeding habitat.

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### WETLAND RESTORATION STAFF



Jeremy Bell, *Restoration Specialist*  
Georgeann Keer, *Wetland Scientist*  
Franz Ingelfinger, *Restoration Ecologist*

## Herring River Estuary Restoration Wellfleet & Truro

Encompassing nearly 1,000 acres and over 6 miles of waterways, the Herring River in **Wellfleet** and **Truro** is one of the largest tidally-restricted estuaries in the northeastern United States. Historically, the river supported a vibrant, regionally-important estuary and hosted one of the most important diadromous fish runs on Outer Cape Cod. Construction of a dike at the mouth of the river in 1909 and other alterations effectively eliminated tidal flow, drained the salt marshes, and transformed the estuary into one of Cape Cod's most degraded rivers.

DER is working with many partners to plan the restoration of the estuary by replacing the main river dike with a new structure that will allow controlled reintroduction of tidal flow while protecting existing land uses that now occupy portions of the historic floodplain. The complexity of the project, while daunting, is surpassed by its critical importance to the social, economic, and environmental well-being of the region.



*The Herring River Estuary*

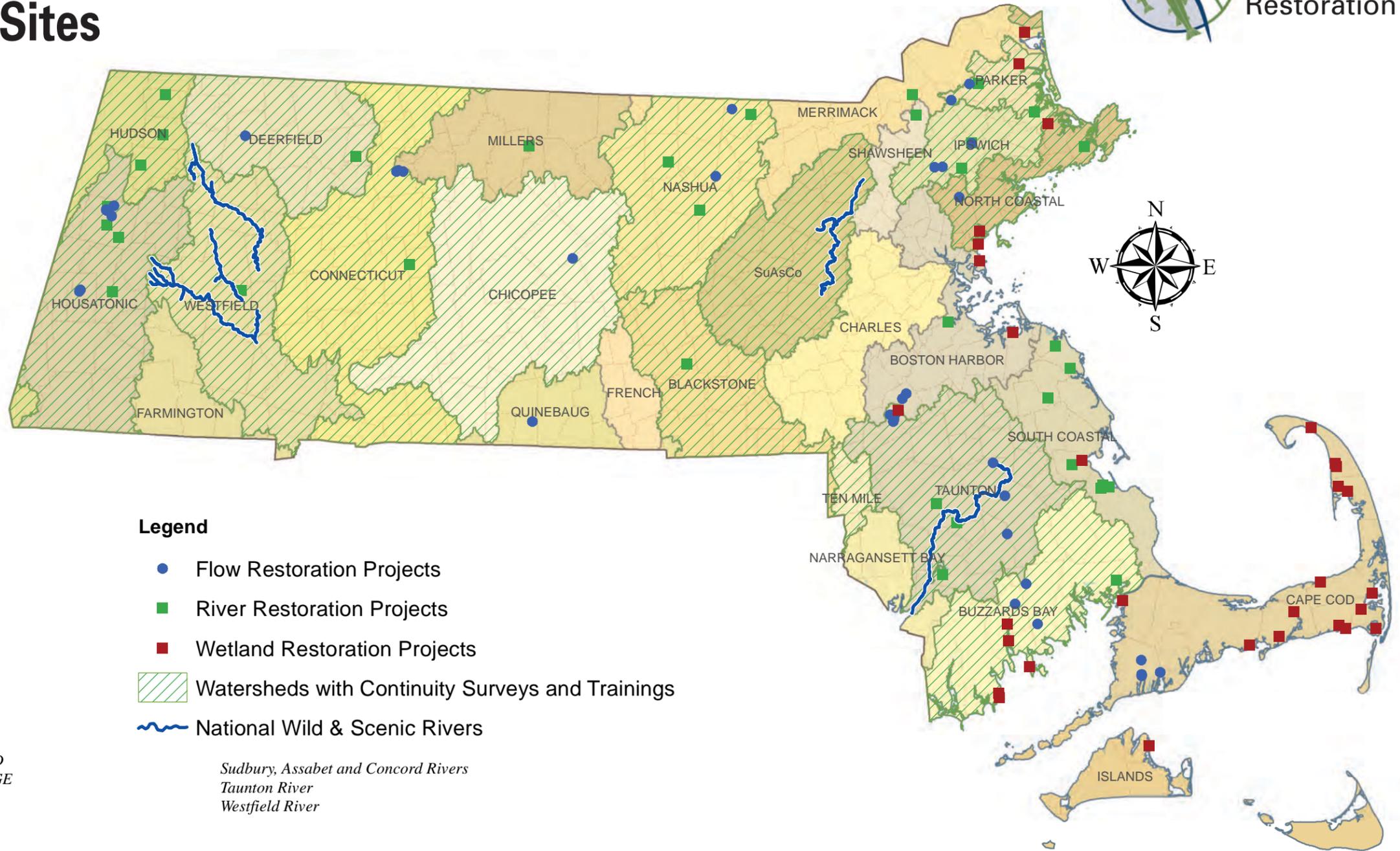
Building on over 20 years of research and development work, project partners achieved a significant milestone in 2012 with completion of a Draft Environmental Impact Statement/Report. This document sets the foundation for future design, permitting, landowner outreach, and other development activities. Over the next several years, partners will also be working to secure project funding in hopes of beginning construction in the 2016-2017 timeframe.

# Department of Fish and Game Division of Ecological Restoration 2012 Project Sites



## Cities and Towns with Restoration Projects and Programs

ABINGTON	FOXBOROUGH	OTIS
ACTON	FREETOWN	PALMER
ACUSHNET	GEORGETOWN	PELHAM
ADAMS	GLOUCESTER	PEPPERELL
ALFORD	GREAT BARRINGTON	PERU
ANDOVER	GREENFIELD	PITTSFIELD
ASHFIELD	HARDWICK	PLYMOUTH
ATHOL	HARWICH	QUINCY
ATTLEBORO	HATFIELD	READING
BARNSTABLE	HINGHAM	REVERE
BECKET	HINSDALE	RICHMOND
BERKLEY	HOLDEN	ROCHESTER
BEVERLY	HOLLAND	RUSSELL
BLANDFORD	IPSWICH	SALISBURY
BOURNE	KINGSTON	SANDISFIELD
BOXFORD	LAKEVILLE	SAUGUS
BREWSTER	LANCASTER	SAVOY
BRIDGEWATER	LANESBOROUGH	SCITUATE
BRIMFIELD	LAWRENCE	SHARON
BROOKFIELD	LEE	SHIRLEY
BUCKLAND	LENOX	SOUTHWICK
BURLINGTON	LYNNFIELD	STOCKBRIDGE
CHARLEMONT	MANSFIELD	TAUNTON
CHATHAM	MATTAPOISETT	TOLLAND
CHESHIRE	MIDDLEBOROUGH	TOPSFIELD
CHESTER	MIDDLETON	TRURO
CLARKSBURG	MILLBURY	TYRINGHAM
COHASSET	MILTON	WARE
CONWAY	MONTAGUE	WARREN
DALTON	MONTEREY	WASHINGTON
DARTMOUTH	NEW ASHFORD	WELLFLEET
DIGHTON	NEWBURY	WEST BROOKFIELD
EASTHAM	NORTH ADAMS	WEST STOCKBRIDGE
EASTON	NORTH ANDOVER	WESTPORT
EGREMONT	NORTH READING	WHATELY
ESSEX	NORTON	WILLIAMSTOWN
FAIRHAVEN	NORWELL	WILMINGTON
FALL RIVER	OAK BLUFFS	WINDSOR
FALMOUTH	OAKHAM	WORCESTER
FITCHBURG	ORLEANS	YARMOUTH



- Legend**
- Flow Restoration Projects
  - River Restoration Projects
  - Wetland Restoration Projects
  - ▨ Watersheds with Continuity Surveys and Trainings
  - ~ National Wild & Scenic Rivers

*Sudbury, Assabet and Concord Rivers  
Taunton River  
Westfield River*

DER has additional ecological restoration and protection initiatives. To find out what's happening in your town or watershed, please call us at 617 626-1540.



# HABITAT RESTORATION

## Rivers and Streams

DER works with municipalities, non-governmental organizations, and state and federal agencies to restore habitat in freshwater streams. We remove dams, replace culverts, and restore riverine wetlands. These projects restore the ecology of rivers and help communities deal with aging infrastructure.

### A Record Year for River Restoration in Massachusetts

The River Restoration Program hit its stride in 2012 by removing nine dams and replacing one culvert — a record for the program and second in the nation! These projects are all multi-purpose including elements such as floodplain restoration; removal of contaminated sediment; installation of bird perches; reuse of historic objects for interpretation; or community trail development. Next year, DER and partners plan to remove 6 to 8 dams, opening over 50 river miles. The pictures below from **Taunton**, **Pelham** and **Cheshire** illustrate some of our work over the last year.



Machines begin to remove the Hopewell Mills Dam in Taunton, and then...



... rebuilding a stream channel through the former impoundment.



DER's Alex Hackman leads a tour of federal, state, and local partners at the Bartlett Rod Shop Dam removal in Pelham



Contractors installing a wildlife-friendly culvert on Thunder Brook in Cheshire

### RIVER RESTORATION STAFF



Nick Wildman,  
*Priority Projects  
Coordinator*



Alex Hackman,  
*Restoration Specialist*



Beth Lambert,  
*River Restoration  
Program Manager*

**Why remove dams?** Dams are one of the most significant stressors on rivers and streams in the Commonwealth. Massachusetts has more than 3,000 dams, but fewer than 10% have an active purpose such as hydropower, flood control, or water supply. Most dams were built to power mills and are now obsolete. Many are deteriorating and are a cost and liability to their owners and to downstream residents. Dams block fish and wildlife and impair water quality, and inundate upstream floodplain wetlands. Once a dam is removed, the site transforms back into a free-flowing river, and the ecosystem begins to recover.

# TECHNICAL ASSISTANCE

DER's Riverways Program provides technical assistance to citizens, municipalities, and watershed groups to protect and restore river corridors and ecological systems, and to facilitate community riverfront revitalization and public enjoyment. The Riverways Program is based on the belief that local action is the key to river protection. Riverways staff work side-by-side with numerous partners to restore and protect the state's rivers and their ecosystems.

## Protecting Cold Water Streams

DER staff actively assists communities and groups build protection for coldwater streams through outreach materials and local presentations. Coldwater streams are unique habitats that support sensitive species such as Eastern brook trout. In 2012 the **Sudbury** Local Wetlands Bylaw was recently amended to enhance the protection given to "coldwater" streams, and the language of the bylaw borrowed heavily from DER recommendations.

## River Continuity

DER continues to be a leader in promoting better designed culverts for fish and wildlife passage. In 2012 DER provided multiple volunteer and professional trainings (see inset map) leading to over 1,000 road crossings surveyed. DER continues to coordinate the state River Continuity Partnership Meeting and organized three *Stream Crossing Design: Flood Resilient, Fish Friendly Workshops*.



Congressman Barney Frank accepting Taunton River – Wild and Scenic River Award.

## Wild & Scenic Rivers

DER staff participate actively on each of three wild and scenic stewardship committees that support the protection of the Taunton, Westfield and Sudbury/Assabet/Concord Rivers. In the Westfield River Basin alone **DER staff engaged** over 100 volunteers who contributed over 2,182 hours to help protect the river. Working with the National Parks Service we helped administer conservation and stewardship projects totaling \$80,000 and leveraged \$90,000 in volunteer and in-kind services, grants and donations.

## TECHNICAL ASSISTANCE STAFF



Cindy Delpapa,  
*Stream Ecologist*  
Carrie Banks,  
*Stream Team and  
Westfield W&S  
Coordinator*



Russ Cohen,  
*Rivers Advocate*



Chris Leuchtenburg,  
*Restoration Analyst*



## Assisting Watershed Associations

While sometimes taken for granted, watershed groups across the state are performing an array of invaluable services to the Commonwealth which help to protect and improve our communities. Many groups have extensive water quality monitoring programs using a large cadre of volunteers that the watershed groups recruit, train, and support. This kind of well-trained force made a huge impact in **Fitchburg** this past summer when volunteers sampling a stream discovered elevated bacteria levels. Based on the findings, Nashua River Watershed Association staff contacted the City. The DPW quickly mobilized to find and fix the problem.

## Water Quality

DER staff supports the citizen-driven water quality network by assisting groups verify the quality of collected data, (a process commonly referred to as QA/QC). In 2012 over 27,500 data entries have been quality assured by DER staff. DER staff delved into other aspects of monitoring when several groups asked for help with data analysis, reviewing reports, and helping develop and refine their monitoring programs.

## Urban Rivers

DER continues to work closely with the Hoosic River Revival to develop restoration projects to advance habitat improvement in the Hoosic River as it passes through concrete chutes in **North Adams** and to revitalize the city of North Adams by improving connections to the river. A major milestone in this effort was reached in 2012 when an extensive options assessment was completed. This work bolsters work being done by the city on a comprehensive plan and a new economic initiative by the Partnership for North Adams. DER also coordinates urban river revitalization projects in **Lawrence** and **Fitchburg**.

# FLOW RESTORATION

The River Instream Flow Stewards (RIFLS) Program continues to play a crucial role working for more natural stream flows on both the local and state levels. Rivers and streams across the Commonwealth suffer from a variety of flow problems. The RIFLS staff trains volunteers in watersheds across the state, maintains an interactive web site for the data, and works with the U.S. Geological Survey to develop high quality streamflow data.

## RIFLS

2012 was an exciting year for the River Instream Flow Stewards (RIFLS) Program. We have been busy installing new stream gages, updating rating curves, training volunteers, and working with partners on projects new and old. Last year, 41 RIFLS volunteers read stream gages at 42 sites in 24 communities for a total of about 4,500 readings. Watershed groups and municipalities use this data to inform and support policy and action that incorporate environmental flow goals.

To learn more, visit us at [www.rifls.org](http://www.rifls.org).

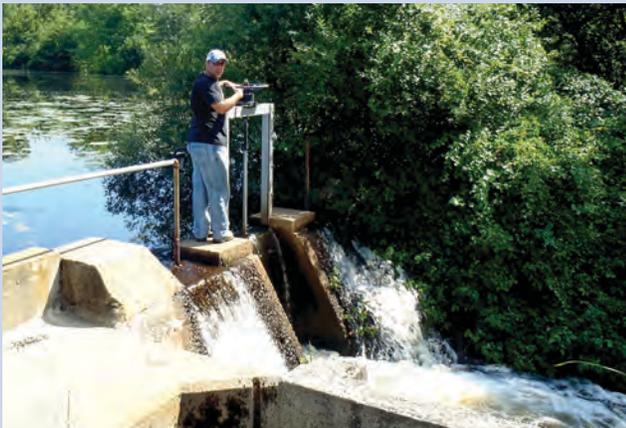
In 2012, RIFLS staff installed gages in several watersheds where we had not been recently active. For example, in the Ipswich River Watershed, we installed new gages at the site of the former Curtis Pond Dam on Boston Brook in **Middleton**, and on the Ipswich River in **North Reading**. RIFLS volunteers are also monitoring a gage installed and formerly maintained by the USGS on Martin's Brook in **North Reading**.

## Municipal Partnerships for Flow

Massachusetts towns can have a lot of influence on healthy streamflow. RIFLS seeks to partner with municipalities on water management approaches that benefit the local streams while ensuring a safe, quality drinking water supply. Some of these partnerships are just beginning. For example, in 2012, the Jones River Watershed Association's efforts to restore flow earned DER Priority Project status. This effort will depend on ongoing collaboration with **Brockton** and surrounding towns in the watershed.

We have been working with other towns for years.

**Scituate**, for instance, has been getting great recognition for their efforts to restore natural flows on First Herring Brook. In 2012, Scituate Water Division staff won the Gulf of Maine Council for the Marine Environment's Sustainable Communities Award, as well as the Barbara Pearson Award from the North and South River Watershed Association. This photo shows Rick Mosca of the Scituate Water Division adjusting flow out of Old Oaken Bucket Reservoir into First Herring Brook.



## FLOW RESTORATION STAFF



Laila Parker, *Watershed Ecologist*  
Michelle Craddock, *Flow Restoration Specialist*  
\*Note: this gage does not accurately measure our heights!

## RIFLS Hall of Fame

Volunteers are the cornerstone of the RIFLS program. We feature here the most dedicated, those who visited their streams more than 200 times in 2012 to read gages.

- Wendell Chamberlain, Pine Brook, **Kingston** (9 years as a Hall of Famer)
- Paul Lauenstein, Beaver and Billings Brooks and Great Cedar Swamp, **Sharon** (6 years as a Hall of Famer)
- Brian Harrington, Carters and Herring Rivers, **Plymouth** (1 year as a Hall of Famer)
- Amy O'Neil, Beaver Brook, **Sharon** (1 year)

DER extends its heartfelt thanks to all the RIFLS volunteers who donate their time and energy for the protection and restoration of healthy rivers across the Commonwealth. Please be in touch if you'd like to get involved!