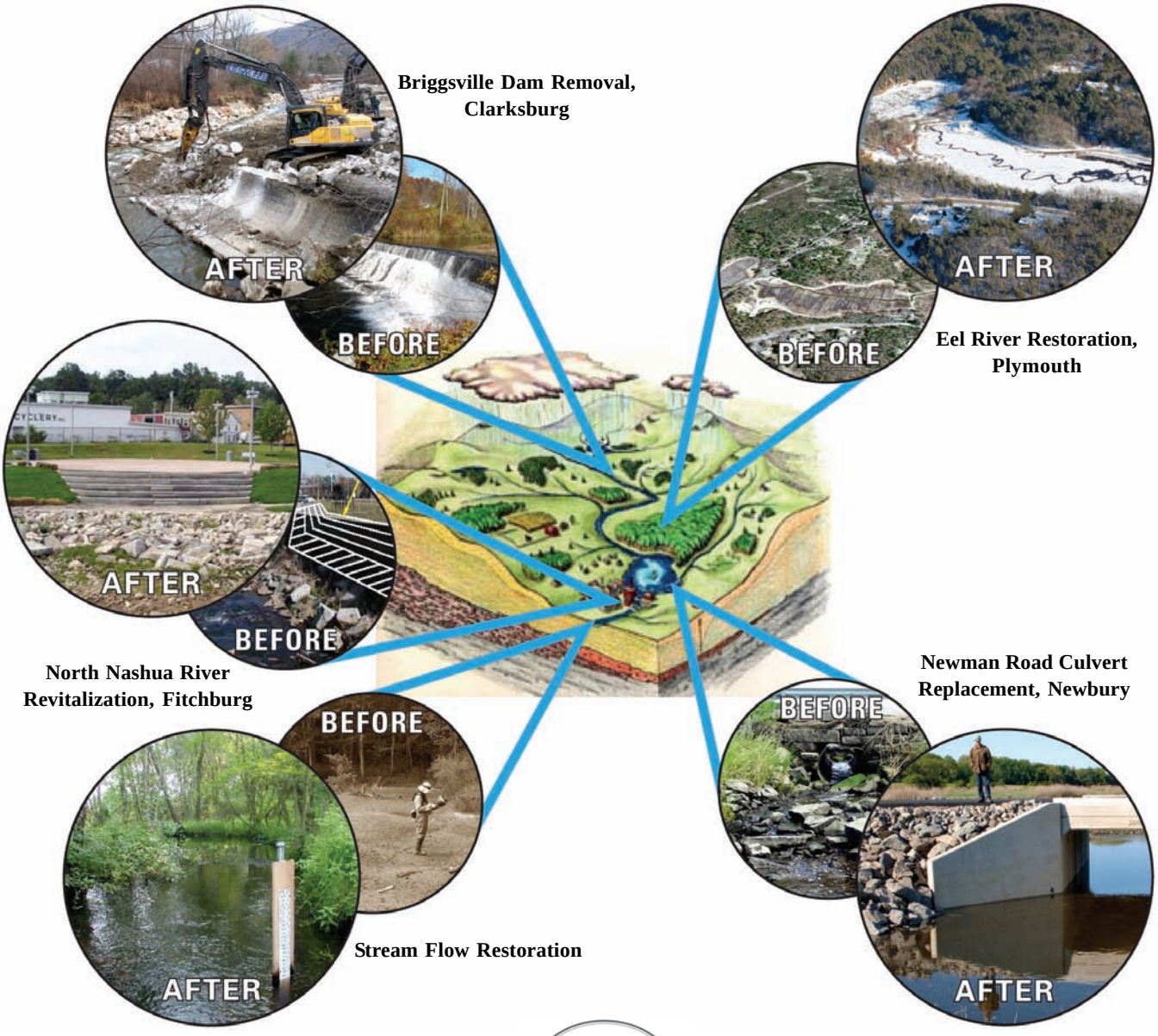
COMMONWEALTH OF MASSACHUSETTS

Division of Ecological Restoration

2010 ANNUAL REPORT



Briggsville Dam Removal, Clarksburg

Eel River Restoration, Plymouth

North Nashua River Revitalization, Fitchburg

Newman Road Culvert Replacement, Newbury

Stream Flow Restoration

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

Executive Office of Energy & Environmental Affairs
Richard K. Sullivan, Secretary

Department of Fish and Game
Mary B. Griffin, Commissioner

Division of Ecological Restoration
Tim Purinton, Acting 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.

Division of Ecological Restoration Staff

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Dear Colleagues and Partners,

During our first full calendar year together, the Division of Ecological Restoration (DER) helped Massachusetts achieve a series of significant accomplishments. With strong partner support and leadership, DER completed many restoration projects, despite challenging economic conditions. Under this new economic paradigm, DER staff has worked diligently to find new sources of funding and create strategic partnerships that continue to move projects and initiatives forward.

Over the past year Massachusetts restoration projects leveraged **$13.8 million** in outside funds, surpassed **1,000 acres of wetlands restored**, and ranked **second in the nation in number of dams removed**. DER continued to be a vital resource to watershed organizations, municipalities, and groups interested in protecting and restoring aquatic resources. The Division also completed its first five-year strategic plan, established a western regional office on the campus of Westfield State University, and started to develop a new holistic, integrated approach to restoration that will address key ecological stressors at the watershed level.

DER continued to provide communities and local groups with critical technical assistance and outreach to help them restore and protect their rivers, streams, and wetlands. Whether it's helping a watershed group conduct water quality testing, working with a town to explore water conservation measures, or helping landowners remove an obsolete dam, DER staff understands that succesfull ecological restoration requires having many partners who are willing to roll up their sleeves and work hard to acheive common goals. So, "thank you", for working with us to make 2010 a remarkable year for ecological restoration across the Commonwealth.

Sincerely,

Tim Purinton, Acting Director

Hunt Durey, Acting Deputy Director

Mary B. Griffin, Dept. of Fish & Game Commisioner

DER & Partners 2010 Key Accomplishments

- Leveraged **$13.8 million** in outside funds
- Completed six wetland restoration projects totaling **206 acres**
- Reached the **1,000 acres** of wetlands restored milestone
- Massachusetts ranked **second in the nation** in number of dams removed
- Quality assured more than **14,500 water quality results** at 158 sample sites
- Over **9,300** volunteer hours were devoted to river protection efforts
- Stony Brook - **Brewster**: NOAA stimulus project successfully completed
- The Eel River Restoration - **Plymouth**: Project completed and received a National Coastal America Award
- Briggsville Dam Removal - **Clarksburg**: One of the largest dam removal projects to date in Massachusetts
- Straits Pond Restoration - **Hingham/Cohasset/Hull:** The largest tidal restoration to date in the Commonwealth

PHYSICAL HABITAT RESTORATION

DER works with partners to develop and implement river and wetland restoration projects across the Commonwealth. Projects include dam removal, culvert replacement, fill removal, in-stream habitat enhancement, riparian restoration, and stream daylighting. *Each state dollar invested leverages at least three dollars from our collaborating partners.* In addition to their significant environmental benefits, DER-supported projects help to create and sustain many engineering, construction, and other jobs throughout the region and inject several million dollars of federal funding into the Massachusetts economy every year.

Estuarine

DER and its partners reached a major milestone in 2010 as the total area of wetlands restored in Massachusetts surpassed the 1,000-acre mark after completion of the Stony Brook salt marsh project in **Brewster**. Funded by a $1.36 million grant from the National Oceanic and Atmospheric Administration (NOAA) under the American Reinvestment and Recovery Act, the project restored natural tidal flow to a 20-acre degraded salt marsh and enhanced fish access to 386 acres of ponds that provide essential habitat for river herring and American eels.

For the year 2010, a total of six estuarine projects were completed, restoring 206 acres of degraded tidal wetlands. More than 40 wetland projects are currently under development that represent over 2,000 acres of future restoration potential.

Cape Cod Water Resources Restoration Project Progress

The Cape Cod Water Resources Restoration Project is in full swing, after receiving $6.5 million in federal funding from the American Recovery and Reinvestment Act through 2011. DER and its siter Division of Marine Fisheries are partnering with the USDA-Natural Resources Conservation Service (NRCS), the Cape Cod Conservation District (District) and Cape towns to implement the project, which includes shellfish bed, fish passage, and salt marsh restoration.

The District has hired an experienced project manager who will work with DER and others to advance salt marsh projects to construction. Four salt marsh projects are planned for construction in 2011: Rushy Marsh in **Barnstable**, Freemans Pond in **Brewster**, Sunken Meadow in **Eastham** and Red River Beach in **Harwich**. Many additional salt marsh projects from the Plan will be pursued with technical studies over the next year.

www.mass.gov/dfwele/der

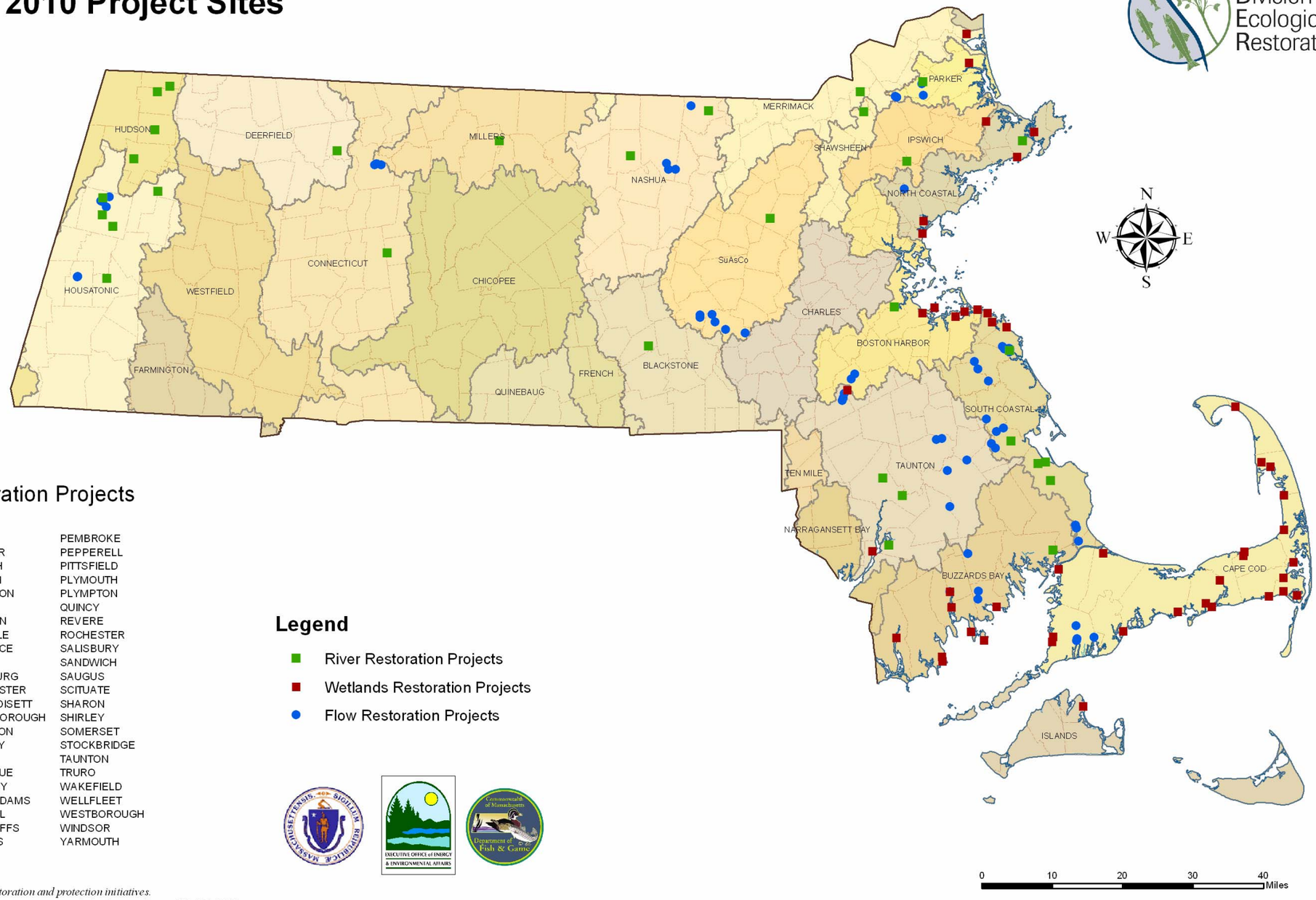
Straits Pond Tidal Estuary Restoration **Hull**, **Cohasset**, and **Hingham**

In October 2010, a persevering coalition of partners led by Jason Burtner of the MA Office of Coastal Zone Management completed the largest wetland restoration project to date in Massachusetts – the Straits Pond Tidal Estuary Restoration – with exemplary collaboration by the three towns bordering the pond. With $2.8 million in local, state, and federal funding, the project enlarged two culverts between Straits Pond and the Weir River estuary and installed new, modern tide gates.

These upgrades have greatly increased tidal exchange between Straits Pond and the Weir River to restoring 94 acres of tidal habitats within a critically impaired estuary that is part of the Weir River Area of Critical Environmental Concern. The project provides valuable nursery and feeding habitat for a variety of recreational and commercial fish. Improved water quality will also reduce nuisance algal blooms and seasonal infestations of midges that have been a serious quality-of-life issue for area residents for decades.

Division of Ecological Restoration
2010 Project Sites

DEPARTMENT OF FISH AND GAME
Division of Ecological Restoration



Towns With Restoration Projects

ACUSHNET	HALIFAX	PEMBROKE
ADAMS	HANOVER	PEPPERELL
ANDOVER	HARWICH	PITTSFIELD
ATHOL	HINGHAM	PLYMOUTH
BARNSTABLE	HOPKINTON	PLYMPTON
BOURNE	IPSWICH	QUINCY
BOXFORD	KINGSTON	REVERE
BREWSTER	LAKEVILLE	ROCHESTER
BRIDGEWATER	LAWRENCE	SALISBURY
CHATHAM	LEE	SANDWICH
CHESHIRE	LUNENBURG	SAUGUS
CLARKSBURG	MANCHESTER	SCITUATE
COHASSET	MATTAPOISETT	SHARON
CONCORD	MIDDLEBOROUGH	SHIRLEY
DARTMOUTH	MIDDLETON	SOMERSET
EASTHAM	MILLBURY	STOCKBRIDGE
FAIRHAVEN	MILTON	TAUNTON
FALMOUTH	MONTAGUE	TRURO
FITCHBURG	NEWBURY	WAKEFIELD
FOXBOROUGH	NORTH ADAMS	WELLFLEET
FREETOWN	NORWELL	WESTBOROUGH
GEORGETOWN	OAK BLUFFS	WINDSOR
GLOUCESTER	ORLEANS	YARMOUTH
GREENFIELD	PELHAM	

Legend

- River Restoration Projects
- Wetlands Restoration Projects
- Flow Restoration Projects

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.

PHYSICAL HABITAT RESTORATION

Riverine

DER works with partners on freshwater stream restoration projects including stream continuity and aquatic species passage, such as dam removal and culvert replacement and retrofits; aquatic habitat improvement; stream daylighting; and urban stream revitalization.

Dam Removal Profile - Briggsville Dam

In the fall of 2010, one of the largest dams to be proactively removed for restoration in Massachusetts was demolished in **Clarksburg**. Crews removed the 145-foot-long structure and created a natural channel through the project reach. The dam had been impacting wildlife habitat, degrading water quality, and blocking passage for brook trout, the longnose sucker (state-listed), and other coldwater species. In Spring of 2011, the team will complete final site restoration measures and initiate post-removal monitoring plans.

Massachusetts Applauded for Dam Removal Success

With 5 dams removed in 2010, Massachusetts ranked second in the nation for number of dams removed. According to American Rivers, a national non-profit, only Pennsylvania removed more dams.

A Growing Project List

DER's three river restoration staff members are working on more than 35 projects in all parts of the state. Interest in dam removal continues to grow, and DER receives far more requests for assistance than it can meet.

River Restoration Brings Back Wetlands

April 2010, Immediately following construction

Plymouth

Vegetation transects and photomonitoring show that streamside wetlands rebound within a year of construction. At the Eel River Headwaters Restoration site, more than 40 acres of once-dry cranberry bog are now lush with reeds, rushes, sphagnum, and other native plants.

August 2010, The height of the growing season

The dam impoundment prior to construction

Rowley

The former dam site and impoundment at head-of-tide, Ox Pasture Brook explodes with native plants characteristic of freshwater tidal marshes.

September 2009, following construction

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.

TECHNICAL ASSISTANCE

DER continues to provide cutting-edge science and guidance to groups interested in protecting rivers. In 2010, DER staff provided key support resulting in quality assurance review of over 14,500 water quality results at 158 sample sites. Our partners mobilized over 9,300 volunteer hours for river protection work.

2010 - Top Five Technical Assistance Topics

1. Funding Opportunities
2. Habitat & Hydropower
3. Water Conservation and Instream Flow
4. Riverine Habitat (inlcuding trees and vegetation)
5. Water Quality

Wild and Scenic Rivers

DER staff members serve on stewardship committees for the state's National Wild & Scenic Rivers, including the Westfield River, Taunton River, and the Sudbury, Assabet and Concord River Stewardship Councils. They provided program coordination and technical support to the Westfield River Advisory Committee.

With help from DER staff, the Westfield River Wild & Scenic Advisory Committee:

- finished a 5-year strategic plan to outline key strategies and actions, as well as guidelines for implementation;
- coordinated dragonfly and damselfly surveys at 26 locations along nine segments of the river;
- inventoried 24 different types of invasive species in 2 of the Wild & Scenic towns, and
- completed an engineering study of 42 miles of road and 34 road crossings.

Adopt-A-Stream Highlights

- In conjunction with UMass, updated the River Continuity Training and Survey Coordinator Toolbox to reflect changes to data collection protocols and datasheets.
- Worked with Trout Unlimited, The Nature Conservancy, American Rivers, and others to prioritize and identify multiple crossings in need of replacement and causing significant habitat fragmentation within the Westfield River basin.
- Assisted volunteers who contributed almost 10,000 hours of volunteer time to survey over 325 stream crossings.
- Distributed the Shoreline Survey DVD training and toolbox to 5 watershed associations.
- Supported approximately 10 Stream Teams and Watershed Associations with over 230 volunteers who logged over 1,000 hours surveying, monitoring, and implementing projects on their local rivers and streams.
- Presented several workshops and trainings, including photo-monitoring and macro-invertebrate collection protocols, culvert restoration case studies, woody habitat installation, and "salter" (sea run) brook trout restoration.

The North Nashua Revitalized

Fall of 2010 saw the realization of years of hard work in **Fitchburg**. Staff from the Riverways Program helped visionary leaders there accomplish a mighty goal: restoring public access and a more natural bank on a portion of the North Nashua River. Cooperation between numerous state, local, and federal agencies culminated with a celebratory event. The project received national recognition at the Water Environment Federation's Urban Rivers Conference. Similar urban revitalization work is being undertaken in **North Adams** and **Lawrence**.

FLOW RESTORATION

The River Instream Flow Stewards (RIFLS) Program continues to play a crucial role in advocating 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

DER continues to support a large, volunteer-based network of flow monitors under the River Instream Flow Stewards program. Volunteers catalog records on a web-based database that adds to our understanding of the state's smaller rivers and streams. Many sites have multiple years of information that covers a wide range of flow conditions including the 2010 floods and the exceptionaly dry conditions in 2008. local groups use the information to inform and support actions that restore natural flow.

Levels of Engagement

Dam Management

RIFLS groups have been working to improve flow patterns in rivers below recreational impoundments. DER has helped with a pilot effort in **Pittsfield** where staff created a model that helps predict impacts of different dam management alternatives on river flow and reservoir levels. Based on this work, DER funded development of a model for use by communities interested in dam management.

Nutrients and Flows

DER is providing assistance to the Herring Ponds (Great and Little) Association of **Plymouth** in their effort to better understand their pond and river system in order to protect water quality and the health of the herring run. The information from the RIFLS gages will help the association understand the nutrient loads entering into Great Herring Pond.

Encouraging Infiltration

To restore flow to the Parker River, DER staff, working with the **Georgetown** planning board, have proposed an update to the town's subdivision regulations and site plan approval bylaw to incorporate low impact development practices that encourage stormwater infiltration, minimize land disturbance, and conserve water on-site.

Climate Change

The RIFLS Network includes 37 gage sites and engages dozens volunteers. According to leading aquatic scientists, one of the greatest monitoring needs to help predict the impacts of climate change is the development of a robust data set on flow for small streams. The RIFLS stream gage helps meet this need.