



OFFICE OF WATER RESOURCES ANNUAL REPORT, FISCAL YEAR 2018



MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

DIVISION OF WATER SUPPLY PROTECTION

OFFICE OF WATER RESOURCES

DCR AND OFFICE OF WATER RESOURCES MISSION

The mission of the **Department of Conservation and Recreation (DCR)** is to protect, promote, and enhance our common wealth of natural, cultural, and recreational resources for the well-being of all. DCR fulfills its mission through the stewardship of over 450,000 acres of parks and forests, beaches, bike trails, watersheds, dams, and parkways. DCR also promotes conservation efforts throughout the state, including water resource protection, beach renourishment, aquatic invasive species management, and flood hazard mitigation.

The DCR **Office of Water Resources (OWR)** works on behalf of people and the environment to protect the water resources on which we all depend. By providing science-based policy, technical assistance, and resource management, our four program areas work to ensure that Massachusetts has plentiful water to support a healthy environment and economic development for generations to come, and that those generations will be better prepared to face extreme weather and will have access to lakes, ponds, and rivers that are healthy.

On the following pages, we invite you to learn more about our:

FLOOD HAZARD MANAGEMENT PROGRAM



January 2018 Bomb cyclone, Boston MA
Photo: John Cetrino, EPA-EFE

WATER RESOURCES ASSESSMENT AND PLANNING PROGRAM



Answering questions at Concord River basin outreach meeting
for water management permit renewals

LAKES AND PONDS PROGRAM



Surveying for aquatic invasive plants

USGS COOPERATIVE PROGRAM



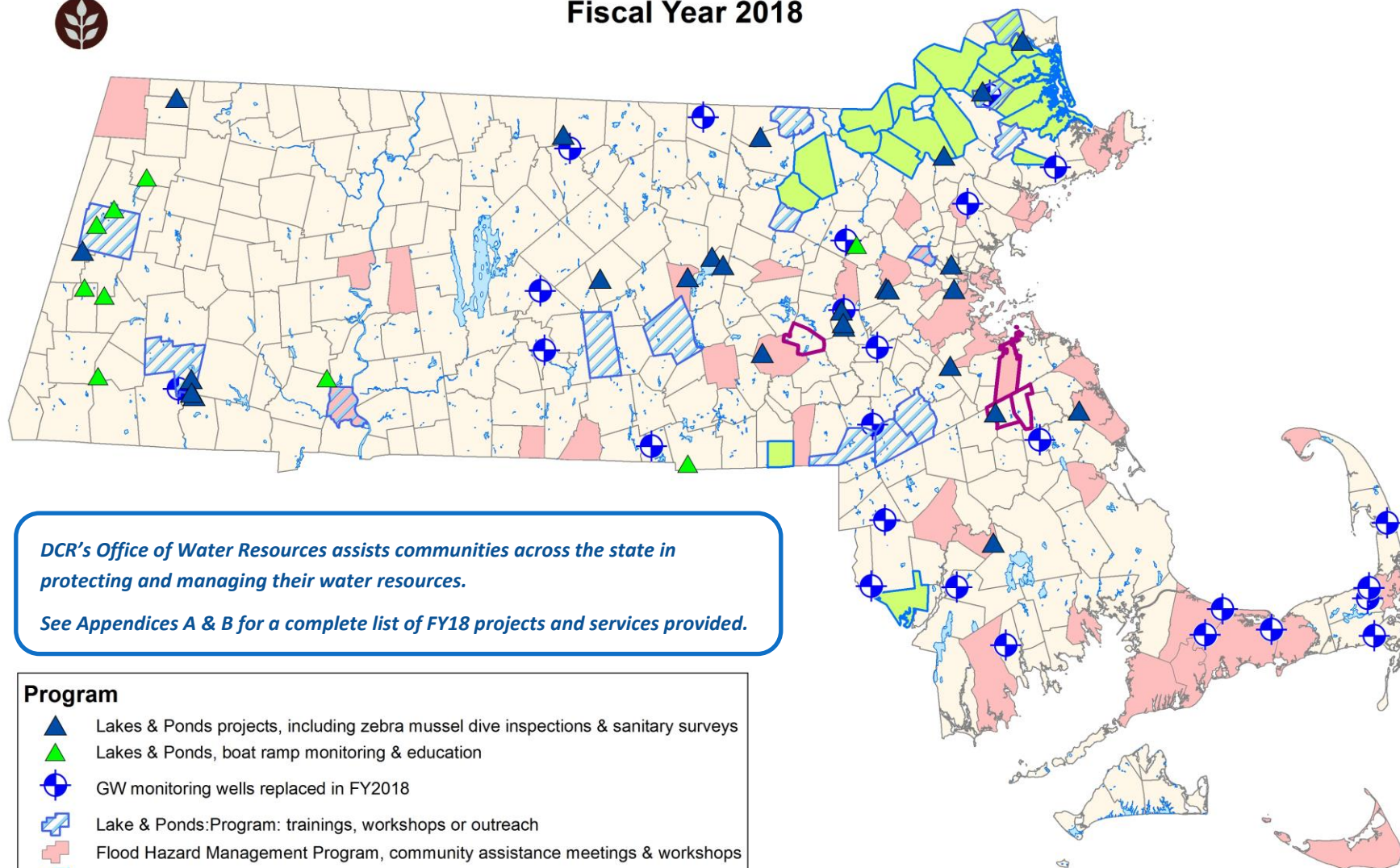
Taking winter groundwater measurements



Where We Work

DCR Office of Water Resources

Fiscal Year 2018



DCR's Office of Water Resources assists communities across the state in protecting and managing their water resources.

See Appendices A & B for a complete list of FY18 projects and services provided.

Program

- ▲ Lakes & Ponds projects, including zebra mussel dive inspections & sanitary surveys
- ▲ Lakes & Ponds, boat ramp monitoring & education
- ⊕ GW monitoring wells replaced in FY2018
- ⊕ Lake & Ponds:Program: trainings, workshops or outreach
- Flood Hazard Management Program, community assistance meetings & workshops
- Water Needs Forecasts FY2018
- Interbasin Transfer Act reviews
- Lakes and Ponds

0 25 50 Miles

Aug. 6, 2018 (mjm)
Data Sources: MassGIS
USGS
DCR Office of Water Resources

FLOOD HAZARD MANAGEMENT PROGRAM (FHMP)

The Flood Hazard Management Program (FHMP) is the state coordinating office for the National Flood Insurance Program (NFIP). FHMP program staff helps homeowners and communities navigate the requirements of the NFIP. Staff also provides technical assistance to communities that participate in the NFIP on a wide range of issues including floodplain management, floodplain building requirements, floodplain mapping, and flood mitigation.

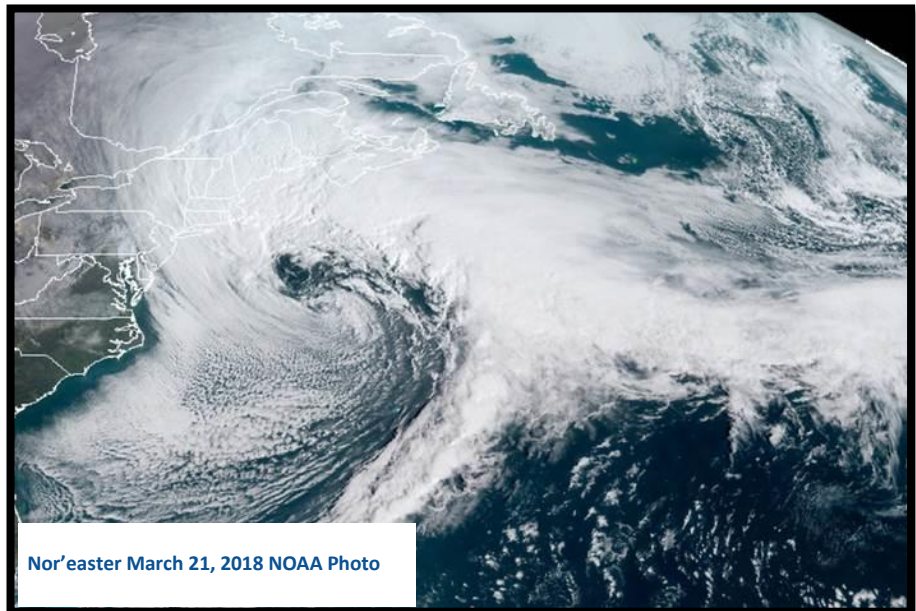
FY2018 FHMP HIGHLIGHTS

Highlights of FHMP program accomplishments in FY2018 include:

- **24 COMMUNITY ASSISTANCE VISITS** to discuss local implementation of the NFIP, flood maps, and other resiliency measures
- Dozens of training events to train local building officials, conservation agents, planners and public works directors about the NFIP and Massachusetts building code requirements for floodplain development
- **MORE THAN 600 “GENERAL TECHNICAL ASSISTANCE” CONTACTS TO HELP 285 MASSACHUSETTS COMMUNITIES** with questions about floodplain development, flood insurance, flood mitigation and flood map use
- Coordinated with numerous federal and state agencies as well as NGOs to monitor floodplain development and local resiliency efforts across the Commonwealth
- Worked with other DCR program leaders on an agency-wide risk and vulnerability assessment for the **UPDATE OF THE STATE HAZARD MITIGATION AND CLIMATE ADAPTATION PLAN**, in accordance with Governor Baker’s 2016 Executive Order #569. A summary report highlighted assets, functions, and critical populations for further analysis of potential vulnerability to both natural hazards and climate change impacts.



Saugus King Tide, March 2018



Nor'easter March 21, 2018 NOAA Photo

LAKES AND PONDS PROGRAM

The mission of the Lakes and Ponds Program is to protect, restore, and enhance the ecological integrity and recreational opportunities of the Commonwealth's lakes and ponds, including DCR's 300 lakes and 51 freshwater swimming beaches.

Massachusetts has over 3,500 lakes, approximately 300 of which are on DCR property. The Lakes and Ponds Program works on behalf of visitors to DCR properties and all who use lakes and ponds, including municipalities, communities, and lake advocate groups. The program implements its mission through protection and restoration projects; public education, outreach and technical assistance; monitoring and assessment of lakes and their watersheds; and partnerships with lake and pond stakeholders at the local, regional, state and federal levels.

"The Herring Pond Watershed Association would like to thank you for providing your expertise. Your excellent presentation provided a valuable experience in identifying invasive aquatic plant species in our local watersheds."

Chair, Herring Pond Watershed Association

FY2018 LAKES & PONDS PROGRAM HIGHLIGHTS

PREVENTING THE SPREAD OF INVASIVE SPECIES

IN FY2018, WE MANAGED NEARLY 2,000 ACRES OF AQUATIC INVASIVE SPECIES AT DCR PROPERTIES THROUGHOUT THE COMMONWEALTH. Management techniques ranged from physical removal, such as diver hand-pulling, to chemical control using aquatic herbicides. Boat Ramp Monitors provided public education and boat inspections at eight high-use and/or high-risk water bodies. Staff offered Weed Watcher and other workshops in 14 locations to train more than 200 residents in identifying aquatic invasive species.

SHORELINE AND SWIM BEACH RESTORATION

Lake Dennison, Otter River State Forest (Templeton): stormwater runoff and erosion were affecting water quality at this popular lake. Improvements included regrading of the swimming beach and picnic areas and installing rain gardens to capture pollutants before they reach the lake. **Middle Pond, Massasoit State Park (Taunton):** as part of a park-wide revitalization project, Lakes and Ponds STAFF MANAGED RESTORATION OF A SWIMMING BEACH THAT HAD NOT BEEN USED IN TEN YEARS. The work involved coordinating with federal, state, and local environmental permitting agencies, removing and replacing 1,040 cubic yards of sand, and removing vegetation that had overtaken the swimming area when water levels were lower.



Beach Restoration at Middle Pond, Taunton MA

STORMWATER MANAGEMENT

DCR's Partnership Program awarded a grant to Natick and Wayland TO COLLABORATE WITH DCR'S LAKES AND PONDS PROGRAM ON DEVELOPING A WATERSHED-BASED PLAN FOR LAKE COCHITUATE. The completed plan will enable the towns to seek funding for projects that will reduce pollution by installing rain gardens and using other "green" ways to keep the lake clean.

WATER RESOURCES ASSESSMENT AND PLANNING PROGRAM

The WRAP Program mission is to provide science-based policy and technical assistance to decision-makers and the public to ensure that the long-term water needs of the Commonwealth's residents, communities, and environment can be met.

WRAP also provides technical and administrative staff to the Massachusetts Water Resources Commission. Established in 1956, the Commission is responsible for developing, coordinating and overseeing the Commonwealth's water policy and planning activities. To learn more about our work on Commission programs see FY 2018 WRAP Highlights below and in the [WRC annual report](#).

FY2018 WRAP HIGHLIGHTS

UPDATING THE INTERBASIN TRANSFER ACT (ITA) REGULATIONS AND ITA REVIEWS

The ITA protects Massachusetts' vital water resources and the communities that rely on them. It ensures that:

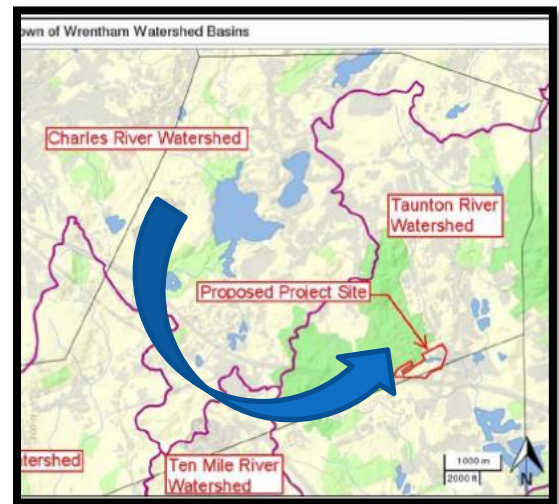
- Communities transferring drinking water and wastewater between river basins practice water conservation
- Hydrology in the donor basin is protected
- The process is transparent and includes robust public input

The ITA regulations had not been updated since their passage in 1985. **IN FY2018, FOLLOWING A MULTI-YEAR PROCESS, STAFF FINALIZED CRITICAL REVISIONS.** These changes fill gaps in the original regulations and streamline the application and review process while maintaining a high level of environmental protection. After an extensive public review and comment process, the Commission approved the revisions, and the regulations were promulgated on March 23, 2018.

UPDATING THE MASSACHUSETTS WATER CONSERVATION STANDARDS

The Commission establishes the Massachusetts Water Conservation Standards (WCS), which, since 1992, have set statewide goals for water-use efficiency and provided guidance for effective conservation.

IN FY2018, following a multi-year process and extensive public comment, STAFF FINALIZED A COMPREHENSIVE REVIEW AND UPDATE OF THE 2006 STANDARDS incorporating the latest thinking on best practices and industry standards.



WATER NEEDS FORECASTS

WRAP staff works with public water suppliers to develop 15- to 20-year water needs forecasts, using a methodology approved by the Commission. The forecasts are used by suppliers in applying for Water Management Act (WMA) permits and in long-range planning.

IN FY2018, STAFF WORKED WITH 20 PUBLIC WATER SUPPLIERS IN FIVE RIVER BASINS (Blackstone, Ipswich, Merrimack, and Parker River Basins and the Narragansett Bay and Mt. Hope Bay Shore Basin) to develop or revise forecasts. Staff also participated in outreach workshops in two river basins.

USGS COOPERATIVE PROGRAM

The U.S. Geological Survey and the Commonwealth of Massachusetts have had a water resources partnership since 1904, when the state's first modern stream gage was installed in the Connecticut River. The Cooperative program currently maintains:

- 58 real-time streamflow gages,
- 4 tidal gages,
- 4 weather stations, and
- 81 groundwater observation wells.

USGS WELL REPLACEMENT

In 2017, USGS awarded the state a grant to replace up to 39 groundwater monitoring wells. A significant number of these wells were installed in the 1960s; some had failed due to corrosion. In coordination with USGS and the State Geologist, **WORK BEGAN IN FY18, AND 25 OF THE 39 WELLS WERE REPLACED.** New equipment installed at some wells will allow remote, real-time data collection, improving efficiencies and expanding the data set.



Examining sediment cores from well replacement drilling

HYDROLOGIC CONDITIONS, DROUGHT MONITORING AND PRECIPITATION PROGRAM

WRAP staff monitors and analyzes water conditions monthly and produces a report covering precipitation trends, rainfall deficits, river conditions, groundwater levels, and reservoir, lake, pond and other impoundment levels. Staff uses these data to monitor for a potentially developing drought or the deterioration of conditions during droughts and to advise the State's Drought Management Task Force when conditions warrant.

OWR has run the Massachusetts precipitation program since 1956. The precipitation monitoring network provides data from more than 200 historical monitoring stations in Massachusetts, of which 52 are currently active. These data are used to:

- report precipitation totals for the monthly Hydrologic Conditions Report,
- monitor for drought,
- support climate and other research, and
- update design standards for infrastructure.

CONTACT INFORMATION

LAKES AND PONDS PROGRAM STAFF

Vanessa Curran, Water Resources Scientist

617-626-1388

vanessa.curran@mass.gov

Tom Flannery, Aquatic Ecologist

617-626-4975

tom.flannery2@mass.gov

Jim Straub, Program Coordinator

617-626-1411

jim.straub@mass.gov

WATER RESOURCES ASSESSMENT AND PLANNING STAFF

Michele Drury, Assistant Director

617-626-1366

michele.drury@mass.gov

Sara Cohen, Water Resources Specialist

617-626-1374

sara.cohen@mass.gov

Erin Graham, Environmental Engineer

617-626-1426

erin.graham@mass.gov

Marilyn McCrory, Regional Planner

617-626-1423

marilyn.mccrory@mass.gov

Viki Zoltay, Hydrologist

617-626-1384

viki.zoltay@mass.gov

FLOOD HAZARD MANAGEMENT PROGRAM STAFF

Joy Duperault, Program Director

617-626-1406

joy.duperault@mass.gov

Eric Carlson, Environmental Engineer

617-626-1362

eric.carlson@mass.gov

DIRECTORS

John Scannell, Director

Division of Water Supply Protection

617-626-4987

john.m.scannell@mass.gov

Anne Carroll, Director

Office of Water Resources

617-626-1395

anne.carroll@mass.gov

DEPARTMENT INFORMATION



Massachusetts Department
of Conservation and
Recreation

Division of Water Supply
Protection

Office of Water Resources
Tel 617-626-1395

www.mass.gov/service-details/dcr-office-of-water-resources

Cover photo: Borderland State Park
Photo by Ellenor Simmons

APPENDIX A LIST OF FY18 SERVICES PROVIDED AND LOCATIONS

Flood Hazard Management Program	
City or Town	Service Provided
Amherst	Community Assistance Contact
Arlington	Meeting
Barnstable	Workshop or training
Bellingham	Community Assistance Contact
Boston	Workshop or training
Burlington	Community Assistance Visit
Charlestown	Workshop or training
Dartmouth	Meeting
East Boston	Meeting
Falmouth	Community Assistance Visit
Gloucester	Community Assistance Visit
Grafton	Workshop or training
Hatfield	Community Assistance Contact
Haverhill	Community Assistance Visit
Holland	Community Assistance Contact
Hopkinton	Meeting
Hudson	Community Assistance Contact
Hull	Meeting
Ipswich	Community Assistance Contact
Kingston	Meeting
Marblehead	Community Assistance Visit
Marion	Community Assistance Visit
Marshfield	Meeting
Mashpee	Meeting
Nantucket	Community Assistance Visit
Newburyport	Meeting
North Andover	Community Assistance Visit
Orleans	Meeting
Provincetown	Community Assistance Visit
Quincy	Meeting
Salem	Meeting
Sandwich	Meeting
Scituate	Workshop or training
Southbridge	Community Assistance Contact
Swampscott	Community Assistance Visit
Swansea	Community Assistance Contact
Taunton	Workshop or training
Wakefield	Community Assistance Visit
Waltham	Workshop or training
Wayland	Community Assistance Contact
West Boylston	Community Assistance Contact
West Springfield	Community Assistance Contact
Weymouth	Meeting
Williamstown	Community Assistance Contact
Winthrop	Community Assistance Visit
Yarmouth	Meeting

Lakes and Ponds Program	
City or Town	Service Provided
Amesbury	Weed Watcher Training
Arlington	Weed Watcher Training
Boxboro	New England Fishing and Outdoor Expo
Cheshire	Boat Ramp Monitor, Cheshire Reservoir
Concord	Boat Ramp Monitor, Walden Pond
Douglas	Boat Ramp Monitor, Wallum Lake
Dunstable	Weed Watcher Training
Foxboro	Weed Watcher Training
Georgetown	Weed Watcher Training
Lee/Lenox	Boat Ramp Monitor, Laurel Lake
Monterey	Boat Ramp Monitor, Lake Buel
New Castle	Northeast Aquatic Plant Management Society
Otis	Weed Watcher Training
Pittsfield	Annual LAPA-West Conference- Berkshire Region
Pittsfield	Boat Ramp Monitor Grant, Lake Onota and Pontoosuc
Sharon	Weed Watcher Training
Spencer	Weed Watcher Training
Stockbridge	Boat Ramp Monitor Grant, Stockbridge Bowl
Topsfield	Weed Watcher Training
Westfield	Boat Ramp Monitor, Pequot Pond
West Springfield	Springfield Sportsman's Show
Worcester	Weed Watcher Training
Wrentham	Weed Watcher Training

Water Resources Assessment and Planning Program	
City or Town	Service Provided
Abington	Interbasin Transfer Act Review
Amesbury	Water Needs Forecast, Merrimack River Watershed
Andover	Water Needs Forecast, Merrimack River Watershed
Ashland	Interbasin Transfer Act Review
Blackstone	Water Needs Forecast, Blackstone River Watershed
Dracut	Water Needs Forecast, Merrimack River Watershed
Georgetown	Water Needs Forecast, Parker River Watershed
Groveland	Water Needs Forecast, Merrimack River Watershed
Haverhill	Water Needs Forecast, Merrimack River Watershed
Ipswich	Water Needs Forecast, Parker River Watershed
Littleton	Water Needs Forecast, Merrimack River Watershed
Lowell	Water Needs Forecast, Merrimack River Watershed
Methuen	Water Needs Forecast, Merrimack River Watershed
Newbury	Water Needs Forecast, Parker River Watershed
Newburyport	Water Needs Forecast, Merrimack River Watershed
North Andover	Water Needs Forecast, Merrimack River Watershed
Rockland	Interbasin Transfer Act Review
Rowley	Water Needs Forecast, Parker River Watershed
Swansea	Water Needs Forecast, Narragansett Bay Watershed
Tewksbury	Water Needs Forecast, Merrimack River Watershed
Wenham	Water Needs Forecast, Ipswich River Watershed
West Newbury	Water Needs Forecast, Merrimack River Watershed
Westford	Water Needs Forecast, Merrimack River Watershed
Weymouth	Interbasin Transfer Act Review

APPENDIX B LIST OF LAKES AND PONDS PROJECTS AND LOCATIONS

City or Town	Location	Waterbody	Service Provided
Abington	Ames Nowell State Park	Cleveland Pond	Aquatic Invasive Plant Management
Andover	Harold Parker State Forest	Field Pond	Aquatic Invasive Plant Management
Boston	Charles River Lower Basin	Esplanade Lagoon	Aquatic Invasive Plant Management
Clinton	Wachusett Reservoir	Clamshell Pond	Aquatic Invasive Plant Management
Clinton & Lancaster	Wachusett Reservoir Watershed	South Meadow Pond System	Aquatic Invasive Plant Management
Georgetown	DFG Office of Fishing & Boating site	Rock Pond	Aquatic Invasive Plant Management
Groton & Pepperell	J. Harry Rich State Forest	Nashua River	Aquatic Invasive Plant Management
Marshfield	Marshfield	Oakman & Magoun Ponds	Aquatic Invasive Plant Management
Milton	Blue Hills State Reservation	Houghton's Pond	Aquatic Invasive Plant Management
Natick	Lake Cochituate State Park	Fiske Pond	Aquatic Invasive Plant Management
Natick, Framingham & Wayland	Lake Cochituate State Park	Lake Cochituate and Fiske Pond	Aquatic Invasive Plant Management
Newton	Charles River Lakes District	Ware's Cove, Charles River	Aquatic Invasive Plant Management
Newton, Waltham & Weston	Charles River Reservation	Charles River Lakes District	Aquatic Invasive Plant Management
Otis	Tolland State Forest	Otis Reservoir	Aquatic Invasive Plant Management
Otis	Tolland State Forest	Otis Reservoir	Aquatic Invasive Plant Management
Rutland	Rutland State Park	Whitehall Pond	Aquatic Invasive Plant Management
Somerville & Medford	Mystic River Reservation	Mystic River	Aquatic Invasive Plant Management
West Boylston	Wachusett Reservoir	Lily Ponds	Aquatic Invasive Plant Management
North Adams & Clarksburg	Natural Bridge State Park	Natural Bridge Pond	Dredge Permitting to Restore Pond
Newburyport	Maudslay State Park	Flowering Pond	Dredging to Restore Historic Pond
Ashby	Willard Brook State Forest	Damon Pond	Lakes & Ponds Sanitary Survey
Concord	Walden Pond State Reservation	Walden Pond	Lakes & Ponds Sanitary Survey
Pittsfield	Pittsfield State Forest	Lulu Pond	Lakes & Ponds Sanitary Survey
Hopkinton	Whitehall State Park	Whitehall Reservoir	Rare Plant Survey
East Otis	Tolland State Forest	Otis Reservoir	Swim Beach Restoration
East Taunton	Massasoit State Park	Middle Pond	Swim Beach Restoration
Winchendon	Lake Dennison Recreation Area	Lake Dennison	Swim Beach Restoration & Erosion Control
Natick	Lake Cochituate State Park	Lake Cochituate	Watershed & Stormwater Mapping & Plan
Cheshire & Lanesboro	Cheshire Reservoir	Cheshire Reservoir	Zebra Mussel Dive Inspection
Egremont	Prospect Lake	Prospect Lake	Zebra Mussel Dive Inspection
Great Barrington	Lake Mansfield	Lake Mansfield	Zebra Mussel Dive Inspection
Lee	Laurel Lake	Laurel Lake	Zebra Mussel Dive Inspection
Monterey	Lake Buel	Lake Buel	Zebra Mussel Dive Inspection
Pittsfield	Lake Onota	Lake Onota	Zebra Mussel Dive Inspection
Pittsfield	Pontoosuc Lake	Pontoosuc Lake	Zebra Mussel Dive Inspection
Richmond	Richmond Pond	Richmond Pond	Zebra Mussel Dive Inspection
Stockbridge	Stockbridge Bowl	Stockbridge Bowl	Zebra Mussel Dive Inspection
Westfield	Hampton Ponds State Park	Pequot Pond	Zebra Mussel Dive Inspection