

# THE MASSACHUSETTS WATER RESOURCES COMMISSION



## ANNUAL REPORT, FISCAL YEAR 2013



Commonwealth of Massachusetts

Governor  
DEVAL L. PATRICK

Secretary  
Executive Office of Energy and Environmental Affairs  
RICHARD K. SULLIVAN, JR.

# WRC ANNUAL REPORT FY2013

## MEET THE MASSACHUSETTS WATER RESOURCES COMMISSION

### COMMISSION MEMBERS

*Established in 1956, the Water Resources Commission (WRC) is a lead statewide authority responsible for developing, coordinating and overseeing the Commonwealth's water policy and planning activities.*

The Commission is chaired by the Secretary of Energy and Environmental Affairs and includes five public members appointed by the Governor to represent a wide range of water uses and environmental interests. The Commission also includes the Commissioners of the four environmental agencies of the Executive Office of Energy and Environment (EEA)—Department of Agricultural Resources, Department of Conservation and Recreation, Department of Environmental Protection, and Department of Fish and Game—and the Undersecretary of Department of Housing and Community Development, all of whom serve ex officio.

The Commission's Executive Director is housed at EEA and provides leadership and coordination between the WRC and its staff. A staff to the Commission, which includes water resources scientists and environmental planners from the Department of Conservation and Recreation's Office of Water Resources (OWR), provides the technical analyses and administrative support to the Commission for use in its deliberations and decisions.

### COMMISSIONERS

#### Agency Members:

##### Executive Office of Energy and Environmental Affairs

Chair & Member - **Richard K. Sullivan, Jr.**, Secretary  
Designee - **Kathleen Baskin**, Executive Director

##### Department of Housing and Community Development

Member - **Aaron Gornstein**, Undersecretary  
Designee - **Marilyn Contreas**

##### Department of Conservation and Recreation

Member – **Jack Murray**, Commissioner  
Designee - **Jonathan Yeo**

##### Department of Environmental Protection

Member - **Ken Kimmell**, Commissioner  
Designee - **Bethany Card**, Assistant Commissioner

##### Department of Agricultural Resources

Member - **Gregory C. Watson**, Commissioner  
Designee - **Gerard Kennedy**

##### Department of Fish and Game

Member - **Mary B. Griffin**, Commissioner  
Designee - **Mark Tisa**

##### Office of Coastal Zone Management (non-voting member)

Member - **Bruce Carlisle**, Director  
Designee - **Todd Callaghan**

#### Public Members:

**John Lebeaux**, Town of Shrewsbury

**Robert Zimmerman**, Charles River Watershed Association

**Thomas Cambareri**, Cape Cod Commission

**Raymond Jack**, Department of Public Works, Town of Falmouth

**Paul Matthews**, 495/MetroWest Partnership

#### Commission Staff:

Anne Carroll, Michele Drury, Linda Hutchins, Sara Cohen, Bruce Hansen, Marilyn McCrory, Erin Graham

## WHY IT MATTERS

The Water Resources Commission is a lead authority responsible for developing and coordinating the State's water policy and planning activities to ensure Massachusetts communities will have plentiful water to support health, safety, and economic development for generations to come. The WRC establishes the scientific and policy foundation for the sustainability of water resources in Massachusetts by cooperating with the United States Geological Survey (USGS) on research and monitoring the state's rivers, reservoirs, and groundwater levels, helping communities assess their long-range water needs, and promoting strategic and efficient use of water.

## RESPONSIBILITIES OF THE COMMISSION

- 1) Develop **Water Policy** for the State
- 2) Administer the **Interbasin Transfer Act** to ensure environmental protection when water and wastewater transfers between the major river basins of the state are necessary
- 3) Cooperate with the USGS to provide timely **scientific research, real-time streamflow readings and ground water levels statewide**
- 4) Provide **Water Needs Forecasts** for approximately 180 communities for their long-range planning and for use in applying for water withdrawal permits
- 5) Maintain a **Statewide Rainfall Network** to track water conditions and monitor for drought; provide technical advice to the state **Drought Management Task Force** for response to drought conditions
- 6) Establish statewide **Water Conservation Standards** to encourage efficient use of water
- 7) Provide a **forum** for public input, coordination, and diverse viewpoints on current and long-term water issues through monthly meetings



Merrimack River during drought, Lawrence, 1999



Charles River during flood, 2010

## KEY ACCOMPLISHMENTS AND ONGOING WORK, FISCAL YEAR 2013

### PROTECTING LIVES AND PROPERTY USING RAINFALL AND STREAMFLOW DATA

The WRC coordinates two critical data collection networks: the Massachusetts Rainfall Monitoring Network and the USGS Stream Gage and Groundwater Network. Real-time and historic data from these networks are used by communities, scientists and health and safety professionals to protect lives, property and the environment, and to better understand and plan for future water conditions including droughts, floods, and climate change.

### THE MASSACHUSETTS RAINFALL MONITORING NETWORK

The WRC had the foresight to establish a rainfall monitoring network for Massachusetts in 1956, and it has been operating continuously ever since using trained volunteer monitors. The DCR's Office of Water Resources (OWR) maintains the Commission's network of approximately 150 precipitation observation stations throughout Massachusetts. OWR also maintains a precipitation database, which is available to the public. The precipitation database is updated monthly and includes data reported by DCR observers, DCR staff, the National Weather Service, and the U.S. Army Corps of Engineers.

Rainfall data and the calculations they support help protect lives and property. The rainfall data is converted into projections about the size and frequency of rainstorms that planners, engineers and scientists can use to properly size and design roadways and bridges. When storm size and frequency data are out-of-date or inaccurate, infrastructure is not designed to the correct standards, resulting in bridges that are built too low and culverts that are too small in danger of being washed out by floods. **The WRC's rainfall data are currently being used by the National Oceanic and Atmospheric Administration (NOAA) to update the Precipitation Atlas for the Northeast, which will become the new design standard for major construction projects in 2015.** To be statistically useful for projections, rainfall data sets need to be at least 15 years in length, and ideally much longer. Thanks to the WRC and the long-term data collected by its staff and volunteers, Massachusetts has this necessary data.



Road collapse due to Hurricane Sandy, October 2012



Rainfall Observer Gage

## KEY ACCOMPLISHMENTS AND ONGOING WORK, FISCAL YEAR 2013

### THE USGS COOPERATIVE PROGRAM

The U.S. Geological Survey (USGS) and the Commonwealth of Massachusetts have engaged in a cooperative water resources partnership **since 1904**, when the first modern stream gaging station in Massachusetts was established on the Connecticut River in Montague City. The USGS and the Commonwealth conduct a cooperative program of data collection and interpretive studies on a range of water availability, water quality, and stream habitat issues.

The Cooperative Program provides authoritative and essential data and analysis used by all water management professionals. Fiscal Year 2013 projects include:

- Continued maintenance and upgrades for 85 streamflow gages
- Continued maintenance and upgrades for 89 ground water observation wells

One critical use of stream gages is to provide real-time data during extreme weather events. **When Hurricane Sandy struck in October 2012, WRC staff members were activated to the Massachusetts Emergency Management Agency Command Center to project when, where and how much peak flooding would occur.** Staff monitored stream gages and were available by phone 24 hours a day as a resource to advise communities and answer questions about flooding.



Turners Falls, MA, 2011

## KEY ACCOMPLISHMENTS AND ONGOING WORK, FY 2013

### PROTECTING OUR RIVERS THROUGH THE INTERBASIN TRANSFER ACT

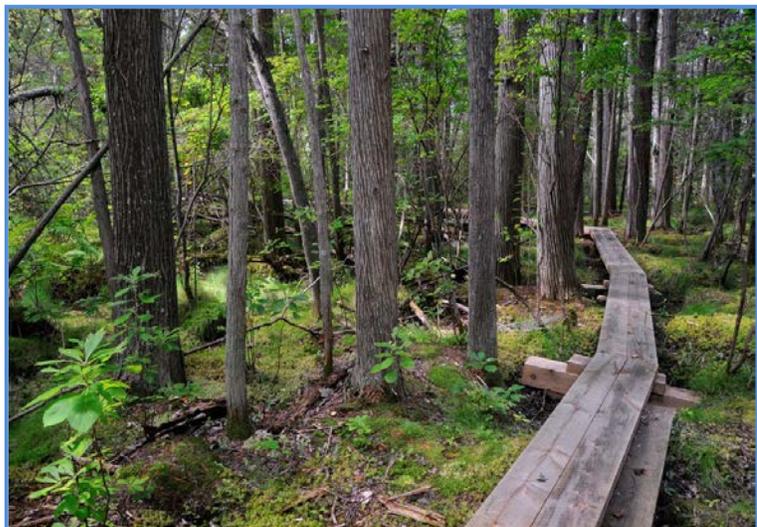
**The Interbasin Transfer Act (ITA) has governed water and wastewater transfers between the 28 major river basins of the Commonwealth since 1984.** This important statute was passed to protect both river basins and the communities they benefit from chronic low river flows as a result of transferring water out of donor river basins, and also to ensure that receiving river basins have taken necessary steps to conserve and manage water wisely. The ITA maintains river basin hydrology, keeps water in rivers and streams, and prioritizes water conservation as part of interbasin transfers. The Act requires a transparent process, with careful consideration of the issues by the WRC, public input, and environmentally-protective approval conditions, which serve to protect Massachusetts' vital and finite water resources and the communities they serve.

For more information, see: <http://www.mass.gov/eea/docs/dcr/watersupply/intbasin/pathway.pdf>

### WORKING WITH COMMUNITIES THROUGH ITA REVIEWS

In 2013, the WRC and its staff worked closely with communities and institutions in Hingham, Foxborough and Groton to achieve or update their interbasin transfers, thus protecting the environment while also providing critical technical assistance to project proponents.

- **Innovative Offsets:** The South Shore Educational Collaborative in Hingham needed help with a school expansion program that resulted in increased wastewater flow, requiring approval under the ITA. Staff helped the school develop an offset plan, based on the WRC's 2007 Offset Policy, achieving net zero water transfer, eliminating the need for ITA review, and saving the collaborative time and money while protecting the environment.
- **Adaptive Management to Protect Rare Habitat:** The WRC worked with the Town of Foxborough on an amendment to their previously approved interbasin transfer. The changes provided additional protection for a nationally rare Atlantic White Cedar Swamp (Witch Pond) in which Foxborough has drinking water wells, while allowing the town to temporarily continue to use the wells as it constructed a treatment plant elsewhere.

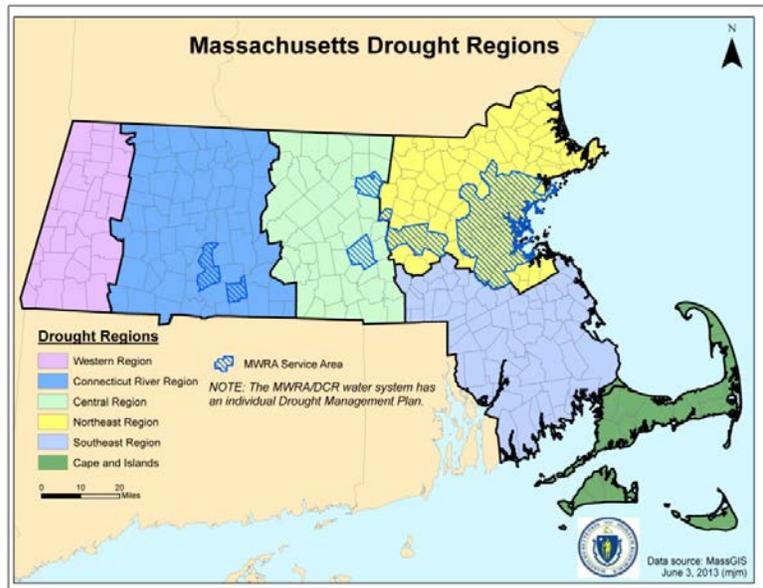


Witch Pond Atlantic White Cedar Swamp, Foxborough

## KEY ACCOMPLISHMENTS AND ONGOING WORK, FY 2013

### PREPARING THE COMMONWEALTH FOR DROUGHT

In Partnership with the Massachusetts Emergency Management Agency (MEMA), the WRC updated the [Massachusetts Drought Management Plan](#) to guide future decision-making on drought declarations using the latest science. The Plan helps the Commonwealth better anticipate and prepare for drought-related impacts, including water supply shortages and fire danger.



### RAISING AWARENESS OF CURRENT AND EMERGING WATER ISSUES

The WRC facilitates discussion on upcoming water issues and new scientific understanding by hosting speakers at its monthly meetings. In 2013, the WRC hosted six speakers. Highlights include:

- MA State Geologist Dr. Stephen Mabee, who spoke about assessing the physical structure of streams. Dr Mabee emphasized that stream restoration and infrastructure projects near rivers must consider how the river moves and responds to different water levels to ensure that investments are successful and not washed away by the river during future big storms.
- John Sullivan, Chief Engineer for the Boston Water and Sewer Commission (BWSC), who spoke on the importance and implementation of long-range planning and system improvements to Boston's complex water infrastructure.

Guest Speaker presentations are posted on the WRC website: [www.mass.gov/eea/wrc](http://www.mass.gov/eea/wrc).

### REPRESENTING MASSACHUSETTS' WATER CONCERNS

WRC staff represented the Commission on many statewide and regional committees and boards:

- **Drought Management Task Force** – assists in monitoring, coordinating, and managing responses to droughts and recommends actions
- **State Mitigation Interagency Committee** – reviews Federal Emergency Management Agency (FEMA) mitigation grant applications

- **Massachusetts Emergency Management Agency (MEMA) Emergency Support Function** – monitors flood danger during storms
- **Association of State Floodplain Managers** – raises awareness about changes and challenges with flood insurance policy
- **Connecticut River Valley Flood Control Commission** – coordinates flood control among the Connecticut River states
- **NEWWA Ground Water Resources Initiative** – discusses emerging water issues with other New England state regulators
- **State Geologist Mapping Advisory Committee** – reviews federal grant proposals for state mapping

## MASSACHUSETTS WATER RESOURCES COMMISSION KEY CONTACTS

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Quabbin Reservoir, MA

**Front cover photo:** Stony Brook Reservation, West Roxbury, Massachusetts