



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION
100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for December 8, 2016

100 Cambridge Street, Boston, MA, 1:00 p.m.

Minutes approved January 12, 2017

Members in Attendance:

Vandana Rao	Assistant Director of Water Policy, Executive Office of Energy and Environmental Affairs (EEA)
Linda Balzotti	Designee, Department of Housing and Community Development (DHCD)
Jonathan Yeo	Designee, Department of Conservation and Recreation (DCR)
Douglas Fine	Designee, Department of Environmental Protection (MassDEP)
Catherine DeRonde	Designee, Department of Agricultural Resources (DAR)
Tim Purinton	Designee, Department of Fish and Game (DFG)
Raymond Jack	Public Member
Kenneth Weismantel	Public Member

Members Absent

Todd Callaghan	Designee, Massachusetts Office of Coastal Zone Management (CZM)
Thomas Cambareri	Public Member
Paul Matthews	Public Member
Bob Zimmerman	Public Member

Others in Attendance:

Michele Drury	DCR
Marilyn McCrory	DCR
Sara Cohen	DCR
Jen Pederson	Massachusetts Water Works Assn.
Lexi Dewey	Water Supply Citizens Advisory Committee
Michelle Craddock	DFG/Div. of Ecological Restoration
Vanessa Curran	DCR
Erin Graham	DCR
Jennifer Sulla	EEA
Viki Zoltay	DCR
Gabby Queenan	Massachusetts Rivers Alliance
Sara Burns	The Nature Conservancy
Sara Turner	DFG/Div. of Marine Fisheries
Becky Weidman	MassDEP

Rao called the meeting to order at 1:06 p.m.

Agenda Item #1: Executive Director's Report

Rao provided an update on the status of the draft proposed changes to the Interbasin Transfer Act Regulations, including two public hearings that were held in Belchertown (December 6, 2016) and Boston (December 8, 2016). She invited written comments on the proposed updates by December 23, 2016. She outlined the next steps, which will include providing an overview to the commission of comments received, providing responses to comments, and making changes to the regulations in response to comments. Periodic updates will be provided to the Commission.

Rao announced that Anne Carroll of DCR was invited to attend a USGS-sponsored conference on the national climate network of groundwater monitoring wells. The conference is related to a USGS grant award to the Commonwealth of Massachusetts to upgrade 46 wells. Rao added that Carroll will report back on highlights of the conference.

Rao provided an update on the ongoing drought, noting that the Drought Management Task Force met on December 7, 2016. Conditions have improved somewhat, but the recommended drought levels in each region will likely not change.

Weismantel inquired about information comparing water rate structures and water availability both within and outside of Massachusetts. The context, he explained, is economic development, noting concerns about the ability to provide water to potential new businesses.

- On water rates, Yeo noted the annual rate survey published by the Massachusetts Water Resources Authority and the biennial survey of water rates in Massachusetts by the Tighe & Bond consulting firm. Jack commented on the difficulty of comparing water rates, since rate structures have several components.
- On water availability studies, Cohen talked about and offered to provide copies of the 2004 Water Assets study, which included information on physical availability of water in the Metro West corridor.
- On water for economic growth, Weidman encouraged municipalities to reach out to both MassDEP and DCR on any concerns about water availability. She added that it is not the intent of the Water Management Act to prevent economic growth. Yeo noted that water use has declined over the past few decades, despite tremendous economic development in the Commonwealth, adding that development does not necessarily translate into increased water demand.

Weismantel also shared feedback he has received from municipal officials on the Water Management Act permitting process, noting concerns about uncertainty and complexity. Fine acknowledged the complexity of the regulations, adding that MassDEP continues to provide outreach, often providing one-on-one technical assistance to permittees. He encouraged municipal officials to contact MassDEP for assistance, noting that those who work directly with the regulatory agencies have a better understanding of the process and requirements.

Jack requested that regulatory agencies consider revisiting, over time, baseline water use and mitigation requirements. In response, Fine noted that a report to the legislature is due in 2017 and will be provided to the Commission. He added that MassDEP continues to communicate best practices on issues related to the ability to deliver water, particularly during drought conditions. He called attention to expanded grant funding for water audits. DeRonde called attention to funding made available to help the agricultural sector improve water efficiency.

Agenda Item #2: Update: Hydrologic Conditions and Drought Update

Zoltay provided an update on the hydrologic conditions for November 2016. She noted that conditions overall are holding steady. Most precipitation indices show below-normal conditions. Most streamflow levels remain in the warning and emergency levels of the *Drought Management Plan*. Groundwater levels are generally below normal in all regions. Levels of all reservoirs monitored are below normal, including the Quabbin Reservoir, which is slightly below

normal. The national Drought Monitor shows no change for Massachusetts. The drought outlook is mixed, with the drought expected to persist over the long term.

Weismantel requested clarification on the designation “slightly below normal” for the level of the Quabbin Reservoir, noting that many communities outside the system operated by the Massachusetts Water Resources Authority (MWRA) rely on the Quabbin Reservoir as an emergency supply. Yeo explained that the water level in the Quabbin Reservoir is currently 79.2 percent of normal, but the MWRA system still has many years of supply available. He added that the MWRA continues to closely monitor reservoir levels and urges people in the service area to use water wisely.

Agenda Item #3: Vote on the Minutes of October 2016

Rao invited a motion to approve the meeting minutes for October 13, 2016.

V	A motion was made by Weismantel with a second by Balzotti to approve the meeting minutes for October 13, 2016.
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Agenda Item #4: Presentation: Summer Water Conservation: Understanding Benefits and Barriers

Rao introduced Michelle Craddock, watershed ecologist in DFG’s Division of Ecological Restoration (DER). Craddock provided background on a project to use community-based social marketing (CBSM) techniques to better understand outdoor water use in the Ipswich River watershed and to evaluate the effectiveness of CBSM in reducing summer outdoor water use as a method to restore streamflow. She explained that water use is typically highest during the summer when streamflow is lowest. The goal of this study is to gain a better understanding of the barriers to reducing summer outdoor water use and to explore non-regulatory ways to encourage conservation. DER worked with the Ipswich River Watershed Association and with communities that withdraw water from the Ipswich River watershed.

Craddock provided an overview of current patterns of water use in the targeted communities. Results from all communities show an average winter-to-summer ratio of 1.4. In the town of Topsfield, while the majority of single-family homes use twenty percent more water in the summer, the top five percent of water users double their water use in the summer. She noted that this is a typical pattern and can help identify places for potential savings.

Craddock explained that community-based social marketing uses social and psychological factors to drive behavioral changes. She outlined the five major steps in CBSM, including identifying behaviors that are most important, the barriers to adopting those behaviors, and the benefits that would lead more to adopting the desired behaviors; and developing strategies to encourage the desired behaviors.

She reviewed study methods and results to date. The project identified thirty-one behaviors that could reduce outdoor water use. Investigators conducted a mail survey to prioritize behaviors, and a second survey to identify the barriers to and benefits of adopting four behaviors: not watering grass during the summer, fixing irrigation system leaks, installing a weather-based

irrigation controller, and fixing pool leaks. She presented graphs outlining survey responses and highlighted key results.

Craddock described the next steps, including developing strategies to reduce water use based on the lessons learned from the surveys. Strategies include a social norms campaign targeting high water users and offering comparisons to more efficient water users, and a campaign to obtain voluntary commitments from water users to reduce summer water use. She concluded by describing a successful CBSM campaign in Ontario that resulted in reductions in peak water use of up to thirty-two percent.

Comments, questions, and responses:

- Did the study examine differences in the attitudes of survey respondents with automatic irrigation systems and those without? Response: fourteen percent of respondents have an automatic irrigation system, but the analysis did not isolate responses from these respondents.
- Did heightened awareness of the drought affect responses to survey questions? Response: the surveys were conducted in spring 2016, before the onset of the drought in Massachusetts.
- Can DER obtain copies of outreach materials used in the Ontario campaign? Response: DER will try to obtain. The town of Concord, Massachusetts, conducted a similar CBSM campaign and achieved similar results.
- Was the analysis able to tease out the characteristics of those responsible for the highest summertime water use – e.g., was there a correlation with users of sprinkler systems? Response: the average winter-to-summer ratios were taken from Annual Statistical Reports submitted by the water suppliers. The analysis did not make correlations between increases in water use and those with or without sprinkler systems.
- Jack commented that, before embarking on a conservation program, it is important to understand what the underlying problem is and what the conservation program is trying to achieve and, further, if there is a numeric reduction goal. He cautioned against pitting one part of a community against another. Craddock responded that CBSM is one tool in the toolbox, and the purpose of offering comparisons is to enable water users to make informed decisions.
- Pederson commented that the study results are eye-opening and highlight the need to look closely at the data and to understand that results may vary widely by community.

Agenda Item #4: Presentation: Drought Impacts on Massachusetts Coastal Fish Populations

Rao introduced Dr. Sara Turner, diadromous fish biologist in DFG's Division of Marine Fisheries (DMF). Turner listed the coastal species of fish affected by drought, including both diadromous (or "sea-run") species and species that depend on nearshore and estuarine environments. She explained that diadromous fish are species that depend on both marine and fresh water for spawning or growth. She outlined the causes of population losses in both environments, explaining that drought-related impacts include lower water levels and lower flows, barriers to fish passage, reduced habitat, increased temperatures, reduced oxygen levels, changes in salinity, and algal blooms.

Turner reviewed monitoring for individual fish species conducted by DMF and showed the impacts of the summer 2016 drought on three rivers where the Division monitors fish

populations. These impacts included fish kills and the closing of most shellfish beds due to a large toxic algal bloom. She also outlined ways to reduce drought impacts through improving water efficiency and improved reservoir management.

Questions and discussion related to how best to facilitate releasing water from reservoirs, methods used for counting fish, whether drought conditions resulted in higher fish mortality, methods of improving fish passage where dams are in place, and funding for removing dams.

Meeting adjourned, 2:46 p.m.

Documents or Exhibits Used at Meeting:

1. WRC Meeting Minutes for October 13, 2016
2. November 2016 Hydrologic Conditions in Massachusetts (available at <http://www.mass.gov/eea/agencies/dcr/water-res-protection/water-data-tracking/monthly-water-conditions.html>)
3. Interbasin Transfer Act Regulations (313 CMR 4.00): Notice of Public Hearings and Comment
4. Interbasin Transfer Act project status report, November 21, 2016
5. 2017 Meeting Schedule, Water Resources Commission
6. Presentation by Michelle Craddock, DFG/Div. of Ecological Restoration: Outdoor Summer Water Conservation in the Ipswich River Watershed: Community-based Social Marketing Benefit and Barrier Research (available at <http://www.mass.gov/eea/docs/eea/wrc/community-based-social-marketing-benefit-and-barrier-research.pdf>).
Link to project report: : <http://www.mass.gov/eea/docs/dfg/der/cbsm-ipswichriverwatershed.pdf>
7. Presentation by Sara Turner, DFG/Div. of Marine Fisheries: Drought Impacts on Massachusetts Coastal Fish Populations (available at <http://www.mass.gov/eea/docs/eea/wrc/drought-impacts-on-ma-coastal-fish-populations.pdf>)

Compiled by MJM

Agendas and minutes are available on the web site of the Water Resources Commission at www.mass.gov/eea/wrc under "MA Water Resources Commission Meetings." All other meeting documents are available by request to WRC staff at 251 Causeway Street, 8th floor, Boston, MA 02114.