THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for February 14, 2013

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

Minutes approved April 11, 2013

Members in Attendance:

Kathleen Baskin	Designee, Executive Office of Energy and Environmental Affairs (EEA)
Marilyn Contreas	Designee, Department of Housing and Community Development (DHCD)
Jonathan Yeo	Designee, Department of Conservation and Recreation (DCR)
Duane LeVangie	Designee, Department of Environmental Protection (MassDEP)
Gerard Kennedy	Designee, Department of Agricultural Resources (DAR)
Todd Richards	Designee, Department of Fish and Game (DFG)
Raymond Jack	Public Member
John Lebeaux	Public Member
Paul Matthews	Public Member

Members Absent

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

Others in Attendance:

Bruce Hansen	DCR
Jennifer Pederson	Mass. Water Works Assn.
Steve Mabee	MA Geological Survey
Linda Hutchins	DCR
Jack Sullivan	Federal Emergency Management Agency (FEMA)
Timothy Choiey	Vanasse Hangen Brustlin
Wayne Castonguay	Ipswich River Watershed Assn.
Beth Suedmeyer	Mass. Dept. of Transportation (MassDOT)
Tim Dexter	MassDOT
David Paulsen	Mass. Div. of Fisheries & Wildlife
Steven Miller	MassDOT
Bill Hinkley	EEA
Henry Barbaro	MassDOT
Doug Heath	U.S. Environmental Protection Agency (USEPA)
Joe Cerutti	MassDEP
Erin Graham	DCR
Peter Weiskel	U.S. Geological Survey
Douglas DeNatale	AECOM
Cary Parsons	Woodard & Curran
Trish Garrigan	USEPA

Addy Mistick	EEA
Vandana Rao	EEA
Paul Blain	MassDEP
Michele Drury	DCR
Tom Lamonte	MassDEP
Steve Hallem	MassDEP
Katherine McArthur	MassDOT
Donna Nelson	FEMA Region I
Alicia Grimaldi	USEPA
John Gregoire	Mass. Water Resources Authority
Thomas Maguire	MassDEP
Leslie W. Gabrilska	Conservation Agent, Town of Townsend, MA
Andreae Downs	Wastewater Advisory Committee
Lexi Dewey	Water Supply Citizens Advisory Committee
Marilyn McCrory	DCR

Baskin called the meeting to order at 1:00 p.m.

Agenda Item #1: Fluvial Geomorphological Assessments: Next Step for Massachusetts

Baskin introduced Dr. Steve Mabee, state geologist. Dr. Mabee provided a brief overview of the activities of the Massachusetts Geological Survey. He requested state support of the state geologist's office, which would enable the office to leverage additional federal funding.

Mabee provided an overview of fluvial geomorphology (FGM). He defined fluvial geomorphology as the study of the form of rivers, the processes that operate in river systems, including the landforms adjacent to rivers, and the change of rivers over time. He defined a river system as the river plus associated features, such as floodplains, flood-prone areas, wetlands, river banks, and riparian communities. He listed the parameters measured at various reaches of rivers in fluvial geomorphology assessments – such as river width and depth, channel slope, flow, velocity, and others – noting that FGM assessments look at the river system as a whole.

He explained that rivers are dynamic systems that migrate through their floodplains over time. He explained the importance of FGM assessments, noting that infrastructure is often located along major river corridors, and, after every major storm, the effects of development encroaching on floodplains can be seen in damage to roadways, bridges, culverts, and other infrastructure, resulting in significant environmental, social, and economic harm. He emphasized that rivers always adjust to changes and stressors by eroding, scouring, incising, migrating, and depositing sediment. He noted the lack of baseline data on existing conditions in river corridors and the need for better planning tools so that response to damage can be informed by knowledge of the natural meandering of river channels through floodplains.

He described the sediment-related water quality effects of erosion, noting that one-third of the sediment and phosphorus nutrient loading to Lake Champlain is caused by river erosion. He added that avoidance of fluvial erosion would likely be a more cost-effective solution to these water quality impacts.

He reviewed the typical pattern of response to flooding, describing it as a never-ending cycle of structural controls that cut rivers off from their floodplains, leading to more property damage at the next storm event and ever-escalating costs.

Mabee recommended developing a standardized protocol for conducting FGM surveys in Massachusetts and establishing a database to record data on current conditions. This would provide a foundation for understanding how to adapt current design practices to new weather patterns and to support sustainable approaches to storm damage repairs, ordinary infrastructure maintenance, and new development.

Mabee described the concept of dynamic equilibrium, which is the river's ability to transport stream flows and sediment over time without adverse effect on channel form, dimension, or habitat quality. He noted that problems occur when human activities interfere with the balance between streamflow and sediment transport. He added that the goal of restoration is to restore this dynamic equilibrium, and FGM is the tool for determining if a system is in equilibrium. He noted that Vermont regulators urge municipalities to protect the river corridor, including the river's meander belt, which can sometimes extend beyond the riparian buffer and the floodplain.

Mabee described how FGM assessments are done. The first phase is a desktop study involving gathering of basic data – including topography, land use, geology, maps, and aerial photographs – and analyzing the data using a geographic information system. Comparison of current to past conditions is key to identifying the area that needs to be managed. Phase two involves taking measurements in the field, collecting samples, and taking photographs. All data are entered into a database. Measurements are compared to those for a reference stream to see how the characteristics of the study stream align with those of the reference stream curve to determine how far out of balance the study stream is. He noted that the U.S. Geological Survey is currently developing regional reference curves for Massachusetts. He outlined the criteria to be used in selecting a reference site.

Mabee described an FGM analysis the state geologist's office is conducting on four tributaries in the Deerfield River basin, noting that his office would like to conduct this type of analysis statewide. A useful product of this analysis is a fluvial erosion hazard map showing areas where potential for severe erosion exists. Mabee noted that communities have expressed strong interest in a tool that will allow them to highlight areas at risk and prioritize mitigation.

He described Vermont's Stream Geomorphic Assessment Program, which includes an assessment protocol for both desktop and field components of the process. Both public and private entities have conducted assessments for ten years, and the information is compiled in a database. He suggested Massachusetts could import much of the Vermont system, but some adaptations would be required to reflect the state's land-use patterns, ecosystems, and climate.

Mabee described a workshop held in October at the University of Massachusetts Amherst to determine who would benefit from FGM assessment data. Participants agreed that informed decisions require basic information such as the location of unstable stream reaches and fluvial erosion hazard zones. He noted Vermont's conclusion that FGM data have helped nearly every agency by providing a foundation for decisions on river corridor protection and management, restoration, hazard mitigation, and permitting of stream alteration. He enumerated other benefits achieved by the Vermont river corridor planning program, through its central strategy of managing toward dynamic equilibrium.

He described outcomes of the FGM workshop, including development of management objectives, formation of a task force, and development of a funding proposal to FEMA's Hazard Mitigation Grant Program. He described the elements of the funding proposal, including

development of a Massachusetts-specific assessment handbook and database, based on the Vermont model, and three demonstration projects. Maguire suggested providing data on stream channel dimensions and cross-sections in a format such that it can be easily extracted by other users.

As a way to start incorporating FGM into policies and decision-making, Mabee suggested that FGM assessments done at the local level could be included as an option for indirect mitigation credits under the Sustainable Water Management Initiative. He concluded by noting that Massachusetts is experiencing problems along its river corridors and will need to develop management strategies to respond to these problems. He stated that FGM provides a solution that responds to these needs and to communities' requests for tools to improve planning.

Hutchins described roles for the Water Resources Commission in furthering the incorporation of FGM approaches into state policies and programs, including dedication of staff time to developing the fluvial geomorphic handbook and protocol and participating in the task force and pilot projects. Once the state gains some experience with FGM assessments, the commission could consider developing policies to incorporate FGM considerations into design standards, environmental permitting, and regulatory programs. Hutchins outlined regulatory programs in multiple state agencies and local jurisdictions that could incorporate FGM assessments.

On a separate topic, Mabee presented a short overview of the potential for extracting shale gas in Massachusetts. He described what is known about the topic based on past studies by the U.S. Geological Survey and others. He pointed out that most geologists agree that extraction of natural gas from black shales in the Connecticut River Valley and the Hartford Basin has very limited potential to be commercially viable. He added that, even if gas were available in economically viable quantities, Massachusetts regulations (310 CMR 27.00) prohibit installation of underground injection wells. He called attention to information on shale gas in Massachusetts on the web site of the Massachusetts Geological Survey (http://www.geo.umass.edu/stategeologist/shalegas.htm).

Regarding FGM, Yeo asked if Vermont, after its investment in compiling data and developing FGM protocols, had put this information to use in making decisions about recovery and rebuilding after Hurricane Irene. Mabee did not know but offered to communicate this question to Vermont officials. There followed some discussion of the value of having FGM data to assess risk and prioritize recovery efforts. Sullivan responded that no progress can be made unless the FGM program is started, and educating communities in how best to implement recovery efforts after major events will be an important and ongoing need.

Barbaro asked how the fluvial erosion hazard maps compare with FEMA's floodplain maps. Mabee responded that the fluvial erosion hazard map would show areas prone to erosion both within and outside of the floodplain. Maguire added that the FEMA maps are a snapshot of a moment in time, while FGM assessments would allow users to predict where the river and floodplain will move.

Suedmeyer asked if Vermont had been successful in changing restoration designs and leveraging federal funding to implement an approach other than replacement of damaged infrastructure in kind. Sullivan responded that the Stafford Act limits how FEMA disaster assistance funds can be used. Jack commented that existing regulations and policies often force in-kind restoration. Hutchins noted that some Vermont communities have established river corridors and are purchasing development rights as a step toward more sustainable management of these corridors.

Agenda Item #2: Executive Director's Report

Hansen provided an update on the hydrologic conditions for January 2013. He reported that rainfall during January was much below normal, ranging from thirty-nine to seventy-five percent of average precipitation for the month. Groundwater levels were generally normal, with some areas below normal. Streamflow was normal. Most water supply reservoirs reported normal to slightly below normal levels for this time of year. The drought indices show no drought conditions are present. NOAA drought forecasting maps indicate that drought is not likely to develop through April 2013.

Baskin announced that the Massachusetts legislature had adopted a law that provides $20 million in funding for repair, replacement, or removal of dams and seawalls. State-owned dams and seawalls are not eligible for this funding. Yeo announced that the legislature adopted a law that prevents movement of aquatic invasive species and provides the agencies with enforcement authority. He added that DCR and DFG will be developing regulations to protect lakes and ponds. Baskin suggested scheduling a briefing for the commission on the resulting regulations.

Baskin provided an update on the Sustainable Water Management Initiative. She noted that activities that have been in progress are still ongoing. These include development of regulations, completion of the pilot project and review of the phase two pilot report, and recommendations for grant project funding.

Baskin provided an update on discussions between commission staff and the town of Foxborough on the Witch Pond wells, which had previously been approved for an interbasin transfer. Concerns about impacts of pumping on a peat layer and about data collected on the elevation of wells are the subjects of these discussions. She noted that the commission may be asked to consider results of monitoring and modeling at a future meeting.

Agenda Item #3: Vote on the Minutes of December 2012

Baskin invited a motion to approve the meeting minutes for December 2012.

VOTE	A motion was made by Contreas with a second by Yeo to approve the meeting minutes for December 13, 2012. The vote to approve was unanimous of those present.

Agenda Item #4: Vote on WRC Work Plan, CY2013

Baskin noted that the proposed work plan for calendar year 2013 was discussed at the December 2012 meeting. Carroll reviewed key tasks, including substantive review of several topics in the Water Conservation Standards; technical support of the Sustainable Water Management Initiative, including support of the pilot projects, incorporation of SWMI into the water needs forecasting and basin planning processes, and working with DEP to develop a SWMI database; review of Interbasin Transfer Act projects; and resumption of water needs forecasts following the hiatus resulting from the Permit Extension Act. She noted that staff may potentially revisit completed water needs forecasts based on changes represented in the 2010 census and will assess the feasibility of completing forecasts for permittees who previously received temporary allocations. She invited comments on the work plan. None were offered.

Baskin added that analysis requested by commission members of historic drought levels for the Drought Management Plan has been completed, and the commission will be asked for a vote on

the final plan in March. Baskin also proposed a retreat for commission members to brainstorm about long-term goals and larger policy ideas. The retreat may incorporate legal training on the open meeting law and ethics. She noted that this retreat would be an open public meeting, and she suggested an April or May timeframe.

VOTE	A motion was made by Yeo with a second by LeVangie to adopt the Water Resources Commission work plan for calendar year 2013. The vote to approve was unanimous of those present.

Matthews departs meeting.

Agenda Item #5: Vote on Becoming a WaterSense Program Partner

Baskin noted that a representative from the Environmental Protection Agency's WaterSense program had previously presented an update to the commission on the program's first five years. McCrory added that the purpose of today's discussion was to ask the commission to consider joining the WaterSense program as a promotional partner. She called attention to the staff recommendation on joining the program.

McCrory reviewed what the WaterSense program does. She described the program as a voluntary partnership and labeling program that focuses on water efficiency. She noted that the WaterSense label identifies products and services that meet the program's criteria for efficiency and performance. There was some discussion of the similarities between the Energy Star and WaterSense programs. McCrory outlined what the commission would do as a WaterSense promotional partner and described the benefits of joining the program. She noted there is an annual reporting requirement.

Yeo made a motion that the Water Resources Commission join the WaterSense program, and LeVangie seconded the motion. Discussion revolved around what it means for the Water Resources Commission to join the program. Kennedy asked if the commission itself is the appropriate entity to partner with the WaterSense program, or if the individual member agencies should join. Yeo responded that, as the overall water policy-making entity of the commonwealth, the Water Resources Commission is a natural fit with the program. Baskin added that the commission is a separate legal entity and can join the program on its own, and the member agencies can also join. Yeo noted that MassDEP is already a partner. Kennedy sought clarification about whether membership imposes certain obligations on the commission. Baskin affirmed that the commission would agree to promote the WaterSense program and water efficiency in general and noted that commission staff already engage in activities to promote water conservation and efficiency. She added that membership by the commission itself would not translate into additional obligations or reporting requirements for individual agencies.

McCrory called attention to a summary of partnership guidelines, which outlines six activities that government partners pledge to perform. Jack commented that becoming a WaterSense member was a logical step for the commission. Baskin invited a vote on the motion.

VOTE	A motion was made by Yeo with a second by LeVangie for the Water Resources Commission to seek approval from EPA's WaterSense program as a WaterSense promotional partner. The vote to approve was unanimous of those present.

Baskin asked staff to pursue an application to the WaterSense program on behalf of the commission.

Meeting adjourned, 3:00 p.m.

Documents or Exhibits Used at Meeting:

- WRC Meeting Minutes for December 13, 2012
- WRC Work Plan, CY2013
- Staff Recommendation, dated February 14, 2013, on joining the EPA WaterSense Program as a Promotional Partner
- Correspondence with approved Interbasin Transfer Act parties, December 2012
    - Avalon Bay, Sharon
    - Brockton Water Commission
    - Dedham-Westwood Water District
    - Elm Bank Water Supply Development, Natick
    - Foxborough
    - Plainville
    - Reading
    - Shrewsbury
    - Wilmington
- Interbasin Transfer Act project status report, January 29, 2013
- Current Water Conditions in Massachusetts, February 14, 2013
- Presentation slides: Fluvial Geomorphology Assessments – FGM: Next Step for Massachusetts?
- Link to Massachusetts Geological survey web site: http://www.geo.umass.edu/stategeologist/
- Presentation slides: Partnering with EPA's WaterSense Program
- Excerpt from WaterSense Program Guidelines: Table 3, Partnership Pledge