THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for September 12, 2013

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

Minutes approved October 10, 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)
Anne Carroll	Designee, Department of Conservation and Recreation (DCR)
Rebecca Weidman	Designee, Department of Environmental Protection (MassDEP)
Laila Parker	Designee, Department of Fish and Game (DFG)
Todd Callaghan	Designee, Massachusetts Office of Coastal Zone Management (CZM)
Raymond Jack	Public Member
John Lebeaux	Public Member
Paul Matthews	Public Member
Bob Zimmerman	Public Member

Members Absent

Gerard Kennedy	Designee, Department of Agricultural Resources (DAR)
Thomas Cambareri	Public Member

Others in Attendance:

Bruce Hansen	DCR
Nigel Pickering	Horsley Witten Group
Janet C. Bernarde	Horsley Witten Group
Francoise Hatte	Mass. Water Resources Research Center, University of Massachusetts, Amherst
Catherine de Ronde	Mass. Department of Agricultural Resources
Michele Drury	DCR
Linda Hutchins	DCR
Jennifer Pederson	Mass. Water Works Assn.
Andreae Downs	Wastewater Advisory Committee
Lexi Dewey	Water Supply Citizens Advisory Committee
Viki Zoltay	Abt Associates
Ralph Abele	Environmental Protection Agency
Sara Cohen	DCR
Erin Graham	DCR
Peter Weiskel	U.S. Geologic Survey
Theresa McGovern	VHB
Jamie Lefkowitz	CDM Smith
Vandana Rao	EEA
Margaret van Deusen	Charles River Watershed Assn.
Marilyn McCrory	DCR

Baskin called the meeting to order at 1:03 p.m.

Agenda Item #1: Executive Director's Report

Hansen provided an update on the hydrologic conditions for August 2013. Statewide average precipitation in August was 88 percent of normal, varying from 60 percent of normal on Cape Cod and the Islands to 204 percent of normal in western areas. Groundwater levels were generally above normal in the Connecticut River Valley and on Cape Cod and the Islands and generally normal elsewhere in the state. Streamflows were generally normal, with a few stations in the above-normal range. Reservoir levels were generally in the normal range for this time of year. The drought indicators show no drought conditions developing or likely to develop in the state in the next few months. Hansen also noted the confirmed sighting of a water spout over the Quabbin Reservoir on September 1, 2013.

As a follow-up to the discussion at the August meeting of the Water Resources Commission, Baskin commented that there had been considerable coordination with the four communities who participated in the pilot projects for the Sustainable Water Management Initiative. She distributed a summary of meetings that have occurred between MassDEP and the pilot communities, and she called attention to a previously distributed letter to the four pilot communities, including the town of Shrewsbury. She noted that comments from Shrewsbury are still being considered as MassDEP prepares regulations.

Matthews arrives.

Agenda Item #2: Vote on the Minutes of July and August 2013

Baskin invited a motion to approve the meeting minutes for July 2013.

VOTE	A motion was made by Contreas with a second by Weidman to approve the meeting minutes for July 11, 2013. The vote to approve was unanimous of those present.

Baskin invited a motion to approve the meeting minutes for August 2013.

VOTE	A motion was made by Lebeaux with a second by Contreas to approve the meeting minutes for August 8, 2013. The vote to approve was unanimous of those present, with one abstention (Zimmerman).

Agenda Item #3: Presentation: Introduction to EPA's Watershed Management Optimization Support Tool (WMOST)

Baskin introduced Viki Zoltay of Abt Associates to discuss a model for water resources management developed under contract with the Environmental Protection Agency (EPA).

Zoltay thanked the commission for the opportunity to discuss the Watershed Management Optimization Support Tool, or WMOST. She described the development team, which included Abt Associates, Horsley Witten Group, Tufts University, and EPA. Zoltay explained that the tool is not a detailed hydrology model, but a tool to help in screening and prioritizing the universe of management options.

Zoltay provided an overview of the optimization tool. She explained that all elements – including the hydrologic cycle, water systems, withdrawal points, discharge points, and stormwater – are evaluated in an integrated manner, such that the tool shows how a management practice will affect other parts of the watershed. The tool is designed to be accessible to most users and includes optimization capabilities that reduce the number of scenarios to be run relative to simulation models.

She provided an overview of the characteristics of the WMOST tool, which is based on a Microsoft Excel platform. She explained that the model focuses on water balance, with inputs including watershed characteristics, and the cost and effectiveness of management practices. The spatial resolution is one watershed or subwatershed with a corresponding reach; she explained that within that, many land uses and soil types can be represented. The temporal resolution is daily or monthly, with a flexible modeling period. The solver determines the least-cost combination of management practices and the direct and indirect effects of management practices in a watershed context.

She showed a schematic of the model, describing the inputs and routing from source water to treated water, water uses, wastewater disposal options, and water reuse. She reviewed the management practices available in the model, including options related to existing infrastructure, instream flow, wastewater, stormwater and practices to reduce impervious cover, habitat improvement, demand management, nonpotable water use, aquifer storage and recharge, and interbasin transfer of water or wastewater.

She demonstrated the model through the input screens for a case study done for the Danvers-Middleton water system in the Ipswich River watershed. Zimmerman asked if fields in the model are prepopulated with data. Abele explained that there has been much interest in prepopulating some of the fields, but the model presently does not include this feature.

Zoltay reviewed the goals of the optimization analysis for the Danvers-Middleton system, which were to meet the system's projected 20-year needs for drinking water while satisfying instream flow criteria. She reviewed input tabs related to land use, potable and nonpotable demand, septic systems, surface water storage, instream flow requirements, groundwater characteristics, options for interbasin transfer of water and wastewater, and cost data for infrastructure. Other tabs show runoff and recharge rates and costs associated with various management options. She summarized optimization results for the case study, which showed total costs and revenues, the management practices in the model, and highest-priority management practices and their associated costs. She noted that manual calculations were done as a quality assurance procedure to check the model results.

She acknowledged that running the model requires a substantial amount of input data, but noted that these data would be required for any cost-effectiveness/tradeoff analysis. She added that the tool aids in gathering and organizing these data and provides the capability for quick processing of a challenging optimization problem when solving for a daily time step over a five-year modeling period.

Zoltay summarized lessons learned from the Danvers-Middleton case study. The most cost-effective management options identified were demand reduction through pricing, demand management via rebates, repair of leakage from the distribution system, and repair of the sewage collection system to reduce infiltration and inflow. She noted that the model is a screening tool to identify the potentially most cost-effective management options for further evaluation and cost

estimates. Zoltay also reviewed the options not selected by the model, including interbasin transfer of water from the Massachusetts Water Resources Authority (MWRA) system. A sensitivity analysis of the initial capital cost for MWRA water showed that initial costs would need to be significantly lower for the management practice to be cost-effective compared to other options.

Questions and discussion followed. Callaghan asked if there is weighting in the model that might influence results. Zoltay explained that it is the costs that weight the results. Depending on costs and effectiveness of management practices, the model will pick management practices to achieve the specified goals.

Baskin asked for clarification of the goals in the Danvers-Middleton case study and the management options identified by the model. Zoltay explained that all options were available in the model. She noted that part of the analysis included increasing the instream flow goal to see what options emerged as cost effective, and the results identified stormwater infiltration options and a local wastewater treatment plant. She added that the model developers would like to build in some automated sensitivity analyses, to allow execution of multiple model runs while varying the inputs, especially where there is some uncertainty related to costs, watershed parameters, or environmental data.

Abele explained that EPA felt the model could be a useful tool in supporting policies on integrated water management, with a focus on water quantity. He added that the team received guidance from a steering committee to ensure that users would be interested in such a tool, and that users who are not modeling specialists would be able to use the tool.

Callaghan expressed interest in analyses that indicated local wastewater treatment and disposal as a cost-effective option. He asked if an option had been considered where wastewater is pumped to a centralized treatment plant and then pumped back to the community to be infiltrated locally, noting that avoiding construction of a treatment plant would be a huge cost savings. Zoltay said the model has the flexibility to add this as an option, as well as the option of aquifer storage and recovery (ASR) without a separate treatment plant.

Jack commended Zoltay for her work. He discussed some of the barriers to implementing ASR, noting that water quality impacts have to be considered in the recharge zones for a public water supply. He expressed interest in adding water quality concerns to the model. Zoltay explained that while the model does not consider water quality explicitly, all wastewater is routed through wastewater treatment or a septic system, and treatment can be included in the ASR facility by accounting for the additional cost when entering the input data for capital and operation and maintenance costs for the facility.

Hutchins asked how much data on hydrology the user has to provide and whether hydrologic response units (HRUs) are built into the model. Zoltay responded that land use areas and runoff and recharge time series are inputs to the model, and that adding preprocessed hydrologic data would be a top priority in future iterations.

Baskin asked if the development team had been able to ground-truth the model results through previous studies of costs and alternatives. Zoltay responded that the HSPF (Hydrologic Simulation Program--Fortran) model is available for comparison of hydrologic data. She noted that studies of management practices are hardest to come by and invited ideas. Cohen suggested the USGS report on the Ipswich River Targeted Watershed program may help with calibration.

She noted that the study indicated limited effect on streamflow from reducing effective imperviousness by half. Weiskel added that results of that analysis were partly influenced by the amount of developable land left in the watershed. Cohen clarified that the portion of the study she was referring to was an analysis of reducing effective imperviousness in existing development, not future development.

Pederson expressed concern that gathering the data required to run the model is not a simple process and will likely require the services of a consultant for most water suppliers. She acknowledged the utility of the tool, but added that there are costs associated with using it. Zoltay responded that the development team hopes to build an inventory of case studies, to see if savings resulting from running the model will offset the costs.

There was some discussion about outreach needed to roll out the model nationally.

Hansen asked about the source of data on hydrologic characteristics. Zoltay responded that the user could obtain these data from a detailed simulation model such as HSPF or SWAT (Soil and Water Assessment Tool). She added that USGS has several such models for Massachusetts and New England. Hansen discussed the complexities of obtaining values for hydrologic response units and running the HSPF model. McGovern commented that many communities have such data available from drainage and flooding studies, and Pickering added that national models with runoff and recharge rates are becoming available.

Zoltay outlined the next steps, including public release of the model on EPA's website in the next few months. She also outlined future work, including building an inventory of case studies, providing default input data, automating some capabilities, and adding functionality.

Agenda Item #4: Discussion: Follow-up to Water Resources Commission Roundtable and Policy Discussion

Baskin commented that the Water Resources Commission had engaged in a lively discussion at the commission retreat in May. She introduced Sara Cohen of DCR to facilitate a follow-up discussion of topics that commission members identified as their greatest concerns and highest priorities in the area of water resources.

Cohen highlighted themes that emerged from the discussion at the May retreat, including wastewater management, paradigm shifts, and education. She added that commission staff, following the meeting, had brainstormed on the theme of education and appropriate vehicles for communication, recognizing limited staff resources. She distributed a summary of staff ideas on education and highlighted topics for key messages, based on the commissioners' comments from the retreat. These included the value of water, illuminating how government agencies work, water conservation and efficiency, wastewater reuse, and how the state can best facilitate conversations on managing water resources at the local level.

She also outlined staff ideas on vehicles for communicating these messages, such as making use of social media, developing a presentation or "road show" to present at various events, engaging DCR Park interpretive staff to deliver water-related messages to park visitors, using public service announcements, developing partnerships with existing awareness-raising campaigns, and developing a Water Resources Commission annual report as an outreach vehicle for key messages.

She invited commission members to discuss these ideas as a starting point, and suggested that, through the discussion, commission members coalesce behind one goal that is achievable in the short term and turn that into action items.

Downs noted that The Waterworks Museum has many resources that may be useful.

Jack commented that a road show can be effective in reaching a wide range of organizations and decision-makers directly. He added that the Water Resources Commission and the issues it addresses are wholly misunderstood at the local level. He noted that a road show could be an ongoing effort. Baskin asked for further discussion of the message that would be communicated. Jack suggested explaining the interrelationships among water, wastewater, and stormwater as one system, to help decision-makers understand impacts on the environment and the basis for regulations. He suggested a message that moves municipal decision-makers to embrace various requirements as things they want to do rather than things they have to do. Carroll asked if commission members were familiar with the Water Environment Federation's "Water Is Worth It" campaign materials, which focuses on the value of water. Jack acknowledged that, while this is an important concept, he would like to convey a broader understanding of all the ways in which water is important not just for drinking water supply, but also for all its other uses and its role in the environment.

Zimmerman commented that a road show would have limited effectiveness unless there is a controversy that focuses attention on an issue. He suggested targeting geographic areas where there is a serious controversy or communities are facing difficult decisions. He added that the commission could play a useful role in helping communities understand the issues related to water.

Contreas commented that approaching particular audiences with a goal of creating dialog and energy would be more effective than trying to reach the general public. As an example, she suggested presenting to a meeting of mayors, who meet monthly, and asking the mayors to bring their public works directors.

Matthews expressed concern that the level of resources needed to run a public outreach campaign may be beyond the capabilities of the commission's members. He also commented that it is more important to reach political leadership and elected officials, as the issues are very complicated. He suggested targeted outreach through organizations, such as the Massachusetts Municipal Association. He agreed with the concept of tailoring a message to the concerns of different geographic regions.

Baskin agreed that DPW officials are generally knowledgeable, and that messages need to be targeted to elected officials as well as to rate payers. Zimmerman agreed that a presentation to people who are involved in policy and regulatory decisions provides an opportunity for dialog.

In summarizing the ideas expressed, Cohen noted that Commission members expressed interest in crafting a message to be delivered through a presentation to target audiences. She noted that some differences of opinion remain about who those audiences are, the appropriate substance of the message, and the right moment for delivering the message. She also noted the suggestion to use current controversies as opportunities to communicate a message where there is already interest in a topic.

Lebeaux commented that the interests of an agricultural audience would be different, and even within that audience, there are subgroups, such as cranberry growers, who are more knowledgeable than others, on water issues. He suggested outreach at agricultural events on the issues of both water quality and water use and conservation. He noted that a presentation on the Sustainable Water Management Initiative by MassDEP at a summer meeting of nursery and landscape professionals generated a surprising amount of interest. He added that it is important for government agencies to hear directly the concerns of those affected by regulations. Regarding outreach to municipal officials, he pointed out that small towns have different capacities and resources available than cities.

Contreas cautioned against following controversy, noting that people are not listening when they are embroiled in controversy, and would not be receptive to explanatory information, as their only concern is stopping whatever it is that has disturbed their way of life.

Regarding the effective use of social media, Zimmerman cautioned that the commission would do well to engage the services of a professional. Baskin also suggested collaborating with local colleges, such as Emerson College, on communication projects.

Pederson noted that an alliance is being formed to address the water infrastructure issue, and the alliance is using the "Water Is Worth It" campaign materials. She cautioned against creating competing messages, but instead to pick messages from existing campaigns that would work for the audiences the commission wishes to target. Baskin asked for more details on the alliance. Pederson explained that the alliance is focused on raising awareness for the need to invest in water infrastructure and the economic, environmental, and other benefits of such investments. She added that the Metropolitan Area Planning Council is helping with the public outreach efforts of the alliance. Cohen asked if Pederson sees a role for the commission through that vehicle. Pederson suggested the commission consider signing on to a piece related to funding infrastructure through the environmental bond. Baskin cautioned that there may be limits on what the commission can do in regards to lobbying the legislature.

Callaghan asked if the commission comments on large developments through the Massachusetts Environmental Policy Act (MEPA) process. Baskin explained that, as the executive director, she will comment on behalf of the commission on issues over which the commission has direct authority, such as interbasin transfers, or on projects that have impacts on state resources, such as water bodies. Callaghan asked who, at the state level, is suggesting approaches, such as improving recharge through reducing impervious surface cover, to proponents. He pointed out that the Office of Coastal Zone Management provides such comments in coastal areas. Baskin responded that MEPA staff are attuned to such policies. Pederson asked if MassDEP's stormwater regulations address impacts related to impervious surfaces. Baskin clarified that the stormwater policy is embedded in the Wetlands Protection Act, which provides protections to resource areas and buffers, but the state does not have stormwater regulations that apply statewide. Callaghan commented on the waste of water that occurs when stormwater is piped to culverts; he suggested that stormwater regulations that apply outside of riparian and coastal areas would be a way of highlighting the value of every drop of water.

Baskin noted the upcoming ten-year anniversary of the state water policy, and suggested using this anniversary as an occasion to raise public awareness of changes resulting from the policy, such as requirements to recharge stormwater, adoption of wastewater reuse regulations, and the Sustainable Water Management Initiative (SWMI).

Zimmerman leaves.

Cohen encouraged commission members to choose one idea and develop it into initial action steps. Weidman suggested that the commission choose an audience and decide what the message is, or choose a message and determine who the audience for that message is. Pederson suggested that an annual report would be a doable first effort and cited the annual report produced by the Division of Ecological Restoration as a nice model. Dewey suggested looking at the annual Consumer Confidence Report produced by the Massachusetts Water Resources Authority.

Cohen suggested two potential directions for moving forward in the near-term, based on the discussion up to that point. One could be for the commission and staff to start work on a written document, such as an annual report, as a vehicle for education. A second could be for the commission and staff to begin tracking local water issues over the next month or two for the purpose of identifying some of the pre-crisis moments at the local level, where people are starting to tune in to water because of some local concerns or activities but are not yet embroiled in controversy. Based on the opportunities identified, the commission would identify who will be paying attention, what the prime message should be, and how that would be delivered.

Discussion followed on whether education efforts should be broad or targeted to particular crises or regional concerns.

Pederson noted that outreach on SWMI will require many public meetings and urged caution on an approach that involves additional public meetings about water.

Contreas expressed concern that responding to local crises would move away from the broader goal of education and outreach on issues surrounding water. She advocated for a broad approach – not focused on specific regulatory issues, such as SWMI, or individual problems at the local or regional level – but one that provides a context for these issues.

Carroll asked if it would be helpful to develop a piece that would complement the work of the water infrastructure alliance, or to have commission members or staff be a more active partner.

Matthews said that outreach should provide a context for issues such as the need for investment in infrastructure and interbasin transfers. He noted that much good work is being done by the commission, and advocated for efforts that explain what the commission does.

Baskin suggested a hybrid piece providing a general message about what the Water Resources Commission does and targeting individual concerns in different regions.

Pederson commented that an annual report to the legislature would complement what the infrastructure alliance is doing and would reach many people. The report could encapsulate who the Commission is, what it is responsible for, and what it does, in a graphical, easy-to-read format. Matthews agreed this would provide context for the legislature on many issues, such as interbasin transfers. Contreas expressed concern that people do not read annual reports unless they have to. Matthews responded that, given the efforts related to the Water Infrastructure Finance Commission's report, the commission would do well to anticipate questions that may arise and develop a succinct piece that provides context.

In summarizing the discussion, Cohen said it appears that commission members are leaning toward developing a short written piece that summarizes basic information about water resources

that people need to understand in order to participate effectively in some of the major discussions taking place, including the water infrastructure financing issue, with some information on the Water Resources Commission and its role. Baskin added that the piece should have some elements typically found in an annual report, since the commission is required to produce such a report. Weidman suggested including short pieces on hot topics.

Meeting adjourned, 3:10 p.m.

Documents or Exhibits Used at Meeting:

- WRC Meeting Minutes:
  - July 11, 2013
  - August 8, 2013
- Summary: WRC Retreat Discussion, May 9, 2013
- Amendment to the September 13, 2001, Interbasin Transfer Approval for Witch Pond Wells, Foxborough, Massachusetts
  - Water Resources Commission Decision and Report of Its Findings. July 11, 2013. Amendment to the September 13, 2001, Interbasin Transfer Approval, Foxborough Witch Pond Wells
  - Link to Figures 1, 2, 3, and 4: http://www.mass.gov/eea/air-water-climate-change/preserving-water-resources/partners-and-agencies/water-resources-commission/ma-water-resources-commission-meetings.html
- Correspondence dated June 21, 2013, from MassDEP to town of Shrewsbury regarding Sustainable Water Management Initiative Pilot Project.
- Interbasin Transfer Act project status report, August 26, 2013
- Current Water Conditions in Massachusetts, September 12, 2013
- May 2013 Water Resources Commission Retreat Follow-up – WRC Staff Brainstorm on Education
- Massachusetts Department of Environmental Protection. List of scheduled meetings and calls with participants in the Sustainable Water Management Initiative pilot projects.
- Presentation by Viktoria Zoltay, Abt Associates. Watershed Management Optimization Support Tool, September 12, 2013.
- May 2013 Water Resources Commission Retreat Follow-up: WRC Staff Brainstorm on Education

Agendas, minutes, and meeting documents are available of the web site of the Water Resources Commission at http://www.mass.gov/eea/air-water-climate-change/preserving-water-resources/partners-and-agencies/water-resources-commission/ma-water-resources-commission-meetings.html.