THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for September 16, 2010

Members in Attendance:

Kathleen Baskin	Designee, Executive Office of Energy and Environmental Affairs
Marilyn Contreas	Designee, Department of Housing and Community Development
Jonathan Yeo	Designee, Department of Conservation and Recreation
Glenn Haas	Designee, Department of Environmental Protection
Gerard Kennedy	Designee, Department of Agricultural Resources
Tim Purinton	Designee, Department of Fish and Game
Joseph E. Pelczarski	Designee, Massachusetts Office of Coastal Zone Management
John Lebeaux	Public Member

Others in Attendance:

Anne Carroll	DCR	Alison Field Juma	Organization for the Assabet River
Michele Drury	DCR	Patricia Walsh	MA Dept. of Public Health/ BEH
Linda Hutchins	DCR	Michael Celona	MA Dept. of Public Health/ BEH
Bruce Hansen	DCR	Jennifer Pederson	Massachusetts Water Works Assn.
Erin Graham	DCR	Laurel Schaider	Silent Spring Institute, Newton, MA
Marilyn McCrory	DCR	Rick Reibstein	Mass. Office of Technical Assistance
Vandana Rao	EEA	David Daltorio	Town of Hopkinton
Bill Hinkley	EEA	Tsedash Zewdie	MassDEP
		Diane Manganaro	MassDEP

Agenda Item #1: Executive Director's Report

Baskin announced that EEA continues its initiative – working with the Department of Environmental Protection, Department of Energy Resources, Environmental Protection Agency, and municipalities – to increase energy efficiency and the use of renewable energy in water and wastewater operations. The initiative is in its second year and aims to reduce greenhouse gas emissions and improve the bottom line of water and wastewater utilities.

Hydrologic Conditions Report

Hansen provided an update on the hydrologic conditions for August 2010. Statewide, August precipitation was normal, but with some variation in the different regions of the state. The western two-thirds of the state remain deficient in rainfall. High temperatures and resulting high evapotranspiration have led to soil moisture deficiency, which has elevated fire danger. Groundwater levels ranged from below normal to above normal. Streamflows in the western part of the state have declined significantly in September and are nearing record low daily flows at stream gages in the Deerfield, Hoosic, Housatonic, and Westfield river basins. Drought indices currently show the western part of the state is in a moderate drought, with the central part of the state abnormally dry.

Drought Status Update

Baskin noted that the Drought Management Task Force has declared a drought advisory for two regions of the state (Central and Northeast). Hutchins provided an update on drought management resources and current drought conditions in Massachusetts. She listed the members of the Drought Management Task Force and noted that the Massachusetts Drought Management Plan is undergoing revisions. She called attention to the DCR rainfall web page, which provides updates on drought status (http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm), and the DCR monthly water conditions reports, also on the DCR web site. She explained that the Drought Management Task Force considers each of the six precipitation and drought regions of the state individually when making decisions on drought declarations. She showed a map indicating that a drought advisory is in effect for the central and northeast regions of the state.

Hutchins reviewed the seven indices that the task force considers for drought declarations, noting that a drought is not measured by precipitation alone. The drought indices are precipitation, the Massachusetts Standardized Precipitation Index, crop moisture index, Keetch-Byram Drought Index (indicating fire danger), groundwater levels, surface water flow, and reservoir levels. Each index has its own threshold to guide decisions about when conditions for that index reach each of the five drought levels (from "normal" to "emergency"). Each month, the task force reviews the status of each index for each drought region. The level of drought declaration in that region is determined by the drought level for the majority of indices.

Hutchins also reviewed some of the data gathering tools, including the Massachusetts precipitation monitoring network, consisting of 100 rain gages monitored by volunteers; the U.S. Geological Survey stream gage network, consisting of 100 gages; the USGS groundwater monitoring network; weekly reporting by the 14 districts in DCR's Bureau of Forest Fire Control; and reporting by small, medium, and large reservoirs across the state.

Baskin noted that WRC staff is finishing revisions and updates to the Drought Management Plan, which will be presented to the commission for review and adoption at an upcoming meeting.

Agenda Item #2: Presentation: Emerging Contaminants in Cape Cod Drinking Water

Baskin introduced Dr. Laurel Schaider of the Silent Spring Institute. Baskin noted that the institute's study of Cape Cod drinking water was funded by the Massachusetts Environmental Trust.

Schaider provided a brief introduction to the Silent Spring Institute of Newton, Massachusetts, which was originally founded to address elevated breast cancer incidence on Cape Cod. She reported the results of a study that tested public drinking water supply wells on Cape Cod for a suite of emerging contaminants. She thanked the nine public water supply systems who cooperated and assisted in the study.

Schaider provided background on the issue of emerging contaminants, such as pharmaceuticals, hormones, flame retardants, and other chemicals, and explained that these are considered "emerging" because improved analytical techniques allow researchers to measure these constituents at low levels that are typically found in the environment. She noted that the health implications of exposure to low levels of these constituents are not known, and these constituents are not currently regulated in drinking water.

Schaider outlined the goals of the Silent Spring Institute's study, which included measuring the presence and levels of emerging contaminants in Cape Cod public drinking water supplies; comparing results to other studies and health-based guideline values; determining which factors predict the presence of emerging contaminants; and recommending how the results can be used for more effective management of wastewater and protection of drinking water resources.

She reviewed how these chemicals enter the environment, noting that 85% of Cape Cod residences rely on septic treatment systems, while sandy soil conditions and a shallow, unconfined aquifer on Cape Cod make the aquifer vulnerable to contamination. She reviewed previous studies of emerging contaminants by the Silent Spring Institute and others.

Schaider explained the study design, including how the 20 wells and two distribution systems were selected (for a total of 22 samples) and the types of chemicals for which tests were conducted. She then reviewed the results. Of the 92 organic contaminants that samples were tested for, 18 were found in at least one sample, and 15 of 20 wells and both distribution systems contained at least one chemical. She explained that all detections were at the parts-per-trillion level, and showed how these quantities compare to EPA drinking water standards and other types of exposure. She also discussed the number of chemicals found in each sample, ranging from no detections in five of the samples to a maximum of twelve chemicals in one of the samples. She also reviewed the most frequently detected chemicals. She compared the results to results in other U.S. studies. She also pointed out the chemicals that were not found in any sample, including hormones, alkylphenols, and herbicides.

Schaider explained that the study authors analyzed three predictors of emerging contaminants: the percent of the Zone II around drinking water wells that was used for residential land uses, nitrate concentrations, and boron concentrations. For each of these, the study examined the number of chemicals detected in each sample and the sum of pharmaceutical concentrations in each sample. The results showed increases in both the number of chemicals detected and the sum of pharmaceutical concentrations with increases in residential land uses in Zone IIs. Similar increases in numbers and concentrations were found with increases in nitrate concentrations and boron concentrations. She noted that no samples exceeded the drinking water standard for nitrate (10 milligrams per liter).

She discussed the possible sources of the contaminants found, including septic systems, a wastewater treatment plant, an airport, and runoff from construction sites. She compared the results to health-based guideline values, noting that none of the samples exceeded available guidelines, but added that guideline values are not available for most emerging contaminants. She also reviewed the health effects of some of the chemicals based on animal studies of much higher doses and reviewed other considerations in weighing the effects of low-dose exposures.

Schaider summarized the study's observations, noting that emerging contaminants were found in three-quarters of the samples. She reviewed recommended steps to protect drinking water, such as identifying and reducing the sources of perfluorinated compounds (PFOS and PFOA) and protecting zones of contribution around drinking water sources. She also outlined steps individuals can take at the household level to prevent chemicals from entering wastewater, such as not flushing unused medications and reducing reliance on household products containing chemicals. She concluded by outlining future studies to be done by the Silent Spring Institute. She directed those interested in more information to the institute's web site (www.silentspring.org).

Questions and discussion followed Schaider's presentation. Yeo thanked Schaider for her presentation and commented that the Massachusetts Water Resources Authority has tested the Quabbin/Wachusett reservoir system and has not detected pharmaceuticals. There was further discussion of how pharmaceuticals enter the wastewater system. Other questions concerned whether ecological risk guidelines were consulted for any of the chemicals; the reason for sampling raw water rather than finished water; why the study did not test for certain chemicals; evidence for the effectiveness of carbon filters in removing organic chemicals; and the sources for some of the chemicals.

Pederson, speaking on behalf of public water suppliers, noted that the study tested for the presence of chemicals at the parts-per-trillion level. She also expressed concern about policies that favor groundwater discharge of treated wastewater.

Baskin thanked Schaider and invited the Silent Spring Institute to report again to the Water Resources Commission on the results of its study of private wells on Cape Cod.

Agenda Item #3: Vote on the Minutes of July 2010

Baskin invited motions to approve the meeting minutes for July 8, 2010.

VOTE	A motion was made by Yeo with a second by Lebeaux to approve the meeting minutes for July 8, 2010. The vote to approve was unanimous of those present with one abstention (Haas).

Agenda Item #4: Discussion and Vote: Offsets for the proposed Alprilla Farm Wells to negate any increase under the Interbasin Transfer Act (MGL Chapter 21 §§ 8B -8D

Drury provided a brief review of the Alprilla Farm wells project in Hopkinton, explaining that the proposed wells are associated with the development of Legacy Farms, a mixed-use development. Some wastewater will be discharged through the Legacy Farms on-site groundwater discharge system, while the remainder will be discharged through the Hopkinton sewerage system. The town of Hopkinton is proposing to offset the 27,000 gallons per day of water that would be transferred to the Charles River Basin. After discussing options with WRC staff, the town is proposing to offset the transfer by reengineering the SCADA system to reduce the pumping capacity of the wells by 27,000 gpd. This reengineering would result in no net increase in interbasin transfer. Drury outlined the conditions that must be met, including providing documentation that the town has reprogrammed its SCADA system and providing WRC Staff with copies of the town's MassDEP annual statistical reports over the lifetime of the Alprilla Wells. Drury said that staff recommends the Interbasin Transfer Act will not apply if the town follows through with these actions.

Purinton asked if other offset opportunities were considered. Drury responded that other options were considered, such as infiltration/inflow removal and stormwater recharge, but these would not offset the transfer because they would not remove water going out of basin to the Milford wastewater treatment plant. She added that the proposed approach is easily done and easily quantifiable and also has precedents approved by the commission. Contreas requested clarification on language in the staff memo; Drury agreed to clarify the language so that it is understood that the town of Hopkinton will take over the Alprilla Farm wells.

V O T E	A motion was made by Haas with a second by Contreas and Kennedy to accept the offset under the Interbasin Transfer Act as proposed by the town of Hopkinton and outlined by the September 16, 2010 WRC staff memo on this project. The vote to approve was unanimous of those present.

Agenda Item #5: Discussion and Vote: Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for Massachusetts Stream Basins

Baskin noted that the Water Resources Commission had received comments from the Massachusetts Water Works Association (MWWA) on a motion presented at the July commission meeting to endorse the Massachusetts Water Indicators (MWI) report. The MWWA requested that any policies that might be adopted by the commonwealth, based on the MWI report, be discussed by the commission before approval. Baskin commented that this is standard operating procedure for any commission-related policy. Baskin read a new motion.

V O T E	A motion was made by Yeo with a second by Lebeaux to accept as complete the USGS 2010 report, "Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for MA Stream Basins," and recommends that this report be used to inform technical and policy matters related to water resources in the Commonwealth. The vote to approve was unanimous of those present.

Kennedy requested clarification on the regulations that would be likely to use the MWI report and how the report would be applied in making decisions. Baskin responded that the report is a technical document that could help to inform future policies in many arenas, such as regulations related to stormwater management or Water Management Act regulations on water withdrawal, but there are no definite plans for applying the indicators described in the report. Haas added that the report is currently being used to inform the development of streamflow criteria, as part of the Sustainable Water Management Initiative. Baskin noted that results of the MWI are being compared to fisheries data to assess the relationship between human impacts and the condition of fluvial fish.

Pelczarski asked if all other indicators that may be developed in the future must come before the commission for approval before they can be used. Baskin responded that the motion to accept the current MWI report does not exclude the use of other indicators that may be developed in the future as science evolves.

Pederson thanked the commission for considering MWWA comments and for clarifying the intent of the motion. She added that MWWA would prefer to see the MWI report be applied in policy decisions in place of the 2001 stressed basins report, as the MWI report presents more robust scientific information. Baskin confirmed that this is the intent.

Recognition of Glenn Haas of MassDEP

Baskin thanked Glenn Haas of the Massachusetts Department of Environmental Protection for his long service on the Water Resources Commission and to the commonwealth. She noted that Mr. Haas, who plans to retire October 1, has been involved in environmental matters in the commonwealth since before the Clean Water Act was enacted. She commended him for his role

in the cleanup of rivers in the commonwealth through the development of water quality criteria, in protecting wetlands through the establishment of the Wetlands Protection Act, and in helping to balance the needs of human demand and the environment through the Water Management Act and Safe Drinking Water Act. On behalf of the commission and the commonwealth, she thanked him for leaving a legacy that will carry on into the future.

Meeting adjourned

Attachments distributed at or before meeting or presented at meeting:

- Current Water Conditions in Massachusetts, September 16, 2010
- Current Water Conditions in Massachusetts, August 12, 2010 (distributed electronically)
- WRC Meeting Minutes for July 8, 2010
- Handouts for presentation by Silent Spring Institute (Agenda Item #3):
    - Schaider, Laurel, Ruthann Rudel, Sarah Dunagan, Janet Ackerman, Laura Perovich, and Julia Brody. *Emerging Contaminants in Cape Cod Drinking Water*. May 2010. Technical Report, Silent Spring Institute.
    - Emerging Contaminants in Cape Cod Drinking Water: Frequently Asked Questions.
- Staff Recommendation, Sept. 16, 2010: Offset Credits Resulting in No Net Increase in Interbasin Transfer: Town of Hopkinton, Alprilla Farm Wells
- Public Notice: Schedule for Preparation of Water Needs Forecasts for Public Water Suppliers with Water Management Act Permits in the Islands Basin.
- Interbasin Transfer Act project status report
- Zimmerman, M.J., Barbaro, J.R., Sorenson, J.R., and Waldron, M.C., 2010, Effects of selected low-impact-development (LID) techniques on water quality and quantity in the Ipswich River Basin, Massachusetts—Field and modeling studies: U.S. Geological Survey Scientific Investigations Report 2010–5007, 113 p. (Available at http://pubs.usgs.gov/sir/2010/5007/).
- Renee L. Fitsik, Steven Roy, Sara Cohen, Effectiveness of environmentally sensitive site design and LID on stormwater runoff patterns (Available at http://www.stormh2o.com/july-august-2010/effectiveness-environmentally-sensitive.aspx)