THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for February 9, 2012

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

Minutes approved March 8, 2012

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)
Bethany Card	Designee, Department of Environmental Protection (MassDEP)
Gerard Kennedy	Designee, Department of Agricultural Resources (DAR)
Tim Purinton	Designee, Department of Fish and Game (DFG)
Joseph E. Pelczarski	Designee, Massachusetts Office of Coastal Zone Management (CZM)

Members Absent

Thomas Cambareri	Public Member
John Lebeaux	Public Member
Bob Zimmerman	Public Member

Others in Attendance:

Bruce Hansen	DCR
Duane LeVangie	MassDEP
Linda Hutchins	DCR
Robert Lowell	DCR
Tom Lamonte	MassDEP
Jennifer Pederson	Mass. Water Works Association
Vandana Rao	EEA
Michelle Craddock	DFG/ Div. of Ecological Restoration
Michele Drury	DCR
Marilyn McCrory	DCR

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

Agenda Item #1: Executive Director's Report

Baskin welcomed Bethany Card, Assistant Commissioner of the Bureau of Resource Protection, as the new designee representing Commissioner Kenneth Kimmel of the Department of Environmental Protection.

Hansen provided an update on the hydrologic conditions for January 2012. He noted that warm and snowless winter conditions continue. Average statewide January precipitation was 3.1 inches, mostly in liquid form, representing 87 percent of normal, with the highest amounts in the Cape Cod and the Islands region. He noted that most of the state, with the exception of the highest reaches of the Berkshire Mountains, is without snow cover. Even areas with snow cover have below-normal amounts, and the National Weather Service considers areas in northern New

England as experiencing drought conditions. As a result, the spring flood potential is forecast to be much below normal at this time.

Groundwater levels are normal in the southeast and northeast regions and above normal to much above normal in other regions of the state. Surface water flows are in the normal range throughout the state. Reservoir levels are above normal for this time of year. All drought indices show no potential for drought through April.

Baskin asked about the implications for fire danger. Hansen responded that because of the absence of snow cover and lack of rain, fire conditions in Massachusetts are moderate, which is unusual for winter. Baskin noted that Massachusetts typically experiences higher streamflows in the spring and requested that conditions be closely monitored, given the absence of a snow pack. Hansen responded that the higher rainfall amounts in the fall have resulted in higher groundwater levels than might be expected, given the dry conditions. Streamflow levels, as a result, are close to normal, because most are being fed by groundwater. He cautioned that a large rainfall could still produce peak runoff because there is no snow to absorb it.

Agenda Item #2: Vote on the Minutes of January 2012

Baskin invited motions to approve the meeting minutes for January 12, 2012.

VOTE	A motion was made by Contreas with a second by Kennedy to approve the meeting minutes for January 12, 2012. The vote to approve was unanimous of those present (Purinton and Yeo not present for vote; Drury voted on Yeo's behalf).

Agenda Item #3: Presentation: DCR Stormwater Engineering and Public Information from the 2011 NPDES MS4 Annual Report

Baskin welcomed Robert Lowell of the Department of Conservation and Recreation (DCR). She noted that Lowell took a struggling stormwater program and turned it around into an award-winning program.

Lowell briefly introduced DCR and its history, noting that the agency was formed in 2003 by merging the Metropolitan District Commission and the Department of Environmental Management. About the same time, the Clean Water Act, through the National Pollutant Discharge Elimination System (NPDES) permit program, began requiring stormwater management programs in urbanized areas.

[Purinton arrived.]

Lowell provided an overview of DCR and its properties across the state and the types of properties affected by the NPDES municipal separate storm sewer systems (MS4) permit program. He outlined the challenges facing DCR, including its statewide jurisdiction, a range of types of properties to manage, and jurisdiction over properties with a 100-year-old history. The first step in complying with the permit program was to identify all drainage structures and set up a georeferenced drainage database. Pelczarski commented that access to such a database through MassGIS would be useful for emergency management purposes.

[Yeo arrived.]

Lowell outlined the six main elements of the NPDES MS4 program: public education and outreach, public participation, illicit discharge detection and elimination, construction site storm water management, pollution prevention and good housekeeping, and best management practices to meet total maximum daily loads (TMDLs) and waste load allocations. Lowell said much of the effort of the DCR program has addressed pollution prevention and good housekeeping practices. He described the challenges involved with MS4 program compliance at diverse properties across the state. One of these challenges is controlling discharges from sources that may originate on properties outside of DCR's ownership or jurisdiction.

Lowell highlighted efforts related to each of the program's six elements. Highlights include a five-year cycle for dry weather sampling of 1,774 outfalls, resulting in identification of ten to fifteen suspect contamination connections annually. He also described the program for cleaning 15,000 catch basins and drainage manholes using a georeferenced database to track maintenance and repair activities. The street sweeping program targets roadways that drain to impaired water bodies, with four sweeping cycles per year for most roadways. Timing street sweeping with the schedule for grass cutting is one way to reduce phosphorus loads resulting from grass clippings being washed into catch basins. There were some questions and discussion of composting practices for street sweeping and catch basin residuals and options for beneficial reuse of residuals.

Other program highlights included public education to reduce pet waste and discourage feeding of gulls and efforts to reduce goose activity and populations along the Charles River. Wetland plantings are also being used to improve the look and performance of outfalls to the Charles River. He described the challenges of complying with TMDLs for different types of pollutants in rivers, harbors, and bays. He concluded by outlining the 2012 challenges for DCR's stormwater program. He also highlighted demonstration projects involving pond restoration in Cambridge and use of permeable paving along Memorial Drive by Elliot Bridge. He added that DCR is looking for other opportunities to use permeable paving where it makes sense in parking lots and other areas near impaired water bodies.

Yeo described other efforts by DCR as part of its watershed protection plan for the Wachusett Reservoir, including partnering with a nonprofit organization and seven communities on a regional center to collect household hazardous waste and preventing dumping on DCR property and private property. He added that DCR's water supply protection division also provides technical assistance, such as mapping capabilities, to local communities in complying with MS4 program requirements.

Pelczarski noted that water quality data would be invaluable to other state agencies in assessing impacts to fish. Pederson urged DCR to comment on a bill before the legislature to ban phosphorus in fertilizers. Card added that MassDEP is partnering with other New England states on a template for voluntary guidelines for fertilizer manufacturers. Purinton asked if there had been any dialog with the Department of Transportation on stormwater best management practices. Lowell discussed information-sharing with DOT. Yeo added that DOT funded a $2.5 million construction project to redirect seven drains that had drained directly to drinking water reservoirs.

In response to a question from Hutchins about DCR's experience with the FlexiPave permeable pavement material, Lowell responded that the material has been well received by users. Because it is a softer surface than a conventional bituminous surface, it requires more care in plowing. He

noted another location where use of permeable pavement in a parking lot allowed elimination of a problematic outfall. He added that this material is about five times more costly.

Agenda Item #4: Presentation and Discussion: Draft SWMI Framework

Baskin introduced Linda Hutchins of DCR and Duane LeVangie of MassDEP. She noted that the speakers would present a summary of the framework that was discussed at the February 3 meeting of the Sustainable Water Management Initiative (SWMI) Advisory Committee. She added that technical questions about the proposed framework would also be discussed at the next meeting of the SWMI Technical Subcommittee.

Hutchins reviewed the scientific studies that led to the development of biological categories, flow levels, and streamflow criteria. The first step was to develop a statewide screening tool, using the best available science, to describe and categorize the current conditions of aquatic habitats throughout the entire state. Though the tools are considered cutting edge, there is every expectation that the scientific tools will continue to improve, and that these improvements will be incorporated into management decisions. The research resulted in development of streamflow criteria.

Hutchins discussed two studies by the U.S. Geological Survey in cooperation with the Massachusetts Department of Fish and Game. These studies identified highly significant variables and a model of fluvial fish relative abundance, which served as an indicator of aquatic health. The quantitative analyses and modeling resulted in development of five biological categories, which represent biological loss associated with ranges of percent alteration of August flows.

Hutchins noted that a follow-on USGS study reviewed a larger set of variables, improved the correlations, and developed a stronger statistical model. Several variables were identified as significant through the analyses. Where the preliminary study used net August alteration as a key variable, the final study identified as significant the variable August percent groundwater alteration, or streamflow depletion from groundwater withdrawals in August. Based on the new analyses, flow levels were adjusted to correspond to the biological categories, and streamflow criteria were developed.

Hutchins reviewed the five flow levels corresponding to the five biological categories and the draft streamflow criteria for each season. Seasonal streamflow criteria are based on the percent allowable alteration of estimated unimpacted August median flow, ranging from three to twenty-five percent. She noted that the numbers are still under discussion. In response to a question from Pederson, Hutchins confirmed that surcharges are not being considered in the biological categories or flow levels. Baskin added that, even with surcharges, a link was established between groundwater withdrawals and changes in fluvial fish abundance.

LeVangie described how the scientific analyses will be used in permitting withdrawals under the Water Management Act. He outlined principles that will be used in WMA permitting. These principles will focus on minimization and mitigation of impacts based on the quality of habitats and the amount of increase in withdrawals requested in a permit application.

He explained the four tiers through which groundwater withdrawals will be reviewed in accordance with the draft SWMI framework. He outlined the conditions that would be applied at each tier. The tiers for review are based on the amount of withdrawal requested above a water supplier's baseline and whether or not the additional withdrawals will result in a change in

biological category or flow level. He emphasized that consultation with state agencies will be important.

Pederson asked about how impervious cover will be factored in, since a development outside of a water supplier's control might also result in a change in biological category. LeVangie responded that all 20-year WMA permits in a major basin will be reviewed at the same time, and the latest impervious cover data will be used to determine allocations at that time. He added that the details on how to assess a change in biological category based on later impervious cover changes at the time of a five- or ten-year permit review have not yet been worked out.

Pelczarski commented on the potential for competition among permit applicants and the possibility that a late-coming applicant may trip a change in biological category or streamflow level. LeVangie responded that cumulative change by all permittees will be assessed at the same time, and an applicant who later requests mid-permit increases may have additional mitigation requirements. Baskin added that impacts will be assessed at the 1,400-subbasin scale and that streamflow volume will change as one moves downstream.

LeVangie reviewed the eight standard conditions in WMA permits. The framework proposes to modify two conditions: (1) seasonal limits on nonessential outdoor water use, and (2) water withdrawal increases that exceed baseline.

The condition addressing seasonal limits on nonessential outdoor water use currently relies on a drought declaration by the state Drought Management Task Force as the trigger for increasing restrictions. The SWMI framework proposes to use a seven-day low-flow statistic calculated for the nearest USGS stream gage as the trigger. When this low-flow trigger is activated, all permittees would be required to implement more stringent watering restrictions. This trigger would be more responsive to actual in-stream conditions, both in implementing and in lifting restrictions.

Pelczarski asked how a community's compliance with the conditions would be monitored. LeVangie responded that if the seven-day streamflow trigger is activated, all permitted water suppliers in the basin would be required to impose the appropriate restrictions and notify MassDEP. Hutchins added that the state can send out notices that the trigger has been activated. LeVangie added that a water supplier can request automated notifications from USGS or manually check the USGS Water Watch web site to monitor real-time streamflows (http://waterwatch.usgs.gov/new/?m=real&r=ma).

The second proposed change to permitting conditions would increase the baseline by five percent of either the 2003 to 2005 average withdrawal or the 2005 average withdrawal, whichever is higher. In addition, the baseline could be increased by up to eight percent if the increase would not trigger a change in flow level or biological category. If a withdrawal request exceeds the baseline, mitigation requirements would be identified at the outset, so that mitigation would be in place prior to the baseline being exceeded. Hutchins explained that a community's future water needs, as indicated by DCR's water needs forecasts, will also be factored into the permitting tiers. LeVangie added that the water needs forecast, which factors in conservation performance standards for residential use and unaccounted-for water, could become the baseline in some cases where projections fall below the 2003 to 2005 use volumes. LeVangie added that the state intends a pilot of the proposed framework.

Pederson commented that the baseline concept is not well understood by the water suppliers, many of whom feel that their currently permitted volume should be their baseline. She added that there is also concern about whether the 2003 to 2005 period reflects both wet and dry years. She noted that much education about the baseline calculation is needed.

In response to a question from Kennedy, LeVangie confirmed that the baseline is specific to each water supplier and each permit. If a water supplier has permits in more than one basin, a baseline would be calculated for each permit as well as for a system total. Pederson asked if the baseline applies to all WMA permit holders, including golf courses and other non-public water suppliers. LeVangie responded that the focus in the baseline discussions has been on public water suppliers. For agricultural and other permittees, the baseline may be the same as their permitted volume, because use does not fluctuate as much. LeVangie added that regulatory requirements for agricultural and similar users would likely be based on best management practices.

In addition to the standard permit conditions, LeVangie described several special conditions associated with the permitting tiers. In each tier, special conditions intended to protect high-quality natural resources would apply, and LeVangie outlined what would be expected. In areas that are already most impacted (subbasins with a flow level of 4 or 5), additional minimization and mitigation requirements would apply. At each tier, additional mitigation requirements would apply, commensurate with the amount of additional withdrawal requested. LeVangie reviewed options for mitigation and offsets, including activities related to demand management, habitat improvements, stormwater and impervious cover, instream flow, and wastewater improvements.

Purinton noted that the Division of Fisheries and Wildlife, in cooperation with the University of Massachusetts, is entering information on culverts into a stream continuity database, the Conservation Assessment and Prioritization System (CAPS). Pelczarski commented that information on stormwater culverts should be in a centralized database, accessible to emergency management personnel.

LeVangie discussed the distribution of subbasins into the various biological categories and flow-levels. He noted that a different set of expectations will apply to water suppliers whose sources consist of surface water withdrawals. This set of expectations is outlined in a "surface water transition rule." He noted that the same principles would be applied, in that all permits will be subject to standard conditions 1 to 8, and requests for additional withdrawals above baseline will be subject to mitigation requirements commensurate with the impact of the additional withdrawal requested. He added that, as the scientific understanding of surface water evolves, the transition rule will be modified accordingly.

LeVangie discussed the definition of safe yield and how safe yield will be calculated. Safe yield will be calculated on a major basin scale and will be based on the drought basin yield, which represents the driest period that is likely to occur. LeVangie explained how drought basin yield is calculated using monthly ninetieth percentile low flows based on daily flow statistics from the Sustainable Yield Estimator. Reservoir storage will also be factored into drought basin yield. Fifty-five percent of the drought basin yield represents the safe yield, and forty-five percent will be retained as an environmental protection factor. In addition, seasonal flows will be protected through application of the streamflow criteria at the 1,400 subbasin scale.

Hutchins explained how reservoir storage volumes were factored into the safe yield calculations. Analyses identified reservoir systems that could store more than one year of average inflow and one year of water use. The basin safe yield is increased by this additional storage volume. Staff

identified approximately seven reservoir systems that would qualify for reservoir storage volume.

Purinton commented that the storage volume would not provide any net benefit to streamflows. He added that if one is concerned about streamflow, the environmental protection factor will not be as high if a reservoir system is present in the basin. Baskin responded that the definition of safe yield in the WMA includes the concept of storage. She added that safe yield in itself is the not final protector of streamflows.

LeVangie noted that the Sustainable Yield Estimator tool does not include data that allow analysis in certain areas of the state and outlined the method used to determine safe yield in these areas. In the Merrimack and Connecticut river basins, flow data from stream gages is used. In portions of the South Coastal, Buzzards Bay, and Cape Cod and the Islands basins, safe yield is based on 1965 recharge values.

LeVangie said the intent is to incorporate Safe Yield methodology into regulations. He added that Safe Yield in itself is not intended to dictate water allocations, and it is unlikely that the full safe yield volumes would be allocated. Instead, allocation values will be guided by streamflow criteria and other factors. Flow-depleted subbasins (flow levels 4 and 5) will be represented in regulations.

LeVangie outlined upcoming meetings of the Sustainable Water Management Initiative. Public comment on the proposed SWMI framework is requested by March 9, 2012 (subsequently extended to April 6, 2012.).

Questions and comments addressed the role of the Water Resources Commission and how decisions from the SWMI process will be incorporated into various regulations. Baskin explained that any policy or guidance developed by the Water Resources Commission must be pulled into regulation and permits. The WRC must also approve WMA regulations developed by MassDEP, including regulatory changes addressing safe yield and streamflow criteria. The commission may also develop policy resulting from the Sustainable Water Management Initiative. Purinton asked how other laws and regulations besides the Water Management Act, such as the Interbasin Transfer Act, fit in. Baskin responded that the science developed through the SWMI process has implications beyond the Water Management Act. For example, there are opportunities to explore how streamflow criteria can be incorporated into the Wetlands Protection Act or definition of viable sources in the Interbasin Transfer Act.

Pederson requested clarification on which MassDEP regulations come before the Water Resources Commission for approval. Baskin responded that certain regulations related to water quality and acts that specify WRC approval directly come before the commission for approval.

Pederson expressed concern, on behalf of the Massachusetts Water Works Association, about how public water suppliers will be affected by the proposed permitting tiers and offset and mitigation requirements. She emphasized the importance of the pilots and groundtruthing of the models to see if model results can be verified in the field. She expressed concern about how a public water supplier who implements mitigation strategies will know that they have made an improvement.

Meeting adjourned, 3:15 p.m.

Documents or Exhibits Used at Meeting:

- WRC Meeting Minutes for January 12, 2012
- Correspondence with approved Interbasin Transfer Act parties, December 2011
  a. Avalon Bay, Sharon
  b. Brockton Water Commission
  c. Dedham-Westwood Water District
  d. Elm Bank Water Supply Development, Natick
  e. Foxborough
  f. Mansfield
  g. North Attleborough
  h. Plainville
  i. Reading
  j. Shrewsbury
  k. Wilmington
- Interbasin Transfer Act project status report, 25 January 2012
- Current Water Conditions in Massachusetts, February 9, 2012
- Presentation slides: Public Information from DCR's 2011 National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System (NPDES MS4) Annual Report
- Presentation slides: Sustainable Water Management Initiative
- Massachusetts Sustainable Water Management Initiative Framework Summary, February 03, 2012
- Table: Draft WMA Permit Tiers for Groundwater Withdrawals
- SWMI Framework Appendices, Staff Technical Support Document