THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for October 8, 2009

Minutes approved December 10, 2009

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
Lucy Edmondson	Designee, Department of Environmental Protection
Gerard Kennedy	Designee, Department of Agricultural Resources
Mark Tisa	Designee, Department of Fish and Game
Joseph E. Pelczarski	Designee, Massachusetts Office of Coastal Zone Management
John Lebeaux	Public Member
Bob Zimmerman	Public Member

Others in Attendance:

Michele Drury	DCR	Tim Purinton	DFG/DER
Linda Hutchins	DCR	John Clarkeson	EEA
Bruce Hansen	DCR	Rebecca Cutting	DEP
Sara Cohen	DCR	Jack Buckly	DFW
Marilyn McCrory	DCR	Paul Lauenstein	WSCAC/Neponset River Watershed Assn
Margaret Callanan	EEA	Philip Guerin	Worcester DPW
Vandana Rao	EEA	Jennifer Pederson	Massachusetts Water Works Assn.
Duane LeVangie	DEP	Alexandra Dewey	WSCAC
Richard Friend	DEP	Leo R. Potter	Foxboro Water Dept.
Bruce Strong	EEA	Andrew Poyant	Camp Dresser & McKee
Glenn Haas	DEP	Margaret Stolfa	DEP

Agenda Item #1: Executive Director's Report

Baskin announced that the Massachusetts Environmental Trust is sponsoring a conference on the water resources of Massachusetts on November 10, 2009, at the College of the Holy Cross in Worcester. Issues to be addressed include climate change, stormwater, river flows, and a new paradigm for water infrastructure.

Zimmerman asked when the WRC Work Plan would be discussed and if recommendations were being taken. Baskin responded that a work plan for calendar year 2010 would be presented by the end of this year, and she invited recommendations.

Zimmerman requested a presentation by MassDEP on safe yield, since the commission has an interest in how basin water allocations are determined. Baskin pointed out Item 5 on the agenda

for today's meeting, which is a presentation by MassDEP on the interpretation of safe yield under the Water Management Act. Edmondson commented that there is a distinction in the Water Management Act between safe yield and sustainable allocation. Baskin asked that discussion be continued during the scheduled agenda item.

Baskin announced that, over the winter, state agencies will be finalizing a protocol for cleaning and tagging boats to prevent the spread of zebra mussels. Yeo added that the cleaning program had been successful to date, noting that more than 680 boats had been cleaned. He said there is more concern in Quabbin Reservoir about the spread of invasive aquatic plants. The MWRA advisory committee backs the program, and about 95% of the fishing community is cooperating. DCR is also working with the Department of Fish and Game to convene a Task Force in the Berkshires to determine how to prevent the spread of zebra mussels.

Hansen provided an update on the hydrologic conditions for September 2009. Precipitation in September was below normal, but because of above-normal precipitation in previous months, there was little impact on surface water flows and groundwater levels. The water year, ending September 30, was ranked as the 17th wettest on record, with 52.3 inches of precipitation, or 7 inches more than the long-term average. There is no indication of drought conditions developing in Massachusetts through December 2009.

Agenda Item #2: Vote on the Minutes of August 2009

Baskin invited a motion to approve the meeting minutes for August 13, 2009. Tisa thanked Baskin for communicating his comments on the Hopkinton agenda item in his absence and having these comments reflected in the record.

VOTE	A motion was made by Yeo with a second by Contreas to approve the meeting minutes for August 13, 2009. The vote to approve was unanimous of those present, with three abstentions.

Agenda Item #3: Vote on Foxborough's compliance with the preconditions of its ITA approval for use of the Witch Pond Wells

Drury provided background on this previously approved interbasin transfer (approved September 2001). She noted that Foxborough has met the conditions for water conservation that needed to be satisfied before the Town could begin using the wells. However, because residential consumption (in residential gallons per capita per day) and unaccounted-for water remain high, the town must implement a residential water conservation program and must submit yearly documentation describing actions taken to meet the performance standards and must continue to submit its Annual Statistical Reports to WRC staff for the first five years. The town must also complete a few tests for MassDEP before it can begin using the wells.

Hutchins reviewed results from the baseline monitoring period. She provided background on the project, noting that it involves a small drainage area with sensitive species and surface water resources. She explained the geology and how it affects surface water. She outlined the conditions for approving the wells, including a requirement to maintain near-surface water levels in the Atlantic White Cedar swamp. She outlined the compliance water levels that were established for the peat layer in the swamp, the aquifer, and the surface-water level of Witch Pond. She reviewed the hydrologic monitoring plan for Interbasin Transfer Act approval and showed results from each monitoring location during the baseline monitoring period, noting that

water levels did not fall below the compliance threshold for most locations, except for the surface water levels in Witch Pond. She also reviewed the wetlands monitoring plan, noting that baseline monitoring was completed and accepted in 2007, and recommended moving an ambient monitoring well. She concluded that the baseline monitoring meets WRC conditions for IBTA approval if the following conditions are met:

1. New transducers in the threshold monitoring wells must be installed as indicated in the September 2009 Baseline Monitoring Report. The transducers used to record levels at the compliance threshold monitoring points must be monitored on a real time basis. Foxborough's Witch Pond Wells may not operate when any threshold monitoring well equipment is not operational.
2. The adjustments specified in the Baseline Report should be made and all of the monitoring points should be resurveyed prior to operation of the Witch Pond Wells. The results of the new survey must be included in the first quarterly monitoring report after the wells become operational. In an August 27, 2009, letter, Foxborough proposed to analyze data from Mansfield's DP-4 along with the existing ambient well (F-6).
3. Final approval of the hydrologic monitoring system should be based on DEP inspection and confirmation that the monitoring system is fully operational.
4. Because this is a challenging site to monitor, quarterly monitoring reports are required until WRC and DEP staffs are satisfied that monitoring is proceeding according to the approved monitoring plan.

Staff recommended approval of the baseline monitoring with these conditions.

Tisa asked who will monitor compliance and shut down the wells if water levels fall below the threshold. Hutchins responded that the town must shut down wells within 24 hours of hitting the trigger point; that the town must notify MassDEP if water levels hit the threshold; and that operational monitoring reports are submitted quarterly. LeVangie added that noncompliance can be subject to an enforcement action, if it is discovered later. Tisa expressed concern that the damage would already have been done if the wells are not shut off in a timely manner. He requested that a followup report be submitted one year after operation has started. It was stated that before shutoff thresholds are reached, there are thresholds to cut back use of the wells.

There was some discussion about why it had taken eight years to satisfy the preconditions. Kennedy asked if there is a timeframe on WRC decisions. Drury explained that Interbasin Transfer Act approvals are set up as approvals rather than as permits, explaining that this is why staff must consider the capacity of the source, since the proponent does not return for approval of each increase in withdrawals. LeVangie added that MassDEP can condition the water withdrawal permit.

In response to a question from Lauenstein on unaccounted-for water, Drury said Foxborough conducts leak detection every two years.

V O T E	A motion was made by Yeo with a second by Lebeaux that the Foxborough has met all the preconditions for use of the Witch Pond Wells required by the WRC's 2001 Interbasin Transfer Act approval and Foxborough may use these wells, subject to any outstanding requirements by MassDEP, and subject to the conditions outlined in the Staff Memo dated October 8, 2009, including those concerning RGPCD and UAW, and with a report on compliance with operational requirements to the Water Resources Commission after one year of operation. The vote to approve was unanimous of those present.

Agenda Item #4: Presentation: The New Division of Ecological Restoration

Purinton provided an overview on the merger of the Riverways and Wetlands Restoration programs to create a new Division of Ecological Restoration within the Department of Fish and Game. He explained that the new division has much of the same mission and focus, which is to strengthen the department's ability to look at watersheds comprehensively. The new division will maintain the outreach and technical assistance activities of the Riverways program. He highlighted examples from more than 80 physical restoration projects, including dam and culvert removal; watershed-scale restoration, involving removal of a series of obstructions to restore continuity in river systems; urban revitalization; and bog and swamp restoration. The projects run the length and breadth of the state and focus on restoring ecological integrity to aquatic ecosystems and the riparian zone. He announced a new newsletter, *Ebb and Flow*. He also highlighted the program's partnerships with many stakeholders and noted that the program generally leverages $3 in outside funding for every $1 of the program's project budget, amounting to more than $15 million in leveraged funds for the program's current active projects.

Yeo thanked the new division for its help to DCR in removing two unneeded dams in Hubbardston and West Boylston. Purinton cited these projects as examples of how the program partners with other entities. He also announced a dam-removal training for project managers. Finally, Purinton highlighted three physical restoration projects that integrate flow restoration through dam management, reservoir management, and conservation activities.

Agenda Item #5: Update: Sustainable Water Allocation

Baskin announced that EEA is launching a sustainable water allocation initiative, a new interagency effort to better protect Massachusetts's streams and rivers and to manage water resources more sustainably. The initiative involves the creation of a Sustainable Water Resources Advisory Committee and development of streamflow criteria based on science. The Sustainable Water Resources Advisory Committee will consist of stakeholders and representatives from environmental agencies and will receive input from the Water Management Act Advisory Committee and the Water Resources Commission. This committee will be charged with providing advice to EEA and its agencies on the development of a methodology for sustainable water allocation and will help to develop streamflow criteria.

Baskin pointed out that the Water Resources Commission has been developing the technical underpinnings for this initiative for ten years. The tools that have been developed by DFG, DCR, and MassDEP over the past decade will be used to inform development of the streamflow criteria. The goal is to include conservation measures, reasonable development and job creation, protection of aquatic systems and wildlife, protection of recreation, and waste assimilation. Such efforts will also illuminate understanding of the impacts of impervious surfaces and dams. The intent is to incorporate ongoing and future scientific studies in this methodology.

Baskin said another piece of the sustainable allocation initiative is the reinterpretation of the safe yield definition under the Water Management Act. She invited comments and input on these initiatives.

Edmondson commented that the Water Management Act identifies a two-step process for permitting. Sustainable allocation is the core piece of the permitting decision, and the Act identifies ten factors that must be considered, one of which is safe yield. She added that this approach represents a shift in thinking about safe yield as a two-step process. She said MassDEP would like to engage with stakeholders on sustainable allocation in order to make the permit decision-making process more predictive and incorporate better science into the process. She introduced Richard Friend to present the technical aspects of the safe yield calculation.

Friend provided a presentation on the definition of safe yield and the calculations used to determine safe yield for the 27 major river basins in Massachusetts. He displayed the definition of "safe yield" as it appears in the Water Management Act (MGL c. 21G, §2).

Zimmerman requested clarification on how MassDEP interprets the phrase "safe yield," adding that two state courts had interpreted the phrase as meaning that there is a balance between human demand and natural resource need. Haas responded that the presentation is intended to address this question. Edmondson clarified that the Department is making a distinction between safe yield and sustainable allocation.

Friend displayed the definition of "water source" in the Water Management Act and said that MassDEP has identified the 27 major river basins as water sources. He summarized three components of the safe yield determination: groundwater storage (river base flow); surface water storage (reservoir firm yield); and drought conditions. He reviewed each of these components, explaining the method MassDEP used to calculate each.

For the groundwater storage component, he described two methods of determining base flow. Method 1 involves simulating streamflows under conditions unimpacted by human activity, using the USGS Sustainable Yield Estimator. Method 2 uses drought recharge rates from 1965 (the drought of record). This method is used in coastal basins, inland basins larger than 700 square miles, and for Cape Cod and the Islands. Both methods adjust base flow to account for impervious surfaces, and Friend explained how this loss of recharge and associated reduction in base flow was calculated.

Friend defined the surface water storage component as the firm yield of a reservoir, or the volume available from a reservoir during a drought. He explained that the safe yield determination includes only MassDEP-approved firm yields, which have been determined for some public water supply reservoirs, but not all. Additional firm yield determinations would increase safe yield volumes.

Friend presented the equations used to determine safe yield. He provided an example of how method 1 for determining drought baseflow would be applied to the Charles River Basin and how method 2 would be applied to the South Coastal Basin. He concluded by explaining that the percentage of safe yield that is allocated by the Water Management Act is determined by dividing the WMA-allocated volume by the safe yield volume.

Edmondson commented that this methodology produces a volumetric measure that is just one of ten considerations in the process of permitting and is not the amount of water that MassDEP would allocate.

Following the presentation, considerable discussion ensued on the definition of safe yield, how this definition will be used in water withdrawal permitting, and how safe yield fits into the sustainable allocation initiative.

Zimmerman objected that MassDEP's definition of safe yield implies that all the water available in a river is available for human demand and that it is not a science-based approach. Edmondson responded that MassDEP's intent, going forward, is to improve the allocation process and incorporate streamflow criteria into the decision-making process, which will help MassDEP make more predictable and science-based allocation decisions.

Zimmerman asked for an explanation of the difference between streamflow standards, as proposed in recent legislation, and streamflow criteria. Baskin responded that the intent of both is to have scientists from various state entities and other stakeholder groups develop streamflow criteria. Using the sustainable allocation methodology, which would look at the ten factors, including safe yield, MassDEP would incorporate streamflow criteria into water allocation decisions.

Baskin noted that developing an approach to sustainable water resources has been part of the Water Resources Commission's Work Plan for the past two years, and the intent is to build on the science that has already been developed through such efforts as the stressed basins update, Index Streamflows, Massachusetts Water Indicators, and Target Fisheries studies. She invited input on development of a sustainable allocation methodology and noted that EEA would like to move quickly on this initiative. She invited participation in two committees. One will be a stakeholder group that will look at sustainable water management, including allocation methodologies, and make a recommendation to the EEA Secretary. Another is a technical subcommittee of this stakeholder group, which will develop streamflow criteria.

Zimmerman expressed reservations that the proposed safe yield numbers would favor human demand and would not protect water resources in a drought situation. He added that allocation already exceeds what is sustainable for all rivers east of Worcester.

Yeo commented that the definition of safe yield in the Water Management Act is the traditionally used, physical definition of safe yield and that it has little to do with what is sustainable. He added that the safe yield numbers will not mean much in permitting and that MassDEP already uses many factors in its permitting decisions. The next step is to establish criteria for making water resources decisions.

Zimmerman asked what the role of the Water Resources Commission is in this process. Baskin responded that the Water Management Act references the commission's role two ways. First, any policy and guidance developed by the WRC must be incorporated into regulations by MassDEP, and secondly, the commission has a role in the approval of regulations. Zimmerman stated that the commission does not have to accept the definition of safe yield proposed by MassDEP and offered to present a different interpretation of safe yield at a future meeting. He expressed concern that the safe yield number will be interpreted as the amount of water available to sell. Baskin responded that the commission has the authority to develop policies and guidance that, if accepted by the majority of the commission, would be referred to MassDEP. Edmondson

suggested that interested parties put their energies into developing the sustainable allocation methodology.

Pelczarski asked if the safe yield numbers reflect consumptive uses by power plants. LeVangie confirmed that, where the uses are consumptive, the safe yield reflects these uses. Pelczarski pointed out that even some nonconsumptive uses can alter the temperature of rivers, expressing concern that, in low-flow conditions, the entire flow of a river could pass through a power plant. Baskin responded that thermal impacts can be considered in streamflow criteria. Pelczarski suggested the allocation piece needs to include nonconsumptive purposes. Edmondson agreed this could be addressed in the sustainable allocation component.

Tisa suggested that, in the interest of clarity and transparency, DEP should indicate that the definition of safe yield addresses safe yield only as it relates to drinking water sources for humans. He added that the average member of the public would conclude that "safe yield" refers to the volume needed to protect everything in the environment.

Lauenstein asked how the "percentage of safe yield allocated" will inform the decisions on withdrawal permits. Edmondson responded that ecological needs will have to be considered. Haas added that safe yield is the only factor in the Act that cannot be exceeded.

Buckley asked how allocations will be made in the interim, while the sustainable allocation methodology is being developed. Haas responded that MassDEP will continue reviewing permits on a case-by-case basis and will add conditions that will be reexamined at the five-year review period, by which time MassDEP expects the sustainable allocation criteria will be available to be incorporated. LeVangie added that MassDEP is currently reducing allocations in permits that are being renewed.

Zimmerman expressed concern that political pressure will make it difficult for MassDEP to reduce current levels of allocation. LeVangie responded that this is taking place. He added that MassDEP has requirements for communities to restrict outside watering and has identified 65 gallons per capita per day as the statewide standard for residential consumption and 10% as the standard for unaccounted-for water.

Baskin invited nominations to the committees discussed, as well as recommendations on the scope of work for these committees. She encouraged attendees to direct their energies to completing the work of these committees as quickly as possible. She acknowledged the Charles River Watershed Association for its role in providing technical and legal expertise on the issues under discussion. She expressed hope that Zimmerman and the Charles River Watershed Association would assist in advancing the sustainable allocation and streamflow criteria.

Ed. note: Please note that on November 3, 2009, MassDEP suspended the safe yield interpretation and determinations that were announced in October 2009. MassDEP clarifies and explains that its interpretation of the term "safe yield" under the Water Management Act includes environmental protection factors, including ecological health of river systems, as well as hydrologic factors. MassDEP will work with stakeholders to quickly develop interim safe yield determinations, based on this interpretation, that will be used in WMA permitting on a short-term basis.

Meeting adjourned

Attachments distributed or presented at meeting:

- Current Water Conditions in Massachusetts, October 8, 2009
- Presentation handouts by Linda Hutchins, DCR, on Foxborough Witch Pond Wells Baseline Monitoring.
- Presentation handouts by Richard Friend, MassDEP, on Safe Yield.
- Summary of Safe Yield for Massachusetts Basins. Massachusetts DEP Water Management Act Program. October 8, 2009.