THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Draft Meeting Minutes for August 10, 2017

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

Minutes approved November 9, 2017

Members in Attendance:

Vandana Rao, Chair	Designee, Executive Office of Energy and Environmental Affairs (EEA)
Jonathan Yeo	Designee, Department of Conservation and Recreation (DCR)
Becky Weidman	Designee, Department of Environmental Protection (MassDEP)
Hotze Wijnja	Designee, Department of Agricultural Resources (DAR)
Todd Richards	Designee, Department of Fish and Game (DFG)
Paul Matthews	Public Member
Kenneth Weismantel	Public Member

Members Absent

Linda Balzotti	Designee, Department of Housing and Community Development (DHCD)
Todd Callaghan	Designee, Massachusetts Office of Coastal Zone Management (CZM)
Thomas Cambareri	Public Member
Raymond Jack	Public Member
Bob Zimmerman	Public Member

Others in Attendance:

Jennifer Sulla	EEA
Sara Cohen	DCR
Marilyn McCrory	DCR
Erin Graham	DCR
Jennifer Pederson	MWWA
Peter Weiskel	USGS
Michele Drury	DCR
Anne Carroll	DCR
Joy Duperault	DCR
Kate Bentsen	DFG
Jessica Holleran	DFG
Chris Pine	Irrigation Association of New England
Kathy Bell	BCB Government Relations/ Green Industry Alliance
Gerald Clarke	Dover Board of Health

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

Agenda Item #1: Executive Director's Report

- Drought Update: The State is out of drought.
- The State is developing a Hazard Mitigation & Climate Adaptation Plan.

- Minutes: Question about being behind on minutes. Staff will catch up on transcribing meeting minutes once they return from vacation to regular schedules.
- IBT regulations: Question on status? Regulation package is still in internal review.

Agenda Item #2: Hydrologic Conditions Report

- Graham provided update on the hydrologic conditions for July 2017. Highlights included:
  - Rainfall: All regions are normal.
  - Streamflow: All regions are normal or above normal.
  - Groundwater: Levels are mostly normal with only 3 wells below normal. There was a question about the three wells that are still below normal. Weiskel will look into the Sheffield well.
  - Reservoirs are normal.

  (Hydrologic Conditions Report is available at: http://www.mass.gov/eea/agencies/dcr/water-res-protection/water-data-tracking/monthly-water-conditions.html)

Agenda Item #3: Presentation: Landscape Irrigation Strategies for Efficient Watering, Chris Pine, Irrigation Association of New England

Chris Pine of the Irrigation Association of New England gave a presentation on efficient landscape irrigation. He identified resources for landscape water management, discussed how new technologies are providing tools for efficient watering, and highlighted regulatory issues related to water use in the landscape. There is opportunity to greatly reduce the amount of water used for irrigation by the installation of well managed advanced systems. There is a big push in the industry to develop standards by several different organizations. In 2014 the industry developed a set of best management practices for the design, installation, and management of irrigation systems, which can be found on the irrigation.org website. Key concepts from the best management practices are measuring the amount of water used in the landscape and pressure regulation.

A problem in this region is that there is too much watering in the spring, early summer, early fall, and fall. Scheduling watering based on weather and depending on the season can reduce water use by one-half to two-thirds. Remote control can help, but irrigation systems still need to be inspected. Pine discussed both weather based and soil moisture based smart controllers and the concept of predictive based programming versus deficit based programming. Weather based systems work very well, are easier to install, but they need to be told the correct information. Moisture sensors are more accurate, but are hard to place properly and get working optimally. The biggest challenge is correct input.

In addition, the end user needs to trust the smart system. Rain sensors work well, but tend to fail after 5 years and should be inspected every 3 years. Rain sensors could reduce water use 50%-60%. Smart cloud based systems can take the forecast and local weather information into account. Flow sensing, another new water tool, can track water use and detect leaks. Pine closed with some final thoughts. More data are becoming available on the effectiveness of different types of water restrictions. Effective communication is always important. For example, one inch of water a week is appropriate only for the hottest part of the growing season. There is

more evidence that some restrictions lead to overwatering and waste. Soils and root depths are a major factor and limit the amount of water that can be applied and used by plants. Finally, the time to make changes and create efficient watering habits is when the water is available and not during a drought.

Question- how difficult is it to amend soil if there is not enough there? It can be done, but it costs money and takes time. Over years it can be improved. From a practical point of view, a lawn with 12" of top soil will perform a lot better. Question- is there information available for the public about grass mixes and planting schedules? More could be done to educate the public on these subjects. Question- is there information available for water suppliers about watering technologies? There is some educational material available through Irrigation.org and WaterSense. The Irrigation Association of New England has information available as well. Weidman gave an update on MassDEP's work on interruption device regulations.

Agenda Item #4: Presentation: Update Drought Management Plan Revisions, Anne Carroll and Vandana Rao

Rao gave a summary of the current methods for precipitation, streamflow, groundwater, reservoirs, Fire Danger KBDI, and Crop Moisture Index. She showed maps of the monitoring networks and showed a table of the number of data points for decision-making for each index. Carroll talked about the need for revisions of the Drought Management Plan, which became apparent during the most recent drought. This was the first time that the "Warning" level was achieved under the current Drought Management Plan; the plan is not "operationalized", the plan lacks actions, some indicators don't track severity, the indicators did not catch early drought onset, better communication is needed, and the drought level names are unclear.

Carroll outlined the revision process. The intent to revise was announced in the fall 2016 with a request for comment letters from the Drought Management Task Force and stakeholders. There were listening sessions with key stakeholders including water suppliers, Mass Rivers Alliance, agricultural community members, and at Drought Management Task Force Meetings. In addition, eight comment letters were received. A Drought Indicators Technical Workgroup was formed made up of EEA staff, National Weather Service staff, and USGS staff. There have been eight meetings to date. The Drought Actions Workgroup is made up of EEA agency staff and they have had four meetings to date.

The Indicators Workgroup's goal is to accurately and comprehensively provide information on onset, severity, and the end of droughts. They conducted an indicator review, a method review, drought level nomenclature, aggregation of an indicator within a region, overall drought determination by region, and review of drought region boundaries. The Indicator Review Outcomes were as follows: keep only one precipitation index- the SPI, to eliminate double weighting, and add the 9 month and 24 month look back, particularly since this latest drought was a longer term drought. Replace the Crop Moisture Index with an index that better reflects effect of temperature and evapotranspiration on precipitation- the Crop Moisture Index was developed more for crops in the Midwest, and there are only a few MA data points. Alternatives are still being reviewed. Keep the KBDI, streamflow, groundwater, and reservoir indices. Expand the reservoir network and increase real-time reporting.
Members of the group reviewed the U.S. Drought Monitor (USDM) to see what could be adapted to MA. The USDM is evidenced based (it is not a model), looks at climatic, hydrologic, and soil

conditions, but NOT groundwater and Northeast reservoirs. There are 11 rotating authors from NOAA, USDA, and NDMC.

The group decided to adopt the USDM percentile approach for all indicators in order to standardize data independent of indicators' distributions and to improve capture of severity which also allows for earlier detection of drought onset. The group decided to keep the four levels rather than changing to five levels like the USDM. However, the levels were renamed for clarity and mostly align with USDM percentiles. The proposed MA Drought Levels are: Dry, Very Dry, Critically Dry, and Emergency. The group reviewed methods to roll up each indicator by region and evaluated mean, median, and the 25th percentile. The group preliminarily selected median of the month and 25th percentile across the region to provide earlier warning. The method to determine overall drought level by region will consider all indices available that time of the year. The onset is expected to be seen in precipitation, soil moisture, and streamflow. The end will be determined by maintaining requirements in the plan to see recovery in long-term precipitation and/or groundwater levels. In addition, the DMTF will continue to use their professional expertise to make recommendations to the Secretary. The group decided to align the drought regions with the county lines where there will some slight deviations, and to separate out the Islands region from Cape Cod to make a seventh drought region.

Meeting was adjourned at 2:54.

Documents or Exhibits Used at Meeting:

1. Public Notice dated July 31, 2017: Schedule for Preparation of Water Needs Forecasts for Public Water Suppliers with Water Management Act Permits in the Merrimack River Basin
2. Interbasin Transfer Act project status report, July 27,2017

Compiled by: EG
Agendas and minutes are available on the web site of the Water Resources Commission at https://www.mass.gov/water-resources-commission-meetings. *All other meeting documents are available by request to WRC staff at 251 Causeway Street, 8th floor, Boston, MA 02114.*