



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION
100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for June 12, 2025

Meeting conducted in-person at the University of Massachusetts Cranberry Station and remotely via Zoom meeting platform, 11 a.m.

Minutes approved September 11, 2025

Members in Attendance:

Vandana Rao	Designee, Executive Office of Energy and Environmental Affairs (EEA)
Kathleen Baskin	Designee, Department of Environmental Protection (MassDEP)
Tyler Soleau	Designee, Massachusetts Office of Coastal Zone Management (CZM)
Anne Carroll	Designee, Department of Conservation and Recreation (DCR)
Todd Richards	Designee, Department of Fish and Game (DFG)
Sarah Miller	Designee, Department of Agricultural Resources (DAR)
Thomas Cambareri	Public Member
Christine Hatch	Public Member
Kenneth Weismantel	Public Member

Members Absent

Chris Kluchman	Designee, Executive Office of Housing and Livable Communities (EOHLC)
Vincent Ragucci	Public Member
Samantha Woods	Public Member

Others in Attendance:

Aimee Graeber	DCR	Eric Carlson	DCR OWR
Alex White	MassDEP	Erin Graham	DCR OWR
Ally Overbay	CZM	Eva Vaughan	MEPA
Amy Walkey	MassDEP	Eva Kroh	EEA
Andreae Downs	WAC	Gabrielle Sakolsky	Cape Cod Mosquito Control
Anita Beinikis	MassDEP	Hila Eitam	DPU
Bailey Mullins	DCR OWR	Hillary Monahan	MWRA
Caitlin Spence	EEA	Jaime Iannelli	MassDEP
Cathy Kiley	MassDEP	Jason Duff	DCR OWR
Charlotte Kafka-Gibbons	DCR	Jennifer Durso	MassDEP
Chester Osborne	EEA	Jennifer Hughes	MEPA
Cynthia Baran	MassDEP	Jennifer Pederson	MWWA
Dahlia Tympanick	MassDEP	Joy Duperault	DCR OWR
Dan Crocker	DCR DWSP	Kate Bentsen	DER
Darya Mattes	DCS	Lydia Olson	Mass Rivers Alliance
David Foss	MassDEP		
Duane LeVangie	MassDEP		
Elisheva Thoreen	OTA	Meaghan Olejarz	MassDEP
Elizabeth McCann	MassDEP	Melissa Adams	MDAR
Emily Caruso	DCR	Melissa Lech	MassDEP
Emily Wilcox	MassDEP	Michelle Morris	MassDEP

Nadia Madden	DCR OWR	Scott Schaffer	DMF
Nicholas Moreno	MEPA	Sefatia Romeo Theken	DFG/FWE
Paul Gallagher	Hopkinton Water/Sewer Advisory Board	Shi Chen	MassDEP
Paul Kirshen	UMass Boston	Tara Manno	MassDEP
Purvi Patel	EEA	Tom Mueller	MassGIS
Richard Bradley	GIA	Toni Stewart	DCR OWR
Robert Rodgers	MassDEP	Vanessa Curran	DCR OWR
Sara Cohen	DCR OWR	Viki Zoltay	DCR OWR

Rao called the meeting to order at 11:10 a.m.

Agenda Item #1: Welcome and Introductions

Rao announced that the meeting was being recorded for the purpose of meeting minutes and invited a roll call for Commissioners. Rao extended special thanks to Hatch for facilitating this meeting at the Cranberry Station.

Agenda Item #2: Executive Director's Report

Rao began the Executive Report by discussing the current drought conditions, noting that the drought is slowly receding across the state. The Cape and Islands continue to lag behind, with the Cape currently at Level 2 and the Islands at Level 1. While there has been slight improvement, drought indices have not yet fully cleared in these regions. The rest of the state is no longer experiencing drought conditions.

To help address public questions about the drought, Rao shared that a short Instagram reel has been created. The reel answers general questions received from the public and will be released in the next day. It is intended to support EEA's efforts to respond to the high volume of inquiries related to the drought. Rao thanked the staff for their hard work in compiling and analyzing drought related data.

Rao also announced the addition of three new interns. Ian Roumeliotis will be working with Zoltay on drought retrospective reports and is assisting in compiling data on the current drought. The other two interns, Eva Kroh and Katherine Fay, will focus on outreach, water conservation, and drought resiliency. They will be working closely with Patel and Duff. Lastly, Rao opened the conversation to the room, and all attendees on location provided brief introductions for the in-person meeting.

Agenda Item #3: Update: Hydrologic Conditions and Drought Status

Rao introduced Graham to present the Hydrologic Conditions for May 2025.

- *Temperature*: Monthly average temperatures were near to above normal. According to the Northeast Regional Climate Center (NRCC), Massachusetts had its seventh warmest spring (March-May) on record.
- *Precipitation*: Precipitation was much above normal. According to the NRCC, Massachusetts had its third wettest May on record. The 9-month lookbacks are still showing deficits in the Western, Connecticut River Valley, Central, and Northeastern Regions.

- *Evapotranspiration*: As of May 31st, 2025, the 2-month EDDI percentiles were at elevated Index Severity Levels (ISL) for the Southeast, Cape Cod, and Islands, and the 1-month EDDI percentile was at an elevated ISL for the Islands Region.
- *Keetch-Byram Drought Index*: At the end of May, the Keetch Byram Drought Index values were all in the normal range.
- *Streamflow*: April streamflow ranged from below normal in the Cape Cod Region to above normal throughout much of the state.
- *Flooding*: The Albany NWS E-5 Monthly Reports of Hydrologic Conditions did not indicate river flooding at forecast points in Massachusetts nor were there National Weather Service flood warnings or local storm flooding reports for Berkshire County. The Boston/Norton NWS E-5 indicated minor flooding on May 11th on the Connecticut and Merrimack Rivers and on May 24th on the Taunton River. A flash flood warning was issued on May 8th for parts of Hampshire and Worcester Counties, and areal flood warnings were issued on May 22nd-23rd for parts of Norfolk and Plymouth Counties. There were local storm flooding reports for flash flooding in Rutland on May 8th, for coastal flooding in Salem on May 22nd, and minor flooding in the Adams area on May 31st.
- *Groundwater*: May groundwater levels ranged from below normal to above normal. The Cape Cod and Islands Regions are at ISL 2.
- *Lakes and Impoundments*: At the end of May, six of the 17 reporting lake and impoundment sites were below their 30th percentile while five systems were at or near 100% full. The Cape Cod Region is at ISL 1.
- *MA Drought status*: The latest declaration shows the Cape Cod Region at Level 2 and the Islands Region at Level 1.
- *U.S. Drought Monitor (USDM)*: At the end of May, the USDM showed areas of D1 (Moderate Drought) and D0 (Abnormally Dry) in the Cape Cod and Islands Regions
- *NOAA Climate Prediction Center outlooks*: NOAA's April outlook shows chances likely for above normal temperatures and equal chances for above-normal, normal, or below-normal precipitation. The seasonal outlook issued May 15th shows chances likely for above-normal temperatures and chances leaning for above-normal precipitation. The monthly and seasonal drought outlook shows drought removal from the Mid Cape to Outer Cape and on Nantucket.
- Additional precipitation data shows departures at the 12-mos lookback in the Central, Northeast, Southeast, and Cape Cod Regions.

Agenda Item #4:

Rao invited motions to approve the meeting minutes for March 2025.

V O T E	<p>A motion was made by Weismantel with a second by Baskin to approve the meeting minutes for March 2025.</p> <p>The vote to approve was unanimous of those present with a roll call.</p>
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Agenda Item #5: Presentation: WRC FY26 Workplan

Rao explained that Carroll would provide another brief overview of the WRC FY26 workplan followed by a vote to accept the workplan. Carroll gave a brief presentation to review the structure of the workplan and highlights of the work that staff are doing. The presentation can be viewed online at: <https://www.mass.gov/info-details/review-the-meetings-of-the-water-resources-commission>.

Highlights of the presentation include:

- The plan includes a brief history of the WRC for context, followed by descriptions of the various programs that guide the work that staff do. The format is slightly different for the FY26 workplan compared to previous years in that it outlines both continuous programs/projects, as well as potential future programs/projects that are under consideration.
- Some highlights of the workplan include:
 - Extensive work on flooding (which is discussed in detail later in the meeting)
 - Drought management, including the development of local drought management plan guidance and hydrologic conditions monitoring
 - Innovative water conservation work including continuation of the Drought Resiliency and Water Efficiency grant program
 - A water data management project to centralize statewide water data and make more data available/accessible for easier export and analysis
 - Regional collaboration and stakeholder engagement, including continuing to collaborate with EOHLC to connect housing/development planning with water planning, as well as large collaborative water resiliency planning projects on both the North Shore and South Shore
 - Planning and strategy efforts for beyond FY26, which is the new section that outlines efforts that staff would like to work on in the future if there is capacity

Comments, questions, and responses:

Hatch commented that the workplan demonstrates an incredible amount of work, effort, and thought and that she appreciates everything staff are doing. Baskin agreed and added that the workplan is ambitious and impressive.

Bradley asked if irrigation interruption devices and water reuse would be considered under the water conservation section of the workplan. Rao responded that while these aspects of water conservation are not specifically outlined in the workplan, they are on MassDEP's radar. Baskin added that they have draft regulations in place allowing for non-potable water reuse, and that they are working to address certain issues with the draft regulations surrounding irrigation interruption devices.

Cambareri commented that he was excited to see the Cape Cod Commission receive grant funding to research rate changes that can help with conservation efforts.

Richards noted that the diverse range of projects outlined in the workplan makes for a heavy lift and that he appreciates the hard work. He added that we should look for ways that the DFG strategic plan overlaps with items in the WRC workplan and how to best collaborate.

There were no other questions or comments. Rao invited a motion to vote to approve the workplan.

V O T E	<p>A motion was made by Cambareri with a second by Weismantel to approve the draft WRC FY26 workplan.</p> <p>The vote to approve was unanimous of those present with a roll call.</p>
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Agenda Item #6: Presentation: Flooding in MA – Overview, Planning, Coordination

Rao explained that the purpose of the following presentation/discussion is to explain what role the WRC plays in flooding planning and coordination, what staff are currently working on, and other areas that should be explored for future work. Flooding events are happening more frequently in MA due to climate change and have been receiving more attention as a serious concern. Rao then began the presentation before passing it over to multiple other WRC staff, including Duperault, Madden, Zoltay, and Spence, to provide an overview of specific roles and ongoing projects. The presentation can be viewed online at: <https://www.mass.gov/info-details/review-the-meetings-of-the-water-resources-commission>.

Highlights of the presentation include:

- A review of the history of the WRC and how flooding got under its purview. The need for flood management was a major reason the WRC was created, resulting in authority being given to the WRC to engage in a diverse range of flood related work. PL566 was also passed which established a national program for flood protection. Executive Order 149 was passed in 1978 and designated the WRC as the entity to incorporate the National Flood Insurance Program (NFIP), and eventually DCR began managing the Flood Hazard Management Program (FHMP) at the Office of Water Resources.
- The main role of the FHMP is to help local communities handle flood-related regulations and ensure their bylaws are aligned with the NFIP. Staff also facilitate trainings and provide technical assistance to communities, work with other state agencies, and review MEPA projects that are in floodplains. The team spends a lot of time responding to questions from communities, which was part of the reason for recently revising and expanding their training program. Recent new efforts include developing an annual “floodplain manager” award and expanding outreach/communication through email campaigns, social media, and plans for advertising on public transit.
- There are several ongoing research efforts that are helping us learn about the relationship between flooding and climate/hydrological conditions. One of these projects is being led by research teams from Tufts, Cornell, and USGS and involves development of temperature, precipitation, and streamflow projections; another on riverine and pluvial flooding is being led by USGS (details below).
- Another ongoing project is related to groundwater flooding. The final report for this project is currently under review. This will be the first effort to create a statewide groundwater model. The type of impacts this project intends to look at include surface flooding and sub-surface infrastructure. Zolay thanked all the various state staff that came together to work on this project, including MassDEP, EEA, and DER, in addition to DCR.
- Pluvial (“stormwater”) flooding is another ongoing research project intended to produce a more inclusive set of statewide flood maps and data products related to riverine and

pluvial flooding. Stakeholders were interviewed in Phase 1 of this project to figure out what would be most useful to stakeholders and the best way to create the products. Phase 2 has begun and involves selecting pilot areas to develop flood modelling products. Phase 3 will involve using lessons learned from pilots and refined modelling standards to expand flood model statewide and launch a flood data/mapping tool.

- A flood vulnerability assessment was recently completed which focused on EJ communities throughout the state. This project included a flooding information survey that residents could fill out, which provided a lot of useful data. One of the contractors, Weston & Sampson, also created a flood vulnerability map to incorporate socio-economic factors into flood vulnerability mapping for communities. Pilot studies are also being done in multiple communities - Brockton, Everett, and West Springfield - to work with community liaisons and municipal officials to identify potential flood mitigation solutions at different scales.

Questions:

Richards asked how the values used in the streamflow projections project were chosen. Zoltay explained that they are based on regulatory driven values and peak discharge values for return periods. Baskin added that MassDEP is working on a project that is looking forward to the results of the streamflow projections project to help with better culvert designs. Richards noted that he would follow up with Zoltay about other ideas he has for using the streamflow projection data. Rao mentioned that this project would help inform the next iteration of the Resilient Mass plan.

Baskin asked if the groundwater model will be available externally for uses such as wastewater management. Zoltay responded that both the stream projections and groundwater modelling project involve certain levels of uncertainty because of the state-wide scale. This uncertainty impacts the uses of the data for site-specific purposes. Richards added that the groundwater model could be used for planning purposes to indicate areas that might not be candidates for groundwater discharge because they experience higher than average groundwater flooding, for example.

Richards noted the similarities between the flood vulnerability work that Madden spoke about and work being done by USGS. Duperault agreed that USGS is working on future flood risk modelling that could have some overlap. Rao added that the USGS work would likely get included to some extent in the riverine flooding project, which will hopefully provide a platform for others to continue contributing flood modelling work.

Rao explained that the flooding discussions would be continued at the next WRC meeting and Commissioners would be provided with the presentation for them to review prior to the upcoming discussions. The upcoming discussions will include conversations surrounding what other work should the WRC be doing related to flood management and hazard mitigation, other ways for inter-agency collaboration, and thoughts on flood policy at the state level in general.

Agenda Item #7: Presentation: Hydrologic changes during wetland restoration of cranberry bogs

Hatch opened the presentation, *Hydrologic Changes During Wetland Restoration of Cranberry Bogs*, by outlining her research on converting former cranberry farms back into functional

freshwater wetlands. Underlying natural features like geology, hydrology, seed bank, and hydric soils remain intact, making restoration relatively straightforward once human modifications are removed. Aerial imagery, including drones, is used to study landscape features that are difficult to observe on foot. Hatch acknowledged the contributions of her students, the Living Observatory nonprofit, and a USDA colleague who supported the research with equipment and expertise. The presentation can be viewed online at: <https://www.mass.gov/info-details/review-the-meetings-of-the-water-resources-commission>.

Highlights of the presentation include:

- Sand and soil layering over peat was shown to create horizontal flow paths, limiting vertical water movement.
- The water table was raised through restoration efforts to support wetland vegetation, monitored using piezometers installed across bog surfaces and stream channels to track water levels and flow dynamics.
- Pre-restoration stream flow had groundwater contributing 50–80% of the total flow.
- Springs and other groundwater releases were identified using drone thermal imaging, which also helped locate macropores and seep zones along peat fractures and kettle hole edges.
- Stream length was extended from ~550 to ~800 meters post-restoration, increasing residence time and improving water quality.
- Drought conditions were documented using drone imagery. Temporary mudflats formed due to soil disturbance and lack of vegetation cover immediately post-restoration. These are rapidly colonized by predominantly wetland vegetation.
- Groundwater was observed entering through sand as well as fractures in peat.
- A fiber optic cable was buried to monitor soil temperature at three depths; data collection began pre-restoration and was designed to support distributed temperature sensing for identifying water inflow locations without causing any additional disturbance.
- Flow paths became increasingly connected over time; strategically placed large wood facilitated water ponding, trapping sediment, and stream meandering.
- A nearby Atlantic White cedar wetland forest was a reference model for the site's original ecological condition.
- Distributed temperature sensing was planned to identify water inflow locations along the fiber optic cable, complementing drone-based thermal imagery and piezometer data.

Comments, questions, and responses:

Hatch also noted that there is a session on this work scheduled for the Society for Wetland Science Conference in July, including field visits to Massachusetts DER priority project sites Stewart Bog and Millbrook Bog, both featuring active restoration efforts.

Cambareri asked if the chemistry side of things has been looked at in these restorations. Hatch noted that while she has not focused directly on nitrogen chemistry, extensive work by Kennedy from the research station has tracked nitrogen transport and denitrification.

Rao asked what time lag it takes for the groundwater connection to happen and what happens if there is a drought? Hatch responded by explaining that the stream in question is groundwater fed and maintains a continuous, though minimal, flow even before full hydrologic connectivity is established. She noted that the initial delay in forming a strong groundwater connection typically lasts only a few months. This lag results from the dry, sandy soil needing time to absorb moisture and become saturated. Using data from two sampling events, Hatch illustrated how, once the soil pores are filled, they retain water more effectively and respond more quickly to changes. She emphasized that after saturation, the system becomes more resilient, even during drought conditions.

LeVangie asked what limited the ability to fly drones at night? Hatch responded that it was the FAA rules at that time, but that the FAA Rules have since changed.

There were no other questions or comments. Rao invited a motion to adjourn the meeting.

V O T E	<p>A motion was made by Weismantel with a second by Hatch to adjourn the meeting.</p> <p>The roll-call vote to approve was unanimous of those present.</p>
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Meeting adjourned, 1:55 pm.

Documents or Exhibits Used at Meeting:

1. WRC Meeting Minutes: March 13, 2025
2. Draft WRC FY26 Workplan
3. Correspondence documents from the WRC to MEPA, including letters with the following dates and content:
 1. May 9, 2025, regarding the Final Environmental Impact Report (FEIR) for the Gibson Park Recreation Expansion Project in Revere
 2. May 9, 2025, regarding the Draft Environmental Impact Report and Notice of Project Change (DEIR/NPC) for Provincetown Pier Hotel in Provincetown.
 3. May 25, 2025, regarding the Expanded Environmental Notification Form (EENF) for Reconstruction of Route 38 (Main Street), from Route 62 to the Woburn C.L. in the Town of Wilmington.
4. Interbasin Transfer Act project status report, May 28, 2025

Compiled by: (WRC Staff)

Agendas, minutes, and other documents 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 10 Park Plaza, Suite 6620, Boston, MA 02116.