THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for May 11, 2023

Meeting conducted remotely via Zoom meeting platform, 1:00 p.m.

Minutes approved September 14, 2023

Members in Attendance:

Vandana Rao	Designee, Executive Office of Energy and Environmental Affairs (EEA)
Chris Kluchman	Designee, Department of Housing and Community Development (DHCD)
Anne Carroll	Designee, Department of Conservation and Recreation (DCR)
Todd Richards	Designee, Department of Fish and Game (DFG)
Duane LeVangie	Designee, Department of Environmental Protection (MassDEP)
Tyler Soleau	Designee, Massachusetts Office of Coastal Zone Management (CZM)
Thomas Cambareri	Public Member
Christine Hatch	Public Member
Kenneth Weismantel	Public Member
Samantha Woods	Public Member
Vincent Ragucci	Public Member

Members Absent

Hotze Wijnja	Designee, Department of Agricultural Resources (DAR)

Others in Attendance:

Erin Graham	DCR/Office of Water Resources
Vanessa Curran	DCR/Office of Water Resources
Sara Cohen	DCR/Office of Water Resources
Kara Sliwoski	DCR/Office of Water Resources
Kate Bentsen	DFG Division of Ecological Restoration
Rebecca Quinones	MassWildlife
Katie Ronan	Massachusetts Water Resources Authority
Becca George	DHCD
Lexi Dewy	Water Supply Citizens Advisory Committee
Zeus Smith	Charles River Watershed Association
Peter Steeves	USGS
Shi Chen	MassDEP
Sarah Miller	MDAR
Thomas Rebula	MassDEP
Lyn Watts	UMass Amherst
Richard Bradley	Superscape Landscape / MA GIA & NALP GAC
Marilyn Ross	MA DPU
Misty-Anne Marold	MassWildlife
Celeste De Palma	DCR
Beth Lambert	DFG Division of Ecological Restoration
Linjun Yao	MassDEP
Lydia Savitt	MassDEP

Areeg Abd-Alla	MassDEP
David Wong	MassDEP
Judy Schmitz	MassDEP
Russell Wilmot	DCR Division of Watershed Protection
Jen D'Urso	MassDEP
Emily Williams	MassDEP
Nancy Lin	MassDEP
Nancy Putnam	DCR
Kaley Towns	DFG Division of Marine Fisheries
Caroline Haviland	Norfolk County Mosquito Control District
Kristen Thiebault	DFG Division of Marine Fisheries
Ian Coletti	MassDEP
Joan Pierce	DFG
Leslie Gabrilska	MassWildlife
Stephen Boksanski	Green Industry Alliance
Gary Bogue	MassDEP
Joe Parziale	DCR
Sage Clark	MassDEP
Eshua Mbua	MassDEP
Lisa Cusson	MassDEP
Anne Gagnon	DFG
Katelynn King	MassDEP
Azin Kavian	MassDEP
Melixza Esenyie	EEA

Rao called the meeting to order at 1:05 p.m.

Agenda Item #1: Welcome and Introductions

Rao announced that the meeting was being recorded for meeting minutes and all votes would be taken by roll call. She invited those who wish to speak during the meeting to indicate this in the chat window. Roll call attendance was taken for Commission members.

Agenda Item #2: Executive Director's Report

Rao introduced new Commissioner Chris Kluchman from DHCD. Kluchman briefly provided her background, noting that Rao had provided her with helpful background on the Commission prior to this meeting. She is the Deputy Director of the Community Services Division of DHCD, overseeing federal and state programs including several state capital grant programs to municipalities or other public entities. She also oversees implementation of planning and land use laws, such as the MBTA Communities Act and zoning reform. In prior work she focused on wetlands, natural resources, and environmental protection. Rao appreciated the land use water nexus and the role of DHCD on the Commission.

EEA will be taking on a Rappaport Fellow who will likely focus on the work of the WRC with emphasis on the water/land use nexus. Rao is looking forward to this opportunity to further frame some of the ideas that have been recently discussed on this subject.

This week is Drinking Water Week. Rao commended the many personnel working in the drinking water industry and shared some public information and graphics EEA has been tweeting during the week to educate the public on drinking water.

Rao attended the second national flash drought conference in CO on behalf of the WRC, where she was invited to collaborate with other states on experiences of flash drought. She presented on the MA approach to drought management and the tools that the Drought Management Task Force and state, federal, and local partners use in tracking and managing drought. Rao's talk was very well received, and other state participants were interested in the MA approach as a model, despite it being a relatively water-rich state, with particular interest in the social media and public education component of the MA program. Flash drought was defined at the conference as a quickly developing drought that can degrade up to two levels within the course of one-to-two weeks and lasts at least two-to-four weeks beyond that.

Additional Items:

Soleau reported that the prior day CZM launched a Request for Responses (RFR) for the Coastal Habitat and Water Quality Grants, available to public and nonprofit entities in partnership with a municipality to assess and remediate stormwater pollution and support comprehensive habitat restoration. Responses are due June 16 at 5:00pm. More information is available at: https://www.mass.gov/service-details/coastal-habitat-and-water-quality-grants.

Woods reported that the state is currently in the middle of the herring migration season. The past few years have had low returns, but fortunately this year the numbers are back up, beating previous years' records for the same dates. Rains in the spring probably helped.

Carroll reported that the Town of Ipswich voted to move forward with the head-of-tide dam removal, which will be the most significant restoration effort for the Ipswich River. She offered kudos to the Ipswich River Watershed Association for their efforts on this project.

Cambareri reminded attendees that in 2002 Governor Jane Swift established the Upper Cape Water Supply Reserve following significant investigations into groundwater contamination from munitions and other activities from the military base on the Upper Cape. Stakeholders helped establish environmental performance standards for the reserve area as a future water supply. In recent years, the National Guard has proposed a new machine gun training range in the area, stating there would be no significant impact on water supply. A sole source aquifer review by the US EPA concluded that the proposed activity would have a negative impact on the water supply and would amount to degradation. An official decision on the proposed use will be issued by the Environmental Management Commission that governs the Reserve, comprised of the Commissioners of MassDEP, DFG, and DCR. Cambareri hopes the Commission finds that the project would have an impact and therefore should not move forward and that the Reserve should continue to operate safely for water supply.

Agenda Item #3: Hydrologic Conditions and Drought Status

Graham provided an update of April hydrologic conditions, using a new report format. The report is available at: https://www.mass.gov/info-details/monthly-hydrologic-conditions.

Highlights:

- Monthly average temperatures were mostly above normal across the state.
- Precipitation ranged from above to below normal, with the eastern region and islands receiving less precipitation. At the three-month lookback period, the Cape Cod region was at an Index Severity Level 1 and the Islands a Level 3.
- Snow cover was below normal for the season for almost the whole state and there was no snowpack left at the end of April.
- The Crop Moisture Index ranged from the middle category (slightly dry to favorably moist) in the east to abnormally moist in the west.
- Evaporative Demand Drought Index (EDDI) was elevated across the state.
- Streamflow ranged from below normal in the eastern half of the state to normal toward the west. The Central region was at Index Severity Level 1, the Northeast was at Level 2, and the Southeast was at Level 3. There were no flooding events reported in MA by the National Weather Service in April.
- Groundwater was variable across the state, but only the Central region tripped the Index at Severity Level 1.
- The Lakes and Impoundments Index was above or well above the 30th percentile for all regions except the Cape, which was at Index Severity Level 1.
- The Keetch Byram Drought Index (KBDI) was below 200 at all stations (Index Severity Level 0).
- There are no declared drought conditions according to the MA Drought Management Plan.
- The US Drought Monitor introduced D0 in eastern MA for the end of April, but this has pared back to just Southeastern MA, the Cape, and Islands at the time of this meeting.
- The outlook for the month of May and for the May-through-July season showed elevated chances of above normal temperatures and equal chances for above and below normal precipitation. No drought development is predicted.

Agenda Item #4: Meeting Minutes, February 2023

Rao invited a motion to approve the meeting minutes for February 9, 2023.

V O T E	A motion was made by Weismantel with a second by Ragucci to approve the meeting minutes for February 9, 2023. In a roll-call vote, nine voted to approve and one abstained.

Weismantel reported that at Town Meeting for Hopkinton the town voted to change their minute procedure based on what he believes was guidance from the Attorney General or the Secretary of State that minutes must be completed in 30 days or at next meeting, whichever is later. He asked if this applied to the state as well as municipalities. Rao stated she would check with legal counsel on whether that guidance applied to the Commission, which has been following guidance requiring adoption of minutes within 3 months.

Agenda Item #5: **Presentation on WRC Work Plan for FY 2024**

Anne Carroll presented the draft Work Plan to the Commission, which will vote on whether to accept it at the June meeting. Please refer to the attachment in the meeting packet for the full draft Work Plan. The presentation covered the following plan highlights:

- Formal incorporation of the Evaporative Demand Drought Index (EDDI) into the MA Drought Management Plan with a vote from the WRC.

- Release of the drought retrospective for the 2020-2021 drought, and then the start of the retrospective for the 2022 drought.
- Continued efforts to present water resources success stories at WRC meetings as a means to exchange information and share best practices.
- Continued focus on water rate strategies guidance and technical assistance, with a particular emphasis on revenue resilience during drought.
- Collaboration with sister agencies on boosting water conservation in the industrial/ commercial/institutional sector, with leadership from new staff member Jason Duff.
- Completion of the revised Interbasin Transfer Act (ITA) Performance Standards, with the intention of bringing these for a WRC vote this year.
- Review of the Water Needs Forecast methodology, adopted in 2009, to consider what updates may be warranted.
- A growing list of special projects with funding from a variety of sources, mostly secured with Rao's leadership.
- Coordination between WRC staff and staff from the Growing Wild for Pollinators program at DCR/DAR to help the project reach a wide audience and apply it to DCR properties.
- Stakeholder engagement is a new item on the work plan, while the work isn't entirely new. This involves facilitation and process design by staff member Sara Cohen on WRC projects and priorities that need stakeholder engagement support and may involve contentious issues.
- Rao added an acknowledgment of the great work by the Flood Hazard Mitigation Program, led by staff members Joy Duperault, Eric Carlson, and Nadia Madden on flood mitigation and implementation of the National Flood Insurance Program (NFIP). While not reflected in the plan for the coming fiscal year due to its anticipated completion this June, these staff members have been developing a response for FEMA on how the state is implementing the NFIP within state-owned properties.

Discussion:
Woods commended the staff on the volume of work represented by the plan. She asked what the timeframe was for updating the ITA Performance Standards. Carroll responded that these should be complete by the end of next fiscal year or sooner. Staff are working currently with an economist at DAR on elements of standards related to financial viability. Woods asked if the WRC is currently using the Performance Standards in evaluating ITA projects. Rao confirmed that staff do use the existing Performance Standards for all applications; however, where these might not reflect the updated ITA regulations, staff use the language of the regulations directly to reflect current standards.

Richards asked for an explanation of PL 566 flood control lands. Rao responded that this refers to federal Public Law 566 which governs a program set up around the 1950's in which the US Department of Agriculture, Natural Resources Conservation Service (NRCS) works with states across the country to manage lands for flood protection. MA has partnered with NRCS on this program through the WRC, since the WRC's inception in 1954. For the WRC's first 30 years, it was mostly focused on flooding and flood control through acquiring and operating lands to act as natural flood control. While the acquisition of lands for flood control under this program wrapped up in the 1980's, many properties in this category were deeded to the WRC and are still managed for flood control by the DCR engineering division. Richards responded that DFG is

often doing restoration work on state lands that improves natural flood protection and suggested maybe the two agencies could work more together on this.

Weismantel commented that he liked the work plan but requested that staff consider the big picture, especially concerning setting policy in a proactive way to avoid reacting once ITA applicants are in front of the Commission. He suggested identifying the top five priorities for water resources issues in the Commonwealth. Carroll and Rao both appreciated the comment and suggested a WRC retreat to help formulate this picture. Rao clarified that staff also do often discuss this, and the elements of the work plan reflect priority themes, but she acknowledged these connections could be made clearer.

In the chat, Richard Bradley asked what happened to the Irrigation Interruption Device Law (Chapter 21 Section 67)? LeVangie responded in the chat that he would inquire about the status of this and suspects it was affected by staff changes and other regulatory priorities.

Rao invited comments and suggestions on the Work Plan to be sent to her by email before the vote next month.

Agenda Item #6: **Presentation on New Massachusetts Wetlands Research: Groundwater Dependent Ecosystems by Christine Hatch and Lyn Watts**

Rao introduced Christine Hatch and Lyn Watts from UMass Amherst.
Christine and Lyn's presentation slides are available at: https://www.mass.gov/service-details/review-our-meetings.

Additionally, the following literature is related to this presentation:

Watts, C. Lyn; Christine E. Hatch and Ryan Wicks (2023). *Mapping Groundwater Discharge Seeps with Thermal UAS at a Wetland Restoration Site*. Frontiers in Environmental Science - Environmental Informatics and Remote Sensing, Research Topic: Novel Approaches for Understanding Groundwater Dependent Ecosystems in a Changing Environment. https://www.frontiersin.org/articles/10.3389/fenvs.2022.946565/full

Hatch, Christine E. and Erika T. Ito (2022). *Recovering groundwater for wetlands from an anthropogenic aquifer*. Frontiers in Earth Science - Hydrosphere, Research Topic: Novel Approaches for Understanding Groundwater Dependent Ecosystems in a Changing Environment. https://www.frontiersin.org/articles/10.3389/feart.2022.945065/full

Focusing on Groundwater to Rewild a Wetland. Using drones and thermal infrared imagery, UMass Amherst researchers show how best to restore wetlands—and why Massachusetts is leading the charge toward healthy ecosystems. February 6, 2023 College of Natural Sciences. University of Massachusetts Amherst. online at: https://www.cns.umass.edu/news-events/news/focusing-groundwater-rewild-wetland

Presentation Highlights:

- Anthropogenic aquifers formed from cranberry growing practices of sand application on top of kettle hole peat bogs.

- The oldest peat is over 9,000 years old. Sand added for cranberry cultivation dating back to 1854 can be traced through vertical cores, showing the accumulation of sand and key historical events over time.
- The added sand enhances horizontal flow and decreases vertical flow, with groundwater inflows accounting for 50% - 80% of year-round flow through the bog stream system.
- The study areas are Tidmarsh Wildlife Sanctuary and the Foothills Preserve in Plymouth.
- In these former cranberry agricultural systems, the restoration goal is to raise groundwater levels to be at or within a foot of ground surface to maintain wetland plants. Without this restoration, these areas will become pine forests and lose their wetland characteristics and functions.
- Restoration strategies include removal of side sand berms, raising the groundwater table in various ways, creating a more sinuous stream channel, mixing organic soil layers, adding microtopography, adding large wood, and seeding vegetation from the seedbank in the peat.
- Restoration results in increased soil moisture, increased grasses, more surface water, more wetland vegetation, uneven surface with small pools, mixed substrate, and longer surface water retention. Over time, wetland shrubs and trees will also emerge.
- The groundwater dominated system leads to more consistent moisture and water temperatures, beneficial for amphibians, anadromous coldwater fish and many plant species.
- A restoration challenge is finding groundwater seeps, so critical to the restored system. These were located and mapped using drones with thermal imaging capability before and after restoration. Their location did not significantly change after the restoration work, however the total area influenced by the seeps increased after restoration.

Questions/Discussions:

- Richards expressed appreciation and commented that this restoration, in which MassWildlife and the Division of Ecological Restoration have also been involved, provides a wide variety of benefits to a wide variety of habitats.
- LeVangie noted that these cranberry bog restorations are counted as mitigation under the Water Management Act, which can spur some of the work.
- Cambareri expressed admiration for the techniques used in the research and commented that the research and techniques will serve us well in many areas of restoration.

Agenda #7: Presentation: Integrating Stormwater Drainage into the U.S. Geological Survey's StreamStats Application for the Mystic River Watershed

Rao introduced presenter Peter Steeves from the U.S. Geological Survey. She reminded meeting attendees that StreamStats was originally developed in Massachusetts, and the current stormwater element from the Mystic watershed is again on the cutting edge of the evolution of this nationally significant tool. Peter's presentation slides are available at: https://www.mass.gov/service-details/review-our-meetings

Highlights of the presentation include:

- The original Streamstats program delineates drainage areas accounting for natural hydrologic features and computes basin characteristics and flow statistics for the delineated area. StreamStats is the most widely used analytical website in the USGS.

- The new functionality incorporates stormwater drainage and was developed in the Mystic River Watershed, which encompasses all or part of 19 communities, all of which needed to provide substantial data, along with MassDEP staff (36,000 catch basins, 62,000 pipes, 5,000 stream segments). High-resolution elevation and hydrography data were also used.
- The stormwater functionality delineates all the contributing area to a specific surface water point or storm drainage pipe, accounting for constructed stormwater infrastructure.
- Steeves demonstrated the use of the tool through a recorded video, including how the stormwater contribution works in tandem with the surface water contribution.
- New functionality will potentially include generating basin characteristics and flow statistics more relevant to highly urbanized areas and improve capabilities in estimating water quality impacts. Benefits would include mitigating flooding, mapping culverts, identifying illicit discharges, meeting permit requirements, and addressing water quality concerns.
- Due to the sensitive nature of some of the municipal data, the data release for this project includes the Digital Elevation Model (DEM) data, flow direction grid, catchment areas, and the basin characteristic data, but not the detailed pipe and infrastructure networks.
- State, municipal, and federal partnerships were critical to the success of the project.
- Data will likely need to be updated and corrected/refined over time.

Questions/Discussion:
Rao expressed appreciation for the important additional functionality of incorporating the stormwater component of urban hydrologic analysis. She asked about the funding source for this work. Steeves responded that funding came through the EPA Urban Waters Initiative, which is a nationwide program providing funding for select urban watersheds throughout the country. The Mystic River is the only basin in MA under this program. Through additional partnerships, the USGS is hoping to expand this project into other watersheds.

Hatch mentioned that delineations from the Streamstats program are frequently used for regulatory purposes and applauded the increased accuracy made possible from this work. She asked when this type of data will be available widely, so stormwater infrastructure could be used to create new delineations for regulatory purposes outside the Mystic? Steeves responded that the process for adding this functionality is very extensive. He hopes to train more people to expand coverage, but geographic expansion will take time to work through the full USGS peer review process.

Richards asked about the differences in flow rates and drainage dynamics caused by the pipe infrastructure. Steeves agreed that those changes in dynamics will be critical in developing new hydrologic metrics associated with urban-dominated systems. The regressions needed to create these metrics have not yet been developed due to lack of gages within constructed hydrologic systems. There will need to be a critical mass of these mapped urban areas and associated flow gages to develop the appropriate correlations.

Carroll, Kluchman, and Cambareri had to leave the meeting just ahead of the vote to adjourn.

V O	A motion was made by Weismantel with a second by LeVangie to adjourn the meeting.

T E	The roll-call vote to approve was unanimous of those present.

Meeting adjourned at 3:38 p.m.

Documents or Exhibits Used at Meeting or Attached with the Monthly Packet:

ATTACHMENTS:

1. WRC Meeting Minutes, February 9, 2023
2. Draft WRC Work Plan, FY2024
3. Interbasin Transfer Act project status report, May 4, 2023
4. Hydrologic Conditions in Massachusetts, April 2023
5. Presentations found at https://www.mass.gov/service-details/review-our-meetings

Compiled by: SC

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 251 Causeway Street, 8th floor, Boston, MA 02114.*