THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Meeting Minutes for December 14, 2023

Hybrid meeting - conducted at Massachusetts Dept. of Agricultural Resources, 225 Turnpike Rd., Southborough, MA and remotely via Zoom meeting platform, 12:00 p.m.

Minutes approved March 14, 2024

Members in Attendance:

Vandana Rao	Designee, Executive Office of Energy and Environmental Affairs (EEA)
Chris Kluchman	Designee, Executive Office of Housing and Livable Communities (EOHLC)
Anne Carroll	Designee, Department of Conservation and Recreation (DCR)
Hotze Wijnja	Designee, Department of Agricultural Resources (DAR)
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:

Others in Attendance:

Erin Graham	DCR/Office of Water Resources	Sarah Bower	Mass Rivers Alliance
Vanessa Curran	DCR/OWR	Rebecca Quinones	MassWildlife
Sara Cohen	DCR/OWR	Leanda Fontaine	MassWildlife
Kara Sliwoski	DCR/OWR	Elisabeth Cianciola	MA DFG
Jason Duff	DCR/OWR	Sarah Miller	MDAR
Viki Zoltay	DCR/OWR	Liz Gorrill	MA DER
Nadia Madden	DCR/Flood Hazard Mitigation	Joseph Gould	MA DER
Kate Bentsen	DFG/Div of Ecological Restoration	David Wong	MassDEP
Becca George	EOHLC	Tara Manno	MassDEP
Caitlin Spence	EOEEA	Yuehlin Lee	DCR/DWSP
Bill Salomaa	DCR	Nancy Condon	DCR/State Parks
Dan Harris	DCR	Kerry Reed	Hopkinton DPW
Moussa Siri	Water Supply Citizens Advisory Committee (WSCAC)	Laurie Kennedy	MassDEP
		Stacy Johnson	MassDEP
Andreae Downs	Wastewater Advisory Committee		
Gardner Bent	USGS	Alexandra Wolfe	
Steve Mabee	USGS		
Dave Hilgeman	MassDEP		
Mia McDonald	MassDEP		

Rao called the meeting to order at 12:09 p.m.

Agenda Item #1: Welcome and Introductions

Rao welcomed all to the first in-person meeting in 3 years for the Water Resources Commission. She thanked Hotze for coordinating with DAR to host the meeting and the visiting staff members. She welcomed the virtual attendees and reminded all that the meeting was being recorded for meeting minutes and votes would be taken by roll call. Attendance was taken by sign-in sheet.

Agenda Item #2: Executive Director's Report

Rao will be hiring an Assistant Director for Water Policy in the next month or two. This position has been empty since Rao herself held it before becoming EEA Director of Water Policy. The focus will be on helping with development and advancement of water policy issues and coordinating with agencies on issues such as restoration, habitat, water management, wetlands, water quality, and other water related efforts and programs.

Carroll announced two new positions: one under the Flood Hazard Management Program for which the application window just closed; and a second that is still open, which is a Program Manager for the DCR Lakes and Ponds program. DCR is also hiring under the DCR Climate Resilience Office. She encouraged all to send qualified candidates toward these postings.

Bentson announced that DFG's Division of Ecological Restoration (DER) would be hiring three positions, all due the following week: Ecological Restoration Specialist for dam removal; Restoration Partnership Specialist to improve restoration capacity at the local level; Operations Coordinator to administratively support day-to-day operations.

Richards announced that DFG has been applying for the America the Beautiful Challenge Grant the last couple of years and last year received a nearly $5 million grant for work on southeast pine barrens, coastal plain ponds, and cranberry bog restoration projects. This year they received $3.5 million for restoration in the Appalachian Highlands and Streams corridor for dam removal, flood plain reconnection, and habitat improvement over the next four years.

Wijnja shared a DAR announcement of $1.75 million in grants for 56 agricultural operations in MA related to water, energy, and environmental quality in the agricultural sector. Several projects were funded for improving soils and water management, including no-till farming.

LeVangie announced that DEP is hiring staff for the Water Management Act (WMA) program, including regional permitting staff to replace those lost in the Western and Central regions, as well as two positions in Boston to help with the permit backlog. Earlier in the week, LeVangie met with the WMA Advisory Committee to discuss a plan to address the permitting backlog. Additionally, DEP has three active grants: the WMA program grant, which is for community water systems that need to minimize or mitigate their withdrawals; the M36 Audit grant, which is for working with a consultant to audit water loss; a new grant program of $2.3 million for public water systems in the Ipswich River Watershed to reduce demand or address PFAS. This last grant offers reimbursements for work going back to July 2023, and the deadline for applying is January 11. Woods asked about the origin of this last grant and LeVangie wasn't sure.

LeVangie also reminded everyone that all the DEP-issued registrations expired last April, 2023 and were renewed with conditions conforming to the MA Drought Management Plan adopted by the WRC in 2019. He shared that while some of these conditions have been challenged in legal proceedings, the WMA Advisory Committee at its meeting earlier in the week discussed incorporating similar conditions into the permit program, and LeVangie will keep the WRC posted of these discussions.

Kluchman announced that EOHLC has submitted the biggest housing bond bill that has ever been submitted, $4.1 billion dollars, for capital improvements to public housing, including green solutions and energy-efficient retrofits. It also includes 27 policy proposals, such as opt-in transfer taxes for local governments to fund affordable housing, and accessory dwelling units by right. It also funds a new infrastructure program directly for housing, called HousingWorks Infrastructure Program for public infrastructure. She also reminded people of a program underway for a year now that provides assistance for water and sewer bills for low-income residents, where funds are distributed to community action agencies to allocate to residents. This is a parallel program to the low-income heating assistance program. This program is funded with state dollars and supplements the federal assistance programs.

Kluchman also commented that their agency has been focusing significant energy, money, and staffing needs on emergency assistance for the migrant crisis.

Agenda Item #3: Hydrologic Conditions and Drought Status

Graham provided an update of November hydrologic conditions. The report is available at: https://www.mass.gov/info-details/monthly-hydrologic-conditions.

Highlights:

- Temperature – The average temperature for November was below normal, but September and October were warm so the fall overall was the 7th warmest on record for the state.
- Precipitation – Below normal across the state, triggering the precipitation index in all regions.
- Streamflow – Normal to above normal across state, except two gages in the Southeast.
- Groundwater – Individual wells ranged from below normal to above normal, with the Islands Region in Index Severity Level 2.
- Lakes and Impoundments – Normal.
- Crop Moisture Index and EDDI – CMI was slightly favorably moist to abnormally moist. EDDI was mostly normal; a few regions were above normal.
- KBDI (fire danger) – Normal.
- Snow and Flooding – Some areas received snow in November but snowpack was gone by the end of the month. No flooding to report.
- Drought – The Drought Management Task Force (DMTF) met earlier in the week and concluded the Islands Region was in a Level 2 drought.
- U.S Drought Monitor – Shows Islands and parts of Cape Cod in Abnormally Dry conditions.
- Seasonal Outlook – Both the December and the seasonal outlook show 40-50% chance of above normal temperatures and 33-40% chance of above normal precipitation. No predicted seasonal drought development.

Rao commented that groundwater levels on the Islands have been low since last June, which was the only concerning index until the two-month Precipitation Index tripped, which provoked the calling of the DMTF and the drought declaration recommendation.

Discussion:
Hatch asked about the quantity of data responsible for the drought declarations. Rao explained that the DMTF does the best it can with what data they have. Some locations have robust data, while others are slimmer. Currently staff and USGS are undergoing network analyses to help determine critical gaps and redundancies, which should help acquire funding for additional data points. She then stressed that they feel the current network is able to support the declarations they are making. She welcomed recommendations for new data points for any of the indices. Hatch followed up with a question about quality control of real-time monitoring. Bent confirmed there is still regular maintenance and quality control on these stations.

Woods asked whether any indices are weighted more than others. Rao said they weren't explicitly ranked, but the MA Drought Management Plan (DMP) explains that precipitation and groundwater are key points of focus coming out of drought. This is implemented through discussion and judgment calls on borderline interpretations of drought severity level by the DMTF, but not by weighting the indices mathematically. Cambareri commented that he has previously expressed the recommendation that on the Cape groundwater should weigh most heavily, due to the dominance of groundwater on the system and the extent of data in the region. Rao responded that each index tells us something different about the system's response to both short-term and long-term dynamics associated with drought and drought drivers.

Cambareri asked what actions are involved in calling a drought during the winter, when people aren't watering. Rao explained that the drought determinations are data driven, not determined by the actions that would be taken in response, however she acknowledged that the messaging that goes with declarations takes into consideration the time of year. For example, in winter, drought messaging relates more to indoor use, and preparation for watering season.

Zoltay reminded people that the DMTF involves a lot of inter-agency coordination and non-public-facing activity during drought declarations, regardless of time of year.

Agenda Item #4: Meeting Minutes, September 2023
Rao invited a motion to approve the meeting minutes for September 14, 2023.

VOTE	A motion was made by Weismantel with a second by Hatch to approve the meeting minutes for September 14, 2023. The motion was approved in a roll-call vote that was unanimous among those present.

***Agenda Item #5:* Revisions to the Massachusetts Drought Management Plan (DMP)**
Rao and Zoltay reviewed the DMP revision process from June 2022 through the presentation last month and provided a review of the changes. The presentation is available at: https://www.mass.gov/service-details/review-our-meetings.

Presentation Highlights:

- The DMP update process began with agreement to change the evapotranspiration index in the summer of 2022, followed by a year of drafting smaller updates.
- Over the summer of 2023 through the fall, public comments were received and addressed and changes reflecting these comments appear in the current draft.
- Administrative updates address current membership and some updated agency descriptions and roles.
- An amended section on drought impacts incorporates descriptions of more recent droughts and projected changes to drought patterns due to climate change, including increased concern with rapid-onset droughts and rapid-escalation of drought.
- Minor updates were made to communication and response actions for different levels of drought.
- Changes were made to reflect the updates to the Water Management Act (WMA) regulations related to drought.
- Some new guidance on water conservation and revenue resilience was added and a new appendix for private well users.
- Changes to the Drought Indices include:
    - Inclusion of weekly calculations for some indices
    - Expansion of the Streamflow Index to Cape Cod
    - Improved location maps for index networks
    - Incorporation of the new evapotranspiration index, EDDI
- Zoltay reviewed the rationale for the new EDDI index and the process for evaluating it.
- Public comments were received from the Massachusetts Water Resources Authority and Massachusetts Water Works Association, and agencies provided internal comments.
- Copies of the revised plan will be available online and printed by request.

Rao explained that she would like the vote to approve the revisions to also specify the DMP as a working document, so house-keeping edits could happen without vote. All substantive changes would continue to be brought back to the WRC for a vote.

Discussion:
Hatch commented that improvements are beneficial.

V O T E	A motion was made by Weismantel with a second by Ragucci to approve revisions to the Massachusetts Drought Management Plan and to allow staff to use this version as a working document to make minor and administrative changes. In a roll-call vote, 11 voted to approve in a unanimous vote.

Agenda Item #6: **Presentation on the Office of Dam Safety**

Rao introduced Bill Salomaa from DCR Office of Dam Safety.
Presentation slides are available at: https://www.mass.gov/service-details/review-our-meetings.

Presentation Highlights:

- DCR Dam Safety Office has two pursuits: regulation of dams of a certain size statewide and care for the inventory of 300 dams that are agency owned.

- Growth of dams in the state exploded in the 1800's using techniques far from today's standards. Dam safety programs at both the national and state level were driven by a series of impactful dam failures and associated deaths. Massive failure of the Mill River dam in Williamsburg, MA in 1874 made headlines across the nation. In Lee two dams failed in the same location 100 years apart, killing a total of 9 people.
- These along with other national dam disasters led Congress in the 1970's to authorize the Army Corps of Engineers (ACOE) to begin inspecting potentially hazardous dams nationwide. In the early 1980's the national Association of State Dam Safety Officials was created to provide guidance to states in setting up dam safety programs, and Massachusetts adopted the recommended regulatory format for its program.
- Dam safety programs, laws, and authorities in MA have been evolving since the late 1800's, and the administration of dam safety has been at DEM/DCR for last 40 years.
- The Office of Dam Safety (ODS) operates under MGL 253 and subsequent revisions in 2002 and 2012, and the regulations promulgated under that law. The regulations provide safety standards and ensure transparency of the performance of dams.
- The purpose of ODS is to ensure that owners of public and private dams meeting the threshold for jurisdiction comply with these laws and regulations, including timely inspection, reporting, remediation and corrective action, as needed. Jurisdictional dams include those that are either 25 feet or more in height, that impound 50 acre-feet or more of volume, or that if breached could endanger property or public safety.
- In 2002, a significant advancement in the regulations was to allow OSD to order dam owners to hire competent contractors to conduct inspections, rather than OSD having to do all inspections itself. In 2012, a significant advancement was the establishment of the Dam and Seawall Repair and Removal Fund to financially help owners address hazardous structures.
- Hazard classifications for dams (High, Significant, or Low) pertain to the potential loss of life and property in the event of failure, not condition of dam. In the event of failure, high hazard dams (~21% of jurisdictional dams) *will likely* cause loss of life and serious property damage; significant hazard dams (~ 44% of jurisdictional dams) *may* cause loss of life and property damage; low hazard dams (~ 35% of jurisdictional dams) *are not expected* to cause loss of life and *may cause minimal* property damage. Required dam inspection frequency is based both on hazard classification and condition. Inspection results determine what actions are required on the part of the dam owner.
- Emergency Action Plans are required for all High and Significant Hazard dams.
- The total inventory of dams in Massachusetts is around 3,000. Of those, 1416 are regulated and 1584 are unregulated (non-jurisdictional). These numbers tend to go up as dams continue to be discovered.
- OSD relies heavily on DCR park staff to identify issues with DCR-owned and abandoned dams. Most DCR dams impound recreational water bodies for the public.

Questions/Discussions:

Weismantel mentioned in Hopkinton there are two DCR dams, and at town meeting when discussion of funding to maintain these dams comes up, people get upset by the classification of "high hazard". The public is not clear that this is not a reflection of condition. Salomaa acknowledged they work a lot on communication about this designation. Weismantel also

mentioned the lowering of the dam at Hopkinton State Park to reduce the hazard ahead of a storm leads to concerns about withdrawal capacity. Spillway improvements could alleviate this.

Hatch commented that the designations may not account for changes in the frequency and levels of flooding expected with climate change. Salomaa said classifications do use the most recent updates in NOAA's Atlas 14 for the definitions of flood design storms. Hatch also mentioned in Belchertown there are a string of dams under the threshold of jurisdictional capacity, and as a result they cannot find funding for their removal. She asked if Bill knew of funding sources for removal of these dams. Salomaa said they work with the Division of Ecological Restoration and EEA to connect sources of funding or technical support with need.

Kluchman asked about level of funding. Salomaa answered that roughly $4.5 million/year is available for repair of DCR owned dams for, with $700,000 for maintenance and operation, and $550-600,000 to hire consultants for engineering. There is also additional money for managing abandoned dams. They could always use more, but this level of funding is adequate. Kluchman also asked if the Emergency Action Plan worked well during the Leominster floods this past fall. The emergency management officials were on the verge of conducting evacuations, but the OSD team was focused on assessing the conditions of the dam rather than the emergency responses.

Richards commented that it would be useful to graph all the dams with their respective conditions to provide a sense of the magnitude of need. Salomaa confirmed that is being looked at closely. Richards also commented on the 30 dams on properties managed by DFG and credited the OSD regulations and programs for the extensive documentation, preparation, and remediation that has been done on those dams. He lastly commented on the significant impact to fish and wildlife of dam failures, too, beyond the human impact. He noted that beavers can build on top of non-jurisdictional dams, making them effectively much higher and increasing the impact if they fail.

Woods asked about the extent of contaminated sediment behind dams. Salomaa commented that they do not know the extent of the contamination unless they are going to undertake activities that would expose them. The regulations don't address the hazard associated with the disbursement of contaminated sediment in the event of failure. Woods is concerned that if this isn't known ahead of time, the level of hazard could be higher than accounted for by current metrics of water velocity issues.

The question was asked whether all high hazard dams have submitted Emergency Action Plans. Salomaa said that all but one do have plans created by owners or by OSD, and the final one is under development.

Agenda #7: 40th Anniversary Commemoration of the Interbasin Transfer Act

Rao reviewed the original intent of the Interbasin Transfer Act. She noted that the original Water Supply Policy developed by the WRC in the 1970's is what led to the passage of the Interbasin Transfer Act (ITA). The ITA emphasized the importance of ensuring that communities were using water from their own basins to the maximum extent possible and in an efficient manner before seeking water from other basins. She praised and acknowledged the foresight and effort that went into this important tool for balancing environmental protection and human need. Since the

passage of the ITA in December 1983, 40 years ago this month, the WRC has denied 3 requests, and approved 23 full and 13 insignificant requests. Even the denials have been impactful, requiring applicants to review and identify viable alternatives. Rao reviewed the original focus of the ITA, which was to avoid a large diversion of the Connecticut River to supplement water for the greater Boston region. This led to extensive demand management efforts that were hugely successful and ended up eliminating the need for the diversion.

Rao invited Tom Cambareri, as the longest serving current WRC member, and Anne Carroll, as one of the longest current serving staff members to the WRC to share the task of cutting the ITA 40th Anniversary celebratory cake.

Rao reversed the order of Agenda #8 and #9 for logistical reasons.

Agenda #9: Congratulations and Well Wishes in Honor of State Geologist Steve Mabee's Retirement

Rao congratulated Mabee on his service as State Geologist since 2002, and his association with the WRC is equally long. As a Massachusetts native who also earned his graduate degree in the state, Mabee has a wealth of geological knowledge and understanding of the issues in MA, which he has used to educate the next generation of geologists at UMass, Amherst. Over the years he has provided invaluable support and scientific input on so many WRC questions and matters, as well as supporting Viki Zoltay, and Linda Hutchins before Viki, as state Hydrologists.

Zoltay commented that Mabee developed many valuable and longstanding products over the years, including most recently a map of depth to bedrock, which will have many applications including modeling work. His early work, including fractured bedrock mapping and surficial materials mapping, produced foundational products that are used constantly. He also helped with monthly monitoring and new well installations. Zoltay thanked Mabee for these efforts and their long-lasting impact.

On behalf of Secretary Tepper and Undersecretary Stephanie Cooper, Rao presented a citation to Mabee recognizing his contributions to Massachusetts.

Agenda #8: Presentation – Developing a Statewide Hydraulic Modeling Tool

Rao introduced David Hilgeman from MassDEP and Gardner Bent from USGS, who presented. Scott Jackson of UMass, Amherst, who was not able to make the meeting, was also acknowledged for his important role in the project. Presentation slides are available at: https://www.mass.gov/service-details/review-our-meetings.

Presentation Highlights:

- MA has over 25,000 stream crossings, many of which are undersized, causing safety issues and flooding hazards and blocking passage for aquatic organisms.
- A working group developed recommendations for MA Senator Hinds to address this issue. The draft guidance and tool that will be presented align with those recommendations and state regulations on stream crossings.
- Regulations require new stream crossings to meet the best design standards. Replacement stream crossings need to meet the standards to the "maximum extent practicable."

- A proposed draft guidance document ("the Guidance") is under development to define this "maximum extent practicable" benchmark, bracketing the range from the minimum hydraulic design criteria to meeting the full standard.
- The proposed draft Guidance sets the minimum hydraulic design criteria as the MassDOT hydraulic design flow set for each highway functional class.
- How much above that minimum is required is based on balancing cost against restoration potential at the location in question. Restoration potential is defined by overlaying two metrics: habitat quality and connectivity potential. Habitat quality is defined by combining 5 GIS layers designating important habitat of different types. Connectivity potential is based on critical linkages work at UMass, Amherst, which assigns restoration potential for stream segments if barriers were removed.
- The higher the combination of habitat quality and connectivity restoration, the higher the percent cost increase over baseline (meeting hydraulic design flow) the proponent would be required to spend, up to the cost of meeting the full standard.
- The proposed draft Guidance is still being tweaked internally and then will be vetted with the Advisory Committee and a wider range of stakeholders.
- The Statewide Hydraulic Modeling Tool ("the Tool") under development alongside the guidance can provide a size requirement for each of 3 types of crossing technologies for a range of design storms at a click for most stream crossing locations in the state.
- The Tool was piloted and evaluated in the Squannacook Watershed in north central MA, where it was found to model ground elevations generally within a foot of field-surveyed elevations and water surface elevations generally within less than a foot of field-surveyed measurements. These differences led to no difference in infrastructure size outputs.
- The Tool was developed into the web-based USGS StreamStats application. It has been tested at 46 sites across the state. A next step will automate the testing process, so the tool can be tested on a much higher number of sites at different geographies across the state.
- Ultimately, the intention is to be able to apply the tool to the majority of the 25,000+ stream crossings in the state.
- Future enhancements could potentially include the flexibility for users to adjust flow statistics to reflect climate change or to manually update measurements of some of the model inputs that would allow the tool to automatically update and re-run. Feedback from users of the tool will be used for updates and improvements.

Discussion:
Rao expressed appreciation for the value of this tool, creating standards state-wide, saving communities money, significantly improving public infrastructure and ecosystem integrity.

Hatch expressed appreciation for the great tool. She asked how the cost savings from a properly-sized crossing fits into the cost calculations. Hilgeman stated that the cost savings were the basis for the political will for the project. He explained that since the minimum cost basis is the hydraulic design standard, any crossing meeting the requirements should result in preservation of the infrastructure at a minimum. Additionally, the tool can strengthen grant applications to fund replacement designs that come closer to or that fully meet the standards for new design.

LeVangie mentioned that replacing and upgrading crossings can count as mitigation credits under the Water Management Act program, so his staff should coordinate with the project team on how much credit to allot for a voluntary replacement.

Woods expressed appreciation for the tool and excitement for its applications. She asked whether the approach to prioritizing quality of the habitat and connectivity potential leads to effectively abandoning low-quality streams to perpetual poor crossings. Bent pointed out that at a minimum the standard provides flood resilience but acknowledged that the process does place higher priority on more robust crossings where the quality of the habitat is high. Woods encouraged continued support for better crossings where habitat degradation has occurred, as restoration still matters in these systems. She also asked if we create a similar tool to determine the correct size of the spillway for dams. Bent did not believe this was slated for the near future.

Rao thanked the staff for their roles in coordinating the in-person meeting, managing the online process, keeping minutes, managing the hydrologic monitoring and reports, providing technical expertise, and coordinating with partners on studies and projects. Rao also acknowledged and welcomed Moussa Siri, replacing Lexi Dewy as the Executive Director of WSCAC.

Rao polled attendees on their preference for continuing to meet in person on a regular basis. Based on discussion, she suggested in-person meetings twice a year, likely 12:00 – 3:00pm.

V O T E	A motion was made by Weismantel with a second by Cambareri to adjourn the meeting. The roll-call vote to approve was unanimous of those present.

Meeting adjourned at 2:59

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

1. WRC Meeting Minutes: September 14, 2023
2. Final Massachusetts Drought Management Plan 2023
3. Comparison of Drought Declarations by Massachusetts and the Drought Levels Issued by the U.S. Drought Monitor
4. Correspondence dated October 31, 2023 from the WRC to the MEPA Office regarding the Environmental Notification Form for 279-311 Boston Post Road in Wayland
5. Correspondence dated November 28, 2023 from the WRC to the MEPA Office regarding the Town of Weymouth's Request for Advisory Opinion
6. MA Flood Hazard Management Program First Quarter Report to FEMA
7. Interbasin Transfer Act project status report, December 4, 2023
8. WRC 2024 Meeting Schedule

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.*