



WSCAC Virtual Meeting Minutes
Tuesday, May 13th, 2025

WSCAC Members in Attendance in Bold:

- Christine Bennett, MWRA Advisory Board
- William Copithorne, Town of Arlington
- Steven Daunais, Tata & Howard
- Gerald Eves, Trout Unlimited
- **Bill Fadden**, OARS
- **Bill Kiley**, BWSC
- **Paul Lauenstein**, Neponset (Chair)
- Paul Rybicki, Partially Supplied Community
- **Martin Pillsbury**, MAPC
- Janet Rothrock, League of Women Voters
- **Bill Merriam**, Framingham resident, Foss reservoir abutter
- **Erin Bonney Casey**, Ipswich River Watershed Association
- **Ralph Abele**, Charles River Watershed Association
- Matt Brown, OARS
- **Warren Kimball**, Nashua River Watershed Association

Non-Members in Attendance:

- Stephen Estes-Smargiassi, MWRA
- Andreae Downs, WAC
- Lydia Olson, Mass Rivers Alliance
- Moussa Siri, WSCAC Executive Director
- Cory Yarrington, MWRA
- Jason Duff, EEA
- Vandana Rao, EEA
- Purvi Patel, EEA
- Jennifer Pederson, Mass Water
- Erin Graham, MA/OWR
- Nina Gordon-Kirsch, CT River Watershed
- Anne Carroll, DCR/OWR
- Daniel Nvule, MWRA
- Viki Zoltay, MA, DCR/OWR

I. Introduction

The meeting began with introductions and opening remarks. Moussa Siri, the Executive Director of WSCAC, welcomed attendees and noted the good participation, including from the Office of Water Resources Commission. He expressed pleasure in seeing everyone and highlighted the interesting topic of Steve Estes-Smargiassi's presentation. He then outlined the meeting agenda.

II. WSCAC Businesses

• Roll Call and Attendance Check:

Moussa Siri initially suggested going over the list of attendees and having introductions. Paul Lauenstein, WSCAC Chair, then checked attendance to ensure a quorum was present. He noted that several members who were not present notified him in advance. All other members were accounted for. Introductions were made by various members, including representatives from Charles River Watershed Association, MWRA Wastewater Advisory Committee (WAC), Nashua River Watershed Association, Ipswich River Watershed Association, Massachusetts Office of Water Resources, MAPC, Framingham residents, Connecticut River Conservancy, Mass. Rivers Alliance, Mass. Water Works Association, and MWRA Planning and Sustainability.

• Vote to approve March 28th and April 8th meeting minutes:

Paul Lauenstein presented the minutes from two previous meetings: the March 28th budget hearing and the April 8th tour of the Wachusett Dam. He confirmed a quorum was present and entertained a motion to approve both meeting minutes together.

- Bill Miriam moved to approve the minutes, and Erin Bonnie Casey seconded.
- No further discussion occurred, and the minutes were unanimously approved.

• Water Conservation Subcommittee:

Lydia Olson provided an update for the Water Conservation Subcommittee, noting that their chair was unable to attend. The subcommittee is discussing the current drought bill in the Massachusetts State legislature, and it is drafting a letter of support for the bill to be presented when it comes up for a public hearing.

Paul Lauenstein added that his town of Sharon has an award-winning water conservation program that has reduced water use by about 30% over nearly 20 years. He stressed the importance of continuously preparing for drought, especially with an increasing population and finite water supply. He mentioned that the MWRA's Quabbin Reservoir, while huge, is still a finite resource, dropping to about 84% full during the drought last fall. Building a baseline for the subcommittee's focus and writing the letter of support are ongoing projects.

• Forestry Subcommittee:

Paul Lauenstein read comments prepared for the Forestry Subcommittee report. Members of the subcommittee (Christine Bennett, Bill Merriam, and Paul Lauenstein) and the WSCAC executive director (Moussa Siri) met with Professor Paul Catanzaro of UMass College of Natural Resources. Professor Catanzaro's work focuses on helping landowners with conservation-based estate planning and the application of ecological forestry.

- He stated that forest growth and regeneration in Massachusetts are at least four times more than the wood being harvested. He characterized watershed forests as even-aged, around 100 years old, dating from the exodus of agriculture.

- Paul Catanzaro favors active forest management over pro-forestation (leaving forests alone). The discussion included the difference between carbon sequestration (rate of removal) and carbon storage (amount tied up in trees).
- He recommended a long-term objective of creating a multi-age, diverse species forest resilient to climate change, suggesting leaving or replanting southern species that are more resilient to warmer temperatures, shorter winters, and associated insect pests.
- He noted that planting trees is expensive and subject to deer and moose browsing. Deer hunting was highlighted as an important management tool to control herbivory and allow regeneration, with a suggested population density of not more than 10 deer per square mile. Moose hunting is not allowed in Massachusetts, so harvesting practices need to leave trees large enough to resist moose browse.
- To make informed recommendations, WSCAC needs objective information on watershed forestry practices. Paul Catanzaro referred them to Malcolm Itter at UMass for data collection and analysis on forest ecology and conservation, which will be the next step.

III. Briefings

• WSCAC Briefing (Moussa Siri, WSCAC):

Moussa Siri added to the forestry report, noting that the June 10th meeting will focus on forestry updates from DCR. This in-person meeting will be at the Blue Hills Conference Center. He invited members to submit any questions they would like addressed by DCR by the end of the week. Regarding water conservation, he reported on the Drought Management Task Force meeting the previous week, noting that drought conditions have improved due to recent rain. According to the EEA Secretary's press release, the central region of Massachusetts is at level zero (no drought), while Western Massachusetts, Connecticut River Valley, Northeastern, Southeastern, and Island regions are at level one. The Cape Cod region is at level two. The MWRA reservoir levels corroborate these conditions: Quabbin was at 90.2% full and Wachusett at 91.5% full.

• WAC Briefing (Andreae Downs, WAC):

Andreae Downs, WAC Executive Director, provided an update. WAC will have a planning meeting on the first Friday in June (June 7th), which is open to WSCAC members. Topics may include combined sewer overflows and leadership for the next year. She mentioned a recent tour (Alewife Brook Pump Station and Alewife Brook) that WSCAC members were invited to.

• MWRA Briefing (Steve Estes-Smargiassi, MWRA):

Steve Estes-Smargiassi noted that he would combine his operational updates with his presentation on the drought plan. He also suggested providing quick updates at the end of the meeting, including the annual water quality report focusing on MWRA's 40th anniversary and lead service line replacement outreach, the retirement of Chief Operating Officer (COO) Dave Coppes, and a presentation on private inflow and infiltration removal at the upcoming Advisory Board meeting.

IV. Presentation: MWRA's Drought Management Plan Updates (Steve Estes-Smargiassi, Director of Planning and Sustainability at the MWRA)

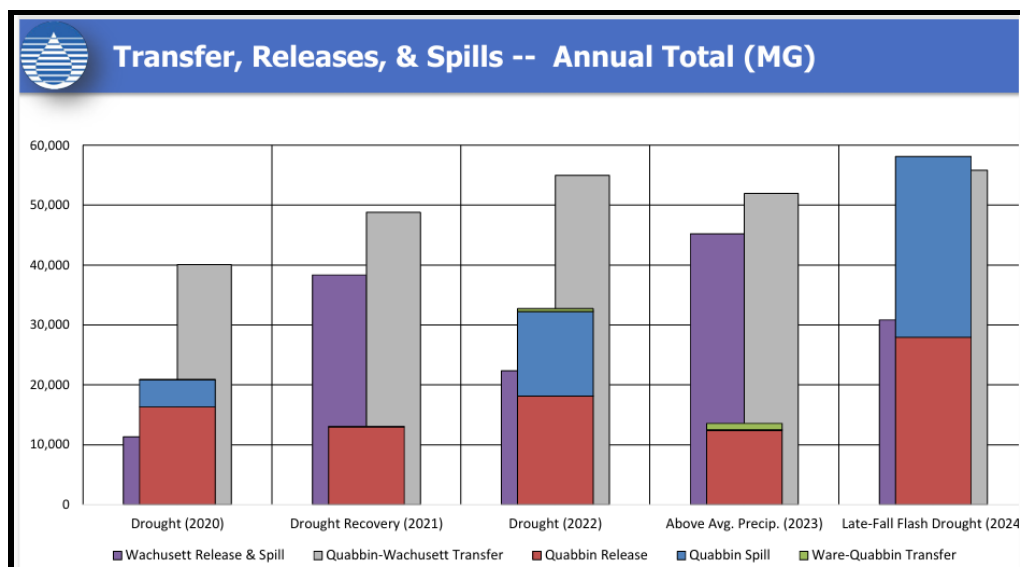
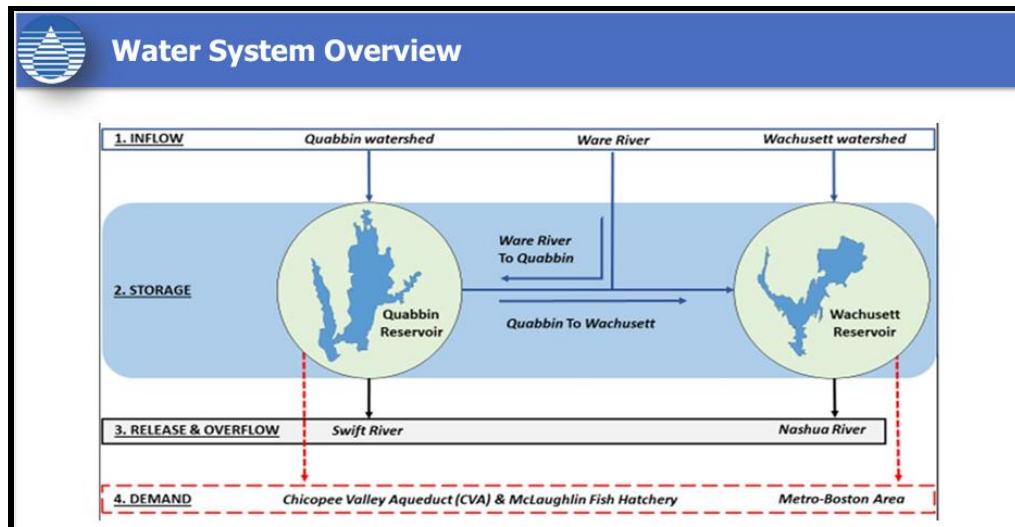
Steve Estes-Smargiassi presented updates on the MWRA's Drought Management Plan. He mentioned this was roughly his 400th WSCAC meeting.

- **System Overview (see images and graph below):**

- The MWRA system is a **multiple-source reservoir watershed system**. It includes three watersheds: Wachusett, Ware, and Quabbin, operated synergistically. Water moves to the metropolitan area and also leaves the reservoirs as required releases to the Swift and Nashua Rivers. The Quabbin is the largest watershed (187 sq. miles) and is well-protected, with about 50% owned by DCR. The Wachusett is 108 sq. miles. Storage capacity is 412 billion gallons in Quabbin and 65 billion gallons in Wachusett.



- Required releases are made to the downstream rivers. For Quabbin, this includes:
 - A minimum release of 20 MGD to the Swift River, with MWRA typical operations releasing a minimum of 30 MGD through the dam.
 - Seasonal increases (45 or 70 MGD) are required during drier months based on Connecticut River flow at Montague.
 - The five-year average release to the Swift River is about 96 MGD.
 - At Wachusett, the minimum release is expressed in gallons per week, but the MWRA typically releases eight to ten times that minimum.
 - The Ware River is used seasonally (fall/winter) to transfer water to the Quabbin, typically when Quabbin is lower.
 - The system's multi-year storage leads to a dampened response to droughts.

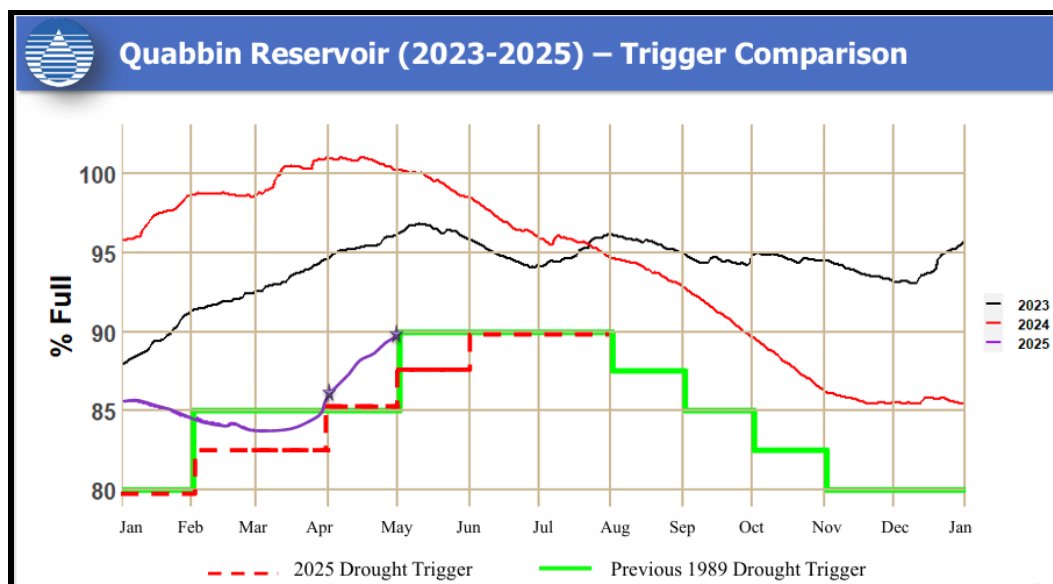
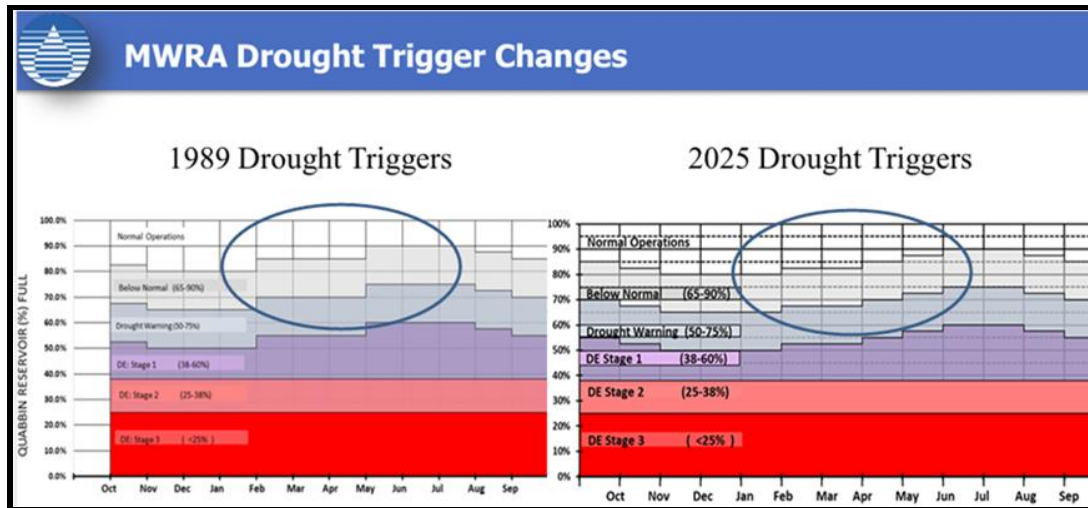


• Historical Context and Need for New Plan:

- Current withdrawals, including Worcester's use in the Wachusett watershed, are about 200 million gallons per day (MGD). The safe yield of the system, based on the 1960s multi-year drought, is about 300 MGD.
- Demand was much higher in the early 1980s, around 330 MGD. MWRA was created in 1985 in the midst of demand management efforts. The original drought plan was developed in 1989 during a severe drought, in collaboration with communities and DEP.
- This plan had staged triggers and contingencies for different reservoir levels. Changes in the state's Water Management Act regulations in 2023 required systems with registrations to have mandatory restrictions during state drought conditions. The state recognized that systems with multi-year reservoirs could have their own local triggers. The MWRA system qualifies as multi-year, with roughly **3.8 years of storage** based on authorized withdrawal. This prompted the review and update of the drought plan. The old plan was a dense document, while the new plan is slimmer and designed for quick understanding and communication. It was submitted in early April 2025.

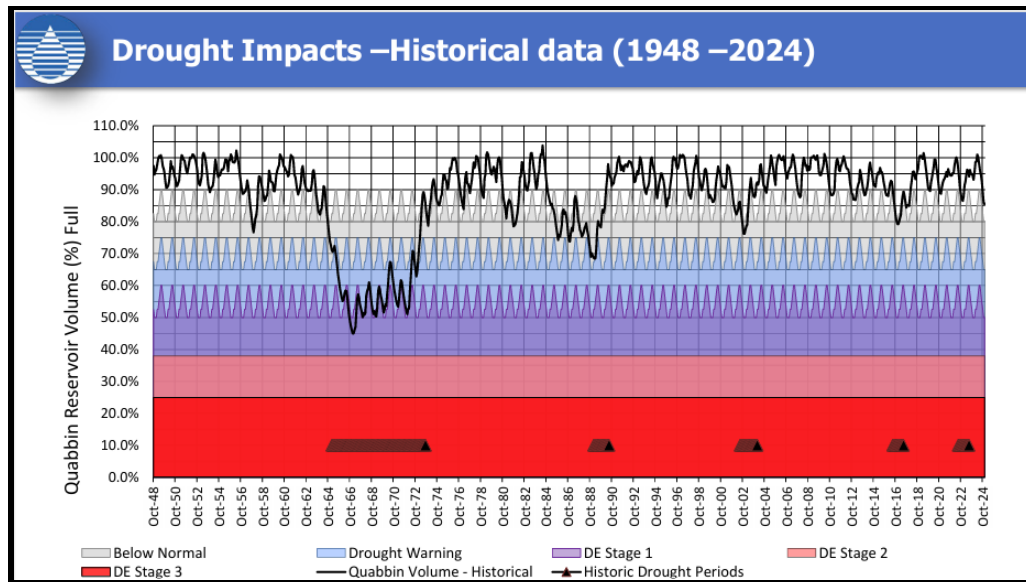
• **Changes in Drought Triggers (see graphs):**

- The principal difference in the new plan is the **trigger for moving from normal to below normal during the reservoir fill cycle**. The old plan had 5% jumps in reservoir percentage on February 1st and May 1st.
- Analysis showed these steps were too large and did not match the reservoir's natural behavior. The **new plan proposes more gradual steps, jumping up 2.5% on the 1st of several months during the fill cycle**. This more gradual increase is mirrored downward as the reservoir drops through stages. (An error was noted in a slide showing a 0% conservation goal for Drought Warning; the correct goal is 5 %.)

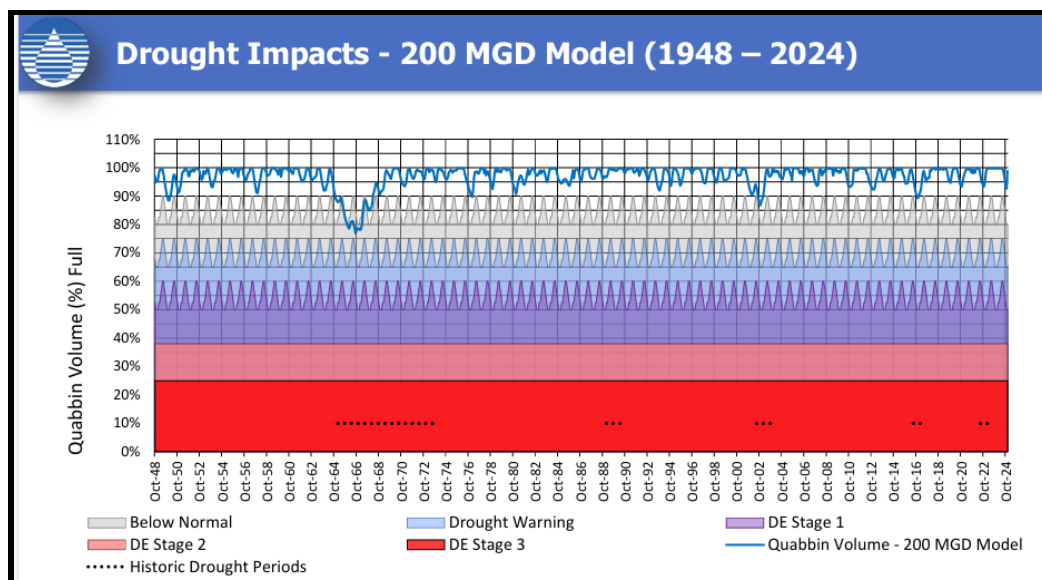


• **System Performance Analysis:**

- Modeling shows how the system would behave under different demand levels using historical data. During the drought of the 1960s, actual demands were higher (263 MGD average in 1965, rising to 323 MGD by 1975). The reservoir dipped to about 45% full at its lowest point.



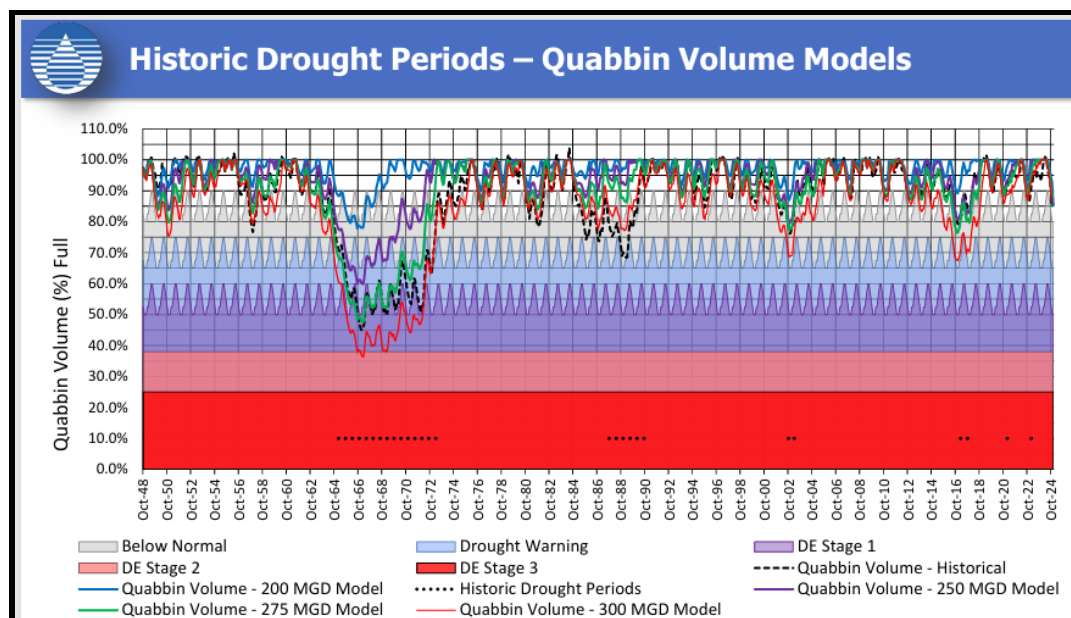
- Modeling indicates that at the current demand of 200 MGD, the system in the 1960s drought would have reached only Drought Warning, not Drought Emergency. At 250 MGD, it would have gone down through Drought Warning but not Emergency in the 60s drought, and no lower than Below Normal in other historical droughts. At 300 MGD, it would just barely enter Drought Emergency Stage 1 in the 1960s drought, but not in other droughts. Recent droughts like 2016, 2020, and 2022 show that with large reservoirs, the system responds slowly. It may enter below normal stages after the state drought is over, and take a while to refill. This offset behavior influences communication strategies.



- **Actions by Drought Stage:**

- The plan outlines actions for five drought stages: Below Normal, Drought Warning, and Drought Emergency Stage 1, 2, and so on. Actions are categorized by analysis/planning, coordination, public outreach, technical assistance, and operational adjustments.

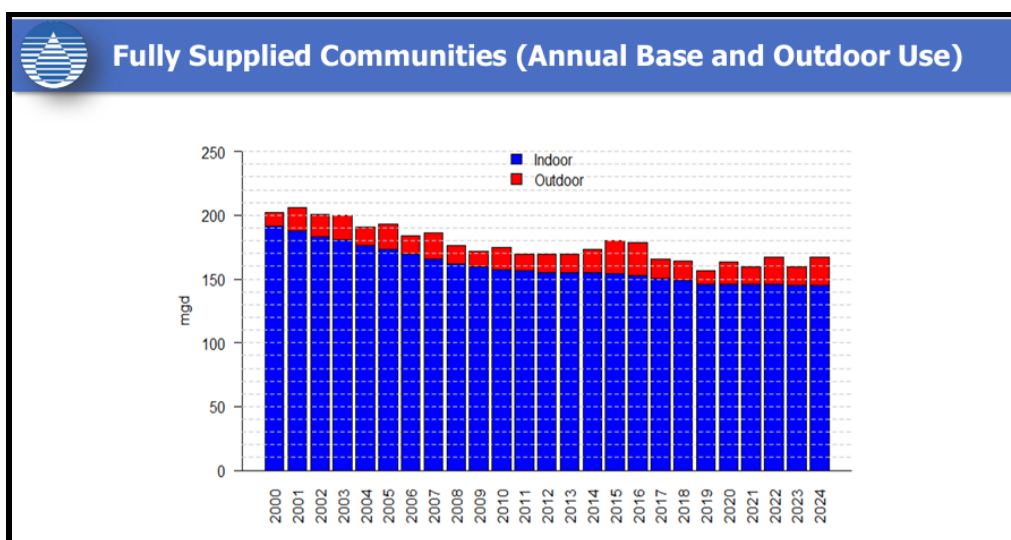
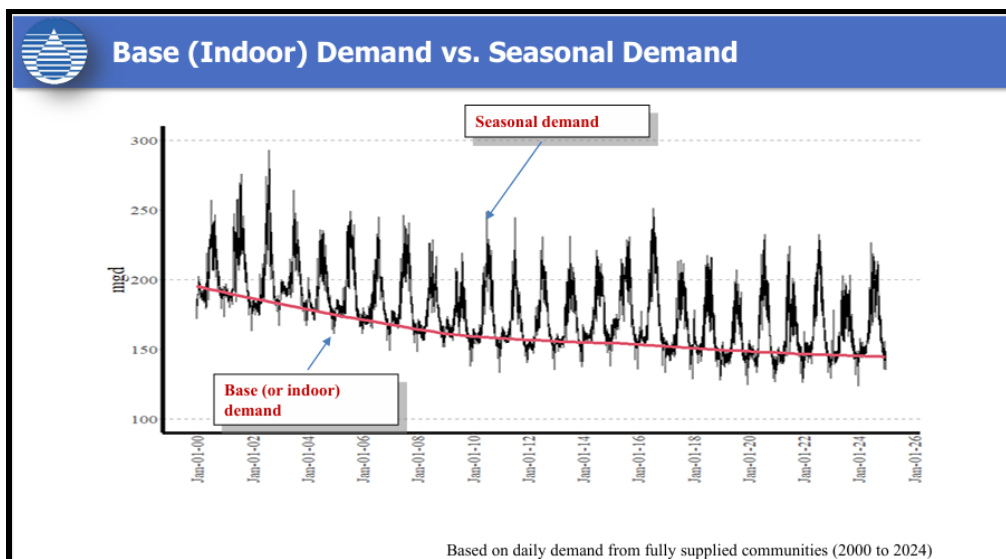
- Conservation goals increase with severity with drought level: 0% (Below Normal), 5% (Drought Warning), 10% (Drought Emergency (DE) Stage 1), 15% (DE Stage 2), and 30% (DE Stage 3).
 - **Normal Operation:** Routine leak detection assistance, system operation for quality, maintenance, and hydropower. Drought is at the back of the mind.
 - **Below Normal:** Opportunity to assess and potentially change operations. Communicate with customers about using water wisely, direct to conservation pages. Gear up for modeling, potentially monthly updates to the board. Begin taking water from the Weir River if available.
 - **Drought Warning:** Discuss flushing practices (defer if not mandatory for water quality). Push for leak detection. Review emergency connections (e.g., Cambridge, Lynn). Talk to communities about voluntary restrictions on non-essential water use and contact large users. Discuss potential reduction in water supply to McLaughlin Fish Hatchery. Continue using Weir River water. Conservation goal: 5%.
 - **Drought Emergency Stage 1:** Share info on enforcement procedures, training, and best practices. Discuss drought pricing. Provide more frequent/real-time water use data to communities (daily/weekly). Communities implement mandatory restrictions on non-essential outdoor use and reductions in municipal use. Potentially further reduce water to fish hatchery.
 - **Drought Emergency Stage 2:** Discuss the possibility of rationing. Provide more detailed SOPs/procedures for enforcement. Potentially use enforcement authority. May begin providing water to emergency backup users (Cambridge, Lynn). Work with DEP on restrictions for non-MWRA communities taking MWRA water. Continue using Weir River water.
 - **Drought Emergency Stage 3:** Rationing, drought pricing. Communities may restrict individual users, turn water off, or implement drought flow restrictions. Public messaging would be intense.



- **Feasibility of Reductions:** Analysis suggests that 5%, 10%, and 15% reductions are achievable. A 30% reduction is "draconian" but likely achievable given the severity of conditions at that stage.
- **Climate Change:** Analysis suggests that **safe yield will likely increase slightly due to climate change** (more precipitation with warmer weather). This provides some comfort regarding supply risk, although periodic review is needed. Ecological effects have been considered but are not part of the direct planning.

Steve Estes-Smargiassi concluded his presentation with a few comparisons and updates (see presentation for all graphs):

- Drought Impacts – State Drought Status with MWRA System
- Quabbin models of the 2015-2016 Drought Period, the 2000s Drought Period, the 1980s Drought Period, and the 1960s Drought Period
- Base (Indoor) Demand vs. Seasonal Demand
- Fully Supplied Communities Annual Base vs. Outdoor Use.





Quabbin Reservoir Trigger Volumes & Elevation

Table 4.1-1 MWRA Drought Response Plan – Quabbin Reservoir Trigger Volumes & Elevation

	Below Normal		Drought Warning		Drought Emergency Stage 1		Drought Emergency Stage 2		Drought Emergency Stage 3	
	Volume (%)	Elevation (ft.)	Volume (%)	Elevation (ft.)	Volume (%)	Elevation (ft.)	Volume (%)	Elevation (ft.)	Volume (%)	Elevation (ft.)
Oct	82.5%	520.48	67.5%	511.66	52.5%	501.46	38.0%	490.00	25.0%	475.00
Nov	80.0%	519.08	65.0%	510.07	50.0%	499.62	38.0%	490.00	25.0%	475.00
Dec	80.0%	519.08	65.0%	510.07	50.0%	499.62	38.0%	490.00	25.0%	475.00
Jan	80.0%	519.08	65.0%	510.07	50.0%	499.62	38.0%	490.00	25.0%	475.00
Feb	82.5%	520.48	67.5%	511.66	52.5%	501.46	38.0%	490.00	25.0%	475.00
Mar	82.5%	520.48	67.5%	511.66	52.5%	501.46	38.0%	490.00	25.0%	475.00
Apr	85.0%	521.86	70.0%	513.21	55.0%	503.26	38.0%	490.00	25.0%	475.00
May	87.5%	523.24	72.5%	514.73	57.5%	505.02	38.0%	490.00	25.0%	475.00
Jun	90.0%	524.61	75.0%	516.22	60.0%	506.74	38.0%	490.00	25.0%	475.00
Jul	90.0%	524.61	75.0%	516.22	60.0%	506.74	38.0%	490.00	25.0%	475.00
Aug	87.5%	523.24	72.5%	514.73	57.5%	505.02	38.0%	490.00	25.0%	475.00
Sep	85.0%	521.86	70.0%	513.21	55.0%	503.26	38.0%	490.00	25.0%	475.00



MWRA Drought Response Plan - Months within Each Drought Stage

913 Months; October 1948 - November 2024

Annual Average of Demand (MGD)	Below Normal		Drought Warning		Drought Emergency				Max Descent
					Stage 1		Stage 2	Stage 3	
190	20	2%	0	0%	0	0%	0	0	11.17
200	24	3%	0	0%	0	0%	0	0	12.75
210	34	4%	0	0%	0	0%	0	0	14.51
220	41	4%	1	0%	0	0%	0	0	16.5
230	49	5%	8	1%	0	0%	0	0	18.52
240	56	6%	18	2%	0	0%	0	0	20.98
250	66	7%	44	5%	0	0%	0	0	24.45
260	73	8%	50	5%	5	1%	0	0	27.93
270	67	7%	60	7%	19	2%	0	0	31.78
280	91	10%	43	5%	46	5%	0	0	35.89
290	155	17%	22	2%	71	8%	0	0	39.44
300	226	25%	18	2%	71	8%	13	0	42.77
Historical Data	120	13%	64	7%	41	4%	0	0	

Note: This is a summary of the presentation. If you want to learn more about the MWRA Drought Management Plan Updates, please check this link and go to the May 13 presentation:

<https://www.mwra.com/about-mwra/advisory-groups/water-supply-citizens-advisory-committee-wscac/wscac-presentations-0>

V. Other Businesses

No other new businesses were formally discussed before the adjournment.

VI. Adjournment

Moussa Siri thanked Steve and all participants.

Paul Lauenstein called for a motion to adjourn.

A motion was made (So moved) and seconded, and the meeting was adjourned around 11:48 a.m.

Notes/Future:

Before adjournment, Moussa Siri reminded participants:

- The **next WSCAC meeting is in person on June 10th at 10:00 AM** at the Blue Meadow Conference Center.
- The June meeting will focus on DCR Forestry Updates, where WSCAC members will have the opportunity to ask DCR questions about forestry.
- WSCAC members can send topics they want to hear about.