

Massachusetts Drought Management Task Force – Meeting Summary
October 10, 2019 100 Cambridge Street, 2nd floor, Room A

Attendees:

Vandana Rao, EEA	Anne Carroll, DCR	Sara Zalieckas, MEMA
Nicole Belk, NWS	Beth Card, MWRA	Michelle Craddock, DFG
Sara Cohen, DCR	Erin Graham, DCR	Jen Pederson, MWWA
Julia Blatt, Mass Rivers Alliance	Kate Bentsen, DFG	Peter Weiskel, USGS
Marcos Pareto, DPU	Tom Maguire, DEP	Duane LeVangie, DEP
Vanessa Curran, DCR	Marilyn McCrory, DCR	Jonathan Gervais, City of Worcester

Introductions & Announcements

Rao called the meeting to order at 10:23. Meeting attendees were asked to introduce themselves. Rao announced that the new drought plan is available online and hard copies are available today. Next steps include looking at ways to make more information available online. Rao reported she is finalizing a contract to build a drought dashboard that will likely be ready next year.

Updates on Current Conditions and Impacts from Members of the Task Force

Streamflow and Groundwater Conditions in Massachusetts – Peter Weiskel, USGS

Weiskel showed streamflow averages by basin for September. The Nashua was in the less-than-5 percentile class. The Housatonic, Westfield, Deerfield, and Farmington are in the 10-24 percentile class. The 7-day average as of October 3rd includes more basins in the below normal percentile range. The 45-days through October 9th aggregate percentiles for 54 sites across the state shows a drought developing mid-September. Groundwater levels in September varied; there were some wells in the less than 10 percentile class in the Connecticut River and West Regions.

Weather - National Weather Service, Nicole Belk

Precipitation has been below normal across the state, but closer to normal in the Cape and Islands region. The biggest precipitation event was on September 2nd, and there were some urban flooding issues. That event brought mostly less than 0.5” of precipitation, with some pockets with more than 2-inches. Storm Dorian grazed Massachusetts with mostly wind and hit-or-miss precipitation; there were some bands of 1-2” and report from Nantucket of 3.5”, but it was not a significant rainfall event. A high-pressure system prevented significant rainfall for much of September. Temperatures in Boston were above average and there wasn’t a sea breeze. Rainfall averages 1” or less and normally 4” would fall. The El Nino-neutral conditions mean that the area could still see a tropical system. So far in October through the 8th there is below normal rainfall except for the North and South shore areas. The 72-hour forecast only shows ½ to 1” of rain in the southeast part of the state with the west getting less. The central part of the state including Nashua river basin is only expecting ½” total. Overall the southeast and coast is forecast to get a good amount of rain from this northeaster while in the interior it won’t be

a big rain event. The 8-14 day outlook favor above normal temperature and equal chances for above, below, or normal precipitation. The three- to four-week outlook favors above normal temperatures and equal chances for precipitation, as does the outlook for November, December, and January. The drought outlook does not show anything, although the outlook only shows D1 or greater, so abnormally dry is not seen.

Water Supply

Massachusetts Department of Environmental Protection, Water Management Act, Duane LeVangie
Some communities have restrictions, and most of those communities have permits that restrict outdoor water use even before there is a drought. There were no responses from agency staff regarding any local water supply issues and they have not heard anything from suppliers either.

Massachusetts Water Resources Authority, Beth Card

Quabbin is at a normal level. The Wachusett is in its normal operating band. The Sudbury and Foss backup reservoirs are also in their normal range, but those tend to be flashier anyway and are lowered for maintenance.

Massachusetts Water Works Association, Jen Pederson

No responses from any suppliers. Jonathan Cervais from the City of Worcester said that things are at normal levels for this time of year and the capacity is fine.

Department of Public Utilities, Marcos Pareto

Of the larger companies, only two have restrictions right now.

Environmental

Massachusetts Department Environmental Protection, Wetlands Program, Tom Maguire

Because of the Wetlands Protection Act and the Rivers Protection Act and the designation of an intermittent versus perennial streams, DEP canvassed towns and Conservation Commissions in the Connecticut River Valley and Nashua River basin. Only two communities in the Connecticut River Valley reported significant conditions causing streams to dry- Hatfield and Granby. There are no reports of dried streams in the Nashua yet.

Department of Fish and Game, Michelle Craddock

Other Divisions have reported conditions throughout the state. There have not been any freshwater fish kills, no signs of any issues with passage of herrings. Staff sampling in the Deerfield basin streams said streams are low, but it was hard to tell if they were lower than normal. The watershed group in the Nashua basin reported low conditions, including a dry tributary to the Susquehanna River. In the Boston Harbor basin, Division of Fish & Wildlife staff in the Fore River watershed reported low flows, which typically happens at this time of year. A tangential issue is an anoxic zone that is off of Cape Cod that is thought to have formed because of lack of storms and freshwater input.

Water Supply Citizens Advisory Committee

Via email, Lexi Dewey said that conditions are noticeably dryer in the CT River valley part of the state. The Connecticut River is low and the Quabbin released mandated amounts in response to the lower flows.

Massachusetts Rivers Alliance, Julia Blatt

Massachusetts Rivers Alliance reached out to watershed groups asking if they have seen low flows. One group responding said the Housatonic was the lowest they have seen it in a while, but they have not seen any fish kills. The Deerfield was also noted as being lower than usual and overall the area is dry, but no fish kills have been reported.

Agricultural - Department of Agricultural Resources

Via email, Hotze Wijnja reported that the United States Department of Agriculture has not indicated any drought in the weekly reports. He noted that dry conditions can be favorable at the end of the season for ripening and harvesting.

DCR Fire

David Celino was not present for the meeting but had provided an update for the September Hydrologic Conditions Report. There were no issues.

DCR Infrastructure

There was no representative from DCR Infrastructure.

Public Health - Department of Public Health

There was no representative.

Current Hydrologic Conditions - DCR Office of Water Resources, Anne Carroll

This is the first time the new drought plan and indices are being used. Conditions have for the most part been normal or above normal since the last drought (2016-2017). During September there were spotty showers and no overall good rainfall in the state. The scattered storms and a hot July have created drying conditions, which were exacerbated by low precipitation in September. On a sub-region level, there are six watersheds that are tripping three or more drought indices.

- Precipitation (Standardized Precipitation Index): A summary was presented to the Task Force with varying look-back periods. At the drought region level, we've been getting drier the past couple of months. At the basin level, some basins have been experiencing drying conditions going back six months or more.
- Streamflow Index: In August all drought regions were at a level 0 according to the new Drought Plan. Connecticut River Valley Region is at level 1 for September. Streamflow got worse through September. At a basin level the Housatonic and Boston Harbor basins are at level 1, the Deerfield is at level 2, and the Nashua is at level 3.
- Groundwater: Groundwater levels show a similar pattern. The Connecticut River Valley is at level 1 for September and was at a level 1 during August. The Westfield is at level 1, The Millers at level 2,

and the Deerfield at level 3. There was concern that the well in the Deerfield was already at an index severity level 3.

- Lakes and Impoundments: All regions are at level 0, although the Connecticut River Valley is at the 32nd percentile.
- Keetch-Byram Drought Index (KBDI): Varying levels, no major issues.
- Crop Moisture Index: Normal levels statewide.

Discussion of Drought Level Recommendations at the Drought Region Level

A summary of all the drought regions and indices was presented.

- Western Region: Starting with the Western Region, the Precipitation and KBDI are at level 2. The recommendation is Normal for that region.
- Connecticut River Valley Region: The Connecticut River Valley has three indicators at level 1 and one indicator at level 2. There was a discussion about streamflow in the Connecticut River main stem and the tributaries and how the severity levels differed. There was concern expressed about the well in the Deerfield basin. There is only one well- is it representative of that area and are there any issues with it? The US Drought Monitor started showing D0 Abnormally Dry on the September 19th map, and the area has expanded in the weeks since. Because three of the main indicators were tripping in the Connecticut River Valley Region, that region should be classified as a Mild Drought. Recommendation is a Level 1 - Mild Drought.
- Central Region: Only the KBDI index tripped in this region. The recommendation is Normal.
- Northeast Region: Precipitation is at a Level 1 and the KBDI is at Level 2. The recommendation is Normal because groundwater and streamflow were normal.
- Southeast Region: Precipitation is at level 2 and the KBDI is at a level 1. The recommendation is Normal.
- Cape Cod Region: has KBDI at level 1. The recommendation is Normal.
- Islands Region: has no indicators tripping and the recommendation is Normal.

There was a concern about the public's perception of calling a drought at the end of the watering season and during a storm. Rao clarified that this is a look back of conditions during the month of September. The new indicators are showing drying conditions, and these conditions should be recognized. The Drought Plan is not just for water supply; it is a status of overall hydrological conditions. There are other environmental concerns that also need to be considered; in particular, there are implications for the Wetlands Protection Act and the Rivers Protection Act i.e. perennial versus intermittent streams observations. The press release will need to be carefully worded to avoid confusion. Even though there are no direct implications for water suppliers at this time, the declaration serves to heighten awareness and prompt suppliers to closely monitor their data and conditions.

Discussion at the Watershed Scale

There was some discussion about whether it makes sense to declare a drought also at the basin scale or just flag and note any differences at this scale. There are six basins that have three or more indicators that have tripped (Housatonic, Deerfield, Westfield, Millers, Nashua, Boston Harbor). Two basins of concern are the Deerfield and the Nashua. The recommendation for a Mild Drought in the Connecticut River Valley Region covers the Deerfield, the Westfield, and part of the Millers basins. However, the Deerfield is seeing slightly higher conditions than level 1. In this case, should there be a separate drought declaration? Even if a declaration isn't made, should there be separate messaging? There was concern that for the groundwater index, there was only well in the Deerfield basin. Having the ability to see the conditions and hot spots in each watershed is good and maintain the flexibility. However, data gaps are also apparent. Task Force members suggested that we continue to monitor the big three indicators- precipitation, streamflow, and groundwater. One of the reasons the basin level was analyzed was because of the high variability of the precipitation. USGS is working on a webpage of groundwater observation well information, which will inform future discussions. Through messaging, residents can be given the option of conserving by letting them know about the dry conditions in certain basins. The Task Force decided not to make a drought recommendation at the watershed scale at this time.

Recommendation

- Level 1 Mild Drought in the Connecticut River Valley Region.
- Continue to look at and show data at the watershed level.
- Add messaging regarding watersheds of concern to press release.

Next Steps

- Rao will brief the Secretary and schedule the next meeting in the first ten days of November.
- If the task force or public would like to report on conditions across the state, both anecdotal or quantitative, please email Rao so they can be logged.

The meeting was adjourned at 12:12 PM.