

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 1- *The WPC, through its committees, could develop a template for interpreting statewide drought indices to local risk levels and response measures for use by utilities at the local level, based on storage, demand levels, type of system, etc.*

Recommended Policy Action for the Water Planning Council – Future Priority:

1.02B Identify areas where additional indicator sites are needed (real-time stream and groundwater gages in each drought region) and maintain the existing stream gages and groundwater stations. *Discussed 10/14/21*

Background

This charge was taken directly from the State Water Plan (Section 5.3.2.8 Statewide Drought Planning). Recognizing that droughts impact water utilities differently based on utility specific factors such as type of supply, storage, and ratio of supply to demand, and that utilities serving more than 1,000 people are required to submit Water Supply Plans to the State that include drought response plans that account for these utility specific conditions, it was unclear to the DWG how the State Water Plan expected a standard template of statewide drought indices would be used by water utilities with such varying characteristics.

The Workgroup therefore reached out to two authors of the State Water Plan (David Murphy of Milone and MacBroom and Kirk Westphal formerly of CDM Smith) for interpretation of the Plan’s recommendations. Both authors agreed that it was not the intent of the recommendation to replace or change the individual Water Supply Plan drought triggers or actions, but rather to improve coordination between the individual utility drought plans and the State Drought Preparedness and Response Plan. The Workgroup has adopted this interpretation, with a particular emphasis on communications and the potential confusion when the State Drought Plan and individual utility drought plans in a region are indicating different drought urgency and potentially different drought response actions.

IDW Findings and Additional Discussion

1.02 Finding: During both the 2016-2017 and 2020 droughts, conditions varied from region to region. Analysis of IDW discussions and actions indicate that declaring drought by region is advantageous. The current State Drought Plan allows for regional declarations as well as professional judgement. However, it has proven difficult to assess some regions due to inconsistency in the number of stream gages and groundwater monitoring wells in each region.

1.02 Discussion: Even though Connecticut is a relatively small state, precipitation can vary from one region of the state to the other. During the 2016-2017 drought, the eastern part of the state received enough precipitation to remain at a “Drought Advisory” level while the western counties were elevated to a higher level of “Drought Warning” (2008 Drought Plan levels.) The opposite was true during the drought of 2020. Lower Fairfield County had the highest amount of precipitation in the state. Although water systems in the region reacted differently, the IDW never elevated Fairfield County above Stage 1 drought -- essentially a “head’s up” level of drought yet Windham County was at Stage 3 for several months.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Real-time stream and groundwater gages are the most effective means of gathering scientific data related to flooding, drought, river health, recreation, water supply, wastewater management, and setting ecological streamflow targets. The data from our stream and groundwater gages must continue to be collected on a regular basis with no interruptions, and the network expanded, in order to have the most complete scientific data with which to analyze and evaluate in a comparative manner from season to season and year to year to year. Conservation groups, government regulators, and water and power companies all agree we need more, not less, data.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 3 - *The adoption of water use restriction ordinances by municipalities is a major element of drought planning and response, but the model water use ordinance featured in Appendix B of the Drought Plan is inadequate or impractical for some communities. There is also a need for better coordination between municipalities and public water suppliers on reduction targets. The WPC should consider collaborating with municipalities and public water suppliers to improve and promote the model water use restriction ordinance.*

Recommended Policy Action for the Water Planning Council – Immediate Priority:

3.02 The Water Planning Council should confirm that public water suppliers have the authority to implement and enforce water use restrictions on their customers in accordance with their approved drought response plans without the need for enacting ordinances in each municipality served, similar to the authority assumed by Aquarion during the 2016 drought. *Discussed 9/29/21.*

Background

The original Drought Preparedness Plan identified a need for enforcement of drought restrictions. A model ordinance was developed for adoption by municipalities based on previous drought planning in southwest CT. Water utilities have different policies on drought enforcement. Generally, private utilities do not believe that they have explicit legal authority to enforce restrictions and need municipalities to do the enforcement of water restrictions. Utilities overseen by PURA believe that enforcement authority may be provided by PURA approval of a utility's individual rules and regulations.

IDW Findings and Additional Discussion

3.01 Finding: The model ordinance has not been widely adopted by municipalities.

3.01 Discussion: Only a handful of municipalities have any type of drought or water restriction ordinance. Those municipalities that have not adopted an ordinance rely on the water utilities to manage drought mitigation, enforce drought restrictions and drought preparedness. The lack of adoption of a water restriction ordinance may leave municipalities vulnerable and without proper authority to implement some drought mitigation and/or conservation actions.

3.05 Finding: Based on our review, water utilities are concerned that having to get approval from one or more municipalities before implementing drought restrictions may cause delay and inconsistent response.

3.05 Discussion: Some water utility members of this group have expressed concerns about having to coordinate and get approval from municipalities on implementing drought restrictions. Municipalities mostly rely on water utilities to respond to emergencies. On the other hand, some members expressed concerns that utilities may not implement drought recommendations early enough and that municipalities have a role as they are charged with public health and safety. Because water utilities' fundamental responsibility is to maintain and protect public health, it is important that individual drought response plans be adequately protective and implemented accordingly (see discussion under 1.01).

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

3.06 Finding: Given the variety of municipalities and types of water use within municipalities, while many utilities rely upon municipal enforcement of the utility drought plan, these plans are not generally designed to fully protect town and local water supplies.

3.06 Discussion: Non-utility members of the workgroup felt that there was a need for municipal ordinance for several reasons including: 1) private wells are not covered by utilities, 2) municipalities are charged with ensuring the health and safety of their communities and that includes making sure that all utility providers are doing what is needed during a natural disaster such as drought, 3) there is concern that smaller utilities may not have the capability to do enforcement, and 4) municipalities could support utilities in enforcement actions if needed. The consensus was any new model ordinance should reflect the need to coordinate with the water utility.

3.07 Finding: The 2016 drought saw a change in policy where it was determined that private water utilities could enforce drought restrictions.

3.07 Discussion: Prior to the drought of 2016, public and private utilities looked at the role of municipalities within their service area differently. Public utilities believed that they had legal authority to enforce drought restrictions without a municipal ordinance. Private utilities believed that a local ordinance was needed for enforcement and relied on municipalities for enforcement. PURA reviewed the role of water utilities and water supply plans during the 2016 drought and determined that Aquarion, as a private utility, did have the authority to enforce water restrictions. This determination also supports the need for a new ordinance that recognizes the shared responsibility with the water utility.

3.08 Finding: 2016-2017 saw the adoption of drought mitigation restrictions/strategies put in place in southwest CT that were not only in response to the current drought but to prevent future droughts.

3.08 Discussion: The 2016 drought in southwest CT resulted in Aquarion and the municipalities adopting outdoor water restrictions. These restrictions were kept in place through 2017 and eventually became permanent restrictions as part of Aquarion's ongoing water supply management program. The model ordinance, and indeed much of the discussion on drought management, deals with responding to a drought and not with mitigation actions, such as water conservation, to prevent or minimize the impact of a drought. Further discussion is needed as to whether a model drought ordinance should be expanded to include water conservation as part of the water supply and drought ordinance.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 4 - *Would the current state drought plan have been effective during the 2016-2017 drought?*

Recommended Policy Action for the Water Planning Council:

4.03 Identify gaps in data needed to adequately assess drought conditions on a regional scale and determine pathways for obtaining better data

Background

The current *Connecticut Drought Preparedness and Response Plan* was adopted by the Connecticut Water Planning Council on November 6, 2018. Although it was nearing completion, it was not officially in place during the 2016-2017 drought. The Drought plan subcommittee has reviewed all minutes of the Interagency Drought Workgroup (IDW) available during the 2016-2017 drought. Additionally, it heard from utility and municipal staff actively involved in the state's southwest region and from various agency members involved in the IDW. This in-depth review took place during the 2020 drought resulting in some recommendations already being implemented, at least temporarily, by the IDW. The following findings reflect not only the discoveries about the 2016-17 drought but reflect operational improvements applied by the IDW during the 2020 drought.

Charge 4A – Regional Droughts

4A.01 Finding: The regionality of 2016-17 drought was considered by the IDW in its decision making and communications, whereas previously there was more focus on statewide drought. IDW is currently reviewing and declaring droughts on a regional (i.e. county) basis.

4.01 Discussion: Although the current Drought Preparedness and Response Plan had not been formally adopted, members of the IDW were aware that a key recommendation in the plan was to look at droughts regionally. Just as with other extreme weather events, it was unlikely that the entire state would experience the same level of severe drought conditions. It was also understood that public water supply systems have different vulnerability to different levels of drought, as do private wells. The IDW took this into consideration during the 2016-17 drought.

4.02 Finding: Although the current plan allows IDW to make recommendations on a regional/local level, there have been no attempts to define regions and to specify which data should be analyzed.

4.02 Discussion: The current drought plan allows for IDW to make decisions about drought response on a regional level, but does not define regions. Since NOAA uses counties to define areas for extreme weather events, this has been suggested as a possibility. These are familiar to the public and used to communicate weather alerts. It has also been noted that data used for making decisions is not necessarily available across all regions (e.g. stream gages) and that we need better data to make more informed decisions on the regional/local level. Another factor for consideration is water utilities' operational areas and water supply plans

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 4 - *Would the current state drought plan have been effective during the 2016-2017 drought?*

Recommended Policy Action for the Water Planning Council – Future Priority:

4.12 The IDW should conduct a research review to determine if snow drought impacts CT and develop winter criteria and triggers if it does. *Discussed on 11/4/21*

Background

The current *Connecticut Drought Preparedness and Response Plan* was adopted by the Connecticut Water Planning Council on November 6, 2018. Although it was nearing completion, it was not officially in place during the 2016-2017 drought. The Drought plan subcommittee has reviewed all minutes of the Interagency Drought Workgroup (IDW) available during the 2016-2017 drought. Additionally, it heard from utility and municipal staff actively involved in the state’s southwest region and from various agency members involved in the IDW. This in-depth review took place during the 2020 drought resulting in some recommendations already being implemented, at least temporarily, by the IDW. The following findings reflect not only the discoveries about the 2016-17 drought but reflect operational improvements applied by the IDW during the 2020 drought.

Charge 4B – IDW Record of meetings and data review

4.03 Finding: Meeting minutes did not include sufficient condition information or metrics to determine the conditions at the time of the meeting.

4.03 Discussion: The review of the 2016 Drought IDW meeting minutes indicated several areas of concern. Findings 4.03-4.06 are a result of this review of the meeting minutes. The meeting minutes at times did not fully document the drought conditions at the time of the meeting. This may indicate a lack of critical information needed by the IDW or a lack of records being kept. Record keeping of conditions information is critical and allows for the evaluation of actions taken and need for changes in procedures or the drought plan itself. Currently, the IDW is producing a condition summary report for their meetings.

4.04 Finding: Meeting minutes lacked sufficient details to document the IDW’s rationale for the decisions reached and actions taken.

4.04 Discussion: Each meeting’s minutes should contain sufficient information so that those reading the minutes can determine what decisions were made and why the decisions were made. This is also critical for an after-action report to evaluate the decisions made and what actions should be taken in future droughts or what improvements are needed in the drought plan.

4.05 Finding: Meeting minutes, actions, and drought criteria were not taken or provided for all meetings. Records were not kept of decisions that were made via emails instead of actual meetings.

4.05 Discussion: Decisions and actions were being made using email exchanges between IDW members and these decisions or actions were not being fully recorded. It is critical to document the decisions being made if they were done via emails. It is understandable that busy schedules do not allow for all IDW members to all meet. However, decisions should be made in a meeting instead of via emails. This will

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

allow for the proper documentation of actions and decisions. If decisions are made via emails, the IDW should document these decisions in some way.

4.06 Finding: The IDW may not have all of the necessary information it needs to make informed decisions on a regional or local level.

4.06 Discussion: The lack of important data is a hindrance to proper decision making. The meeting minutes appeared to indicate that the IDW did not have all of the available information at the time of decision making at a regional or local level. The IDW needs all of the available information to make critical decisions regarding drought actions and declarations on a regional and local level.

4.07 Finding: The current drought plan indicators may not be appropriate for decision making during a winter drought.

4.07 Discussion: In recent years, new information regarding the impacts of snow drought has been reviewed, evaluated, and adopted. Slow melting mountain snowpack of the western US replenishes reservoirs over the spring and early summer in CA. The snow acts as water storage that releases over time. The role of snow and snowpack in CT has yet to be fully investigated as it relates to drought. Further research and analysis need to be completed to better understand how the lack of snow and snowpack in the winter impacts drought, groundwater recharge, and drinking water. Such information can be used to determine if winter related criteria need to be developed.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 4 - *Would the current state drought plan have been effective during the 2016-2017 drought?*

Recommended Policy Action for the Water Planning Council:

4.14 Expand network of USGS groundwater monitoring stations to better anticipate and corroborate private well impacts.

Background

The current *Connecticut Drought Preparedness and Response Plan* was adopted by the Connecticut Water Planning Council on November 6, 2018. Although it was nearing completion, it was not officially in place during the 2016-2017 drought. The Drought plan subcommittee has reviewed all minutes of the Interagency Drought Workgroup (IDW) available during the 2016-2017 drought. Additionally, it heard from utility and municipal staff actively involved in the state's southwest region and from various agency members involved in the IDW. This in-depth review took place during the 2020 drought resulting in some recommendations already being implemented, at least temporarily, by the IDW. The following findings reflect not only the discoveries about the 2016-17 drought but reflect operational improvements applied by the IDW during the 2020 drought.

Charge 4C – Private Wells

4.08 Finding: Private wells are not given proper consideration in the Drought Preparedness and Response Plan.

4.08 Discussion: In Connecticut, most water supply planning is accomplished by water utilities and the Water Utility Coordinating Committees and does not include private groundwater wells. Groundwater and surface water are impacted differently by periods of drought and extreme precipitation events and therefore need to be considered differently. Private wells need to be included and given proper consideration in all water supply planning, including in drought planning and response.

4.09 Finding Recent droughts have impacted private wells in CT and our region but there remains a lack of data and lack of direction on how to include private wells in their decision making.

4.09 Discussion: IDW members are aware of unofficial reports of yield problems for private wells during the most recent droughts (2016-17 & 2020). The IDW is also aware of problems in other states including Maine where extended drought has impact residential wells. There are few USGS real-time groundwater monitoring wells to inform decision making. Although the IDW recognizes these problems and has concerns about the impacts of climate change on private wells, they acknowledge that they do not have the tools in place to gather data on private wells. There also seems to be no defined role for supporting local municipalities regarding private wells. In 2020, the IDW did obtain new well data from local health districts on an irregular, anecdotal basis. Unless state or local government steps up, no one is looking at private wells.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 4 - *Would the current state drought plan have been effective during the 2016-2017 drought?*

Recommended Policy Action for the Water Planning Council – Future Priority:

4.17 IDW should conduct after-action assessments following each drought event and should include water utilities in that assessment. *Discussed on 11/4/2021*

Background

The current *Connecticut Drought Preparedness and Response Plan* was adopted by the Connecticut Water Planning Council on November 6, 2018. Although it was nearing completion, it was not officially in place during the 2016-2017 drought. The Drought plan subcommittee has reviewed all minutes of the Interagency Drought Workgroup (IDW) available during the 2016-2017 drought. Additionally, it heard from utility and municipal staff actively involved in the state's southwest region and from various agency members involved in the IDW. This in-depth review took place during the 2020 drought resulting in some recommendations already being implemented, at least temporarily, by the IDW. The following findings reflect not only the discoveries about the 2016-17 drought but reflect operational improvements applied by the IDW during the 2020 drought.

4D – State IDW vs Water Supply Plans

4.10 Finding: Drought response in CT is driven by the state-adopted Drought Preparedness and Response Plan implemented by IDW and individual Public Water System (PWS) Water Supply Plans that must include drought response as part of the plans. There remains confusion as to the role and relationship of IDW and PWS Plans.

4.10 Discussion: There was consensus that IDW, with OPM as the lead agency, is the appropriate group to manage the State's drought preparedness and response, and that water utilities, under the direction of DPH and as part of their water supply plans, are the lead at the local level. The current drought plan better defines this role than the previous plan but messaging and communications continues to be problematic. The IDW is looking at all water supplies, including private wells and small utilities. Water utilities, on the other hand, are looking specifically at their supply and may disagree with the IDW decisions on when to put drought restrictions in place and on public messaging. Water utilities who are functionally more dependent on water sales may be more reluctant to put mandatory restrictions in place.

4.11 Finding: No comprehensive after-action review of the drought plan was conducted by IDW that included water utilities and it is unclear if individual PWS Water Supply Plans were effective or need to be updated.

4.11 Discussion: Although some adjustments have been made to the overall operation of the IDW, no comprehensive after-action review of the drought was taken that looked at both the state and the utility response. Utilities feel that public water supply drought planning needs to better consider system-specific risks and is best managed through the State's Water Supply Plan process which includes review and approval by the Department of Public Health. There was also discussion about setting trigger levels and updating water supply plans to reflect changes in precipitation rates and distribution resulting from

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

climate change, however, it was the consensus that this should be handled elsewhere and not as part of the drought plan.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

Charge 4 - *Would the current state drought plan have been effective during the 2016-2017 drought?*

Recommended Policy Actions for the Water Planning Council – Future (?) Priority:

4.30 The Water Planning Council needs to provide guidance as to the role of water conservation in mitigating for drought and determine if water conservation should be part of the Drought Preparedness and Response Plan. Further it needs to look at other planning documents including the State Hazard Mitigation Plan and the GC3 reports. *Discussed on 12/2/21.*

4.31 The Water Planning Council needs to determine and advise the SWP-IWG and WPCAG as how best to coordinate with the GC3 planning efforts. *Discussed on 12/2/21.*

Background

The current *Connecticut Drought Preparedness and Response Plan* was adopted by the Connecticut Water Planning Council on November 6, 2018. Although it was nearing completion, it was not officially in place during the 2016-2017 drought. The Drought plan subcommittee has reviewed all minutes of the Interagency Drought Workgroup (IDW) available during the 2016-2017 drought. Additionally, it heard from utility and municipal staff actively involved in the state's southwest region and from various agency members involved in the IDW. This in-depth review took place during the 2020 drought resulting in some recommendations already being implemented, at least temporarily, by the IDW. The following findings reflect not only the discoveries about the 2016-17 drought but reflect operational improvements applied by the IDW during the 2020 drought.

4G – Drought Response vs Drought Mitigation Planning

4.18 Finding: Section IV of the current drought plan on Long Term Planning and Preparedness was not in place during the 2016-17 and there is still the perception that the drought plan does not address mitigation/resiliency and only addresses preparedness in terms of having the tools/protocols in place to respond to a drought emergency.

4.18 Discussion: During the 2016-17, Aquarion successfully implemented water use restrictions for outdoor water use. This was recognized as a necessary step during the drought emergency. In order to mitigate future droughts, they have instituted a permanent water conservation program. Although it was agreed that water conservation is something that should be considered in state water planning, there was not a consensus on whether or not the drought plan or IDW was the proper place for mitigation. Often there is a distinction made between the terms water restrictions (used during emergency) and water conservation. It was noted that Hazard Mitigation Plans include both mitigation and response but no consensus of how the drought plan fits into the state HMP. In addition to water conservation, evaluating the requirement for a larger margin of safety as a mitigation measure was suggested. Consensus to bring the issue to the WPC for consideration.

Interagency Drought Workgroup – Drought Plan Recommendations

Adopted on December 8, 2022

4.19 Finding: The Governor’s Council on Climate Change (GC3) has identified drought and impacts to water supplies as threats posed by a changing climate that need to be addressed through adaptive and resilient planning. This work is continuing, and they have specifically called out the SWP for coordination.

4.19 Discussion: There was consensus that the SWP and GC3 planning efforts should be coordinated. It was not determined how this fits into the drought plan. Obviously, the GC3 was not in place during the 2016-17 drought and not considered. It was also agreed that this was a bigger effort for the entire SWP and not just the drought plan.