# Monthly Meeting #15

## Coordinated Water System Plan

## Central Region

**MDC Training Center; 125 Maxim Road, Hartford, Connecticut | August 16, 2017**

# Agenda

1. Welcome & Roll Call (5 minutes)
2. Approval of July Meeting Minutes (5 minutes)
3. Review of Formal Correspondence (5 minutes)
4. Integrated Report Module #4 – Source Water Protection (15 minutes)
5. Integrated Report Module #5 – Joint Use, Management, or Ownership of Facilities; Shared Resources (15 minutes)
6. Integrated Report Module #6 – Fire Protection (15 minutes)
7. Integrated Report Modul #7 – Water Conservation, Drought Planning, High Volume Users, and Increasing Peaking Ratios (15 minutes)
8. Public Comment (10 minutes)
9. Other Business (5 minutes)

# 1. Welcome and Roll Call

# Taking Stock

- ***What Have We Accomplished?***
  - ✓ Incorporated edits into the syllabus for the Integrated Report
  - ✓ Discussed Integrated Report Modules #1 through #3
- ***What Are We Doing Today?***
  - ✓ Discussion of Integrated Report Modules #4 through #7
- ***What's Next?***
  - ✓ Additional Integrated Report Topics
  - ✓ Presentation by DPH on effects of Public Act 17-211

# Topic Schedule

| WSA | Stat. | Reg. | Task | Jun | Jul | Aug | Sep | Oct | Nov | Dec` |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | State Water Plan summary | x | x | | | | | |
| | | | Request and receive data from utilities | x | x | x | | | | |
| ✓ | | | Maintenance and replacement of existing supply sources / asset management (aging infrastructure) | x | x | | | | | |
| ✓ | | ✓ | Financial Considerations / declining revenue vs. increasing costs | | x | | | | | |
| ✓ | ✓ | | Coordination of planning (between systems, with towns, across ESA boundaries) | | x | | | | | |
| ✓ | | ✓ | Source Water Protection | | | x | | | | |
| | ✓ | ✓ | Joint Use, Management, or Ownership of Facilities, Shared Resources | | | x | | | | |
| ✓ | | | Lack of fire protection | | | x | | | | |
| ✓ | ✓ | | Water Conservation / Drought Planning / High volume users / Increasing peaking ratios | | | x | | | | |
| ✓ | ✓ | ✓ | Satellite Management / Small System challenges and viability | | | | | | | |
| | ✓ | ✓ | Minimum Design Standards | | | | | | | |
| ✓ | ✓ | ✓ | Future Sources / Raw Well Water Quality / Acquisition of land for new stratified drift wells | | | | | | | |
| ✓ | ✓ | ✓ | Future Interconnections and Impact (including WQ) / disjointed service areas / integration | | | | | | | |
| ✓ | | | Impacts of Climate Change | | | | | | | |
| ✓ | | | Impacts of Existing and Future Regulations | | | | | | | |
| | ✓ | ✓ | Potential Impacts on Other Use of Water Resources, including WQ, Flood Management, Recreation, Hydropower, and Aquatic Habitat Issues | | | | | | | |
| | | ✓ | Regional Population and Service Ratio, Consumption by Demand Category, Safe Yield (Impacts of Streamflow Regulations), Excess Water | | | | | | | |
| | ✓ | ✓ | Compatibility with local, regional, and state plans | | | | | | | |
| ✓ | | | Other issues | | | | | | | |

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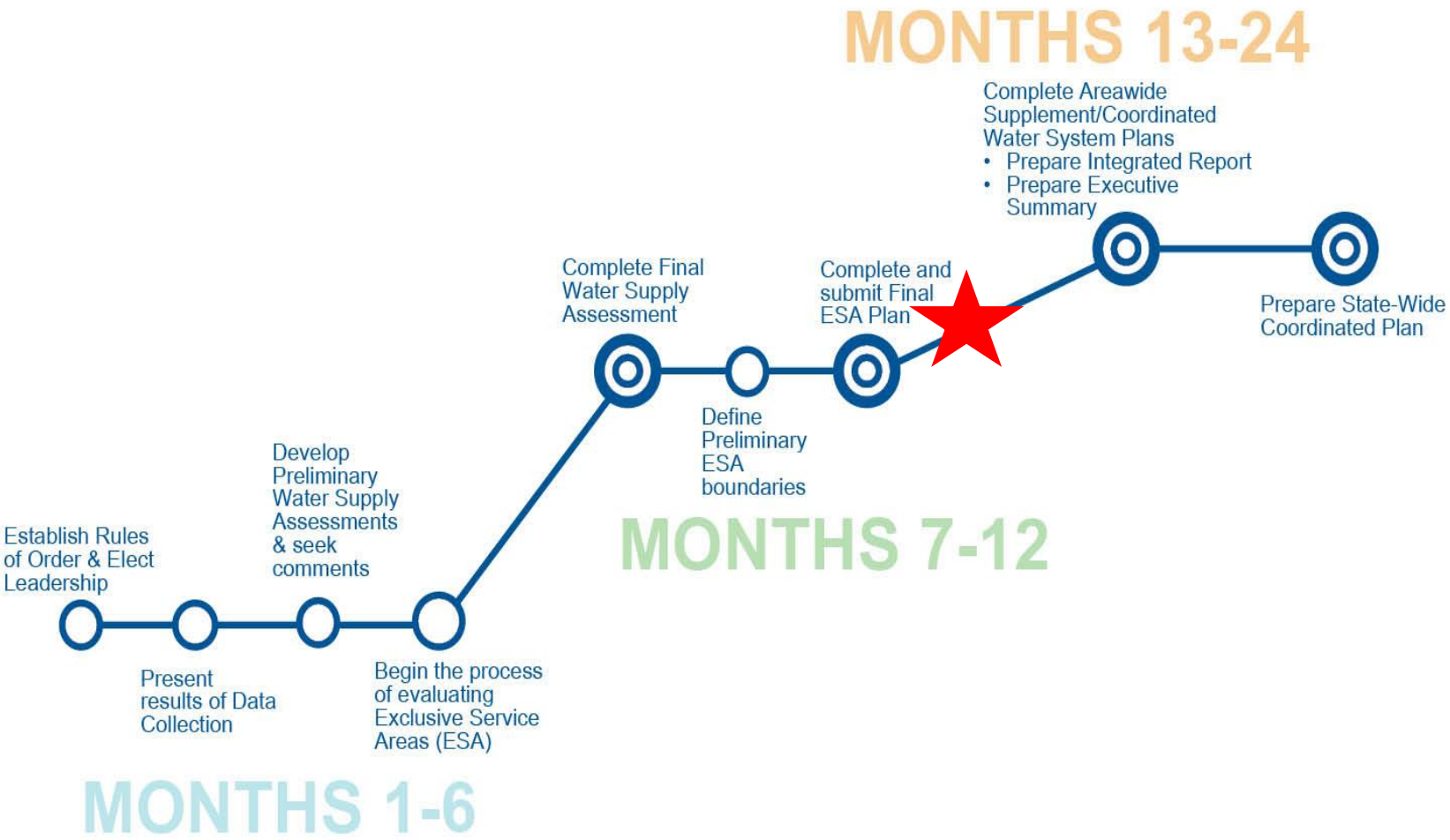
# WUCC Time Frame



# 2. Approval of Meeting Minutes

# 3. Formal Correspondence

# Formal Correspondence

| Date | From | To | Main Topic(s) |
|---|---|---|---|
| 6/22/2017 | DPH | Heartstone Winery, Columbia, CT | Final CPCN Approval |
| 7/26/2017 | Central WUCC (via DPH) | Central WUCC Members | Integrated Report Planning Elements and Data Requests |
| 8/1/2017 | DPH | Wildwood, Inc. – East Haddam, CT | CPCN Phase I-A Approval |
| 8/7/2017 | DPH | WUCCs | Response to 7/19/17 email from M. Miner to the Central WUCC |

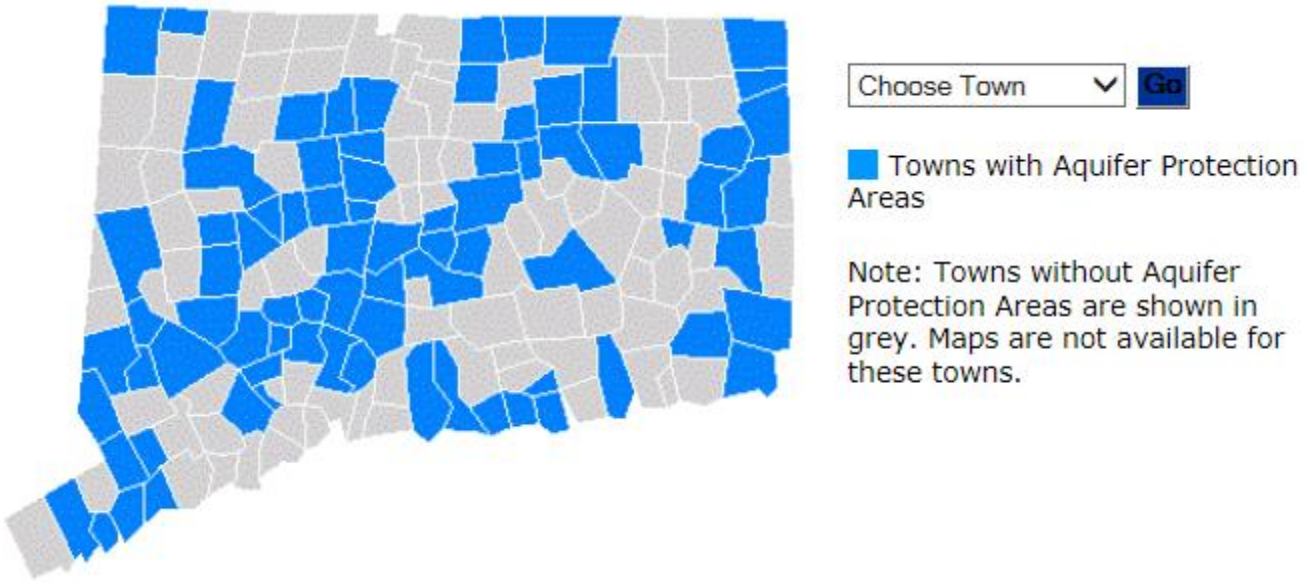
# 4. Integrated Report Module #4

# Module #4 – Source Water Protection

- Most utilities have groundwater supplies, but the larger utilities that serve the most people typically have one or more surface water supplies
- Protection for surface water supplies can cover a small area or a very large area spanning multiple jurisdictions

# Module #4 – Source Water Protection

- The area of contribution and recharge for groundwater supplies in sand and gravel aquifers has been defined under the Level A Aquifer Protection Area program for large utilities




- Sand and gravel wells for smaller utilities, and bedrock wells typically do not have an area of contribution and recharge defined; instead they have a protective radius assigned based on pumping rate

# Module #4 – Source Water Protection

- Bedrock wells are particularly difficult to define an area of contribution and recharge for, as the source of water in the fractures could be distant from the well and outside of the area of influence

- Watershed protection for large systems typically includes regular inspections and site walks to check for septic system failures and dumping on watershed land
- Watershed protection for smaller systems typically includes maintaining sanitary radii and keeping an eye on neighboring land uses

# Module #4 – Source Water Protection

- Connecticut Regional Source Water Protection Efforts:
  - Drinking Water Quality Management Plan http://dwqmp.com/
  - Connecticut Source Water Collaborative http://www.ct.gov/dph/cwp/view.asp?a=3139&q=535986%20%20
  - CT DEEP Aquifer Protection Area Program http://www.ct.gov/deep/cwp/view.asp?a=2685&q=322252&deepNav_GID=1654

# Module #4 – Source Water Protection

- Some Additional Source Water Protection Resources
  - AWWA Source Water Protection Resource Community https://www.awwa.org/resources-tools/water-knowledge/source-water-protection.aspx
  - Source Water Stewardship – A Guide to Protecting and Restoring Your Drinking Water http://www.cleanwaterfund.org/files/publications/national/sourcewater-stewardship-guide.pdf
  - Trust for Public Land: The Source Protection Handbook https://www.tpl.org/source-protection-handbook
  - Source Water Collaborative http://sourcewatercollaborative.org/

# Module #4 – Source Water Protection

1. *Do you have a groundwater supply, reservoir supply, or both?*
   - Utilities in the central region draw upon both surface water and groundwater sources
   - In general, the smallest utilities utilize groundwater well supplies.

# Module #4 Responses

2. *Describe your source water protection program. What measures (in general terms) do you currently undertake to protect your sources of supply? Describe the level of effort you expend implementing source water protection measures.*

   Multi-faceted approaches are used:

   - Sanitary surveys/annual inspections
   - Review and comment on land use applications (planning, zoning, and wetlands) and attendance at meetings
   - Maintenance of land surrounding sources
   - Maintenance of spill response procedures and protocols
   - Review and comment on local POCDs and proposed local regulations
   - Sample collection from streams in watersheds

# Module #4 Responses – AWC & CWC

3. *Does your source water area span multiple jurisdictions? If so, describe any additional challenges you face.*

   Numerous utilities span multiple jurisdictions (Aquarion, RWA, MDC, CWC, others). Aquarion reports that home rule and the various approaches to land use regulation have presented challenges in source protection, whereas CWC and Avon do not report the same challenges.

4. *What are your specific concerns regarding source water protection?*

   Specific concerns widely vary and while some are system-specific, others likely apply to many systems.

   - High-density affordable housing proposals, road salt (high chlorides), contamination of bedrock aquifer from adjoining residential land uses, and limited enforcement capabilities relative to erosion control in watersheds

# Module #4 Responses – AWC & CWC

- Communications with developers/notifications are not always received, and some commissions do not require that the water utility's comments are addressed
- Wells are located on school and town open space that is unfenced and vulnerable
- Introduction of winter road treatment chemicals near local aquifers
- Nutrient loading, erosion, site management
- Infringement on 200-foot protective radius
- Spills/contamination

# Module #4 Responses – AWC & CWC

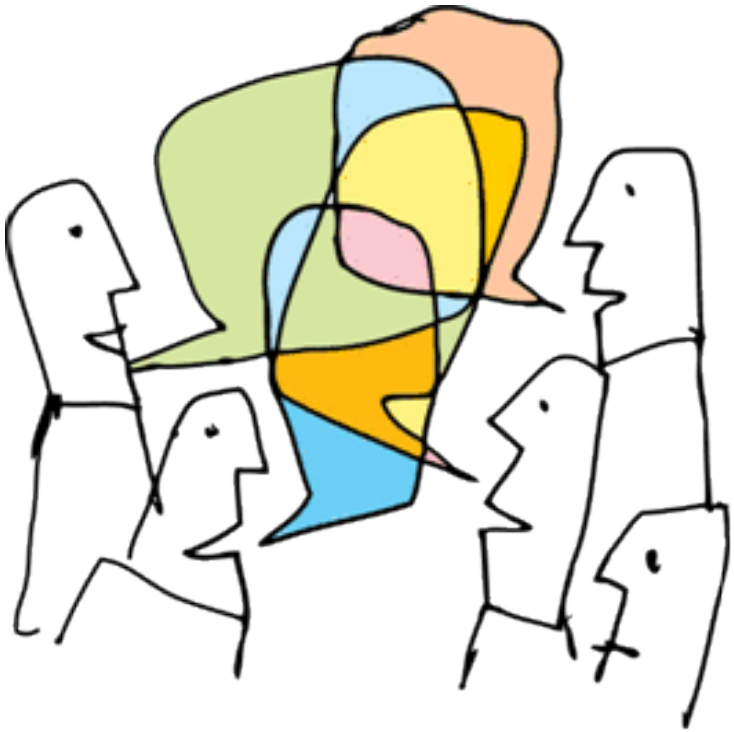
5. *Do you have any specific recommendations for improved source water protection in your system, in small community and non-community systems, and/or throughout the region?*
   - Amendments to the State's Affordable Housing Appeals Procedure
   - DPH continue previous training related to watershed inspections and source water protection
   - Increase in land ownership surrounding sources, which is a financial issue
   - Public education
   - Reduce sodium and/or chloride statewide, with coordination among DOT, PURA, DEEP, and DPH

# Module #4 Responses – AWC & CWC

6. *What resources or organizations are helpful or have partnered with you to promote source water protection? What additional assistance is needed?*

   - CT Section AWWA Source Water Protection Committee
   - CWWA
   - NEWWA
   - Local Commissions and municipal departments

# Module #4 Discussion



# 5. Integrated Report Module #5

# Module #5 – Joint Use of Resources

- Joint Use, Management, and Ownership of facilities is not typical.
- Usually there is defined management and ownership by one entity, even if more than one utility benefits (e.g., one utility produces and sells finished water to another)
- Shared resources is more common, and becoming more popular particularly with municipalities:
  - Shared police services
  - Use of regional planning resources for local planning
  - Regional school districts
  - Common ordering of supplies for public works
  - Shared equipment (plowing, generators)

# Module #5 – Joint Use of Resources

- Many utilities are members of CtWARN (Connecticut Water Agency Response Network) which supports statewide emergency preparedness, disaster response, and mutual assistance matters for public and private water and wastewater utilities
- CtWARN promotes sharing of resources under predetermined agreements so that aid is expedited; no obligation to respond
- Possibility exists for utilities to develop regional agreements (through COGs, or WUCCs) to share certain non-emergency resources or increase purchasing power
  - Sharing of leak detection equipment was noted by one small utility as being very helpful

# Module #5 – Joint Use of Resources

- Joint Ownership or Management could occur in the future
  - Former Southeastern WUCC identified several potential regional sources of supply and interconnections to be jointly developed
  - Development of new reservoirs may need to jointly occur in order to demonstrate sufficient need to overcome expected project impacts
  - Potential for this to occur in terms of land protection – utilities could jointly protect land now for future source development

# Module #5 – Joint Use Resources

1. *Do you share resources with another system, including joint ownership of equipment or facilities? If so, please generally describe your arrangement.*
   - Shared resources through interconnections and consecutive systems
   - Shared resources with neighboring systems
2. *Would your utility benefit from future shared resources or joint ownership of infrastructure, such as supply sources, storage, treatment, or distribution system components, or greater purchasing power through bulk purchases with multiple water systems then splitting the commodity (e.g. treatment chemicals) with delivery to multiple locations? If so, please describe.*
   - Responses received to date express uncertainty or ambivalence relative to shared resources or joint ownership.

# Module #5 – Joint Use Resources

3. *Do you share resources with another system, including joint ownership of equipment or facilities? If so, please generally describe your arrangement.*

   - None reported.

4. *Do you have shared resource agreements (formal or informal) with one or more utilities or municipalities? If so, please generally describe the nature of your agreement. How were they developed? What was critical in developing this agreement? Who were the parties involved?*

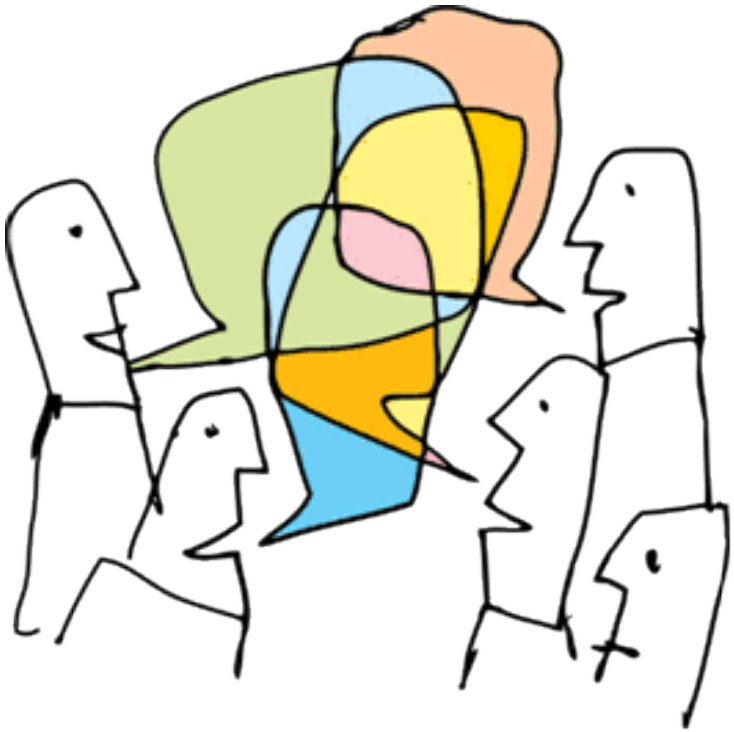
   - None reported.

# Module #5 – Joint Use Resources

5. *Describe your familiarity with the CTWARN program. Are you a member? Have you requested assistance through CTWARN in the past to respond to a water system emergency?*

   - Utilities are generally aware of CTWARN and many are active members who have given or received aid.
   - Other utilities are aware of CTWARN but are not members.
   - One member expressed a preference for direct utility-to-utility requests for assistance, rather than through CTWARN.

# Module #5 Discussion



# 6. Integrated Report Module #6

# Module #6 – Fire Protection

- Larger utilities and mid-sized utilities with storage greater than 150,000 gpd typically provide fire protection via hydrants
- Smaller utilities are typically limited to providing fire protection via building sprinklers, if at all
- The responsibility for hydrant maintenance can vary – some hydrants are private
- Some utilities have separate charges for public and private fire protection (per hydrant, per connection, per length)
- Tracking of private hydrants can sometimes go awry – this can lead to lost revenue

# Module #6 – Fire Protection

- Local emergency managers typically want as much access to fire hydrants as possible, but the desire for fire protection can conflict with local low-density planning goals

- It is typically not cost effective for a utility to extend a water main solely for fire protection purposes
- The need for fire protection sometimes provides additional incentive to fund a water main extension project that is already needed

# Module #6 – Fire Protection

1. *Describe your system's fire protection capabilities, if any. Is there sufficient fire protection coverage (including both flow and pressure) for the entire service area, or only a part?*

   - Fire protection capabilities vary from system to system. Some are fully served and ISO approved. Others lack the pressure to support a system. Still others lack adequate storage.

2. *What means of fire protection (other than that which may be provided by your water system) is employed within your exclusive service area boundary and who provides it?*

   - Municipal and local fire departments are providing fire protection throughout the region.
   - The correlation of fire protection to systems and municipalities is greater than to exclusive service areas.
   - Tanker trucks, non-potable sources, and buried tanks are used in communities w/o water utility fire protection.

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# Module #6 – Fire Protection

3. *Describe the general vulnerability of the service area to fire hazaras. Are their areas where large fires could occur that would place a significant strain on the public water supply system? If so, what types of fires would be involved (densely-spaced structures, abandoned industrial buildings, woodland fires, etc.)?*

   - Vulnerability is directly linked to service, which varies widely across systems, ESAs, and the region.

4. *Describe any fire-fighting resources in your system that could potentially benefit neighboring water systems or municipalities if shared.*

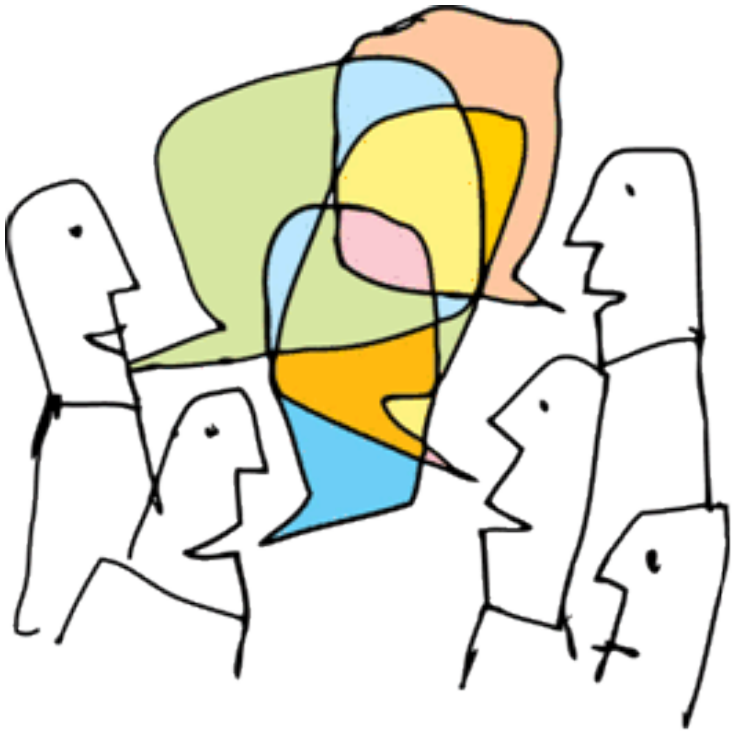
   - Emergency interconnections

# Module #6 – Fire Protection

5. *Based on your experience, please describe any specific strategies and/or approaches that should be considered within the region to address fire protection needs.*

   - Maintaining good communications with local fire departments
   - Additional emergency interconnections

# Module #6 Discussion



# 7. Integrated Report Module #7

# Module #7 – Conservation Planning

- Water conservation includes all the policies, strategies, and activities made to sustainably manage water
- Water utilities focus their conservation initiatives on ways to reduce customer use and unaccounted-for water loss (Supply and Demand Management)
- Water Conservation Plans are required under the Water Supply Plan Regulations
- The State Water Plan identifies numerous pathways forward related to water conservation, particularly regarding reducing summertime demands and outdoor water usage

# State Water Plan Goals

- The State Water Plan recognizes that summertime demand increases are largely driven by outdoor water usage
- Reducing outdoor water usage in the summer is expected to have a substantial impact on overall water use
- This needs to be accomplished both through a water conservation ethic (non-emergency) and through drought response protocols (including voluntary and mandatory water use restrictions)

# Module #7 – Drought Planning

- 2003 Connecticut Drought Preparedness and Response Plan recommended implementation of four drought stages and responses (Advisory, Watch, Warning, Emergency)
- Recommended measures and indexes to serve as a relative guide for activating a drought stage
- Utilities with surface water supplies typically use the storage thresholds to set drought stages (80% of normal, 70% of normal, 60% of normal, and 50% of normal or less than 50 days of supply)
- Revisions to the 2003 Drought Response Plan are pending

# Module #7 – Drought Planning

- Since the 2015-2016 drought, many utilities have been reevaluating their drought planning procedures
- Issues include:
  - Moved through triggers too quickly to determine benefit of conservation measures
  - Lack of enforcement capabilities for mandatory conservation measures in some communities
  - Time of year concerns – being at 80% of capacity in March is very different for short-term planning than being at 80% of capacity in September
  - Aquarion has started using drought models to predict timing of triggers in southwestern CT

# Module #7 – Drought Planning

- In its 12/16/2016 comments, CWWA supported addition of a fifth stage of “Heightened Drought Awareness”, a cautionary stage where the Interagency Drought Workgroup determines it is appropriate to alert parties who may need to begin planning to implement a Drought Advisory

- CWWA supported continuing to use reservoir storage as a primary rather than a secondary indicator of drought, but suggested that different criteria may be appropriate

  - Days of supply remaining may be more appropriate than percentage of normal supply

# Module #7 – Drought Planning

- CWWA supported strengthening enforcement of water use restrictions and recommended further support for municipalities in adopting the Model Water Use Ordinance
- CWWA supported further encouragement of promotion of water conservation measures and updates to the State Building Code to reduce wasted water
- CIRCA resiliency study may provide some detail on changing drought patterns in Connecticut

# Module #7 – Water Conservation

1. *Do you have a formal water conservation plan and if so, what is the date of the last revision?*
   - Larger systems are required to have formal water conservation plans under the water supply planning regulations. It is likely that many small systems do not.
2. *What supply side and demand side water conservation measures do you actively employ?*
   - Customer education and incentive programs, low flow fixtures
   - Leak detection, main replacements, meter testing, documentation of unbilled usage
   - Customer restrictions
   - Customer use audits, water pricing, metering
   - Loss audits, leak detection

# Module #7 – Water Conservation

3. *What conservation measures have been most beneficial for your system?*

   - Low flow fixtures, monitoring unusually high bills, aggressive leak detection
   - Plumbing code changes, irrigation restrictions
   - Volunteer measures on a short-term basis
   - Water pricing

# Module #7 – Water Conservation

4. *Do you have high-volume usage agricultural (including golf courses), industrial, or power generation customers within your exclusive service area? If so, approximately what percentage of your daily demand is comprised by these high-volume users, particularly during the summer months?*

   - This varies widely from system to system, but nearly every large system has at least a few high-volume users.

5. *In general, has your system experienced increasing ratios of peak-day demands to average-day demands over the past ten years? How does your peaking ratio change between the winter months and the summer months? What have you done to urge customers to reduce day-to-day outdoor water use in the summer months?*

   - Some systems have experienced significant increases in their ratios; other systems have seen little change, or even a reduction over time.

# Module #7 – Water Conservation

6. *What are your drought trigger levels based on? As noted above, a one-size-fits-all approach to drought trigger planning may not be appropriate. How often in the last 10 years have drought triggers been initiated? Describe how you disengage (i.e., step back out of) from your drought stages. Have your drought triggers changed, or are these likely to change upon implementation of the Streamflow Standards and Regulations?*

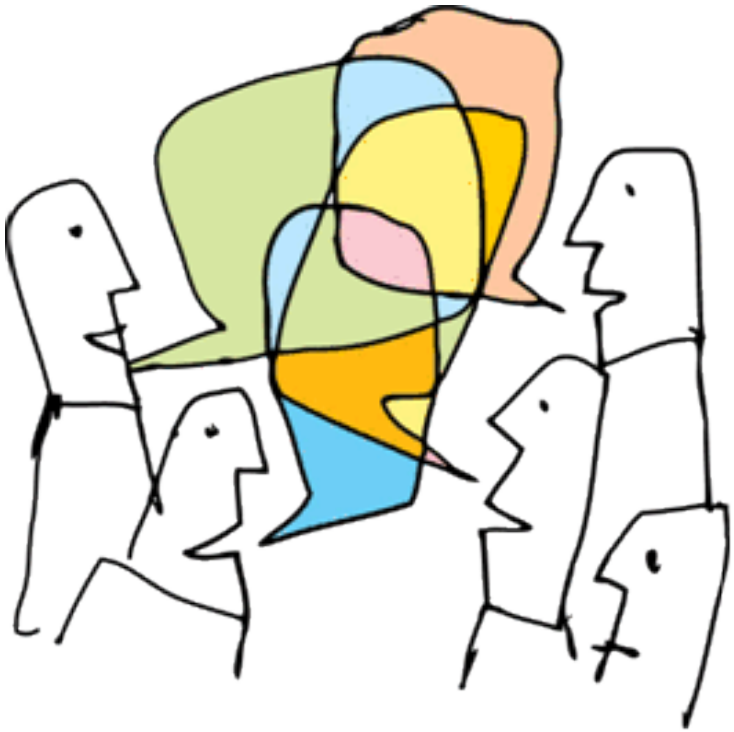
   - Days of available supply
   - Reservoir storage levels
   - Groundwater levels, specific capacity or daily well pumping duration

# Module #7 – Water Conservation

7. *Please describe your lessons learned regarding these items over the past two years of sustained drought. How have these lessons influenced the way you will perform system planning moving forward? For example, do you have suggestions for drought trigger revisions that could be shared in the WUCC?*

- Revising triggers based on new streamflow regulations
- The need to be more conservative in applying drought related triggers in response plans
- More attentive monitoring of groundwater levels and higher emphasis on spreading demand across all production wells

# Module #7 Discussion



# Upcoming Modules

- Integrated Report Module #8 – Satellite Management / Small System Challenges and Viability
- Integrated Report Module #9 – Minimum Design Standards
- Integrated Report Module #10 – Future Sources, Raw Well Water Quality, Acquisition of Land for New Stratified Draft Wells

# 8. Public Comment

# 9. Other Business