Understanding and Managing Risk in the Water Industry:
Drought Preparedness and Response

David Radka, Director of Water Resources & Planning
Topics

• CT’s Regulatory Programs and Planning Tools to Mitigate Risk

• Connecticut Water’s 2015 – 2016 Drought Experience
Connecticut Water

- Provide water service in 58 towns in CT
- Serve 100,000 customers; Over 300,000 people
- (30,000 customers in ME)
- 65 Systems
- 1,600 miles of main
- ~ 52 MGD Supply
- Shoreline System – 9 MGD
  - 4 MGD Surfacewater
  - 4 MGD Groundwater
  - 1 MGD Interconnection
Planning

• Individual Water Supply Plan
  ✓ 1,000 or more persons served
  ✓ Comprehensive assessment – current & future conditions
  ✓ Source safe yield adjusted for critical dry period
    = Conservative estimate of available supply during drought conditions

• Water Utility Coordinating Committee (WUCC) Plan
  ✓ Integrates utility available supply on regional scale
  ✓ Identifies resiliency opportunities
Planning and Response

- Utility Emergency Contingency Plans
  - System Vulnerabilities
  - Emergency Triggers, incl. drought
  - Emergency Response Actions
  - Priority customers

- State Interagency Drought Plan
  - Assesses state/regional conditions
  - Public water one element
Ratemaking Tools to Help Manage Drought Response

• Water Infrastructure Adjustment (WICA/WISC)  
Conserves water resources by reducing the frequency of distribution system leaks.

• Water Revenue Adjustment  
Removes conservation “disincentive”

• Worked collaboratively with environmental interests to achieve shared goals
Sec. 25-32b. Public drinking water supply emergency
DPH (in consultation with DEEP and PURA) may declare a public drinking water supply emergency upon receipt of information that a public water supply emergency exists, is imminent or can reasonably be expected to occur without the immediate implementation of conservation practices.

- Authorize or order implementation of water conservation practices
- Authorize the sale, supply or taking of any waters
- Authorize the temporary interconnection of water mains for the sale or transfer of water among water companies

Sec. 22a-378. Water supply emergency
If a water supply emergency has been declared by the Governor or otherwise according to law, DEEP shall have the power to:

- Authorize a person or municipality to divert such quantities of water as the commissioner deems necessary and proper to ease emergency conditions
- **Peak Day**: 0.23 MGD greater than 7 yr avg (+3%)
- **Max Month Average Day Demand**: 0.63 MGD greater than avg (+12%)
- **Average Day Demand**: 0.24 MGD greater than avg (+7%)
Shoreline Surface Water 2015 – 2016 Drought

Connecticut, Climate Division 3, Precipitation, January-December

Killingworth Reservoir July 2015 - April 2017

*Normal curve derived from average monthly reservoir levels from January 2006 (date of raised spillway elevation) through July 2016
Conjunctive Use of Supplies

- Able to shift production to Groundwater and Interconnection
- Supply options = Greater Resiliency
Reservoir Drought Triggers

Proposed Drought Triggers for Streamflow Release Reductions
Days storage remaining assumes 1.1 mgd withdrawal from Sept through May, and 2.9 mgd average withdrawal from June through August.

Simulated Period of Record
Streamflow Releases with Redeveloped Drought Triggers, Seasonal Demand Reduction
Safe Yield: 2.74 MGD

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<th>Drought Status</th>
<th>Frequency</th>
<th>Longest Duration (days)</th>
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1 Over 67-year period of record
Questions?

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