Developing New Streamflow Regulations in Connecticut

November 24, 2009

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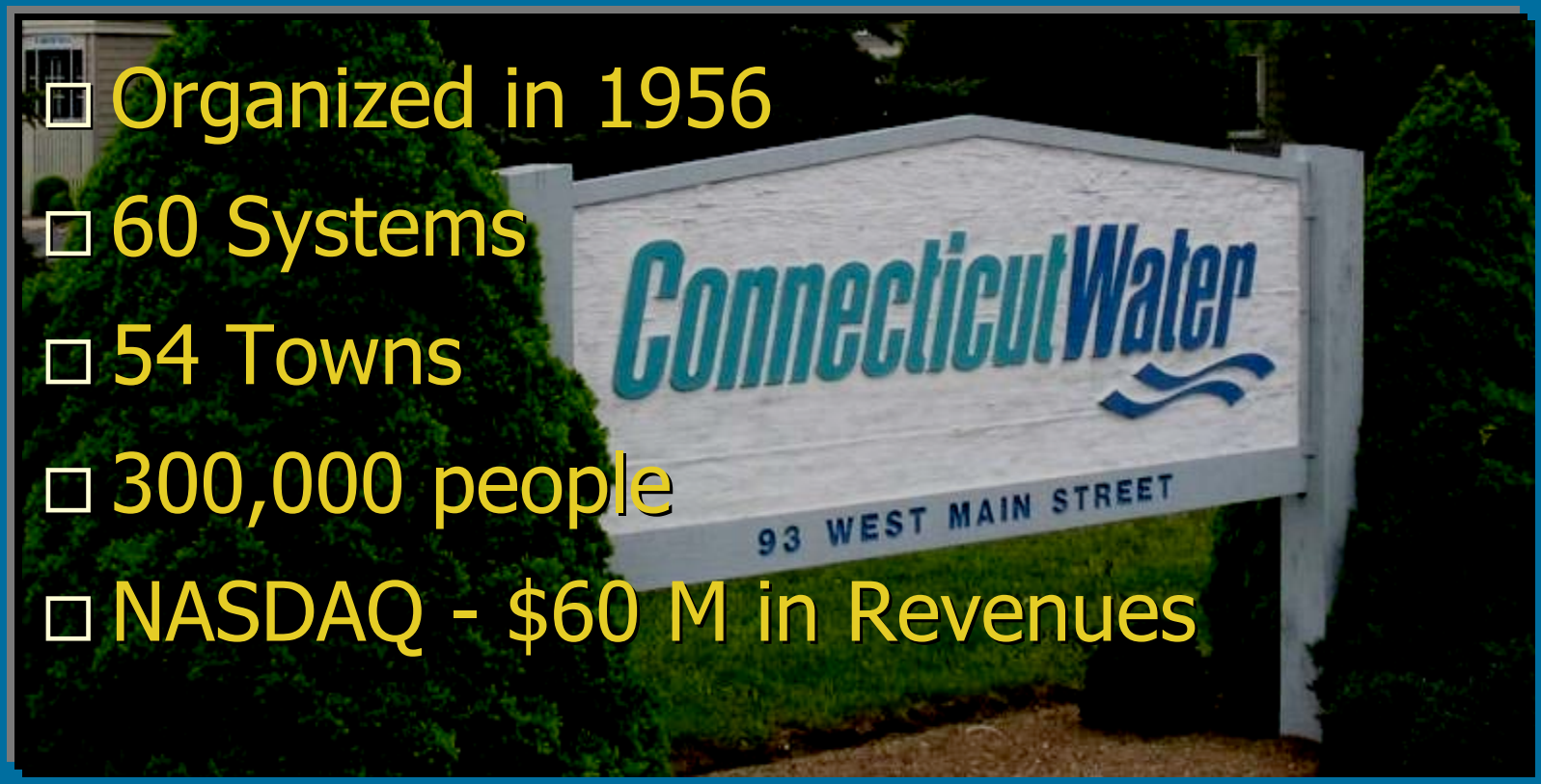
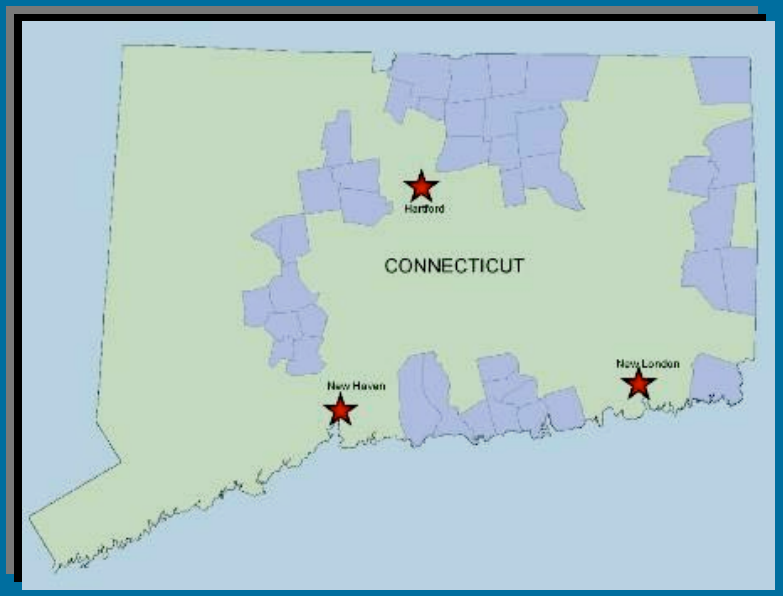


- Organized in 1956
- 60 Systems
- 54 Towns
- 300,000 people
- NASDAQ - $60 M in Revenues

CWC Overview – Regulatory Oversight

- Environment
  - 18 Active Reservoirs, 87 wellfields
  - 50 MGD
  - DEP – Permits & Registrations
- Public Health
  - DPH – Purity & Adequacy of Supply
- Public Service
  - Public Utility Control – Service & Rates



Water Utilities Have Long Been Stewards of the Environment

Support Efforts to Protect Water Resources of the State – 80% of Residents Served

Proposed Streamflow Regulations

Published October 13, 2009

Proposed Stream Flow Standards and Regulations

Public Notice, October 13, 2009

The Regulations of Connecticut State Agencies are amended by adding sections 26-141b-1 to 26-141b-9, inclusive, as follows:

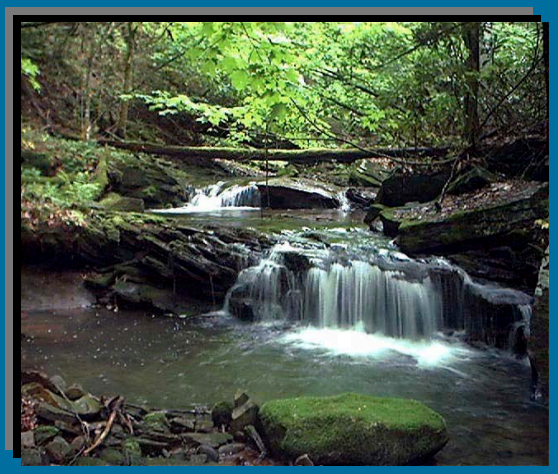
(NEW) **Section 26-141b-1. Short title.** Sections 26-141b-1 to 26-141b-9, inclusive, shall be known as the department's Stream Flow Standards and Regulations.

(NEW) Sec. 26-141b-2. Definitions. As used in sections 26-141b-1 to 26-141b-9, inclusive, of the Regulations of Connecticut State Agencies:

(1) "Anadromous" means a species of aquatic life water to complete its life cycle as an adult;

(2) "Antecedent period" means the fourteen consecu required release is calculated pursuant to sectio Connecticut State Agencies;

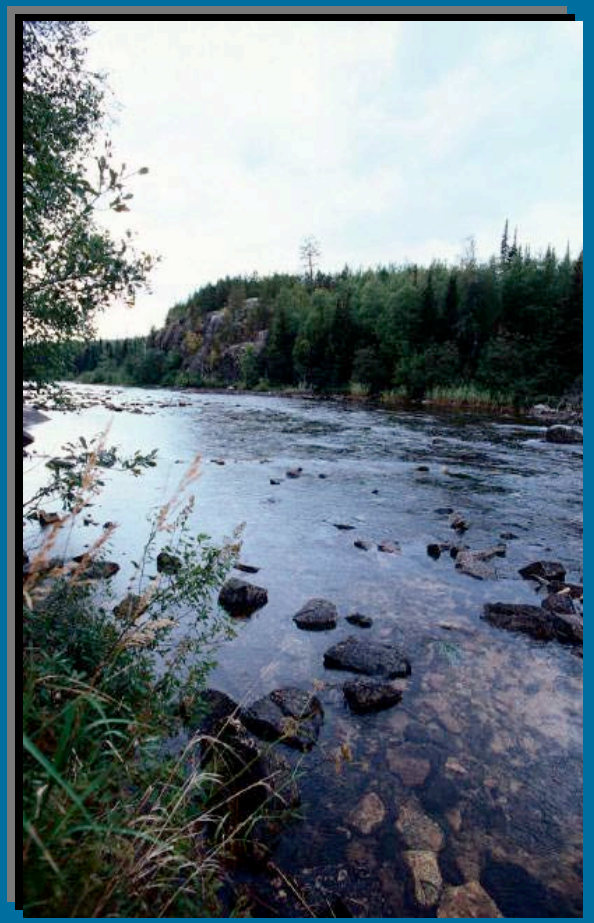
Streamflow – Existing & Future



- Existing Minimum Flow Standards
  - Dams on Stocked Watercourses
  - Unchanging Daily Flow Release
- Proposed Streamflow Regulations
  - Apply to all rivers and streams
  - Be based on natural variations of flow
  - Preserve and protect natural aquatic and stocked wildlife and promote usage for recreation
  - Provide for public health… public utilities, water supply…

Potential Benefits of New Streamflow Regulations…

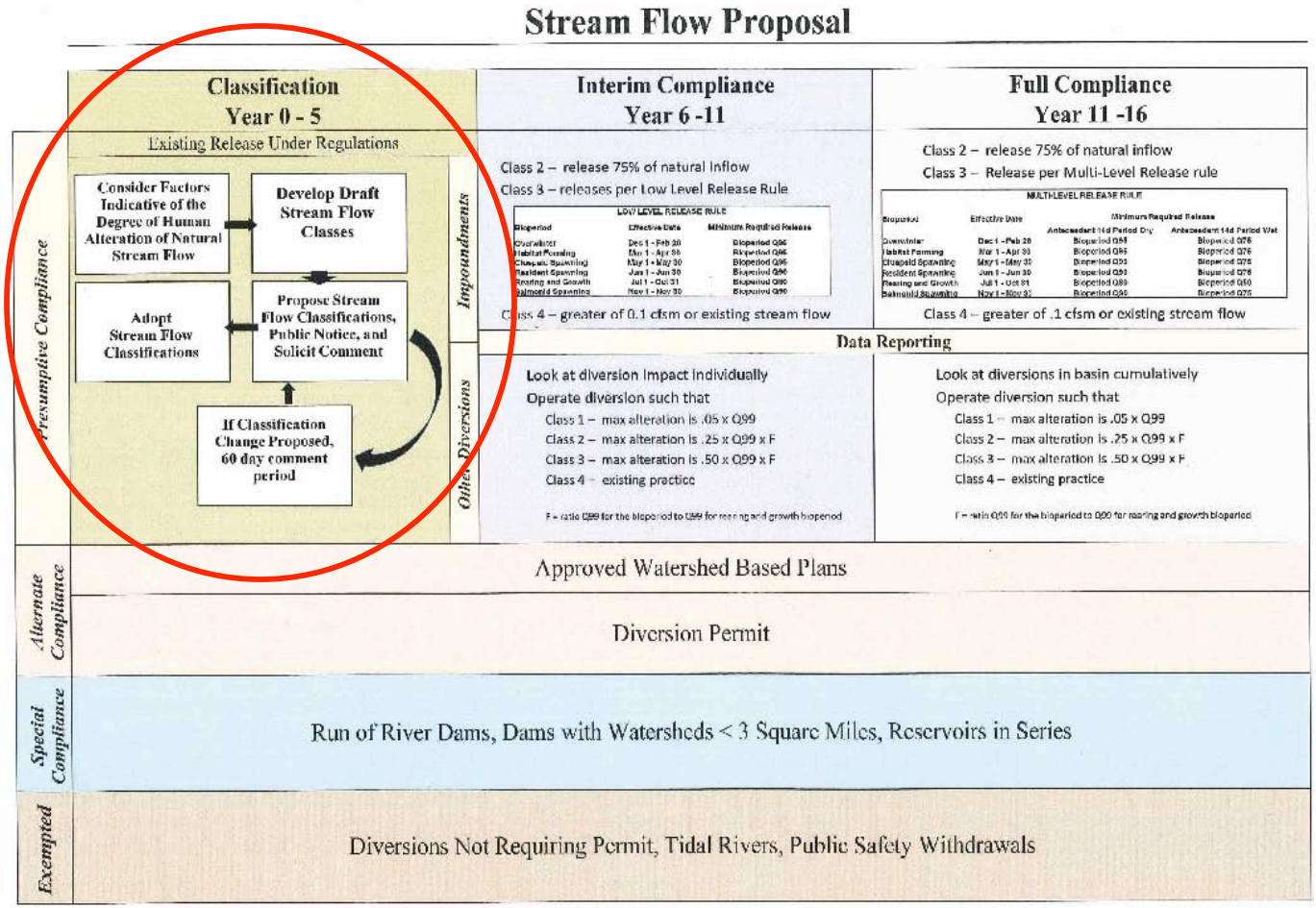
- More Water in Streams
- Improved Stakeholder Relationships
- Relief from CEPA Claims
- Guidance for Future Diversions
- Improved Land Use Decisions



Major Components of Proposed Regs

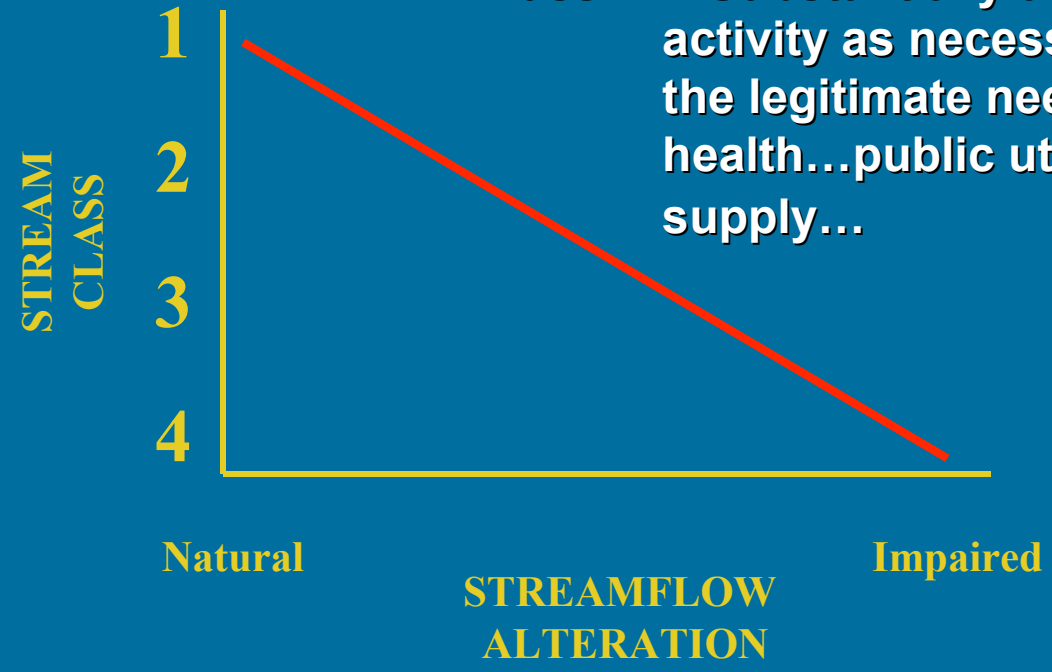
- Stream Classifications 1 – 4
- Reservoir Release Requirements
- Groundwater Withdrawal Limits
- Flow Management Plans with Stakeholders as a Compliance Alternative

Implementation



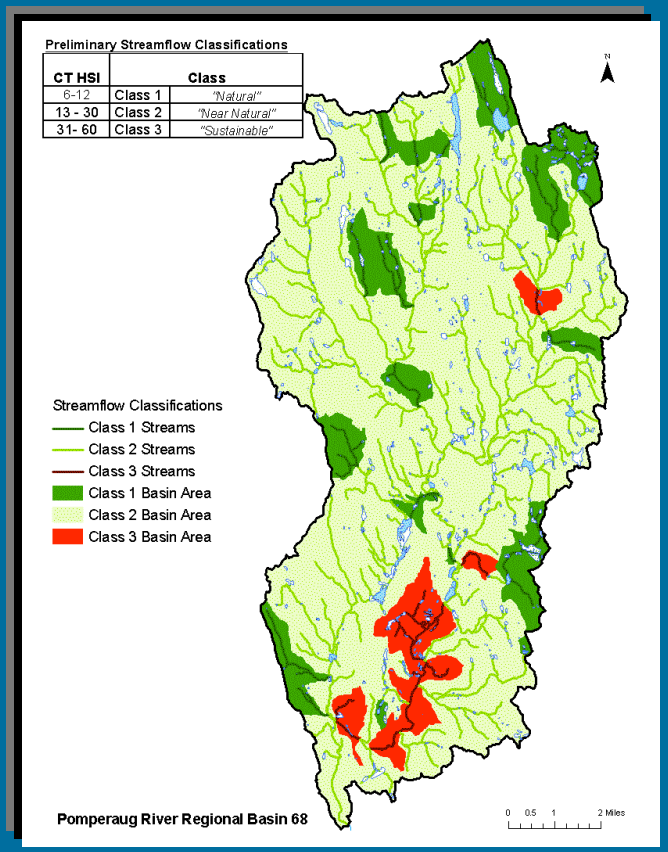
Conceptual Model for Stream Classification

Class 1 - Natural Flow
Class 2 - Near Natural Flow
Class 3 - Ecologically Sufficient Flow
Class 4 - Substantially altered by human activity as necessary to provide for the legitimate needs of public health…public utilities, water supply…



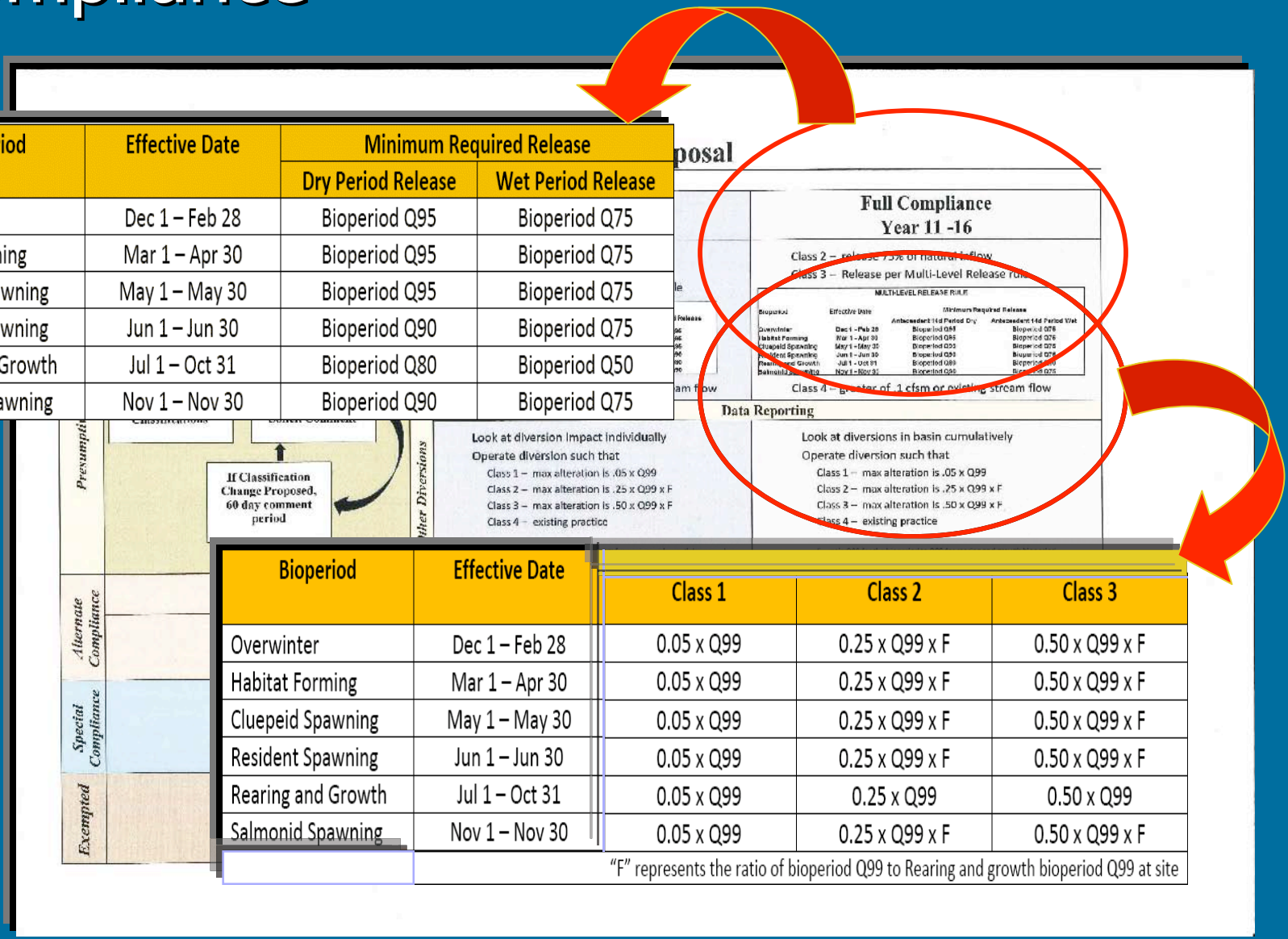
Classification Process

- 5 Year Process by Major Basins
- Based on Relative Conditions of Streams and Future Use
- Required Flow Releases and Groundwater Withdrawals Based on Classifications
- Extent and Timing of Releases and Withdrawal Limits Impact Ability to Supply Customers and the Communities We Serve



Compliance

Bioperiod	Effective Date	Minimum Required Release	
		Dry Period Release	Wet Period Release
Overwinter	Dec 1 – Feb 28	Bioperiod Q95	Bioperiod Q75
Habitat Forming	Mar 1 – Apr 30	Bioperiod Q95	Bioperiod Q75
Cluepeid Spawning	May 1 – May 30	Bioperiod Q95	Bioperiod Q75
Resident Spawning	Jun 1 – Jun 30	Bioperiod Q90	Bioperiod Q75
Rearing and Growth	Jul 1 – Oct 31	Bioperiod Q80	Bioperiod Q50
Salmonid Spawning	Nov 1 – Nov 30	Bioperiod Q90	Bioperiod Q75



Bioperiod	Effective Date	Class 1	Class 2	Class 3
Overwinter	Dec 1 – Feb 28	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Habitat Forming	Mar 1 – Apr 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Cluepeid Spawning	May 1 – May 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Resident Spawning	Jun 1 – Jun 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Rearing and Growth	Jul 1 – Oct 31	0.05 x Q99	0.25 x Q99	0.50 x Q99
Salmonid Spawning	Nov 1 – Nov 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F

"F" represents the ratio of bioperiod Q99 to Rearing and growth bioperiod Q99 at site

Release Rule Example

Bioperiod	Dates	Release Rate (cfsm)	
		Dry Period	Wet Period
Overwinter	Dec. 1 - Feb. 28	0.46	1.10
Habitat Forming	March 1 - April 30	1.05	1.71
Clupeid Spawning	May 1 - May 30	0.52	1.05
Resident Spawning	June 1 - June 30	0.24	0.40
Rearing and Growth	July 1 - October 31	0.08	0.28
Salmonid Spawning	Nov. 1 - Nov. 30	0.24	0.62

Flow changes on 1st and 15th of each month
Extensive Monitoring and Variability

Reservoir Release Drought Cutbacks

Drought Trigger	Stream Flow Release Requirements	
	Rearing & Growth	All other Bioperiods
Advisory	100% of Base Flow	75% of Base Flow
Watch	50% of Base Flow	50% of Base Flow
Warning	25% of Base Flow	25% of Base Flow
Emergency	No release required	No release required

Base Flow = "Dry" Period Release

Defining drought triggers important –
Must be adequate without being too frequent

Groundwater Allowed Withdrawal

Applied to existing and new sources

Bioperiod	Effective Date	Class 1	Class 2	Class 3
Overwinter	Dec 1 – Feb 28	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Habitat Forming	Mar 1 – Apr 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Cluepeid Spawning	May 1 – May 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Resident Spawning	Jun 1 – Jun 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
Rearing and Growth	Jul 1 – Oct 31	0.05 x Q99	0.25 x Q99	0.50 x Q99
Salmonid Spawning	Nov 1 – Nov 30	0.05 x Q99	0.25 x Q99 x F	0.50 x Q99 x F
	"F" represents the ratio of bioperiod Q99 to Rearing and growth bioperiod Q99 at site			

Q99 = Flow equaled or exceeded 99% of the time (≈7Q10).

Compliance on Class 4 Streams

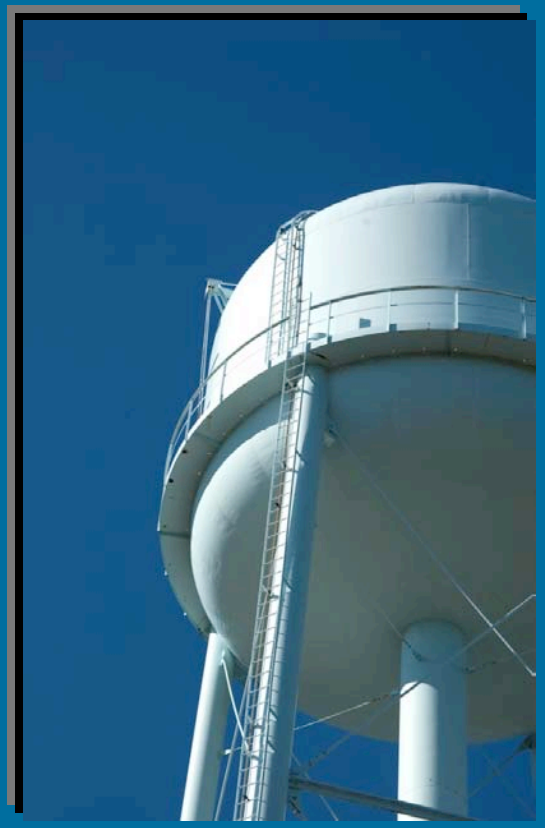
- Reservoirs
  - 0.1 cfsm or Current Release Rule
- Groundwater
  - Continue Unaffected
- Flow Management Plan

Flow Management Plans

- Adopted by DEP
  - Public process
- Include all structures subject to Standards
- Include BMPs to minimize flow alteration
  - Conservation
  - Demand management
- Include compliance plan
- Expensive
- Uncertain

Compliance Requirements for Public Water Suppliers

- Dam Modifications
- Release Monitoring
- Distribution System Modifications
- Increased Treatment Needs
- New Source Development
- Flow Management Plans
- Conservation/Demand Management

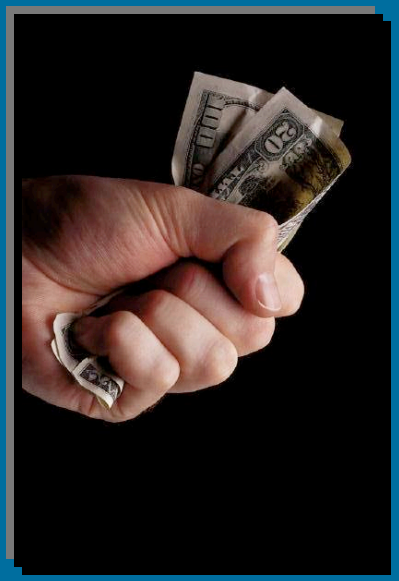


Potential Public Water System Impacts

- System Specific
- Loss of Available Supply
  Reservoir Safe Yield / Well Capacity – especially during summer months
- Water Quality & Aesthetics
- Capital and O&M Costs
- Frequency & Duration of Requests to Customers for Use Restrictions
  - Operating Revenue Implications

Potential Impacts on Customers and Local Communities

- Increased Frequency and Longer Duration of Water Use Restrictions
- Moratoriums
  - Wholesale – Between Utilities to Address Regional Issues
  - Routine Development – Residential, Commercial, Industrial, Public Authority
- Increased Rates for Water Service and Fire Protection
- Impact on Economic Development and Recovery



Impacts on Municipalities

- Unfunded Mandate on Cities and Towns
  - Compliance costs for municipal water departments
  - Compliance requirements for non-PWS dams
- Limits Ability to Plan

Impacts on Business & Industry

- Direct – Compliance
- Indirect – Customer

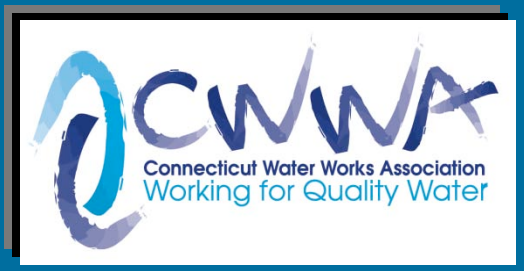
Implementation Questions?

Compliance

- Will compliance cause conflicts with other (DPH, DPUC, OCC) regulatory obligations?
- Are alternative supplies available?

Public Policy

- Is significant uncertainty and risk in our public water systems acceptable – and to what degree?
- At what cost would we be implementing these regulations and to what end?

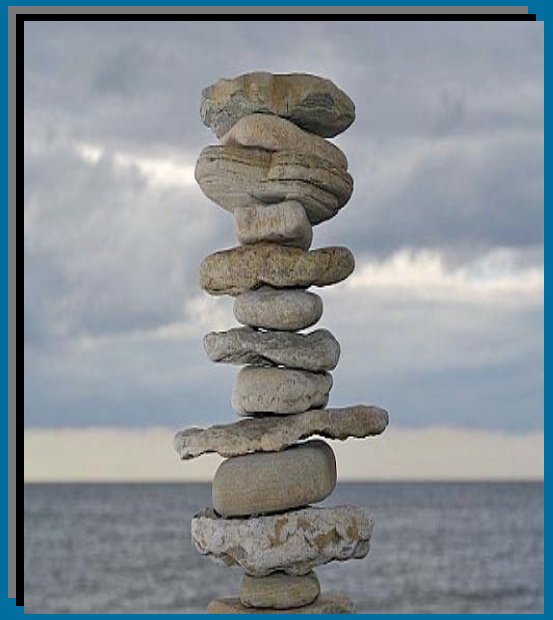


Want to Ensure New Streamflow Regulations

- Adequately balance environmental, public health and safety, and economic interests
- Meet the needs of the residents of the state

Need to Find Appropriate Balance

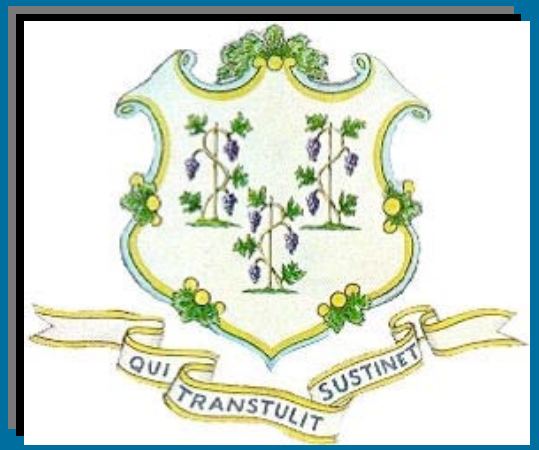
- These are important regulations but there is still more work to do before they can be adopted
- We stand ready to work with stakeholders and policymakers to develop balanced regulations
- Must meet the mandate of the law and the needs of the residents of Connecticut



Balancing Environmental & Other Interests

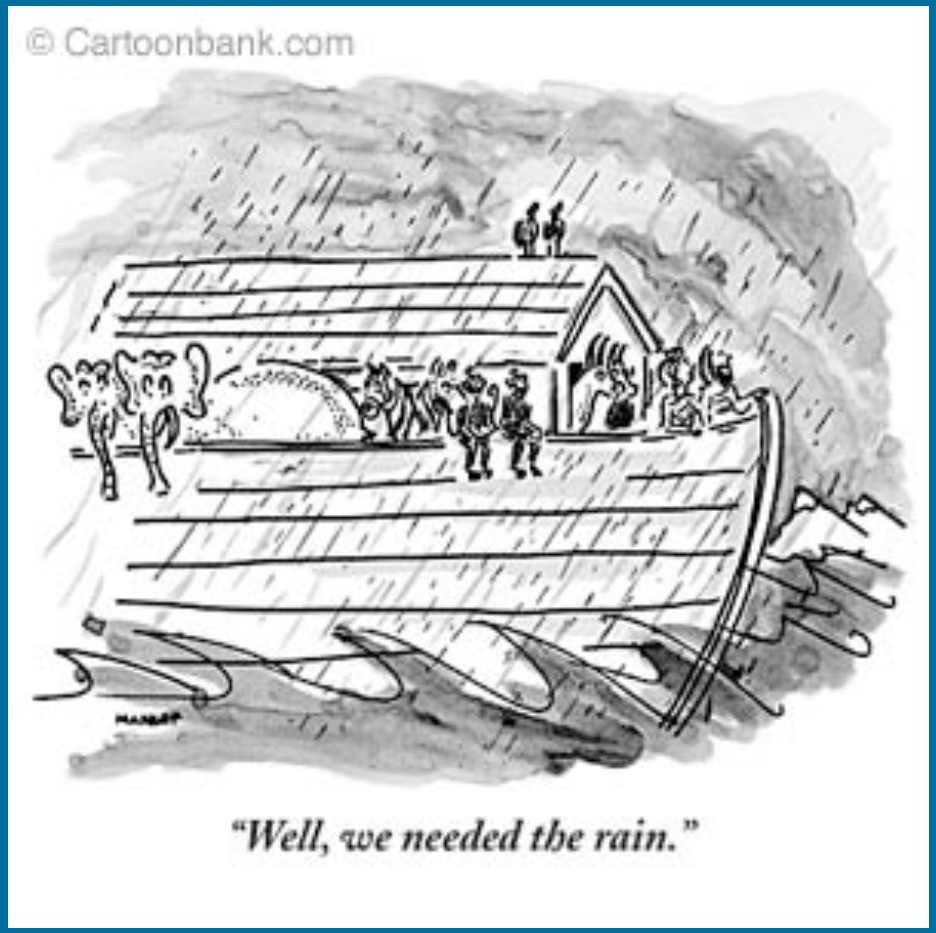
- Conduct cost-benefit analysis
- Identify appropriate exemptions or special conditions to minimize impacts on water supplies, customers and the communities served
- Identify equitable cost distribution so not all expenses borne by water utility customers
- Develop appropriate implementation process that prioritizes needs and allows for extensive phase-in for compliance

Schedule



- Public Hearing
  January 21, 2010
- Hearing Officer Report
- Revisions are Possible
- AG Review for Legal Sufficiency Determination
- Regulations Review Committee

Outcome Uncertain



Questions?