Stream Flow Standards and Regulations







November 20, 2012
Chris Bellucci
Compliance Workshop for Water industry/ MDC Training Facility

Connecticut Department of Energy and Environmental Protection

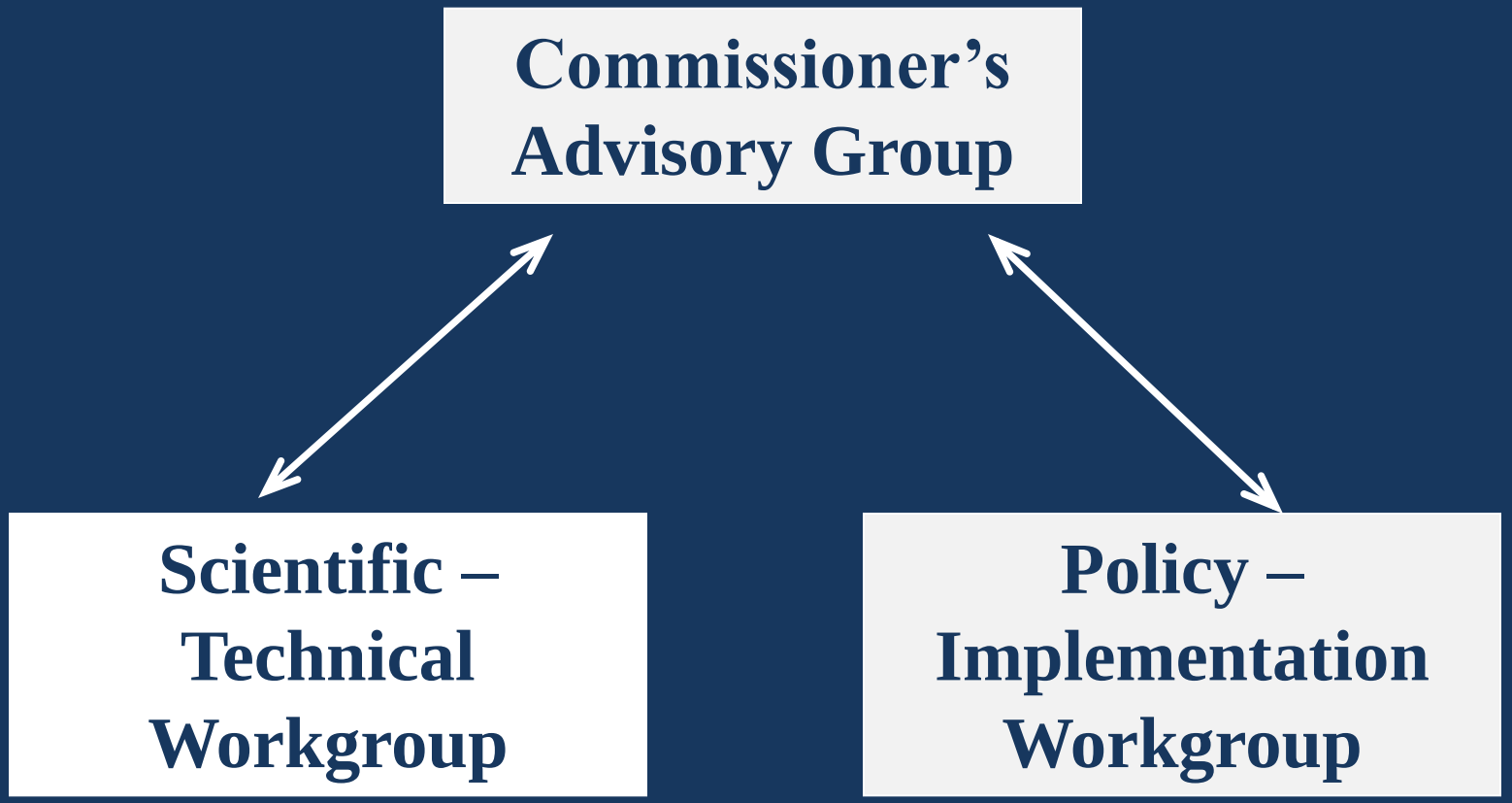
Public Act No. 05-142

AN ACT CONCERNING THE MINIMUM WATER FLOW REGULATIONS

DEP Commissioner shall adopt regulations for stream flow that…

- apply to all rivers and streams
- based on **best available science**
- provide for the needs and requirements of public health, flood control, industry, public utilities, water supply, public safety, agriculture and other lawful uses of such waters and further recognizing and providing for stream and river ecology, the requirements of natural aquatic life, natural wildlife and public recreation, and after considering the natural flow of water

Workgroups Met from 2005 - 2009

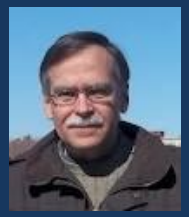


- Broad Group of Stakeholders including other state agencies, USGS, USEPA, Nature Conservancy, Trout Unlimited, Rivers Alliance, Water Utilities, and Universities

Scientific –Technical Committee

Retirees

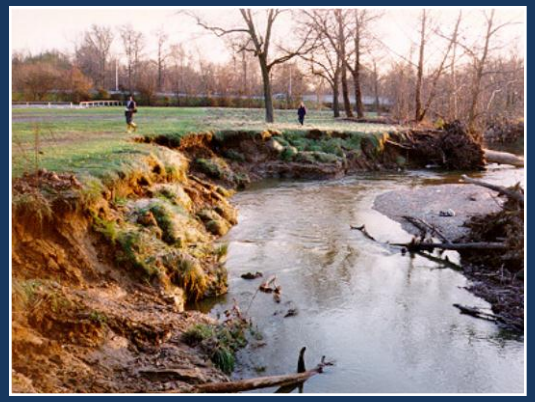




Hydrogeologists



Geomorphologists



Committee consisted of a diverse group of scientists from multiple backgrounds

Water Resource Engineers



Stream Ecologists



Fisheries Biologists



Public Process from 2009-2011

•Held Public Hearing and numerous public information meetings from October 13, 2009 – January 21, 2010
68 individuals provided oral testimony and 380 provided written comment.

•Sent Proposed Regulation to Legislative Regulations Review Committee 2x and rejected. The Legislative Regulations Review Committee directed CT DEEP to continue to meet with stakeholders to resolve the remaining issues.

• Met with stakeholders from Jan 2011 – Dec 2011

Stakeholder Meetings Jan 2011 – Dec 2011

- More certainty in stream flow classification

- Additional public water supply considerations
  - -compliance options and timeframes
  - -protection of safe yield
  - -protection of an adequate margin of safety
  - -impact to infrastructure investment
  - -recognition of potential sources of supply
  - -environmental benefit

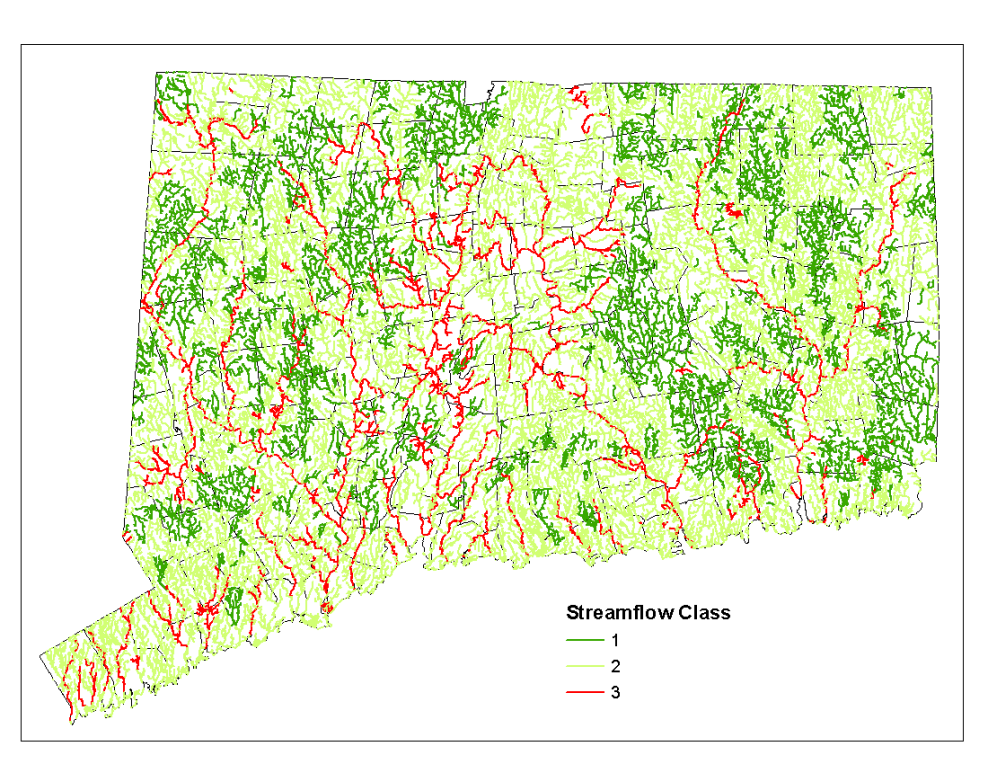
Regulation Finalized

- Stream Flow Standards and Regulations were filed with the Secretary of State's December 12, 2011

What the Regulation Does for Connecticut

- Stream flow classes and standards
- Statewide presumptive release rule
- Blueprint for the future

statewide stream flow classification



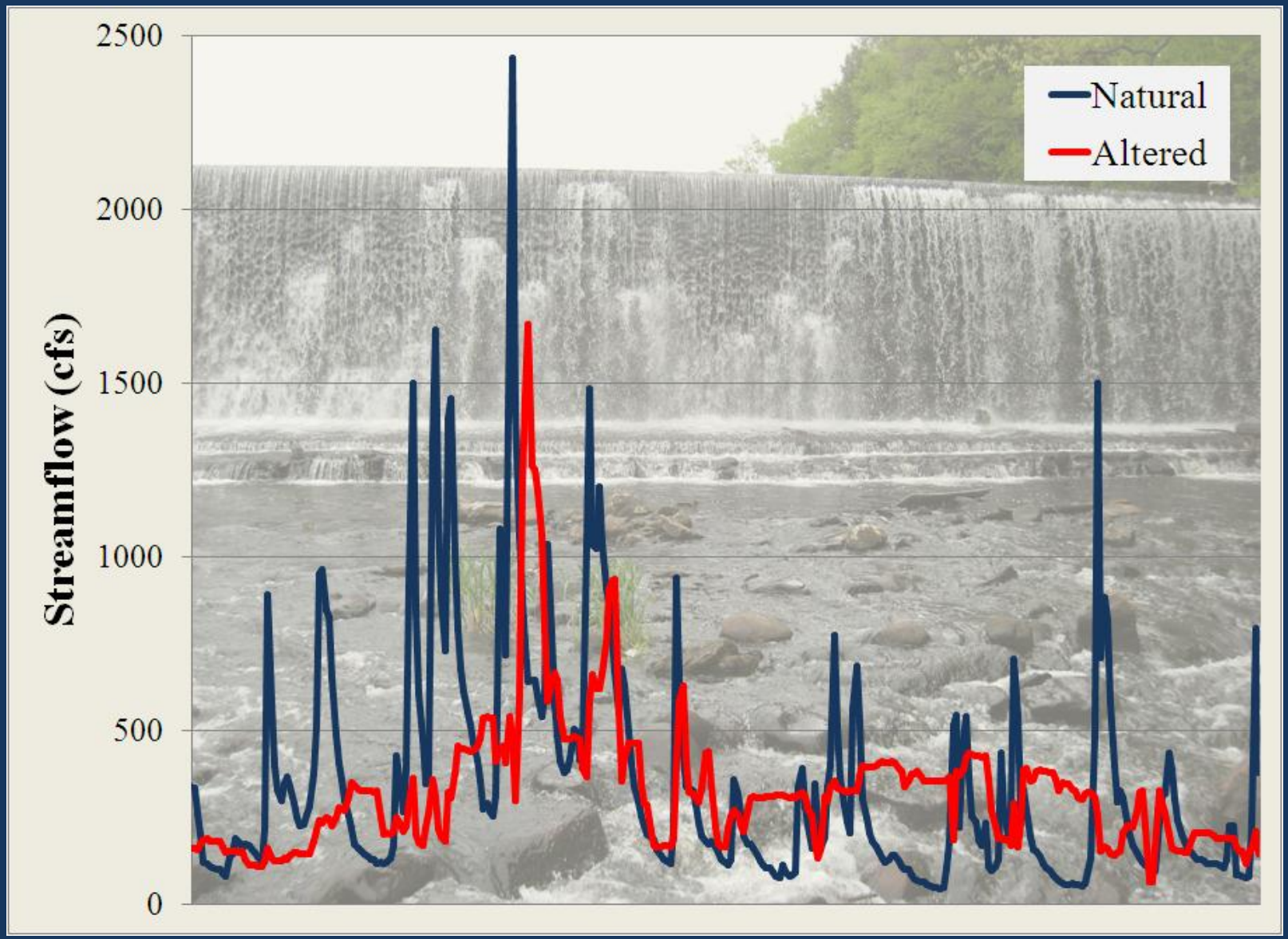
Defining Important Stream Flows for Connecticut

1. **Natural Hydrograph** is Important
   - -The more water that is used for human uses, the more the hydrograph is altered
   - -The more the hydrograph is altered, the more it impacts aquatic life

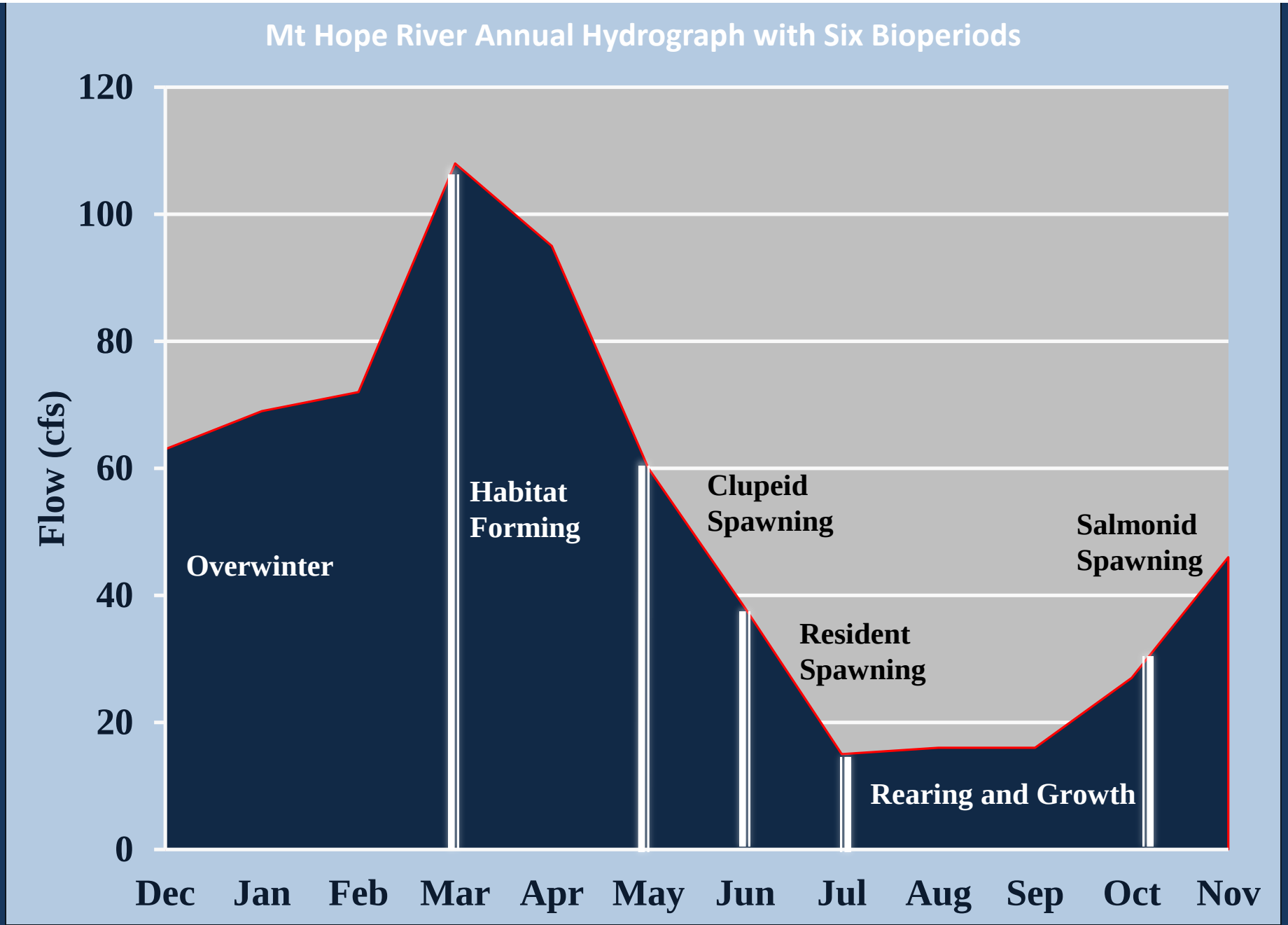
2. **Bioperiods**- seasonal flow variation linked to biological processes

3. **Biological Condition Gradient** as Unifying Theme

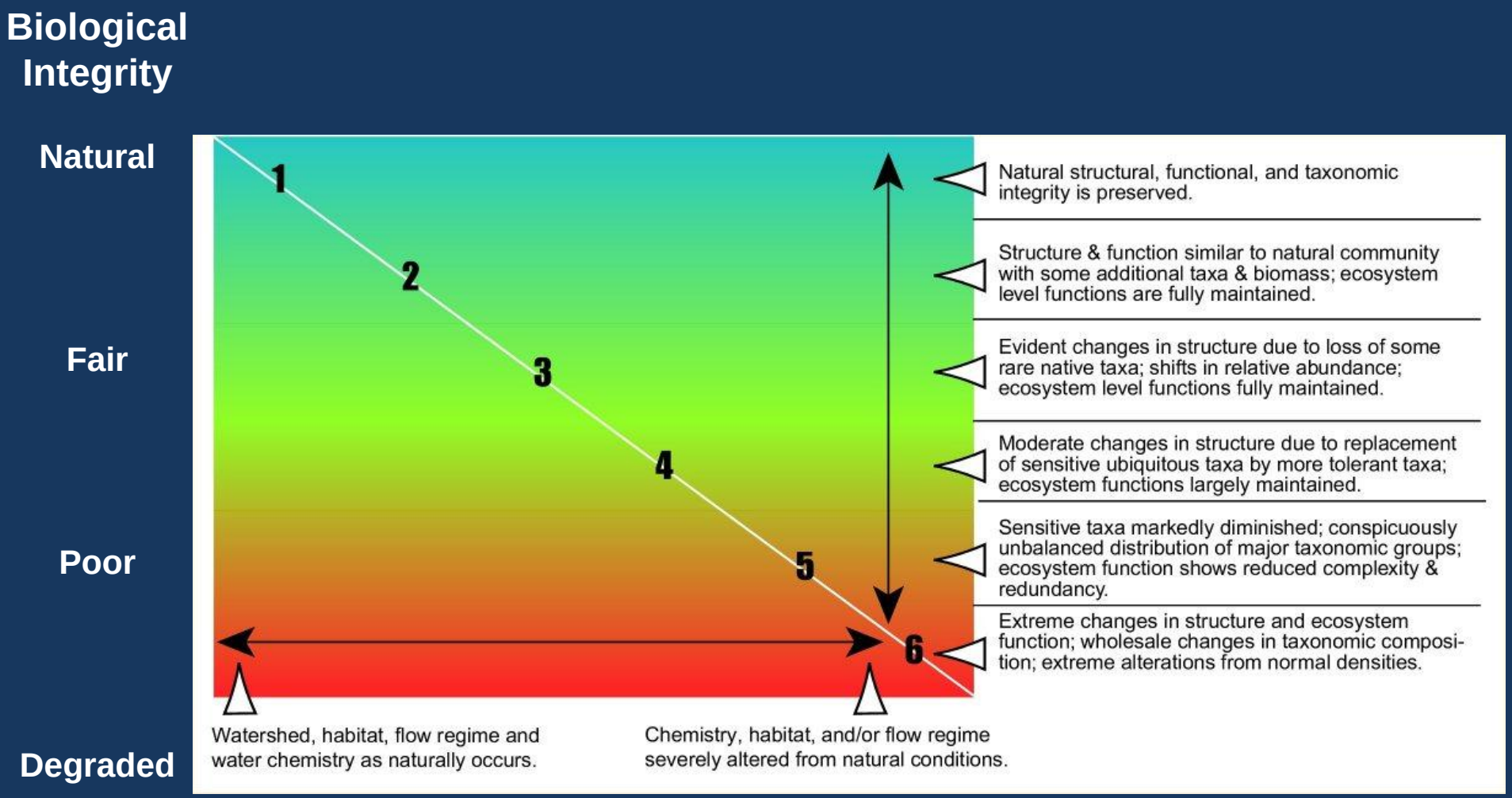
Humans Alter the Natural Hydrograph



Example of Natural Hydrograph

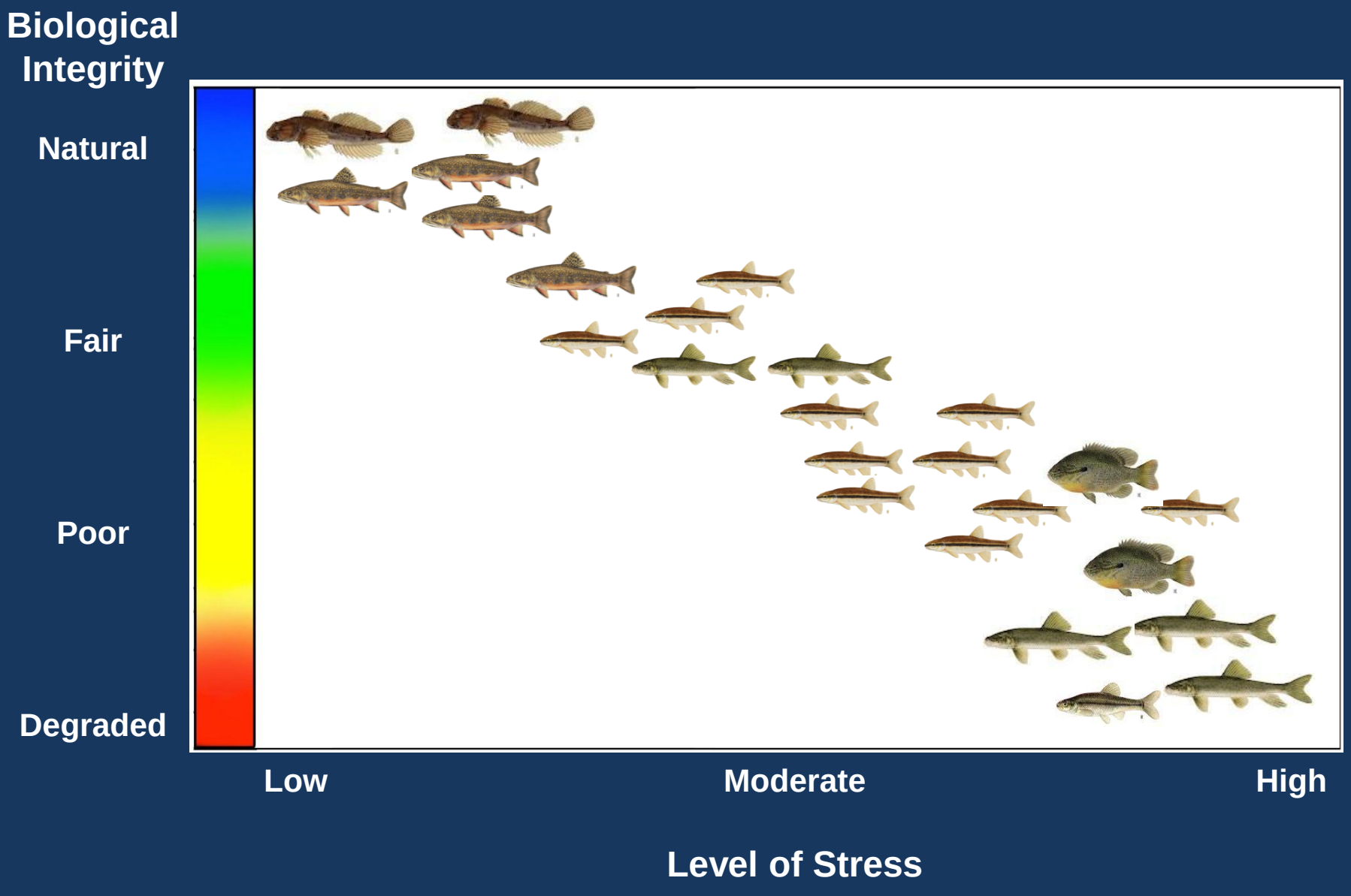


Biological Condition Gradient *

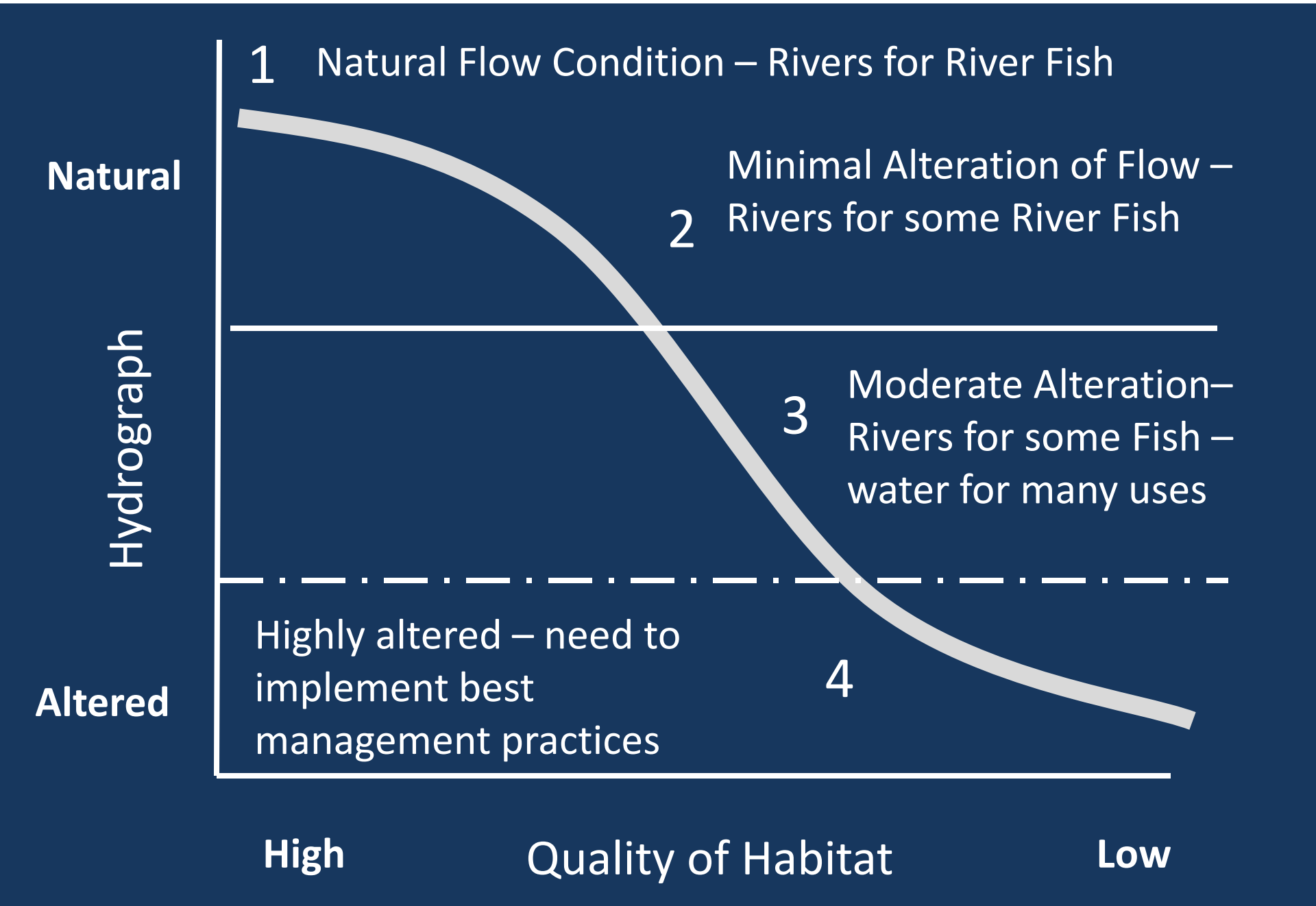


* Davies and Jackson 2006. 16:1251–1266. Ecological Applications.

Biological Condition Gradient



Stream flow Classes and Narrative Standards

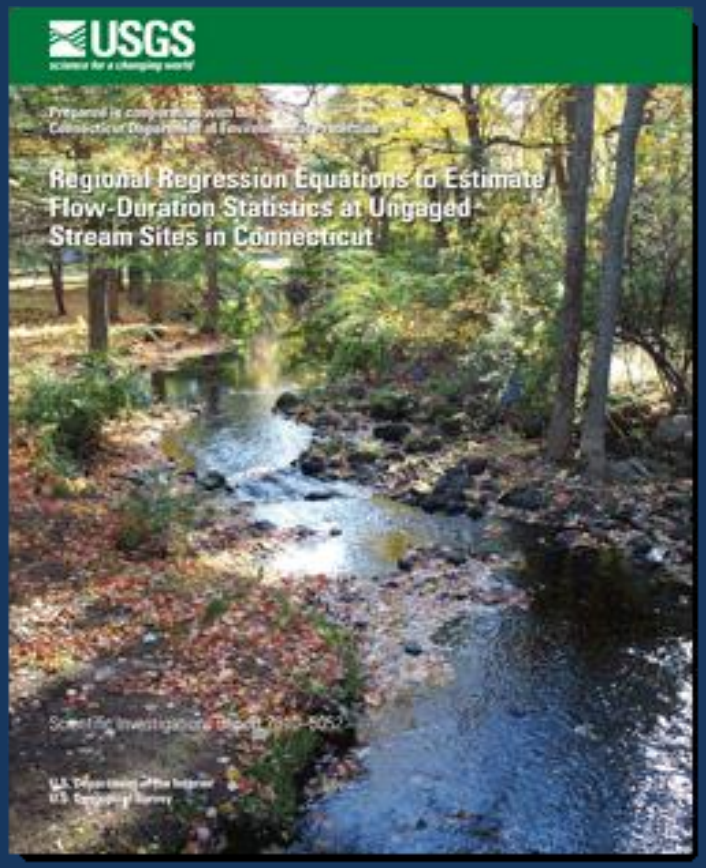


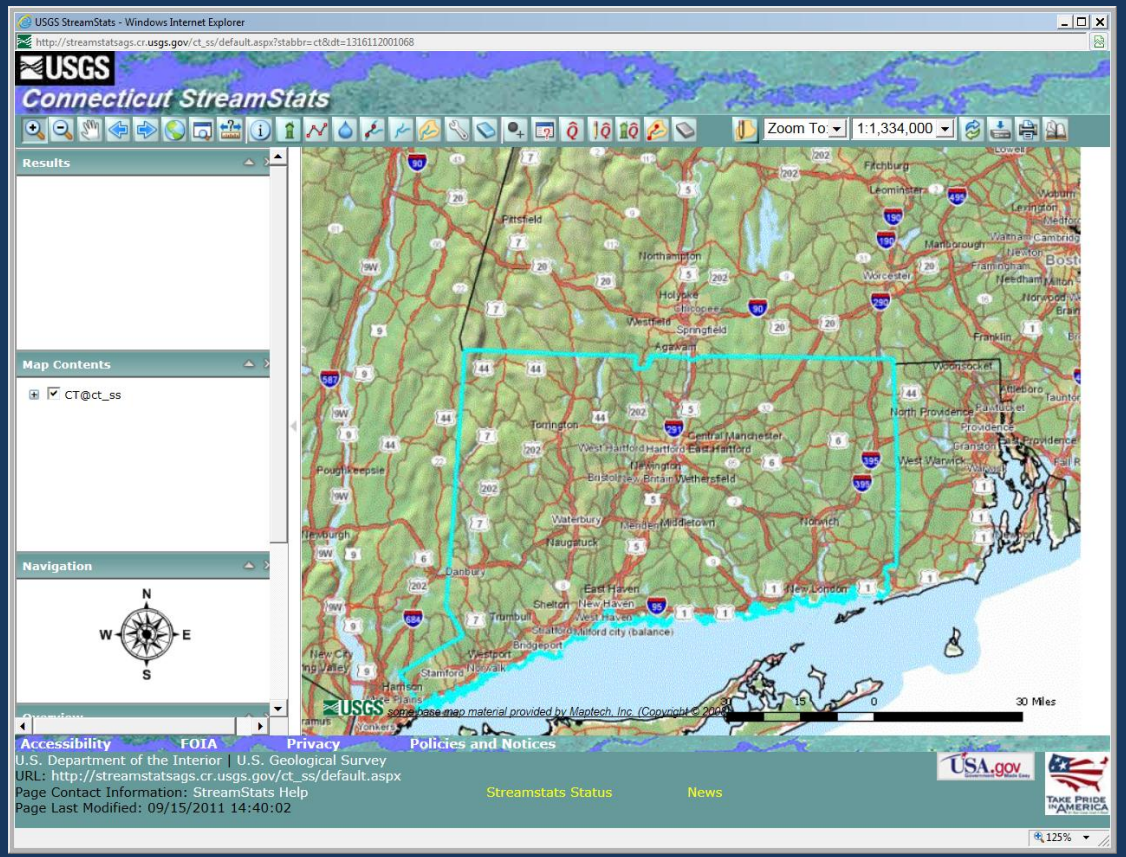
Release Rules

Class 1- free flowing
Class 2 - 75% of natural inflow
Class 3 -

Bioperiod	Effective Dates	Minimum Required Release	
		Antecedent Period Dry	Antecedent Period Wet
Overwinter	Dec 1- Feb 28/29	Bioperiod Q99	
Habitat Forming	Mar 1 – Apr 30	Bioperiod Q99	
Clupeid Spawning	May 1 – May 31	Bioperiod Q95	
Resident Spawning	June 1 – June 30	Bioperiod Q90	
Rearing and Growth	July 1- Oct 31	Bioperiod Q80	Bioperiod Q50
Salmonid Spawning	Nov 1 – Nov 30	Bioperiod Q90	

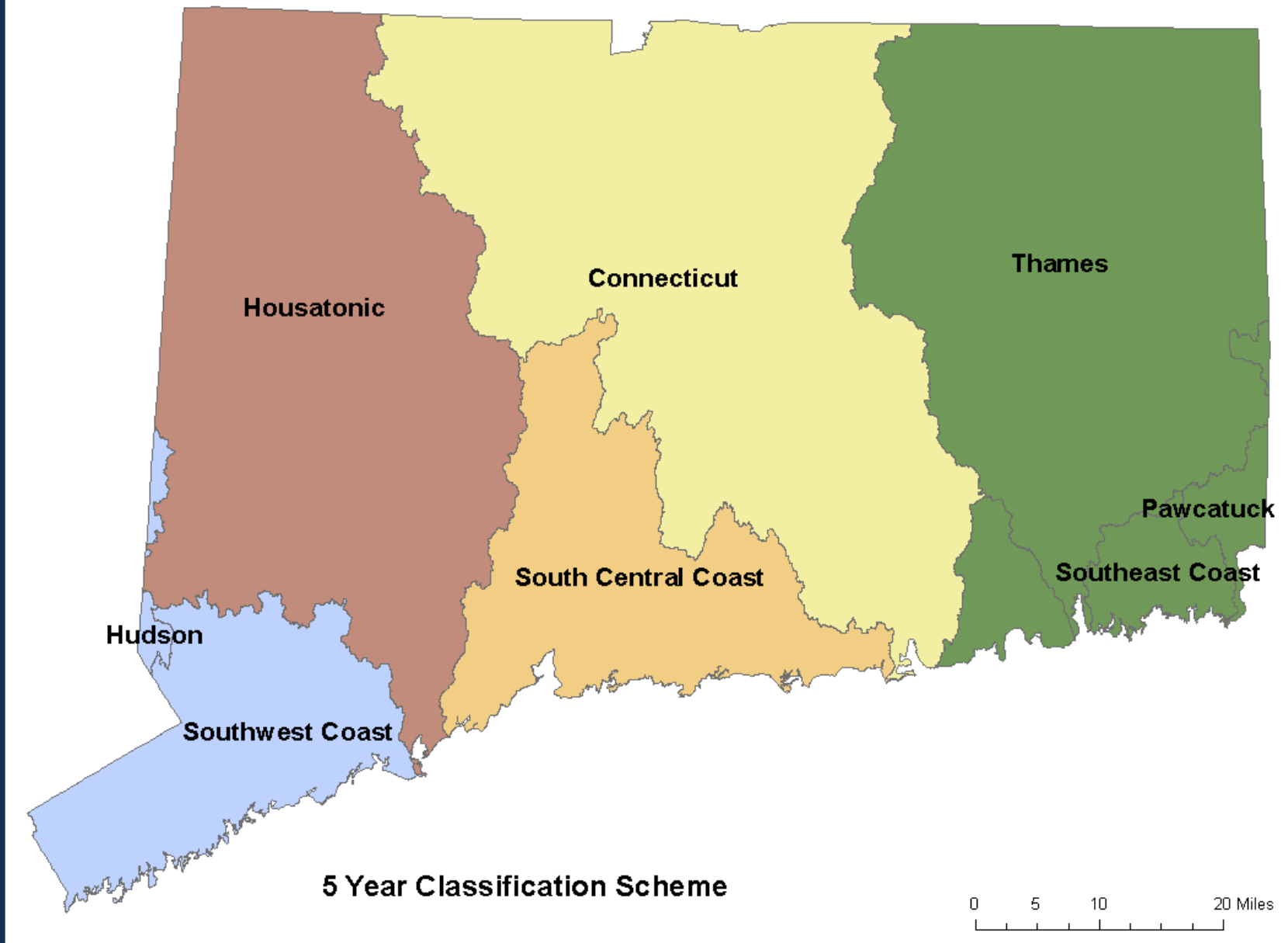
StreamStats





USGS StreamStats Website
http://water.usgs.gov/osw/streamstats/connecticut.html

Procedures to Classify Waters



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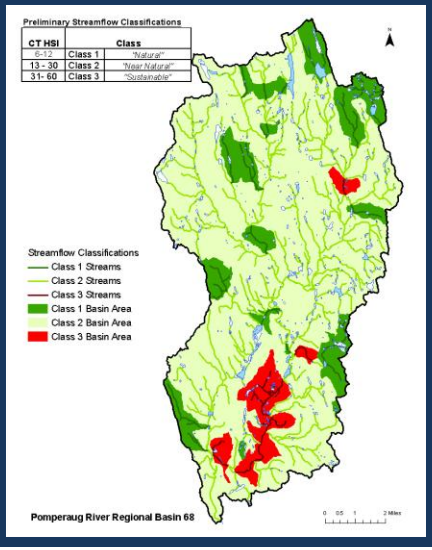
Consider Factors that Affect Natural Stream Flow

GIS Data Layers



Diversions
Dams
Impervious Cover
Return Flow
Unique Factors

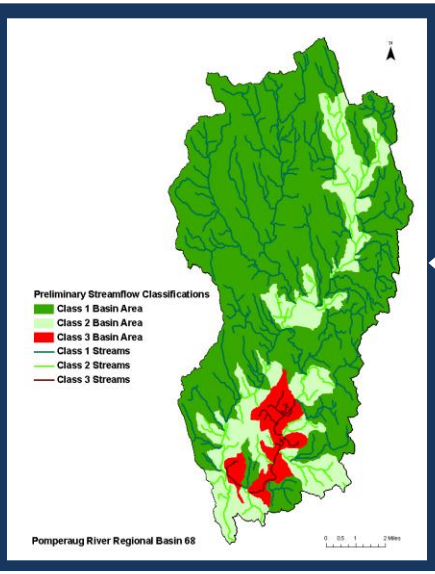
Map Initial Stream Flow Class After Consultation with DPH



Propose Stream Flow Classifications and Solicit Comment

- 90 day Notice in Paper and DEP Website
- Comments and Final Document on DEP Website

Adopt Stream Flow Classifications



Procedures to Classify Waters

Certainty Factors

- Downstream of Public Water Supply Reservoir can't be a 1 or 2
- Downstream of Level A Aquifer can't be a 1 or 2



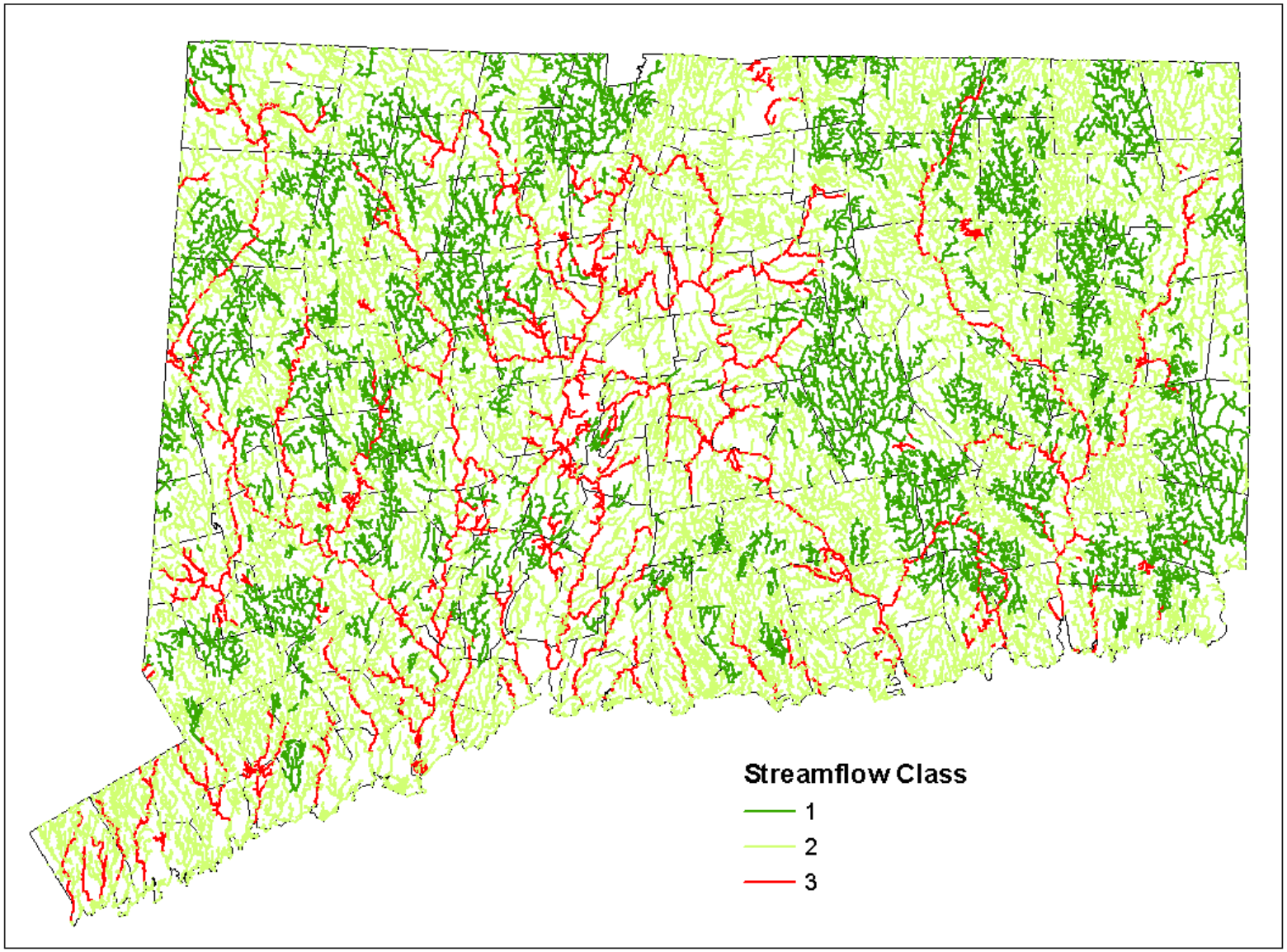
Hydrologic Stressors

- Impervious Cover
- Return Flow
- Dams
- Diversions

Site Specific Factors

- State C&D Plan
- Plant and Animals
- Anadromous Fish
- Trout Management Areas
- Wild and Scenic Areas
- Reference USGS Gages
- Practicality of Restoring Flow
- Any other relevant factor

Blueprint for Future Water Allocation



Questions?

www.ct.gov/deep/streamflow

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