



Connecticut Department of Energy and Environmental Protection



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

Overview of the draft 2020 CT Integrated Water Quality Report (IWQR)

Monitoring, Assessment, Reporting, and Implementation



June 5, 2020

Walter Tokarz and Rebecca Jascot

Bureau of Water Planning and Land Reuse



Connecticut Department of Energy and Environmental Protection

Federal Clean Water Act Simplified

Section 305 (b) = fishable / swimmable

- ✓ Set Goals & Standards for All State Waters in designated uses
- ✓ Monitor, Assess, and Report Conditions Biennially
- ✓ Maintain & Protect “Healthy” Waters

Section 303 (d) = Impaired Waters/Action Plans

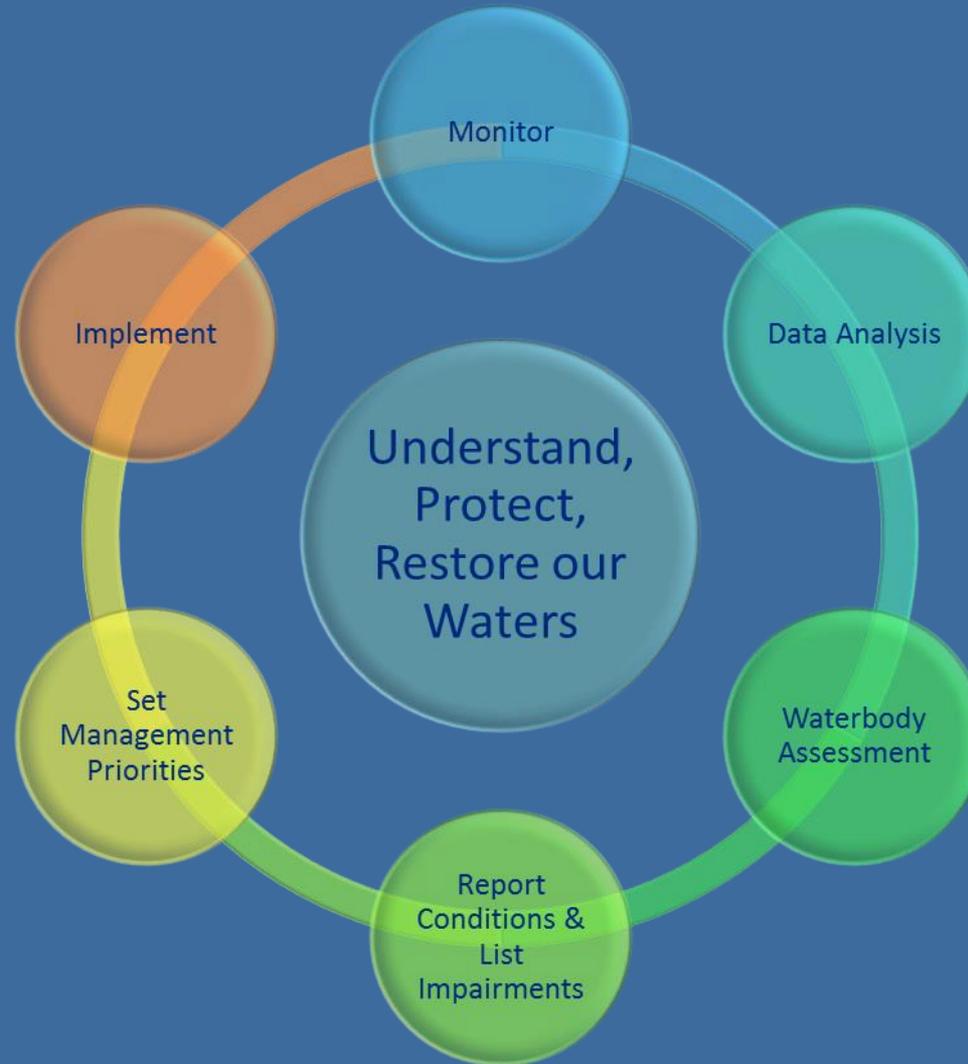
- ✓ LIST all waters not meeting one or more designated uses
- ✓ Prioritize, TMDL, Implement, Restore Impaired Waters

Link to Clean Water Act:

<https://www.epa.gov/laws-regulations/summary-clean-water-act>



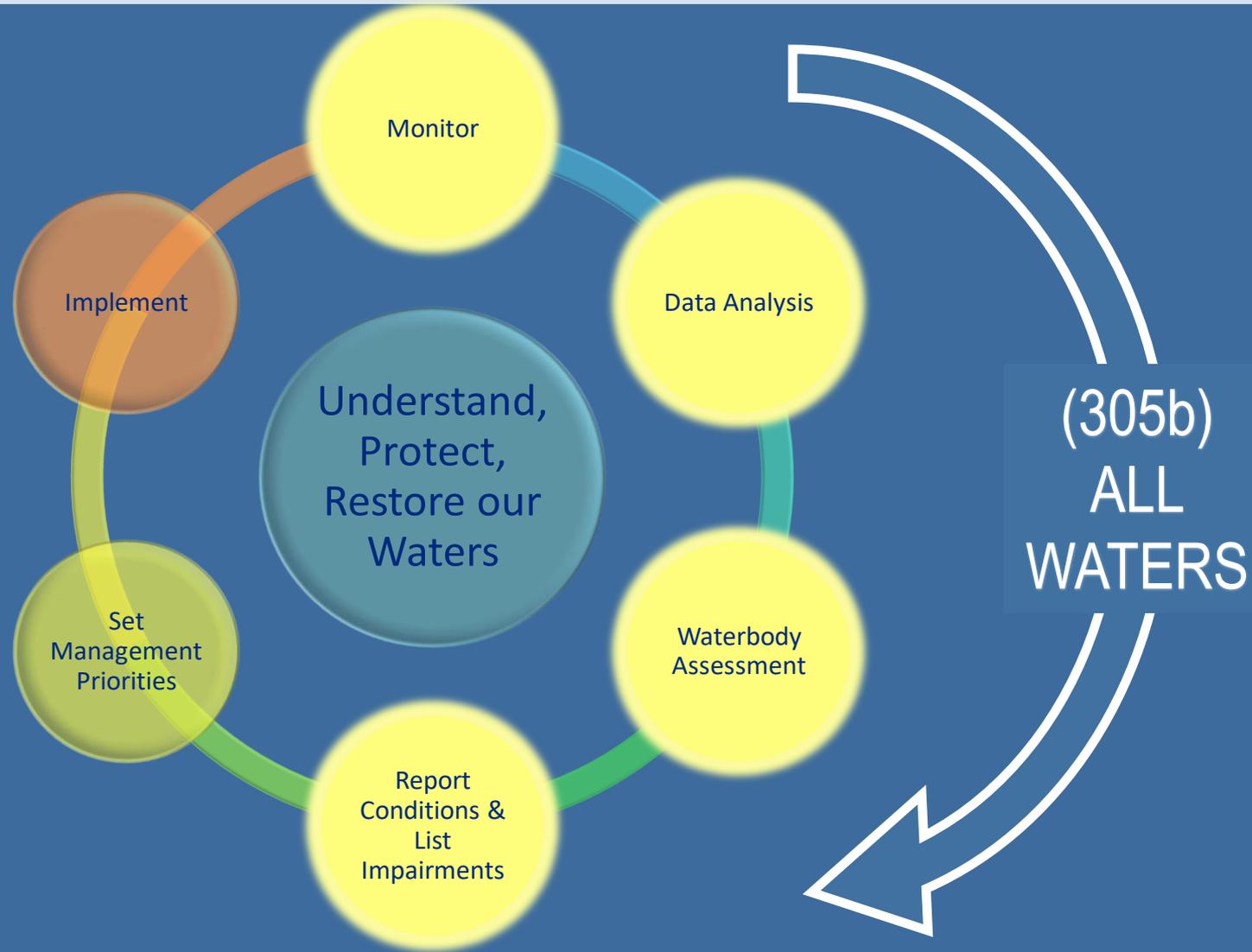
IWQR Framework



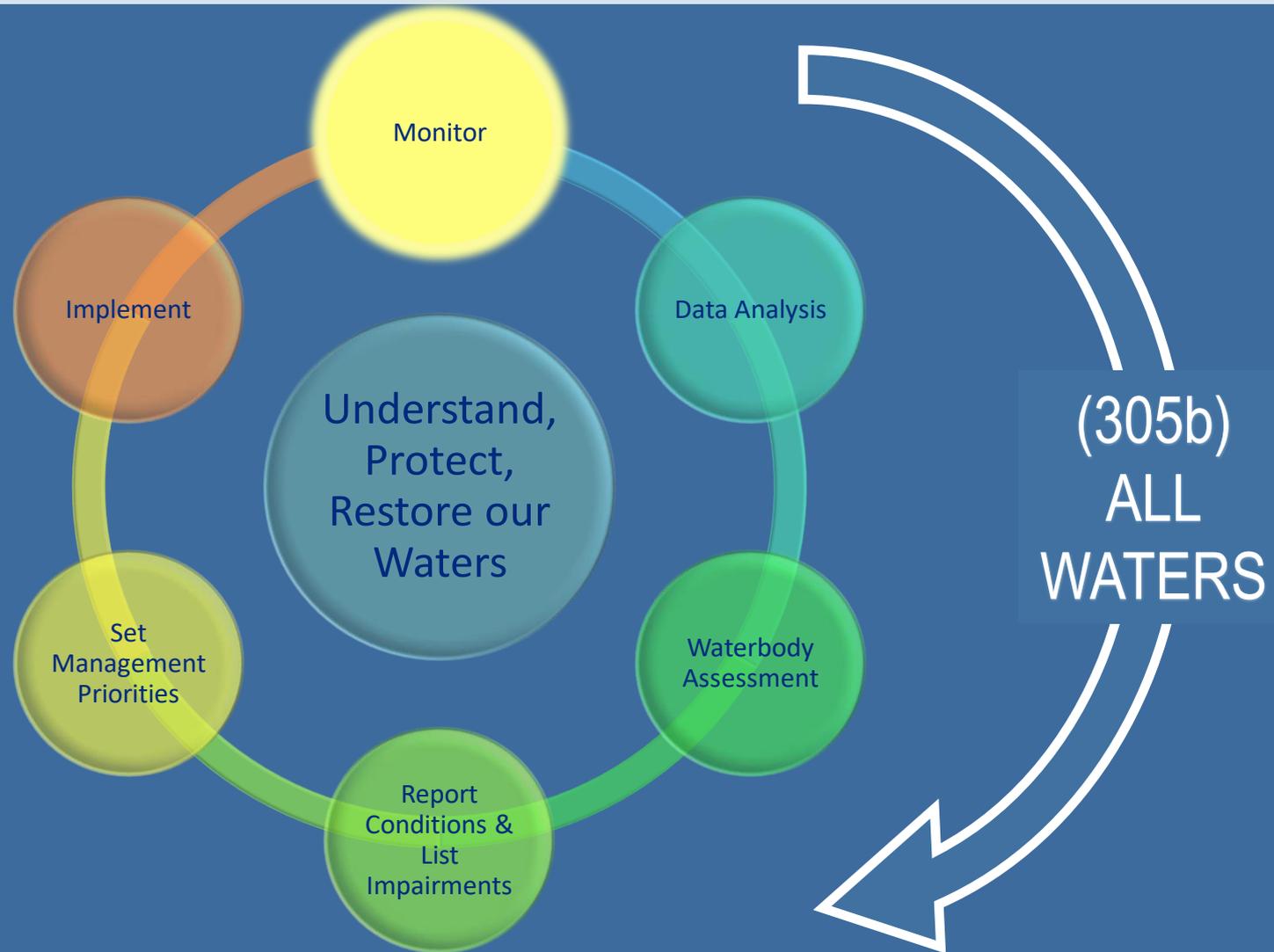
IWQR Framework



IWQR Framework



IWQR Framework

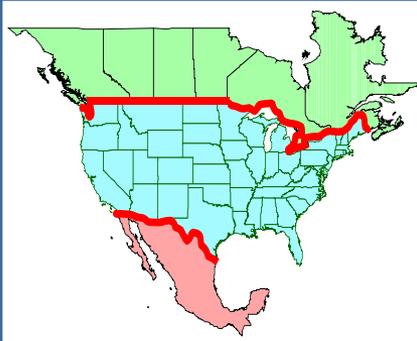


Monitor and Assess Waters of the State

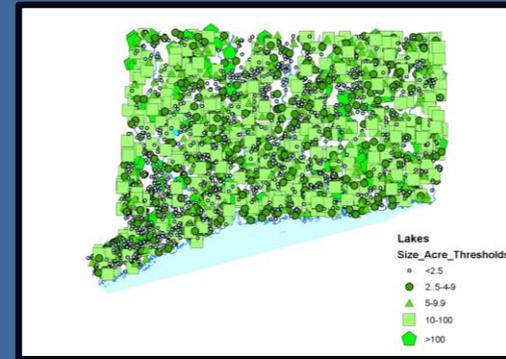
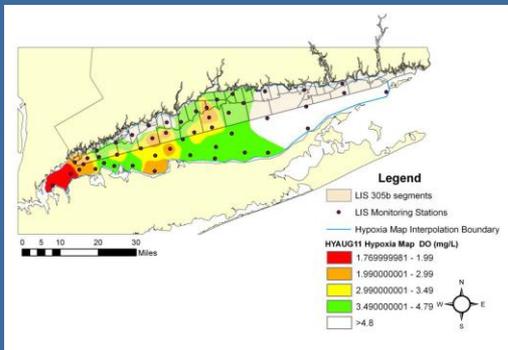
Connecticut's Surface Water Resources

Estimated 7,772 miles of Rivers

 United States Borders with
Canada & Mexico ~ 6,000 miles



Estimated 72,509 Acres (3400) Lakes
Candlewood Lake = 5,400 Acres



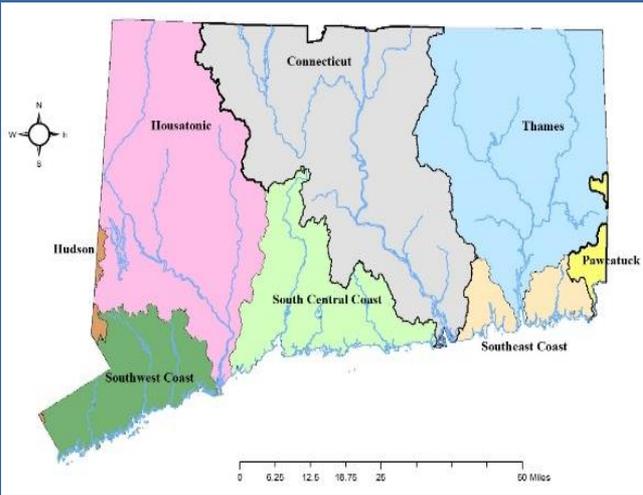
Estimated 1,320 square miles of Estuary

Entire Long Island Sound volume = 18 Trillion Gallons

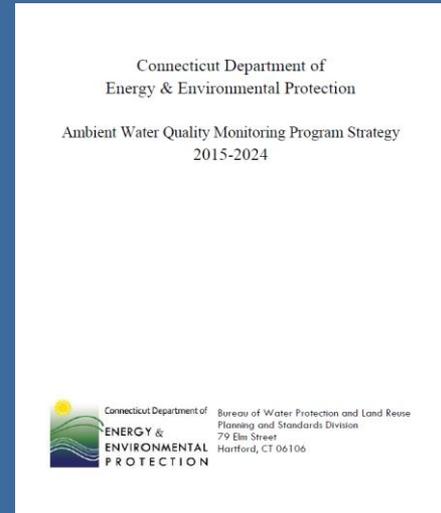
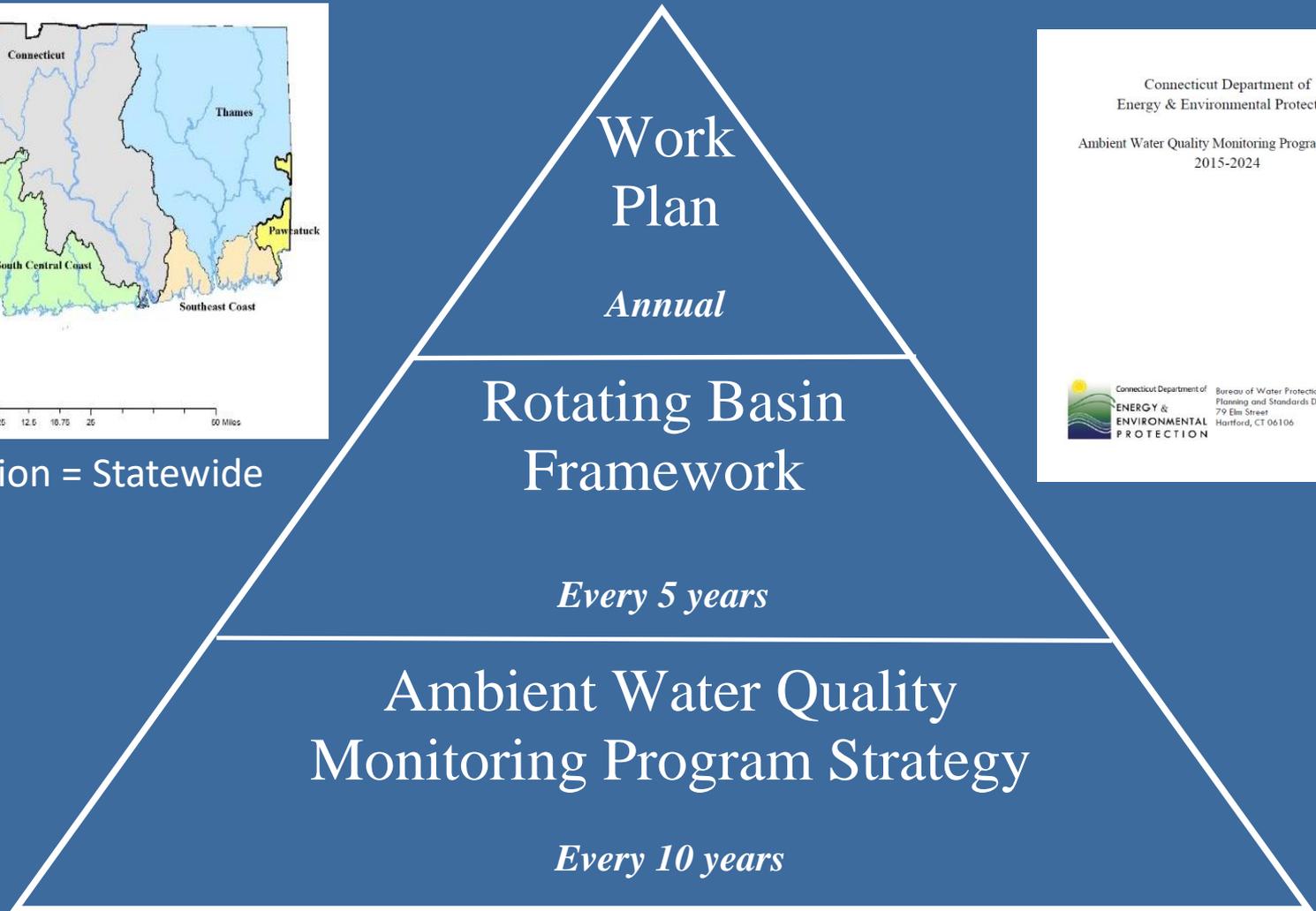


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Monitoring Planning Pyramid

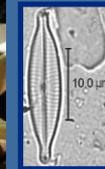
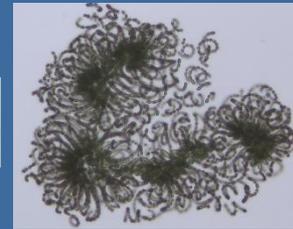


5 year rotation = Statewide



Information Evaluated for Assessments

- Benthic macroinvertebrate community
- Fish community
- Ambient physical / chemical data
- Indicator bacteria
- Plankton / Periphyton / Chlorophyll
- Aquatic toxicity
- Sediment chemistry/toxicity
- Beach closures/ Shellfish bed closures
- Tissue contaminants
- Effluent analysis
- Knowledge of a pollution source (*e.g.*, CSO)



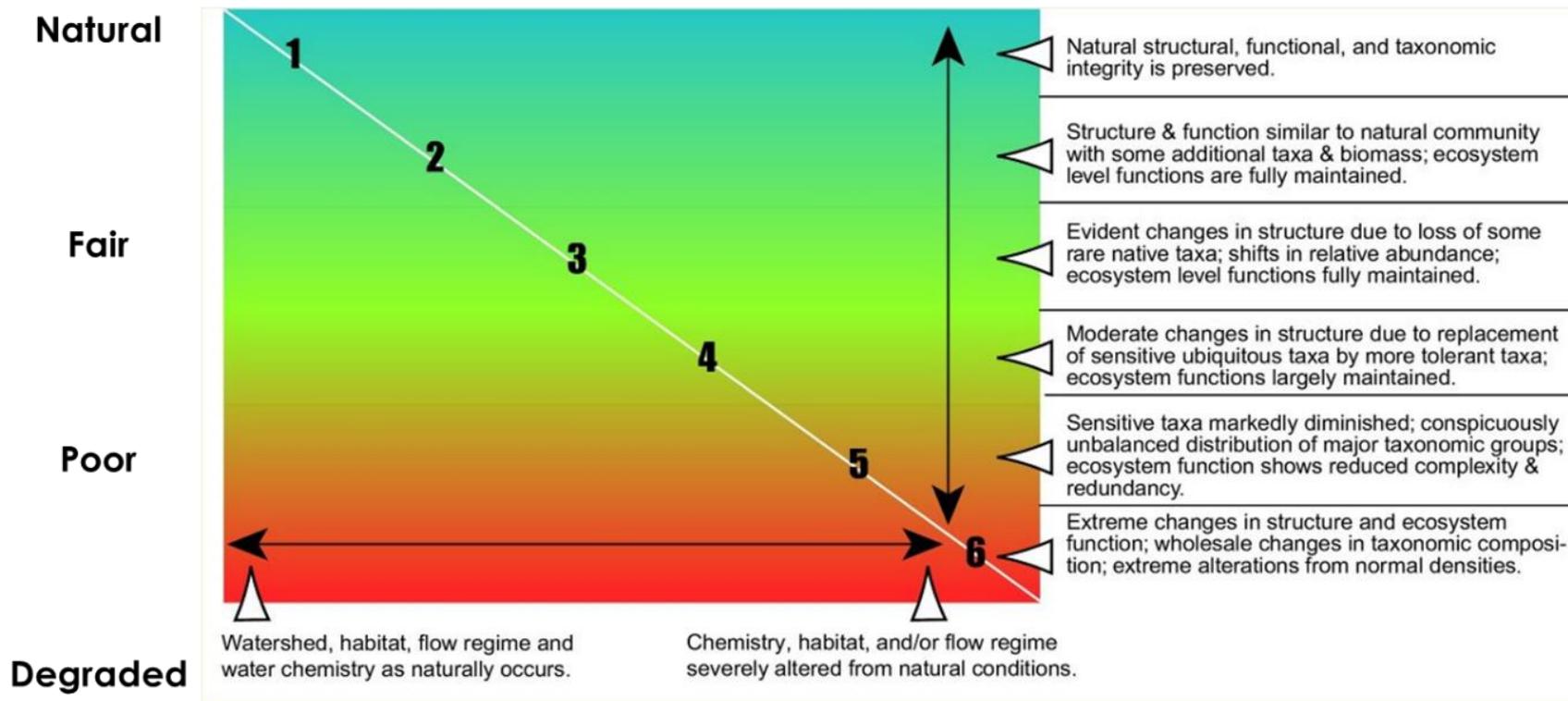
Sources of Information

- CT DEEP: ambient physical, chemical & biological monitoring
- Other CT DEEP: fisheries & aquatic plant surveys, remediation/enforcement issues
- USGS: physical, chemical, bacteria data & flow data from fixed sites on rivers
- Other state, federal & municipal agencies (e.g., Dept. of Ag./Aquaculture, CT Ag. Experiment Station)
- Utilities, consultants, academia
- Volunteer Monitoring
- Permittee self-monitoring



Biological Condition Gradient

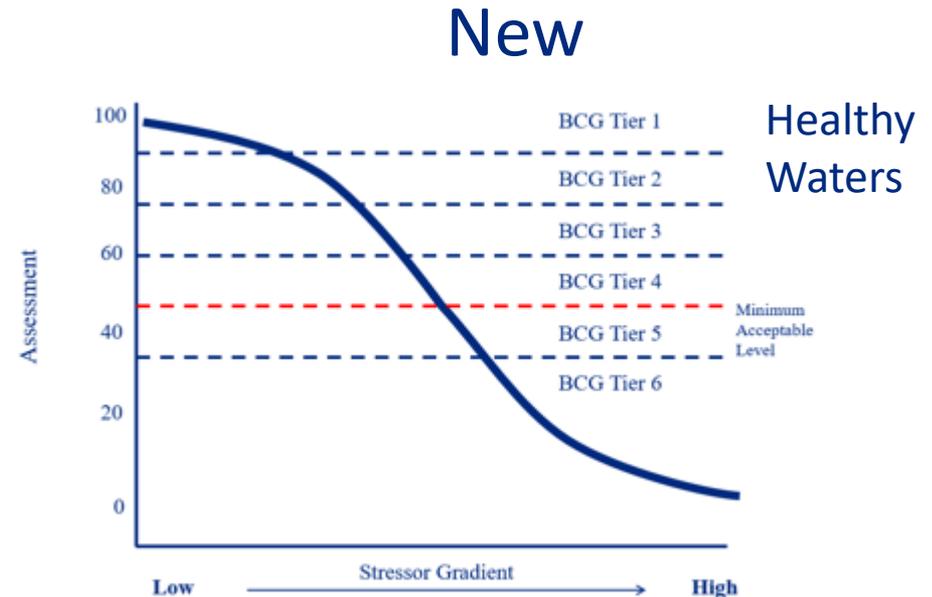
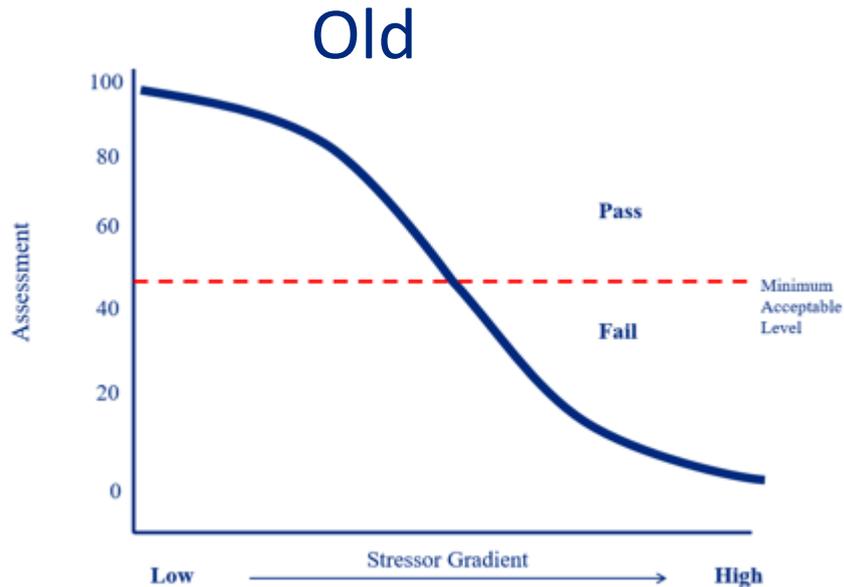
Biological Integrity



Davies, S.P., and S.K. Jackson, 2006. *Ecological Applications* 16:1251-1266.



Biological Condition Gradient



- Draws on previous research in CT and took many years to develop.
- BCG allows us to better identify healthy streams (BCG Tiers 1 and 2).
- BCG allows us to identify streams that are losing ground and hopefully reverse the trend

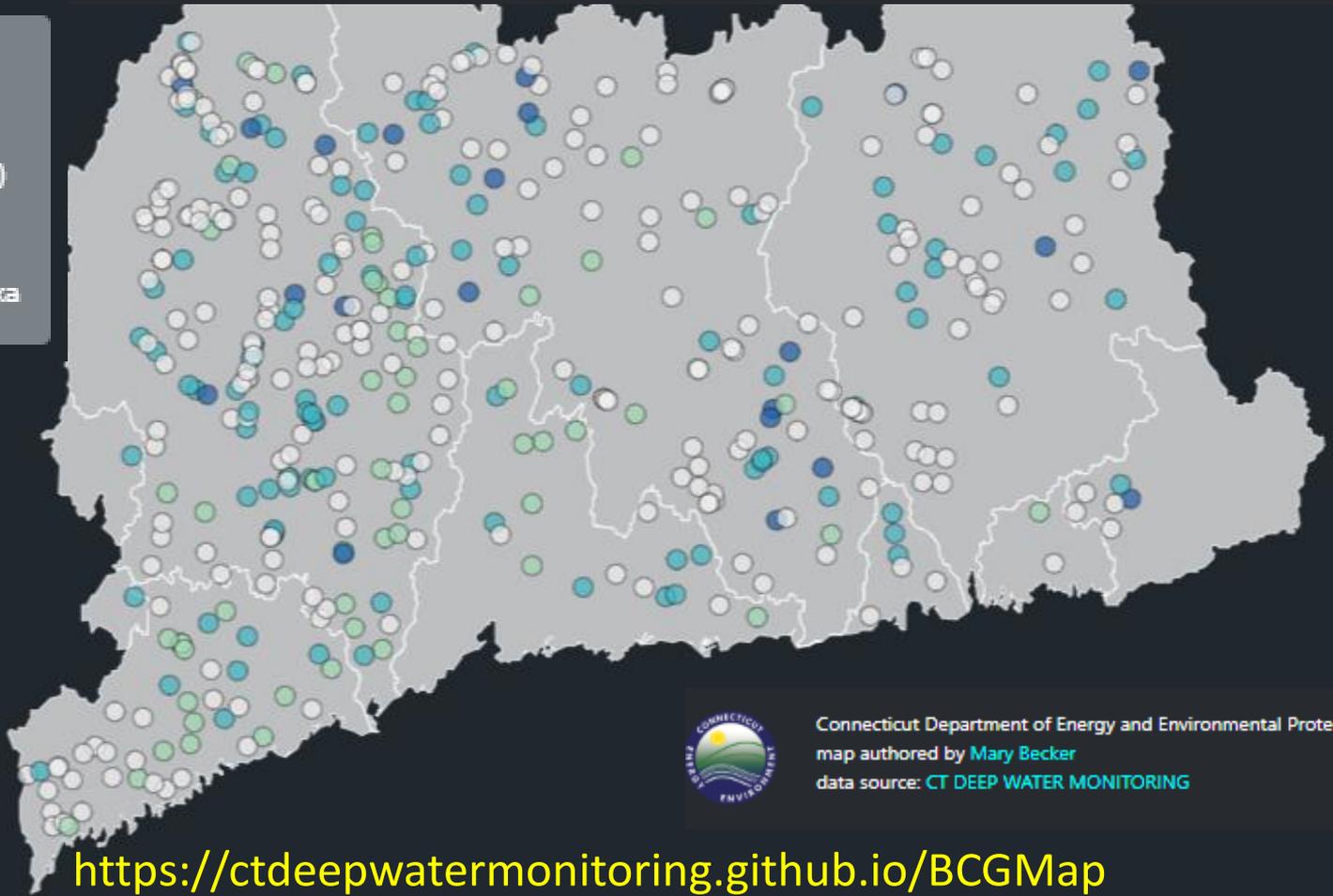


Biological Condition Gradient Map

Biological Condition Gradient (BCG) Data 2020 Assessments

BCG Value

- 1 to 2 (Low Stress)
- 3 to 4 (Moderate Stress)
- 5 to 6 (High Stress)
- No data for selected taxa



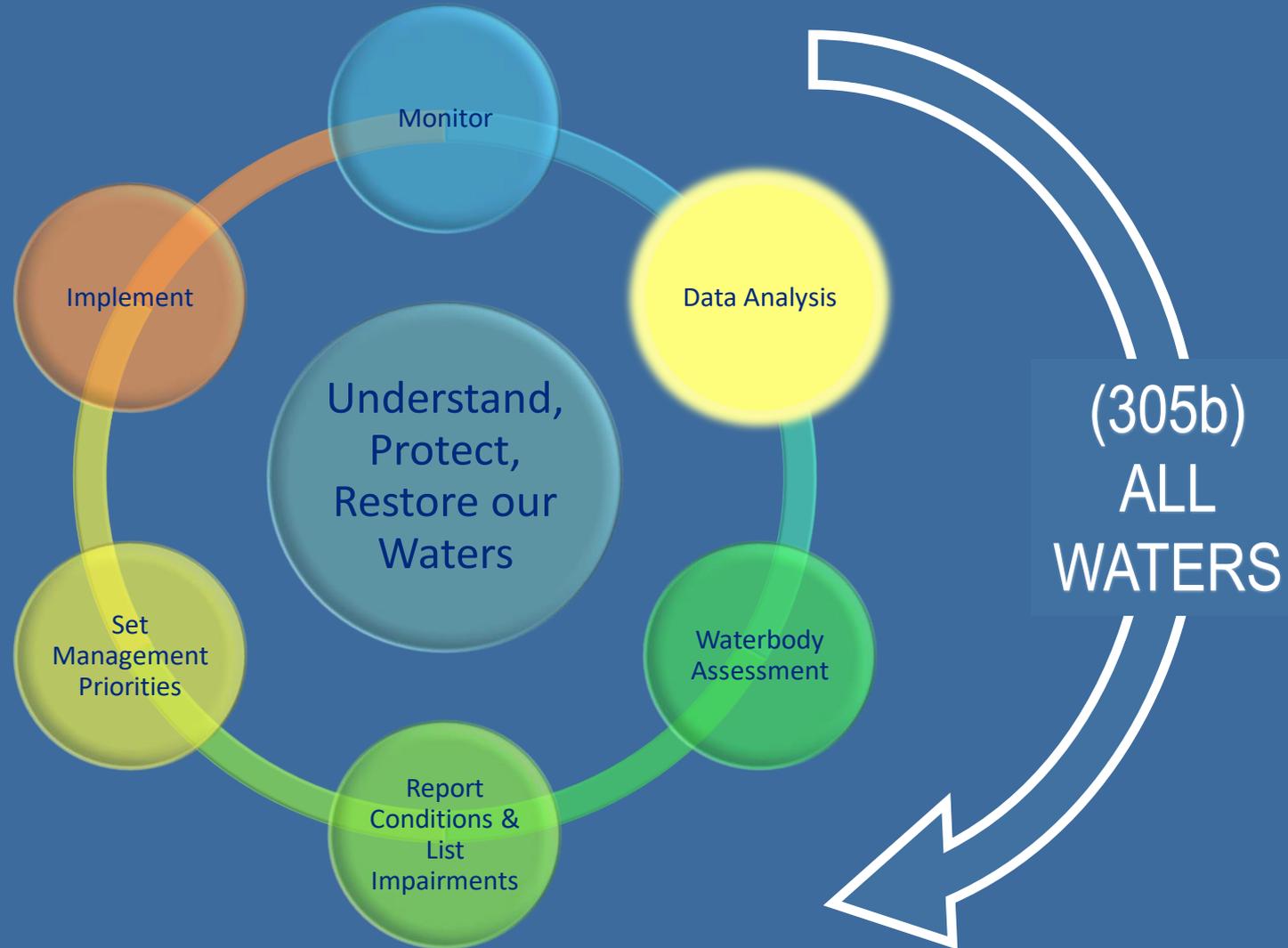
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map authored by *Mary Becker*
data source: *CT DEEP WATER MONITORING*

<https://ctdeepwatermonitoring.github.io/BCGMap>



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IWQR Framework



Assessment Methodology

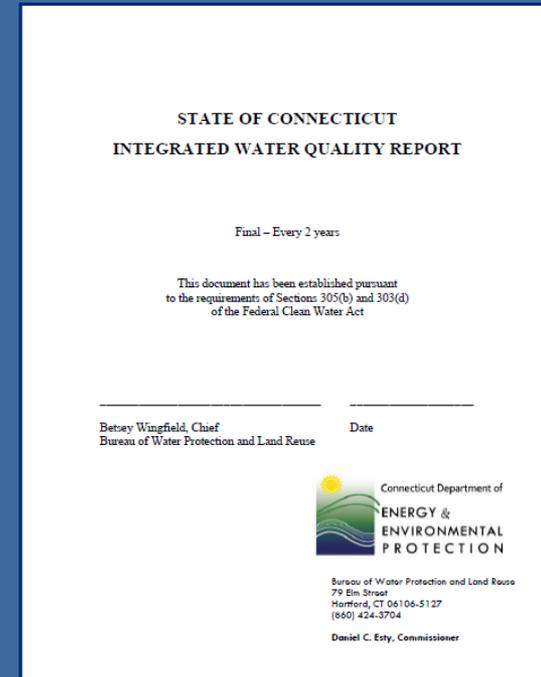
Weight of Evidence Approach

Evaluate all available data and Consider:

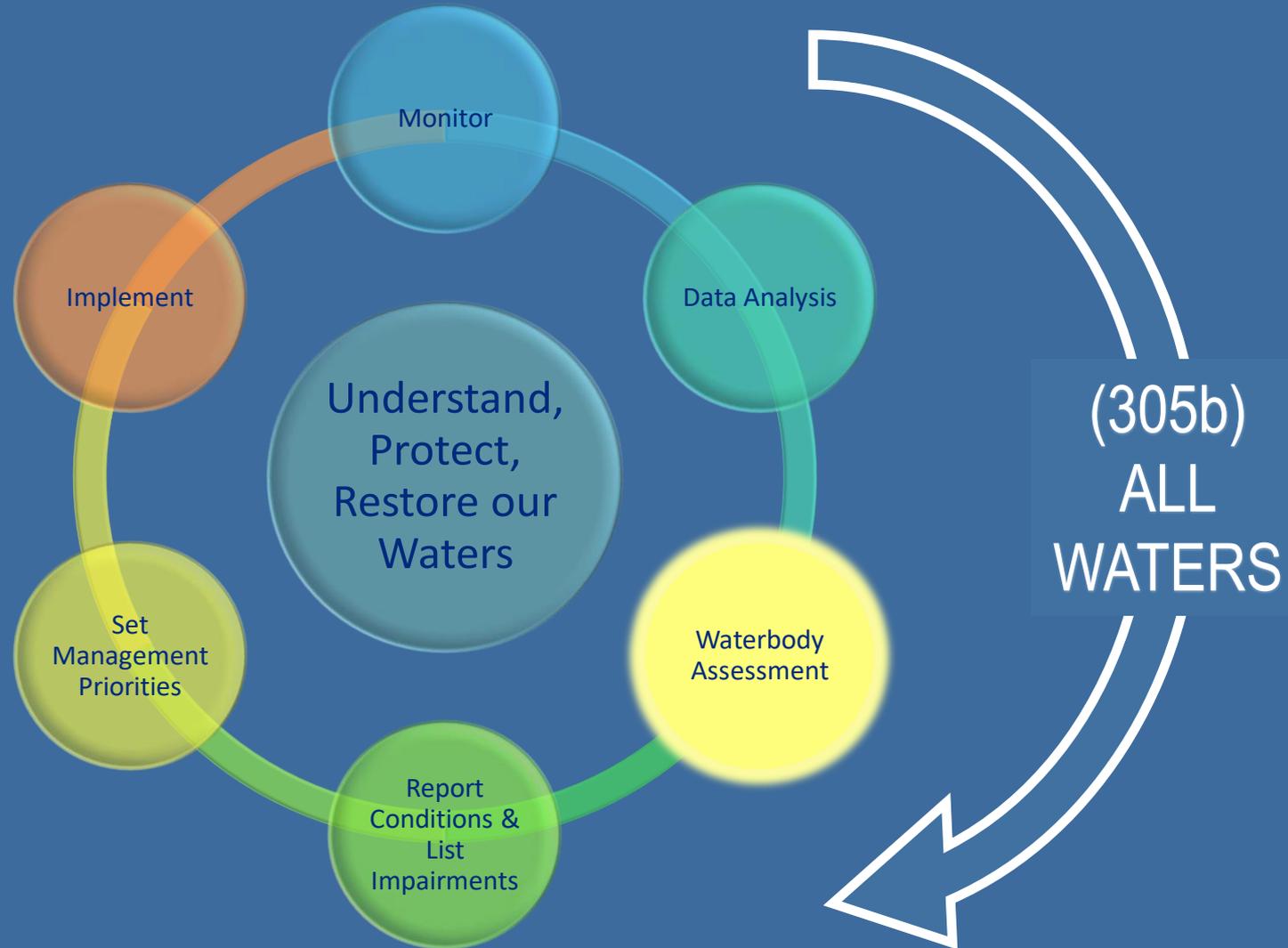
- Data quality
- Age
- Frequency
- Site conditions

Compare data to Water Quality Standards:

- Meets Standards = **Full Support (Healthy)**
- Exceeds Standards = **Not Supporting (Impaired)**
- Insufficient/No New Data = **Not Assessed**



IWQR Framework



Waters Assessed by Designated Uses

Aquatic Life and Wildlife



Public Water Supply



Recreation



Industrial Supply



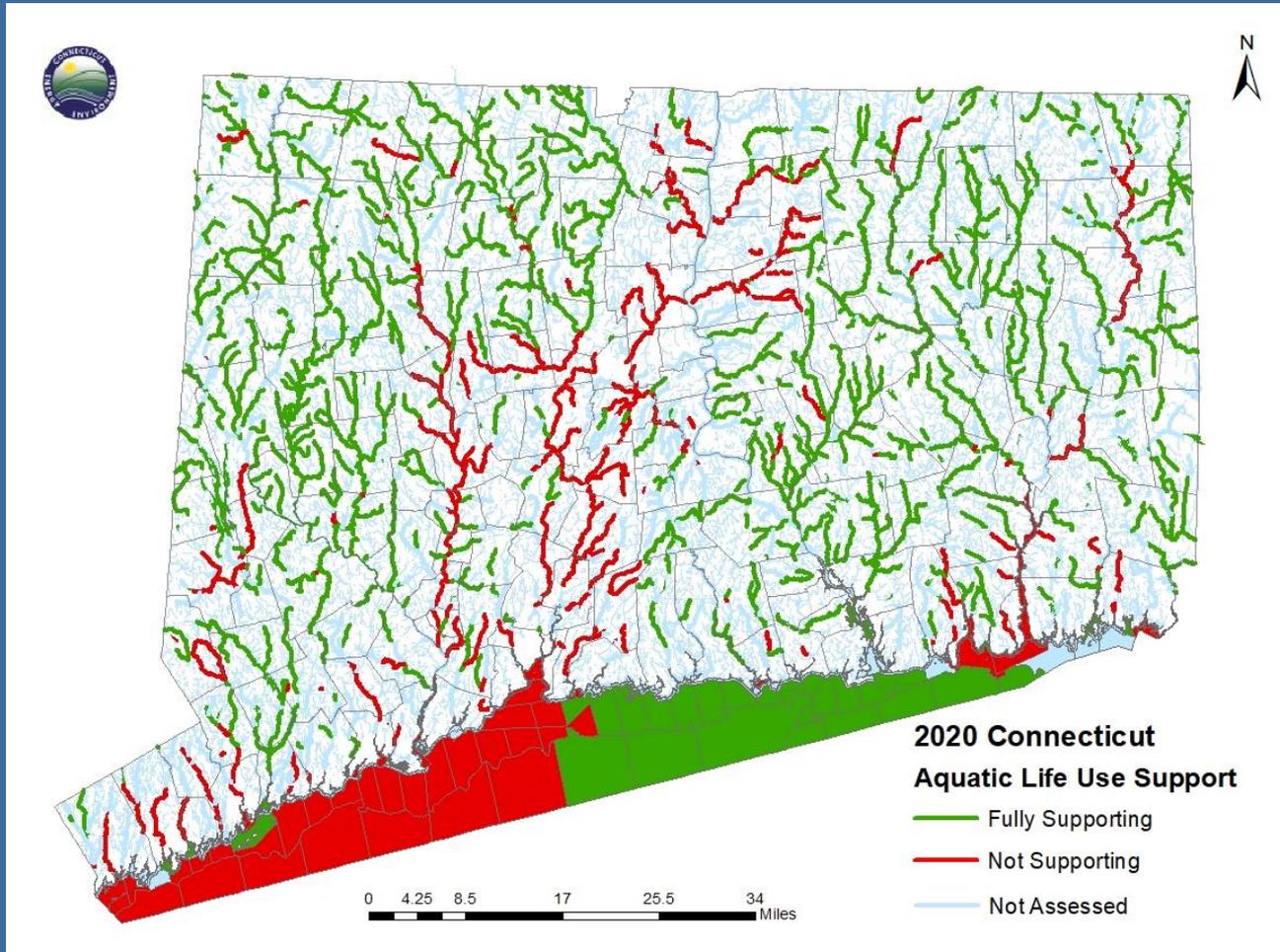
Agriculture Supply



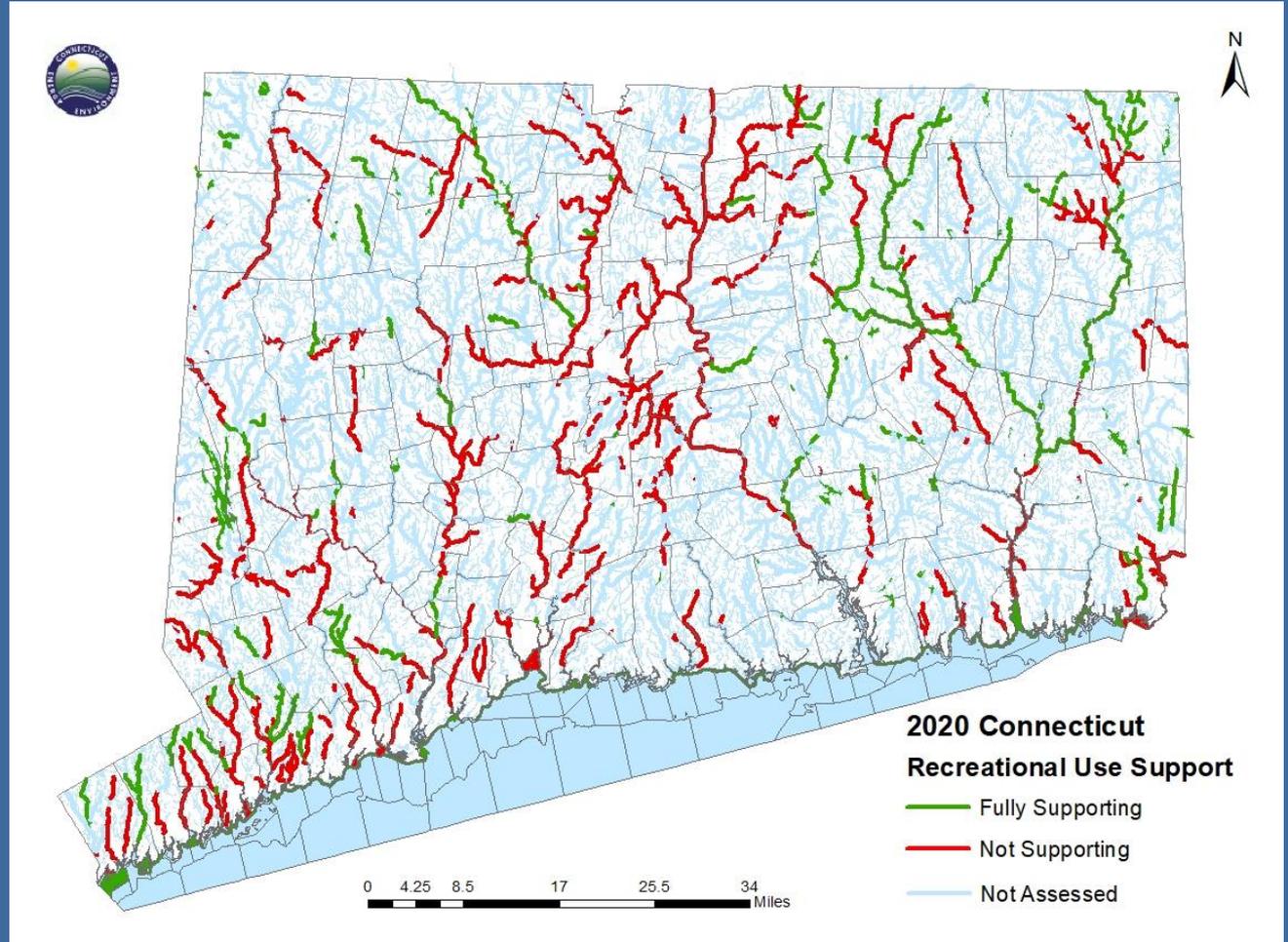
Shellfishing



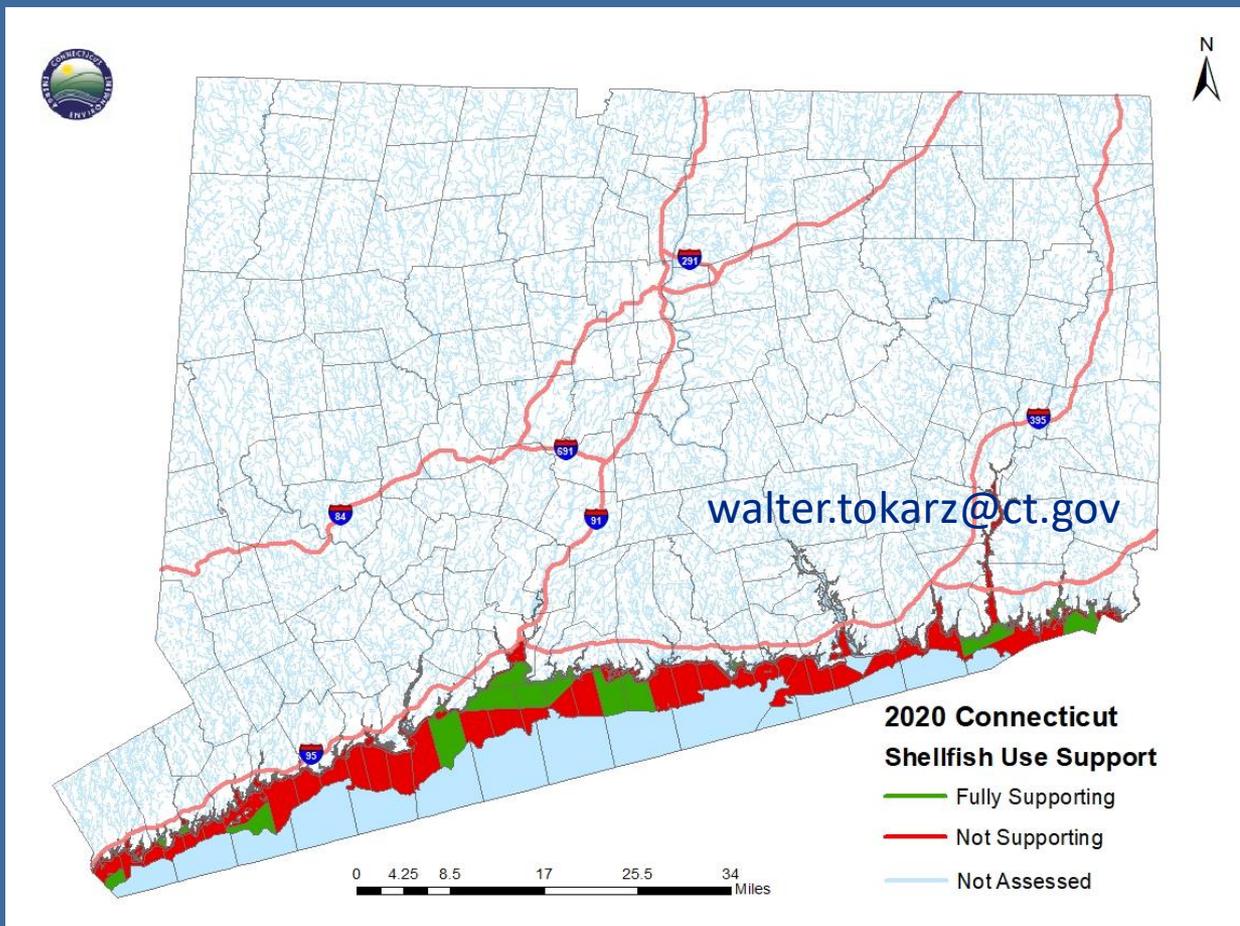
Aquatic Life Assessment



Recreation Assessment



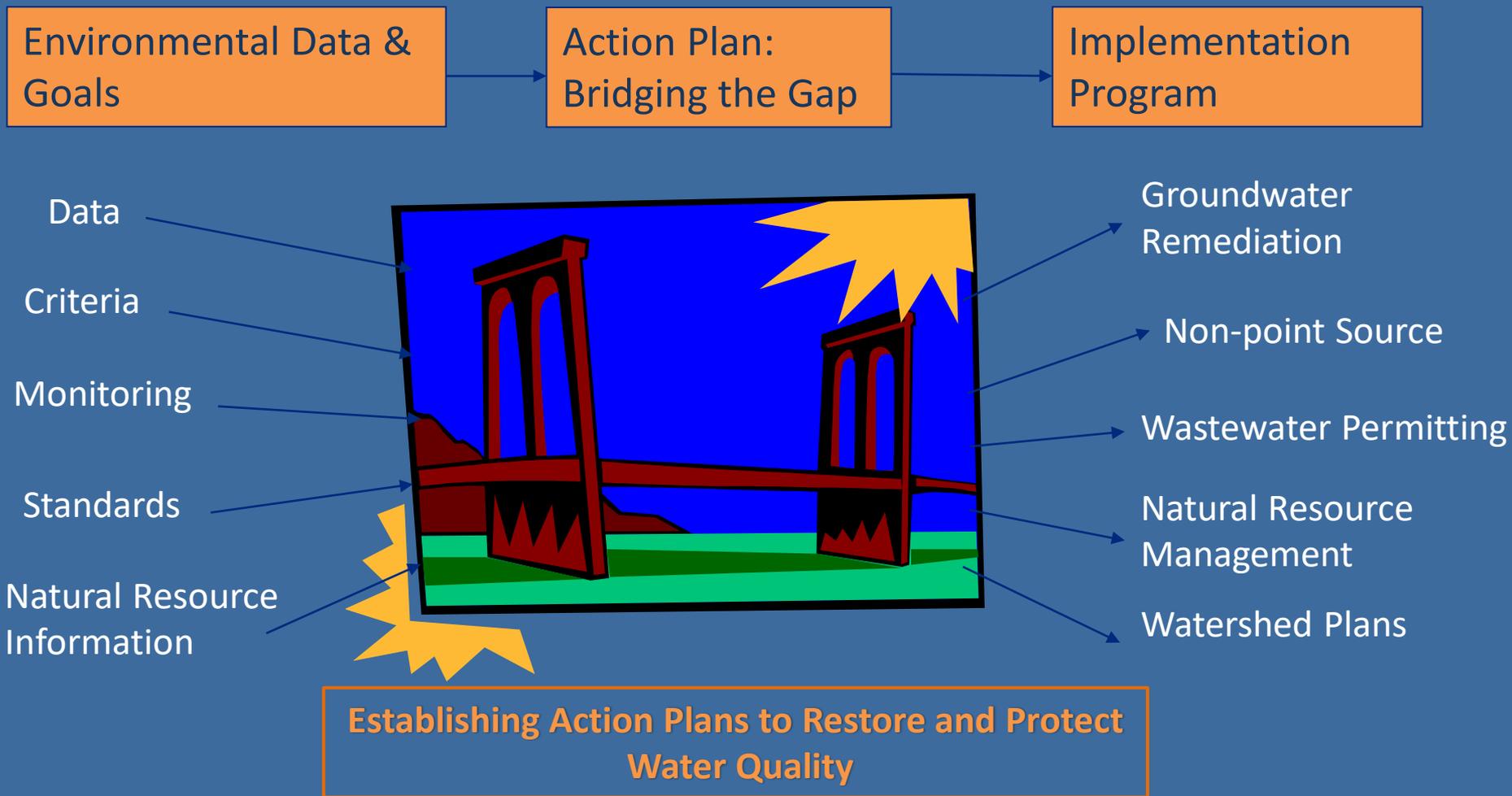
Shellfish Assessment



IWQR Framework



What is The Role Of WQ Plans?



Water Quality Planning

- Waterbodies are selected for plan development based on
 - Assessment information
 - Feedback from public
 - Federal requirements
 - Stakeholder Involvement



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WQ Priorities Based on Public Comment

- **Water Quality Priorities**

- Continue work on bacteria impairments and storm water
- Expand focus to include :
 - nutrients, coastal areas & aquatic life/wildlife support
 - Water Quality Restoration & Protection

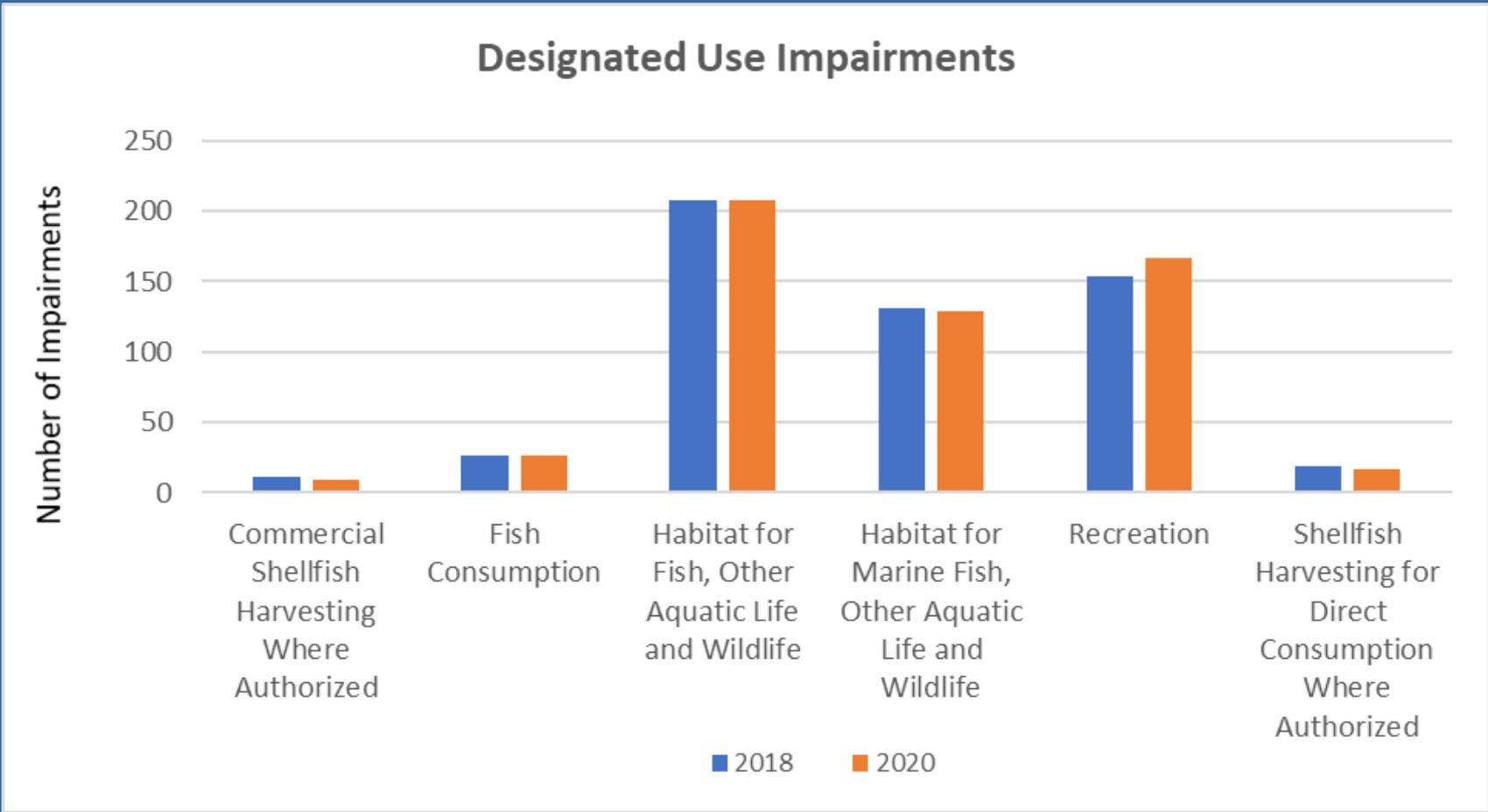


Plan Development and Waterbody Categories

Waterbody Category	Description
1	Water quality supports all uses
2	Water quality supports some but not all uses
3	Insufficient data to evaluate uses
4a	Water quality impaired: TMDL done
4b	Water quality impaired: Other pollution control requirements will restore water quality
4c	Impairment is not caused by a pollutant
5	Water quality is impaired; a plan is needed



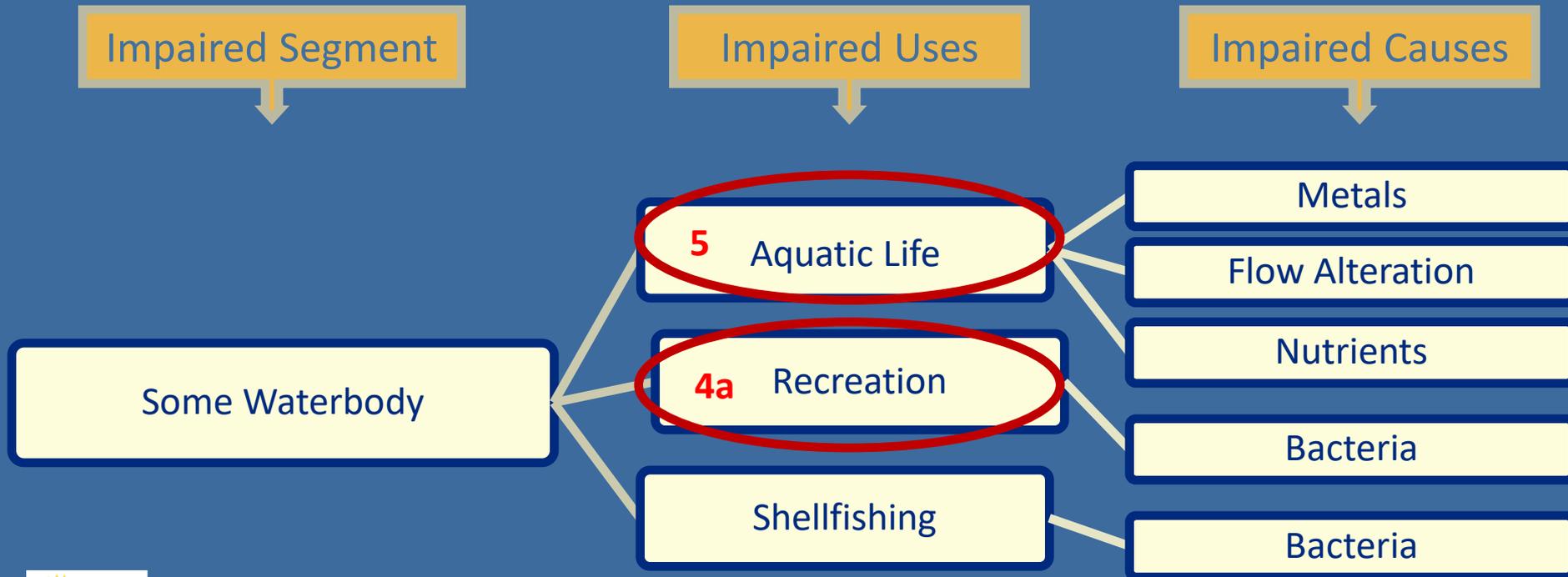
Impaired Waters (Category 5) – “The List” 2020



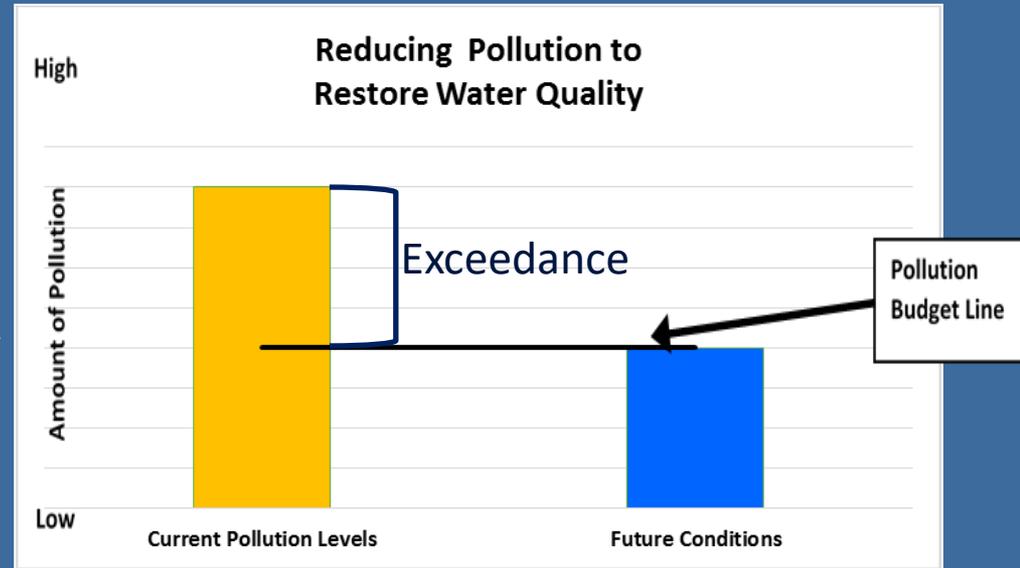
303 (d) Impaired Waters



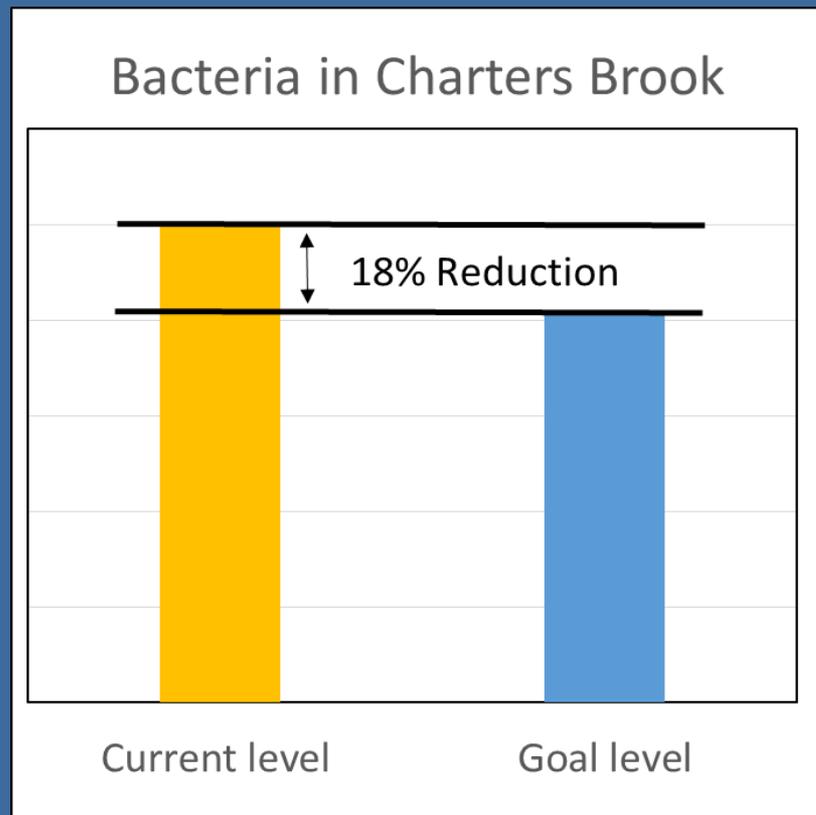
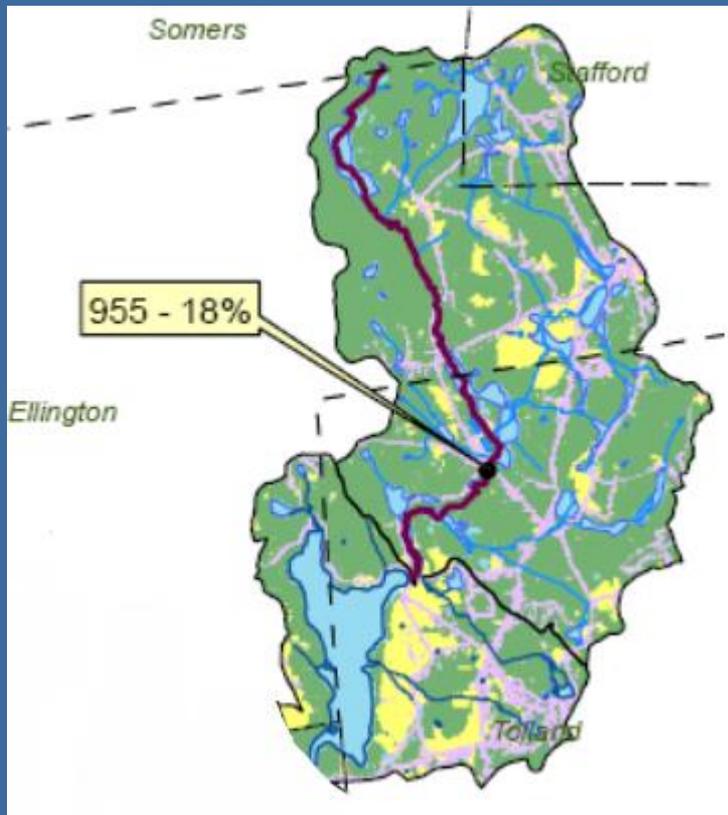
One waterbody can have several impairments for one or more designated use.



Water Quality Plans For Restoration



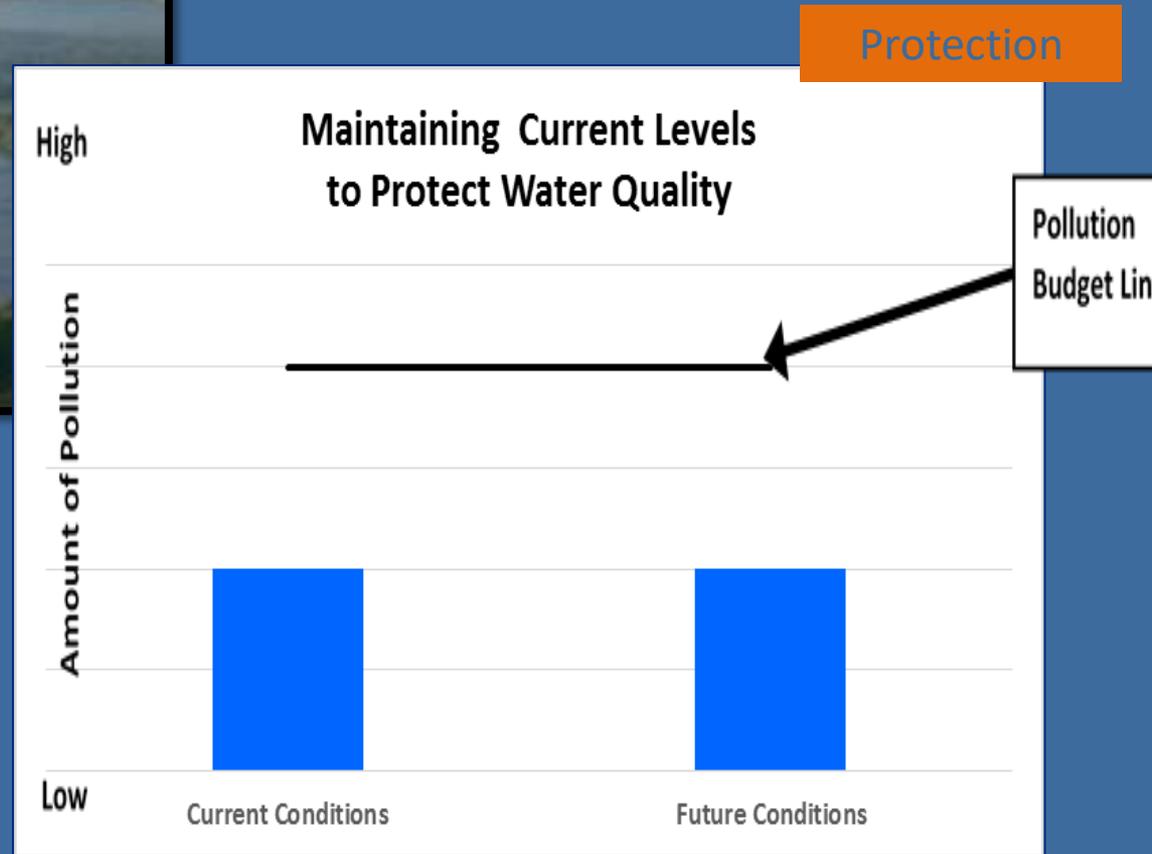
Water Quality Plans For Restoration



Total Maximum Daily Load (TMDL) = Pollution Budget



Water Quality Plans For Protection



Total Maximum Daily Load (TMDL) Category 4a

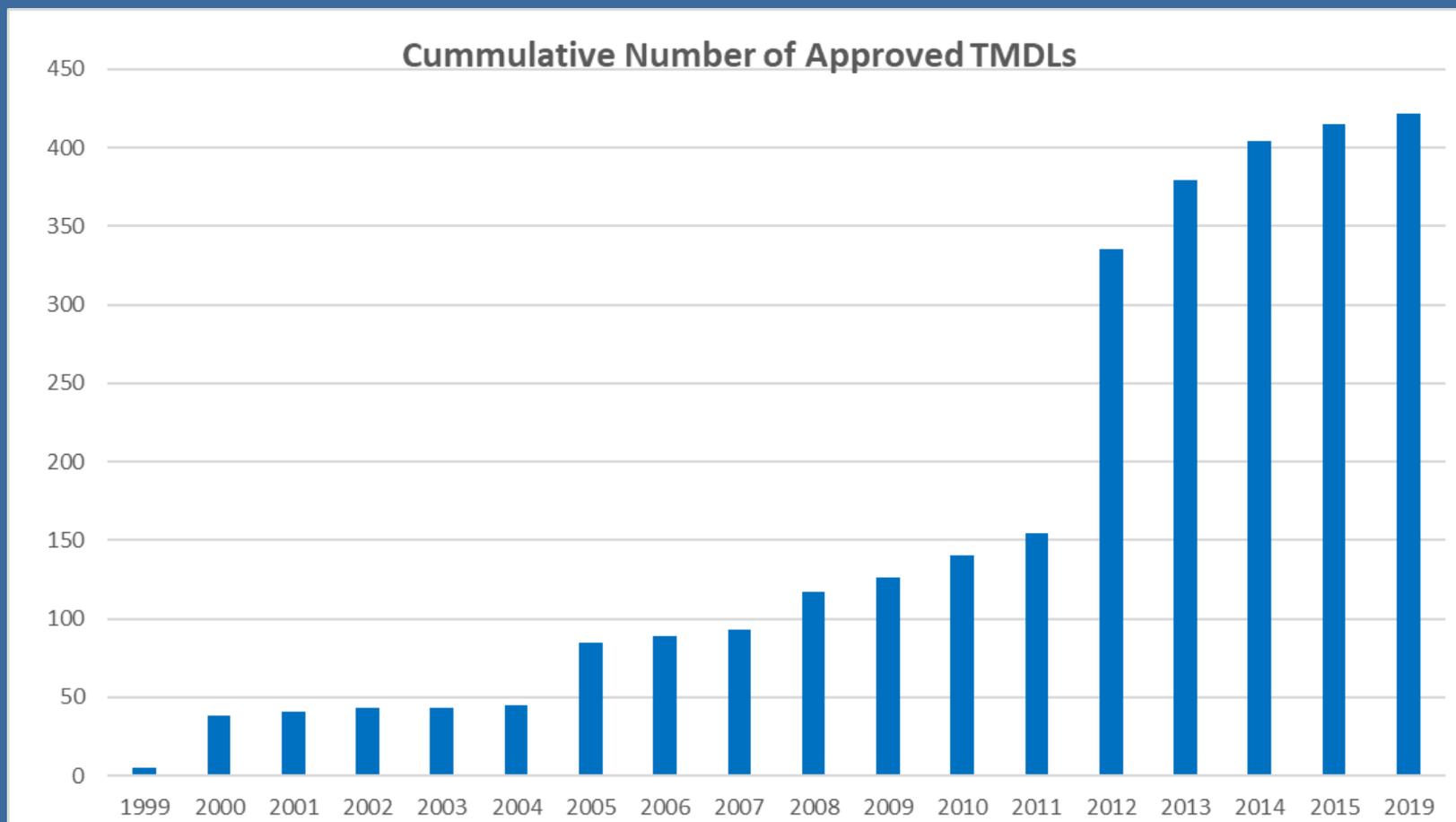
- Establishes the maximum amount of a pollutant that a waterbody can receive without adverse impacts to designated uses (aquatic life use support, recreation, etc)
- **Pollution Budget** = % reduction is derived for the pollutant

$$\text{TMDL} = \text{Point Sources} + \text{Nonpoint Sources} + \text{Background} + \text{Margin of Safety}$$

- Provides guidance for responsible parties to use as a framework for developing an implementation plan to address TMDL allocations



TMDLs Completed (4a)



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Alternative to TMDLs

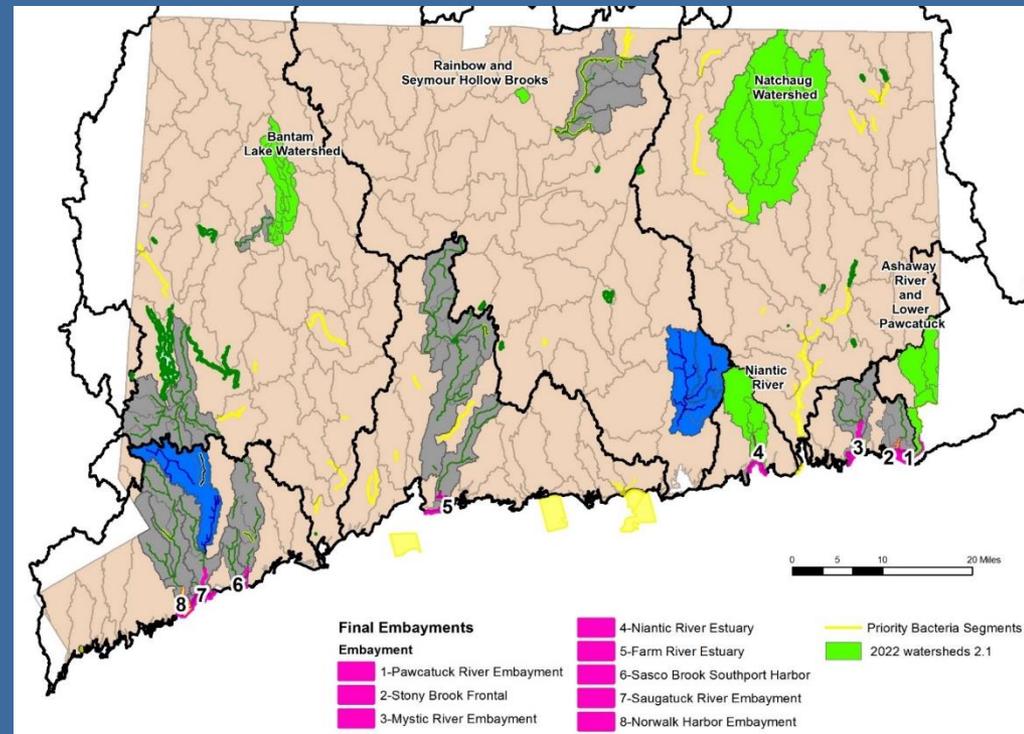
- The Right Tool for the Right Job
- Potential options include:
 - Direct to Implementation
 - TMDL surrogates
 - Cooperative Agreements
 - Trading

- Key Concepts:
 - Adaptive management
 - Flexibility
 - Accountability
 - TMDLs if other options don't work



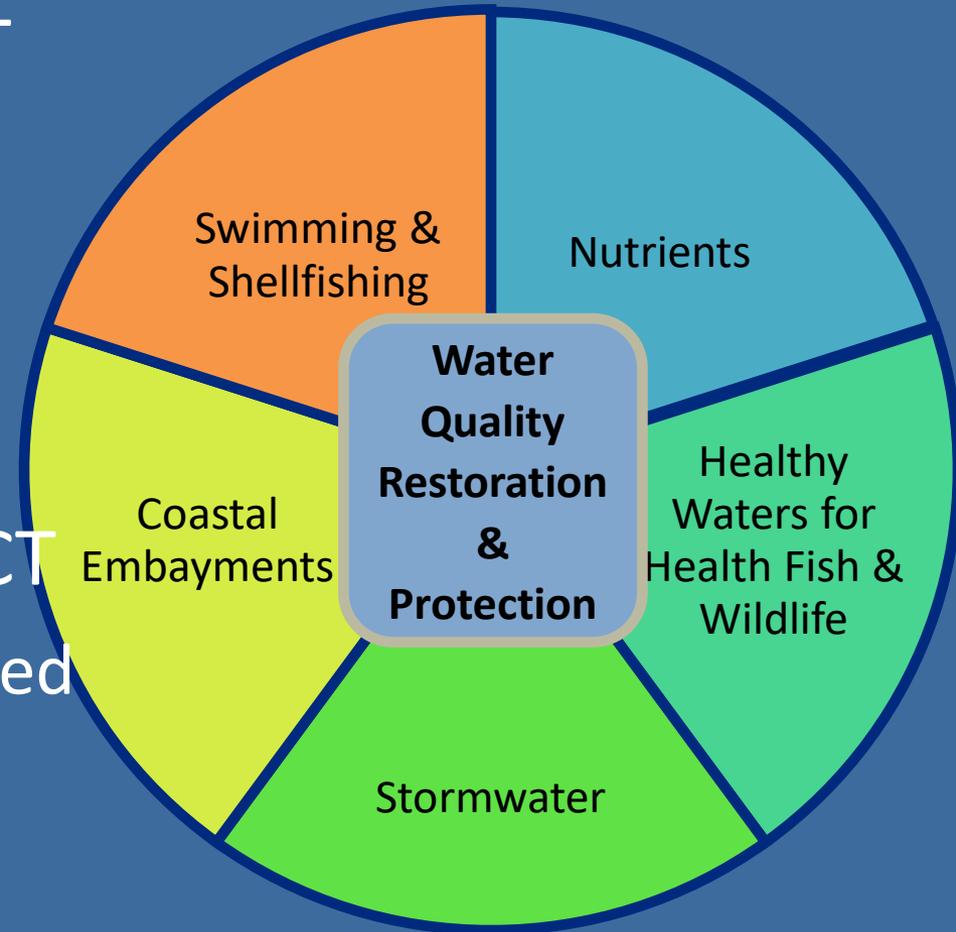
Waters Identified for Plan Development

- Impaired waterbodies that have plans in place (B-2)
- Plans that are currently in progress (C-1)
- Plans that will be developed in the future (C-1)



Water Quality Plans In Progress

- Statewide Nutrient TMDL for Lakes.
 - Bantam
- Coastal Embayments
 - Pawcatuck
- First Protection Plan in CT
 - Natchaug River Watershed
- Bacteria TMDLs
 - Various Waterbodies



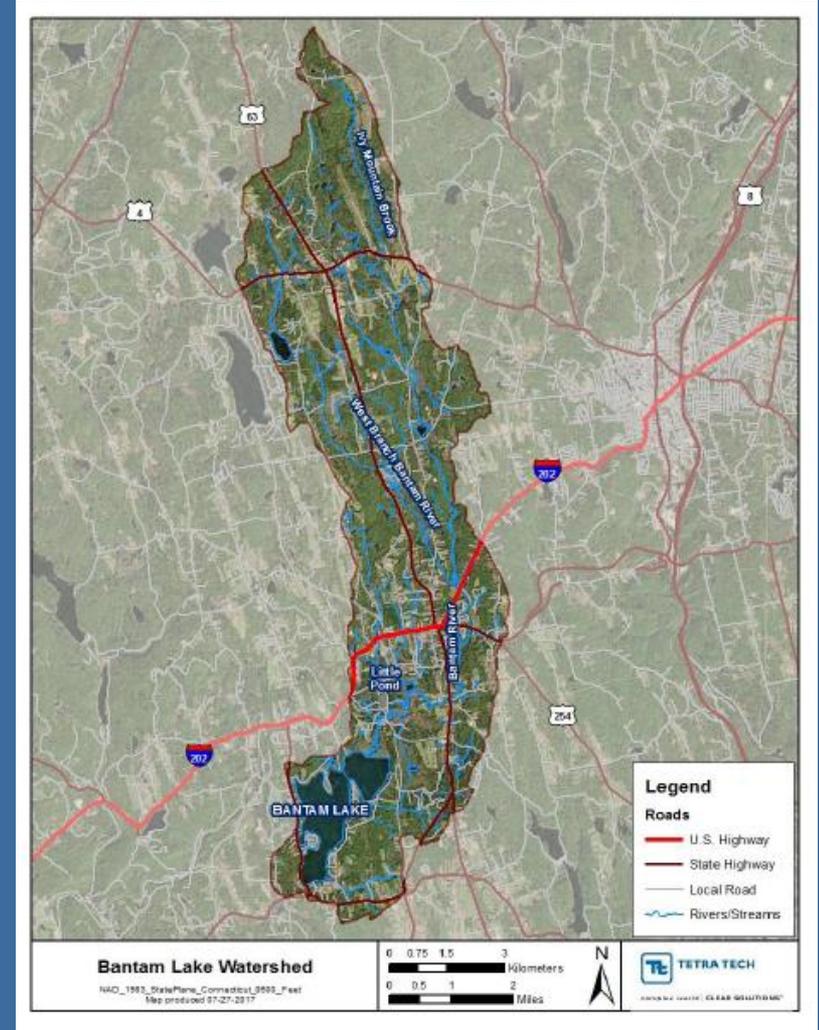
Water Quality Plans In Progress

Statewide Nutrient TMDL for Lakes

Project Partners:

- CTDEEP
- Bantam Lake Protective Association
- White Memorial Conservation Center

Project Supported by a grants from USEPA through the 303d and 319 Programs

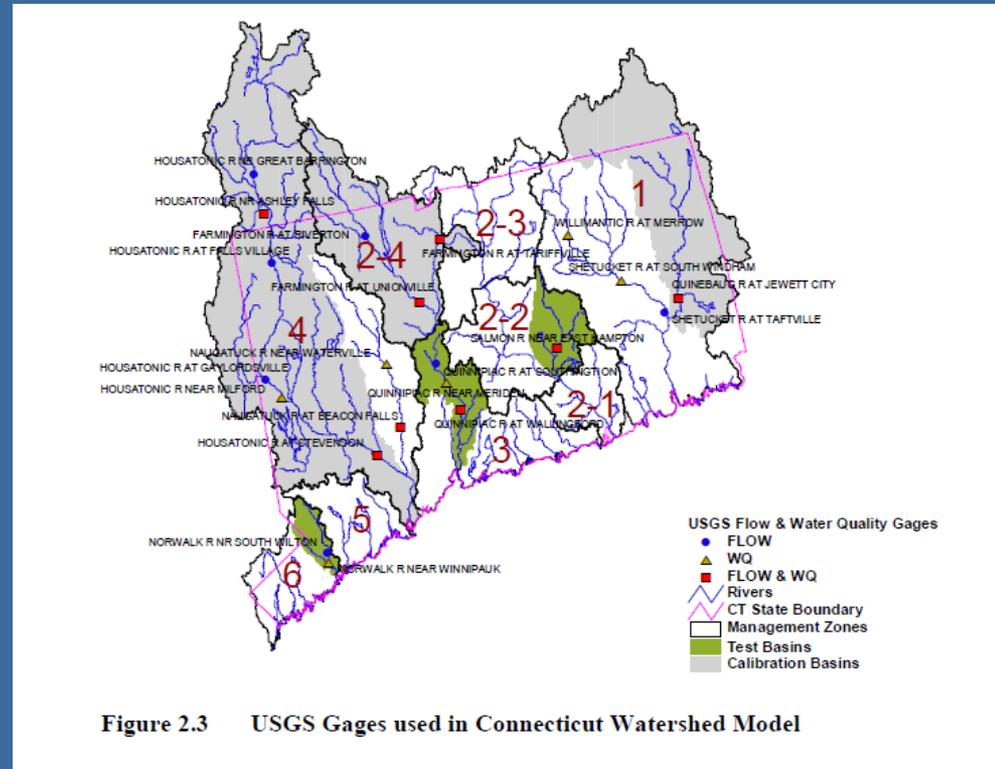


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Water Quality Plans In Progress

Coastal Embayments

- Pawcatuck Project is demonstration project for coastal embayments

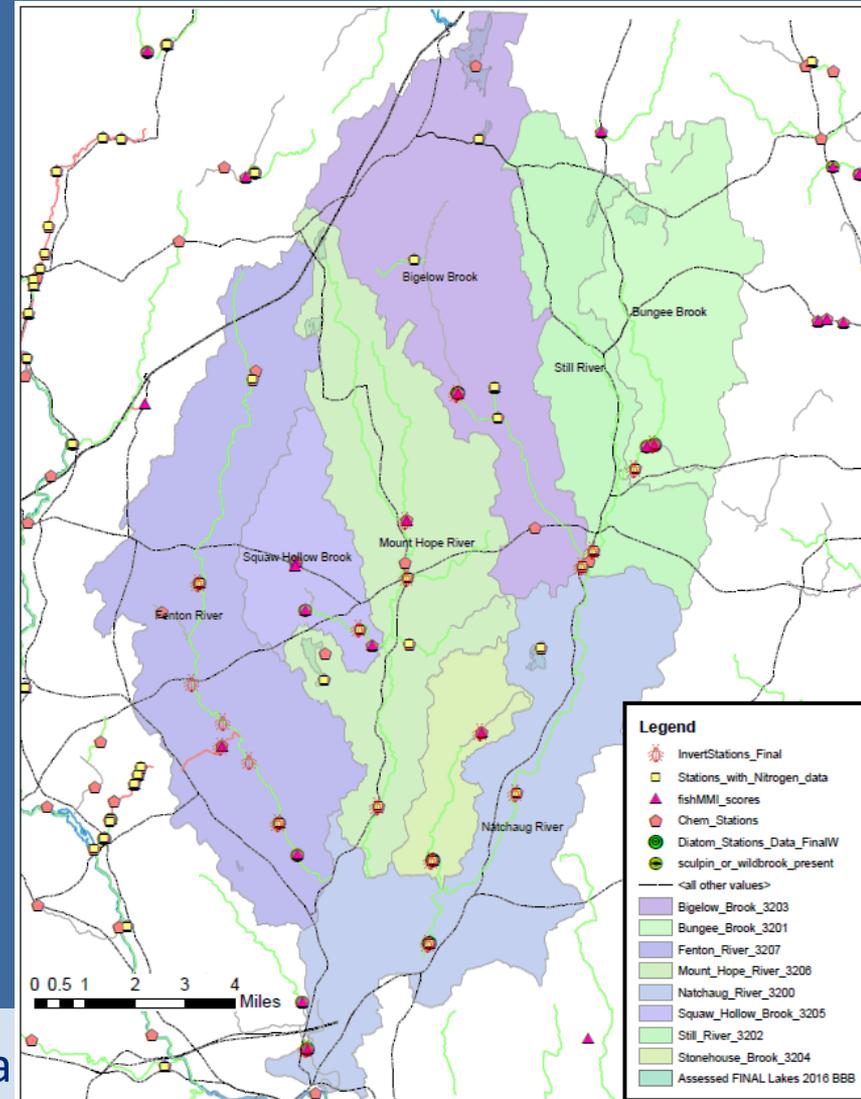


Water Quality Plans In Progress

First Protection Plan in CT

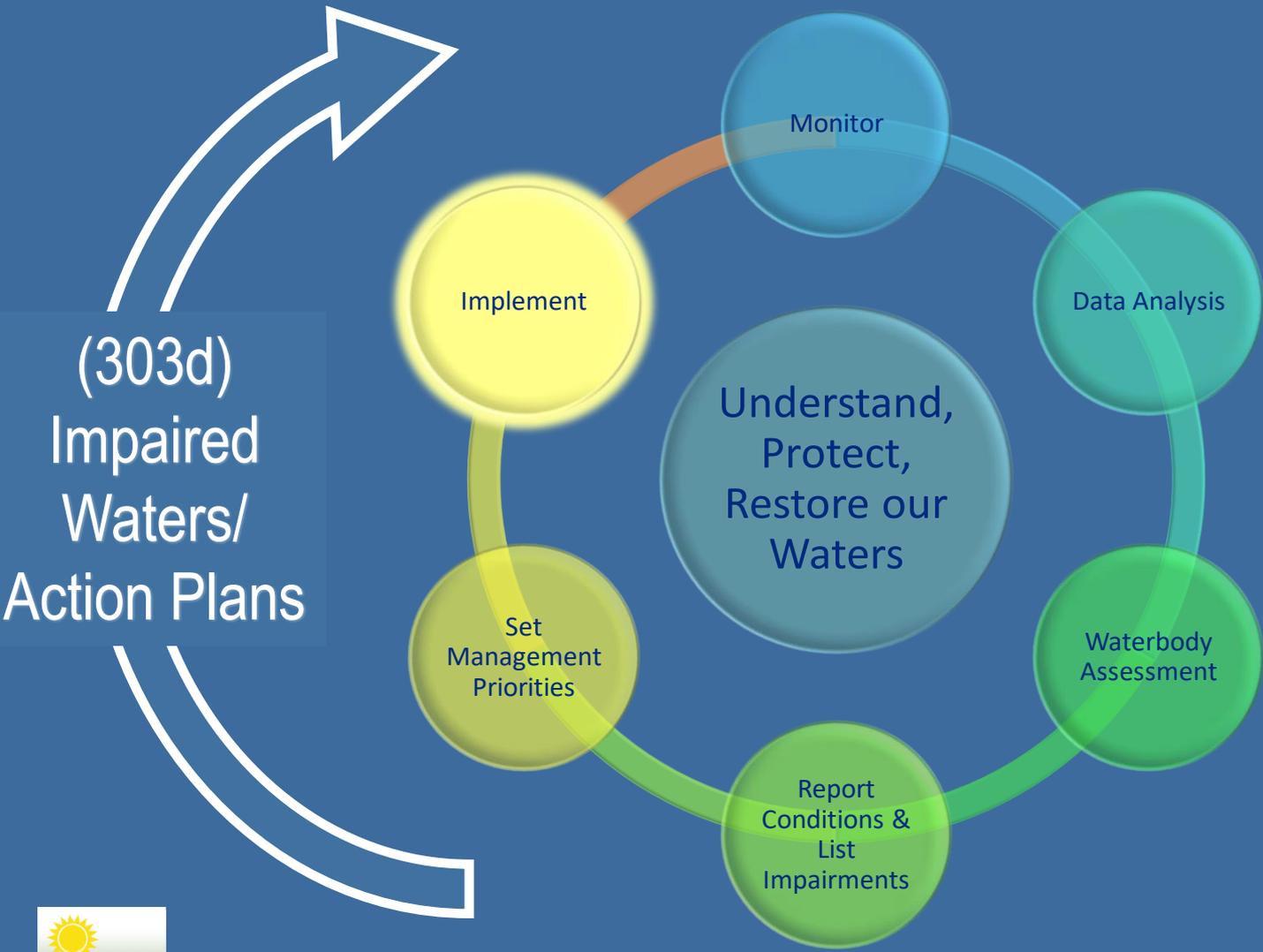
- NPS pollutant focus- land use
- Present WQ data and watershed conditions
- Focus on implementation to protect water quality

Project Supported by a grant from USEPA through the Section 319 NPS Program



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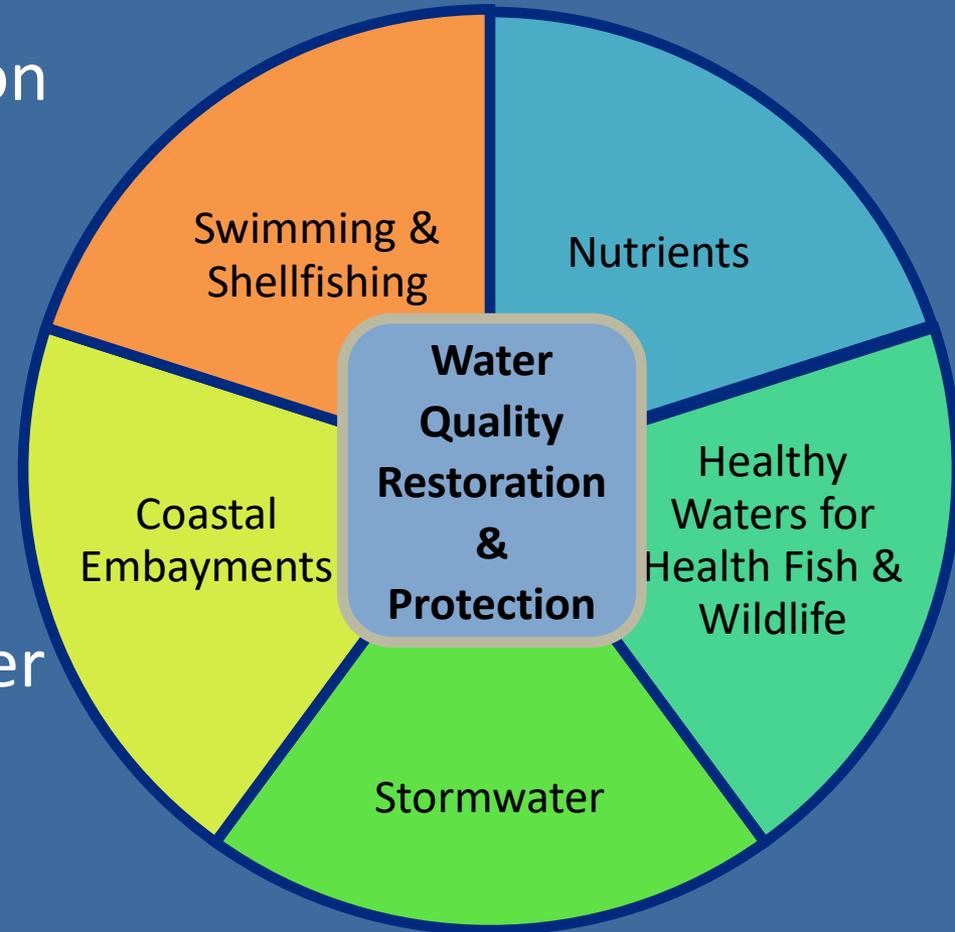
Water Quality Plans In Progress



Water Quality Plans In Progress

TMDL Alternatives

- Focus on implementation activities
- Phosphorus Interim Strategy
- Impervious Cover & Stormwater Permitting
- Remediation of Mill River
- Usually involves a DEEP regulatory program



Alternative Plan Example-Mill River

WARNING

PERTAINING TO THIS SECTION OF MILL RIVER

Sediments & Blue Crabs May Contain Lead

Do Not Use Shoreline:

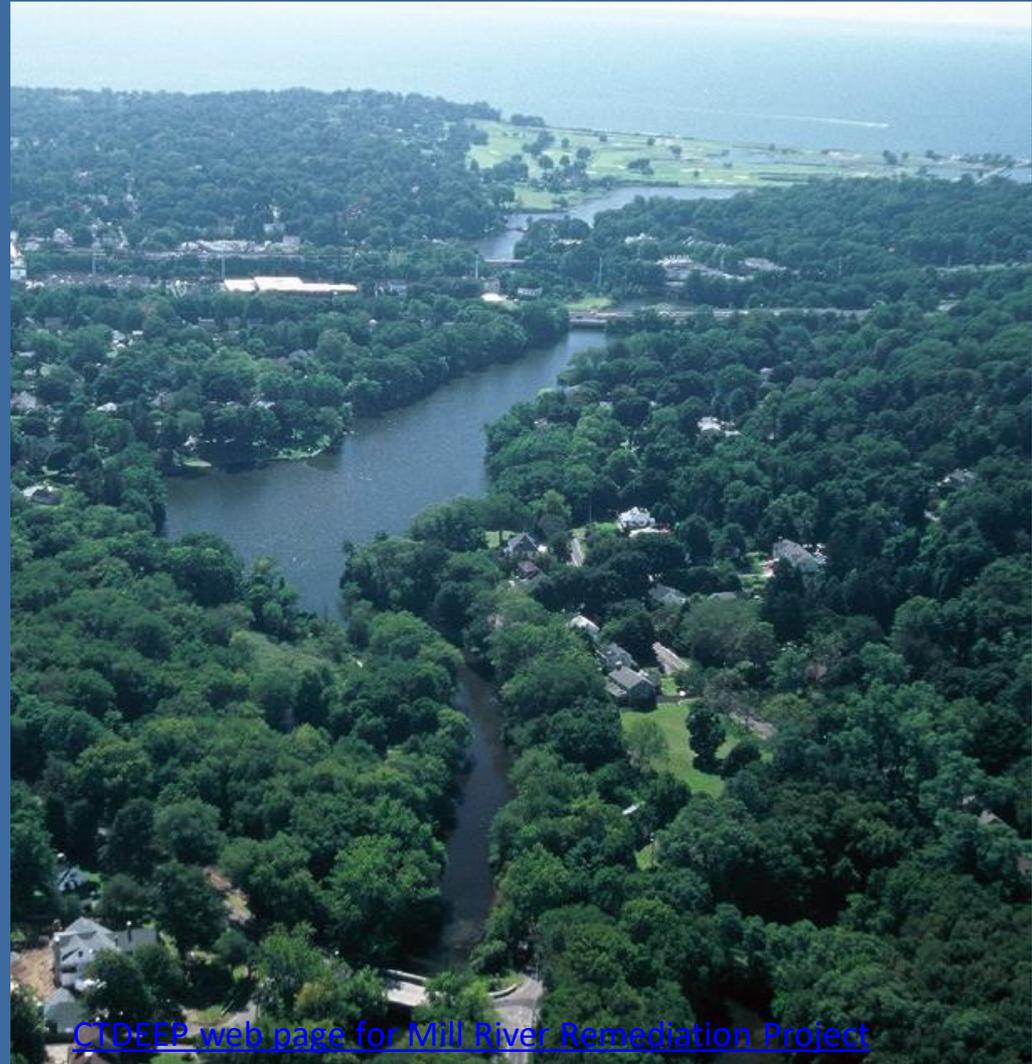
- **No Crabbing**
- **No Wading**
- **No Swimming**
- **Avoid Contact with Sediments**
- **No Powerboats**

These Activities Are Safe

- **Canoeing or Kayaking**
- **Fishing From Boats (finfish are not affected)**
- **Crabbing in Southport Harbor (this area is unaffected by lead)**

For More Information Call:

The Fairfield Health Department: 256-3020



[CTDEEP web page for Mill River Remediation Project](#)



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Future Plans

Paving the Way...

- More Protection Plans
- More Embayments
- More Bacteria TMDLs
- More Alternative Plans



Summary

- Report = 2 year cycle
- DEEP provides updates when information becomes available
- Public Comment Period is open until **June 19,2020**
- Email comments to **rebecca.jascot@ct.gov**
- The full list of TMDLs in Appendix B-2 on the IWQR page
- Current water quality restoration and protection plans are listed in table C-1 on the IWQR web page



Public Comment Opportunity

- Send comments for draft IWQR by **June 19, 2020**
- Comments must be in writing and emailed to **rebecca.jascot@ct.gov**
- Receive email notification for Water Quality Programs
 - Go to **http://www.ct.gov/deep/iwqr**
 - *To subscribe to the Listserv: **imailsrv@list.state.ct.us***



Contact Information

Walter Tokarz

Monitoring Program

860-424-3323

walter.tokarz@ct.gov

Rebecca Jascot

Water Quality Program

860-424-3865

rebecca.jascot@ct.gov

