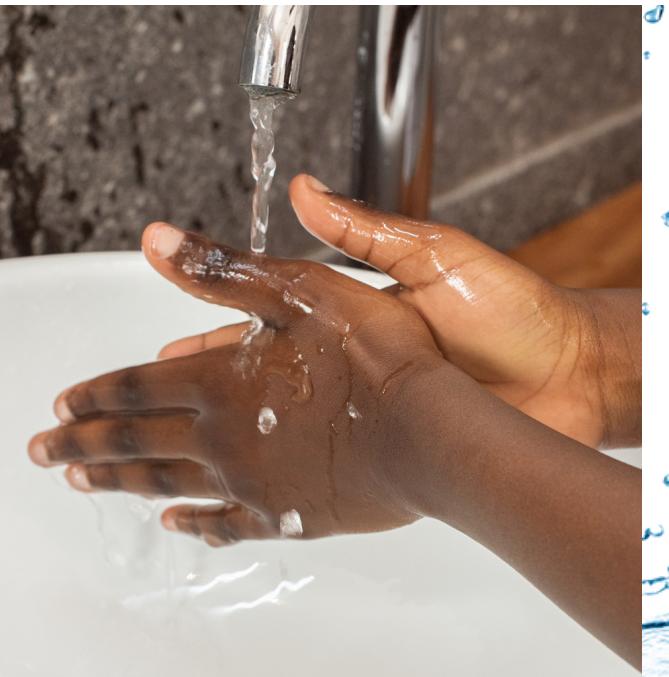
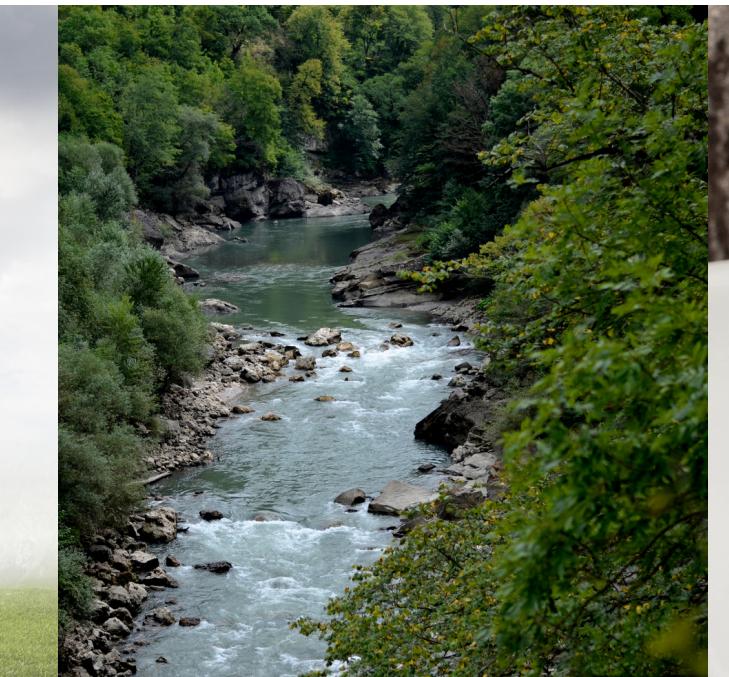




Connecticut Department of Energy and Environmental Protection

Presentation will begin at 10:30 a.m.

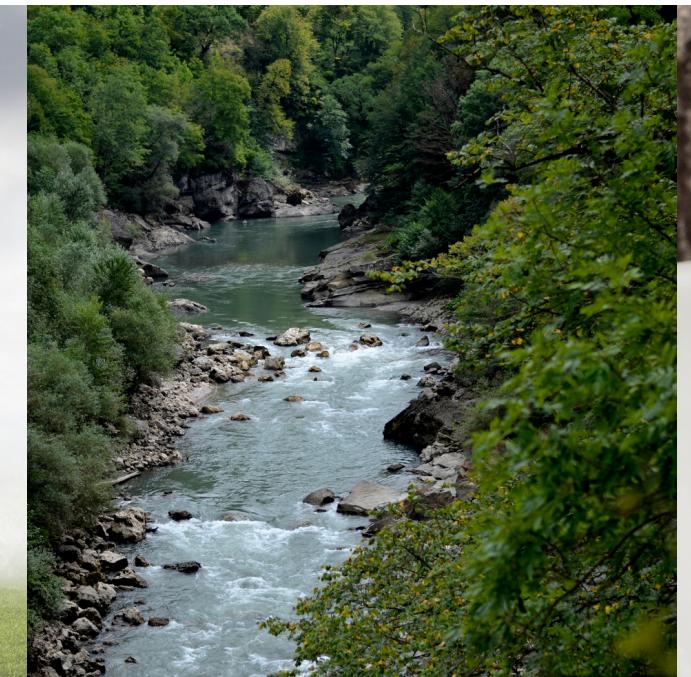




June 15, 2022

Walter Tokarz and Rebecca Jascot

Bureau of Water Protection and Land Reuse



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.



Summary of the Clean Water Act

The Clean Water Act regulates discharges of pollutants into U.S. waters, and controls pollution by means such as wastewater standards for industry, national water quality criteria...

US EPA / Oct 22, 2021

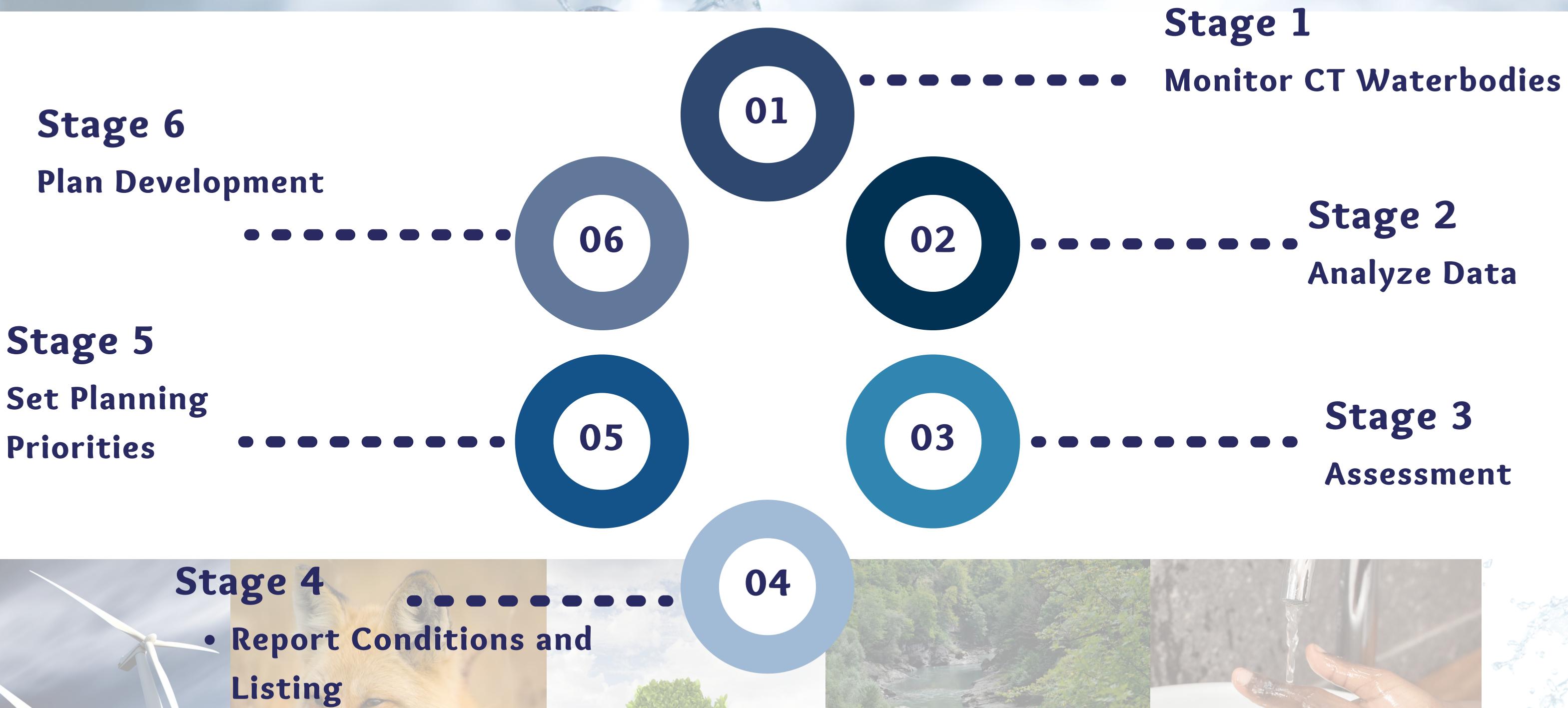
Section 303 (d) = Listing/Impaired Waters/Action Plans

- 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>

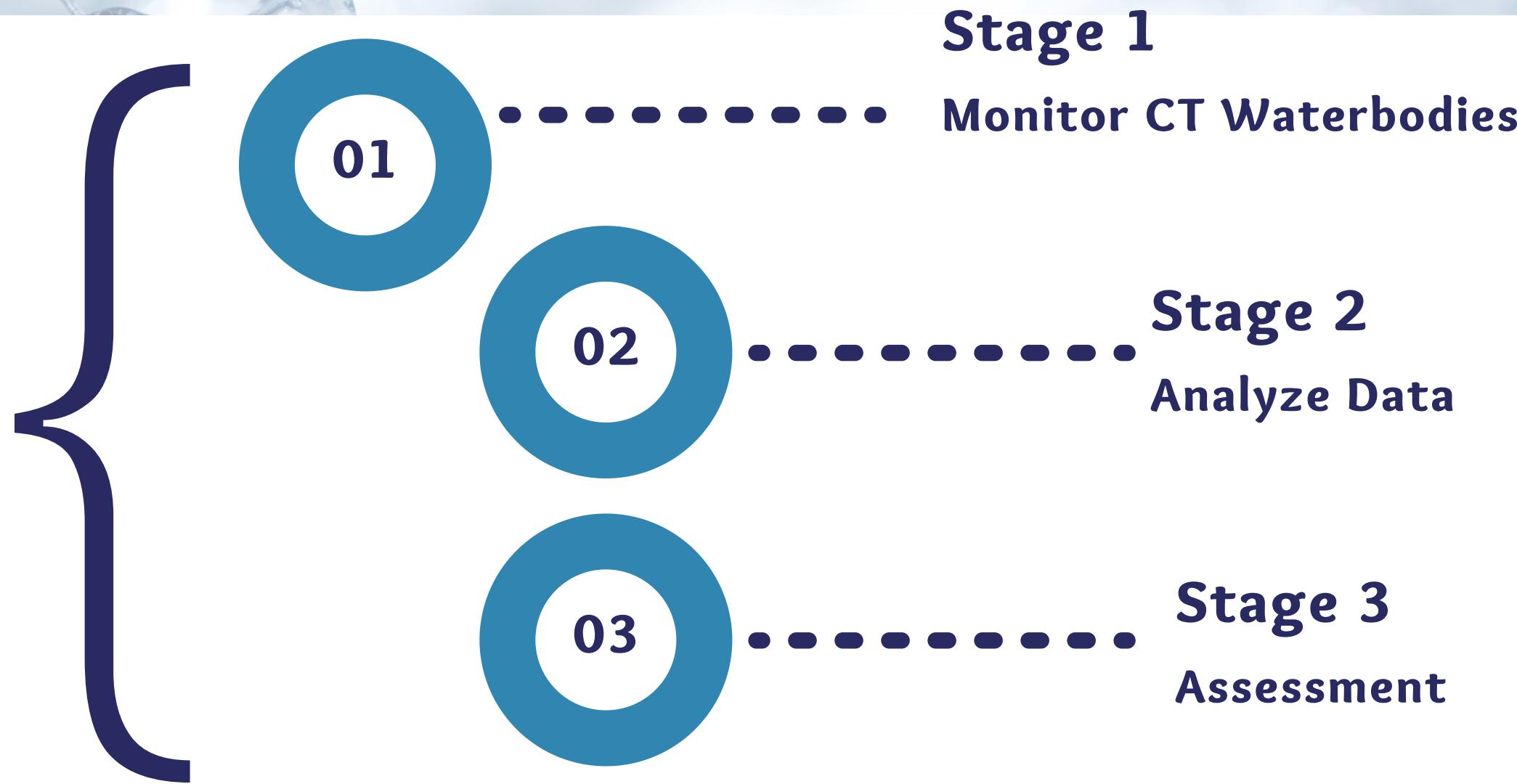


IWQR Framework



IWQR Framework

305 (b)
All Waters



IWQR Framework

Stage 6

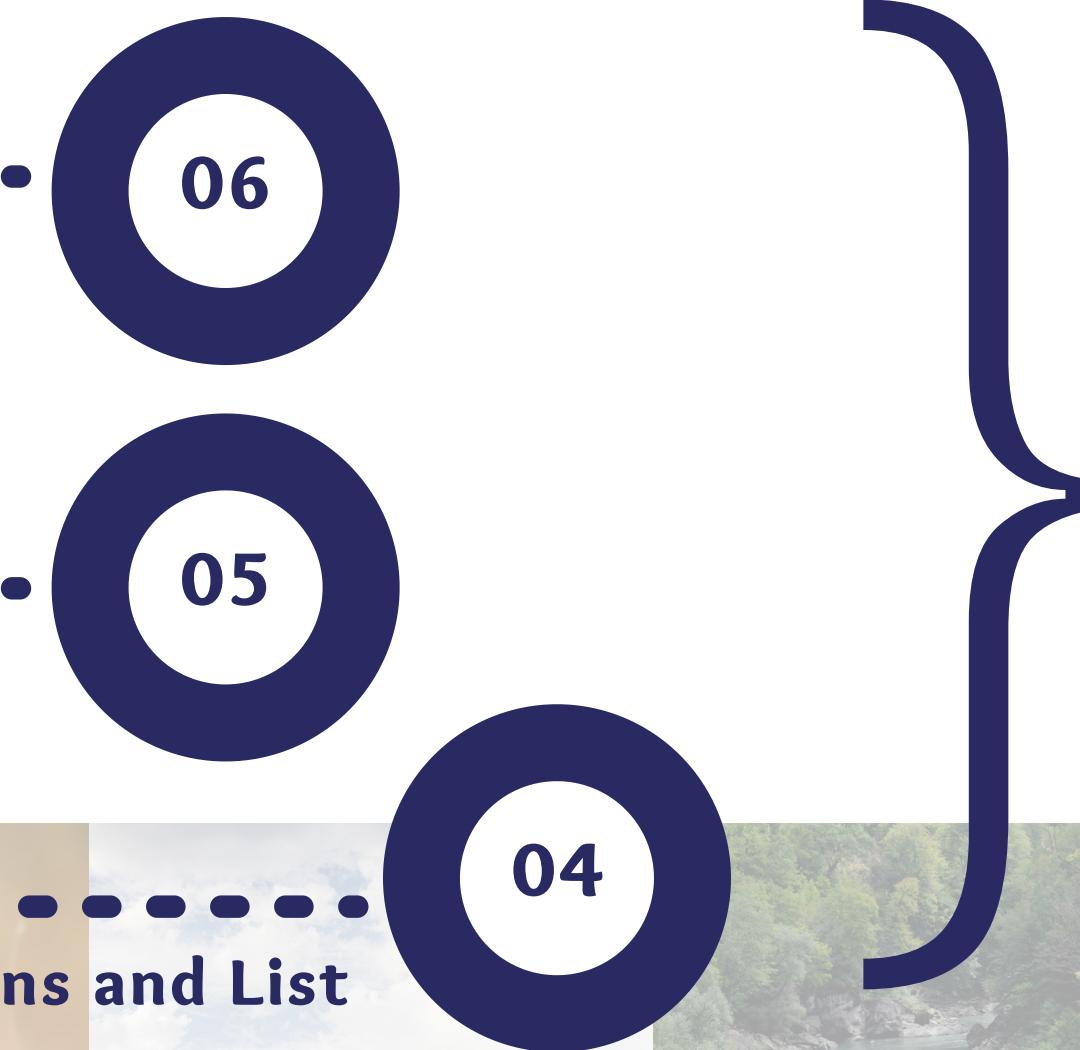
Plan Development

Stage 5

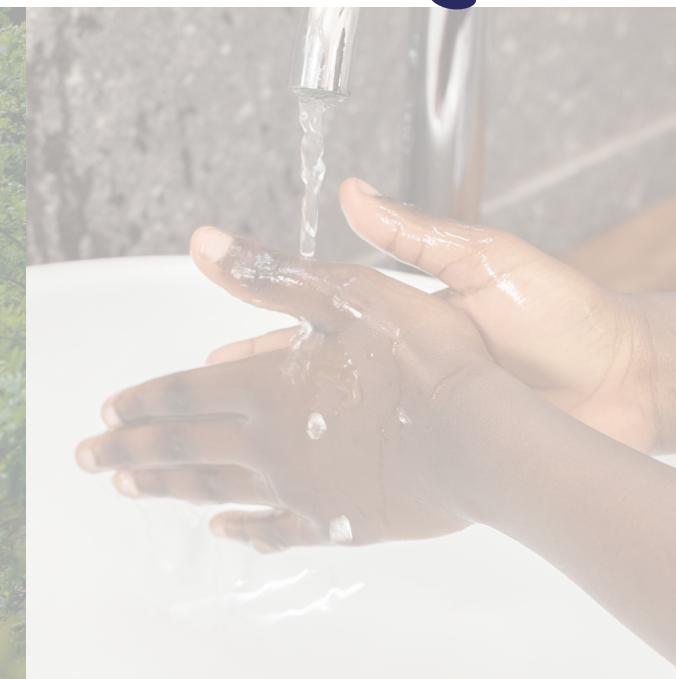
Set Planning Priorities

Stage 4

- Report Conditions and List Impairments

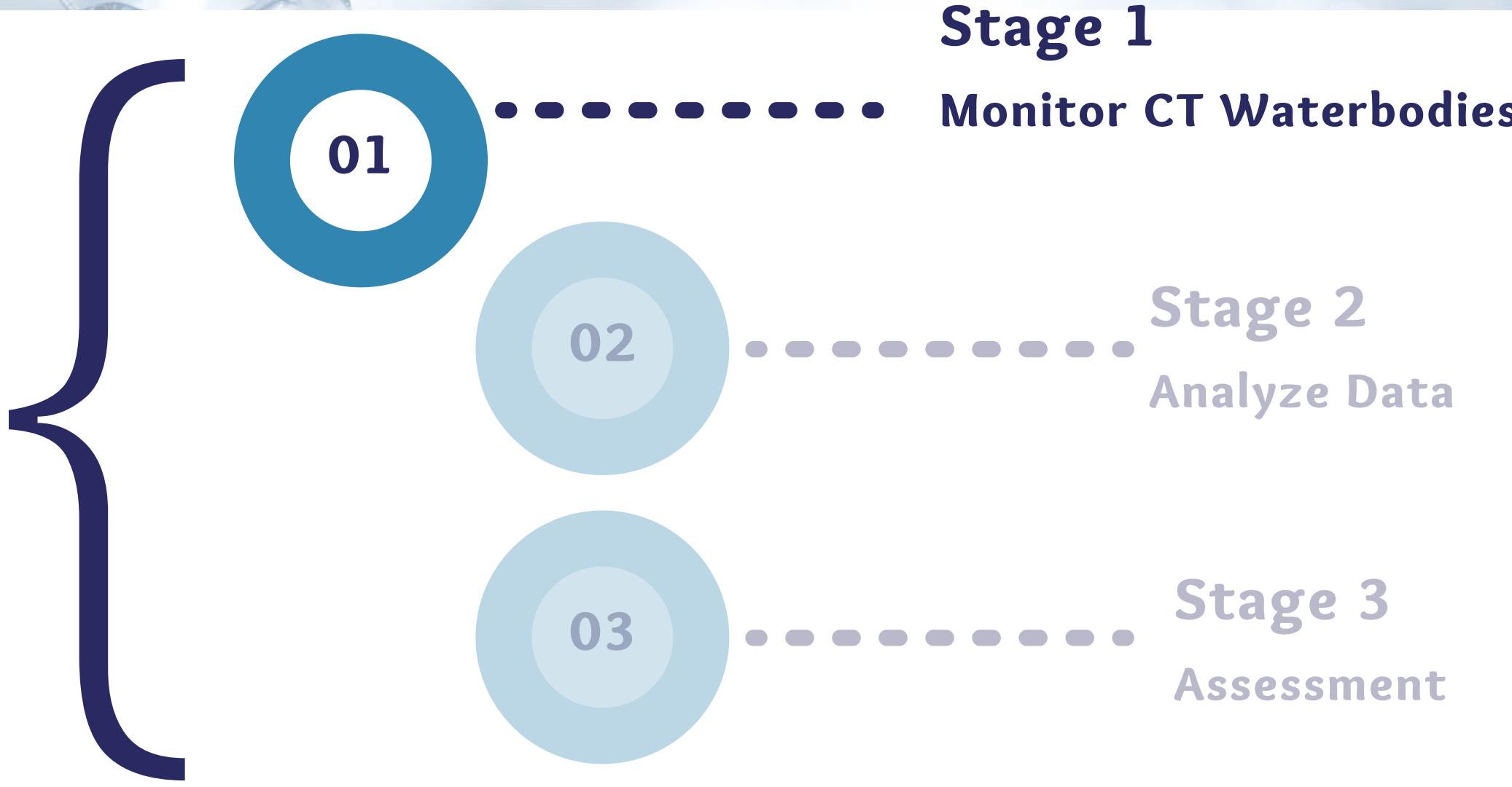


**303 (d)
Action Plans to
Restore and Protect
Water Quality**



IWQR Framework

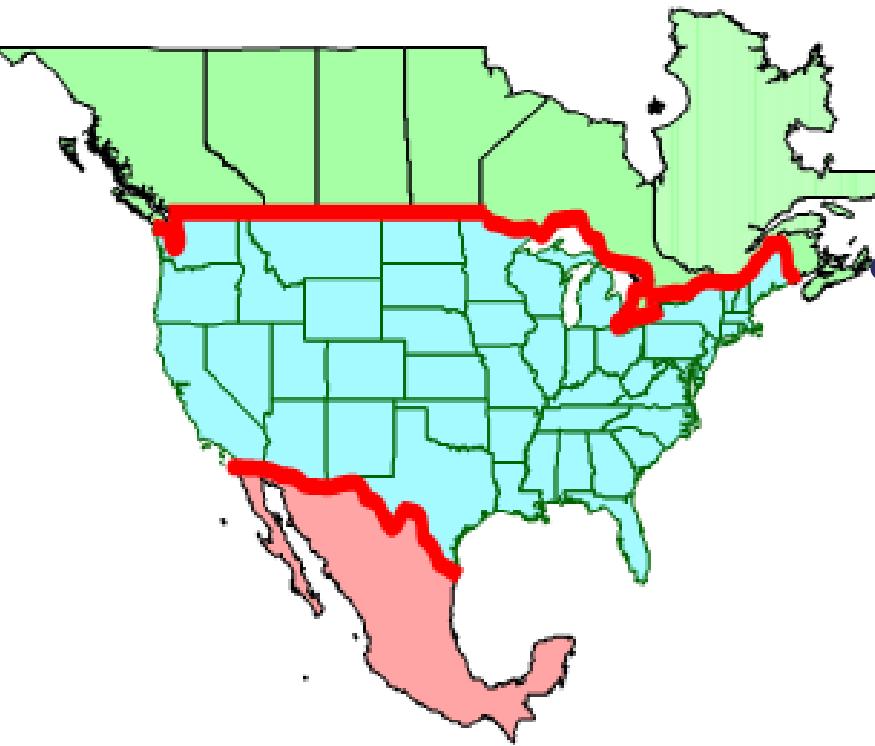
305 (b)
All Waters



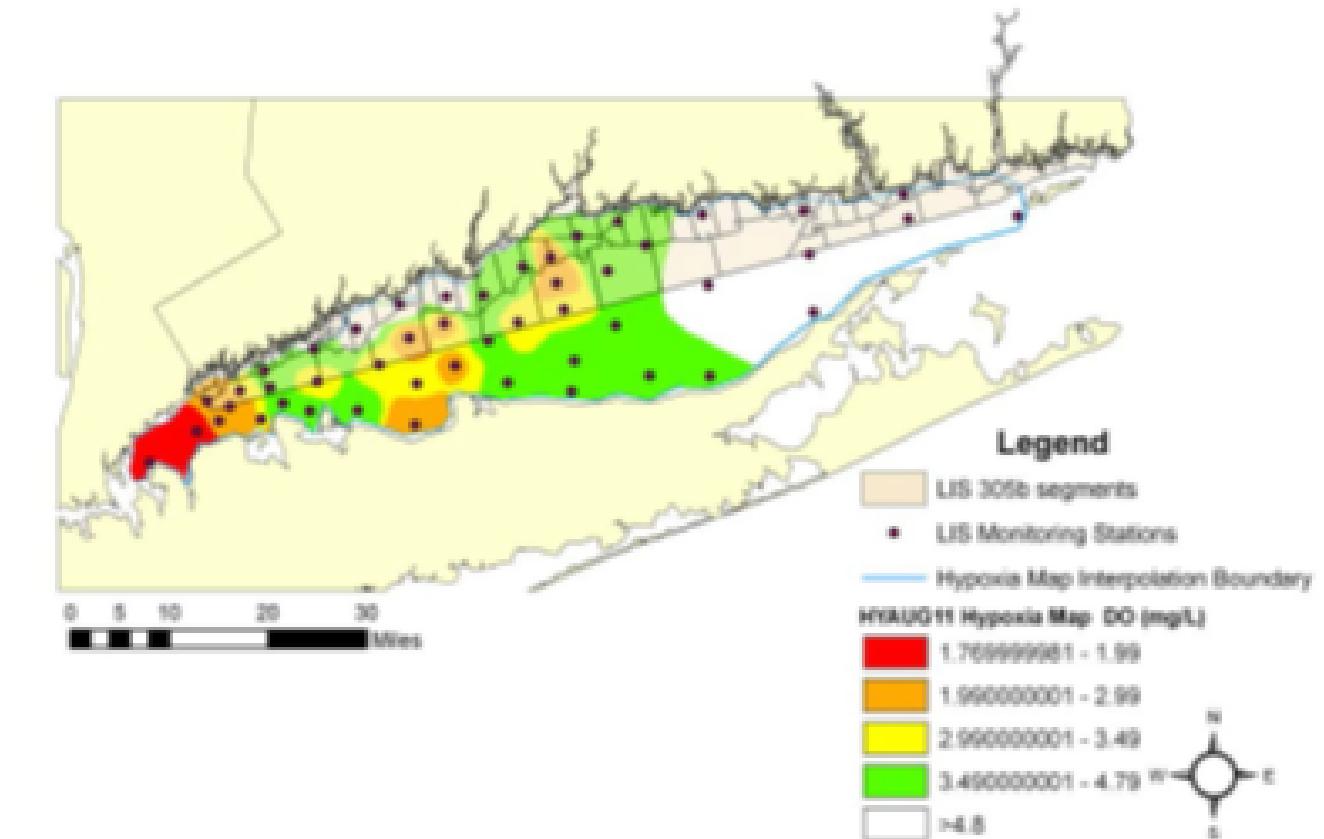


Stage 1~ Monitor Waters of the State

Connecticut's Surface Water Resources



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

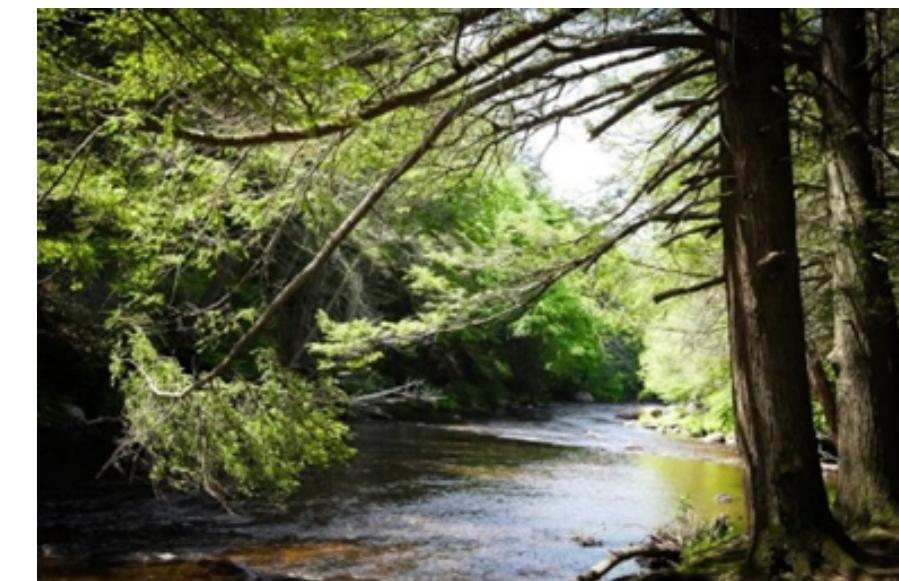


- Estimated 1,320 square miles of Estuary
- Entire Long Island Sound volume = 18 Trillion Gallons



- Estimated 72,509 Acres (3400) Lakes

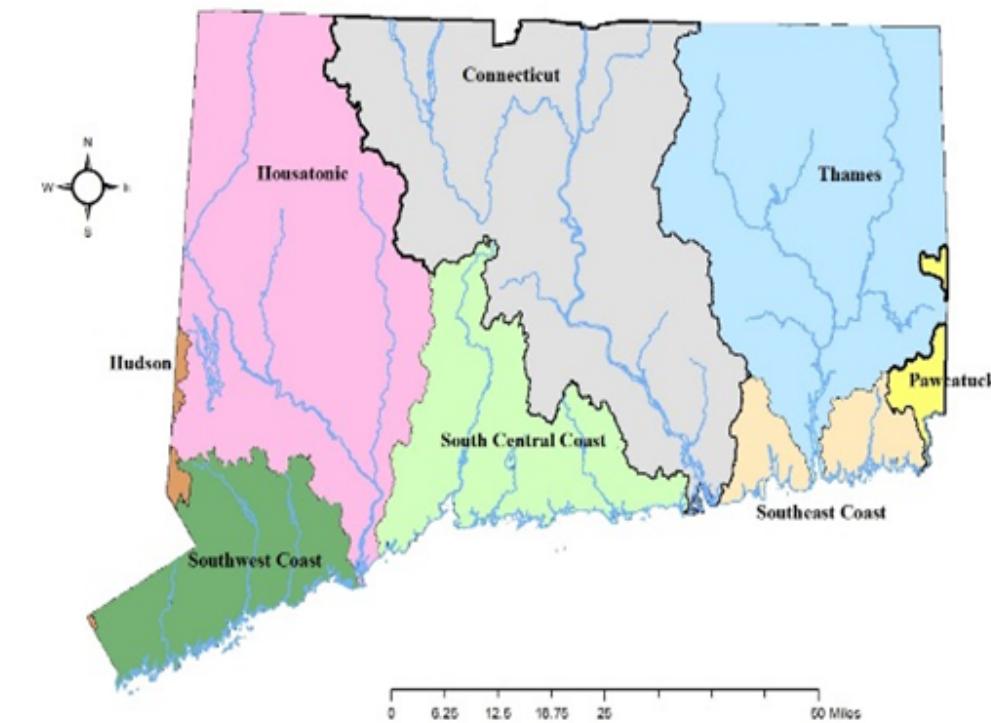
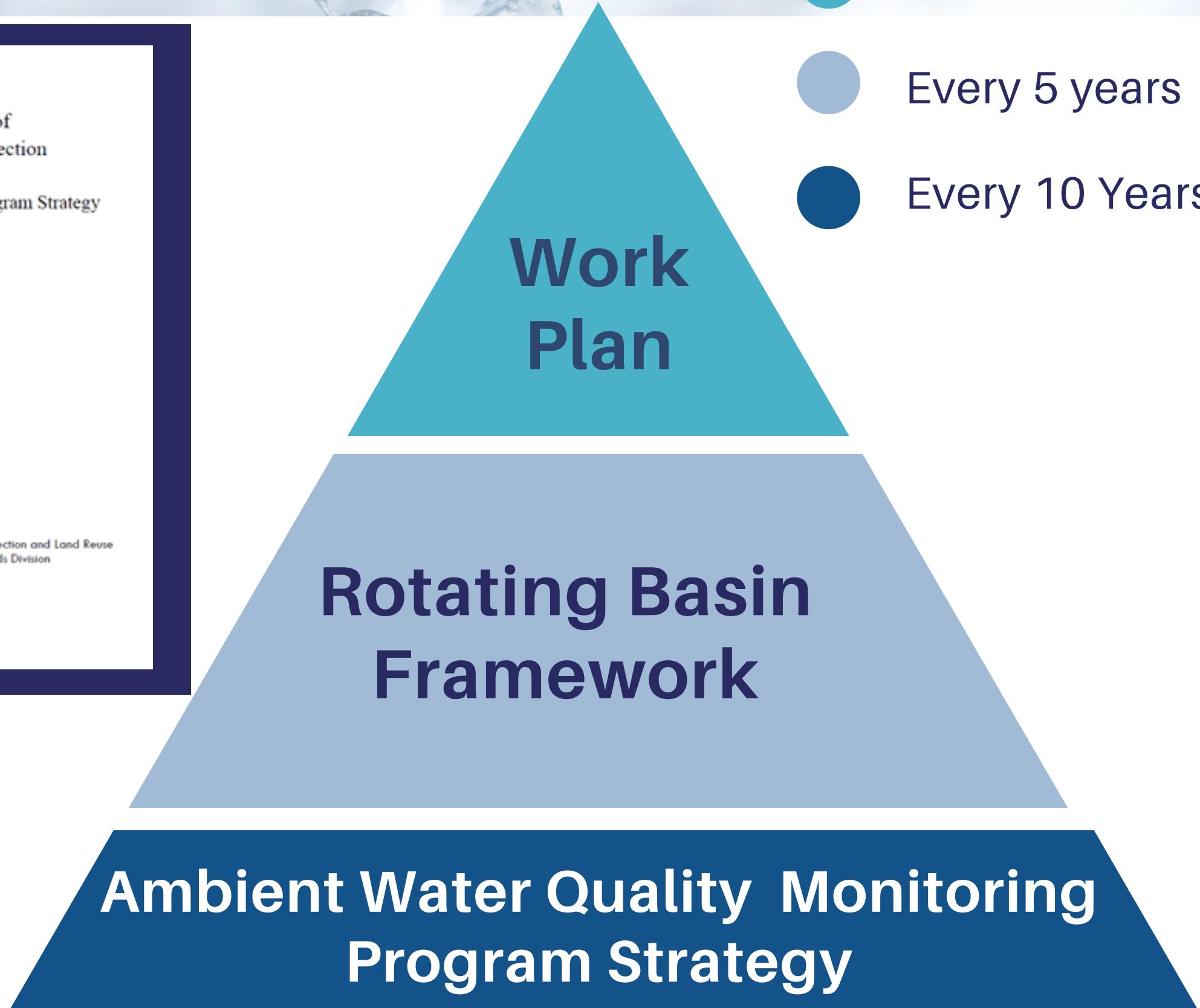
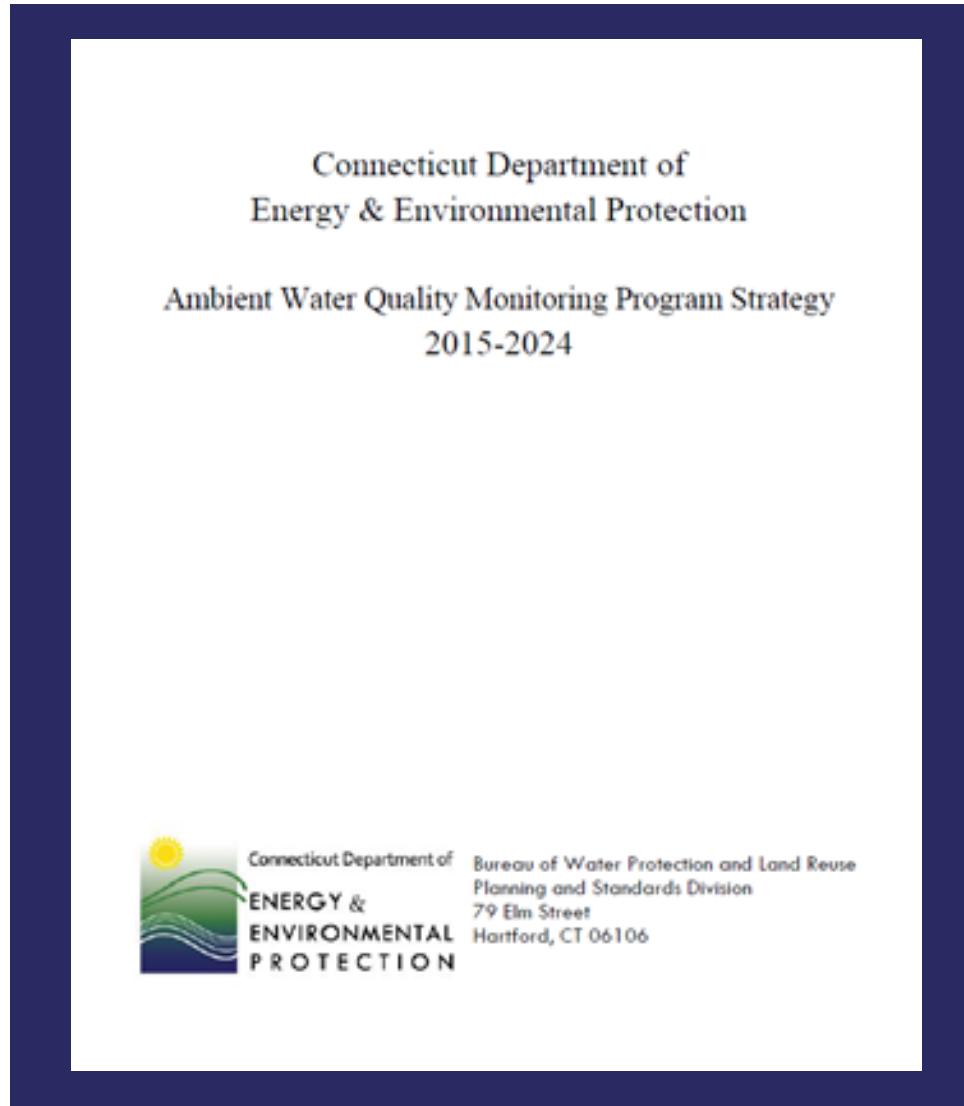
- Estimated 7,772 miles of Rivers





Stage 1~ Monitor Waters of the State

Monitoring Planning



5 year rotation = Statewide



Stage 1~ Monitor Waters of the State

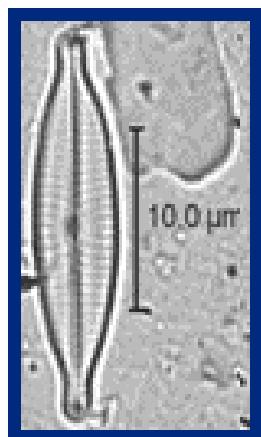
Evaluation for Assessments



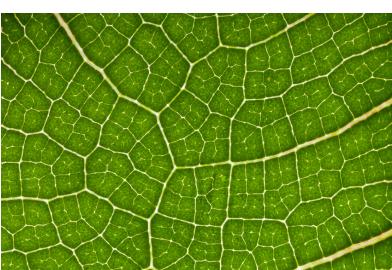
- Benthic macroinvertebrate and fish communities



- Ambient physical / chemical data

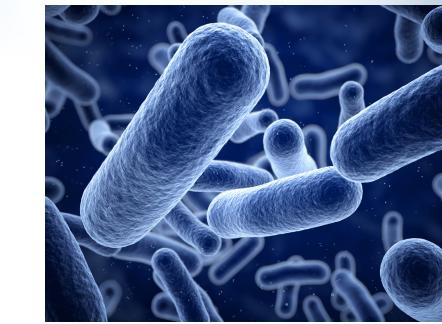


- Periphyton
- Plankton
- Chlorophyll



Other lines of evidence:

- Tissue contaminants
- Effluent analysis
- Knowledge of a pollution source (e.g., CSO)



- Indicator bacteria



- Beach closures/ Shellfish bed closures



- Ambient physical / chemical data



- Aquatic / sediment / Chemical toxicity

Stage 1~ Monitor Waters of the State

Sources of Information



- Aquatic Plant Surveys



- CT DEEP Monitoring Program

- Other CT DEEP Programs

- Remediation Division
- Enforcement
- Fisheries Division

- Volunteer Monitoring



- Other State, Federal & Municipal Agencies



Connecticut State
Department of Public Health



U.S. DEPARTMENT OF AGRICULTURE



- Others

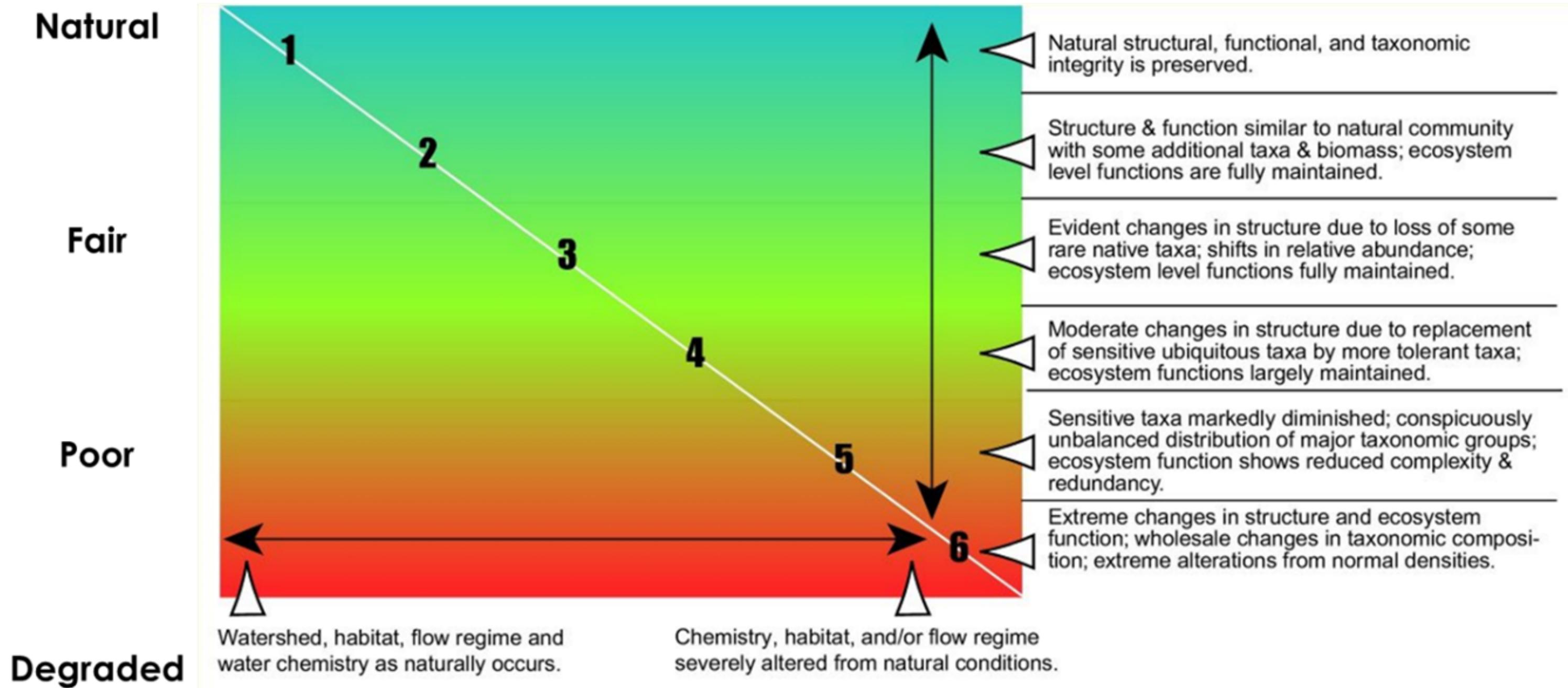
- Utilities, consultants, academia
- Permittee self-monitoring



Stage 1~ Monitor Waters of the State

Biological Condition Gradient

Biological Integrity

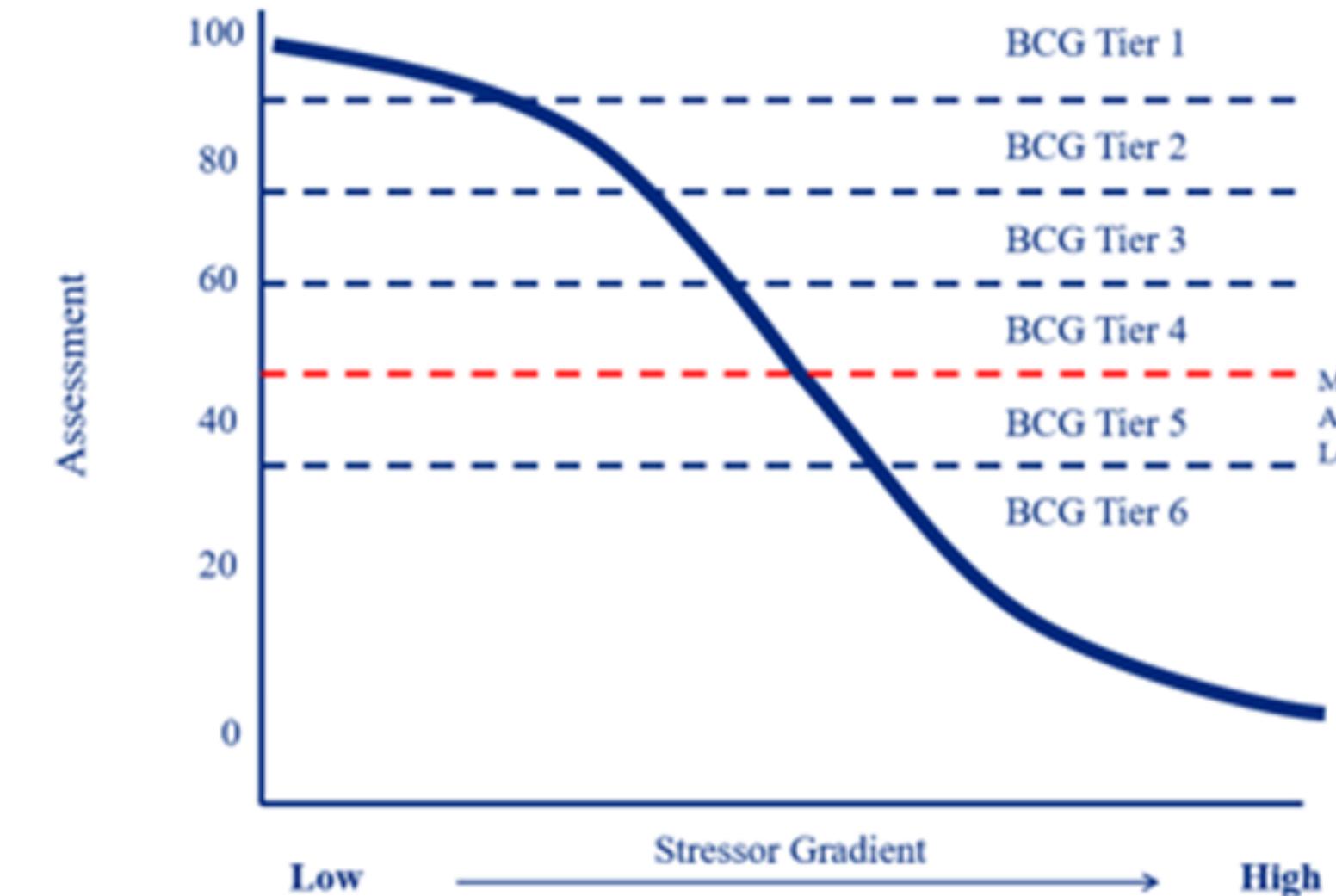
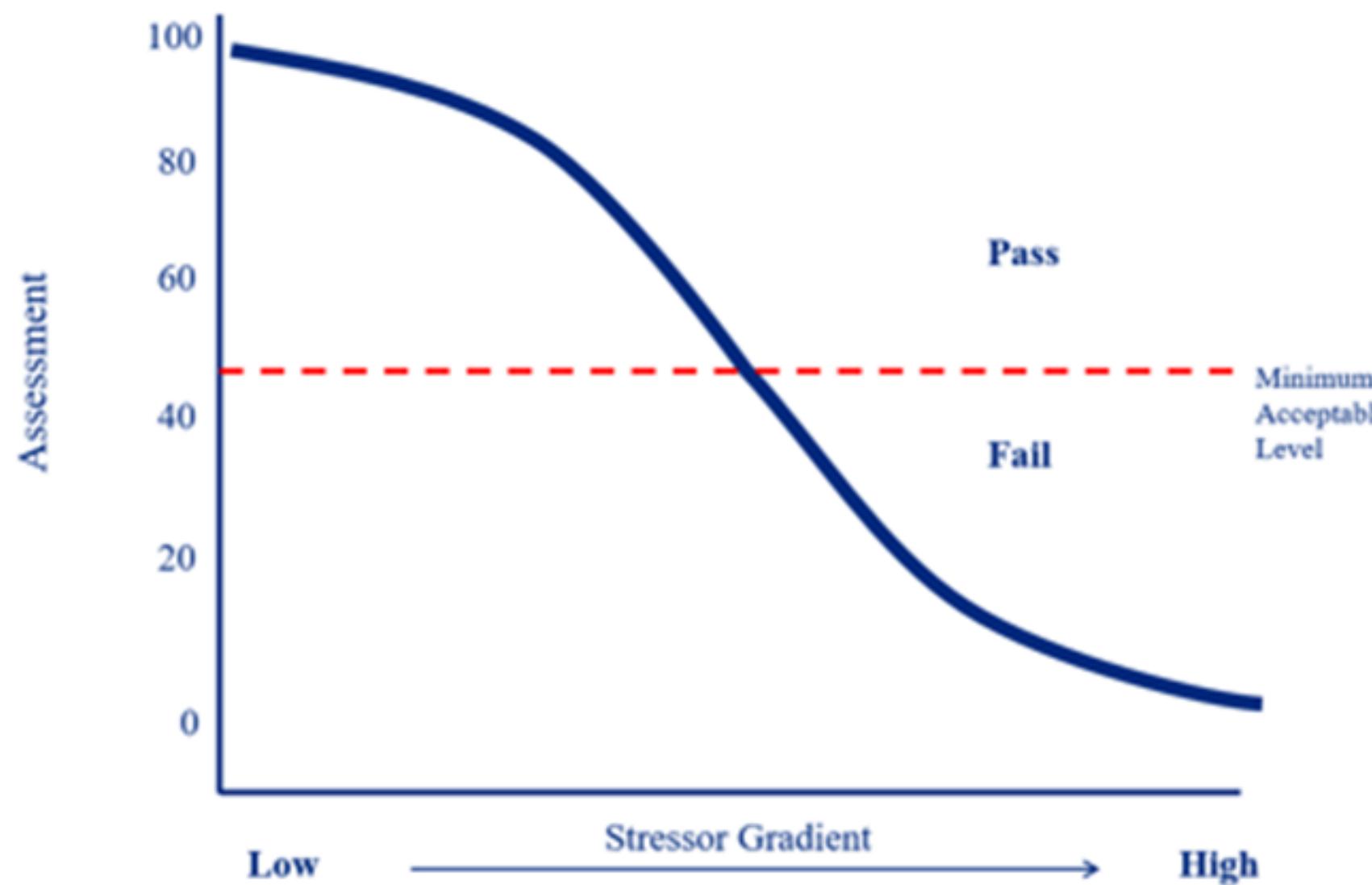


Davies, S.P., and S.K. Jackson, 2006. *Ecological Applications* 16:1251-1266.



Stage 1~ Monitor Waters of the State

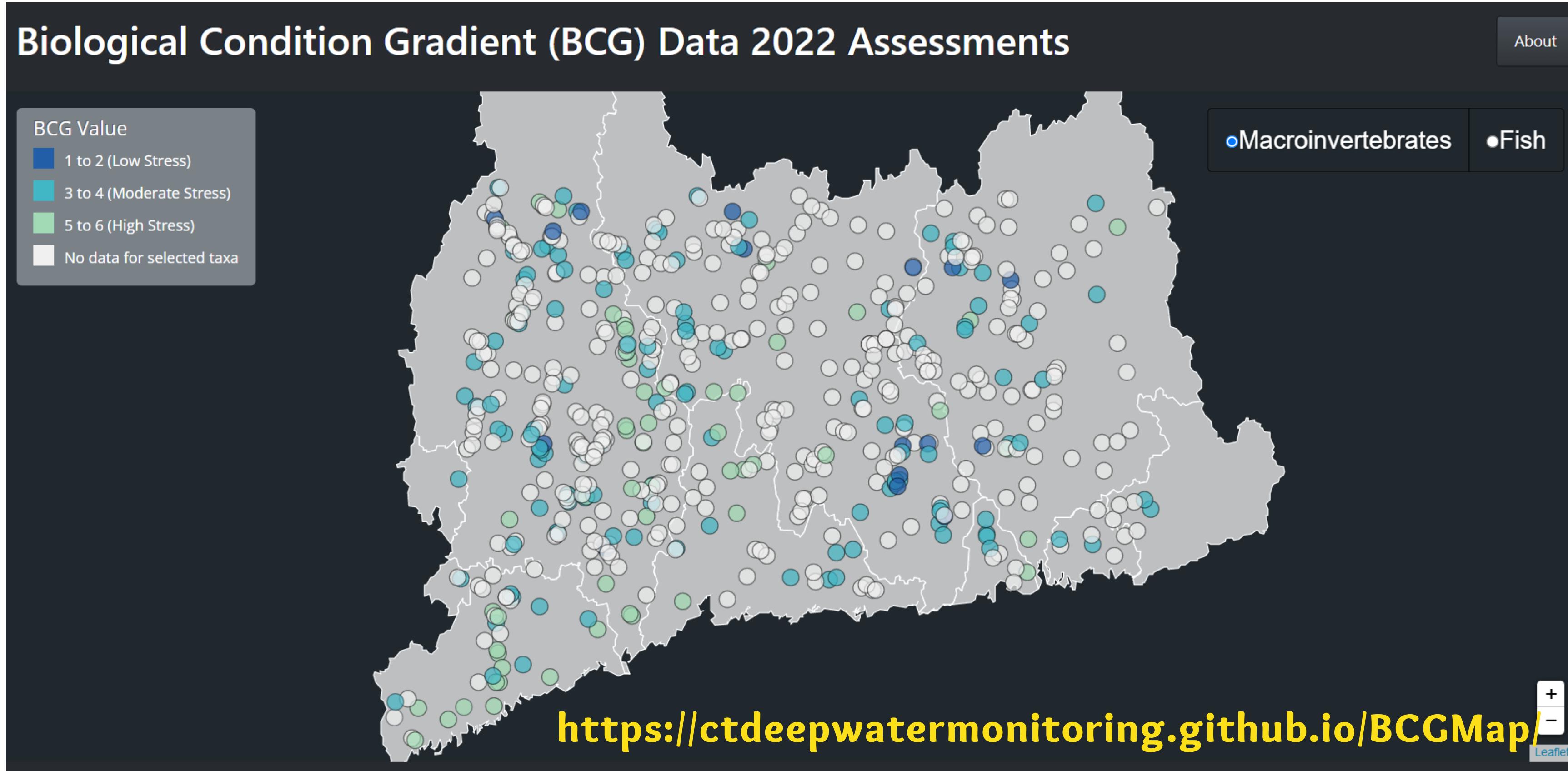
Biological Condition Gradient



- 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

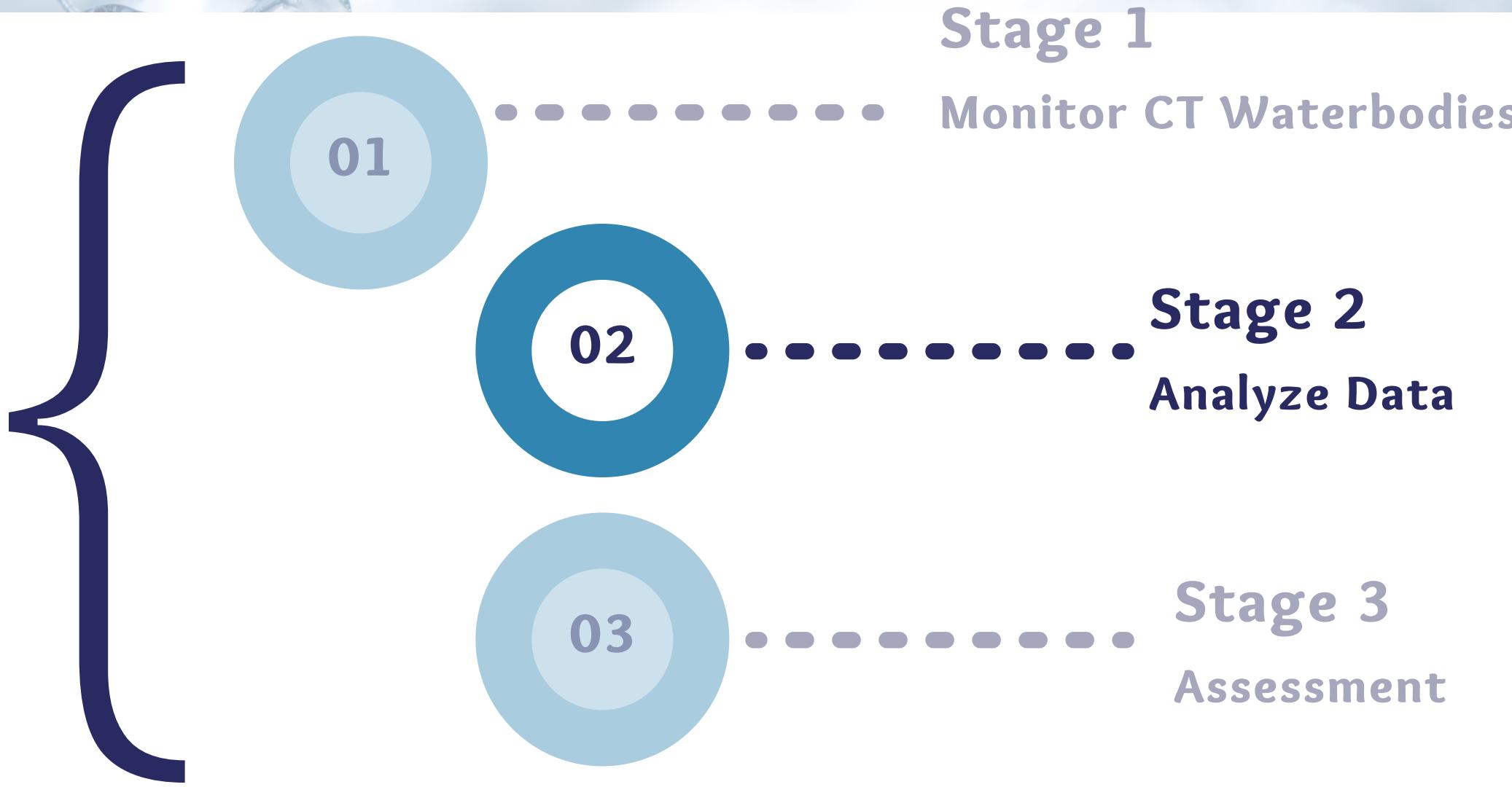
Stage 1~ Monitor Waters of the State

Biological Condition Gradient



IWQR Framework

305 (b)
All Waters





Stage 2 ~ Analyze Data

Assessment Methodology ~ Weight of Evidence

Evaluate all available data and consider:

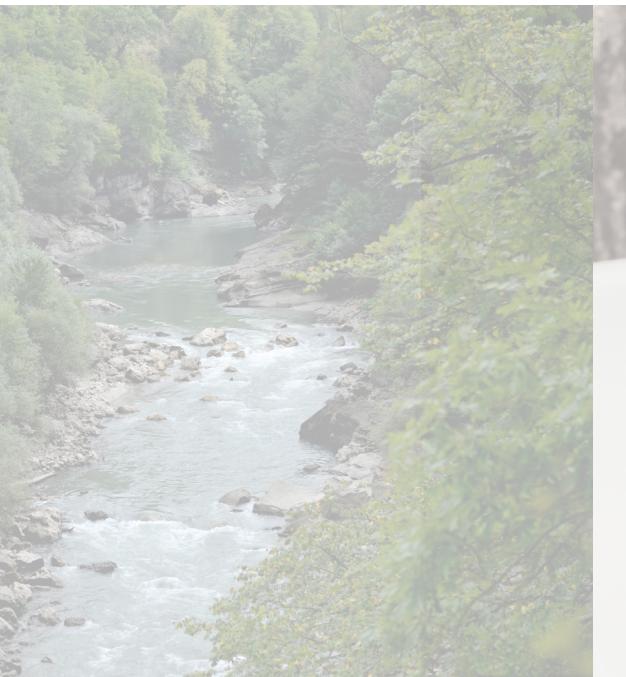
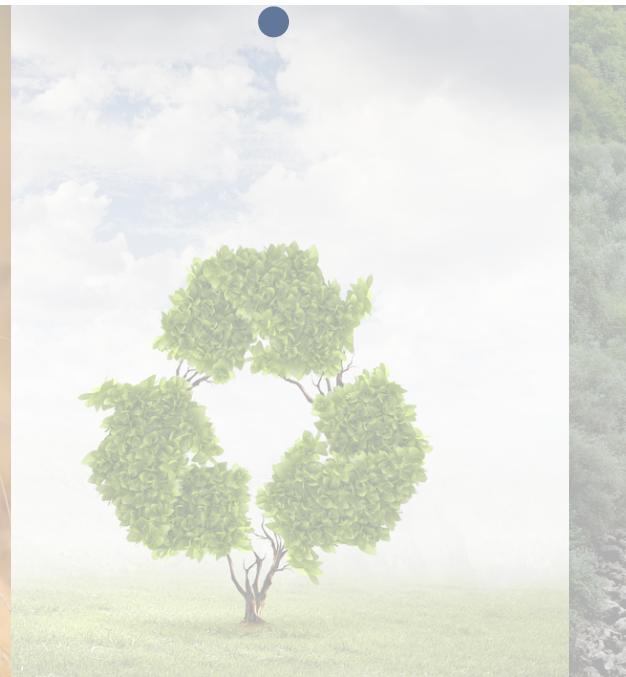
- Data quality
- Age
- Frequency
- Site conditions

Compare data to Water Quality Standards:

✓ Water Quality Standards are met = Full Support (Healthy)

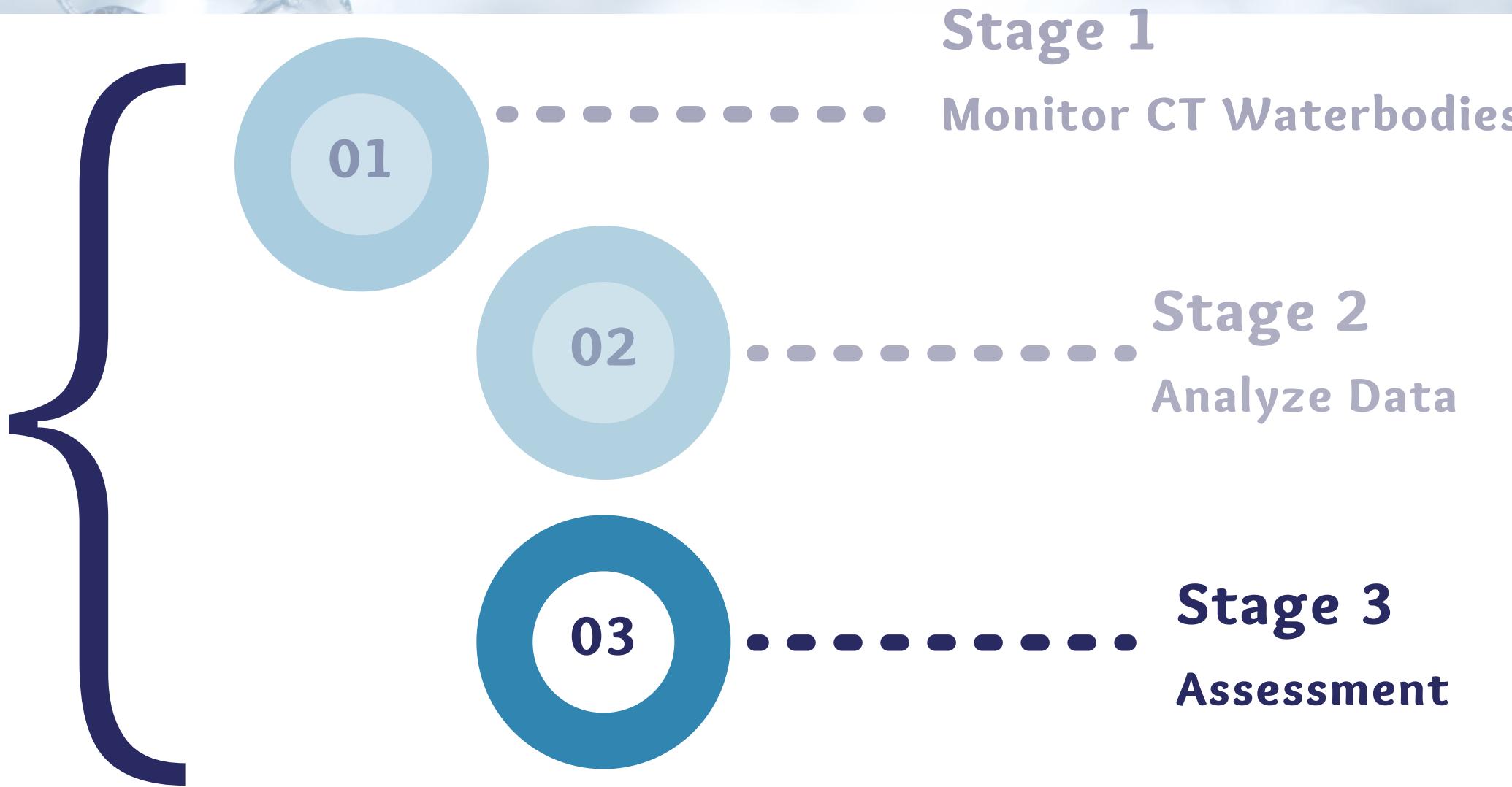
✗ Water Quality Standards NOT met = Not Supporting (Impaired)

? Insufficient/No New Data = Not Assessed



IWQR Framework

305 (b)
All Waters





Stage 3 ~ Assessment

Designated Uses

Aquatic Life and Wild life



Public Water Supply



Industrial Supply



Shellfishing



Recreation



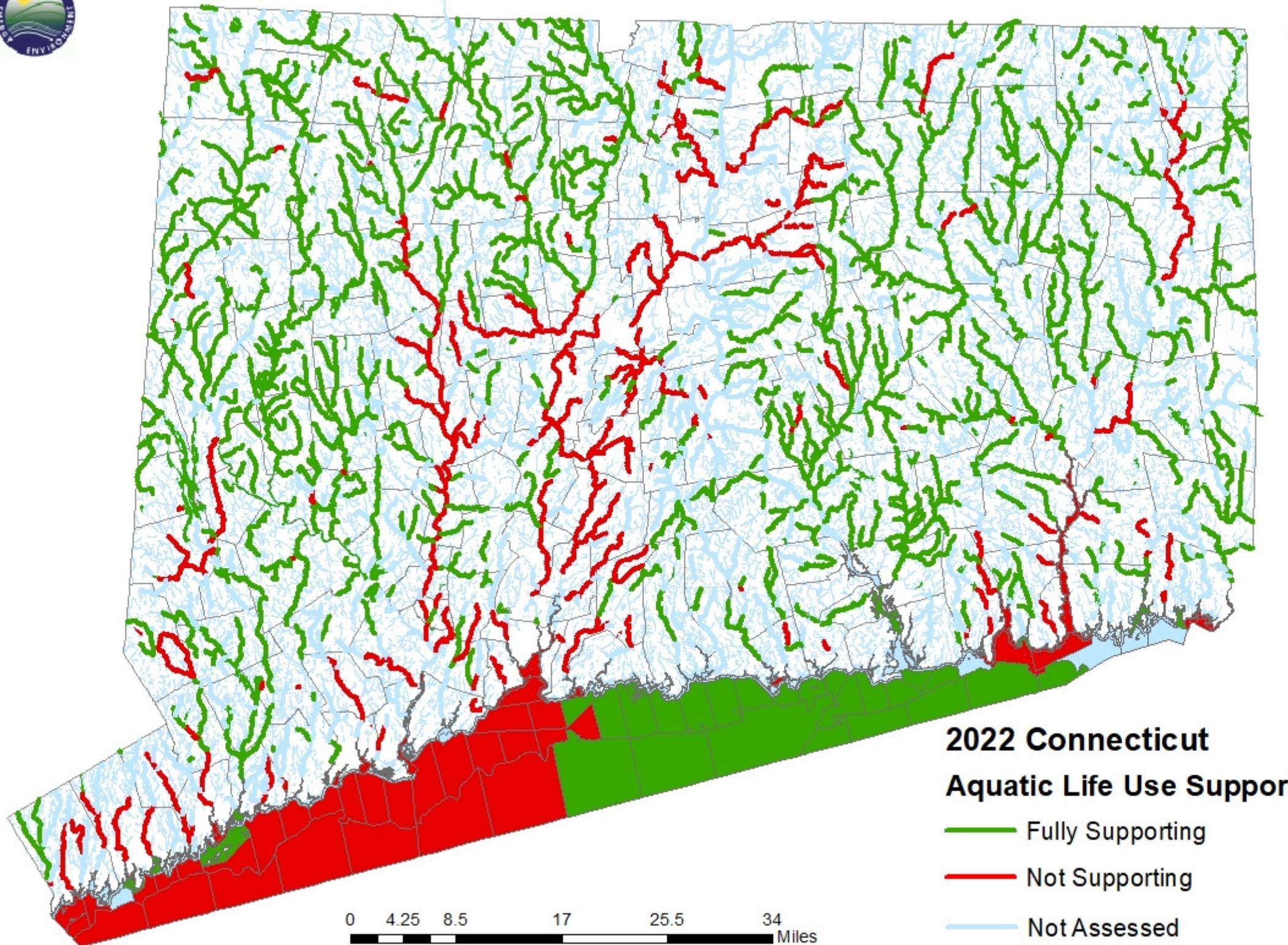
Agriculture Supply





Stage 3 ~ Assessment

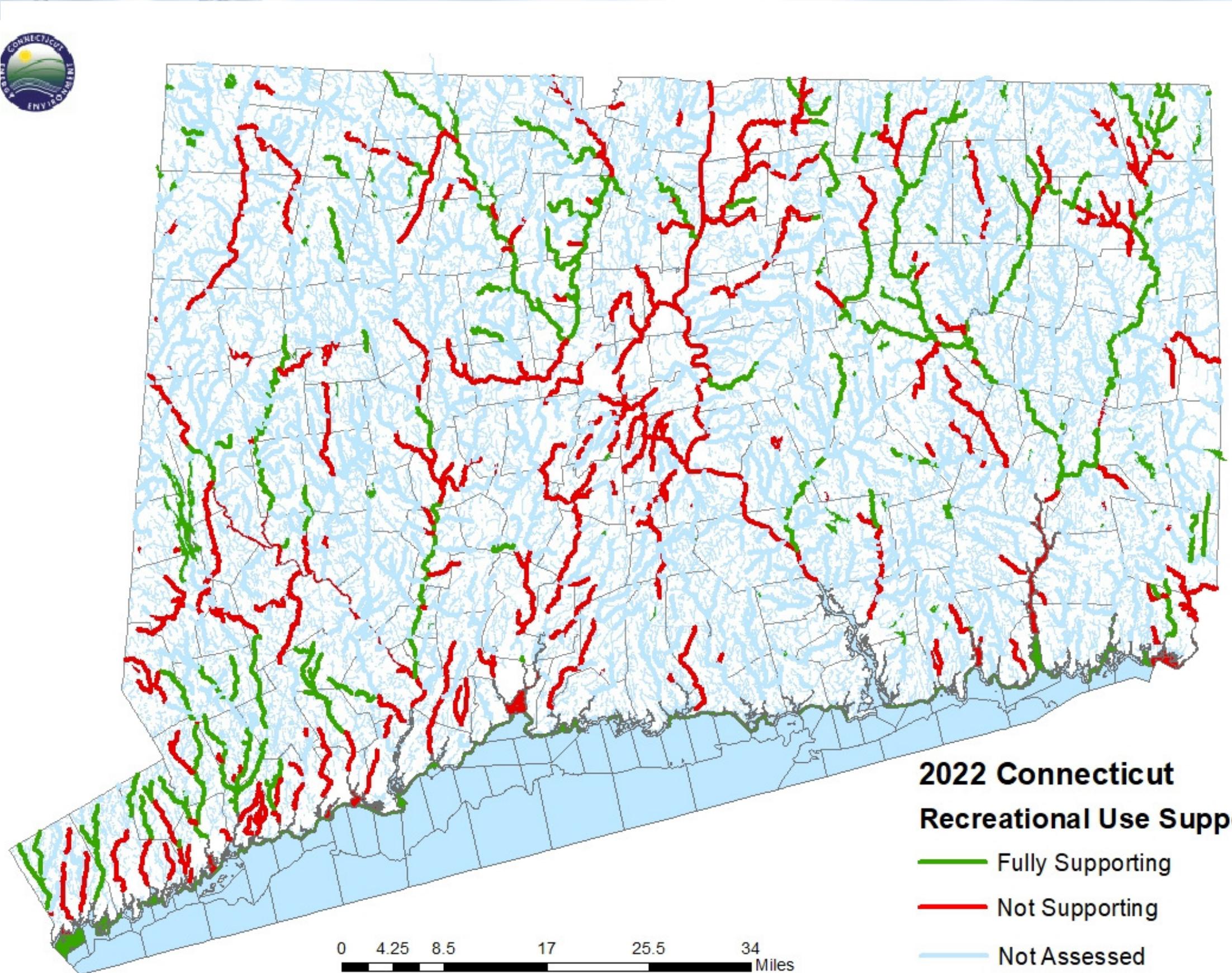
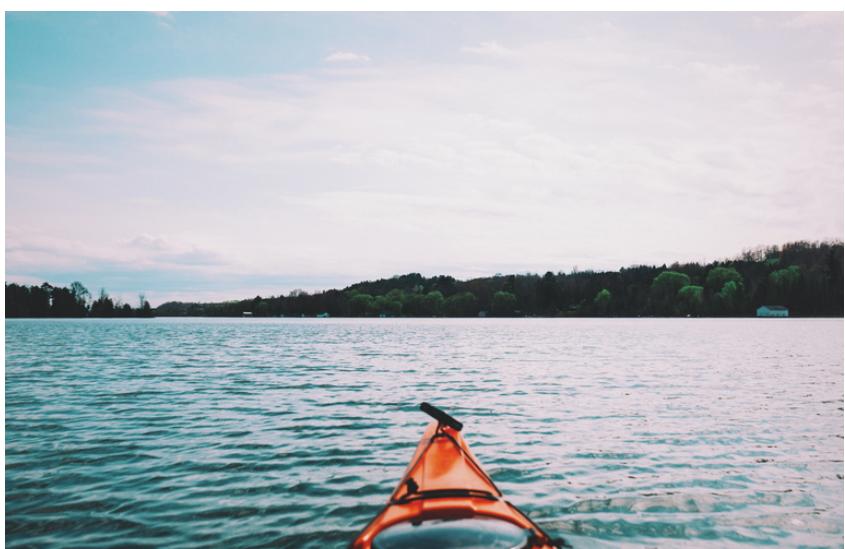
Aquatic Life





Stage 3 ~ Assessment

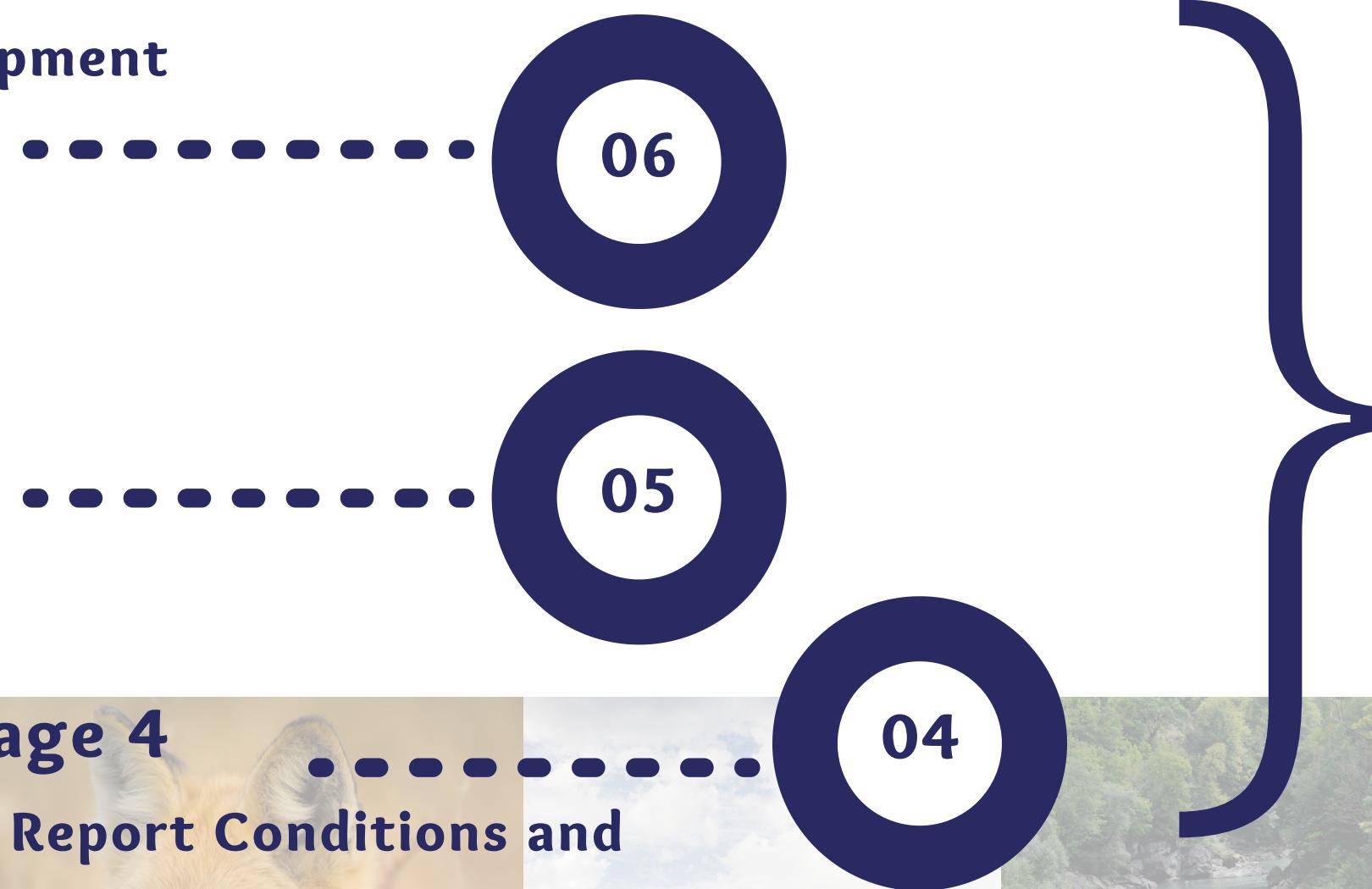
Recreation



IWQR Framework

Stage 6

Plan Development



Stage 5

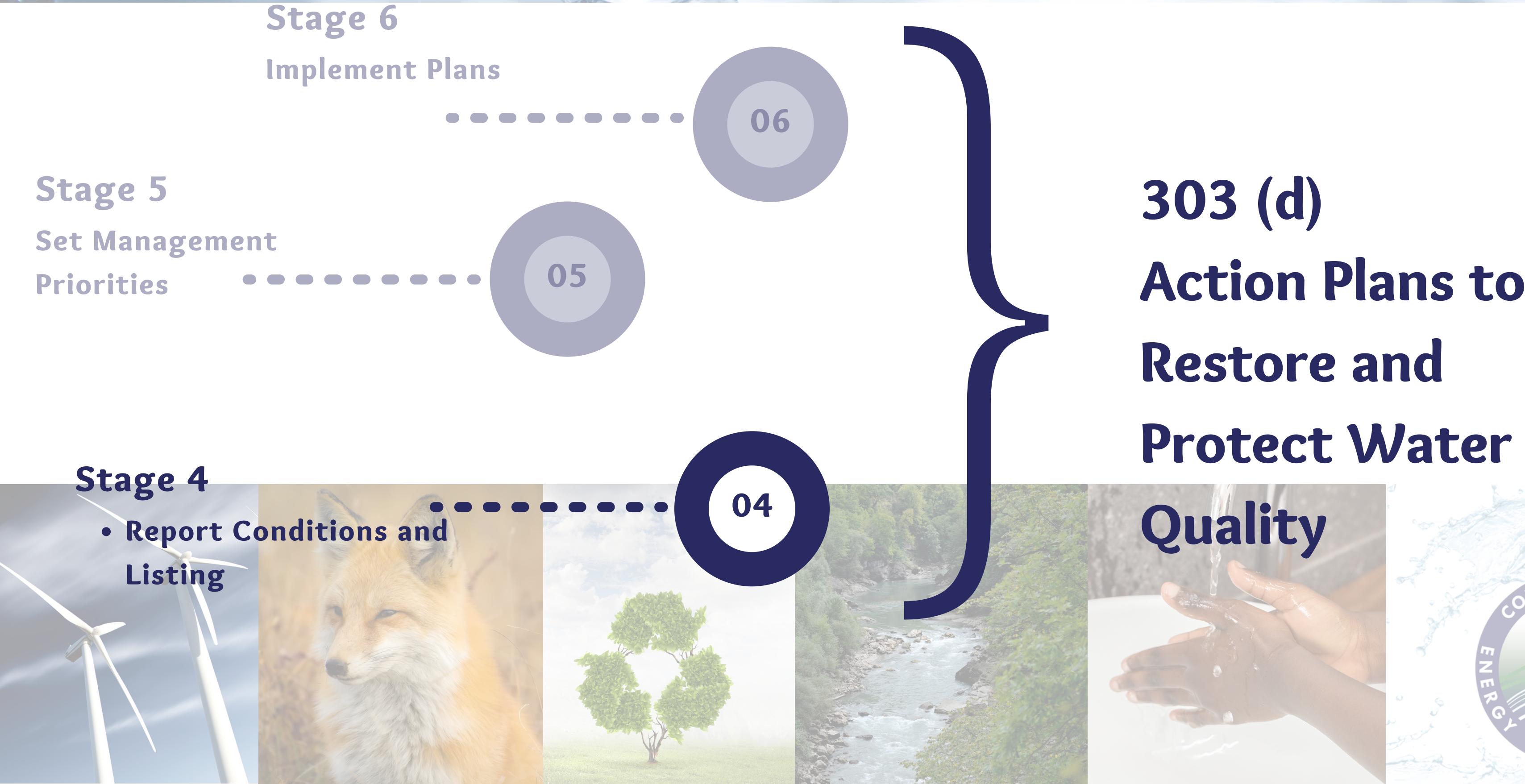
Set Planning Priorities

Stage 4

- Report Conditions and Listing



IWQR Framework



Stage 4 ~ Report Conditions and Listing

EPA Categories 1-3

CATEGORY 1

The waterbody is meeting all designated uses.

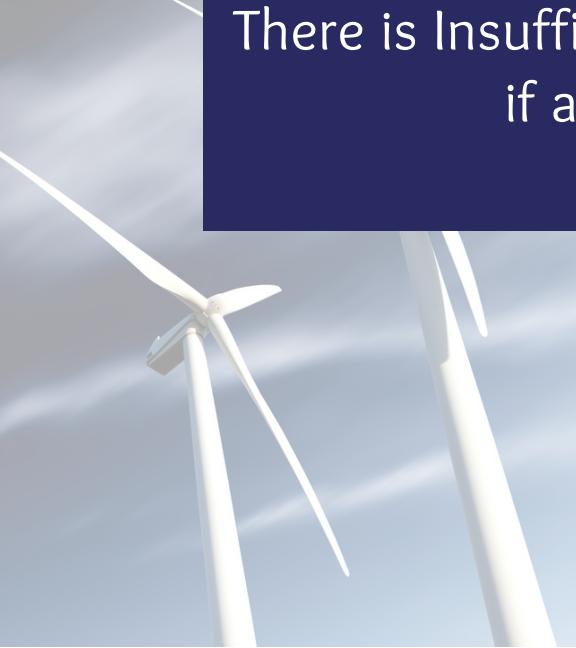
CATEGORY 2

The waterbody is meeting some not all designated uses.

CATEGORY 3

There is Insufficient information to determine if any designated uses are met.

- Five category approach developed by the US EPA and amended by Connecticut
- Tracking attainment of water quality goals for each waterbody.
- Categories 1-3 are used for waters that are meeting some or all of the designated uses or insufficient information is available to allow for an assessment.



Stage 4 ~ Report Conditions and List Impairments

EPA Categories 4 and 5 (Impaired Waters) "The List"

CATEGORY 4

The waterbody is Impaired/threatened, but has a plan in place. Waterbodies impaired for one or more designated uses that have an established TMDL and where a pollutant has been identified as the cause of the impairment.



4a-Standards not met, TMDL in place

4b-Other management measure (legal course of action)
Waterbodies impaired for one or more designated uses by a pollutant that is being addressed by pollution control requirements other than a TMDL which are expected to address the impairment.

4c-Standards not met, waterbodies impaired for one or more designated uses which is the result of pollution but is not caused by a pollutant (flow impairments no legal course of action).

CATEGORY 5

Data and/or information indicate that one or more designated uses are not being supported (not meeting Water Quality Standards). A TMDL or action plan is needed. Anytime a waterbody moves out of category 5 it is considered to be delisted.



Standards not met, Restoration Plan is needed for the waterbody to meet WQS



Stage 4 ~ Report Conditions and Listing

NEW Connecticut Sub-categories

****The addition of the sub-categories will allow for better tracking of the attainment status of those waterbodies that have a restoration or protection plan associated with it.****

- Water quality status changes because;
 - New water quality data become available indicating that the waterbody is meeting WQS for a designated use.
 - A Water Quality Action Plan is developed (such as a TMDL).
 - Data becomes out of date or insufficient to determine if a waterbody is meeting WQS.

CT Sub-categories = EPA category (categories 1-5) + plan that has been developed for restoration or protection associated with the waterbody.

Note: If a segment becomes impaired that is associated with protection plan that segment will require a TMDL and move back to category 5.



Stage 4 ~ Report Conditions and List Impairments

EPA Categories 1-5 and **NEW** Connecticut Sub-categories

EPA Category

CATEGORY 1

The waterbody is meeting all designated uses.

CT Sub-Category

1TMDL- Standards met, TMDL in place

1R-Standards met, Restoration Plan in place

1P*-Standards met, Protection Plan in place

CATEGORY 2

The waterbody is meeting some not all designated uses.

2TMDL-Standards met, TMDL in place

2R-Standards met, Restoration Plan in place

2P*-Standards met, Protection Plan in place

CATEGORY 3

There is Insufficient information to determine if any designated uses are met.

3TMDL-Insufficient information, TMDL in place

3R-Insufficient information, Restoration Plan in place

3P*-Insufficient information, Protection Plan in place



Stage 4 ~ Report Conditions and Listing

EPA Categories 1-5 and **NEW** CT Sub-categories

CATEGORY 4

The waterbody is Impaired/threatened, but has a plan in place. Waterbodies impaired for one or more designated uses that have an established TMDL and where a pollutant has been identified as the cause of the impairment.

CATEGORY 5

Data and/or information indicate that one or more designated uses are not being supported (not meeting Water Quality Standards). A TMDL or action plan is needed. Anytime a waterbody moves out of category 5 it is considered to be delisted.

4a-Standards not met, TMDL in place

4b-Other management measure (legal course of action)
Waterbodies impaired for one or more designated uses by a pollutant that is being addressed by pollution control requirements other than a TMDL which are expected to address the impairment.

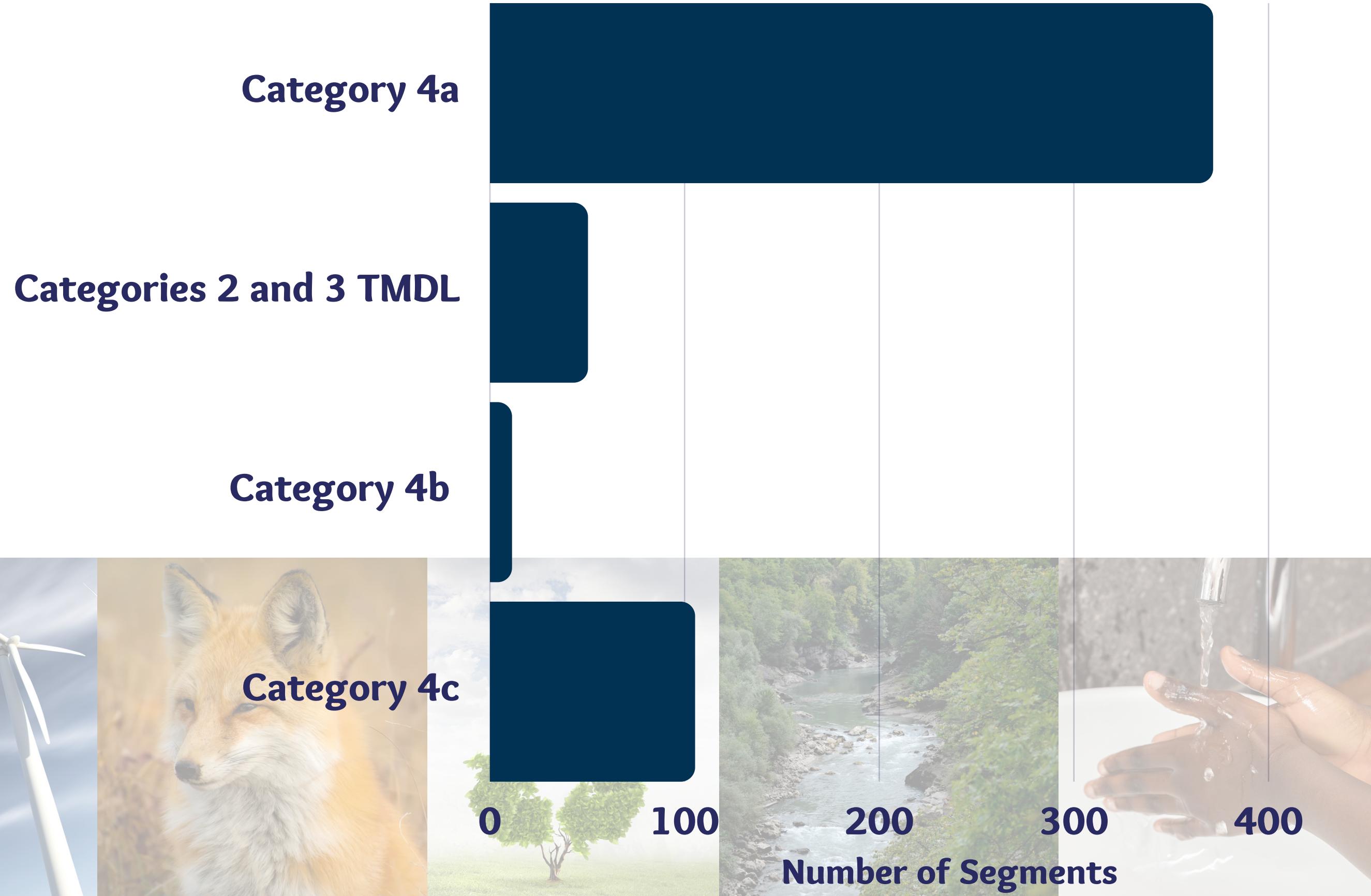
4c-Standards not met, waterbodies impaired for one or more designated uses which is the result of pollution but is not caused by a pollutant (flow impairments no legal course of action).

5R-Standards not met, Restoration Alternative Plan is in place



Stage 4 ~ Report Conditions and Listing

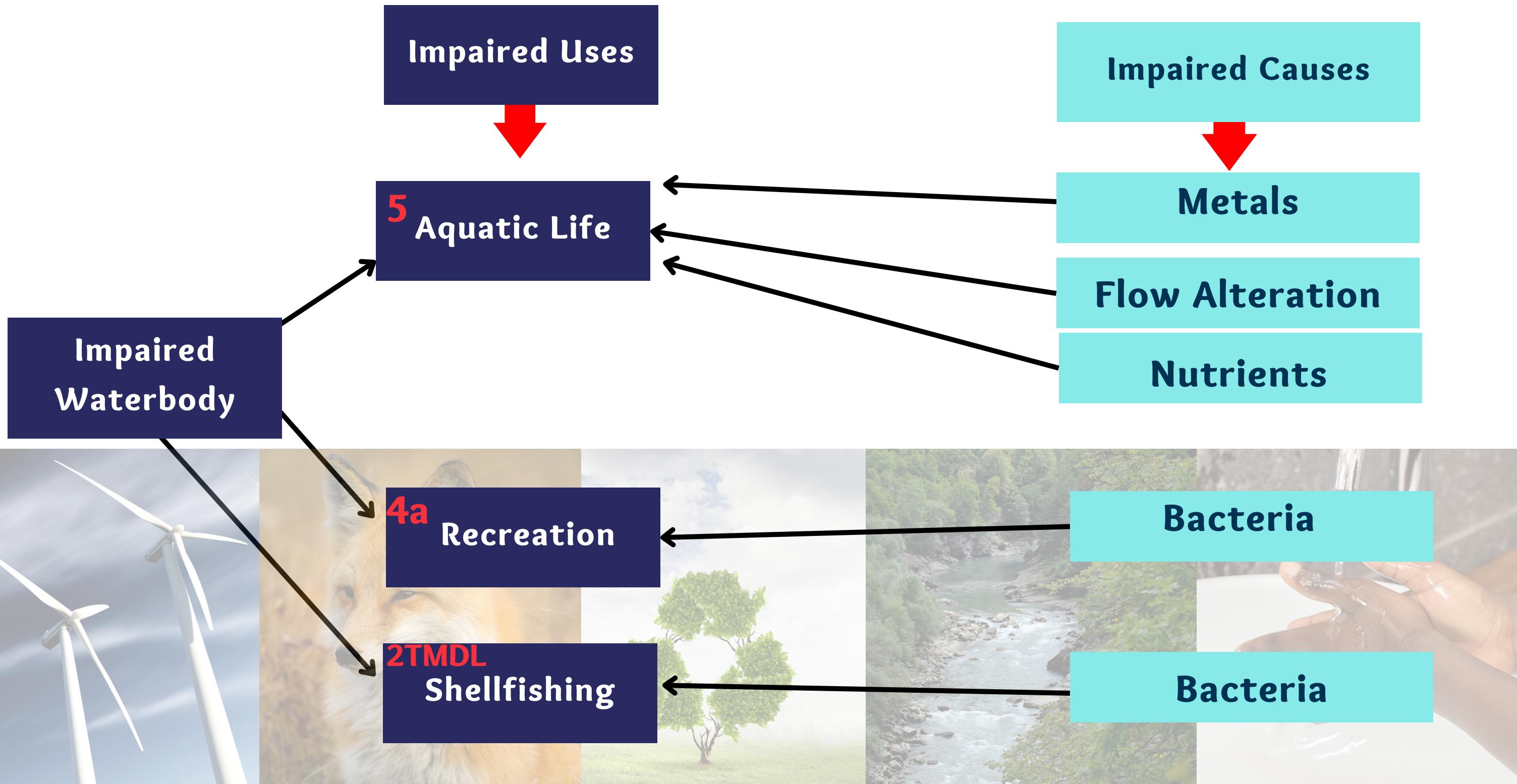
Category 4 and Connecticut Sub-Categories



Stage 4 ~ Report Conditions and Listing

EPA Categories 1-5 and CT Sub-categories

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



Stage 4 ~ Report Conditions and Listing

EPA Categories 4 and 5 (Impaired Waters) "The List"

2022 Impairments by Designated Use - IWQR Appendix B-1

Commercial Shellfish Harvesting Where Authorized

Fish Consumption

Habitat for Fish, Other Aquatic Life and Wildlife

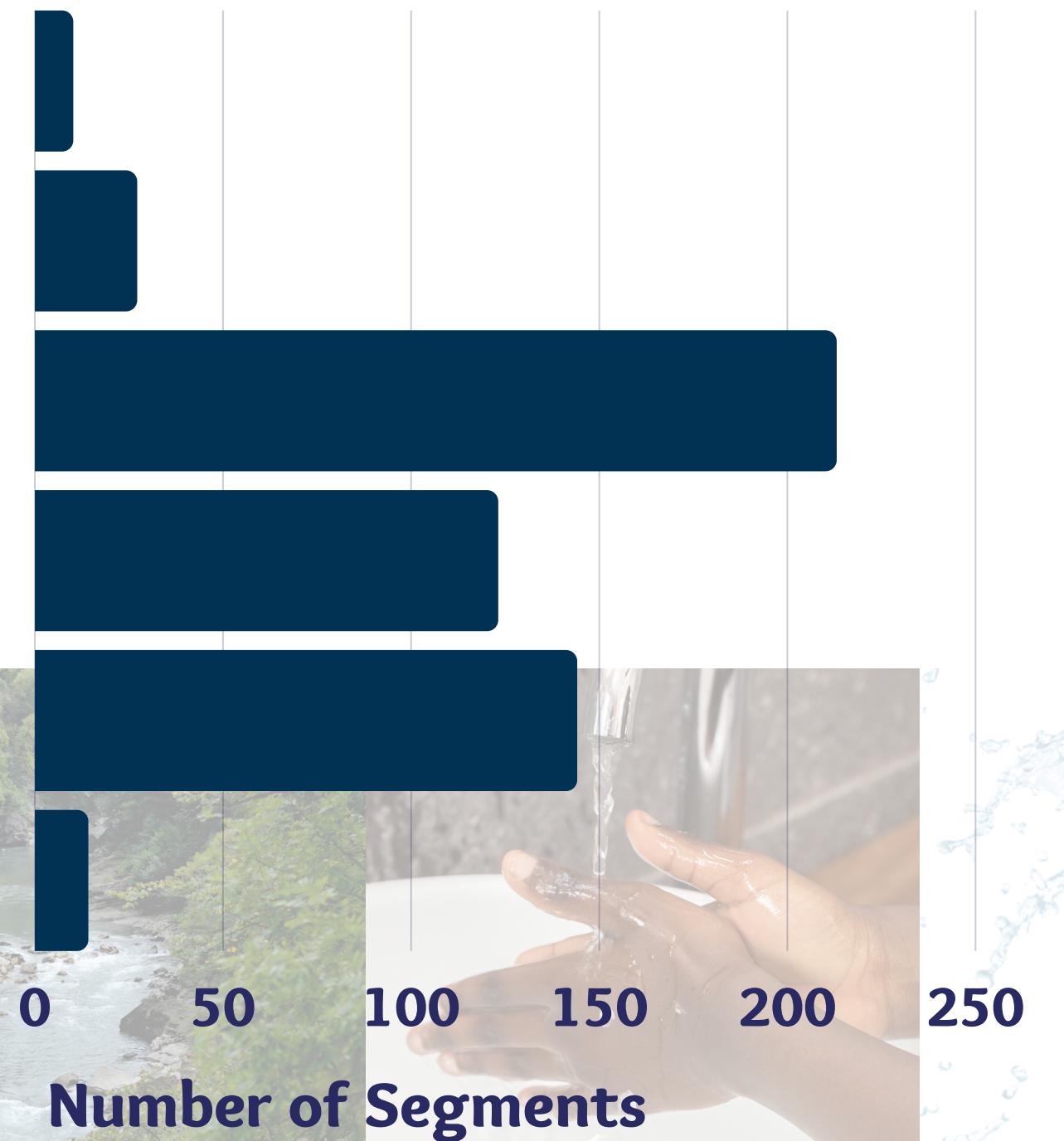
Habitat for Marine Fish, Other Aquatic Life and Wildlife



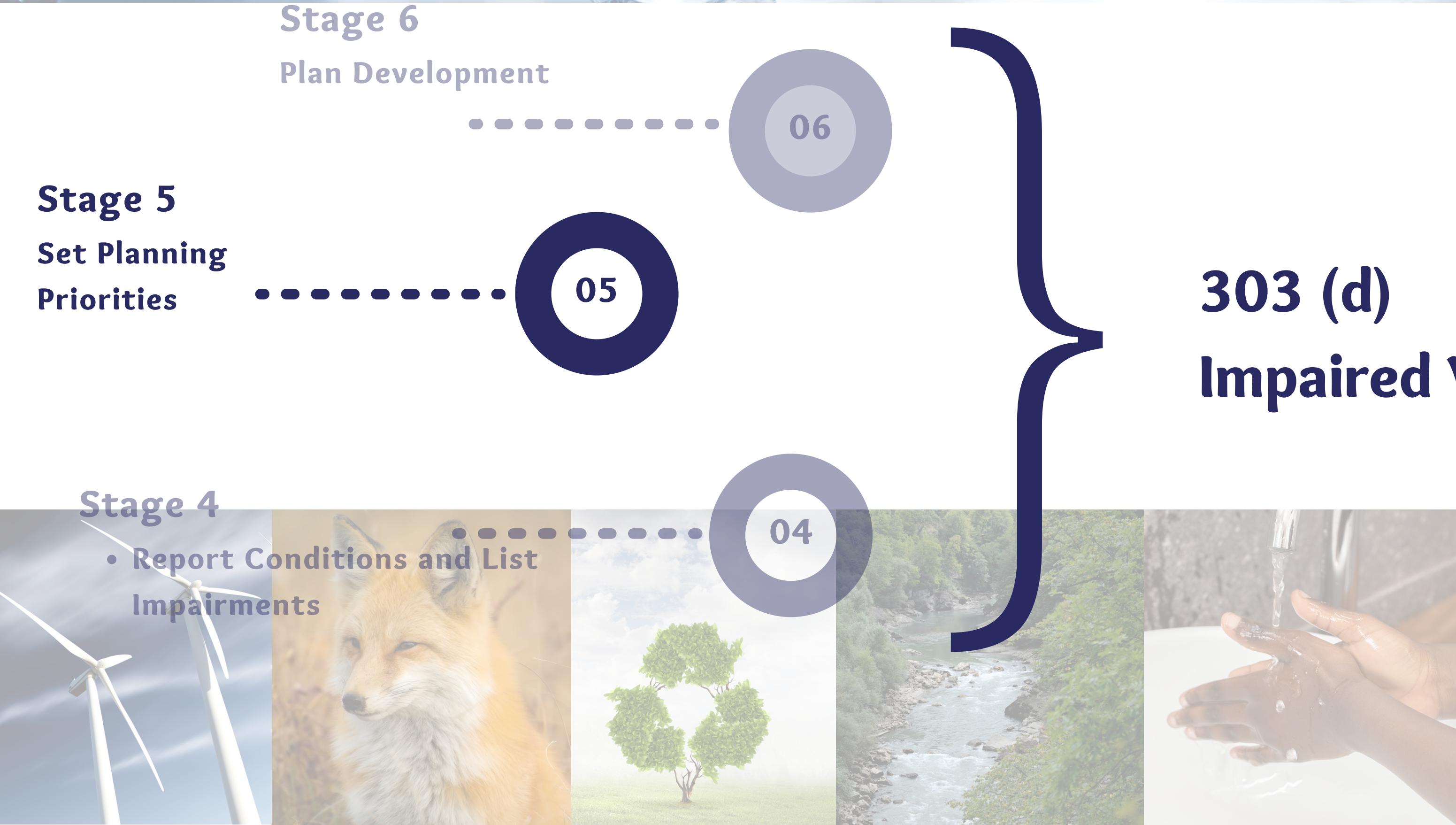
Shellfish Harvesting for Direct Consumption Where Authorized



Recreation



IWQR Framework



Stage 5 ~ Set Planning Priorities

Water Quality Plans ~ Restoring and Protecting CT Waterbodies

Integrated Water Resource Management

- Assign the correct plan of action (not just TMDLs) to restore/protect CT waterbodies.
- TMDL, Restoration Plan or a Protection Plan



Waterbodies are selected for plan development based on;

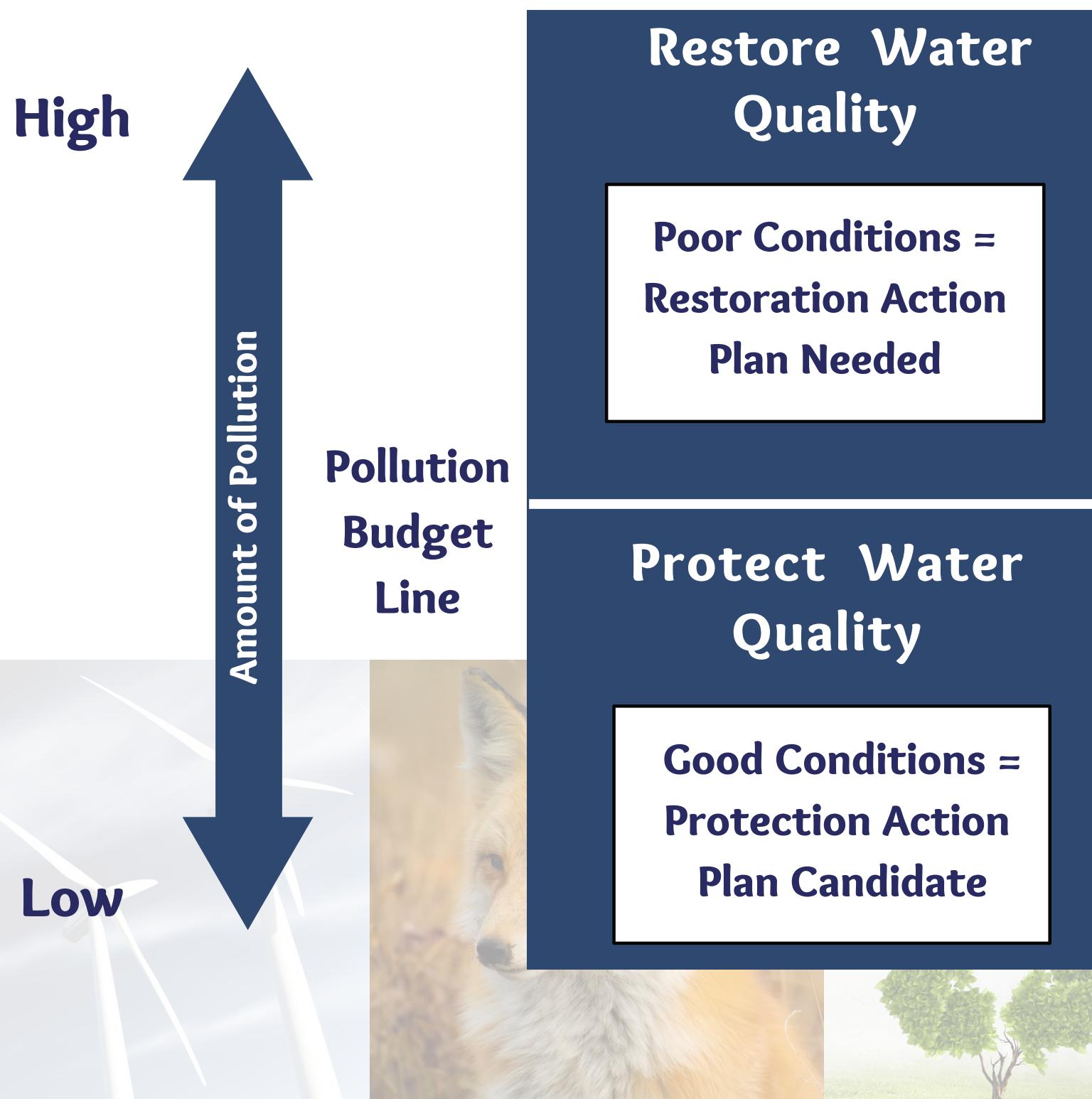
- Assessment information
- Feedback from public
- Federal requirements
- Stakeholder Involvement



Stage 5 ~ Set Planning Priorities

Types of Water Quality Plans Restoration & Protection

Water Quality Pollution Budget



- Total Maximum Daily Load Plans
- Restoration Alternative Plans
 - Permitting
 - Remediation
 - Others
- Protection Plans

TMDL = Point Sources(LA) + Nonpoint Sources (WLA) + Background + Margin of Safety

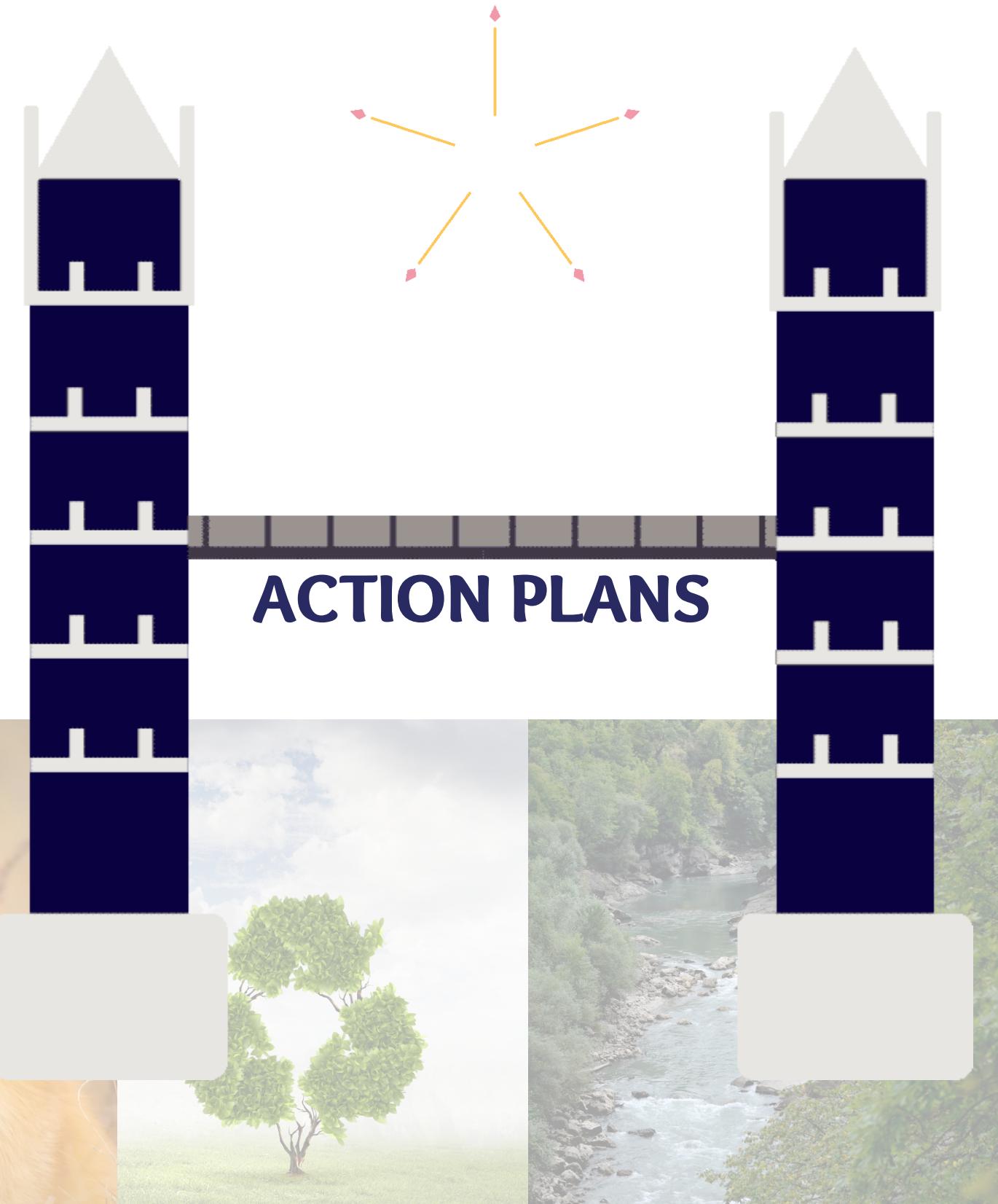


Stage 5 ~ Set Planning Priorities

Water Quality Plans ~ Restoring and Protecting CT Waterbodies

Data and Goals

- Data
- Standards and Criteria
- Monitoring
- Natural Resource Information

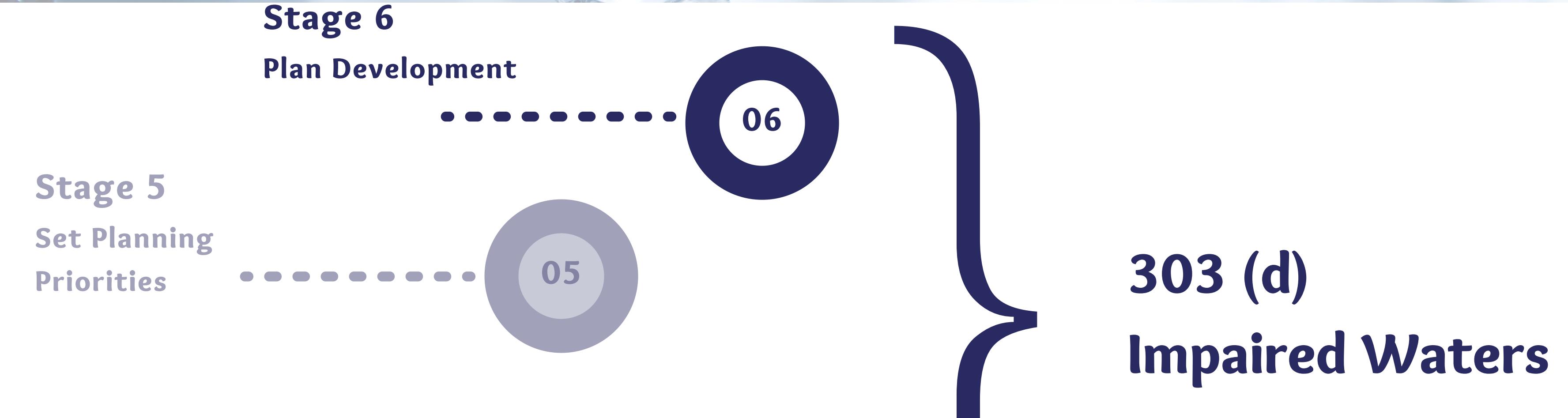


Implementation

- Remediation
- Permitting
- Non-point Source Programs
- Watershed Based Plans



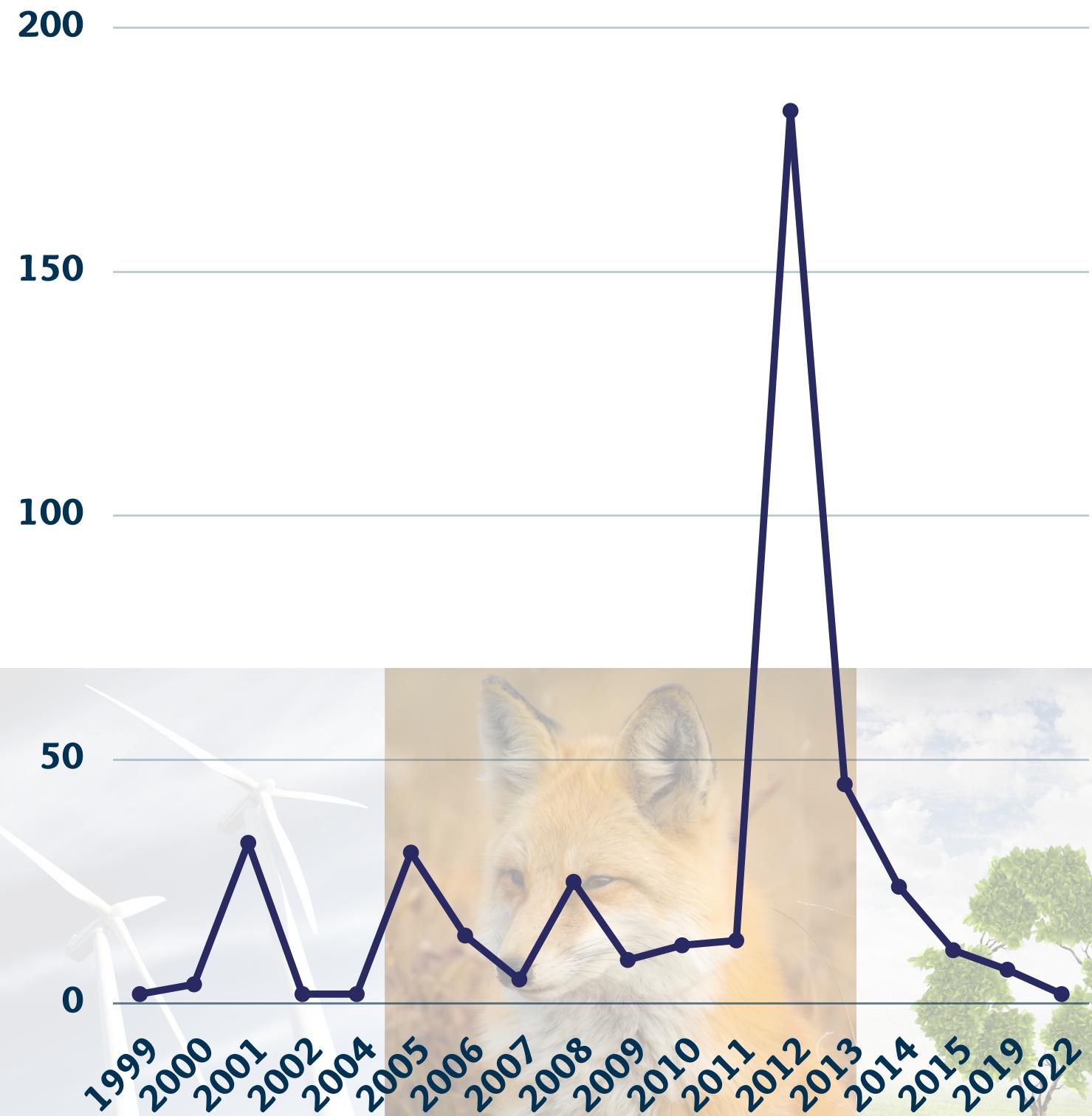
IWQR Framework



Stage 6 ~ Plan Development

Water Quality Plans ~ Restoring and Protecting CT Waterbodies 2022-2024

Number of CT TMDLs Developed Over Time

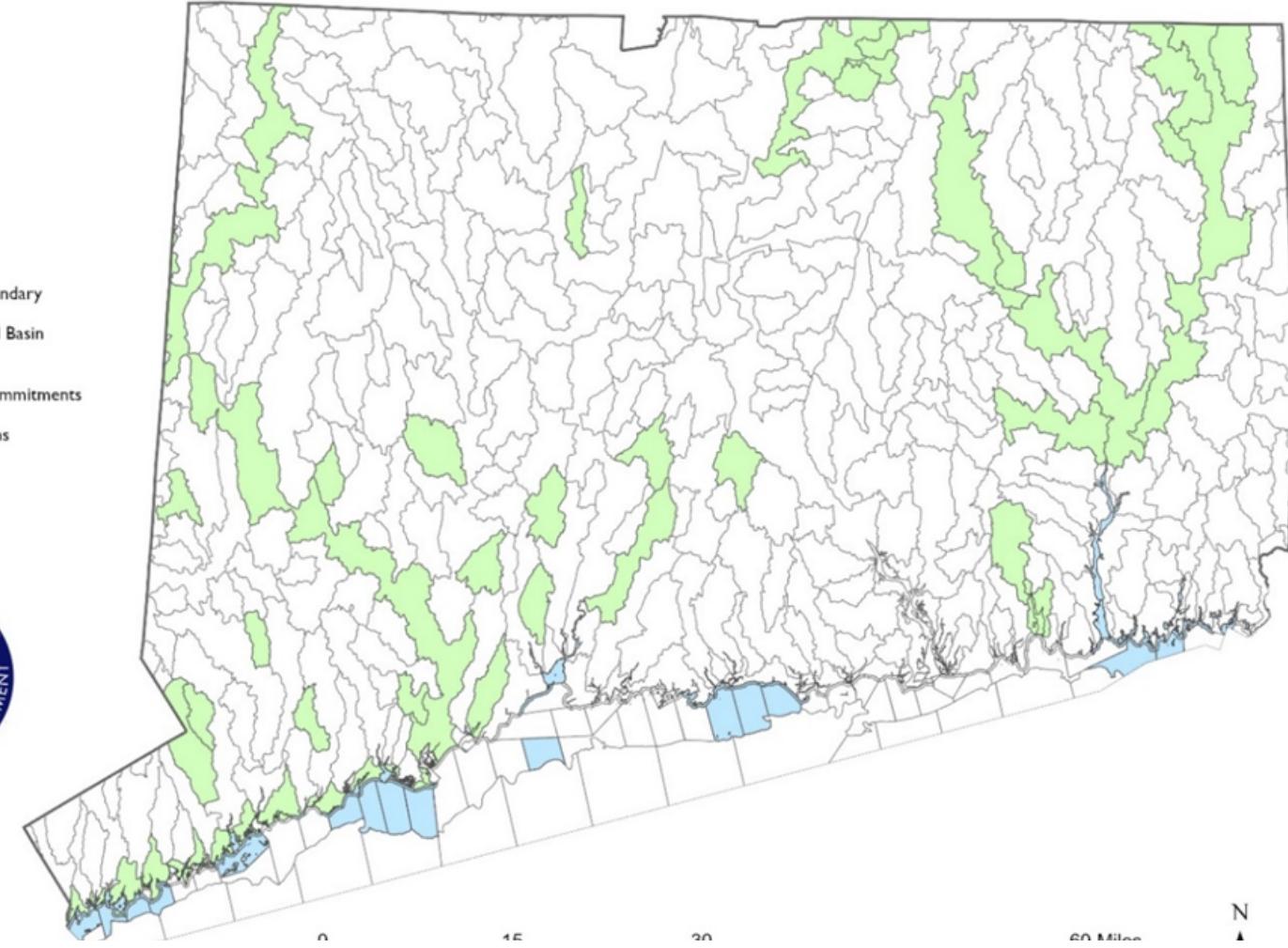


Legend

- Connecticut Boundary
- 2022 Subregional Basin Commitments
- 2022 Estuary Commitments
- Subregional Basins
- Estuary



Created
2022



- Bacteria TMDLs - Over 80 segments currently in development.

Complete list of waterbodies can be found in Appendix C-1

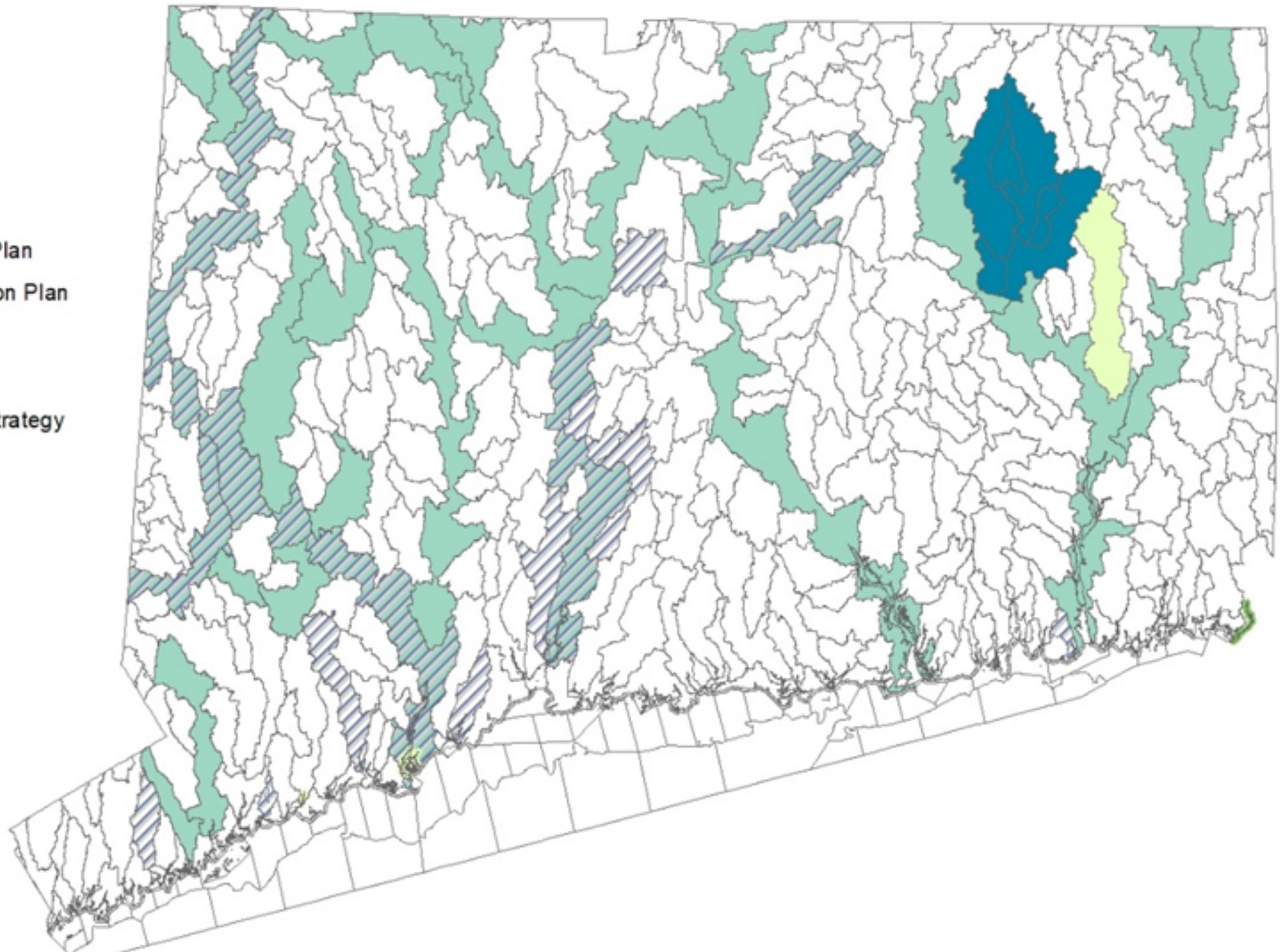
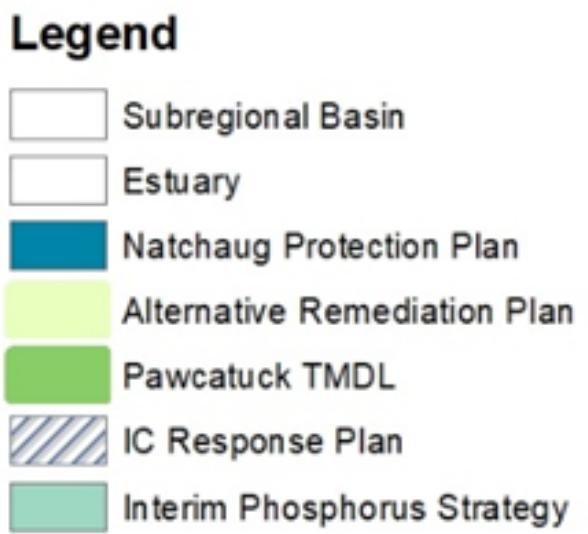


Stage 6 ~ Plan Development

Water Quality Plans ~ Restoring and Protecting CT Waterbodies 2022-2024

Alternative Restoration Plans

- Impervious Cover Response Plan
- Remediation Alternative Plans
- Interim Phosphorus Strategy Implementation



Other TMDLs

- TMDL Revision for Rainbow Brook and Seymour Hollow Brook
- Lake Nutrient TMDLs

Protection Plans

- Natchaug
- Niantic



Created 2022

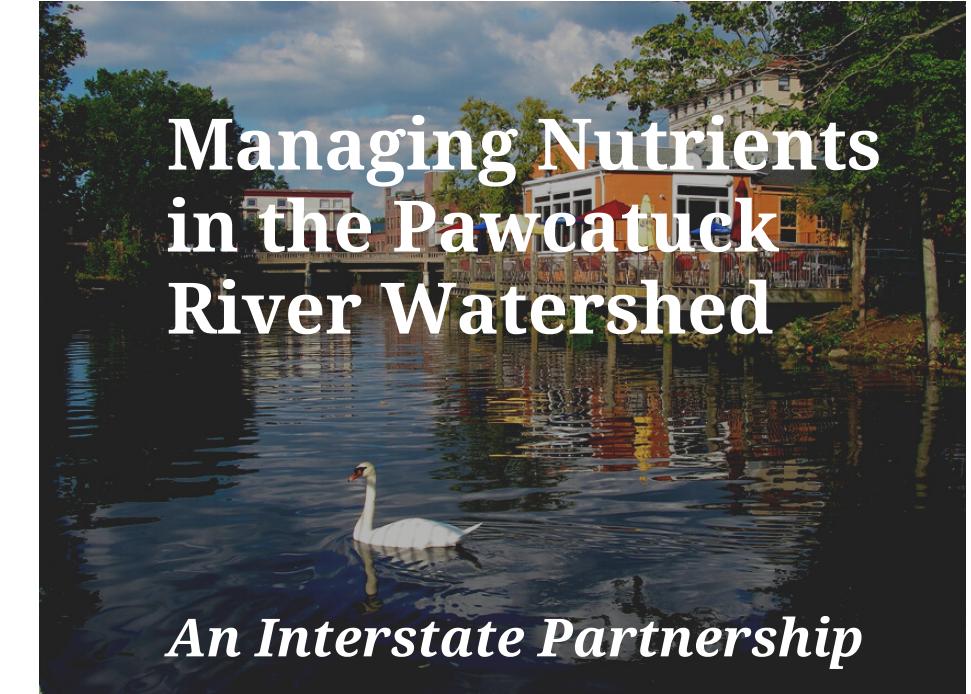
Stage 6 ~ Plan Development

Water Quality Plans ~ Restoring and Protecting CT Waterbodies 2022-2024

Estuary TMDLs~ Pawcatuck

Complete list of waterbodies can be found in Appendix C-1

- Upland and Coastal data has been collected
- Model is developed for upland watershed
- Coastal Model is in development
- Models will be combined to set water quality targets for DO, Clarity, N and P



Additional Embayments Post 2024

Complete list of waterbodies can be found in Appendix C-2

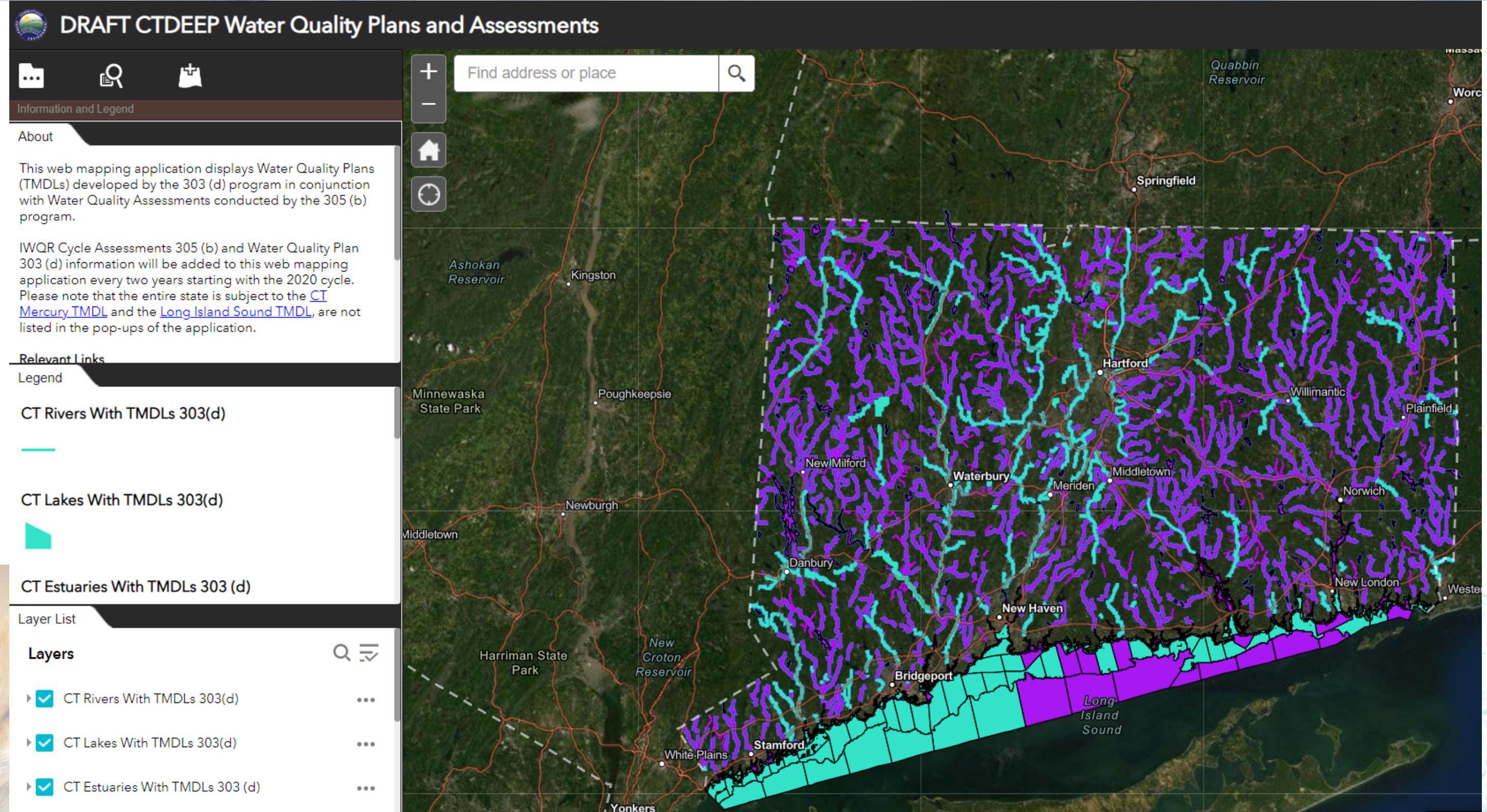
- Stonington
- Norwalk Harbor
- Mystic River
- Southport Harbor
- Saugatuck River
- Niantic River



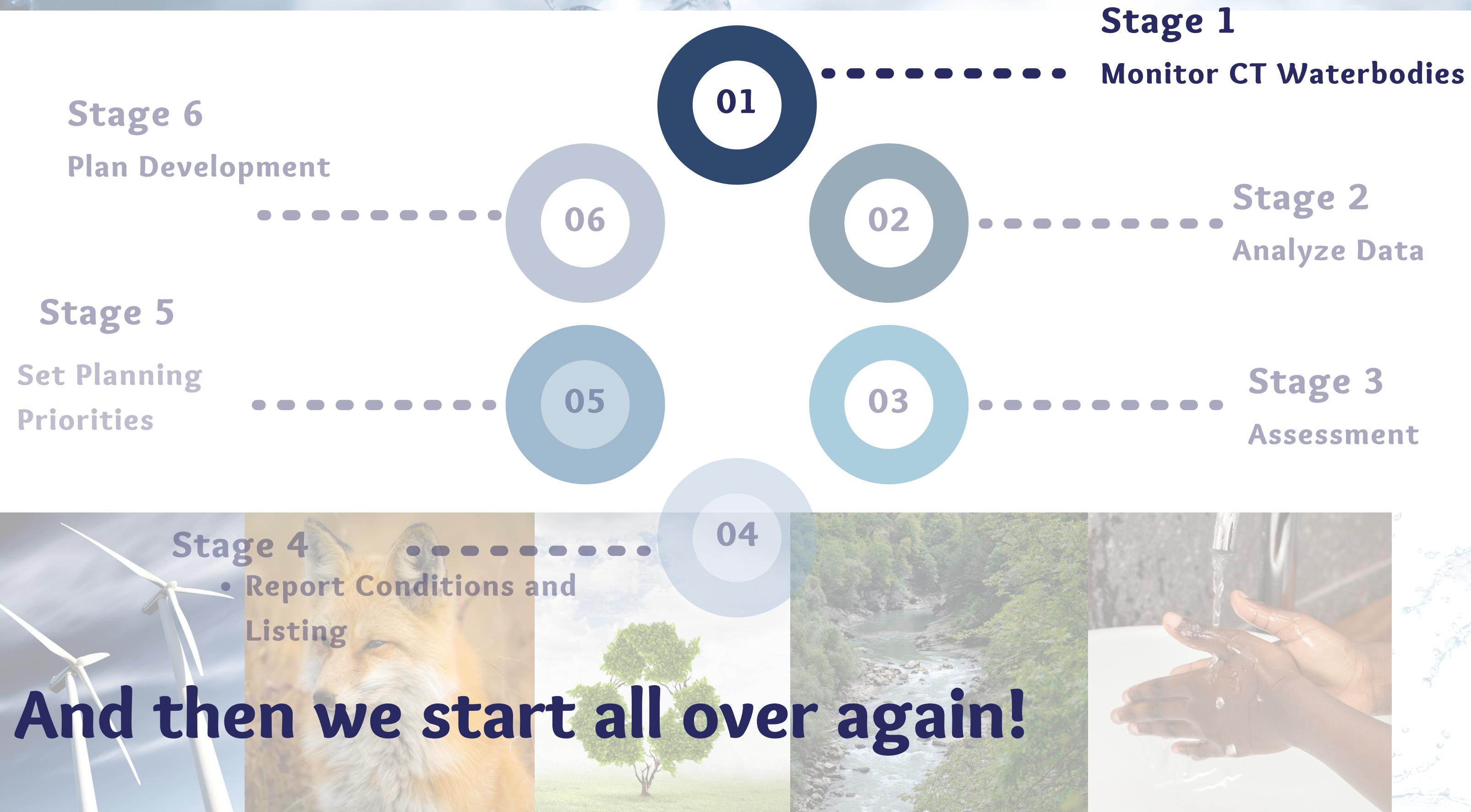
NEW IWQR 2022 Web Mapping Application

Features

- View and Download 305 (b) and 303 (d) information
- Add data
- Export data



IWQR Framework



Questions ?

Comments must be in writing and directed to **Rebecca Jascot** at
DEEP.IWQR@ct.gov by July 6, 2022

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