Introduction to Water Quality Standards (Designated Uses)

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Rich Cochran

Tennessee Department of Environment and Conservation

Division of Water Resources

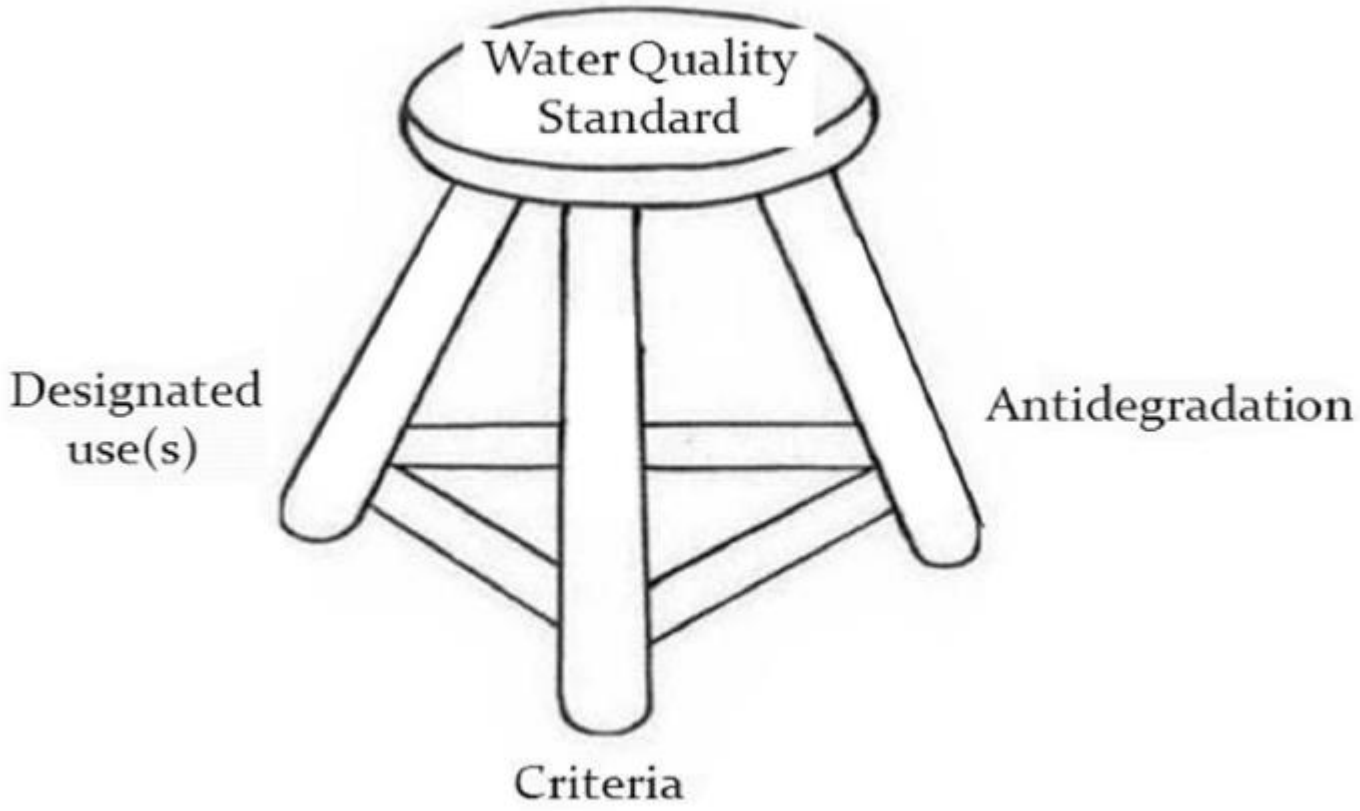
TN Department of Environment & Conservation

Water Quality Standards Have Three Parts:

- Use Classifications for Surface Waters (streams) [Rule Chapter 0400-40-04]
- General Water Quality Criteria [Rules 0400-40-03-.01 to -.05]
- Antidegradation Policy [Rule 0400-40-03-.06]

Every state's water quality standards must contain all three parts.

Foundation of a Water Quality Standard



What are Designated Uses?

- Designated uses are “those uses specified in the WQS regulations for each water body or segment whether or not they are being attained.” (40 C.F.R. § 131.3(f)) .

- Designated uses may be thought of as:
  - Goals/Objectives/Desired conditions of a waterbody
  - Function of, or activity in, a water that is supported by a level of water quality

Designated Uses Concepts

- Designated uses are important as they lead to decisions of what water quality criteria are required for the waterbody.
- They express a state's desired condition for the waterbody whether or not that condition is currently attained.
- CWA established a goal that all waters provide for the "protection and propagation of fish, shellfish and wildlife and recreation in and on the water." Such uses are presumed attainable and must be designated unless demonstrated otherwise.

A stream’s water quality standard for any parameter is the most stringent criterion for all uses assigned to that body of water.

Stream-use Classifications in Tennessee:

- Fish and Aquatic Life
- Recreation
- Irrigation
- Livestock and Wildlife Watering
- Domestic Water Supply
- Industrial Water Supply
- Navigation

Although they are identified in the classification regulation, trout waters are not classifications, but rather, a sub-category under the fish and aquatic life use.

Uses Can Be Added to a Stream By the Board During the Triennial Review.

But removing or downgrading an existing use on a stream requires the concurrence of EPA and a study called a Use Attainability Analysis (UAA).

Where can you find TN Use Classifications?

- Tennessee Secretary of State, Rules of the Tennessee Department of Environment and Conservation, Division of Water Pollution Control
- Chapter 0400-40-04
  - Link on TDEC DWR Web page
  - Publications/Rules

RULES
OF THE
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

CHAPTER 0400-40-04
USE CLASSIFICATIONS FOR SURFACE WATERS

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Abbreviations for Designated Uses and Trout Streams:

Domestic Water Supply	DOM
Industrial Water Supply	IWS
Fish and Aquatic Life	FAL
Trout Stream	TS
Naturally Reproducing Trout Stream	NRTS
Recreation	REC
Livestock Watering and Wildlife	LWW
Irrigation	IRR

0400-40-04-.01 MEMPHIS AREA BASIN.

STREAM	DESCRIPTION	DOM	IWS	FAL	REC	LWW	IRR	NAV	TS	NRTS
Mississippi River	Mississippi-Tennessee State Line (Mile 714.0) to Upstream End of Loosahatchie Bar (Mile 741.0)		X	X	X	X	X	X		
McKellar Lake	Mouth on Mississippi R. to Origin		X	X	X			X		
Nonconnah Creek	Mile 0.0 to Origin			X	X	X	X			
Wolf River	Mile 0.0 to 6.7 (L & N Railroad Bridge)			X	X	X	X			
Cypress Creek	Mile 0.0 to Origin			X	X	X	X			
Wolf River	Mile 6.7 to Miss.-TN State Line (Mile 77.0)		X	X	X	X	X	X		
Loosahatchie River	Mile 0.0. to 20.9 (Austin Peay Hwy Bridge)			X	X	X	X			
Big Creek	Mile 0.0 to Origin			X	X	X	X			
North Fork Creek	Mile 0.0 to Origin			X	X	X	X			
Crooked Creek	Mile 0.0 to Origin			X	X	X	X			
Trib. to Mile 3.0 of Crooked Creek	Mile 0.0 to Origin			X	X	X	X			
Loosahatchie River	Mile 20.9 (Austin Peay Hwy) to 30.7			X	X	X	X			
Clear Creek Canal	Mile 0.0 to Origin at Mile 2.6 (Confluence of Hall Creek and Cypress Creek Canal)			X	X	X	X			
Cypress Creek Canal	Mile 0.0 to Origin			X	X	X	X			
Loosahatchie River	Mile 30.7 to 45.5			X	X	X	X			
Middle Beaver Creek	Mile 0.0 to Origin			X	X	X	X			
West Beaver Creek	Mile 0.0 to Origin			X	X	X	X			
East Beaver Creek	Mile 0.0 to Origin			X	X	X	X			
Little Cypress Creek Canal	Mile 0.0 to Origin			X	X	X	X			
Loosahatchie River	Mile 45.5 to 50.2			X	X	X	X			
Davis Creek	Mile 0.0 to Origin			X	X	X	X			
Town Branch	Mile 0.0 to Origin			X	X	X	X			
Loosahatchie River	Mile 50.2 to Origin			X	X	X	X			

Use Reminders

- Designated uses apply to streams, not WWCs.
- Chapter 0400-40-04 includes a “catch-all” for unnamed streams within each watershed.
- Designated Use Classification segments and Assessment Unit segments are related but not the same.
  - Assessment Unit segments were developed independently
  - Assessment Staff apply appropriate protective designated use criteria based on data.
  - An assessment unit could contain multiple use classification segments.
- Yes, this should be a GIS layer

Criteria are descriptions of how clean the water needs to be to support the individual uses.

Criteria can be:

- **Numeric** – specific values based on toxicity or cancer potency.

- **Narrative** – verbal descriptions. Some refer to numeric translator documents (e.g., biointegrity, nutrients, habitat). Also paragraph 0400-40-03-.02(10) defines how to interpret and apply these criteria.

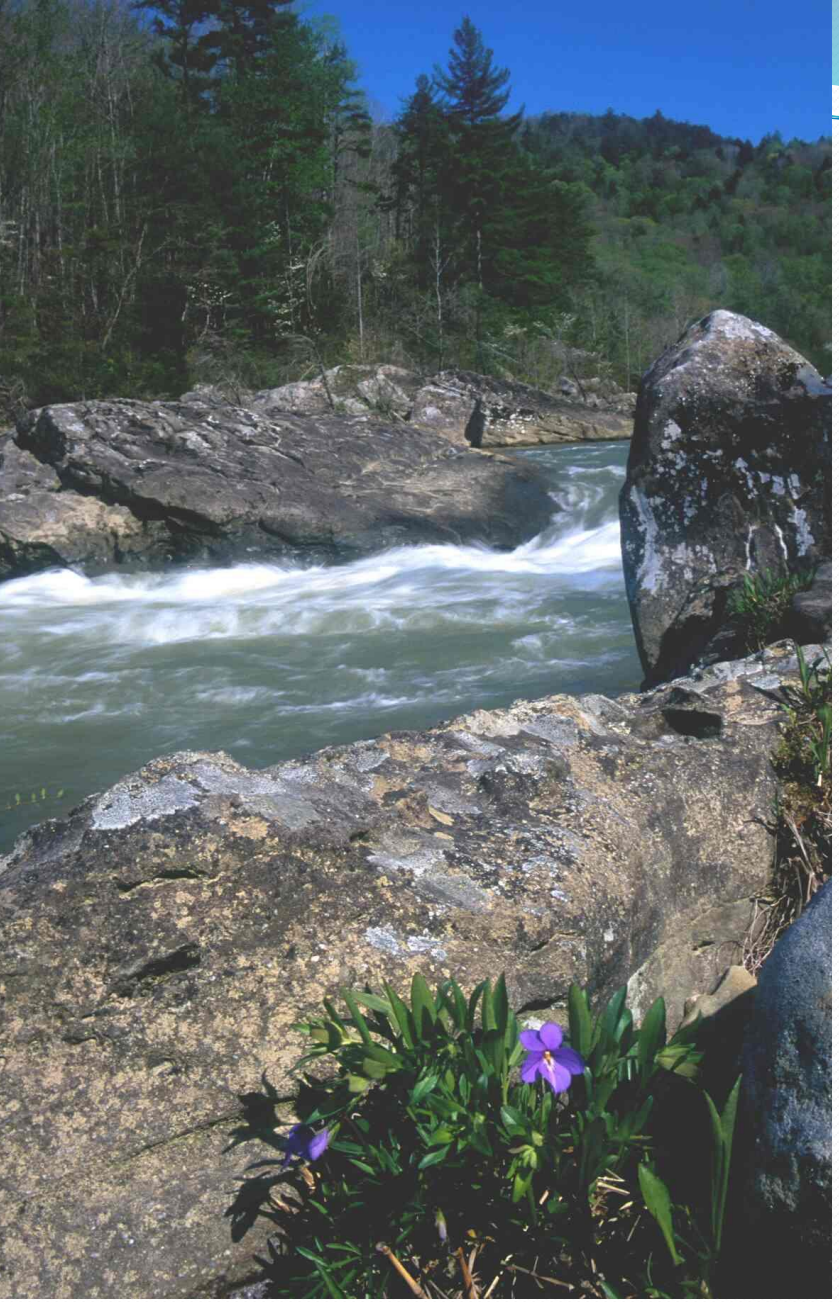
  Both forms of criteria have advantages and disadvantages.

The Antidegradation Policy is a framework for:

- **<u>Protecting existing water quality.</u>**
- Identifying the amounts of degradation that trigger antidegradation reviews.
- Protecting streams that are already at or below the criteria level. (Water quality limited/unavailable parameters)
- Providing a process for determining if chemical or habitat alterations in streams currently above the criteria level are in the public interest. (Available parameters.)
- Identifying and protecting special high quality streams (Exceptional Tennessee Waters & Outstanding National Resource Waters)

EPA says that there are two ways to implement the Antidegradation Policy.

In Tennessee, we combine the two methods into a hybrid approach, which EPA has also approved.



Big South Fork
Cumberland River

Exceptional Tennessee Waters (ETWs) and Outstanding National Resource Waters (ONRWs) are identified on the basis of waterbody characteristics. (Waterbody Approach)

Everything else we do is on a parameter level (available vs unavailable).

EPA calls this the "parameter-by-parameter" approach.

The Triennial Review of Water Quality Standards is a requirement of both state and federal law.

- Promulgated as a regulation by the Tennessee Board of Water Quality, Oil, and Gas.
- DWR and OGC staff provide technical and legal assistance to the Board during the process.
- In order to be used for "Clean Water Act purposes," revisions must first be approved by EPA.

Steps of the Triennial Review:

- Board "send-off"
- Notice of Rulemaking Hearing filed with SOS (draft contains Department's proposed revisions)
- Rulemaking Hearing and Comment Period (TDEC)
- Rule Adoption (Board)
- Once certified by Attorney General's Office, formal EPA review can begin.
- File with SOS. Gov Ops Review. Effective as state law 90 days after filing.
- EPA approval?

Things We Do Every Triennial Review:

- Consider any new national criteria recommendations from EPA. (Not required to adopt, but must provide scientific basis for doing otherwise.)
- Ask TWRA & USFWS about new trout streams. Consider stream reclassification requests, such as adding domestic water supply uses.
- If appropriate, nominate potential new Outstanding National Resource Waters (ONRWs). Provide supporting rationale for nominations and hold on-site public hearings.
- Collect and consider public comments. Document and publish basis for either adopting or not adopting recommendations.

Proposed Changes in this Triennial Review:

- Updating the E. coli criteria
- Correct typo for Nitrosodiethylamine (c) = 12.3 µg/l for Recreational Use, Toxic substances, Organisms Only criteria from previous final draft.
- Correct typos for Methoxyclor and Mirex in the Fish and Aquatic Life Toxics table from previous final draft.
  - Methoxyclor CCC = 0.03 µg/l
  - Mirex CCC = 0.001 µg/l
- Proposed EPA Chloride criteria and correct draft typo in units for Chloride (should be CMC= 860,000 µg/l and CCC = 230,000 µg/l)

Proposed Changes in this Triennial Review:

- Update to De Minimis Degradation definition concerning water withdrawals
  - Subject to the limitation in part 3 of this subparagraph, a single water withdrawal will be considered de minimis if it removes less than five percent of the 7Q10 flow of the stream, unless the withdrawal may adversely affect waters designated as Exceptional Tennessee Waters pursuant to part (4)(a)3 of Rule 0400-40-03-.06.

- Update Antidegradation Statement to include new impoundments regardless of the level of degradation (i.e., new impoundments, like a new discharge of domestic wastewater, will always require full antidegradation review).

- General cleanup of language in document to provide better clarity.

E. coli criteria as proposed:

The concentration of the E. coli group shall not exceed 126 cfu per 100 ml, as a geometric mean based on a minimum of five samples collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals of not less than 12 hours. For the purposes of determining the geometric mean, individual samples having an E. coli concentration of less than 1 cfu per 100 ml shall be considered as having a concentration of 1 cfu per 100 ml.

Additionally, the concentration of the E. coli group in any individual sample shall not exceed 410 cfu per 100 ml more often than in 20% of samples.

E. coli criteria corrected:

The concentration of the E. coli group shall not exceed 126 cfu per 100 ml, as a geometric mean based on a minimum of five samples collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals of not less than 12 hours. For the purposes of determining the geometric mean, individual samples having an E. coli concentration of less than 1 cfu per 100 ml shall be considered as having a concentration of 1 cfu per 100 ml.

Additionally, the concentration of the E. coli group in any individual sample taken from any other waterbody shall not exceed 410 cfu per 100 ml more often than in ten percent of samples during any 30-day interval.

The Process Forward

- Public comment period ends October 21.
- TDEC responds to comments and revises proposal as appropriate
- Target for Board to hold rulemaking hearing (early 2023)
- Once rules are certified by Attorney General's Office, submit to EPA for review and approval.

General Questions?

Richard Cochran

Richard.Cochran@tn.gov

615-532-0997