

**THE NORTHEAST WATER QUALITY
STANDARDS TRAINING
OCTOBER 9-10, 2019**

**INTRODUCTION AND
OVERVIEW**

Anna Mayor

Massachusetts Department of Environmental Protection (MassDEP)

Watershed Planning Program

Water Quality Standards Section

OUTLINE:

- The Federal statute: the Clean Water Act (CWA)
- The purpose of the CWA
- Where it applies
- Applicable regulations
- Water quality standards
- How does it work in your state? (< 5 minutes each)

ACKNOWLEDGEMENTS:

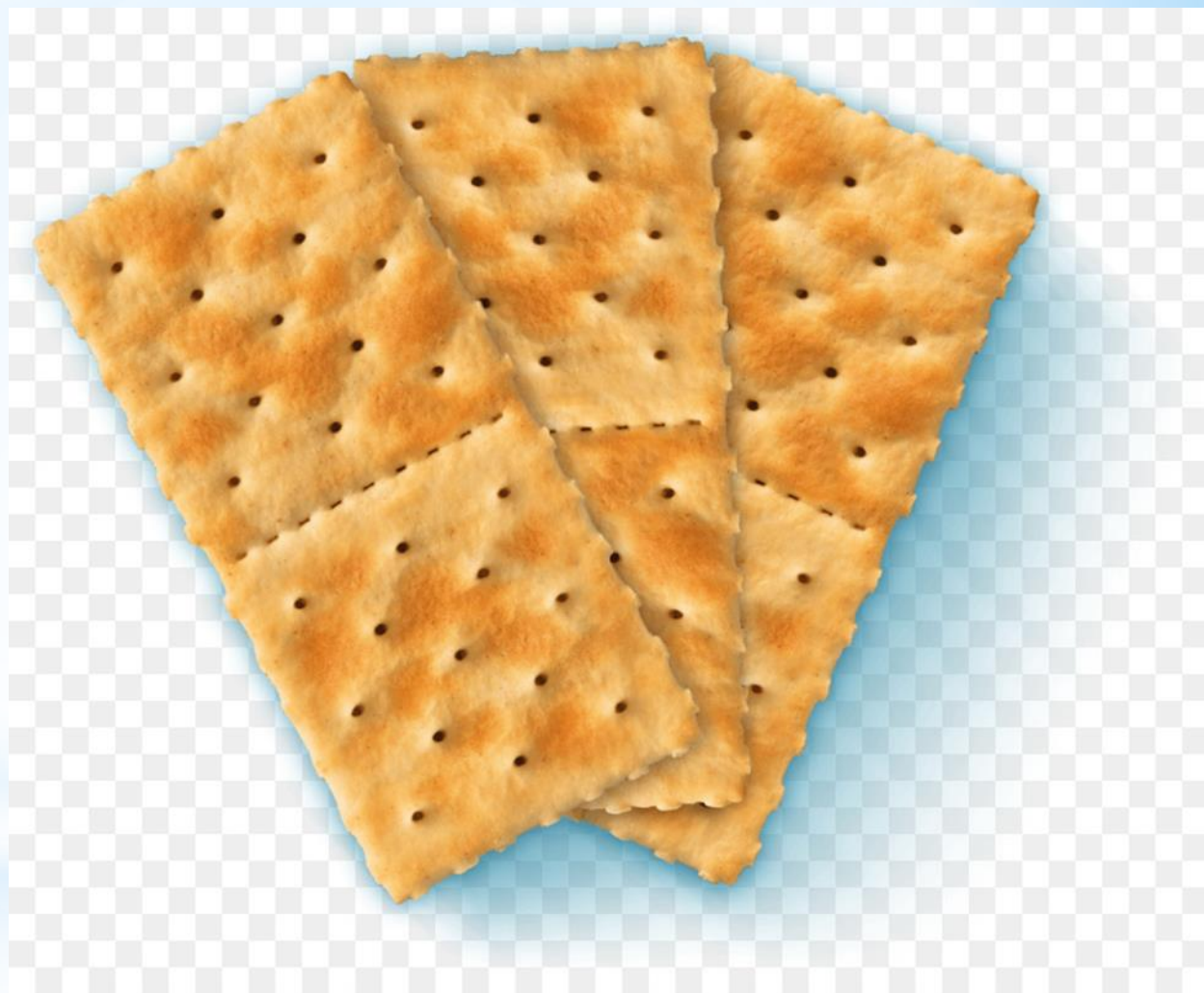
Information gathered for this training was from:

- The Water Quality Standards Academy (2016 and 2018)
- EPA's "Water Quality Standards, Key Concepts" website (<https://www.epa.gov/wqs-tech/key-concepts-module-1-overview>)
- EPA's Overview Presentation on the Water Quality Standards Regulatory Revisions Final Rule, 2015
(<https://www.epa.gov/sites/production/files/2015-10/documents/wqsrule-overview-presentation.pdf>)

FOR MOST

**STATUTES AND
REGULATIONS**

= DRY



Saltines

Photo courtesy of Pixabay

Standards Folks are Unusual

**Regulations and
Policy**

= Stimulating

**= Surface Water
Protection**

**Regardless:
Plan on periodic
stretch breaks!!**



*Enthusiastic Person
Photo courtesy of Pixabay*

Regulatory Structure



- Passed by Congress, signed by the President
- A law that imposes requirements or “musts”



- Substantive rules or “musts” to implement a statute
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- Do not have the force of law (“should”, not “must”)

What is an Act/ Statute?

- Published in the United States Code (U.S.C.)
- Passed by Congress
- Signed by the President (usually)
- Law that imposes requirements

The Clean Water Act



Sue Flint

Photo courtesy of Dan Davis, MassDEP

The CWA

- 1948: Federal Water Pollution Control Act
- 1972: Major set of Amendments known as the **CLEAN WATER ACT or CWA**
- 1977: adjustments for long-term funding for wastewater treatment facilities, sludge management, toxic pollutants, and wetland protection
- 1981: Streamlined construction grants
- 1987: Phased out construction grants, replaced with Clean Water State Revolving Fund; established stormwater permitting and nonpoint source pollution control
- 1990: Great Lakes Initiative
- 2000: adjusted to support updated water quality standards and pathogen monitoring for recreational waters

The CWA

1972 CWA

- Nixon vetoed the CWA and congress over-rode his veto
- Published in the United States Code (U.S.C.) at 33 U.S.C. 1251 et seq.
- Strength of the 1972 amendments:
 - Creation of the NPDES permitting system
 - ✓ requiring authorization to discharge pollutants from a point source into the waters of the U.S.
 - ✓ linked strong enforcement provisions with federal grants to construct wastewater treatment facilities

The CWA

Two major approaches throughout:

water quality protection -- establishing enforceable standards that apply to the chemical, physical, or biological condition of surface water bodies; and

treatment technology requirements -- for facilities that discharge effluent, pollutants, wastes, or other substances into water bodies.

CWA Objective

“Restore and maintain the chemical,
physical and biological integrity of the
Nation’s waters”
(CWA 101(a))

CWA Interim Goal

"That wherever attainable,... water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water be achieved by July 1, 1983" (CWA 101(a)(2))

CWA National [Final] Goal

"that the discharge of pollutants into the navigable waters be eliminated by 1985" (CWA 101(a)(1))

CWA National Policies

§ 101(a)(3)–(7)

- 3) discharge of toxic pollutants in toxic amounts be prohibited;
- 4) Federal financial assistance be provided to build POTWs;
- 5) waste treatment management planning processes be developed and implemented to...control...sources of pollutants...;
- 6) a major research and demonstration effort be made to develop pollutant discharge elimination technology; and
- 7) expeditious development of nonpoint sources control programs be implemented...to enable the goals of the Act to be met through the control of both point and nonpoint sources of pollution.

Purpose of the CWA:

- Established structure for regulating pollutants discharged into the “waters of the US”
- Made it unlawful to discharge any pollutant from a point source into waters without a permit
- Funded construction of sewage treatment plants under the construction grants program
- Required each state to adopt water quality standards
- Provided for EPA review and approval of the state standards

What are the Waters of the U.S. (WOTUS)?

Good question!

- After litigation, 2015 Waters of the US Rule applied in 22 states (including New England)
- Pre-existing rules applied in the others
- However:
 - 2019-initial repeal of 2015 rule
 - Replacement of rule has not been promulgated, so...

What are the WOTUS?

Pre-2015 WOTUS:

- **All waters used in commerce** (a.k.a. navigable waters)
- **Interstate waters**
- All other **waters that could affect the above**
- All **impoundments** of WOTUS
- **Tributaries to above** (including intermittent streams)
- **The territorial sea** (defined by 1982 United Nations Convention on the Law of the **Sea**: coastal **waters** extending at most 13.8 mi from the mean low-**water** mark of a coastal state)
- **Wetlands** adjacent to WOTUS

What are the WOTUS?

Continuing ISSUE:

- **Interpretation of tributaries** to WOTUS

Rapanos and Carabell—Supreme Court Case

For a water to be covered by the CWA:

- It is a “traditional navigable water,”
- It is “relatively permanent,” or
- It has “significant nexus” to traditional navigable waters (affecting phys/chem/bio of navigable waters)

What are NOT the WOTUS?

- **groundwater** (though states have discretion to apply their WQS to groundwater if they choose—but these do not go to EPA for approval)
- **waste treatment systems** (treatment ponds or lagoons used to meet CWA)
- **prior converted cropland** (wetlands converted to cropland prior to 1985)
- **Final authority** regarding Clean Water Act jurisdiction remains with EPA

What is a point source?

Point Sources are
(Per CWA 502(14)) :

“Any discernable, confined and discrete conveyance including...any pipe, ditch, channel (etc.) ...from which pollutants are or may be discharged”

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How does a Regulation differ from an Act/Statute?

- Substantive rules that **supplement the statute**
- **Congress authorized EPA** to put the CWA laws into effect by creating and enforcing regulations
- Involves **“notice and comment”** rule-making and consultation with tribes
- Reviewed by the **Office of Management and Budget (OMB)**
- **Published in Federal Register (FR)** as a Final Rule
- **Codified** by publishing in 50-volume Code of Federal Regulations (CFR).
- Case law

FR vs. CFR

Federal Register (FR):

- official daily publication for rules, proposed rules, and notices
- executive orders and other presidential documents
- announces ongoing activities of the agencies
- notifies you when you can comment on a proposed regulation
- after a final regulation is published, it is then codified when it is incorporated into the CFR

**Each CFR volume = a Title
focused on a particular
subject**

**Almost all environmental regs
are at Title 40 CFR:
“Protection of Environment”**

Title 40 CFR: Chapter 1– Environmental Protection Agency (only)

Other Chapters 4 - 8 – EPA and/or other Departments, boards or councils (such as the Dept. of Justice and Council on Environmental Quality)

Title 40 CFR: Chapter 1— Environmental Protection Agency

Subchapters A through U

- Grants (B)
- Air Programs (C)
- **Water Programs (D)**
- Pesticide Programs (E)
- Radiation Protection (F)
- Noise Abatement (G),
among others...

CWA Regulations

- Title 40 – Protection of the Environment
- Chapter 1 – Environmental Protection Agency
- Subchapter D – Water Programs
- Parts 104-149 – Headings ranging from Public Hearings on Effluent Standards for Toxic Pollutants to Sole Source Aquifers

CWA Regulations

The National Pollutant Discharge
Elimination System (NPDES)
40 CFR Parts 122 through 129

Water Quality Standards
40 CFR Part 131

The National Pollutant Discharge Elimination System (NPDES)

- The Federal NPDES Regulation
- Unlawful to discharge any pollutant from a point source into surface waters without a permit
- Controls using technology-based limits and, if those are not protective, water quality-based limits
- The NPDES program is the subject of an entire other course

Two Approaches to Maintain and Protect Water Quality

(Technology-Related) Effluent Limitations

Achieve specific
end-of-pipe
performance

CWA §301

Water-Quality-Related Effluent Limitations

Establish water quality
standards in ambient
waters

CWA §302

Technology-Based Effluent Limitations

- Permit limits based on available treatment and control technologies
- Calculation of technology-based effluent limits (TBELs) derived from federal effluent guidelines
- 40 CFR 122.44(a) & (e) and 40 CFR 125.3

Water Quality-Based Effluent Limitations

- Permit limits based on meeting water quality standards in ambient receiving water
- Calculation of water-quality-based effluent limits (WQBELs) derived from State's and Authorized Tribe's (S&AT) surface WQS
- 40 CFR 122.44(d)

Water Quality Standards Regulation

40 CFR 131

- Requires S&AT to review, revise and adopt WQS
- Procedures for EPA to review, approve, disapprove and promulgate WQS (per §303 (c) of the CWA)
- EPA must approve WQS before they can be used for establishing WQBELS (and other actions)

Water Quality Standards

States & Tribes

Definitions (40 CFR Part 131.3):

(j) **States** include: The 50 States, [D.C.], Guam, ...Puerto Rico, Virgin Islands, American Samoa, ...the Northern Mariana Islands, and Indian Tribes that EPA determines to be eligible for purposes of the water quality standards program.

(l) **Indian Tribe or Tribe** means any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian reservation.

Federal Guidance and Policies

- Public notice and comment not required
- Not binding on Agency or public
- Not basis for approval or disapproval
- Governed by the Administrative Procedure Act, section 553
- May or may not involve OMB Review
- Common examples: WQS Handbook, FAQs on the Internet, memos from EPA managers

CWA Implementation



*MassDEP MHB Buoy
Photo courtesy of Kalman Bugica, MassDEP*

*James Meek
Photo courtesy of Dan Davis, MassDEP*



Implementation Structure



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EPA Headquarters (HQ)

Washington D.C. Office of Water

Implement the CWA and Safe Drinking Water Act, among others

- Immediate Assistant Administrator for Water
- Ground Water and Drinking Water
- **Science and Technology**
- Wastewater Management
- Wetlands, Oceans and Watersheds

Office of Science and Technology (OST)

Manages the Water Quality Standards and Criteria Programs

EPA HQ Office of Science and Technology

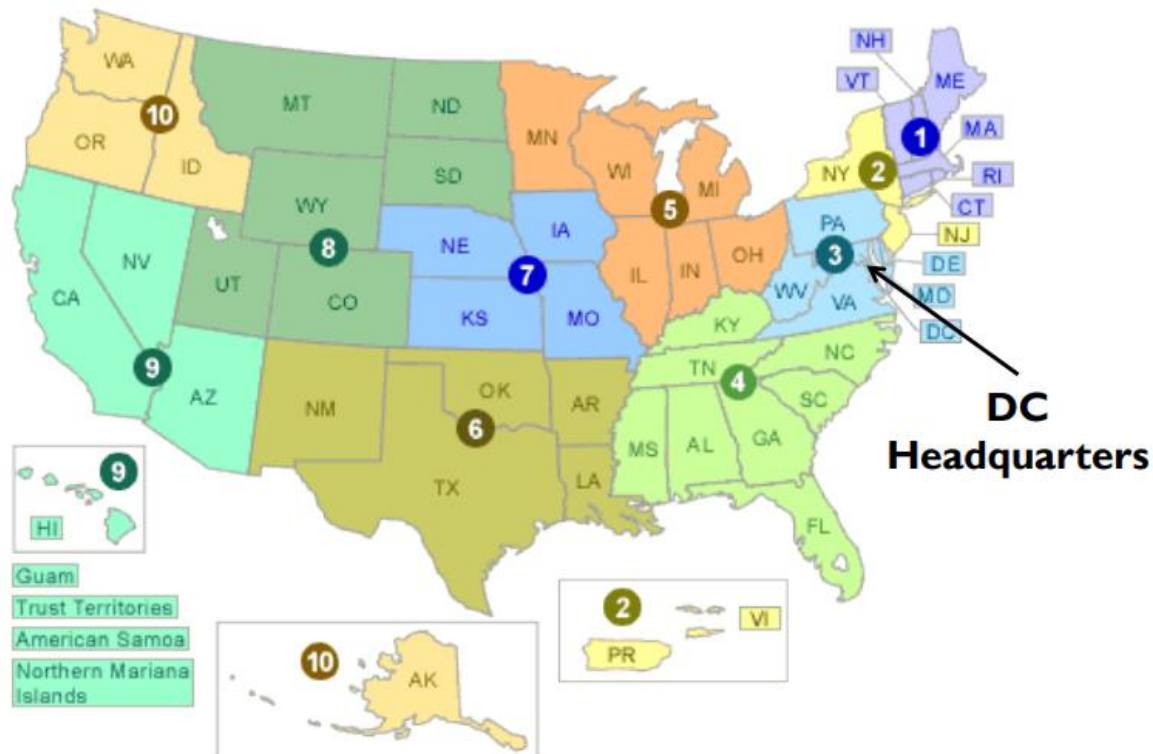
Responsibilities include:

- Providing national guidance
- Promulgating water quality standards when standards have been disapproved
- Supporting regions as they work with States on WQS packages
- Coordinating with other water programs (e.g., permits)
- Coordinating the Beaches Environmental Assessment and Coastal Health (BEACH) Program:
 - ✓ protection of public health and the environment at beaches
 - ✓ providing information about the quality of public beach water

EPA's 10 Regions

MA, NY, PA, GA, IL, TX, KS, CO, CA, WA

EPA REGIONAL OFFICES

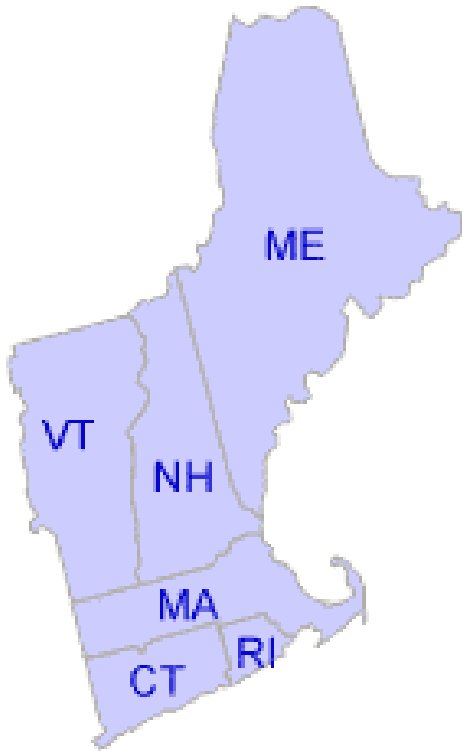


WQSA Dec 2018

EPA Region 1

Plus 10 Tribal Nations

Federally Recognized Tribes in Region 1



- Houlton Band of Maliseet Indians
- Narragansett Indian Tribe
- Passamaquoddy Tribe of Indians - Indian Township Reservation
- Passamaquoddy Tribe of Indians - Pleasant Point Reservation
- Penobscot Indian Nation
- Mashantucket Pequot Tribal Nation
- Wampanoag Tribe of Gay Head (Aquinnah)
- Aroostook Band of Micmacs
- Mohegan Tribe
- Mashpee Wampanoag Tribe

EPA Region 1

Boston Office

Water Division, Surface Water Protection Branch,
Water Quality Standards Section Chief:
Ralph Abele

Water Quality Standards Coordinator:
Jeanne Voorhees (for now!)

State WQS Regulation

State Statute

State Regulations

Guidance/Policy

Next: Water Quality Standards Program

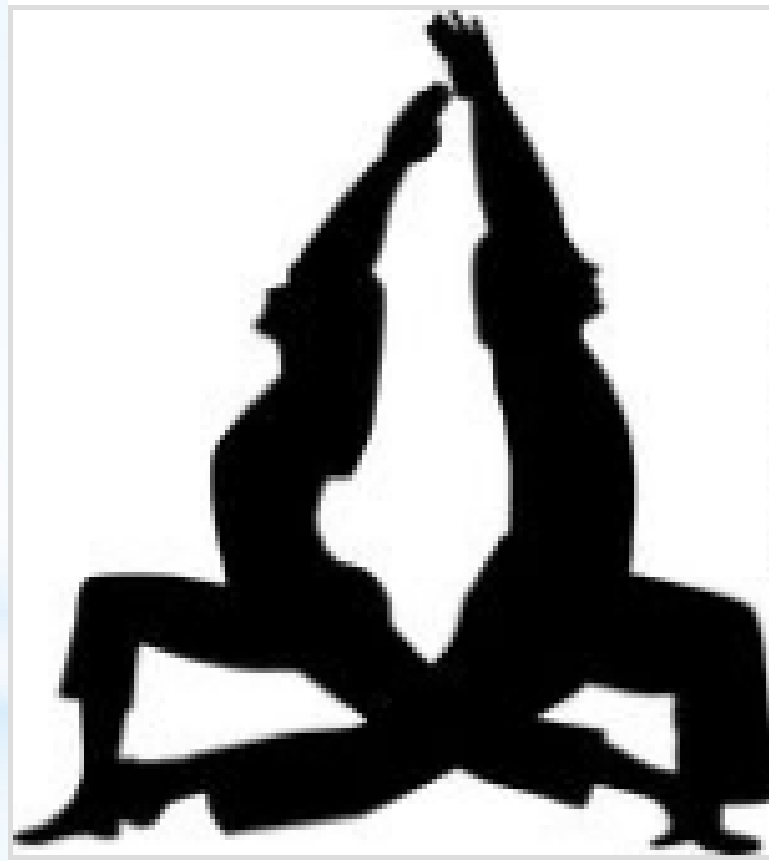




Banded Sunfish

Photo courtesy of Dan Davis, MassDEP

STRETCH



Water Quality Standards

40 CFR Part 131



Photo courtesy of Frank Winkler, Pixabay

40 CFR Part 131

Scope: requirements and procedures for developing, reviewing, revising, and approving water quality standards by the S&ATs as authorized by section 303(c) of the CWA

Sub-parts:

- A – General Provisions
- B – Establishment of WQS
- C – Procedures for Review & Revision of WQS
- D – Federally Promulgated WQS

Water Quality Standards States

State Authority (40 CFR Part 131.4) :

- Review, establish, and revise water quality standards
- WQS do not address rights to water quantity
- May develop water quality standards more stringent than required
- May issue certifications pursuant to the requirements of Clean Water Act section 401
- Grants ATs 401 cert eligibility

Establishment of WQS

(40 CFR Part 131.10-15) :

- § 131.10 Designation of uses.
- § 131.11 Criteria.
- § 131.12 Antidegradation policy and implementation methods.
- § 131.13 General policies.
- § 131.14 Water quality standards variances.
- § 131.15 Authorizing the use of schedules of compliance for water quality-based effluent limits in NPDES permits.

Water Quality Standards

States



WQS Core Structure:

- Designated uses
- Criteria to protect uses
- Antidegradation

Water Quality Standards

States Optional

- WQS variances
- Compliance schedule provisions
- General policies (e.g., mixing zone)



Water Quality Standards States

Summary: S&AT establish WQS to

- Protect public health or welfare and other sensitive uses
- Establish WQ goals
- Maintain + enhance WQ
- Serve the purposes of the CWA
- Provide regulatory basis for controls (beyond tech limits)
- Supplement EPA-approved CWA requirements

Water Quality Standards

EPA

EPA requirements:

- **Review and approve or disapprove** S&AT's adopted WQS
- Ensure **uses** are consistent with the CWA
- Ensure **criteria** that protect uses are based on sound scientific rationale
- Ensure **standards for additional uses** are based upon appropriate data and analyses
- Ensure **antidegradation policy** is consistent with CWA §131.12

Water Quality Standards

EPA

EPA requirements (cont.):

- **Variance and compliance schedule provisions** are consistent with CWA §131.14 and §131.15
- **Promulgate federal WQS**, if:
 - ✓ EPA disapproves a state's WQS or
 - ✓ determines that new or revised WQS are necessary to meet the requirements of the CWA.

Water Quality Standards States

Must be included in State's WQS submitted to EPA:

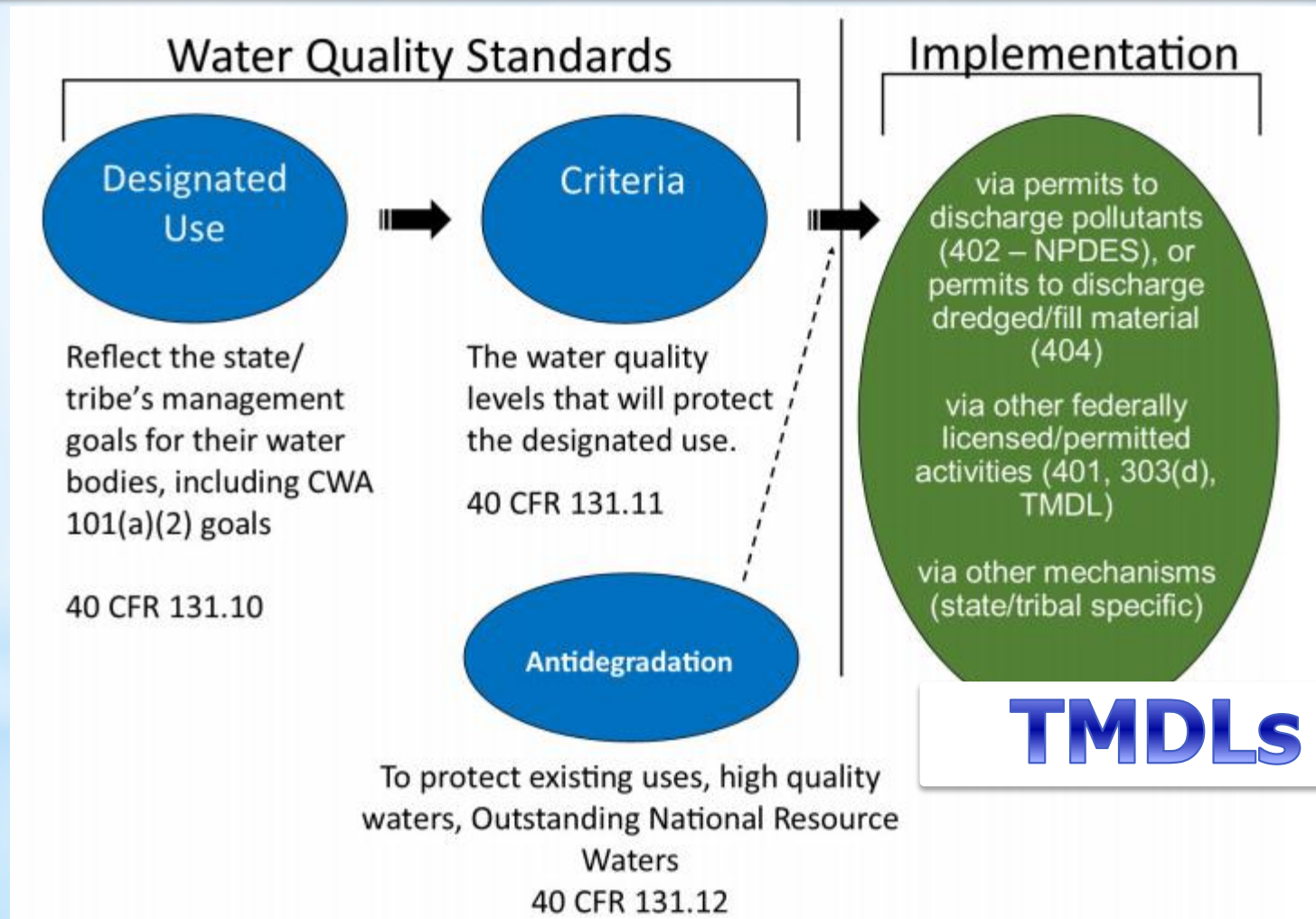
- **Use designations** consistent with CWA §101(a)(2) and 303(c)(2)
- **Water quality criteria** sufficient to protect uses
- **Explanation** if new or updated EPA criteria recommendations are not adopted
- An **antidegradation policy** consistent with CWA §131.12
- **Methods and analyses** that support the WQS revisions
- **Certification** by the State AG or other legal authority that the WQS were duly adopted pursuant to State law

Water Quality Standards States

Information that must be included in State's WQS submitted to EPA:

- the **scientific basis** of any standards supporting additional uses
- that which may affect the **application and implementation of policies** applicable to State standards

Water Quality Standards



Designated Uses



Designated Uses

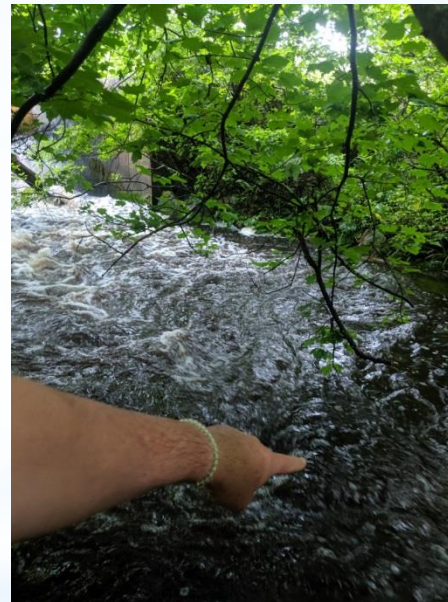
- **Interim goal** (CWA Section 101(a)(2)):
 - ✓ WQ should provide for the protection and propagation of fish + shellfish and recreation in and on the water, wherever attainable
- **Expression of goals** for each surface water
- Specified **whether or not use is attained**
- **S&ATs responsible** for identifying uses
- Uses **determine water quality criteria**
- Serve as the **basis for discharge permit limits**
- More on uses will be reviewed this afternoon

Water Quality Criteria

Not meeting criteria (impaired)



Meeting criteria (high quality)



Water Quality Criteria

- Limits on chemicals or conditions in a water body (e.g., cadmium, dissolved oxygen, etc.)
- Protect specific designated uses
- At minimum, CWA requires S&AT to adopt criteria for priority pollutants identified by an EPA task force (CWA §303(c)(2)(b))
- Expressed as numeric levels or concentrations, narrative statements, or models/equations

Water Quality Criteria

- Narrative criteria can be used to express pollutants that cannot be precisely measured (e.g., chemical mixtures and solid debris)
 - ✓ Assessment staff often use multiple quantitative “indicators” to evaluate attainment of narrative criteria (e.g., chlorophyll *a*, D.O.)
- Use of both approaches (narrative and quantitative) is most protective (e.g., “no toxic pollutants in toxic amounts” & concentrations)

Water Quality Criteria

- Per 40 CFR 131.11, criteria that S&ATs adopt into their standards must:
 - ✓ Be based on sound science
 - ✓ Include parameters, levels, and/or concentrations sufficient to support protection of each surface water's designated uses, including the most sensitive use
- S&ATs typically adopt those recommended by EPA

Water Quality Criteria

- EPA's recommended criteria are:
 - ✓ not rules
 - ✓ must be promulgated into WQS, directly or by reference
 - ✓ based on the best available science
 - ✓ becoming more complex – calculated based on local conditions (e.g., aluminum, copper, ammonia)
- WQC have no force of law until they have been:
 - ✓ adopted into a S&AT's water quality standards, and
 - ✓ EPA has approved them

Water Quality Criteria

- After EPA approval, criteria can be implemented and enforced in other regulatory programs:
 - ✓ NPDES permits
 - ✓ TMDLs
 - ✓ Assessment
- More on criteria will be presented in the final presentation this afternoon

Antidegradation



Reference Stream

Photo courtesy of Dan Davis, MassDEP



Eastern Brook Trout

Photo courtesy of Bob Maietta, MassDEP

Antidegradation

- CWA: WQS must include method for deciding if water quality can be degraded by regulated activities and when that water quality must be maintained
- A framework for:
 - ✓ weighing pros and cons of a proposed activity and
 - ✓ for involving the public in the decision-making (40 CFR Section 131.12(a))
- S&ATs given discretion to permit activities that degrade water quality to a minimum level necessary to support the existing uses

Antidegradation

- Provisions/Policy can apply to both point and non-point source activities
- Before permitting degradation for point sources:
 - ✓ the S&AT must ensure that the most stringent technology-based controls required by law will be implemented
- EPA cannot require S&AT to implement non-point programs
- S&ATs are free to adopt requirements for non-point sources that exceed those of the CWA
- More tomorrow...

STRETCH!



How does it work in your state?

State Presentations (< 5 minutes each)

Massachusetts Regulatory Structure

Statute – The Massachusetts Clean Waters Act: Massachusetts General Laws (M.G.L.) Part 1, Title II, Chapter 21, Sections 26 through 53: Division of Water Pollution Control

“shall be the duty and responsibility of the division to enhance the quality and value of water resources and to establish a program for prevention, control, and abatement of water pollution”

Regulation	Title	Purpose regarding surface waters
314 CMR 4.00	Massachusetts Surface Water Quality Standards	Designate uses, prescribe criteria to sustain the uses, and regulations necessary to achieve uses and maintain water quality, including prohibition of discharges.
314 CMR 3.00	Surface Water Discharge Permit Program	To implement the MA and Federal Clean Water Acts as applied to surface water discharges.
314 CMR 9.00	401 Water Quality Certification	Establish permitting requirements for dredging projects, as required by Section 401 of the federal Clean Water Act. Certification issued by MassDEP.
[310 CMR 22.00]	Drinking Water	Establishes Maximum Contaminant Levels (MCL) and goals that apply to ground water and surface water.
[310 CMR 40.0000]	The Massachusetts Contingency Plan	Establishes cleanup standards for hazardous waste sites for soil and groundwater. 314 CMR 4.00 standards or MCLs apply to surface waters.

Massachusetts Regulatory Structure

Regulation	Title	Purpose regarding surface waters
[310 CMR 10.00]	Wetlands Protection	To establish standard definitions and uniform procedures by which conservation commissions and the Department may carry out their responsibilities under The Wetlands Protection Act, M.G.L. c. 131, § 40.
[105 CMR 445.000]	Minimum Standards for Bathing Beaches	Among other purposes, to establish beach closure criteria for physical quality, bacteriological quality, oil, hazardous materials, or heavy metals.