



Overview of the Clean Water Act, and Water Quality Standards

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- What will we learn in this Academy?
 - Who plays what roles in protecting water quality?
 - What is the Clean Water Act?
 - What are Laws, Regulations and Guidance?
 - What are Water Quality Standards?



Water Quality Standards: Who Plays?

- States, Territories and Indian Tribes with Program Authorization
- EPA Regions
- EPA Headquarters (Office of Science and Technology) (OST)



WQS: States, Territories and Authorized Tribes

- Adopt, review and revise water quality standards and implementation procedures in a public process (CWA Section 303(c))
 - ◆ May adopt standards more stringent than recommended by EPA (Section 510)
- May certify that federally licensed activities that may result in any discharge to their waters meet WQS (Section 401)



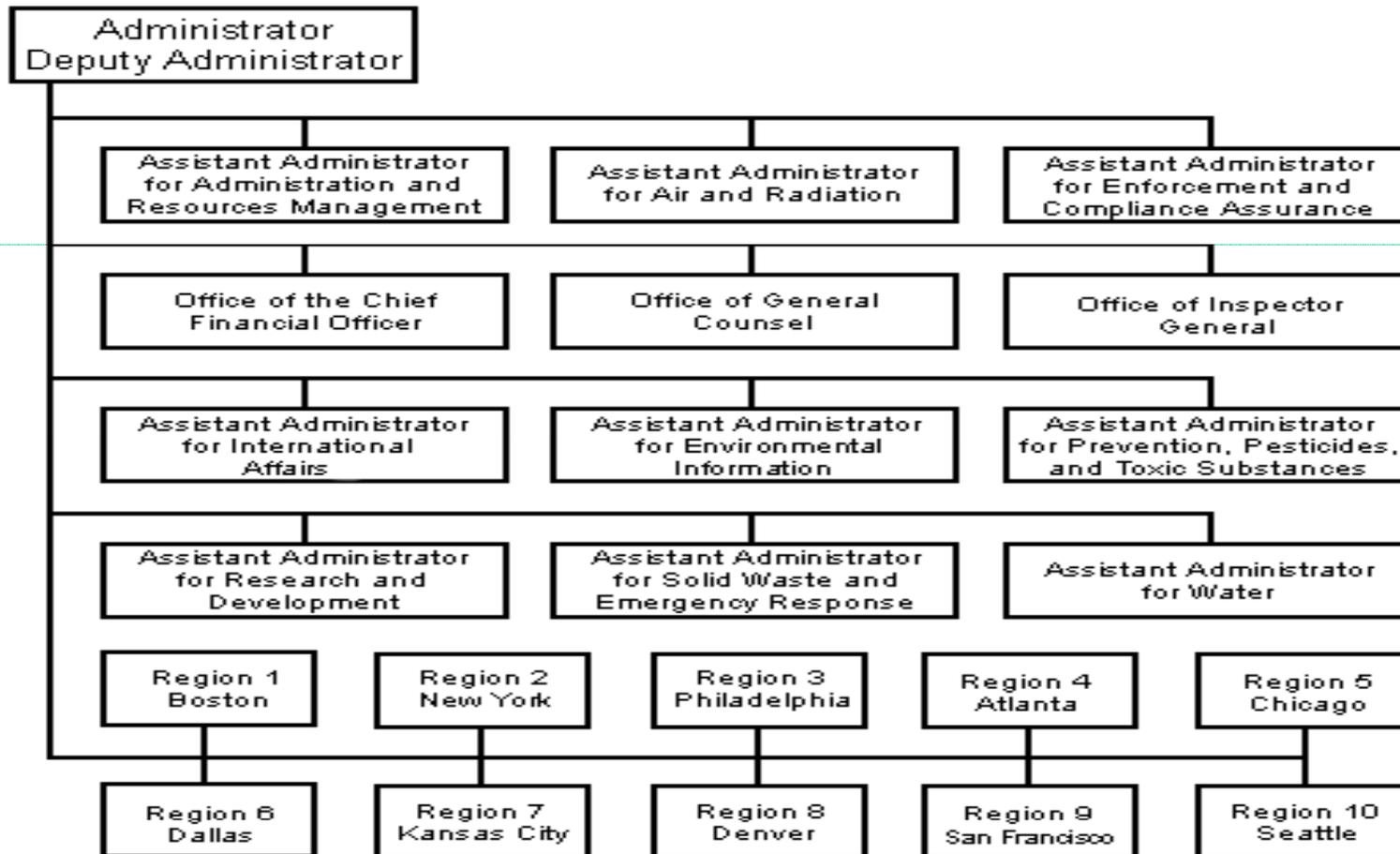
States, Territories and Authorized Tribes, Continued

- Monitor waters and assess status for 305 (b) and 303 (d) reports
- Issue National Pollutant Discharge Elimination System (NPDES) discharge permits (generally)
- Tribes: Obtain program authorization

What is EPA?

- 
- Mission - Protect Human Health and the Environment
 - ◆ Tools: Laws enacted by Congress and the implementing regulations
 - A Regulatory Agency
 - ◆ Regulatory Responsibilities in Air, Water, Solid Waste, Pesticides, Radiation, Toxic Substances and Hazardous Waste
 - No single "Environmental Statute"
 - A Science Agency
 - ◆ Laboratories, Office of Research and Development

EPA Structure



EPA Regions

- 
- Primary contacts with States and Tribes for Water Programs
 - Provide Technical Assistance
 - Approvals, disapprovals under 303 (c)(4)(a)
 - ◆ Consult with Services under Sec. 7 of ESA
 - Request Administrator “determinations” under (4)(b)

EPA Headquarters (OST)

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- ◆ Facilitates development of regulations and policies that guide regional review (with Regions and States)
 - ◆ Develop and publish 304(a) recommendations
 - ◆ Provides informal concurrence on:
 - disapprovals
 - approvals that raise significant issues
 - ◆ Leads development and financing of promulgations
 - ◆ Coordinates with OMB

The Clean Water Act

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- Objective: “restore and maintain the chemical, physical and biological integrity of the Nation's waters”
 - Interim goal: “water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water”, wherever attainable

Clean Water Act: History

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- Rivers and Harbors Act of 1899
 - ◆ permits
 - Water Pollution Control Act of 1948
 - ◆ technical assistance to states
 - Water Pollution Control Act of 1956
 - ◆ financial assistance to states for treatment plants
 - Water Quality Act of 1965
 - ◆ first federal water quality standards program, for interstate water
 - Clean Water Restoration Act of 1966
 - Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act)

Clean Water Act: Provisions

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- Section 101 - Goals and Policy
 - Section 301 - Technology Based Effluent Limits
 - Section 302 - Water Quality Based Effluent Limits
 - Section 303 - WQ Standards and Implementation
 - Section 304 - Information and Guidelines
 - Section 305 - Water Quality Inventory
 - Section 306 - National Performance Standards
 - Section 307 - Toxics and Pretreatment Standards
 - Section 308 - Inspection, Monitoring and Entry
 - Section 309 - Enforcement

Clean Water Act: Provisions (cont'd)

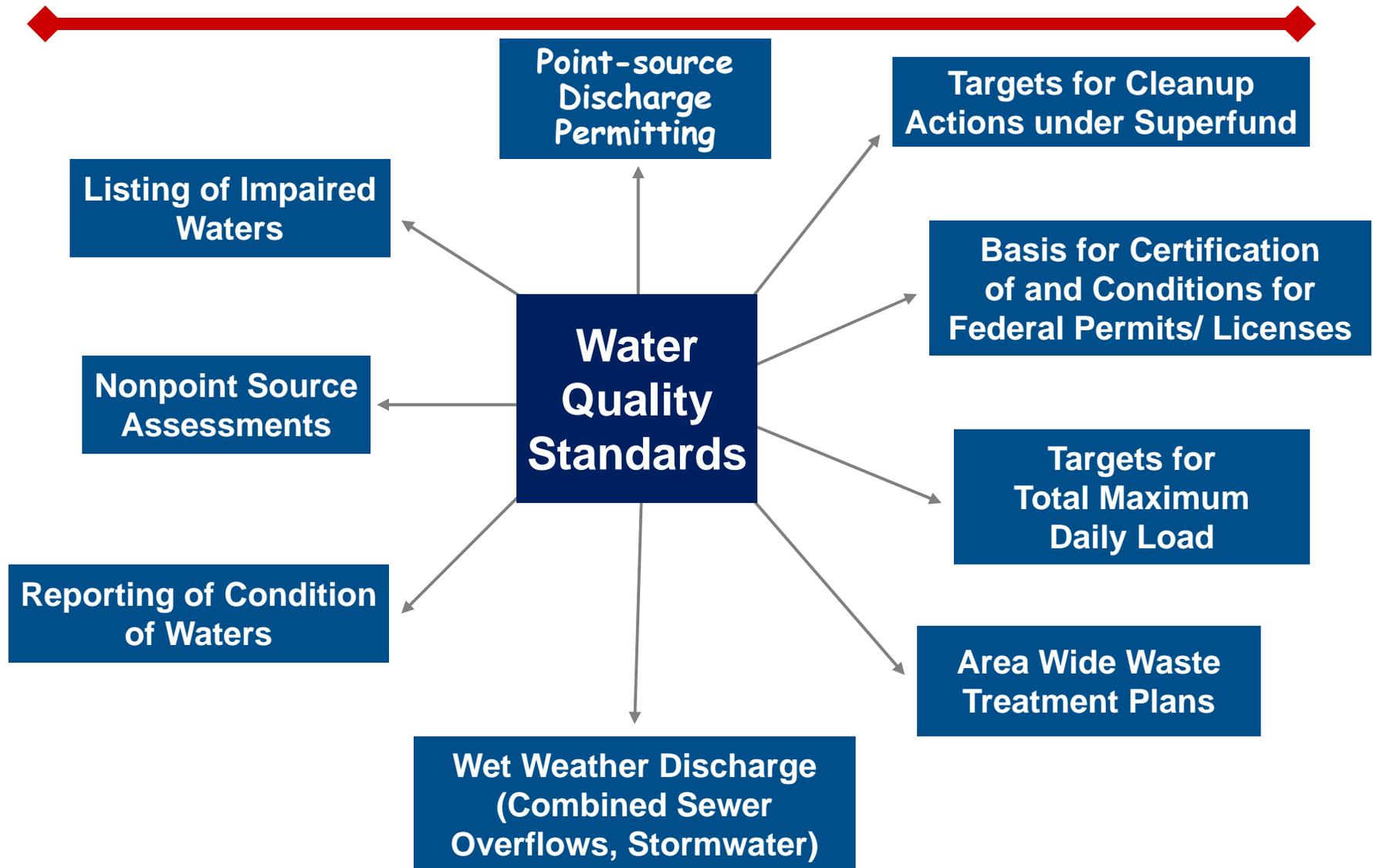
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- Section 316 - Thermal Discharges
 - Section 319 - Nonpoint Source Management
 - Section 320 - National Estuary Program
 - **Section 401 - State/Tribal Certification**
 - **Section 402 - Point Source Permitting (NPDES)**
 - Section 404 - Dredge and Fill Permitting
 - **Section 502 - Definitions: Navigable, Pollutant...**
 - Section 505 - Citizen Suits
 - **Section 510 - State/Tribal Authority**
 - Section 516 - Reports to Congress
 - **Section 518 - Indian Tribes**

CWA: Technology Based Approach (Section 301)

- 
- Effluent limits for industrial dischargers to:
 - 1) surface waters
 - 2) Publicly Owned Treatment Works (POTWs)
 - Effluent Limits for Publicly Owned Treatment Works (“secondary treatment”)
 - Based on performance of treatment and control technologies, not impacts to receiving waters



CWA: Water Quality Based Approach (Sec. 303)



What are Laws?

- 
- Passed by Congress, signed by the President
 - Published in the United States Code (U.S.C.) (<http://www.gpoaccess.gov/>)
 - Clean Water Act is 33 U.S.C. 1251-1587

What are regulations? (1)

- 
- Have the force and effect of law
 - A “must”
 - Involves “notice and comment” rulemaking
 - May involve Office of Management & Budget (OMB)
 - Agency develops rationale and proposed regulation and publishes it and requests comment in the Federal Register (FR):
<http://www.regulations.gov>

What are regulations? (2)

- Agency considers all comments, revises proposed regulation accordingly, and publishes final rule
- Once regulation is published in Federal register as a Final Rule, it is Codified by being published in the Code of Federal Regulations (CFR)
(<http://www.gpoaccess.gov/>)

What are regulations? (3)

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- 50 volumes in the Code of Federal Regulations, called Titles, each focused on a particular subject
 - Almost all environmental regulations are at Title 40 "Protection of Environment"
 - <http://www.gpoaccess.gov/>
 - **Basis for disapproval of water quality standards**

What is Guidance or Policy?

- 
- “should”
 - notice and comment not required
 - not binding on Agency or Public
 - may involve OMB Review
 - **not a basis for disapproval**
 - Governed by section 553 of the Administrative Procedure Act: <http://www.archives.gov>
 - example:
<http://water.epa.gov/scitech/swguidance/standards/policy.cfm>



Water Quality Standards

(see 40 CFR 131.3)

- 
- Provisions of State/Tribal (or Federal) Law
 - ◆ Designated Uses
 - ◆ Criteria to protect those uses
 - ◆ Antidegradation policy
 - Water Quality Standards are to:
 - ◆ Protect public health or welfare
 - ◆ Enhance the quality of the water
 - ◆ Serve the purposes of the Act



Water Quality Standards, cont'd

(see 40 CFR 131.3)



- **Water Quality Standards**
 - ◆ **Establish water quality goals for a waterbody**
 - ◆ **Provide a regulatory basis for controls beyond technology-based limits**



Designated Uses (40 CFR 131.10)

- 
- Water Quality goals for a specific water body
 - *Protection and propagation of fish, shellfish and wildlife*
 - *Recreation in and on the water*
 - Public water supply
 - Agriculture
 - Industry
 - Navigation
 - Others



Water Quality Criteria (40 CFR 131.3)

- 
- Discussed in Sections 304(a) and 303(c) of the Act
 - A concentration, level or narrative statement
 - Represent a level of water quality that supports a particular use
 - When criteria are met, water quality will generally protect the designated use



Water Quality Criteria

1 Word - 2 Meanings

- 
- ◆ Scientifically defensible guidance developed and published by EPA per CWA § 304(a)
 - Basis for Federal promulgation when necessary
 - ◆ Adopted part of State/Tribal WQS
 - Section 303(c)



Water Quality Criteria Requirements (40 CFR 131.11)

- States/Tribes Must adopt criteria that protect the designated use
 - ◆ Based on a sound, scientific rationale
 - ◆ Sufficient parameters to protect the designated use
 - ◆ Must support the most sensitive use (for waters with multiple use designations)



Water Quality Criteria: Forms (40 CFR 131.11b)

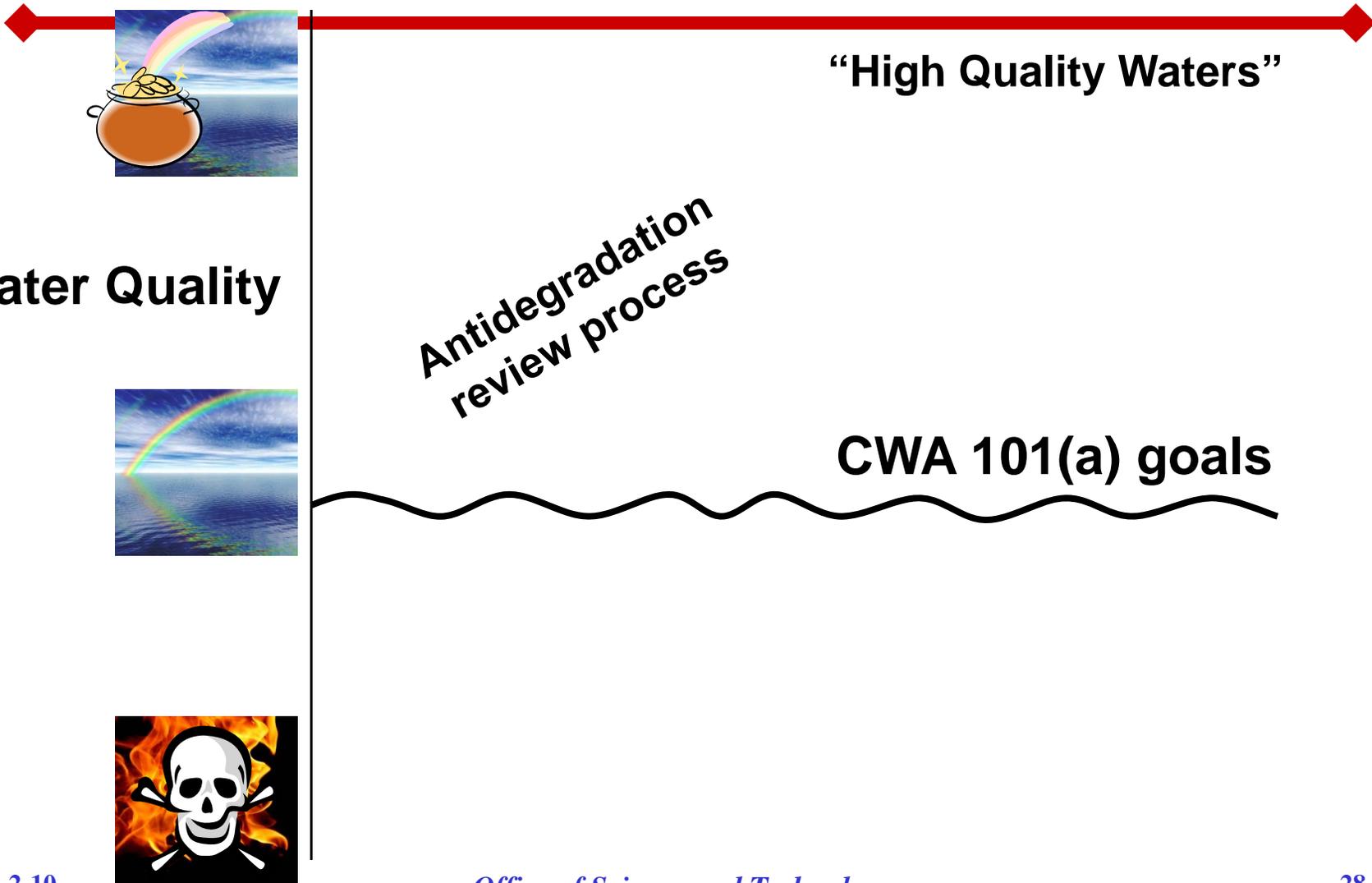
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- States and Tribes should adopt numeric criteria based on:
 - ◆ 304(a) guidance
 - ◆ 304(a) guidance modified to reflect site specific conditions
 - ◆ Other scientifically defensible methods
 - States/Tribes should adopt narrative criteria:
 - ◆ Where numeric criteria cannot be established
 - ◆ Or to supplement numeric criteria

Types of Water Quality Criteria

- 
- ◆ Aquatic Life Criteria
 - ◆ Human Health Criteria
 - ◆ Bacteria Criteria
 - ◆ Biological Criteria
 - ◆ Nutrient Criteria
 - ◆ Others



Antidegradation (40 CFR 131.12)



Water Quality

“High Quality Waters”

Antidegradation
review process

CWA 101(a) goals



General policies (40 CFR 131.13)

- States and authorized tribes may include in their standards policies affecting application and implementation, such as:
 - ◆ Mixing zones
 - ◆ Low flows
 - ◆ Variances
- Subject to EPA review and approval



Submittal and Approval "Musts"

40 CFR 131.20

- 
- At least once every 3 years, hold a Public Hearing for reviewing applicable standards
 - Re-examine any segments with uses less than 101 (a)
 - Submit review results and supporting analyses to the EPA Regional Administrator

What is EPA's question for approval?



Do the submitted standards meet the requirements of the Act and the implementing regulations at 40 CFR 131?



EPA does NOT review or act on...



Elements of State/Tribal WQS that are not subject to Clean Water Act Authority, e.g.

- groundwater criteria



When do the Adopted State or Tribal Standards become applicable?

- 
- WQS Submitted to EPA Do Not Become the “Applicable” WQS for CWA Purposes Until Approved by EPA
 - “Applicable” WQS Remain the CWA WQS Until EPA Approves Revisions or Promulgates Replacement WQS
 - Standards and Supporting Documents Generally on file in Regions

Federal Promulgations (40 CFR 131.22)

- 
- If EPA disapproves AND
 - If state or tribe does not adopt specified changes within 90 days...
 - THEN the EPA Administrator must promptly propose and promulgate a replacement standard
 - OR in any case where the Administrator determines new or revised standards are necessary to meet the requirements of the CWA



Where WQ Standards Apply: "Waters of the U.S."

- Used or maybe susceptible for use in interstate or foreign commerce
- Interstate Waters
- Other waters, the use, degradation or destruction of which could affect such commerce
- Impoundments of waters so defined
- Tributaries of the above
- the Territorial Sea
- Wetlands adjacent to the above
- <http://water.epa.gov/lawsregs/guidance/wetlands/CAwaters.cfm>



Waters of the US (2)

- 
- 3 miles: Territorial Seas - State/Tribal WQS apply
 - 24 Miles: Contiguous Zone
 - 200 Miles: Exclusive Economic Zone



Monitoring and Reporting: CWA Sections 305 (b) and 303 (d)

- 
- Document assessment methodology for WQS attainment decisions
 - Categorize all state waters based on WQS attainment status
 - Establish monitoring priorities for next 2 years
 - Establish TMDL development priorities for all Category 5 waters

305(b) / 303(d) Monitoring and Reporting: Integrated Categories

305 (b)
Report

1. Attaining all designated uses
2. Attaining some designated uses, and insufficient or no data and information to determine if remaining uses are attained
3. Insufficient or no data and information to determine if the standard is attained
4. Impaired or threatened for one or more designated uses but not needing a TMDL because --
 - a. TMDL has been completed
 - b. Expected to meet standards
 - c. Not impaired by a pollutant
5. Impaired or threatened by pollutant(s) for one or more designated uses and requiring a TMDL

} 303(d)
List

TMDL Definition

$$\text{TMDL} = \sum \text{WLA}_i + \sum \text{LA}_i + \text{MOS}$$

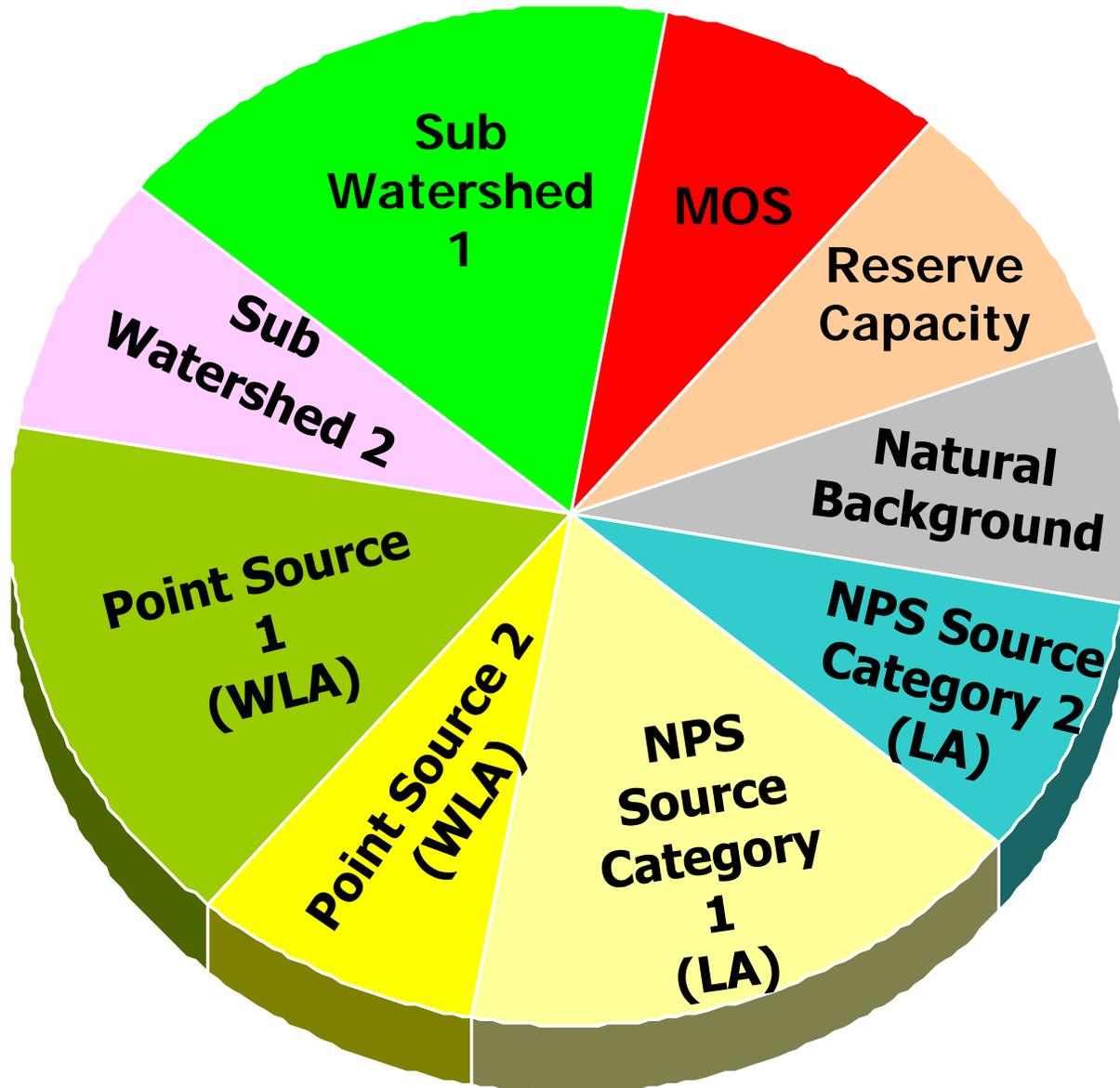
$\sum \text{WLA}_i$: Sum of waste load allocations (point sources)

$\sum \text{LA}_i$: Sum of load allocations (nonpoint sources)

MOS: Margin of Safety

- Extra measure of protection due to uncertainty
- Can be explicit (e.g., 10%) or implicit (safety factors, modeling assumptions, etc.)

TMDL Allocation

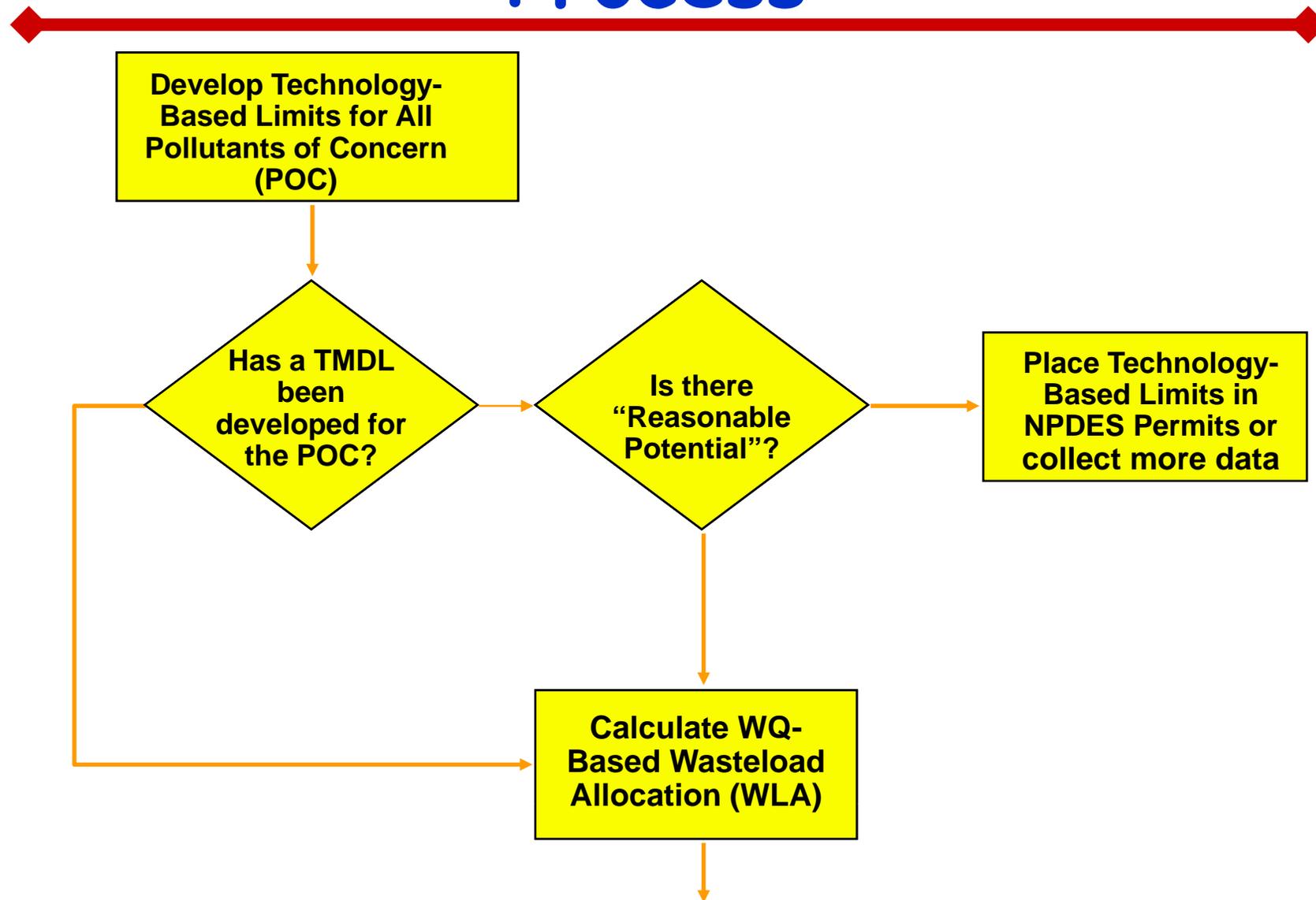


Standards-to-Permits Process

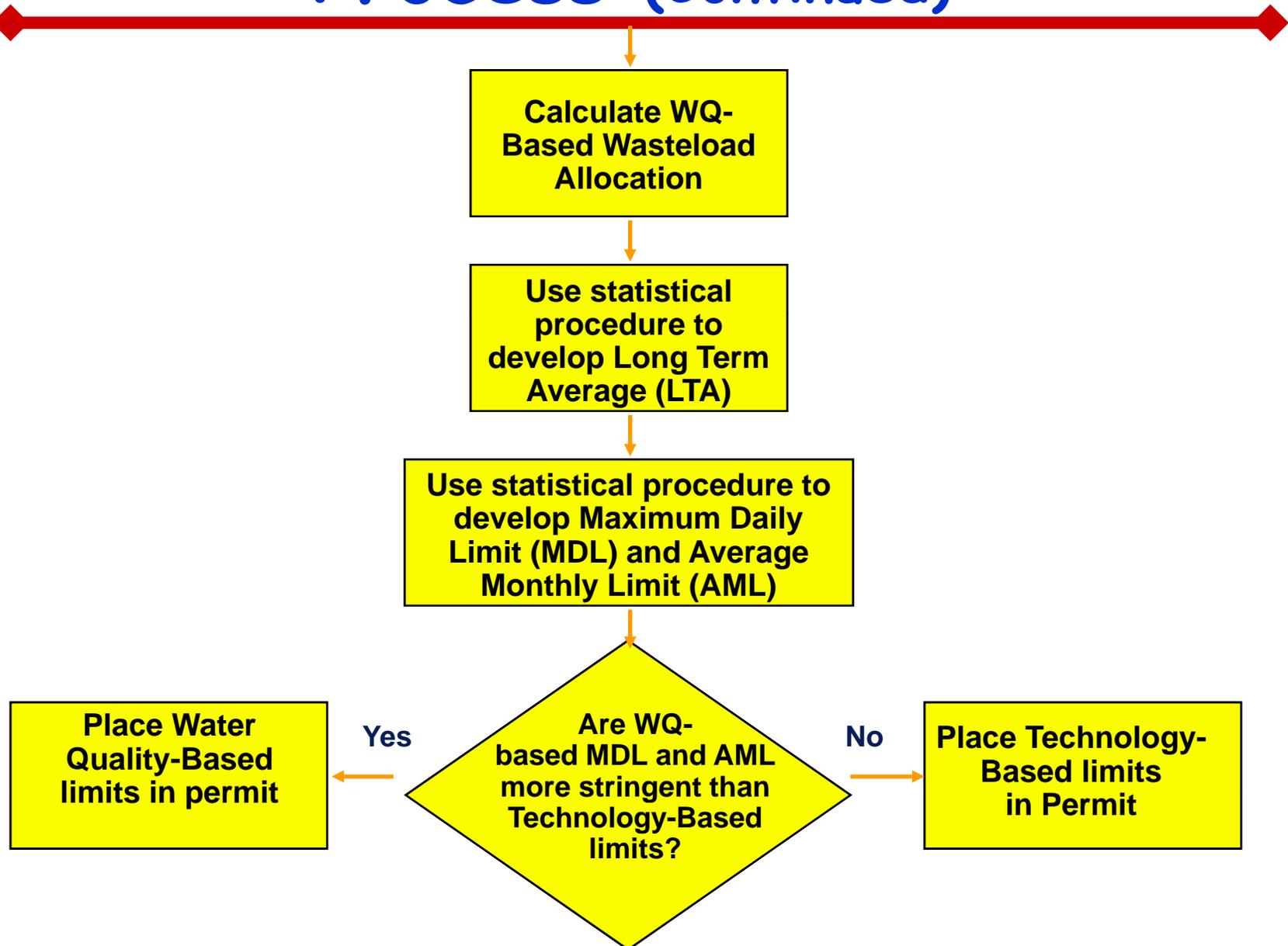


- 40 CFR §122.44(d)
- *Technical Support Document for Water Quality-based Toxics Control*
(EPA/505/2-90-001), March 1991

Standards-to-Permits Process



Standards-to-Permits Process (Continued)





Overview: Take Home Messages



- States, Territories and Authorized Tribes have important and unique roles in developing, adopting, reviewing and approving water quality standards.
- The Clean Water Act features both Technology Based and Water Quality Based approaches to pollution control.
- The Act itself, and regulations developed by notice and comment rulemaking, are the basis for EPA's review and approval of adopted state and tribal water quality standards.



Overview: Take Home Messages (2)



- The Clean Water Act establishes a national goal of "water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water", wherever attainable



Overview: Take Home Messages (3)



- State/Tribal Water Quality Standards:
 - ◆ Establish water quality goals and targets for a waterbody
 - ◆ Are used to determine attainment and non-attainment
 - ◆ Provide the regulatory basis for controls beyond technology-based limits.

Review Questions #1

- 
- The objective of the Clean Water Act is to restore and maintain the ____ integrity of the Nation's waters (circle all that apply).

- ◆ a. biological
- ◆ b. physical
- ◆ c. economical
- ◆ d. chemical

Review Questions #1

- 
- The objective of the Clean Water Act is to restore and maintain the ___ integrity of the Nation's waters (circle all that apply).

- ◆ a. biological
- ◆ b. physical
- ◆ c. economical
- ◆ d. chemical

- Answer:

- ◆ a, b, d. Section 101(4) contains the objectives of the CWA.

Review Questions #2

- 
- True or False. Water quality standards serve two purposes: (1) they establish water quality goals for a waterbody; and (2) they provide a regulatory basis for controls beyond technologically based limits.

Review Questions #2

- True or False. Water quality standards serve two purposes: (1) they establish water quality goals for a waterbody; and (2) they provide a regulatory basis for controls beyond technologically based limits.

- Answer:
 - ◆ True. Water quality standards establish criteria to define and maintain water quality. They also provide a regulatory basis for controls beyond technologically based limits.



Review Questions #3

-
- True or False. States and Indian Tribes with program authorization have the authority to adopt water quality standards more stringent than required by EPA's water quality standards regulation.

Review Questions #3

- True or False. States and Indian Tribes with program authorization have the authority to adopt water quality standards more stringent than required by EPA's water quality standards regulation.

- Answer:
 - ◆ True. Section 510 of the Clean Water Act recognizes the constitutional right of States to adopt standards that are more stringent.

Review Questions #4

- 
- Who is responsible for reviewing and approving or disapproving State and Tribal standards?
 - ◆ a. EPA Regional Administrators
 - ◆ b. EPA's Administrator
 - ◆ c. U.S. Congress

Review Questions #4

- Who is responsible for reviewing and approving or disapproving State and Tribal standards?
 - ◆ a. EPA Regional Administrators
 - ◆ b. EPA's Administrator
 - ◆ c. U.S. Congress

- Answer:
 - ◆ a. Responsibility for reviewing and approving or disapproving State and Indian Tribal water quality standards has been delegated to EPA's 10 Regional Administrators.

Review Questions #5

- 
- True or False. Water quality criteria recommendations published by EPA under section 304(a) of the Clean Water Act take into consideration economic considerations, level of treatment technology available, as well as scientific considerations.

Review Questions #5

-
- True or False. Water quality criteria recommendations published by EPA under section 304(a) of the Clean Water Act take into consideration economic considerations, level of treatment technology available, as well as scientific considerations.
 - Answer:
 - ◆ False. Criteria are based on scientific considerations only.