



Coeur d'Alene, Idaho  
31 March – 4 April, 2003

## KEYS TO GETTING BIOCRITERIA INTO WATER QUALITY STANDARDS

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# *Introduction*

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*Presented by*

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# Take Home Concepts

- **What are and are not water quality standards?**
- **Different ways biological assessments and criteria can be used to enhance water quality standards**
- **Trials and tribulations of other States**

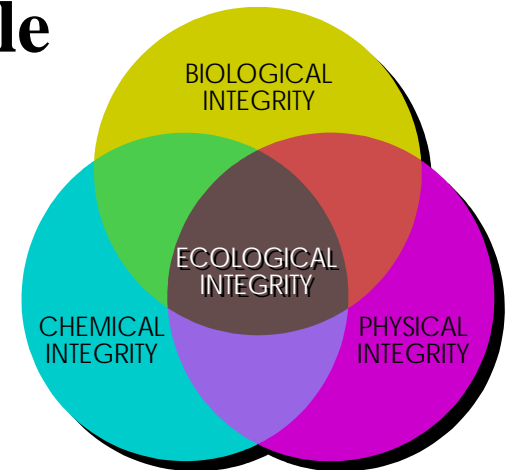
# Outline

- 1. Basics of Water Quality Standards**
- 2. Case Presentations**
  - **Oregon**
  - **Oklahoma**
  - **Maine**

# **Basics of Water Quality** **Standards**

# Clean Water Act

- **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**



# **What are Laws?**

- **Passed by Congress, signed by the President**
- **Published in the United States Code (U.S.C.)  
([www.access.gpo.gov/congress/cong013.html](http://www.access.gpo.gov/congress/cong013.html))**
- **Clean Water Act is 33 U.S.C. 1251 - 1587**

# What are Regulations?

- **“Substantive Rules” or “Legislative Rules”**
- **Have the force and effect of law**
- **A “must”**
- **Involve “notice and comment” rulemaking**
- **Water Quality Standards regulations are at 40 CFR 131**
- **<http://www.regulations.gov/>**
- **Basis for EPA disapproval of State/Tribal water quality standards**



# What is Guidance or Policy?

- **“General Statements of Policy”**
- **A “should”**
- **Notice and comment not required**
- **Not binding on Agency or Public**
- **Not a basis for disapproval**
- **Governed by section 553 of the Administrative Procedure Act:**  
**<http://www.nara.gov/fedreg/legal/apa/553.html>**

# Water Quality Standards

- **Designated Uses**
- **Criteria to protect those uses**
  - narrative or numeric
- **Antidegradation Policy**



# Uses: Statute and Regulation

- **CWA 101(a): requires, where attainable, water quality providing for the protection and propagation of fish, shellfish and wildlife, and recreation in and on the water**
- **CWA 303 (c)(2)(a): consider the use and value for public water supplies, propagation of fish and wildlife, recreational, agricultural, industrial and other purposes**
- **40 CFR 131.3, 131.10**

# Uses: Terminology (1)

- ***Designated Uses***: those uses specified in State or Tribal water quality standards regulations for each waterbody or segment, whether or not they are being attained.
  - “goals” for a waterbody



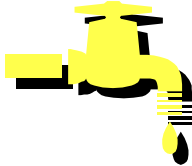
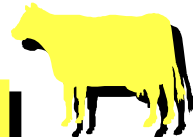


# Uses: Terminology (2)

- ***Existing Uses***: those uses actually attained in a waterbody on or after November 28, 1975, whether or not they are included in the water quality standards
  - Cannot be removed
- **Determined on a case-by-case basis, considering:**
  - Historical and current water quality
  - Historical and current biological condition
  - Pattern and frequency of human activities

## Uses: Terminology (3)

- ***Use Attainability Analysis*: a structured, scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological and economic factors**
  - **Based on natural, human-caused, social or economic conditions**

# Designated Uses (40 CFR 131.10)

- **Protection and propagation of fish, shellfish and wildlife** 
- **Recreation in and on the water** 
- **Public water supply** 
- **Agriculture** 
- **Industry** 
- **Navigation** 
- **Others**

# Designated Use “Musts” (1)

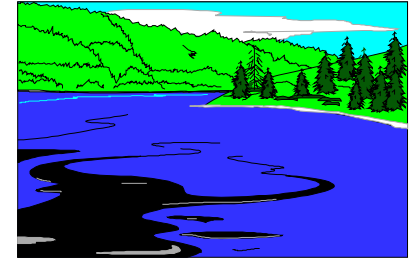
- **Specify appropriate water uses to be achieved and protected**
- **Protect uses that can be achieved by the imposition of:**
  - **1) Technology based effluent limits on point sources and**
  - **2) Cost effective and reasonable best management practices on nonpoint sources**



## **Designated Use “Musts” (2)**

- **Provide for the attainment and maintenance of the water quality standards of downstream waters**
- **States/Tribes must have provided an opportunity for a public hearing when adding or removing uses, or establishing sub-categories**

# Designated Use “Must NOTs”:



- **Provide for waste transport or assimilation**
- **Remove an existing use (unless adding a use with a more stringent criteria)**
- **Be less than those specified by CWA 101 (a) (unless justified by a UAA)**
- **Adopt sub-categories of such a use with less stringent criteria, without a UAA**

# Designated Use “Mays”

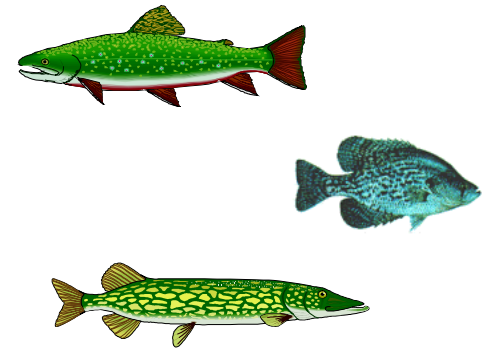
- **Protect uses higher than those currently being achieved**
- **Adopt sub-categories of a use**
- **Adopt seasonal uses**
- **Be removed (with appropriate justification)**
- **Consider economic and social impacts**

# Sub-Categories of Uses: CWA 101(a)

- **Protection and propagation of fish, shellfish and wildlife**

- **Protection of Aquatic Life**

- **Coldwater fishery**
- **Warmwater fishery**



- **Recreation in and on the water**

- **Primary Contact Recreation**
- **Secondary Contact Recreation**
- **Seasonal Primary Contact Recreation**



# Refining More Specific Sub-categories

- **Refining use descriptions for specific types of waters, based on biology, geomorphology or frequency or timing of human activity:**
  - **Exceptional Habitat Quality Aquatic Life Use**
  - **Minimally Impacted Aquatic Life Use**
  - **High Gradient Trout Stream**
  - **Low Frequency Swimming Area**
- **Refining use descriptions for specific human caused conditions or degrees of degradation**
  - **Urban Spillway**
- **Advantage: tailored criteria for more specific levels of protection**

# **Removing Designated Uses**

- 1. Naturally occurring pollutant concentrations,**
- 2. Low flow conditions or water levels,**
- 3. Human caused conditions or pollutant sources,**
- 4. Dams or other hydrologic modifications,**
- 5. Natural physical conditions for aquatic life,**
- 6. Substantial and widespread economic and social impact.**

# **“Criteria”: 1 Word, 2 Meanings:**

- **Scientifically defensible guidance developed by EPA**
  - **Section 304(a)**
    - **Guidance to States/Tribes adopting criteria to protect uses**
    - **basis for promulgation of criteria when necessary**
- **Part of State/Tribal Water Quality Standard**
  - **Section 303(c)**

# **Water Quality Criteria:** **Definition**

- **Concentration, level or statement in water quality standards**
- **Intended to protect and support a designated use**

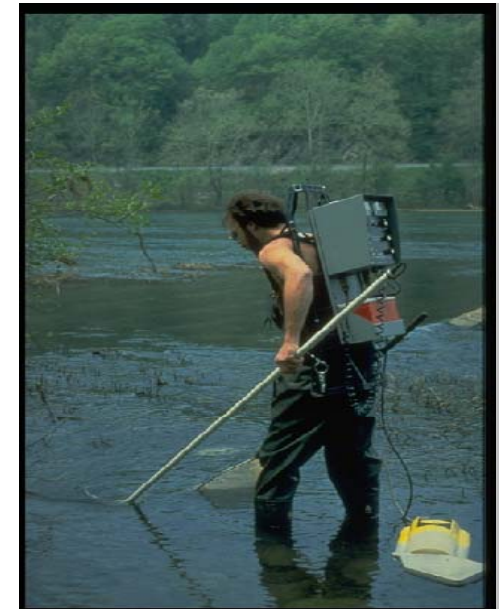


# **Forms of Criteria**

- **States Should Adopt (1) Numerical Criteria Based on:**
  - **304(a) Guidance, or**
  - **304(a) Guidance Modified to Reflect Site-Specific Conditions, or**
  - **Other Scientifically Defensible Methods**
- **And (2) Narrative Criteria or Criteria Based on Biological Monitoring and Assessment Methods to Supplement Numerical Criteria**

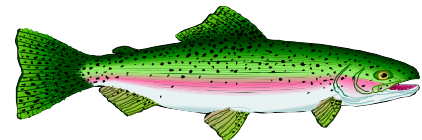
# Water Quality Criteria (40 CFR 131.11)

- **Narrative or Numeric**
- **Include:**
  - **Aquatic Life Criteria**
  - **Human Health Criteria**
  - **Biological Criteria**
  - **Nutrient Criteria**



# Terminology

- **Biocriteria**– (scientific) *quantified values representing the biological condition of a waterbody, as measured by structure and function of the aquatic communities typically at reference condition.*
- **Biocriteria**– (regulatory) narrative descriptions or numerical values of the structure and function of aquatic communities in a waterbody necessary to protect the designated aquatic life use, implemented in, or through water quality standards.



# State/Tribal Antidegradation Policies (40 CFR 131.12)

- **Existing uses** and the level of water quality to protect them
- **Higher Quality Waters** where a public determination must be made that it is necessary to lower existing water quality to accommodate important economic and social development
- **Outstanding Natural Resource Waters:** No degradation in State/Tribal designated waters of exceptional significance

# Protecting Water Quality for Existing Uses

- **Existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected.**



# **Protecting High Quality Waters**

- **Maintain and protect the quality of high quality waters unless-**
  - **The State/Tribe determines that it is necessary to lower water quality to accommodate important economic and social development;**
  - **Public and intergovernmental participation in the decision making process;**
  - **The most stringent statutory and regulatory requirements for point sources and cost-effective and reasonable BMPs are implemented, and;**
  - **Existing uses are protected.**

# **Protecting Outstanding Natural Resource Waters (ONRWs)**

- **...waters of exceptional recreational, environmental or ecological significance...**
- **No degradation is allowed in an ONRW (only short-term/temporary).**
- **Regulations require provision to allow for ONRWs in antidegradation. No requirement for which waters or how waters classified as ONRWs.**
- **Instead of ONRWs, many states adopt an Outstanding State Resource Water or Exceptional Water category. More flexibility available than for ONRWs.**

# **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 of** **WQS**

- **States and Authorized Tribes must:**
  - **Review adopted Water Quality Standards once every 3 years**
  - **Provide an opportunity for a public hearing**
  - **Submit the results to the EPA Regional Administrator**

# Review Time Schedule

- **60 days after submittal for EPA Region to approve**
- **90 days after submittal for EPA Region to notify State/Tribe of disapproval**
- **90 days after notification - State or Tribe must revise standards to meet requirements**
- **EPA Administrator to promulgate standards promptly**

# **Biological Information Can Be Used in Water Quality Standards to:**

- **Describe existing uses (131.3(e))**
- **Assign appropriate designated uses (131.10)**
- **Refine and subcategorize designated uses (131.10(c))**
- **Develop biological criteria to protect uses (131.11)**
- **Help make attainment decisions (130.23)**

# Application into Water Quality Standards

**Where can States/Tribes start?**

**Depends on where a State/Tribe currently stands, what their current standards are like and how much change can be made!**

# Application into Water Quality Standards

## Key Questions:

1. How developed is the bioassessment program?
2. Do current designated aquatic life uses reflect/protect existing ecological resources and biological integrity?
3. Is there a general aquatic life narrative standard that needs to be interpreted?
4. Is there a narrative biocriterion that needs translation?
5. Is there only one overarching aquatic life use?
6. Do existing aquatic life uses need better interpretation?
7. Are current aquatic life uses bioassessment-based?
8. Do you want to revise existing standards or leave standards as they are?
9. How much effort can be afforded?
10. Is there institutional support?

# **Application into Water Quality Standards**

- **Ways States and Tribes have been using biological assessments and criteria in standards:**
  1. **Interpret or translate narrative standards or criteria.**
  2. **Interpret attainment of one or all designated aquatic life uses.**
  3. **Revise one or all designated aquatic life uses to be bioassessment-based.**
  4. **Sub-categorize one or all aquatic life uses to be bioassessment-based.**
  5. **Adopt numeric biocriteria that define the biological condition for each designated aquatic life use.**
  6. **Completely revise designated aquatic life uses and criteria using bioassessments and biocriteria.**
  7. **Combinations of the above, sequences of the above.**

# State Program Examples

**Oregon**  
**Oklahoma**  
**Maine**