WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Wyoming Surface Water Quality Standards

Turbidity and Sediment Criteria

Triennial Review Stakeholder Group
April 23, 2021

Outline

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- Review of Water Quality Criteria Requirements
- Nationally Recommended Turbidity and Sediment Criteria
- Wyoming's Turbidity and Sediment Criteria
- Examples of Turbidity and Sediment Criteria From Other States
- Ideas for Potential Changes to Wyoming's Standards

Surface Water Quality Standards

Designated Uses

Implementation

Water Quality Criteria

Antidegradation

Water Quality Criteria

- Concentrations of pollutants or narrative statements to protect designated uses

Water Quality Criteria: Clean Water Act

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

40 CFR 131.11

- Water quality criteria must protect the designated use

Water Quality Criteria: Clean Water Act

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

40 CFR 131.11

- Water quality criteria can be based on
  - Clean Water Act Section 304(a) guidance*

*criteria for water quality that reflect the latest scientific knowledge

Water Quality Criteria: Clean Water Act

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

40 CFR 131.11

- Water quality criteria can be based on
  - 304(a) guidance modified to reflect site-specific conditions

Water Quality Criteria: Clean Water Act

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

40 CFR 131.11

- Water quality criteria can be based on
  - Other scientifically defensible methods

Water Quality Criteria: Clean Water Act

40 CFR 131.11

- Water quality criteria can be
  - narrative criteria or criteria based on biomonitoring methods where numerical criteria cannot be established or to supplement numeric criteria

Nationally Recommended Water Quality Criteria

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Summary of the Clean Water Act

33 U.S.C. §1251 et seq. (1972)

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972.

Under the CWA, EPA has implemented pollution control programs such as setting wastewater standards for industry. EPA has also developed national water quality criteria recommendations for pollutants in surface waters.

The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained:

- EPA's National Pollutant Discharge Elimination System (NPDES) permit program controls discharges.
- Point sources are discrete conveyances such as pipes or man-made ditches.
  - Individual homes that are connected to a municipal system, use a septic system, or do not

Quick Links

- 2018 version of CWA from the U.S. Code (233 pp, 1.23 MB)

You may need a PDF reader to view some of the files on this page. See EPA's About PDF page to learn more

- The official text of the CWA continues to be available in the *United States Code* from the US Government Printing Office

§ 1314. Information and guidelines

(a) Criteria development and publication

(1) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after October 18, 1972 (and from time to time thereafter revise) criteria for water quality accurately reflecting the latest scientific knowledge (A) on the kind and extent of all identifiable effects on health and welfare including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including ground water; (B) on the concentration and dispersal of pollutants, or their byproducts, through biological, physical, and chemical processes; and (C) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and rates of organic and inorganic sedimentation for varying types of receiving waters.

(2) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after October 18, 1972 (and from time to time thereafter revise) information (A) on the factors necessary to restore and maintain the chemical, physical, and biological integrity of all navigable waters, ground waters, waters of the contiguous zone, and the oceans; (B) on the factors necessary for the protection and propagation of shellfish, fish, and wildlife for classes and categories of receiving waters

Nationally Recommended Water Quality Criteria

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Related Topics: Water Quality Criteria

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National Recommended Water Quality Criteria – Aquatic Life Criteria Table

This table contains the most up to date criteria for aquatic life ambient water quality criteria. Aquatic life criteria for toxic chemicals are the highest concentration of specific pollutants or parameters in water that are not expected to pose a significant risk to the majority of in a given environment or a narrative description of the desired conditions of a water being "free from" certain negative conditions. The table below lists EPA's recommenc aquatic life criteria. State and tribal governments may use these criteria or use them guidance in developing their own.

Related Information

Select pollutant name for current criteria document.

On this page:

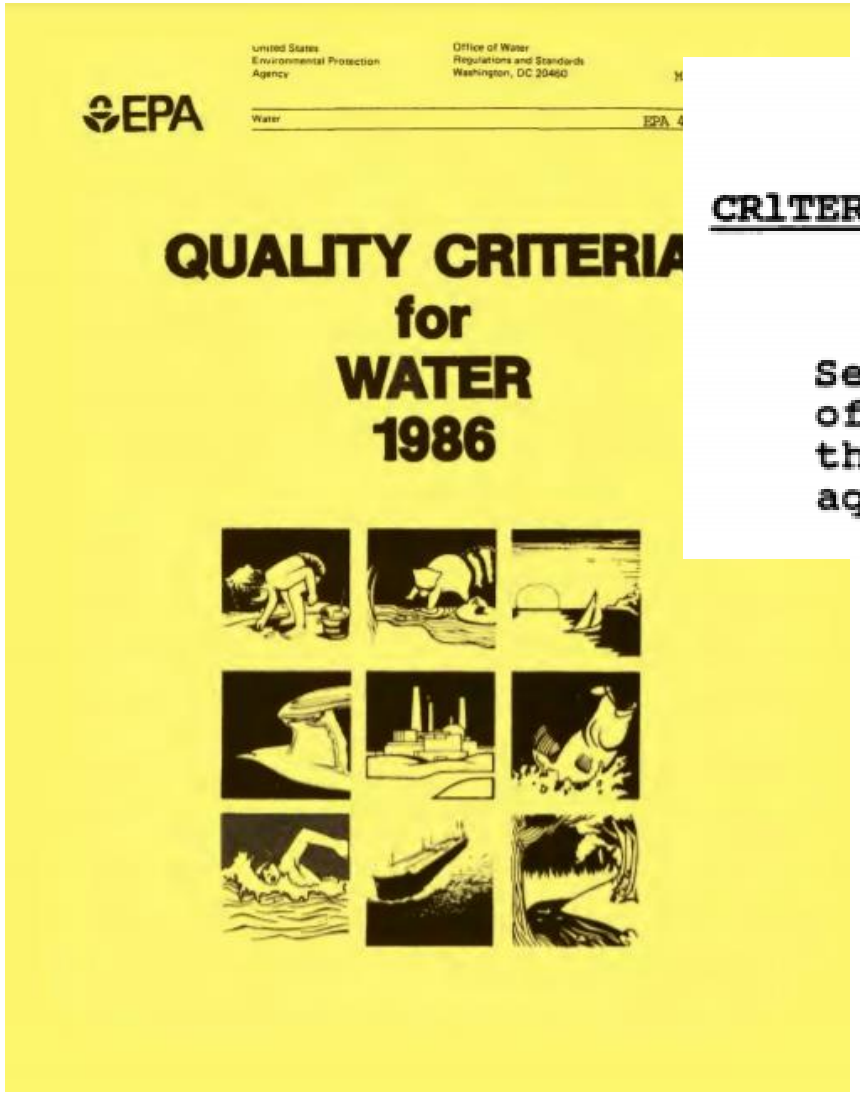
- National Recommended Aquatic Life Criteria Table
- Appendix A - Conversion Factors for Dissolved Metals
- Appendix B - Parameters for Calculating Freshwater Dissolved Metals Criteria Tha

National Recommended Aquatic Life Criteria table

Pollutant (P = Priority Pollutant)	CAS Number	Freshwater CMC[1] (acute) (µg/L)	Freshwater CCC[2] (chronic) (µg/L)	Saltwater CMC[1] (acute) (µg/L)	Saltwater CCC[2] (chronic) (µg/L)	Publication Year	Notes
Solids Suspended and Turbidity	–	–	–	–	–	1986	Refer to Quality Criteria for Water, 1986 ("Gold Book") for narrative statement.

Suspended and Settleable Solids, Turbidity

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

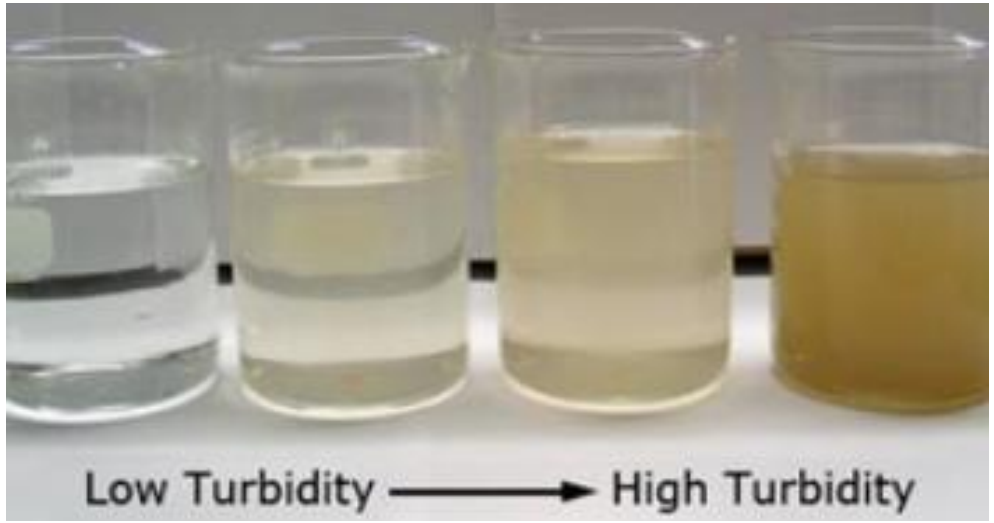


SOLIDS (SUSPENDED, SETTLEABLE) AND TURBIDITY

CRlTERIA

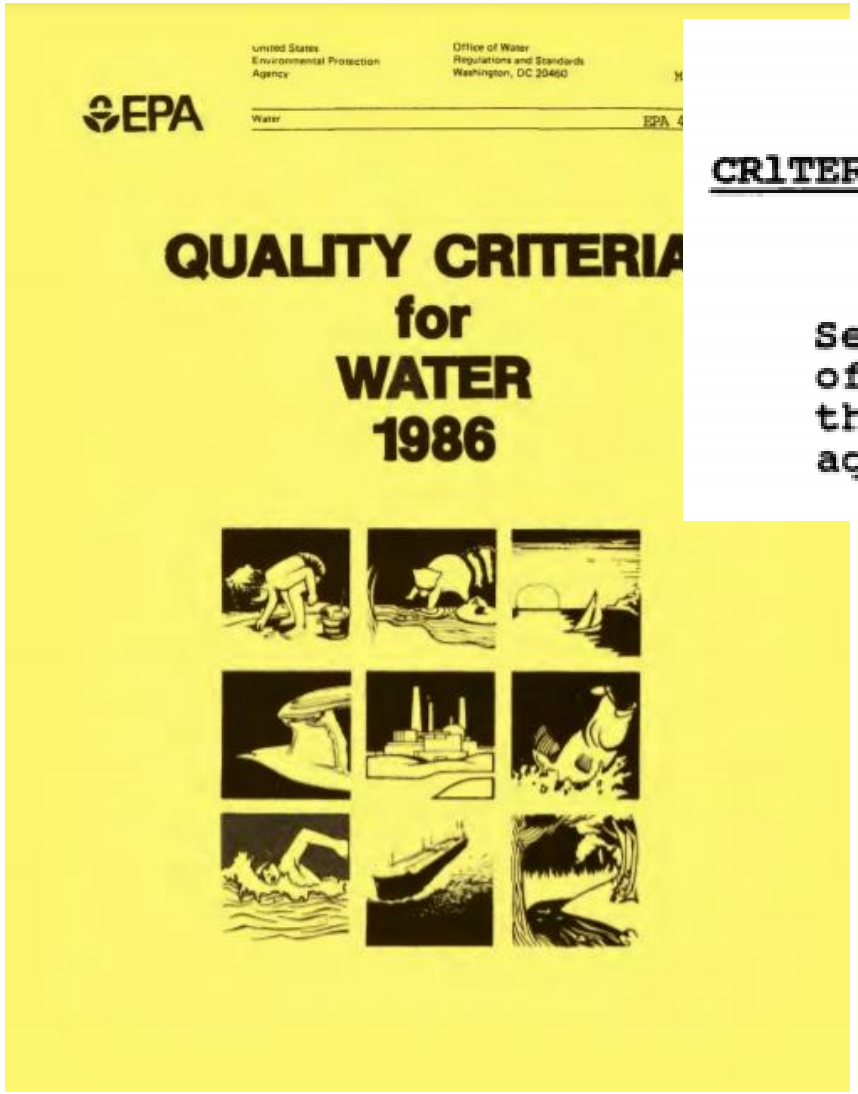
Freshwater fish and other aquatic life:

Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life.



Suspended and Settleable Solids, Turbidity

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY



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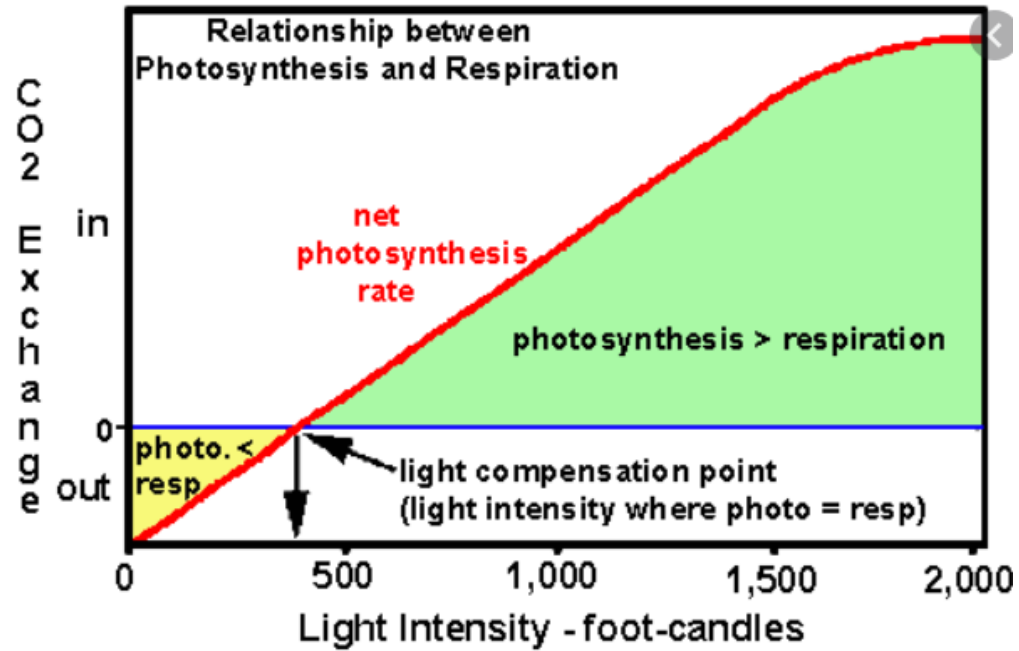
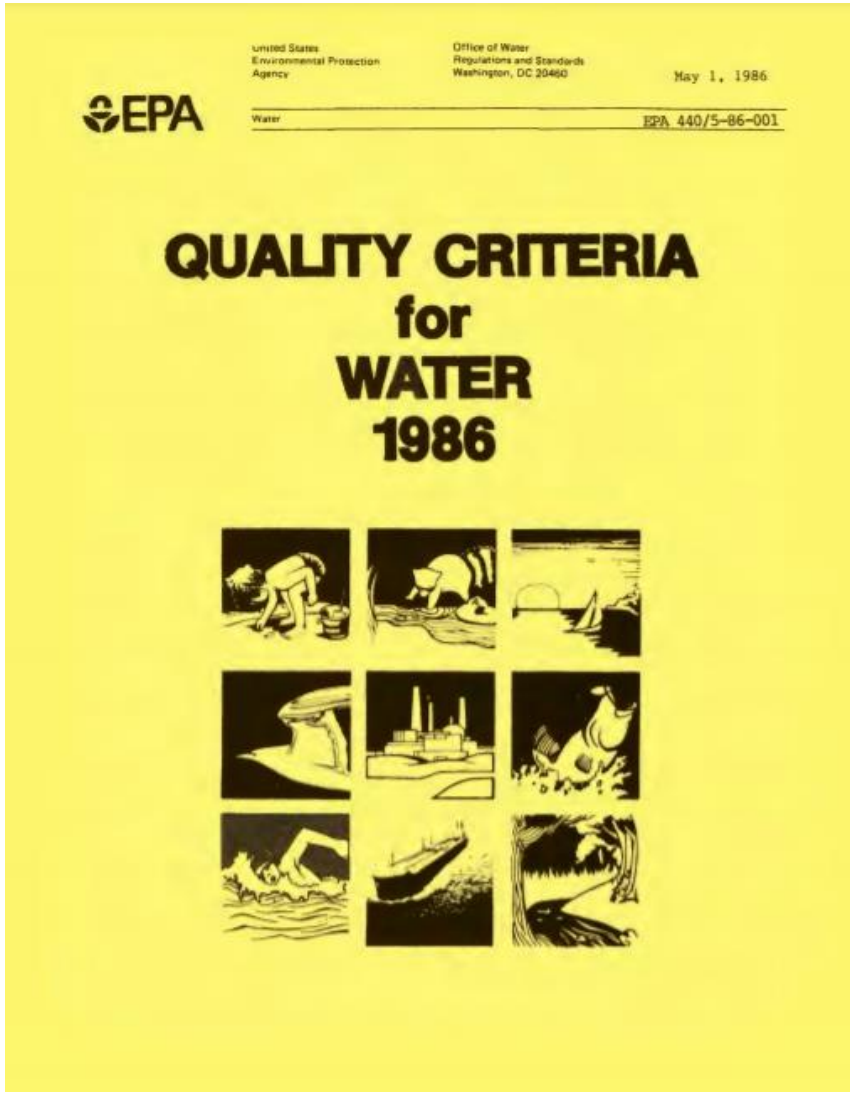
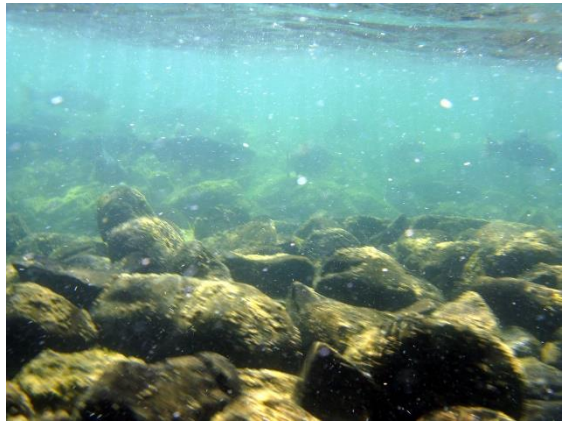


Suspended and Settleable Solids, Turbidity

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY



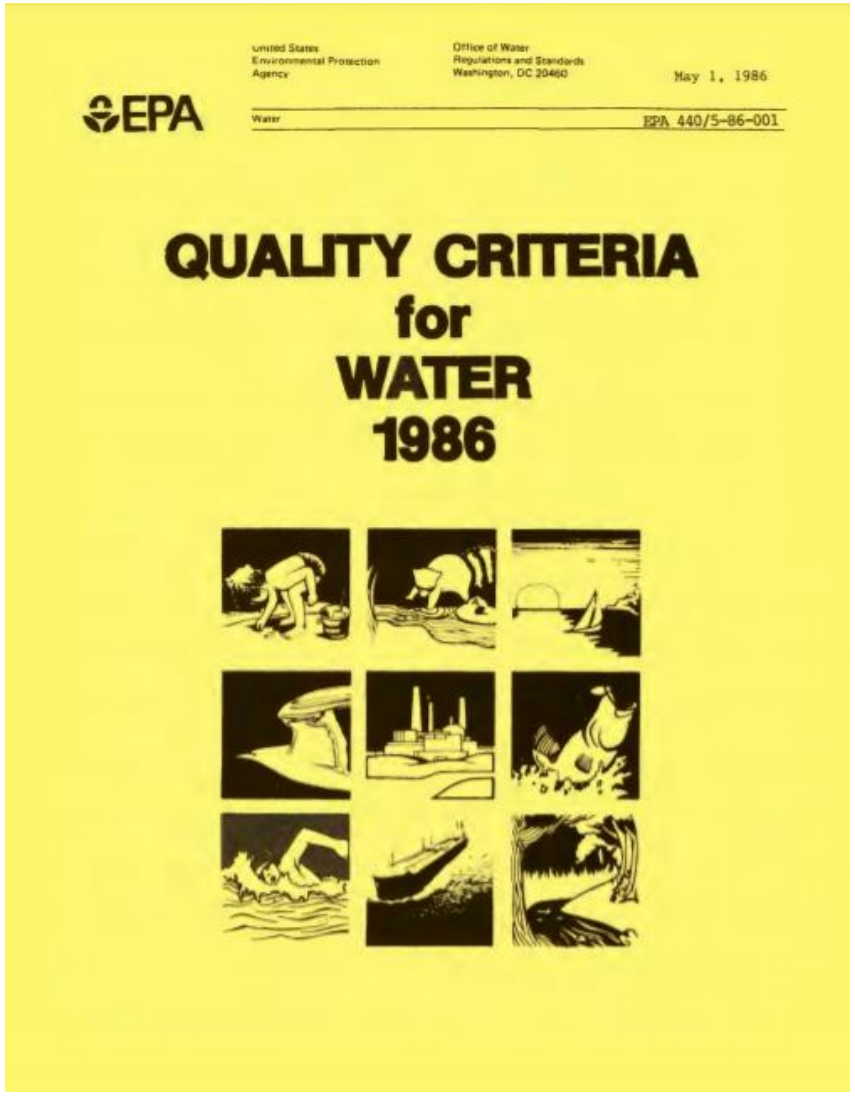
Aquatic Life



Water Column Impacts

Substrate Impacts

Suspended and Settleable Solids, Turbidity

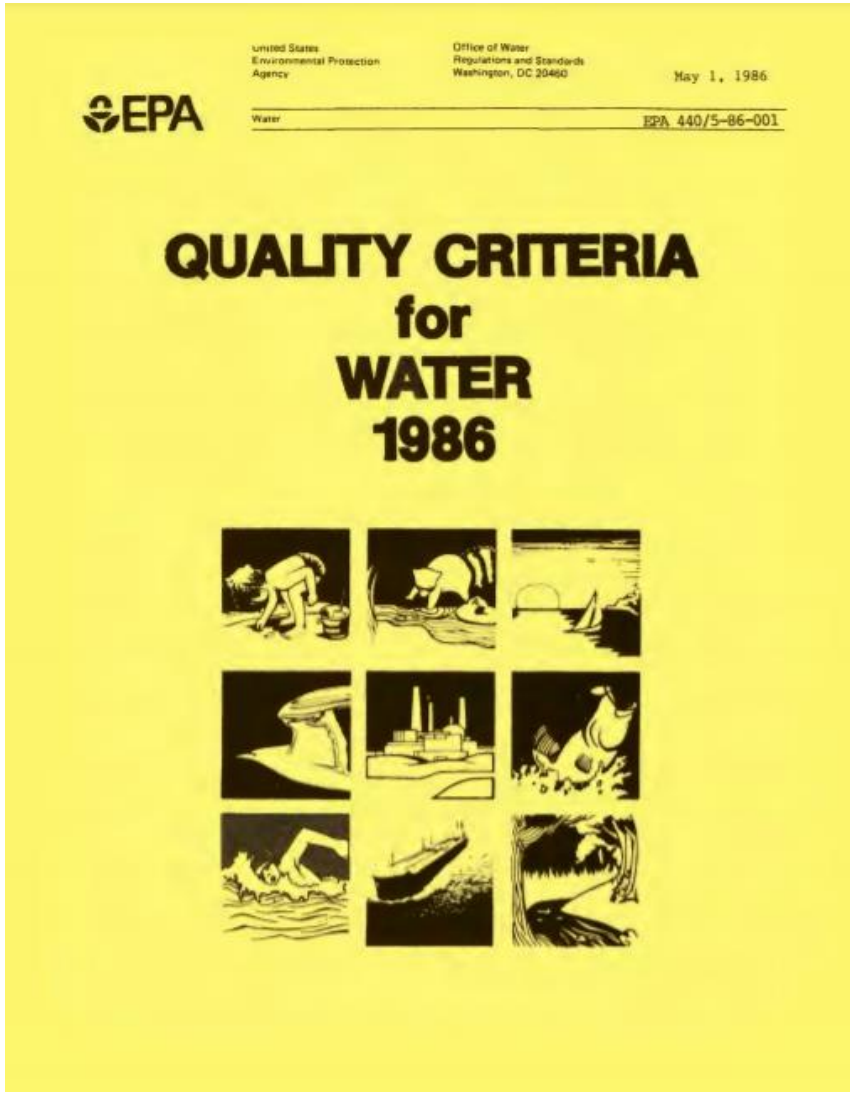


Aquatic Life

Water Column

- Death, reduced growth rates, reduced resistance to disease
- Hinders development of fish eggs and larvae
- Modifies movement and migration
- Reduces food abundance

Suspended and Settleable Solids, Turbidity



Aquatic Life

Substrate

- Impacts to invertebrate communities
- Block spawning gravels
- If organic, can consume oxygen within gravels and water column

Suspended and Settleable Solids, Turbidity

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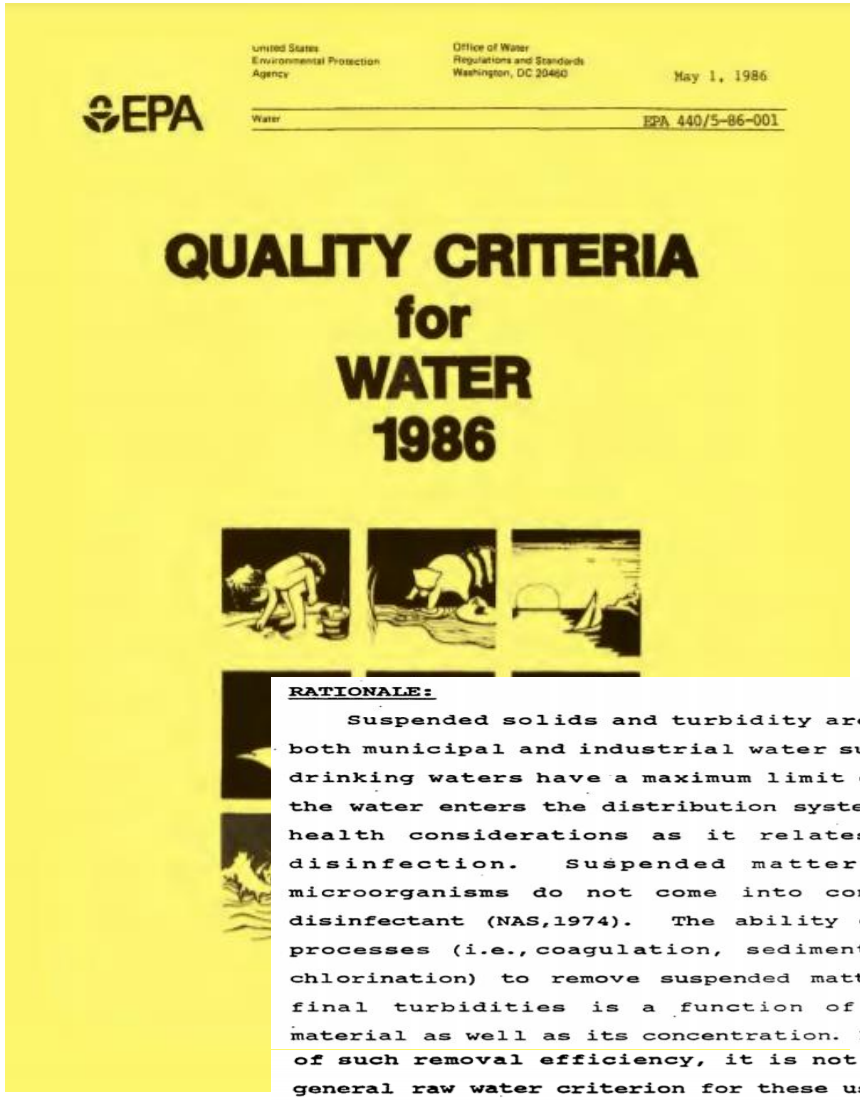


United States Environmental Protection Agency
Office of Water Regulations and Standards Washington, DC 20460
May 1, 1986
EPA
Water
EPA 440/5-86-001

QUALITY CRITERIA for WATER 1986

RATIONALE:

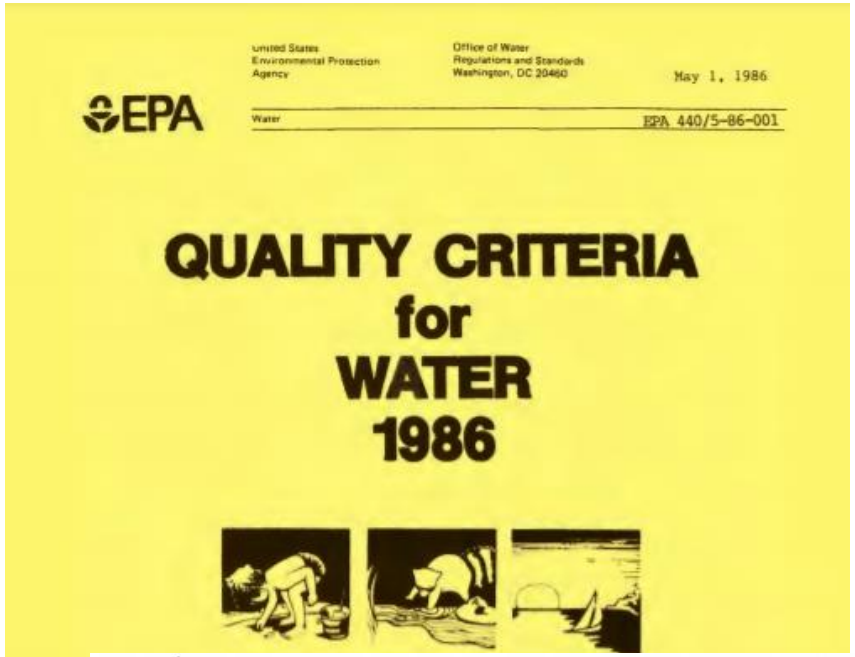
Suspended solids and turbidity are important parameters in both municipal and industrial water supply practices. Finished drinking waters have a maximum limit of 1 turbidity unit where the water enters the distribution system. This limit is based on health considerations as it relates to effective chlorine disinfection. Suspended matter provides areas where microorganisms do not come into contact with the chlorine disinfectant (NAS,1974). The ability of common water treatment processes (i.e., coagulation, sedimentation, filtration, and chlorination) to remove suspended matter to achieve acceptable final turbidities is a function of the composition of the material as well as its concentration. Because of the variability of such removal efficiency, it is not possible to delineate a general raw water criterion for these uses.

Drinking Water Supplies

- Finished Water
  - Maximum limit of 1 turbidity unit where water enters the distribution system
    - Based on need for effective disinfections
    - Sediment may block treatment of microorganisms

Suspended and Settleable Solids, Turbidity

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY



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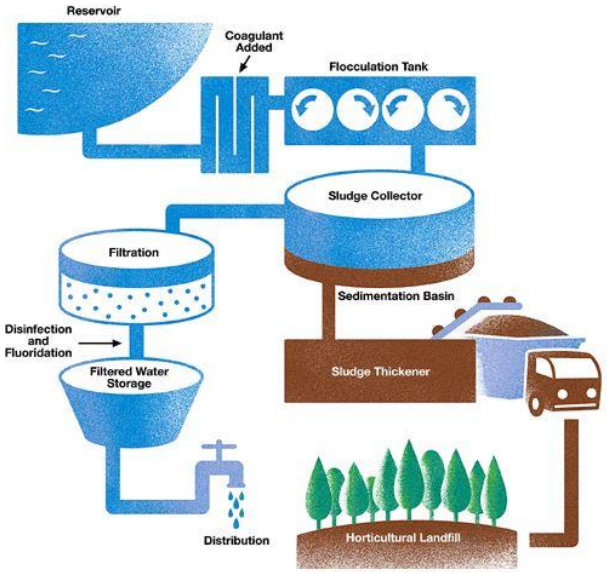
Drinking Water Supplies

- Ability of common methods to treat water (coagulation, sedimentation, filtration, chlorination) is based on composition and concentration of sediment



- Due to variability of treatment, not possible to derive a raw water criterion for this use

Suspended and Settleable Solids, Turbidity

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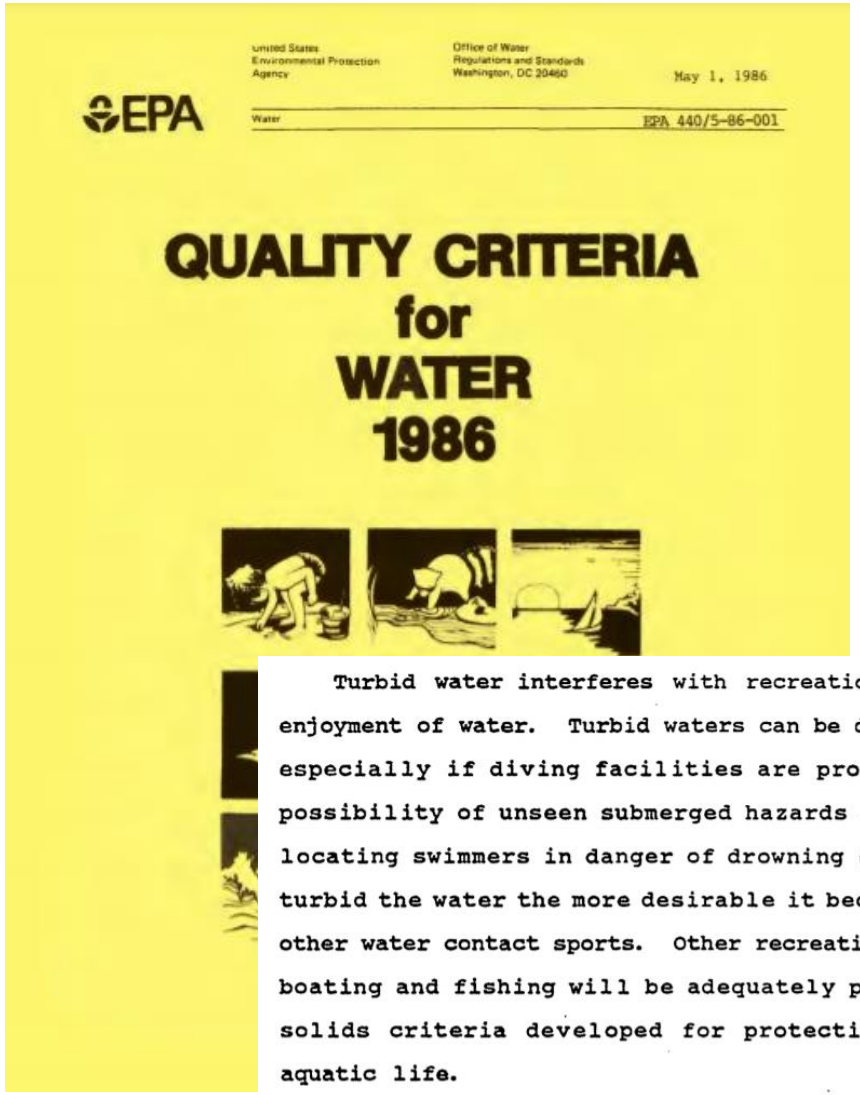

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EPA

Water

EPA 440/5-86-001

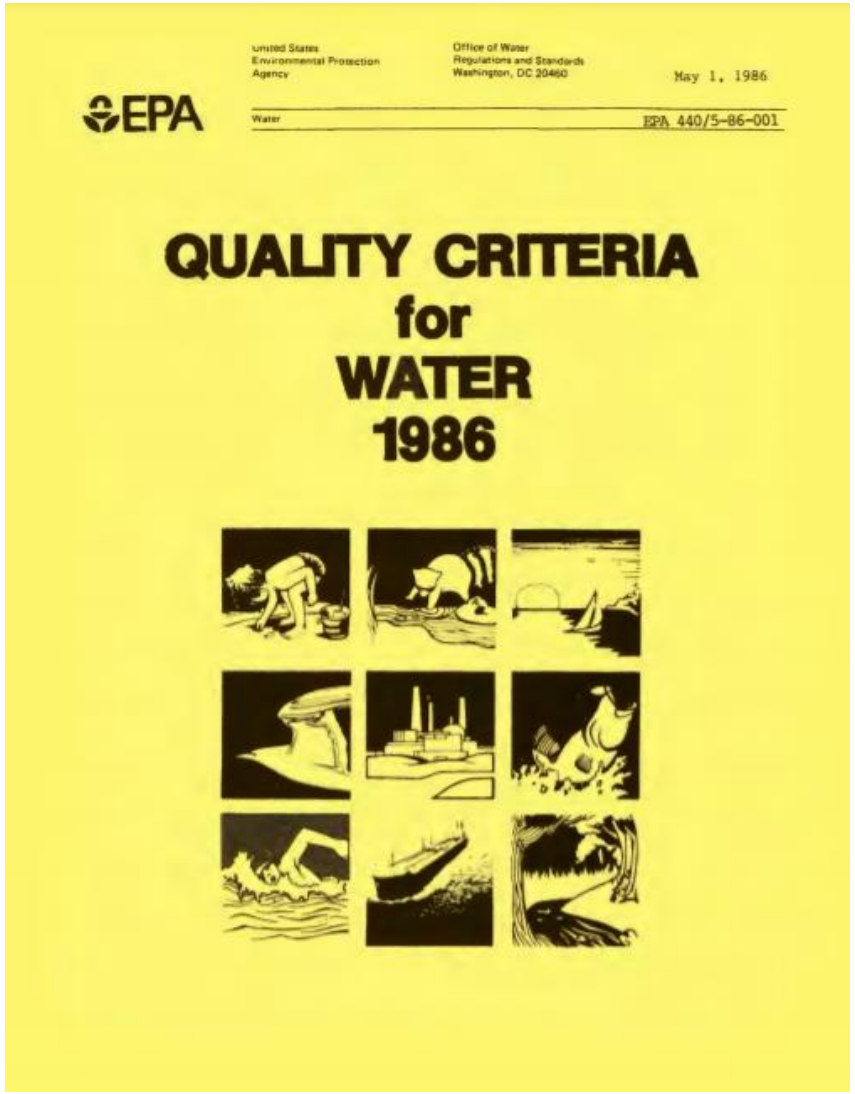
QUALITY CRITERIA for WATER 1986

Turbid water interferes with recreational use and aesthetic enjoyment of water. Turbid waters can be dangerous for swimming, especially if diving facilities are provided, because ofthe possibility of unseen submerged hazards and the difficulty in locating swimmers in danger of drowning (NAS, 1974). The less turbid the water the more desirable it becomes for swimming and other water contact sports. Other recreational pursuits such as boating and fishing will be adequately protected by suspended solids criteria developed for protection of fish and other aquatic life.

Recreation

- Dangerous
  - Unseen hazards
  - Difficult to find swimmers
- Aesthetics
  - Turbid water is less desirable for swimming and other water contact sports
- Should be protected if aquatic life is protected

Suspended and Settleable Solids, Turbidity



Irrigation

- Formation of crusts on the soil surface
- Films on plant surface
- Irrigation reservoir capacity, delivery canals, and water distribution systems

Suspended and Bedded Sediments Framework

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

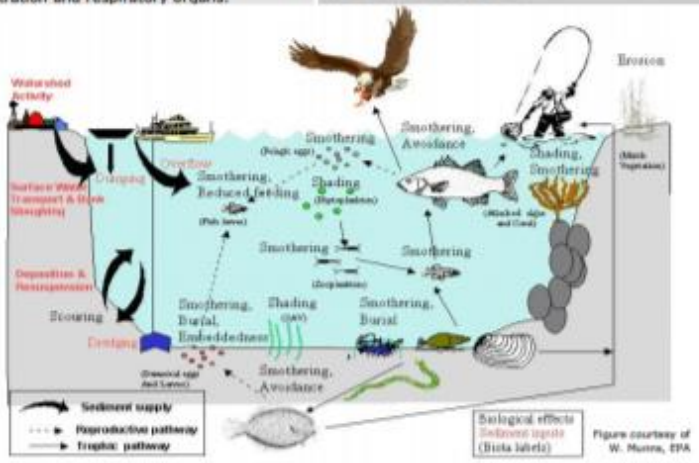
United States Environmental Protection Agency | Office of Water, Office of Research & Development | EPA-822-F-06-001 May 2006

Fact Sheet:
Framework for Developing Suspended and Bedded Sediment (SABS) Water Quality Criteria

The U.S. Environmental Protection Agency (EPA) is sending to the Regional Water Programs the document ***Framework for Developing Suspended and Bedded Sediment (SABS) Water Quality Criteria***. SABS occur naturally in all types of waterbodies. In appropriate amounts, sediments are essential to aquatic ecosystems. They can contribute to essential habitat for aquatic species' growth and reproduction. However, imbalanced sediment supply has repeatedly ranked high as a major cause of waterbody impairment. States, tribes, and territories want tools for developing SABS standards and criteria. The ***Framework***, a joint effort by the EPA's Office of Water and Office of Research and Development, presents an integrative process and technical methods that can be used to develop SABS criteria.

Ecological Effects of Excessive SABS

Suspended Sediments	Bedded Sediments
Decreased light penetration reduces primary productivity.	In large amounts, bedded sediments can bury and smother infaunal or epibenthic organisms and demersal eggs.
Increased turbidity reduces visual acuity and capture success for predators and foragers, stimulates drifting behavior in macroinvertebrates, reduces habitat suitability and habitat range for organisms that require clear water.	In smaller amounts, excess fine sediments can fill in gaps between larger substrate particles, embedding the larger particles and eliminating interstitial spaces that would otherwise be used as habitat for reproduction, feeding, and refugia for invertebrates and fish.
At high levels, suspended sediment can clog and abrade filtration and respiratory organs.	

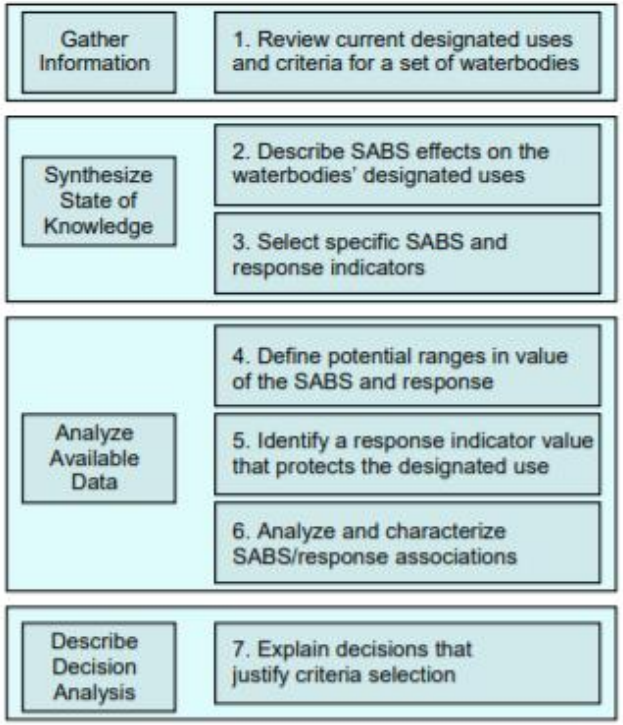


2006 Suspended and Bedded Sediment Criteria

- Framework for developing criteria

Major Elements of the Framework

➢ **Integrative Process**: The ***Framework*** consists of a stepwise process for developing criteria for SABS. It includes gathering information, synthesizing the state of knowledge, analyzing available data, gathering more data if needed, and selecting criteria values. SABS criteria can then be implemented within a comprehensive management plan. The process engages stakeholders, develops several lines of scientific evidence, and documents the decision analysis process while also accommodating regional differences. The process is flexible and robust, allowing resource managers to customize the criteria development process to meet their unique regulatory and programmatic needs. Water Quality Standards based on criteria developed with this process will support a range of pollution control activities while simultaneously providing technical tools to routinely develop protection and restoration plans (for example, in calculating total maximum daily loads).



Suspended and Bedded Sediments Framework

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

I.D. Recommendations of the U.S. EPA Science Advisory Board

As part of the current effort to develop national SABS criteria, the U.S. EPA Science Advisory Board met on October 2, 2003 to discuss various methods for establishing criteria. This meeting resulted in several generally agreed-upon recommendations. It is important to note, however, that the Science Advisory Board did not reach consensus and votes were not taken. The general recommendations are summarized here and detailed in Appendix E. The specific approaches mentioned here are discussed in detail in Section III.D.

Overall Recommendations

- Consideration should be given to setting criteria from the management perspective, classifying by waterbody function and designated uses, while ensuring that resource managers know what natural levels of SABS are expected for any given waterbody.
- Criteria should be developed for each major waterbody type (lakes, estuaries, wetlands, rivers, streams, headwaters, etc.) and then tiered by classes of similar waterbody types within each of these major categories (e.g., high-gradient vs. low-gradient mountain streams).
- As no single criterion or indicator will work for each major waterbody type and class, several different criteria or indicators should be developed to address key distinctions in SABS among waterbody types and classes.
- Criteria should be based on a synthesis of methods that demonstrate the relationship between the measurements of SABS and aquatic life or a valued ecological resource. The conditional probability and reference condition approaches could be used to meet this requirement.

- Consider designated uses and waterbody function
- Consider natural levels of SABS
- Develop criteria for waterbody types (lakes, streams, etc.), then tiered by class
- No single criterion or indicator will work for each waterbody type
- Several criteria or indicators should be developed

Suspended and Bedded Sediments Framework

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- The strengths and weaknesses of each method should be clearly explained for states, tribes, and territories.
- Any uncertainty with respect to ecological theory or statistical model development should be clearly documented and considered during criteria selection and implementation.
- The problem of SABS imbalance resulting from too little sediment should not be overlooked.
- Recommended methods should be clear and understandable.
- Work should continue that develops methods and other approaches for establishing SABS criteria. Real data should be used in creating examples of a synthesized process.
- Recommended that there is national consistency in assessment, management, and evaluation.

- Consider strengths and weaknesses of each method
- Document uncertainty of method
- Consider importance of too little sediment
- Methods should be clear and understandable

Suspended and Bedded Sediments Framework

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Table 4. Suitability of SABS indicators by waterbody type. ● = appropriate application, ⦿ = limited applicability, ○ = not appropriate

	Rivers and Streams	Lakes, Ponds, and Reservoirs	Wetlands	Estuaries	Coastal Marine Waters
Suspended Sediment					
Turbidity	●	⦿	⦿	⦿	⦿
Total Suspended Solids	●	⦿	⦿	⦿	⦿
Suspended Sediment Concentration	●	●	●	⦿	⦿
Light Penetration	⦿	●	⦿	●	⦿
Water Clarity	●	●	⦿	●	●
Bedded Sediment					
Bedload Sediment	●	○	○	⦿	○
Percent fine sediment at surface	●	●	●	●	○
Percent fine sediment at depth	●	⦿	●	●	○
Sedimentation rate	●	●	●	●	⦿
Embeddedness	●	●	○	⦿	○
Suspendable Solids	●	●	⦿	●	○
Particle size distribution	●	●	●	⦿	○
Particle size geometric mean	●	●	●	⦿	○
Substrate Stability	●	⦿	○	⦿	⦿
Relative Bed Stability	●	○	○	○	○
Bottom Deposit Depth	⦿	●	●	●	●
Residual Pool Volume	●	○	●	⦿	○
Bank Stability	●	●	●	●	○
Waterbody Dimensions	●	●	●	●	○
Bathymetry	●	●	●	●	●
Riffle/Pool ratios	●	○	○	○	○
Gradient	●	○	⦿	○	○
Sinuosity	●	○	○	○	○
Incision	●	○	●	○	○

Suspended Sediment

- Turbidity
- Total Suspended Solids
- Suspended Sediment Concentration
- Light Penetration
- Water Clarity

Suspended and Bedded Sediments Framework

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Suspended Sediment Concentration	●	●	●	⦿	⦿
Light Penetration	⦿	●	⦿	●	⦿
Water Clarity	●	●	⦿	●	●
Bedded Sediment					
Bedload Sediment	●	○	○	⦿	○
Percent fine sediment at surface	●	●	●	●	○
Percent fine sediment at depth	●	⦿	●	●	○
Sedimentation rate	●	●	●	●	⦿
Embeddedness	●	●	○	⦿	○
Suspendable Solids	●	●	⦿	●	○
Particle size distribution	●	●	●	⦿	○
Particle size geometric mean	●	●	●	⦿	○
Substrate Stability	●	⦿	○	⦿	⦿
Relative Bed Stability	●	○	○	○	○
Bottom Deposit Depth	⦿	●	●	●	●
Residual Pool Volume	●	○	●	⦿	○
Bank Stability	●	●	●	●	○
Waterbody Dimensions	●	●	●	●	○
Bathymetry	●	●	●	●	●
Riffle/Pool ratios	●	○	○	○	○
Gradient	●	○	⦿	○	○
Sinuosity	●	○	○	○	○
Incision	●	○	●	○	○

Bedded Sediment

- Bedload
- Percent fine sediment at surface
- Percent fine sediment at depth
- Sedimentation rate
- Particle size distribution
- Particle size geometric mean
- Substrate suitability
- Relative bed stability

Suspended and Bedded Sediments Framework

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Suspended Sediment Concentration	●	●	●	⦿	⦿
Light Penetration	⦿	●	⦿	●	⦿
Water Clarity	●	●	⦿	●	●
Bedded Sediment					
Bedload Sediment	●	○	○	⦿	○
Percent fine sediment at surface	●	●	●	●	○
Percent fine sediment at depth	●	⦿	●	●	○
Sedimentation rate	●	●	●	●	⦿
Embeddedness	●	●	○	⦿	○
Suspendable Solids	●	●	⦿	●	○
Particle size distribution	●	●	●	⦿	○
Particle size geometric mean	●	●	●	⦿	○
Substrate Stability	●	⦿	○	⦿	⦿
Relative Bed Stability	●	○	○	○	○
Bottom Deposit Depth	⦿	●	●	●	●
Residual Pool Volume	●	○	●	⦿	○
Bank Stability	●	●	●	●	○
Waterbody Dimensions	●	●	●	●	○
Bathymetry	●	●	●	●	●
Riffle/Pool ratios	●	○	○	○	○
Gradient	●	○	⦿	○	○
Sinuosity	●	○	○	○	○
Incision	●	○	●	○	○

Bedded Sediment Metrics

- Bottom Deposit Depth
- Residual Pool Volume
- Bank Stability
- Waterbody Dimension
- Bathymetry
- Riffle/Pool Ratios
- Gradient
- Sinuosity
- Incision

Water Quality Standards Handbook

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EPA United States Environmental Protection Agency

Office of Water
EPA 823 B 17 001
2017

Water Quality Standards Handbook

Chapter 3: Water Quality Criteria

The WQS Handbook does not impose legally binding requirements on the EPA, states, tribes or the regulated community, nor does it confer legal rights or impose legal obligations upon any member of the public. The Clean Water Act (CWA) provisions and the EPA regulations described in this document contain legally binding requirements. This document does not constitute a regulation, nor does it change or substitute for any CWA provision or the EPA regulations.

2017

3.9 Sediment Benchmarks

Sediments are loose particles of sand, clay, silt, and other substances that settle at the bottom of a water body. They come from eroding soil and from decomposing plants and animals. Wind, water, and ice often carry these particles great distances. Many of the sediments in our rivers, lakes, and oceans have been contaminated by pollutants.

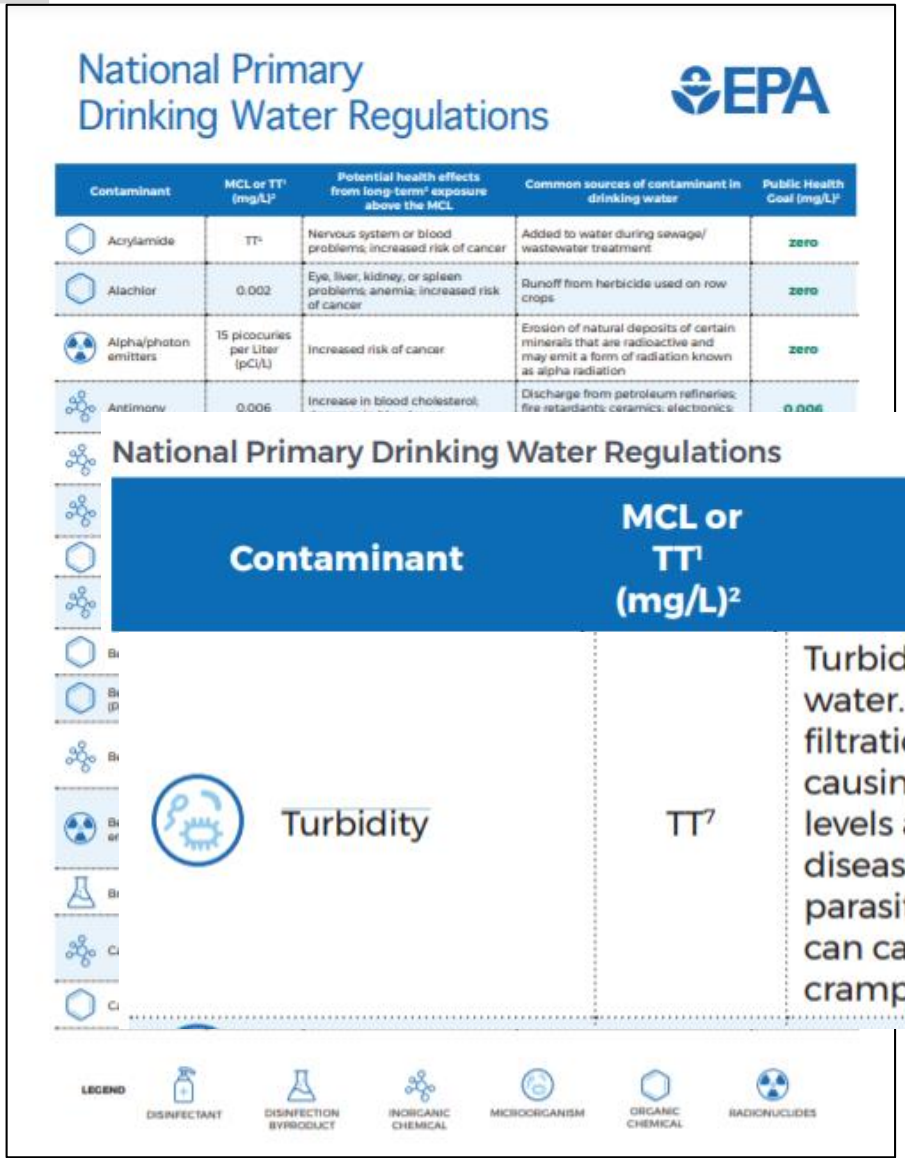
Suspended and bedded sediments (SABS) are defined by the EPA as particulate organic and inorganic matter that suspends in or is carried by the water and/or accumulates in a loose, unconsolidated form on the bottom of natural water bodies. This includes the frequently used terms of clean sediment, suspended sediment, total suspended solids, bedload, turbidity, or eroded materials. SABS in excessive amounts constitute a major ecosystem stressor and are a leading cause of waterbody impairment.

Contaminated sediments are soils, sand, organic matter, or minerals that accumulate on the bottom of a water body and contain toxic or hazardous materials that may adversely affect human health or the environment. The EPA has dealt directly with the toxicity of chemicals in sediments in fresh and marine waters through equilibrium partitioning sediment benchmarks (ESBs).

Safe Drinking Water Act

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- After treatment requirements for public water supplies



National Primary Drinking Water Regulations

EPA

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
Alachlor	0.002	Eye, liver, kidney, or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
Antimony	0.006	Increase in blood cholesterol;	Discharge from petroleum refineries; fire retardants; ceramics; electronics;	0.006

National Primary Drinking Water Regulations

EPA 816-F-09-004 | MAY 2009

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites, and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a

LEGEND: DISINFECTANT, DISINFECTION BYPRODUCT, INORGANIC CHEMICAL, MICROORGANISM, ORGANIC CHEMICAL, RADIONUCLIDES

National Primary Drinking Water Regulations

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.

Wyoming Water Quality Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 1, Turbidity and Sediment Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 1, Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Section 23. Turbidity.

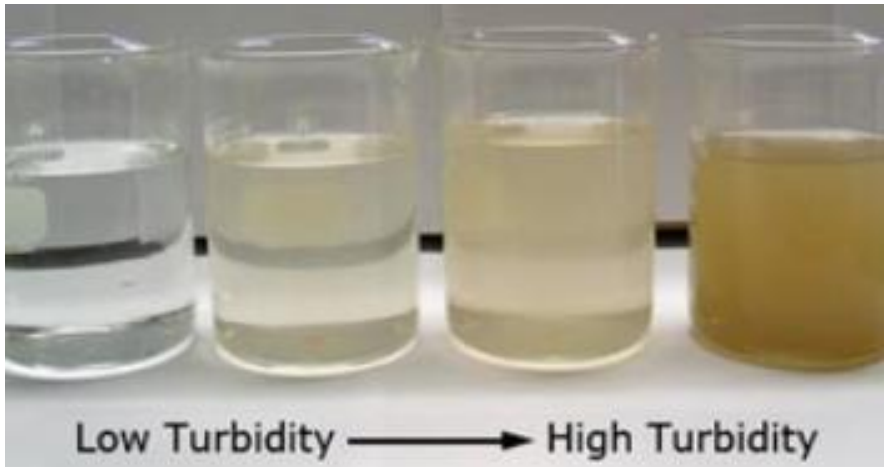
(a) In all cold water fisheries and/or drinking water supplies (Classes 1, 2AB, 2A and 2B), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than ten (10) nephelometric turbidity units (NTUs).

(b) In all warm water or nongame fisheries (Classes 1, 2AB, 2B and 2C), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than 15 NTUs.

(c) An exception to paragraphs (a) and (b) of this section shall apply to:

(i) The North Platte River from Guernsey Dam to the Nebraska line during the annual "silt run" from Guernsey Dam; and

(ii) Short-term increases of turbidity that have been determined by the administrator to have only a minimal effect on water uses. Such determinations shall be made on a case-by-case basis and shall be subject to whatever controls, monitoring and best management practices are necessary to fully maintain and protect all water uses. The procedures used to implement this section are described in the *Turbidity Implementation Policy*.



Turbidity Criteria

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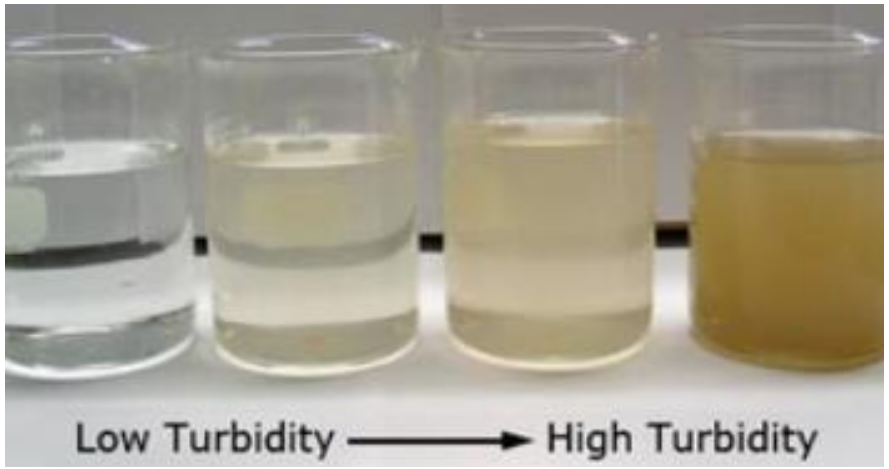
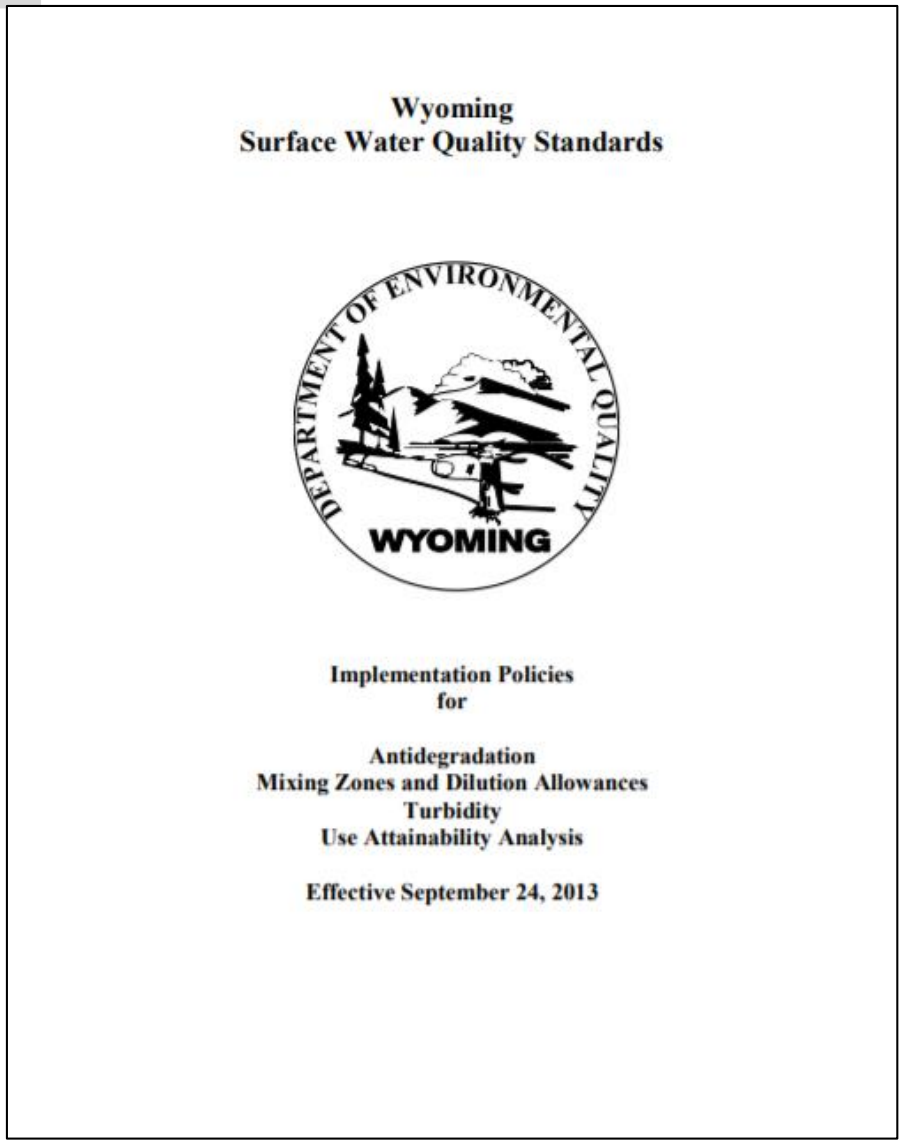


Turbidity Implementation Policy

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY



Wyoming
Surface Water Quality Standards

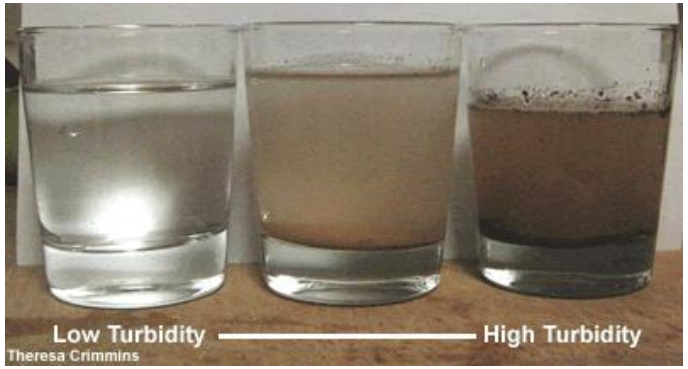
DEPARTMENT OF ENVIRONMENTAL QUALITY
WYOMING

Implementation Policies
for

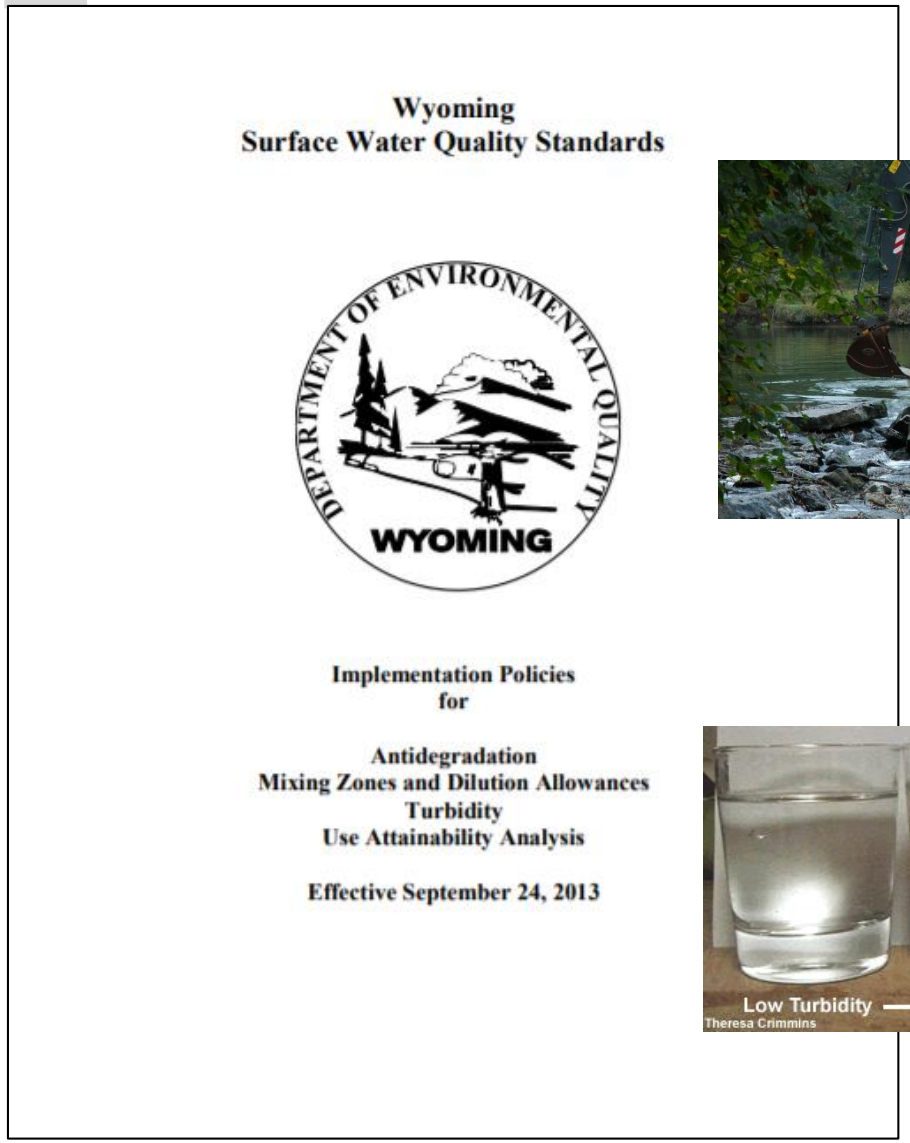
Antidegradation
Mixing Zones and Dilution Allowances
Turbidity
Use Attainability Analysis

Effective September 24, 2013

- Administrator can authorize temporary increases in turbidity
- For construction related activities, not for effluent or storm water discharges
- May be independent or included in WYPDES permit or Clean Water Act Section 401 certification



Implementation


Wyoming
Surface Water Quality Standards

DEPARTMENT OF ENVIRONMENTAL QUALITY
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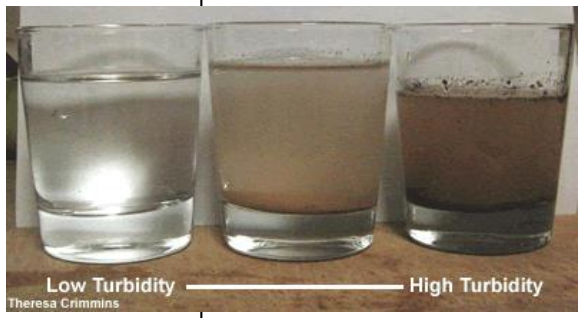
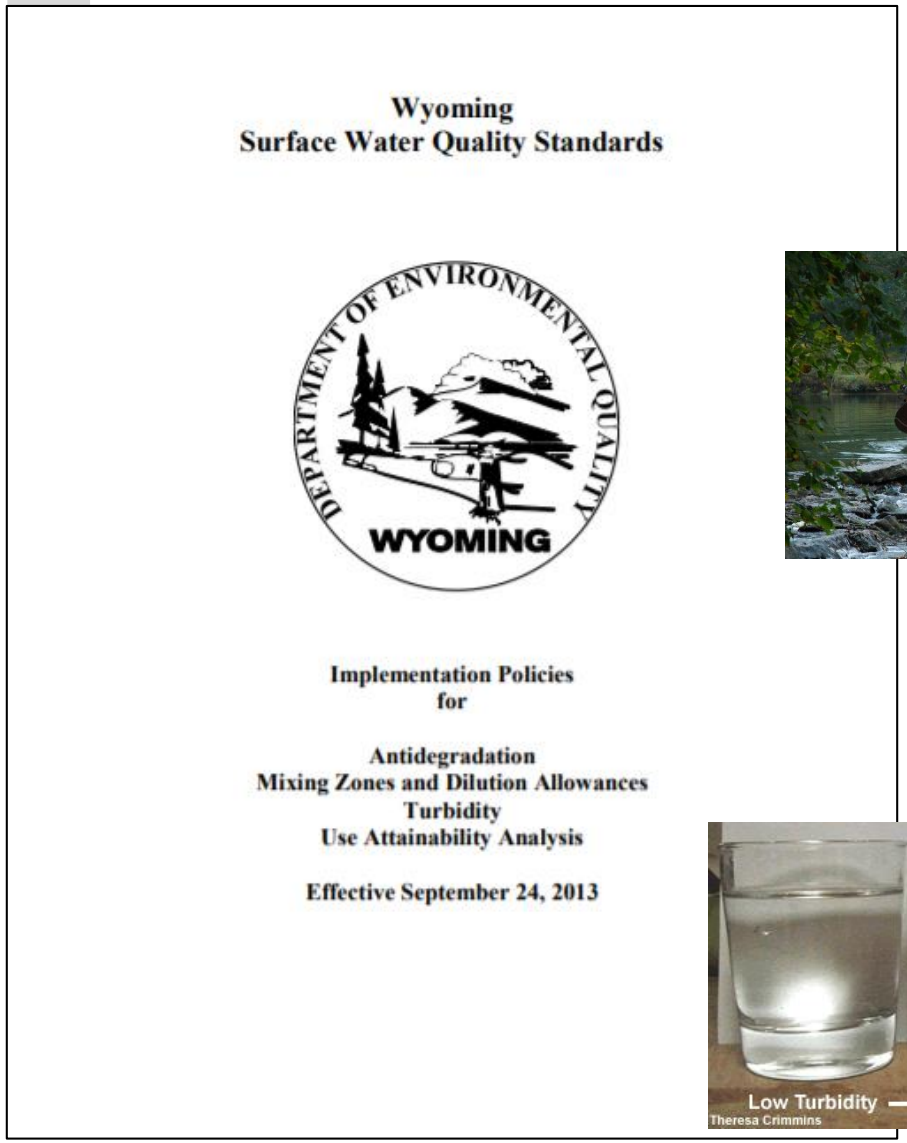


- Limited in time and duration
- Existing and designated uses will be maintained and protected
- Best available technology and management practices will be used to maintain turbidity and sedimentation at the lowest practical level
- Authorization must specify limits of the authorization and include monitoring and reporting schedule to demonstrate compliance

Implementation


Wyoming
Surface Water Quality Standards

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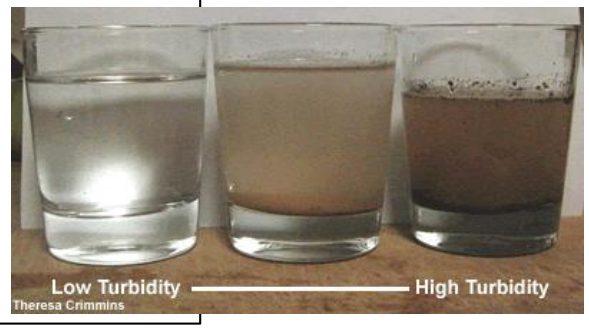
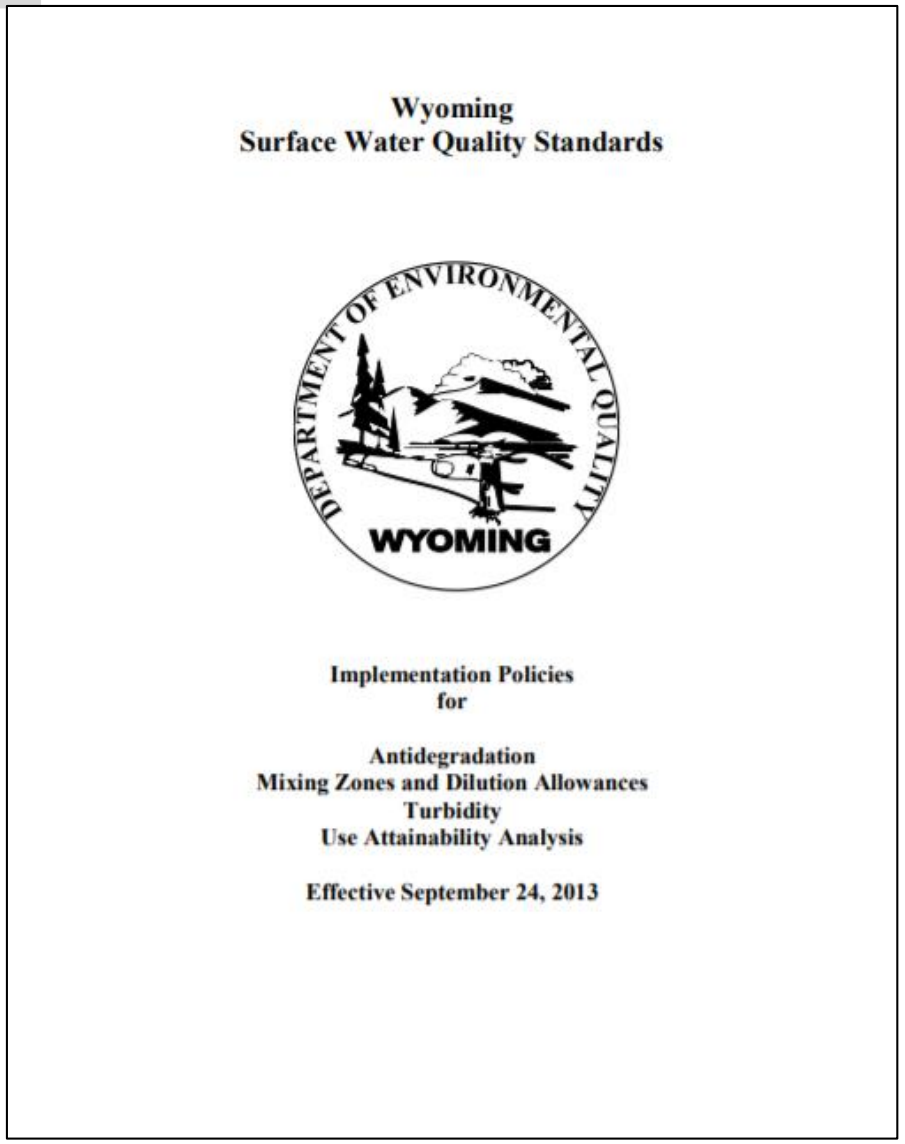


- Mitigation or stream restoration requirements may be included as conditions
- Does not relieve applicant of liability for damages to aquatic life, habitat, or other existing or designated uses
- Does not exempt applicant from any other federal, state, or local laws or regulations or legal action for damage

Implementation


Wyoming
Surface Water Quality Standards

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Mixing Zones and Dilution Allowances
Turbidity
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Effective September 24, 2013

- Must publish a notice of intent in a paper of local circulation for a minimum of 14 days prior to authorizing the increase
- Where activity is necessary to address unforeseen acts of nature, may grant authorization without publishing a notice of intent
- Interested persons may request a hearing on proposed authorization

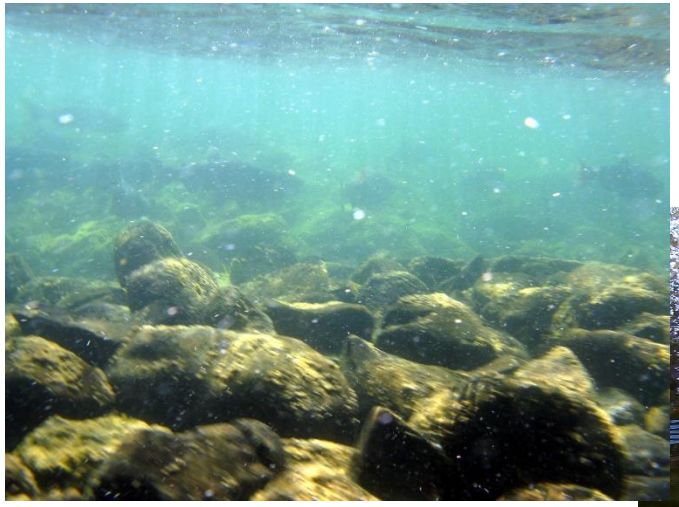
Chapter 1, Settleable Solids Criteria

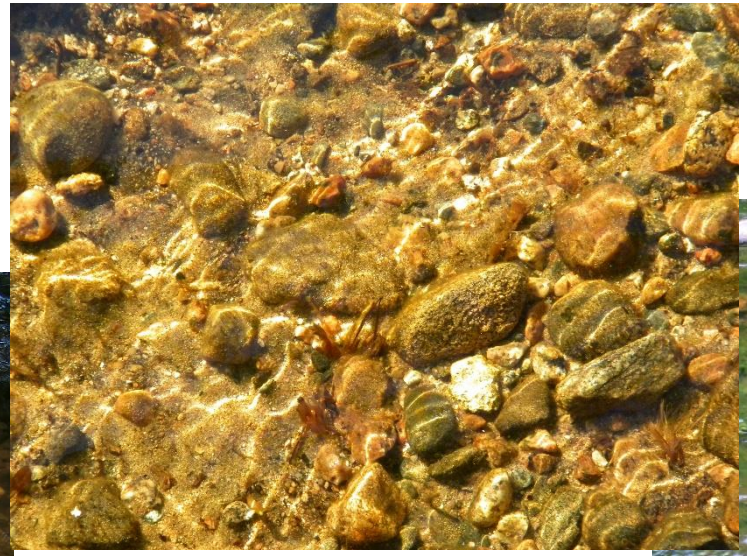
WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Settleable Solids Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Section 15. Settleable Solids. In all Wyoming surface waters, substances attributable to or influenced by the activities of man that will settle to form sludge, bank or bottom deposits shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife.





Chapter 1, Floating and Suspended Solids Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Floating and Suspended Solids Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Section 16. Floating and Suspended Solids. In all Wyoming surface waters, floating and suspended solids attributable to or influenced by the activities of man shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife.

Chapter 1, Toxic Materials

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 1, Toxic Materials

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Section 13. Toxic Materials. Except for those substances referenced in Sections 21(e) and (f) of these regulations, toxic materials attributable to or influenced by the activities of man shall not be present in any Wyoming surface water in concentrations or combinations which constitute "pollution".

(ix) "Pollution" means contamination or other alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity or odor of the waters or any discharge of any acid or toxic material, chemical or chemical compound, whether it be liquid, gaseous, solid, radioactive or other substance, including wastes, into any waters of the state which creates a nuisance or renders any waters harmful, detrimental or injurious to public health, safety or welfare, to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial uses, or to livestock, wildlife or aquatic life, or which degrades the water for its intended use, or adversely affects the environment. This term does not mean water, gas or other material which is injected into a well to facilitate production of oil, or gas or water, derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the state, and if the state determines that such injection or disposal well will not result in the degradation of ground or surface or water resources;

Other States' Criteria

Other States' Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

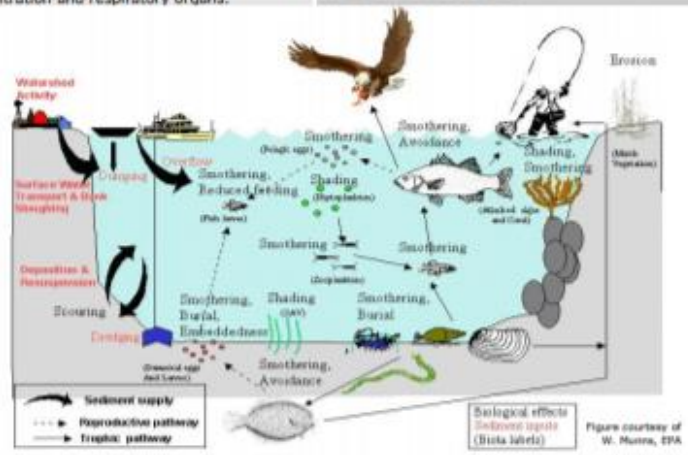
United States Environmental Protection Agency | Office of Water, Office of Research & Development | EPA-822-F-06-001 May 2006

Fact Sheet:
Framework for Developing Suspended and Bedded Sediment (SABS) Water Quality Criteria

The U.S. Environmental Protection Agency (EPA) is sending to the Regional Water Programs the document ***Framework for Developing Suspended and Bedded Sediment (SABS) Water Quality Criteria***. SABS occur naturally in all types of waterbodies. In appropriate amounts, sediments are essential to aquatic ecosystems. They can contribute to essential habitat for aquatic species' growth and reproduction. However, imbalanced sediment supply has repeatedly ranked high as a major cause of waterbody impairment. States, tribes, and territories want tools for developing SABS standards and criteria. The ***Framework***, a joint effort by the EPA's Office of Water and Office of Research and Development, presents an integrative process and technical methods that can be used to develop SABS criteria.

Ecological Effects of Excessive SABS

Suspended Sediments	Bedded Sediments
Decreased light penetration reduces primary productivity.	In large amounts, bedded sediments can bury and smother infaunal or epibenthic organisms and demersal eggs.
Increased turbidity reduces visual acuity and capture success for predators and foragers, stimulates drifting behavior in macroinvertebrates, reduces habitat suitability and habitat range for organisms that require clear water.	In smaller amounts, excess fine sediments can fill in gaps between larger substrate particles, embedding the larger particles and eliminating interstitial spaces that would otherwise be used as habitat for reproduction, feeding, and refugia for invertebrates and fish.
At high levels, suspended sediment can clog and abrade filtration and respiratory organs.	



I.C. Current Water Quality Criteria Related to SABS

I.C.1. Existing/Current U.S. EPA Criteria

In "*Quality Criteria for Water*" (U.S. EPA 1986), the Agency published the following recommendations for developing a numeric criterion for suspended solids and turbidity:

> *Solids (Suspended, Settleable) and Turbidity - Freshwater fish and other aquatic life: Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life.*

This criterion has not been frequently adopted or used by states, perhaps because certain methods are somewhat difficult to perform. A narrative "free from" aesthetic standard that states have occasionally adopted into their water quality standards was published in the same document (U.S. EPA 1986), stating:

> *Aesthetic Qualities - All waters shall be free from substances attributable to wastewater or other discharges that: settle to form objectionable deposits; float as debris, scum, oil, or other matter to form nuisances; produce objectionable color, odor, taste or turbidity; injure or are toxic or produce adverse physiological response in humans, animals, or plants; [or] produce undesirable or nuisance aquatic life.*

Other States' Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

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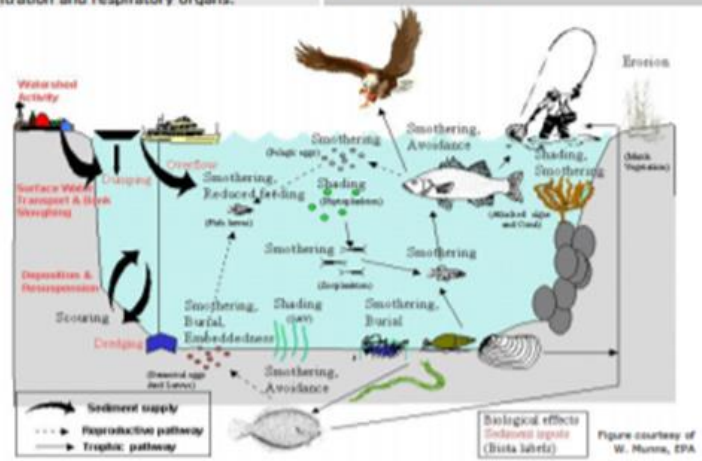
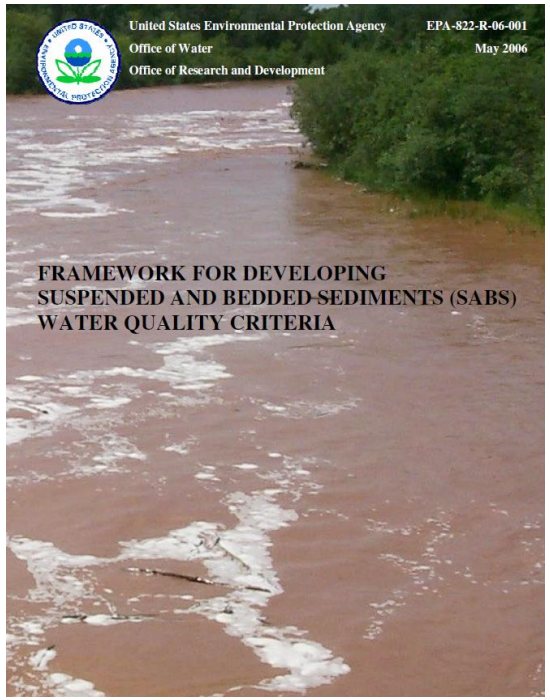


2001 Review

- Numeric SABS criteria
  - 32 states
- Narrative Criteria
  - 13 states with no numeric criteria
  - 23 states with numeric criteria
- No Criteria
  - 8 states
    - 5 list an alternative or guide for establishing criteria through effluent controls or regional criteria



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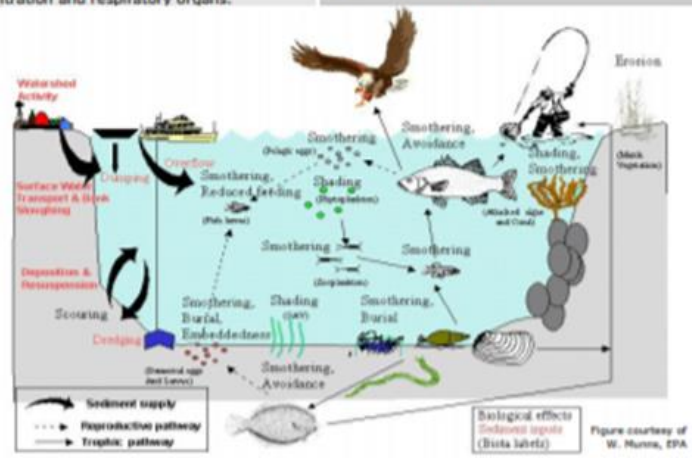
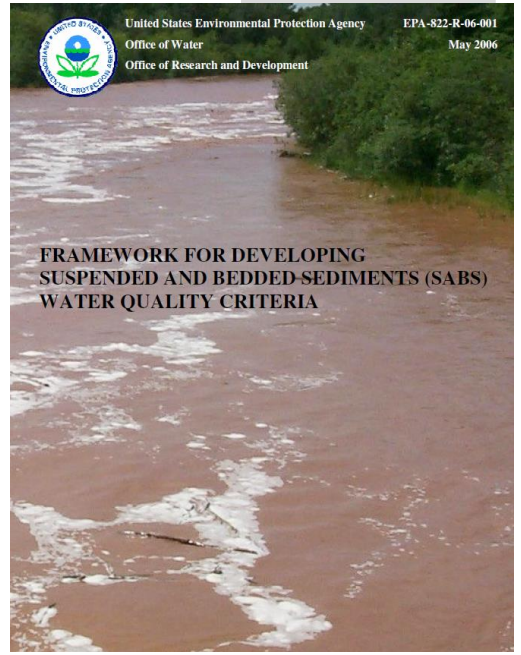
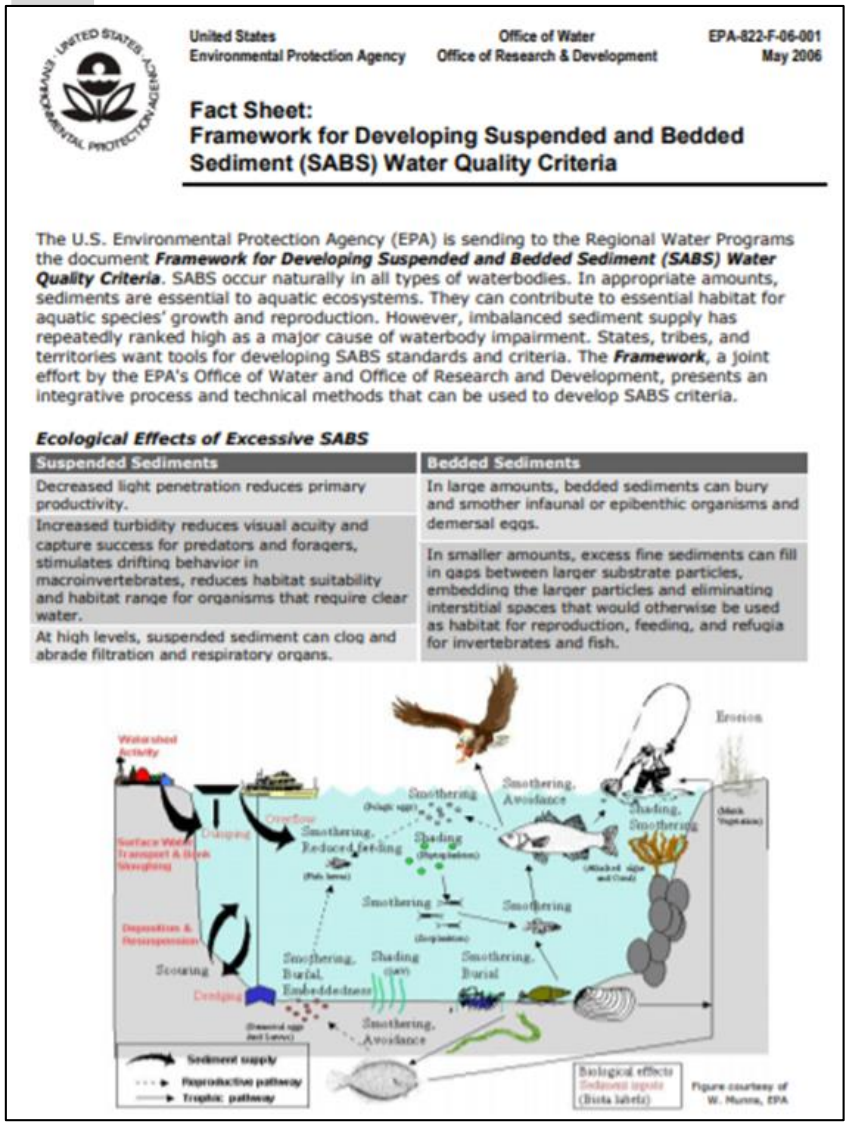


2001 Review

- Numeric SABS criteria
  - 32 states
    - Turbidity and Suspended Solids
      - 5 states
      - Exceedances over background
        - No more than 10% above background
        - No more than 10 NTUs above background
        - Not greater than 100 NTU



Other States' Criteria



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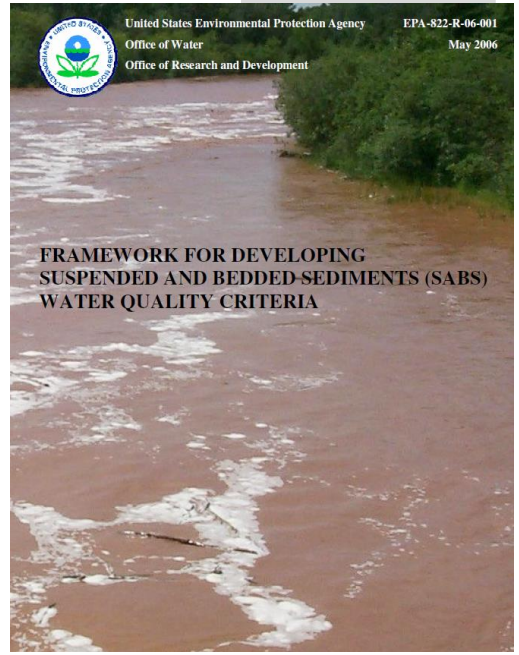
2001 Review

- States have developed new and improved SABS criteria to develop restoration plans (total maximum daily loads) for impaired waters

- Promising methods are included in the framework
  - Idaho
  - Oregon
  - New Mexico



Other States Criteria

- Idaho
- Oregon
- New Mexico

Sediment and Turbidity Criteria Examples

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- Idaho
- Oregon
- New Mexico

Idaho Narrative Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

200. GENERAL SURFACE WATER QUALITY CRITERIA.
The following general water quality criteria apply to all surface waters of the state, in addition to the water quality criteria set forth for specifically designated waters. (4-5-00)

01. Hazardous Materials. Surface waters of the state shall be free from hazardous materials in concentrations found to be of public health significance or to impair designated beneficial uses. These materials do not include suspended sediment produced as a result of nonpoint source activities. (8-24-94)

02. Toxic Substances. Surface waters of the state shall be free from toxic substances in concentrations that impair designated beneficial uses. These substances do not include suspended sediment produced as a result of nonpoint source activities. (8-24-94)

03. Deleterious Materials. Surface waters of the state shall be free from deleterious materials in concentrations that impair designated beneficial uses. These materials do not include suspended sediment produced as a result of nonpoint source activities. (8-24-94)

04. Radioactive Materials. (7-1-93)

a. Radioactive materials or radioactivity shall not exceed the values listed in the Code of Federal Regulations, Title 10, Chapter 1, Part 20, Appendix B, Table 2, Effluent Concentrations, Column 2. (8-24-94)

Idaho Narrative Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

b. Radioactive materials or radioactivity shall not exceed concentrations required to meet the standards set forth in Title 10, Chapter 1, Part 20, of the Code of Federal Regulations for maximum exposure of critical human organs in the case of foodstuffs harvested from these waters for human consumption. (7-1-93)

05. Floating, Suspended or Submerged Matter. Surface waters of the state shall be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses. This matter does not include suspended sediment produced as a result of nonpoint source activities. (8-24-94)

06. Excess Nutrients. Surface waters of the state shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses. (8-24-94)

07. Oxygen-Demanding Materials. Surface waters of the state shall be free from oxygen-demanding materials in concentrations that would result in an anaerobic water condition. (7-1-93)

08. Sediment. Sediment shall not exceed quantities specified in Sections 250 and 252, or, in the absence of specific sediment criteria, quantities which impair designated beneficial uses. Determinations of impairment shall be based on water quality monitoring and surveillance and the information utilized as described in Section 350. (4-5-00)

09. Natural Background Conditions as Criteria. When natural background conditions exceed any applicable water quality criteria set forth in Sections 210, 250, 251, 252, or 253, the applicable water quality criteria shall not apply; instead, there shall be no lowering of water quality from natural background conditions. Provided, however, that temperature may be increased above natural background conditions when allowed under Section 401. (3-30-07)

Idaho Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

250. SURFACE WATER QUALITY CRITERIA FOR AQUATIC LIFE USE DESIGNATIONS.

02. Cold Water. Waters designated for cold water aquatic life are not to vary from the following characteristics due to human activities: (3-15-02)

e. Turbidity, below any applicable mixing zone set by the Department, shall not exceed background turbidity by more than fifty (50) NTU instantaneously or more than twenty-five (25) NTU for more than ten (10) consecutive days. (8-24-94)

Idaho Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

252. SURFACE WATER QUALITY CRITERIA FOR WATER SUPPLY USE DESIGNATION.

b. Turbidity. (4-11-19)

i. Turbidity as measured at any public water intake shall not be: (4-11-19)

(1) Increased by more than five (5) NTU above background when background turbidity is fifty (50) NTU or less; (4-11-19)

(2) Increased by more than ten percent (10%) above background when background turbidity is greater than fifty (50) NTU and less than two hundred and fifty (250) NTU; or (4-11-19)

(3) Increased by more than twenty-five (25) NTU above background when background turbidity is two hundred and fifty (250) NTU or greater. (4-11-19)

ii. Turbidity Background/Criteria Table.

Turbidity Background	Turbidity Criteria
≤ 50 NTUs	5 NTUs above background
> 50 – < 250 NTUs	10% above background
≥ 250 NTUs	25 NTUs

(4-11-19)

Idaho Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

03. Use of Data Regarding pH, Turbidity, Dissolved Oxygen, and Temperature. In making use support determinations, the Department may give less weight to departures from criteria in Section 250 for pH, turbidity, dissolved oxygen, and temperature that are infrequent, brief, and small if aquatic habitat and biological data indicate to the assessor that aquatic life beneficial uses are otherwise supported. Unless otherwise determined by the Department, "infrequent" means less than ten percent (10%) of valid, applicable, representative measurements when continuous data are available; "brief" means two (2) hours or less; and "small" means conditions that avoid acute effects. Subsection 054.03 only applies to use of this data for determination of beneficial use support status. Subsection 054.03 does not apply to or affect the application of criteria for any other regulatory purpose including, but not limited to, determining whether a particular discharge or activity violates water quality standards. (3-18-11)

04. Natural Conditions. There is no impairment of beneficial uses or violation of water quality standards where natural background conditions exceed any applicable water quality criteria as determined by the Department, and such natural background conditions shall not, alone, be the basis for placing a water body on the list of water quality limited water bodies described in Section 055. (3-18-11)

Idaho SABS Guidance

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Appendix D
SABS-Related Criteria for Surface Water Quality

D.1 Examples of Approaches Currently in Use or Under Development in States and Internationally

Idaho:

In Idaho, as in many states, new numeric criteria must comply with existing narrative WQS, such as: "*Sediment shall not exceed quantities ... which impair beneficial uses*" (IDAPA 58.01.02.200.08). One of the important beneficial uses of Idaho streams is production of trout and salmon for ecological and recreational purposes. Although macroinvertebrate and fish community integrity are measured in Idaho (using the Stream Macroinvertebrate Index and the Stream Fish Index), these measures are not currently used as indicators of SABS impairment. Rather, the state considers as indicators water column and instream measures that change with increasing fine sediments and are known to affect growth, survival, reproductive success, and habitat suitability of salmonids and other aquatic. These include decreases in light penetration, riffle stability, and intergravel dissolved oxygen, and increases in turbidity, total suspended solids, embeddedness, extent of streambed covered by surface fines, and percent subsurface fines in potential spawning gravels. Target levels for these measures are based on relationships in the scientific literature (primarily from studies in the Northwestern U.S.), background conditions in Idaho streams, and existing Idaho WQS (Idaho DEQ 2003).

- Decreases in light penetration
- Riffle stability
- Intergravel dissolved oxygen
- Increases in turbidity
- Total suspended solids
- Embeddedness
- Extent of streambed cover by fines
- Percent subsurface fines in spawning gravels

Idaho SABS Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Appendix D
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- Targets based on
  - Scientific literature
  - Background conditions in Idaho streams

Sediment and Turbidity Criteria Examples

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- Idaho
- Oregon
- New Mexico

Oregon Narrative Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

340-041-0007
Statewide Narrative Criteria

(9) The development of fungi or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or that are injurious to health, recreation, or industry may not be allowed;

(10) The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shellfish may not be allowed;

(11) The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry may not be allowed;

(12) Objectionable discoloration, scum, oily sheens, or floating solids, or coating of aquatic life with oil films may not be allowed;

Oregon Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

340-041-0036
Turbidity

Turbidity (Nephelometric Turbidity Units, NTU): No more than a ten percent cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity. However, limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or other legitimate activities and which cause the standard to be exceeded may be authorized provided all practicable turbidity control techniques have been applied and one of the following has been granted:

(1) Emergency activities: Approval coordinated by the Department with the Oregon Department of Fish and Wildlife under conditions they may prescribe to accommodate response to emergencies or to protect public health and welfare;

(2) Dredging, Construction or other Legitimate Activities: Permit or certification authorized under terms of section 401 or 404 (Permits and Licenses, Federal Water Pollution Control Act) or OAR 141-085-0100 et seq. (Removal and Fill Permits, Division of State Lands), with limitations and conditions governing the activity set forth in the permit or certificate.

Oregon Turbidity Criteria Review

- 2014 Review
  - Aquatic Life
  - Recreation and Aesthetics
  - Drinking Water
- Rulemaking Paused

Oregon SABS Guidance

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Reference Site Identification in Oregon

The Oregon Department of Environmental Quality (ODEQ) is in the process of establishing SABS criteria in wadeable streams. As a first step in the process, reference sites were identified using multiple types of quantitative and qualitative information (Drake 2004). To identify reference sites, ODEQ used GIS analysis and aerial photos or thematic mapping data, or both, to pre-screen areas and find watersheds with minimal human disturbance. Using best professional judgment (BPJ), resource specialists edited the list of potential sites within unimpaired areas. A Human Disturbance Index (HDI) was developed for the candidate reference reaches and watersheds based on reach level observations and watershed-scale geographic information. The HDI score was used to help select and rank reference sites in a basin or region. Verification of reference sites includes evaluating physical habitat and biological and water quality data. Outlying data may indicate problems that would exclude sites from the reference set. After identifying reference sites, ODEQ went on to investigate differences in SABS indicators among potential site classes. The studies revealed that ecoregions are reasonable determinants of natural SABS variations.

1. Identify Reference Sites
2. Identify differences in SABS indicators among site classes
3. Ecoregions are reasonable determinants of SABS variations

Narrative Criteria Examples

- Idaho
- Oregon
- New Mexico

New Mexico Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

20.6.4.13 GENERAL CRITERIA: General criteria are established to sustain and protect existing or attainable uses of surface waters of the state. These general criteria apply to all surface waters of the state at all times, unless a specified criterion is provided elsewhere in this part. Surface waters of the state shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or unreasonably interfere with the public welfare or the use of property.

A. Bottom deposits and suspended or settleable solids:

(1) Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.

(2) Suspended or settleable solids from other than natural causes shall not be present in surface waters of the state in quantities that damage or impair the normal growth, function or reproduction of aquatic life or adversely affect other designated uses.

B. Floating solids, oil and grease: Surface waters of the state shall be free of oils, scum, grease and other floating materials resulting from other than natural causes that would cause the formation of a visible sheen or visible deposits on the bottom or shoreline, or would damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life.

C. Color: Color-producing materials resulting from other than natural causes shall not create an aesthetically undesirable condition nor shall color impair the use of the water by desirable aquatic life presently common in surface waters of the state.

D. Organoleptic quality:

(1) Flavor of fish: Water contaminants from other than natural causes shall be limited to concentrations that will not impart unpalatable flavor to fish.

(2) Odor and taste of water: Water contaminants from other than natural causes shall be limited to concentrations that will not result in offensive odor or taste arising in a surface water of the state or otherwise interfere with the reasonable use of the water.

E. Plant nutrients: Plant nutrients from other than natural causes shall not be present in concentrations that will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state.

F. Toxic pollutants:

(1) Except as provided in 20.6.4.16 NMAC, surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of

New Mexico Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

20.6.4.13 GENERAL CRITERIA: General criteria are established to sustain and protect existing or attainable uses of surface waters of the state. These general criteria apply to all surface waters of the state at all times, unless a specified criterion is provided elsewhere in this part. Surface waters of the state shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or unreasonably interfere with the public welfare or the use of property.

J. Turbidity: Turbidity attributable to other than natural causes shall not reduce light transmission to the point that the normal growth, function or reproduction of aquatic life is impaired or that will cause substantial visible contrast with the natural appearance of the water. Activities or discharges shall not cause turbidity to increase more than 10 NTU over background turbidity when the background turbidity, measured at a point immediately upstream of the activity, is 50 NTU or less, nor to increase more than twenty percent when the background turbidity is more than 50 NTU. However, limited-duration turbidity increases caused by dredging, construction or other similar activities may be allowed provided all practicable turbidity control techniques have been applied and all appropriate permits, certifications and approvals have been obtained.

New Mexico SABS Guidance

New Mexico:

New Mexico recently developed a draft protocol to support an interpretation of their state WQS stream bottom deposits narrative standard (New Mexico Environment Department 2002), which states:

> *Surface waters of the State shall be free of water contaminants from other than natural causes that will settle and damage or impair the normal growth, function, or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.*

Unlike Idaho, New Mexico's draft protocol calls for making use attainment decisions based on both biological and non-biological indicators. The approach is based on reference condition sites. Specifically, the protocol is a quantitative, three-step assessment procedure for determining whether the above narrative standard is being attained in a particular stream reach or segment by (1) comparing changes or differences, if any, between the site of concern and a reference site, (2) directly evaluating instream habitat by measuring either substrate size (mainly fines, 2 mm or less) abundance or cobble embeddedness, and (3) verifying or confirming results obtained in step 2 by assessing and comparing benthic macroinvertebrate communities (or fish) at the same sites.

- Comparing changes or differences between a site of concern and a reference site
- Comparing instream habitat by measuring substrate size (fines, 2 mm or less) abundance or cobble embeddedness
- Using benthic macroinvertebrates compared at the same sites

Summary of Other States' Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- Many states have retained their numeric turbidity criteria
  - Some have off-ramps, exceptions for short-term increases
- Most states have narrative criteria for sediment
- States have developed guidance to develop SABS endpoints that are not in their water quality standards

Summary of Other States' Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

National Cumulative TMDLs by Pollutant

This chart includes TMDLs since October 1, 1995.

Description of this table

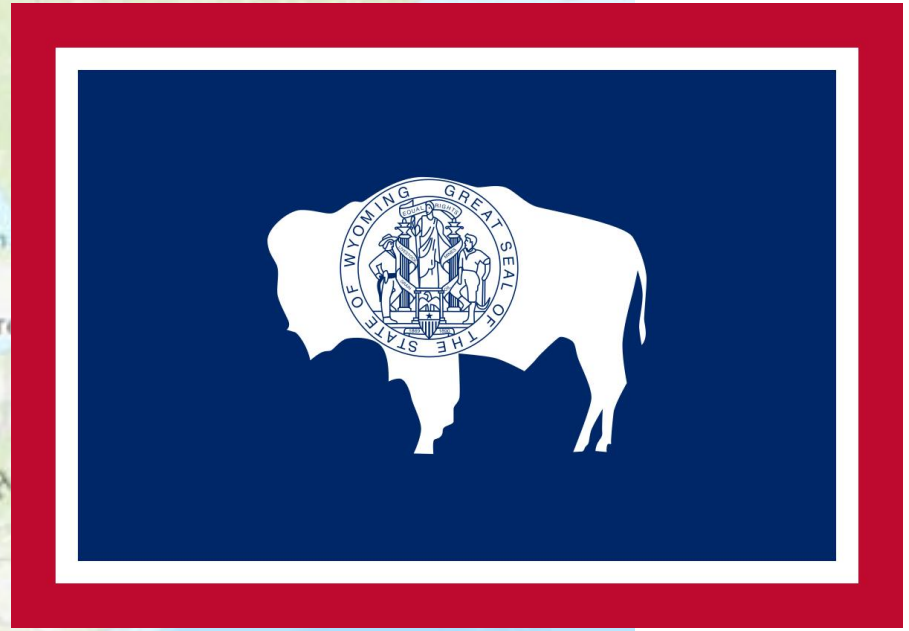
NOTE: Click on the underlined "Pollutant Group" value to see a detailed list of pollutants. Click on the underlined "Number of TMDLs" value to see a listing of those TMDLs for the pollutant Group.

Pollutant Group	Number of TMDLs	Number of Causes of Impairment Addressed
Mercury	21,649	21,679
Pathogens	14,168	14,483
Metals (other than Mercury)	10,387	10,590
Nutrients	6,685	8,237
Sediment	4,031	4,689
Polychlorinated Biphenyls (PCBs)	2,626	3,557
Temperature	2,454	2,464
Organic Enrichment/Oxygen Depletion	2,230	2,366
pH/Acidity/Caustic Conditions	2,033	2,092
Turbidity	1,819	2,083
Salinity/Total Dissolved Solids/Chlorides/Sulfates	1,762	1,821
Pesticides	1,395	1,558
Ammonia	1,149	1,260
Chlorine	341	347
Other Cause	269	324
Toxic Inorganics	219	223
Toxic Organics	162	204
Cause Unknown - Impaired Biota	128	132

- More total maximum daily loads have been developed for sediment than turbidity, despite the fact that many states do not have numeric sediment criteria

Wyoming Water Quality Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY



Ideas for Potential Changes to Standards

- Conceptual, Chapter 1 and Other Documents
- Potential Implications

Chapter 1, Sediment and Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 1, Sediment and Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Section X. Narrative Criteria

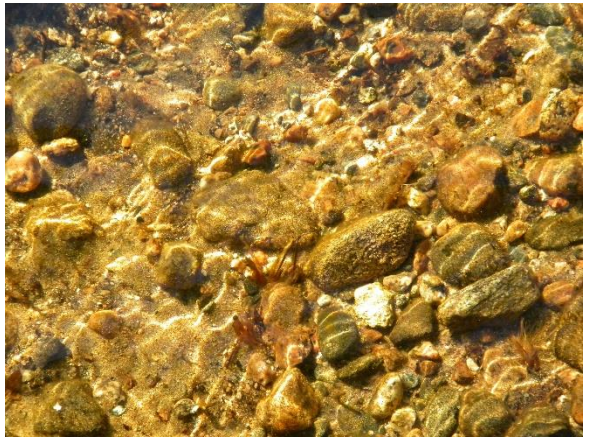
Ideas for Potential Changes to Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Section X. Narrative Criteria.

Surface waters of the state shall be free from…..

…….sludge, bank deposits, bottom deposits, or other settleable solid; floating solids, suspended solids, or turbidity……that will prevent attainment of designated uses.



Ideas for Potential Changes to Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

- Consolidate all narrative criteria
  - Include specific designated use protection criteria
  - Include free from criteria for specific conditions and pollutants

Ideas for Potential Changes to Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

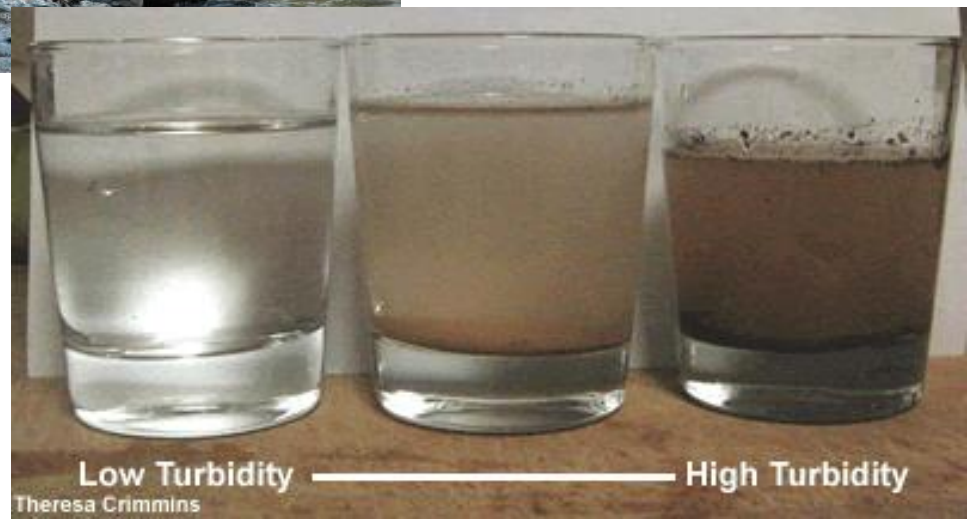
Wyoming
Surface Water Quality Standards

Implementation Policies
for

Antidegradation
Mixing Zones and Dilution Allowances
~~**Turbidity**~~
Use Attainability Analysis

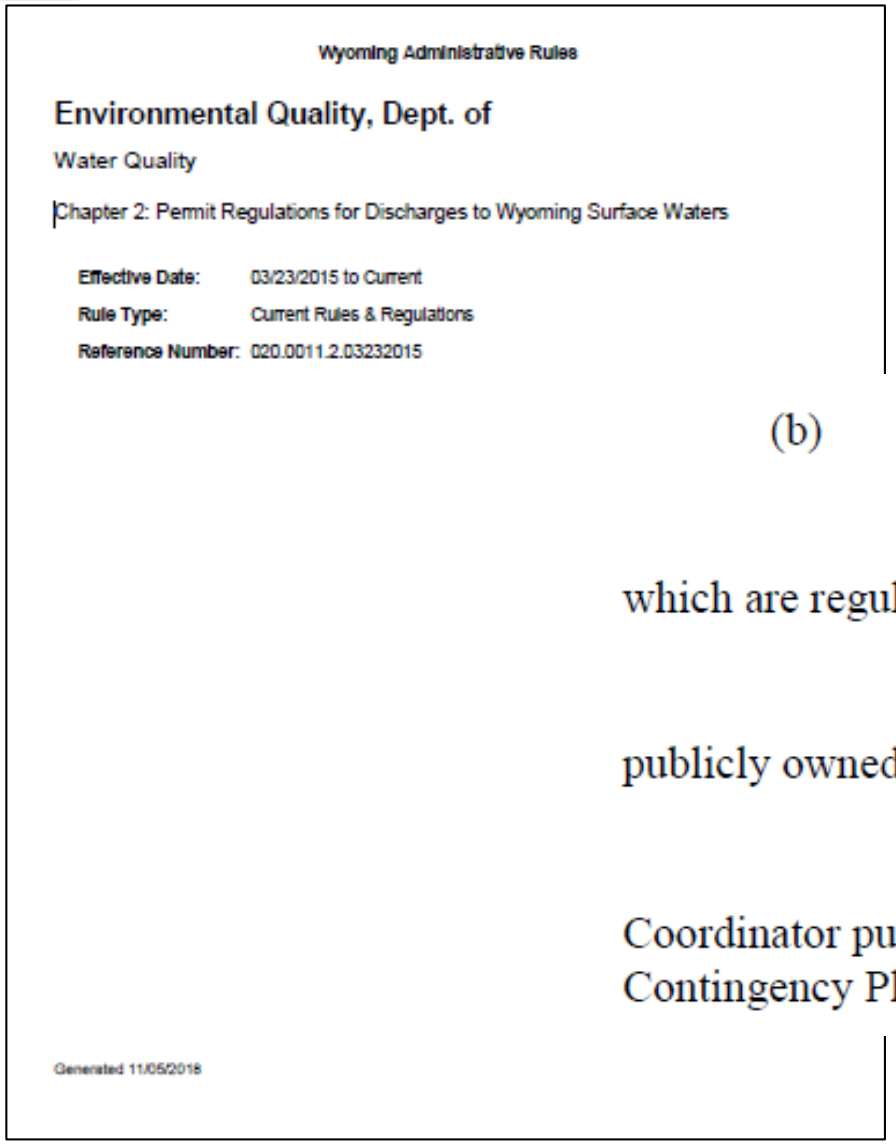
Effective September 24, 2013

Eliminate Turbidity Implementation Policy



Ideas for Potential Changes to Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY



Wyoming Administrative Rules

Environmental Quality, Dept. of

Water Quality

Chapter 2: Permit Regulations for Discharges to Wyoming Surface Waters

Effective Date: 03/23/2015 to Current
Rule Type: Current Rules & Regulations
Reference Number: 020.0011.2.03232015

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- Discharges that do not require WYPDES Permits, Chapter 2, Permit Regulations

(b) Exclusions. The following discharges do not require WYPDES permits:

(i) Discharges of dredged or fill material into waters of the United States which are regulated under Section 404 of the CWA.

(ii) The introduction of sewage, industrial wastes or other pollutants into publicly owned treatment works by indirect dischargers.

(iii) Any discharge in compliance with the instructions of an On-Scene Coordinator pursuant to 40 CFR 300 (The National Oil and Hazardous Substances Pollution Contingency Plan) or 33 CFR 153.10 (e) (Pollution by Oil and Hazardous Substances).

Ideas for Potential Changes to Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

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- Discharges that do not require WYPDES Permits, Chapter 2, Permit Regulations

(iv) Any introduction of pollutants from non-point source agricultural and silvicultural activities.

(v) Return flows from irrigated agriculture.

(vi) Discharges into privately owned treatment works.

(vii) Discharges of dredge or fill material

(A) from normal farming, silviculture, and ranching activities such as plowing, seeding, cultivating, minor drainage, harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices;

(B) for the purpose of maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, headwaters, causeways, and bridge abutments or approaches, and transportation structures;

(C) for the purpose of construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches;

Ideas for Potential Changes to Standards

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

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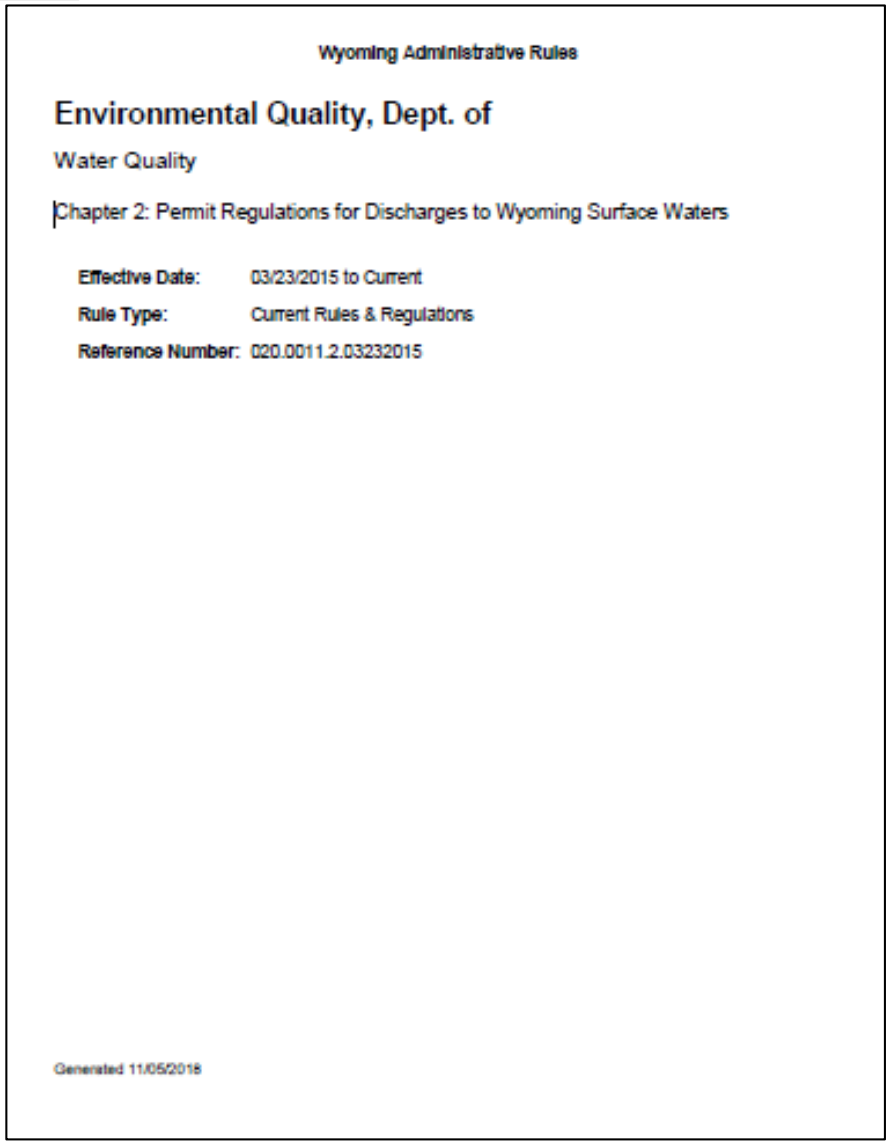
(D) for the purposes of construction of temporary sedimentation basins on a construction site which does not include placement of fill material into surface waters of the state;

(E) for the purpose of construction or maintenance of farm roads or forest roads, or temporary roads for moving mining equipment, where such roads are constructed and maintained, in accordance with best management practices, to assure that flow and circulation patterns and chemical and biological characteristics of surface waters of the state are not impaired, that the surface water of the state is not reduced, and that any adverse effect on the aquatic environment will be otherwise minimized;

Ideas for Potential Changes to Standards



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- Establish permit by rule for short-term construction activities in Permit Regulations
  - Existing and designated uses shall be fully maintained and protected
  - Best available technology and management practices shall be used to maintain turbidity and sedimentation at the lowest practical level
  - Public water supplies shall be notified in advance

Potential Implications

- Improved clarity for narrative criteria
- Update Assessment Methods for determining attainment of uses potentially impaired due to suspended and bedded sediment
  - Include appropriate metrics
  - Based on EPA SABS framework
  - Can be specific to different designated uses

Chapter 1, Sediment and Turbidity Criteria

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY