Key Antidegradation Concepts & Current Policy Issues

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Water Quality Standards

- **Designated uses**
  - Based on existing or “desired” beneficial uses
  - Examples of designated uses - drinking water source, aquatic life support, swimming/fishing, etc.
- **Water quality criteria**
  - Scientific benchmarks, linked to supporting designated uses
  - Criteria can be numeric or narrative
  - Types - human health, aquatic life, water column, sediment, etc.
- **Antidegradation**
  - Protects minimum water quality at threshold WQC levels
  - Prevents degradation of ‘high quality’ water in most cases
  - Protects pristine waters from any permanent degradation

Federal Antideg Reg @ CFR 131.12

- States must have both an “antidegradation policy” and “methods for implementing” the policy
- **Tier I:** “Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected”
- **Tier II:** Where “quality of the waters exceed levels necessary,” degradation allowed only after:
  - Demonstrating “important economic or social development” in area where water is located
  - Intergovernmental coordination & public participation
  - Achieving “highest statutory and regulatory requirements” for point sources and “all cost effective and reasonable” BMPs for nonpoint sources
  - Protection of minimum WQC (“Tier I”)
- **Tier III:** No permanent degradation of ONRWs allowed

What does it apply to?

- **NPDES** permitted activities
  - General and individual
  - Mostly “new and/or expanded”
  - WWTPs, CAFOs, Stormwater, etc.
  - Permit renewals in some cases . . .
- **Section 404** permits
  - Implemented thru 401 certification
  - Broader assessment focus
- **Other “regulated” activities**
  - Local ordinances (septic systems, erosion/sediment, etc.)
  - State permitted or managed activities on public lands ?
- **Nonpoint sources**
  - Cost effective and reasonable BMPs required
- **Revision of state WQ standards**, variances, etc.

Tier 1: The Basic "Floor"

- Cannot allow loss of any existing use
- Cannot allow water quality to drop below levels needed to maintain existing use
- Applies to all waters, regardless of use designation

§ 131.12 Antidegradation policy.

(a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act.

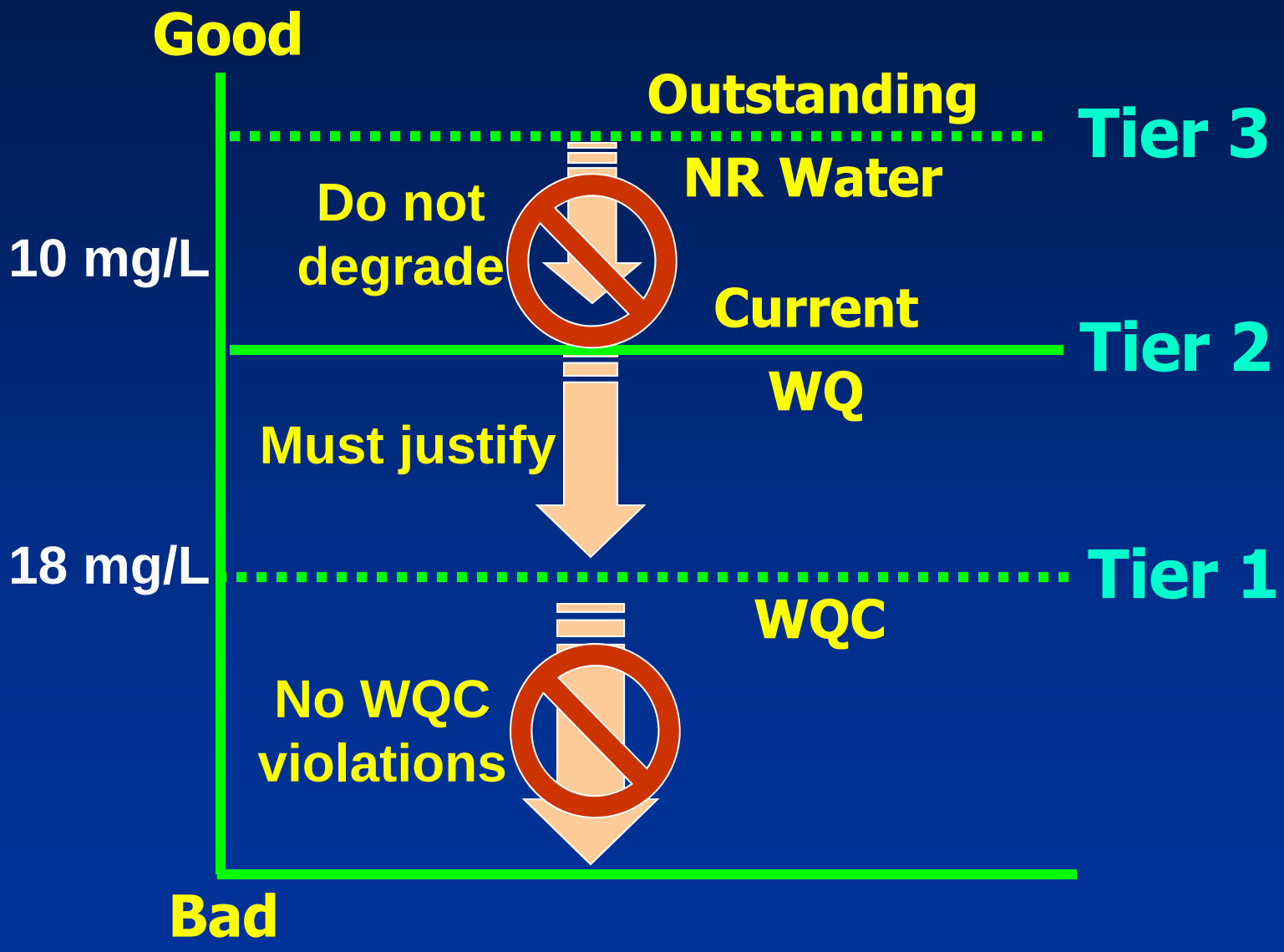
Tier 2: Use of Assimilative Capacity Is Not a Right

- "Brakes" slide from really good WQ to barely meeting WQC by saying you can't degrade WQ unless:
  - **Point sources are meeting relevant technology-based limits**
  - **Have "achieved all cost-effective and reasonable best management practices for nonpoint sources"**
  - **Allowing lower WQ is "necessary to accommodate important economic or social development"**
  - **Gone through public review and comment**

Tier 3: No Degradation for ONRWs

- Applies only to waters classified as Outstanding National Resource Waters (ONRW)
  - This classification “overlays” designated uses
  - Candidates include, but are not limited to: “waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance”
- Only minor & temporary decreases in water quality are allowed

Antidegradation Overview



Key CWA Concepts Related to Antideg

- **Antidegradation policy implementation methods**
  - Most states have a policy; implementation is slow
  - "Parameter-by-parameter" or "waterbody-by-waterbody" ?
- **Existing (or baseline) "quality of the waters"**
  - Water quality assessments needed to estimate impacts
- **How WQ is "maintained and protected"**
  - How much degradation is allowable? What conditions?
- **What states do to allow "degradation or lower WQ"**
  - NPDES permitting, 401 WQ certification, other actions?

Key CWA Concepts Related to Antideg

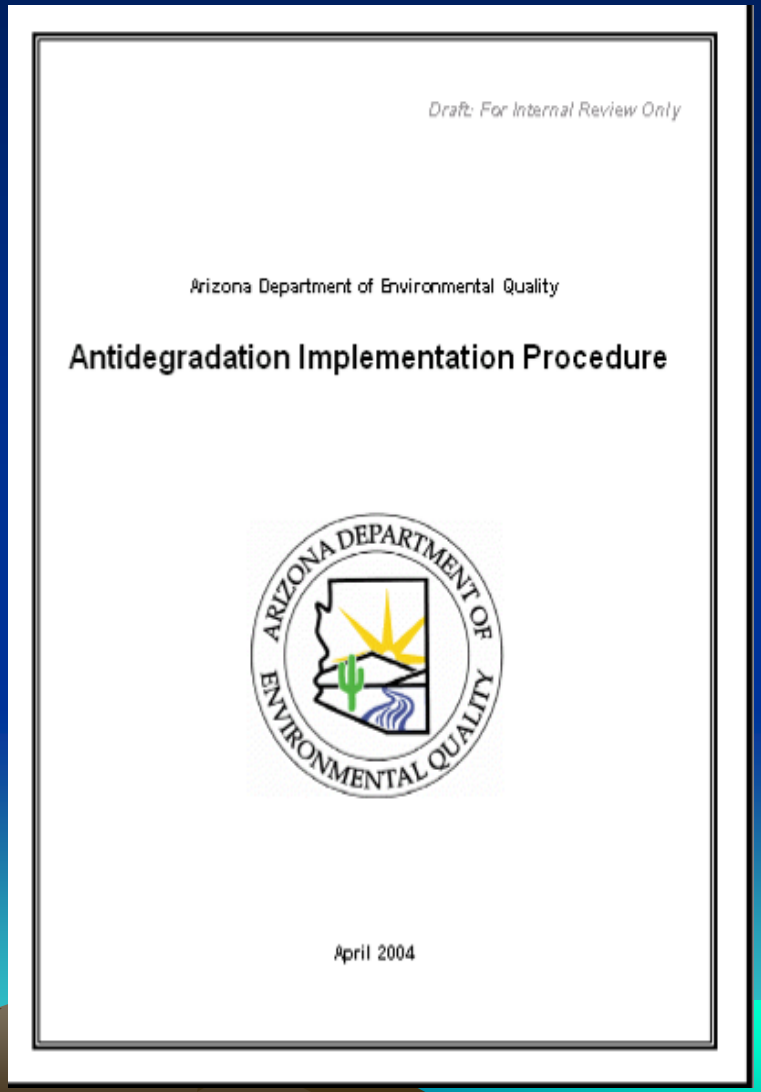
- **"Important economic or social development"**
  - Must be demonstrated to degrade high quality waters
- **"Highest statutory & regulatory requirements" for PSs**
  - Required prior to allowing additional degradation
- **"Cost-effective and reasonable BMPs for NPS control"**
  - Required prior to allowing additional degradation

What Does Antideg Mean for Permits?

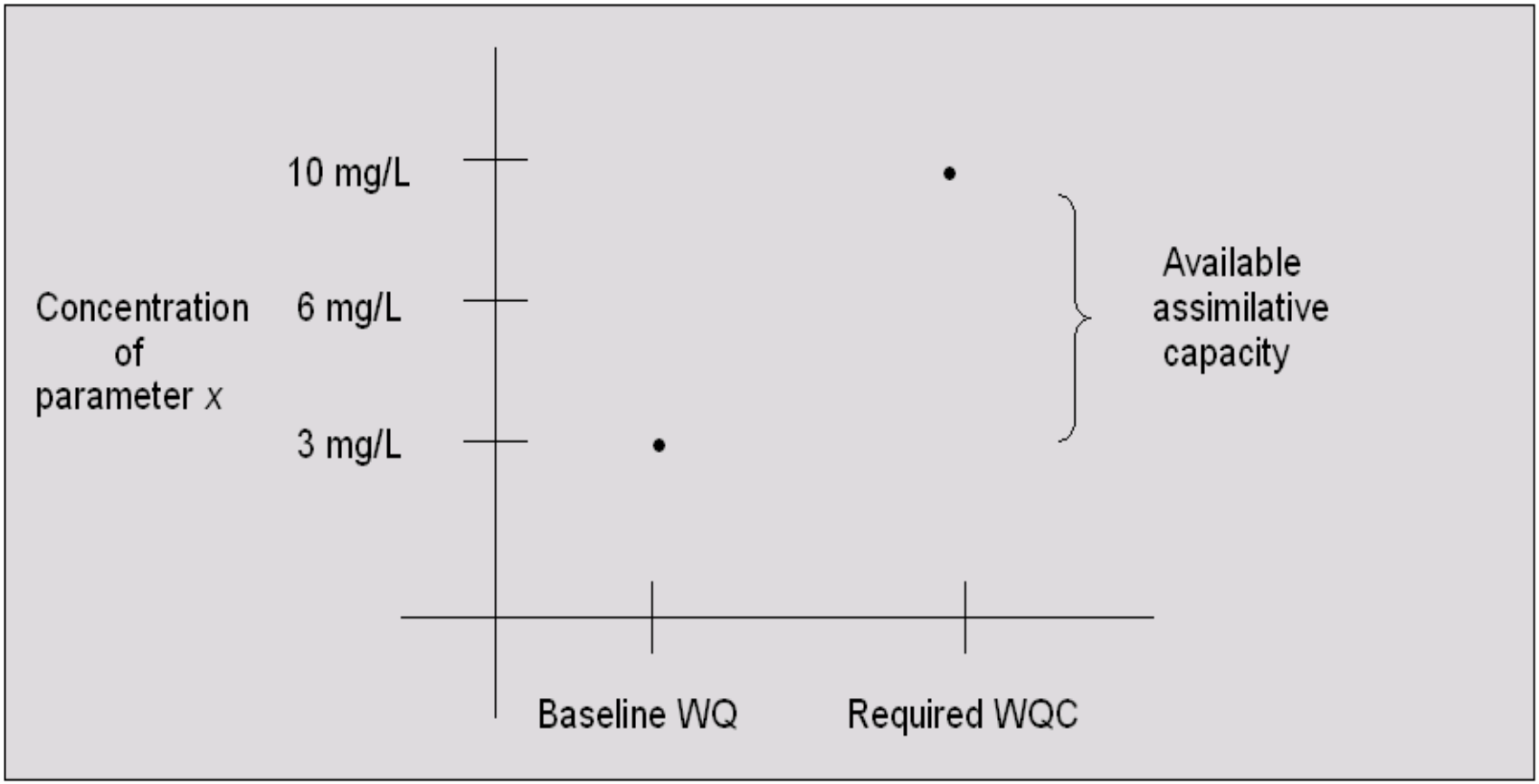
- **Dilution calculations** for NPDES discharges
  - Often calculated at WQ criteria, not "antideg limit"
  - Lowering WQ to baseline WQ criteria must be accompanied by economic/social justification
  - Permits granting excessive & unused pollutant loads might be challenged
- **Management** of general/nationwide permits
  - Activities must ensure antideg protection
- **Oversight** of other state-managed activities
  - Nonpoint sources must achieve "all cost-effective and reasonable" BMPs

Calculating Permit Limits

- Effluent limits, best available technology, etc.
- Water quality based effluent limits (i.e, to prevent WQC violations)
- Antidegradation limits (to keep clean water clean)

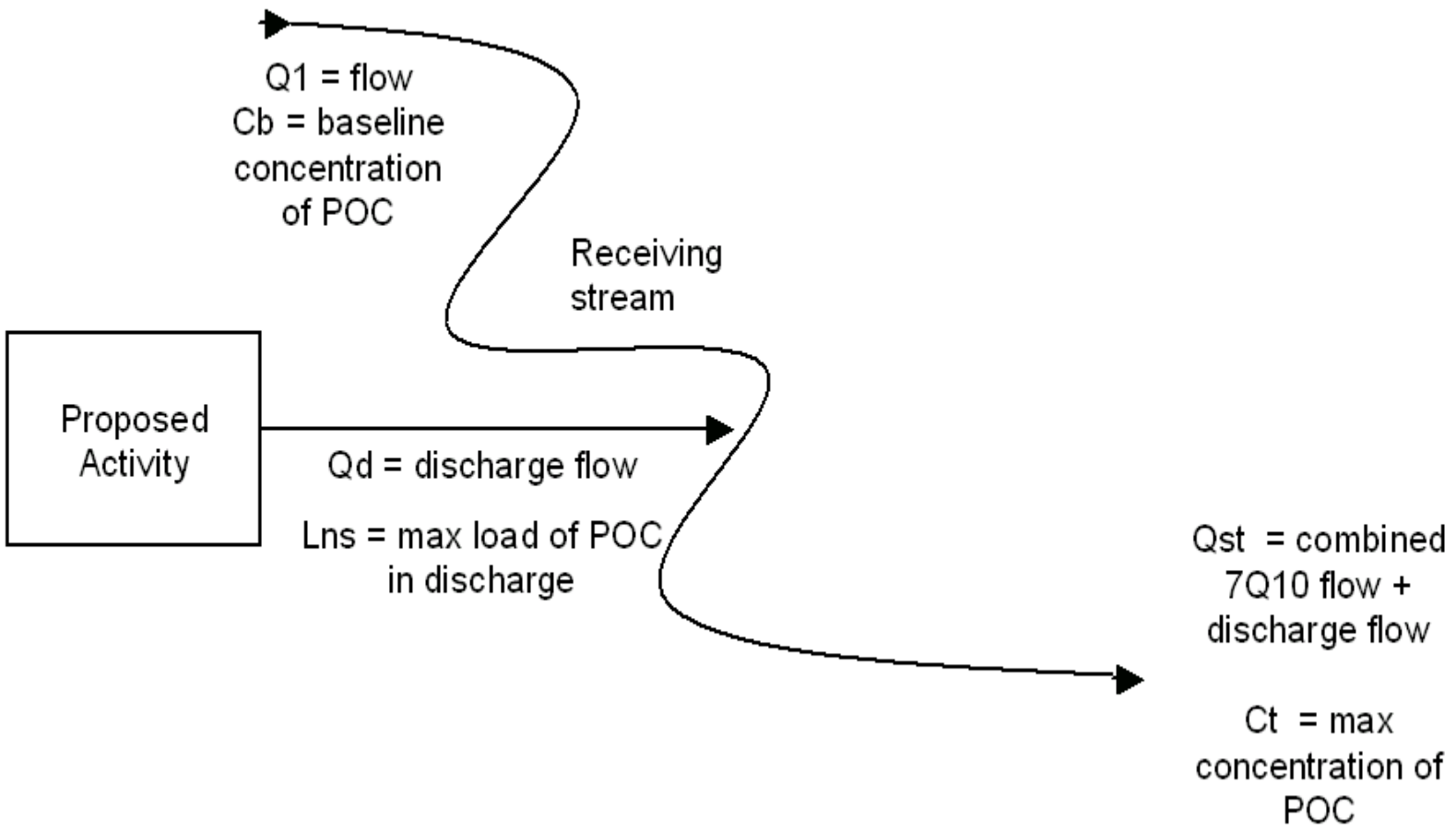


Assimilative Capacity Use

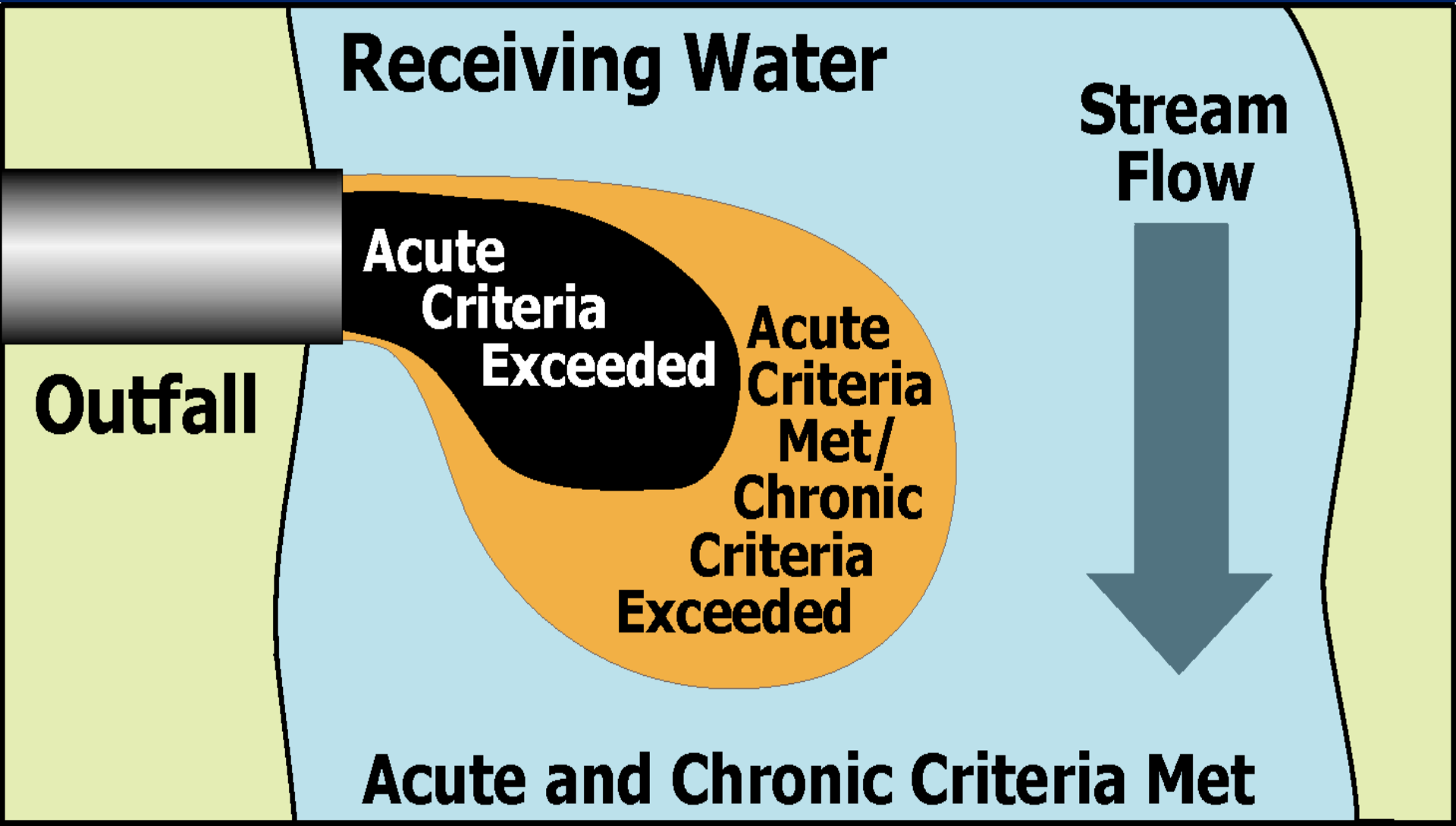


Simplified Representation of Waterbody Assimilative Capacity for Parameter *x*

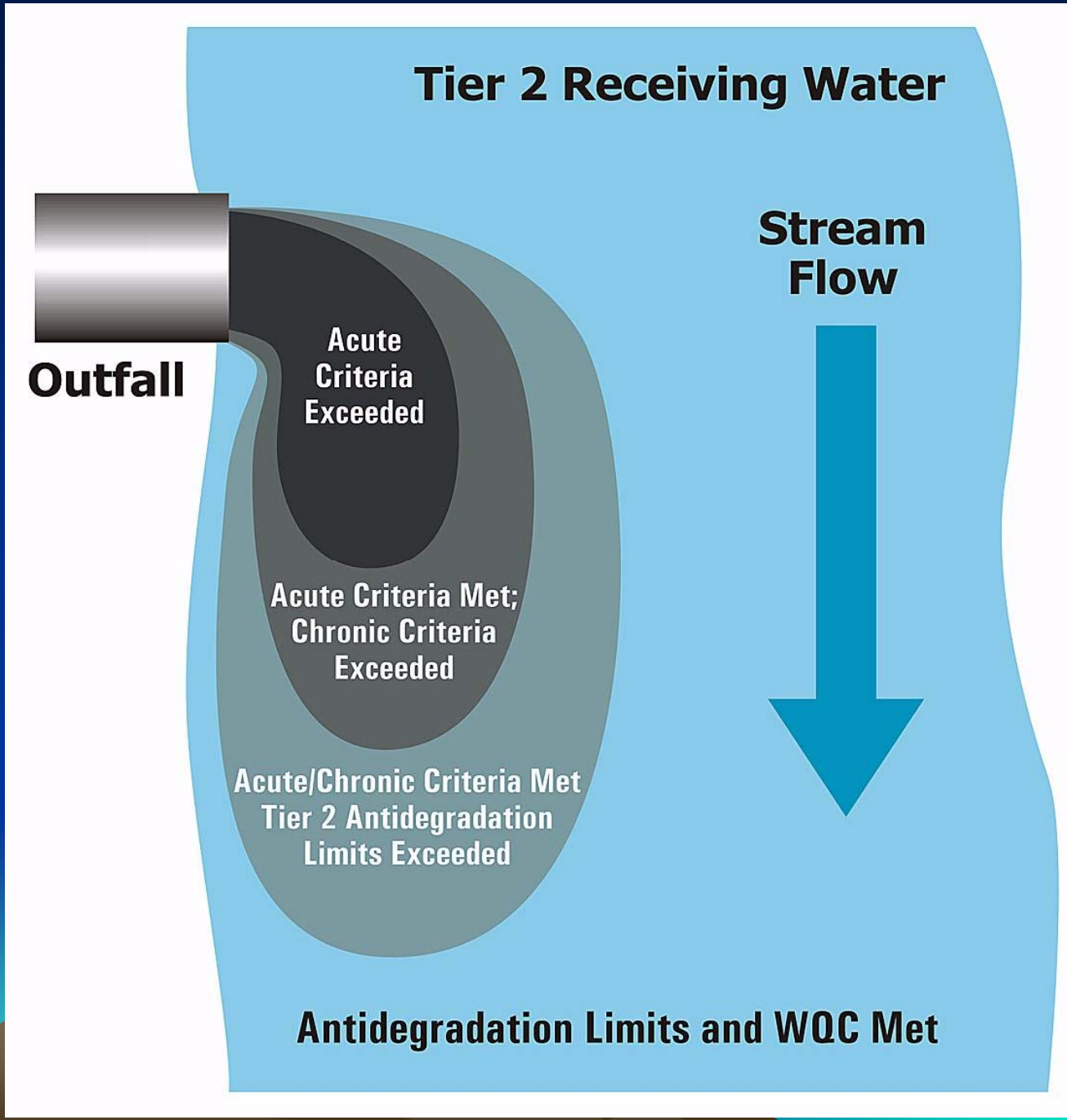
Calculating the Allowable Load



Typical Effluent Discharge Mixing Zone



Tier 2 issues related to WWTP mixing zone



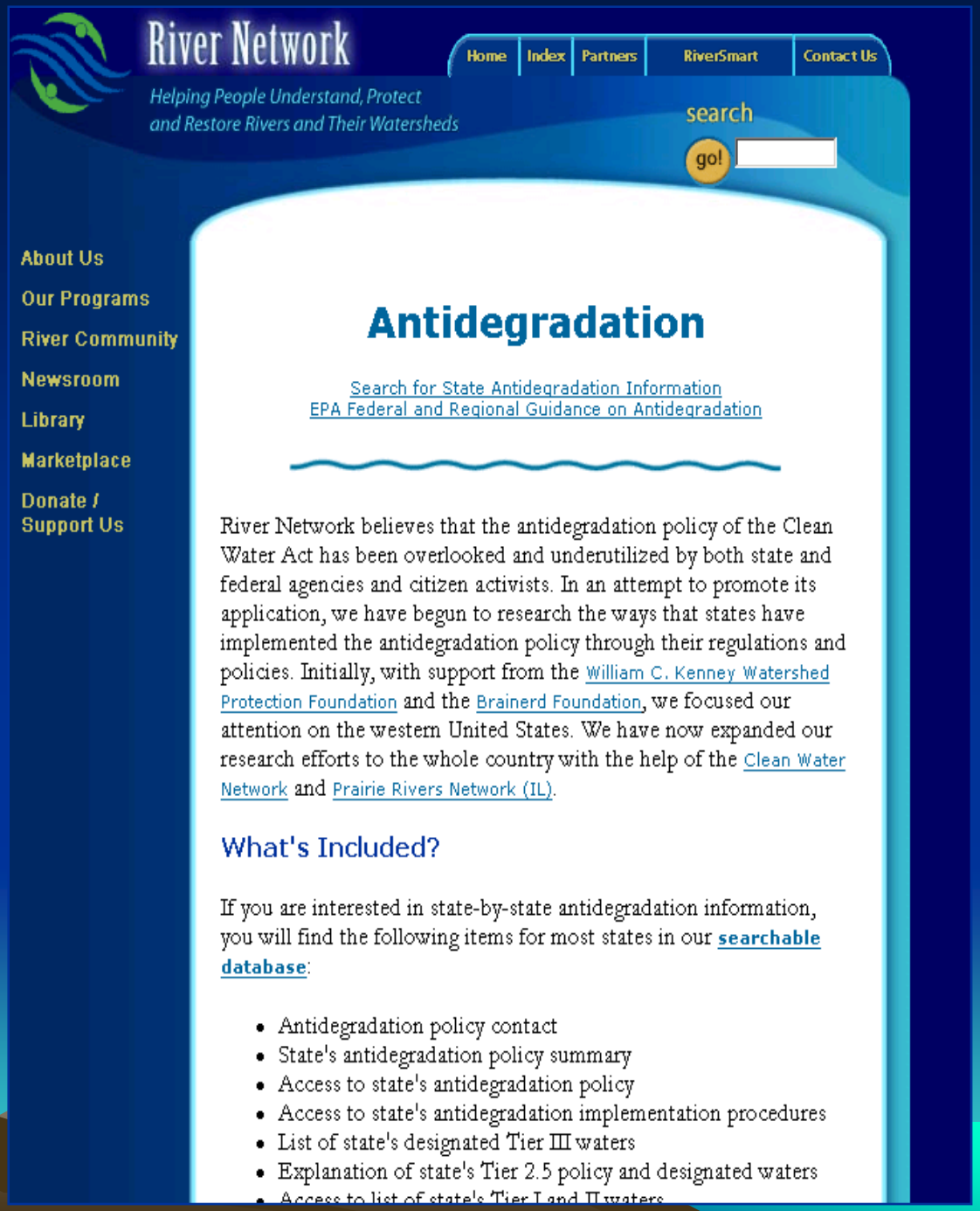
What Does Antideg Mean for Water Quality Assessment?

- More emphasis on **characterizing "baseline" water quality** prior to issuing permits
  - BWQ is essential for measuring impacts
  - Can be based on individual parameters or waterbody "designation"
- Greater need for **watershed-wide assessments and modeling** of individual/cumulative impacts
  - Downstream effects on other waterbody segments require a holistic approach
- Increasing focus on **coordination among assessment and permitting staff**
  - Can watershed-wide assessment and permitting help?

What Does Antideg Mean To The Courts?

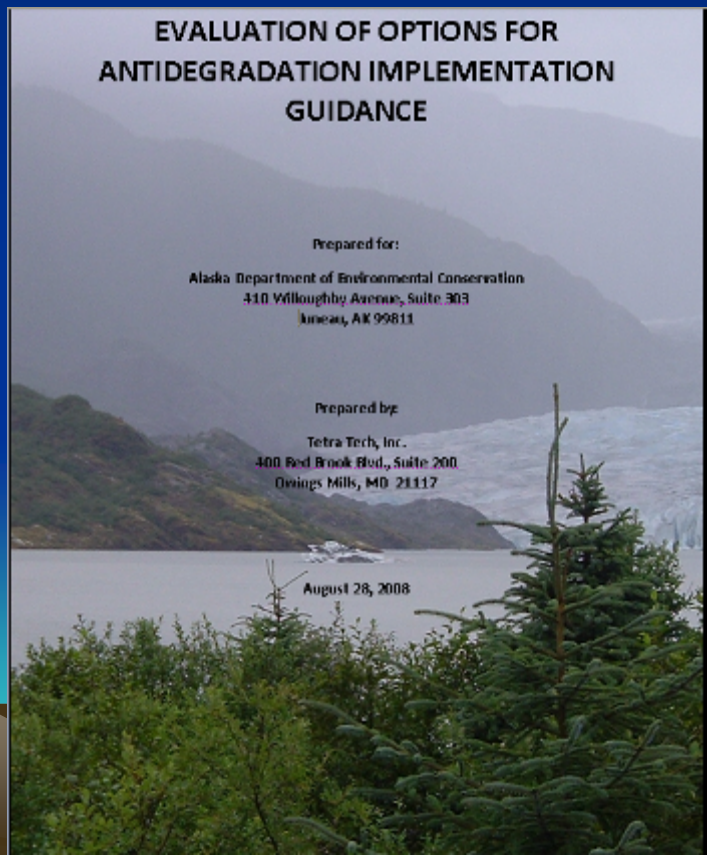
- NPDES authority must conduct antideg reviews prior to allowing (i.e., permitting) degradation
- States can't issue blanket "Tier I Only" designations to waterbodies without justification
- Exceptions for certain categories of activities have been deemed unacceptable
- Activities conducted under general permits require individual antideg reviews unless otherwise justified
- States can establish a *de minimis* allowance for use of assimilative capacity (e.g., 10%) without antideg review
- Nonpoint BMPs are OK if they are installed and maintained in accordance with an established program

And what about the water resource conservation groups?



Tetra Tech – ADEC Project

- Provide information that could be used by DEC to develop an antidegradation implementation plan
- Review several other State's implementation documents
- Develop options for DEC's implementation methods



Methodology

- States reviewed: Arizona, Pennsylvania, Delaware, West Virginia, Wyoming, and Oregon; Also, Region 8
- Represent a range of policies and level of guidance with respect to antidegradation

Different Definitions of Antidegradation

- **AZ: "The determination of whether there is any degradation of water quality in a navigable water" (on a pollutant by pollutant basis)**
- **DE: "Antidegradation refers to policies and procedures designed to prevent or minimize the reduction of water quality below existing levels"**

Definition of Antidegradation Important

Differences in definition of antidegradation could lead to differences in:

- **how detailed the implementation guidance is**
- **what triggers an antidegradation review**
- **level of detail of the review**

Baseline or Existing Water Quality

- Many State procedures similar to those used to develop TMDLs
- For some states: where background data are limited, segment is assumed to be high quality and subject to Tier 2 protection
- AZ : baseline water quality for perennial waters based on existing assessments conducted under ADEQ monitoring and assessment programs

Baseline Options

- Option A – Use same procedures used to characterize TMDLs
- Option B – Use recent data from existing assessments conducted under State monitoring and assessment programs
- Option C – Use recent data from other reliable sources as long as collected in accordance with State QAPP
- Option D – Applicant provides data for parameters of concern over a specified time period

What Constitutes Significant Degradation?

AZ, DE, OR, R8: Significant degradation is any one (or combination) of:

- % change in ambient concentrations predicted at the appropriate critical condition(s)
- Difference between existing ambient quality and ambient quality that would exist if all point sources were discharging at permitted loading rates
- % change in loadings (i.e., the new or expanded loadings compared to total existing loadings to the segment; for existing facilities only, the proposed permitted loadings compared to the existing permitted loadings
- % reduction in available assimilative capacity
- Predicted impacts to aquatic biota

Significant Degradation

DE, R8: Proposed activity lowers ambient water quality of any parameter (e.g., numeric criterion measurement) > 5%:

- **Reduce available assimilative capacity > 5%**
- **Increase pollutant loadings by more than 5%**

AZ:

- **Consumption ≥ 20% of assimilative capacity for any pollutant**
- **Consumption of assimilative capacity exceeds a cumulative cap of 50% of assimilative capacity**

Significant Degradation Options

- **Option A (Most Restrictive) – Lowering ambient water quality of any parameter by ≥ 5%, reduce the available assimilative capacity by ≥ 5%, or increase pollutant loadings by ≥ 5%**
- **Option B (Intermediate) – Reduction in assimilative capacity ≥ 10% for parameters of concern and reduction in assimilative capacity ≥ 20% for cumulative impacts**
- **Option C (Least Conservative) – Consumption of ≥ 20% of assimilative capacity for any pollutant or any consumption of assimilative capacity that exceeds a cumulative cap of 50% of assimilative capacity**

Identification of Tiers

AZ:

- **Tier 1 and Tier 2 protection are applied on a pollutant-by-pollutant basis**
- **Tier 1 protection categorically applies to all non-perennial surface waters**

OR:

- **High quality waters have water quality that meets or is better than all water quality standards**

Identification of Tiers

PA:

- **Should have "suitable" chemical or biological conditions**
- **For chemical: high quality if long-term water quality for 12 chemical parameters better than necessary to support propagation of fish, shellfish, wildlife, and recreation**
- **For biological: one of these must be met:**

  a) site has macroinvertebrate community score ≥ 83% of reference or

  b) water is a designated Class A wild trout stream

Identification of Tiers

WV:

- **Protection based on minimum uses being attained, not numeric water quality**
- **A water segment on the state's 303(d) list may be afforded Tier 2 protection:**

  e.g., a waterbody is impaired for recreational uses due to high bacteria concentrations but still protected at Tier 2 levels for dissolved oxygen and metal concentrations if actual values for these exceeded minimum water quality criteria

Tier Options

- **Option A**
  - **Pollutant by pollutant protection**
- **Option B**
  - **Consideration of biological and other data of a waterbody similar to a reference waterbody**

Outstanding National Resource Waters

AZ:

- **Navigable water is of exceptional recreational or ecological significance because of its unique attributes**
- **Threatened and endangered species known to be associated with the navigable water, and the existing water quality is essential to species maintenance and propagation or provides critical habitat to the species**

Outstanding National Resource Waters

PA:

- **Must first qualify as a high quality water and then possess one or more of the following:**
  - **Location in a national wildlife refuge or state game propagation and protection area**
  - **Location in a designated state park, natural area, or state forest natural area, national natural landmark, federal or state wild river, federal wilderness area or national recreation area**
  - **Qualification as an outstanding national, state, regional, or local resource water**
  - **Exceptional regional significance**
  - **A score of at least 92% using biological assessment**
  - **Qualification as a Wilderness Trout Stream**

Outstanding National Resource Waters

WV:

- All streams and rivers within the boundaries of Wilderness Areas designated by the Wilderness Act
- All federally designated rivers under the "Wild and and Scenic Rivers Act"
- All streams and other water bodies in State parks which are high quality waters or naturally reproducing trout streams
- Waters designated under "National Parks and Recreation Act of 1978"
- Water whose unique character, ecological or recreational value, or pristine nature constitutes a valuable national or state resource

ONRW Options

- Option A: Must meet or exceed all water quality criteria
- Option B: Outstanding water quality is not a prerequisite
- Option C: Threatened or endangered species are known to be associated with the waterbody
- Option D: Exceptional recreational or ecological significance because of its unique attributes
- Option E: Location, previous special designations, existing water quality, ecological value, recreational or aesthetic value, etc.
- Option F: All waterbodies within wilderness areas, state and federal parks, etc.

Important Economic or Social Development

For many States, factors include:

- **Employment (i.e., increasing, maintaining, or avoiding a reduction)**
- **Increased production**
- **Improved community tax base**
- **Housing improvement/increases**
- **Correction of an environmental or public health problem**

Important Economic or Social Development

OR:

- **Also uses local economy, household income, indirect effects to other businesses, and increases in sewer fees as indicators**
- **Applicant must provide enough information to allow for a financial impact analysis to assess whether lowered water quality has socioeconomic benefits that outweigh environmental costs**

Important Economic or Social Development

WY:

- **"If the applicant submits evidence that the activity is important for development, it shall be presumed important unless information to the contrary is submitted in the public review process."**

Lawsuit Summary

- **Illinois** – antideg reviews required if receiving waters will be degraded
- **Oregon** – federal actions are subject to state water quality standards, including antideg rules
- **Oklahoma** – waters aren't degraded unless it can be documented via monitoring
- **Kentucky** – can't call most waters "Tier 1"
- **Ohio** – existing "high quality" waters must be protected via antideg reviews
- **Minnesota** – stormwater permits are subject to antideg reviews & rules; increases in stormwater discharges are expanded discharges subject to antideg reviews & rules
- **Minnesota** – state agencies can offset load increases with load decreases

Lawsuit Summary

- **Georgia** – states can't require challengers to conduct the antideg reviews; better treatment technologies must be used if available & practicable
- **West Virginia** – states can't protect selected waters at Tier 1 only; antideg review exemptions are arbitrary & capricious; general permits require antideg reviews when applied, not when permit is developed; states can develop "checklist" BMPs for NPSs if O&M is OK; 10% use of assimilative capacity without antideg review is OK; but allowing 20% cumulative decline of assimilative capacity without a review is not supported by evidence; trading to achieve no net degradation is reasonable

QUESTIONS?