Issue #6: Application of Waterbody Tiers

The Antidegradation section of the Clean Water Act (CWA) requires that all waterbodies have at least Tier 1 protection, which means that existing uses, and the level of water quality necessary to protect those uses, is maintained and protected. Waterbodies are afforded Tier 2 protection if the quality of the water exceeds levels necessary to support designated uses. Tier 3 protection is specific to "outstanding" national resource waters, as defined by the state. The issue of outstanding waterbodies in Alaska is covered in another strawman and is not further discussed here.

Implementation challenges regarding waterbody tiers derive from how a state identifies Tier 2 (high quality) waters, and the basis on which a state determines that the "quality of water exceeds levels necessary" to support beneficial uses. Because all waters are afforded Tier 1 protection and Tier 3 waters are defined by rule or other formal methods, the discussion which follows focuses on Tier 2 issues. There are three general types of approaches states have used to apply Tier 2 protection: (1) parameter-by-parameter; (2) waterbody-by-waterbody; or (3) a hybrid of the two approaches.

In the parameter-by-parameter (or pollutant-by-pollutant) approach, baseline waterbody concentrations of pollutants are compared with water quality criteria for those pollutants as established in state water quality standards. If certain pollutants occur at lower concentrations than necessary to support waterbody uses, that waterbody would be protected at the Tier 2 level for those pollutants. Thus, using the pollutant-by-pollutant approach, a waterbody could be protected at the Tier 2 level for some parameters while being protected at the Tier 1 level – or even appearing on the 303(d) (impaired waters) list – for other parameters. The approach also lends itself well for considering parameters that are not pollutants, such as dissolved oxygen, temperature, and indices that measure habitat and biological integrity. EPA has expressed its general support for a parameter-by-parameter approach.

In the waterbody-by-waterbody approach, a state identifies Tier 2 status based on overall high water quality and ecological health rather than based on concentrations of single parameters. In this approach, a waterbody cannot be one Tier for one pollutant and another Tier for a different pollutant. Many states (particularly those that have less human activity) presume that waterbodies are Tier 2 unless demonstrated otherwise. Because antidegradation reviews under the waterbody-by-waterbody approach involve general waterbody condition (i.e., chemical, physical, and biological integrity) rather than a tight focus on parameters of concern from a defined discharge, collection of baseline water quality and monitoring waterbody conditions and impacts can be somewhat more resource intensive than the parameter-by-parameter approach.

In the hybrid approach, a state may use the waterbody approach to assign waters to tiers up front but use a pollutant approach when analyzing Tier 1 or Tier 2 antidegradation impacts. Another hybrid approach noted by Idaho is to assign waterbodies for either Tier 3 or only Tier 1 protection, and assigning all other waters as Tier 2. This Tier 2 by default avoids the upfront work of Tier 2 assignment with the strict waterbody approach. Some caution and discretion must be exercised in identifying waterbodies as "Tier 1 only," however: West Virginia's designation of large portions of the Kanawha and Monongahela rivers as Tier 1 only was found by a federal court to be "not based on adequate evidence

in the record regarding the quality of waters in those rivers," making the designation "arbitrary and capricious."

Pennsylvania uses yet another form of hybrid approach in which a set of pollutants are used as well as biological assessment information to assign waters as Tier 1 or Tier 2 (or state outstanding waters).

The parameter-by-parameter approach appears to be the approach most commonly used by states to identify waterbody tiers for several reasons, most important of which may be ease of addressing Tier 2 antidegradation analyses. Since Tier 2 antidegradation analyses often involve an evaluation of the use of existing assimilative capacity for certain pollutants associated with a proposed activity, having a parameter-by-parameter approach for determining the Tier of the waterbody lends itself well to the analyses. Programs that do not have well-developed biological programs (e.g., Alaska) tend to favor the parameter-by-parameter approach. One of the downsides of this approach is that it depends on having numeric criteria with which to compare waterbody concentrations. Parameters that do not have readily available numeric criteria, such as biological integrity, hydrological condition, and aquatic life habitat quality, may not be readily addressed using a parameter-by-parameter approach, although such parameters can be just as important for aquatic life uses and certain recreational uses.

The waterbody-by-waterbody can more readily incorporate aquatic life habitat and biological assessment information, but may be more resource intensive. States with strong biological programs favor this approach (e.g., Idaho, New Jersey, Oregon) because it makes more use of their biological data. Disadvantages include difficulties in deciding what information is needed in Tier 2 antidegradation analysis and therefore greater potential for challenges and litigation. However, environmental organizations have criticized the use of the waterbody approach as being under-protective and not in keeping with the intent of antidegradation because if it is decided that a water body is afforded Tier 1 protection based on its quality failing just one or a few criteria, then other aspects of its quality that are better than criteria may be allowed to degrade without the type of public review required with Tier 2 protection.

Table 1. Pros and Cons of Tiering Approaches

Parameter by Parameter

Pros	Cons
• Little or no upfront workload • Better understood, more conventional, straightforward when it comes to analysis of degradation • Avoids disputes involved in making a decision on overall water quality • Regulated entities can be required to collect baseline data and model impacts • Can be immediately implemented, as new or increased discharges arise	• Potentially more reviews • Water column data needed, uncertain how biological data can be used • Numerous pollutant-water body combinations • May not focus implementation efforts on truly high quality waters

Waterbody by Waterbody

Pros

- Weighted assessments (biological, physical, & chemical)
- Coincides best with habitat and biological assessments
- Focuses resources on high quality waters
- Less bookkeeping needed to identify waterbody tiers
- Waterbody tiers can be defined up front if the information is available

Cons

- Some waters may not be adequately protected
- Must decide what data is needed to make assessment
- Front-loaded work need to assess baseline conditions for a wide range of parameters
- Delay in implementation and need for procedures to address antidegradation before listing decisions are made
- More potential for disputes, challenges and litigation