



# Nondegradation Rulemaking

## Issue Paper 7. How are baseline conditions used in the assessment of impacts on receiving waters?

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### Contents

Baseline for protecting existing uses.....	page 1
Baseline date for protecting all waters .....	page 2
Where there is inadequate information.....	page 2
Situations where receiving water has improved ...	page 3
Discussion points.....	page 3
References, links .....	page 3
Contacts .....	page 4

A state's antidegradation provisions are meant to fulfill the goals of the Clean Water Act<sup>1</sup> by providing a means of *maintaining* water quality. The maintenance of water quality implies that at some point a benchmark or baseline has been established to create a yardstick from which potential impacts can be measured.

The baseline for the protection of existing uses, (tier 1 protection) is the demonstrated use or water quality conditions suitable for that use to occur, since November 28, 1975. Creating baseline conditions for protecting high quality waters (tier 2 protection) is not as straight forward, and states have taken various approaches to the relevance and importance of high quality water baseline conditions, and to how they are established. To establish a baseline some states use water quality conditions on the date in which tier 2 protection was adopted in the state's water quality standards. Other states have chosen to establish baseline conditions using the most recent, reliable water quality monitoring data.

### What is the baseline for protecting existing uses (tier 1 protection) as defined in 40 CFR § 131.12?

Section 131.12 (a)(1) of the federal antidegradation policy<sup>2</sup> requires that existing uses and the water quality necessary to protect them be maintained and protected. An existing use as defined in 40 CFR 131.3<sup>3</sup> can be established by demonstrating that a use has actually occurred since November 28, 1975, or that the water quality was suitable to allow such uses to occur, whether or not such uses are designated uses for the waterbody in

question. All waters are subject to tier 1 protection. In general waters that are subject to only tier 1 protection are those that do not exceed the CWA Section 101(a)(2) goals, or do not have assimilative capacity.

Unless existing uses are clearly defined, there may be confusion between what is an existing and designated use. Designated uses<sup>3</sup> are those desired uses specified by a state in some type of classification system and are defined in terms of broad classes (i.e. warm water fishery, aesthetic enjoyment and recreation, etc). It may be possible, therefore, for a proposed activity to remove or otherwise affect an existing use, yet maintain the designated use. U.S. EPA guidance<sup>4</sup> provides a number of examples. For instance, a warm water fishery designated use may include the existing use of a largemouth bass fishery. Many people would be upset if the warm water fishery designated use was maintained in such a way as to allow an elimination or significant decline in the bass population. Another example is where a regulated discharge of uncontaminated sediment may result in significant negative or harmful impacts to aquatic life habitat and loss of aquatic life use. In such cases, where clean sediment or siltation criteria have not been developed for the site, and where the state has not established clear procedures to implement narrative criteria governing sedimentation, it may be difficult to prohibit such loss of use, particularly where a state has not adopted biological criteria.

**The baseline date of protecting “All-Waters” (tier 2 protection) in our current rule (Minn. R. 7050.0185) is January 1, 1988. Is having this specific date as a baseline date the only or best option?**

The initial federal antidegradation policy<sup>5</sup>, established by the Department of Interior in 1968, provided for the protection of high quality waters stating that, “(w)aters whose existing quality is better than the established standards *as of the date on which such standards become effective* will be maintained at their existing high quality.” (Emphasis added). Minnesota adopted Minn. R. 7050.0185<sup>6</sup> (Nondegradation for All Waters) on January 1, 1988 and consequently uses this date to determine baseline quality and to define new or expanded discharges.

Minnesota is not the only state to use the date of policy adoption as a baseline. California, for example, uses a baseline date of 1968, unless, permitted degradation has been allowed (i.e., been subject to antidegradation review). If this is the case, existing water quality is the quality attained at the time of the permitted action.

Alternatively, baselines may be established at the time when adequate information has been gathered about the receiving water. In West Virginia, for example, if baseline conditions have not been previously established, the Secretary of the Department of Environment Protection makes the determination of baseline quality. When adequate data is not available much of the burden of gathering baseline information is placed on the applicant, but may also be obtained from the public and other sources. Missouri uses this approach in establishing *existing water quality* (EWQ) from which potential impacts are measured. Nevada does not use a date *per se*, but rather establishes a requirement to maintain existing higher quality (RMHQ). An RMHQ is established when it can be shown that the water quality of a given waterbody is better than the applicable standard.

Another option is to not to have a firm baseline. In a memorandum to MPCA which provided an overview of state, federal and judicial guidance on antidegradation, Tetra Tech, Inc., Technical Memorandum #2<sup>7</sup> provided insight on this approach:

South Carolina and other states define existing water quality as the water quality before the new or expanded discharge or project permit application.

Under this approach, there is no set time or threshold on which existing or baseline water quality is based. This approach and others that do not establish firm baseline conditions can result in slowly deteriorating water quality, because incremental de minimis discharges slowly cause a lowering of water quality without an antidegradation review.

**How should situations be addressed where there is inadequate water quality monitoring information to establish baseline conditions?**

Of one the challenges of using dates of antidegradation provision adoption as a baseline is that there may be no or inadequate monitoring data to determine what the conditions were at that given time.

One alternative approach is to model the conditions that occurred on the tier 2 protection adoption date. For point source discharges models variables may include effluent monitoring data and treatment technologies employed at that time. For permitted nonpoint sources, such as some stormwater runoff, variables may include surrogate measure for water quality including land cover and land use practices. Some of the challenges of modeling approaches include:

- Obtaining accurate historical records.
- Confidence in modeling results where there are many variables.
- Consistency in modeling where there are a wide range of models to chose from, from simple to complex.

As noted above, some states choose not to use the tier 2 adoption date, but rather establish baseline conditions when reliable monitoring data is available. Some of the challenges in establishing meaningful baseline conditions based on available monitoring data include:

- The length of time needed to conduct sampling to obtain meaningful results.
- Defining what parameters should be included. What parameters should be included in the sampling effort where it is not yet known what activities will be proposed that may impact the waterbody?
- Developing methods to determine how ambient conditions are characterized. What sampling and statistical methods should be used for each of the parameters of concern? How are critical conditions determined?

- Dealing with emerging contaminants. How should baseline conditions be determined where monitoring for a given contaminant has only recently started, but where the contaminant has been present in the receiving water prior to the establishment of any baseline condition?

Where there is the inability to obtain reliable monitoring data and the inability to produce models with confidence reference waterbodies may be another approach to creating baseline conditions. Creation of reference waters would presumably consider a number of factors including ecoregion and watershed. Perhaps the most challenging aspect of using reference waters is the high degree of variability within ecoregions and watersheds.

### **How should the revised rule address situations where the quality of receiving water has improved since the baseline was established?**

Once a baseline is established, it provides a means of measuring future potential impacts on water quality. If there is a demonstrated improvement in water quality, should the new information be used to establish a new baseline?

The current Minnesota rule for “All Waters”<sup>6</sup> allows for the use of data collect after January 1, 1988, where it was not previously available or when better quality becomes available. EPA Region 9<sup>8</sup> antidegradation guidance supports the concept of a fixed baseline unless some action improves water quality, which would allow for the baseline to be adjusted accordingly.

Under this approach baseline conditions may be adjusted to reflect improvements in water quality, but may only be adjusted “downward” through the antidegradation review process. In situations where water quality improves to a point where a higher use class is achieved, EPA guidance<sup>9,10</sup> recommends that those waters be upgraded to reflect the higher use.

### **Discussion points**

1. Is the establishment of baseline conditions necessary to implement antidegradation? Why or why not?
2. For the protection of high quality waters, Minnesota uses the date (Jan. 1, 1988) on which nondegradation provisions for “All Waters” was adopted into the state’s water quality standards to establish baseline conditions. Is this the best approach to establishing conditions? What approach would you recommend?

3. Considering the challenges in establishing baseline conditions based on actual monitoring data, what are the best options for creating baseline conditions?
4. Should baseline conditions be allowed to be adjusted “upward” when there is an improvement in water quality? Why, or why not?
5. Conversely, if the originally-established baseline water quality is permitted to decline (through the antidegradation review process), does the new, allowed water quality conditions become the new baseline?

### **References and links**

<sup>1</sup>Clean Water Act (CWA) Section 101, Declaration of Goals and Policy. 1972

<http://epw.senate.gov/water.pdf>

<sup>2</sup>40 CFR § 131.12, Antidegradation policy

[http://edocket.access.gpo.gov/cfr\\_2007/julqtr/40cfr131.12.htm](http://edocket.access.gpo.gov/cfr_2007/julqtr/40cfr131.12.htm)

<sup>3</sup>40 CFR § 131.3, Definitions

[http://edocket.access.gpo.gov/cfr\\_2007/julqtr/pdf/40cfr131.3.pdf](http://edocket.access.gpo.gov/cfr_2007/julqtr/pdf/40cfr131.3.pdf)

<sup>4</sup>EPA’s 1998 Advanced Notice of Proposed Rulemaking, Federal Register Vol. 63, No. 129.

[www.epa.gov/fedrgstr/EPA-WATER/1998/July/Day-07/w17513.pdf#page=39](http://www.epa.gov/fedrgstr/EPA-WATER/1998/July/Day-07/w17513.pdf#page=39)

<sup>5</sup>Initial Federal Antidegradation Policy Statement, Secretary Stewart L. Udall, Department of the Interior, Feb. 8, 1968

[www.epa.gov/waterscience/standards/library/doiwaters.pdf](http://www.epa.gov/waterscience/standards/library/doiwaters.pdf)

<sup>6</sup>Minnesota Administrative Rules Chapter 7050.0185, Waters of the State, Nondegradation for All Waters

[www.revisor.leg.state.mn.us/rules/?id=7050.0185](http://www.revisor.leg.state.mn.us/rules/?id=7050.0185)

<sup>7</sup>Tetra Tech, Inc., Technical Memorandum #2,

“Overview of State, Federal, and Judicial Guidance on Antidegradation”, August 20, 2007

[www.pca.state.mn.us/publications/snap-techmemo2.pdf](http://www.pca.state.mn.us/publications/snap-techmemo2.pdf)

<sup>8</sup>EPA Region 9 Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12, 1987

<sup>9</sup>Water Quality Standards Handbook: Second Edition, USEPA, Office of Water, 1994

[www.epa.gov/waterscience/standards/handbook/chapter04.html](http://www.epa.gov/waterscience/standards/handbook/chapter04.html)

<sup>10</sup>Questions and Answers on Antidegradation (This document was originally designated as Appendix A to Chapter 2 - General Program Guidance (antidegradation) of the Water Quality Standards Handbook, December 1983)

[www.epa.gov/waterscience/standards/library/antidegqa.pdf](http://www.epa.gov/waterscience/standards/library/antidegqa.pdf)

**Please keep in mind that these issue papers are to generate discussion and are not to be taken as representing MPCA decisions or recommendations at this time. Your participation and input in this rule revision is much appreciated.**

### **Contacts**

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