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# ENVIRONMENTAL Fact Sheet

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## What is Antidegradation?

Antidegradation is one of the tools used to protect water quality in New Hampshire. It is part of the New Hampshire Surface Water Quality Regulations (Env-Wq 1700) and implements the federal Antidegradation Provisions of the Clean Water Act (CWA) (40 CFR 131.12), which require each state to develop a set of antidegradation procedures to be used when evaluating activities that could degrade water quality and adversely affect water uses. The overall purpose of Antidegradation is to protect and maintain the quality of state surface waters including their existing and designated uses. It does so by establishing a process for review and justification of proposed activities that would increase pollutant loads, degrade the quality, or otherwise adversely affect the uses of a waterbody.

### NH Water Quality Regulations

In New Hampshire, water quality and designated uses are maintained and protected through the Water Quality Standards, which include RSA 485-A:8, the Classification of Water, and Env-Wq 1700, the Surface Water Quality Regulations. RSA 485-A:8 establishes that all New Hampshire surface waters must be classified as either Class A or Class B waters, and establishes certain minimum surface water quality criteria for each classification. The Surface Water Quality Regulations further protect and maintain New Hampshire's waters, through the identification of designated uses, antidegradation provisions, and the establishment of additional water quality criteria, including both numeric and narrative water quality standards. The designated uses for New Hampshire waters are:

1. Aquatic life
2. Fish and shellfish consumption
3. Drinking water supply
4. Primary and secondary contact recreation (swimming and boating)
5. Wildlife

### Where Does Antidegradation Apply?

Antidegradation applies to all activities with the potential to adversely affect water quality or uses, including:

- Any proposed new or increased point source or nonpoint source discharge of pollutants that would lower water quality or affect the existing or designated uses.
- Any proposed increase in pollutant loadings to a waterbody when the proposal is associated with existing activities.
- Any increase in flow alteration over an existing alteration.
- Any hydrologic modifications, such as dam construction and water withdrawals.

### What Does Antidegradation Require?

Antidegradation requirements are based on existing water quality and organized into the following tiers: Impaired Waters, Marginal Quality Waters (MQWs or Tier 1), High Quality Waters (HQWs or Tier 2), and Outstanding Resource Waters (ORW or Tier 3). Water quality tiers are parameter-specific (e.g., phosphorus, nitrogen, bacteria). A waterbody is often described as being "impaired" or being "high quality," when most often waterbodies are both, depending on the parameter involved. For example, a river with a low phosphorus concentration and a high bacteria concentration could be high quality (Tier 2)

for phosphorus and marginal quality (Tier 1) for bacteria. Further, if the bacteria concentration is so high that it violates the bacteria water quality standard, the waterbody would be impaired for bacteria, but still high quality for phosphorus.

All Antidegradation requirements, regardless of the antidegradation tier, are aimed at supporting the designated and existing uses of the waterbody by meeting or exceeding the water quality standard for each parameter. For impaired parameters, the requirements are focused on restoring water quality to meet the water quality standard. For MQWs, HQWs, and ORWs, the requirements are focused on preventing water quality from degrading further.

### **Impaired Waters**

Impaired waters do not support one or more existing or designated uses. Impaired waters are required to be restored either through implementation of a Total Maximum Daily Load (TMDL) study<sup>1</sup> or other means. Impaired waters are listed on the NH Surface Water Quality Assessment (the 305(b) report), which includes the 303(d) list of impaired waters. This assessment is updated by DES and submitted to EPA every two years. It is available at <http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm>.

### **Marginal Quality Waters (MQWs) - Tier 1**

Tier 1 waters are those that meet water quality criteria for a parameter and where the remaining assimilative capacity is *less than 10 percent of the total assimilative capacity* for the parameter in that waterbody. This means that the water quality criteria are met, but just barely. Any increase in pollutant loads could cause the quality to decrease below the criteria and cause an impairment. Therefore, no increase in pollutant load, or other activity that would cause degradation of water quality, is allowed. Information on MQWs is available from DES on a project-by-project basis depending on the availability of data.

### **High Quality Waters (HQWs) – Tier 2**

Tier 2 waters are those that meet water quality criteria for a parameter and where the remaining assimilative capacity is *greater than 10 percent of the total assimilative capacity* for the parameter in that waterbody. An insignificant increase in pollutant loads would still allow the waterbody to remain high quality. Therefore, there is room for additional loading of pollutants that affect the criteria. However, a significant increase in pollutant loading would require a demonstration that the lowering of water quality is necessary to accommodate important economic or social development. Information on HQWs is available from DES on a project-by-project basis depending on the availability of data.

### **Outstanding Resource Waters (ORWs) – Tier 3**

In addition to the three water quality tiers that are based solely on water quality criteria, outstanding resource waters are administratively designated in New Hampshire for their outstanding natural or cultural resource value. ORWs include waters of the White Mountain National Forest (by rule) and natural segments of New Hampshire's designated rivers (by law) under the Rivers Management and Protection Act (RSA 483:7-a). An ORW is Tier 3, regardless of existing water quality for each parameter. ORWs are designated because of their exceptional water quality, ecological, cultural, or recreational significance. Because of this, ORWs have added protection to maintain their integrity and are required to have no additional loading of any pollutants from a proposed activity that would result in long-term, permanent impacts. The list of Designated Rivers in New Hampshire is available at <http://des.nh.gov/organization/divisions/water/wmb/rivers/desigriv.htm> Details of the delineation of river segments are described in RSA 483. A map of the White Mountain National Forest is available at: [www.fs.fed.us/r9/forests/white\\_mountain/maps/location\\_map.php](http://www.fs.fed.us/r9/forests/white_mountain/maps/location_map.php).

## **Assimilative Capacity**

The assimilative capacity of a waterbody describes the amount of a pollutant that can be added to that waterbody without causing a violation of water quality criteria. Each waterbody has a unique remaining

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<sup>1</sup> A TMDL refers to a detailed plan that identifies the pollutant reductions a waterbody needs to meet water quality standards, and develops a strategy to implement those reductions to restore water quality. More information on TMDLs in New Hampshire can be found at: <http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm>

assimilative capacity for each water quality parameter that is based on the current concentration of that pollutant in the waterbody.

In order to determine the remaining assimilative capacity of a waterbody, the total assimilative capacity must be determined for each water quality parameter. As shown in Figure 1, the total assimilative capacity is the difference between the best possible water quality and the water quality criteria. Existing water quality must take into consideration all pollutant contributions from natural sources, permitted point sources, and nonpoint sources. At a minimum, 10 percent of the total assimilative capacity above the water quality criteria is held in reserve as a safety factor to protect the waterbody and maintain its high quality (Tier 2) status. Useable assimilative capacity is equal to the existing water quality minus the 10 percent reserve assimilative capacity. As shown in Figure 1, only HQWs (Tier 2) have useable assimilative capacity remaining.

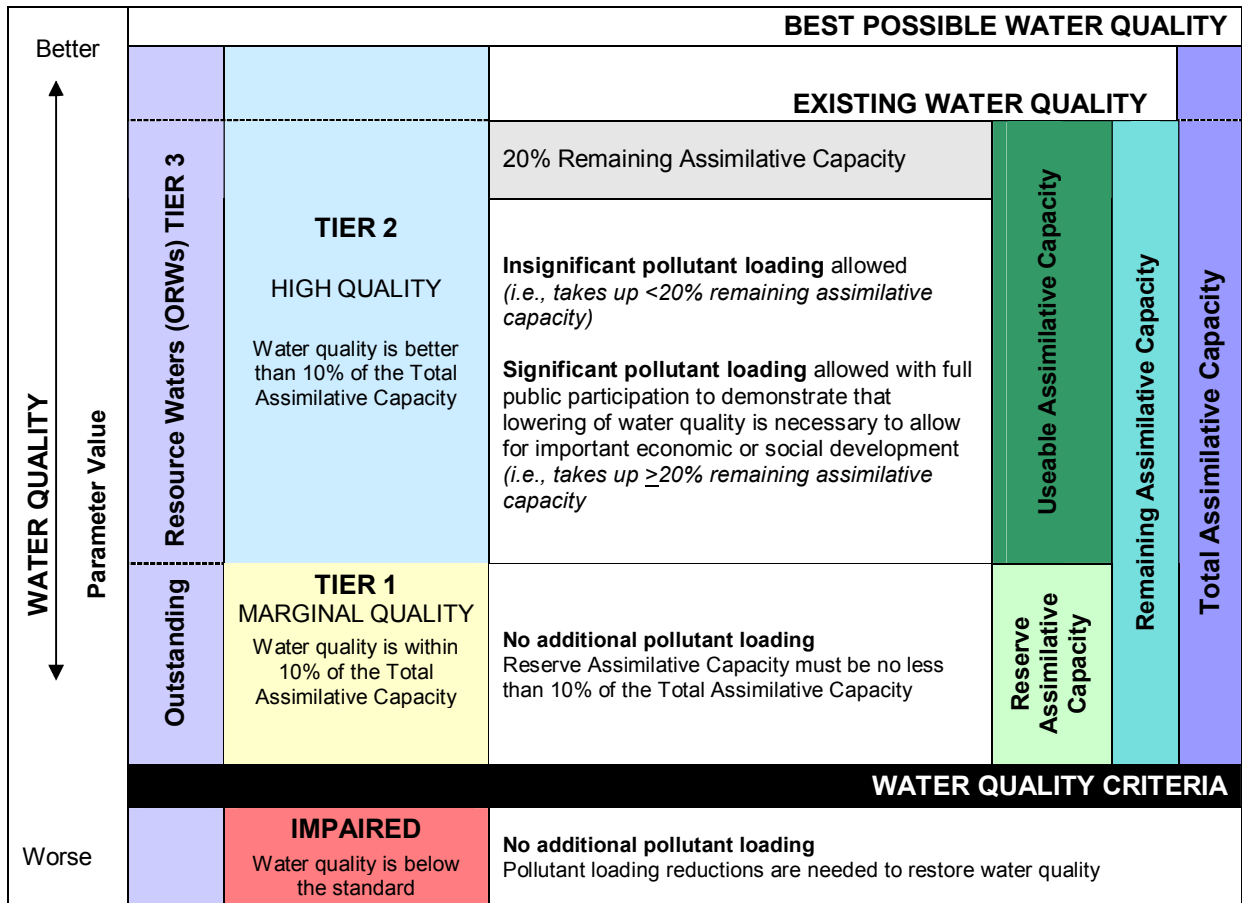


Figure 1. Antidegradation schematic.

### Insignificant Versus Significant Impacts

Some increase in pollutant loading is allowed for parameters categorized as high quality (Tier 2) in a waterbody. Antidegradation in the NH Surface Water Quality Regulations (Env-Wq 1708) describes insignificant and significant impacts from pollutant loading and the associated requirements.

**Insignificant pollutant loading** is defined as a discharge or activity that is projected to utilize less than 20 percent of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass of pollutants, or volume or flow rate for water quantity. In most situations insignificant discharges are acceptable. However, if DES determines that the discharge will have a greater impact than a typical insignificant discharge, either because of the cumulative lowering of water quality over time, possible additive or synergistic effects, or for other reasons, the discharge could be considered significant and could be subject to the requirements for significant pollutant loading.

**Significant pollutant loading** is defined as a discharge or activity that is projected to utilize 20 percent or more of the remaining assimilative capacity for a water quality parameter, or where DES has determined that there is greater impact than a typical insignificant discharge. Significant discharges must, with full public participation, demonstrate that the proposed lowering of water quality is necessary to allow for important economic or social development and that the proposed activity will provide an important economic or social development in the area where the waterbody is located.

### **Demonstration of Economic or Social Development**

Development activity proposed to result in significant pollutant loading must demonstrate that lowering water quality is necessary to allow for important economic or social development in the area where the waterbody is located. The current regulations (Env-Wq 1708.10) require an alternatives analysis of:

- Alternative methods of production or operation.
- Improved process controls.
- Water conservation practices.
- Wastewater minimization technologies.
- Non-discharging alternatives.
- Improved wastewater treatment facility operations.
- Alternative methods of treatment, including advanced treatment beyond applicable technology requirements of the Clean Water Act.
- Alternative sites, and associated water quality impacts at those sites.

The New Hampshire Water Quality Standards Advisory Committee is currently developing the guidelines for demonstrating the economic and social benefits of the development.

### **Antidegradation Implementation**

Implementation of antidegradation requirements for new or increased point source discharges began in the early 1990's after more detailed antidegradation provisions were added to New Hampshire's surface water quality regulations. An Antidegradation Workgroup was formed in 2009 to incorporate Antidegradation into the Alteration of Terrain Program as well as assist DES in developing an Antidegradation Implementation procedure to better apply Antidegradation to nonpoint sources of pollution.

### **Additional Information**

For additional information on new or increased point source discharges requiring a National Pollutant Discharge Elimination System (NPDES) permit, please contact the DES Wastewater Engineering Bureau at (603) 271-3908. For all other information, please contact the DES Watershed Management Bureau at (603) 271-2457 or [watershed@des.nh.gov](mailto:watershed@des.nh.gov).