Evaluation of Key Elements and Options for Antidegradation Policy Implementation Methods

DRAFT Workgroup Report

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Acronyms

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1. DEC should use the parameter-by-parameter approach for applying Tier 1 and Tier 2 protection, and the waterbody-by-waterbody approach for applying Tier 3 protection only. Under this approach: 32

a. Waters will be protected at a Tier 1 level for parameters that are demonstrated to equal to or be lower than water quality criteria. 32

b. Waterbodies will be protected at the Tier 2 level, as a default with a rebuttable presumption that all parameters are better than water quality criteria. 32

c. Where the quality of water exceeds levels necessary to support beneficial uses (e.g., the waterbody is not impaired for all uses), that quality will be maintained and protected on a parameter-by-parameter basis. 32

d. Designated ONRWs will be protected at the Tier 3 level for all parameters. 32

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Executive Summary

[To be completed once Workgroup meetings are done.]

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I. Introduction

A. Introduction to Water Quality Standards and Antidegradation Policy

The federal Clean Water Act (CWA) requires states to adopt and maintain water quality standards for all waterbodies of the United States to ensure that waters are "fishable/swimmable." These standards are comprised of three elements: 1) designated uses for the waterbody (e.g., aquatic life propagation, recreation, drinking water supply), 2) water quality criteria designed to protect the uses (e.g., metals must be below established concentrations to protect fish and other aquatic life), and 3) both an antidegradation policy and implementation methods.

Existing water quality can be better than water quality criteria and accommodate some water quality degradation (from existing conditions) while still protecting designated uses. The CWA recognizes that there is value in maintaining existing water quality even where the water quality is better than the threshold needed to support those uses. Thus, even when all designated uses will be protected, existing water quality permitting and certification processes need to determine whether any degradation of water quality should be allowed. This concept is referred to in the CWA as "antidegradation."

New or expanded human activities, such as enlargement of a wastewater treatment plant to accommodate population growth, or the opening of a mine to provide raw materials needed by society, can result in a wastewater discharge that may degrade, improve, or have negligible effects on existing water quality. Antidegradation policy allows degrading or lowering of water quality when designated uses of the water will still be maintained and the lowering is necessary to support important economic or social development in the area. The outcome of the antidegradation review may be no change to the proposed discharge, the adoption of alternatives that would reduce impacts to water quality, and/or setting discharge limits more stringent than those needed to protect designated uses.

The State of Alaska has an antidegradation policy that mirrors federal CWA policy. As required by the CWA, Alaska also has interim antidegradation implementation methods. Through the Alaska Department of Environmental Conservation (DEC), Alaska is in the process of developing more detailed, final implementation methods.

B. Purpose of Antidegradation Workgroup

DEC adopted its antidegradation policy in 1997, at 18 Alaska Administrative Code (AAC) 70.015. The policy establishes requirements that must be met to authorize a reduction in existing water quality. DEC has interim antidegradation implementation methods to facilitate its decision-making process on whether an applicant for a wastewater discharge permit has met the requirements of the antidegradation policy. DEC has initiated a public process to inform development of final antidegradation implementation methods. To solicit input and as an informal step before drafting implementation methods as regulations and starting a formal rule-making process, DEC established an Antidegradation Workgroup (Workgroup).

The purpose of the Workgroup was to seek overall efficiency and a better final regulatory product through early involvement of individuals with varying perspectives. DEC understood that many different interests would be represented and it might not be possible to reach consensus on specific recommendations. Regardless of the degree of consensus attained, all discussion, information and recommendations are of value to DEC.

C. Process for Workgroup Meetings

Public notice was provided for all Workgroup meetings and all meetings were open to the public. The Workgroup met regularly from February 2012 to **TBD.** A list of Workgroup members is shown on the second title page. Public comments were accepted at every Workgroup meeting.

To direct the Workgroup's evaluation of implementation methods for Alaska's antidegradation policy, DEC developed a list of seven issues for consideration. The seven issues identify areas where DEC would benefit from input to develop antidegradation implementation methods in regulation. Each issue discussed started with a background presentation of the issue, key questions DEC had identified, and approaches that other states have taken. Each meeting produced "action items" for DEC staff, contractors, and, occasionally, for Workgroup members. After each meeting, a summary and identified action items were posted to the DEC website and e-mailed to interested parties.

After questions and discussion from Workgroup members, the following process was followed to obtain and evaluate recommendations:

1. Review alternative approaches
2. Compare and evaluate options based on other state approaches and/or experience in Alaska
3. Identify preferred elements for Alaska
4. Assemble elements into recommendations included in this Workgroup report
5. Parse conceptual approach into draft regulatory or statutory elements

The Workgroup strived to develop recommendations that the state, permittees, and public could support. Where consensus was not possible, recommendations from the group were

characterized as much as possible in terms of level of support, applicability, consistency with statutes and regulations, and other criteria, to inform future DEC discussions. Development of final antidegradation implementation methods remains DEC's responsibility.

D. Rule-Making Process

DEC plans to use the Workgroup discussions, recommendations, and report along with public comments to help it develop draft regulations for formal public notice and review. Some Workgroup recommendations may require legislative direction or authority.

II. Status and History of Alaska's Antidegradation Policy Implementation

This section summarizes federal and state antidegradation policy in Alaska and describes DEC's process to develop antidegradation implementation methods.

A. Source of Antidegradation Policy and Implementation Methods

Federal Clean Water Act Regulations

Federal law requires that each state adopt both a statewide antidegradation policy and also identify implementation methods. The CWA requirements are incorporated as regulations in Title 40 Code of Federal Regulations (CFR) 131.12. Federal antidegradation regulation describes three levels of protection, which are often referred to as "tiers" (Figure 1).

Tier 1 protection applies to all waters, regardless of use designation. Tier 1 does not allow activities that will result in the loss of an existing use, nor does it allow water quality to drop below levels needed to maintain an existing use. Tier 1 waters must be protected at a level reflecting the highest use achieved since November 28, 1975 regardless of whether water quality (WQ) has declined or whether that use is recoverable.

Tier 2 protections apply to waters whose quality exceeds the levels necessary to support the propagation of fish, shellfish, and wildlife, as well as recreation in and on the water. Water quality of Tier 2 waters can be degraded only if the state finds, after analysis, public participation under existing public review processes, and intergovernmental coordination, that allowing lower water quality is necessary to accommodate important economic and social development, and that the actions authorizing a lowering of water quality will protect existing

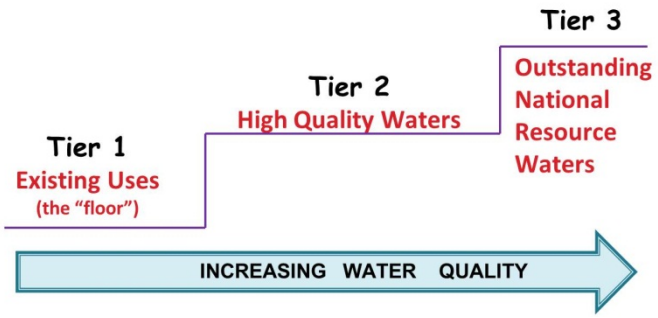


Figure 1. Three tiers or levels of water quality protection identified in federal and in Alaska's antidegradation regulations.

uses. In addition, the state must ensure that: applicable statutory and regulatory requirements for all new and existing point sources (discrete and confined discharge points; e.g., discharge pipe or collected runoff from a construction site) are met; all cost-effective and reasonable Best Management Practices for nonpoint (diffuse source of runoff or meltwater) source control are used; and all applicable water quality criteria are met. Most of the critical antidegradation implementation issues pertain to Tier 2 protection.

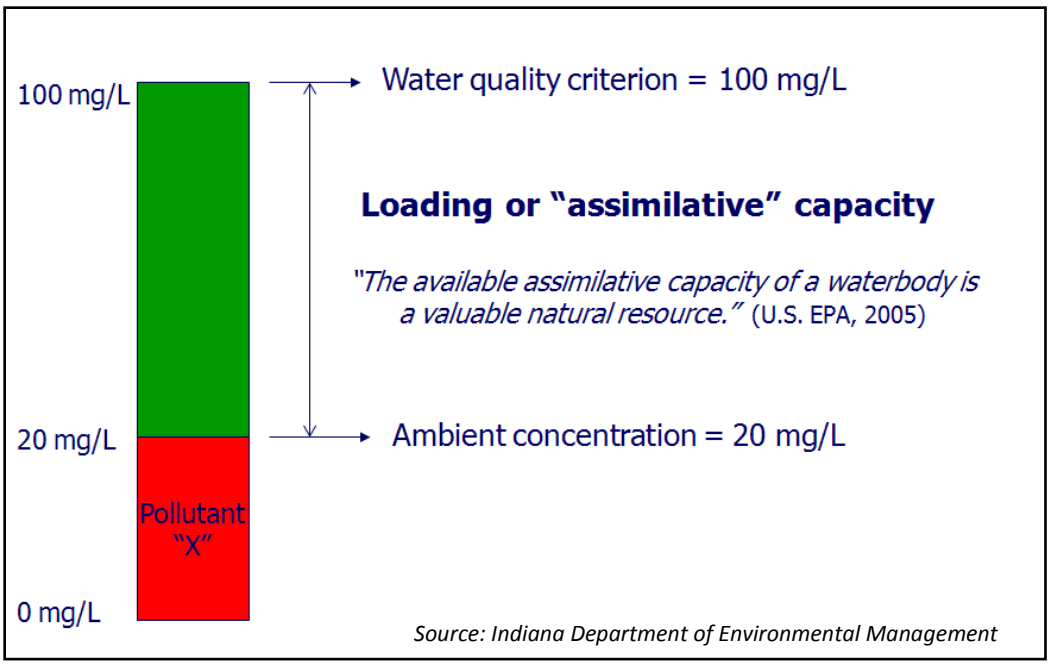
Tier 3 antidegradation protection applies to Outstanding National Resource Waters (ONRWs). Typically this designation includes waters of exceptional aesthetic, recreational, or ecological significance such as those found in National parks. If a waterbody is designated an ONRW, the water quality of the ONRW must be maintained and protected, and only minor and temporary decreases in water quality are allowed. States are not required to designate ONRWs but must protect them once designated.

Guidance on Antidegradation Implementation Methods

EPA's *Water Quality Standards Handbook* states that "any one or a combination of several activities may trigger the antidegradation policy analysis." This review may be required if the state receives a request for a new or expanded National Discharge Elimination System (NPDES) wastewater discharge permit.

One way that states conduct antidegradation reviews is to evaluate potential effects of a new or expanded wastewater discharges through an analysis of the remaining "assimilative capacity" for a given pollutant in the waterbody. The assimilative capacity of a waterbody represents the maximum degradation possible without exceeding water quality criteria or affecting existing uses. Therefore, assimilative capacity is one way to quantify how much the existing water quality is better (assimilative capacity exists) or worse (assimilative capacity is used up) than water quality criteria on a pollutant-by-pollutant basis.

For example, high quality waters (i.e., Tier 2 waters) will have a lower concentration of a given pollutant than the threshold concentration needed to avoid loss of the designated use (the water quality criterion). The difference between these two concentrations (i.e., between baseline and the criterion in Figure 2) represents the available assimilative capacity of a waterbody for that particular pollutant. Thus, the determination of assimilative capacity will determine the quantity of a pollutant that can be added to a waterbody before it can no longer support one or more of its designated uses.



Suggest we create a graph and edit colors. Red inaccurately implies toxicity.

Figure 2. Schematic showing assimilative capacity in the context of the Antidegradation review process.

B. DEC Antidegradation Policy

DEC adopted its current antidegradation policy (18 AAC 70.015) in 1997 (Appendix XX). DEC adopted interim antidegradation methods in 2010 (Appendix XY), and EPA determined that they are consistent with the CWA.

C. Antidegradation Policy Implementation Efforts

Development of anti-degradation implementation methods began in 2007. Since then, DEC has sponsored or led several activities designed to provide information to the agency regarding options for implementing antidegradation policy in Alaska.

These include:

- 2008 Evaluation of Options for Antidegradation Implementation Guidance
- 2009 Conference on Antidegradation Implementation
- 2010 Interim Antidegradation Implementation Methods
- 2011 Antidegradation Methods Work Plan

The 2008 report, titled "Evaluation of Options for Antidegradation Implementation Guidance," presents Alaska's antidegradation policy and describes how other States implement their policies. It describes the major elements of implementation guidance and includes options for Alaska's implementation guidance along with the options' merits and limitations.

In 2009, DEC hosted an antidegradation conference in Anchorage, Alaska, intended to inform policy makers, wastewater discharge permittees, permit writers, and the interested public of potential options for antidegradation policy implementation methods in Alaska. This conference was for informational purposes only and discussed implementation methods adopted by other states, and which approaches might work best in Alaska.

DEC adopted the "Interim Antidegradation Implementation Methods" in July 2010 to provide staff a framework to implement the state's existing antidegradation policy. Its purpose is to serve as interim guidance while DEC works with other agencies, permittees, local and tribal government, and the public to develop more detailed implementation methods. The interim methods also provide a list of resources, examples, and sources of factual information that assist with antidegradation reviews. Finally, the interim guidance recognizes the need for DEC to develop final methods through a rule-making process.

The Antidegradation Final Implementation Procedures: Draft Work Plan sets out DEC's plan for developing final methods for implementing the state's antidegradation policy. It discusses both actions to date (summarizing the activities referred to above) as well as those planned for the future. It also lays out the Workgroup concept and process.

In addition to these activities, antidegradation issues were highlighted in the recent public notice for the 2011-2013 triennial review of Alaska's water quality standards.

III. Key Antidegradation Issues

DEC identified seven issues to direct the Workgroup's evaluation of potential implementation methods for Alaska's antidegradation policy. This section presents each issue, provides a brief description of the issue, identifies various options discussed by the Workgroup for that issue and the pros and cons, and includes recommendations made by the Workgroup. As the issues are inherently related, references to prior or later subsections do occur. Where applicable, there is a discussion of dissenting views or lack of consensus regarding specific parts of a given issue. Additional issues identified and discussed by the Workgroup are also provided.

The recommendations listed below are subject to change pending further completion of certain action items/further discussion by the Workgroup.

A. Issue #1: What Triggers an Antidegradation Review?

A1. Description of Issue #1

A variety of issues come into play in deciding what actions trigger antidegradation reviews. States handle certain aspects of antidegradation review differently (e.g., some waive antidegradation reviews for activities with a less significant or *de minimis* impact on water quality). A review is usually deemed warranted in cases where there is potential for water quality degradation due to a new or expanded discharge. Determining the need for a review requires some characterization of the discharge and ambient receiving water quality (i.e., based

on chemical, biological, and/or physical monitoring data) to accurately project effects on the receiving water. While the discharge is often sufficiently characterized, many other cases exist where monitoring data for ambient conditions is nonexistent or incomplete when an activity is proposed.

The Workgroup considered the following questions while discussing this issue:

- Is a review needed for only new and increased discharge permit and certification reviews? Should reissued permits require antidegradation analysis if the analysis was not performed previously, and if there is no change to the discharge?
- How does this apply to general permits? 404 wetland permit certifications? Stormwater best management practices (BMPs)?
- Which waters does this review apply to (i.e., surface waters, groundwater, State waters, or federal waters)?
- What about other CWA decisions, e.g., impaired waters listing, TMDLs?

The determination of baseline receiving water quality is discussed further in Issue #2.

A2. Workgroup Member Recommendations – Issue #1

The following list is a compilation of the Workgroup member recommendations.

1. Antidegradation requirements and reviews should be restricted to waters of the U.S. in Alaska, as defined under the CWA. As needed, DEC should modify the state's antidegradation policy to make the policy consistent with this recommendation. A minority of the workgroup feel that antidegradation analyses should apply to groundwater, which may require different implementation methods since groundwater is not protected for "fishable/swimmable" uses. DEC could consider groundwater in its implementation methods or in a separate, future rulemaking tailored to groundwater.
2. Only activities regulated by DEC under CWA Sections 401, 402, and 404 should be subject to antidegradation requirements and reviews. This includes issuance of and coverage under APDES general and individual permits; the placement of dredged or fill material into waters of the U.S. under a US Army Corps of Engineers permit, which is usually overseen by DEC through the Section 401 water quality certification process; and other federally permitted activities subject to the Section 401 water quality certification process (e.g., FERC dam licensing).
3. DEC should use the US Army Corps of Engineers (USACE) 404(b)(1) analysis as a major reference while conducting its own independent antidegradation analysis for projects permitted under section 404 of the Clean Water Act (CWA). Other analyses related to economic or social development related to the project can supplement this information. (Note: The area under review is outside the fill area. No antidegradation analysis is necessary or should be required for the fill area.)
4. Tier 2 antidegradation requirements should apply only to new or expanded discharges. Tier 2 antidegradation requirements should not apply to re-issued permits that already

have had an antidegradation review or have not changed in terms of flow, pollutant load, or water quality characteristics since the last permit issuance.

a. Expanded discharges should be defined as those discharges where past flow patterns are altered and/or pollutant concentrations or total loads are increased beyond previously permitted amounts. Discharges are not automatically assumed to require an antidegradation review when a facility (e.g., treatment plant, not the discharge) is expanded.

b. If there was no previous permit for an existing discharge, then an antidegradation review is required including the following cases:
    i. If no permit was previously required for an existing discharge,
    ii. If a permit application was submitted but no permit was issued, or
    iii. If a permit was required, but an application was not submitted.

   Furthermore, these previous non-permitted amounts would not be part of the baseline. Use of assimilative capacity would be prioritized based on application date.

c. Reissued permits that have not had an antidegradation review and have not changed in flow should be grandfathered because they are now part of baseline water quality. However, DEC should be able to require an alternatives analysis and require process, treatment, or other upgrades when it recognizes that there can be better performance at a reasonable cost

5. Tier 1 antidegradation reviews and Tier 2 antidegradation reviews, if applicable (see #4 above), and public notice for individual APDES permits, individual water quality certifications, or individual CWA 404 permits should be conducted at the time of permit application review and permit drafting.
6. For general permits, the antidegradation review and public notice procedures should be completed at the time the general permit is developed and issued or, as applicable, during reissuance.
7. For general permits, DEC should incorporate into permits the circumstances under which DEC would do individual Tier 2 antidegradation analyses for a given application for coverage under the general permit conducted upon submittal of a Notice of Intent to Operate (NOI). Specifically, DEC should identify assumptions and conditions in the general permit and/or factsheet that describe when a Tier 2 antidegradation analysis at the NOI stage will be required and when it will not. This would make the antidegradation review process less ambiguous and more transparent to permittees and the public.

   a. For example, a decision flow chart could be developed that includes: location of waterbody, number of discharges in the area, type of waterbody and the water quality of the waterbody.

   b. The decision step on whether a Tier 2 antidegradation review is required should involve consideration of cumulative impacts.

c. DEC should reserve the right to require a Tier 2 antidegradation analysis at the NOI/authorization stage.

d. A Tier 2 antidegradation review should not be required for a new discharge that complies with conditions in the general permit unless there is either evidence of potential cumulative effects, due to the presence of other nearby discharges, or there are certain details in the NOI that differ from conditions specified in the general permit.

A3. Options Considered for Issue #1 with their Pros and Cons

Workgroup members started their discussion of what could trigger an antidegradation review by considering what kind of data is available to use in determining whether an antidegradation review is necessary. This led to a discussion of what might automatically trigger or exclude an activity from an antidegradation review, what thresholds could be set, and whether authorizations under a general permit should trigger an antidegradation review.

Site-specific evaluation to determine need for antidegradation review Workgroup members acknowledged the value of conducting site-specific evaluations to determine whether a Tier 2 antidegradation review is necessary.

- Pros to this approach are that relatively few assumptions need to be made regarding whether a Tier 2 antidegradation review is needed because the approach utilizes site-specific information rather than estimates or assumptions.

- Cons to this approach are that projecting effects to receiving waters is difficult enough for point source wastewater discharges where some ambient data may be available, but becomes very difficult when modeling the effects of multiple stormwater or other discharges into multiple receiving waters with little to no available data. Relative to the number of activities that could require review, there are few situations where there is sufficient ambient water quality data or enough accurate information about the discharge at the time a project or activity is proposed to make confident judgments about effects of the activities on receiving waters.

For CWA Section 404 permits, the antidegradation review could consist primarily of a review of the existing permit documents and a determination of whether that information provided sufficient data to make a determination under the antidegradation policy. Conditions under the relevant CWA Section 401 water quality certification could address antidegradation considerations. Information for determinations of social or economic development associated with the project could be derived from other reports or studies, or summarized by the applicant and submitted to DEC.

Activities that would automatically trigger an antidegradation review and those that should be automatically excluded The Workgroup discussed alternative approaches for identifying specific activities that would automatically trigger the Tier 2 review process and those that

should be automatically excluded**.** These included providing a justifiable presumption that the proposed activity could lower existing water quality, presumably in a measurable or significant manner. Possible considerations identified by the Workgroup for activities that might trigger a Tier 2 antidegradation review included:

- Type of activity – i.e., wastewater treatment discharges, various types of NPDES-permitted stormwater discharges, etc.
- Available dilution instream
- Persistence and potential effects of the pollutants of concern
- Potential increase in ambient concentrations predicted at the appropriate critical condition(s)
- Potential increase in loadings
- Potential reduction in available assimilative capacity
- Potential for cumulative effects

Another option discussed was whether all new or expanded discharges should have Tier 2 antidegradation reviews, regardless of discharge size, risk factors, or types of activity.

- Pros to this approach are that DEC does not need to decide whether a Tier 2 review is necessary; any new or expanded activity would be reviewed.

- Cons raised were that this approach tends to dilute the review process because so many activities including perhaps many minor ones may need Tier 2 review. The Workgroup agreed that reviews that are apparently pro forma only are probably unnecessary.

The Workgroup also discussed activities or conditions that could be exempt from Tier 2 antidegradation review based on a justifiable presumption that the proposed activity would not lower existing and/or previously permitted water quality. These included:

- Projects designed to improve the quality of surface waters
- Reissued individual NPDES permits with no change in discharge
- Modified individual NPDES permits with permitted discharge at or below that presently allowed in an existing permit (no increase in discharge volumes, concentrations, or loadings above permit limits)
- Projects that do not otherwise lower the quality of a receiving water
- Activities that have an insignificant or *de minimis* impact on water quality, as long as a cumulative cap on pollutant loads or use of the available assimilative capacity was maintained.

Some of the above conditions were identified by the Workgroup as recommendations (see next section).

A related question discussed by the Workgroup when considering what should be automatically included or excluded from a Tier 2 antidegradation review was whether the extent of permit

review might vary with the type of activity or the location of the proposed activity (e.g., receiving waterbody characteristics that might make aquatic resources more or less vulnerable to potential lowering of water quality).

There was consensus from the Workgroup on the need for a Tier 2 antidegradation review based in part on the potential for the new or expanded activity to cause water quality degradation in the waterbody receiving the discharge. For example, a new small discharge to a large waterbody might not need an antidegradation review, or might require a much simpler review process than a small discharge to a small stream with a lower assimilative capacity. Similarly, a new or expanded discharge to a waterbody that serves as habitat for valued aquatic resources such as salmon might be more apt to require a review.

A related question discussed by the Workgroup when considering what should be automatically included or excluded from a Tier 2 antidegradation review was whether the extent of permit review might vary with the type of activity or the location of the proposed activity (e.g., receiving waterbody characteristics that might make aquatic resources more or less vulnerable to potential lowering of water quality).

Threshold to determine whether an antidegradation review is required The Workgroup discussed the idea of using a *de minimis* threshold in terms of allowable lowering of water quality to decide whether a Tier 2 antidegradation review is necessary for an expanded discharge. The Workgroup then considered a number of alternatives for applying a 10% threshold as *de minimis.* In Idaho, for example, up to a 10% cumulative use of available *assimilative capacity* is allowed before requiring a Tier 2 antidegradation review. In Idaho, so long as 10% of the cumulative capacity has not been used, a Tier 2 antidegradation review is not required for a new or expanded discharge to that waterbody.

- Pros identified with this approach are that it is fairly straight forward, transparent, and could effectively focus DEC efforts on those situations that should be subject to a Tier 2 review.
- Cons identified are that the 10% threshold is not necessarily tied to potential for effects on aquatic resources and designated uses in general. Another con raised is that DEC needs to keep track of cumulative use of assimilative capacity, which could present some bookkeeping challenges. Finally, for some situations, the cumulative effects analysis needed for this approach might be so complex that it would be more efficient for DEC to do a Tier 2 antidegradation review for the proposed new or expanded activity. This discussion was deferred to Issue #7, "Should DEC Define Significant and/or *de minimis* Degradation" (see Issue #7 in Section III. F. of this Report).

Whether a new discharge under a general permit would trigger a Tier 2 antidegradation review For general permits (single permits that can be used to permit multiple discharges; e.g., construction general permit, log transfer facility general permits), several options were

discussed in response to the question of whether a new facility that complied with the general permit would trigger a Tier 2 antidegradation review. The Workgroup acknowledged that general permits currently don't establish a maximum number of facilities or cumulative discharge flow or pollutant load as part of the permit. The general permit does, however, specify what can be discharged, in what types of waters, and other specifics that are designed to maintain and protect water quality and designated uses. One suggestion was that general permits establish a maximum number of facilities to be covered under the permit; if an additional facility desires to be covered under the general permit, a Tier 2 antidegradation analysis could be triggered. Workgroup members agreed, however, that discharges under a general permit may be located all over the State and not close to other discharges. Thus, it may not be reasonable to base a general permit on a certain number of dischargers but rather whether certain important specifics about new discharges differ from assumptions or conditions specified in the general permit.

Another factor considered by the Workgroup was to evaluate the location of the proposed new discharge in light of whether other discharges are in the same area. If so, the possibility of cumulative effects would exist, and this might trigger a Tier 2 antidegradation review. If no other discharges are in the same area, and the new facility discharge would comply with the general permit conditions, then a Tier 2 antidegradation review may not be required.

B. Issue #2: What Information is Needed to Determine Baseline?

B1. Description of Issue #2

Determination of baseline water quality (BWQ) is a pivotal issue in antidegradation analyses because the baseline is used to determine the Tier to which the waterbody belongs and the amount of degradation possible without exceeding water quality criteria (i.e., assimilative capacity). The latter then helps inform the alternatives analysis and other aspects of the antidegradation review process.

The Workgroup considered the following questions while discussing this issue:

- How much information is needed to make the baseline determination?
- What is the obligation of the permittee to acquire baseline data? Does it depend on whether the discharge has reasonable potential to exceed water quality standards in the receiving waterbody? Or the level of risk to water quality?
- Is statistical analysis needed?
- How do BWQ exceedances determine the tier? What percentage of samples must exceed? Is the exceedance persistent? How does this relate to the water quality criteria averaging period?
- How is seasonal variation in water quality addressed?
- How can costs be minimized?

Additionally, the Workgroup added the following questions:

- How do you determine if existing uses are being met without already having BWQ data on physical, chemical, and biological parameters?
- If the level of BWQ can be moved up as water quality improves, doesn't that affect the assimilative capacity? Would that be a disincentive for dischargers to improve their water quality?
- How should Alaska determine BWQ for wetlands when the water is frozen most of the year?

B2. Workgroup Member Recommendations – Issue #2

The following list is a compilation of the Workgroup member recommendations, as well as recommendations in response to questions that came up during the discussion.

1. DEC should retain the existing approach for determining BWQ under the current APDES permit program. Determinations of baseline water quality should be made on a case-by-case basis. The current flexibility in determining how much BWQ data is necessary should be retained.
2. Factors that might trigger a need for additional BWQ include: available dilution for the proposed discharge, types of potential contaminants that might be present, and the sensitivity or vulnerability of the waterbody (e.g., the presence of salmon spawning).
3. For waters with little or no data, DEC should use representative waterbodies as surrogates with the understanding that most of the State's waters are not impacted by human activities.
4. DEC should assume that all waters in Alaska should be protected at the Tier 2 level in terms of baseline water quality.
5. DEC should assume that baseline is zero in situations where it makes sense (e.g., the presence of bark in an area proposed for a log transfer facility).
6. Nonpoint sources should be considered when evaluating assimilative capacity.
7. DEC should consider reasonable, foreseeable, future uses of the waterbody when considering assimilative capacity.
8. It should be made clear for the public in the permit fact sheet when all assimilative capacity for a parameter will be used.

B3. Options Considered for Issue #2 with their Pros and Cons

Workgroup members started their discussion with a review of existing DEC procedures to establish baseline. Next, there was general discussion of the importance of baseline data and what data could be reasonably obtained.

Existing DEC approach to determine baseline The Workgroup discussed the existing DEC approach for determining BWQ under the APDES permit program which varies based on a number of factors, including availability of data. Generally, in developed areas there are water quality data that can be used to determine BWQ. For somewhat developed areas, existing data plus data collected by permittees can be used to determine BWQ. In undeveloped areas (by far most of the waters in Alaska), project proponents may need to collect BWQ. Alternatively, DEC

can assume the waters warrant Tier 2 protection (i.e., for high quality waters). In areas where naturally occurring substances such as metals and sediment exceed numeric water quality criteria, the "natural condition" can be used as BWQ. There is existing DEC guidance to establish the natural condition of receiving water quality.

There was a mixed discussion on whether a new or modified approach to determine baseline was needed. Some workgroup members did not see a need for a separate BWQ procedure. Others would have liked to see guidance on the BWQ data needed given specific circumstances/factors (e.g., proportion of discharge to receiving water flow). The current proposal is captured in the next section.

Importance, availability, and necessity of water quality data for determination of baseline

The Workgroup discussed the importance of understanding BWQ in the context of existing uses in a given waterbody. However, all agreed that monitoring data are relatively scarce for much of the State and that there are few options for obtaining better data due to the size and remoteness of many areas. The Workgroup did not reach a clear consensus on the types of conditions that would trigger the need for baseline data but did make substantial progress on proposed factors to consider. For purposes of establishing baseline water quality, it was proposed that DEC presume that any waters not identified as Tier 3 (ONRW) or impaired for all uses under §303(d) of the Clean Water Act (i.e., Tier I) will be protected at the Tier 2 level. The Workgroup discussed the type of information an applicant might submit in order to demonstrate the condition of the receiving waters and the level of protection that may apply. Among the options discussed was having the applicant request waterbody protection at the Tier 1 level only by submitting sufficient and credible information that the Tier 1 designation is appropriate for the parameters of concern in the waterbody segment being considered, including information from one or more of the following sources:

(1) existing and readily available data from federal, state, tribal or local agencies, including superfund site records of decision and Safe Drinking Water Act source water assessments, data contained in the United States Environmental Protection Agency's STORET system, and other sources;
(2) local knowledge of current and past waterbody characteristics and attributes;
(3) reports of dilution calculations or appropriate predictive models;
(4) characterizations of the waters in reports prepared by the Department under §305(b) of the Clean Water Act;
(5) classifications of the waters under the Alaska Clean Water Actions program;
(6) water quality data from other representative waters;
(7) inferences drawn from riparian areas, land uses, and upland conditions;
(8) site-specific water quality data gathered by others, including the person seeking to rebut the presumption established by this section; or
(9) any other information deemed necessary by the Department.

In determining whether the information sources listed in subsection (a) of this section are sufficient and credible to determine the antidegradation tier, to inform an Tier 2 analysis or to complete other antidegradation review procedures for parameters of concern in the waterbody segment being considered, the Department, at its discretion, could consider all relevant factors, including:

(1) the general magnitude, characteristics and likely environmental effects of the proposed discharge;
(2) the remoteness and infrastructure of the affected area;
(3) the location and sensitivity of the receiving waters;
(4) the degree to which representative waters likely exhibit similar water quality characteristics to the waters under review;
(5) whether any water quality findings are based on data collected under a quality assurance protection plan (QAPP) that meets DEC QAPP sampling, monitoring and other requirements;
(6) the age, quantity, and spatial and temporal scope of any data relied upon by the source; and
(7) whether any report or finding was prepared by persons with the requisite professional background in the field.

C. Issue #3: How are Outstanding National Resource Waters (ONRWs) Designated?

C1. Description of Issue #3

Outstanding National Resource Waters (ONRWs) fall into Tier 3 of the federal and Alaska antidegradation policies. Except for certain temporary changes, water quality cannot be lowered in ONRWs. Commercial and residential development is severely restricted in ONRWs since only temporary decreases in water quality are allowed. Many states have recognized waters in National or State Parks and other similarly protected areas as candidates for ONRWs, and most of the ONRWs approved by states thus far are in such areas. As Alaska has a wealth of such areas, the approach of other states may not be applicable to Alaska. An overriding question is what types of waters should qualify as ONRWs in Alaska.

The Workgroup considered the following questions while discussing this issue:

- What process should be used to nominate, evaluate, and designate an ONRW?
- Who is responsible for each of these steps and the final decision?
- How should the state determine when a waterbody has exceptional ecological or recreational significance?
- What protections apply to ONRWs?
- Should existing permits to waters that are subsequently designated as ONRWs be grandfathered?

- Should Alaska adopt an intermediate level of protection, i.e. Outstanding State Resource Waters (OSRW) or Tier 2.5?

C2. Workgroup Member Recommendations – Issue #3

The following list is a compilation of the Workgroup member recommendations relating to ONRWs.

1. ONRWs should be waters that are unique for Alaska, not necessarily unique as compared to waterbodies in the rest of the U.S.
2. Any member of the public can nominate an ONRW as long as there is a clear list of information that must be included in the nomination and state agencies are involved in vetting the nominations. One workgroup member thinks that only state agencies should have authority to nominate an ONRW.
3. A legislative bill should be drafted to clarify authority for designating ONRWs and, as needed, provide funding (e.g., for a multi-agency board).
4. A multi-agency board should be created to vet nominations. The board should include DEC, Department of Natural Resources (DNR), Department of Fish and Game (DFG), the Department of Transportation and Public Facilities (DOT&PF), and the Department of Commerce, Community, and Economic Development (DCCED).
5. The state legislature should be involved in approving ONRWs, either (1) through direct action on nominations that have been reviewed and forwarded by DEC or a multi-agency or other board, or (2) by delegating decision-making authority to DEC or a board through legislative action.
6. The present levels of tier protection in state and federal antidegradation policy are adequate and appropriate. No Tier 2.5 is necessary.
7. When establishing an ONRW, existing permits should be grandfathered, but not allowed any new or increased discharge.

C3. Options Considered for Issue #3 with their Pros and Cons

ONRW nominations One option discussed was to have nominations by State agencies only.

- Pros include: nominations are likely to have been thought out well and have sufficient documentation with which to make a decision.

- Cons include: the public may not be involved in the nomination process to the extent that they would like.

Another option discussed was that the public nominate an ONRW through their legislator and the legislature would decide whether to authorize the ONRW.

- Pros with this idea are that the public would be involved in nominations and, since decisions about ONRWs could affect public interests, the legislature would be an appropriate body to make this policy decision.

- Cons are that nominations via a legislator could get bogged down and that the legislator may not be in office long enough to see the nomination process through.

A third option was that the public nominate an ONRW either to a state agency or directly to the legislature. This option would share most of the pros and cons of the first two options.

Responsibility for reviewing nominations The Workgroup discussed options for reviewing and approving ONRW nominations. The basic process would be for an interested party to gather information regarding the proposed waterbody nomination; submit the information to a review panel composed of DEC, DNR, DFG, the DOT&PF, and the DCCED; incorporate public notice and a public comment period; and have the panel review the information and make a determination on a possible ONRW designation (i.e., either directly – if legislative approval is granted to the panel, or by submitting the nomination package to the legislature, if that approach is adopted). The type of information to be collected could include the following:

1. Name of the waterbody, location, reach length, and maps showing the extent of the proposed ONRW, waterbody uses, land ownership, land uses, natural resources, special land area designations, and transportation corridors
2. Inventory of existing permitted withdrawals and discharges within and upstream of the ONRW, along with any future uses; a list of valid and existing mining claims and leases; and the locations of any dams
3. Socioeconomic information related to the proposed ONRW area
4. Inventory of stakeholders and their interests, such as economic, recreational, subsistence, etc.
5. Rationale for ONRW nomination and explanation of why existing protections are insufficient, such as relevant existing and historical records, data, and studies supporting the significance of the waterbody, relevant water quality information (biological, chemical, hydrological), ecological uniqueness, and recreational information
6. Documentation of petitioner's public involvement activities to date, including letters documenting level of support in the ONRW area and elsewhere, issues or concerns, meetings held, communications, etc.
7. Additional information as may be recommended by Alaska DEC

The Workgroup discussed having DEC review and issue final approval on ONRW nominations. This may be infeasible if DEC receives a large number of nominations that add tremendously to DEC's workload.

- Pros: If DEC had the resources and authority to accept, review, and forward ONRW nominations, the process could be streamlined.

- Cons: This option is not practicable at present because DEC does not have the authority or the expertise to evaluate recreational or habitat values of a waterbody.

A statutory change could perhaps be an option because then costs would be assigned to this process.

- Pros: Creating a process for ONRW designation through legislative action would ensure that both the authority and the resources necessary to appropriately vet the nominations were available.

- Cons: If the authorizing legislative instrument vested decision-making authority in the legislature itself – rather than conferring that authority on a panel or board – the ONRW designation process could be lengthy.

As an alternative the Workgroup discussed whether there should be an interagency "Board" (comprised of the Department of Fish and Game (ADF&G), DEC, and the Department of Natural Resources (DNR)) to review nominations from the public and represent all the resource agencies expertise (Figure 3). It was understood there would be a cost for this Board, and a bill would need to be approved by the legislature to establish this Board.

- Pros: If authorized by the legislature, the board would have the authority and resources to review the nominations and make ONRW determinations that had broad support.

- Cons: Some sort of direct or indirect legislative review may be necessary in order to ensure that ONRW designations are subject to the oversight of elected officials.

Another option discussed was a "public board" appointed by the Governor.

- Pros: A public board appointed by the Governor would have the necessary support to accept, review, and forward nominations for ONRW designations.

- Cons: Some qualifications for members of a public board might be needed, to ensure that the necessary scientific, technical, socioeconomic, and other expertise is available during the petition review process, and that members of the legislature are comfortable with such an arrangement.

The Board's discussions flowed from a hypothetical decision-making process that would have looked like the following:

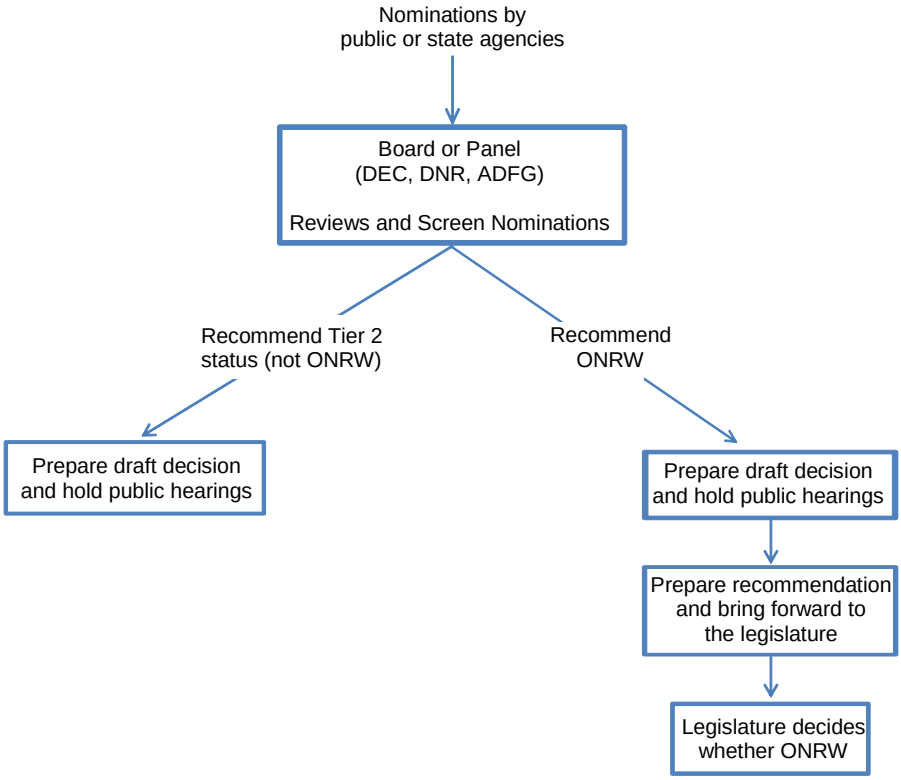


Figure 3. Example of an approach for reviewing and deciding on ONRW nominations.

Need for an additional Tier The Workgroup also discussed the possibility of adding a Tier 2.5 category for some Alaska waters. This additional tier would also require specific criteria for listing, examples of development allowed, increased protections required, etc. After discussing the pros and cons of an additional tier, the Workgroup decided that the present levels of tier protection would be adequate and appropriate, and that no Tier 2.5 was necessary.

D. Issue #4: Tier 2 Analysis – How to Evaluate Socioeconomic Benefits of a Project?

D1. Description of Issue #4

Lowering of water quality in Tier 2 waters due to a proposed activity may be allowed if the state finds that lower water quality is <u>necessary</u> to accommodate <u>important</u> economic or social development in the area in which the waters are located. This statement requires a finding that t social or economic benefits of the proposed activity outweigh water quality degradation impacts. To address the term "necessary" an alternatives analysis is often required of the applicant; to address "important," a social or economic justification is often required. A social or economic justification would be necessary if the alternatives analysis indicated that the least degrading, practicable alternative will likely result in the lowering of baseline water quality in the Tier 2 water. Note that an activity does not need to demonstrate both social and economic importance; at least one aspect, social <u>or</u> economic development, needs to be demonstrated.

Since the social or economic justification evaluation is necessarily site-specific, it is therefore done on a case-by-case basis.

An activity that is socially justified as important should either address a service need of the affected community (e.g., improved sewage treatment, access to a new health care facility) or provide some other social benefit (e.g., job opportunities, development of cultural resources). An activity claimed to be economically important should have a positive effect on economic development, such as employment or an increased economic or tax base of the local community. The Workgroup considered the following questions while discussing this issue:

- What factors should be considered?
- What level of information should be required of applicants?
- What level of review and documentation is needed?
- Should level of review and documentation vary based on potential risk?

D2. Workgroup Member Recommendations – Issue #4

The following list is a compilation of the Workgroup member recommendations, as well as recommendations in response to questions that came up during the discussion. The recommendations listed below are subject to change pending further completion of certain action items/further discussion by the Workgroup.

1. The workgroup listed the parameters that should be considered during the economic and social impact analyses: Examples of important economic development include:
    - Employment;
        - Salary impacts
        - Seasonality of jobs
    - Tax base impacts, expands leases and royalties;
    - Commercial activities;
    - Access to resources; or
    - Access to transportation network

    Examples of important social development include:
    1. Access to community services;
    2. Recreational opportunities;
    3. Access to education and training; or
    4. Public health and safety
    5. Infrastructure improvements
2. Applicant could just demonstrate economic importance alone (i.e., without considering "important" social development). DEC could judge "importance" based only on economic data. Applicant can also demonstrate "importance" based on solely social factors (e.g. public health).
3. DEC should take advantage of intergovernmental reviews when working through the technical portions of the alternatives analysis. DEC can look to others in areas where DEC lacks expertise.

4. DEC will not be doing cost-benefit analyses. There is no justification for weighing hard and soft costs against each other. DEC must deal only with what is in the record and not drill down to find more or hire economists, sociologists, etc.
5. The level of detail in socioeconomic analysis should vary with the risk of pollution/size of facility. DEC should retain discretion in how to determine the necessary level of detail, but use factors such as major/minor discharger categories already in use for NPDES permitting. DEC should provide their rationale and general criteria for determining the level of analysis to ensure consistency.
6. Applicants should submit relevant and appropriate data for DEC's consideration.

The level of detail in socioeconomic analysis should vary with the risk of pollution/size of facility. DEC should retain discretion in how to determine the necessary level of detail, but use factors to consider such as major/minor discharger categories already in use for NPDES permitting. DEC should provide their rationale and general criteria for determining the level of analysis to ensure consistency.

D3. Options Considered for Issue #4 with their Pros and Cons

The Workgroup discussed whether it would be beneficial to use an expansive list of economic and social parameters for determining the extent of development supported by the project, or to use a more focused list.

- Pros: The pros of a more expansive list would be to provide applicants with a wider range of categories to consider when proposing economic or social development aspects of their projects.
- Cons: Because most of Alaska is not developed, and because most of the development that occurs is resource-based, a long list of refined economic and social attributes is not necessary. Nearly all of the economic and social development aspects of propose projects are contained in the summary list presented above.

E. Issue #5: Tier 2 Analysis: What Level of Alternatives Analysis is Necessary?

E1. Description of Issue #5

An important part of Tier 2 antidegradation review is the completion and inclusion of an alternatives analysis (note that an antidegradation alternatives analysis differs from the analysis required for an Environmental Impact Statement). This originates from the rule language that the proposed degradation to water quality is "necessary." While DEC is ultimately responsible for determining whether an alternatives analysis meets the regulatory requirements, a common condition is that the majority of the work of finding, describing, and analyzing the alternatives is completed by the applicant (i.e., the facility or developer that is requesting the permit), with public input and regulatory oversight.

For discharges likely to cause water quality degradation, the applicant should provide an analysis of potential non-degrading and less-degrading alternatives to the proposed activity. As noted in the federal and state policy statements, the controls selected should protect existing uses and achieve the "highest statutory and regulatory requirements."

E2. Workgroup Member Recommendations – Issue #5

The following list is a compilation of the Workgroup member recommendations, as well as recommendations in response to questions that came up during the discussion.

1. DEC should and use the term "practicable" instead of "feasible" or "most effective and reasonable".
2. DEC should use the following list when considering and discussing the most practicable alternatives to the proposed discharge, in the order listed below. Practicality considerations include available and capable approaches after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

    a. Non-discharge approaches
    b. Process changes
    c. Relocation of discharge
    d. Seasonal discharges
    e. New technologies
    f. Other methods

2. DEC should use a narrative rather than a numeric cost threshold (%) when defining the pollution control measures deemed to be the most practicable or the most effective and reasonable.
3. DEC should consider any socioeconomic analyses, including those that are performed in relevant environmental impact statements or environmental assessments.
4. The applicant should be required to present a range of alternatives. DEC should not require a Professional Engineer to complete the alternatives analysis. In practice, the alternatives analysis should consist of the following summarized information:

    Step 1: Consider Practicable Alternatives

    Consider less degrading, practicable alternatives, such as one or more of the following:
    i. Non-discharge approaches
        a. Land application / infiltration of the discharge
        b. Total containment of the discharge
        c. Reducing disturbed / impervious surface area (i.e., for stormwater permitted projects)
        d. Wastewater recycling / reuse (e.g., closed loop systems, irrigation/washing reuse, etc.)
    ii. Process changes
        a. Reduction in scale of proposed discharge or activity
        b. Pollution prevention measures (e.g., raw materials substitution)

c. Water conservation practices
d. Improved operation and maintenance of existing facilities

iii. Relocation of the discharge (i.e., to receiving water with greater assimilative capacity)

iv. Seasonal or controlled discharge options to minimize discharge during critical water quality periods

v. New technologies
   a. Advanced oxidation technologies
   b. Physical filter barriers (e.g., membrane technology)
   c. Advanced chemical treatment
   d. Wetland or other tertiary treatment

vi. Other methods
   a. Pollution trading with other point or nonpoint sources in the watershed
   b. Other pollution offset approaches

Step 2: Analyze Cost-Effectiveness (Cost versus Performance) and Ancillary Environmental Impacts of Alternatives

i. Identify and list the practicable and non-practicable alternatives

ii. Briefly characterize the practicable alternatives
   a. Relative capital, operation / maintenance, and other costs
   b. Technological issues (e.g., engineering, scientific, reliability, O&M, etc.)
   c. Logistical / other issues

iii. Discuss any ancillary environmental impacts of the practicable alternatives
   a. Sensitivity of stream or groundwater uses, need for low-flow augmentation
   b. Nature of pollutants, dilution ratio for pollutants, discharge timing and duration
   c. Effects on endangered species
   d. Potential to generate secondary water quality impacts (stormwater, hydrology)
   e. Siting of plant and collection facilities
   f. Non-water quality and cross media environmental impacts: odor, noise, energy consumption, air emissions, and solid waste generation

Step 3: Identify the Preferred Alternative

Based on the information collected and analyses described in Steps 1 and 2, identify the preferred alternative. This will be the least degrading practicable alternative, and will be the focus of the subsequent permit application to DEC.

Step 4: Document Alternatives Analysis

The alternatives analysis submitted by the applicant should document the alternatives considered and the process used to identify the practicable alternatives and the preferred alternative.

i. The applicant should defend its application and respond to requests for information.
ii. The Department should review the application and document its decision.

E3. Options Considered for Issue #5 with their Pros and Cons

The Workgroup discussed the adoption of a numeric cost threshold for determining whether or not a potential alternative might be required. For example, some states require that any less-degrading alternative that costs less than 110% of the cost of the proposed project be implemented, since it would result in less water quality degradation – though at a slightly higher overall cost.

- Pros: A numeric cost "cap" would prevent the applicant from addressing potential alternatives that might be significantly more expensive than the type of project being proposed, thus saving time in the application process.
- Cons: The use of a 110% or 120% cap on expenses was viewed as somewhat arbitrary, and might not be sufficiently protective of a water resource that might be degraded as a result of project activity.

The Workgroup also discussed a requirement that applicants address a full list of feasible alternatives, rather than those viewed as "practicable."

- Pros: Having applicants address all feasible alternatives would ensure that all less-degrading alternatives are considered.
- Cons: The word "feasible" might be open to interpretation. The word "practicable" is defined in Alaska regulations, and is being used in the water permit programs. Practicality involves available and capable approaches after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

F. Issue #6: How are Waters Ranked as Tier 1 and Tier 2?

F1. Description of Issue #6

DEC regulations require 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, must be 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.

Implementation challenges regarding the tiered approach to waterbody protection 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. 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 concentrations below state standards identified as 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.

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.

F2. Workgroup Member Recommendations – Issue #6

1. DEC should use the parameter-by-parameter approach for applying Tier 1 and Tier 2 protection, and the waterbody-by-waterbody approach for applying Tier 3 protection only. Under this approach:

    a. Waters will be protected at a Tier 1 level for parameters that are demonstrated to equal to or be lower than water quality criteria.

    b. Waterbodies will be protected at the Tier 2 level, as a default with a rebuttable presumption that all parameters are better than water quality criteria.

    c. Where the quality of water exceeds levels necessary to support beneficial uses (e.g., the waterbody is not impaired for all uses), that quality will be maintained and protected on a parameter-by-parameter basis.

    d. Designated ONRWs will be protected at the Tier 3 level for all parameters.

2. DEC may require an applicant to provide data on parameters that are not in the discharge but are affected by the discharge.

3. DEC should consider a Tier 1.5 for wetlands and develop criteria and use designations for the wide variety of wetlands in Alaska.

F3. Options Considered for Issue #6 with their Pros and Cons

The Workgroup considered the waterbody-by-waterbody approach as the Tier 2 protection approach.

- Pros: The approach allows for more robust weighted assessments (biological, physical, & chemical), focuses resources on the highest quality waters, and might involve less "bookkeeping" in identifying the tiered levels of protection.
- Cons: Some waters may not be adequately protected, DEC must decide what data is needed to make assessment; a good deal of front-loaded work is needed to assess baseline conditions for a wide range of parameters; there may be some delay in implementation and need for procedures to address antidegradation before listing decisions are made; and there may be more potential for disputes, challenges and litigation.

G. Issue #7: Should DEC Define Significant and/or *de minimis* Degradation?

G1. Description of Issue #7

In order to reduce the workload involved in reviewing antidegradation submittals, some states have decided to issue waivers for proposed projects that involve minor levels of degradation. This has been accomplished through the use of a formal procedure for determining a *de minimis*

threshold for acceptable degradation, which typically involves use of some defined portion of the remaining assimilative capacity of the receiving water. A *de minimis* threshold might allow a small amount of degradation (e.g., 10% or less of the available assimilative capacity) without triggering an antidegradation analysis. Use of a *de minimis* threshold assumes that designated uses in the waterbody will not be negatively affected.

States sometimes allow *de minimis* levels of degradation for small projects – such as those covered by an NPDES or USACE general permit – to better focus scarce staff resources on projects with larger water quality impacts. A memo from US EPA Office of Science and Technology (Ephraim King, 2005) supports the use of *de minimis* levels as significance thresholds for antidegradation reviews as long as 1) the established *de minimis* level prevents significant degradation of Tier 2 waters; and 2) a cumulative cap on the use of assimilative capacity without an antidegradation review is in place to prevent incremental degradation that could conceivably consume half or even all of the assimilative capacity over time.

G2. Workgroup Member Recommendations – Issue #7

The Workgroup recommended that DEC not adopt a *de minimis* approach for antidegradation reviews, since the amount of work on the part of the applicant and DEC to demonstrate that a *de minimis* exemption from an antidegradation review is warranted will likely involve just as much time as the antidegradation review itself.

G3. Options Considered for Issue #7 with their Pros and Cons

The Workgroup considered allowing a 5% or 10% assimilative capacity limit as a *de minimis* exemption or waiver, with an overall 20% cumulative cap, as described by the EPA memo. This was initially thought to be a way to save both the applicant and DEC time in developing and reviewing the antidegradation information required under the regulations. However, when evaluating the pros and cons, a decision was made to forego a *de minimis* waiver.

- Pros: A *de minimis* exemption or waiver would allow small projects with minimal water quality impacts to proceed without a formal antidegradation review.

- Cons: The type and amount of information needed to justify a *de minimis* waiver would likely be the same as that needed to actually conduct the antidegradation review.

H. General

I. Other

IV. Issues Raised by the Public

A. Public Input on Key Antidegradation Issues

B. Additional Issues Raised by the Public

V. Summary of Workgroup Recommendations

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Appendix B – Background Information

Table 1 introduces and summarizes some key terms and issues associated with antidegradation, policy, and implementation.

Table 1. **Summary of Federal Antidegradation Concepts, Key Issues, and Terms**

Concept	Key issues	Key Terms	Comments
Tier 1 All waters should be protected at some basic level.	In actuality, implementing an antidegradation review procedure focuses on regulated activities impacting regulated waters, i.e., waters of the state or waters of the United States.	Regulated activities Actionable activities Regulatory authority Control document Permits, certification Surface waters Waters of the state Waters of the United States.	Can include intrastate isolated wetlands and groundwater if state regulations stipulate. Regulated activities include NPDES and section 404 permits, and section 401 Water Quality Certifications; can include septic and withdrawal permits.
	The basic level of protection is defined by existing uses of the waterbody and the water quality criteria (WQC) associated with those uses.	Existing use Water quality criteria Water quality standard	Existing uses are water quality targets implicitly or explicitly attained at any time since November 28, 1975. Existing uses cannot be removed and must be protected. Designated uses are desired uses and usually cited in state water quality standards.
	If water quality is already worse than the minimum WQC threshold for some pollutants, additional loadings of those pollutants should be banned if water quality will be further lowered.	Use impairment Use impaired waters Applicable WQS (water quality standards) TMDLs; 303(d) list Trading	Trading may allow new loadings if the new loads are completely offset by reductions in existing loads. Loadings of other, non-problematic pollutants are not affected if they are non-degrading or if they are subject to antidegradation reviews that provide authorization.
Tier 2 Waters that are cleaner than the *basic* level (i.e., WQC) should be protected at that existing higher quality unless there is a significant local benefit.	*Cleaner* can be expressed parameter-by-parameter, numerically or narratively, or through some other scheme. Tier 1 protection still applies, to keep water quality at or above threshold water quality criteria numeric or narrative values.	High-quality waters WQ better than WQS Assimilative capacity Available capacity	EPA prefers the *parameter-by-parameter* approach, which infers that many (even most) waters are always protected at both Tiers 1 and 2 (i.e., most waters will exceed minimum levels needed to support existing uses for at least one or more parameters at some time). Determining available assimilative capacity for each parameter provides a basis for quantitatively assessing degradation and its relative significance involves some knowledge of existing (baseline) water quality and the nature of the proposed discharge.

Concept	Key issues	Key Terms	Comments
	Measuring water quality to determine when (and by how much) it is *cleaner* than the basic (WQC) level can be resource intensive; regular updates (i.e., yearly) are often needed	Baseline water quality Existing water quality Ambient conditions Current conditions	Baseline (existing) water quality (BWQ) provides the yardstick against which degradation is measured; it can be difficult to characterize and update. Depending on the loading inputs under consideration, seasonal and/or event-based assessments might be needed.
	Most states allow some non-significant impacts or degradation in these higher quality waters without requiring social or economic justification.	*De minimis* discharge Non-significant discharge Significant degradation Allowable degradation	EPA memo indicates discharges using up to 10% cumulative assimilative capacity may be considered non-significant or *de minimis*. Allowable degradation might include use of some portion of the available assimilative capacity (e.g., 5%–25%) for specific pollutant(s), or characterizing BWQ at a certain percentile (e.g., 85%) of total ambient measurements and requiring new loads to meet those *antidegradation* concentrations at end-of-pipe. Cumulative, consecutive, multiple allowances for non-significant impacts can result in water quality criteria exceedances and use of remaining assimilative capacity incrementally, without an antidegradation review.
	Important social, economic, and local/regional benefits can be difficult to demonstrate.	Economic development Social development In the area	Guidance from federal, state, and other sources are available to conduct a wide range of analyses—from simple to complex.
	Demonstrating that degradation is *necessary* requires analyses of alternatives to the proposed activity and assurances that all legal, cost-effective, and reasonable point source and NPS controls are in place.	Highest statutory and regulatory requirements for new and existing point sources. Cost-effective and reasonable BMPs for nonpoint sources Necessary	While not requiring BMPs for NPSs, there is an expectation that the most obvious, egregious, and manageable NPS loadings are minimized under antidegradation provisions. Non-degradation applies to all regulated nonpoint sources, and to stormwater from regulated MS4s, industrial, and construction activity. Specific procedures for conducting analyses of alternatives to the proposed activity can require significant resources, and fail to provide relevant information if they are not robust. Defining *cost effective* and *reasonable* can be difficult.
	Federal and state regulations require public participation and intergovernmental coordination under the state's Continuing Planning Process (CPP), a requirement of the CWA.	Public hearing Intergovernmental coordination Continuing Planning Process (CPP) under CWA	Public hearings on multiple issues (NPDES permit, antidegradation, and the like.) can be combined; states can use existing procedures; Continuing Planning Process procedures are sometimes old and outdated.

Concept	Key issues	Key Terms	Comments
Tier 3 Some pristine or unique waters should not be degraded even if socio-economic benefits can be shown.	Designation of Tier 3 waters can be problematic if nearby landowners fear a ban on development.	Outstanding National Resource Waters (ONRW) and Outstanding State Resource Waters (OSRW) Unique waters Tier 3 list Nominating Tier 3s Approval for Tier 3s	ONRW and OSRW are considered the most pristine in the nation. These waters are usually listed in state WQS. Some water resource organizations seek provisions allowing for the public to nominate ONRW and OSRW.
	Protection of Tier 3 waters requires upstream pollution controls and antidegradation controls.	Upstream sources Upstream loadings	This consideration can lead to treating the entire upstream area as Tier 3. However, since most Tier 3 situations involve headwaters streams, this might not be an issue.
	Most states allow some short-term, limited degradation of Tier 3 waters if long-term impacts are avoided.	Short-term impacts Limited impacts Non-significant impacts	Short-term impacts to Tier 3 waters are typically defined as “weeks and months, not years” and almost always less than a year. Limited impacts usually involve short term use of 5 to 10 percent of the available assimilative capacity for pollutant(s) of concern. Enhanced general permit requirements for minor activities (e.g., culvert replacements, utility crossings) can provide a basis for allowing “short-term, temporary, and non-significant” impacts in Tier 3 situations if the requirements are sufficiently stringent, activities are monitored, and requirements for proper BMP selection, siting, installation, operation, and maintenance are in place.

Appendix C – Statutes and Regulations Considered

Appendix D – Referenced documents

Add the following documents:

- Evaluation of Options for Antidegradation Implementation Guidance
- 2009 public conference on antidegradation implementation
- Interim Antidegradation Implementation Methods
- Antidegradation Methods Work Plan

Appendix E – Data/Other Appendices