

Evaluation of Key Elements and Options for Antidegradation Policy Implementation Methods

Workgroup Report

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Prepared by the Alaska Department of Environmental Conservation



With support from



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Acronyms and Abbreviations

AAC	Alaska Administrative Code
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statute
BMP	Best Management Practice
BWQ	Baseline Water Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEC	Department of Environmental Conservation
DCCED	Department of Commerce, Community, and Economic Development
DF&G	Department of Fish and Game
DNR	Department of Natural Resources
DOT&PF	Department of Transportation and Public Facilities
EPA	U.S. Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
F.R.	Federal Register
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
ONRW	Outstanding National Resource Water
OSRW	Outstanding State Resource Water
QAPP	Quality Assurance Project Plan
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code

Definitions

The majority of the terms below are defined in regulation¹. The definitions are copied directly from regulation with the regulation citation provided in parentheses. The remaining definitions reflect the Workgroup's use of the terms for the purposes of their discussions and this report.

- 1) "ambient water quality" means the natural concentration of water quality constituents prior to mixing of either point or nonpoint source load of contaminants;
- 2) "assimilative capacity" means the increment of water quality that is better than the applicable numeric criterion;
- 3) "available assimilative capacity" means the difference between the applicable water quality criterion for a pollutant parameter and the ambient water quality for that pollutant parameter where it is better than the criterion [USEPA 2005];
- 4) "certification" means the certificate of reasonable assurance the department may issue under 33 U.S. Code (U.S.C.) 1341 (Clean Water Act, sec. 401), as amended through February 4, 1987 [18 AAC 70.990(10)];
- 5) "Clean Water Act" means the Federal Water Pollution Control Act (33 U.S.C. 1251 - 1387), as amended through February 4, 1987 [18 AAC 70.990(12)];
- 6) "criterion" means a set concentration or limit of a water quality parameter that, when not exceeded, will protect an organism, a population of organisms, a community of organisms, or a prescribed water use with a reasonable degree of safety; a criterion might be a narrative statement instead of a numerical concentration or limit [18 AAC 70.990(17)];
- 7) "contact recreation" means activities in which there is direct and intimate contact with water; "contact recreation" includes swimming, diving, and water skiing; "contact recreation" does not include wading [18 AAC 70.990(16)];
- 8) "department" means the Department of Environmental Conservation [18 AAC 70.990(18)];
- 9) "designated uses" means those uses specified in 18 AAC 70.020 as protected use classes for each waterbody or segment, regardless of whether those uses are being attained [18 AAC 70.990(19)];
- 10) "effluent" means the segment of a wastewater stream that follows the final step in a treatment process and precedes discharge of the wastewater stream to the receiving environment [18 AAC 70.990(22)];
- 11) "existing uses" means those uses actually attained in a waterbody on or after November 28, 1975 [18 AAC 70.990(24)];

¹ The applicable regulations include Alaska Statute (AS), Alaska Administrative Code (AAC), Code of Federal Regulations (CFR), Federal Register (F.R.) and United States Code (U.S.C.).

- 12) "fish" means any of the group of cold-blooded vertebrates that live in water and have permanent gills for breathing and fins for locomotion [18 AAC 70.990(26)];
- 13) "fishable/swimmable" means water quality which provides for the protection and propagation of indigenous fish, shellfish, and wildlife and provides for recreation in and on the water [33 U.S.C. § 1251(a)];
- 14) "groundwater" means water in the zone of saturation; in this paragraph, "zone of saturation" is the zone below the water table, where all interstices are filled with water [18 AAC 70.990(28)];
- 15) "lake" means an inland waterbody of substantial size that occupies a basin or hollow in the earth's surface and that might or might not have a current or a single direction of flow [18 AAC 70.990(33)];
- 16) "mixing zone" means a volume of water adjacent to a discharge, in which wastes discharged mix with the receiving water [18 AAC 70.990(38)];
- 17) "natural condition" means any physical, chemical, biological, or radiological condition existing in a waterbody before any human-caused influence on, discharge to, or addition of material to, the waterbody [18 AAC 70.990(41)];
- 18) "nonpoint source" means a source of pollution other than a point source [18 AAC 70.990(42)];
- 19) "Outstanding National Resource Waters" (ONRWs) means those waters afforded Tier 3 protection from water quality degradation through a designation process that is to be determined;
- 20) "persist" means the ability of a substance or chemical not to decay, degrade, transform, volatilize, hydrolyze, or photolyze [18 AAC 70.990(44)];
- 21) "point source" means a discernible, confined, and discrete conveyance, including a pipe, ditch, channel, tunnel, conduit, well, container, rolling stock, or vessel or other floating craft, from which pollutants are or could be discharged [18 AAC 70.990(46)];
- 22) "pollution" means the contamination or altering of waters, land, or subsurface land of the state in a manner which creates a nuisance or makes waters, land, or subsurface land unclean, or noxious, or impure, or unfit so that they are actually or potentially harmful or detrimental or injurious to public health, safety, or welfare, to domestic, commercial, industrial, or recreational use, or to livestock, wild animals, bird, fish, or other aquatic life (AS 46.03.900);
- 23) "practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes [18 AAC 70.990(48)];
- 24) "secondary recreation" means activities in which incidental water use can occur; "secondary recreation" includes boating, camping, hunting, hiking, wading, and recreational fishing; in this paragraph "recreational fishing" does not include fish consumption [18 AAC 70.990(50)];

- 25) "sediment" means solid material of organic or mineral origin that is transported by, suspended in, or deposited from water; sediment includes chemical and biochemical precipitates and organic material, such as humus [18 AAC 70.990(32)];
- 26) "shellfish" means a species of crustacean, mollusk, or other aquatic invertebrate with a shell or shell-like exoskeleton, in any stage of its life cycle [18 AAC 70.990(72)];
- 27) "spawning" means the process of producing, emitting, or depositing eggs, sperm, seed, germ, larvae, young, or juveniles, especially in large numbers, by aquatic life [18 AAC 70.990(56)];
- 28) "Tier 1" are waters where existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected [40 CFR 131.12(1)];
- 29) "Tier 2" are waters where the quality of the water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water; that quality shall be maintained and protected unless the State finds ... that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the water is located [40 CFR 131.12(2)];
- 30) "Tier 3" are high quality waters that constitute an outstanding National resource ... that water quality shall be maintained and protected [40 CFR 131.12(3)]. The only exception to this prohibition, as discussed in the preamble to the Water Quality Standards Regulation [48 F.R. 51402], permits States to allow some limited activities that result in temporary and short-term changes in the water quality of Tier 3 waters;
- 31) "toxic" means of, relating to, or resulting from a substance or substance combination that causes in affected organisms or their offspring (A) death, disease, malignancy or genetic mutations; (B) abnormalities or malfunctions in growth, development, behavior, or reproduction; or (C) other physical or physiological abnormalities or malfunctions [18 AAC 70.990(61)];
- 32) "water," "waterbody," and "waters" mean "waters of the United States" per the Workgroup and not the definition in 18 AAC 70.990 or AS 46.03.900;
- 33) "waters of the United States" has the meaning given the term "waters of the United States" in 40 C.F.R. 122.2, as amended through August 15, 1997 [18 AAC 70.990(66)] and includes interstate waters and wetlands, waters subject to the ebb and flow of the tide, waters that may be used for interstate or foreign commerce or recreation, and tributaries, impoundments, the territorial sea, or wetlands adjacent to such waters regardless of whether such waters are intermittent (for complete citation see Appendix A);
- 34) "water recreation" means contact recreation or secondary recreation [18 AAC 70.990(67)];
- 35) "water supply" means any of the waters of the state that are designated in this chapter to be protected for fresh water or marine water uses; water supply includes waters used for drinking, culinary, food processing, agricultural, aquacultural, seafood processing, and industrial

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purposes; “water supply” does not necessarily mean that water in a waterbody that is protected as a supply for the uses listed in this paragraph is safe to drink in its natural state [18 AAC 70.990(68)]; and

36) "wildlife" means all species of mammals, birds, reptiles, and amphibians [18 AAC 70.990(69)].

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Executive Summary

The federal Clean Water Act (CWA) requires states to adopt water quality standards that include an antidegradation policy and implementation methods. In general, antidegradation policies establish three levels or tiers of water quality protection. Tier 1 requires that the water quality necessary to protect existing uses be maintained and protected. Tier 2 stipulates that existing levels of water quality – which are better than water quality standards – be protected unless the state finds that lower water quality is necessary to accommodate important economic or social development in the area. Tier 3 is reserved for waters identified by the state as outstanding national resource waters, which may not be degraded except for temporary and minor decreases in water quality.

Alaska adopted its antidegradation policy – which mirrors requirements in federal regulations – in 1997. A stakeholder workgroup was established in 2011 to advise the Department of Environmental Conservation (DEC) on the development of final implementation methods, which occurred during a series of meetings throughout 2012. The workgroup, assisted by DEC staff and with contractor support, researched and discussed a range of issues associated with antidegradation implementation methods. Recommendations from the workgroup are listed in this report, along with summaries of discussions that provide context.

The workgroup discussed and provided recommendations on the seven issues summarized below.

Issue #1: What Triggers an Antidegradation Review?

A key focus of the workgroup was to define the types of activities subject to antidegradation requirements. Workgroup members identified the following as the activities that should be subject to antidegradation requirements: wastewater discharges permitted under CWA Section 402, the placement of dredged or fill material into Waters of the U.S. under CWA Section 404, and activities subject to CWA Section 401 water quality certification by DEC (“covered activities”). Workgroup members recommended that covered activities must involve a new or expanded discharge in order to be subject to Tier 2 antidegradation review. They also recommended that these implementation methods should only be applied to Waters of the U.S., which includes surface waters, but not groundwater. The recommendations affirmed that DEC would ensure that covered activities would protect existing waterbody uses, and covered activities involving new or expanded discharges in Waters of the U.S. would be subject to Tier 2 antidegradation reviews if they would lower water quality.

Issue #2: What Information is needed to Determine Baseline Water Quality?

The workgroup noted the importance of establishing a process to assess pollutant concentrations and determine baseline water quality (BWQ) as part of the implementation methodology. Characterization of BWQ provides a framework for addressing all three tiers of waterbody protection (i.e., matching parameters of concern in the proposed discharge to levels of those parameters in receiving water helps to predict how much degradation might occur, and whether or not water quality criteria will be met). The workgroup recommended that DEC use existing procedures for determining BWQ, including actual

monitoring and assessment data, use of representative waterbody information, and assuming that baseline concentrations of anthropogenic pollutants are zero for waters in undeveloped areas.

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

Recommendations regarding Tier 3 waters centered on the process for designating these outstanding waters, and the type of information needed. Workgroup members felt that state legislative action would be required to clarify who has the authority to designate an ONRW, either directly or indirectly (i.e., direct approval of a Tier 3 waters list by the legislature, or by delegating legislative authority to a multi-agency board, DEC alone or another entity to make those decisions). Basic information on the waterbody to be nominated as a Tier 3 water would be collected by the nominating party (e.g., member of the public, agency, etc.), with state agencies providing more detailed data on land ownership, waterbody uses and condition, permits, and other information.

Issue #4: Tier 2 Analysis – How should DEC Evaluate Important Social or Economic Development of a Project?

The workgroup recommendations regarding Tier 2 reviews of projects affecting high-quality waters involved considerable research, discussion, and deliberation. The requirement that project proponents demonstrate that their proposals are “necessary” to accommodate important economic or social development produced general consensus that a permit applicant should provide information for either economic or social development – but not necessarily both. Economic importance parameters could include increases in employment, the tax base, commercial activities, or access to resources or transportation networks. Social development parameters could include access to community services, recreational opportunities, education and training, or improvements to public health, safety, or infrastructure. Because DEC may not have the capacity to adequately assess economic or social benefits, the workgroup recommended that DEC draw upon the expertise of other state agencies in evaluating information submitted as part of a Tier 2 antidegradation review. In addition, members supported an approach where the level of detail and robustness of the Tier 2 review would be proportional to the level of risk and degree of impact from a proposed discharge.

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

A similar view toward proportionality in Tier 2 antidegradation reviews emerged in regards to alternatives analyses, which are required as part of the demonstration that a lowering of water quality is “necessary.” The workgroup recommended that DEC require applicants to assess a reasonable range of practicable alternatives when assessing proposals that would lower water quality, including non-discharge approaches, process changes, relocation of the discharge, seasonal discharges, and other methods. Evaluation of alternatives would be based on both quantitative and qualitative factors, rather than a strict numeric cost threshold.

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

Receiving waterbody impacts would be evaluated via a parameter-by-parameter approach during Tier 2 reviews, meaning that pollutants in the discharge would be compared to ambient levels in the receiving

water to determine the assimilative capacity for that parameter. Parameters with better water quality than that required by the state criteria would be protected at the Tier 2 level.

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

Finally, after much discussion and consideration, the workgroup decided against a recommendation to waive Tier 2 reviews for small discharges or activities that may represent a *de minimis* impact on the quality of the receiving water, under the assumption that the level of effort required to demonstrate applicability of any *de minimis* standard and the work required to track the cumulative impact of many such discharges would offset any perceived benefits.

In closing, it should be noted that the workgroup generally supported antidegradation implementation methods that built upon existing policies, procedures, and processes used by DEC and other state agencies where feasible. Where relevant, antidegradation reviews should incorporate information from assessments, studies, and reports generated by sister state agencies and federal entities (e.g., US Army Corps of Engineers, US Fish and Wildlife Service), if available, particularly for general permits and 401 water quality certifications of non-DEC issued 402 and 404 permits.

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 used 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. Alaska also has interim antidegradation implementation methods. The Alaska Department of Environmental Conservation (DEC) is in the process of developing more detailed, final implementation methods as required by the CWA.

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. To facilitate its decision-making process, DEC relies on interim antidegradation implementation methods. 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 achieve 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 to October, 2012. A list of Workgroup members is shown on the second title page. Public comments were accepted at every Workgroup meeting.

To facilitate 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 as DEC develops antidegradation implementation methods in regulation. Each issue discussed started with a background presentation of the issue, a list of key questions DEC had identified, and a description of 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 of the topics of discussion and identified action items were posted to the DEC website and e-mailed to Workgroup members.

After questions and discussion from Workgroup members, the following process was used 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 recommendation for 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 captured along with information on the level of support among Workgroup participants, 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 also require legislative direction or authority to implement.

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 a statewide antidegradation policy and 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 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, subject to public participation under existing public review processes and intergovernmental coordination, that allowing lower water quality is

necessary to accommodate important economic or social development, and that the actions authorizing a lowering of water quality will protect existing uses. In addition, the state must ensure that applicable statutory and regulatory requirements for all new and existing point sources are met, all cost-effective and reasonable Best Management Practices (BMPs) 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 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

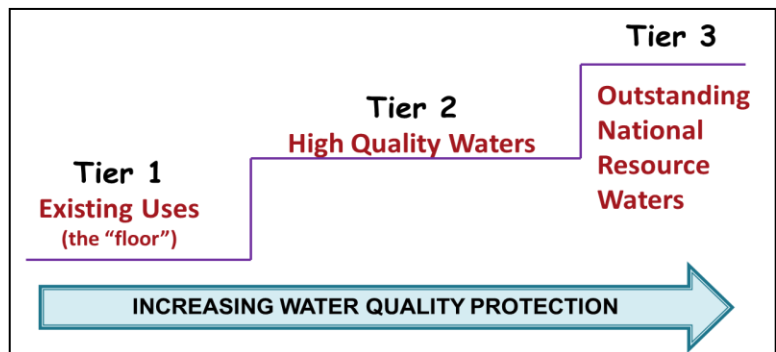


Figure 1. Three tiers or levels of water quality protection identified in federal and in Alaska’s antidegradation regulations.

are not required to designate ONRWs but must develop the methodology to do so and must provide the appropriate level of protection if an ONRW is 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 Pollutant Discharge Elimination System (NPDES) or Alaska Pollutant Discharge Elimination System (APDES) wastewater discharge permit.

One way that states conduct antidegradation reviews is to evaluate potential effects of a new or expanded wastewater discharge 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.

For example, high quality waters (i.e., Tier 2 waters) will have a lower concentration of a given pollutant than the water quality criterion, and for indicators of good water quality, a higher value (e.g., dissolved oxygen concentration greater than the criterion). The difference between these two concentrations (i.e., between ambient concentration 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.

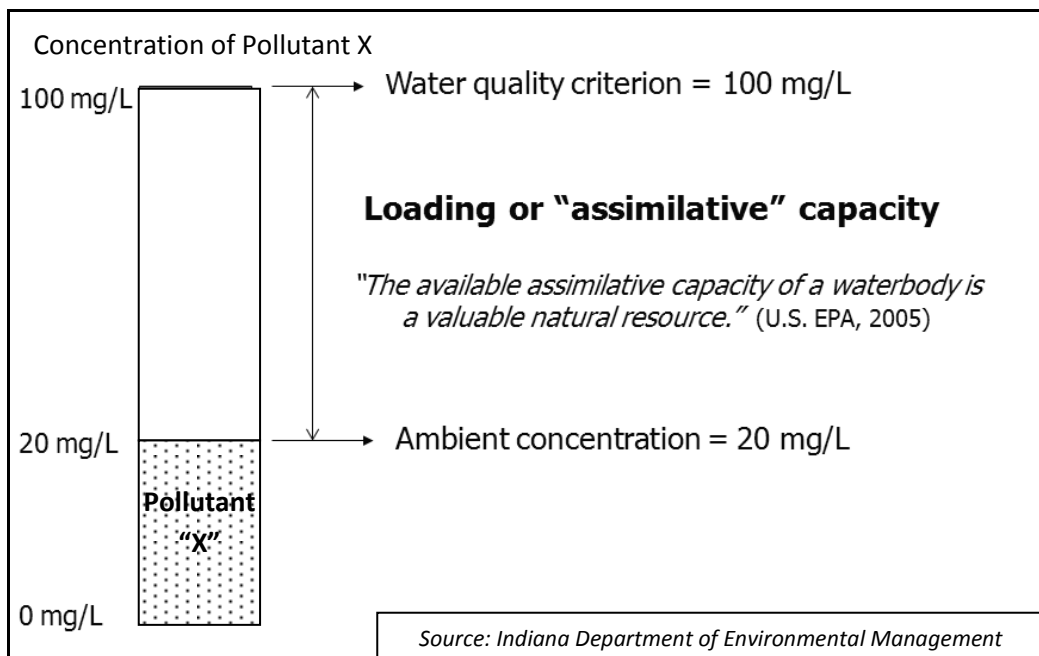


Figure 2. Schematic showing assimilative capacity in the context of the antidegradation review process.

B. DEC Antidegradation Policy

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

C. Antidegradation Policy Implementation Efforts

Development of antidegradation 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. The products of these activities can be viewed online using the following hyperlinks:

- [2008 Evaluation of Options for Antidegradation Implementation Guidance](#)
- [2009 Conference on Antidegradation Implementation](#)
- [2010 Interim Antidegradation Implementation Methods](#)
- [2011 Antidegradation Final Implementing Methods Workplan](#)

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 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 methods recognize the need for DEC to develop final methods through a rule-making process.

The Antidegradation Final Implementing Methods Work Plan (2011) sets out DEC’s plan for developing final methods for implementing the state’s antidegradation policy. It discusses 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 forums and documents, antidegradation issues were highlighted in a public notice dated April 2011 describing Department priorities during the 2011-2013 triennial review of Alaska's water quality standards and in an Antidegradation Fact Sheet posted on the DEC webpage in April 2011.

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, states the recommendations of the Workgroup, identifies various options discussed by the Workgroup for that issue, and summarizes the pros and cons that were considered. As the issues are inherently related, references to prior or later issue subsections do occur. Where applicable, there is a discussion of dissenting views or lack of consensus regarding specific parts of a given issue.

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 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:

- For which waters does antidegradation review apply (i.e., surface waters, groundwater, state waters, or federal waters)?
- What CWA activities trigger an antidegradation review; e.g., APDES permits, 401 certifications of NPDES permits, wetlands 404 permits and their 401 certifications? What about other CWA decisions; e.g., impaired waters listings, TMDLs?
- Should antidegradation reviews be conducted for non-CWA activities; e.g., forestry, grazing?
- Is a review needed for only new and increased discharge permit and 401 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 BMPs?

The determination of baseline receiving water quality is discussed further in Issue #2. The possible use of *de minimis* degradation levels to avoid triggering Tier 2 antidegradation review is discussed further in Issue #7.

A2. Workgroup Member Recommendations – Issue #1

The following list is a compilation of the Workgroup member recommendations for Issue #1.

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 (“covered activities”). This includes issuance of and coverage under APDES general and individual permits, DEC’s CWA Section 401 certification of the placement of dredged or fill material into Waters of the U.S. under a US Army Corps of Engineers (USACE) permit, and other federally permitted activities subject to the Section 401 water quality certification process (e.g., FERC dam licensing). Covered activities must involve a new or expanded discharge in order to be subject to Tier 2 antidegradation review.
3. DEC should use the USACE 404(b)(1) analysis as a major reference while conducting the antidegradation analysis for those projects permitted under Section 404 of the CWA that require state 401 certification. Other analyses related to economic or social development associated with the project can supplement this information.
4. All activities regulated by DEC that may lower water quality are subject to Tier 1 antidegradation reviews. Tier 2 antidegradation requirements should apply only to new or expanded discharges.
 - a. Tier 2 antidegradation requirements should not apply to re-issued permits that already have had an antidegradation review and/or have not changed in terms of permitted flow, pollutant load, or water quality characteristics since the last permit issuance.
 - b. Expanded discharges should be defined as those discharges where total loads or concentrations are increased beyond previously permitted amounts or other discharge characteristic change in a manner that could have adverse environmental impacts (e.g., pH, dam discharge amounts, or temperature).
 - c. Discharges are not automatically assumed to require an antidegradation review when a facility (e.g., a treatment plant), but not its discharge, is expanded. Previously permitted

- pollutant loads are considered to be included in BWQ.
- d. For an existing discharge, if there was no previous permit for an existing discharge, and the amount of existing discharge does not increase, then a Tier 2 antidegradation review is not required in the following cases:
 - i. If no permit was previously required, or
 - ii. If a permit application was submitted but no permit was issued.
 - e. In cases of existing unpermitted discharges, if a permit was required but an application was not submitted, then this is considered a new discharge and a Tier 2 antidegradation review is required.
 - f. Use of assimilative capacity will be prioritized based on the administratively complete application date.
 - g. Reissued permits that have not had an antidegradation review and have not changed in flow should be grandfathered because they are now part of BWQ. DEC can use the APDES permitting process to decide whether or not process, treatment, or other upgrades are needed when it recognizes that there can be better performance at a reasonable cost.
5. Tier 1 antidegradation reviews and, if applicable, Tier 2 reviews should be conducted at the time of permit application review and permit drafting.
 6. For general permits, the antidegradation review 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. 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 the waterbody, number of discharges in the area, type of waterbody, the water quality of the waterbody, cumulative impacts to the waterbody from multiple discharges (if present), and any special designations (e.g., impaired).
 - b. 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 indicate differences from conditions specified in the general permit.
 - c. DEC should reserve the right to require a Tier 2 antidegradation analysis at the NOI/authorization stage.

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

Workgroup members began their discussion of what triggers 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:** 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:** 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.

Information for antidegradation reviews for CWA Section 404 permits

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. If needed, antidegradation considerations (e.g., alternatives analysis) could be addressed in the conditions of the CWA Section 401 water quality certification of the 404 permit. 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 the use of a rebuttable presumption that the proposed activity could lower existing water quality, presumably in a measurable and significant manner. Possible considerations identified by the

Workgroup for activities that might trigger and guide the level of detail for 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 of the waterbody; and
- Potential for cumulative effects from other nearby discharges.

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: DEC does not need to decide whether a Tier 2 review is necessary; any new or expanded activity would be reviewed. This would eliminate the resources needed to evaluate and document permits that are exempt from antidegradation review. Also, this would eliminate exemptions as the subject of litigation and appeals.
- Cons: This approach tends to dilute the review process because there will be so many activities (including perhaps many minor ones) that may need Tier 2 review. The Workgroup agreed that pro forma reviews provide little or no benefit to the environment.

The Workgroup also discussed the following 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:

- 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 (i.e., no increase in discharge volumes, concentrations, or loadings above permit limits);
- Projects that do not otherwise lower the quality of a receiving water; and
- 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 is maintained.

Some, but not all, of the above conditions were identified by the Workgroup as recommendations (see previous section).

The Workgroup discussed 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).

The Workgroup discussed 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 volume and/or low concentration discharge to a large waterbody might not need an antidegradation review, or might require a much simpler review process than the same 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. Since a given discharge's impact can depend on site-specific conditions, it is difficult to justify categorical exclusions from Tier 2 antidegradation review.

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: 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: 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 would need 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 Section III. G. of this report).

Whether a new discharge under a general permit would trigger a Tier 2 antidegradation review

General permits are used to permit multiple discharges; e.g., construction general permits, log transfer facility general permits. Several options were discussed to address whether a new facility authorized under a general permit would trigger a Tier 2 antidegradation review and how such a review should be conducted. The Workgroup acknowledged that general permits currently do not limit the maximum number of facilities, cumulative discharge, or pollutant load authorized under 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 conditions about new discharges differ from assumptions or conditions specified in the general permit.

Another factor considered by the Workgroup was evaluating 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.

A4. Further Discussion

Some Workgroup members took the position that all previous discharges should be grandfathered, and not required to conduct antidegradation reviews if (1) a new permit program was developed for existing discharges, (2) a permit was applied for but not issued by DEC or EPA, or (3) no permit application was submitted. However, the consensus was that reviews in the last case should not be waived. In tandem with Issue #7, the Workgroup supported an approach which provided DEC with some discretion on the level of detail to require for a Tier 2 antidegradation review rather than pursuing categorical or *de minimis* exemptions. This approach would focus on the overall environmental risk of the proposed activity or discharge. Factors DEC should consider when determining the level of detail in a Tier 2 antidegradation review include:

- a. Size of the facility;
- b. Volume of the discharge;
- c. Duration of the discharge;
- d. Whether the discharge is temporary vs. permanent;
- e. Size of the receiving water;
- f. Toxicity of the discharge;
- g. Uses of the waterbody;
- h. Timing of the discharge (e.g., seasonality);
- i. Whether the facility is a major or “non-major” minor discharger; and
- j. Assimilative capacity of the waterbody.

B. Issue #2: What Information is needed to Determine Baseline Water Quality?

B1. Description of Issue #2

Baseline water quality (BWQ) is a pivotal issue in antidegradation analyses. The BWQ is used to determine the applicable protection tier for water quality parameters in the waterbody. The BWQ also determines the amount of degradation possible without threatening existing or designated uses, which may occur when water quality criteria are exceeded. Identification of the available assimilative capacity in the receiving water for parameters of concern in the discharge – i.e., the difference between BWQ and water quality criteria – helps to inform the alternatives analysis and other aspects of the Tier 2 antidegradation review process.

The Workgroup considered the following questions while discussing this issue:

- How much information is needed to make the BWQ 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?
- 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 can data collection costs be controlled?

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?
- Are dischargers incentivized to improve water quality and available assimilative capacity?
- How should Alaska determine BWQ for wetlands when there is not free flowing water or the water is trapped in permafrost (i.e., frozen soil) most or all of the year?

B2. Workgroup Member Recommendations – Issue #2

The following list is a compilation of the Workgroup member recommendations for Issue #2.

1. DEC should retain the existing approach for determining BWQ under the current APDES permit program. Determinations of BWQ should be made on a case-by-case basis. Appendix C lists factors that could be used to make this determination. The current flexibility in determining how much BWQ data is necessary should be retained.
2. Factors that might trigger a need for additional BWQ data include: available dilution in the receiving water 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 use a rebuttable presumption that all waters in Alaska should be protected at the Tier 2 level in terms of BWQ.
5. DEC should assume that baseline concentrations or loads for pollutants are zero in situations where it makes sense (e.g., the presence of bark in an area proposed for a log transfer facility where bark deposition has not previously occurred).
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. In the permit fact sheet, it should be made clear to the public when all assimilative capacity for a parameter will be consumed by a proposed discharge.

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

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

Existing DEC approach to determine baseline water quality

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.

In areas where naturally occurring substances, such as metals and sediment, regularly exceed numeric water quality criteria, the “natural condition” can be used as BWQ, and it will be assumed that no additional assimilative capacity is available for further degradation. 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).

- Pros: An antidegradation-specific approach for collecting BWQ data would provide clear direction to applicants as to which data were necessary for the review.
- Cons: DEC already has some procedures in place to collect receiving water data, and general assessment data for state waters. Adding a separate procedure for antidegradation purposes only was thought to be confusing and unnecessary.

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 Alaska and 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 (see Appendix C). Generally, for purposes of establishing BWQ, it was proposed that DEC should presume that waters will be protected at the Tier 2 level unless identified as Tier 3 (ONRWs) for the waterbody or Tier 1 for specific parameters.

Tier 1 designations are for those waters that (1) have sufficient data to demonstrate that the existing condition regularly exceeds water quality criteria, or (2) have been designated as impaired under CWA §303(d) for a specific parameter of concern. Tier 1 protection should apply for those parameters resulting in the impairment listing or considered in a natural conditions determination. Other parameters for the same water would likely be designated Tier 2.

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 receive 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 (see Appendix C). In addition, the Workgroup expressed support for allowing DEC the flexibility to require a higher level of effort in supplying BWQ for larger projects with greater environmental risk, and a proportionally lesser effort for smaller projects with fewer and less significant risks.

B4. Further Discussion

After considerable discussion, Workgroup members generally supported an approach for BWQ that gave DEC the opportunity to use existing water quality monitoring and assessment methods and the flexibility to tailor data requested of applicants to the level of environmental risk anticipated. As in Issue #1, the approach would focus on the overall environmental risk of the proposed activity or discharge. Factors DEC should consider when determining the level of data needed to establish BWQ for a Tier 2 review could include the same factors used in determining the level of detail to be used in a Tier 2 antidegradation review, as described in Section A4 and the final paragraph of Appendix C of this report.

When using representative or other non- site-specific monitoring data, some Workgroup members expressed the view that such data should not be used to “downgrade” a waterbody (i.e., changing the level of tier protection from Tier 2 to Tier 1 for any parameter) without actual monitoring data for the specific parameters in question.

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

C1. Description of Issue #3

Outstanding National Resource Waters (ONRWs) are considered Tier 3 waters in the federal and Alaska antidegradation policies. These waters may include “a water of a national or state park or wildlife refuge or a water of exceptional recreational or ecological significance” [40 CFR 131.12(a)(3)]. Except for certain minor, temporary changes, water quality cannot be lowered in ONRWs.

The Workgroup considered the following questions while discussing this issue:

- What types of waters should be designated as ONRWs?
- 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?
- 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 (OSRWs) or Tier 2.5?
- How will ONRW designation affect activities upstream?

C2. Workgroup Member Recommendations – Issue #3

The following list is a compilation of the Workgroup member recommendations for Issue #3.

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 including public agencies can nominate an ONRW as long as there is a clear list of information that must be included in the nomination (see Appendix D) and state agencies are involved in vetting the nominations.
3. DEC should perform a completeness review of nomination applications before they are evaluated, and solicit public comment via existing public input procedures as part of the vetting process.
4. A multi-agency board should be created to evaluate nominations. Such a board could include DEC, Department of Natural Resources (DNR), Department of Fish and Game (DF&G), the Department of Transportation and Public Facilities (DOT&PF), and the Department of Commerce, Community, and Economic Development (DCCED).
5. The Workgroup proposed that the legislature should be involved 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. A legislative bill should be drafted to clarify authority for designating ONRWs and provide funding as needed for reviewing and evaluating ONRW nominations (e.g., for a multi-agency board).
6. Nominations should be reviewed on a periodic basis (e.g., every three years) and forwarded to the decision-making body for consideration.
7. The present levels of tier protection in state and federal antidegradation policy are adequate and appropriate. No Tier 2.5 (i.e., Outstanding State Resource Water category) is necessary.
8. When establishing an ONRW, existing permits should be grandfathered, but new or increased discharges should not be allowed.

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

The Workgroup explored the range of options for ONRWs in considerable detail, and there was some divergence regarding specific details of the ONRW nomination, review, and approval processes.

ONRW nominations

One option discussed by the Workgroup was that only state agencies should have authority to nominate an ONRW. One workgroup member felt this should be the only way to nominate an ONRW.

- Pros: Nominations are likely to have been well thought out and have sufficient documentation with which to make a decision.
- Cons: The public may not be involved in the nomination process to the extent that they would like, resulting in a more restricted approach. Limited state resources may restrict the number of nominations.

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

- Pros: The public would be involved in nominations and knowledgeable individuals may identify otherwise unknown waterbody-specific threats. Since decisions about ONRWs could affect public interests the legislature would be an appropriate body to make this policy decision.
- Cons: Nominations via a legislator could get bogged down in the legislative process and bill priorities. A 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.

- Pros: There would be direct public involvement in the nomination process and individuals with specific knowledge of waterbodies could make nominations.
- Cons: This approach may cause some confusion due to multiple nomination entry points. Nominating individuals may be seeking to protect certain self-interests rather than those of the general public. The number of nominations may overwhelm available state resources.

Responsibility for reviewing nominations

The Workgroup discussed options for reviewing and approving ONRW nominations. The basic process would be:

1. An interested party gathers information regarding the proposed waterbody nomination and submits the information to a review board comprised of DEC, DNR, DF&G, the DOT&PF, and the DCCED.
2. DEC reviews the nomination for completeness, collects additional information from other agencies, incorporates public notice and a public comment period, and has the review board evaluate the information.
3. DEC or the review board makes a determination on a possible ONRW designation, either
 - a. directly – if legislative approval is granted to DEC or the board, or
 - b. indirectly - by submitting the nomination package and recommendations to the legislature, if that approach is adopted.

The types of information to be collected from the nominators and from state agencies could include the following:

- Name of the waterbody, location, reach length, and maps showing the extent of the proposed ONRW;
- Rationale for ONRW nomination and explanation of why existing protections are insufficient;
- Information on land owners and stakeholders and their interests;
- Documentation of stakeholder outreach and support;
- An inventory of waterbody uses, land owners and land ownership, land uses, natural resources, special land area designations, and transportation corridors;
- An 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;
- Any social and economic information relevant to the proposed ONRW area, including subsistence users and uses; and
- Any additional information as may be recommended by DEC.

The workgroup requested that DEC review and refine the above information submittal elements. DEC's revision of these submittal elements is in Appendix D.

The Workgroup discussed having DEC alone review and issue final approval on ONRW nominations. However, the assistance of other agencies in providing information would be important. The decision to have DEC complete this process alone 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 expertise to evaluate non-water quality parameters, such as economic, recreational, or social values of a waterbody.

A decision to create a process for ONRW designation through legislative action could be an option because the qualitative and quantitative information would be assessed and funding allocated by the legislature to support this process.

- Pros: Legislative action would ensure that both the authority and the resources necessary to appropriately vet the nominations were available.
- Cons: If legislative action was required, the ONRW designation process could be lengthy.

As an alternative, the Workgroup discussed whether there should be an interagency board (comprised of the resource agencies, DOT&PF, and DCCED) 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 the 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 from a range of state agency stakeholders.
- 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 legal standing and resources to accept, review, and forward nominations for ONRW designations to the Governor or the legislature.
- Cons: Review of ONRW nominations requires a range of expertise (i.e., scientific, technical, social, and economic). The Governor would have sole discretion on whether state agencies will participate, and members of the legislature may not be comfortable with such an arrangement.

The Workgroup's discussions flowed from a hypothetical decision-making process summarized in the following diagram.

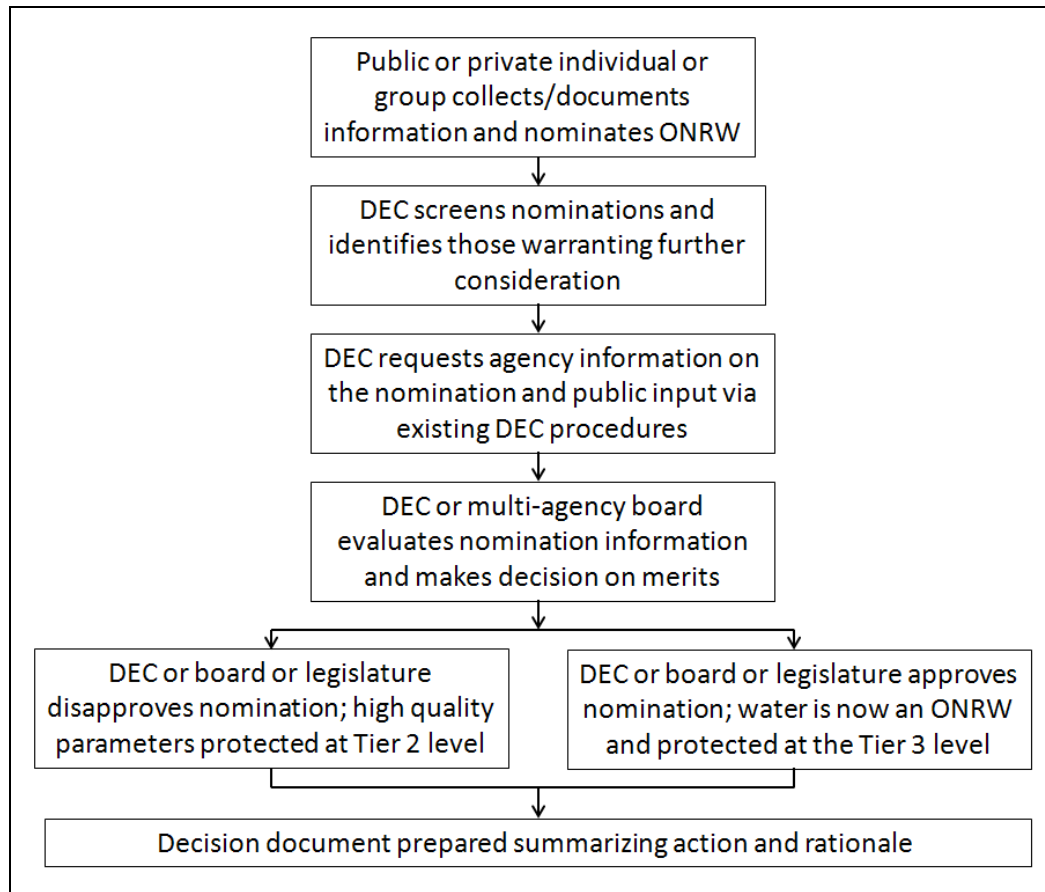


Figure 3. Example of an approach for reviewing and deciding on ONRW nominations.

Need for an additional Tier between Tier 2 and Tier 3 (i.e., Tier 2.5)

The Workgroup also discussed the possibility of adding a Tier 2.5 category for some Alaska waters that would provide an intermediate level of water quality protection between Tier 2 and Tier 3. This additional tier would also require development of specific Alaska-only criteria for these state designated waters including examples of development that would be allowed, increased protections required beyond Tier 2 review, 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.

- Pros: A Tier 2.5 would allow special protection for designated Outstanding State Resource Waters without the strict requirements (i.e., no significant or permanent degradation) of ONRWs. The state may be more likely to designate Tier 2.5 waters, since the state will set the level of protection rather than the very strict default protection level for ONRWs.

- Cons: A rigorous Tier 2 antidegradation review process can provide the level of protection needed for high quality state waters without the expense and bureaucracy of adding another protection tier; the highest quality waters could still be protected as conventional ONRWs.

C4. Further Discussion

Many states have recognized waters in National or State Parks and other similarly protected areas as candidates for ONRWs. As Alaska has a wealth of such areas, Workgroup members expressed concern that this approach used by other states may not be appropriate for determining outstanding waters in Alaska.

While nearly all Workgroup members thought the legislature should be directly involved in designating ONRWs, at least one member expressed support for allowing DEC – in cooperation with other state agencies – the ability to designate ONRWs. For example, there is a process in place to allow a state agency to identify some lands as unsuitable for surface coal mining, with the decision-making authority resting with the agency commissioner. However, the majority of the Workgroup noted that the legislature would probably be pulled into ONRW discussions at some point, and it would make sense to establish a formal process (i.e., through legislation) laying out the legislature’s role in determining which waters would be designated ONRWs. There were varying opinions discussed among the workgroup members on how the legislation should be structured– should it set up a procedure for the decision-making authority to rest with DEC?, with a multi-agency board?, with some legislative input? or allow ONRW designation only after a direct legislative vote on each nomination? In the end, a consensus decision could only be reached on the need to involve the legislature, with some options for the level of involvement of the legislature.

The Workgroup discussed what effects ONRW designation would have on upstream waters. It was noted that only those activities that would cause a measurable lowering of water quality would be affected. For example, if a river segment was designated as an ONRW, activities that would result in higher pollutant concentrations – such as elevated solids, bacteria, or metals – would be prohibited, or allowed only if the increases were relatively minor and short-term. Upstream activities that might lower water quality along a small tributary – but not cause measureable degradation of the ONRW-protected segment – would not be restricted, as long as the activity was in compliance with its permit and any specific antidegradation requirements applicable to the affected tributary.

D. Issue #4: Tier 2 Analysis – How Should DEC Evaluate Whether a Project Provides Important Social or Economic Development

D1. Description of Issue #4

Lowering of water quality in waters protected at the Tier 2 level may be allowed if the state finds that lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. To address the term “necessary,” an alternatives analysis may be

required of the applicant, which is discussed further in Issue #5. An assessment of the “important” social or economic development aspects of the proposed discharge is also 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 BWQ for parameters protected at the Tier 2 level. Note that an activity does not need to demonstrate both social and economic importance; the workgroup made the point that at least one aspect, social or economic development, needs to be demonstrated. Since the social or economic justification evaluation is necessarily site-specific, it is done on a case-by-case basis, although general guidelines may be developed to ensure overall consistency from one case to another.

An activity that is deemed socially important should 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 in evaluating whether the economic or social development is important?
- 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 for Issue #4.

1. The Workgroup listed the parameters that should be considered in determining economic or social importance. Examples of important economic development include:
 - a. Employment;
 - i. Salary impacts
 - ii. Seasonality of jobs
 - b. Tax base impacts;
 - c. Expanded leases and royalties;
 - d. Commercial activities;
 - e. Resources access; or
 - f. Transportation network access.

Examples of important social development include:

- a. Community services;
 - b. Recreational opportunities;
 - c. Education and training;
 - d. Cultural amenities;
 - e. Public health and safety; or
 - f. Infrastructure improvements.
2. The applicant could demonstrate economic importance alone (i.e., without considering “important” social development). DEC could judge “importance” based only on economic data. The applicant could also demonstrate “importance” based solely on social factors (e.g., public health).
3. DEC should take advantage of intergovernmental reviews when working through the technical portions of the alternatives analysis and social or economic importance. DEC can look to others in areas where DEC lacks expertise.
4. DEC should not be doing cost-benefit analyses for the purpose of making antidegradation determinations. The emphasis should be on assessing the asserted economic or social importance of the activity. DEC should deal only with what is in the record and not hire economists, sociologists, etc. to conduct in-depth analyses.
5. The level of detail in social or economic analyses should vary with the risk of pollution and size of the facility. DEC should retain discretion on 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 its 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.

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 describing the importance of 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. Many of the economic and social development aspects of proposed projects are contained in the summary list presented above.

D4. Further Discussion

Most Workgroup members wanted to restrict the social and economic analyses to a fairly tight range of parameters, but there was some interest from at least one member to consider a more expansive approach (i.e., evaluating project impacts such as changes to the local community, types of development vs. water quality attributes lost, and other qualitative issues). However, the overriding sense of the Workgroup was that the purpose of the “important social or economic development” test is not to weigh project benefits against project impacts. This is not a socioeconomic analysis. Comparing or weighing different factors (such as economic gain versus water quality impact) would be a subjective, unpredictable, and somewhat arbitrary exercise (i.e., do 40 jobs “outweigh” a 40% reduction in assimilative capacity?). DEC is not equipped to evaluate qualitative parameters, and might even struggle to assess the more quantitative non-water quality measures (e.g., overall increase in employment and tax base). After considerable discussion, the Workgroup recommended that DEC avoid any sort of cost/benefit analysis, and that it draw on the expertise of its sister agencies and input from the public in evaluating asserted economic or social development benefits, rather than trying to develop the capability to conduct such reviews internally.

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

E1. Description of Issue #5

An important part of the 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 language of the antidegradation policy in 18 AAC 70 as well as the federal policy in that the proposed degradation to water quality is “necessary” and from the requirement that the methods of pollution prevention control and treatment are the most effective and reasonable. While DEC is ultimately responsible for determining whether an alternatives

analysis meets the regulatory requirements, it is common for the majority of the work of finding, describing, and analyzing the alternatives to be completed by the applicant (i.e., the facility or developer that is requesting the permit) and subject to 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 antidegradation policy statements, the applicant must submit evidence that any reduction in water quality as a result of discharge will maintain and protect water quality necessary to protect existing uses and that all wastes and other substances discharged will be treated and controlled to achieve “highest statutory and regulatory requirements.”

The Workgroup considered the following questions while discussing this issue:

- What is needed to quantify the lowering of water quality and whether the lowering of water quality is necessary?
- What standards are used to determine whether the methods of pollution prevention, control, and treatment are the most effective and reasonable?
- How should economic and technical feasibility of alternatives be considered?
- When do alternatives go beyond the “highest statutory and regulatory requirements?”
- Can other alternative evaluations, e.g., NEPA environmental impact statements, CWA 404 permit reviews, meet the need?

E2. Workgroup Member Recommendations – Issue #5

The following list is a compilation of Workgroup member recommendations for Issue #5.

1. DEC should use the term “practicable” instead of “feasible” or “most effective and reasonable.” The term “practicable” is defined in state regulations in 18 AAC 70.990(48) as “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.”
2. DEC and applicants should consider the following when discussing the most practicable alternatives to the proposed discharge:
 - a. Non-discharge approaches;
 - b. Process changes;
 - c. Relocation of the discharge;
 - d. Seasonal discharges; and
 - e. New technologies.
3. DEC should use a narrative rather than a numeric cost threshold (%) when defining the pollution control measures deemed to be the most practicable.
4. DEC should consider any other analyses that evaluate alternatives, including those that are performed in relevant environmental impact statements or environmental assessments, or those produced by other agencies.
5. The applicant should be required to present a reasonable range of practicable alternatives. DEC should not require a professional engineer to complete the alternatives analysis.
6. The alternatives analysis should consist of the following steps with additional information provided in Appendix E.
 - Step 1: Consider a Reasonable Range of Practicable Alternatives
 - Step 2: Analyze Cost-Effectiveness (Cost versus Performance) and Ancillary Environmental Impacts of Alternatives
 - Step 3: Identify the Preferred Alternative
 - Step 4: Document Alternatives Analysis
7. 18 AAC 70.015(a)(2)(D) should be moved to the new regulations to implement 18 AAC 70.015(a)(2)(A).

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 be implemented if it costs less than 110% of the cost of the proposed alternative, since it would result in less water quality degradation with only a slightly higher overall cost.

- Pros: A numeric cost “cap” would prevent the applicant from having to address numerous potential alternatives that might be significantly more expensive than the antidegradation alternatives being proposed.
- Cons: The use of a 110% or 120% cap on expenses was viewed as somewhat arbitrary and possibly subject to manipulation, 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. Practicable is defined as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

E4. Further Discussion

Workgroup members recognized the value of having project applicants conduct a thorough review of less-degrading alternatives, but did not support forcing applicants to review any and all possible alternatives. There was some concern regarding approaches that might be viewed as too prescriptive; e.g., DEC requiring applicants to adopt specific treatment methods or technologies, rather than allowing them to meet a discharge or effluent standard in a manner chosen by the applicant. DEC staff noted that existing procedures already allow considerable flexibility, both in pointing out new treatment and best practices technologies and approaches, and in allowing applicants the freedom to explore their own options and innovations. In addition, the level of effort and degree of rigor selected for the applicant’s alternatives analysis and for DEC’s review should be proportional to size of the project, potential impacts on receiving waters, and overall risk. Finally, Workgroup members noted that alternatives analysis submissions should not require the services of a professional engineer, because engineering requirements for discharging facilities are already addressed by other DEC regulations.

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

F1. Description of Issue #6

Alaska's policy (18 AAC 70.015) for determining whether degradation of water quality from existing conditions is allowable is based on federal requirements and contains three discrete levels or "tiers" of protection:

- Tier 1 applies to all waters, and is based on the Alaska (and federal) policy that "existing water uses and the level of water quality to protect existing uses must be maintained and protected."
- Tier 2 protection is based on state (and federal) policy requirements that stipulate "if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected" unless "allowing lower quality is necessary to accommodate important economic or social development in the area where the water is located," and certain other conditions are met.
- Tier 3, which applies only to waters designated as Outstanding National Resource Waters, requires that water quality in those areas "must be maintained and protected."

As noted above, Alaska's antidegradation policy requires that existing uses be protected in all waters; i.e., Tier 1 applies to all proposals for new or expanded discharges, and even to existing discharges, to ensure that all uses are maintained and protected. An existing use may or may not be protected by the water quality criteria developed for designated uses.

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 designated 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. However, if a pollutant exceeds the standard, the waterbody would be protected at the Tier 1 level for that pollutant. Thus, using the parameter-by-parameter 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 CWA §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 (EPA-823-B-12-002, March 2012).

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 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 BWQ 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 initially assign waters to tiers 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, but the most important 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 pollutants associated with the proposed activity, having a parameter-by-parameter approach for determining the tier of the waterbody lends itself well to the analyses.

The Workgroup considered the following questions while discussing this issue:

- What is the basis for tier ranking?
 - Waterbody by waterbody;
 - Pollutant by pollutant; or
 - Hybrid approaches.
- When a waterbody/parameter is near the water quality criteria, how is this designated? Or should this be addressed in the Tier 2 analysis?

F2. Workgroup Member Recommendations – Issue #6

The following list is a compilation of the Workgroup member recommendations for 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, at a minimum, all waterbodies will be protected at the Tier 1 level for all parameters.
2. If the quality of a waterbody for a parameter is better than the corresponding water quality criterion associated with fishable/swimmable uses, Tier 2 protection applies to the waterbody for that parameter. Waterbodies are presumed to qualify for Tier 2 protection throughout the state. If lower quality is demonstrated for specific parameters, the waterbody will be protected at the Tier 1 level for those specific parameters while at the same time retaining Tier 2 protection for the remaining parameters. Designated ONRWs will be protected at the Tier 3 level for all parameters.
3. DEC will require an applicant to provide information on parameters in the discharge, and may require an applicant to provide data on parameters that are not directly regulated in the discharge but may alter the effects of the discharge (e.g., hardness).

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, and 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 an 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.

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

- Pros: Focusing on specific parameters in the discharge – rather than only on a broad suite of waterbody attributes (e.g., flow, habitat, morphology, etc.) – represents an efficient and effective approach for assessing degradation potential.

- Cons: The parameter-by-parameter approach is somewhat narrower than the waterbody approach, and does not necessarily consider the full range of waterbody attributes that might be affected by a discharge or other permitted activity.

F4. Further Discussion

The Workgroup discussed the waterbody-by-waterbody approach, and there was some interest in it due to the more holistic nature and easier classification system. However, the amount of data needed to characterize waterbodies and assess degradation potential was thought to exceed that required to simply focus on the parameters of concern in the discharge, and in the receiving waters. After discussion, the Workgroup consensus was that the parameter-by-parameter approach offered the most efficient and effective approach consistent with the other recommendations in this report.

One Workgroup member noted that Alaska currently does not differentiate among its vast array of waterbodies under the current water quality criteria. For example, all flowing waters have similar criteria, even though some have high levels of suspended solids due to summer glacier melt; and all wetlands are treated the same despite significant differences in water column composition, flora, fauna, and whether permafrost is present. The Workgroup and DEC concluded that this issue was best dealt with through the waterbody use designation categorization process, rather than through antidegradation policy implementation methods.

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. One way this has been accomplished is through the use of a formal procedure for determining a *de minimis* threshold for acceptable, very minor degradation of water quality. A *de minimis* threshold typically involves the use of some defined portion of remaining assimilative capacity of the receiving water. This 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 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.

The Workgroup considered the following questions while discussing this issue:

- How can assimilative capacity be calculated given the limited water quality data in Alaska?
- What about cumulative degradation from multiple discharges?
- Presumptive compliance – should certain categories of facilities be exempt from analysis?
- As an alternative to *de minimis* exemptions, could the level of detail in the analysis be tied to the level of potential degradation?

G2. Workgroup Member Recommendations – Issue #7

The following list is a compilation of the Workgroup member recommendations for Issue #7.

1. 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 may involve just as much time as the antidegradation review itself.
2. Any increased concentrations or loads over existing permitted amounts will trigger a Tier 2 antidegradation review.
3. DEC should have discretion on the level of detail required for a Tier 2 antidegradation review depending on the risk of the discharge. Factors DEC should consider when determining the level of detail in a Tier 2 review include:
 - a. Size of the facility;
 - b. Volume of the discharge;
 - c. Duration of the discharge;
 - d. Whether the discharge is temporary vs. permanent;
 - e. Size of the receiving water;
 - f. Toxicity of the discharge;
 - g. Uses of the waterbody;
 - h. Timing of the discharge (e.g., seasonality);
 - i. Whether the facility is a major or “non-major” minor discharger; and
 - j. Assimilative capacity of the waterbody.

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 cumulative cap, consistent with EPA’s 2005 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 of implementing this procedure, the Workgroup recommended foregoing the *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 and the documentation needed to justify a *de minimis* waiver would likely be as much or more work than would be needed to actually conduct the antidegradation review. A waiver process would potentially be more appealable than a simple Tier 2 review, possibly delaying some permits.

G4. Further Discussion

Many Workgroup members expressed interest in the adoption of a *de minimis* allowance, and some DEC staff thought it would help to save time in conducting antidegradation reviews. For example, small construction sites, package wastewater plants, and other low-impact discharges that have a minimal effect on water quality would likely be allowed to forego a Tier 2 analysis if a *de minimis* standard (e.g., using less than 10% of assimilative capacity for any parameter of concern) was in place. However, as the discussion proceeded, it became clear that many small discharge activities would likely be covered by general permits, which could be configured to incorporate Tier 2 antidegradation provisions in the general permit itself; e.g., in the 2012 EPA Construction General Permit. In addition, the approval of numerous *de minimis* discharges in a particular stream reach or lake would have to be tracked to ensure that the cumulative loading cap was not exceeded, creating a bookkeeping workload for DEC. In the end, the Workgroup determined that a *de minimis* exemption would require an assessment of assimilative capacity use or load impact to the receiving waterbody in order to justify a *de minimis* exemption. Thus, the amount of time saved by foregoing the social or economic review was not sufficient enough to warrant a *de minimis* category.

IV. Issues Raised by the Public

This section summarizes issues raised by the public during Workgroup meetings. It does not include comments received by DEC during presentations, conference calls, personal meetings, and other interactions with individuals or groups during 2012. That input will also be considered by DEC.

All Workgroup meetings were advertised and open to the public. Public notice was provided via newspaper ad, website, and email listserv approximately two weeks in advance of every meeting.

During the first meeting, public comments were accepted at the end of each meeting day. During all subsequent meetings, comments were accepted following the morning and afternoon portions of each meeting day. Comments were made directly to the Workgroup and sometimes included brief discussions with Workgroup members.

General comments received from the public regarding the Antidegradation Workgroup process included the need for:

- More public outreach regarding antidegradation policy and issues;
- Wider public notice of Workgroup meetings and increased use of technology to allow for remote public participation; and
- Water quality to be preserved.

The following key issues were discussed during the Workgroup meetings and received comments from the public who attended the meetings. General summaries of the public comments are listed below. The detailed public comments can be found within the Workgroup meeting summaries posted on Alaska DEC's Division of Water website.

Issue #1: What Triggers an Antidegradation Review?

- The antidegradation review process should be flexible enough to accommodate different types of facilities and to allow future development or community improvements.
- The antidegradation review process should incorporate information from existing permitting processes.
- In most cases, an antidegradation analysis should not be required for individual authorization under a general permit.
- Reissued permits should (or should not) require some level of antidegradation review.
- Antidegradation waivers should have strict limitations or should not be used.

Issue #2: What Information is needed to Determine Baseline Water Quality?

- DEC data requirements should be clear, concise, and practical.
- The amount of data required should be relative to the scale of potential impact.
- DEC should use ecological data and biometrics to evaluate impacts.
- Multiple sources of data should be considered including sources outside of DEC.
- DEC should consider historic, current, and future discharges and environmental conditions when calculating cumulative effects on a waterbody.
- When little or no data is available, Alaska waters should be designated and protected as Tier 2 high quality.

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

Public comments on this issue can be categorized as pertaining to eligibility, and the nomination, review and approval processes.

ONRW Eligibility

- ONRWs should not cover vast areas.
- ONRWs should reflect biological uniqueness of the waterbody.
- ONRWs should not be duplicative of existing protection measures.

ONRW Nomination Applications, Review, and Approval

- DEC should act as the lead agency in this process. Other state agencies should be involved or consulted.
- DEC should be clear in its nomination requirements.
- Numerous sources of information should be considered.
- DEC should consider land designation processes used by other agencies.
- Decisions should be made using the best science available.
- Decisions should be made outside of the political process.
- DEC should keep nominators informed about the process and nomination outcomes.
- It should not be overly burdensome to nominate an ONRW.

Issue #4: Tier 2 Analysis – How Should DEC Evaluate Whether a Project Provides Important Social or Economic Development?

- DEC should consider only the discharge and water quality, not broader issues affecting the overall community.

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

- DEC should use multiple metrics in its alternatives analyses.
- New technologies should not be disregarded simply because they have not been used in Alaska.
- DEC should provide a timely response to a proposed alternatives analysis.

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

- DEC should consider multiple approaches, including waterbody-by waterbody, when making a tier determination.

Issue #7: Should DEC Define Significant and/or De minimis Degradation?

- Available dilution for a proposed discharge should not be a factor and should not come into play when considering a *de minimis* exemption.
- A *de minimis* exception is needed.

Other Comments:

- DEC and all Alaskans interested in water quality should strive to learn what makes the state's ecosystems work. We must learn what level of "pollution" (e.g., nutrients) is required for waters to be "fishable." We need to use biological metrics to better evaluate the impacts of our actions. If DEC is going to protect uses, it must protect and use appropriate tools to do so; e.g., adding

fertilizer to improve phytoplankton availability for spawning fish, generating sediment and flow to break down dams, etc.

Appendix A – Primary Regulations Involved

Federal Antidegradation Policy

40 CFR 131.12

§131.12 Antidegradation policy.

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

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

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

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

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

Note: the numbering of subparagraphs 40 CFR 131.12(a)(1),(2), and (3) have become commonly used to identify the waters in identified each in subparagraph as Tier 1, Tier 2, and Tier 3 waters respectively.

Waters of the United States

40 CFR 122.2

For purposes of the Clean Water Act, "Waters of the United States" means:

- (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (b) All interstate waters, including interstate "wetlands";
- (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (3) Which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
- (f) The territorial sea; and
- (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. [See Note 1 of this section.] Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

State Antidegradation Policy

18 AAC 70.015

The following regulation is an excerpt from 18 AAC 70 Alaska Water Quality Standards adopted in 2012.

18 AAC 70.015. Antidegradation policy.

(a) It is the state's antidegradation policy that

(1) existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected;

(2) if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department, in its discretion, upon application, and after compliance with (b) of this section, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose as authorized in a department permit, certification, or approval; the department will authorize a reduction in water quality only after the applicant submits evidence in support of the application and the department finds that

(A) allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located;

(B) except as allowed under this subsection, reducing water quality will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030;

(C) the resulting water quality will be adequate to fully protect existing uses of the water;

(D) the methods of pollution prevention, control, and treatment found by the department to be the most effective and reasonable will be applied to all wastes and other substances to be discharged; and

(E) all wastes and other substances discharged will be treated and controlled to achieve Register 186,

(i) for new and existing point sources, the highest statutory and regulatory requirements; and

(ii) for nonpoint sources, all cost-effective and reasonable best management practices;

(3) if a high quality water constitutes an outstanding national resource, such as a water of a national or state park or wildlife refuge or a water of exceptional recreational or ecological significance, the quality of that water must be maintained and protected; and

(4) if potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy described in this section is subject to 33 U.S.C. 1326 (commonly known as sec. 316 of the Clean Water Act).

(b) An applicant for a permit, certification, or approval who seeks to reduce water quality as described in (a) of this section shall provide to the department all information reasonably necessary for a decision on the application, including the information and demonstrations required in (a) of this section and other information that the department finds necessary to meet the requirements of this section.

(c) An application received under (a) of this section is subject to the public participation and intergovernmental review procedures applicable to the permit, certification, or approval sought, including procedures for applications subject to 18 AAC 15. If the department certifies a federal permit, the public participation and intergovernmental review procedures followed by the federal agency issuing that permit will meet the requirements of this subsection. (Eff. 11/1/97, Register 143, am 4/8/2012, Register 202)

State Designated Uses

The following regulations are excerpts from 18 AAC 70 Alaska Water Quality Standards adopted in 2012.

18 AAC 70.050. Classification of state water. Except as specified in 18 AAC 70.230(e) [reclassified waters], state water is protected for the following use classes:

- (1) fresh water - Classes (1)(A), (1)(B), and (1)(C);
- (2) groundwater - Class (1)(A);
- (3) marine water - Classes (2)(A), (2)(B), (2)(C), and (2)(D). (Eff. 11/1/97, Register 143)

18 AAC 70.020. Protected water use classes and subclasses; water quality criteria; water quality standards table. (a) Classes and subclasses of use of the state's water protected by criteria set out under (b) of this section are

- (1) fresh water
 - (A) water supply
 - (i) drinking, culinary, and food processing;
 - (ii) agriculture, including irrigation and stock watering;
 - (iii) aquaculture;
 - (iv) industrial;
 - (B) water recreation
 - (i) contact recreation;
 - (ii) secondary recreation;
 - (C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and
- (2) marine water
 - (A) water supply
 - (i) aquaculture;
 - (ii) seafood processing;
 - (iii) industrial;
 - (B) water recreation
 - (i) contact recreation;
 - (ii) secondary recreation;
 - (C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and
 - (D) harvesting for consumption of raw mollusks or other raw aquatic life.

(Eff. 11/1/97, Register 143; am 4/29/99, Register 150; am 5/27/99, Register 150; am 6/22/2003, Register 166; am 6/13/2006, Register 178; am 9/1/2006, Register 179; am 9/19/2009, Register 191; am 5/26/2011, Register 198)

Note: The water quality criteria to protect the classes and subclasses of water use set out in (a) of this section are included in 18 AAC 70.020(b) and the Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances, dated December 12, 2008 and adopted by reference.

Appendix B – References

Alaska Department of Environmental Conservation. 2009. Conference on Antidegradation Implementation. <http://www.dec.alaska.gov/water/wqsar/wqs/antidegconference.htm>. December 2–3. Anchorage, AK.

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Alaska Department of Environmental Conservation. 2011. Antidegradation Final Implementing Methods Work Plan. http://dec.alaska.gov/water/wqsar/Antidegradation/docs/A-D_workplan.pdf. December. Juneau, AK.

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USEPA (U.S. Environmental Protection Agency). 2005. *Tier 2 Antidegradation Reviews and Significance Thresholds*. Ephraim S. King to Water Management Division Directors, Regions 1-10, August 8. U.S. Environmental Protection Agency, Office of Science & Technology, Washington, DC.

USEPA (U.S. Environmental Protection Agency). 2012. *Water Quality Standards Handbook: Second Edition*. EPA-823-B-12-002. U.S. Environmental Protection Agency, Office of Science & Technology, Washington, DC.

Appendix C – General Approach for Assessing Baseline Water Quality

The Workgroup discussed and generally supported the approach described below for assessing baseline water quality (BWQ) in Alaska surface waters and for rebutting the Tier 2 presumption. For either purpose, the applicant may submit, or DEC may use, sufficient and credible information from one or more of the following sources:

- 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;
- Local knowledge of current and past waterbody characteristics and attributes;
- Reports of dilution calculations or appropriate predictive models;
- Characterizations of the waters in reports prepared by the Department under §305(b) and §303(d) of the Clean Water Act;
- Classifications of the waters under the Alaska Clean Water Actions program;
- Water quality data from other representative waters;
- Inferences drawn from riparian areas, land uses, and upland conditions;
- Site-specific water quality data gathered by others, including the person seeking to rebut the presumption that the water is Tier 2, as established by this section; or
- Any other information deemed necessary by the Department.

In determining whether the information sources listed above are sufficient and credible, the Department, in its discretion, may consider all relevant factors, such as:

- General magnitude, characteristics and likely environmental effects of the proposed discharge;
- Remoteness and infrastructure of the affected area;
- Location and sensitivity of the receiving waters;
- Degree to which representative waters likely exhibit similar hydrologic, geographic, use, and water quality characteristics to the waters under review;
- Whether any water quality findings are based on data collected under a quality assurance project plan (QAPP) that meets DEC QAPP sampling, monitoring and other requirements;
- Age, quantity, and spatial and temporal scope of any data relied upon by the source; and
- Whether any report or finding was prepared by persons with the requisite professional background in the field.

In addition, the Workgroup supported allowing DEC to have discretion on the level of detail to require for a Tier 2 antidegradation review depending on the risk of the discharge. Factors DEC will consider when determining the level of detail and data in a Tier 2 review may include the size of the facility, volume of the discharge, duration of the discharge, whether the discharge is temporary vs. permanent, size of the receiving water, toxicity of the discharge, uses of the waterbody, timing of the discharge (e.g.,

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seasonality), whether the facility is a major or “non-major” minor discharger, and assimilative capacity of the waterbody.

Appendix D – Outstanding National Resource Waters Nomination Process

The basic ONRW nomination process would be:

1. An interested party gathers information regarding the proposed waterbody nomination and submits the information to a review board composed of DEC, DNR, DF&G, the DOT&PF, and the DCCED.
2. DEC reviews the nomination for completeness, collects additional information from other agencies, incorporates public notice and a public comment period, and has the review board evaluate the information.
3. DEC or the review board makes a determination on a possible ONRW designation, either
 - a. directly – if legislative approval is granted to DEC or the board, or
 - b. indirectly - by submitting the nomination package and recommendations to the legislature, if that approach is adopted.

The core information to be submitted along with the nomination should include the following:

- Name of the waterbody, location, reach length, and maps showing the extent of the proposed ONRW; and
- Rationale for ONRW nomination and explanation of why existing protections are insufficient.

To the extent that the nominating party has access to the following types of information, their inclusion in the nomination packet should also be encouraged:

- An inventory of waterbody uses, land ownership patterns, current land uses, natural resources, special land area designations, and transportation corridors;
- Inventory of existing permitted withdrawals and discharges within and upstream of the ONRW, along with any proposed future uses;
- A list of valid and existing mining claims and leases within the ONRW;
- The locations of any dams;
- Any social and/or economic information relevant to the proposed ONRW area, including subsistence users and uses;
- An inventory of stakeholders who would be affected by ONRW designation, and their respective interests, such as economic, recreational, subsistence, etc.;
- Relevant existing and historical records, data, and any available studies supporting the significance of the waterbody, relevant water quality information (biological, chemical, hydrological), ecological uniqueness, and recreational information;

- Documentation of nominating party's public involvement activities to date, if any, including letters supporting the proposed ONRW designation, and a description of issues or concerns raised with regard to the proposed designation; and
- Any additional information as may be requested by Alaska DEC.

The agencies reviewing an ONRW nomination should assemble information within each agency's area of expertise, and should supplement the information presented by the nominating party as appropriate. The notice and comment process used by the multi-agency review board should also be designed to elicit the same kind of information listed above from the interested public. However, since each proposed ONRW designation will present its unique facts and issues, the board should be allowed wide discretion in deciding what kinds of information are necessary and relevant in each case, and need not be bound to document or consider each item listed above.

Appendix E – Recommended Steps for Completing an Alternatives Analysis

Step 1: Consider a Reasonable Range of Practicable Alternatives.

Consider less degrading, practicable alternatives, such as one or more of the following, as applicable to the project involved:

- a. Non-discharge approaches;
 - i. Land application/infiltration of the discharge;
 - ii. Total containment of the discharge;
 - iii. Reducing disturbed/impervious surface area (i.e., for stormwater permitted projects); and/or
 - iv. Wastewater recycling/reuse (e.g., closed loop systems, irrigation/washing reuse, etc.).
- b. Process changes;
 - i. Reduction in scale of proposed discharge or activity;
 - ii. Pollution prevention measures (e.g., raw materials substitution);
 - iii. Water conservation practices; and/or
 - iv. Improved operation and maintenance of existing facilities.
- c. Relocation of the discharge (e.g., to receiving water with greater assimilative capacity);
- d. Seasonal or controlled discharge options to minimize discharge during critical water quality periods
- e. New technologies; or
 - i. Advanced oxidation technologies;
 - ii. Physical filter barriers (e.g., membrane technology);
 - iii. Advanced chemical treatment; and/or
 - iv. Wetland or other tertiary treatment.
- f. Other applicant proposed methods.

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

- a. Identify and list the practicable and non-practicable alternatives.
- b. Briefly characterize the practicable alternatives.
 - i. Relative capital, operation/maintenance, and other costs;
 - ii. Technological issues (e.g., engineering, scientific, reliability, operation/maintenance, etc.); and
 - iii. Logistical/other issues.
- c. Discuss any ancillary environmental impacts of the practicable alternatives.
 - i. Sensitivity of stream or groundwater uses, need for low-flow augmentation;

- ii. Nature of pollutants, dilution ratio for pollutants, discharge timing and duration;
- iii. Effects on endangered species;
- iv. Potential to generate secondary water quality impacts (stormwater, hydrology);
- v. Siting of plant and collection facilities; and/or
- vi. 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. Applicants should be prepared to respond to requests from DEC for information. Following a review of the application, the Department should document its decision.