

2 Determining Where Tier 2 Protection Applies

Tier 1 antidegradation protection applies to all jurisdictional waters and Tier 3 waters are designated by statute; therefore, the only question is which water bodies warrant Tier 2 protection. This section of the document describes the procedure for determining whether or not Tier 2 protection applies for a particular water body.

By rule, Idaho has established a water body-by-water body approach for identifying waters that will receive Tier 2 antidegradation protection. This approach uses Idaho's Integrated Report (IR) of water quality status and its supporting data. The IR and its supporting data are dynamic; therefore, each determination will be made as applications for new or reissued permits or licenses come before DEQ.

Determination of whether Tier 2 antidegradation classification applies for a certain water body is based on:

- the water body's category of use support according to the most recent **federally** approved Integrated Report (IR);
- the beneficial use of the receiving water body; and
- whether data indicate that the water body as a whole is of high quality.

Comment [dw1]: 1. How long does it take for EPA approval?
2. Would it be better to use state approved IR?

Section 2.1 provides a brief overview of the Integrated Report. Section 2.2 describes how DEQ will determine whether or not Tier 2 protection is appropriate.

2.1 The Integrated Report and Use-support Status Categories

Every two years, DEQ is required by the federal **CWA** to conduct a comprehensive analysis of Idaho's water bodies to determine whether they meet state **WQS** and support beneficial uses or if additional pollution controls are needed. This analysis is summarized in an "Integrated Water Quality Monitoring and Assessment Report"¹ (IR; DEQ 2008), which is submitted to EPA for approval. The report serves as a guide for developing and implementing water quality improvement plans (*total maximum daily loads, or TMDLs*) to protect water quality and achieve ~~federal and state~~ water quality standards. An IR must be approved by the EPA before it can be used by a state to guide its management decisions.

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Comment [dw2]: What is the basis for this statement? Is there a specific reason that only the federally approved IR can be used? If there is a delay (like 1-3 years for example) in getting federal approval of the IR – how can more recent data be used for antidegradation purposes. It would seem that the state would want to use the best and most relevant information available for making decisions concerning antidegradation.

Category 5 of the Integrated Report is equivalent to the former 303(d) list of impaired waters. This list identifies waters that do not meet all water quality standards, that is, they fail to meet at least one criterion or measure of their quality, i.e. a parameter. The list identifies the water body and the cause(s) for listing. Causes are often parameters for which the water body fails to meet a criterion or failure of the biological community to achieve benchmark scores for biological indices (see WBAG II, Grafe and others 2002). A TMDL must be developed for the certain parameters for which a water body is listed.

Comment [alp3]: Which of these criteria are used by DEQ?

Comment [alp4]: What biological benchmarks are used by DEQ? What is the process for evaluating, reviewing and changing these benchmarks?

¹ As this guidance is being developed, the 2010 Integrated Report is being considered for final approval and may be the controlling report by the time this guidance is finalized.

unless other measures are put in place to provide the water quality improvement needed (such as Category 4b).

The Integrated Report compiles available environmental data and information from all components of DEQ's surface water quality program, as well as from other agencies, organizations, companies, and individuals. This data and information gives water quality managers ~~a comprehensive look at an~~ indication of the relative quality of Idaho's water bodies and is used to set priorities and allocate resources accordingly. All of the state's waters are classified into at least one of five different use-support categories, which correspond to the five sections of the report. The five categories are described in the following paragraphs and summarized in Table 1.

Category 1: Waters supporting all uses

Because Idaho lacks methods to assess attainment of all uses (e.g., wildlife habitat and aesthetic uses), only waters that lie completely within wilderness or roadless areas appear in category 1. Because they lack regulated pollutant sources, such waters are assumed to support all their uses and meet all water quality standards.

Category 2: Waters supporting all uses that have been assessed

Category 2 waters fully support all their beneficial uses that have been assessed, but may have other uses that are un-assessed. This occurs because Idaho does not have a method to measure attainment of some beneficial uses, (e.g., wildlife and aesthetics), or may lack data for some uses (e.g. recreation or domestic water supply). This is the case for the vast majority of waters, and so, based on monitoring results, DEQ cannot say that all uses are supported and thus the water belongs in category 1. When the data in hand does not show impairment but there is not adequate data to assess all uses, DEQ conservatively places the water in category 2.

Category 3: Insufficient data to make an assessment

Category 3 consists of waters for which DEQ has insufficient data to make a determination whether or not any uses are fully supported and water quality standards are met. DEQ's experience has been that the majority of un-assessed waters, once sufficient data is obtained, are found to be high quality². This makes sense considering that insufficient data often reflects remoteness and thus both lack of pollutant sources and difficulty in sampling.

Category 4: Waters not meeting one or more uses but not needing a TMDL

Category 4 waters fail to meet applicable ~~all~~ water quality standards and thus do not fully support at least one applicable beneficial use. These waters do not

² In the course of negotiated rulemaking in 2010, DEQ examined the change in status of 167 assessment units that were not assessed in the 2002 IR, but then were assessed for the 2008 IR when new data was available. Of the 167 2002 AUs in category 3, 92 or 55% were determined to belong in Tier 2 based on their 2008 assessments. Of the remaining 75 AUs, 58 failed to meet at least one water quality criterion but because they lacked biological data, were not classified for antidegradation.

require a TMDL be developed to correct the impairment because: 1) a TMDL has already been developed and approved; 2) they are expected to meet water quality standards due to pollution control measures other than a TMDL; or 3) impairment is due to pollution such as flow alteration or habitat alteration but not pollutant loading and thus the impairment is not amenable to a TMDL to reduce pollutant loads.

Category 5: Waters not meeting one or more uses and needing a TMDL

Like waters in category 4, category 5 waters fail to meet ~~applicable~~ all water quality standards and thus do not fully support at least one ~~applicable~~ beneficial use. They do not, however, fit one of the three reasons for not needing a TMDL that would put them in category 4. Category 5 of the Integrated Report is equivalent to 303(d) lists that were prepared in the past and can also be described as a TMDL “to do” list.

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Table 1. Integrated Report Categories

Integrated Report Category	Description
1	Waters ¹ with all <u>applicable</u> uses presumed to be fully supported. Presumption based on lack of pollution sources ²
2	Waters for which all <u>applicable</u> uses that have been assessed were found to be fully supported
3	Waters with no assessed <u>applicable</u> uses due to lack of data
4a	Waters that have an EPA approved TMDL
4b	Waters with controls other than a TMDL expected to restore all <u>applicable</u> uses to full support
4c	Waters for which lack of <u>applicable</u> use support is caused by flow or habitat alteration which is not a pollutant
5 ³	Waters for which one or more <u>applicable</u> uses are not fully supported, due to a pollutant ⁴

¹ The term “waters” means assessment units (AUs), subdivisions of water body units represented with WBIDs in the Idaho WQS.

² This presumption is based on these waters being located entirely within wilderness/roadless areas.

³ Category 5 is equivalent to the 303(d) list of impaired waters; a TMDL “to do” list.

⁴ While assessment is done by use, an AU is listed as impaired for a specific cause or pollutant. If any one water quality criterion is not met or any one use is not fully supported, the AU is listed in category 5 unless the cause is flow or habitat alteration and then it is listed in 4c. When a TMDL is completed, the AU is listed in category 4a for the pollutant for which the TMDL was done. Because listing and TMDL development is by pollutant, a given AU can appear in both category 5 (for one or more causes) and 4 (for a different one or more causes).

All of the State’s waters are broken into assessment units (as described in the following section), and an individual assessment unit may be classified in more than one of the above categories. This is because the Integrated Report lists by cause. For example, if a water body is listed due to temperature and flow alteration, it would be listed in Section 5 for temperature and in Section 4c for flow because flow is not a pollutant.

Water Body Units and Assessment Units

Water body units are the geographic basis for identifying waters of Idaho and designating beneficial uses in the WQS. These units and their identification numbers (WBIDs) are based on 1:100K hydrography and break the state of Idaho up into unique non-overlapping drainage areas.

In headwaters areas, WBIDs correspond to true watersheds; that is, all surface water in a unit flows to a single point where it exits the unit. In Figure 1, this situation is exemplified by the stream labeled 003 (shown in red in the inset). Because water body units are non-overlapping by design, any unit downstream from a headwater unit has a drainage area represented by a WBID that has an entry and an exit point and is not a true watershed. This situation would correspond to the heavy green, purple, and blue lines in the inset of Figure 1. Each of these non-headwater water body units may consist of a large mainstem segment and a collection of many smaller tributaries that likely provide only a fraction of the flow in the mainstem. Water quality and uses within such a WBID may be quite varied.

This potential variation in water quality and uses within such a WBID becomes problematic when evaluating the effect that a discharge or activity might have on water quality, assessment of use support, and even designation of uses. The further removed from the headwaters a water body unit is, the more probable it is that the mainstem flow of water in and out of the unit is unlike that of the tributaries within the unit (e.g., WBID 001 in Figure 1). DEQ solved this problem for assessment purposes by using stream order (a measure of the number of tributaries upstream and thus size of a stream) to break water body units into smaller subunits for assessment; these are called assessment units. Small tributaries to larger streams, which can be very different in character but lumped in the same water body unit, are therefore separated into separate assessment units. This allows DEQ to do a better job of refining its assessment of water quality and uses.

WBID 001 in Figure 1 has two very different assessment units, the 001_07 assessment unit (which is a portion of the 7th-order main stem represented by the heavy blue line) and the 001_02 assessment unit (represented by the collection of light blue lines indicating 1st- and 2nd-order tributaries to the main stem). Both assessment units are part of the 001 WBID and therefore have the same designated beneficial uses, but are assessed using different methodologies since it is unlikely that 1st- and 2nd-order tributaries would have the same characteristics as the 7th order Main Salmon River. The same can be seen with the tributaries to WBID 002 (green lines) and WBID 029 (purple).

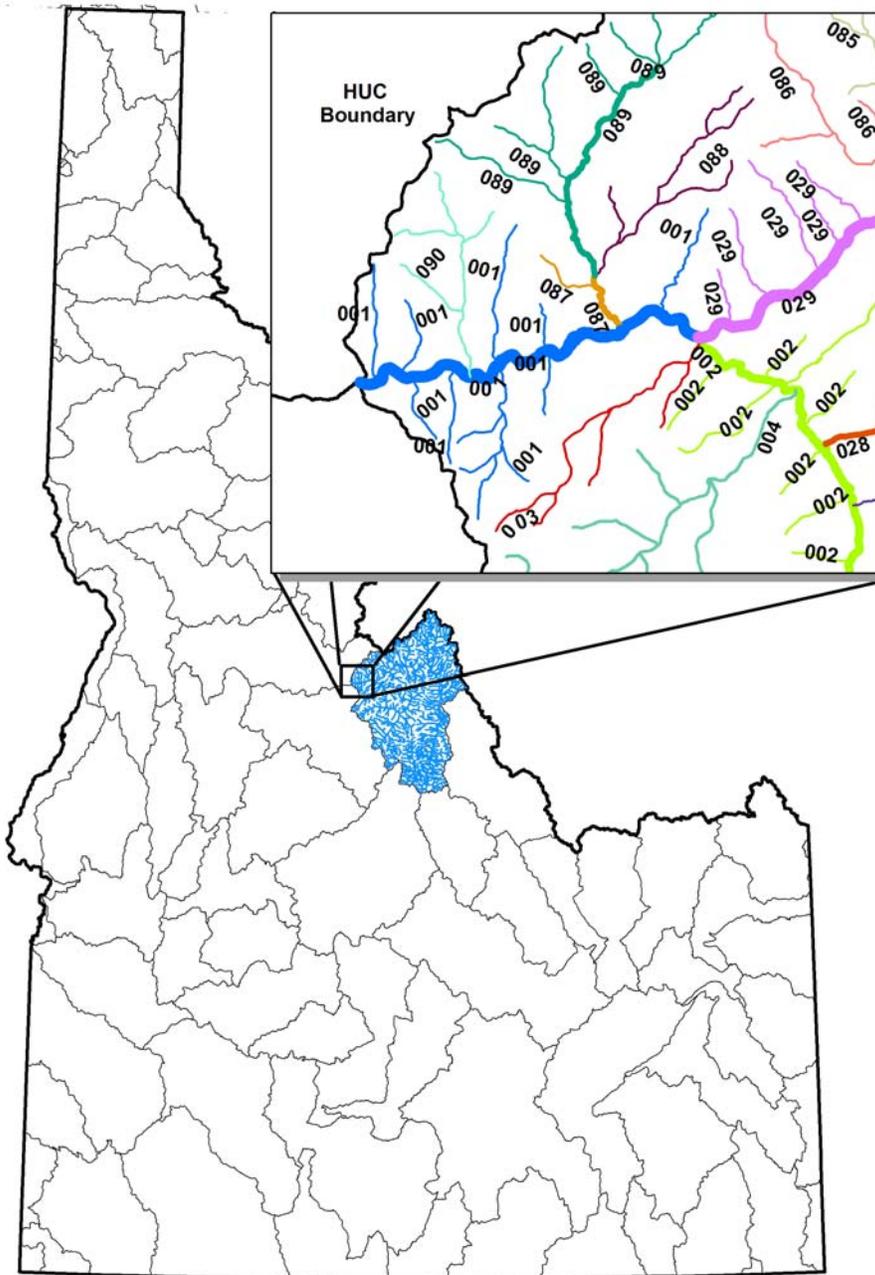


Figure 1. Map detailing WBIDs for HUC 17060203 Middle Salmon-Panther Subbasin. Inset shows how the individual waters are associated with a WBID number. WBIDs are color-coded to show the different stream segments that are part of that WBID. The size of the line corresponds to the stream order (thinner lines equate to 1st and 2nd order streams and thicker lines equate to larger order streams).

While better than undivided water body units (WBIDs), assessment units (AUs) are still not perfect since many separate 1st- and 2nd-order tributaries, draining different areas, may still be lumped together in one AU. Although these small tributaries may be in the same water body unit and thus likely to be similar in water quality condition, they may also experience different activities and discharges that differentially alter their quality. Consider again the situation represented by WBID 001 in Figure 1, and imagine that tributaries on one side of the river drain a largely roadless area with few human impacts while tributaries on the other side have impacts from recreational use (campgrounds) and timber harvest.

DEQ could subdivide AUs further but the basic problem is that we cannot afford to measure everywhere. Instead, we use data collected from specific sampling sites to infer water quality throughout an AU. It is possible that there are differences in activities and discharges within an AU and thus all water within the AU may not be of the same quality as found at the sampled sites. Even in larger streams, the location of a sampling site could reflect better or poorer water quality than the bulk of the assessment unit. We will come back to this in section 2.5 Spatial Extent of Tier 2 Protection.

2.2 Assignment of Tier 2 Protection

Tier 2 antidegradation classification of a water body is based on the most recent federally approved Integrated Report, its supporting data, and the beneficial uses of the receiving water body. Furthermore, to ensure that the level of protection reflects the water quality of a water body that would be affected by a proposed activity or discharge, DEQ may also consider the representativeness of the available data.

Use of Integrated Report

When a proposed project requires an antidegradation review, DEQ will use the most recent EPA-approved version of the Integrated Report to determine which category the water body of interest is in. If necessary, DEQ will examine the Integrated Report supporting data and more recent data that may be available at the time. This evaluation is summarized in Figure 2 and Table 2.

Comment [dw5]: How will it be handled if the "more recent data" shows an impairment not reflected in the federally approved IR?

Water Bodies Supporting Assessed Beneficial Uses

All AUs considered to be fully supporting all their applicable uses (i.e., those in category 1 of the Integrated Report) will be given Tier 2 protection for all applicable uses. All AUs found to be fully supporting their assessed applicable uses (i.e., those in category 2 of the Integrated Report) will be given Tier 2 protection for all applicable uses.

Water Bodies with Un-assessed Uses

Many waters in Idaho have yet to be assessed due to lack of suitable data at the time assessments were performed for the latest Integrated Report. Assessment units with

insufficient data to make an assessment (i.e., those in category 3 of the Integrated Report) will be evaluated on a case-by-case basis as to whether they are high quality and need to be given Tier 2 protection. This evaluation will not occur until DEQ receives an application for a ~~new or reissued permit, with a proposed increase in the discharge of pollutants, or for a new~~ for a proposed discharge or activity that would degrade water quality to the point of being adverse to the applicable use.

All relevant information available when the activity or discharge is proposed will be used, as will new information that may be generated during the process. ~~If no new information has become available since the latest Integrated Report, DEQ will request the permit/license applicant to gather the information needed to determine the appropriate tier of antidegradation protection. The determination of appropriate level of protection will be based on information available when the activity or discharge is proposed unless the applicant agrees to gather information to help with this determination.. If the applicant would rather forgo data collection and agrees that the affected water is high quality (and thus warrants Tier 2 protection), DEQ will proceed on that agreement.~~

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Water Bodies Not Fully Supporting Beneficial Uses or Meeting all Criteria

DEQ assesses aquatic life and recreation uses differently because there are differences in water quality requirements in the criteria as well as the pollutants. However, even though uses are assessed separately, if one use is not supported the water body is considered not fully supporting applicable beneficial uses and for the purposes of the Integrated Report is placed in Category 4 or 5.

While it may be appropriate to identify a water body as not fully supporting if it fails to meet even just one criterion, it is not considered to be consistent with antidegradation policy to dismiss protection from degradation that would adversely affect another use that is fully supported. For assessment units ~~identified as not fully supporting at least one~~ use, DEQ will evaluate aquatic life and recreational uses separately, as and if applicable, for antidegradation purposes. Because applicable uses will be examined separately and there are different data requirements for evaluating each use (e.g., bioassessment data is not used in evaluating recreation uses and *Escherichia coli* data is not used in evaluating aquatic life uses), it is possible that a water body may warrant Tier 2 protection for recreation and Tier 1 for aquatic life, or vice-versa. This mixed, by-use assignment of antidegradation tiers is intended and will be resolved during the review of a proposed activity or discharge and its expected effect on water quality and the associated applicable use(s) as described in section 3. Sections 2.3 and 2.4 describe how DEQ will evaluate potential adverse degradation of aquatic life and recreation beneficial uses, respectively.

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How the Integrated Report and antidegradation implementation interrelate is summarized in Table 2.

Table 2. Translation of Integrated Report Categories to Tiers of Antidegradation Protection

Integrated Report Category	Antidegradation Protection Tier
1	Tier 2 for all <u>applicable</u> uses
2	Tier 2 for all <u>applicable</u> uses
3	Tier 1 or 2, as data shows at time of antidegradation review
4a	Tier 1 for aquatic life use unless cause for listing is dissolved oxygen, pH, nutrients, sediment or temperature and bioassessment shows support of aquatic life use. Tier 1 for recreation use if recreational use is not fully supported or unassessed
4b	Same as 4a above
4c	Tier 1 for recreation and aquatic life uses. AUs in category 4c are listed for causes other than those specified in the rule and therefore do not allow for biological data to provide addition of Tier 2 protection.
5	Same as 4a above

Comment [alp6]: We would like DEQ to explain what these "causes other than those specified in the rule" are.

There are many causes for listing used in the Integrated Report. When determining the antidegradation tier of protection the cause identified in the Integrated Report may or may not line up exactly with one or more of the five listed parameters in the rule. Listing causes that fall in the category of nutrients include total phosphorus, total nitrogen, total Kjeldahl nitrogen, nitrogen-nitrate, nitrite/nitrate and nutrient eutrophication. Listing causes that fall in the category of sediment include sedimentation/siltation, solids (suspended bedload), and total suspended solids (TSS). pH may be listed as either pH high or pH, low. Temperature and dissolved oxygen do not have multiple listing causes associated with them.

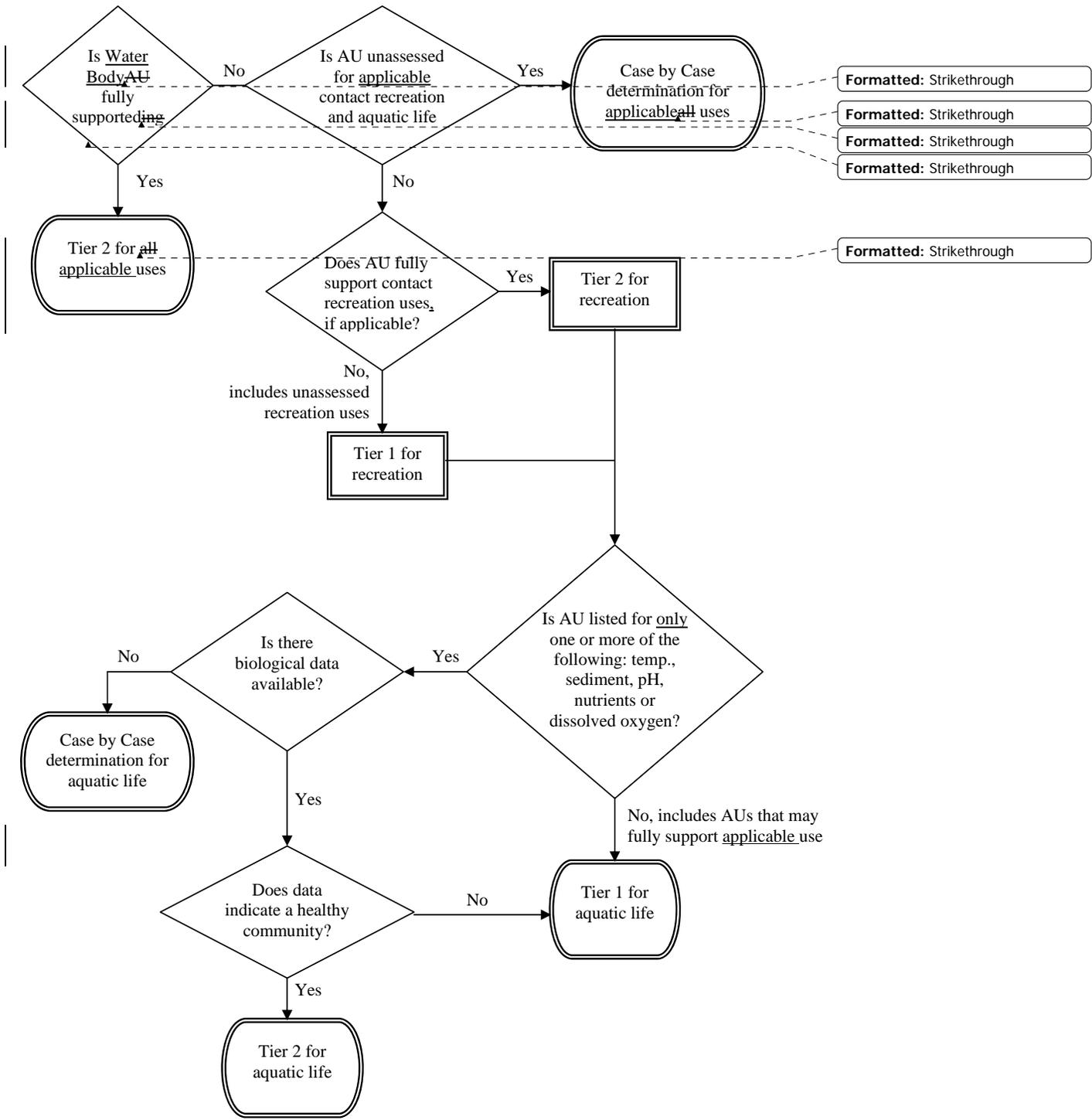


Figure 2. Flow chart for determining whether Tier 1 or Tier 2 protection is warranted.

2.3 Aquatic Life Beneficial Uses

An assessment unit may be identified as either supporting or not supporting its applicable aquatic life beneficial use(s) based upon one or more of the following data types:

- chemical (i.e. dissolved oxygen, pH, or other applicable pollutant concentrations),
- physical (i.e. turbidity and temperature or other applicable measures), and/or
- biological (biological assessment data [see Box 2.2.1]).

Biological data provides by far the major source of information for DEQ's assessment of aquatic life use support, although there are many instances where chemical or physical data may also be available or be the only data available. Chemical and physical data are relevant and easily compared to water quality criteria in the WQS, and they may, and often do in the case of temperature, indicate a problem when the biological data do not that a problem truly exists.

This conflict in signals among the various data types must be resolved in some manner. For purposes of the Integrated Report, DEQ is required to implement the federal "independent applicability" policy³, which means a water must be listed if either the biology indicates lack of use support or any one of the associated water quality criteria are not met. Independent applicability means a water body can be assessed for its support of aquatic life without biological data.

It is somewhat counterintuitive that a single chemical or physical measure of water quality, such as a point-in-time measurement of temperature or copper concentration, can overrule a more integrative measure such as a multi-index biological assessment. However, this conservative approach is justified by EPA because chemical and physical measures are considered leading indicators of problems that may not yet have shown up in the biology. While it may be appropriate to queue up a TMDL to address a failure to meet one criterion, this does mean there are many water bodies in Idaho that are

³ While independent applicability originated with NPDES permitting, it has long been applied by EPA to reporting for CWA section 303(d) purposes.

Box 2.2.1 Biological Assessment

A biological assessment is an integration of biological data that is reflective of exposure of the sampled populations, including those exposed to pollution, over time. Thus, a biological assessment is a holistic measure of a water body's condition.

Much of the data available for biological assessment is data DEQ or other entities collect on macroinvertebrate and fish communities and on habitat quality, via its Beneficial Use Reconnaissance Program (BURP). BURP data is reduced to various multi-metric index scores. Individual index scores are then combined for each site and, if available, scores for multiple sites may be combined to arrive at a single score for each assessment unit, as described in WBAG II.

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Comment [alp7]: This paragraph raises a fundamental issue; is DEQ using "parameters and associated criteria/benchmarks" that are not defined in the rules to determine whether or not WQS or applicable beneficial uses are being met?

Comment [alp8]: Some further explanation of what this sentence means and the implications would be helpful.

biologically healthy and would be considered high quality by most Idahoans, yet fail to meet one or two criteria. A prime example of this is the Lochsa River in north central Idaho, a high quality stream where temperature criteria set to protect cold water aquatic life are occasionally exceeded.

Comment [alp9]: As discussed in the antidegradation rulemaking, situations such as temperature in the Lochsa River raise the question as to whether the criteria are set appropriately. If this temperature is due to natural conditions and biological assessment data show a healthy aquatic system, then likely the temperature criteria is inappropriate.

In order to be similarly conservative in antidegradation and not discount the high quality of streams such as the Lochsa River, Idaho’s antidegradation rule calls for basing assignment of Tier 2 protection on biological data when the listing cause is only dissolved oxygen, pH, nutrients, sediment or temperature, thus favoring biological data for these five chemical and physical measures of water quality.

The Integrated Report and its available supporting data, absent valid data collected by a third party, will be the primary determinant of whether or not a segment of water is high quality. For applicable aquatic life uses, if a water body is listed for only one or more of the causes outlined in the rule, but the bioassessment data indicates a healthy and balanced biological community the water body will receive Tier 2 protection. If biological data is lacking or insufficient, other relevant data will be considered to make an antidegradation tier assignment for each case that arises from a proposal for an activity or discharge with degradation potential.

Use of Biological Data

When a water body is not fully supporting its applicable aquatic life use(s) due only to dissolved oxygen, pH, nutrients, sediment, and/or temperature, DEQ will examine the underlying bioassessment data. In short, if the biological and aquatic habitat data indicate a healthy aquatic community, then the water body will be provided Tier 2 antidegradation protection. In this evaluation, DEQ will need to consider the representativeness of the data for the area that would be affected by a proposed discharge or activity (see Section 2.5 for further discussion). Table 3 lists the biological assessment data that DEQ may have available.

Table 3. Multimetric indices currently used by DEQ in assessing aquatic life use support in streams and rivers

Wadeable Streams	Rivers
Stream Macroinvertebrate Index (SMI)	River Macroinvertebrate Index (RMI)
Stream Fish Index (SFI)	River Fish Index (RFI)
Stream Periphyton Index (SPI)	River Diatom Index (RDI)
Stream Habitat Index (SHI)	River Physicochemical Index (RPI)

In order to use these multimetric indices for determining whether Tier 2 antidegradation protection is appropriate, scores for at least two indices must be available. DEQ will follow the protocols outlined in Idaho’s Water Body Assessment Guidance – Second Edition (WBAG II) (Grafe and others 2002) for evaluating the indices. If the average of the indices is greater than or equal to 2, then DEQ will consider the water body to be of high quality and will apply the Tier 2 level of protection, unless actual monitoring data

for the specific location is available or generated in support of a permit action. If the average of the indices is less than 2, then the water body will not be considered high quality, and Tier 1 protection will apply.

There may be instances where biological data is available but is not compatible with DEQ's biological assessment protocols (not BURP-compatible). This is particularly the case for very large rivers and reservoirs. In these instances, biological data collected by sources outside of DEQ (such as the USGS or Idaho Power, to name a few) is available, but the data may not have been collected in a manner that allows us to reduce it to the multimetric indices used by DEQ. This data can be useful; however, it will have to be evaluated on a case-by-case basis.

On the other hand, there may be instances for which no biological data is available. ~~The determination of appropriate level of protection will be based on information available when the activity or discharge is proposed unless the applicant agrees to gather information to help with this determination. In these instances, DEQ will request the permit/license applicant to gather the information needed to determine the appropriate tier of antidegradation protection. If the applicant would rather forgo data collection and agrees the water body is high quality (and thus warrants Tier 2 protection), DEQ will proceed on that agreement.~~

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2.4 Recreation Beneficial Uses

The assessment of applicable recreational use support is typically based on traditional measures of water quality which can be compared to numeric criteria including bacteria criteria and toxics criteria. The most common measure of water quality used to assess support of primary contact recreation uses is the amount of bacteria indicative of human waste contamination. However the fact of natural sources of such bacteria cannot be disregarded. Measured bacteria such as *Escherichia coli* (*E. coli*) indicate the likely presence of pathogens that could affect the health of swimmers and others who may ingest the water while conducting primary contact recreation~~recreating on or in it.~~

BOX 2.2.2 Recreational Toxics Criteria

Toxics criteria applicable to protection of recreational use are mostly concentrations in water and are derived from the toxin's tendency to bioaccumulate in fish tissue. An exception is mercury, whose criterion is a concentration in fish flesh that provides a more direct measure of human exposure, and bypasses the consideration of bioaccumulation from water in determining the risk.

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Data on chemical concentrations of pollutants for recreation is also used to evaluate support of recreational uses such as fishing. While fishing is supported by a healthy reproducing population of fish and their food organisms, consumption of those fish requires they not have levels of contaminants that would make them unhealthy to eat at

specific levels of consumption, calculated conservatively, for select parameters and fish species. Because some fish that are caught are eaten, there are toxics criteria (see Box 2.2.2) for protection of human health that apply to waters designated for recreational use. In addition, where catch-and-release conditions exists, such criteria should not apply. Guidance cannot be developed to protect illegal uses. Recreational toxics criteria are different from those for the protection of aquatic life. The relevant pollutants are different and the criteria values for the same pollutant can differ greatly.

Use of Available Data

Most often if a water body is found to be not fully supporting its applicable primary and/or secondary contact recreation beneficial uses, there will be accompanying water quality data indicating a violation of the water quality criteria (most notably *E. coli* concentrations may be elevated). Further, data must be screened to assure it was collected during the recreational use season. Unlike aquatic life uses, DEQ does not have any other assessment methodologies for evaluating the support of recreational beneficial uses. Therefore, when there is data for bacteria, toxic pollutants, or narrative criteria that indicate recreational uses are not fully supported, Tier 2 antidegradation will not be applicable. This will generally be the case when a water body has been determined to not support applicable recreational uses.

The use that is more sensitive depends on the toxin – humans are more sensitive to arsenic, where applicable to drinking water standards derived from specific consumption scenarios, while fish and many other aquatic organisms are more sensitive to zinc. Since the CWA requires all waters of the U.S. to support some form of both recreation and aquatic life uses (unless it is shown such uses are unattainable), and many water bodies have other designated uses as well, multiple criteria apply. The result of these multiple uses and overlapping criteria is that the use of a water body with the most restrictive criteria determines the required water quality, unless the reality of bioassessments or actual exposures dictate otherwise.

BOX 2.2.3 Examples of Water Body Classification for Antidegradation Protection

This example will focus on several assessment units. AU 17060303CL001_05 is the Lochsa River from Deadman Creek to the mouth. This water body is in category 5 of the Integrated Report since it is not fully supporting its aquatic life beneficial use. However, the only identified cause for listing is temperature and there is no biological data available. This water body would be assigned an antidegradation Tier of protection based on a case specific evaluation. Although this water body may be listed for temperature, local knowledge suggests that this river is considered one of the best trout fisheries in the state.

2.5 Spatial Extent of Tier 2 Protection

Because water quality within a water body unit can vary considerably, DEQ will evaluate and assign the appropriate level of antidegradation protection to the smallest subdivision of a water body unit that makes sense in terms of representativeness of data, but at least as small as an assessment unit (AU).

While DEQ does its best to avoid sampling sites that are not

representative of an AU, occasionally an AU may have a site or sites that are not completely representative of the unit as a whole due to the sheer number of smaller waters in the AU, access constraints, and some monitoring strategies based on probability design. For many AUs, it is also possible that there are multiple sampling sites to represent a single unit. In such cases, the sampling results are unlikely to be exactly the same among sites, possibly due to sampling in different years, and the results may actually be in conflict with regard to determination of support status.

In situations where there are multiple sampling sites, DEQ will evaluate whether these sites are representative of the water body that will be affected by a proposed discharge or activity. If all the data is determined to be representative, then DEQ will follow the procedures established in WBAG II for evaluating the information. WBAG II directs the assessor to use the lowest multi-index score when there are only two sampling sites. If data from more than two sampling sites is available, then the assessor is directed to average the multi-index scores. See Appendix B for examples of this.

If some or all of the sampling sites are not representative of the water body that would be affected by the discharge or activity, then DEQ may opt to use none of the data or only use data from those sampling sites that are representative. This means that, for antidegradation purposes, DEQ may further divide an AU where that makes sense.

This may be the case where an AU consists of a collection of 1st- and 2nd-order tributaries and the activities and thus quality of water differ among the streams included in the AU. In this case, it makes sense to use only the data from the tributary that would be affected by an increased discharge or activity, or only sampled tributaries with comparable influences on water quality in the case of a new proposed discharge or activity. Another example may be a higher order stream with sampling sites upstream and downstream of an activity or discharge. In this case it makes sense to use only the nearest sampling site, particularly if doing so avoids consideration of the effect that intervening tributary influences have on water quality.

The guiding principle is to look at and evaluate the tier of protection appropriate for the water that could or would be affected by a proposed activity or discharge. If this is only a portion of the AU, then it makes sense to use only the data that is relevant to the affected water's condition.