



Overview of Tiered Aquatic Life Uses (TALU)

1. Background

The Tiered Aquatic Life Uses, or TALU, framework is needed to modernize Minnesota's Class 2 water quality standards (WQS) from a "one-size-fits-all" classification system to one that more accurately reflects the biological diversity of Minnesota's streams and rivers¹. Minnesota currently classifies most surface waters as Class 2, protecting those waters for aquatic life and recreational beneficial uses. Class 2 protections for Minnesota streams are subdivided into subclasses that include cold water (Class 2A) and warm water (Classes 2B and 2C) habitats. Under the existing rules, all streams within a subclass are assessed according to the same expectations for biology and physical structure (e.g., habitat) and are held to the same narrative and numeric standards for chemical and physical properties (e.g., dissolved oxygen, temperature).

The TALU framework retains the existing distinctions for cold and warm waters, but further classifies streams based on the biological condition that can be attained. Under a TALU framework, streams within a subclass are classified into Exceptional, General, or Modified Use tiers. Designation of these tiers is based on an assessment of a stream's biological condition and habitat quality. The Clean Water Act (CWA) and Minnesota law sanction the use of biological data to establish standards to protect designated aquatic life beneficial uses. The TALU framework of tiers is based on the biological condition that is attainable. Setting attainable goals for streams results in more effective and improved protection and restoration of Minnesota's waters.

The proposed tiered biological criteria recognize that individual streams have different potential for restoration and protection. Under a TALU framework, biological criteria serve two main purposes:

1. Determining the beneficial use of a stream
2. Determining whether the beneficial use is attained

In addition, the data collected to support a TALU framework provides information that can enhance other watershed protection tools such as water quality standards, stressor identification, Total Maximum Daily Load (TMDLs), watershed planning, and National Pollutant Discharge Elimination System (NPDES) permitting.

2. Benefits of the TALU Framework

Implementing a TALU framework will result in multiple benefits for the citizens of Minnesota. First, implementing the TALU framework will lead to improvements in stream quality that correspond to benefits for the citizens that fish, swim, boat, and enjoy the aesthetic quality of these aquatic resources statewide. Improved water quality will also create greater economic strength and add jobs by protecting and enhancing Minnesota's water-orientated tourism and recreation industry. In addition, property owners on or near streams could see a benefit in the form of increased property values. Counties, cities, and other local governments could benefit from such improvements through increased tax revenues. Other benefits of protecting and enhancing water quality include 1) natural filtration (e.g., nutrient and sediment retention), 2) protection of downstream water quality, 3) maintaining and improving the health of biological communities, 4) irrigation, 5) wildlife habitat, 6) ground water recharge, and 7) flood protection. Second, the improved accuracy of water quality assessments

¹ The proposed TALU framework applies only to flowing surface waters such as streams, rivers, and ditches. For the purposes of this document the term, "streams" includes all these types of waters.

will help ensure that watershed planning and watershed restoration/protection activities will be effective and efficient. This should result in cost savings to local government units. At a minimum, local governments will know that goals they are trying to achieve are attainable, helping to ensure that funds spent to reach those goals are spent well.

The TALU framework will achieve these benefits through the following:

Refine aquatic life beneficial use (Class 2) subcategories based on biological goals. Minnesota’s aquatic resources are diverse. The current “one-size-fits-all” classification system fails to recognize important differences that can result in less effective protection and restoration of these streams. The TALU framework establishes attainable and appropriate biological goals for protecting different types of aquatic life beneficial uses. It provides higher goals for streams with demonstrated exceptional biological quality, maintains current goals for streams that meet or should meet general goals, and sets attainable biological goals for streams modified by historical, human-induced legacy activities (e.g., maintaining channels for drainage).

Tiered aquatic life use options based on evaluation of default uses currently in Minnesota rule (7050.0470).

Current aquatic life use classification tier	Monitoring results	Attains designated use?	Options under new TALU-based approach
General	General Use attainment	Yes	Retain General Use classification because biological criteria demonstrate attainability.
General	General Use non-attainment	No	If habitat assessment indicates General Use is attainable, then retain General Use designation. OR If habitat is degraded due to 40CFR131[g] factors (e.g., hydrologic modifications that are not feasible to restore), change to Modified Use
General	Exceptional Use attainment	Yes	Designate Exceptional Use based on attainment of exceptional biological criteria for both fish and macroinvertebrate assemblages.

TALU refines the Class 2 aquatic life beneficial uses by adding Exceptional, General, and Modified Use tiers. Exceptional Use streams are those that support biological communities at or near natural conditions. These streams are designated when both fish and macroinvertebrates demonstrate attainment of the Exceptional Use biological goals. The General Use is equivalent to the current Class 2 goals and protects good or healthy aquatic communities. The Modified Use protects streams that have been physically altered through legal activities (e.g., ditching) that predate the November 28, 1975 existing use date in the Federal Water Quality regulations (40 CFR Part 131). Under the current “one-size-fits-all” classification system these streams would be determined to be impaired. The goals for biological assemblages in a Modified Use stream are consistent with streams that have reduced habitat but that are managed with appropriate best management practices (BMPs). The TALU framework promotes incremental improvement in resource quality since streams found to achieve a beneficial use are not allowed to degrade further, but are eligible to be upgraded by demonstrating, through the collection of monitoring data, that the higher use has been attained.

TALU Tier	Exceptional Use	General Use	Modified Use
Short definition	High quality waters with fish and invertebrate communities at or near undisturbed conditions	Waters with good fish and invertebrate communities that meet or should meet minimum goals	Waters with legally altered habitat that prevents fish and invertebrate communities from meeting minimum goals
Examples	 St. Croix	 Little Cedar River	 Judicial Ditch 7

Improve targeting of protection and restoration efforts for water resources. Refining biological goals through the TALU framework will result in greater accuracy in stream assessments and will lead to increased efficiency in protection and restoration efforts by:

1. Not using resources to attempt to restore streams beyond what is currently attainable, and
2. Maintaining high quality streams in their current state and preventing their degradation

Cities, counties, watershed organizations, and the MPCA can develop more effective restoration and protection strategies that are better targeted and more likely result in attainment of the beneficial use. This will not waste resources attempting to restore streams to a goal that cannot be currently achieved. For example, TALU's refined use tiers set attainable expectations for actively managed drainage ways so that resources are not spent to study and implement actions that conflict with legal maintenance of the drainage way. However, the Modified Use classification does not preclude or discourage restoration of a drainage way to a General Use when stakeholders support such actions or which future and innovative technologies may enable. Wastewater dischargers to Modified Use streams may see cost savings when a TMDL is not needed for Modified Use streams when chemical standards and the biological criteria are met. In addition, when Modified Use biological criteria are not met, the restoration objectives will be feasible. Conversely, cities, counties, watershed organizations, and the MPCA will be able to proactively protect Exceptional Use streams and the benefits they provide. It is generally less costly to protect an aquatic resource than it is to restore.

Improve description and documentation of biocriteria in rule. The MPCA currently uses biological criteria to interpret the narrative biological standards in rule. These narrative standards, which describe biological conditions that are not allowed (e.g., "the species composition shall not be altered materially"), represent nonattainment of the Class 2 beneficial use. Although the current rule describes how to measure the health of biological communities, it does not provide numeric values for determining whether a stream meets the biological goals. The TALU amendments will bring biological criteria directly into rule as numeric standards. These numeric biological criteria will be stratified by stream type and TALU tier to tailor the biological goals to different stream types (e.g., a northern large river versus a southern headwater stream) and different attainable conditions or tiers. By placing these values directly in rule, TALU will make the biological goals for Minnesota's streams transparent, which will provide greater certainty to stakeholders and regulated parties. A table describing how TALU will stratify streams is provided on the webpage for this rule at <http://www.pca.state.mn.us/zihy1082>. For clarity, consistency in application, and transparency, the TALU amendments include descriptions of each tiered aquatic life use and link the biological criteria to narrative goals. The amendments also provide an explanation of the specific scientific methods used to measure biological condition and derive the biological criteria. This includes documentation of the development of Indices of Biological Integrity (IBI) and the Biological Condition Gradient (BCG), which together support Minnesota's biological condition determinations and the biological criteria.

3. Potential costs to stakeholders

There is the potential for costs to stakeholders that result from the implementation of a TALU framework, but these impacts are predicted to be minimal and site specific. In most cases the pollution controls already required by permits are and will continue to be sufficient to protect aquatic life use goals. It is important to note that the TALU framework does not create new authorities to regulate entities that are currently not permitted.

General Use tier

Dischargers and sources of non-point pollution impacting streams classified as General Use will not be affected by the TALU framework, because Minnesota's current framework is equivalent to the General Use. As a result, the water quality standards applied are the same for these streams with or without the implementation of the TALU framework. Most Class 2 streams in Minnesota will continue to be classified as General Use, and new or expanded discharges to these streams will continue to be held to the existing Class 2 water quality standards including water chemistry standards.

Exceptional Use tier

Exceptional Use streams are designated based on the demonstrated attainment of Exceptional Use goals for both fish and macroinvertebrates. The MPCA expects that the cost for maintaining these conditions should be minimal because: 1) most Exceptional Use streams are in areas with little human activity and 2) in most cases the pollution controls already required will continue to be sufficient to protect the Exceptional Use. In some cases additional controls will be needed for certain pollutants, but these will be site specific and will not result in automatic additional pollution controls.

Exceptional Use scenarios

New discharge to an Exceptional Use stream: *A developer in the Lake Superior Basin proposes a development that includes a new mechanical wastewater treatment plant. The developer applies for a permit to discharge to a stream classified as Exceptional Use.*

The Lake Superior Basin contains many streams that will meet Exceptional Use criteria because of the existing high quality of those waters. A nondegradation review is already required for a proposed new or expanded discharge to a stream with existing high water quality (Minn. R. pt. 7050.0180). Under the current classification scheme, these streams are classified as General Use for aquatic life uses. A nondegradation review is required for a stream with high water quality whether it is classified now as General Use (without the TALU framework) or in the future as Exceptional Use (with the TALU framework). (Minnesota's nondegradation rules restrict or prohibit new or expanded discharges to streams that are designated as Outstanding Resource Value Waters (ORVWs) (Minn. R. pt. 7050.0180), regardless of how the receiving stream is classified under the TALU framework. For purposes of this scenario, the Exceptional Use receiving stream will not be considered an ORVW.)

The Exceptional Use classification does not prohibit development but will, by identifying the high quality and value of Exceptional Use streams, ensure that actions are taken to preserve that high level of water quality. In this scenario, the applicable rules require nondegradation review to determine appropriate discharge permit limits. Because the quality of the receiving stream is Exceptional Use, the nondegradation review must address the effect of the discharge on those high quality conditions.

After the nondegradation review is completed, permit conditions may be more stringent than the conditions that would be applied if the stream were not classified as Exceptional Use. The specific pollutants that may require additional treatment will be site specific. Identification of any pollutants that need to be maintained below current WQS would be based on an assessment of concentrations of these pollutants from other similar Exceptional Use streams. A discharger may have facility design options, such as selecting different discharge locations, to avoid impacts to the Exceptional Use stream.

Existing discharge to an Exceptional Use stream: *A small city has a stabilization pond system that periodically discharges to a stream classified as Exceptional Use.*

Classification of a stream as Exceptional Use is unlikely to result in costs to an existing discharger because the classification of Exceptional Use will be based on the current attainment of that use. A discharger to a stream that is already meeting permit limits and requirements that protect the Exceptional Use will not be required to meet more stringent limits and will not incur additional costs.

A scenario where TALU designation of an Exceptional Use could increase costs to an existing discharger is when the current loading to the Exceptional Use stream is well below the permitted limits and this loading is predicted to increase to the full permitted loading capacity. In this case, the current discharge is maintaining the Exceptional Use, but future loading may put the Exceptional Use at risk. Costs could be incurred by the MPCA to review the constituents of the effluent to determine if the predicted increase in those pollutants could adversely impact the Exceptional Use. Although this is an unlikely scenario since the original permit review would almost certainly have considered the effect of discharges at full permit capacity, it is possible that the classification of Exceptional Use will introduce factors that were not part of the original permit review process. Under this scenario, the discharger could incur additional treatment costs in the future if the MPCA determines additional treatment is needed to address the increase in pollutants that would impair the Exceptional Use.

Non-point discharge to an Exceptional Use stream: *A logging company intends to harvest near a stream classified as Exceptional Use.*

Some of the discharges associated with logging operations may require a permit, but this scenario assumes that only non-point discharges will result from the logging activities. The classification of a stream as an Exceptional Use will not require additional permitting or automatically impose additional restrictions, but protection of the exceptional quality must be maintained which may in some cases require enhanced BMP guidelines. Without the TALU framework, the high quality of such a stream is less likely to be identified and therefore more likely to be at risk of degradation. These authorities will work with the company to develop voluntary BMPs (e.g., stream buffers, minimizing streams crossings, etc.) to protect the quality of the Exceptional Use stream.

Modified Use tier

The MPCA expects that in general, the Modified Use tier will not result in any increased cost to stakeholders and will, in many cases, result in a benefit to various entities associated with the protection and restoration of Modified Use streams. Before discussing the scenarios that might apply, a few points need to be made regarding the Modified Use tier.

First, dischargers to streams that are classified as Modified Use are still held to the chemical water quality standards that apply to Class 2 waters and are held to their permit conditions. Nothing in the classification to Modified Use will change the water quality standards that apply or change the existing permit conditions.

Second, altered streams cannot be classified as Modified Use without going through rulemaking. The process of classifying a stream as Modified Use requires a thorough analysis known as a Use Attainability Analysis (UAA). Modified Use determinations are supported by an analysis of the biological community, habitat, and other supporting evidence and are publicly noticed through the full rulemaking process. The biology must be found to be impaired due to habitat limitations resulting from a legal drainage activity that took place prior to November 28, 1975. Streams cannot be classified to Modified use simply because they do not meet aquatic life goals for General Use streams. For example, a ditch may have habitat sufficient to support a General Use, but chemical stressors are limiting the biological community. In addition, a ditch that attains the General Use biological criteria would not be eligible for a Modified Use. Modified Use streams will also be held to the current chemical standards and a lower biological goal. As a result some Modified Use streams will still be impaired for nonattainment of chemical and/or biological water quality standards and will require restoration.

Modified Use scenarios

New discharge to a Modified Use stream: *A brewery applies for a permit to discharge to a ditch classified as Modified Use.*

The permit review process for a new discharge to a Modified Use stream would be similar to the current process for a discharge to any current Class 2 stream. Permit conditions and loading rates would be established to protect existing water quality standards, the conditions that exist in the receiving stream and to protect

downstream uses. In addition to the permit requirements, a nondegradation review would be required. The costs of the permit review and nondegradation review would be incurred regardless of TALU classification. However, if Modified Use biological criteria are met, then it would not be impaired. As a result, the discharger may realize a savings (relative to if the ditch was an impaired General Use stream in the absence of a TALU framework) by not having to demonstrate that their discharge will contribute to an existing impairment. In addition, the Modified Use will set a realistic expectation for these drainage-impacted systems and dischargers could incur cost savings by not having to comply with unreasonable protection goals.

Existing discharge to a Modified Use stream: *A small municipality currently discharges to a ditch classified as Modified Use.*

For a stream to be considered for a Modified Use designation, it must not be able to achieve a General Use designation. Therefore, under existing Class 2 biological criteria all Modified Use streams, by definition, would be considered impaired. Without a Modified Use option, the municipality, as a discharger to an impaired stream, could be a partner in a TMDL that would incur expenses to implement design and discharge modifications needed to return the ditch to Class 2 water quality standards.

Classifying a ditch as a Modified Use recognizes that poor habitat resulting from ditch maintenance is currently preventing the ditch from being restored to General Use status. A ditch classified as a Modified Use stream that meets the Modified Use biological criteria may eliminate the need for the municipality to participate in a TMDL. This will result in savings for the municipality and for the water management authorities/organizations that would not need to be involved in the development and implementation of a TMDL. Note however that streams designated as Modified Use can also be impaired if the chemical standards and/or Modified Use biological criteria are not met. In those cases, designation as a Modified Use does not preclude the possibility of a TMDL and the responsibility to maintain conditions that support at least a Modified Use.

Non-point source discharge to a Modified Use stream: *Farmland drains to a ditch classified as Modified Use.*

Classification of a ditch as Modified Use does not impose any additional conditions on non-point discharges and no direct costs to the source of the discharge will be incurred as a result of TALU classification. However, TALU will more realistically classify the ditch according to its actual biological potential, which will allow for more effective use of limited restoration or protection resources. The biological criteria for Modified Use streams were established using drainage ways with appropriate BMPs. For example, these streams have sufficient riparian buffers (as prescribed by the Minnesota Buffer Initiative) and appropriate conservation measures on the landscape to reduce transport of nutrients and sediment to the stream (e.g., reduced tillage, wetlands, controlled drainage). Therefore, most ditches managed in this manner are able to meet these goals.

In some cases, ditches meet the biological criteria for the General Use and will be designated as General Use. Some stakeholders may view this as increasing the goals for these waters because of the misconception that ditches are not currently classified. Most of these ditches are currently classified as Class 2B (i.e., General Use) so with or without the TALU framework these ditches would have the same goals. Applying the TALU framework allows channelized streams to be more precisely classified with some channelized streams potentially falling into each of the three TALU classes. In the case of a stream that meets the General Use goals, voluntary BMPs may be recommended through WRAPS to protect the system, but would not be imposed through regulation.

Contact information

We are interested in receiving feedback about this proposed rule change before the formal public comment period.

Contact Will Bouchard, Research Scientist, at 651-757-2333 or 800-657-3864, or email him at Will.Bouchard@state.mn.us.

For more information, visit <http://www.pca.state.mn.us/zihy1082> or www.pca.state.mn.us