Written Comments Submitted During the February 16, 2017 Public Hearing

MINNESOTA
TROUT UNLIMITED

John P. Lenczewski, Executive Director
Minnesota Trout Unlimited
PO Box 845
Chanhassen, MN 55317
612.670.1629
jlenczewski@comcast.net

February 16, 2017

Will Bouchard
MPCA, Environmental Analysis and Outcomes Division
520 Lafayette Road North, Saint Paul, MN 55155-4194
talurulemaking.pca@state.mn.us

Hand delivered

Re: Proposed Amendments to Minnesota Rules, chapters 7050 and 7052, relating to Tiered Aquatic Life Uses (TALU) and modification of Class 2 beneficial use designations.

Dear Mr. Bouchard:

Thank you for the opportunity to present further comments concerning the planned amendments to Minnesota Rules Chapter 7050 and 7052 referenced above. These comments supplement our comments of February 2, 2017.

I want to begin by again applauding your efforts to better protect Minnesota waters. We strongly support the creation of the Exceptional Use category for coldwater (2A) streams and look forward to many more streams being given the heightened protections of this category in the future.

A. Tables proposed to replace current 7050.0470 listings need changes to be equally useable.

The tables proposed to replace the existing listings of 2A waters need several improvements before they can be considered an acceptable substitute for the current listings in Minnesota Rules 7050.0470. The MPCA proposes to remove the listings of individual streams in Rule 7050.0470 and instead incorporate, by reference, tables found on the MPCA's website. While we agree that the tables provide additional information beyond that found in the current rule, they unfortunately drop essential information used by landowners, local governments and resource users. The proposed tables will actually make it harder for the public to determine the classification of a given stream segment. Landowners, local governments and resource users are familiar with, and for decades have used, township, range, and section data to pinpoint these streams. Other state rules use the TRS system, most notably DNR rules, as do the systems for tracking protection, restoration and enhancement work done with several state dedicated funds. Removal of the TRS information is unjustified and unreasonable. This is especially true where MPCA proposes to carve up streams into many smaller assessment units. Cross references to adjacent segments (upstream, downstream and any tributaries) are warranted and reasonable in light of

this artificial carving up of interconnected riverine systems. The data/map tool on the MPCA website does not work well and the public will find it of limited use in many instances.

For this reason the tables themselves should be modified to include more useable information. At a minimum, columns should be added to the tables which include the following information:

- all townships, ranges and sections through which the stream flows;
- the county or counties in which it is located;
- the AUIDs of the immediately adjacent segments' (upstream, downstream and all tributaries);
- the aquatic life use designations (2A, 2B, etc.) of these adjacent segments.

B. Process for changing aquatic life use designations must include stakeholders early on.

The Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) fails to clearly explain that in addition to use-support determinations, the agency process can also involve aquatic life use designation changes. Our specific concern is that changes from 2A to 2B can be made without any, or any meaningful, input by affected stakeholders. The Watershed Assessment Team (WAT) includes no stakeholders. There is no guarantee that the Professional Judgment Group (PJG) will include an adequate representation of stakeholders, despite the fact that this group makes final use-support determinations and in the process may make use designation changes. It is possible for an individual MPCA regional watershed project manager to invite one or more stakeholders, such as users of coldwater fisheries, but this is not required or guaranteed.

This is important since the full suite of information available to the WAT and PJG is not made available during subsequent rulemaking on the use designation changes. If even it were, there is not usually adequate time during the rulemaking process to obtain and scrutinize it. Once a decision is made by the PJG, the natural human tendency is to dig in and defend the decision, despite doubts. The broad deference given the agency in rulemaking makes it very unlikely that an ALJ will overturn a PJG decision which overlooked some key information. Since the MPCA is under no obligation to offer information which undermines its decision, is unlikely the ALJ will even be aware of this contrary evidence.

Participation in the rulemaking process used to defend agency decisions to downgrade a stream from 2A to 2B uses designations is not equivalent to meaningful participation by stakeholders in the PJG decision-making process. The process outlined in the Guidance document must be changed to include resources users in the PJG whenever the downgrading of use designations from 2A to 2B are contemplated. Local government units are not equivalent to fisheries resource users. The MNDNR likewise is not equivalent to fisheries resources users. While DNR does a good job of looking out for anglers' interests, strained resource budgets can prevent them in from adequately representing coldwater anglers in all cases.

C. Concern that rushing to judgment in some cases.

We agree with the MPCA that the state presently lacks adequate resources to remove all the impairments already identified, let alone all new impairments which will be added in the coming years. We also agree that some stream segments in the State have been so drastically modified before 1975 that attainment of 2B uses is not reasonably achievable. However, we are concerned that in some cases pressures to remove more miles of impaired waters or avoid listing new waters may be causing a rush to judgment in favor of giving up on some stream segments, and downgrading them to Modified Use waters. The rationale for downgrading all the 2B segments to Modified Use is that past ditching activities straightened the stream channels and destroyed physical habitat. It is claimed that these straightened reaches can never be restored to decent habitat. However, we note that straightened streams will naturally begin to re-meander themselves. It is simple physics. Sometimes this may take decades, but there are countless examples where straightened streams gradually re-develop a more sinuous, meandering channel. There are even several good trout streams which had long stretches straightened but which have begun to re-meander themselves. These examples illustrate that merely because a stream segment has been ditched or straightened does not mean that the agency should summarily give up on it and lower its protection level.

D. Lowering Use Designations for 2B segments adjacent to 2A waters will harm the fisheries which the Clean Water Act is intended to protect.

Coldwater fisheries depend upon seasonal movement throughout interconnected habitat in a given watershed. A wild trout population must often move considerable distances in summer to reach thermal refuges. Sometimes a relative small area with spring flow can seasonally draw trout from long distances for a week or more when water temperatures elsewhere in the system would prove lethal. Afterwards trout disperse throughout the system for active feeding, reproduction, etc. Another area in the watershed may provide suitable spawning conditions which adult trout migrate to in cool November conditions. Small "young-of-year" trout quickly disperse in spring to populate available habitat throughout a system, even where the spawning habitat is limited and may appear "marginal" as year-round habitat. Young fish will move into tributaries and upstream reaches classified as 2B for feeding and growth until warm water drives them to move for a time to cooler reaches. Adult trout often migrate downstream each winter into segments currently designated as 2B waters. Here they feed on the minnow species which are more tolerant of warmer summer water temperatures. They will move back to cooler reaches in the heat of summer, but the ability to feed and grow in these downstream reaches for half the year is vital to ensuring the largest, most robust population. The larger the trout population and larger area of connected habitat it can utilize, the more likely it will be to survive and thrive over the years. In short, the segments of a stream system that are located upstream and immediately downstream of the core population area (2A reach) are often vital to long term persistence of the trout fishery in the 2A reach.

The entire point of the aquatic life use designations under the Clean Water Act and Minnesota law is to protect and maintain fisheries. This cannot be done sustainably unless <u>all</u> stream reaches which the overall fish population utilizes are protected. For this reason, we believe it is not reasonable or prudent for the MPCA to downgrade the use designation of any 2B segment that is immediately adjacent to 2A water, whether upstream, downstream or in a tributary to the 2A reaches. A strong case can be made

for extending the 2A use designation to all areas utilized by any life cycle phase of the trout population. However, for the present rulemaking it is sufficient that the MPCA not downgrade any of these segments to 2B Modified Use. We are still reviewing many of the 141 segments proposed, but have identified at least the following segments as problematic:

07020007-688 - County Ditch 106A "(Fort Ridgley Creek)" [a trout stream mislabeled as 2B];

07020007-525 - County Ditch 3, also known as Crow Creek;

07020007-664 - County Ditch 115;

07040004-585 - Trout Brook [located 2.4 miles below the 2A reach, but the intervening 2B reach had wild brook trout, thus it is reasonable to extend 2A there and potentially into this segment].

E. Process used to break up streams into small sections unreasonable if applied to use designations.

Many coldwater systems are broken up into many segments. This may be acceptable for managing surveys. However, it is unreasonable to do so for the purposes of lowering use designations and reducing protections for some reaches utilized by trout populations for part of the life cycle. For the reasons noted in the preceding section of our comments, protecting a fishery use requires protecting all potions of a watershed utilized by the population, even if only seasonally. This is especially true in systems where trout movements may have been interrupted for a period of years after 1975. If there was a break in habitat and/or population connectivity due to a perched culvert, physical and/or thermal barriers caused by the activities of an artificially large beaver population (caused by human alteration of forest composition) or other event, it would not take long to decimate a brook trout fishery. Preventing successful reproduction for 3 or 4 consecutive years would be enough to wipe out the fishery. The importance of habitat connectivity and disruptions to it cannot be overstated.

F. Impact of downgrading to Modified Use on watershed efforts influencing erosion and hydrology.

The rationale for changing use designations to 2B Modified Use is that the physical habitat has been severely altered and active restoration of the physical habitat is not realistic. It is suggested that we need not worry too much about this, since the chemical criteria will remain unchanged. However, we believe that the MPCA is overlooking the impact that the use designation changes are likely to have on efforts to reduce erosion and improve hydrology in areas adjacent to these segments. Downgrading the uses to Modified Uses sends a message that these stream segments are more or less lost causes and efforts to improve water quality, reduce erosion, etc. are best directed to other places. It is likely that BMPs will be less rigorous and financial assistance for landowners scarce in areas downgraded to Modified Use.

Our focus is on protecting, restoring and sustaining coldwater fisheries and the watersheds which sustain them. Thus our particular concern are those instances where the headwaters of trout streams, currently listed as 2B, are proposed to have their protections lowered by designating them as Modified Use waters. We believe such changes in use designation will result in less rigorous BMPs and less implementation on the ground. Increased water temperatures and sedimentation rates downstream

into 2A reaches will negatively impact coldwater fisheries. Changing any stream segment located upstream of a 2A water to a Modified Use designation will make it more difficult to meet water quality standards not just in the Modified Use reach, but in the 2A reach as well. Lowering use designation in these areas is thus counterproductive, and not reasonable.

It appears from the hearing exhibits on the website that the comments of one of our members, Mr. Dan Callahan, may not have made it through e mail servers on February 2. Consequently, I am attaching Mr. Callahan's comment and offering them as additional comments of MNTU. Thank you.

Thank you for your thoughtful consideration of our comments.

Sincerely,

John P. Lenczewski

Copy: Judge James R. Mortenson

Attachments (2)

February 2, 2017

To:

Will Bouchard
MPCA, Environmental Analysis and Outcomes Division
520 Lafayette Road North, Saint Paul, MN 55155-4194

From:

Dan Callahan
15715 Judicial Road
Burnsville, MN 55306
May.fly@comcast.net
(651) 238-2111

Re: Comments on the Matter of proposed revisions of Minnesota Rules, chapters 7050 and 7052, relating to Tiered Aquatic Life Uses (TALU) and modification of Class 2 beneficial use designations.

Mr. Brouchard,

The MPCA deserves credit for this huge undertaking of assessing all the waters of the state, and not just public waters.

I understand the advantages of giving higher protection for Class 2A waters, by elevating them to exceptional status.

I understand the need to put more of our financial and staff resources toward protecting the waters that most likely can be restored, and not requiring the same level of protection on ditched streams that have no possibility of habitat improvement.

I applaud the drive to get better monitoring results, and the drive to do more IBI analysis to better inform regulators and the public about a stream's water quality, beyond just the chemistry.

I understand the advantages of adding the TALU framework.

However, I disagree with many of the MPCA specific proposals in the rules to downgrade Class 2B waters to 2B-modified. The agency has used too broad a brush in eliminating stream segments worthy of preserving, and improving. Many are headwaters of game fish streams.

In most cases, the agency has failed to produce sufficient data to justify downgrading.

In other cases, I'm concerned the members of the public have not been given access to the data that was produced, weakening their review and input on MPCA decisions to downgrade many stream reaches.

In some cases, the scant data available online from the MPCA Lake and Stream Data website revealed that a dozen fish species were found, along with healthy invertebrates. I've included detailed comments in a spreadsheet that accompanies this email, named **Dan Callahan TALU Rules Comments – 2B Downgrading to 2B-Modified Unjustified**

I've only had time to cover streams in the Minnesota River – Mankato watershed, and some in Watonwan. I will review the others in the five day comment period following the public hearing I'm requesting for February 16, on the entire set of proposed rules.

These channelized stream segments should not be 'written off'. Channelized waterways often start meandering again, given enough time. There is evidence of this on the Vermillion River, which runs from Elko New Market to Hastings.

Many of these tributaries are used by fish during various stages of their life cycle. They go upstream into spring-fed "ditches" to escape warm summer temperatures. They run up channels to spawn in the fall. In winter, fish go downstream into deeper, slower, warmer, Class 2B waters, where there are more fish to eat.

The MPCA's publicly-available, online data shows that often, a several-mile-long stream segment is being downgraded based on just two visits to one spot, in one year. This does not produce "sufficient data", for decision making:

> https://www.pca.state.mn.us/sites/default/files/wq-rule4-12f.pdf **Pg.22:**
>
> **"The TALU framework is predicated on the development and implementation of an adequate biological monitoring and assessment program (S-21). The biological monitoring and assessment program must produce sufficient data to support a use attainability process, which is inherent to implementing TALUs. Biological monitoring and assessment is also needed to document the empirical relationships between 23 stressors that negatively impact living organisms (e.g., dissolved oxygen and sediment) and the biological condition of a water body."**

A search for AUID data on the MPCA's Lake and Stream Water Quality Data website, even when using advanced search, often returned this:

> **"You searched for water quality assessments. No data match your search criteria."**

When the AUID path didn't work, searching by name often failed. Try searching for:

> **07020007-701 / Minnesota River – Mankato / Judicial Ditch 10**

No AUID result. Searching by name came back with 22 results. The MPCA should at least list the county for these stream segments, so that the public can review the data and object if necessary.

If a search was successful, the scant data often was headlined:

"Overall Condition:
Not enough data is available on this waterbody to determine recreation, aquatic life, or fish consumption condition."

If the MPCA has concluded "not enough data is available" to determine a stream segment's condition, there cannot be enough data for the MPCA to determine its use attainability---or to justify its downgrading.

FORT RIDGELY CREEK, A TROUT STREAM.

Fort Ridgely Creek is a trout stream, though unlike others, it's not listed at Class 2A, and not on the official state Designated Trout Stream (DST) list.

Nonetheless, the state is marketing Fort Ridgely Creek's beneficial use, in the first paragraph of the Fort Ridgely State Park website:

> **"In the summer, hike or ride the trails on horseback, fish the stocked pond or trout stream..."**
> **http://www.dnr.state.mn.us/state_parks/fort_ridgely/index.html**

Fort Ridgely Creek also is featured in the MNDNR's Southern Minnesota Trout Angling Opportunities Guide on Map 28.

A blue highlight marks Fort Ridgely Creek as "Fishable Trout Stream" from the mouth at the Minnesota River, upstream past the point where Crow Creek joins it:
http://files.dnr.state.mn.us/maps/trout_streams/south-2015/map28-29.pdf

We should be using this rulemaking process to upgrade the lower half to Class 2A.

Instead, the MPCA rulemaking proposes downgrading the entire upper half of the creek, and its tributaries, from 2B to 2B-modified.

It's listed in the spreadsheet as:

07020007-688 / Minnesota River – Mankato watershed – County Ditch 106A "(Fort Ridgley Creek)"

This morning I stumbled across an MPCA document online, published in October 2016, which seemingly contradicts MPCA rulemaking conclusions on Fort Ridgely Creek and two of its tributaries.

The October report says, under Aquatic Life Indicators, that the upper half of the creek meets the standard for fish IBI, and two of the tributary AUIDs have full support of designated use. But the rulemaking would downgrade them.

Despite rulemaking intent, downgrading 07020007-688 is unjustified, based on the summary on page 41 in the pdf at https://www.pca.state.mn.us/sites/default/files/wq-ws3-07020007b.pdf , which concludes, this AUID met standards for the fish IBI.

Also proposed for downgrading is a tributary known as Crow Creek, which joins Fort Ridgely Creek just upstream of a spot where trout were sampled. It's listed in the spreadsheet as:

07020007-525 / Minnesota River – Mankato watershed – County Ditch 3 (Crow Creek)

Despite rulemaking intent, downgrading this AUID is unjustified, based on the summary on page 42 in the pdf at https://www.pca.state.mn.us/sites/default/files/wq-ws3-07020007b.pdf, which concluded, under the aquatic life indicator, this AUID has Full Support of Designated Use.

Here is another tributary proposed for downgrading. It's listed in the spreadsheet as:

07020007-664 / Minnesota River – Mankato watershed - Ditch 115

They sampled seven species fish, including two gravel-spawning species. The fish IBI was 41. The invertebrates IBI was 27. Water temperature was 71F when sampled July 10, 2013, when the high was 80F at the nearest weather station.

Despite rulemaking intent, downgrading this AUID is unjustified, based on the summary on page 42 in the pdf at https://www.pca.state.mn.us/sites/default/files/wq-ws3-07020007b.pdf, which concluded, under the aquatic life indicator, this AUID has Full Support of Designated Use.

If I hadn't stumbled across that MPCA pdf, I would have had to rely on the incomplete data on the MPCA website.

This is the kind of creek channel we shouldn't give up on, because if we do, we give up on Fort Ridgely Creek. There are not a lot of trout streams in this part of Minnesota.

One more thing. The agency has misspelled "Ridgely" as "Ridgley" on the stream data records, resulting in data not being accessible to the public.

A search of "Fort Ridgely" in the MPCA's Lake and Stream Water Quality Database returns no data on the main page, or in advanced search.

Enter the misspelling "Ridgley", and several data documents appear; some misspelled, some correctly spelled.

This data should be corrected, updated, and re-released for public comment. I doubt all the pertinent data is available for review, especially since the MNDNR has done more fish sampling than what appears in the data.

In the spreadsheet, I've flagged some of the other stream segments I found in the Minnesota River – Mankato watershed, that don't deserve downgrading, based on the data. I'm concerned there are similar ones in the other watersheds, which I haven't had a chance to see yet.

Go ahead with the plan to give more protection to the best streams. Awesome. Continue to identify the areas where it just doesn't make sense to spend more money. Great.

But fix the problems with the lack of data for public review, gather more sufficient information, and reconsider your analysis, so we can preserve what still has potential; especially when there's a little trout stream on the prairie at stake.

Thank you.

Dan Callahan

Comments regarding MPCA's Draft TALU Regulation
By Bruce Johnson
12/23/17

My name is Bruce Johnson. I am retired biologist/chemist with over 30 years of environmental experience beginning with eutrophication research with the US Environmental Protection Agency. I was a field chemist in charge of the metal pathways portion of the Minnesota Regional Copper Nickel Study with the Minnesota State Planning Agency. With the Minnesota Department of Natural Resources I performed mining impact research. I was the team leader for enforcement of all industrial water quality NPDES permits for the Minnesota Pollution Control Agency. Subsequently I was a supervisor and Certified Hazardous Materials Manager at the Masters level, for all issues concerning waste management (hazardous waste, solid waste, superfund, and petrofund cleanups) for the Minnesota Department of Transportation. I was a member of the National Academy of Sciences, Transportation Research Board on a subcommittee regarding transportation environmental issues. I was invited by the Umwelt Bundas Amt (the Republic of Germany's federal EPA) to spend 6 weeks at their headquarters in Berlin to work with them to share environmental information. I have authored and co-authored a number of publications. Recently I coauthored a report in 2015, *An Evaluation of a Field-Based Aquatic Life Benchmark for Specific Conductance In Northeast Minnesota,* that EPA reviewed and confirmed its conclusions.
In summary, I have experience in water quality research, water quality enforcement, and solving pollution problems as a regulated entity.

Introduction

The Clean Water Act's (CWA) only objective is to restore and maintain the chemical, physical, and biological integrity of the nations waters (CWA sec. 101a). Historically supporting CWA goals like protecting aquatic life have been identified mainly through chemical analysis and laboratory bioassays. The numerous federal Index of Biologic Integrity (IBI) guidances are designed to further protect water resources from degradation from synergistic effects of multiple factors from low level multiple stressors such as multiple chemicals and their degradation products interactions, stream physical conditions by utilizing *in situ* biologic communities populations in comparison with those of non-impacted (natural) streams within an ecoregion or subecoregion.

The following example in 60 FR 15387, Mar. 23, 1995, unless otherwise noted 40 132.1 states, with my underlined emphasis to discuss the general concept that Minnesota Pollution Control Agency (MPCA) guidance and rules must be at least as protective as federal guidance.

Scope, purpose, and availability of documents.
(a) This part constitutes the Water Quality Guidance for the Great Lakes System (Guidance) required by section 118(c)(2) of the Clean Water Act (33 U.S.C. 1251 et seq.) as amended by the Great Lakes Critical Programs Act of 1990 (Pub. L. 101-596, 104 Stat. 3000 et seq.). <u>The Guidance in this part identifies</u>

minimum water quality standards, antidegradation policies, and implementation procedures for the Great Lakes System to protect human health, aquatic life, and wildlife.
(b) The U.S. Environmental Protection Agency, Great Lakes States, and Great Lakes Tribes will use the Guidance in this part to evaluate the water quality programs of the States and Tribes to assure that they are protective of water quality. State and Tribal programs do not need to be identical to the Guidance in this part, but must contain provisions that are consistent with (as protective as) the Guidance in this part. The scientific, policy and legal basis for EPA's development of each section of the final Guidance in this part is set forth in the preamble, Supplementary Information Document, Technical Support Documents, and other supporting documents in the public docket. EPA will follow the guidance set out in these documents in reviewing the State and Tribal water quality programs in the Great Lakes for consistency with this part.
(c) The Great Lakes States and Tribes must adopt provisions consistent with the Guidance in this part applicable to waters in the Great Lakes System or be subject to EPA promulgation of its terms pursuant to this part.
(d) EPA understands that the science of risk assessment is rapidly improving. Therefore, to ensure that the scientific basis for the methodologies in appendices A through D are always current and peer reviewed, EPA will review the methodologies and revise them, as appropriate, every 3 years.

I strongly support the USEPA IBI intent as well their subsequent Guidance's relating to *in situ* biological analysis, chemistry, bioassays and IBIs. However the MPCA draft rule fails to follow EPA guidance's and for that reason fails to adequately protect surface waters in Minnesota; and as written, will backslide water quality protection.

Given the plethora of EPA guidance's in this subject and the references MPCA has used to develop this document over 10 years, it is not practical to read and consolidate every concern in the review time allowed. The following are some of my concerns regarding this draft.

1. The macroinvertebrate IBI cited contains insufficient sample numbers to develop accurate biocriterion values for the entire state. As a result the current document will allow surface waters to backslide rather than be protected.

The Draft rule cited macroinvertebrate IBI that states, *"3,500 individual stream invertebrate collection efforts are represented, from more than 3,000 monitoring sites across the state."* This number represents results from all the state's seven level III ecoregions. In reviewing USEPA studies for determining a benchmark on invertebrate impacts in only two level III ecoregions of the Appalachians, sampling of invertebrates represented 2,668 samples, from 2,542 locations (USEPA, 2011, p. 6.). Comparatively speaking, EPA used many more samples of the two level III ecoregions for its study than Minnesota is using for its statewide seven level III ecoregions to develop this rule.

When EPA reviewed my invertebrate work in several level VI subecoregions of Ecoregion 50 (Johnson& Johnson, 2015), they used MPCA's Ecoregion 50 level III data to verify our conclusions (Cormier, 2016). In doing so EPA used 596 sites and 734 samples from Minnesota Ecoregion 50 level III which EPA described as "modest" for their calculations (Cormier, 2016, p. 6). This would suggest that a very modest number of samples for the state to develop biocriterion values for the entire state might be in the range of 5,000 to 6,000 samples. Statistically representative

sampling would likely require on the order of 10,000. In addition, the EPA noted that the existing biological samplings from MPCA were taken in the fall, and this skewed the data in favor of genera that were more tolerant of higher contaminants. They recommended further spring and early summer sampling that could add less tolerant species because they are more likely to be collected earlier in the year (Cormier 2016, p. 7). Lacking the spring intolerant species, the macroinvertebrate BCGs are skewed lower than the actual natural condition, which lowers the biocriteria and thus amounts to backsliding.

Finally, the writers of the MPCA *Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List* did not intend that the Guidance be part of any water quality rule, see p. 5: *The Guidance is not part of any water quality rule – it does not have the force of law. It serves to guide the interpretation and application of current water quality standards that are in water quality rules.*

In summary, the above indicates that the data used to develop the draft TALU lacks statistical relevance needed for a rule and thus skews the biocriteria lower than the actual natural conditions. As a result it lowers biocriteria numbers and as written ultimately amounts to backsliding. The current draft should not be used in a rule until further data is collected that this data includes data from appropriate seasons.

2. Invertebrate taxon identification is generalized in the draft rule and lacks definition of how, or if different taxon levels are to be combined to determine existing status of a surface water.

The MPCA's Draft rule Statement of Need and Reasonableness (SONAR) Introduction states its intent is to follow the federal draft guidance (footnote). However the SONAR text focuses heavy emphasis on protection of fish populations at the species level, at the same time dealing with macroinvertebrates (benthic invertebrates) at the Order and Family taxon level.

Page 13 footnote 4 states: *"...most fish individuals to species whereas the taxonomic level of identification for macroinvertebrates varies depending on the group. As a result, macroinvertebrates are identified to different levels such as species, genus, family, or order depending on the feasibility of identifying these organisms to the lowest level. To maintain consistency, similar taxonomic resolution is used for each taxon among samples. "* This statement says that macroinvertebrates and perhaps other aquatic life may not be identified to genus or species taxon levels and may be identified to a much higher taxon such as family or order. It appears that the MPCA guidance on invertebrates incorporated in the draft rule appears to also allow combined multiple levels of taxon's e.g. order, family, genus, and species, to be used in determining MPCA's IBIs. I have e-mailed the MPCA author of the cited invertebrate report regarding this but to date have received no response (attachment).

Numerous EPA guidance documents make it clear that it is necessary to identify to the lowest taxon possible (US EPA, Office of the Administrator, EPA Protocols, USEPA 2011,p 3,12). For example, for benthic microinvertebrates at minimum the

identification should be at genus and better yet to species. The reason for this is that taxon's at different levels can have very different sensitivities to stressors (EPA 2002, EPA 2011). For instance, it is clear that all benthic invertebrates have large variations in their specific conductivity sensitivities (Johnson & Johnson 2015, and Cormier 2016). It is apparent the MPCA already has numerous data that identifies benthic invertebrates to the genus/species level (Cormier, 2016, and Figure 1). For benthic invertebrates the method must be specified to use genus or species level taxon's for evaluation of the biocriteria found in lines 57.15-58.32; 76.9-77.25. The mixing of higher taxon's e.g. families with lower taxon's e.g. genus/species in the development of biocriteria assumes same sensitivity levels whether they are order, family, genus or species levels of taxon's. It has been demonstrated that taxon's higher than genus cannot be compared on an equal basis since many have different toxicity tolerance levels between taxon levels (Appendix 1 table A and EPA 2011). Combining higher and lower level taxons results in an underestimation of the effect of impacts to genus and species and fails to be as adequately protective as numerous EPA guidance's require.
In summary: The methods for documenting invertebrate status is unclear and is likely to result in the use of a combination order, family, genera and species level taxon's to determine a biocriterion. This would drastically underestimate any loss of genera or species in impacted waters and allow further degradation of the water within that watershed. This method must far more specific before the rule can be approved.

3. The Draft rule states that it is designed to protect <u>all aquatic species</u> (vertebrate invertebrate and plant). It has not demonstrated that, as written, the TALU will protect no less than 95% percent of the species in any aquatic community (as required in Minn. Rule 7050.0217 Subp. 2.; and corresponding federal regulations.
Protection of aquatic species is required under Minn. Rules Ch. 7050.0217 Subp. 2. A. *Protection of the aquatic community means... protection of no less than 95 per cent of all the species in any aquatic community.* Furthermore, the EPA in its benchmark report in the Appalachians has defined loss of species as extirpation: *Extirpation is defined as the depletion of a population to the point that it is no longer a viable resource or is unlikely to fulfill its function in the ecosystem (U.S. EPA, 2003). In this report, extirpation is operationally defined for a genus as "the conductivity value below which 95% of the observations of the genus occur and above which only 5% occur." In other words, the probability is 0.05 that an observation of a genus occurs above it s XC_{95} conductivity value. This is a chronic-duration endpoint because the field data set reflects exposure over the entire life cycle of the resident biota. The 95^{th} centile was selected because it is more reliable than the maximum value, yet it still represents the extreme of a genus's tolerance of conductivity. The maximum value is sensitive to occurrences due to drifting organisms, misidentifications, or other misleading occurrences.* (EPA, 2011, p. 13).

EPA's Science Review Board peer-reviewed the above benchmark report and

recommends species level identification of benthic invertebrates (US EPA, Office of the Administrator).

Identifying macroinvertebrates to various taxonomic levels, and combining them in an IBI fails to identify 95% of the most sensitive organisms. The resultant combined data are skews the biocriteria lower than the actual natural conditions. As a result the rule lowers biocriteria numbers and amounts to backsliding. The current draft biocriteria should not be used in a rule until further data is collected that includes data from appropriate seasons.

In summary: The Draft rule must use the EC 95 criteria at the genus level for all data results, to determine biocriteria values. The present Draft fails to do this and must not be released as currently written.

5. The Current draft uses a watershed-based analysis and fails to demonstrate, using specific data, how the watershed-based analysis is equal to or better than the EPA's guidance's Ecoregion based approach.

The Ecoregion approach was derived by Omernik (Omernik 1987). The approach is:
designed to serve as a spatial framework for the research, assessment, and monitoring of ecosystems and ecosystem components, ecoregions denote areas of similarity in the mosaic of biotic, abiotic, terrestrial, and aquatic ecosystem components with humans being considered as part of the biota. These regions are critical for structuring and implementing ecosystem management strategies across Federal agencies, state agencies, and nongovernmental organizations that are responsible for different types of resources within the same geographic areas (Omernik and Griffith 2014, McMahon et al. 2001). Ecoregions are identified by analyzing the patterns and composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity (Omernik 1987, 1995). These phenomena include geology, landforms, soils, vegetation, climate, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. A Roman numeral classification scheme has been adopted for different hierarchical levels of ecoregions, ranging from general regions to more detailed:

- *Level I - 12 ecoregions in the continental U.S.*
- *Level II - 25 ecoregions in the continental U.S.*
- *Level III -105 ecoregions in the continental U.S.*
- *Level IV - 967 ecoregions in the conterminous U.S.*

This framework has been accepted by USEPA in their guidance's. In Minnesota there are seven level III ecoregions (Figure1) and many level IV ecoregions (Appendix 1). Instead of following EPA Ecoregion guidance, the Draft uses a watershed framework. Many of these watersheds cross state Ecoregion level III boundaries that have already demonstrated differences in phenomena including geology, landforms, soils, vegetation, climate, land use, wildlife, and hydrology (Omernik, JM. 1987. and Figure 1). The chemical and physical conditions can drastically change in any watershed that crosses an Ecoregion boundary, resulting in use of aquatic life that reflects the change.

The watershed approach such as the MPCA invertebrate IBI (Line 74.8- 74.10) lacks the rigor of the geology, landforms, soils, vegetation, climate, land use, wildlife, and hydrology that the ecosystem approach that has already been documented

nationwide. The statement by MPCA in the cited invertebrate IBI that the Ecoregion approach fails to take into account the effect of dams on fish populations is not a scientifically valid reason to avoid the Ecoregion approach for all aquatic species. Control structures, such as dams that impair fish movements, can be included in the fisheries analysis separately.

Not applying the Ecoregion approach for determining unimpacted waters for the draft framework results in averaging sites with certain geology, landforms, soils, vegetation, climate, land use, wildlife, hydrology, chemistry and biology with sites with different ecological characteristics and different chemistry/geochemistry (USEPA, 2011, et al.). The resultant amalgamation of the two ecoregions' differences in the MPCA's watershed would lower the biocriterion for all parts of the watershed thus allowing more impacts in the watersheds with higher water quality. USEPA guidance states that a watershed that crosses Ecoregion boundaries must be done with extreme caution.

As a result the Draft fails to address how the MPCA will perform such analyses in a scientifically defensible manner that will be fully protective of all aquatic resources within the ecoregions. It is more scientifically defensible to use the existing Ecoregion approach than to attempt to develop a totally new non-peer-reviewed approach based on watersheds.

Summary: The proposed watershed approach fails to identify precisely how its watershed approach is equal to or better than the Ecosystem approach used by EPA. From my perspective the watershed approach ignores geologic and geochemical changes between Ecoregions that will likely result in genus level benthic invertebrate population shifts.

As a result in the watershed approach, an Ecoregion area with a quality level is combined with the adjacent Ecoregion area having different quality. One quality will be higher than the other as defined by the Ecoregion type, such as low geochemistry or more sensitive genera. The combining of the data will lower the higher quality water and raise the quality of the other. Not protecting the higher quality Ecoregion area is backsliding.

6. **As written this rule will allow MPCA to administratively reduce the number of impaired waters currently on the 303d list.**
The 2016 draft of 303(d) list of Minnesota's Impaired Waters reports 4,607 waters that are listed as impaired. Of this list 1,260 sites are contaminated with mercury in the water or fish tissue (list, appendix A). 686 sites do not require a total mass daily load study (TMDL). The remainder (2,661 sites) EPA requires TMDL studies to reduce contamination to in-stream standards. The MPCA is required to list both TMDL study start years and TMDL Target end dates for these sites.
Numerous TMDL completion dates are to be completed in 2017, 2018, 2019.

NPDES Permits are required to be reissued every 5 years. The MPCA has stated its NPDES permit reissuance for mining cannot be issued due to staffing shortages. One example of this is problem is one permittee has had only one five-year permit in 29 years of operation. NPDES permit renewals amounts to a rather handful of permits compared to the 2,661 TMDL target completion dates that MPCA is scheduled to complete.

In summary: When MPCA designates waters with a g under the TALU, the impaired waters with biological impairments could now be removed from the list due to use of higher level taxons such as order and family under the less stringent biocriteria standards.

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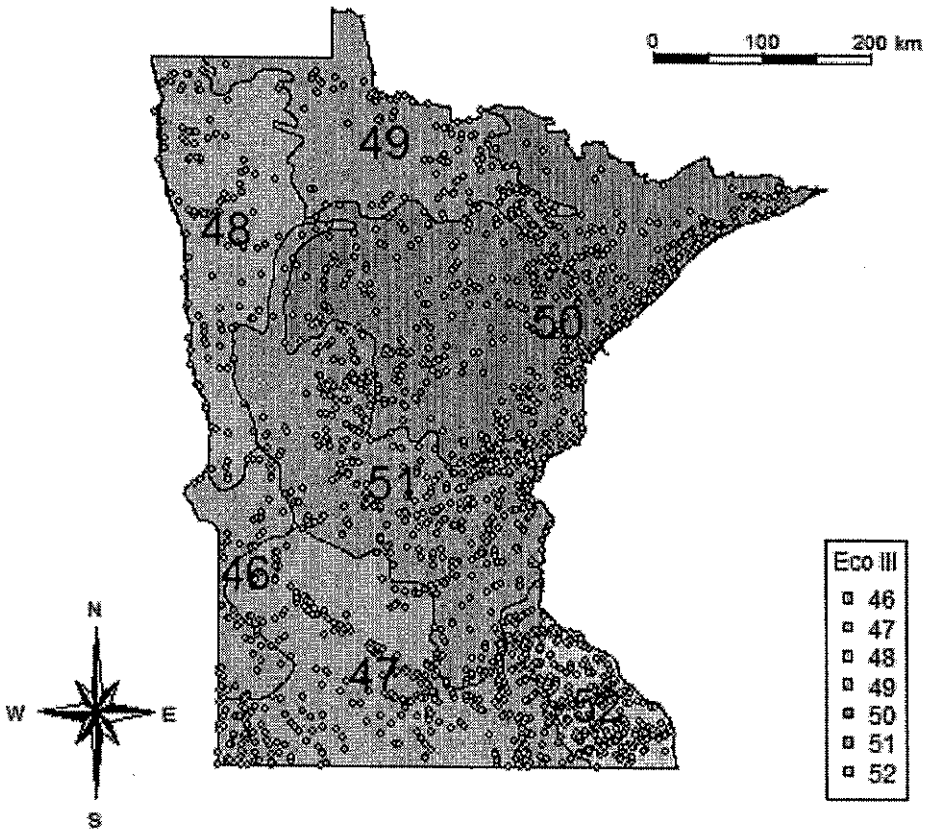
Figure 1



Dots demonstrate MPCA sampling locations

ATTACHMENT

From: **bruce johnson** johnsonbruce169@gmail.com
Subject: Development of a Macroinvertebrate-Based Index of Biological Integrity for Minnesota's Rivers and Streams
Date: February 9, 2017 at 11:28 AM
To: Joel.Chirhart@state.mn.us

Hello: Mr. Chirhart:
I have been reviewing the above report you authored. It is unclear to me at what invertebrate taxon level was used to derive the IBI's. In some areas it refers to Families and others it appears to use genius/species levels. Could you clarify this for me?
Respectfully,
Bruce Johnson

From Maureen Johnson
6763 253rd Ave. NE
Stacy. MN 55079

February 16, 2017

Administrative Law Judge
Office of Administrative Hearings
600 North Robert Street
P.O. Box 64620
Saint Paul, Minnesota 55164-0620

Will Bouchard (talurulemaking.pca@state.mn.us)
Minnesota Pollution Control Agency
Environmental Analysis and Outcomes Division,
520 Lafayette Road North
Saint Paul, Minnesota 55155- 4194

Subject: Comments for hearing regarding Proposed Amendments to Minnesota Rules, Chapters 7050 (Water Quality Standards for Protection of Waters of the State) and 7052 (Lake Superior Basin Water Standards), relating to Tiered Aquatic Life Uses and Modification of Class 2 Beneficial Use Designations.

Dear Your Honor and Mr. Bouchard:

My name is Maureen Johnson. I am a biologist with 30 years of experience, managing cleanups of hazardous waste sites for the Minnesota Pollution Control Agency, and water quality analysis, water quality data verification, and implementation of cooperative agreements for both U.S. Environmental Protection Agency and U.S. Forest Service. National precedent was set when I implemented the first Federal Facility Agreement to protect not only people but also ecological resources at Twin Cities Army Ammunition Plant contamination. Other examples of my cleanups included Perham Arsenic that actually poisoned people and Reserve Mining hazardous waste threatening Lake Superior. I am a co-author with Bruce L. Johnson of An Evaluation of a Field-Based Aquatic Life Benchmark For Specific Conductance In Northeast Minnesota , Nov. 2015. With my professional experience I am familiar with interpreting and implementing the intent of numerous Federal and State environmental regulations.

Underlining in these comments is my emphasis.

Human Disturbance Score in Indices of Biological Integrity

Per cent Mining Metric

Table 2. Human Disturbance Score metrics, in *Development of a Macroinvertebrate-Based Index of Biological Integrity for Minnesota's Rivers and Streams,* has a metric for Per cent agricultural land use, but does not have a Per cent mining use. The lack of a Per cent Mining Metric makes the northeastern IBIs look much better than they are where mining is a major effect in the watersheds and ecosystems. Mining areas will include many square miles of old and new pits, waste rock piles, tailing basins, storage ponds, emergency basins, and work and transit areas, with drainage and overflows to wetlands and

Fx

creeks. For example, one of Minntac's tailing basins alone is eight square miles, and impossible-to-measure seeping leachate through the many acres of wetlands has severe effects on Dark River (a trout stream) and Sandy River (both likely had wild rice) for many miles downstream for many years to come.

As natural gas development and demand for sand continues, the per cent mining in the southeast may also be essential to an accurate IBI locally.

Gravel mining pits, limestone mines, and perhaps other types of mines also can add up across a landscape.

In summary, a Per cent Mining Metric should be added to the Human Disturbance Score Metrics, the fish and macroinvertebrate IBIs should be recalculated, the BCGs recalibrated, and Proposed Rules biocriteria should be revised accordingly.

Specific Conductance

" In the future, availability of improved tolerance value information can be used to refine the BCG and improve its precision (e.g., Cormier et al. 2013; Whittier and Van Sickle 2010)." (EPA practitioner's guide to BCG, p. 29.) I and my coauthor provided MPCA and EPA with our specific Conductance benchmark report in Nov. 2015, describing the tolerance levels in a subecoregion of Ecoregion 50 in NE MN. Cormier at EPA verified our report's conclusions in 2016 by conducting a parallel study with MPCA data on Ecoregion 50. I would like to suggest that the Minnesota index of biological integrity could include specific conductance as a metric with the ability to describe the ranges of native conditions and human disturbance. Specific conductance has been used since the MPCA began in 1965 as a parameter that indicates anthropologic change after natural conditions and changes have been accounted for. Specific conductance is easy, fast, accurate, and low cost and has been part of MPCA sampling programs since its inception so there is lots of quality data.

Cormier, Susan M., Ph.D., in *REVIEW: An Evaluation of a Field-Based Aquatic Benchmark for Specific Conductance in Northeast Minnesota (November 2015). Prepared by B. L. Johnson and M. K. Johnson for WaterLegacy*, Feb. 4, 2016, wrote:

> 1. Independent data sets from different decades confirm Johnson and Johnson's conclusion that the background SC in Ecoregion 50 in Minnesota is less than the background of the data set used to develop the SC benchmark for Ecoregions 69 and 70 in Central Appalachia. Hence, a benchmark value for SC in Ecoregion 50 is not expected to be greater than the benchmark for central Appalachia, i.e. 300 µS/cm.
> 2. Likewise, the inference that 5% extirpation of benthic invertebrates would occur at similar conductivity levels in central Appalachia and Ecoregion 50 in Minnesota was supported by analysis of an independent data set of paired benthic invertebrate and SC data from Ecoregion 50 in Minnesota. We estimated that more than 5% of genera would be extirpated in streams greater than 320 µS/cm. However, additional analyses are needed to evaluate the effect of seasonal collection.
> 3. Johnson and Johnson evaluated biological effects where SC was greater than background at several mine sites and streams draining in or near the mines. SC associated with discharges and mine pits exceeded 300 µS/cm. For some sites, dilution may reduce the SC below 300 µS/cm in the waterbody, but the data are not shown and may not be available for all sites. In other cases, SC is very high (>1,000 µS/cm) and biological effects have been reported by MPCA. The severity of the effects are consistent with effects expected for increased level of SC.
> 4. Metal contamination, habitat alteration, temperature, and nutrient enrichment may contribute to biological effects at some of the mine sites. These stressors may exacerbate the effect, but the extirpation due to SC would still occur if these stressors were removed based on removal of other stressors and persistent effects observed in Appalachia when only conductivity was high and other stressors were low or absent (U.S. EPA, 2011; Timpano et al., 2015; Cook et al., 2015)

This Review means that:

1. EPA compared the available independent (MPCA) data set, not used by Johnson and Johnson, with the Appalachian ecoregions data to confirm Johnson and Johnson's conclusion, so a benchmark value for specific conductance in Ecoregion 50 in Minnesota is not expected to be greater than 300 uS/cm.

2. The independent (MPCA) dataset indicated 320 uS/cm would be specific conductance benchmark at which more than 5% of the genera would be extirpated, but the recommended spring sampling by MPCA likely would lower this number due to the more likely identification of mayflies. If higher numbers of intolerant species are added to the macroinvertebrate dataset it will also affect the macroinvertebrate biocriteria development, probably requiring changes to any rule created with the proposed biocriteria here. The MPCA datasets are minimal anyway and the rules setting biocriteria should be postponed until more inclusive sampling and a much larger, statistically significant dataset is available.

3. The severity of biological effects reported by both Johnson and Johnson and MPCA are consistent with expected biological effects of specific conductance.

4. The effects of specific conductance are separate and different from other stressors.

In summary, a Specific Conductance Metric should be added to the Human Disturbance Score Metrics, the fish and macroinvertebrate IBIs should be recalculated, the BCGs recalibrated, and Proposed Rules biocriteria should be revised accordingly.

If specific conductance is not used as a metric, ecoregion or subecoregion benchmarks for specific conductance should be employed to identify specific conductance-impacted streams that do not comply with 7050.0217 Subp. 2, A, the narrative requiring rules to protect no less than 95% of species or greater protection if economically, recreationally, or ecologically important species are very sensitive, and waters impaired by specific conductance exceeding the benchmark should be added to the 303 d list. In addition, specific conductance benchmarks should be entered into the rule-making process as region-specific water quality standards.

Environmental Justice

The SONAR describes the efforts it made to address environmental justice, but did not seek the advice of MPCA's own Environmental Justice Advisory Committee, which was formed in mid-2016. The described pro forma work toward environmental justice is nice, but this committee should be consulted prior to finalizing the P. Rules, and any recommended changes should be included, not considered and put to the side.

All environmental justice comments and recommendations should be itemized and each item should have a description of how and why it has been incorporated or the reasons why it was not. Putting these in writing in the SONAR will force a little more thought than "they were considered." Sometimes this type of commitment will enable ideas.

Changes such as are in SONAR Appendix A should be subject to normal public notice and also public notice in the local area where the change is proposed, so that people concerned and knowledgeable about the area can provide crucial information to MPCA. This will help advance the goals of environmental justice.

Exceptional and General designations and the Biological Condition Gradient

This is the major focus of the BCG.

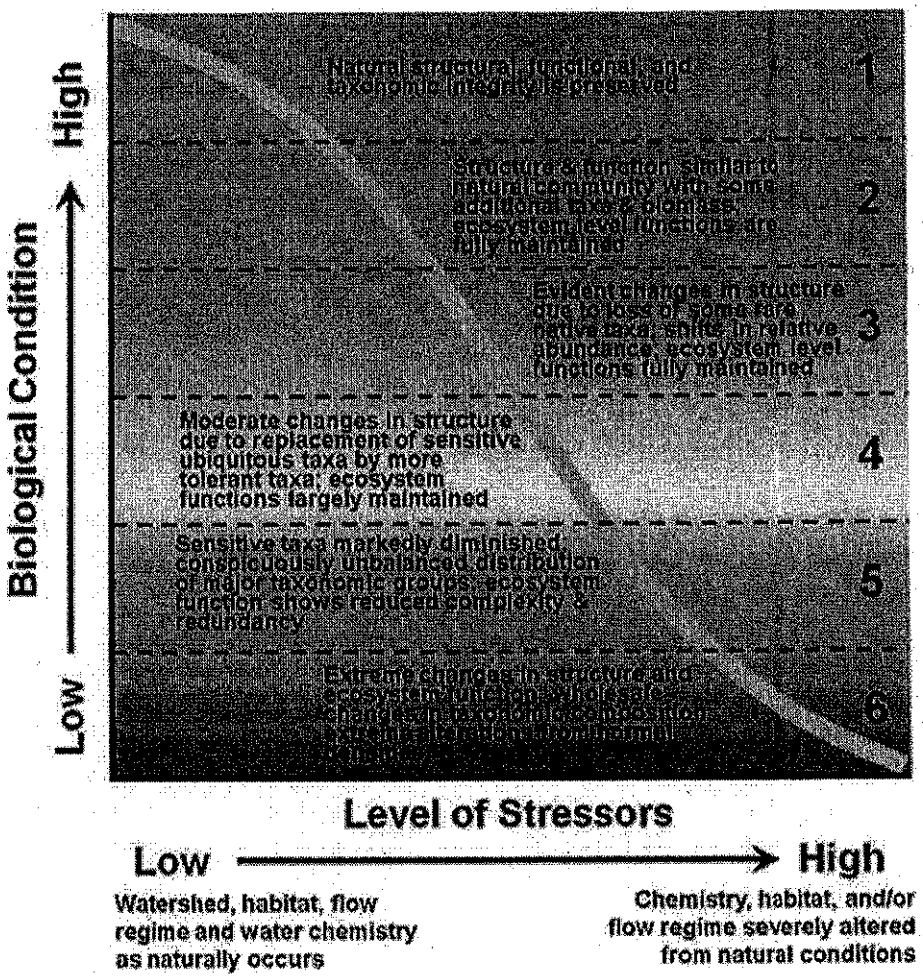


Figure 8. Conceptual model of the biological condition gradient (modified from Davies and Jackson [2006]).

MPCA [Bouchard, William, Jr.] (2014) Development of biological criteria for tiered aquatic life uses: Fish and macroinvertebrate thresholds for attainment of aquatic life use goals in Minnesota streams and rivers. Minnesota Pollution Control Agency, Environmental Analysis and Outcomes Division, St. Paul, MN,(Biological Criteria for TALU, 2014) p. 26.

The incorporated document *Development of biological criteria for tiered aquatic life uses* (biocriteria document) states:

> The objective of the Clean Water Act (CWA) is to
>
> > "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (U.S. Code title 33, section 1251 [a]).
>
> Although this statement is central to the CWA, interpreting this language and putting this into practice is more difficult. Following adoption of the CWA, a debate began regarding how to define and measure "biological integrity". From this discussion a definition of biological integrity was put forward by Karr and Dudley (1981) as:
>
> > "the capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region."
>
> This definition continues to be widely accepted and serves to guide protection and maintenance of the

integrity of waters in the United States. In addition to this objective, the CWA provides an interim goal for the Nations waters:

> "wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" (U.S. Code title 33, section 1251 [a] [2])

The biocriteria document never mentions Interim Goals again and does not specify whether the aquatic goal criteria determined by thresholds in the BCGs are long-term or interim. However, the SONAR, p. 42, states,

> "The Exceptional Use goal is consistent with the CWA objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1313 (a)-(c); S-24). The General Use goal is equivalent to the CWA interim goal which is described as: "...water quality that provides for the protection and propagation of fish, shellfish, and wildlife." (SEC. 101(a)(2) [33 U.S.C. § 1251]; S-10). The Modified Use goal is below the CWA interim goal and requires a UAA as described in Section 2.D.v. (Implementation of TALU, page 28)."

The biocriteria document goes on to state that the Exceptional designation e must be demonstrated in the biological criteria; however on p. 45,

> This demonstrated attainment makes the Exceptional Use an existing use that must be maintained or restored in the water body.

the narrative descriptors of these thresholds represent minimum acceptable conditions for these aquatic life uses. Many streams will exceed the biological goals associated with their designated use and Minnesota rules support maintenance of these waters that exceed minimum goals.

But the SONAR says, p. 13, rather than the biocriteria document's "attainment", that the e,g,m are based on "attainability", that they are "goals". This is not clear. If restoration of a use to the e designation is possible, then demonstration of attainment is not necessary to have an e designation. If a water body is capable of being restored to the e condition, it should be designated e so that it can be restored to the E condition in the future indefinitely, longer than 5 years mentioned elsewhere. As a result for example at P. Rules 7050.0430 , the unlisted waters in the BWCAW are designated g, so the state will have no intention of restoring these waters or allowing these waters to restore themselves to the quality of e to meet the ultimate CWA objective. The proposed interim goal g for the BWCAW unlisted waters apparently means there will be no effort to restore to e level, NOR to protect these waters from further biological degradation that would prevent attaining a higher level.

The rules define exceptional and general using "capable of supporting and maintaining" which has no indication of attainment required, only they are capable of attaining the specified BCG level.

With these proposed rules, there is no plan to look forward to all waters meeting the final CWA objective. This system lets a water designated g remain g forever in the CWA interim objective, which is inconsistent with the permanent CWA objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters".

The SONAR on p. 14 states:

> - Exceptional Use streams are the highest quality waters with fish and macroinvertebrates at or near natural conditions.
> - General Use streams are waters with populations of fish and invertebrates that meet or should meet the interim goal of the CWA. [6]
>
> This is the long-term objective of the CWA and it is consistent with natural or near-natural conditions (S-12).

and states in footnotes 5 and 6, pp. 13-14,

> Although not currently defined as "General Use" in Minnesota rule, the current protections for aquatic life under Class 2 are equivalent to the proposed General Use. In this SONAR, the term "General Use" is used for both the current protection and restoration goal for aquatic life and the proposed General Use since they are equivalent in theory and practice. Following adoption of this rule amendment, the General Use for warm water streams will be the default use for the protection of aquatic life and recreation.
> ...This goal is the minimum restoration and protection goal for water quality.

Footnote 6 wrongly interprets the CWA interim goal as the "minimum" goal for restoration and protection and the designation of g for waters that only need to meet the interim goal. *A Practitioner's Guide to the Biological Condition Gradient* (EPA, Feb 2016) makes no acknowledgement of the CWA interim goal; rather, it addresses the CWA final goal as the objective. The final goal must be that which we strive to meet in protecting and restoring our waters. This recent EPA document is not referenced in any of the incorporated documents, although the SONAR makes mention of it. The statutory provisions and the U.S. Environmental Protection Agency (EPA) regulations described in the document contain legally binding requirements.

The Federal Register Vol. 80, No. 162 / Friday, August 21, 2015, p. 51024, states in the preamble for water quality standards amendments:

> Section 101(a) of the CWA provides that the ultimate objective of the Act is to restore and to maintain the chemical, physical, and biological integrity of the Nation's waters. The national goal in CWA section 101(a)(2) is water quality that provides for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water "wherever attainable." EPA's WQS regulation at 40 CFR part 131, specifically §§ 131.10(j) and (k), interprets and implements these provisions through requirements that WQS protect the uses specified in CWA section 101(a)(2) unless states and authorized tribes show those uses are unattainable through a use attainability analysis (UAA) consistent with EPA's regulation, effectively creating a rebuttable presumption of attainability

EPA's 2016 *Practitioner's Guide to the* BCG, p.8, explains

> CWA section 303 directs states to adopt WQS to protect the public health and welfare, enhance the quality of water, and serve the purposes of the CWA. "Serve the purposes of the Act" (as defined in sections 101(a), 101(a)(2), and 303(c) of the CWA) means that WQS should include provisions for restoring and maintaining chemical, physical, and biological integrity of state waters; provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water (i.e., "fishable/swimmable"); and consider the use and value of state and tribal waters for public water supplies, propagation of fish and wildlife, recreation, agricultural and industrial purposes, and navigation.

The EPA practitioner's guide discussed the conclusions of experts on p. 28:

> BCG Levels 1-4 meet CWA interim goal of fishable, swimmable
> BCG Levels 1 and 2 meet the CWA integrity goal.

This document recognizes the Minnesota work to use the BCG to develop ALU classes. These P. Rules do not, but need to, establish directions for how to use the ALU classes and IBI results.
As stated in this EPA practitioner's guide, p. 164, "The BCG provides a framework with which to identify candidate high quality streams and rivers for designation as exceptional resource." This is not happening. Known high quality streams such as those in the BWCAW and VN Park, and unlisted state waters that have unknown quality are being designated with General. This is inconsistent with all the other high quality designations of waters.

This P. Rule must embody a plan to meet the final CWA objective of integrity maintained and restored for all of the Nation's waters in the state, except those with use attainability analyses demonstrating nonattainability. Meanwhile, a water subject to designation g must not be degraded to such an extent that its integrity cannot be restored to e.
In addition, the final CWA goal, that requires Minnesota to maintain the integrity of each of the Nation's waters, is demonstrated by a score in the highest two levels of the applicable BCG for water body type class. It would be totally inappropriate to label these high quality waters as g if they have attained integrity at BCG level 1 or 2 of their water body type classes, and it is inappropriate to deny these

waters the chance to attain integrity at BCG level 1 or 2 of their water body type classes. Neither of these is consistent with the CWA goal.

The solution to this is to delete the designations g and m, and hold all waters of the US to the CWA integrity objective of meeting levels 1 or 2 of the BCG of their water body type class, with provision that legal impediments to achievement cause allowable temporal stress to the systems documented by a UAA, and may change in the future. All waters that have the capability to attain level 1 or 2 or the 75th percentile of level 3 should be designated e by rule to protect those waters from biological degradation. If legal temporal stress must be designated, use "t" for temporal. Modified implies that the acceptable status is permanently low and is indicated by the significantly lower corresponding biocriteria which is not necessarily true.

A stream has been sampled, its existing IBI determined and located in a level along the BCG. Its location on the BCG will tell biologists whether it meets the CWA interim goal, at level 4, or whether it meets the CWA integrity objective, levels 1 or 2. If a stream does not meet the interim CWA goal, it should be further evaluated, the stressor found, and placed on the 303 d list for TMDL. If a stream is capable of improvement to Exceptional Use, it should be designated Exceptional Use in the first place so that the appropriate improvements are required to be made by the responsible party to meet or come close to its original condition which was Exceptional Use. This is what was envisioned by the CWA. If this is the process envisioned in the P. Rules' incorporated documents, this should be expressed in the P. Rules. Otherwise the process is a jumble of documents that never mesh together.

With p. 41 as an example, the definition of "Exceptional cold water aquatic life and habitat" use the word exceptional to define exceptional without defining what "exceptional" means. The word exceptional is used with "and... 75th percentile... level 3", but the rule does not explain what exceptional means. With this any MPCA staff can designate a water as exceptional --or not exceptional -- according to what he feels the water is without any definitional guidance. The word "comparable" has little meaning in science. One can compare anything to anything. It is the relationship that matters. . The definition does not define what 2A waters are designated if the water is scored below the 75th percentile(in the range of 1 percentile to 70th percentile) of biological condition gradient level 3. It is not "general" because that is the "median of biological condition gradient level 4". A water is neither "g" nor "e" if it is at the 75th or 25th percentile of biological condition gradient level 4.

The definitions of "exceptional" and "general" use "capable of supporting" a certain functional organization listed in the specified reference. To designate an unevaluated stream as a lower quality functional organization than that which it might be capable is inappropriate. All streams should be protected for "e" goals, or the "e" goal less a numeric dimension of any legal physical modification limitation, because the cost to restore a water body is much more than the cost to protect it in the first place, as admitted in the SONAR and the EPA practitioner's guide. Using the existing definitions of e and g in the P. Rules only protects to lower level of biological integrity. The CWA says "integrity," it does not say "almost integrity". If one protects to the P. Rules' level of interim goals (level 3- 4), a capable stream will never be enabled to attain a more exceptional status.

Unlisted waters: Boundary Waters Canoe Area Wilderness, Voyageurs National Park, and the state.

Identifying the unlisted waters of the BWCAW and the VN Park as general use in P. Rules 7050.0430 UNLISTED W ATERS is a slap in the face to all who worked for the last 100 years to preserve the waters of these special areas. These waters must be designated exceptional so that if they are deficient they

may be restored to the exceptional uses they are intended to fulfill by their status as federal wilderness and federal park and other special state designations. In the general status, any water flowing into them may be contaminated up to the general use level and they are also subject to pollution accidents and pollution not predicted by the EISs but will have to continue being receiving waters because jobs are at stake. This concept is outrageous and sounds as if it were proposed by mines to benefit themselves – AND MPCA WENT ALONG WITH IT. If this isn't true, the MPCA staff is very ignorant to do this, which I find hard to believe

There is no justification for the g designation for these waters in the SONAR on p. 60. Obviously, no data supports this conclusion or it would have been included in the justification. The g designation is inconsistent with the quality of these waters that comes to mind when Minnesotans think about these special areas. It is not only inconsistent but also inherently conflicts with the current 7050 rules designating exceptional waters like high quality waters, outstanding resource value waters, natural and scientific areas, wild rivers, and their restricted, prohibited, and antidegradation protections in 7050.0335 and antidegradation rule:
Subp. 3. Prohibited outstanding resource value waters. For the purposes of parts 7050.0250 to 7050.0335, the following surface waters are prohibited outstanding resource value waters:
A. waters within the Boundary Waters Canoe Area Wilderness;
B. those portions of Lake Superior north of latitude 47 degrees, 57 minutes, 13 seconds, east of Hat Point, south of the Minnesota-Ontario boundary , and west of the Minnesota-Michigan boundary;
C. waters within Voyageurs National Park;
D. the following scientific and natural areas
E. the following state and federal designated wild river segments:
If these waters do not meet the e biocriteria, they must be restored to their highest attainable level. The Forest Service understands this and is gradually removing some of the physical barriers that exist in the BWCAW.
Those headwaters that originate in these special areas are as near to the biological condition that is possible while unimpacted by man, except possibly for air impacts originating outside the BWCAW. However, in this case, those streams should still be designated as exceptional because that is the level that the streams should be and therefore the goal of more air regulation and enforcement should be set to restore the BWCAW streams to their natural condition
All waters should be protected for their potential restorability rather than their existing condition. If someone or an entity wishes, they may contest the listing at any time since the evaluation has not been done. The proposed rules still state "or may support":

> 7050.0140 USE CLASSIFICATIONS FOR WATERS OF THE STATE. 1.4
> [For text of subps 1 and 2, see M.R.] 1.5
> Subp. 3. Class 2 waters, aquatic life and recreation. Aquatic life and recreation 1.6
> includes all waters of the state that support or may support fish, other aquatic life aquatic 1.7
> biota, bathing, boating, or other recreational purposes.

The Macroinvertebrate IBI Development document on p. 27 supports the e designation by stating,

> The northern boreal forests, representing a region of relatively intact watersheds, with relatively little development compared to the remainder of Minnesota, showed very little range along the human disturbance gradient; most sites displayed very little to no disturbance in both landscape and habitat variables.

Unlisted state waters also ought to be protected. Many of these unlisted waters are likely to be upstream small headwaters and wetlands, likely more undisturbed than downstream because of physical limitations of use such as low volume or messiness of a wetland. A stream is a reflection of

what is upstream plus its own development. Keeping headwaters, headwater wetlands, and small streams protected with e designation will enable higher quality downstream. A potential user must then show that the stream use is unattainable or requires an exception from the agency for the allowed reason(s) in the rules. In this way, antidegradation rules would also be supported by the Tiered aquatic life uses framework.

At a deeper level, in the P. Rules the IBI system and the general designation used without specified waters becomes an excuse to ignore waters with high quality water characteristics. The usually less common high quality waters get amalgamated in with lower quality waters in the IBI geographic class area and could produce a number that is inappropriate for higher quality waters. This is emphasized with a warning in the EPA guidance, *A practitioner's guide to the Biological Condition Gradient: a framework to describe incremental change in aquatic ecosystems*, EPA 842-r-16-001 Feb 2016, p. 10. Wilderness is natural; "biological conditions in wilderness area would likely support a biological community close to natural condition... Using non-specific ALU classification with a single ALU threshold...a threshold might be set that would not protect the higher quality location." MPCA has fallen into this error in specifying the unprotective g for known wild and special areas of high quality water, and setting the g, a single threshold, for the BWCAW, Voyageurs SP, and state unlisted waters which are non-specific ALU classifications. This need to be changed in the P. Rules because the higher quality waters in these locations are not being protected with the e threshold.
BCG is not accurate enough; as long it takes data and generalizes to groups beyond the individual water body, it will always underestimate the actual BCG level of some higher quality water bodies.

The decision rules for BCG levels for the various macroinvertebrate and fish assemblages by stream class show the N number. As in Figure 5, p. 34, *Calibration Of The Biological Condition Gradient For Streams Of Minnesota*, "N shows the number of sites at the indicated BCG level and stream class in the calibration data set." In many cases, the number of sites with which the level was calibrated was less than ten and sometimes zero. This means, for example, that a specific river IBI in the Northern Forest River class is based on comparing the differences among 47 sites, which ultimately fell among the six levels, 3 sites used in Level 1, 15 Sites in Level 2, 11 sites in Level 3, 16 in Level 4, 2 in Level 5, and 0 sites in Level 6. We do not know which sites were used for reference sites or whether the sites include 2 or more stream reaches of the same river. We do not know how these sites were chosen, perhaps because they were accessible? If so, the calibration is biased toward rivers that are already impacted as indicated by their level of accessibility. Did they include river(s) in the BWCAW or Voyageurs National Park? These are very small numbers to be calibrating a generalized BCG for all of the state streams. How they will apply a calibrated BCG to all state streams is not clear.

P. Rules also need to describe how to use the criteria in 7050.0222 Subparts 2d, 3d, and 4d containing biological criteria. The P. Rules should state that a stream with a numerical IBI score that equals or exceeds the 2Be criterion is classified Exceptional, e and a stream that has a capability of meeting the e criterion should also be designated e. A stream that equals or exceeds the 2Bg criterion but does not attain the 2Be criterion is a stream that meets the minimum CWA goal Sec. 101 (a)(2) but needs an evaluation of its capability to be exceptional and meet the CWA integrity objective. Then the stream needs to have an indication of its capability. The MPCA needs to know what its past level of existing uses was as of November 1975 to know what level it is legally required to maintain or improve. The P. Rules must provide for accounting for these very important status indications of past, present, future.

A mention of "attainable" in the P. Rules is in the existing rule definition of B. "Altered materially" in that a use altered materially may no longer be attainable.

7050.0222 Subp. 2c, 3c, 4c "The designation and attainment of beneficial uses are based on the biological criteria in 2c." etc. This seems to indicate the site IBI score that exceeds some criteria has attained the beneficial use.

Some waters may attain the integrity objective if given enough time and protection from such as mechanical vehicles, or from permits that contain ineffective or no effluent limits. The SONAR Designation decisions, p. 30, asks, "Is Natural Recovery Likely Within the Next 5 Years?" This is not a long enough time, especially with climate change entering the picture with longer periods of flooding and drought. These can wash out or kill favorable but fragile early colonization that may be occurring but needs longer normal periods without extreme stress to survive. Sometimes a stress source such as mining waste rock will need to be restructured and covered to shed water instead of infiltrate to reduce leachate reaching the stream. This would be a time and dollars consuming effort, but prevention or reduction is less expensive and more fair than a downstream user having to treat the water "forever".

The federal regulation, 131.10(g) states,

> If a State adopts a new or revised water quality standard based on a required use attainability analysis, the State shall also adopt the highest attainable use, as defined in § 131.3(m).
> 131.3(m) Highest attainable use is the modified aquatic life, wildlife, or recreation use that is both closest to the uses specified in section 101(a)(2) of the Act and attainable, based on the evaluation of the factor(s) in § 131.10(g) that preclude(s) attainment of the use and any other information or analyses that were used to evaluate attainability.

Human Health- based criteria

MPCA's *2016 Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List"* is proposed for incorporation into Proposed Rules for Relating to Water Quality Standards and Tiered Aquatic Life Use .

I understand this guidance addresses surface water that are classified drinking water, including public water supplies like Colby Lake (Partridge River) and Burntside River in NE Minnesota which I am most familiar with.

The Guidance states in the Preface,

> "Changes to the state's algorithms for human health-based chronic standards (VI.A.1.) are also reflected In this edition."

These changes are described beginning on p. 27.
Are these methods are appropriate for surface water that is public drinking water, especially for metals?
Why does the MPCA choose different methods from those used by the Department of Health for water bodies that are public water supplies? These are locations where normal exposure to drinking water occurs, as opposed to the drinkable waters in the BWCAW where exposure is generally limited to a few weeks at a time.

At least some of the chemicals in the P. Rules under Class 2Bd, which is surface water with drinking water use, do not meet the stricter levels of the Minnesota Department of Health *Guidance Table* at http://www.health.state.mn.us/divs/eh/risk/guidance/gw/ . For example, Cadmium in the MDH guidance for groundwater drinking water is shown:

			ug/l	
Cadmium	HRL_{15}	Acute	5	Developmental

Toxicological Summary for Cadmium (PDF) Information sheet: Cadmium and Drinking Water (PDF)		Short-term	1	Developmental; Nervous system; Renal (kidney) system
		Subchronic	1	Developmental; Skeletal
		Chronic	0.5	Renal (kidney) system; Skeletal
		Cancer	NA	--

The Information sheet link includes the following:

> Cadmium is toxic to fish and other aquatic life. Cadmium bioaccumulates (builds up) in plants, fish, and other wildlife that live in water and on land. Cadmium also interferes with the normal endocrine function in fish and may affect fish behavior.

7050.0222 Subp. 3. Class 2Bd waters... "This class of surface waters is also protected as a source of drinking water."

HH numbers for all chemicals in the P. Rules under 2Bd need to be added, so that readers can see which is more strict, HH- or Tox-based, the stricter of which would apply.
In the P. Rules for 7050.0222 Subp. 3. Class 2Bd waters (d for drinking water), Cadmium is shown as :

43.20 Cadmium, total µg/L equation Tox equation equation Tox

43.21 The CS, MS, and FAV vary with total hardness and are calculated using the following
43.22 equations:

43.23 The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

43.24 The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-1.685)

43.25 The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-0.9919)

43.26 Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

43.27 For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate
43.28 the standard.

43.29 Example of total cadmium standards for five hardness values:

44.1	TH in mg/L	50	100	200	300	400
44.2						
44.3	Cadmium, total					
44.4	CS µg/L	0.66	1.1	2.0	2.7	3.4
44.5	MS µg/L	15	33	73	116	160
44.6	FAV µg/L	31	67	146	231	319

The reason for these numbers is Tox, which is defined as (aquatic) toxicity-based, as opposed to HH, Human Health-based, and there are no HH numbers here. The above Class 2Bd standards are the same in Class 2A and 2B. The MDH guide does not consider Total Hardness effects, which also occurs in

ground water. The above numbers are not appropriate for human drinking water (Class 2Bd) according to the MDH guidance. All of the metals appear to have the same treatment and should be changed to include HH numbers unless there is good reason.

If MDH numbers were included, they would be smaller, more strict than the Tox numbers. The MPCA appears to provide less Human Health protection for its surface water drinking water than the MDH provides for ground water drinking water, although it is possible that, in the way that MPCA calculates HH, the Tox number is smaller. The SONAR should make clear the reason for differences between uses of MDH and MPCA Human Health criteria. If the MPCA criteria do not meet MDH criteria, the reasons should be clear about expectations for people who use the Class 2Bd waters for drinking water in both public and private water supplies.

In addition, the MDH notes the bioaccumulation characteristic of Cadmium. The SONAR should also discuss how this is also considered in the metals toxicity numbers for aquatic consumers and predators including wildlife that consume a bioaccumulative chemical.

On p. 11, V . "Durations for human health-based algorithms." Are these durations the same definitions as MDH uses? if not, why not?

Without good reason explained in the SONAR , the MPCA should use MDH guidance for drinking water in both ground water and surface waters.

Bequest Value?

The SONAR, p. 84. states,

> If some Minnesotans value the ability to preserve high quality water for future generations, known as a bequest value, the TALU framework creates an opportunity for this value to be realized.

This sounds as if some citizens must get together and donate money to save a stream. The SONAR statement needs total clarification. I would like to know what this means and exactly how to do it. And this bequest value process belongs in the rules!

Incorporation of documents and tables

This Minnesota macroinvertebrate IBI system is a first scientific effort to look at stream biological classifications; it states that it leaves room for incorporating new data and new classes. It acknowledges change may occur with more data (p. 25 ff.). This is contrary to the P. Rules statement that it is "not subject to frequent change"(line 41.1). To incorporate this document into the rule is not appropriate because techniques and data change . The rules need to be specific enough not to rely on a document to state what the rule should be.

The rules incorporate six documents inappropriately.

Biological Criteria for TALU, 2014, p. 39 refers to "draft criteria" and Table 11 is "Draft".
Draft criteria do not belong in proposed rules.

The writers of the Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List did not intend that the Guidance be part of any water quality rule, see p. 5:
The Guidance is not part of any water quality rule – it does not have the force of law. It serves to guide the interpretation and application of current water quality standards that are in water quality rules.
So it appears that the rule writers included it inappropriately, and probably the rest of the documents are also inappropriately included, since they are only reports that document the development of the various methods to support the existing narrative rules and do not contain directions on how to use the items developed per se in water quality standards.

The documents incorporated by the P. Rules, and there for the P. Rules, all assume that permits issued by the MPCA both 1) contain appropriate effluent limits, and 2) are enforced by MPCA staff. Neither is true, at least for mining in the Northeast. The USEPA has required MPCA to reissue old mining NPDES permits but MPCA has refused to do so, so the permits, not having appropriate effluent limits or enforcement, allow pollution to continue unabated with resulting aquatic life impairment (Johnson and Johnson, 2015). MPCA staff are able to say unabashedly that the permittees are in compliance with the permits. However, the permits are not written to include effluent limits that reflect all the applicable water quality standards.

An example is on p. 66 of the impairment guidance manual: care must be taken to avoid sampling in the mixing zone of permitted facility, however, the permits do not include the exact location of the mixing zone, nor does MPCA require sampling at the end of the mixing zone to confirm compliance with the rules. As they are, the mixing zone is apparently as far down as the permittee's pollution can be detected and there is no sampling of the receiving water downstream of the mixing zone; this is not the intent of the rules, actual or proposed.

The Proposed Rules p. 81 lines 5-6 state "The tables are incorporated by reference and are not subject to frequent change." However, these tables do not have any biological designations at all. They appear to be a reformatting of 7050.0470 as it is now. The only biological designations are in text for unlisted bodies of water. The rules have no procedure for amending these tables.

Public Notice

MPCA will be reclassifying waters according to the new rules in the future without public notice. This is not acceptable. Reclassification should require notice in the applicable local newspapers and to all Minnesotans who should be considered to be interested. Before any water is downgraded in uses in any way, a public comment period and a public hearing shall be conducted on that specific water, so that those who use the water have sufficient notice and opportunity to defend the use and quality of the water since 1975. Before any downgrading may occur, a stressor analysis should be conducted that includes evaluation of all past uses of the water, including industrial uses, to identify past and existing pollution and its source(s) since November 1975; when such pollution is found, and a responsible party(ies) is (are) identified, natural resource damages should be assessed in such measure as to repair the damage to the water or to repair those who are harmed by the loss of the use.

I searched the SONAR for "changes" and – surprise! I found *Appendix A: Specific Use changes*, which states,

> The statements of specific reasonableness for changes to Minn. R. 7050.0470 that are proposed as part of this rule revision are included in this appendix. This appendix includes a list of reaches proposed to be

designated as Exceptional or Modified Use (Table A-1).

The Beneficial Use Tables incorporated into the P. Rules and obtainable via the TALU rulemaking webpage do not reflect these changes. Even the incorporated *Beneficial use designations for stream reaches in the Red River of the North - Grand Marais Creek Watershed (09020306)* do not include the designations indicated in the SONAR's example of changes, which is the new biological (e,g,m) designations for the Red River of the North-Grand Marais Creek Watershed. The SONAR is not the appropriate place to publicly notice e, g, or m designations. This table was not incorporated into the P. Rules, neither is the SONAR, and thus the SONAR Table A-1 is not public noticed. The MPCA should publicly notice each designation of e, g, m. Any changes to specific water bodies related to the P. Rules should not be made until the rules are completed, because changes made subsequent to the hearing may affect how the changes are made.

Other comments on the P. Rules document

Page: 2 The definitions in the SONAR are specific to the SONAR, i.e. macroinvertebrates is defined in SONAR but not in the proposed rules. It is illogical to have some definitions in the P. rules and some in incorporated documents.
Subpart 3 refers to definitions in the impairment assessment manual. Are definitions in the guidance the same as in the rules? If not why?

Page: 2 Taxonomic is improperly used in this definition, especially for the macroinvertebrates, which is not a taxonomic term. Macroinvertebrates should specify which taxons it includes in the assemblage. Is algae included if it is caught in the sieve?

Page: 2. p. i of the Assessment Guidance Manual states it is subject to change: "It will be updated as assessment methods improve and as new pollution problems emerge that require assessment." and has no statement related to the frequency, only when needed. In the next sentence it even solicits public input.

Page: 6 Geographic region needs an official definition that describes how it is decided and its relationship to watershed and ecoregion or not, and a map that defines the geographic regions that ARE USED in the biocriteria determinations in MN.

Page: 6 A plethora of readily available and reliable data and information of chemical, biological, and physical data and other information is older than 10 years old and can document the condition of a water much earlier than the 10 years required here for assessment. This older data found in places like the Copper-Nickel Study and STORET can indicate significant impacts when newer data indicates a decline in quality. This bioassessment process and its 10 year frame does not comply with maintaining at least the existing uses (indicated by quality of a water body) that existed at or after November 28, 1975 as required by federal regulations at 40 CFR 131.3(e), because of the probability to downgrade a formerly higher quality water when older data is not considered.

Page: 10 The "at least 95% of species protected" objective in Subp. 2 is for developing numeric water quality standards like the biocriteria standards in this proposed rule. I found no obvious evidence that this objective is met with the Proposed Rules. If not, the proposed rules are not in compliance with the existing rules.

A new description of a type of reach

In Minn. Rules, Colby Lake is described, but Partridge River and Wyman Creek are unlisted:

7050.0470, Subpart 1. Lake Superior basin, B. Lakes: (30) Colby Lake, 69-0249-00, (T .58, R.14): 1B, 2Bd, 3C;
(271) Wyman Creek, (T .58, R.14, S.3, 4; T .59, R.14, S.11, 13, 14, 23, 24, 26, 27, 34, 35):
1B, 2A, 3B; a
Table Beneficial Use Designations for Stream Reaches: St. Louis River Watershed (04010201):
Wyman Creek - Headwaters to Colby Lk 04010201-942 1B, 2A, 3B, 4A, 4B, 5, 6 *
Wyman Creek - Within Colby Lk to Partridge R 04010201-943 2B, 3C, 4A, 4B, 5, 6 *
"Within Colby Lake"? There is always mixing occurring in a lake especially at spring and fall turnovers. Colby Lake is a drinking water, so any water "within Colby Lake" should not have a lesser designation. Wyman Creek discharges, not to Colby L, but to Partridge River, where it mixes with the Partridge R. due to turbulence, then Partridge R. flows into Colby Lake and out again, according to my US Forest Service Superior National Forest Map.

Conclusion

The 170 pages of proposed rules incorporate six documents of 352 pages, and each of these incorporated documents include thousands of pages in references that are important support for their conclusions. The MPCA developed these documents over 15 years, and we have 45 days including the Christmas season. The time allotted is insufficient to review the rules and each incorporated document and its supporting references. My inability to comment on the remainder of the proposed rule incorporations does not indicate that I agree with their contents.

If you happen to wonder why many of us who are commenting now did not get involved earlier in the process that led to this proposed rules (P. Rules), I hope you will understand that we have been rather preoccupied with the copper-nickel and taconite mining procedures and permits and many of the other rulemakings that MPCA continually produces! There isn't time for a knowledgeable person to do justice to what a hundred staff at MPCA do, and it is very difficult to select which proposed rules need work in the worst way. However, reading through these P. Rules made it obvious that these do need work!

Ordinarily we'd like to rely on MPCA to use professional judgement about these things. For this we cannot dig that deep, but we do not trust anymore, since the P. Rules don't have rules that are appropriate and known high quality waters don't get the protection of an exceptional designation.

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If you have questions or would like to discuss the issues, please contact me.

Sincerely,

Maureen Johnson
Stacy, Minnesota

763-444-4579
mjsciled@earthlink.net