

Minnesota Pollution Control Agency
Responses to the 2020 Draft Impaired Waters List Public Notice Comments
February 25, 2021

The 2020 Draft Impaired Waters List comment period began on November 12, 2019, and ended on January 14, 2020. The Minnesota Pollution Control Agency (MPCA) appreciates the public's engagement on the impaired waters list and all the comments provided.

The comments received are summarized below, along with the MPCA's responses. The [unabridged comments](#) are posted online on the MPCA [Impaired Waters List](#) website. See the same website for the 2020 Proposed Impaired Waters List and the [2020 Guidance Manual for Assessing the Quality of Minnesota's Surface Waters for Determination of Impairment: 305\(b\) Report and 303\(d\) List](#), referenced in this document.

Comment 1: Minnesota and Wisconsin need to protect the St. Croix River; concerned about hog farms and manure spills in Wisconsin.

The states of Minnesota and Wisconsin work collaboratively on issues related to the St. Croix River. The states collaborated to develop the Total Maximum Daily Load (TMDL) for [Lake St. Croix](#), which determines the reductions needed to help the lake achieve water quality goals. We also collaborated to develop the implementation plan to guide work to meet the goals of the TMDL. However, each state is required to enforce their own rules and laws pertaining to permitted facilities and spills. Because the spill referenced in the comment was not on a shared water, Minnesota does not have jurisdiction.

Comment 2: Minnesota and Wisconsin need to protect the St. Croix River; concerned about manure spills and different standards/practices in the states.

The states of Minnesota and Wisconsin work collaboratively on issues related to the St. Croix River. The states collaborated to develop the Total Maximum Daily Load (TMDL) for [Lake St. Croix](#), which determines the reductions needed to help the lake achieve water quality goals. We also collaborated to develop the implementation plan to guide work to meet the goals of the TMDL. While that work has not yet been completed for the specific river impairment, the lake TMDL and implementation plan cover the entire watershed and include actions needed from areas within and upstream of the impaired river reach. Those actions will help the river reach come into compliance with standards.

Each state develops, approves, and submits to EPA their own water quality standards. On border waters, we work collaboratively to ensure that there is awareness of the water quality assessment decisions being made. Ultimately, each state determines impairments according to their own rules and standards. The Environmental Protection Agency oversees water programs for the states. They approve our rules, water quality standards, oversee our permitting programs, and approve our impaired waters lists and TMDLs. The National Park Service does not play a role in approving water quality standards for states. We did coordinate with them and use National Park Service data as a part of our water quality assessment.

The states continue to work together as a part of the St. Croix Interagency Basin Planning Team. This team has been in existence since 1993 and includes members from state, local, and federal governments on both sides of the river. You can find more information on the coordinated effort to meet phosphorus reduction goals here: <https://www.pca.state.mn.us/water/st-croix-river-basin-interagency-water-resource-management-planning-effort>.

Comment 3: Statewide moratoriums on expansions of CAFOS are needed to protect the St. Croix River.

The states of Minnesota and Wisconsin each have their own state rules and statutes to follow for CAFO operations in addition to enforcement of the National Pollutant Discharge Elimination System (NPDES) rules.

All CAFOs (NPDES permitted, State Disposal System permitted and CAFOs not required to be permitted) are inspected by the Minnesota Pollution Control Agency on a routine basis with an appropriate mix of field inspections, offsite monitoring and compliance assistance. MPCA staff conduct the inspections in accordance with our EPA-approved NPDES Compliance Monitoring Strategy. CAFOs do not self-monitor in Minnesota.

Comment 4: Speed up protection of the unimpaired waters. Keep the Enbridge Line 3 out.

As part of the Legacy Amendment, the MPCA tracks progress on protection strategies. That tracking can be viewed here: <https://www.pca.state.mn.us/water/watershed-restoration-and-protection-strategy-status>. To view the specifics of these Watershed Restoration and Protection Strategies (WRAPS), choose the watershed of interest on this webpage: <https://www.pca.state.mn.us/water/watersheds>.

The MPCA issued a 401 certification for Line 3 which included consideration of requirements to protect unimpaired waters through antidegradation analyses.

Comments 5, 6, 8, 10, 11, 13, 15, 19: State and federal regulatory agencies plainly have the ability to identify water quality impairments in wild rice waters throughout the state. The impaired waters identified here must be included on the Draft List before it is sent to US EPA for approval, along with all impaired wild rice waters.

The MPCA's analysis of the eight waters suggested in the comments from Tribal leaders show that sulfate in seven of the waters exceed the 10 mg/L sulfate wild rice standard. However, in 2015 the Minnesota Legislature adopted wild rice legislation (1st Special Session, Chapter 4, Article 4, Section 136) which says that the agency shall not list waters as impaired for the wild rice sulfate water quality standard. Therefore these waters were not included in the final impaired waters list submission.

Comments 7: The St. Croix River is impaired due to a natural scientific ongoing event.

Thank you for your comment. The river is considered impaired because excess phosphorus and excess algae were found in that portion of the river. Due to the work from the Lake St. Croix Total Maximum Daily Load, it was determined that excess phosphorus occurred from multiple locations, including the Kettle, Sunrise and Snake river watersheds in Minnesota and Apple, Kinnickinnic, and Willow river watersheds in Wisconsin. <https://www.pca.state.mn.us/sites/default/files/wq-b6-12.pdf> A number of these tributaries discharge into the river upstream of the impaired location. There are also a number of permitted facilities upstream of the reach that has been listed. While the geology of the streambed is different, and different soils have different levels of phosphorus, we are unable to call an impairment naturally occurring if sources of phosphorus have been found that are human induced (wastewater and stormwater, logging, agricultural and urban land use, etc.).

Comments 8 and 19: Failure of the MPCA to engage in meaningful tribal consultation with Indian tribes is contrary to Executive Order 19-24 and disrespectful to original inhabitants.

Shakopee Mdewakanton Sioux Community and the Minnesota Indian Affairs Council provided comments relating to the need to improve government-to-government relations through effective tribal consultation. The comments specifically speak to the need for consultation to be timely and “provide adequate opportunities for Indian tribes to raise their concerns prior to and outside of the traditional notice and comment periods made available to the general citizenry of the state.”

The comment seems to speak specifically to a lack of consultation regarding listing waters as impaired for the wild rice sulfate standard. As noted above, comments specific to wild rice and sulfate are discussed separately. However, the MPCA engaged in consultation with Minnesota’s eleven federally recognized Tribes about a holistic path forward for the protection and restoration of wild rice in Minnesota. The MPCA also participated in the July 16, 2020 consultation between Governor Walz and Tribal leaders on this topic. The MPCA takes the need for consultation seriously, and is working to improve engagement and consultation.

Specifically, the MPCA increased our engagement with Tribal environmental staff during preparation of the 2020 impaired waters list. The Commissioner and several MPCA staff attended a meeting with Tribal environmental program staff on August 26, 2019 and discussed the impaired waters list. MPCA followed up with an invitation to discussion and request for specific areas of discussion. MPCA also provided a copy of Appendix E, the approach to listing Tribal waters, and information on the public notice plan for Impaired Waters list. The MPCA’s impaired waters coordinator and water assessment section manager attended the Minnesota Tribal Environmental Council meeting held on October 10, 2019 to share further information about the impaired waters list, the public notice period, and the process for commenting. We specifically called out areas where we wanted comments, including how tribal waters are described on the list. Tribal environmental staff were provided with an early copy of the list and public notice in mid-October, two weeks prior to the publication of the general public notice.

We understand that engagement is not consultation, but do appreciate our engagement with tribal environmental staff in reviewing data and making determinations about impaired waters. We have heard concerns about MPCA’s engagement and consultation on the impaired waters list and will continue to work to improve. To that end the MPCA has committed to working with the Minnesota Indian Affairs Council to revise the MPCA’s existing water Tribal consultation/coordination policy.

Comment 9: AUID 07010206-814 expanded existing impairments and relisted delisted waters where such actions are not supported by data.

The Metropolitan Council provided comments that included a detailed chronology of impaired waters listings and refinements through time leading to the current proposal. It appears that the primary concern is that the shape (or length) of the AUID will predetermine or constrain management actions, such that unnecessary limits would be required of one or more facilities that you operate. This concern is expressed most concisely on page 5 of the letter:

“If the impairments in the chart above were expanded to cover all of AUID 814, there is a potential for significant impacts on the Council and its ratepayers though the data show that the portions of the waterbody where the Council is discharging are not impaired and additional regulation of the Council will likely not materially improve water quality.”

MPCA values our partners' ongoing programs to monitor and protect our waters.

The longstanding PFOS impairment in the lower segment of Pool 2 of the Mississippi River is not expanded by the AUID consolidation of seven previous segments into one single segment (814). AUID 814 is simply a different sized bucket in which to catalog this segment. MPCA has flexibility in how it uses the impaired waters list, and the underlying data, to restore and protect waters. Federal regulations do not prescribe the exact means through which TMDLs are developed or NPDES permits are evaluated. Guidance on both TMDL development and the reasonable potential analysis for NPDES permits provides ample flexibility for reasonable implementation. In short, MPCA does not believe that the exact size or shape of an AUID pre-determines the specific actions needed to restore that water.

If the data used to document an impairment were collected within a very small section of a large AUID, as is the case with this situation, MPCA has the flexibility to investigate pollutant load sources and determine the reductions necessary to restore that water, regardless of whether the sources are located within or outside of the AUID of interest. If data demonstrate that conditions above a specific source within that AUID, like a wastewater outfall, are better than in the region of the excursion, these upstream data may be taken into consideration when making a reasonable potential determination. Conversely, if an impairment is documented in a small AUID, and the reductions necessary to remediate the impairment cannot be found from within that small location, we have the flexibility to investigate pollutant load reductions far upstream of that AUID. A good example of the latter would be Lake Pepin. We have implemented limits in hundreds of facilities upstream of Lake Pepin, including the innovative "umbrella" permit for five MetCouncil facilities. In short, the size of the AUID does not predetermine or constrain the methods MPCA may use to determine limits or develop TMDLs to remediate the impairment. In this way, consolidating AUIDs does not materially "expand" the impairment, it just changes the container in which the impairment is documented.

Comment 12: Biochemical oxygen demand and diel dissolved oxygen flux response variables leads to erroneous listings.

In EPA's approval letter, dated 1/23/2015, EPA approved Minnesota's Water Quality Standards for River Eutrophication, which include the causative variable Total Phosphorus and the response variables of Chlorophyll-a, Biochemical oxygen demand, diel dissolved oxygen flux, and pH. The accompanying decision document notes that "MPCA followed a process consistent with the four-step process set forth in EPA's Stressor-response Guidance to derive our eutrophication criteria," and that the response variables included were consistent with those provided in the [EPA Stressor-response Guidance](#).

The standards, as promulgated in rule and approved by EPA, state that biochemical oxygen demand and diel dissolved oxygen flux are independent response variables. The Guidance Manual aligns with the rule and standards and includes steps to evaluate the data to ensure that waters determine to be impaired, based on any response variable, are not listed inappropriately. MPCA does not agree that the use of the biochemical oxygen demand and diel dissolved oxygen flux response variables leads to erroneous listings.

Comment 14: South Center and North Center Lakes in Chisago County meet standards and should be removed from the Impaired Waters List.

South Center Lake (13-0027-00)

Documentation of the original listing is described below.

From 2008 Assessment: “13-0027 (South Center) – TP, chlorophyll-a, and Secchi all exceeded the threshold for fully supporting aquatic recreation use and the proposed nutrient criteria (55 µg/L, 48.5 µg/L, and 1.1 m, respectively). A DNR fishery survey was completed in 2005 and lake maps are available online. Based on the assessed data the lake should be listed.”

The original listing data compared to data collected after implementation of BMPs beginning in 2010 is displayed in Table 1.

Table 1. Lake Eutrophication Standards

Ecoregion	TP	Chl-a	Secchi
	µg/L	µg/L	meters
NCHF – Trophic State Thresholds for impairment (pre-2010 cycle)	< 45	< 18	> 1.1
NCHF – Aquatic Rec. Use (Class 2B)	<40	< 14	> 1.4
1994-2005 South Center Data (Original Listing Dataset)	55	48.5	1.1
2011-2019 South Center Data	32	21	1.6

After listing South Center Lake as impaired, BMP activities to improve water quality were conducted as described below:

“Since 2010, there have been hundreds of water quality Best Management Practices installed throughout the watershed on both the urban and rural sectors. These BMPs have collectively reduced hundreds of pounds of phosphorus from reaching the lakes within the Chisago Lakes Chain of Lakes Watershed. South Center Lake is at the “top” of the watershed and the targeting efforts have been on this side of the watershed directly affecting South Center Lake. BMP projects include: iron enhanced sand filters, water and sediment control basins, rain gardens, vegetated swales, grassed waterways, etc.”

From 2011 Assessment: “Current data agrees with existing impairment.”

From 2018 Assessment: South Center Lake has been monitored intensively over the past 10 years, since the original listing in 2008. The data shows a gradual shift from an impaired state because of BMPs implemented in the watershed beginning in 2010. By 2013, TP concentrations met the lake eutrophication standard and have continued to meet through 2017. The response variable Chl-a has shown improvements since implementation of BMPs and has a slight decreasing trend. However, Chl-a concentration have remained above the standard. Annual Secchi transparency means are at or greater than the 1.4m standard. Slight fluctuations occur on an annual basis but do not indicate degrading water quality. A summary of annual water quality for the past 10-year assessment window is displayed in Table 2 for South Center Lake. Chisago County collects water quality data annually on South Center and new data from 2018 and 2019 would be available prior to delisting on the 2020 impaired waters list. Discussions with Casey Thiel (Chisago SWCD), Chris Klucas (MPCA Project Manager), Rachel Olmanson (MPCA Project Manager), and Barb Peichel (BWSR) agree that another year of data could provide additional evidence that South Center is meeting water quality standards.

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South Center does not exhibit a trend; the water quality based on Secchi is holding steady. Long-term phosphorus average meets the criteria and long term Secchi meets the criteria. Chlorophyll-a does exceed the standard. Phosphorus concentrations and Secchi transparency have met the standard since 2013. Guidance allows for total phosphorus and a single response variable to meet in order to delist the waterbody. BMPs have yielded improvements in all parameters since the original listing. Ongoing work continues in the watershed through the Chisago Lakes Lake Improvement District and Chisago County through the [Lake Improvement District Water Resource Management Plan](#). MPCA recommends that South Center Lake be removed from the 2020 Impaired Waters List.

Table 2. South Center Lake Annual Water Quality Statistics.

Year	TP	SE (+/-)	Chl-a	SE (+/-)	Secchi	SE (+/-)
2008	39.4	4.0	18.8	6.7	1.6	0.5
2009	One Data Point					
2010	One Data Point					
2011	46.3	5.9	24.9	5.9	1.0	0.1
2012	44.3	4.3	44.0	10.7	0.7	0.3
2013	27.1	3.4	19.5	4.1	1.6	0.4
2014	38.3	2.3	14.5	3.3	1.2	0.1
2015	22.8	1.8	20.5	3.9	1.7	0.3
2016	25.8	1.9	18.3	3.6	1.9	0.3
2017	32.3	2.8	22.6	4.6	1.4	0.2
2018	25	4.3	12.1	2.9	2.3	0.2
2019	36.5	3.4	16.8	4.0	1.6	0.4

North Center Lake (13-0032-01)

Documentation of the original listing is described below.

From 2008 Assessment: “13-0032-01 (North Center) – TP, chlorophyll-a, and Secchi greatly exceed the current listing thresholds and the proposed nutrient criteria (67 µg/L, 60.2 µg/L, and 0.9 m, respectively). A DNR fishery survey was completed in 2005; results and lake maps are available online. Based on the assessed data the lake should be listed.”

The original listing data compared to data collected after implementation of BMPs beginning in 2010 is displayed in Table 1.

Table 1. Lake Eutrophication Standards

Ecoregion	TP	Chl-a	Secchi
	µg/L	µg/L	meters
NCHF – Trophic State Thresholds for impairment (pre-2010 cycle)	< 45	< 18	> 1.1
NCHF – Aquatic Rec. Use (Class 2B) shallow lakes	<60	< 20	> 1.0
1994-2005 South Center Data (Original Listing Dataset)	67	60.2	0.9
2011-2019 South Center Data	57	29	1.4
2013-2019 South Center Data	46	21	1.3

After listing North Center Lake as impaired, BMP activities to improve water quality were conducted as described below:

“Since 2010, there have been hundreds of water quality Best Management Practices installed throughout the watershed on both the urban and rural sectors. These BMPs have collectively reduced hundreds of pounds of phosphorus from reaching the lakes within the Chisago Lakes Chain of Lakes Watershed. North Center Lake is at the “top” of the watershed and the targeting efforts have been on this side of the watershed directly affecting North Center Lake. BMP projects include: iron enhanced sand filters, water and sediment control basins, rain gardens, vegetated swales, grassed waterways, etc.”

From 2011 Assessment: “Current data agrees with existing impairment.”

From 2018 Assessment: North Center Lake has been monitored intensively over the past 10 years, since the original listing in 2008. The data shows a gradual shift from an impaired state because of BMPs implemented in the watershed beginning in 2010. By 2013, TP concentrations met the lake eutrophication standard and have continued to meet through 2017. The response variable Chl-a has shown improvements since implementation of BMPs. However, Chl-a concentration have remained above the standard. Annual Secchi transparency means are at or greater than the 1.4m standard. Slight fluctuations occur on an annual basis but do not indicate degrading water quality. A summary of annual water quality for the past 10-year assessment window is displayed in Table 2 for North Center Lake. Chisago County collects water quality data annually on North Center and new data from 2018 and 2019 would be available prior to delisting on the 2020 impaired waters list. Discussions with Casey Thiel (Chisago SWCD), Chris Klucas (MPCA Project Manager), Rachel Olmanson (MPCA Project Manager), and Barb Peichel (BWSR) agree that another year of data could provide additional evidence that North Center is meeting water quality standards.

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Since 2013, phosphorus and Secchi transparency have meet thresholds for shallow lakes in the ecoregion. There is a statistically significant improving trend in Secchi transparency, indicating improving conditions present on the lake. Chlorophyll-a conditions have improved since the original listing; however, concentrations still exceed the standard. Guidance allows for total phosphorus and a single response variable to meet in order to delist the waterbody. BMPs have yielded improvements in all parameters since the original listing. Ongoing work continues in the watershed through the Chisago Lakes Lake Improvement District and Chisago County through the [Lake Improvement District Water Resource Management Plan](#). MPCA recommends that South Center Lake be removed from the 2020 Impaired Waters List.

Table 2. North Center Lake Annual Water Quality Statistics.

Year	TP	SE (+/-)	Chl-a	SE (+/-)	Secchi	SE (+/-)
2008					1.2	0.3
2009	81.4	10.0	48.7	16.8	1.0	0.2
2010	69.5	5.6	28.8	5.1	1.1	0.1
2011	59.1	1.9	26.1	3.9	1.0	0.1
2012	63.6	4.9	48.9	11.5	1.0	0.1
2013	45.1	1.8	17.8	4.8	1.2	0.1
2014	52.4	2.1	16.1	5.6	1.5	0.3
2015	48.9	5.4	28.9	6.7	1.0	0.1
2016	44.9	4.0	20.5	2.2	1.2	0.1
2017	51.4	9.5	25.8	8.3	1.2	0.4
2018	35.8	5.0	23.6	11.1	1.6	0.3
2019	43.3	5.0	15.1	6.4	1.4	0.3

Comment 15: The timeline for addressing mercury impairments still on the TMDL List is unacceptably prolonged; MPCA does not have a plan to address these; MPCA needs to make these a priority; MPCA needs to resume the St. Louis River watershed mercury TMDL.

The MPCA agrees that there is a need for additional research; mercury in the environment is a complex issue. MPCA continues to conduct and support research to better understand the watershed processes that convert inorganic mercury to methylmercury.

With that said, the MPCA has renewed efforts to complete mercury impairments in the St. Louis River and Cloquet River Watersheds. The timing of this renewed effort will build upon completion of the St. Louis River and pending approval of the Cloquet River WRAPS, and will be coordinated with the WRAPS update for the St. Louis River. Also in development is the St. Louis River One Watershed, One Plan (1W1P), which began in summer 2020 and encompasses the St. Louis River and Cloquet River Watersheds. So, as a general rule future mercury TMDLs will be completed in a process separate from WRAPS. For the TMDLs in the St. Louis River & Cloquet River Watersheds, this process will capitalize on ongoing planning efforts, including the St. Louis River WRAPS to the extent practical.

The MPCA will be providing more details about the plan for these TMDLS over the next few months, including via web pages and at the annual mercury TMDL stakeholder meeting. The WRAPS report will be updated with current information about that plan before being finalized.

Comment 16: Faille Lake (77-0195-00) original nutrient listing was in error.

MPCA does not agree with the commenter that the original listing of Faille Lake was in error. The original lake listing occurred on the 2006 Impaired Waters List. Data supporting the 2006 listing was complete and accurate. Data used met the criteria as those criteria are described in MPCA's *Guidance Manual For Assessing the Quality of Minnesota Surface Waters for the Determination of Impairment 305(b) Report and 303(d) List*, October 2005, doc. wq-iw104d. Data used showed total phosphorus of 166 ug/L, chlorophyll-a of 22.5 ug/L, and 1.1 meters Secchi clarity. The listing was consistent with the narrative rules in place in 2006 (Minn Rules 7050.0150, subp. 3), and with the water quality thresholds in place at that time (Minn. Rules 7050.0150, subp. 5). The thresholds at the time of the 2006 listing were total phosphorus less than 45 ug/L, chlorophyll-a less than 18 ug/L, and/or Secchi greater than 1.1 meters. The data met minimum data requirements (count and parameter) and exceeded the thresholds in place to support the narrative standard.

MPCA does not agree with the commenter that restoration activities did not contribute to the reduction of total phosphorus in Faille Lake. Improvements in nutrients and clarity coincided with changes to the operation of the Osakis wastewater treatment facility resulting in reductions of total phosphorus discharges such that the facility met or nearly met its final limit of 121 kg/year for total phosphorus. Facility operational improvements are the only changes observed in the watershed.

Comment 17: Questions about the assessment of Long Lake Creek, 04010201-A25.

Question 1 – Timeliness: Is it still appropriate for MPCA to propose the 303(d) listing and subsequent development of a TMDL based on data from a single sampling event from over ten years ago?

Response: The benthic macroinvertebrate impairment decision from AUID 04010201-A25 is appropriate given the poor macroinvertebrate index of biological integrity (M-IBI) score from 09LS083. MPCA Guidance (*Guidance Manual for Assessing Quality of Minnesota Surface Water for Determination of Impairment: 305(b) Report and 303(d) List*) states that, “a stream reach or lake is considered to be not supporting if: IBI scores for at least one biological assemblage indicate impairment.” As stated in section A (only biological indicator data available) of the “Data requirements and determination of impaired condition” section of the guidance manual, “a not supporting decision may be reached when all fish and/or invertebrate IBI scores fall below the lower 90% confidence limit. A not supporting determination does not require agreement between the indicator assemblages; one assemblage indicating severe impairment is sufficient for a not supporting determination.” The macroinvertebrate index of biological integrity score (M-IBI) from 09LS083 is 28.2; the general use threshold for Northern Forest Glide-Pool Streams is 51, with a confidence interval of ± 13.6 . The M-IBI score is 9.2 points below the lower confidence limit indicating severe impairment.

Regarding the data being almost ten years old at time of assessment, the MPCA uses a ten-year assessment window. The Watershed Assessment Team's (WAT) comment from 03/19/2019 notes that this stream was opted-in to the 2019 surface water assessment process to evaluate data from Cycle 1 of the Watershed Approach now that tiered aquatic life uses (TALU) have been adopted in rule. At the time of the Cycle 1 assessment of the St. Louis River Watershed (2011), biological indicators were not used to evaluate aquatic life use support of channelized streams. This policy recognized that a TALU framework was needed to accurately assess some channelized waterbodies, and that such a framework was in development and would be implemented before most Cycle 1 data became more than ten years old. Opt-in assessments of Cycle 1 biological data are the means by which MPCA is completing a statewide evaluation of water quality for Cycle 1 of the Watershed Approach. In the case of Long Lake Creek (04010202-A25), a use attainability analysis (UAA)

determined that habitat is not limiting the biology and therefore a general warm water use designation is appropriate. Had this data been assessed in 2011 during the Cycle 1 assessment of the St. Louis River Watershed, the outcome would have been the same.

Question 2 – Representativeness: Mr. Beranek (Cleveland-Cliffs Inc.) has expressed concern with the sampling location, indicating that the sampling location is not representative of the entirety of Long Lake Creek and that sedimentation may be the primary cause of the low M-IBI score. Mr. Beranek suggests that the sampling site is located in a farm field where cattle are “allowed to freely roam and cross the stream at multiple sites.”

Response: MPCA’s biomonitoring program utilized a systematic site selection methodology during Cycle 1 of the Watershed Approach. All minor watersheds (HUC-14) greater than 10 square miles were sampled at the lowest accessible point in the watershed. Proximity to large streams was also a factor in selection of a site location; if one stream enters another stream/river more than 2 Strahler stream orders larger, the station should be placed at least 1 river mile upstream of the confluence. The MPCA’s monitoring station on Long Lake Creek (09LS083) is approximately 1.5 miles upstream of the confluence with the St. Louis River, and approximately 1 river mile downstream of Long Lake (69-0653-00), consistent with site selection protocols.

Regarding cattle access to the creek, neither fish nor aquatic macroinvertebrate monitoring crews that visited 09LS083 in 2009 noted stressors associated with cattle access. The “Surrounding Land Use” and “Riparian Zone” components of the Minnesota Stream Habitat Assessment (MSHA) indicate an extensive (>100m) riparian zone composed of forest, wetland, prairie, or shrubs. The overall MSHA score is 56 which may be narratively characterized as “good.” Observations from the aquatic macroinvertebrate visit (08/18/2009) suggest the site is within an inactive and recovering pasture. At this time we do not know the stressor(s) that may be contributing to the aquatic invertebrate impairment. A stressor identification may be completed within the next few years.

Question 3 – Appropriateness: Mr. Beranek is inquiring as to whether or not the 303(d) listing of Long Lake Creek (04010201-A25) for aquatic life will result in more stringent effluent limitations.

A 303(d) listing, alone, does not require MPCA to make a limit determination. But the underlying data, from which the impaired waters determination was made, may inform the critical effluent limit review test, referred to as reasonable potential. Federal NPDES regulations require that effluent limits be included in permits where discharges are found to have the reasonable potential to cause or contribute to an exceedance of a state water quality standard (40 CFR 122.44(d)). The 303(d) impaired waters list prompts development of a total maximum daily load (TMDL), which in turn, may contain wasteload allocations (WLAs) for permitted wastewater dischargers. Effluent limits must be consistent with the assumptions of a TMDL WLA, but TMDL WLAs do not, in all circumstances, result in new effluent limits (40 CFR 130.7). The critical test is whether the discharger is found to have reasonable potential to cause or contribute to an exceedance of a state water quality standard.

In this circumstance, with an impairment listing based on biological data, a stressor identification study would need to be completed to determine the pollutant specific or habitat factor(s) responsible for the low IBI score. If the issue is attributed to a pollutant parameter, a TMDL study would then be completed to determine the pollutant-specific reduction necessary to restore the water. This reduction may be reflected in load and/or WLAs. An effluent limit could be derived from this wasteload allocation, only if the discharge is also found to have the reasonable potential to cause or contribute to the exceedance of the standard, as translated through the TMDL process.

Comment 18: Comments regarding assessment methodology for IBIs in the 2020 *Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment 305(b) Report and 303(d) List*.

Question 1: How should the resulting M-IBI (Macroinvertebrate – Index of Biological Integrity) and F-IBI (Fish – Index of Biological Integrity) scores be handled when multiple scores are calculating in the same watercourse?

1a: Should all M-IBI scores (all stations, all years) be averaged together for that watercourse?

1b: Should the median M-IBI score be used when comparing to M-IBI biocriteria thresholds?

Response: This response will cover both questions (1A & 1B). As part of the water quality assessment process, MPCA staff review all M-IBI scores within a given assessment unit. When multiple index of biological integrity (IBI) scores are available from an assessment unit, and are within the 10 year assessment window, each score should be considered individually. Individual sample characteristics (year/location of data collection, conditions during data collection, etc.) need to be evaluated and factored into the decision-making process when making an overall parameter-level assessment for each biological indicator. While an average or median IBI score is not computed or compared to the impairment threshold to determine its status, multiple scores are considered together to get a sense of the general condition of the stream. For instance, if a stream has IBI scores greatly surpassing criteria in two years, but is slightly failing in another, then we typically would not deem that stream impaired for biology. Again, additional considerations regarding the representativeness of each score also factors into that decision.

Question 2: Mr. Sutherland (U.S. Steel Corp.) would like the presentation of a hypothetical example in the guidance document such as a watercourse (*a northern headwater stream, for example*) that has multiple biological survey stations and has been surveyed for benthic macroinvertebrates and fish for multiple years.

Response: Here is a dataset that was used in aquatic life assessments from the Lake of the Woods Watershed (09030009 | Rainy River Basin) for the East Branch of the Warroad River (09030009-504).

There are multiple invertebrate samples from multiple stations, invertebrate classes (Class 3 = Northern Forest Streams RR (05RN115 & 12RN010) | Class 4 = Northern Forest Streams GP (10EM017)).

WID	FieldNum	WBName	VisitYear	InvertClass	MIBI	Biocriteria
09030009-504	05RN115	Warroad River, East Branch	2005	3	50.62	53
09030009-504	05RN115	Warroad River, East Branch	2014	3	52.14	53
09030009-504	10EM017	Warroad River, East Branch	2010	4	40.96	51
09030009-504	10EM017	Warroad River, East Branch	2012	4	44.33	51
09030009-504	12RN010	Warroad River, East Branch	2012	3	50.54	53
09030009-504	12RN010	Warroad River, East Branch	2012	3	55.94	53

There are multiple fish samples from multiple stations, fish classes (Class 6 = Northern Headwaters (10EM017 & 12RN010) | Class 7 = Low Gradient Streams (05RN115)).

WID	FieldNum	WBName	VisitYear	FishClass	FIBI	Biocriteria
09030009-504	05RN115	Warroad River, East Branch	2005	7	86.22	53
09030009-504	05RN115	Warroad River, East Branch	2014	7	86.77	53
09030009-504	10EM017	Warroad River, East Branch	2010	6	72.82	51
09030009-504	10EM017	Warroad River, East Branch	2012	6	58.21	51
09030009-504	12RN010	Warroad River, East Branch	2012	6	48.90	53
09030009-504	12RN010	Warroad River, East Branch	2012	6	56.89	53

These data lead to an aquatic life use impairment based on the results of the benthic macroinvertebrate bioassessment. Given the current level of detail in guidance manual (*2020 Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment 305(b) Report and 303(d) List (wq-iw1-04k)*) we do not feel it would be appropriate to present such an example in that publication.

Question 3: Mr. Sutherland would like the M-IBI stream groups to account for the same watercourse having the potential for both Riffle/Run and Glide/Pool reaches.

Response: We account for streams having multiple macroinvertebrate index of biological integrity (M-IBI) classes by evaluating each sample reach individually and that the same watercourse could have stations along it that vary between these two M-IBI classes and are assessed accordingly.

Question 4: Mr. Sutherland would like a citation to a publication that includes the 90% upper and lower confidence interval data for M-IBI and F-IBI score benchmarks.

Response: The table below is being added to Appendix F of the *2020 Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment 305(b) Report and 303(d) List* that is posted on our web site.

	Class	Class Name	Use Class	General (g) Use IBI Threshold	Exceptional (e) Use IBI Threshold	Modified (m) Use IBI Threshold	90% Confidence Limit (±)
Fish IBI Classes	1	Southern Rivers	2B	49	71		11
	2	Southern Streams	2B	50	66	35	9
	3	Southern Headwaters	2B	55	74	33	7
	4	Northern Rivers	2B	38	67		9
	5	Northern Streams	2B	47	61	35	9
	6	Northern Headwaters	2B	42	68	23	16
	7	Low Gradient	2B	42	70	15	10
	10	Southern Coldwater	2A	50	82		13
	11	Northern Coldwater	2A	35	60		10
Macroinvertebrate IBI Classes	1	Northern Forest Rivers	2B	49	77		10.8
	2	Prairie Forest Rivers	2B	31	63		10.8
	3	Northern Forest Streams RR	2B	53	82		12.6
	4	Northern Forest Streams GP	2B	51	76	37	13.6
	5	Southern Streams RR	2B	37	62	24	12.6
	6	Southern Forest Streams GP	2B	43	66	30	13.6
	7	Prairie Streams GP	2B	41	69	22	13.6
	8	Northern Coldwater	2A	32	52		12.4
	9	Southern Coldwater	2A	43	72		13.8