The Evolution of the Wild Rice Sulfate Standard

AND WHAT IT MEANS FOR YOUR COMMUNITY

INTRODUCTION

OVERVIEW

- Background of Wild Rice Standard
- History of the development and implementation of the standard
- Recent enforcement activity
- Summary of concerns regarding standard
- How does it affect your facility and how should you respond
- Next steps

WHAT IS A WATER QUALITY STANDARD (WQS)?

The federal Clean Water Act requires states to adopt water quality standards ("WQS"), which contain:

- Defined beneficial uses —fishing, swimming, aquatic life and other recreation
  - ✓ **Production of wild rice**
- Numeric standards — amounts of specific pollutants allowed in a body of water and still protects it for the beneficial uses
  - ✓ **10 milligram per liter sulfate standard**
- Narrative standards — statements of unacceptable conditions in and on the water
- Adopted by MPCA and approved by EPA.
- Enforced by MPCA through National Pollutant Discharge Elimination System **(NPDES) Permits**

WHAT IS THE WILD RICE SULFATE STANDARD?

- Minnesota has a **10 milligram per liter (mg/L)** sulfate standard designed to protect wild rice.

- 10 mg/L sulfate standard applies to “**waters used for production of wild rice** during periods when the rice may be susceptible to damage by high sulfate levels.”

WHY DO WE PROTECT WILD RICE?

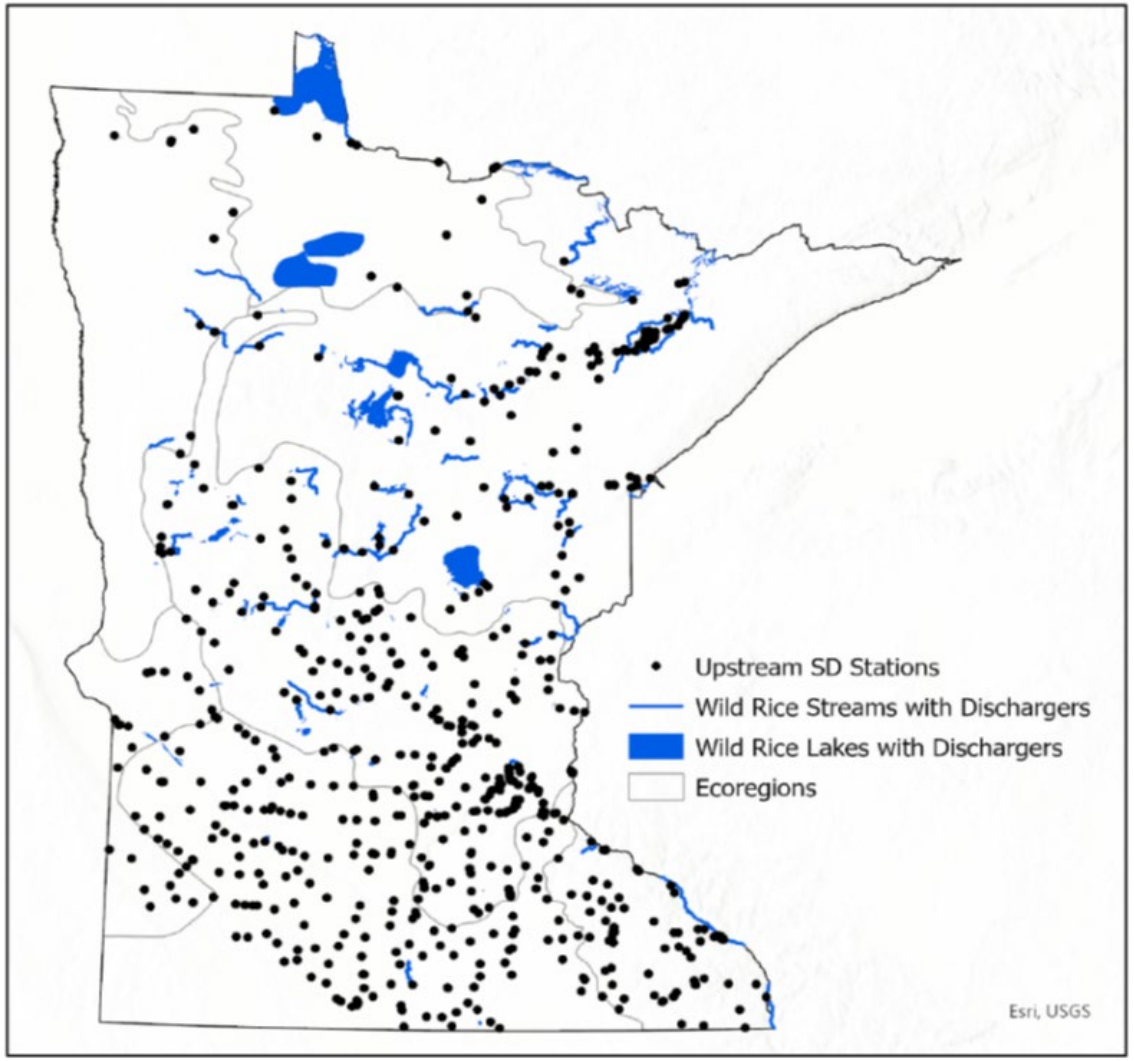
- Manoomin (Ojibwe) and Psíŋ (Dakota) refer to wild rice (*Zizania palustris*), a sacred, nutrient-dense aquatic grass native to the Great Lakes region.
- A cultural, spiritual, and dietary staple for Indigenous peoples and Tribal Nations in our region.
- Important food source for human, aquatic and other animal life throughout Minnesota and beyond.
- Wild Rice is the official state grain

RULE HAS POTENTIAL STATE-WIDE IMPACT

Early estimates suggest that **more than 800 NPDES permit holders state-wide** are impacted including:

- Hundreds of cities and other municipal facilities
- More than 40 agricultural and food industries
- All major mining operations in Northeastern MN
- Other manufacturing and industrial facilities

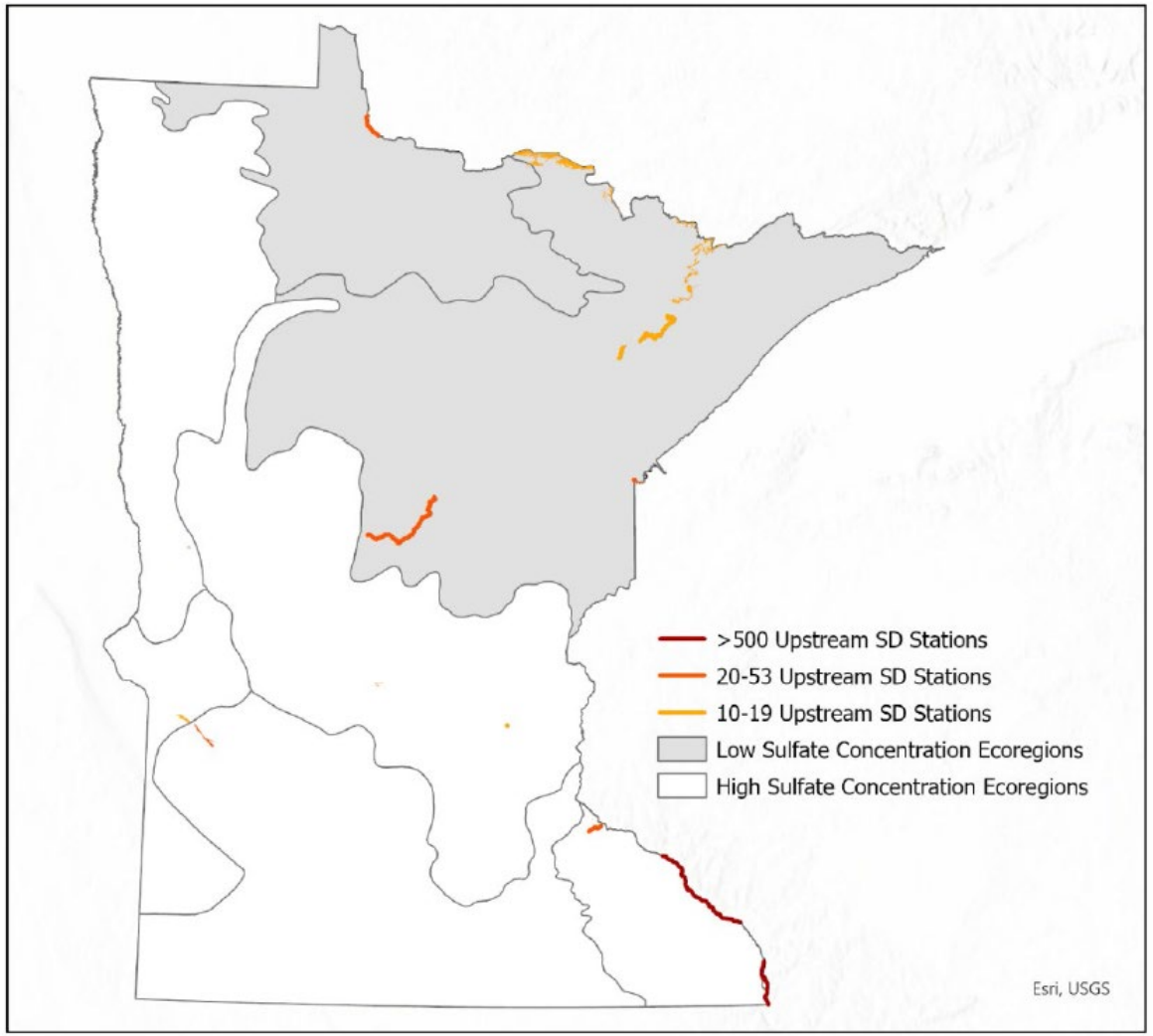
Figure 4. SD stations upstream of waters used for production of wild rice with an upstream point source contribution.



LOWER MISSISSIPPI RIVER IMPAIRMENTS IMPACT > 500 PERMITS

- Mississippi River Pools have high natural background concentrations
- Substantial evidence suggests that wild rice growth in Mississippi River is healthy despite sulfate concentrations exceeding 30 mg/L
- MPCA considering a site-specific standard for lower pools of Mississippi River

Figure 12. Counts of upstream SD stations for waters used for production of wild rice with at least 10 upstrea SD stations.



COMPLIANCE WITH THE STANDARD IS PROHIBITIVELY EXPENSIVE

- Removing sulfate would require reverse osmosis (“RO”), evaporation & crystallization
  - RO is extremely expensive to install and operate.

  ✓MPCA study determined it technologically and economically infeasible for cities

- Uses massive amounts of energy contributing (Greenhouse gas)

- Generates a highly concentrated and potentially toxic brine that is difficult and expensive to manage.

- Total 20-year present value costs range **from $65 million to $387 million** depending on flow rate, influent sulfate concentration, and required effluent quality. High level estimated based on PCA/Bolton & Menck study adjusted for inflation.

HOW DID WE GET HERE?

HISTORY & RECENT DEVELOPMENTS

EARLY DAYS: 1973 - 2019

1973

MPCA adopted 10 mg/L sulfate standard to protect wild rice (“WR”) based on science showing sulfate impacts on WR growth in Northeastern MN.

2010

EPA directs MPCA to begin enforcing the standard.

2011–2014

MPCA sponsors studies, convenes advisory council, and prepares for rulemaking at direction of legislature

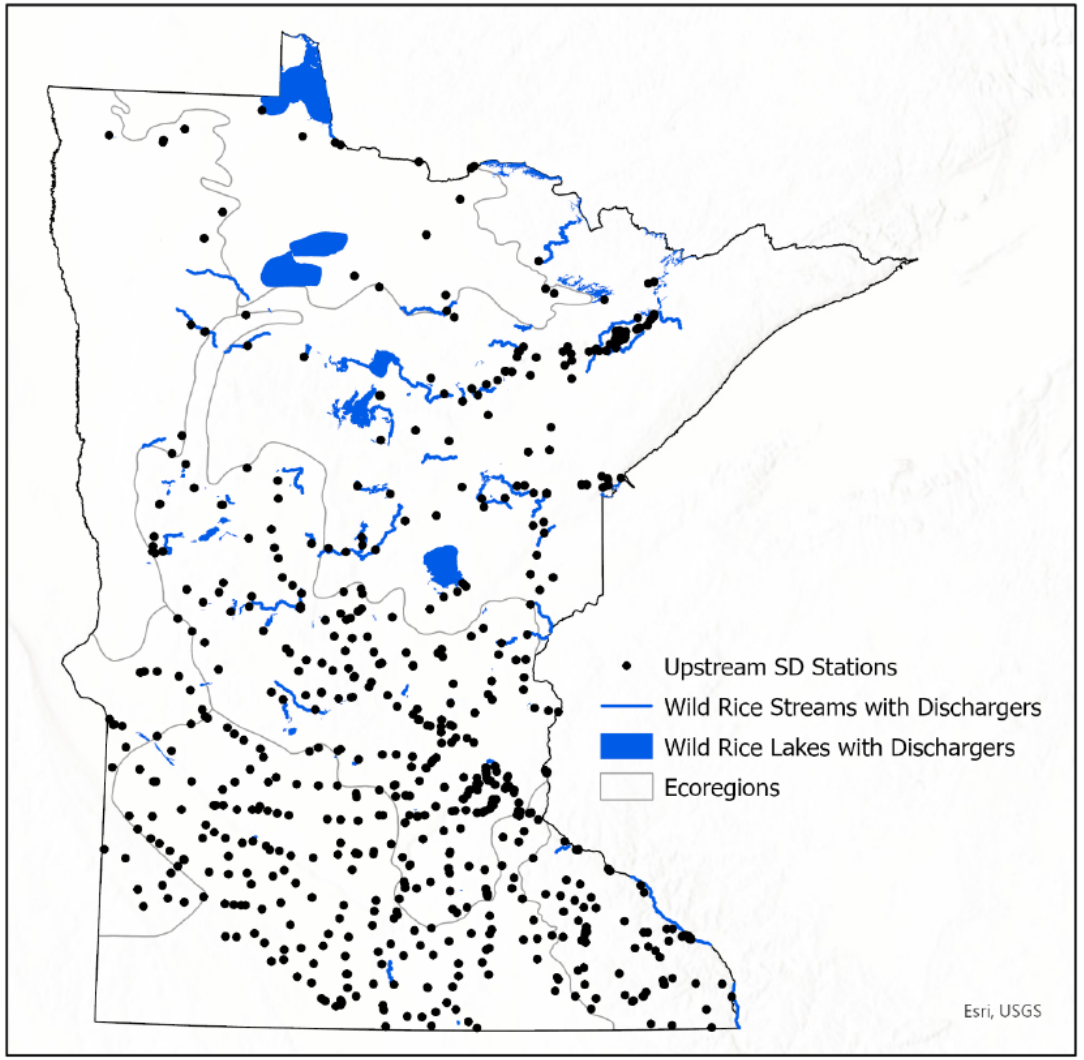
2017–2019

MPCA develops and releases draft rule that applied formula. ALJ throws it out on technical grounds, leaving 10 Mg/L in place.

2021: EPA STEPS UP ENFORCEMENT

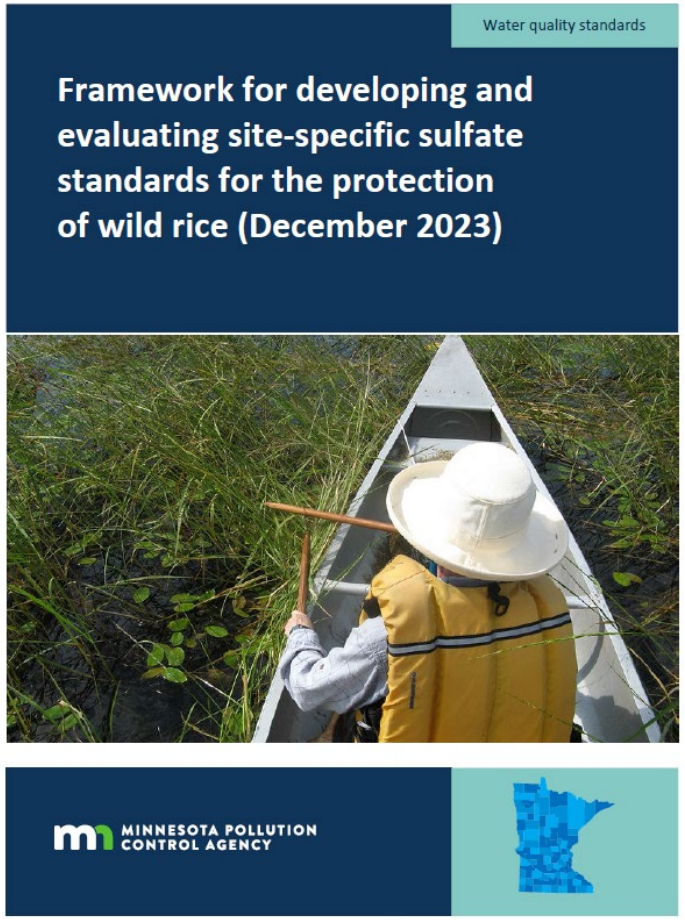
- Environmental groups pressure EPA to pressure MPCA to enforce rule
- EPA adds roughly 30 waterbodies to state's Impaired Waters List for sulfate/wild rice impairments.
  - ✓ Additional waters added in 2024 (55 total to date)
  - ✓ List include waterbodies throughout the state including lower pools of the Mississippi River
- Impairment listing triggers requirement to enforce standard in state permits under federal law.
- EPA's action impacts **more than 800 NPDES permit holders state-wide**

Figure 4. SD stations upstream of waters used for production of wild rice with an upstream point source contribution.



MPCA ENFORCEMENT STRATEGY: 2023 - ?

- MPCA develops guidance documents
  - Upstream facilities get monitoring requirements
  - This could lead to permit limits, and/or variances, compliance schedules or site-specific standards



AFFECTED STAKEHOLDERS RESPOND

CGMC, Agrigrowth, RAMS, and other stakeholder groups express concern over impact of implementation and call on MPCA to refine its approach

AGRIGROWTH
Advancing Agriculture and Food

ONE RANGE
RAMS
ONE VOICE

COALITION OF
GREATER MN CITIES

MPCA ANNOUNCES NEW STUDIES: 2025

- MPCA to conduct literature of peer reviewed science “to validate impacts of sulfate on wild rice.”
- MPCA to work with academic experts to understand and document the variation in naturally occurring sulfate levels across the state.
- Estimated completion: late 2026
- What happens to permits in interim?

❖ **That’s a great question . . . We are getting there . . .**

AgriGrowth, CGMC & RAMS

- Support transparent and robust literature review process
- Provide specific peer reviewed literature that MPCA should review
- Request MPCA to provide clarity on permitting and next steps
- Request for continued engagement of the public

January 27, 2026

Commissioner Katrina Kessler
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155

Re: Sulfate Standard Literature Review and Background Concentration Study

Dear Commissioner Kessler:

We are writing on behalf of the Coalition of Greater Minnesota Cities (CGMC), Minnesota AgriGrowth, and the Range Association of Municipalities and Schools (RAMS) regarding the Minnesota Pollution Control Agency (MPCA)'s recent announcement about the wild rice sulfate standard. Collectively, our organizations represent cities and businesses from across the state whose wastewater facilities will be impacted by the implementation of the standard.

Foremost, we want to express our overall appreciation to you, agency leadership, and the Administration for the new thoughtful approach to the sulfate-wild rice standard. We support the agency's decision to conduct a formal literature review of peer-reviewed science to validate the impacts of sulfate on wild rice and a more detailed evaluation of background sulfate levels in Minnesota waters. We are writing to provide support for and feedback on those efforts.

Our organizations have significant concerns about the state's existing 10 mg/L sulfate standard and its statewide implementation. As previously acknowledged by the MPCA in rulemaking, letters to the EPA, and elsewhere, the existing 10 milligram per liter (mg/L) standard is outdated and inaccurate.

Because of the acknowledged inaccuracy of the standard, its broad implementation will either impose significant costs on cities, businesses, and our economy that go beyond what is necessary to protect wild rice, or those costs will be imposed, and wild rice will go unprotected. We are pleased that the MPCA is taking new steps to address this concern and is taking a hard look at what current science says is needed to protect and restore wild rice.

PROBLEMS WITH THE STANDARD

THE 10 MG/L STANDARD IS OUTDATED & INACCURATE

MPCA has determined "***based on its scientific evidence . . . that the existing standard requires substantial revision.***"*

"MPCA believes it would be ***unreasonable for it to enforce the sulfate standard in existing permits*** because requiring compliance with the Standard would ***result in the expenditure of resources that may ultimately prove unnecessary***."*

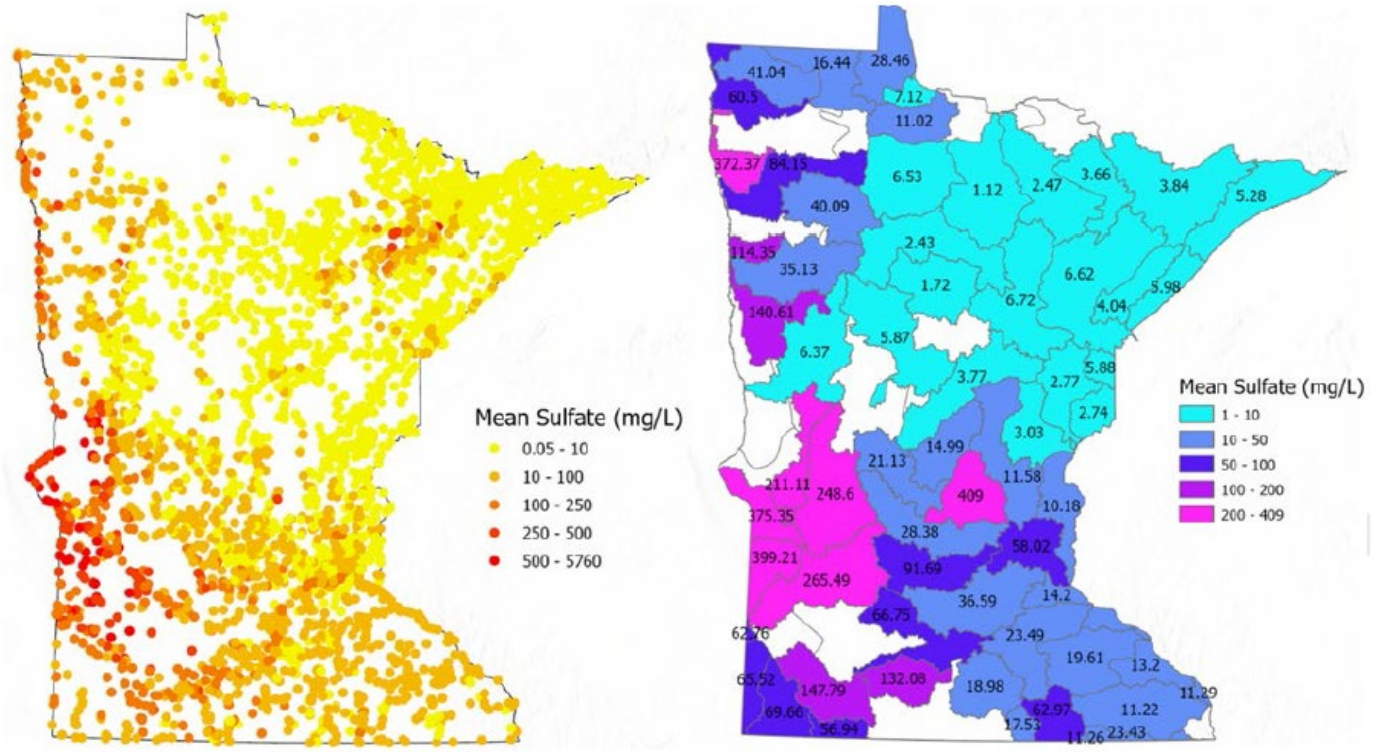
MPCA's "past research has shown that the **standard is often either overprotective or underprotective**."+

*Letter to Tinka Hyde, U.S. EPA, August 12, 2016

+Letter to Terra Fong, U.S. EPA, June 29, 2021

PROBLEMS CONTINUED:

- MPCA study found wild rice is harmed when sulfate is converted into sulfide
- Current standard does not accurately address site-specific factors that impact conversion from sulfate to sulfide
- Current standard does not address other factors that impact wild rice growth (i.e. hydrology and other aquatic plants)
- Current standard does not account for regional variation of natural sulfate levels



"**A key concern [of MPCA]** is that the 10 mg/L wild rice sulfate standard does not take into account the **regional variation in natural sulfate levels across the state, or the differing impacts of sulfate based on very site-specific conditions.**"+

+Letter to Terra Fong, U.S. EPA, June 29, 2021

SUMMARY OF CONCERNS

- Major state-wide impacts to cities, businesses & economy

- Potential for state-wide negative economic impacts
  - ✓Cost to cities will be largely passed on to residents
  - ✓Cost to agricultural industry could cause significant harm MN's food and fuel economy
  - ✓Cost to mining industry could result in shutdowns and job losses

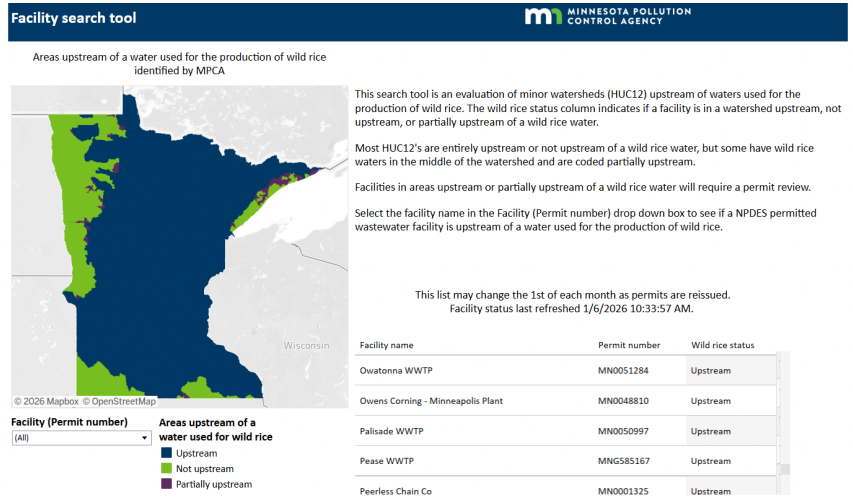
- Implementation of inaccurate standard could result in billons of dollars of investments and major negative economic impacts that do not result in improvements to wild rice health.

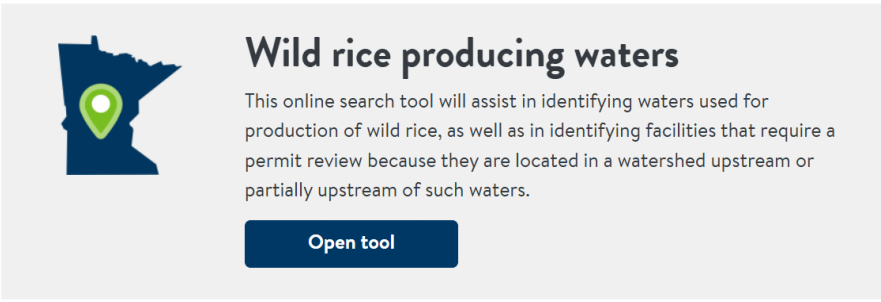
What does this mean for my Permit?

HOW DO I DETERMINE IF MY FACILITY IS IMPACTED?

Visit

https://www.pca.state.mn.us/air-water-land-climate/protecting-wild-rice-waters





HOW CAN MPCA ENFORCE THE 10 MG/L STANDARD BASED ON ITS PREVIOUS FINDINGS?

- 2011 & 2015 legislation require MPCA to study revise the standard
- Previous studies shows the standard is outdated and inaccurate in application.
- MPCA attempted to revise the standard to improve accuracy, but to date has not done so.

*Letter to Tinka Hyde, U.S. EPA, August 12, 2016

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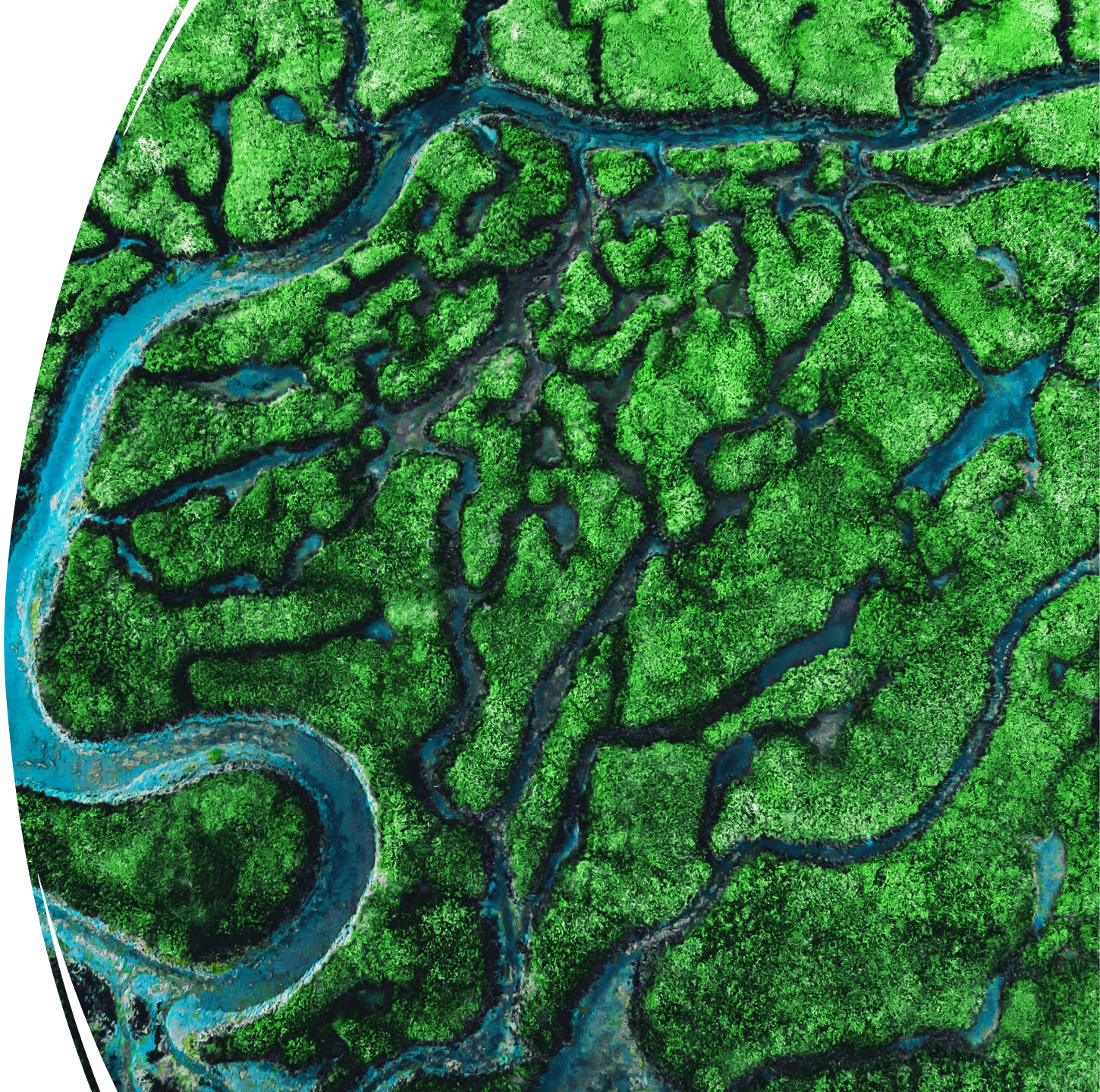
IT'S COMPLICATED

- The 10 mg/L standard is still on the books
- Federal & state law require implementation of standards

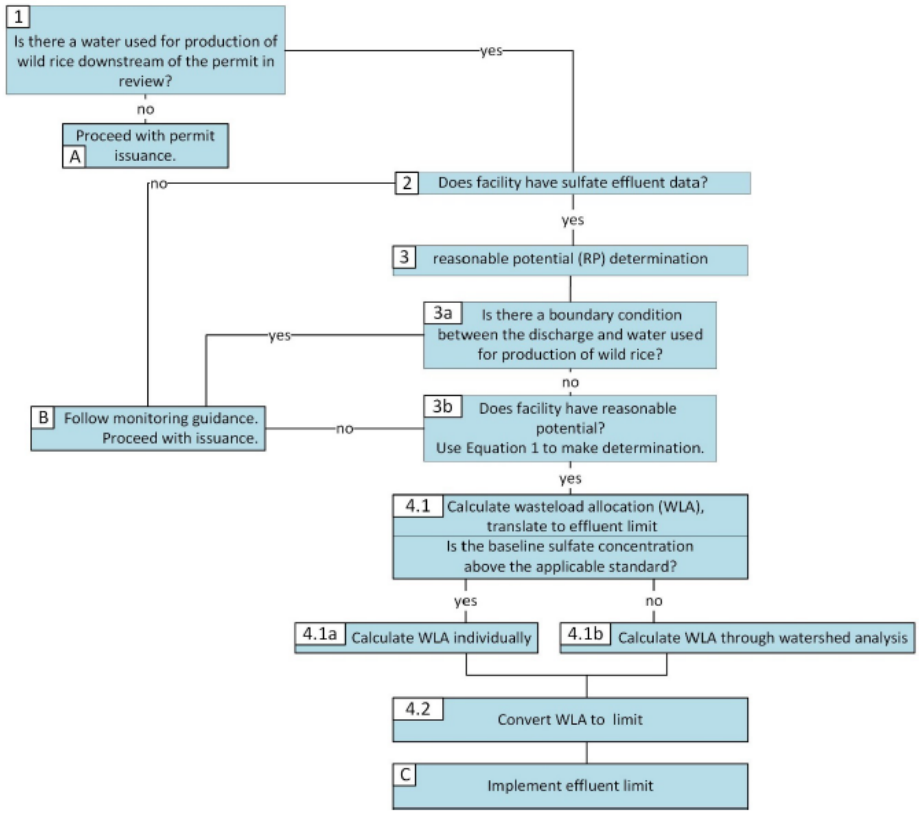


Summary of MPCA Enforcement Strategy

- Monitoring requirements
- Sulfate limits
- Variances for Cities
- Compliance Schedules
- Possible Multiple Discharge Variance
- Site-Specific Standards

Wild Rice Sulfate Limit Decision Process

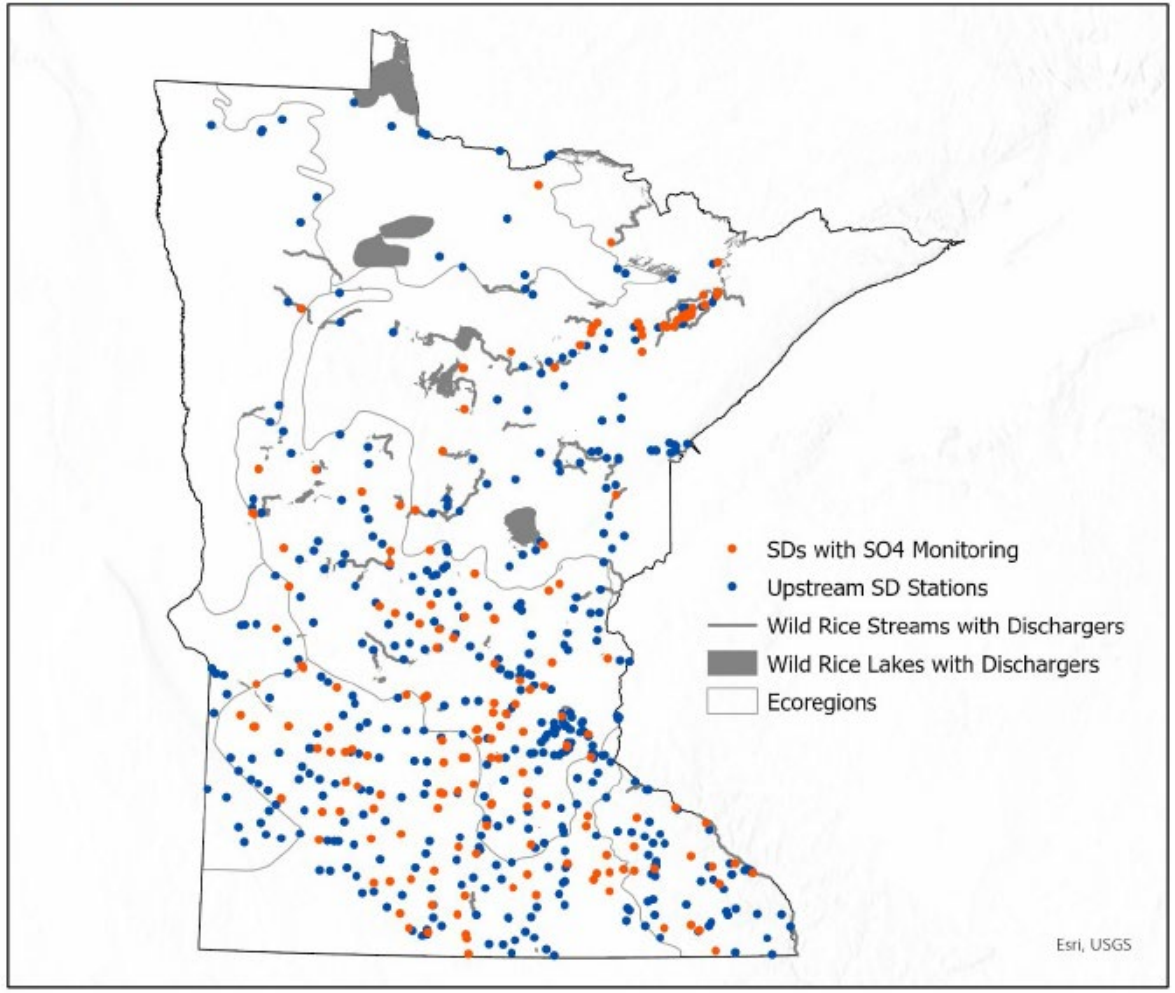
Figure 2. Decision tree for wild rice sulfate effluent limits in Minnesota.



MOST FACILITIES WILL RECEIVE MONITORING REQUIREMENTS (FOR NOW)

- Roughly 70 percent of impacted permits do not have monitoring requirements.
- MPCA has clear authority to include new monitoring for sulfate in your permit.
- Monitoring requirements will lead to permit limits.

Figure 5. Surface discharge stations upstream of waters used for production of wild rice that do (orange) or not (blue) monitor for sulfate.



DOES MY FACILITY NEED A SUFLATE LIMIT?

DOES THE FACILITY CONTRIBUTE TO A SULFATE IMPAIRMENT?

- Federal/state regulations require permit limits for all discharges that **cause or contribute** to the exceedance of a water quality standard.

- **MPCA's General rule** – if your facility is upstream of a sulfate impaired water, and you discharge sulfate above 10 mg/L, you get a sulfate limit.

  - Exception: "Boundary Conditions" - waters used for production of wild rice that meet the standard between your discharge and impairment

Variances

- **Individual Variances**
  - ✓ Require taking a sulfate limit based on outdated standard
  - ✓ Delay compliance for 5 years + (renewable)
  - ✓ Required MPCA/EPA approval
  - ✓ Requires meeting interim limit and steps toward final compliance
  - ✓ Generally granted on economic grounds – "substantial and wide-spread social and economic impacts"
  - ✓ Administrative challenges due to number of applications

- Multi-discharge Variance (MDV)
  - ✓ One variance that covers a class of dischargers
  - ✓ Focused on municipal facilities &
  - ✓ Administratively more efficient

❖ **Very few economic or other variances are granted to industrial dischargers**

Compliance Schedules & Site-Specific Standards

Compliance Schedules

- Typically for 5-year permit cycle but may be longer if justified
- Provides additional time to achieve compliance or construct and operate needed technology
- Requires enforceable schedule of action that result in final compliance

Site-Specific Standards

- New standard based on site-specific information
- Require significant data and technical work
- Time intensive & expensive
- Require MPCA and EPA approval

WHAT IF I GET NOTICE OF A NEW SULFATE LIMIT FOR MY FACILITY?

ENFORCEMENT DURING LITERATURE REVIEW?

“In the interim, potential paths forward for NPDES permits may include a **temporary delay** in permit development, a permit requirement to **monitor for sulfate**, or **a sulfate limit** based on the current water quality standard. These decisions will be made on a **case-by-case basis** in conversation with permit holders and applicants.”

NEW LIMIT NOTIFICATION LETTER

Letter provides notice of proposed sulfate limit and typically requests:

- ✓Evaluation of ability to comply.
- ✓Proposed schedule with actions leading to compliance.
- ✓Current debt service on treatment infrastructure (City's only).
- ✓Choice to pursue variance or other option.
- ✓Provides response deadline.

The Minnesota Pollution Control Agency (MPCA) has completed a review of recent monitoring data collected from the city of West Concord's Wastewater Treatment Facility (Facility) and downstream receiving waters as part of the permit reissuance process.

Based on the review of this data, the MPCA has determined the need for new water quality-based effluent limits (WQBEL) and monitoring requirements to be placed in the reissued permit to ensure compliance with applicable quality standards. The new limits specific to the Facility are summarized in Table 1 below.

Table 1. Summary of new effluent limits for West Concord WWTP

Parameter	Calendar Month Average Limit	Daily Maximum Limit
Total Sulfate (Final Limit)	15.9 milligrams per Liter (mg/L) [1] 28.5 kilograms per day (kg/day) [1]	
Total Chloride (Final Limit)	230 mg/L [1]	331 mg/L [1]

[1] Final limit - effective date to be determined in either a compliance schedule or variance.

Upon initial review by the MPCA it appears that the Facility cannot comply with the final chloride or sulfate limits under current conditions or at design flow. As such, the City will need to choose a path forward, which may involve either a schedule of compliance or a variance for one or both parameters.

RESPONDING TO NOTIFICATION LETTER

Initial response has important legal significance for future permit and compliance options.

Engage experts and decision makers early to carefully evaluate basis for the limit and assess options.

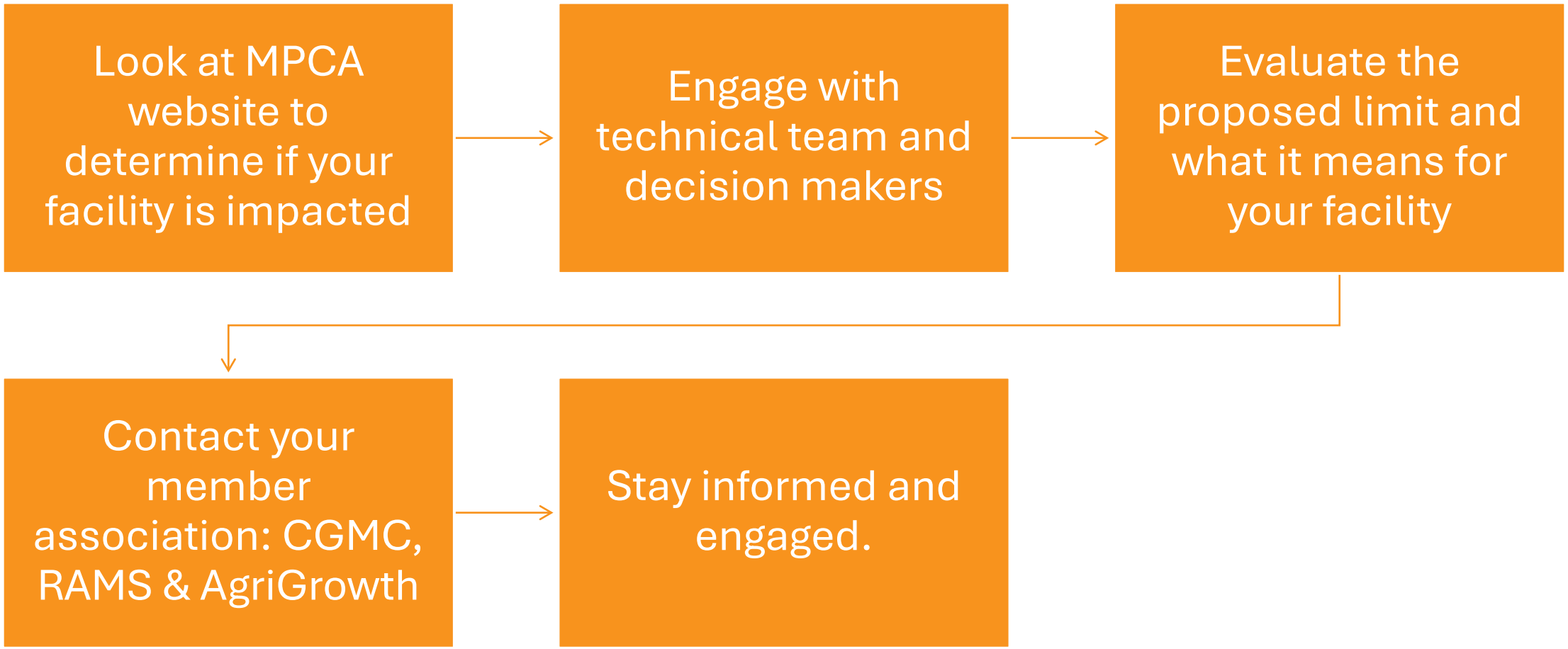
Request additional time to respond as needed.

Critical to raise technical and legal questions & concerns.

THINGS TO CONSIDER

- What is the ambient background concentration of sulfate in my area?
- Is it technologically and economically feasibly for my facility to comply?
- Does my facility qualify for a variance?
- Would my facility benefit from a Site-Specific Standard?

KEY TAKEAWAYS



WHAT'S THE SOLUTION?

- A state-wide solution is needed to ensure that wild rice can thrive without bankrupting cities and business and causing undue harm to the state's economy.
- Commitment to make changes to the state-wide standard to:
  - ✓ Incorporate best-available science.
  - ✓ Ensure accurate protection of wild rice.
  - ✓ Avoid unnecessary costs.
- Site-specific standards & Variances
- Continued collaborative engagement with Tribal Nations to work to address their concerns
- Potential alternative approach with more emphasis and investment on comprehensive wild rice restoration actives

WHAT'S NEXT?

Questions?

CONTACT

Elizabeth Wefel

(651) 259-1924

eawefel@flaherty-hood.com

Daniel Marx

(651) 259-1907

dmmarx@flaherty-hood.com