Water Quality

September 2025

Flowing forward: Trends in Minnesota's lakes and rivers

MINNESOTA POLLUTION CONTROL AGENCY

CLEAN WATER LAND & LEGACY AMENDMENT

Authors

MPCA

Contributors/acknowledgements

The many data monitors across the state that this would not be possible without.

Cover photo

MPCA photo

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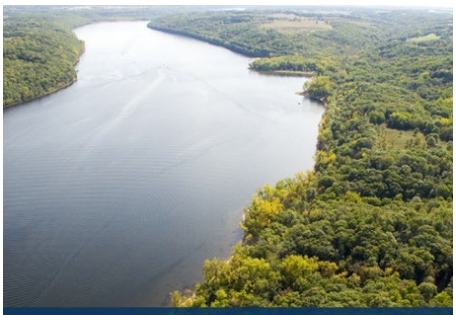
Executive summary

Watershed monitoring

Every 10 years, the Minnesota Pollution Control Agency (MPCA) and its partners systematically evaluate waters of each major watershed in Minnesota. The Clean Water Fund supports water quality monitoring necessary to complete statewide assessments of surface water quality and trends, according to Section 114D.20 MN statutes. This process begins with comprehensive lake and stream water quality and biological monitoring. Once completed, the monitoring data is assessed to determine if the water bodies meet state water quality standards; see Watershed approach to water quality. The first monitoring cycle (2006 – 2017) provided data necessary to characterize water quality in all watersheds for the first time in state history.



What is a watershed?
A watershed is an area of land that drains to the same body of water, usually a river.

The watershed monitoring in Cycle 2 (2018 – 2028) had a defined purpose: to expand our understanding of Minnesota's water resources through re-evaluation of conditions after 10 years. It includes a refined monitoring approach that addresses:

- Watershed-specific needs
- Beneficial uses and water quality (WQ) standards
- Effectiveness of implementation actions
- WQ permitting

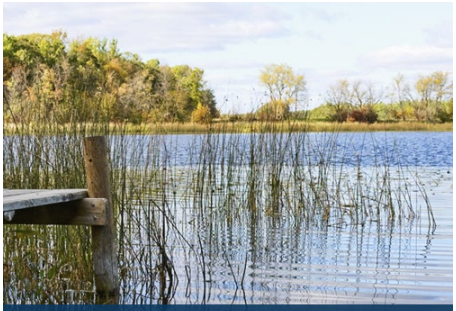
As scientists re-evaluated watersheds, they have calculated the change in the biological condition of rivers, streams, and ditches across 37 major watersheds. On average, fish index of biological integrity (F-IBI) scores increased by 1.5 (0-100 scale), while macroinvertebrate index of biological integrity (M-IBI) scores increased by 6.3 points. **Both results are statistically significant and are indicative of improving ecological condition of Minnesota's rivers and streams.**

What is IBI?
IBI is a numeric score from 0-100 that grades a fish or macroinvertebrate community's overall health.

While results from individual and groups of watersheds are varied, most show either improved biological condition or have no discernible change. There has been only one statistically significant decrease in a biological condition, with the F-IBI decreasing by five points across the four watersheds that drain into the Missouri River basin in the southwest corner of the state.

Pollutant load monitoring

The MPCA's Watershed Pollutant Load Monitoring Network began in 2008, with the goal of understanding long-term trends in water quality concentration and load across the state. It currently includes 199 sites. Most of the major watershed and basin sites were operational by 2012 and subwatershed sites were operational by 2016. To calculate trends in loads, many years of data are needed, as it is generally harder to detect load changes, due to the high amount of variability that flow brings to the loading result. The MPCA scientists model load trends with the model: Weighted Regressions on Time, Discharge, and Season (WRTDS). Phosphorus, nitrate, and total nitrogen trends calculated through WRTDS at the Mississippi River at Winona will be published in the Nutrient Reduction Strategy in 2025.



What is pollutant load?
It is the total amount of a pollutant carried by a water body over a given amount of time.

Where approximately 10 years of consistent streamflow and water-quality data are available, we see **phosphorus concentrations in Minnesota's larger rivers generally decreasing or staying the same**. Total suspended solids show little to no significant change overall, with slightly more decreases than increases. Nitrate levels have generally increased across the state, but the **number of significant increases has dropped** in the most recent update, which includes 2021-2022 data. For example, from 2008 to 2020 there were 14 monitoring sites with significant increases. Extending the period to 2008-2022, that number fell to just five.

Successes and ongoing needs

There are a growing number of success stories showing real improvements in water quality. Restoring lakes and rivers takes time and sustained effort, but the Clean Water Fund has led measurable improvements in water quality. To date, **the MPCA has removed 95 lakes and river segments from the impaired waters list because they are now meeting water quality standards due to restoration activities.** A review of 20 years of lake nutrient impairment delistings in Minnesota found that these improvements did not come from "quick fixes," but from long-term, sustained work. To learn more about protecting and improving Minnesota's watersheds, visit our healthier watersheds webpage. It is updated each July, based on data from the previous year.

Minnesota's waterways continue to face threats. Ongoing monitoring helps us understand improvements in protection and restoration, as well as impairments, caused by stressors on the landscape.

In 2028, monitoring of the Snake River, Pomme de Terre River, and North Fork Crow River watersheds will begin Cycle 3 of the watershed monitoring. This will occur at same time as monitoring the four remaining watersheds for Cycle 2.

Are Minnesota's fish and invertebrate communities doing better?

Yes—fish and macroinvertebrates show a statistically significant improvement.

Background

Since 2008, the MPCA has collected full biological community data from streams across the state. The agency completes intensive monitoring in each of Minnesota's 80 major watersheds once every 10 years, with an average of eight watersheds annually. During the first cycle through the state, the biological monitoring focused on streams ranging in size from the outlets of major watersheds to small watersheds of approximately five square miles. This enabled the MPCA to characterize the water quality for the first time in all the watersheds. The data was foundational in completing Watershed Monitoring and Assessment Reports for each watershed (example: Mississippi River Twin Cities Watershed Monitoring and Assessment Report).

When scientists returned to watersheds to monitor a second time, the focus shifted to detecting trends and change, along with continuing assessment of waterbodies, as directed by the Clean Water Act. The network of stream biological sites in each watershed is used to estimate change over time. As more data points are collected, the ability to detect change is more powerful. In the Watershed Assessment and Trends Update—reports produced for each watershed that summarize what changed since the first assessment—there is a section dedicated to the question, "Are the biological conditions changing for the watershed?" The following is an excerpt from the Mississippi River — Twin Cities Watershed Assessment and Trends Update report.

> *A key objective of the 2020 and 2021 monitoring effort was to evaluate whether water quality has changed since 2010 (Figure 9). If water quality has improved, it is important to understand to what extent strategy development, planning, and implementation, based on the initial work and combined with actions that were already underway, may be responsible for those improvements. It is equally important to understand if water quality does not appear to be changing or is declining. Either way, the knowledge will help inform future planning and monitoring activities. Trends in four different aspects of water quality were analyzed to provide as robust a picture as possible of what is happening in the Mississippi River – Twin Cities Watershed: 1) Streamflow, sediment (total suspended solids), total phosphorus (TP), and nitrogen (nitrate) 2) Biological communities 3) Clarity of lakes 4) Climate.*
>
> *The average macroinvertebrate IBI [Index of Biological Integrity, a key measure of the health of aquatic life] score for the Mississippi River – Twin Cities Watershed increased by 2.4 points [out of 100] between 2010 and 2020, which does not represent a statistically significant change in biological condition. Fish IBI scores across the watershed increased by 7.6 points which represents a statistically significant increase in biological condition for the watershed.*

For lakes, the MPCA and Department of Natural Resources (DNR) are monitoring and assessing fish communities and will track changes over time, the same practice used for streams and rivers. This work started in the 2013 watershed monitoring year. Lakes are anticipated to be sampled every 10 years (Lake Index of Biological Integrity).

Comparison of river and stream biological conditions between cycles of MPCA's Intensive Watershed Monitoring (IWM)

Intensive Watershed Monitoring (IWM) is the process of gathering data in surface waters that align with the watershed approach. The first ten-year cycle of IWM began in 2006 with the Snake River (in the St. Croix River Basin) Watershed and ended in 2017. In 2017, the second cycle of IWM began with monitoring efforts in watersheds that were first visited in the early years of Cycle 1 and will end in 2028. Currently, monitoring results are available for Cycle 2 up through the watersheds that were monitored in 2022, representing roughly half of Minnesota's watersheds.

The MPCA uses biological indicators in addition to water quality parameters to evaluate the condition of aquatic life inhabiting water bodies. These include a fish index of biological integrity (F-IBI) and a macroinvertebrate index of biological integrity (M-IBI). There are nine different indices for each aquatic community that factor in natural differences based on region (e.g., northern forested vs. southern prairie), stream type (high vs. low gradient), stream size (headwater stream vs. large river), and thermal regime (e.g., cold vs. warmwater). Each IBI has a 0-100 range of scores where 0 represents a severely degraded condition while 100 represents a minimally disturbed ecological condition.

The MPCA compares IBI scores between Cycle 1 and Cycle 2 at monitoring stations that were sampled in both time periods. There are separate analyses for fish and macroinvertebrates. Analyses were performed for individual watersheds (or pre-determined groupings of major watersheds; see map) and for all the watersheds monitored up to this point in Cycle 2 combined.

Results in biological community change analysis

Fish IBI scores were compared at 702 monitoring stations across 37 major watersheds, while the M-IBI was compared at 676 stations. On average, F-IBI scores increased by 1.5 (0-100 scale) while M-IBI scores increased by 6.3 points. Both of these results are statistically significant and are indicative of improving ecological condition of Minnesota's rivers and streams.

Results for individual and groups of watersheds varied, with most watersheds exhibiting either improved biological condition or having no discernable change. Consistent with the statewide analysis, stream macroinvertebrate condition is improving in more watersheds than are fish communities (Figure 1). It is also encouraging that despite extreme weather patterns that have occurred in Cycle 2 (e.g., 2021 and 2023 droughts), there has been only one watershed grouping with a statistically significant decrease in biological condition, with the F-IBI decreasing by five points across the four watersheds that drain into the Missouri River basin in the southwest corner of the state (Figure 2).

Figure 1. Comparison of river and stream macroinvertebrate community condition between IWM Cycle 1 and Cycle 2. Improve = statistically significant increase in average M-IBI score in Cycle 2. Major watersheds within bolded boundaries (i.e., groupings) were analyzed together in the watershed change analysis.

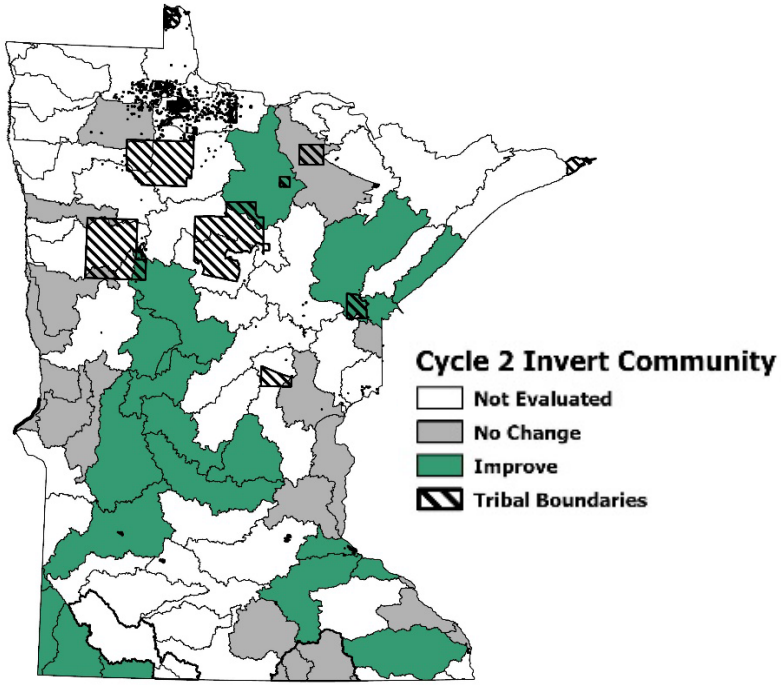
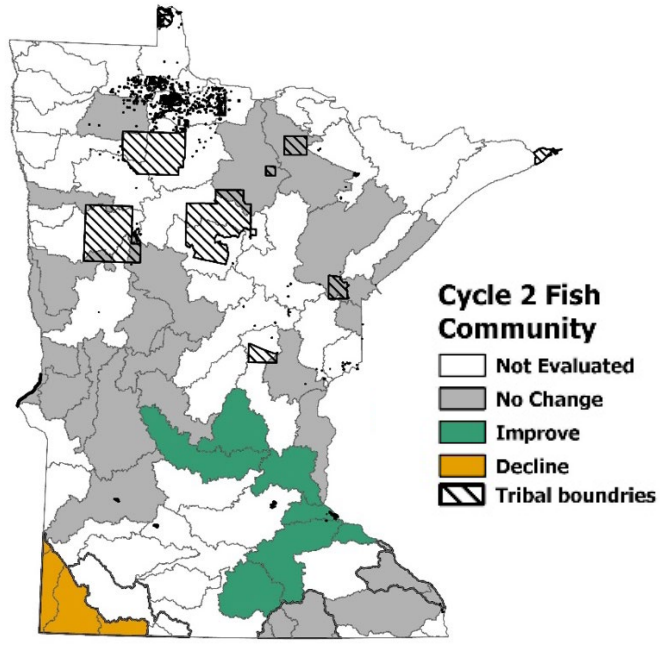


Figure 2. Comparison of river and stream fish community condition between IWM Cycle 1 and Cycle 2. Improve = statistically significant increase in average F-IBI score in Cycle 2; Decline = statistically significant decrease in average F-IBI score in Cycle 2. Major watersheds within bolded boundaries (i.e., groupings) were analyzed together in the watershed change analysis.



Have the nutrient and sediment decreased?

Phosphorus concentration levels in Minnesota's major rivers are generally stable or declining. Total suspended solids show mostly no significant trend, with slightly more sites showing decreases than increases. Nitrate levels had been rising but now show fewer significant increases in the latest data.

Load trends in streams and rivers

The MPCA's Watershed Pollutant Load Monitoring Network began in 2008 to understand long-term trends in water quality pollutants concentration and load around the state and currently includes 199 sites. Most of the major watershed and basin sites were operational by 2012. Most of the agency's subwatershed sites were operational by 2016.

Year-to-year changes to load are very detectable. Researchers get a distinct value every year, so they can track those changes quite closely. Load trends are more difficult to track. When the dataset is small, it's hard to calculate meaningful statistics. It is possible to model some load trends with the computer program Weighted Regressions on Time, Discharge, and Season (WRTDS), though it's worth noting that even in the WRTDS model, it's generally harder to detect load changes due to the high amount of variability that flow brings to the loading result. A handful of the older WPLMN sites have enough data to run WRTDS on, and that's an area to explore more in the future.

Also of note, loads are especially susceptible to very wet and dry periods because it is mathematically inseparable from flow conditions (flow x concentration = load). Load trends (or even visual representations) for sites without sufficiently long-term records will be strongly influenced by whether the most recent data represents wet years or dry years.

The Nutrient Reduction Strategy compiles the latest science, research, and data and recommends the most effective strategies to reduce nutrients in our waters from both point and nonpoint sources. The Nutrient Reduction Strategy addresses loading trends by modeling large river sites on a multi-agency level using WRTDS. That will be the best resource to understand the nitrogen and phosphorus load output of Minnesota. The MPCA updated the WRTDS results for the Mississippi River at Winona, which has the benefit of being downstream enough to capture the pollutant load output of much of the state.

Concentration trends in streams and rivers

Where approximately 10 years of consistent streamflow and water-quality data are available, phosphorus concentrations in Minnesota's larger rivers are generally decreasing or staying the same. Total suspended solids have mostly shown no significant trend, with a couple more sites with decreases than increases. Nitrate trends had been generally increasing, but there are noticeably fewer significant increases as of the most recent update. Water quality varies greatly by region. Over 50% of streams have no trend detected.

These trends have been adjusted for flow, but the MPCA can't completely rule out the effects of recent low-flow years or the high-flow years before them. Water quality trends are often complex—some parts are getting better, while others are getting worse. A significant trend doesn't always mean a big or fast change; it just means a steady change in one direction. If there's no trend, it could mean that good-quality streams are staying good, and poor-quality streams are staying poor.

The MPCA scientists will be able to begin calculating subwatershed concentration trends within the next year (for those monitoring sites installed earlier and have at least 10 years of data).

Figure 3. Graph of Total Phosphorus, Nitrate, Total Suspended Solids trends in concentration. Number indicates how many WPLMN sites are reporting that trend (2008-2022).

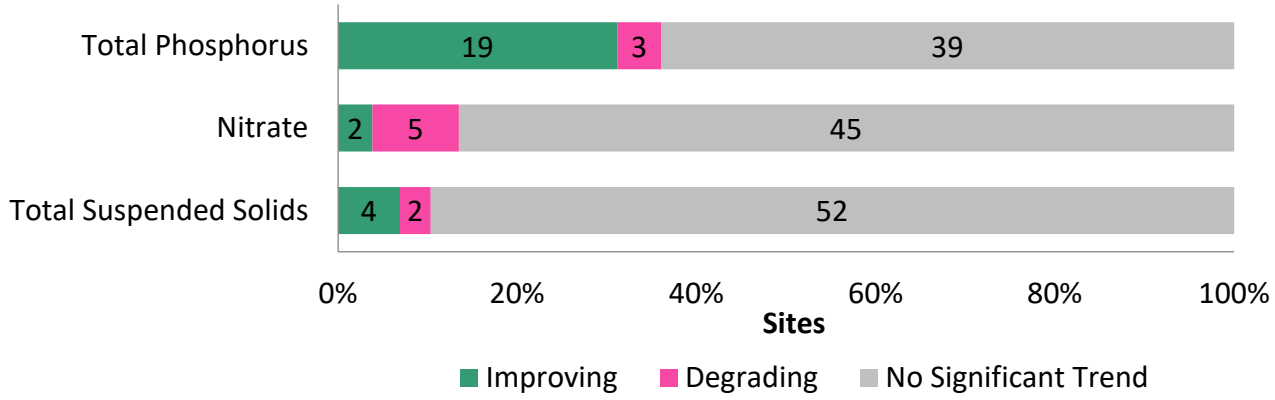
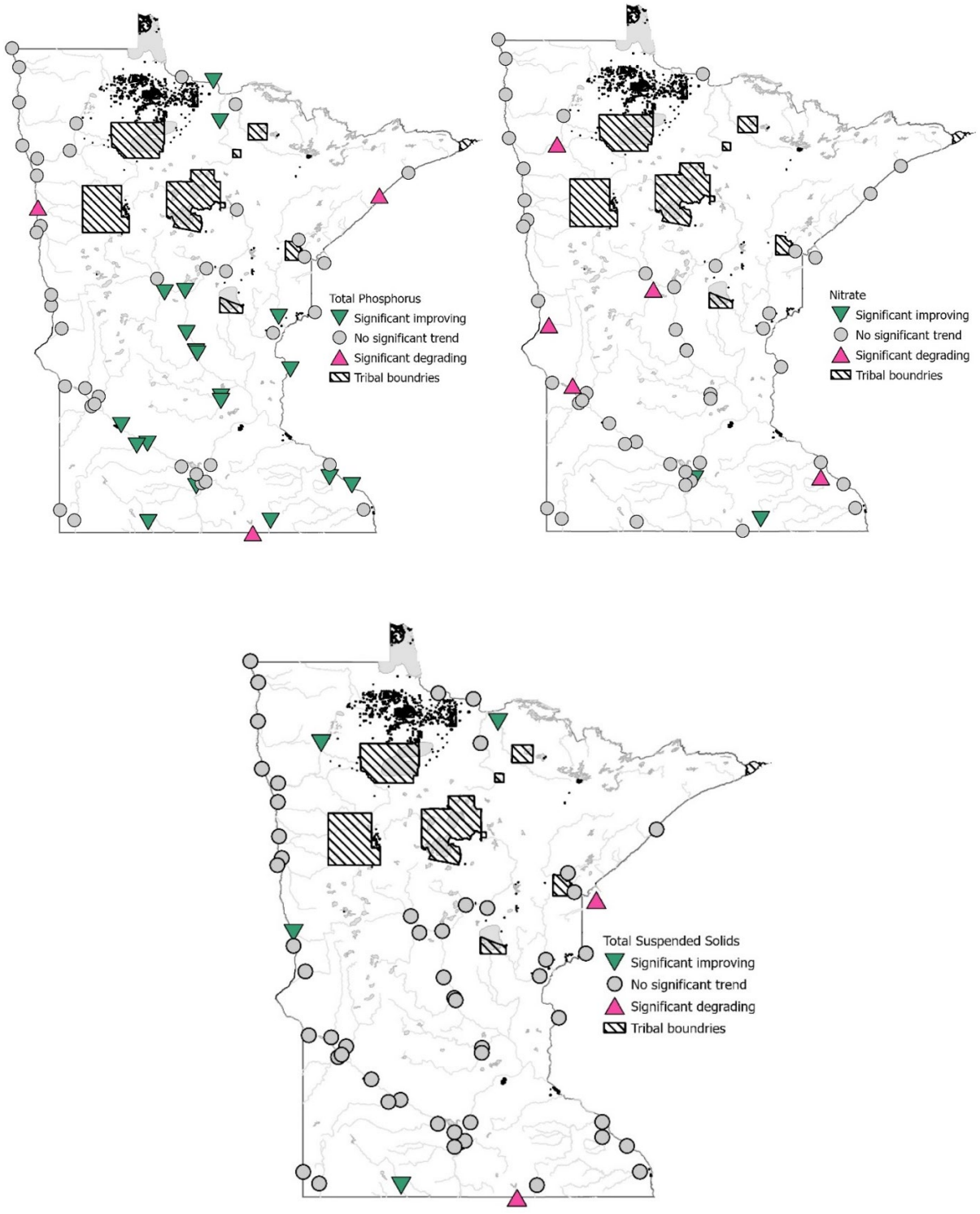


Figure 4. Maps of Total Phosphorus, Nitrate, Total Suspended Solids concentration trends (2008-2022).



Water clarity trends in streams and rivers

Water clarity is the primary measurement taken by our volunteers. In the 50 years of volunteer water monitoring, 2,571 stream sites have been monitored by volunteers. One of the uses for water clarity data is to determine water quality trends over time. To analyze water clarity data on a stream, a minimum of eight years and 50 points of data collected between April and September is needed. Water clarity may vary from year to year in response to changes in rainfall amounts, watershed runoff and many other factors. Using datasets with more than eight years of data helps account for these factors.

Of the stream sites that have sufficient data through 2024, 330 show improving water clarity and 180 show degrading water quality. Those improving or degrading are not limited to a regional location in the state. It is greatly mixed across the state. This data can be explored at: Water clarity trends – Stream map viewer.

Figure 5. Graph of statewide stream and river water clarity trends via Secchi tubes.

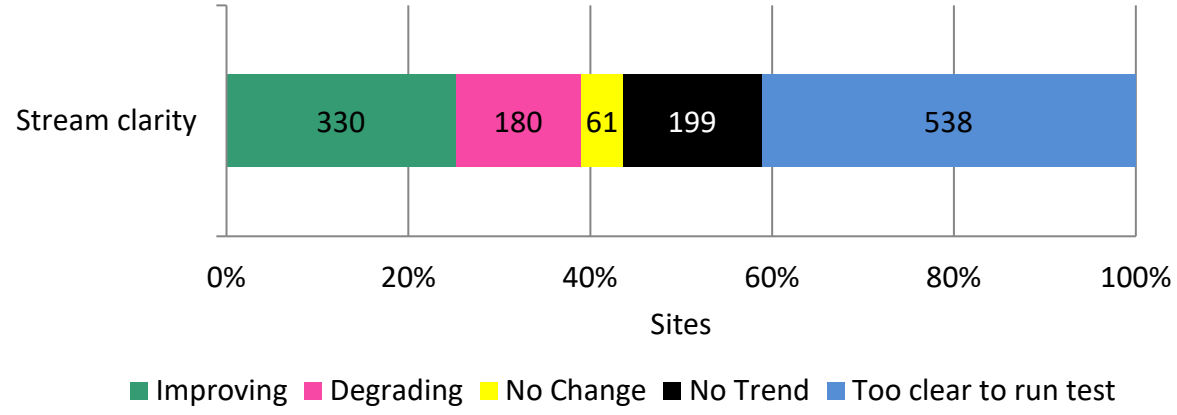
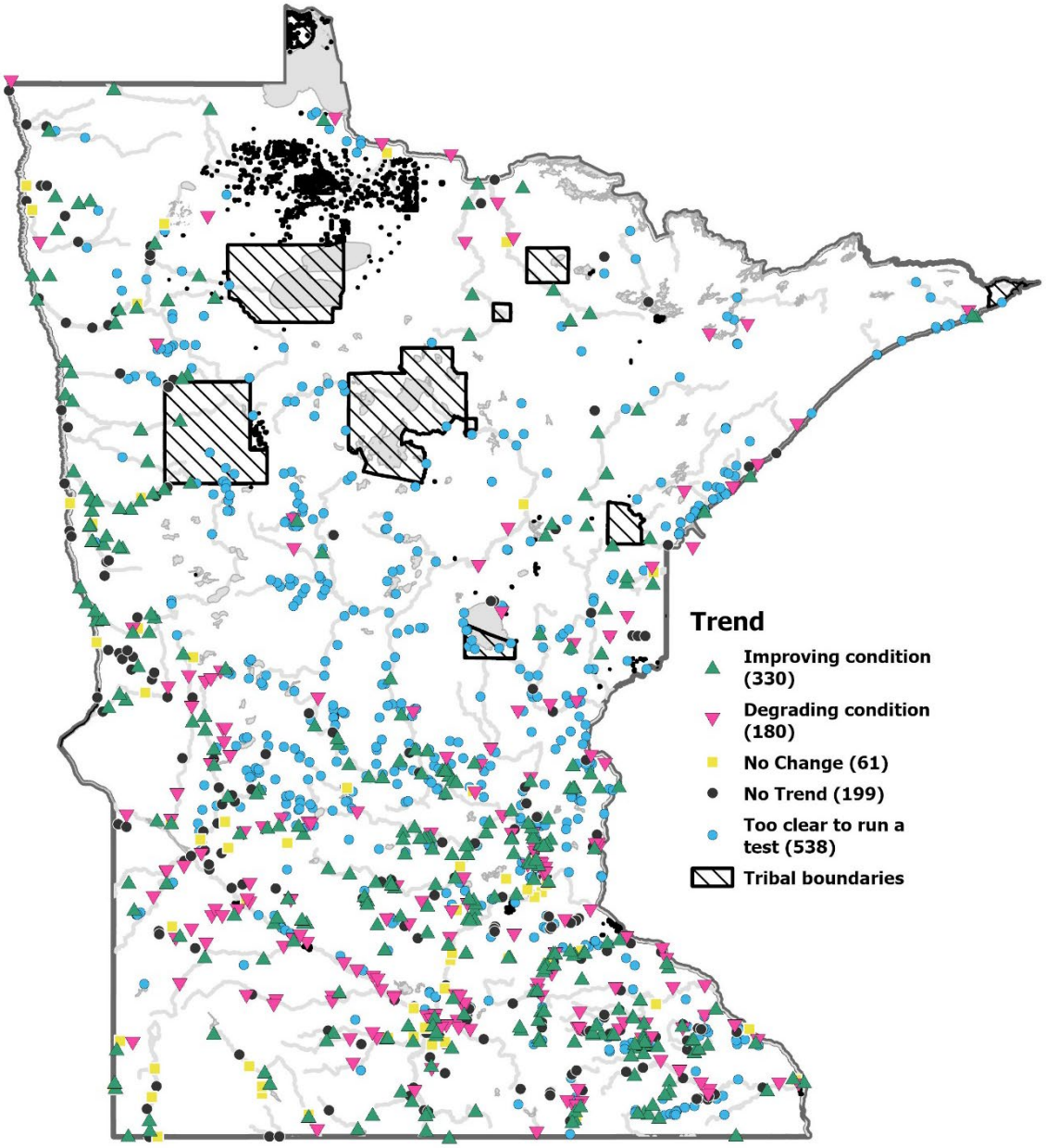


Figure 6. Map of statewide stream and river water clarity trends via Secchi tubes.



Water clarity trends in lakes

Volunteers help Minnesota keep a pulse on the water clarity of lakes. In the 50 years of volunteer water monitoring, 4,582 lakes have been monitored by volunteers. Similar to streams, a minimum of eight years and 50 points of data collected between May and September is needed to calculate trends in lakes. Additionally, lake-water clarity must change more than half a foot per decade to be considered a detectable change.

Nearly a third of the lakes where trends can be calculated have an increasing trend (32%; Figure 7). Of the 540 lakes with an improving trend, 175 have known invasive zebra mussels (36% of those with improving clarity). In this dataset, only 11 lakes have declining clarity and known zebra mussels. This data can be explored at: Water clarity trends - Lakes map viewer.

Figure 7. Graph of statewide summary of lake water clarity trends.

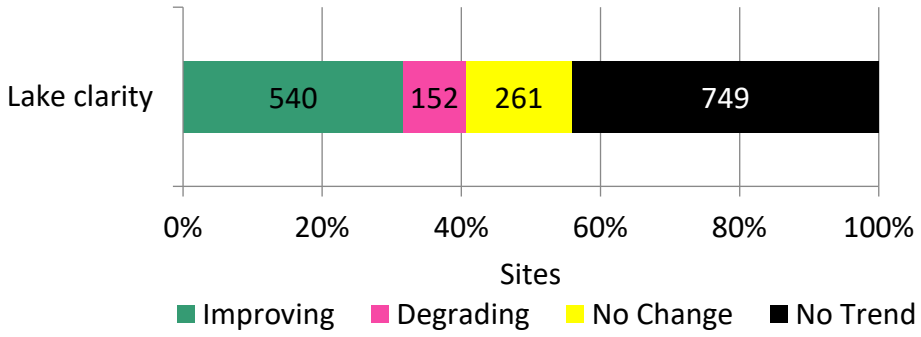
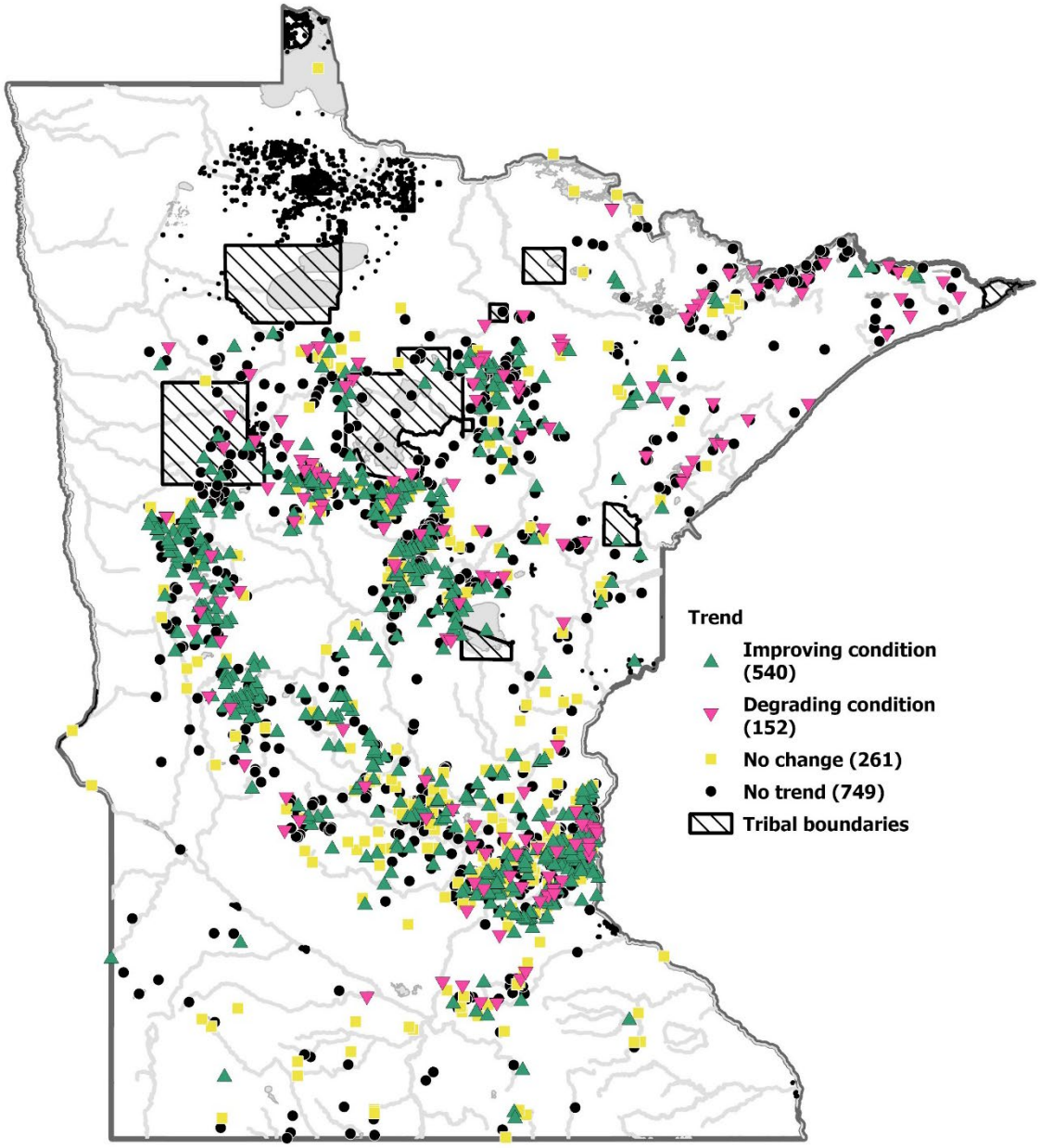


Figure 8. Map of statewide lake water clarity trends determined using Secchi disk transparency.



How’s the water?

Water quality varies across Minnesota due to the varied stressors across the state. Of the state's 80 major watersheds:

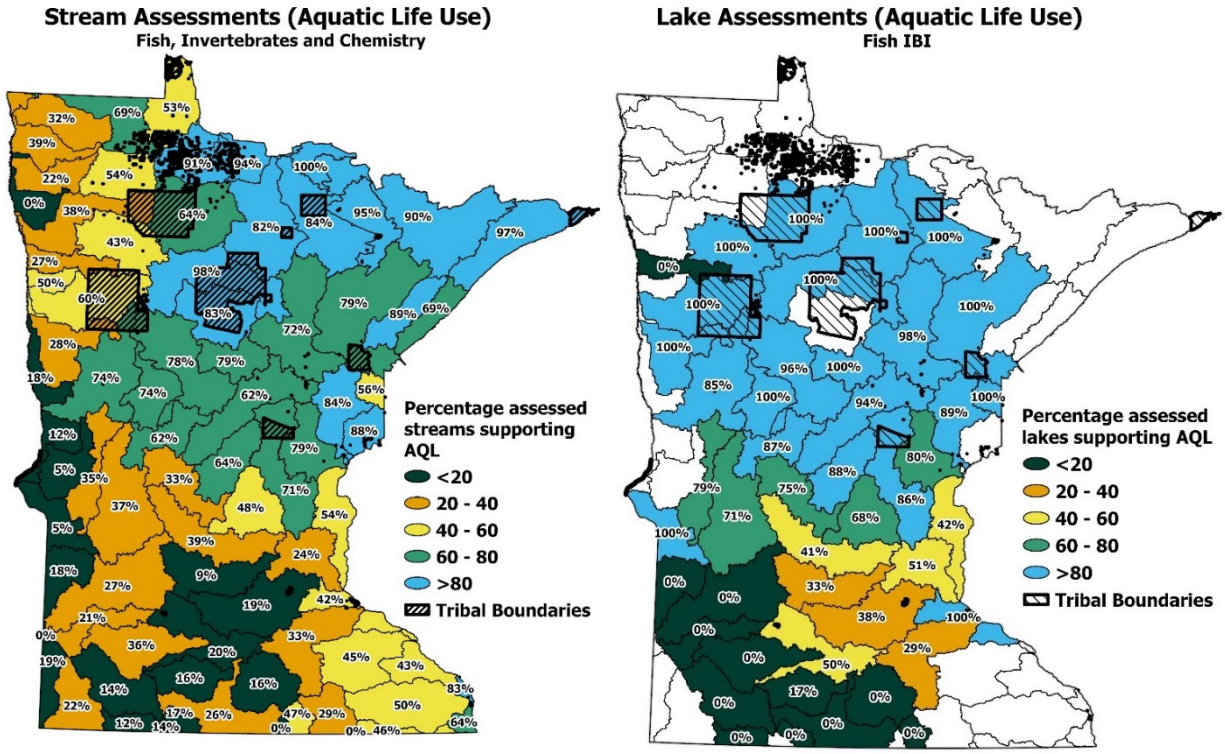
In lakes:

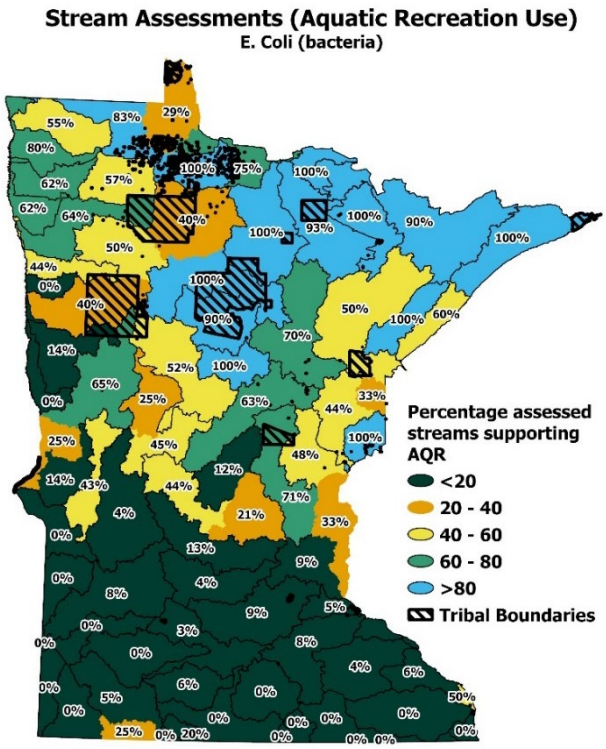
- Twenty-two watersheds have > 80% of assessed lakes supporting aquatic life use.
- Twenty-eight watersheds have > 80% of assessed lakes meeting aquatic recreation standards.

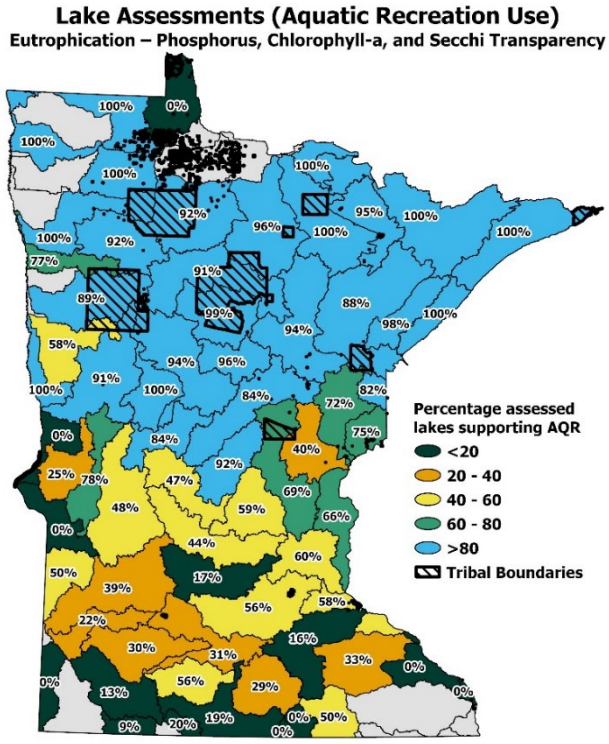
In streams:

- For aquatic recreation, only 14 watersheds have > 80% of assessed streams supporting this use.
- Over half of the watersheds have > 40% assessed streams supporting aquatic recreation standards.
- For aquatic life use in streams, 14 watersheds have > 80% support, and 19 watersheds have < 20% support.

Figure 9. Maps of percentage of assessed waterbodies supporting beneficial uses of aquatic life and aquatic recreation for lakes and streams.







Under the Clean Water Act, waters are assessed to determine if they support designated uses such as aquatic life and aquatic recreation.

- Aquatic life (Class 2): Evaluated using water quality indicators like dissolved oxygen, pH, temperature, sediment (TSS), nutrients (TP), and biological communities (fish and invertebrates).
- Aquatic recreation (Class 2): Assessed based on *E. coli* levels and nutrient-driven eutrophication. High phosphorus can lead to algae blooms and poor water clarity, impairing activities like swimming and wading.

More information about specific assessment results can be found at Minnesota's impaired waters list and Workbook: Water quality assessment results.

What are TSS?
TSS or total suspended solids are particles that remain in the water that do not dissolve like other organic matter.

Are actions leading to improved water quality?

Restoring water quality takes time and effort, but the Clean Water Fund has helped improve it.

Measuring change

The MPCA measures improvement in several ways. Trend data indicates whether water quality is improving, declining, or staying the same. The state's impaired waters list measures and provides an accounting of whether waters meet water quality standards, which are usually numerical values. However, trend data and impairments do not always correlate. A lake or stream with improving water quality may still be impaired because it hasn't yet reached the standard. A lake or stream with declining water quality might not be impaired because it is still relatively healthy but hasn't declined below the water quality standard.

Monitoring, assessment, and characterization by several agencies and the University of Minnesota comprise about 15% of Clean Water Fund expenditures. The MPCA assembles this science into the Watershed Restoration and Protection Strategy (WRAPS) reports for each watershed that create a "to-do list" of activities that should be taken to meet water quality standards. The Board of Water and Soil Resources (BWSR) then works with local governments in each watershed to prioritize projects based on the WRAPS for funding. The result is a comprehensive watershed management plan under the One Watershed One Plan program that has a ten-year timeline. The BWSR then provides predictable funding from the Clean Water Fund through its Watershed-Based Implementation Funding (WBIF) Grant Program, and watersheds tap into a variety of other funding sources to implement their plans. This work, along with regulation, capital investment funding for wastewater treatment, and landowner and private sector actions, helps the state move toward its water quality goals. or more information, see the story map that helps show Clean Water Fund activities in context: Caring for our water.

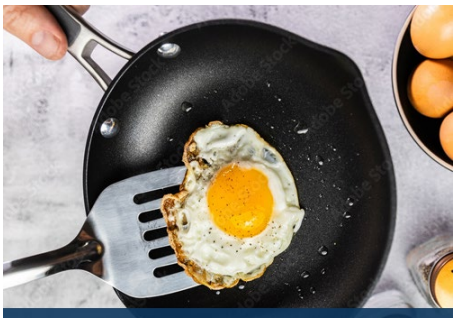
Monitoring data is a key component of smaller-scale efforts, such as use of the MPCA's Watershed Pollution Load Calculator that allows planners and landowners to find a range of options for changing land use that will help meet water quality standards.

There is a growing number of success stories showing improvements in water quality. Success stories are being shared in the Watershed Assessment and Trends Update reports. The BWSR Snapshots also share successes (Snapshots Archive), and MPCA staff reported on lake delistings in Minnesota (Twenty years of lake nutrient impairment delistings in Minnesota). How's my waterway is an EPA reporting tool that also houses reports of non-point source project success stories (How's my waterway). These are a few examples—many local government, state, and other entities are working to communicate successes in water quality improvements and protection.

- After restoration projects, two northeast Minnesota streams are seeing clearer waters and more fish
- A decade of work reduces pollution in St. Cloud's Lake George
- New culverts provide climate resiliency to fish and people on Lake Superior's North Shore
- Metro lakes' delistings tied to Clean Water Fund-backed work (BWSR)

Restoration of water quality is time consuming and takes a great deal of effort. The Clean Water Fund has led to improvements in water quality. Longer term, a team of MPCA staff has started to work on correlating water-quality data and best management practice data.

Although new threats to Minnesota's waters continue to arise, Minnesota had the fewest additions in recent years to the 2024 impaired waters list, which speaks to the efforts throughout the state to protect water quality and keep waters off the impaired waters list, and the growing understanding of the conditions of our waters. The additions also speak to the challenges throughout the state, particularly related to difficult to manage pollutants such as PFAS or "forever chemicals" and sulfate.



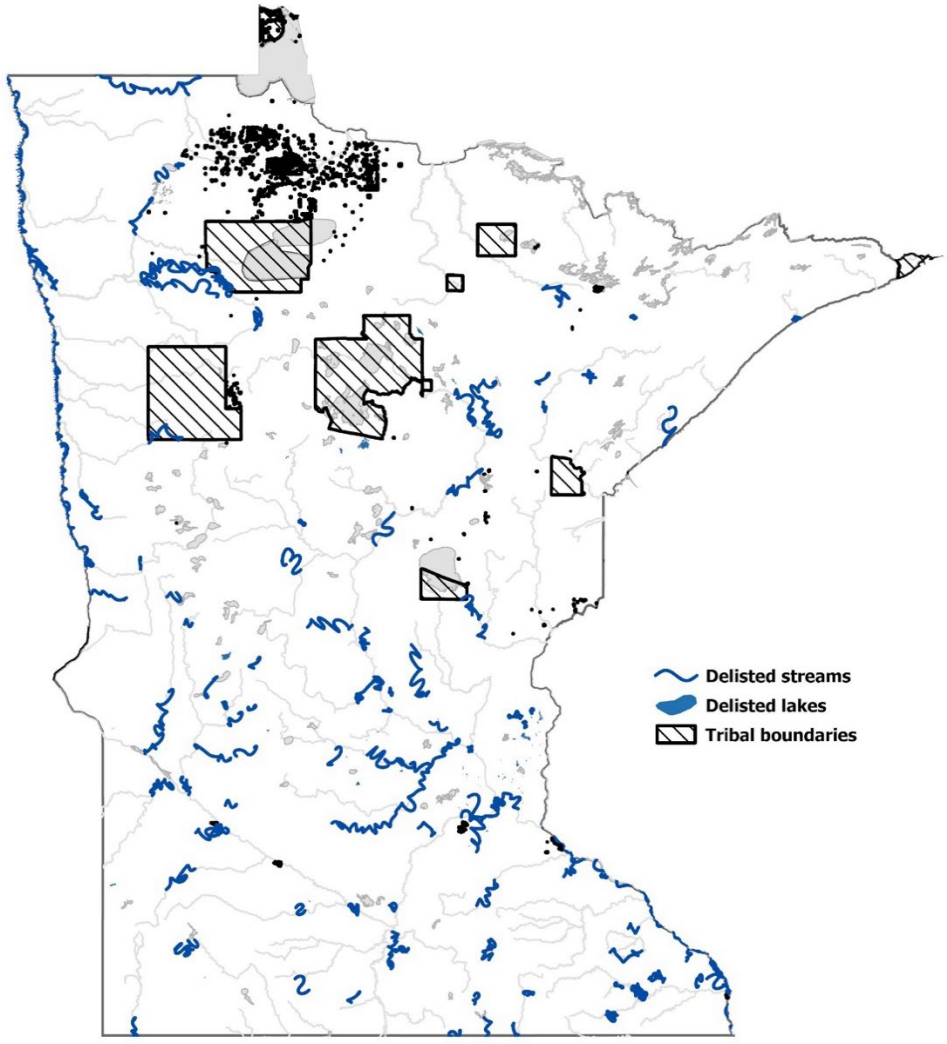
What are PFAS?
Per- and polyfluoroalkyl substances (PFAS) are a group of more than 5,000 human-made chemicals that do not break down over time.

Delisted waters

The MPCA began listing impaired waters in 1992; since 2002, the agency has delisted 95 previously impaired lakes and river segments because they are now meeting water quality standards due to restoration activities.

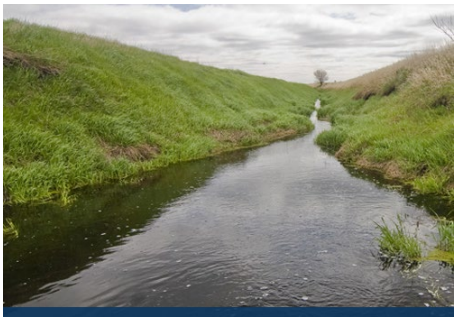
In a review of delistings in lakes, there were no "quick fixes" or "silver bullets" to improving water quality. In most cases, multiple best management practices and strategies were needed for delisting. All of Minnesota's delistings took several years, and in most cases over a decade, to achieve the necessary nutrient reductions to meet water quality standards. For more information on this study please see Twenty years of lake nutrient impairment Delistings in Minnesota. This length of time it takes to gather necessary data for delistings is why it is important to look at increasing or decreasing trends across the state, as the impaired waters list is an incomplete tool for evaluating successes of restoration actions.

Figure 10. Map of statewide delisted waters statewide through the 2024 impaired waters list.



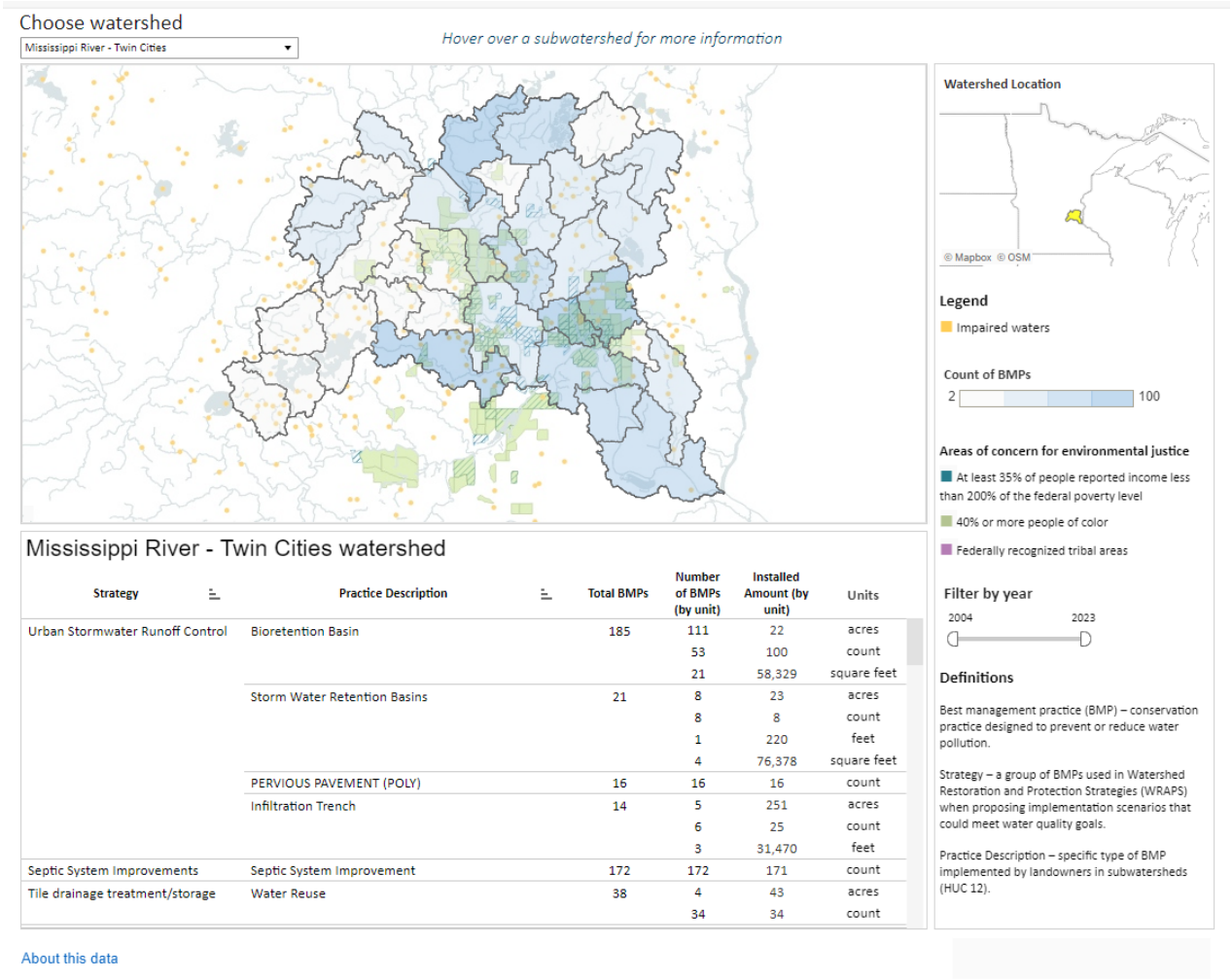
Actions taken

At MPCA's Healthier watersheds webpage, users can find out what's being done in Minnesota's watersheds to protect and improve water quality. The MPCA updates the information each July, based on data from the previous year. In the "best management practices by watershed" tool there, users can find actions taken in each watershed to reduce contaminated runoff from rural and agricultural lands. Best practices include planting cover crops, improving septic systems, stabilizing streambanks, restoring wetlands, and much more (Workbook: Best management practices by watershed).



What are BMPs?
BMPs or best management practices are specific actions that help reduce runoff and protect water quality.

Figure 11. Screenshot of best management practices by watershed tool.



Strategy	Practice Description	Total BMPs	Number of BMPs (by unit)	Installed Amount (by unit)	Units
Urban Stormwater Runoff Control	Bioretention Basin	185	111	22	acres
			53	100	count
			21	58,329	square feet
	Storm Water Retention Basins	21	8	23	acres
			8	8	count
			1	220	feet
			4	76,378	square feet
	PERVIOUS PAVEMENT (POLY)	16	16	16	count
	Infiltration Trench	14	5	251	acres
			6	25	count
			3	31,470	feet
Septic System Improvements	Septic System Improvement	172	172	171	count
Tile drainage treatment/storage	Water Reuse	38	4	43	acres
			34	34	count

Challenges continue

There continue to be threats to Minnesota's waterways. Continued monitoring helps us understand both the gains in protection and restoration, and those that have fallen impaired due to stressors on the landscape. One such example is Tischer Creek. It was designated as full support for aquatic life in Cycle 1 based on fish community, invertebrate community, and water chemistry. It is now designated as impaired for both fish and invertebrates based on Cycle 2 data.

Ongoing challenges, particularly concerning pollutants like PFAS (per- and polyfluoroalkyl substances) and sulfate, continue to affect water bodies across Minnesota.

Monitoring moving forward

Monitoring helps us understand improvements in protection and restoration over time, as well as the impairments from stressors on the landscape. Continuing monitoring efforts will provide information on change over time for the remaining 43 watersheds to be monitored in Cycle 2 where trends have not been evaluated, continued tracking of pollutants and trends, and enable local partners through watershed monitoring. In 2028, monitoring of the Snake River, Pomme de Terre River, and North Fork Crow River Watersheds will begin for Cycle 3 of watershed monitoring, along with the four remaining watersheds for **C**ycle 2.

Minnesota is a diverse landscape with many waterbodies. Due to that diversity and the diversity of landscape uses, monitoring has needed to adapt to fulfil gaps to inform restoration and protection. Some new monitoring efforts are getting underway:

- PFAS monitoring began in 2024 for our Class 1 waters (drinking water use) using the watershed approach.
- A gap in ambient monitoring has been the St. Louis River Estuary. In 2025, monitoring of the estuary for chemistry parameters will be conducted.
- In fiscal year 2025, $2 million was allocated from the clean water funds for the purchase and installation of the long-term monitoring network in areas of the state where elevated nitrate levels have been measured.

Monitoring efforts will continue to evolve and adapt both to maintain the ongoing data record and to meet new challenges in environmental, social, and scientific conditions.

Additional resources

2024 Clean Water Fund Performance Report — This is the seventh biennial collaborative report by Minnesota agencies, offering an overview that ranks and tracks key measures—spanning investment, surface water quality, drinking water and groundwater, and social measures and external drivers—to show how Clean Water Fund dollars have been spent, what actions were taken, and what outcomes have been achieved

Workbook: Long-term stream trends visually presents how concentrations of various stream pollutants — like nitrogen, phosphorus, suspended solids, and others — have changed over time across Minnesota's monitored streams and rivers.

Workbook: Water Quality Assessment Results Data Viewer — This interactive Tableau visualization provides definitions for different assessment categories, along with resources and documentation for interpreting surface water quality conditions in Minnesota.

Workbook: Climate Change and Minnesota's Surface Waters — This interactive visualization displays long-term trends in lake ice duration across Minnesota—spanning from 1967 through 2024—allowing users to explore regional patterns (north, central, south) or compare individual lakes over time, vividly illustrating the decline in the length of ice cover driven by climate change.

Impaired Waters 2024 (arcgis.com) an interactive web map that highlights water quality assessment results—possibly showing assessed, impaired, or delisted water bodies across Minnesota, with layers indicating pollutant types, assessment status, and other designated uses.

Water clarity trends — Lake map viewer and Water clarity trends – Stream map viewer are interactive web maps that highlights water clarity in Minnesota.

Reducing nutrients in waters — This webpage outlines Minnesota's efforts to mitigate nutrient pollution, particularly from nitrogen and phosphorus, which contribute to harmful algal blooms and oxygen-depleted "dead zones" in water bodies like the Mississippi River and the Gulf of Mexico. It details the state's Nutrient Reduction Strategy, which encompasses both voluntary and regulatory actions aimed at reducing nutrient inputs from agricultural runoff, wastewater discharges, and urban sources.

Healthier watersheds: Tracking the actions taken — This interactive tool from the Minnesota Pollution Control Agency (MPCA) provides detailed information on efforts to protect and improve water quality across the state's watersheds, including the status of Watershed Restoration and Protection Strategy (WRAPS) reports, Total Maximum Daily Load (TMDL) assessments, implementation of best management practices, wastewater treatment progress, and funding allocations for water quality projects.

Minnesota Nonpoint Source Management Program Plan (NPSMPP) 2019-2029 — This comprehensive plan outlines Minnesota's strategy for addressing nonpoint source pollution over a decade, detailing the state's watershed-based approach, agency roles, funding mechanisms, and coordination efforts to protect and restore water quality across the state.

How's My Waterway — Minnesota — This interactive tool from the U.S. Environmental Protection Agency offers a detailed snapshot of Minnesota’s water quality, including assessments of local watersheds, information on swimming, fish consumption advisories, aquatic life health, and local drinking water quality.