

Dear MPCA,

The following comments are submitted regarding the MPCA Site-Specific Sulfate Standard Framework - Policy Plan.

THE PROPOSED REQUIREMENT THAT WATERBODIES SHOULD HAVE AND ARE EXPECTED TO MAINTAIN A WILD RICE POPULATION THAT IS SELF-SUSTAINING AND PRODUCTIVE IS UNREASONABLE. It means that waterbodies that have been polluted with sulfate in the past such that wild rice is eradicated are deemed unworthy of protection. Such a policy encourages environmental destruction by polluters, because once having destroyed a part of the environment, waterways will no longer be protected and discharge of pollutants will become unrestricted.

A case of allowable destruction attributable to prior eradication of wild rice is the Saint Louis River, which is no longer protected for wild rice and therefore it is permissible for Northshore Mining to discharge sulfate without limit (NPDES-SDS Permit MN0042536 surface discharge site SD 033 Rail Culvert NE of Pit 5N Loadout Pocket – no limit on sulfate). For example, in the spring of 2022, Northshore Mining was dumping 11 tons of sulfate per day through Spring Mine Creek at SD 033. This wanton, willful dumping of sulfate is extremely destructive, not just to wild rice but to game fish and human health because of methyl mercury production by sulfate reducing bacteria and mercury bioaccumulation as discussed below. Such a loophole is offensive to people of good conscience and it should be considered a sign of weakness, cynicism, and resignation (or outright corruption) to further loosen or further complicate regulations on sulfate discharges.

Another relevant case is PolyMet (now NewRange) NPDES-SDS Permit MN00701013. There are no restrictions on sulfate discharge within the 30 square miles of property owned or leased by PolyMet / NewRange, whether in consideration of mercury contamination of fish OR wild rice. This regulatory lapse is exacerbated by an outrageous limit on mercury. For the one site on property with a limit on mercury (SD001), the limit is 1000 nanograms per liter (calendar monthly average), which is 770 times the applicable water quality standard of 1.3 nanograms per liter. Mercury AND SULFATE are pollutants of great concern because they promote mercury bioaccumulation in game fish.

THE PROBLEM OF SULFATE PROMOTED BIOACCUMULATION OF MERCURY IN FISH SHOULD NOT SO EASILY DISREGARDED. In a 2017 report published by the USGS, there is a strong correlation between mercury in yearling yellow perch and sulfate concentration in lakes of the Voyageurs Park in Northern Minnesota [Christensen V, Larson J, Maki R, Sandheinrich M, Brigham M, Kissane C, LeDuc J (2017). Lake levels and water quality in comparison to fish mercury body burdens, Voyageurs National Park, Minnesota, 2013–15. Scientific Investigations Report.

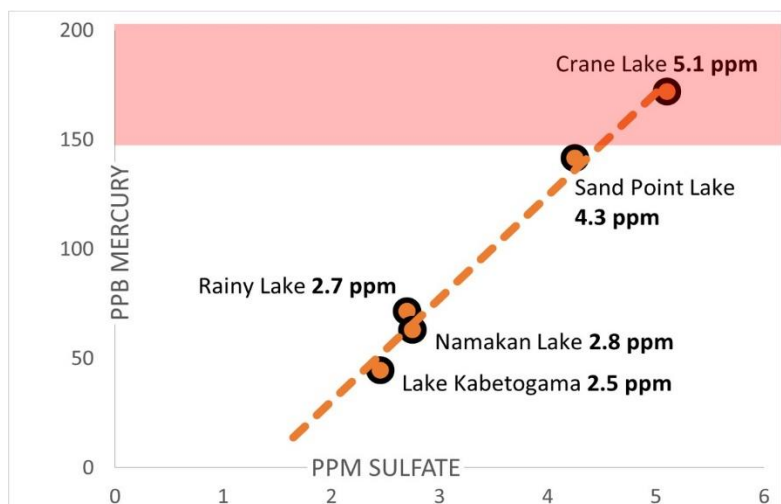


Figure 1: PPB mercury in young of the year yellow perch vs lake sulfate concentration for Voyageurs Park lakes (2014 testing data from Christensen et al (2017))

<https://doi.org/10.3133/SIR20165175>]. According to USGS data as plotted in Figure 1), when sulfate increased from 2 mg/L to 5 mg/L, mercury concentration in fish quadrupled. The strong correlation of mercury in yellow perch vs lake sulfate concentration is completely corroborated by the MPCA's own data for walleyes in the Fish Contaminant Monitoring Program (FCMP) database (Figure 2). The p-value for the correlation of FCMP walleye mercury levels vs sulfate is 0.006, indicating that this is not attributable to chance. The mercury levels in Crane Lake and Sand Point Lake walleyes are in excess of the maximum permissible level of 1 ppm of methylmercury for seafood set by the US Food and Drug Administration (FDA) and above the 0.95 ppm "NO CONSUMPTION" advisory limit

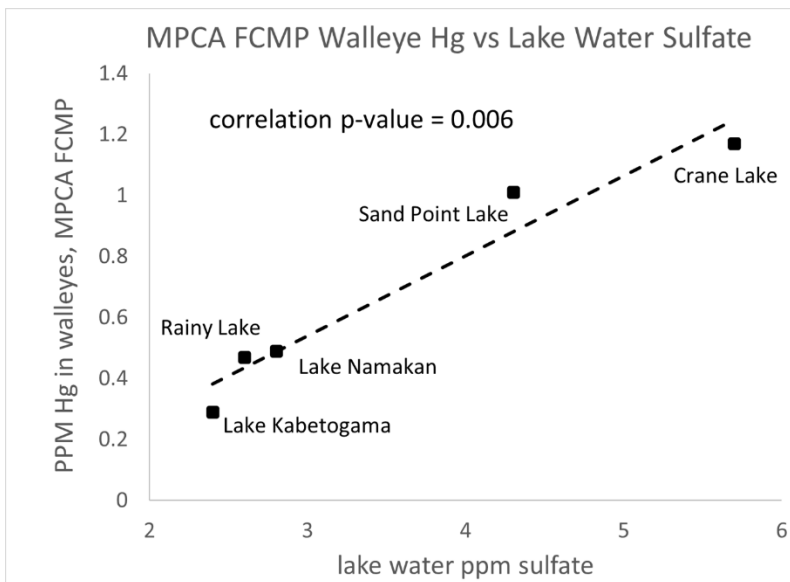


Figure 2: PPM mercury in Voyageurs Park walleyes vs lake sulfate concentration data from MPCA Fish Contaminant Monitoring Program database

recommended by the Great Lakes Fish Advisory Workgroup for raw fish filets [A Protocol for Mercury-based Fish Consumption Advice - An addendum to the 1993 "Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory," May 2007. Available from the Minnesota Department of Health at <https://www.health.state.mn.us/communities/environment/fish/docs/consortium/mercuryprot.pdf>].

THERE ARE NO EXCUSES FOR ALLOWING SULFATE POLLUTION ABOVE THE 10 mg/L SULFATE WILD RICE WATER QUALITY STANDARD ANYWHERE. Membrane technology (reverse osmosis) is capable to economically remove sulfate to 10 mg/L. In public hearings, PolyMet promises that membrane treatment is tried and true technology that is capable to remove sulfate to 10 mg/L: "we're going to be collecting water at the tailings basin, water at the mine site, water coming off of the haul roads, anything that's going to be carrying sulfate or constituents of concern, all of that treated to below 1.3 nanograms per liter mercury to 10 milligrams per liter of sulfate before that is returned to the environment," "over the life of the project 27.6 billion [sic] kilograms of sulfate are going to be pulled out," and "sulfate loading will be reduced by 1 million, three hundred and eighty thousand kilograms per year" [source: testimony by Steve Donahue of Foth Engineering and Christie Kearney of PolyMet speaking on behalf of PolyMet at the U.S. Army Corps of Engineers St. Paul District PolyMet Public Hearing in response to an objection from Fond du Lac Band of Lake Superior Chippewa to the Corps of Engineers' Section 404 Clean Water Act permit for PolyMet Mine project, Day 2 Session 1. May 5, 2022 [video available at <https://www.youtube.com/watch?v=x8BqknsJgjU>].

SUMMARIZING: PLEASE DO NOT CONSIDER SITE-SPECIFIC SULFATE STANDARDS.

Sincerely,
 Dr. Eric D. Morrison, PhD Chemistry
 Volunteer, Northern Lakes Scientific Advisory Panel
 (m) 651.334.8399 mister.ericm@yahoo.com