

Austin Dusek

Hello,

I am Geologist by schooling and have been a mining professional for nearly 10 years. The foundation of all my work is the scientific method. What this entails is a thorough process to approach a question and try to answer it through verifiable methods, clear data, and interpretation.

The first thing I looked into was the source data for the 10 mg/L limit set in 1973 and what I found was incredibly disappointing. The work that is cited to be the basis of this limit are hardly, if at all, pertinent to evaluation of the effects of sulfates on wild rice. John B. Moyle's widely referenced 1944 report mentions sulfate limits one time and simply states that wild rice is intolerant of sulfates - no large stands over 10 mg/L and largely absent in concentrations over 50 mg/L. These claims are not cited by any previous study nor are they explained by any methodologies done by Moyle. The remaining 98% of the report describes harvesting and grain characteristic, and nothing about sulfate implications. Other Moyle reports (1940, 1941, 1975) are more of the same - field observations with barely or zero information on the effects of sulfates on wild rice. The only paper that I've found that comes close to a credible, scientific paper that could be used as a basis for this 10 mg/L rule is Moyle's 1945 report. While this report offers some data on sulfate concentrations and the occurrence of wild rice within select lakes, the sample size is far too small and the paper is riddled with errors, namely that the wild rice species found in northern Minnesota is *Zizania Palustris* and the plant referenced in the report is *Zizania Aquatica*. The latter is a southern rice, found along the gulf coast and the former is not mentioned in the report. Even if we accept that this may be an honest mistake, it, compounded with other inaccuracies, lowers the overall credibility of the report. Additionally, the amount of mg/L that was found in waters to contain wild rice was found up to 282 mg/L and summarized by Moyle to be acceptable up to 300 mg/L.

There is no doubt that a standard for sulfates in wild rice waters should be researched, created, and tested. However, inappropriately applying a standard that is founded on such flawed and borderline irrelevant works is irresponsible and unscientific. The State should refrain from enforcing such a restrictive and unfounded standard until better foundations can be reviewed.