Michael Mucha, Chief Engineer
Madison Metropolitan Sewerage District

The Badger Mill Creek Preservation Coalition has recently formed to protect the stream with regard to proposed actions which the Madison Metropolitan Sewerage District (MMSD) might take. MMSD is seriously considering stopping the discharge of highly treated and aerated effluent to Badger Mill Creek to comply with its regulatory requirement to reduce the amount of phosphorus released to the creek. As WDNR stream biologists have repeatedly informed us and MMSD, that action would harm the creek now and much more as the effects of climate change intensify and urbanization-related groundwater use increases. MMSD has at least three viable alternatives to the drastic action of reducing the flow of Badger Mill Creek, i.e., adaptive management, nutrient trading or upgraded filtration at the MMSD treatment facility. We respectfully ask that MMSD adopt one of those alternatives.

BACKGROUND

1. BADGER MILL CREEK. Badger Mill Creek functions as a Class 2 trout stream with a robust population of wild brown trout, many other native fish, and a healthy diversity of aquatic invertebrates. It is a key tributary of the Sugar River, another important trout stream. For a current and scientific assessment of Badger Mill Creek and the Sugar River as trout streams, please use this link to the DNR's just released comprehensive assessment of those streams (https://dnr.wisconsin.gov/sites/default/files/topic/Fishing/DaneSugarRiver20202021Watershed.pdf). That assessment notes that Badger Mill Creek has many of the traits of a Class 1 stream. It has improved over the last 20 years, in part because of MMSD's contribution of water. With proper conservation and restoration, it will continue to improve.

Badger Mill Creek is an important source of outdoor recreation. Many anglers fish there and the extensive public lands and trails adjacent to the stream attract many hikers and bikers. Kayakers are beginning to discover the stream. In light of its productivity as a trout stream and its location in one of the fastest growing urban areas of Dane County, the County, the City of Verona, and conservation organizations have spent considerable resources in protecting the stream and creating better access for the public. In the last three years, Dane County has spent at least $3 million in Badger Mill Creek land acquisition, along with another $300,000 in restoration efforts in 2021 and 2022, much of which would be wasted by eliminating MMSD's water. Further downstream, the City of Verona completed another restoration at a cost of $100,000. The Upper Sugar River Watershed Association (USRWA) and the Southern Chapter of Trout Unlimited (SWTU) have donated thousands of dollars and volunteered hundreds of hours of to monitor the stream, to stabilize stream banks and improve access.

2. THE WATER. When MMSD began treating Verona's wastewater 1993, it addressed an important environmental issue. All of Verona's wastewater originates as groundwater which MMSD treats at the Nine Springs Plant. If the treated effluent is discharged to Badfish Creek with the rest of MMSD's treated wastewater, over 1.3 billion gallons of water would annually be diverted from the Sugar River watershed to the Yahara River watershed.

After considerable study and discussion, MMSD decided to return the Verona portion of its wastewater to the Sugar River water in the form of highly treated and aerated effluent to Badger Mill

Creek near the headwaters of the creek. While the treated wastewater does not have all the qualities of groundwater, it is a healthy source of water that sustains the flow of the stream. It buffers Badger Mill against the lowered groundwater levels that occur as Verona and the surrounding urban area grows. MMSD's return of water has positive and public environmental and conservation effects for the Verona area.

MMSD made this decision in 1993. The MMSD resolution authorizing the transfer and the water quality studies of the Dane County Regional Planning Commission show that protecting, improving, and buffering Badger Mill Creek were important reasons for this decision (Appendix A).

The reasons for MMSD's return of water to the Sugar River watershed via Badger Mill still hold; Verona's current and projected growth and climate change strengthen those reasons.

CURRENT AND FUTURE STATUS OF BADGER MILL CREEK AND MMSD'S DECISION

1. THE FUTURE OF BADGER MILL AND THE SUGAR RIVER

For now, Badger Mill and the Sugar River are healthy and productive. In addition to the County's projects on Badger Mill, the County has spent several million more on land and public access easements and stream restorations on the Sugar as far downstream as Basco. Local conservation organizations such as the Upper Sugar River Watershed Association (USRWA), SWTU, and the Dane County Conservation League have donated funds and volunteer hours The creek continues to find new advocates, the latest being the Friends of Badger Mill Creek (FBMC). However, DNR climate change modeling shows that the Sugar River and Badger Mill Creek are the Dane County trout streams most vulnerable to climate change. Vulnerable means they might well cease to be trout streams as the result of the periods of drought this area shall experience.

The continued warming of our climate puts greater risk and emphasizes the importance of continuing the discharge to the creek. The impact of climate change on Wisconsin's fisheries has been evaluated by the Wisconsin Initiative on Climate Change Impacts (WICCI) – Fisheries Working Group. According to Bryan Maitland, postdoctoral researcher at the UW-Madison Aquatic Sciences Center's Water Resources Institute, and WICCI Fisheries Working Group contributor, "Southern Wisconsin has been hit the hardest by temperature changes so far, making stream conditions warmer and closer to the temperature threshold for trout." As that threshold is projected to advance northward, Maitland says, "streams with more cold groundwater inputs like spring-fed streams in Central Wisconsin will have the greatest capacity to continue to support trout."

Recommendations provided by the Working Group to counter climate change impacts include protecting the trout populations we have and rebuilding populations where we can. As described below, much effort has already been and continues to be invested to do just that.

Based on our review of flow data, we believe that the amount of MMSD's water is about 5.1 cubic feet per second and which accounts for between 30 and 50% of the stream's flow. The water sustains a variety of habitat for trout in all their life stages and other forms of aquatic life. In fact, during the MMSD study in February 2023 when effluent return was shut off, in-stream habitat improvements made by Dane County were completely above the waterline and ineffective (Appendix B). It will be

extraordinarily helpful or necessary to the health of the stream as a reliable source of water during the heat waves and droughts that result from a changed climate. Badger Mill's more stable condition will help sustain the Sugar River. The climate model does not describe those heat waves or droughts as merely possible or probable. They are certain to occur.

At the in-person MMSD public meeting (11/30/2022, Verona Public Library), Martin Griffin, MMSD's Director of Ecosystem Services, made and repeated the absolute promise that MMSD would not harm Badger Mill Creek in addressing its phosphorus issues. Respectfully submitted, MMSD cannot keep this public promise if it stops sending water to the creek. Specifically cutting off the water will reduce and degrade in stream habitat, weaken thermal stability and impair the stream's climate resilience. At a recent meeting between MMSD and members of the Coalition to Protect Badger Mill Creek, representatives of MMSD waffled on those statements. MMSD has no moral right to harm the stream and the District should stand by the statements it made at the only public, in-person meeting it has held on this topic.

2. MMSD OPTIONS

Based on our review of documents and our discussions with the DNR, we believe MMSD has at least three other viable options that address the phosphorus requirement and protect the creek. We are prepared to discuss the filtration, trading and adaptive management options with you. All are practical, affordable, and well within MMSD's capability. Many of the organizations in this coalition would enthusiastically support and partner with MMSD if it pursues adaptive management. The key point, though, is that MMSD should adopt one of these three options to improve Badger Mill Creek and keeps its commitment to the MMSD customers in the Verona area.

MMSD'S fundamental mission is to treat wastewater and to use the products of that treatment to benefit the community it serves. MMSD Commissioners and Managers quite rightly want the community to see wastewater as a valuable resource itself. The treated and aerated water MMSD provides to Badger Mill Creek has bolstered the creek's viability. Continuing to provide that water to the stream sustains its ongoing improvement and its health in the face of climate change. MMSD has options to comply with its phosphorus requirement and improve its stewardship of Badger Mill Creek and the Sugar River Watershed. Please do so.

Thank you for your consideration of this request.

Sincerely,

Badger Mill Creek Preservation Coalition

Brian Christian
Chair, Friends of the Badger Mill Creek Environmental Corridor

Mark Maffitt
President, Trout Unlimited Southern Wisconsin Chapter

Lindsay Foy
Executive Director, Upper Sugar River Watershed Association

Luke Diaz
Mayor, City of Verona

Municipalities that have passed resolutions in opposition of eliminating MMSD's flow to Badger Mill Creek: City of Verona, Town of Verona, Town of Montrose, Village of Belleville

Appendix A

1993 Adopted position statement on water usage in the Sugar River Basin by Madison Metropolitan Sewerage District

12. The Chief Engineer and Director presented a draft position statement for the Dane County Regional Planning Commission Hearing on changes to the Dane County Water Quality Plan regarding the City of Verona.

After discussion, it was moved by Commissioner Schten and seconded by Commissioner Lautz that the following resolution be adopted:

WHEREAS, the Facilities Plan for the City of Verona recommends the abandonment of the City of Verona Treatment Facilities and subsequent pumping of wastewater to the Nine Springs Wastewater Treatment Plant for treatment, and

WHEREAS, pumping wastewater from the City of Verona to the Nine Springs Wastewater Treatment Plant would divert treated water from the Sugar River Basin to the Yahara River basin, and

WHEREAS, the Madison Metropolitan Sewerage District has a concern that permanent diversion of water or wastewater from one basin to another can present short and long term water quality and fisheries impacts,

THEREFORE, BE IT RESOLVED, that the Dane County Regional Planning Commission recognize in any changes to the Dane County Water Quality Plan that permanent interbasin water or wastewater transfer is inherently detrimental to maintaining long-term water quality goals, and

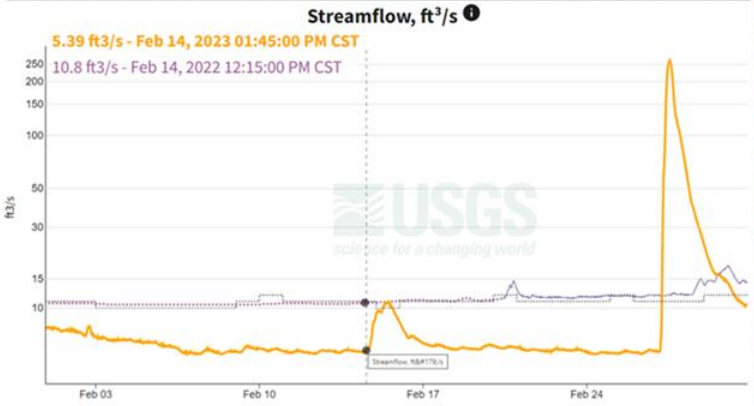
BE IT RESOLVED, that any diversion of wastewater to the Nine Springs Wastewater Treatment Plant be considered temporary in nature, and

BE IT RESOLVED, that the Dane County Water Quality Plan direct that effluent should supplement water flows in the Sugar River basin at a future date either through diversion of Nine Springs Wastewater Treatment Plant effluent back to the basin or through the construction of a regional wastewater treatment plant in the Sugar River basin.

The motion was carried.

Ayes: Commissioners Hovel, Lautz, Polkowski, and Schten.
Nayes: None.

Appendix B



Photos and streamflow data (Bruce St.) of Badger Mill Creek in Verona from 14 Feb 2023 when discharge of MMSD effluent was shut off. Note the low water level with recently installed instream habitat structures completely above the water line. Flow rate on the 14th (yellow) was 50% of median flow (dotted line) and flow for the same time in 2022 (purple). Transient peaks in the 2023 tracing represent precipitation events.