

January 5, 2023

Natural Resources Commission  
PO Box 30028  
Lansing, MI 48909

Shannon Lott, Acting Director  
Michigan Department of Natural Resources  
PO Box 30028  
Lansing, MI 48909

Sent via email to: [nrc@michigan.gov](mailto:nrc@michigan.gov)

Sent via email to: [DNR-Director@michigan.gov](mailto:DNR-Director@michigan.gov)

Re: Prairie River Stream Temperature Redesignation

Dear Natural Resources Commissioners and Acting Director Lott,

I am writing on behalf of Michigan Farm Bureau, our state's largest agricultural organization representing more than 40,000 farming families, to share our concerns with the proposed redesignation of the Prairie River's temperature classification in Water Management Area (WMA) 20781. Michigan farmers are careful stewards of the land and water they depend on to produce a safe, abundant, and affordable supply of food, fuel, and fiber for people around the country and the world. The 21-mile stretch of the Prairie River proposed for redesignation, covering much of its upper reach plus several tributaries and county drains in Branch County, has a WMA affecting more than 25,000 acres of mostly irrigated farmland. At the Natural Resources Commission's (NRC) December 8, 2022 meeting, the Michigan Department of Natural Resources (MDNR) proposed to change the temperature classification of this stream in sub-watershed A in the figure below from Warm to Cold-Transitional. For the purposes of this letter, the word "stream" means a stream or river of any size as described in Part 327 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

This change will profoundly affect water withdrawals across the entire WMA as well as neighboring WMAs, since the proposed reclassification drastically reduces the amount of water available to be depleted from the stream before an Adverse Resource Impact (ARI) is predicted to be likely. Additionally, since this is the first time a redesignation has been proposed for the temperature classification of a stream, how this process is conducted will set the precedent for how future redesignations are completed across the entire state of Michigan. We urge the MDNR to reevaluate both its process and how data was collected for this proposed redesignation, to prevent an incorrect temperature classification from severely impacting farms, businesses, local communities, and residents of Branch County as well as other areas in Michigan.

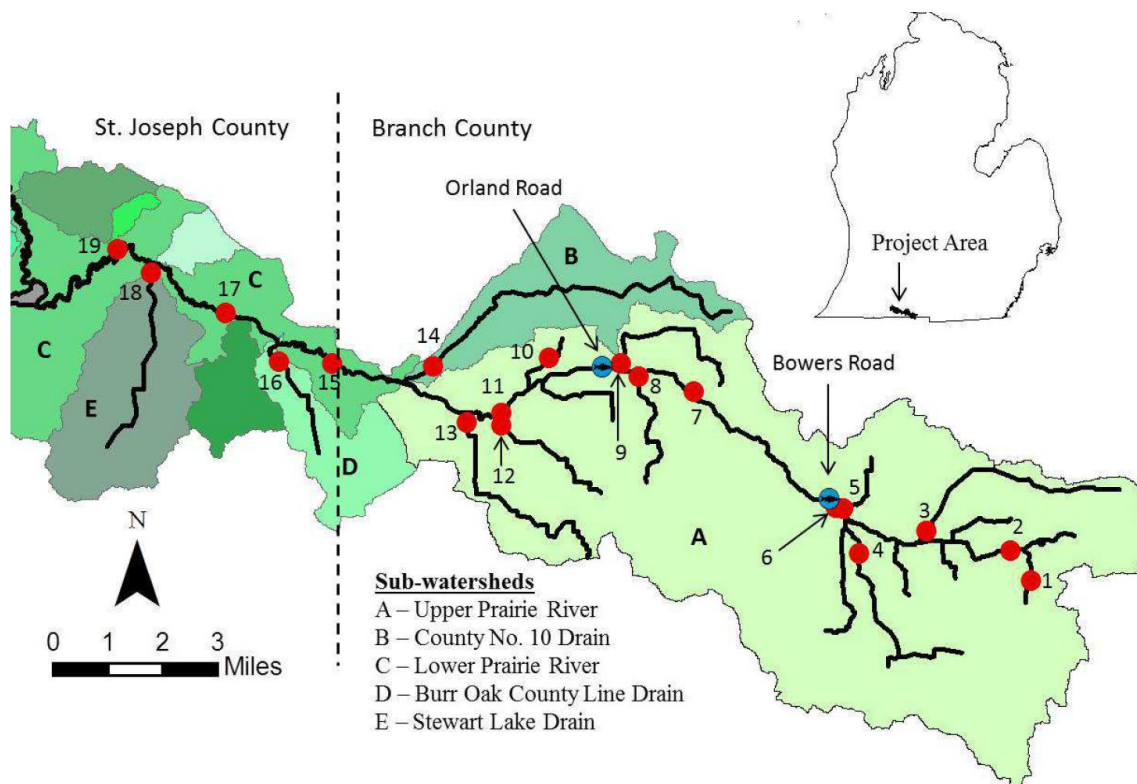


Figure 2.—Sampling locations and select sub-watersheds (letters) within the Prairie River watershed. Dots with fish indicate locations where electrofishing was conducted during 2012-2014. Solid dots indicate sites where temperature loggers were deployed during March 2012-November 2014. (See Table 3 for descriptions of temperature logger deployment sites.)

Table 14.—Current thermal classifications in Michigan's Water Withdrawal Assessment Tool and thermal classifications based on water temperature data collected within the Prairie River watershed during 2012-2014. For the 2012-2014 data, streams were classified as cold if the July mean water temperature (JMT) was < 63.5 °F, cold transitional (CT) if JMT was between 63.5 °F and 67.1 °F, cool if JMT was between 67.1 °F and 69.8 °F, and warm if JMT was > 69.8 °F.

Site #	Stream	Nearest road crossing	Current	Thermal classification		
				2012	2013	2014
1	Kinderhook No. 2 Drain	Southern Road	Warm	Cool	CT	Cold
2	Prairie River	Walker Road	Warm	Cool	Warm	Cool
3	County No. 59 Drain	Block Road	Warm	Warm	CT	CT
4	Lanes Drain	Booth Road	Warm	Cold	CT	Cold
5	Weaver Drain	Rubley Road	Warm	CT	Cold	Cold
6	Prairie River	Bowers Road	Warm	CT	CT	Cold
7	Prairie River	Parham Road	Warm	Warm	CT	Cold
8	County No. 25 Drain	Cemetery Road (adjacent)	Warm	CT	---	Cold
9	Bethel & Bronson No. 4 & 1 Drain	Kosmerick Road	Warm	Cool	Cold	Cold
10	Bronson No. 12 Drain	Bawden Road	Warm	Warm	---	---
11	Prairie River	Prairie River Road	Warm	Warm	CT	CT
12	Sutter & Pinney Drain	Prairie River Road	Warm	Cold	Cold	Cold
13	Blosser Drain	Douglas Road	Warm	Warm	Cold	Cold
14	County No. 10 Drain	Carpenter Road	Warm	Warm	---	---
15	Prairie River	St. Joseph Road	Cool	Warm	CT	CT
16	Burr Oak County Line Drain	Burr Oak Road	Cool	---	Cold	Cold
17	Prairie River	Middle Colon Road	Cool	---	CT	CT
18	Stewart Lake Drain	Cowles Road	Cool	Warm	Warm	Cool
19	Prairie River	McKale Road	Cool	Warm	CT	CT

(MDNR. 2015. *Prairie River 2013-2014 Report*, pp 14 and 36.)

### MDNR Policy and Protocol:

MDNR developed Policy 02.02.024 to establish procedures to collect and analyze data for stream reclassification. It additionally created the StreamCheck Tool, an Excel tool that assigns weight to temperature and fish survey data for a given stream segment to assign it a temperature classification. We are concerned that both the Policy and the StreamCheck Tool were developed internally by MDNR staff and do not appear to have been peer reviewed or shared with external partners or experts to determine if they collect sufficient data or assess it accurately as part of the decision-making process. If these protocols and tools do not provide high quality data or analysis, it increases the likelihood that they are inaccurate. The Prairie River and future stream reclassification proposals could be incorrect, and regardless of whether they are correct, doubts about data and assessment quality prompt distrust in their findings.

We are further concerned that data reported by MDNR in its three reports (2011-2012, 2013-2014, and 2015-2022) is very limited for the Prairie River. A stream's temperature classification is established by its July Mean Temperature (JMT) and is aided by fish surveys to assess the number, size, and species of fish in a stream reach. Few temperature readings were taken in the Prairie River before 2003, and the last set of temperature readings were during a period from 2011 to 2016, although the 2011 data was not reported. Data has also not been reported since 2016. However, data collected by private industry hydrogeologists in this stream from 2009 to 2017 suggests the Prairie River has a highly variable and unstable JMT. MDNR needs to collect additional data to determine temperature variability and whether the Prairie River should be assigned a temperature classification that may not fit over a longer period of record.

### Temperature Data:

Our most significant concerns are from the temperature data the MDNR reported, largely because its collection does not follow MDNR's own policy for collecting relevant data as part of the stream reclassification process. These standards are not trivial, but establish the accuracy and quality of data collected so results both entered into the StreamCheck Tool and later used to support a proposed reclassification can be trusted. Our questions include:

- The U.S. Geological survey has stream gages along the Prairie River; do they collect water temperature as well as water level? These temperature readings should be compared with the MDNR loggers.
- How was the mean weekly stream water temperature average calculated, and does it reflect accurate calculations for JMT? Simple arithmetic means would be inappropriate in imbalanced time series involving varying numbers of measurements and locations.
- How were the readings weighted by staff and the StreamCheck Tool to determine the Prairie River should be designated as Cold-Transitional? A significant number of the calculations at temperature logger sites are inconsistent between the testing years of 2012-2014 for temperature classification.
- Where was precipitation data derived from? Precipitation can influence the temperature and flow patterns of both tributaries and mainstream channels, as well as the volume and frequency of discharges to the stream system.
- Why was the air temperature take from Lansing and Three Rivers instead of onsite as the MDNR's policy to follow Environmental Protection Agency (EPA) protocol directs? Air temperature is important because it helps to identify deviations from long-term averages, and since temperature categories are so narrow for stream classifications,

small differences in air temperature are too important to rely on weather data that is 30 to 80 miles away from the sites being tested.

- Why was there no detail provided on where the temperature loggers were placed in the stream channel (such as distance from the bank and depth in the water), and why were they placed so close to tributary confluences, wetlands, and other potential influences or disturbances to the stream's overall temperature? This does not meet MDNR's policy to follow EPA protocol and could skew temperature results.
- Why does the report not include calibration of the temperature loggers? Was that done, and if not, why not and how accurate are the temperature readings?
- Temperature loggers from 1997 to 2003 recorded JMT between 65.7 and 69.5 (ranging from Cold-Transitional to Warm), but there is no description of the time of year they were deployed, their location, or proximity to temperature influences. This makes it difficult to determine what the original stream classification should have been. How was the more recent data compared to the original?
- The 2011-2012 report had 17 temperature loggers deployed (19 were placed but two were lost), and only 5 took readings for the Prairie River itself – the rest took tributary temperature readings from March – December. Temperatures were only reported for 2012, a drought year. Why was this done, and how does that impact the StreamCheck Tool's assessment of temperature classification?
- In 2013 and 2014 there were 18 loggers placed: two of them were lost, and 7 were in the Prairie River (the rest in drains or tributaries). Temperatures were logged too infrequently to meet DNR's policy to follow EPA protocol, and there was no information provided on the location in the stream channel or location of disturbances that could influence temperature readings. Why was this information not provided?
- In the 2016-2022 report, MDNR reported that in 2015, they deployed 7 loggers: five from June to November and two from July 20 to November. In 2016, the MDNR deployed only three loggers from May to October. No information was provided on where in the stream channel they were deployed or why they were placed so close to tributary confluences. Additionally, mean and maximum daily temperatures were listed, but since most were not deployed until July 20, they did not actually record JMT. Why were these loggers not deployed according to the MDNR's own standards, and how do their measurements impact the StreamCheck Tool's assessment of temperature classification?

#### Fish Data:

MDNR's reports summarized the Department's history of stocking the Prairie River with brown trout, an effort that halted in 1992 because fish surveys showed low survival rates. However, by the time the 2011-2012 study was conducted, there were many young and adult trout, demonstrating that brown trout were naturally breeding in the Prairie River and/or its tributaries. Trout in Michigan prefer water temperatures below 68 degrees F. Temperatures higher than 76.5 degrees F for more than 7 days is lethal for them. Fish surveys in 2012-2014 were taken at two locations along the stream, and the reports noted that in 2012, a drought year with high water temperatures and low flows resulted in low brown trout numbers, but that in 2013-2014, the population was recovering. However, that reported fish data raises several questions:

- If brown trout were found in the Prairie River and its tributaries but the stream has been misclassified for so long that its depletion far exceeds the allowable amount for a Cold-



Transitional stream, what demonstration is there that designating this stream segment as Cold-Transitional and restricting water withdrawals will better protect brown trout?

- Why did the StreamCheck Tool assign the designation of Cold-Transitional to the stream? The StreamCheck Tool fish data collected for the Prairie River appears to show the proposed segment of the Prairie River should be reclassified as Cold, instead of Cold-Transitional. Cold streams, similar to warm streams, are less sensitive to drawdown and therefore do not limit water withdrawals as severely as Cold-Transitional streams.
- Were only two locations of fish survey data sufficient to determine brown trout habitat, particularly since one of the fish survey locations was very close to the confluence of a smaller tributary that MDNR data suggests should be designated as Cold? The location of the fish survey could misapply population numbers to the main branch of the stream instead of its tributary that is more suitable habitat.
- Do the dams along the Prairie River affect the fish habitat or migration? The report neither mentions the dams, nor discusses whether they might affect populations.
- Why did the locations of fish surveys not match the temperature logger locations, as the MDNR policy states they should?

#### Streamflow and Tributaries:

We are concerned that the MDNR's reports on the Prairie River do not include information about the stream that could influence its flow and temperature in ways likely to skew the data and influence results on the assessment of temperature classification. We have the following questions about MDNR's methodology and reports:

- How much does the placement of data loggers influence the results of these reports? Most of the MDNR's temperature and fish instrumentation was placed in tributaries of the Prairie River, not in the Prairie River channel itself. This is an important question related to fish data in the section above, because if brown trout are seeking refuge in the colder tributaries but the Prairie River itself is not Cold-Transitional, population surveys can be misleading.
- Why do the MDNR's reports not discuss the tributaries and how much mixing occurs? The tributaries to the Prairie River are poorly studied, but potentially have a large impact on the proposed stream reclassification.
- In 2014, the MDNR reported at their Bowers Rd. site that discharge of the Prairie River dropped from average flow of 17-23 cubic feet per second (cfs) to 6.45 cfs. Since 2014 was not a drought year, why did the MDNR not report on potential impacts to stream temperature or fish populations from this flow volume change?
- Why did the MDNR not acknowledge or research how the Prairie River's alterations, discharges, and withdrawals could affect the temperature and fish populations, particularly the JMT? The Prairie River has been significantly altered over many decades, serving as an intercounty drain along much of its length. Wastewater treatment facilities, lakes with legally set water height limits, subsurface drainage discharges, and other sources can influence both its flow and its temperature.
- According to U.S. Geological Survey gages on the Prairie River, water levels appear to be rising, not falling, in the stream since the gages were installed. How do these

changes impact the determination of whether an ARI is likely to occur given the proposed tightening of allowable depletion?

### Conclusion:

This is the first time a stream temperature reclassification has been proposed within the Michigan Department of Environment, Great Lakes, and Energy's Water Use Program, but it is unlikely to be the last. The proposed changes to the Prairie River's classification will affect hundreds of farms, tens of thousands of acres, along with dozens of businesses, residents, and communities that depend on access to water resources. Further, the overall process of how a stream's temperature is redesignated can have impacts across the entire state of Michigan.

This is not an abstract or meaningless designation. Shifting the temperature classification of a stream affects the calculation of how much water is available from a WMA before regulatory provisions set in reducing or eliminating the accessibility of water. While the consequences and regulatory process of water withdrawal is beyond the purview of the MDNR or NRC, it is vital to understand that far from a simple technicality, the decision made on a stream temperature classification has real world impacts far beyond an experimental process of stocking, surveying, and monitoring the population of a fish species introduced to this stream.

Restricting water use additionally brings up legal challenges: Michigan, like other eastern states, operates legally under the reasonable use doctrine for water rights,<sup>1</sup> allowing any landowner to make use of the water on or under their property unless it unreasonably interferes with the use rights of neighboring landowners or unreasonably impairs the quality of the water. If the Prairie River is redesignated as a Cold-Transitional stream from its current status as a Warm stream, it throws not only future water use registrants but also current users into uncertainty by bringing into question whether their uses still fall within the rebuttable presumption of not causing an ARI.

While only seven percent of Michigan's agricultural land is irrigated, those irrigated acres produce nearly 40% of the farm gate value of Michigan's agricultural production, amounting to over \$3 billion in value annually. The economic implications of restricting water use for agriculture are enormous. Further, restricting water use for businesses, schools, churches, and others can bring their processes to a complete halt. This disrupts and harms local communities in many ways beyond the economic losses suffered. These types of decisions throw both current water users and future registrants into uncertainty about their uses, dramatically reducing investment in these communities.

Over six years after data collection was completed, stakeholders are being offered mere weeks to review this report and recommendation. This abbreviated decision process has also fallen over the December holiday period. This initial use of the MDNR procedure for how a stream's temperature is reclassified will establish an important precedent. This precedent should be for a thorough and transparent process affording stakeholders a reasonable period to receive responses on technical questions, submit additional data or information and ensure a legitimate peer review of the MDNR's findings.

On behalf of the many farmers who irrigate, provide water for livestock, use water in greenhouses, or use water for many other agricultural purposes, we urge the NRC and MDNR to carefully consider real-world impacts of the decision to redesignate a stream's temperature

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<sup>1</sup> Lusch, D. 2011. An Overview of Existing Water Law in Michigan Related to Irrigation Water Use and Riparian Considerations. Institute of Water Research, Michigan State University.

classification. The NRC and MDNR must thoroughly examine data collected to ensure it is both high quality and that it follows the protocols and standards established. We also urge the NRC and MDNR to consider the precedent being created in a hasty holiday decision. There is no immediate urgency necessitating a rushed reclassification lacking public participation. We therefore urge the NRC and MDNR to table decision on this issue, review the standards and tools used in the decision-making process and collect appropriate data on the Prairie River, as well as allow peer review of the standards and tools used in the decision-making process to ensure stream redesignation happens when and how evidence calls for.

Sincerely,

A handwritten signature in black ink, appearing to read "Laura A. Campbell", is positioned above the typed name.

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