Minnesota Center for Environmental Advocacy

The Minnesota Center for Environmental Advocacy ("MCEA") and other organizations listed as signatories submit the attached comment in response to the draft interagency fish kill response guidance document and protocol required by Minn. Stat. § 103G.2165.

May 10, 2024

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VIA WEB PORTAL

Re: Interagency fish kill response guidance document and protocol

The Minnesota Center for Environmental Advocacy ("MCEA") and other organizations listed as signatories[1] submit the following comment in response to the draft interagency fish kill response guidance document and protocol ("Fish Kill Protocol") required by Minn. Stat. § 103G.2165. MCEA is a nonprofit environmental advocacy organization with offices in St. Paul and Duluth. Since 1974, MCEA has defended Minnesota's natural resources, water, air and climate, and the health and welfare of Minnesotans. MCEA is driven by the principle that everyone has a right to a clean and healthy environment, and that decisions must be based on fact, science, and the law.

I. Background

In the 2023 legislative session, the Legislature required the state agencies to undertake two actions related to reducing fish kills in Minnesota.

A. January 2024 Report Addressing Needed Rule Changes

The legislature first required the commissioners of the departments of agriculture ("MDA"), health ("MDH"), natural resources ("DNR") and the pollution control agency (MPCA") to make recommendations to the Legislature for statutes and rules that should be amended to prevent fish kills within the boundaries of the "Paleozoic Plateau ecological section," i.e., the "driftless area" of southeastern Minnesota. Minn. Laws 2023, Art. 4, Sec. 101, hereinafter "January 2024 Report." The agencies submitted this report in January 2024.

In the January 2024 Report, MPCA identified some rule changes addressing manure application that could reduce fishkill risk, and MDA suggested statutory changes that would require certified agriculture chemical applicators to receive training on its Runoff Risk Advisory forecast tool and fish kill information, and it also suggested that Minn. Stat. § 18D.40 could be amended to enable enhanced penalties for fish kills. DNR and MDH identified no statutory or rule changes that would enhance fishkill prevention.

[1] Clean Up the River Environment; Lake Pepin Legacy Alliance; Minnesota Well Owners Organization; Minnesota Trout Unlimited; Roots Return Heritage Farm, LLC.

However, all agencies identified the importance of current funding and that enhanced funding could potentially reduce risky practices, particularly related to manure application.

B. Fish Kill Response Protocol

In the January 2024 Report, the state agencies admitted that:

> The definitive cause of fish kills is often difficult to determine, due to factors like the passage of time between when a fish kill happens and when it is discovered and reported, and lack of evidence. Key investigative elements such as water levels, water temperature, water quality, and amount or type of runoff can quickly change and move downstream and become diluted, leaving little evidence.[2]

Similarly, the January 2024 Report stated that "[f]inding a clear explanation for a fish kill depends largely on the lag time between the kill and its reporting, as well as the complexity and scope of the potential cause(s)."

The commentors agree with these statements. Without identification of the causes, it is difficult for the agencies to take any actions to prevent future similar fishkill events. This fact explains *the need* for the second 2023 legislative enactment, codified as Minn. Stat. § 103G.2165. This goal of that legislation was for the agencies to develop an overarching protocol that will identify "steps that state agencies responding to a report of a fish kill under section 103G.216 *must take* to ascertain the cause of or contributing factors to the fish kill based on scientific data and information gathered through investigation, as well as a communication plan to inform the public of potential hazards." Minn. Stat. § 103G.2165, subd. 1 (emphasis added).

This goal establishes that the protocol's "steps" should result in an investigation that will "ascertain" the cause or contributing factors to the fish kill, with sufficient scientific data to support that conclusion.

The agencies were required to consider comments on a draft protocol for a 60-day period. Minn. Stat. § 103G.2165., subd. 2. Once finalized, the state agencies "must follow the protocol and must maintain data related to each fish kill response documenting the extent to which the protocol was followed and any reasons why it was not. Once the protocol is in effect, investigation reports for fish kills must be posted to the EQB Monitor." Minn. Stat. § 103G.2165, subd. 3. The legislation also requires updates "at least every five years." Minn. Stat. § 103G.2165, subd. 4.

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[2] Roger Mackedanz et al., Preventing fish kills in Minnesota's driftless region (2024) at 2, https://www.lrl.mn.gov/docs/2024/mandated/240087.pdf.

II. General Comment

Although the draft Fish Kill Protocol ("FKP") charts various "steps," commentors are skeptical that merely listing these steps will result in an investigation that will ascertain the cause or contributing factors of fish kills by the collection of sufficient scientific data *in a timely manner.* While commentors appreciate that state agencies have limited resources and complex and different authorities, the FKP seems more focused on describing these limits rather than engaging with how, given the agency resources and authorities that presently exist, fish kill responses can be coordinated and improved so that it is no longer rare that the cause of a fish kill is identified. In particular, the FKP appears not to meet item 10 of its mandated content, i.e., it fails to "identify[] a rapid response team of interagency staff or an independent contractor with the necessary data collection equipment that can travel to the site of the fish kill to collect samples within 24 to 48 hours of the incident." As discussed below, meeting the 24-48 hour response window is essential if meaningful data is to be collected in time to mitigate the conditions or if public health advisories are needed. If state agency staff with the skills necessary to assess a spill site and collect samples cannot be relied on to respond to a fish kill site except during normal working hours, the FKP should transparently identify the need for on-call emergency contractors trained and equipped for rapid response, much as is done for typical hazardous materials spills.[3] The FKP must designate and delegate an individual that, upon consultation with other team members as available, has the authority to dispatch a contractor where necessary to collect time-sensitive data critical to identifying the cause of the fish kill.

III. Detailed Comments

A. Speed with which fish kills requiring response (i.e., "urgent") are identified and reported

The FKP starts the process of response with the report from the Minnesota Duty Officer ("MDO"). However, to meet the statutory requirement of enabling effective response within 24 to 48 hours of an incident, the FKP could identify steps that state agencies could take that would result in increased timely and complete reporting of "urgent" fish kills to the MDO. Both DNR and MPCA have information on their websites encouraging reporting of fish kills through the MDO system[4], but more could be done to

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[3] The agencies might identify particular regions—such as the karst region where agricultural and other sources and flowing receiving waters exist in close landscape proximity—where such contractor support would be necessary to ensure a timely response.

[4] Fish kills and die offs, Minnesota Department of Natural Resources, https://www.dnr.state.mn.us/fisheries/fishkills.html#:~:text=To%20report%20a%20fish%20kill,sizes%20affected%20by%20the%20kill. *See also* Minimizing Fish Kills in

ensure that members of the public and local and tribal governmental unit staff are educated about when and how to report an observed fish kill, with emphasis on the need for prompt reporting if the causes of the fish kill are to be ascertained. For example, DNR could post this information near public waters where urgent fishkills have occurred in the past, providing the MDO contact number and the basic information that should be reported, if available (i.e., numbers of fish, approximate area of the fish kill area).

Similarly, the FKP identifies better coordination with local government units as a "future need" but does not explain why the state agencies could not improve this coordination with existing resources to ensure that fish kills are reported as soon as possible. The state agencies could coordinate with local units (soil and water conservation staff, city, county and tribal staff, and others) to ensure that procedures for reporting a fish kill to the MDO are widely known. This effort should be combined with education about how to assess a fish kill (length, species affected, start and stop of zone of observed deaths, etc.) to improve the critical initial report that will start the formal investigation. Local staff are required to report fish kills under Minn. Stat. § 103G.216. The protocol should address how to make this duty effective given the goal of 24-48 hour response.

B. Formation of the inter-agency team

Assuming that fish kills are reported as promptly and accurately as possible, the next step is assessment by the inter-agency team but the FKP is vague regarding how the inter-agency team will be/has been established. Agency management should appoint the interagency fish kill response team **before** a fish kill is reported so that the team can respond promptly to determine whether additional information is needed or whether an urgent response is required. Members of this team should be "on call" to respond to fish kill reports during off-duty hours.[5] DNR needs to assign a person to be an on-call incident fish kill response specialist, or assign this duty clearly to the Conservation Officers. Ideally, DNR should assign staff who are knowledgeable about fish kills; Conservation Officers cannot be assumed to have this expertise. Commenters do not believe that the FKP meets the statutory requirement if DNR expertise is not available. Commenters do not believe that it is appropriate to assign DNR a "supporting role" when a fish kill is documented because DNR has expertise that will be necessary (particularly early in the response) to determining the cause of the fish kill. The determination of which agency will take the "lead" in the investigation must **follow** collection and analysis of samples that will show what the cause is, for example, a pesticide application or improper manure

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Minnesota, Minnesota Pollution Control Agency, https://www.pca.state.mn.us/business-with-us/minimizing-fish-kills-in-minnesota.

[5] Being "on call" does not involve responding to the spill site, but only to review information on the spill to help identify whether the spill response needed is "urgent."

spreading or a spill or release of another kind.[6] The only determination that the team or team lead needs to make following the report is whether data collection needs to be initiated and what data needs to be collected, not which agency should lead. If MPCA is in the best position generally to collect data generally, MPCA should be assigned that task even if eventually MDA becomes the lead and conducts the investigation after pesticides or other pollutants within its authorities are implicated following analysis of samples or other information is received that makes MDA jurisdiction likely.

C. Triage

The Figure 1 "triage steps" diagram lacks time goals that will ensure an effective response to a fish kill that is likely "urgent," i.e., a fish kill in a pristine trout stream. To ensure that samples can be timely collected, the inter-agency team must convene within hours of receipt of the MDO report to determine whether this is an "urgent" situation requiring a field response, or one that requires immediate collection of additional field data to make that determination. Delays in agency staff response to spills reported on nights, holidays and weekends virtually guarantee that data essential to establishing the cause of the fish kill will be lost. While commentors appreciate that each agency has "unique authorities, expertise, knowledge and resources" and employs staff with different expertise, the agencies could designate (and cross-train as necessary) an interagency team lead who is delegated the authority to make decisions about response to a fish kill in the absence of staff from other supporting agencies. The FKP acknowledges that contracts with private contractors are necessary to support the response. The agencies could delegate the authority to dispatch a private contractor to a particular lead staff person if needed to obtain the necessary timely information. In the interim, the agencies should establish steps to partner with local units and tribes that employ (or that could train or employ) qualified staff or volunteers who could collect the necessary samples upon notification that response is needed.

D. Response steps

The legislature required the agencies to develop the protocol because it recognized that "time is of the essence" in responding to fish kill incidents, especially in southeastern Minnesota, where the karst conditions mean contaminants can travel very quickly, even

[6] The chart shown in Appendix A page 24 shows a slightly better organization of the process, where the first decision is "urgent/nonurgent" not agency lead, but then shares the flaw of failing to focus on data collection deadlines and resources available for data collection.

hundreds of meters or even miles in a single day.[7] The response steps described in the FKP at page 13 lack time goals informed by scientific needs. While it may not be possible to meet science-based timeliness criteria for every fish kill, it is critical that staff who are responding know how soon critical data will be lost. Commentors suggest that investigation steps be shown in a "Gant chart" format so that responders know how fast each step needs to be completed.

The 24-48 hour response window is essential if an opportunity to prevent further harm to the ecosystem exists. According to data from the MPCA, for example, fish are some of the *least* sensitive taxa to nitrate pollution [8] and ammonia,[9] meaning if a fish kill is discovered, it's likely the more sensitive taxa such as invertebrates and amphibians are already experiencing a greater threat. "Acute" nitrate contamination tests studied by the MPCA observed mortality within 2-4 days, [10] and the EPA's criteria for acute ammonia exposure are based on a one-hour duration[11] – meaning the window of acute impact is short, and the opportunity to prevent further harm even shorter. Similarly, the EPA's toxicity values to assess Aquatic Life Benchmarks for freshwater species for registered

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[7] Dye trace studies of karst systems from around the world demonstrate that dye (and other contaminants) can move anywhere between 60m to 90m from the point of injection within 1 to 5 days. Williams, P. (2008), The role of the epikarst in karst and cave hydrogeology: A review, International Journal of Speleology, 37(1), at 1-10, available at https://digitalcommons.usf.edu/ijs/vol37/iss1/1. Similarly, studies of dye traces along the St. Lawrence Formation found that dye moved up to 750m/day. Runkel, A. et al. (2014), Geologic controls on groundwater and surface water flow in southeastern Minnesota and its impact on nitrate concentrations in streams, Minnesota Geological Survey, available at https://conservancy.umn.edu/handle/11299/162612. Dye studies in Crystal Creek showed dye travel times ranging from 570 feet per day to 1.8 miles per day. Barry, J. et al., (2019) Crystal Creek 2018 Dye Trace and Spring Monitoring Report.

[8] Aquatic Life Water Quality Standards Draft Technical Support Document for Nitrate, Minnesota Pollution Control Agency (2022) at 5, available at https://www.pca.state.mn.us/sites/default/files/wq-s6-13.pdf. EPA published similar results in 2023 (aquatic life benchmarks). See https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk#ref_a.

[9] Aquatic Life Water Quality Standards for Ammonia: Draft Technical Support Document, Minnesota Pollution Control Agency (2002) at 9, https://www.pca.state.mn.us/sites/default/files/wq-rule4-25b.pdf.

[10] *Id.* at 4.

[11] Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater, U.S. Environmental Protection Agency (2013) at 2, https://www.epa.gov/sites/default/files/2015-08/documents/fact_sheet_aquatic-life-ambient-water-quality-criteria-for-ammonia-freshwater-2013.pdf.

pesticides range from 48 hours (invertebrates) to 96 hours (fish).[12] This underscores the need for private contractors, additional agency staff, or volunteer networks that can mobilize over holidays and weekends to collect data at the site of a fish kill, identify its source, and (if possible) take actions to divert the source of the problem.

The 24-48 hour window is also critical if public health is to be protected, especially in Southeastern Minnesota where contaminants are known to move freely between surface and groundwater used for a drinking water supply.

E. Communication

The FKP states that local governmental units of various kinds "may be notified" by investigators, either immediately or after a response is underway. The FKP should make such notice standard. The FKP should also include notification to tribal authorities in the vicinity of the fish kill. LGUs and tribal natural resources staff will likely be closest to the spill area and in the best position to provide information, collect data and identify risks and urgent public communication needs (i.e., drinking water sources). Under Minn. Stat. § 103G.216, a state or county staff person or official who learns of a fish kill in public waters is required to report the location to the MDO within an hour of notice, or four hours of observation. This duty demonstrates legislative recognition that local units are key to ensuring timely response and data collection.

The communication plan included as Appendix C of the FKP is a plan to create a plan, and lacks definitive steps that should be taken as information is developed about the fish kill. The agencies should take the opportunity now to develop a clear communication plan for fish kills that may have public health implications so that MDH can move decisively if there is a potential public health risk.[13]

F. Sampling protocols

The FKP lacks clarity around how samples will be managed to ensure the fastest possible generation of data needed to identify the cause and any public health threats or continuing ecological impacts associated with that cause. The FKP states that "each agency will follow procedures and sampling protocols related to proper handling and

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[12] Aquatic Life Benchmarks and Ecological Risk Assessments for Registered Pesticides, U.S. Environmental Protection Agency (2023), https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk.

[13] The Clean Water Council supplemental budget recommendations already include funding to add county health department staff within the 8-county area of concern in southeastern Minnesota that the State Agency Work Plan to the EPA is focused on; these staff can coordinate with MDH on public health communications for urgent fish kills. MDH's leadership on public health communication would also integrate with the work that is currently underway to identify wells not in the Minnesota Well Inventory.

storage of samples to maintain sample quality" but to ensure timely collection of data, it is equally important that the agencies ensure that local unit, contractor and tribal staff have the necessary tools (collection kit) and appropriate instructions (a basic universal protocol) as to how to properly collect samples, document samples, and deliver properly preserved samples to an appropriate MDA or MDH lab. At the time samples are collected, the cause will be unknown. To meet the goal of the FKP, what lab should receive the samples and what analysis should be run? Should the FKP require expeditious initial sampling be done to identify common causes (such as spills resulting in low oxygen levels) while sampling is simultaneously conducted at a lab capable of more complicated analysis? Under what circumstances must the DNR lab be used? The draft FKP fails to address these issues in a manner ensuring that the goal of the FKP is met.

G. Investigation

Although Appendix B of the FKP identifies water sampling steps that can be taken to identify the source of the fish kill, it entirely fails to describe other investigatory steps that could aid in the prompt identification of the cause of the fish kill. An early step in the response should be the identification of areas with high potential to be the source based on geography or known hydrogeology. Following identification of the potential source areas, the FKP should identify steps that can be taken to identify the source in the watershed, including drone surveys. The FKP should also describe steps for making contact with individuals in the critical area to see if any potential events (such as a spill, manure or pesticide application) have occurred. Information gained in this matter could help identify the source (and any actions that are needed to protect public health or reduce ecological impacts) in a timely manner.

As part of "[obtaining] local knowledge of [the] area/watershed"[14] and the surface water sampling reconnaissance,[15] the lead investigator should collect records on manure management plans, pesticide application, and discharge reports from industrial and wastewater facilities in the area where the fish kill occurred. For urgent fish kills in the karst region, groundwater models[16] should be reviewed to identify the areas that

[14] Protocol at 14.

[15] Protocol Appendix B.

[16] Groundwater models are relevant in the karst region of Minnesota because of the rapid exchange between surface water and groundwater. The MPCA's "Nitrogen in Minnesota Surface Waters" report (2013) discusses that "cropland leaching [of nitrogen] to its subsequent transport to surface waters is a major source/pathway" for nitrogen in surface waters (pD1-4), highlighting the importance of groundwater not just as a recipient of contamination but also a source. The Lower Mississippi in southeastern Minnesota has the highest percentage of N contributed by groundwater (57%) out of the studied river basins in Minnesota (pD1-11). Nitrogen in Minnesota Surface Waters,

contribute baseflow to the impacted water. The final Protocol should include a standardized division of labor for compiling and examining these records as part of the interagency investigation.

A potential future development need that could bolster this phase of the investigation would be expanding the use of the state's Runoff Risk Advisory Forecast tool, including training Commercial Animal Waste Technicians in southeastern Minnesota in using the tool as part of their licensure.

H. Unified steps required

The FKP states that "each agency follows its own set of protocols and procedures to complete sampling and fish kill investigative work," and multiple agency programs are identified. The FKP is the opportunity for the agencies to reduce competing protocols to ensure that redundancy and conflict are eliminated. The FKP should include, at a minimum, the standard protocol to be followed for follow-up sampling for a variety of common fish kill scenarios, based on observed fish kills in the last 10 or 20 years.

I. Standing contract

Commentors support the need to have a standing contract with a qualified on-call contractor that can be tasked to collect data about a fish kill where agency staff are not available. What would be the estimated cost for a contractor per year?

In the public meeting regarding the draft Interagency Fish Kill Protocol on April 16, 2024, agency staff indicated that funding and capacity to engage private contractors was already available; the revised Future Development Needs section of the final Protocol would benefit from clarifying what contractor services currently available for both lab testing and field testing, and what could be accomplished with additional development (including specific budgets and timelines necessary to achieve those additional developments).

J. Fish kills database

Commentors support the need for a fish kill database that could be used to establish trends and assist with investigations, particularly in areas where multiple fish kills are being reported.

IV. Conclusion

Minnesota Pollution Control Agency (2013), https://www.pca.state.mn.us/sites/default/files/wq-s6-26a.pdf.

Commentors appreciate that the agencies have dealt with fish kills for many years and have existing protocols that they follow to investigate those fish kills that fall within their jurisdiction. But the fact remains that despite these protocols, the information necessary to identify the cause of the fish kill remains a mystery in many cases. Given these facts, the draft FKP is disappointing in that it fails to identify the current impediments and how they can be overcome, either by new resources or the creative use of existing resources. Commentors hope that the final draft of the FKP is more focused on solutions to the existing problem, rather than describing the current operating silos that appear to frustrate state response.

The commentors thank the agency staff for their attention to these comments and for the work done thus far on the draft FKP, and look forward to reviewing the final draft.

Respectfully submitted,

Minnesota Center for Environmental Advocacy

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Lake Pepin Legacy Alliance

Minnesota Well Owners Organization

Minnesota Trout Unlimited

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