

**WATER POLLUTION CONTROL ADVISORY  
COUNCIL**

**10:00 A.M., September 23,2022**

**Zoom Meeting**

**FINAL MEETING MINUTES**

**PRESENT(Online)**

DEQ Communications  
Meagan Gilmore  
Amanda Knuteson  
Ron Pifer  
Dennis Teske  
Adam Pummil  
Michael Suplee  
Rainie DeVaney  
Amy Steinmetz  
Shannon Holmes  
Hannah Riedl  
Michael Suplee  
Eric Campbell

**CALL TO ORDER**

Amanda Knuteson called the meeting to order and roll call.

**APPROVAL OF AGENDA**

Amanda Knuteson moved to approve the agenda at end of meeting, seconded by Adam Pummil. Agenda Approved.

**APPROVAL OF MINUTES**

Amanda Knuteson moved to approve the minutes at end of meeting

**BRIEFING ITEMS**

1. Update on the nutrient work group progress with Rainie DeVaney and Michael Suplee.
2. Nutrient Updates: Briefing on DEQ Response to EPA Action Letter and General Updates on Nutrient Workgroup Progress with Amy Steinmetz
3. Update on state HAB program with Hannah Riedl

**[Water Pollution Control Advisory Council update on Nutrient Work Group-Michael Suplee, Water Quality Standards Specialist and Rainie Devaney, Surface Water Discharge Permitting Section Supervisor Water Protection Bureau.](#)**

## **Rainie DeVaney Presenting**

Rainie DeVaney: I will provide an update on progress as far as work that the department has been conducting. I'd like to acknowledge that Amy Steinmetz Division Administrator for Waste Management and Remediation Division is also present.

- **Agenda**
  - Update on variance rule making progress
  - Continued dialogue with Nutrient Work Group and EPA
    - Response Variable update
    - Decision framework for response variable data combinations
  - Remaining topics for NWG meetings

Rainie DeVaney: We are providing an update today about the departments transition from a numeric water quality standard for nutrients to our narrative water quality standard for nutrients that was an outcome of Senate Bill 358. Which was in the last legislative session, so that bill directs the department to do a variety of things. It directs us to repeal our numeric water quality standards for nutrients that are held in 12A. It directs the department to work with the nutrient work group to develop an adaptive management program. It also directs the department to revert to our narrative water quality standards for all water bodies that were previously protected with the numeric criteria. Today we are focusing on the progress that Michael Suplee has been able to make over the last few months and his continued dialogue with EPA. So, EPA in August of 2021 provided the department with a review of what the department was proposing as far as response variables and associated thresholds. Michael Suplee has really been making headway in working with them and addressing concerns.

- **Introductions**
  - DEQ Staff
    - Michal Suplee, Water Quality Science Specialist
    - Rainie DeVaney, Discharge Permitting Section Supervisor
    - Amy Steinmetz, Waste Management and Remediation Division Administrator
- **Water Quality Standards Variance Rule Progress**
  - Public Comment Period ended Aug 22,2022 which ended a public hearing
  - DEQ is finalizing rule package for projected adoption Sept 27, 2022

## **Michael Suplee Presenting:**

- **Refinement of Response Variable and Associated Thresholds**
  - Over past few months, DEQ and EPA met repeatedly and collaborated on response variables and associated thresholds
  - Addressed issues raised in August 2021 letter from EPA
- **Proposed Narrative Nutrient Standards Translator for Wadeable Streams and Medium Rivers**
  - (Table and map of HUC 8 Water Shed and Ecoregions)

Michael Suplee: What you're looking at here on the slide is what we are talking about in terms of the proposed narrative nutrients standards translator for wadeable streams and medium rivers. Large rivers would still be based on water quality modeling and modeling and field data associated with the water quality standards associated with big rivers that are affected by eutrophication like EO, PH, ect. For all

other water bodies in the state, our wadeable streams and medium rivers, this is the process that we would be instituting. The table is broken out into different regions of the state and correspond to color coded regions of the map in the lower left-hand corner. They have also been broken out by the beneficial use. Montana's water quality standards structure is based on multiple beneficial uses all of which need to be protected. This process breaks them out in terms of which use, what part of the state, and specific causal. Response variables will be looked at in association with that use for the purposes of translating the narrative nutrient standards. In western and transitional regions largely corresponds with B1, A1 type waterbodies for the recreation use. To assess that use under the translator, one would need to collect nitrogen and phosphorous concentrations and look at them in relation to the ecoregional ranges. For response variables (the things that need to respond to increased nutrients) we would be looking at measurements of Chlorophyll A, dry mass of the algae, and percent filamentous algae bottom cover, with those thresholds as shown. 150 Milligrams Chlorophyll A per square meter and a corresponding 35grams ash free dry weight per square meter. Those have been worked out through the public perception survey. Utah did their analysis of the same type of study. If there's an X in the box that would be something that needs to be collected and looked at as part of this process. Western and transitional eco regions, now we're switching over to the aquatic life use, it is important for EPA particularly to have that distinction made. There we would again be measuring an MP in the water body, looking at dissolved oxygen delta with the threshold to be determined. Then looking at aquatic insects that live in the stream bottom and the specific metric threshold that would be associated with that. Doing an updated analysis with current data to bring it up to speed and refine it. Western and transitional eco regions high gradient streams, streams with very high slope, would not be measuring DO Delta because those streams have enough mechanical reaeration that DO Delta becomes no longer a meaningful response variable to measure the mechanics of flow over a steep high gradient stream would overcome any kind of DO Delta streams even of itself, mechanical mixing of the water. Apply to high mountain high forested areas in terms of its influence or effect on our wastewater community it should be essentially negligible. Finally in eastern eco regions corresponding to C3 waters the aquatic life use would be measured looking at the nutrient concentrations there and DO Delta (detail study completed for this region) and micro vertebrates. That's the construct, all these pieces of data would need to be collected and then evaluated and collected during the applicable growing seasons which is summer and early fall across the whole state.

- **Ecoregional Ranges**
  - (See graph)

Michael Suplee: As recalled from the previous construct one of the things that need to be looked at and measured is the nutrient concentrations can then be compared to the ecoregional ranges. Ecoregional Ranges are ranges of nutrients that scientific data has shown are protective of those two uses recreation of aquatic life and they vary from location to location, so those would be a point of comparison for that data that is collected from these water bodies.

- **Attached algae quantified as milligrams of chlorophyll a per square meter of streambed, AFDW, and % cover**
  - (See graph)

Michael Suplee: Here are some examples included in our public perception study (*See Graph*). At low levels for example 40 milligrams chlorophyll A very low bottom cover effective recreation use. Start

getting into the middle ranges like 120 milligrams chlorophyll little higher AFDW 30% cover approximately starting to move toward the level people aren't very happy about. Finally getting into the higher levels of chlorophyll 300, 60% cover, interferes with fishing, swimming, ect. All recreational beneficial uses are impacted at that point.

- **Dissolved Oxygen Delta (Daily Change): Wadeable Streams and Medium Rivers**
  - (See graph)

Michael Suplee: Dissolve Oxygen Delta is a response variable we would be asking people to collect and evaluate as part of the aquatic life use assessment for the state. Different thresholds for different parts of the state, but the same method. DO Delta is the daily high minus the daily low at a stream. Most streams manifest a DO curve throughout the day. The lowest DO is found just before dawn, when aquatic organisms have been using up dissolved oxygen throughout the night there is no plant respiration occurring. When sunrise comes the DO starts to go up rapidly as the aquatic plants begin to photosynthesize, usually peaks in the early to late afternoon and declines throughout the night and then repeats. Daily change tends to get very exaggerated when you have excessive nutrients and excessive eutrophication. Using that as an assessment tool for eutrophication assessment.

- **Excessive DO Delta is associated with undesirable changes in aquatic life (e.g., loss of sensitive fish species in Minnesota)**

Michael Suplee: Why is DO Delta important-we know low dissolved oxygen is a problem. When dissolved oxygen gets down below about 3-5 milligrams per liter that is concentration, fish have a hard time with food conversion, mortality begins. The daily change has been found to be associated with changes of undesirable aquatic life. For example: this study from Minnesota shows the dissolved oxygen delta or flux get surpassed about 3 1/2 their metrics where they measure their fish population begin to shift towards a very high proportion of tolerant fish such as carp, goldfish, etc. Fish that can handle little to no dissolved oxygen and high DO changes during the day. This is an example of an undesirable change in aquatic life as a result of daily DO flux or delta.

- **Example of DO Delta Thresholds**
  - (See graph)

Michael Suplee: We have used in our assessment methods since 2010 we have had 5.3 and that was applicable to eastern Montana plains which is non-salmonid fishes and associated aquatic life, we have done more work since this was published, but there is more work to do in western Montana on that subject. Minnesota had converted it into regulatory limits as part of their nutrient standards. Has a range depending on part of state has of 3 to 4 1/2. The lower number being associated with their northern forested regions and 4 1/2 being associated southern agricultural plains regions. Ohio uses 6 1/2. We're not unique in using this. Other states have thresholds that we can look at and refine on our own levels here in Montana.

- **Wadeable streams & Medium Rivers: Macroinvertebrates**
  - Direct measure of the aquatic life beneficial use; respond to eutrophication. In weeks/months; easy to collect, several taxonomic contractors available
  - Responsive to eutrophication in western and eastern Montana
    - HBI part of nutrient assessment method since 2010

- Plains metric responded to nutrient additions in eastern MT stream nutrient-dosing study
- Different metrics and threshold needed for each part of the state
  - Metric & threshold identification would be included as part of this work
  - Goal is select the best metric responding to eutrophication for each major geographic zone
- **Macroinvertebrates can provide consistent assessment results (example: Plains MMI)**
  - (See graph)

Michael Suplee: A paper published in 2006 looked at cases where a micro vertebrate's sample is collected from a stream and then someone immediately collected a repeat measure on that same stream, same date, same time. Then they looked at how each of these two different bug samples reported back in terms of their micro vertebrate metric score. In this case, starting from the left-hand side the vertical bar above the C represents the two scores that were achieved from the two samples same place same site. If there is no vertical line that means the two bug samples gave the exact same metric score. The horizontal line is the threshold where we say there is impairment. In very few cases although there is variability in these metrics, there is only a couple of cases where one sample is going to give you a different answer than the one that was collected almost immediately after it. So, this means our samples will give repeated, consistent responses that we can rely on 80 percent of the time to give the same answer even if we were to go out again and collect the same sample on the same day. That gives us confidence that these metrics are not all over the map, if you collect the sample, you're going to get largely the same result from another sample in that same place, that supports the idea they can be used for regulatory purposes.

- **In the translator, if nutrient concentrations are high but the response variables are acceptable, then the standard is met**
  - Some combinations of results will be harder to interpret (e.g., low nutrient concentrations, acceptable DO delta, but poor macroinvertebrates score).
  - -A draft decision framework is under review within DEQ and will be presented to NWG
  - (See Graph)

Michael Suplee: In this narrative nutrient standards translator it is important to know that the way the construct is laid out is nutrient concentrations can be high, but if all the response variables are acceptable the standard is met. That's the critical piece in how this differs from our numeric standards from before because this process puts much more emphasis on the actual biological and ecological response in the water body as opposed to these specific numeric nutrient concentrations, because each of these variables has two outcomes either is or is not above the macro invertebrate metric score or is or is not above the benthic chlorophyll A level of 150 ect. There is a lot of combinations of data results that can come about from this and some of them are going to be harder to interpret. For example, low nutrient concentrations, acceptable DO Delta, poor macroinvertebrate score, what does that mean? On the face value you would assume if the nutrients were low, DO Delta looks healthy, you'd expect the bugs to be healthy too, but they're not. This might be a case where additional data collection and a little bit more analysis might be warranted before a decision is made. We are working on a draft decision framework it is already under review with DEQ and we will be presenting that to the nutrient workgroup

at the next meeting. That decision framework lays out how different combinations of these data will be interpreted in terms of meeting or not meeting the narrative nutrient standard.

### **Questions/Comments:**

Ron Pifer: One of my expertise is macroinvertebrates analysis and I have done quite a bit of work related to environmental impact reports in the past. If there is a situation where you have low nutrient concentration and very high levels of dissolved oxygen and everything looks good, but your macro invertebrate concentrations are low, Question: Have you considered taking the biomass of those macroinvertebrates and subjecting it to mass spec or some sort of analysis and compare it to places where you have good macroinvertebrates to see if there is toxins, heavy metals, or pesticides? Michael Suplee responds: We have not yet gotten to that level of detail. We recognize that macroinvertebrates metrics being a biological community will always respond to multiple stressors. Now the metric that we will select will be one they respond robustly to eutrophication, but I could never say that they respond uniquely to eutrophication. We have not gotten to that point yet but if we run into a situation and additional study is warranted then we could do things like look to see if there is anything in the wastewater discharge, because many of these will be conducted downstream in these facilities, that could be causing the bugs to be brought down unusual high chlorine levels being used. Is there something coming through that they're not aware of? Or is it a sub straight problem where the site wasn't chosen very well? The answer is yes, we have in mind the possibility of exploring further unusual macroinvertebrate results that don't seem to mesh with the other information we have. Exact detail of which we will figure out on a case by case going forward.

Amanda Knuteson: Outside the scope of your study, with all the enhanced cleaning practices with covid on a mass scale with hotels, businesses, Air BnBs, and people in their homes using and consuming far greater quantities of antibacterial and stronger cleaners and using them far more frequently; Question: Are you seeing any changes or impact at all that relate to those? Do you have a way to trace those chemicals in this study? Michael Suplee responds: unfortunately, I do not have an answer for you. I am not aware of anything that has been looked at specifically pre or post covid. A lot of those chemicals get strongly processed when they go through the wastewater treatment process. We know that to be the case as well, so maybe many of them are broken down into harmless components. I am not aware of what the answer to that question is, or if we would have enough resolution in our data to be able to pick that up especially since we really did not look at it in close detail beforehand, but someone in the United States may have done that study.

### **Rainie DeVaney Presenting:**

- **May 2022: Updated draft Administrative Rule and Circular DEQ-15**

Rainie DeVaney: I also wanted to acknowledge that May 2022 we provided updated draft administrative rules and an updated technical document call Circular DEQ-15. We did provide those to the nutrient work group those are the documents that we have been using as our foundation for continued dialog moving forward. I wanted to acknowledge that we did share that 2022 version of update administrative rules for you all today. Not needing any action on it just as an FYI as far as where we were. We did not provide the entire circular to you and part of the reason is that we are making some modifications on the progress Michael Suplee described in his conversations with EPA. As far as progress with the

nutrient work group, May 2022 documents its where we are starting from, but we are continuing to refine those, make edits, and improvements.

- **Remaining Topics to Discuss**
  - AMP process
  - TMDL- AMP interaction
  - Addressing EPA's technical comments in August 2021 letter on response variables and thresholds
  - Translation of the narrative for all CWA programs
  - AMP-MPDES permit interaction
  - Reasonable potential analysis
  - Nutrient assessment method process
  - Protection of downstream uses
  - Revised guidance document
  - Final rule language
  - Case study

Rainie DeVaney: this was a discussion point in our last nutrient group meeting, just wanted to acknowledge that while we've made progress on quite a few topics. These are a list of things we continue to have dialogue about. You heard from Michael Suplee about addressing those technical comments from EPA. We're going to be taking that and coming up with our translation of the narrative standards for all our clean water act programs. We're going to dive into some permit specific items in the upcoming nutrient work group meetings, the relationship between enforceable permit documents and the adaptive management program. Shortly the department will have some guidance related to some of those processes and the permitting process particularly reasonable potential. Then you can see there is a host of revisions guidance documents, wanting to get a case study out, that big picture and continuing to refine that administrative rule language. That is a quick look at what in coming up and what the department in continuing to work on.

- **Next meeting**
  - Nutrient Work Group September 28,2022; 9-11am

### **Questions/Comments**

Amanda Knuteson: Question: You mentioned the meetings with EPA, I wondered about the forum with EPA, if those are open to the public in any way or if those are informal zoom meetings, how are they conducted? Michael Suplee responds: Referring to his meetings with EPA over the last couple months. those meetings were one on one technical conversations in person with our primary technical contact over at EPA.

### **[Nutrient Updates: Briefing on DEQ Response to EPA Action Letter and General Updates on Nutrient Workgroup Progress -Amy Steinmetz, The Waste Management and Remediation Division Administrator](#)**

#### **Amy Steinmetz Presenting:**

Amy Steinmetz: I wanted to give you a quick briefing on a letter we sent to EPA in August. If you'll recall, I spoke to the council in early June and gave you information on a letter that we received from EPA in

May acting on parts of Senate Bill 358. I wanted to hit some high points on the letter we sent back to EPA and to talk a bit about our objective in sending that letter. After we received EPA's letter, we did decide that we should have more of those conversations that you just heard about from Michael Suplee and Rainie DeVaney about how we can move forward with the science, what we need to do to move forward to get to an approvable package that is in the best interest of Montanans. After having many of those conversations and figuring out what our path forward was going to look like, we thought it would be prudent to capture our intent in a letter and send that to EPA. We did let EPA know that we do still intend to move forward as instructed under state law under Senate bill 358 to fulfill the requirements under that law. Some of the things that we did want to let EPA that we just put on the record, is that when correctly implemented, the narrative water quality standards are just as protective as numeric water quality standards. Both numeric and narrative water quality standards are intended to protect the beneficial uses of water bodies. One of the things that the letter does is point out that EPA has stated that publicly as well. That is not something that Montana is saying, it's something that EPA has acknowledged as well. It also points out that many of Montana's waters were never subject to the numeric standards in DEQ 12a and have always been regulated under our narrative nutrient standards and have been done so in a protective manner throughout time. Secondly, we mention that DEQ proposes to use the same science used to develop the numeric water quality standards adopted in 2014 and to ensure continued protection of beneficial uses under that narrative nutrient water quality standards and you got to see some of that science Michael Suplee talked through in his presentation. We're using that same science. Finally, we stated that DEQ does intend to continue collaborating with EPA as we develop the rule package directed under Senate bill 358. Our objective was to let EPA know what is intended moving forward and to capture that in writing for EPA and our stakeholders.

### **Questions/Comments**

Ron Pifer: Comment: I just wanted to complement you and DEQ and your legal team for standing up for our viewpoints in Montana and our philosophies. A group that I am apart of locally I report on meetings such as this and I receive applause from the audience when I give updates. I am going to give updates on this because I think it's important to take a practical approach, as Michael Suplee was indicating in his presentations. We're going to look at what's real such as the algae buildups in the streams and the macro vertebrate health and the fishery health. We are going to buttress it up with the proper water quality sampling. We're not going to let the water quality alone determine the outcome, because it may not be as significant as certain people might think it is, so I applaud you thank you very much.

### **Public Question:**

Scott Buecker: Question: He is on the nutrient workgroup committee. Question: Has DEQ looked at what is going to be needed from the dischargers in terms of staffing and expertise on this data collection? Question: If so, can we brace our dischargers in Montana for that so it's not the engineers delivering that over the next year? Amy Steinmetz responds: We have had some conversations about that, and in fact it is one of the things that we do want to have a conversation with the nutrient workgroup about in the upcoming months. Messaging is important; I think the bill proponents as they were talking through this did realize there would be a heavier lift on the sampling, the monitoring, and that would hopefully balance out with less funding or fewer resources needed to be expended on the infrastructure side as projects were identified on the nonpoint source side and working with partners to help eliminate some of those. So, it will be a trade off, but your right that will be important to continue talking about and to



message appropriately. I don't think that is something we should have to rely on our engineers and consultants to have to do, that is something that maybe the nutrient workgroup could work on messaging and take that message out. Rainie DeVaney responds: One thing we have been having continued dialogue about also internally, just to add to what Amy Steinmetz was saying, was the need for training for our operators and updated essentially sampling and analysis plans to supplement each of these different response variable data collections that we're going to be asking for. So, we're hoping to roll out a written guidance, but also hoping to offer help within the water protection bureau. We have technical assistants in our engineering bureau as well, so we're hoping to offer them for some on the ground training. Then DEQ regularly attends water schools and a variety of training forms. So, we're hoping to come up with a comprehensive training and outreach. If you have any ideas about how to collaborate or things that DEQ could improve, we are open to that feedback.

**[Update on State Harmful Algal Bloom \(HAB\) Program - Hannah Riedl, Water Quality Specialist DEQ, Nonpoint Source and Wetland Program and Coordinate State Harmful Algal Bloom Program](#)**

**Hannah Riedl Presenting:**

Hannah Riedl: I'm going to give some basics of what harmful algal blooms are and I will also cover how the state manages public outreach about HABs. Finally I will give you a summary of how this May 2022 season has been going.

- **Harmful Algal Blooms (HABs) in Montana**
- **9HABs Principles**
  - 1. A HAB is a mass of cyanobacteria
    - Not truly algae, but rather blue-green, subset of phytoplankton, a single celled alga.
  - 2. Cyanobacteria are common.
    - Native constituents of freshwater, estuarine, and marine environments.

Hannah Riedl: Cyanobacteria are one of the first living organisms on our planet, believed to play a big role in the oxygen we breathe today. Becoming an increasing concern because their prevalence has become more common. In Montana there have been documented issues with Cyanobacteria, causing livestock death as early as the mid -late 1900s.

- **9HABs Principles**
  - 3. Cyanobacteria can be toxic
    - Liver, nerve, or skin toxins (cyanotoxin).
    - Toxins are selectively produced by many genera -but not very predictable.
    - Widely distributed but not often at acutely toxic levels.
    - Exposure routes include ingestion, inhalation, and skin contact.

Hannah Riedl: (see slide) On the screen are some of the common cyanobacteria in Montana. Listed below each one is the common cyanotoxins that they may produce. People and animals can be exposed to these toxins not just by inadvertently drinking the water, but by inhaling water like if you are jet skiing, skin contact can be affected as well.

- Anabaena or Dolichosperum
  - Microcystins(liver)

- Anatoxin-a/a(s) (nerve)
    - Saxitoxins(nerve)
  - Microcystis
    - Microcystin(liver)
  - Anphanizomenon
    - Anatoxin-a(nerve)
    - Cylindrospermopsins (liver)
    - Saxitoxins (nerve)
- **9HABs Principles**
  - 4. Climate change effects HAB growth
    - HABs have been observed with increasing frequency and in more locations in the US.
  - 5. Human activities are responsible for the increase
    - Increase nitrogen and phosphorus from sewage treatment, animal feeding operations, runoff from agricultural fields, roads, and stormwater.
- **9 HABs Principles**
  - 6. No EPA standards for cyanotoxins

Hannah Riedl: HABs are hard to manage in part because there are no EPA standards for those toxins. There are guidelines that I have on the screen. (*See slide*) However because there are no standards the cyanotoxins are not a contaminate that are routinely monitored in say public water systems. There is an emerging contaminate system where cyanotoxins will be more periodically monitored, but monitoring is not mandatory. It is essentially all voluntary.

- **9 HABs Principles**
  - 7. You can't tell toxicity by just looking- blooms can be deceiving!

Hannah Riedl: In Montana, if any detection of Anatoxin, we flag that as a caution for the public. It is tricky to detect HABs, you can go to a beach and see a HAB in the morning and in the afternoon the wind might pick up and push the organism itself away out of the cove. Those toxins that remain invisible to eye might remain in the water column. Things can change rapidly too, you could have done a toxin test on that beach in the morning detected toxin, come back in the evening and their gone. It would require frequent monitoring to stay extremely up to date on how high of a risk recreating in a HAB might be.

- **9 HAPs Principles**
  - 8. Pets, livestock, and wildlife deaths reported
    - No human deaths attributed to cyanotoxins in the US

Hannah Riedl: It is hard to attribute a bloom to a human or even animal death because you must get the timing of the water quality test done so close to when the incident occurs.

- 9. When in doubt, stay out
  - Do not drink, swim, touch, or inhale, water affected by cyanobacteria
  - If you, your child, or your pet does go in water that has a bloom, wash off immediately with tap water.

Hannah Riedl: If you do go swimming in the HAB, you may feel skin irritation, you may not. Wash off with tap water. If you start developing symptoms like rashes, ear infection, nausea, diarrhea, contact your doctor immediately.

- **Montana's State HAB Program**

Hannah Riedl: Montana has our state harmful algal bloom program with close collaboration with DEQ, DHHS, and Montana Fish Wildlife and Parks.

- Primary goal: the public is aware of HABs, the health risk posed, how to identify them, and how to help prevent their prevalence.
- Launched July 2017-Online HAB reporting system
- Developing effective communication with managing jurisdictions

Hannah Riedl: It is just myself, our taxonomist, and a couple people on backup, helping respond to the reports we receive from the public. We do not have the capacity to go and investigate every report. So, we really rely on collaboration with the local landowner that might be BLM, FWP, Northwest Energy, or the local county health department.

**Question/Comments:**

Ron Pifer: I have been treating ponds with probiotic pond bacteria and enzymes. One of the ponds that I treat is a large one it is low now because of the water levels. One of the borders has an alga on the bottom. The algae is a bright, turquoise, almost florescent blue green on the bottom maybe two feet below the surface, Question: do you think this could be a HAB? Hannah Riedl responds: It could be, it is hard to say without seeing a photo or looking under a microscope. Typically, in lakes or still water like that, cyanobacteria float on the surface. They can control their buoyancy, so they move up and down in the water column as they see fit. They more commonly float on the surface. If you are seeing a turquoise color, that is usually a quintessential indicator of cyanobacteria. Ron Pifer went on to talk about the possible health benefits of certain cyanobacteria algal blooms. Hannah Riedl responds: Not all cyanobacteria produce toxins that's correct.

**Hannah Riedl Presenting:**

Hannah Riedl: I wanted to talk about where you can find information on HABs the website is [hab.mt.gov](http://hab.mt.gov) This is where you can go to submit a report on HABs or see where reports are coming from. You can see what we have flagged as cautionary, advisory, or if we ever have closures they will be shown there too. This is where you can access our guidance and advisory document for responding to each report and resources that we offer. Go into the main link scroll down to the survey form, this is where you would submit information for a harmful bloom. You will need to include locational information you do need to pin your report on the map. For example, if we are working with livestock producers and they are concerned about their livestock drinking they may not want to pin the location on the map. You can just include the county seat it does not need to be 100% accurate; I can also work one on one with that owner. The other key thing is submitting photos with the report. This is one of the first steps to deploying our resources to help with the cyanobacteria or toxin monitoring. If the person does not have photos but depending on verbal description or if there is a report of illness alongside the report, then I can work with a local landowner or jurisdiction to try to get some photos. As soon as the report is

submitted it populates the map on the webpage. (Showing an example of a map of HAB advisories around Montana)

- **HAB.mt.gov**

Hannah Riedl: The process of how we respond to these reports is laid out in the guidance document. It is written more for water managers it is not as much a resource for the general public. Those videos and FAQ on the website are more for the public. Hannah explains: the table Montana HAB Public Health Advisory Tiers for Recreational Waters (see slide). How we issue advisories or would recommend closing a water body is laid out on the table. The table shows concentrations of Microcystins of Anatoxins when we would recommend caution. We always recommend having caution signs posted in the area so people who are unaware of the website have a chance of learning about the potential risk. You'll notice to that when a report is flagged as a caution, we don't need anything besides visual evidence that cyanobacteria are present. If we detect higher levels of cyanotoxins we keep it as a caution advisory, we recommend working with public outreach. We work with landowners or the county health department to make a press release. We have done mailers to homeowner's associations around lakes for example, warning them of that potential risk. Very rarely are closures issued, it requires lab testing and those quantitative toxin results. With the state harmful bloom program, we are really relying on citizen reports. So, it is a reactive program there is some proactive routine monitoring around the state by groups. For example, City of Bozeman is routinely monitoring Highlight reservoir because that is their drinking water supply. Northwest Energy has a routine monitoring protocol for Hebgin reservoir.

- **HAB Monitoring Resources**

- Monitoring is not mandated but recommended
  - 1. Visual
  - 2. Field test strips
  - 3. Laboratory Analysis
    - Water sample kits sent to EPA-Denver (48 hours turn-around once received)

Hannah Riedl: Visual monitoring relies on photographs. Field test strips and Laboratory Analysis are the only monitoring methods that help in identifying cyanotoxins. Photos and microscopes help you identify the cyanobacteria organism but not whether cyanotoxins are present. Hannah Riedl goes on to show photos of lakes and ponds with cyanotoxins. Once we have photo confirmation we identify them under the microscope, either in house with a water sample or we will ship the strips out to local jurisdictions. You can get semiquantitative results within an hour. Laboratory analysis we recently got this reinstated with the EPA region 8 lab, so we can get quantitative results. It does take within 48 hours to complete. We do offer these test strips and laboratory analysis as a free resource so long as supplies last. It is not free to us so if people are interested in purchasing their own test strips for example if they have a private pond, we buy these in boxes of five tests. Each box is about 300-600 dollars, compared to using a commercial laboratory that is what you are looking at with one test analysis. Test strips have a quick result with less resolved results. The laboratory analysis is slow to get results but much more precise.

- **Figure 3 Decision Flow chart for harmful Algal Blooms in Recreational, Publicly Accessed Waters.**

- (See slide) Flow Chart
- (See Slide) Caution signs
- **2022 HAB Season recap**

Hannah Riedl: Every year since we have been running this reporting application. We get 40-60 reports and with those 1/3<sup>rd</sup> end up being cyanobacteria. So, we are on track for this year.

- **Benthic HABs**
  - Benthic (“bottom”) HABs are gaining more attention
  - Exposure through ingestion of mat material
  - Benthic HABs like clear water with stable flows and substrate

Hannah Riedl: One emerging HAB issue in the nation are Benthic HABs. It is not something we have seen a lot or had a human health issue within Montana, but these are a type of HAB that grows in flowing water or river systems. This type of cyanobacteria grows attached to the bottom instead of floating on top. They are more an indicator of altered hydrology where you’re not getting those frequent high flow events that are scouring the stream bottom and less an indicator of an issue with nutrients like we have with our lakes and reservoir HABs. This has been a topic discussion more with states in the region because in 2020 there was a dog death in Zion National Park that ended up being associated with these benthic blooms. So, something we are keeping an eye on but hasn’t been present much in our state. It creates another world of management problems because the toxins don’t really stay in the water column they are more trapped in the algal mat so things like fishing or walking around on the stream bottom or having a dog eat an algal mat, that is where the toxicity occurs from and less from drinking the water. It makes sampling for the toxins tricky.

**Question/Comments:**

Ron Pifer Comment: (Referring to the description of algae in previous question) The turquoise algae that I saw it was on the bottom, it was on the rocks, it wasn’t floating in the water column. There was a little stringy alga around it. On this lake there is only one spot that I have seen it. Question: Do you still think that could be cyanobacteria even though it’s not floating on the surface? Hannah Riedl responds-there is always the possibility especially when you said there is a nutrient input in that spot. I don’t know if that is coming from a groundwater seep? Ron Pifer responds: Yes, it is a seep. Hannah Riedl responds: Is it a private pond or public? Ron Pifer responds-it is a private pond in the sense that it is owned by a company, it is nonpublic. Hannah Riedl responds: Yes, I think it would be worth it to send a sample to a taxonomist to identify under a microscope or if you want to send me a picture I can do my best, if we’re not sure with photos we always recommend going to a taxonomist.

Amanda Knuteson: Question: When you do an investigation do you just identify the nature of the bloom and issue the warning and interface with the public or are you doing tracing to identify sources? Do you do DNA analysis or is this something a different division in DEQ would do or how do you interface determining source tracing? Hannah Riedl responds: With the HAB program we are not tracking reports to their cause. That is somewhat going on in the state I know, up in the Flathead area they are doing a DNA tracer study to look at the source of nutrients. Certain watersheds where we have HABs, DEQ has already done nutrient studies, so we might have a better idea of where nutrient sources are coming from in the watershed. It can also just be things like in lake nutrient production. If you have a lot of erosion in your watershed or that reservoir has just been filling with sediment over time, that can be a

source of nutrients in the reservoir itself. To answer your question, we are not identifying causes associated with each bloom but depending on where it is we might have more or less information about what could be a source. Amanda Knuteson continues: Question: The groups that do the source tracing could become aware of the bloom through your program? Hannah Riedl responds: Yes, that could be a potential scenario, I think often we are also getting reports from local managers who want help on how to do that public outreach and use the monitoring resources. Often the local group could be aware already and they are working with us to get word out to the public. I will also say that having those citizen reports is helpful because even those local managing jurisdictions don't have the resources to go out and check on the ground conditions all the time. The more reports we're receiving the better for keeping the public up to date.

**Public Comment:**

Dennis Teske Comment: I appreciate all the information Thank you.

**Next Meeting Agenda:**

- **Next Meeting November 18<sup>th</sup>**

Ron Pifer: If there is new information and updates from the DEQ letter to the EPA. Please include in the agenda for the next meeting. That is an ongoing potentially problematic issue. That would be something important to wrap up the year.

Amanda Knuteson: I am interested in following the progress that DEQ is making with the EPA, and they have done a great job to brief us so far. Amy Steinmetz if there are updates related to the EPA reply to your response, the DEQ response, that would be great to include at the next meeting. The nutrient work group is meeting every two weeks and will have had quite a few meetings in between now and our next meeting. So that will be good to have as a regular agenda item and update from nutrient work groups since their doing so much of the heavy technical lifting as you go through rule making. If MDEQ could possibly give us a condensed run down of what you are aware of coming up in the next legislative session that is relevant to WPCAC, that would be a huge help. It's super helpful if you do not mind keeping us apprised of the relevant legislation coming down the line for 2023.

Amy Steinmetz responds: Yes, we would be happy to do that. It will be busy, but we can brief you on agency legislation and if there is anything that we are aware of that is relevant to water quality we can absolutely brief you on that. Regarding nutrient workgroup status, that is something we will want to continue bringing before you because there is so much work being done, that way when we do get to a point when we're ready to do rule making, you'll be aware of the progress throughout time. Also, as requested if we do receive a response from EPA, I would be happy to brief you on that as well. I don't know if we will get one, but we will certainly brief you on that if we do.

**Meeting Adjourned 11:45am**