

NUTRIENT WORK GROUP MEETING SUMMARY

SEPTEMBER 22, 2021

9:00 a.m.

Hybrid Meeting: Zoom and DEQ Room 111

ATTENDANCE: NUTRIENT WORK GROUP MEMBERS

Representative & Affiliation	Representing
Susie Turner City of Kalispell	Point Source Discharger: Large Municipal Systems (>1 MGD)
Rika Lashley Morrison-Maeirle	Point Source Discharger: Small Municipal Systems with Lagoons
Alan Olson Montana Petroleum Association	Point Source Discharger: Non-POTW
Kelly Lynch Montana League of Cities and Towns	Municipalities
Tammy Johnson Montana Mining Association	Mining
Rachel Cone (sub. for John Youngberg) Montana Farm Bureau	Farming-Oriented Agriculture
Jay Bodner Montana Stockgrowers Association	Livestock-Oriented Agriculture
Kristin Gardner Gallatin River Task Force	Conservation Organization: Local
Sarah Zuzulock Zuzulock Environmental Services	Conservation Organization: Regional
David Brooks Montana Trout Unlimited	Conservation Organization: Statewide
Guy Alsentzer Upper Missouri Waterkeeper	Environmental Advocacy Organization
Guy Alsentzer (sub. for Wade Fellin) Upper Missouri Waterkeeper	Water or Fishing-Based Recreation
Andy Efta U.S. Forest Service, Northern Region	Federal Land Management Agencies
Tina Laidlaw U.S. Environmental Protection Agency	Federal Regulatory Agencies
Jeff Schmalenberg MT Dept. of Natural Resources and Conservation	State Land Management Agencies
Samantha Tappenbeck Flathead Conservation District	Soil and Water Conservation Districts – West of the Continental Divide
Dan Rostad Yellowstone Conservation District Council	Soil and Water Conservation Districts – East of the Continental Divide

Representative & Affiliation	Representing
Kelsey Wagner (sub. for Scott Buecker) AE2S	Wastewater Engineering Firms
Julia Altemus Montana Wood Products Association	Timber Industry

NOT IN ATTENDANCE: NUTRIENT WORK GROUP MEMBERS

Representative & Affiliation	Representing
Shannon Holmes City of Livingston	Point Source Discharger: Middle-Sized Mechanical Systems (<1 MGD)
Pete Schade Lewis and Clark County Water Quality Protection District	County Water Quality Districts or Planning Departments

ATTENDANCE: OTHER PARTICIPANTS

Aaron Losing, City of Kalispell
 Alan Olson, Montana Petroleum Association
 Amanda McInnis
 Amy Deitchler, Great West Engineering
 Amy Steinmetz, DEQ, Water Quality Division Administrator
 Bill Andrene, City of Butte
 Brian Balmer, USFWS
 Brian Heaston, City of Bozeman
 Christina Staten, DEQ, Watershed Protection Section
 Coralynn Revis, HDR
 Darrin Kron, DEQ, Monitoring and Assessment Section Supervisor
 Dave Galt, Montana Petroleum Association
 David Clark, HDR
 Ed Coleman, City of Helena
 Eric Trum, DEQ, Watershed Protection Section
 Erik Makus, EPA Region 8
 Galen Steffens, DEQ, Water Quality Planning Bureau Chief
 Griffin Nielsen, City of Bozeman
 Haley Sir, DEQ, Surface Water Discharge Permitting
 Hannah Riedl, DEQ, Watershed Protection Section
 Heather Henry, DEQ, Surface Water Discharge Permitting
 Jane Madison, DEQ, Water Quality Standards and Modeling Section
 Jason Fladland, City of Great Falls
 Jason Mohr, Legislative Environmental Policy Office
 Jeff May, DEQ, Surface Water Discharge Permitting
 Joanna McLaughlin, DEQ, Surface Water Discharger Permitting
 Joe Lierow, ExxonMobil Billings Refinery
 John Bernard
 John Esp, Montana State Senator
 Jon Kenning, DEQ, Water Protection Bureau Chief
 Jon Staldine, DEQ, Coal Program

Katie Makarowski, DEQ, QA/QC Officer
Kayla Glossner, DEQ, Surface Water Discharge Permitting
Kristy Fortman, DEQ, Watershed Protection Section Supervisor
Kurt Moser, DEQ, Legal Counsel
Laura Alvey, DEQ, State Superfund Program
Loren Franklin, KC Harvey Environmental
Louis Engels, City of Billings
Mark Ockey, DEQ, Watershed Protection Section
Matt Wolfe, Sibanye Stillwater
Maya Rao, DEQ, Surface Water Discharge Permitting
Michael Kasch, HDR
Michelle Pond – WGM Group
Mike Koopal – Whitefish Lake Institute
Mike Suplee, DEQ, Water Quality Standards and Modeling Section
Mikindra Morin – Northern Plains Resource Council
Moirra Davin, DEQ, Public Information Officer
Myla Kelly, DEQ, Water Quality Standards and Modeling Section Supervisor
Pat Cunneen, City of Butte
Paul Skubinna, City of Great Falls
Peggy Trenk, Treasure State Resources Association
Rainie DeVaney, DEQ, Surface Water Discharge Permitting Section Supervisor
Rege Snigdha, ExxonMobil
Rickey Schultz, HDR
Ryan Leland, City of Helena
Ryan Sudbury, City of Missoula
Shane LaCasse, CHS
Ted Barber, Meeting facilitator
Vicki Marquis, Holland & Hart
Wayne Jepson, DEQ, Hardrock Mining

MEETING INITIATION

Ted Barber, meeting facilitator, welcomed everyone to the meeting just after 9:00 a.m. and went over meeting reminders and the meeting agenda. Ted then took a roll call of Nutrient Work Group members present either via Zoom or in Room 111 of the DEQ Metcalf Building in Helena.

COMPLIANCE VS NON-COMPLIANCE WITH MPDES PERMIT LIMITS

Rainie DeVaney, Supervisor of DEQ's Surface Water Discharge Permitting Program, went over slide 8 of **Attachment A**, which outlines three compliance options for MPDES permit holders with nutrient discharges: a simple approach, exact binomial test approach, or a modeled approach for complex watersheds. Alternatively, permittees may also propose their own compliance approach for complex watersheds, so long as those are approved by DEQ. Rainie stated that regardless of the approach chosen by the permittee, DEQ must approve the choice and agree that it is an appropriate approach for the watershed. DEQ acknowledges that it's important to have transparency in this process, therefore, Rainie stated that DEQ is proposing that results are posted on DEQ's website on annual basis so there is transparency for permittees with effluent limits based on response variables. Rainie also stated that

DEQ is not looking to expand this approach to other pollutants; this is only applicable to response variable thresholds or relative change effluent limits under the narrative nutrient standards.

Simple Approach

Rainie stated that this is a pretty straightforward option (slide 9) that applies to both relative change and threshold-based effluent limits. Algae density and DO delta are examples of relative change effluent limits where the upstream near field monitoring site is compared to the downstream near field monitoring site (downstream exceeds the upstream = non-compliance with the permit limit). Chlorophyll-a is an example of a threshold-based effluent limit where the downstream near field monitoring location is compared to a threshold (downstream exceeds the threshold = non-compliance with the permit limit).

Exact Binomial Test Approach

Mike Suplee, Water Quality Science Specialist, went over slides 10 through 19 of **Attachment A**. Mike stated this approach would evaluate threshold-based and non-threshold based data together, and is best for a watershed with one or maybe two point source dischargers; this is not an approach for complex watersheds. The permittee would be collecting data both upstream and downstream of the facility and response variable data with thresholds would be evaluated using the exact binomial test. Response variable data without thresholds would be summarized to compute a simple average and combined into a decision framework with threshold-based data to determine compliance or non-compliance with permit limits. As shown on slide 11, this approach accommodates the varying number of response variable samples we have and will not penalize those who collect more samples than the required minimum. Mike stated the proposed annual minimum was two to three samples of algae density (Western Montana) and four measures of DO delta (Eastern Montana). Mike further stated that we commonly come across one allowable exceedance every three years, as defined by the U.S. EPA, but this can be problematic to implement. An issue arises such that the more samples you collect, the more you lower the exceedance rate, in effect (see slide). We need to do something to get around that problem, so the exceedance rate remains a constant – this is where statistics come in.

As shown on slide 12, this approach also accommodates additional near field sampling sites. If a permittee chooses to add an additional site for any reason (high data resolution, for example), the increase in samples collected can be accommodated. Mike stated that the number of intended near field sampling sites should be proposed up front in the watershed sampling plan and adhered to in this process. Further, this approach has been proposed for use in many states, primarily for 303(d) listing reasons (slide 13). Mike stated this approach hasn't been applied in a permitting context. Most people for permitting are using the standard EPA methods used for toxics from the early 1990s and are not measuring response variables in the river. In contrast, for 303(d) listing purposes, they are measuring response variables. As stated on slide 13, sampling events must be independent; this approach is set up for dichotomous data (either above or below a threshold); regardless of sample size, an exceedance rate is given; collecting more data won't harm you; and this approach is accepted in both parametric and nonparametric "camps."

As stated on slide 13, this approach begins by assuming compliance with the permit limits. The null hypothesis is "in compliance." Data would be looked at to determine alternatively if the permittee is not in compliance. The same evaluation process would be applied to both upstream and downstream near field sites. Mike then discussed what the allowable exceedance rate is (slide 15). He stated that we need to decide where to set this. There should be wide agreement that if a site were to exceed response variables 100% of the time, that this is too much, and if they exceeded none of the time, this equals

compliance. But we need something in-between. There is also what is called a gray zone: the range of exceedance rates where the consequence of decision error is considered relatively minor, so if you're off by a little bit, it's not a big deal. Mike stated that DEQ is recommending a 10% exceedance rate and a 15% gray zone. The 10% exceedance rate is used for conventional pollutants that are a lot like nutrients in many ways. The 15% gray zone is recommended by EPA. The decision error in this case is not too critical, and it prevents flip-flopping between compliance and non-compliance with each new sample collected.

Slide 16 shows what an exact binomial test would like in terms of number of samples and the number of exceedances allowed, if we set it at those settings just described (10% exceedance rate, 15% gray zone). If less than 10% of the response variable samples exceed a threshold, the exact binomial test will always consider this a pass. If greater than 25% of samples exceed a threshold, the exact binomial test will always consider this a fail. In-between 11 and 24%, the decision varies according to the number of samples. Slide 17 then shows tables combining data examined using the exact binomial test and data that are relative change only data to determine compliance or non-compliance with the permit. Mike stated that we should have enough data to make an initial decision after the first two to three years. Slide 18 then discusses the five-year review (after 1 permit cycle), which is a critical juncture for compliance decisions. The tables on this slide show different possible combinations available. Finally, slide 19 provides a roll-up of what all of this information tells us in the end and informs what next steps to take (see table provided on slide 19).

Modeled Approach for Complex Watersheds

Mike Suplee discussed slide 20 of **Attachment A**, as the third approach. Mike also reiterated that the permittee may propose their own compliance approach. However, this third approach is applicable to complex watersheds with "stacked" permittees. It is for large watersheds with large rivers and complex situations. Permittees will provide empirical data that shows whether existing water quality standards are being met or not, and at the same time, data supports development of a model with which you can make decisions. Slide 20 shows both empirical and modeled pH data on the Yellowstone River. pH based on actual field data is hovering around 8 to 8.5 just upstream of where the blue line is on the graph. As soon as you come into the Clarks Fork of the Yellowstone River (blue line) and the Laurel WWTP and also the Billings corridor including the wastewater facility (black vertical line), the pH rises very quickly – it has changed to in excess of 9.0. DEQ would view this as an impact to the beneficial uses and an exceedance of water quality standards. Based on the work that DEQ has completed, Mike stated this would be considered noncompliance with the nutrient water quality standards. It is known in big river segments that effects manifest over large distances. The model can then be used to look at different scenarios to see if the pH level of 9.0 can be brought down under the standard.

Discussion

Amanda McInnis, technical representative for municipalities, asked if DEQ could explain where this fits into the process. She stated that permittees will conduct monitoring but asked if this analysis is housed in the AMP or if this is reasonable potential analysis. Rainie DeVaney responded that these three approaches are for demonstrating compliance with effluent limits, assuming DEQ has put effluent limits into a permit based on relative change or response variable thresholds. This is not a reasonable potential process, but once an effluent limit is needed and put into a permit, this is how DEQ will determine whether or not the permittee is achieving those limits. Amanda replied that when going through the AMP process, would probably do this process in the AMP document.

Dave Clark, technical representative for large point source dischargers, asked in the Zoom chat box “If compliance is based on monitoring threshold variables, then lab results from the current season may not be available for many months, or perhaps a year. Plus, multiple years of monitoring data will likely be necessary in order to assess response variables. So, in real time a discharger will not know whether or not they are in compliance, correct?” Mike Suplee responded verbally that is a correct statement. He added that typically, chlorophyll-a results come back in a few weeks to a month. Macroinvertebrate results do take longer, like a month or so. It is fair to say you’re always going to be a couple months behind your current data. With DO delta, can get that data processed right away, but all data is looked at retrospectively. However, you won’t be years behind though.

Dave Clark then stated in the chat box “Benthic algae density sampling results are highly variable (+/- 30% or more). Macroinvertebrate indices also highly variable. Both can be impacted by multiple factors, not solely nutrients. Variability in the threshold variable monitoring data may far exceed the 10% and 15% Allowable Exceedance presented in the example slides. Shouldn’t Allowable Exceedance be larger than the expected variability in the monitoring data?” Mike verbally responded that these are apples and oranges type questions. One is how variable is the measurement precision of the samples. Yes, you are right. If we measure chlorophyll-a across a reach and then did a duplicate at the same site, we would come in plus or minus 30%. The exceedance rate on the other hand is talking about how often you want this to occur. So they are different things.

Sarah Zuzulock, regional conservation organization representative, stated that along the same lines as the questions Dave Clark is raising in the chat box, how will DEQ account for other factors in these upstream and downstream comparisons? Sarah further stated that there are several other factors outside of permittee controls that could influence chlorophyll-a. DEQ may be dealing with a fair amount of pushback as to the source or cause of change. Thinking about variability in biological data, basing things on 10% exceedance rates and a sliding determination of what compliance threshold could be will be difficult to be defensible.

David Brooks, statewide conservation organization representative, stated that along the same lines, is the variability that make this seem very difficult to manage. Variability from one sample to the next, and the time lag between collecting and processing samples. In the case of assessing algal growth, that could take a season or more to express itself, which is another variable we’re looking at. On the binomial model, will the permittee be gathering the samples across all three options? Mike Suplee responded that from the beginning, data would be collected by the permittee or someone that they would hire to do this work. David responded that adds another whole layer of variability. David also asked in the second model, there was the ability to move the sampling sites – just the upstream or the downstream? He also stated another huge variable to say algal blooms and assessing that response variable – algal blooms can be perceived as very different depending on which side of the river you’re on and how far upstream or downstream you are from it. Rainie DeVaney responded that self-monitoring is a foundational element in the MPDES program. Permittees are collecting the data and reporting for all regulated pollutants. This isn’t unique to response variables or the narrative nutrient standards. Mike was illustrating not so much that the permittee can change mid-course their downstream or upstream monitoring location, but if they propose in their watershed scale monitoring plan to have multiple monitoring locations, we would be looking at these collectively. DEQ is not proposing that year by year or index period by index period that they can move their sampling locations. Watershed scale monitoring plans are subject to DEQ review and approval. So if DEQ is finding that a permittee is proposing downstream monitoring locations that DEQ feels doesn’t meet the definition of a near field site, DEQ will let them know that. Mike Suplee added that DEQ understands that algae grows differently.

DEQ has been sampling algae for decades and has clear SOPs that this process will be tied to. Permittees will carry out a systematic process that implements objectivity. Audits will also be conducted so DEQ can work alongside field teams to make sure data are being collected correctly. David then asked how those standards are going to be enforced, given the number of permittees and the capacity of DEQ. Darrin Kron, Supervisor of DEQ's Monitoring and Assessment Section, responded that DEQ is also discussing how to implement training across the state. Darrin stated that we already do this for volunteer monitoring groups. DEQ also has compliance inspections and we'll be doing cross training with those inspectors and the inspectors will be working with permittees.

The U.S. EPA asked in the chat box "Would the duration and frequency associated with response variables be consistent across the three approaches?" Mike responded verbally that he would have to think about that and will get back to the EPA on this question.

Dave Clark asked in the chat box "Where physically do you expect up and downstream monitoring locations to be? Is the downstream station located outside of an effluent mixing zone from a discharge?" Mike Suplee responded verbally: yes. The upstream location can be fairly close upstream of the facility and it should match in characteristic to the downstream site in terms of water depth, shading, slope, etc. The downstream site(s) should be located beyond the mixing zone. We will be recommending people use the nutrient spiraling calculation to work out an estimated range downstream where they can carry out field reconnaissance to determine downstream sites, where they can work out land access, etc.

Tammy Johnson, mining representative, asked in the chat box "If I am not mistaken, we already have standards for dissolved oxygen and pH. Could you please explain what happens to those in this approach?" Mike Suplee responded verbally that this is part of the reason we have things broken out by different waterbody size scale. For large waterbodies, pH, DO, and turbidity that are tied to nutrient effects, are actually the standards we would be looking at applying. Not talking about them for wadeable streams because they tend to be insensitive water quality standards relative to nutrient impacts. In western Montana, you can often see large growths of algae covering the bottom, but when you measure DO and pH, you won't necessarily see impacts due to re-aeration of the waterbody. Algae growth is actually a more sensitive measure. Also true for eastern Montana where we proposed DO delta as opposed to just DO. Throughout the entire dosing study that DEQ conducted, the DO water quality standards were never exceeded, although the DO delta (daily change) went way up, and at the end of the growing season, all the algae died and caused problems – which is why DO delta is a more sensitive measure.

Rika Lashley, small point source dischargers representative, stated in the chat box "Training will be very important for the less sophisticated small dischargers."

Dave Clark stated in the chat box "I believe Mike is correct in his response that monitoring variability and allowable exceedance statistics are apples and oranges. Nevertheless, wouldn't it be reasonable to expect that the Allowable Exceedance would be at least greater than the variability in the measurements used to assess compliance? Otherwise, we won't know whether exceedances are just the result of variability in monitoring, will we?" Mike responded that he's not sure it's quite that simple. Mike said he will mull on this, as he's not sure this is a correct statement.

Amanda McInnis asked in the chat box "Why does this analysis have to be done only in permit renewal? It seems like it would be more appropriately done perhaps even annually as the permittee gets their

data in, with MDEQ input within the AMP document.” Rainie DeVaney responded verbally that we would be. Rainie further stated that DEQ recognizes there is a summer period where monitoring will happen, and once data is reported to DEQ, we’ll be looking at it on an annual basis. It might be difficult to start making decisions as permittees start to build their dataset. Mike added that you can start to make decisions within a year or two. He also stated that there may already be so many exceedances that the conclusions can’t change even after five years of data collection, so we may proceed to the next phase. In other cases (the two middle boxes shown in the presentation – B or C), it’s a little less clear. In these cases, let’s give it more time and more data collection so the decision on-the-ground clarifies itself. The more data in this case will be helpful. Amanda responded she is picturing they will be doing this all the way along through the AMP and you’ll take whatever the AMP says and put that in the permit. She is thinking about this differently about where this is housed than how DEQ is. Darrin Kron asked if Amanda is thinking that in some cases, we already have this data? Amanda responded: exactly. Mike responded that when things change, let’s say there’s a change to a facility operation or there are now nonpoint source activities going on in the watershed, that would be a reset process for the data. Data collection and evaluation could restart at that point.

Kelly Lynch, municipalities representative, stated that in their proposal they said stay with the current permit approaches, and asked, instead of staying with that as they proposed, DEQ would use this process in the interim? Mike responded that it is his understanding that whatever the permit limits are that are in the permit right now will remain the same for the moment. Then we set this process up, the watershed is considered healthy until proven otherwise, and data collection begins. In some scenarios the data will rapidly show there is a problem. In other situations, we won’t be sure and will need to collect more data. In no longer than five years (one permit cycle), we’ll have enough data to make a compliance/non-compliance decision. Kelly responded that this helps.

Erik Makus, technical representative for federal regulatory agencies, stated that the permittee chooses the option they want to move forward with. Options 1 and 2 could quickly move to data you could evaluate. With option 3, what is the timeline to where we’ll have data to make decisions on compliance? Mike responded that you don’t have to have the model built to make compliance determinations – just need data collected in the river. Data collection ought to be structured so it ultimately informs the model as well. One could look at the data and conclude whether there seems to be a problem in the river or not. This is the approach large waterbodies in the state will have to use. Erik then said you collect data within a couple of years, would you then evaluate data with other approaches in the interim? How do you get to compliance without having the model built? Mike responded that you would be looking at actual, observed, empirical data. Could begin to make compliance/non-compliance decisions already based on this. Under the AMP process, those collective series of permits (the permittees in the same watershed under the same AMP) would be making decisions with the model about how the next series of actions will occur.

Dave Clark wrote in the chat box “Can you provide a clarification to explain how multiple response variables would be used? If Benthic Algae density and Macroinvertebrate Indices are both used, which governs? Either? Both? How do you reconcile if Benthic Algae doesn’t exceed the threshold, but Invertebrate Index exceeds?” Mike responded that this was covered on slide 18 of **Attachment A**. He stated that these ideas are draft and could change but we are talking about a situation like scenario C. We would want to rely more on benthic algae results; the actual HBI scores should be reviewed too, and the compliance decision discussed with DEQ. An argument could be built to change the conclusion. The reason we’re having people collect these other data (like macroinvertebrates) is so they help us augment or change our decision making that would be based on algae alone.

EPA wrote in the chat box “How will DEQ determine what constitutes a 'relative change' from upstream to downstream?” Mike responded verbally that what we’ve proposed so far is “on average.” Compute the average of the scores for the upstream site and then compare to the same data for the downstream site.

Dave Clark wrote in the chat “If Climate Change results in extended drought conditions and lower late season stream flows decline, does the approach to using response variables effectively result in potentially exposing dischargers to ever more restrictive compliance requirements over time? Effectively resulting in dischargers attempting to compensate for declining water quality conditions driven by Climate Change?” Mike responded that this is a complicated question. They are now in a position to have upstream data even before they effect the waterbody to help address this situation. Something they don’t have nowadays.

Kelly Lynch asked if point source dischargers are responsible for conditions from climate change? Mike responded that no, he didn’t say that. Kelly responded that this gets to the crux of the issue – there’s so much going on in the water that isn’t related to what the point source dischargers are doing. We don’t want to be responsible for everything. Mike responded that he agrees with Kelly on this and referred her to slide 19 of **Attachment A**, which shows exactly what this information you will be collecting will help address. Look at scenario 3 – suggests work should focus on improvements in the upstream watershed. Or look at the last scenario. You’ll have info that helps augment any decision on where work in the watershed should occur, which is something that is currently not happening with how we implement programs today.

Susie Turner, large point source dischargers representative, wrote in the chat “Can you explain, for the scenario when upstream is non-compliant, how would DEQ determine the point source discharger is the cause of the downstream non-compliance.” Mike responded that the last scenario on slide 19 addresses this. There was a slide from a few presentations ago where algae levels are high both above and below the facility. One could argue that the facility is not non-compliant with this situation. But this opens up possibility of where work would begin to be done, which I think is the flexibility folks are looking for.

Dave Clark asked if our base setup is just upstream and downstream of dischargers, but there are other things on to the receiving water and we adaptive management and find that we could reduce the point source discharger, but it makes no difference, shouldn’t the matrix extend further downstream in the watershed? Mike responded that he hears Dave’s point. We’ve talked internally where the far field sites come into play in the process. Rainie responded that she thinks it’s important to remember that the three approaches outlined are demonstration for compliance with effluent limits in their permit. The context is permittee compliance specific decisions versus watershed-scale health. The adaptive management process does allow for restoration of watershed health, but today we’re looking at compliance with response variable limits in a permit. Dave responded that we will find that if we look at the watershed scale, the next level of treatment might be available, but at great cost, and other things in the watershed will warrant work instead. Need a balanced watershed decision. Rainie responded that what we’re presenting does allow for that and she thinks we’re capturing that. Dave responded that we’re differing in further downstream in fullest extent of watershed. Rainie responded that we’ll have to work through this.

Louis Engels, City of Billings, wrote in the chat box “My understanding of the Yellowstone watershed is that the largest contributor to nutrient loading is erosion during runoff. How do runoff nutrient loads

affect water quality in late season flows? Are they considered in the modeling of approach #3?” Mike Suplee responded verbally that may be true, but it is that the case that if you go out in the Yellowstone River during early June, for example, it’s very turbid, but none of that matters once base flow hits. Once you come to base flow, the river clears up and what you’re seeing, what’s important, is the localized inputs coming in from upstream – it’s pretty clean and then rapidly changes once you get to the Clarks Fork of the Yellowstone corridor. Modeling is based on base flow conditions that occurs after runoff has ended.

Amanda McInnis stated she is thinking broader like Dave is suggesting lends itself to being done in the AMP.

DEQ RESPONSE TO PRESENTATION BY MUNICIPALITIES AND POINT SOURCE DISCHARGER INTEREST GROUPS

Rainie DeVaney stated that slides 22 and 23 of **Attachment A** are designed to facilitate a discussion after the municipalities had the opportunity to present their thoughts for the AMP process. Slide 22 is a visual of the pieces we’re fitting together. It provides a reminder as to the Senate Bill 358 language and pieces DEQ is trying to fit together with the goal of protecting water quality and meeting the March 2022 deadline. Slide 23 is a visual of an idea DEQ had to represent what is inside the metaphorical AMP sandbox – a visual of what we think can work and what DEQ sees as not as viable.

Regarding ideas that DEQ thinks are not as viable:

Non-numeric limits based on BMPs: BMPs in addition to other permit requirements are a great way to go, but alone BMPs are insufficient and the imposition of numeric limits are feasible.

Two step rule-making process: DEQ is moving forward with a comprehensive rule package for the March deadline, as DEQ believes this is what the rule requires.

Numeric effluent limits are infeasible: The portion of federal regulations that talk about when numeric effluent limits are infeasible – the proposal was to use this as a justification for BMPs to be included. BMPs are a great addition, but DEQ’s position is that this infeasible portion of regulation is addressing a situation we don’t have here. Often that is used for management stormwater when there is difficulty quantifying and capturing stormwater, in the sense that it’s highly variable. Not the situation we’re working under here – we are able to quantify continuous discharges of effluent and numeric effluent limits were demonstrated to be feasible.

Revise use classifications or existing stream assessments: DEQ assumes that waterbodies are appropriately classified. Work was carried out in the 1960s at a highly detailed level. If a permittee discovers there is a misfit, there is a separate standards process outside of the AMP process that can be used – a use attainability analysis (UAA). We are providing flexibility to use alternate response variables if things are different than basic eastern or western Montana expectation.

Technology Based Effluent Limits (TBELs) for nutrients: other states are using this approach. TBELs take into account available technology and affordability. They do not take into account beneficial uses or attainment of water quality standards. TBELs alone are not a viable option.

Would still be having the conversation of how do we demonstrate compliance with state water quality standards and protect beneficial uses.

Put response variables in AMP/TMDL, not in the permit: permits need to have enforceable conditions that protect water quality and beneficial uses. Permits do need to have specific enforceable conditions.

Regarding ideas that fall within the AMP sandbox:

Incentive program: Don't have a lot of details to talk about at this stage, but for folks that want to do certain types of upgrades or cleanup to their facility, there would be incentives for this.

Conceptual model for a watershed: this does not need to occur in each circumstance but can be a method to use.

Provide flexibilities to use alternate response variables, if appropriate: this was discussed above

Net environmental benefit considered: DEQ views this as a key flexibility

Myla Kelly, Supervisor of DEQ's Water Quality Standards and Modeling Section, discussed slide 24 of **Attachment A**. She said you can think of a water quality standard as a three-legged stool. One leg is the beneficial uses: aquatic life, agriculture, drinking water, recreation, and industrial uses. The second leg is the criteria, which is set to be protective of beneficial uses. The criteria can be numeric or narrative. The third leg is the concept of nondegradation, which is the preservation of high quality waters for the sake of that water quality. Myla then discussed slide 25, which provides an overview of the use attainability analysis (UAA) process, which determines whether the uses of a waterbody are appropriate: if they are existing and whether they are attainable. When a UAA is undertaken, it is a structured scientific assessment and is submitted to EPA as a change in a water quality standard. Myla also noted that narrative standards fall under Montana's General Prohibitions (ARM 17.30.637), which apply to all classified waterbodies.

Discussion

Alan Olson, Non-POTW point source discharger representative, wrote in the chat "What are the current CWA act limits/ requirements for nutrients?" Erik Makus, U.S. EPA Region 8 representative, responded that the Clean Water Act requires states and the federal government to work together to establish water quality standards. The current nutrient standard are found in DEQ Circulars 12-A and 12-B.

Kelly Lynch wrote in the chat "What I am hearing from DEQ in these two slides are that you are not going to establish a true iterative AMP process as required in SB 358, and instead you are proposing to stay with what you have right now (which we have clearly demonstrated is not only technologically and financially infeasible but does not have appreciable improvements in water quality) but with some possible changes in the permitting process, and we have to wait to see whether that provides any relief on a case-by-case basis." Amy Steinmetz, DEQ's Water Quality Division Administrator, responded verbally that DEQ has been working hard to very specifically meet the direction provided to us in SB358. We are adopting rules for narrative standards. We are adopting an adaptive management program, which we see as an iterative process and having a flexible approach on where efforts are placed based on sources. Things we included in the sandbox are things we believe from a statutory and regulatory

perspective we believe we can work into the process. Things outside the sandbox are because there is some other regulatory mechanism prohibiting us from using them. But we are implementing a flexible approach.

Amanda McInnis wrote in the chat box “It seems to MDEQ is proposing that a true watershed analysis that’s done in the AMP will be usurped by a near field permit analysis that doesn’t allow for looking at the broader view of the watershed that’s called for in SB 358.” Amy Steinmetz responded that today’s presentation was about compliance because we’re still going to have permits and have to have a way to measure compliance with them. But there is still the adaptive management process, so we’re looking at a global picture of the adaptive management process. We really are committed to this flexible adaptive management process, within regulatory bounds, to give dischargers the flexibility to address what’s important and to improve water quality faster. This is something that meets everyone’s needs. To focus resources where they’re needed the most and where they’ll make the most benefit.

Alan Olson wrote in the chat box “12 A and B are gone. What are the Federal standards for nutrients?”

Guy Alsentzer, environmental advocacy organization representative, wrote in the chat box “Alan - 12A & B are still effective as a matter of federal law unless and until EPA approves the changes contemplated by SB 358. DEQ does not have the authority to issue permits not compliant with 12-A and B presently.”

The U.S. EPA wrote in the chat box “EPA-approved water quality standards remain in effect for Clean Water Act purposes until they are repealed or amended and the changes are approved by EPA.”

Kelly Lynch wrote in the chat box “But you are saying you will only be flexible in your approach with respect to how that data and monitoring plays out in a particular point source permit. Not to the impairment status of the receiving water, not to the adequacy of the beneficial uses, not to the interplay of all of the uses and conditions influencing the watershed and coming out with a better approach to clean the water in that watershed. The only thing the data and monitoring will do is make you more flexible - maybe - with respect to a particular permit limit.” Amy Steinmetz responded verbally that with regard to impairments and uses, we won’t say we won’t revisit those, they just have their own regulatory process, and they have to done outside the AMP process, but data collected will feed into that. They will go hand in hand but can’t be part of the process because they have their own requirements. As we do the monitoring and adaptive management plan, you’re going to be looking at nonpoint and point sources and looking at upstream versus downstream and you’ll be able to make recommendations to perhaps address upstream sources that would have a greater impact and help protect the beneficial uses in amore impactful way.

Amanda McInnis wrote in the chat “Can you explain how what’s in the AMP will inform the discharge permit then?” Rainie DeVaney responded verbally that the data collected will help inform decision for each specific permittee. The data collected will inform whether the permit will include conditions for the permittee to work with partners and stakeholders they’ve identified as willing to participate in reducing nutrients, it will inform the decision making that goes into what conditions are specifically needed for each (reasonable potential, effluent limits, etc.). The AMP will inform the permit quite a bit. Amanda responded that she is stuck on the idea that analysis be done in the AMP where it can be in a broader framework. The idea that you do it separately in the permit takes the weight off the AMP. If you take that part out of it, you’ve taken the whole reason to do the AMP off the table. Amy responded that Amanda mentioned earlier the idea of doing the analysis for compliance in the AMP process, and stated that DEQ doesn’t disagree. For example, the upstream and downstream monitoring are completed for a

couple of years, we do a similar analysis and we see that the upstream sources are a big contributor and that we have nonattainment of standards upstream and downstream of a point source discharger – there's nonattainment of standards but very little difference upstream to downstream - in that case instead of ratcheting down nutrient limits, we would look at nonpoint sources above. Just an example of ways to adapt and adjust the process instead of going straight to a permit limit.

Rika Lashley wrote in the chat box “Will the AMP inform what the actual effluent limits will need to be? It currently sounds like the limits need to be in the permit prior to the AMP effort.” Rainie DeVaney responded verbally that in the prior meetings, DEQ presented a graphic of how permits will look during different phases of the AMP process. Rainie stated she didn't think limits need to be in the permit prior to beginning the AMP – what effluent limits will be in the permit will be dependent on the facility. As we start to renew permits and evaluate reasonable potential, there's a possibility that we'll need to include new or more restrictive limits. Rika said this makes sense. Rainie followed-up with a reminder that there's two different processes: reasonable potential analysis for deciding if current limits are sufficient for protecting beneficial uses, which is different from the compliance piece once you do have a limit for response variables.

Paul Skubinna, with the City of Great Falls, wrote in the chat box “Multiple experts have commented during this call about the lack of precision and accuracy related to interpreting numeric data associated beneficial uses and criteria. But DEQ has already concluded that a numeric interpretation is possible and will go in a permit, and that 122.44k using the AMP as a BMP as a narrative limit in the permit doesn't apply...”

Paul followed-up in the chat box with “For EPA, what are CWA requirements and standards for nutrients in states where specific requirements and criteria have not been adopted. i.e. in jurisdictions where EPA maintains primacy over all CWA programs.” Tina Laidlaw with U.S. EPA Region 8 responded verbally that EPA is on record stating that in Montana, EPA's position is that the numeric nutrient criteria found in 12-A remain in effect. Montana is very unique compared to other states in that there are defensible scientific criteria that are approved. EPA writes permits in some states in Region 1 and in New Mexico. What's applicable varies – in some cases it's a narrative and other places it's numeric. Montana still has numeric criteria that EPA considers applicable for Clean Water Act purposes. Erik Makus with U.S. EPA Region 8 also stated that EPA's position is that 12-A are still the EPA approved water quality standard. When looking at permit, we're looking at those numbers.

Alan Olson wrote in the chat box “So are the general variances still in place as the non-severability clause has not been tripped. Kurt, refresh us on Morris' order” Kurt Moser, DEQ Legal Counsel, responded verbally that EPA's position is that the general variances are still in effect. I think as far as the non-severability clause, from the federal perspective, Judge Morris discussed in the October 30, 2020 order concluding that it hasn't been tripped. SB358 also contains numerous provisions dealing with the variances – DEQ 12-B, the rule that adopts this into state law, was repealed legislatively. The legislation also directed DEQ to repeal 12-A and DEQ is currently in the process of doing that. Kurt also stated that one of the main things that came out of the court order was that the judge consolidated the two court cases even though one of those was on appeal. He also directed DEQ to revise 12-B again. At the time, the state filed a motion to stay that rulemaking to wait for the 9th circuit ruling and Judge Morris granted that. So there is no pending DEQ 12-B revision occurring at all. That was the state of affairs prior to SB358. Nothing has changed on the federal level.

Kelly Lynch wrote in the chat box “Honestly, I have to say I think this is all news to those of us here on the call. I have seen nothing from EPA or DEQ stating publicly their position that the numeric standards and general variances are still in place.” Amy Steinmetz responded verbally that there are a few letters or emails that are shared on Teams that states EPA’s position. The way the question is typed, Amy is not sure if it is saying DEQ is stating the numeric standards are in place. DEQ is required to follow state law which tells us we can’t implement the numeric standards. While EPA still recognizes them, DEQ is following state law that says we can’t implement those numbers.

Guy Alsentzer asked if DEQ could clarify the implications. How is DEQ reconciling this? Kurt Moser responded verbally that there’s been no issued memorandum on the matter. At this point the State is following state law.

Tammy Johnson wrote in the chat box “To the EPA, EPA denied the last DEQ court ordered rule revision, which had the effect of taking away the general variance, and that Montana’s legislature believes the non-severability clause had been executed, and further choose to pivot to a new regulatory scheme, and further repealed 12A, 12B, etc. Are you saying this means nothing?” Tina Laidlaw with the U.S. EPA responded verbally that she will defer on the comment and stated that if you would like to have our attorneys on the next call, we can discuss on the next call.

Alan Olson wrote in the chat box “Does EPA recognize the general variance?” Tina responded verbally that both 12-A and 12-B are still in effect for Clean Water Act purposes.

Paul Skubinna wrote in the chat box “So it seems, in response to mine, Alan's and Kelly's question about EPA requirements, I thought I heard EPA say, that they take the narrative approach in other jurisdiction where they are the permitting authority, based on specific conditions. But this type of framework is not available in MT, even with SB358 walking back the numeric criteria?” Amy Steinmetz responded verbally that it is unprecedented for a state to go from numeric to narrative. Until DEQ submits new water quality standards to EPA for their consideration for approval or disapproval, DEQ 12-A remains as the Clean Water Act approved nutrient standards. That’s just where we’re currently at. Once the rule package is complete and we send to EPA for review and approval, that’s where things would change from EPA’s perspective, if they are amenable to approving the rule package. Tina Laidlaw also responded that because Montana is in this unique situation, the first sentence on page 2 of their comment letter (found on Teams or available upon request) states “Because MDEQ is removing numeric criteria that are still scientifically defensible and protective, EPA expects an adequate level of assurance that MDEQ can identify protective levels of both TN and TP for implementation in CWA programs.” Tina wanted to flag this for people’s attention in case they haven’t read the letter that can be found on Teams.

Kelly Lynch asked EPA if they could identify a point source permit where the numeric standards were applied without an individual or general variance. Erik Makus responded there’s a number of facilities where DEQ has followed ARM for using 14Q5 and looking at dilution or mixing and determining there’s no reasonable potential for a facility to cause or contribute to a discharge. Tina Laidlaw responded there are other tools such as use attainability analysis (UAAs) and site-specific criteria that are applicable outside the AMP process. Kelly responded that whether or not since 12-A and 12-B were adopted, the lawsuit against that came almost immediately, but it’s my understanding that there aren’t any permits right now that have the criteria without a variance – there’s no one that has to meet the criteria right now without a variance? Rainie DeVaney responded that she doesn’t know for sure and would have to do a little research; however, there are situations where permittees are complying with/achieving the 12-

A criteria. Kelly stated we don't have anyone who's ever tried to meet that standard because they either don't have reasonable potential or they're under a variance.

Paul Skubinna stated that we all get it that the current state of affairs and that EPA expects a replacement of that as an outcome of SB358. Why would EPA entertain a standards package that included an AMP framework as an interpretation of the narrative? Would EPA entertain using *the AMP* as the interpretation of the narrative that replaces 12-A and 12-B? Tina Laidlaw responded that the bar for review is whether the approach is scientifically defensible and protects the beneficial uses. Amy Steinmetz responded that this is a semantics issue. The AMP implements the narrative standard. What we submit to EPA will be scientifically defensible and will protect beneficial uses. It is our duty to protect human health and the environment. Paul responded that it sounds like the door is wide open on that and he couldn't agree more on scientifically defensible. What we're really trying to achieve is to get out of the traditional box and think creatively. Amy responded that from a regulatory perspective, it is hard to step out and step back and be creative, but we're striving for this. We are weighing every piece to determine if it's something we can be flexible on. Paul responded that DEQ is excluding things out of the sandbox that could be included for flexibility. Darrin Kron, Supervisor of DEQ's Monitoring and Assessment Section, responded that DEQ isn't excluding all things. The AMP process can inform other programs and those programs have very specific requirements under the Clean Water Act. They can't be fully driven in the AMP process; there has to be interplay.

Kelly Lynch wrote in the chat box "To be clear, the municipalities want the new rules to be scientifically defensible and protective of the beneficial uses. We will not support anything that will not accomplish those two goals." She followed up with "Agree with Paul's comments - that slide seems to be dismissing a bunch of suggestions we made that are clearly scientifically defensible and protective of the beneficial uses and should be considered and remain on the table."

Tammy Johnson wrote in the chat box "I agree with Kelly. And to EPA, I am truly just trying to understand the sandbox we are in and want to figure out a path forward the doesn't require meeting impossible limits."

Susie Turner asked in the chat box "Can DEQ describe how they will implement an iterative process when response variables are placed in a permit? Respectively, it's been our experience, there is never flexibility if the permittee doesn't meet compliance limits as noted in the permit. In addition, to my pervious point, the point source discharge may not be the reason for the downstream non-compliance." Mike Suplee responded verbally that because you have information about what's going on upstream and downstream, you have information on what water quality is looking like as it's arriving at your facility. That allows you to make different decisions on what happens next, which will ultimately be reflected in the permit. As activities occur in the watershed, there will be a reset point, so you don't have data added that is out of date. If something has changed, resetting the dataset is a reasonable thing to do. Rainie asked Susie if there was something specific she was thinking about. Susie responded that she liked the reset. She further stated that if you violate any part of your permit, you usually get a rapid response from DEQ and there's never been an iterative process. Rainie responded that she doesn't know that there will be a change to the process of issuing violation letters. The process we outlined today is the decision making into whether something is violating a term of their permit.

TMDLS AND THE ADAPTIVE MANAGEMENT PROGRAM

Kristy Fortman, Supervisor of DEQ's Watershed Protection Section, reviewed slides 27 through 31 of **Attachment A**. Slide 27 is an overview of DEQ's water quality planning process. Kristy stated she wanted to review this process to show where TMDLs fit in and where the Adaptive Management Program overlaps with what DEQ already does. Slides 28 and 29 provide definitions of a TMDL, which is the maximum amount of a pollutant that a waterbody can receive from all sources and still meet water quality standards. You can think of a TMDL as a pollution diet or pollution budget. Kristy stated that a TMDL can refer to both a calculation (the sum of the load allocation, wasteload allocations, and a margin of safety) and to a document that contains one or more TMDLs. A load allocation is for nonpoint sources and natural background sources; wasteload allocations are for point sources. Slide 30 shows a map of where nutrient TMDLs have been completed in Montana. Slide 31 provides a flow chart overview of how TMDLs in waterbodies that are not attaining the narrative nutrient standards will go through the AMP process. Kristy noted that modifications to TMDLs will depend on the number of TMDL writers DEQ has and also noted that all modifications require EPA approval.

Discussion

Kelly Lynch stated that this is a whole lot of information and she's glad the two groups were put together. Kelly further stated that they need time to digest and will have more thoughtful comments.

Amanda McInnis suggested we add this topic to the next agenda and also stated that they're curious about the role of alt-5 TMDLs. She stated that EPA has approved several adaptive management plans as TMDLs and said we're interested in making the adaptive management plans become the TMDL. Kristy responded that DEQ can put this on the agenda for next time.

FURTHER DISCUSSION ON THE AMP SANDBOX

Paul Skubinna stated that it seems like non-numeric effluent limits based on BMPs should be in the sandbox. The AMP could inform components and pieces of the UAA process. Paul further stated that TBELs are not a silver bullet either and he's not sure that going through the time and effort to develop TBELs is worth the effort.

Rika Lashley wrote in the chat box "Could BMPs be considered interim limits until informed limits can be established?" Rainie DeVaney verbally responded that BMPs (best management practices) are useful and definitely can be included. Proper operation and maintenance are all great examples of BMPs that all facilities should be incorporating. However, DEQ doesn't think that, alone, they are sufficient when finding a facility has reasonable potential for nutrients because we are capable of setting numeric limits – they are feasible, and we can calculate loads to protect beneficial uses. Paul Skubinna responded that the AMP should be viewed as the BMP.

Kelly Lynch wrote in the chat box "Here are specifically the items that seem dismissed too quickly: BMPs in permits, infeasibility of numeric limits, using AMP as iterative process to triggering revisions of use classes and stream classification, TBELs for (some) permittees. I think all of these need more consideration, and that takes time, which is the point of the suggested two-step rule-making process." Rainie responded that hopefully slide 23 doesn't come across as dismissive. DEQ had lots of conversations about everything proposed and took time to think things through and consider the options. DEQ was simply trying to present the information in a clear, concise way.

NEXT MEETINGS AND DISCUSSION OF NUTRIENT WORK GROUP REVIEW PERIOD

The next Nutrient Work Group meeting is scheduled for October 5, 2021 at 1:30 p.m. Galen Steffens, Bureau Chief of the Water Quality Planning Bureau, stated that DEQ will be cancelling the October 12 Nutrient Work Group meeting. She reviewed the schedule shown on slide 34 of **Attachment A** and stated that the goal is to have the full draft rule package to the Nutrient Work Group for their review by October 18. The draft package will then be reviewed at the October 27 meeting and DEQ requests that Nutrient Work Group member submit their comments by October 28 so DEQ has time to incorporate them. The rulemaking process will be starting on November 19. Galen requested that Nutrient Work Group members please block out time on their calendars to get through the package and prepare their comment.

Mike Suplee stated that DEQ's goal is to provide the draft rule, the draft circular, and the draft guidance to the Nutrient Work Group so you can see how everything fits together. The devil is in the details, so you need to see how all the pieces work together. The guidance document will include a couple of case studies to show how this will work on the ground (both a modeling and a non-modeling case study).

Kelly Lynch stated that a week is not enough to review. She stated that she's not suggesting we try to delay the process but asked if the Nutrient Work Group could receive materials earlier. Galen responded that rulemaking starts with WPCAC (the Water Pollution Control Advisory Council) on November 19. Everyone has seen pieces of what's being compiled and is aware via the Nutrient Work Group meetings of what will be in the package. Galen stated that if we can get it to you sooner, we will try to do that.

Kelly followed-up asking what date DEQ must have the Nutrient Work Group's comments. She asked if DEQ could get the package out on October 15 instead and move comment due to the following week. Galen responded that DEQ would like to have comments incorporated by the November 3 meeting and this is what DEQ feels is workable. Kelly then asked if the next Nutrient Work Group meeting could be moved to November 10 instead. Galen responded that DEQ will take that into consideration.

Amanda McInnis wrote in the chat box "Ten days is not enough time to review...we would like a preview version if at all possible"

Note: following this September 22 meeting, DEQ issued a revised Nutrient Work Group comment schedule, which is as follows:

- **October 18:** DEQ provides draft rulemaking package to the Nutrient Work Group for Nutrient Work Group review and comment
- **October 27:** Nutrient Work Group meeting to review the draft rule package
- **October 29:** Comments due from Nutrient Work Group members

PUBLIC COMMENT

Public comment was taken during the meeting and is incorporated into the "Discussion" sections above. Time was also taken at the end of the meeting for additional public comment, but none was received.

CLOSE OF MEETING

A listening session is scheduled for September 23 from 1 to 3 p.m.
The meeting was ended at 11:54 a.m.

SUMMARY OF ACTION ITEMS

As Nutrient Work Group and Technical Subcommittee meetings have been combined, the action items below now contain those from both previous Nutrient Work Group meetings and Technical Subcommittee meetings. All noted in progress or pending Technical Subcommittee responsibilities now fall to the Nutrient Work Group. No new action items were recorded in this meeting.

In-Progress Action Items			
#	Action	Who	Status
1	Update the AMP flowchart and supporting materials based on TSC feedback	DEQ	In progress
2	Define what P prioritization means	DEQ and TSC	Pending
3	Define roles and responsibilities of DEQ and permittees for AMP process	DEQ	In progress
4	Identify and define what is needed to determine how far upstream and downstream monitoring should occur for a point source	TSC	In progress
5	Put together case study of what DEQ thinks is a reasonable minimum of data collection for large rivers	DEQ	In Progress
6	Provide documents in advance of NWG meetings	DEQ	Ongoing
7	Add timeframes to the Adaptive Management Program flowchart	DEQ and TSC	Ongoing
8	Summarize SOPs for sampling nutrients	DEQ	Ongoing

Complete Action Items			
#	Action	Who	Status
1	Distribute the flowchart and supporting materials to the TSC in a format to provide comments/track changes	Rainie DeVaney, Mike Suplee	Complete
2	Consider other measures that may trigger action (Box 7 of flowchart)	TSC	Complete
3	Clarify in the supporting documents that the narrative standards are those referenced in the Administrative Rules of the Montana of the State of Montana.	Rainie DeVaney, Mike Suplee	Complete
4	Define the overall work for the AMP by the June 23 Nutrient Work Group meeting	TSC	Complete
5	Provide information to the TSC on how to get on the agenda for a future meeting	Rainie DeVaney, Mike Suplee	Complete
6	Schedule two TSC meetings between each Nutrient Work Group	Rainie DeVaney, Mike Suplee	Complete
7	Set up Teams TSC collaboration site. Send invite email. Post comments received from TSC members and draft DEQ documents	Moirav Davin, Christina Staten	Complete
8	Update AMP definition based on TSC feedback. Share out to TSC.	Rainie DeVaney, Mike Suplee	Complete

Complete Action Items			
#	Action	Who	Status
9	Decide whether medium sized rivers should be broken out	TSC	Complete
10	Add the draft approach for determining watersheds to Teams for feedback from TSC	Mike Suplee	Complete
11	Reorganize technical subcommittee Teams folders so they are more intuitive	DEQ	Complete
12	Receive written comments from League of Cities and Towns	Amanda McInnis	Complete
13	Medium rivers definition	Mike Suplee	Complete
14	Create bibliography of nutrient-related literature	DEQ	Complete
15	Provide feedback from the TSC about the time component in the flow chart	TSC	Complete
16	Receive feedback from TSC on time component of each flowchart step.	TSC	Complete
17	Get Microsoft Teams up and running for NWG and TSC members	DEQ	Complete
18	Address the question of nonpoint source participation in the AMP process	DEQ, NWG	Complete
19	Consensus opinion of farming and nonpoint source community on this process and what they think is possible or realistic	Nonpoint source representatives	Comment noted
20	Create responsibility chart for adaptive management program	DEQ and TSC	Complete
21	Summarize the process for determining a wadeable stream vs large river	DEQ	Complete
22	Add groundwater to the adaptive management program framework	DEQ and TSC	Complete
23	Provide copy of EPA action letter on Utah's headwater streams	DEQ	Complete

Questions/Topics Flagged for Future Discussions	Meeting Date
Tina asked when will the Monitoring Plan be submitted (is that part of the permitting application)? When will the public get to review what is being proposed for monitoring? Will DEQ have monitoring guidance?	6/10/21
How exactly the public process is incorporated into the different steps in the AMP need to be worked out and flagged that for future discussion.	6/10/21
Consider developing a case study to guide the MT process.	6/10/21
Tina noted, there is talk about doing some downstream analysis, but it could also be that elevated concentrations of nutrients could contribute to an issue that just hasn't yet been manifested, so EPA will be curious how the state plans to address that piece.	6/10/21
Discussion on the nexus between TMDLs and AMPs.	6/10/21
Tina asked where does the NPDES permit application process fit in to this whole process?	6/10/21
Define roles and responsibilities of DEQ and permittees in AMP process	6/21/21
How will DEQ apply existing TMDLs- what is the interplay of AMPs and completed/approved AMPs	6/21/21
Define P prioritization and what is intended as site-specific factors.	6/21/21

**ATTACHMENT A: SEPTEMBER 22, 2021 NUTRIENT WORK GROUP
MEETING PRESENTATION SLIDES**

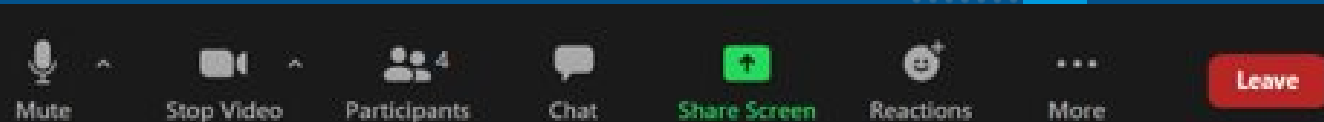
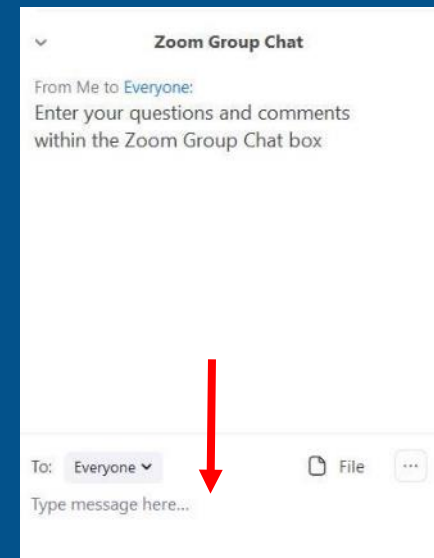
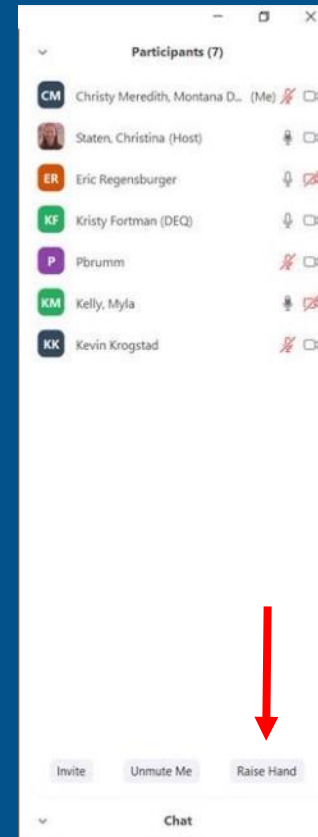
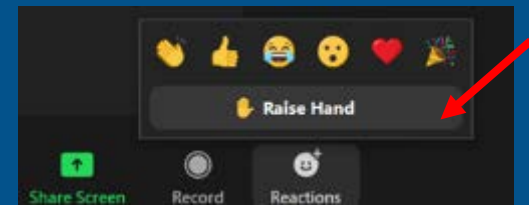


Nutrient Work Group Session Six

September 22, 2021

Welcome!

- Please keep your microphone muted until called on
- Only NWG Members may participate during discussions
- Please reserve public comment until the end
- *6 unmutes your phone
- State your name and affiliation before providing your comment
- Enter questions in the chat box or raise hand
- Turning off your video feed provides better bandwidth
- Please sign-in to the chat box with name and affiliation



Agenda

Meeting Goal:

1. Present DEQ's proposed permit compliance process
2. Continue discussion of stakeholder AMP proposals
2. Begin discussion of AMP – TMDL relationship

9:05 a.m. Welcome and Introductions (Ted Barber, Facilitator)

9:10 a.m. Compliance vs Non-Compliance with the Narrative Nutrient Standards (Rainie DeVaney, Mike Suplee, and Jon Kenning)

9:40 a.m. DEQ Response to Presentation by Municipalities and Point Source Discharger Interest Groups (Mike Suplee, Rainie DeVaney)

10:00 a.m. TMDL – AMP Relationship (Kristy Fortman)

10:30 a.m. Public Comment

Introductions

DEQ Staff

- Christopher Dorrington, Director
- George Mathieus, Deputy Director
- Kurt Moser, Legal Counsel
- Moira Davin, Public Relations
- Amy Steinmetz, Water Quality Division Administrator
- Jon Kenning, Water Protection Bureau Chief
- Rainie DeVaney, Discharge Permitting Section Supervisor
- Galen Steffens, Water Quality Planning Bureau Chief
- Myla Kelly, WQ Standards & Modeling Section Supervisor
- Kristy Fortman, Watershed Protection Section Supervisor
- Darrin Kron, WQ Monitoring & Assessment Section Supervisor
- Michael Suplee, Water Quality Science Specialist

Introductions

Nutrient Work Group Members

Interest Group	Representative	Substitute
Point Source Discharger: Large Municipal Systems (>1 MGD)	Susie Turner	
Point Source Discharger: Middle-Sized Mechanical Systems (<1 MGD)	Shannon Holmes	
Point Source Discharger: Small Municipal Systems with Lagoons	Rika Lashley	
Point Source Discharger: Non-POTW	Alan Olson	
Municipalities	Kelly Lynch	
Mining	Tammy Johnson	
Farming-Oriented Agriculture	John Youngberg	
Livestock-Oriented Agriculture	Jay Bodner	
Conservation Organization - Local	Kristin Gardner	
Conservation Organization – Regional	Sarah Zuzulock	
Conservation Organization – Statewide	David Brooks	
Environmental Advocacy Organization	Guy Alsentzer	
Water or Fishing-Based Recreation	Wade Fellin	
Federal Land Management Agencies	Andy Efta	
Federal Regulatory Agencies	Tina Laidlaw	
State Land Management Agencies	Jeff Schmalenberg	
Water Quality Districts / County Planning Departments	Pete Schade	None
Soil & Water Conservation Districts – West of the Continental Divide	Samantha Tappenbeck	
Soil & Water Conservation Districts – East of the Continental Divide	Dan Rostad	
Wastewater Engineering Firms	Scott Buecker	
Timber Industry	Julia Altemus	

Ground Rules

- Speak one at a time – refrain from interrupting others.
- Wait to be recognized by facilitator before speaking.
- Facilitator will call on people who have not yet spoken before calling on someone a second time for a given subject.
- Share the oxygen – ensure that all members who wish to have an opportunity to speak are afforded a chance to do so.
- Be respectful towards all participants.
- Listen to other points of view and try to understand other interests.
- Share information openly, promptly, and respectfully.
- If requested to do so, hold questions to the end of each presentation.
- Remain flexible and open-minded, and actively participate in meetings.



Roles and Responsibilities

The Nutrient Work Group is an advisory group to DEQ.

Members agree to:

- Provide specific local expertise, including identifying emerging local issues;
- Review project reports and comment promptly;
- Attend as many meetings as possible and prepare appropriately;
- Complete all necessary assignments prior to each meeting;
- Relay information to and from their broader interest group counterparts after each meeting and gather information/feedback from their counterparts as practicable before each meeting;
- Articulate and reflect the interests that NWG members bring to the table;
- Maintain a focus on solutions that benefit the entire state;
- Present recommendations for the rulemaking throughout the planning process.

Compliance vs Non-Compliance

Response Variable Relative Change or Threshold Effluent Limits

Three Options for Demonstrating Compliance with Response Variable Effluent Limits:

- 1) Simple Approach
- 2) Exact Binomial Test Approach
- 3) Modeled Approach (for complex watersheds), or, Other Permittee proposed Options

*Permittee chooses approach with submission of AMP watershed monitoring plan.

*Reporting transparency: results reported in annual reports posted on DEQ's webpage

*Applicable *only* to response variable threshold or relative change effluent limits.

1. Simple Approach

Relative Change Effluent Limits; algae density, D.O. delta

- Upstream near field monitoring location compared to downstream near field monitoring location
 - Downstream exceeds upstream=Non-compliance

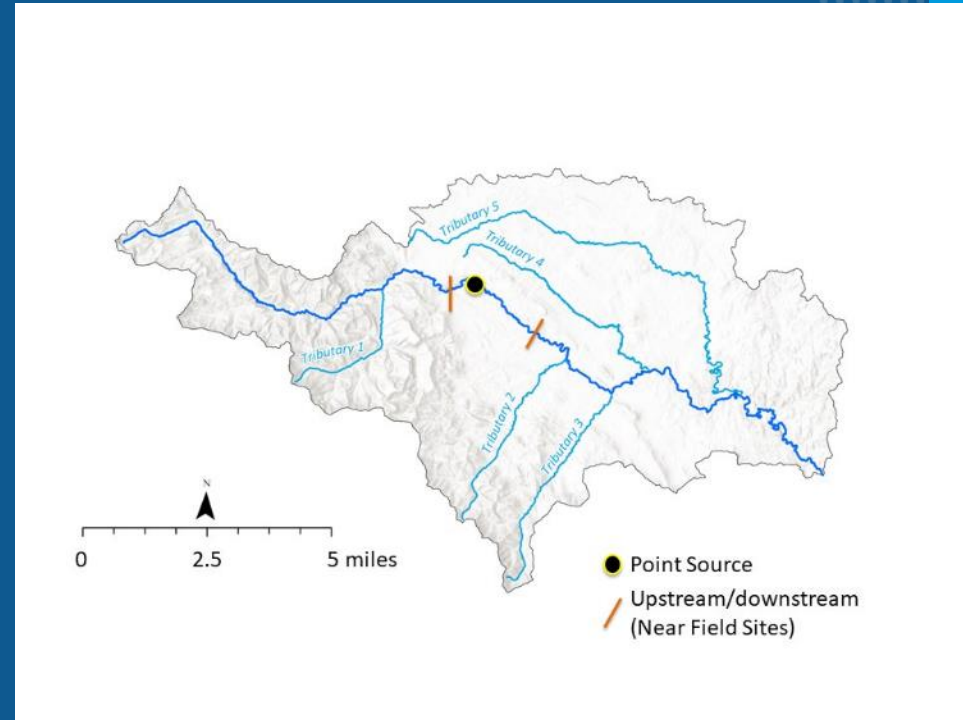
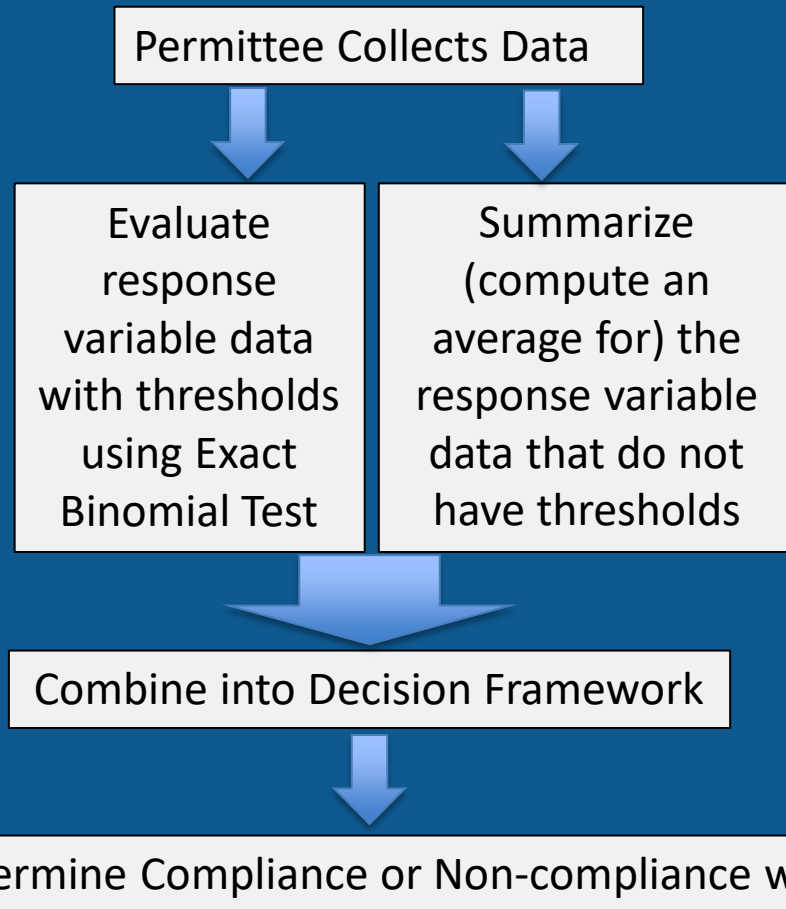
Threshold Effluent Limits; e.g., Chlorophyll-a

- Downstream near field monitoring location compared to threshold
 - Downstream exceeds threshold=Non-compliance

2. Exact Binomial Approach

Would evaluate threshold and non-threshold data together

Best applied in simple AMP watersheds



2. Exact Binomial Approach

We want to accommodate varying numbers of response variable samples and not penalize those who collect more samples than the minimum

Proposed Minimum Annual Sampling:

- 2-3 measures of algae density in W. Montana
- 4 measures (weekly avg) of DO delta in E. Montana

Why a simple “1 in 3” interpretation is problematic:

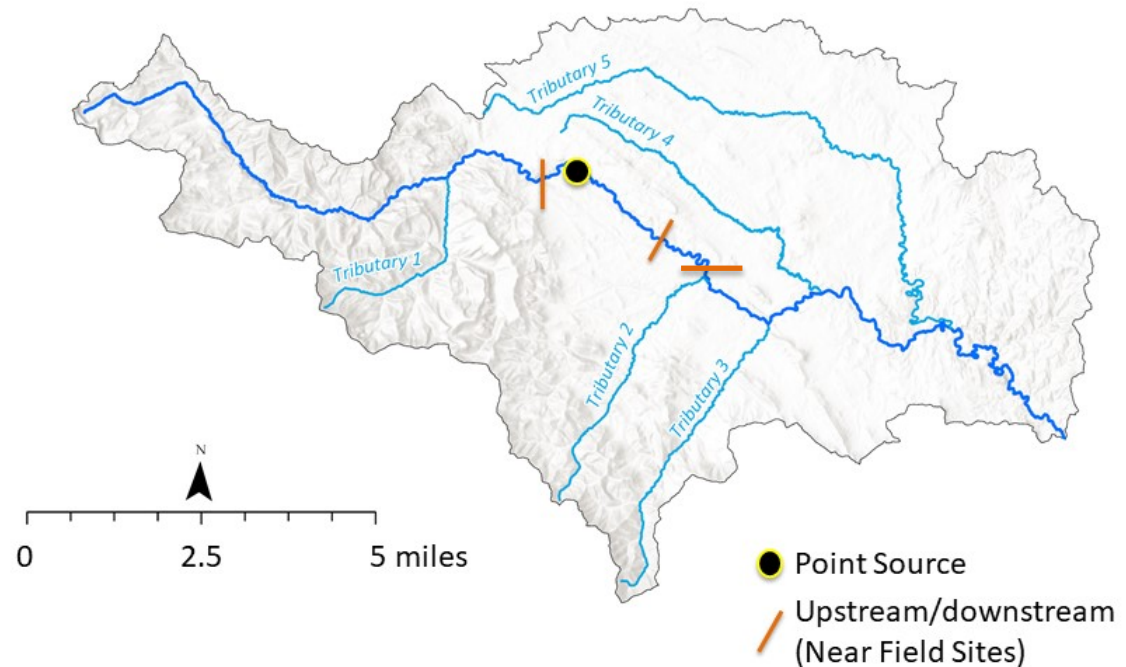
- Annual sampling- 3 samples over three years, one exceedance allowed: rate = 0.333
- Semi-annual sampling- 6 samples over three years, one exceedance allowed: rate = 0.166
- Quarterly sampling- 12 samples over three years, one exceedance allowed: rate = 0.0833
- Monthly sampling- 36 samples over three years, one exceedance allowed: rate = 0.0277

2. Exact Binomial Approach

Can
accommodate
additional
near field
sampling sites

- Just increases the
number of samples

- Adaptable to
different response
variables and
thresholds



Number of intended near field sites need to be proposed
upfront in the AMP watershed monitoring plan

2. Exact Binomial Approach

Some Details

EBT used (proposed) in CA, OR, TX, NC, AK, NE, KS for 303(d) listing

- Assumptions: samples are independent
- Ideal for dichotomous data (above, below a threshold)
- Returns a consistent interpretation of the allowable exceedance rate *regardless of sample size*
- Accepted in non-parametric and parametric ‘camps’

2. Exact Binomial Approach

Within adaptive management program, begin by assuming permittees comply with their permit limits (“innocent until proven guilty”)

Assume Compliance:

H_0 : Permittee is in compliance with permit limit

H_a : Permittee is not in compliance with permit limit

Equivalent evaluation processes applied to each of the upstream and downstream near field sites

2. Exact Binomial Approach

Decisions need to be made about:

- Allowable exceedance rate (<100% and >0%)
- Gray zone (effect size): range of exceedance rates where the consequence of decision errors are considered relatively minor

Initial DEQ Recommendations:

- 10% exceedance rate (used for conventional pollutants like pH, bacteria, and BOD in OR, CA)
- 15% gray zone (EPA recommended; it means decision error in this case is not too critical)
 - Also prevents flip flopping between compliance and non-compliance with each new sample collected

2. Exact Binomial Approach

H_0 : Compliant with permit limit

H_a : Non-compliant with permit limit

Allowable Exceedence Rate: 10%

Gray Zone: 15%

Evaluation of a single data type (e.g., DO delta) and its associated threshold.

Sample Size Range	Number of threshold exceedences allowed while still remaining in compliance with the permit limit
2-10	1
11-18	2
19-26	3
27-35	4

- If <10% of response variable samples exceed threshold, “pass” the EBT
- If >25% of response variable samples exceed threshold, “fail” the EBT
- From 11-24% exceedance, decision varies according to n .

2. Exact Binomial Approach — *Early review*

Downstream Near Field Site(s). For Sample Sizes ≤ 6 :

Scenario	EBT Result: Benthic Algae Levels <125 mg Chla/m ² AND <35 g AFDW/m ² AND <30% FA cover?	Macroinvertebrates On average, D/S HBI > or \leq U/S (note: higher HBIs are worse)	Interpretation
A	PASS	D/S HBI \leq U/S	Compliant with permit limit
B	PASS	D/S HBI > U/S	Compliance unclear: Continue data collection to end of permit cycle, with annual reviews.
C	FAIL	D/S HBI \leq U/S	Probably not compliant: Continue data collection to end of permit cycle, with annual reviews. Collecting additional samples advisable (may change outcome).
D	FAIL	D/S HBI > U/S	Not compliant with permit limit

Downstream Near Field Site(s). For Sample Sizes ≤ 8 :

Scenario	EBT Result: DO Delta <5.3 mg/L?	BOD ₅ On average, D/S BOD > or \leq U/S (note: higher BOD is worse)	Interpretation
A	PASS	D/S BOD \leq U/S	Compliant with permit limit
B	PASS	D/S BOD > U/S	Compliance unclear: Continue data collection to end of permit cycle, with annual reviews.
C	FAIL	D/S BOD \leq U/S	Probably not compliant: Continue data collection to end of permit cycle, with annual reviews. Collecting additional samples advisable (may change outcome).
D	FAIL	D/S BOD > U/S	Not compliant with permit limit

Data can be evaluated at <5 years, but interpretation is less certain and early results could change in some cases

2. Exact Binomial Approach — 5-year Review

Downstream Near Field Site(s). For Sample Sizes ≥ 10 (1 permit cycle):			
Scenario	EBT Result: Benthic Algae Levels <125 mg Chla/m ² AND <35 g AFDW/m ² AND <30% FA cover?	Macroinvertebrates On average, D/S HBI > or \leq U/S (note: higher HBIs are worse)	Interpretation
A	PASS	D/S HBI \leq U/S	Compliant with permit limit
B	PASS	D/S HBI > U/S	Compliant: Investigate cause of higher (worse) downstream macroinvertebrate HBI; what are each site's HBI scores?
C	FAIL	D/S HBI \leq U/S	Not-compliant, however, actual HBI scores should be reviewed and compliance decision discussed with DEQ
D	FAIL	D/S HBI > U/S	Not compliant with permit limit

Downstream Near Field Site(s). For Sample Sizes ≥ 20 (1 permit cycle):			
Scenario	EBT Result: DO Delta <5.3 mg/L?	BOD ₅ On average, D/S BOD > or \leq U/S (note: higher BOD is worse)	Interpretation
A	PASS	D/S BOD \leq U/S	Compliant with permit limit
B	PASS	D/S BOD > U/S	Compliant: Investigate cause of higher (worse) downstream BOD
C	FAIL	D/S BOD \leq U/S	Not-compliant: Minimal BOD sampling probably missed high-BOD events
D	FAIL	D/S BOD > U/S	Not compliant with permit limit

Five years (1 permit cycle) is a critical juncture for compliance decisions. Also, watershed improvements/point source optimization or upgrades = restart/reset of dataset

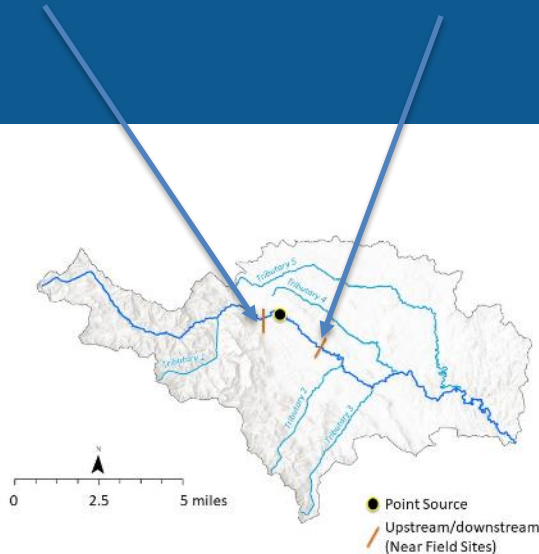
2. Exact Binomial Approach — *Roll Up:* *Upstream/downstream results inform next steps*

Example Results for Near Field Sites Bracketing a Point Source.

Upstream Site(s)	Downstream Site(s)	Implication
Compliant	Compliant	Permittee is compliant with permit limits, continue to monitor
Compliant	Non-compliant	Work should focus on point source improvements
Non-compliant	Compliant	Suggests work should focus on improvement to upstream watershed
Non-compliant	Non-compliant	Suggests work could begin upstream of point source, at point source, or both

upstream

downstream

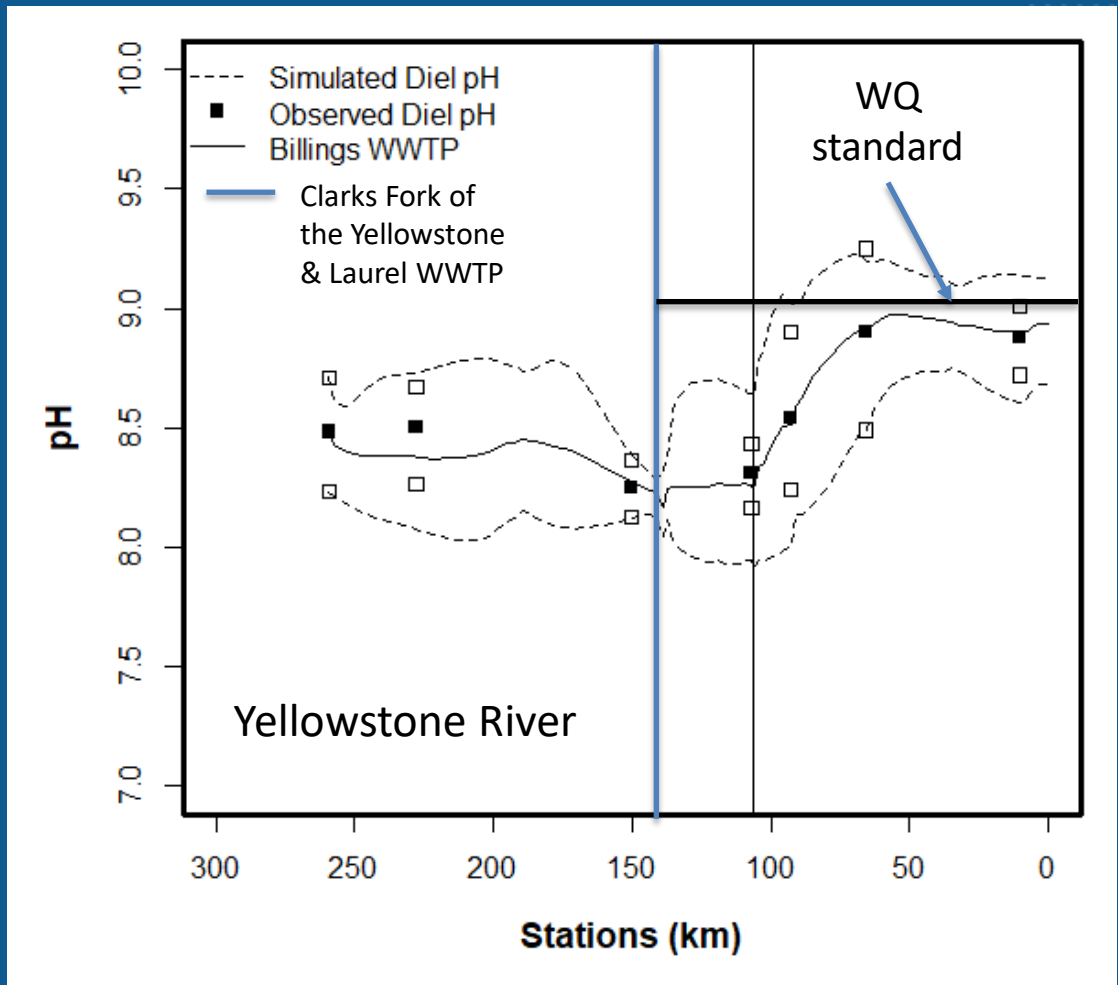


3. Modeled Approach

Applicable to complex
AMP watersheds with
stacked MPDES permits

Large watershed-scale
data collection provides for:

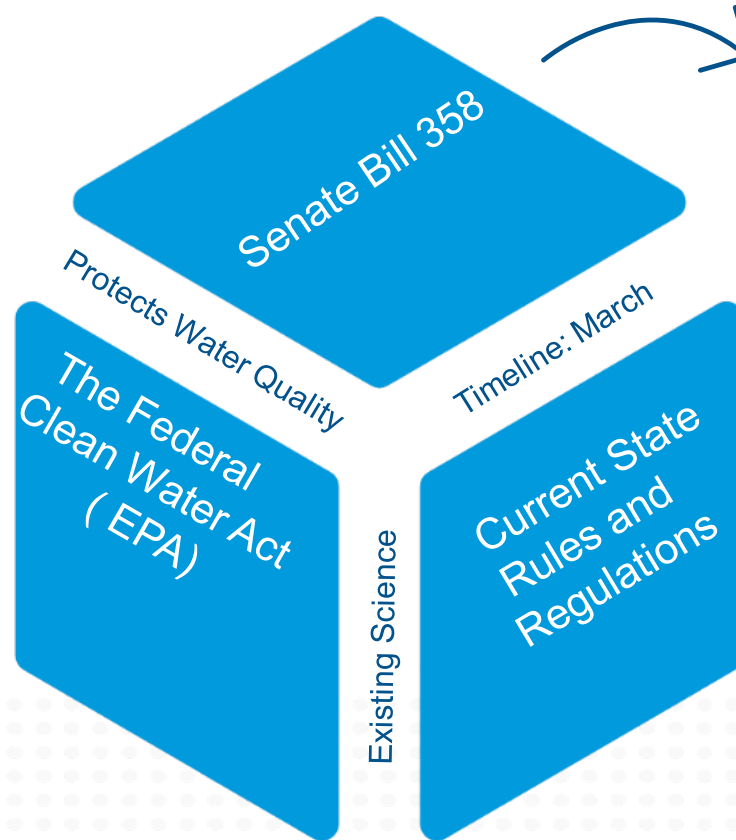
1. attainment evaluation,
2. modeling, and
3. simulation of different
management actions



Nutrient Work Group Discussion and Feedback

Narrative Nutrient Standards

Must meet...



Senate Bill 358:

- Rule provides for AMP
- Balances all factors impacting a water body
- Prioritizes the minimization of phosphorous, taking into account site-specific conditions
- Identifies response variables and associated thresholds
- Considers whether point source is new or existing, and impaired or unimpaired
- Rules adopted by March 1, 2022

What's in the AMP sandbox?

Can work within requirements and framework

Non-numeric limits
based on BMPs
Reason: Alone
these are
insufficient

Two step rule-making
process
Reason: DEQ moving
forward with
comprehensive rule
package by March 1
per SB358

Numeric effluent limits are
infeasible
Reason: DEQ has already
identified response
variables and associated
numeric thresholds



Revise use classes or
existing stream
assessments
Reason: DEQ
assumes waterbodies
are appropriately
classified; there is
a separate standards
setting process for this
(UAA).

TBELs for
nutrients
Reason: Not
viable

Put response
variables in
AMP/TMDL, not in
the permit
Reason: Some type
of limit needs to go in
the permit

Water Quality Standard



Beneficial Uses

(aquatic life, human health, agriculture, recreation)

Non Degradation

(high quality water for the sake of clean water)

Criteria

(numeric or narrative)

What is a beneficial use change?

A Use Attainability Analysis (UAA) is a Clean Water Act tool to determine if the beneficial uses of a waterbody are appropriate – are they existing and are they attainable?

- Existing - are the beneficial uses attained (or have they been attained since 1975 or ...under MT state law
- Attainable – determined by 6 use removal factors in 131.10(g)

This is conducted as a structured scientific assessment and submitted to EPA as a change in water quality standard

Note: Narrative standards fall under our General Prohibitions (ARM 17.30.637) which apply to ALL classified waterbodies.

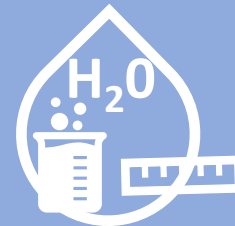
TMDLs and the Adaptive Management Program

1
Develop
Water Quality
Standards



Adopt criteria to describe desired conditions and protect beneficial uses.

2
Monitor
Water
Quality



Collect data about water quality

3
Assess
Water
Quality



Describe water quality and determine whether waters are “impaired” (do not meet water quality standards and do not fully support beneficial uses)

4
Identify
Sources of
Pollution



Estimate amount of pollution from identified sources

5
Develop Total
Maximum
Daily Loads
(TMDLs)



Determine reductions needed for impaired waters to meet water quality standards, and recommend pollution reduction strategies

6
Support
Water Quality
Improvements



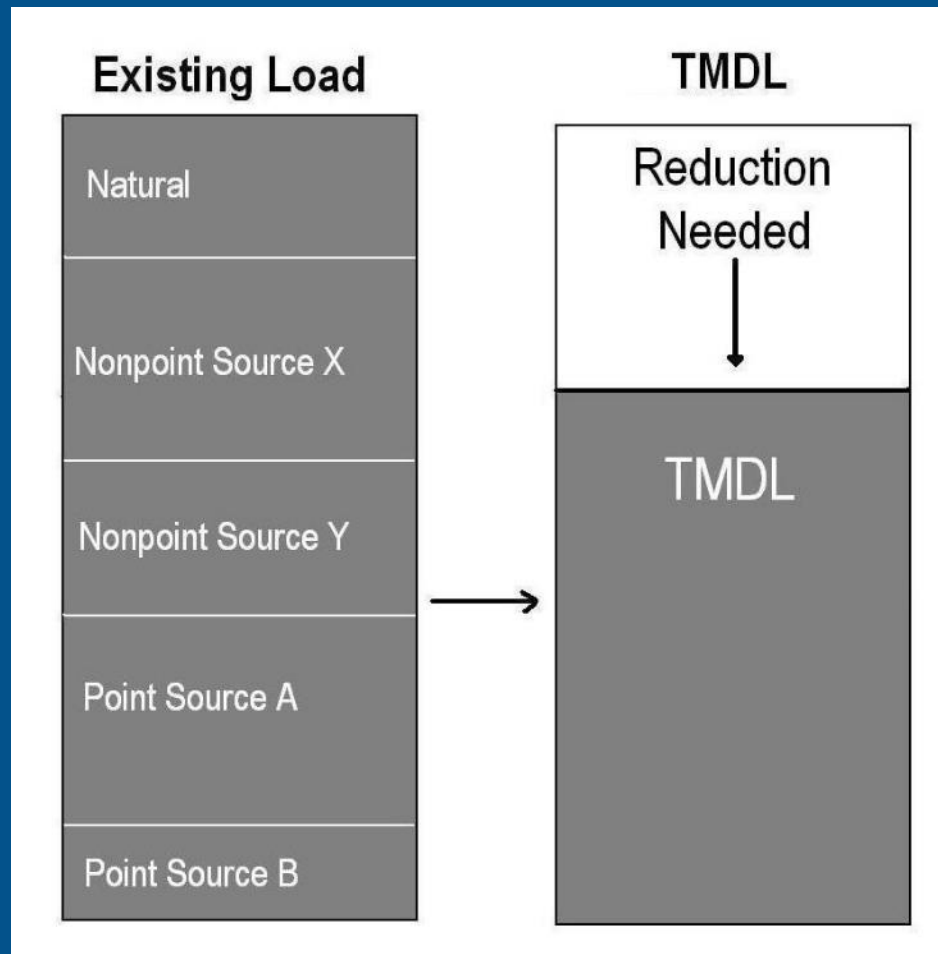
Support efforts to reduce point and nonpoint source pollution and protect and restore water quality.

DEQ's
Water
Quality
Planning
Process

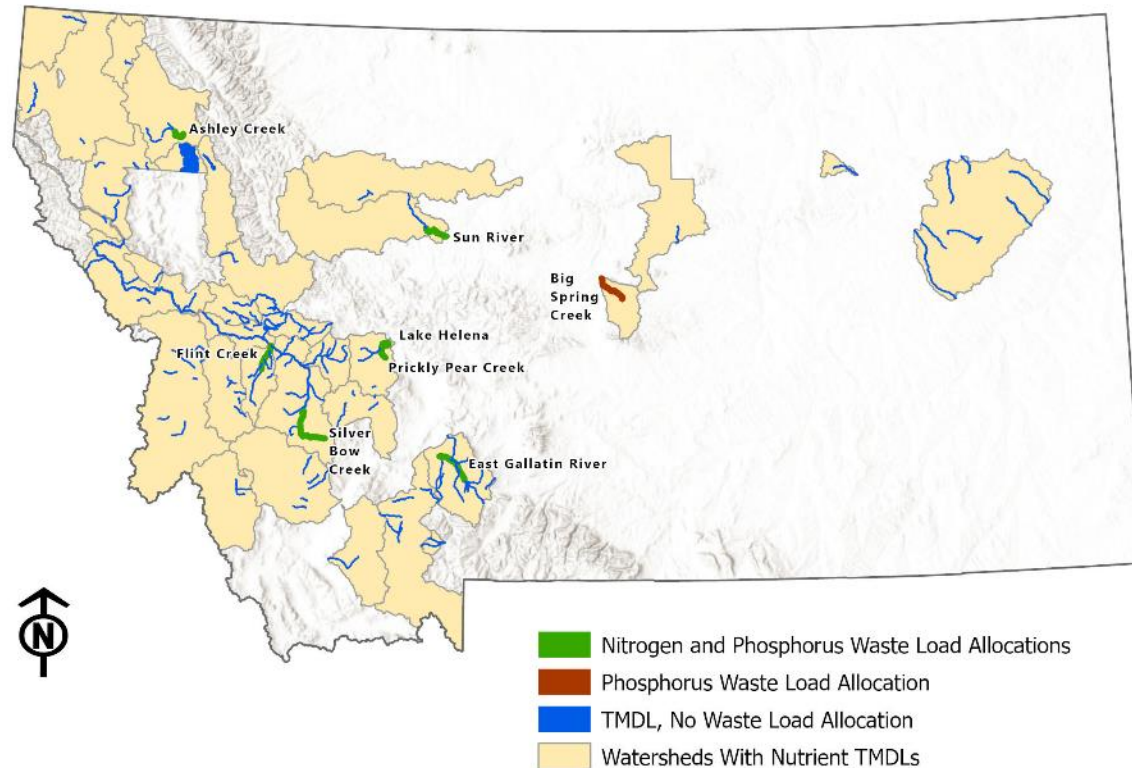
What is a TMDL ?



What is a TMDL ?

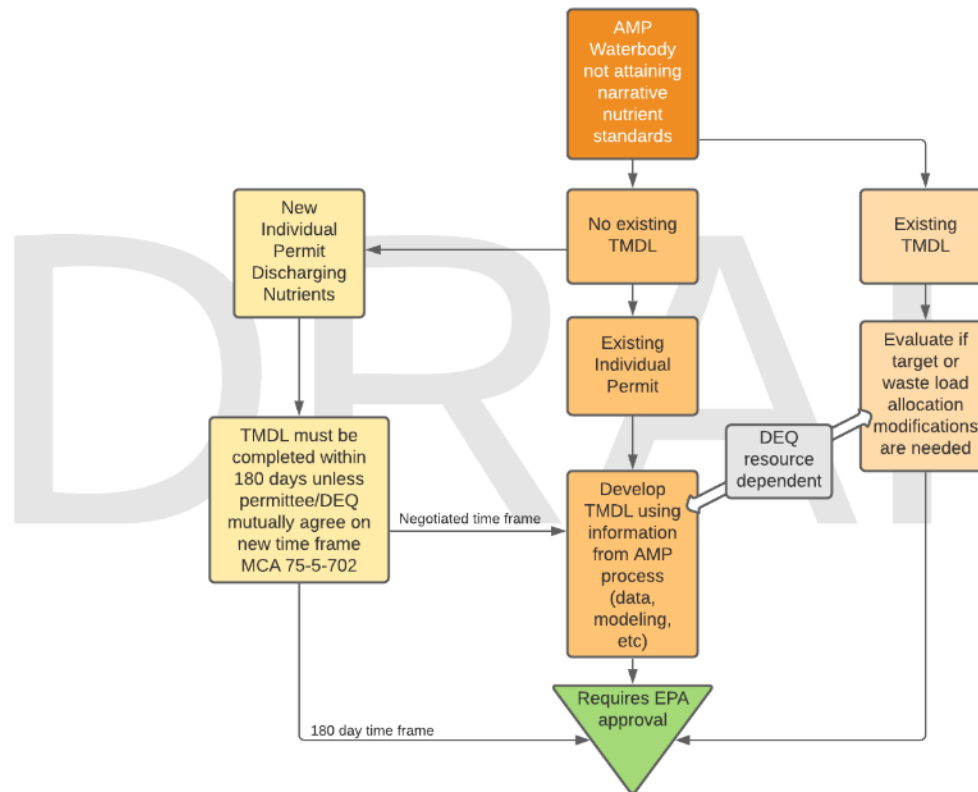


Completed Nutrient TMDLs



TMDLs and the Adaptive Management Program

TMDLs and the Adaptive Management Planning Process



Last Modified: Sep 21, 2021
Created in Lucid Chart



Next Meetings

Next Meeting

- Listening Session
 - Thursday, September 23: 1:00 – 3:00 pm

Website question submittal button
<https://deq.mt.gov/water/Councils>

- Tuesday, October 5: 1:30 – 3:30 p.m.

Next meeting topics:

- Wrap-up from today's meeting
- Complete discussion of outstanding issues prior to rulemaking



Upcoming Meetings Through November 2021

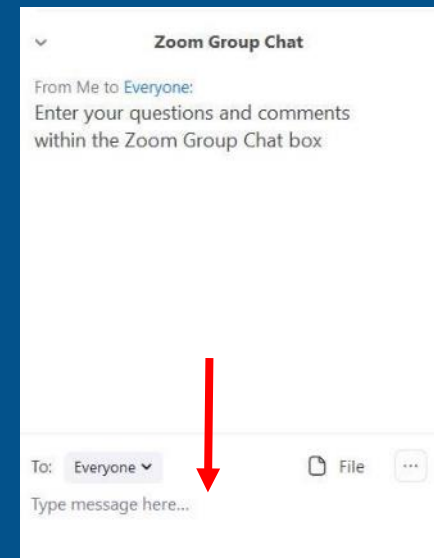
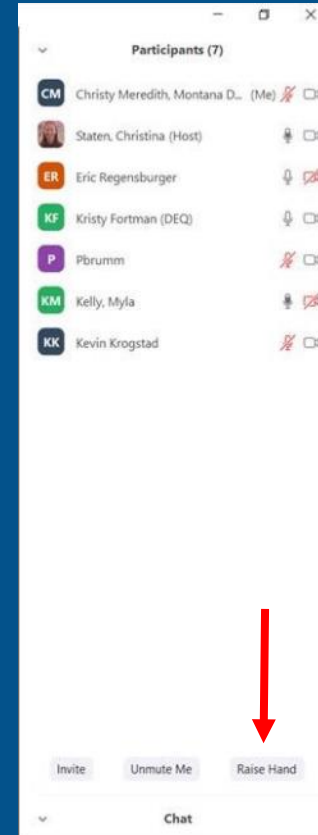
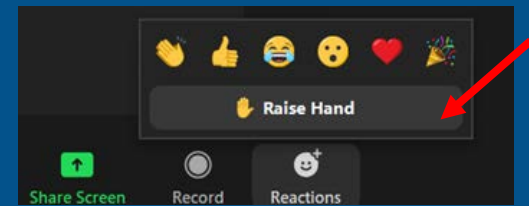
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
19	20	21	22 NWG Meeting	23	24	25
26	27	28	29	30	1 October	2
3	4	5 NWG Meeting	6	7	8	9
10	11 Holiday	12 NWG Meeting	13	14	15	16
17	18 Draft rule package provided to NWG for NWG comment	19	20	21	22	23
24	25	26	27 NWG Meeting	28 Comments Due from NWG members	29	30
31	1 November	2	3 NWG Meeting	4	5	6



Public Comment

Questions/ Comments

- Raise hand or type questions into the chat
- Please keep your microphone muted until called on
- If calling by phone, press*6 to unmute
- State your name and affiliation before providing your comment



Thanks for Joining Us

Contact:

Galen Steffens

Galen.Steffens2@mt.gov

To submit comments or questions



<https://deq.mt.gov/water/Councils>

