



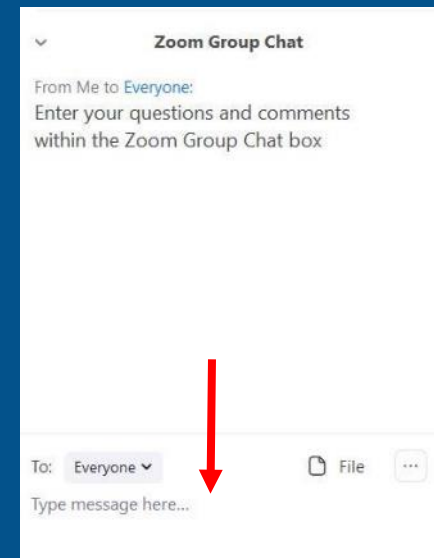
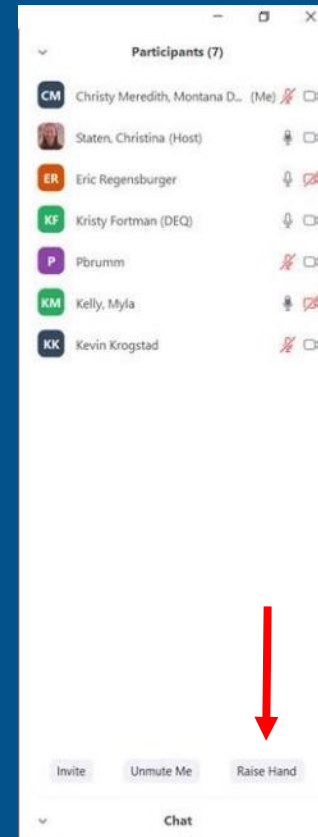
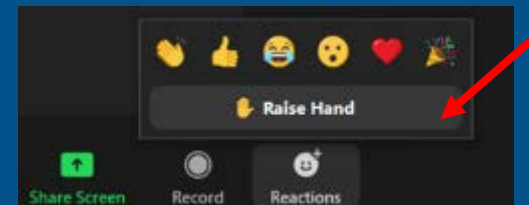
# Nutrient Work Group Session Seven

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October 5, 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:

Wrap up and summarize process for interpreting narrative nutrient standards and developing an Adaptive Management Program, in preparation for draft rule package review

1:30 p.m. Welcome and NWG Roll Call (Ted Barber, Facilitator)

1:40 p.m. Narrative Nutrient Standards Interpretation & Adaptive Management Program Overview

2:10 p.m. Outstanding Items from September 22 Meeting

2:30 p.m. TMDL Wasteload Allocations (Kristy Fortman)

3:00 p.m. Draft Rule Package Review (Christina Staten)

3:10 p.m. Public Comment

As Time Allows: Comments / Themes from September 23 Listening Session

# 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	
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.

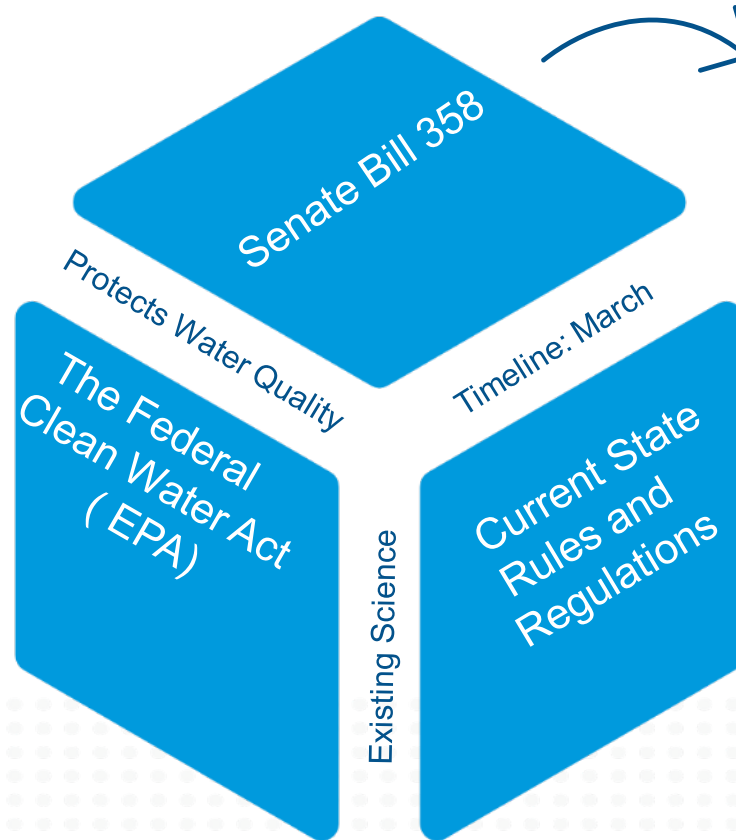


# Narrative Nutrient Standards Interpretation & Adaptive Management Program Overview



# Narrative Nutrient Standards

Must meet...



Senate Bill 358:

- Rule provides for AMP
- Balances all factors impacting a water body
- Prioritizes the minimization of phosphorus, 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 are the Narrative Nutrient Standards?

## ARM 17.30.637 General Prohibitions

(1) State surface waters must be free from substances attributable to municipal, industrial, agricultural practices or other discharges that will:

(d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life; and

**(e) create conditions which produce undesirable aquatic life.**

Also includes standards such as those for pH which contain narrative components:

ARM 17.30.623 (2)(c): "Induced variation of hydrogen ion concentration (pH) within the range of 6.5 to 8.5 must be less than 0.5 pH unit. Natural pH outside this range must be maintained without change. Natural pH above 7.0 must be maintained above 7.0."

# It's all in the *How*

- Narrative water quality standards are used throughout DEQ and are protective of beneficial uses.
- DEQ has studied nutrients for many years and is using this science to develop the Adaptive Management Program
- SB358 requires DEQ to identify response variables affected by nutrients and associated impact thresholds to protect beneficial uses.
  - Response variables indicate how nutrients affect a stream and show us when something is off.
  - These response variables and thresholds can be monitored through a percentage, a range of numbers or a visual impact.
  - Adaptive management will provide more site-specific data on stream responses to nutrient levels.
- When response variables and thresholds identify a problem, there is flexibility in how to solve the problem. This creates a larger toolbox for dischargers.



# What is the Status of the Numeric Nutrient Standards?

- DEQ is in the process of repealing DEQ-12A, as required by SB358; however, SB358 directs DEQ to administer the discharge permit program using the narrative standards.
- The U.S. EPA considers the numeric nutrient standards (DEQ-12A) as the effective water quality standards for purposes of the Clean Water Act, until EPA approves a replacement;
- DEQ-12B (nutrient variances) was immediately repealed by SB358; however, EPA also still views 12B as an effective water quality standard.

# Pillars

The following guiding principles will serve as the foundation for the rulemaking process.

- 1 DEQ will utilize the existing science of nutrient impacts to Montana's beneficial uses—it is not the intent of these meetings to revisit the science.
- 2 DEQ will adhere to permitting requirements of anti-backsliding.
- 3 All water quality standards changes will be submitted to EPA for approval under the Clean Water Act.
- 4 DEQ will actively engage with the Nutrient Work Group as an advisory body.
- 5 DEQ's developed and vetted nutrient assessment method will remain in place, with minor changes.

# Adaptive Management Program Summary





# Terminology

AMP acronym

## **Adaptive Management Program**

“watershed-scale system that protects water quality from the impacts of nutrient sources” \*

## **Adaptive Management Plan**

"a watershed-specific tool developed under the adaptive management program to achieve the narrative nutrient standards and address nutrients in a specific watershed, comprising a watershed monitoring plan and, if required, an implementation plan, that is incorporated into the MPDES permit of a point source or point sources within the watershed." \*

*\*definitions in draft rule*





# Adaptive Management Program Summary

Narrative  
Nutrient Standards

*Free from substances that create  
toxic or harmful concentrations  
conditions which produce undesirable aquatic life*

Adaptive  
Management  
Program

*Prioritize phosphorus reduction  
Incremental nutrient reductions  
Balance all factors impacting waterbody  
Identify specific nutrient reductions  
Protect beneficial uses*

**Implement  
narrative  
nutrient  
standards**

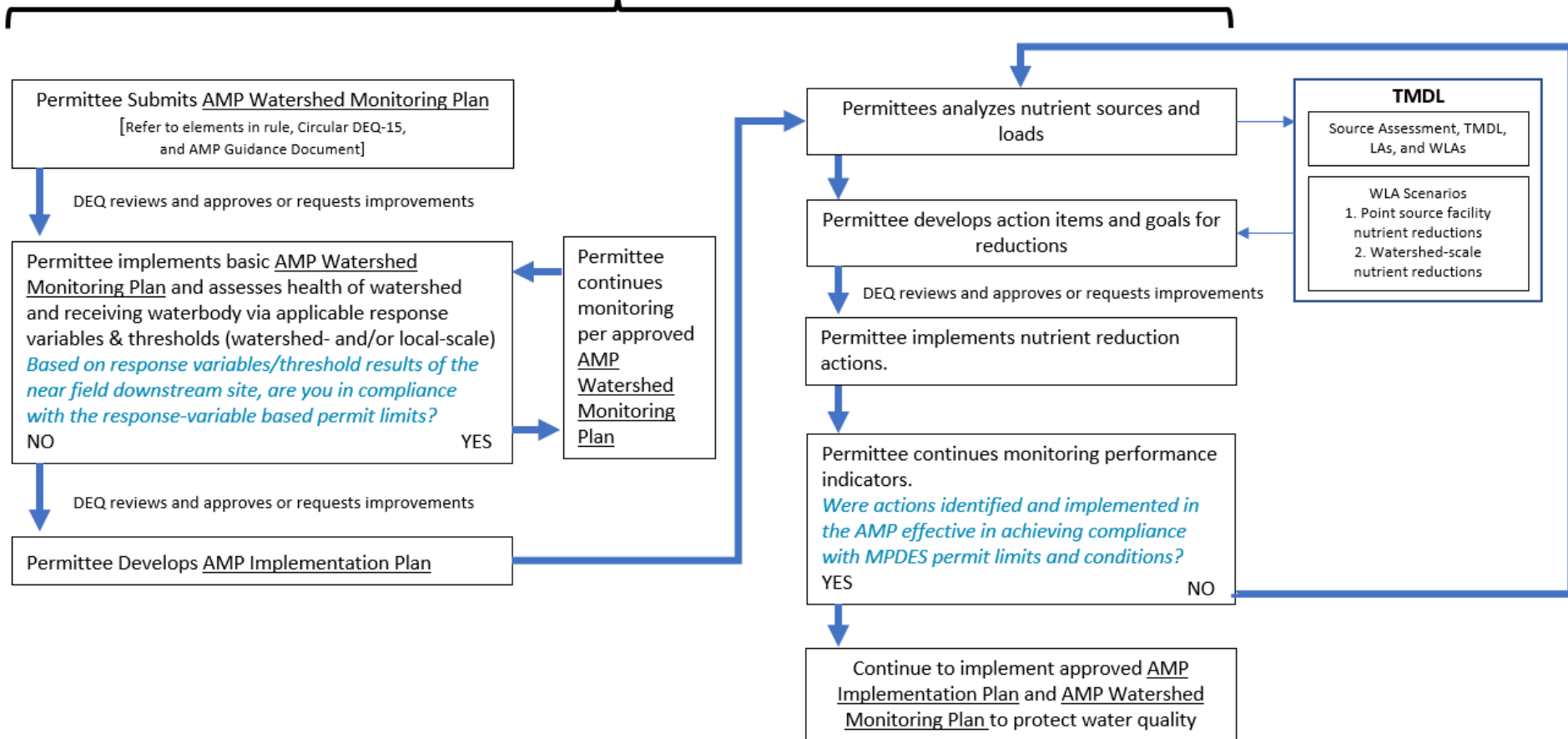
Adaptive Management Plan

Watershed Monitoring Plan

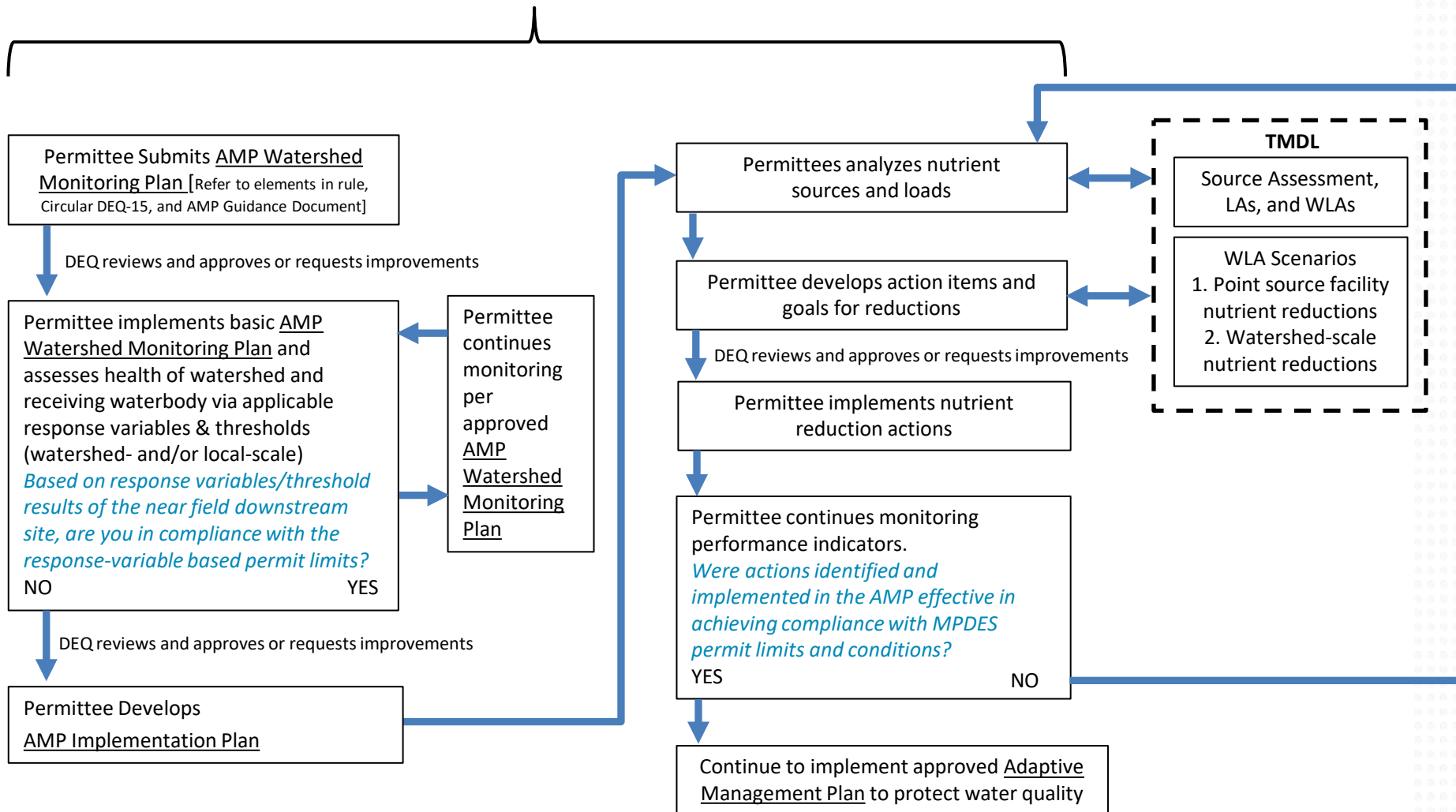
Implementation Plan

# Adaptive Management Program Summary

## Adaptive Management Program

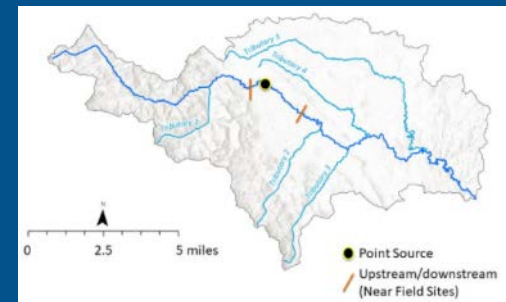
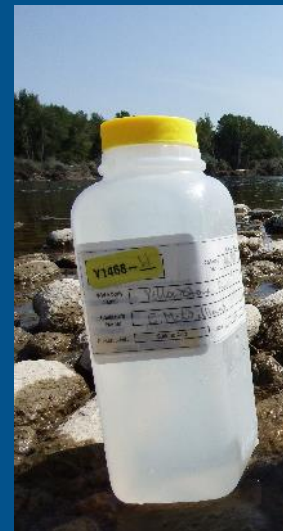


# Adaptive Management Program



# AMP Watershed Monitoring Plan Elements

1. Watershed defined by upstream and downstream extent, principal tributaries, and sampling locations for assessing sources and direct effects of the point source
2. Applicable response variables and sampling frequency
3. Stakeholder engagement plan (stakeholder list and engagement milestones)
4. Watershed inventory (nutrient contributions from point and non-point sources)



# AMP Watershed Monitoring Plan

## Approach depends on complexity

- Single or few dischargers (non-model)
- Multiple dischargers (model)

## Monitoring Locations

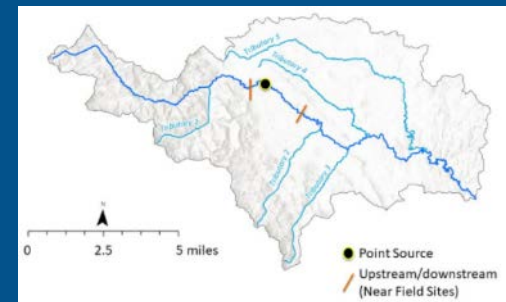
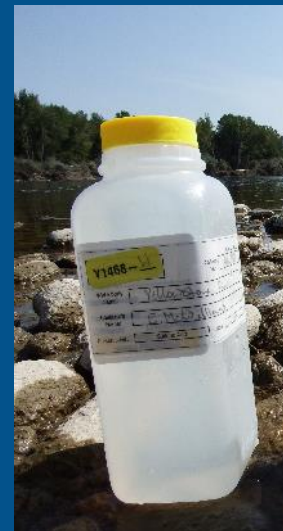
- Near field upstream & downstream of point source
- Upstream & downstream extent of watershed
- Tributaries

## Monitoring parameters

- TN, TP concentrations
- Response Variables

## Other

- Spatial and temporal considerations
- **Phased approach with interim milestones**
- Annual reports summarizing results
- Submit data in standardized format





# AMP Implementation Plan Elements

1. Quantification of all nutrient sources
2. Partners that will assist in implementing nutrient reductions and their level of support
3. Action items for nutrient reduction, including goals and expected timelines
4. Demonstration of ability to fund and implement the plan (individually, with other permittees and nonpoint sources, or other partners), including contracts reflecting commitments to implement actions.
5. Continued monitoring of response variables and thresholds as indicators of nutrient reduction effectiveness



# Benefits of AMP

- Aims to achieve water quality improvements sooner by giving Permittees more options for achieving nutrient reductions.
- Flexible approach considers all nutrient sources as well as the relative cost of treatment options, their feasibility, and their expected water quality improvement.
- Incremental approach allows for implementation and evaluation over time.
- Watershed-specific plans account for site specific conditions, sources, stakeholders, etc.
- Ongoing monitoring ensures current data informs AMP decision-making and is used to evaluate effectiveness.





# Key Differences Compared to Current Permitting Process

- Requirement to prioritize phosphorus reduction instead of phosphorus and nitrogen
  - Site specific exceptions allowed, if appropriate
- Response variables & thresholds requirement means DEQ would evaluate the direct effects manifested *in the river* rather than pollutant concentrations at the end-of-pipe
- If narrative nutrient standards are not met in watershed, AMP would allow for holistic approach to address nutrient sources in water
  - Allows time for improvements to occur

# Nutrient Work Group Discussion and Feedback

# Outstanding Items from September 22 Meeting

# What's in the AMP Sandbox?

AMP Sandbox (Can work within requirements & framework)	Separate Regulatory Process (Occurs outside the AMP process, but data collected under an adaptive management plan can be used)	Out of the AMP Sandbox (DEQ does not approve this approach)
<ul style="list-style-type: none"> <li>• Incentive Program</li> </ul>	<ul style="list-style-type: none"> <li>• Revision of waterbody use classification (Use Attainability Analysis)</li> </ul>	<ul style="list-style-type: none"> <li>• Rulemaking completed after March 1, 2022 (two-step rulemaking process)</li> </ul>
<ul style="list-style-type: none"> <li>• Conceptual model for a watershed</li> </ul>	<ul style="list-style-type: none"> <li>• Beneficial Use Assessment Determinations</li> </ul>	<ul style="list-style-type: none"> <li>• Non-numeric effluent limits based on BMPs alone</li> </ul>
<ul style="list-style-type: none"> <li>• Flexibility to use alternate response variables, if appropriate</li> </ul>		<ul style="list-style-type: none"> <li>• Not using numeric effluent limits</li> </ul>
<ul style="list-style-type: none"> <li>• Net environmental benefit considered</li> </ul>		<ul style="list-style-type: none"> <li>• Not using response variables in a permit</li> </ul>
		<ul style="list-style-type: none"> <li>• Technology Based Effluent Limits (TBELs)</li> </ul>

# NWG Feedback Considered

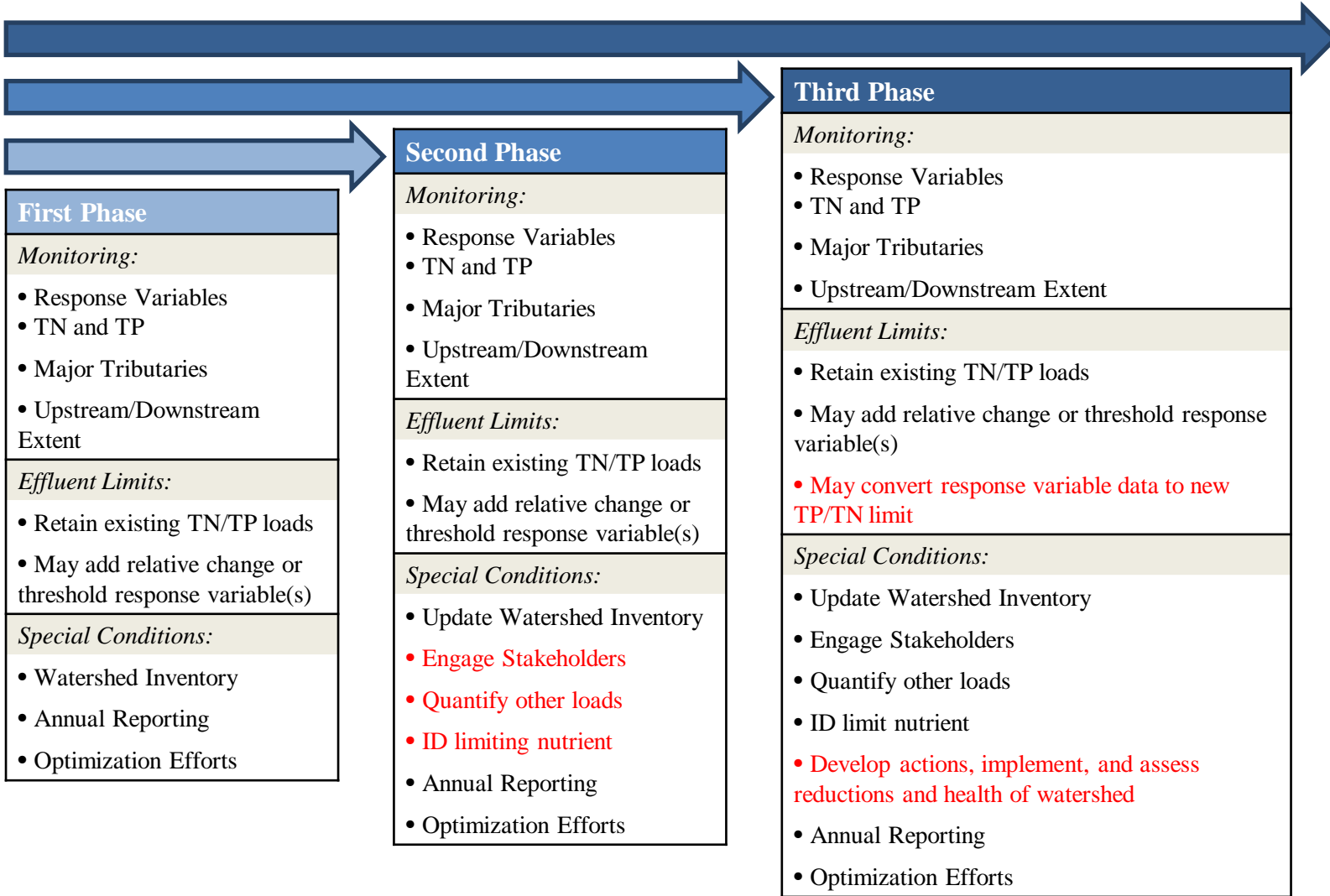
- Revised AMP definitions and AMP flow chart
- Added flexibility for alternate response variables to be used when waterbody doesn't match the ecoregion
- Implementing an incentive program
- Provided use of Teams platform for communication
- Opportunity to hear stakeholder presentations
- Meeting schedules altered
- Nutrient Work Group and Technical Subcommittees combined
- Extra review time added for review of draft rule package
- Worked to clarify points of confusion

# MPDES Compliance

- Monitoring
- Effluent Limits
- Special Conditions and Standard Conditions

# Example Permit Conditions Through Time

## DEQ Approval of Monitoring Plan





# Alternative TMDLs

- TMDL
  - 1st step in restoring impaired waters
  - Pollution budget
  - Foundation for implementation plans, regulatory activities, and/or on-the-ground restoration
- Alternative TMDL
  - Simple source
  - Simple and fast solution
  - Done in advance of a TMDL
  - Still requires a TMDL

# Alternative TMDLs

## *Example Alternative TMDL*

### Middle Fork Judith

- Data collected - concluded that MFJ is impaired by sedimentation/siltation
- One Cause/Source - road with 27 crossings
- Solution - USFS in partnership with Montana Trout Unlimited developed a plan to re-route the existing road and restore the road and associated river crossings



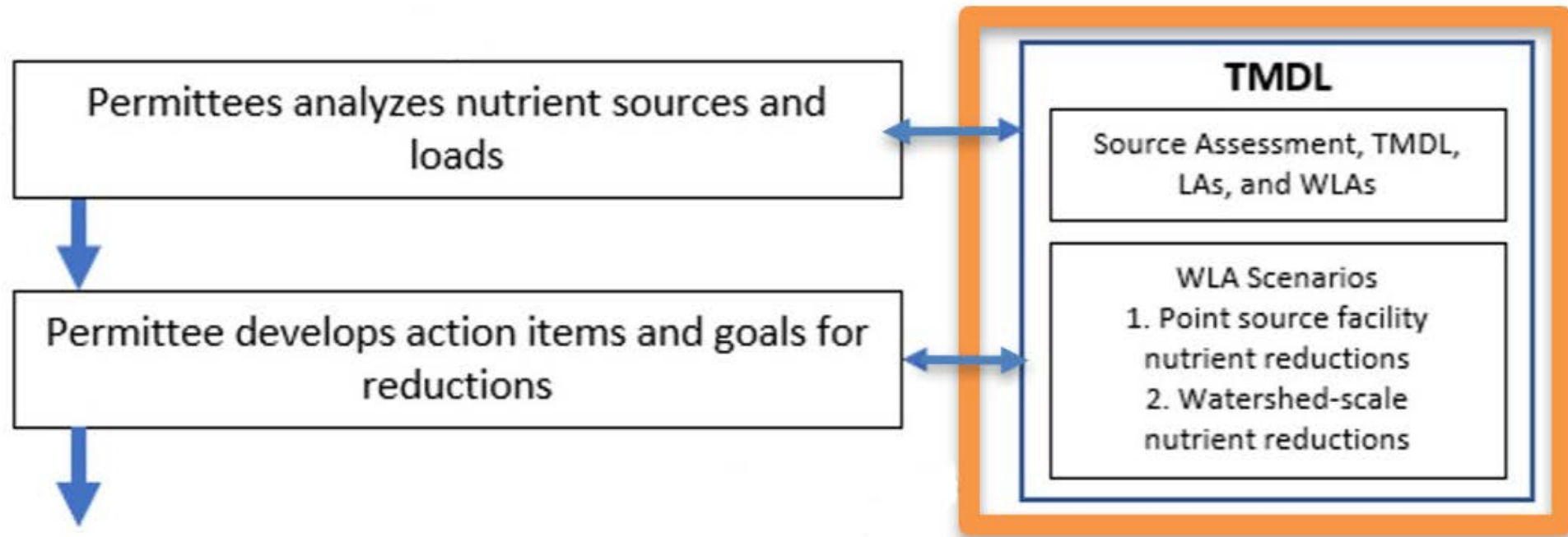
# Nutrient Work Group Discussion and Feedback

# TMDLs and Adaptive Management Plans

# TMDLs and the AMP

- When a waterbody is not achieving the narrative nutrient standards for nitrogen and/or phosphorus, it is considered impaired, and a total maximum daily load (TMDL) must be developed.
- TMDL = maximum amount of a pollutant a waterbody can receive and still meet water quality standards
- TMDL determines pollutant reductions and allocations
- Point sources receive a wasteload allocation (WLA) and nonpoint sources receive a load allocation (LA).
- Wasteload allocations incorporated into discharge permits
- Waste load allocation scenarios will incorporate strategies from the adaptive management implementation plan

# TMDLs and the AMP



# Draft Rule Package Review



# Draft Rule

3 Pages

Content	Meeting Covered	Supported by Circular and Guidance
Adaptive Management Program Definition	Posted to Teams in July June 21 TSC June 23 NWG July 16 TSC July 28 NWG	
Adaptive Management Plan Definition	October 5 NWG	
MPDES Application Requirements [Timelines]	October 27 NWG	
AMP Watershed Monitoring Plan Requirements	July 6 TSC July 16 TSC July 28 NWG August 3 TSC August 25 NWG September 22 NWG October 5 NWG	<input checked="" type="checkbox"/>
Watersheds Not Achieving the Narrative Nutrient Standards	July 28 NWG August 25 NWG	<input checked="" type="checkbox"/>
Compliance with MPDES Permit Limits	September 22 NWG	<input checked="" type="checkbox"/>

NWG = Nutrient Work Group, TSC = Technical Subcommittee

# Circular DEQ-15

## Implementation of Narrative Nutrient Standards

24 Pages

Section	Meeting Covered
1.0 Introduction	June 10 TSC June 21 TSC June 23 NWG August 25 NWG
1.1 Definitions <ul style="list-style-type: none"><li>Far Field and Near Field Sites</li><li>Large River, Medium River, Wadeable Stream</li></ul>	August 10 TSC, August 25 NWG July 6 TSC, July 28 NWG
2.0 Different Data Collection and Evaluation Methods Apply Depending on Waterbody Size	July 6 TSC July 28 NWG
3.0 Developing and Using Water Quality Models: Data Collection, Calibration and Validation, Assessment of Beneficial Use/Water Quality Impacts, Simulating the Effect of Potential Management Activities	July 28 NWG August 3 TSC August 25 NWG
4.0 Data Collection Requirements for Watershed Monitoring in Medium Rivers and Wadeable Streams <ul style="list-style-type: none"><li>4.1 Response Variable Data Collection Differs Across the State</li><li>4.2 Nutrient Data Collection in an AMP Watershed</li><li>4.3 AMP Watershed Monitoring Plan Sample Collection: Index Period</li><li>4.4 Types of Sites in an AMP Watershed Monitoring Plan</li><li>4.5 Monitoring Data: Western Ecoregional Zone</li><li>4.6 Monitoring Data: Eastern Ecoregional Zone</li><li>4.7 Identifying Response Variables for Waterbodies that are Atypical of the Ecoregional Zone</li><li>4.8 Data Collection for Watersheds with a New Point Source</li><li>4.9 Collecting Monitoring Data: Department Field Audits</li></ul>	July 28 NWG August 10 TSC August 25 NWG

\*The Circular is still under development and the outline and contents may change by October 18

# Circular DEQ-15

## Implementation of Narrative Nutrient Standards

24 Pages

Section	Meeting Covered
5.0 Determining Compliance with Permit Limits for Medium Rivers and Wadeable Streams <ul style="list-style-type: none"><li>5.1 Response Variables and Thresholds</li><li>5.2 Simple Method</li><li>5.3 Exact Binomial Test Method</li><li>5.4 Permittee-Proposed Method</li></ul>	September 22 NWG
6.0 Watershed Information Provided by Relative Changes Upstream and Downstream of a Point Source	September 22 NWG
7.0 Integration of the Adaptive Management Program with the Total Maximum Daily Load Program <ul style="list-style-type: none"><li>7.1 Integrating an AMP Implementation Plan and the TMDL Wasteload Allocation</li></ul>	September 22 NWG October 5 NWG
8.0 Watersheds Not Achieving the Narrative Nutrient Standards <ul style="list-style-type: none"><li>8.1 Quantification and Characterization of All Sources of Nutrient Contributions</li><li>8.2 Identifying all Partners that will Assist in Implementing Nutrient Reductions</li><li>8.3 Developing Action Items for the Reduction of Nutrients in the Watershed</li><li>8.4 Continued Data Collection for Response Variables as Performance Indicators</li></ul>	October 5 NWG
9.0 Endnotes	

\*The Circular is still under development and the outline and contents may change by October 18

# Guidance Document for the Implementation of Narrative Nutrient Standards

54 Pages

## 1.0 Introduction

## 2.0 Different Data Collection and Evaluation Methods apply Depending on Waterbody Size

## 3.0 Developing and Using Water Quality Models

### 3.1 Introduction to Mechanistic Water Quality Models

### 3.2 Use of Water Quality Models for AMP Implementation – Overall Approach

### 3.3 Rationale for Modeling

### 3.4 Types of Water Quality Models and AMP Objectives

#### 3.4.1 Watershed-Loading Models

#### 3.4.2 Receiving-Water Models

### 3.5 Level of Effort in Modeling

#### 3.5.1 Preliminary Level of Effort Requirements for Montana Waterbodies

### 3.6 Technical Guidance and Considerations for Nutrient Modeling in AMP Watersheds

#### 3.6.1 Problem Specification

#### 3.6.2 Model Selection/Development

#### 3.6.3 Data Collection

#### 3.6.4 Model Calibration

#### 3.6.5 Model Confirmation

#### 3.6.6 Uncertainty Analysis

#### 3.6.7 Decision Support and Simulating AMP Objectives

#### 3.6.8 Best Practices for Modeling

### 3.7 Guidance Related to the Development of a Conceptual Model

\*The guidance document is still under development and the outline may change by October 18

# Guidance Document for the Implementation of Narrative Nutrient Standards

54 Pages

4.0 Data Collection for Watershed Monitoring in Medium Rivers and Wadeable Streams
4.1 Response Variable Data Collection Differs Across the State
4.1.1 Identifying which Response Variables and Thresholds Best Applies in a Mixed Ecoregion AMP Watershed
4.1.2 AMP Watersheds that Include a Lake or Reservoir
4.2 Nutrient Data Collection in an AMP Watershed
4.3 AMP Watershed Monitoring Plan Sample Collection: Adjustments to the Index Period
4.4 Locating the Different Types of Sites in an AMP Watershed Monitoring Plan
4.5 Monitoring Data: Western Ecoregional Zone
4.6 Monitoring Data: Eastern Ecoregional Zone
4.7 Identifying Response Variables for Waterbodies that are Atypical of the Ecoregional Zone
4.8 Data Collection for Watersheds with a New Point Source
5.0 Determining Compliance with Permit Limits for Medium Rivers and Wadeable Streams
5.1 Response Variables and Thresholds
5.2 Simple Method
5.3 Exact Binomial Test Method
5.4 Permittee-Proposed Method
6.0 Watershed Information Provided by Relative Changes Upstream and Downstream of a Point Source
7.0 Integration of the Adaptive management Program with the Total Maximum Daily Load Program
8.0 Watersheds Not Achieving the Narrative Nutrient Standards
9.0 Acknowledgements
10.0 References

# Comment Timeline

**October 18:** Draft Rule Package Provided to NWG for NWG Review and Comment

**October 27:** NWG Meeting to Review Draft Rule Package

**October 29:** Comments Due from NWG Members

**November 3:** NWG Meeting to Review Final Rule Package

## Comment Submittal

**Preferred Method:** Submit Comments in MS Teams  
(use track changes and save file with affiliation name)

**Secondary Method:** via Email: [CStaten@mt.gov](mailto:CStaten@mt.gov)



# Next Meetings



# Next Meeting

- Wednesday, October 27: 9 – 11 a.m.

## Topic:

- Review draft rulemaking package

- Wednesday, November 3: 9 – 11 a.m.

## Topic:

- Final rule package
- What's still being developed

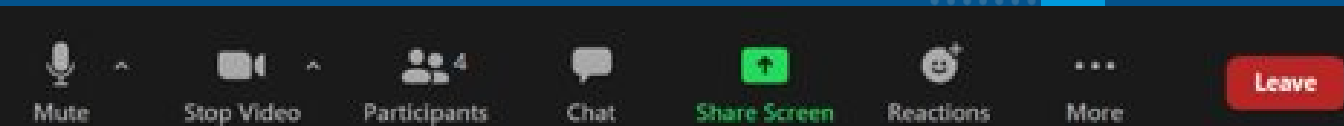
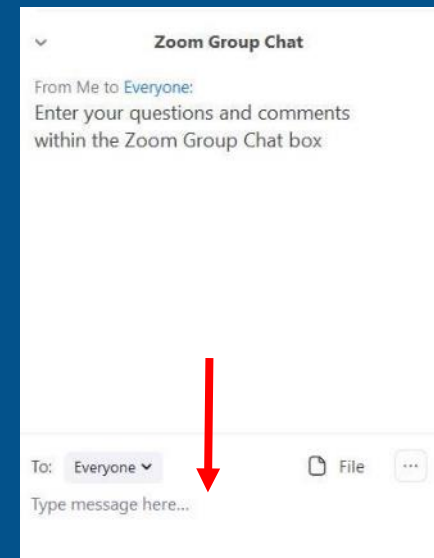
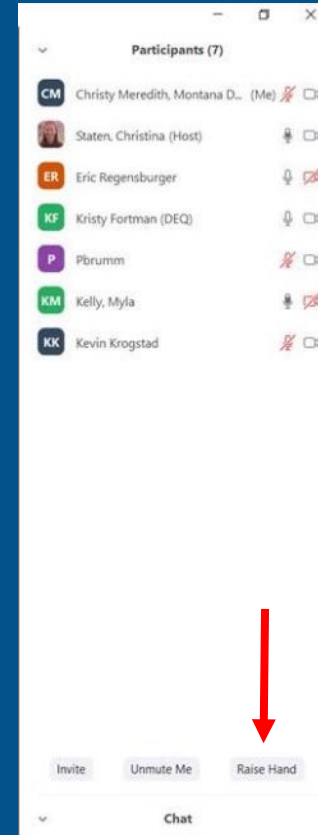
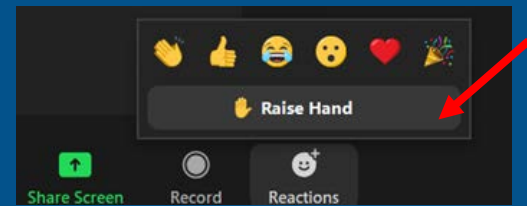




# Public Comment

# 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



# Public Input

## September 23 Listening Session Summary Themes:

- Strength/Protectiveness of Narrative Standards
- Groundwater Discharges
- Monitoring
- Draft Rule Package



# Thanks for Joining Us

Contact:  
Christina Staten  
[CStaten@mt.gov](mailto:CStaten@mt.gov)

To submit comments or questions



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

