

2018 NATIONAL TRAINING WORKSHOP FOR CWA 303(d) LISTING & TMDL STAFF

May 30 - June 1, 2018

Supporting Permitting

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TMDL Development and
WQT/AM/MDV
Statewide Coordinator

Total Maximum Daily Load(s)

Outcomes and Overview

- * Participants will better understand the characteristics of TMDLs that can aid permitting program staff in drafting permits.
- * Participants will be more familiar with innovations and needs in permitting and how TMDLs have supported them.
 1. Regulatory Underpinnings
 2. Expression of wasteload allocations and translation into permits during the TMDL development process.
 3. Compliance Strategies

Statewide Phosphorus Criteria



Rivers

100 µg/L



Streams¹

75 µg/L



Reservoirs

- Not Stratified = 40 µg/L
- Stratified = 30 µg/L



Inland Lakes²

Ranges from 15-30 µg/L



Great Lakes

- Lake Michigan = 7 µg/L
- Lake Superior = 5 µg/L

¹All unidirectional flowing waters not in NR 102.06(3)(a). Excludes Ephemeral Streams.

²Excludes wetlands and lakes less than 5 acres

Point Source Phosphorus Implementation

- * S. NR 217.13 Calculation of water quality based effluent limitations for phosphorus.

$$\text{Limitation} = [(WQC) (Q_s + (1-f)Q_e) - (Q_s - fQ_e) (C_s)] / Q_e$$

Q_s = receiving water flow (7-day Q₂)

- Results in effluent limits equal to criterion for discharges to impaired waters
- Account for downstream impacts

Point Source Phosphorus Implementation

- s. NR 217.14 Expression of limits: Concentration effluent limitations calculated under s. [NR 217.13](#) shall be expressed as a monthly average in permits, except for concentrations of less than or equal to 0.3 mg/L for which limitations may be expressed as six-month averages.
- The schedule of compliance will lead to compliance with the water quality based effluent limitation as soon as possible with compliance schedules not to exceed 7 years; however, 9 years can be granted if filtration or similar treatment process is required.

Point Source TMDL Implementation

Wis. Stat. s. 283.31(3)(d)3. requires DNR to include effluent limits in permits to meet TMDL wasteload allocations. Implemented through s. NR 217.16

- * [NR 217.16\(2\)](#) If the phosphorus limitation based on an approved TMDL is less stringent than the water quality based effluent limitation calculated in s. [NR 217.13](#), the department may include the TMDL based limit in lieu of the limit calculated in s. [NR 217.13](#) if the limit calculated under s. [NR 217.13](#) has not yet taken effect.
- * [NR 217.16\(3\)](#) If a phosphorus water quality based limit calculated under s. [NR 217.13](#) has already taken effect in a permit, the department may replace the limit with a less stringent TMDL based limit, if allowed pursuant to antidegradation procedures in ch. [NR 207](#).
- * [NR 217.16\(4\)](#) If the phosphorus limitation based on an approved TMDL is more stringent than the water quality based effluent limitation calculated under s. [NR 217.13](#), the department shall include the more stringent TMDL based limitation in the WPDES permit.

Wisconsin River Basin

* 21 Counties and 85 cities and villages

* **Permitted Wastewater Facilities**

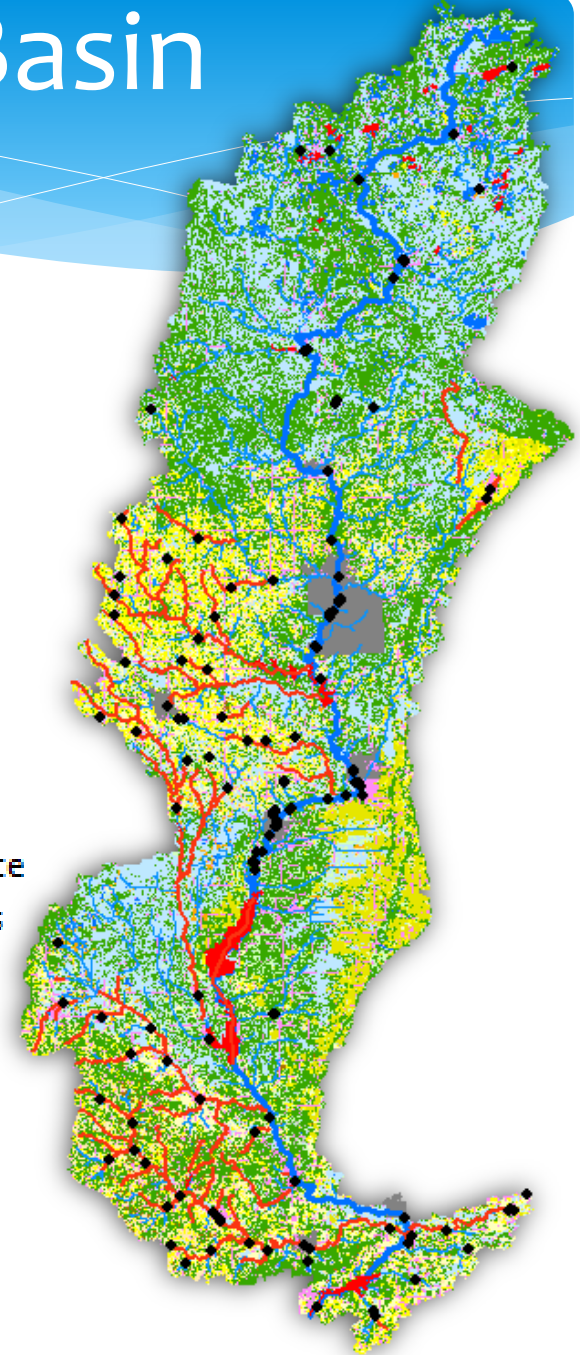
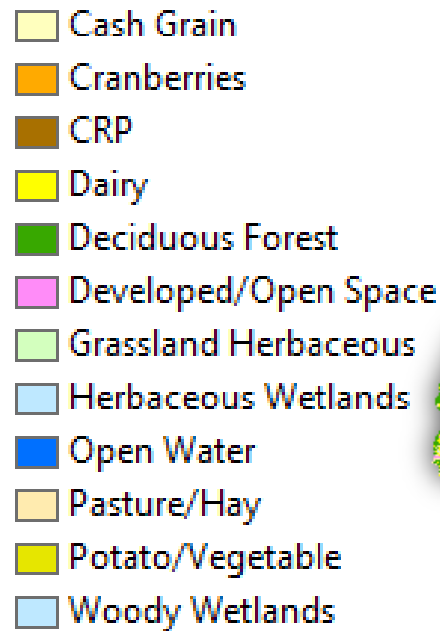
● 108 facilities

* **Permitted MS4s**

■ 14 municipalities

* **14 Citizen Groups**

Land Cover



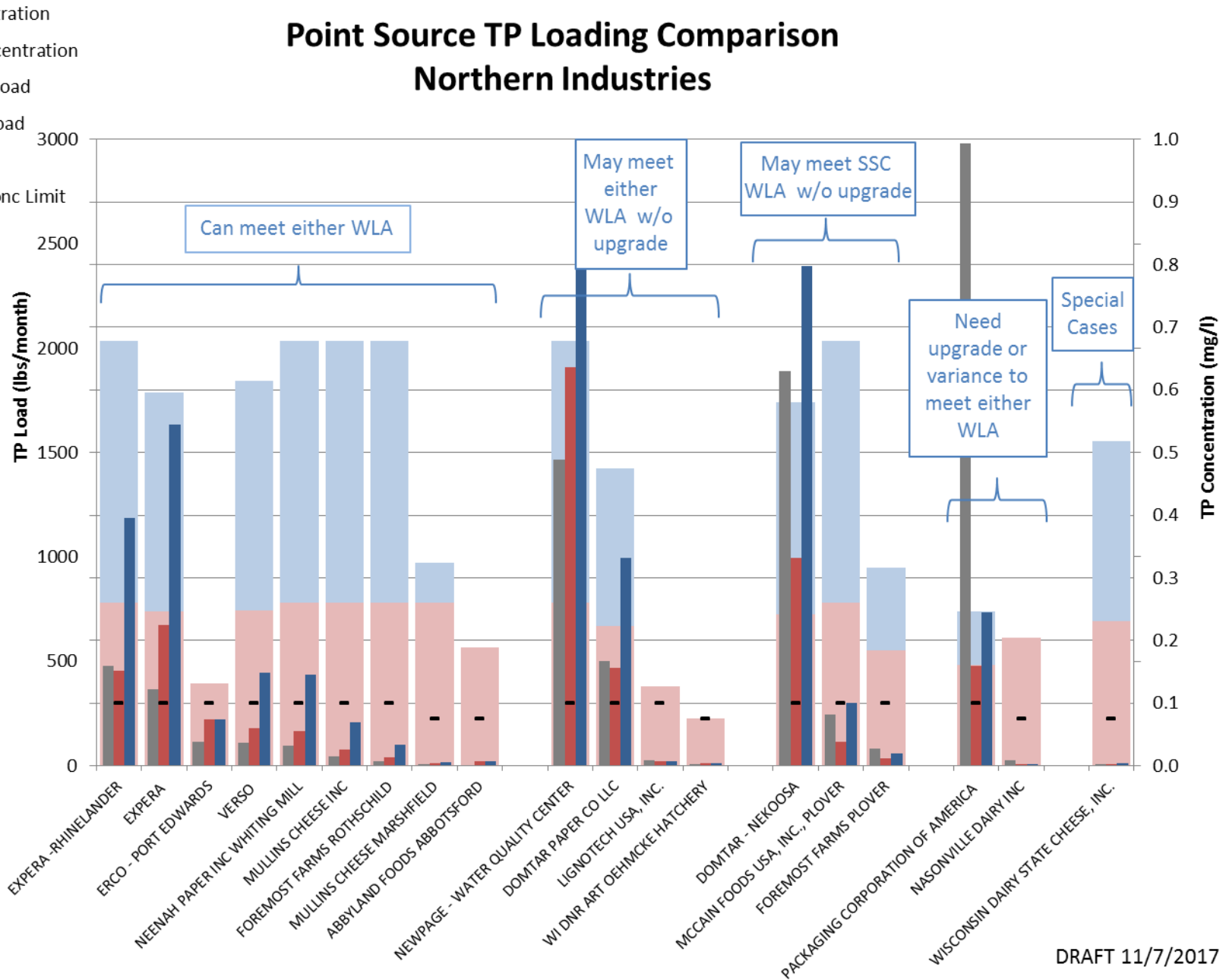
Facility Permit timelines

Facility Name	PERMIT	NO SSC (mg/L)	SSC (mg/L)	4th year plan due	Expire Date	NR 217.13 WQBEL	NR 217 Compliance Date	Comment
DOMTAR - NEKOOSA	0003620	0.2	0.36	12/31/2016	12/31/2017	0.21	01/01/2020	MDV Approved
MARATHON WATER & SEWER DPT WW TREATMNT PLANT	0020273	0.2	0.36	01/31/2016	12/31/2016	0.075	01/30/2021	Assumes full 9 years
AUBURNDALE WASTEWATER TREATMENT FACILITY	0022411	0.2	0.21	05/31/2016	03/31/2017	0.075	05/31/2021	MDV Approved
EDGAR WASTEWATER TREATMENT FACILITY	0021784	0.2	0.32	06/30/2016	06/30/2017	0.075	06/30/2021	Assumes full 9 years
RIB LAKE VILLAGE OF	0029017	0.2	0.36	09/30/2016	09/30/2017	0.075	09/30/2021	
DOMTAR PAPER CO LLC	0026042	0.2	0.36	09/30/2019	09/30/2020	0.1	02/01/2023	
BLENKER SHERRY SANITARY DISTRICT WWTF	0031950	0.2	0.36	09/30/2018	09/30/2019	0.075	10/01/2023	
EXPERA SPECIALTY SOLUTIONS, LLC	0003671	0.2	0.36	05/31/2020	05/31/2021	0.1	11/01/2023	
ANTIGO CITY OF	0022144	0.2	0.36	12/31/2018	12/31/2019	0.125	12/21/2023	
MILLADORE WASTEWATER TREATMENT FACILITY	0022381	0.2	0.33	12/31/2018	12/31/2019	0.075	01/01/2024	
NEKOOSA WASTEWATER TREATMENT FACILITY	0020613	0.2	0.36	08/31/2019	06/30/2020	0.1	09/01/2024	
PORT EDWARDS WASTEWATER TREATMENT FACILITY	0020451	0.2	0.36	09/30/2019	09/30/2020	0.1	09/30/2024	
JUNCTION CITY WASTEWATER TREATMENT FACILITY	0028070	0.2	0.36	09/30/2019	09/30/2020	0.075	10/01/2024	
MCCAIN FOODS USA, INC., PLOVER	0054518	0.2	0.36	04/30/2020	03/31/2021	0.1	04/30/2025	
WISCONSIN DAIRY STATE CHEESE, INC. BROKAW WASTEWATER TREATMENT FACILITY	0055751	0.2	0.36	03/31/2016	03/31/2017	0.075	04/30/2025	Assumes full 9 years
FOREMOST FARMS USA COOP ROTHSCHILD	0003875	0.2	0.36	07/01/2020	06/30/2021	0.1	07/01/2025	
		0.2	0.36	07/31/2021	06/30/2022	0.1	08/01/2026	

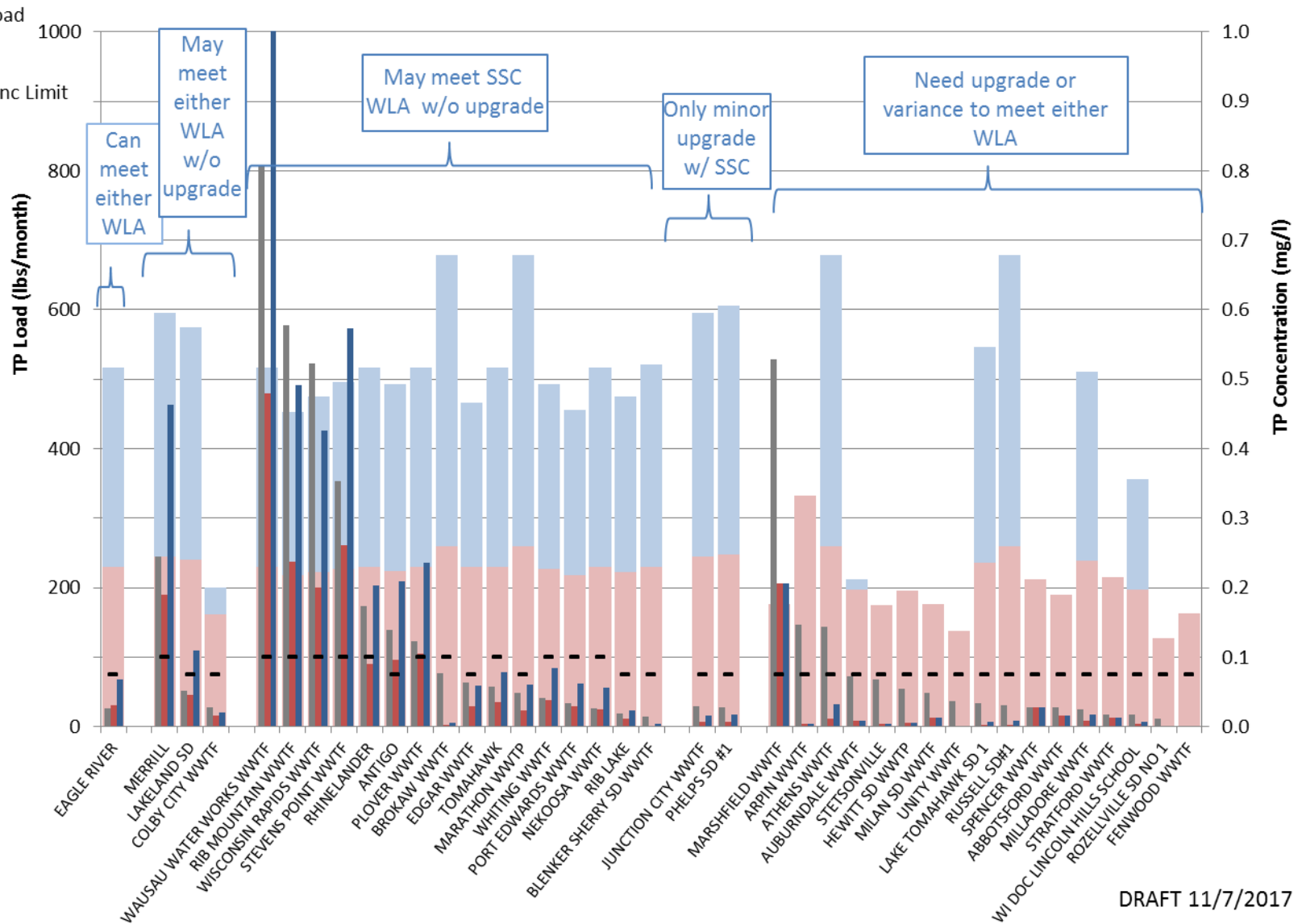
Potential Impacts to Facilities

- * CAN MEET – Current discharge is at or below WLAs
- * MAY MEET – Current discharge is close to WLAs and facility may be able to optimize
- * MINOR UPGRADE – Add chemical treatment system
- * MAJOR UPGRADE – Add tertiary treatment (filtration) system
- * SPECIAL CASES - Upgrade underway, no longer discharging to surface water, new discharge

Point Source TP Loading Comparison Northern Industries



Point Source TP Loading Comparison Northern Municipalities



Alternative Compliance Strategies

- * Water Quality Trading (WQT)
- * Adaptive Management (AM)
- * Multi-discharger Variance (MDV) Actually has three options.

<https://dnr.wi.gov/topic/surfacewater/phosphorus/>

Compliance Options:

- **Facility upgrades:** Facilities can choose to add treatment technology to their plant to comply with the new phosphorus limits. This is the traditional method used to comply with permit limits.
- **Water Quality Trading:** Water quality trading allows point sources to offset their pollution load, and comply with phosphorus limits, by taking credit of other phosphorus reductions within the watershed.
 - [More information on water quality trading](#)
- **Adaptive management:** Similar to water quality trading, adaptive management allows a point source to reduce other sources of phosphorus pollution within a watershed to achieve compliance with phosphorus requirements. Unlike water quality trading, however, adaptive management focuses on improving water quality, rather than simply offsetting a permit limit.
 - [More information on adaptive management](#)
- **Economic hardship variances:** In some cases, the available compliance options are simply too costly, and would result in an economic hardship for the community or industry. In these cases, the discharge can request an economic variance. Variances allow communities to take economically viable steps towards compliance. Forms are available to help streamline the variance request process.
 - [Industrial lagoon variance request \[PDF\]](#)
 - [Municipal lagoon variance request \[PDF\]](#)
 - [Industrial discharge variance request \[PDF\]](#)

Adaptive Management and Water Quality Trading

- * Voluntary compliance options for NPDES permit holders to comply with phosphorus requirements
- * Options will be used when it is economically preferable to control nonpoint sources or other point sources of P
- * Both require nonpoint and/or other point source reductions



Trading and Adaptive Management Process

Step 1

- Decide if Adaptive Management/Trading is right for the point source & their partners

Step 2

- Work with partners to develop the Adaptive Management/Trading plan

Step 3

- Submit Plan to WDNR
- Permit will be reissued/modified to include Adaptive Management/Trading requirements (requirements differ between AM and trading)

Step 4

- Comply with permit requirements and implement Adaptive Management/Trading plan (requirements and timing differ between AM and trading)

Comparison of WQT and AM

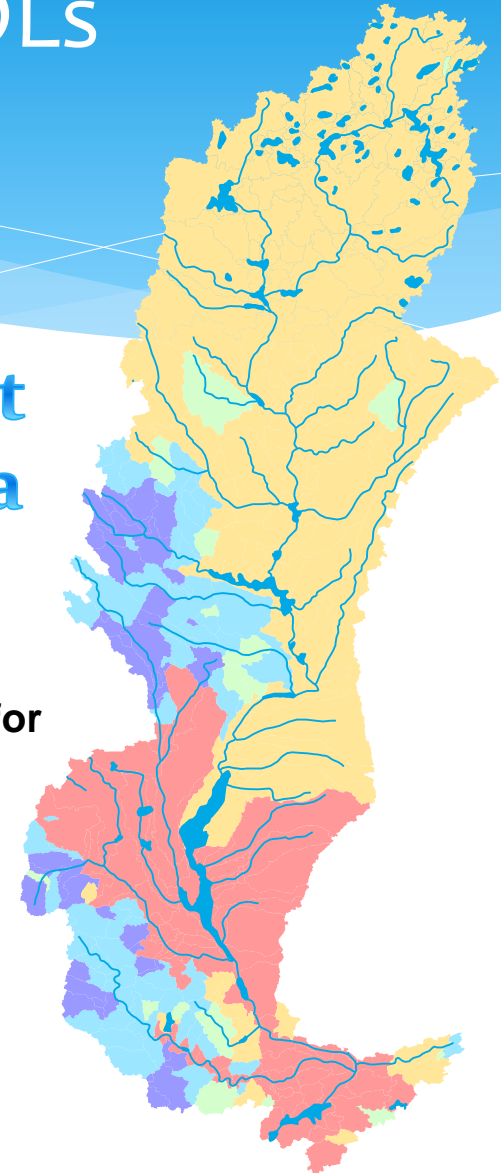
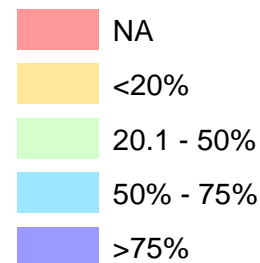
	Adaptive Management	Trading
Pollutants Covered	TP (and possibly TSS)	All pollutants except BCCs
End Goals	Attaining the water quality criteria	Offsetting the limit
Implementation Area	Watershed-focused	Upstream-focused
Offsets	No trade ratios	Trade ratios apply
Timing	Implemented throughout the permit term	Generating credits before they can be used
In-Stream Monitoring	Required	Not required
Level of Documentation Needed	General watershed information	Field-by-field documentation

WQT / AM and TMDLs

- * TMDL appendices provide information on reductions needed to meet local water vs. downstream quality.
- * In many locations, reductions are largely driven by downstream water quality \Rightarrow flexibility in where trading partners are located.
- * Load allocations expressed as edge of field numbers to aid in calculation of credits and help target fields for AM.

Current Criteria

% Reduction for Local Reach



WQT / AM and TMDLs

- * **WQT**

- * Point-to-point trading

- * Credit threshold: TMDL-based limit

- * Innovated implementation opportunities

- * watershed permitting

- * combined wasteload allocations

- * Point-to-nonpoint trading

- * Credit threshold for long-term credits: TMDL Load Allocation

- * 5-yr Interim Credit: Reduction from Existing Pollutant Load

- * **AM**

- * TMDL helps determine needed reductions and provides framework for AM watershed plan.

More Information

*Guidance for Implementing Water Quality Trading in WPDES Permits
A Water Quality Trading How To Manual*

<http://dnr.wi.gov/topic/SurfaceWater/WaterQualityTrading.html>
(topic keyword: “water quality trading”)

Adaptive Management Technical Handbook

<http://dnr.wi.gov/topic/SurfaceWater/AdaptiveManagement.html>
(topic keyword: “adaptive management”)

Numbers of Facilities So Far....

- * Water Quality Trading – 18 plans currently approved or being approved.
- * Adaptive Management – 10 plan currently approved or under review
- * Multi-discharger Variance – 43 applications approved and 3 more under review.

