

A Deep Dive Into Aspects Of A Flexible Permitting Program: Stakeholder Involvement

Association of Clean Water Administrators
2020 Nutrients Permitting Workshop

Online

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WISCONSIN
DEPARTMENT OF
NATURAL RESOURCES

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Three Statewide Coordinators

Andrew Craig

**Matt Claucherty
(Spoke on Monday)**

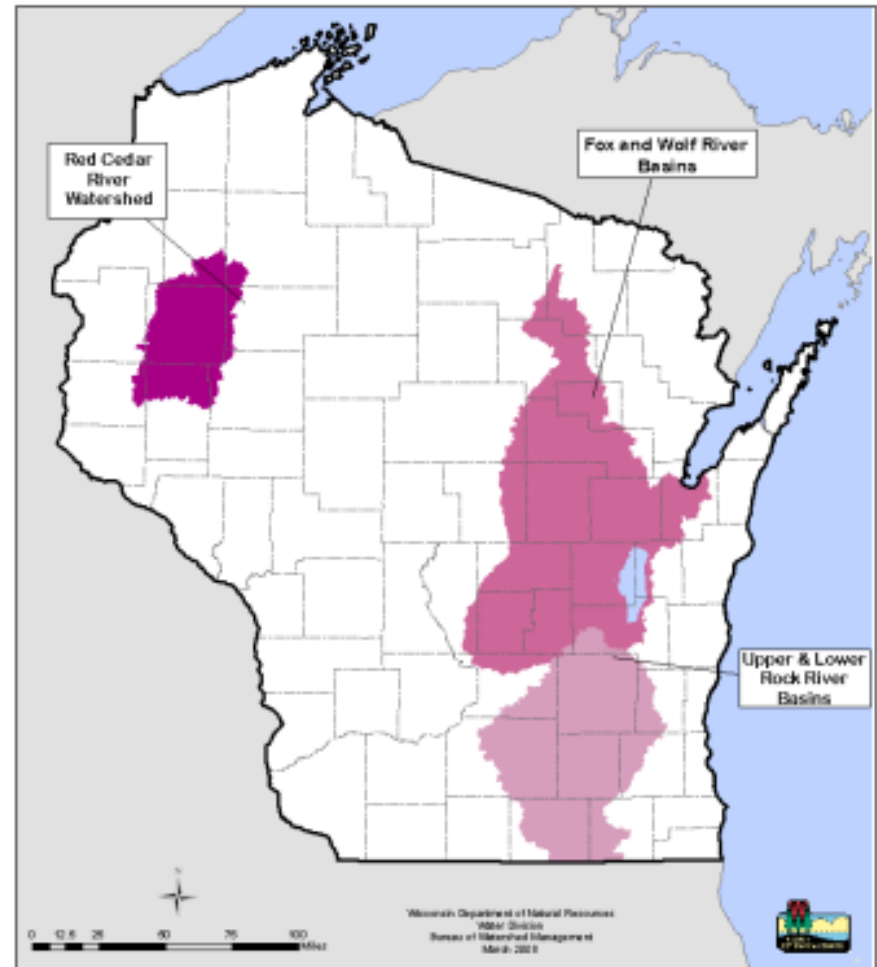
Kevin Kirsch

Started as a modeler and design engineer before becoming a policy person in the runoff program. Currently TMDL development coordinator.



Wisconsin's History with Trading

- In 1997, three water quality trading pilot areas were created by statute spurred by the adoption of a statewide 1 mg/L TBEL for TP.
- Stakeholder groups were formed in each study area to examine water quality trading as a compliance option.
- It proved more economical for facilities to conduct treatment upgrades. One trade between a small WWTF and some farms occurred in the Red Cedar Basin.
- Spurred the development of quantification methods and set groundwork for current trading program.





Wisconsin's History with Trading

- With adoption of numeric water quality criteria for total phosphorus in December 2010, wastewater treatment plants faced more stringent effluent limits and the idea of water quality trading was resurrected. We had an economic driver!
- In 2010, the Department was directed to assemble a group of stakeholders to develop a water quality trading framework. The main steering committee included representatives from point sources, agricultural groups, and environmental groups. We met monthly or bi-monthly for a year with opportunities for broader stakeholder input.

External Stakeholders:

- **Denny Caneff**, River Alliance of Wisconsin
- **Paul Kent**, Municipal Environmental Group
- **Betsy Lawton**, Midwest Environmental Advocates
- **Melissa Malott**, Clean Wisconsin
- **Kevin Schafer**, Milwaukee Metropolitan Sewerage District
- **Tom Sigmund**, Green Bay Metropolitan Sewerage District
- **Pat Sutter**, Dane County Land & Water Conservation Department
- **Dave Taylor**, Madison Metropolitan Sewerage District
- **John Umhoefer**, Wisconsin Cheese Makers Association
- **Paul Zimmerman**, Wisconsin Farm Bureau

DNR Participants:

- **Russell Rasmussen**, Water Division, Director
- **Susan Sylvester**, Bureau of Watershed Management, Deputy Director
- **Kevin Kirsch**, Bureau of Watershed Management
- **Mike Hammers**, Bureau of Watershed Management
- **Robin Nyffeler**, Bureau of Legal Services

Key Components of Framework

- When trading is allowed (TBELs vs WQBELs)
- Geographic extent of trades
- Definition of baseline
- **Calculation of trade ratios**
- Trade duration
- Pollutants covered
- Compliance and enforcement
- Trade Administration
- **Legal authority and statutory changes**
- Quantifying credits and addressing uncertainty





Trade Ratios

- Environmental groups wanted 20:1 trade ratios (20 lbs. of nonpoint reduction for every PS credit) and the regulated community wanted <1:1 ratio. A subgroup was formed to work on this, and a consensus could not be reached. Eventually the Department broke the trade ratio into its key components.

Trade Ratio = (Delivery + Downstream + Equivalency + Uncertainty):1

Minimum trade ratio set at 1.1:1 for PS-PS and 1.2:1 for NPS-PS

- Delivery calculated using USGS model SPARROW or outlined in TMDL.
- Downstream (credits generated downstream of credit user's point of standards application) based on ratio of point source to nonpoint source load. Allows limited downstream trading but requires greater off-set.
- Equivalency not used for total phosphorus

Trade Ratios

Uncertainty factor laid out in guidance capturing the relative differences between practices. If we totaled up all potential sources of error and uncertainty, the factors could get extremely high. Uncertainty factors range from 1 to 4.

Management Practice	Uncertainty Factor ¹	Applicable Technical Standard	Method for Calculating Pollutant Load Reductions	Notes						
<u>Nutrient Management and supporting practices:</u>	2 (3)	NRCS 590	SnapPlus or equivalent model results compared to baseline	An approved NMP is required with any of the listed supporting practices. All supporting practices receive the same uncertainty factor as the NMP.						
Tillage Options ⁵	2 (3)	NRCS 345		SnapPlus or equivalent model results compared to baseline	To receive an uncertainty factor of 2, a crop or livestock producer engaged in a trade agreement must have all fields under an approved NMP, not just fields engaged in the trade.					
Mulch Till					NRCS 329	SnapPlus or equivalent model results compared to baseline	An uncertainty factor of 2, instead of (3), may be used when documentation can be provided through historic cropping records or soil testing that nutrient levels are stable or dropping, an indication of adherence to the NMP.			
No Till	NRCS 393	SnapPlus or equivalent model results compared to baseline					An uncertainty factor of (3) is required if fields are not brought into compliance with ss. NR 151.02 and NR 151.04, Wis. Adm. Code.			
Riparian Filter Strip (edge of field)					See Notes		NRCS 412	SnapPlus or equivalent model results compared to baseline	An uncertainty factor of (3) is required if fields are managed without a NMP or with a NMP that does not meet the NRCS 590 standard. Current and historic field and farm information/cropping records must be described and captured within SnapPlus to allow DNR to verify phosphorus loss calculations are accurate and phosphorus loss is not shifted to other fields.	
Grassed Waterway	2 (3)								NRCS 340	SnapPlus or equivalent model results compared to baseline
Cover Crop					2 (3)		NRCS 340			
Other practices simulated in SnapPlus	2 (3)								NRCS 340	
<u>CAFO and Barnyard Production Area Practices</u>	2		NRCS 362		University of Wisconsin					

Methods to Calculate Load Reductions

- Built on efforts initiated in 1997 and we have found field-scale modeling, accounting for delivery, is a key to success.
- **DNR collaborates with the model developers to enhance the models for WQT calculations.** NRCS' impending switch to WEPP will create interesting issues. Credit amounts could change with different model upgrades.

SnapPlus

Wisconsin's Nutrient Management Software

- Soil Test P
- Nutrient Applications
- Crop Rotations
- Harvest Goals
- Field Properties (slope, soil types)

NRCS
Erosion Estimator

- Soil Total P
- Gully / Bank Dimensions
- Lateral Recession Rate
- Soil Texture / Bulk Density



APPLE - Lots

- Soil Test P
- Lot Area
- Annual Rainfall
- Cattle Type
- Cattle #
- Cleaning Schedule
- Vegetation



WinSLAMM
Current Release:



- Watershed Characteristics
- Device Type
- Device Design Factors
- Climate



Statute Updated: Section 283.84 Wis. Stats.

Actual language proposed by point source and environmental groups.
DNR provided informational testimony to the WI Legislature.

283.84 Trading of water pollution credits.

- (1) The department shall administer a program for the trading of water pollution credits that is consistent with the federal Water Pollution Control Act, 33 USC 1251 to 1387. Subject to sub. (1m), under the program the department may authorize a person required to obtain a permit to increase the discharge of pollutants above levels that would otherwise be authorized in the permit if the person does one of the following:
- (a) Reaches a binding, written agreement with another person who is required to obtain a permit under which the other person agrees to reduce the discharge of pollutants below the levels that would otherwise be authorized in the other person's permit.
 - (b) Reaches a binding, written agreement with another person who is not required to obtain a permit under which the other person agrees to reduce the amount of water pollution that it causes below the levels of water pollution that it causes when the agreement is reached.
 - (c) Reaches a binding, written agreement with the department or a local governmental unit, as defined in s. 16.97 (7), under which the person pays money to the department or local governmental unit and the department or local governmental unit uses the money to reduce water pollution or to provide cost-sharing, for the purposes of s. 281.16 (3) (e) or (4), for projects to reduce water pollution.
 - (d) Reaches a binding, written agreement with the department under which the person reduces the discharge of pollutants under another permit that the person holds below the levels that would otherwise be authorized in the other permit.
 - (e) Reaches a binding, written agreement with the department under which the person constructs a project or implements a plan that results in reducing the amount of water pollution from sources other than the source covered by the permit.

Agreement Structure

- (1m) Under the program, the department may authorize a person to increase a discharge of pollutants above levels that would otherwise be authorized in the permit only if all of the following apply:

(a) The agreement under sub. (1) results in an improvement in water quality.

Trade results in a water quality improvement

(b) The increase in pollutants and the reduction in pollutants provided for in the agreement under sub. (1) involve the same pollutant or the same water quality standard.

Pollutant

(d) The increase in pollutants and the reduction in pollutants occur within the same basin or portion of a basin, as determined by the department.

Same Basin

- (3m) A person engaged in mining, as defined in s. 293.01 (9) or 295.41 (26), prospecting, as defined in s. 293.01 (18), bulk sampling, as defined in s. 293.01 (2m) or 295.41 (7), or nonmetallic mining, as defined in s. 295.11 (3), may not enter into an agreement under sub. (1).

No mining, prospecting, bulk sampling

- (3r) The department shall include terms and conditions related to agreements under sub. (1) in new and reissued permits.

- (4) The department shall modify the permits of persons entering into agreements under sub. (1) to enable the agreements to be implemented and to include terms and conditions related to the agreements.

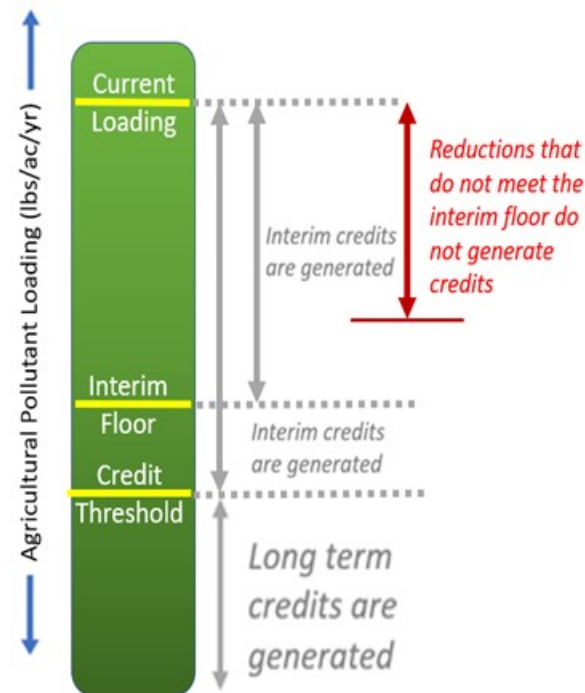
Permits must reflect trades

- (6) The department may promulgate rules for the administration of this section.

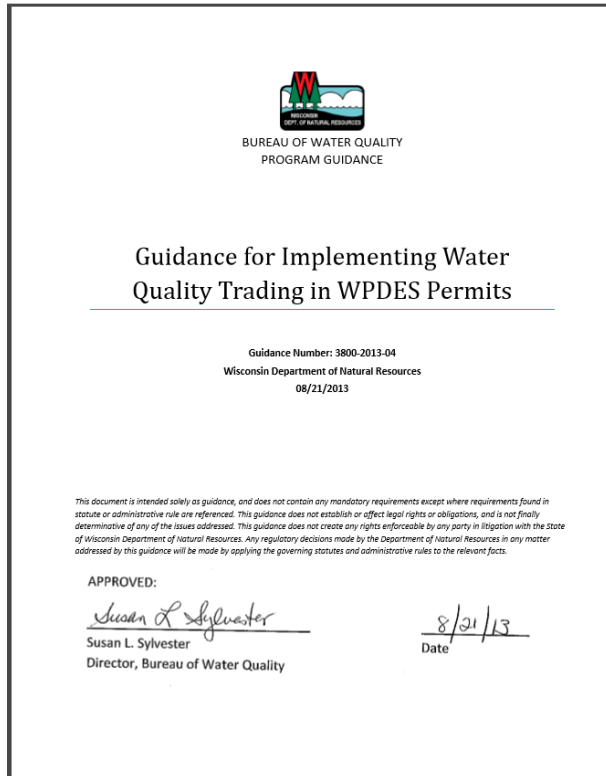
History: 1997 a. 27; 2001 a. 16; 2003 a. 33; 2011 a. 151; 2013 a. 1; 2017 a. 134.

Negotiated Flexibilities with EPA

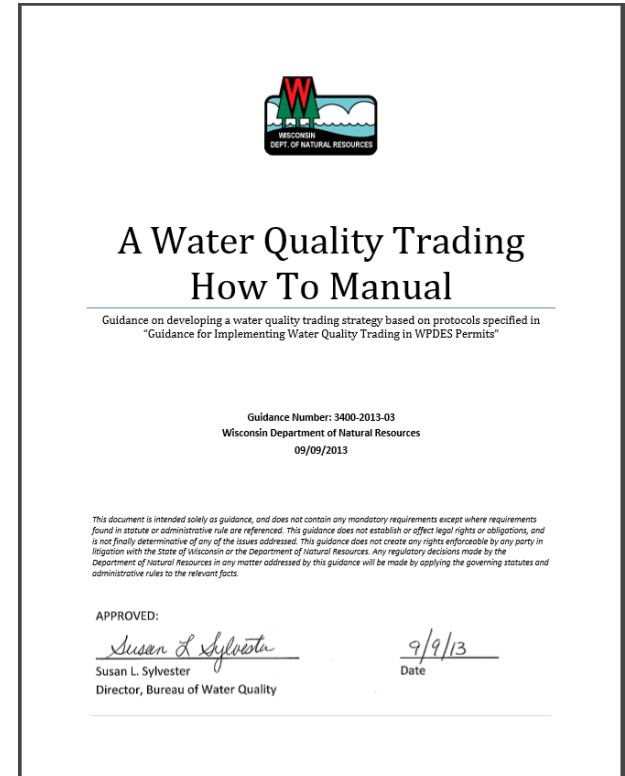
- Baseline could be set for each field instead of the entire watershed needing to meet a baseline level before nonpoint credits could be generated.
- Concerns with the baseline and credit threshold addressed through using interim credits for reductions above the credit threshold and long-term credits below the credit threshold.
- Nonpoint credits could be calculated on an average annual basis and be utilized over the year to offset daily or monthly point source requirements. EPA originally required daily or monthly but almost all NPS models utilize average annual time periods.
- Negotiated larger trading area with downstream trading allowed by using additional factors added to the trade ratio.



Guidance Documents Created



- The Department adopted two guidance documents in 2013.
- In WI, all guidance documents go through a formal stakeholder comment process.
- Department started tracking potential concerns as we implemented the trading program to inform potential future guidance updates.



Implementation (Late 2019)

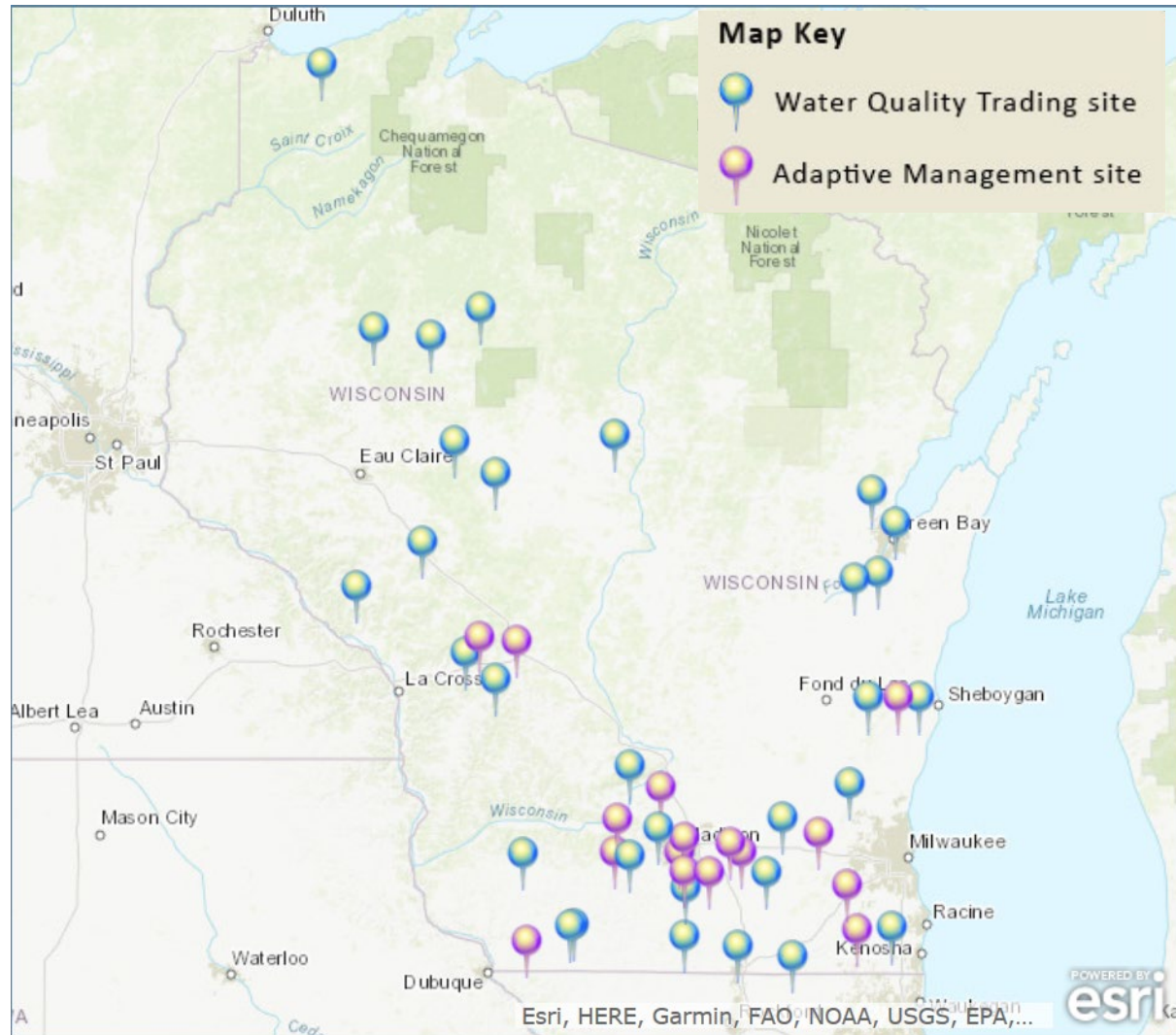
Water Quality Trading

- 44 facilities using trading
- Average Credit Need = 430 credits
- Average Project Size = 785 lb./yr.
- Average trade ratio = 1.8:1

Other Numbers by Facility:

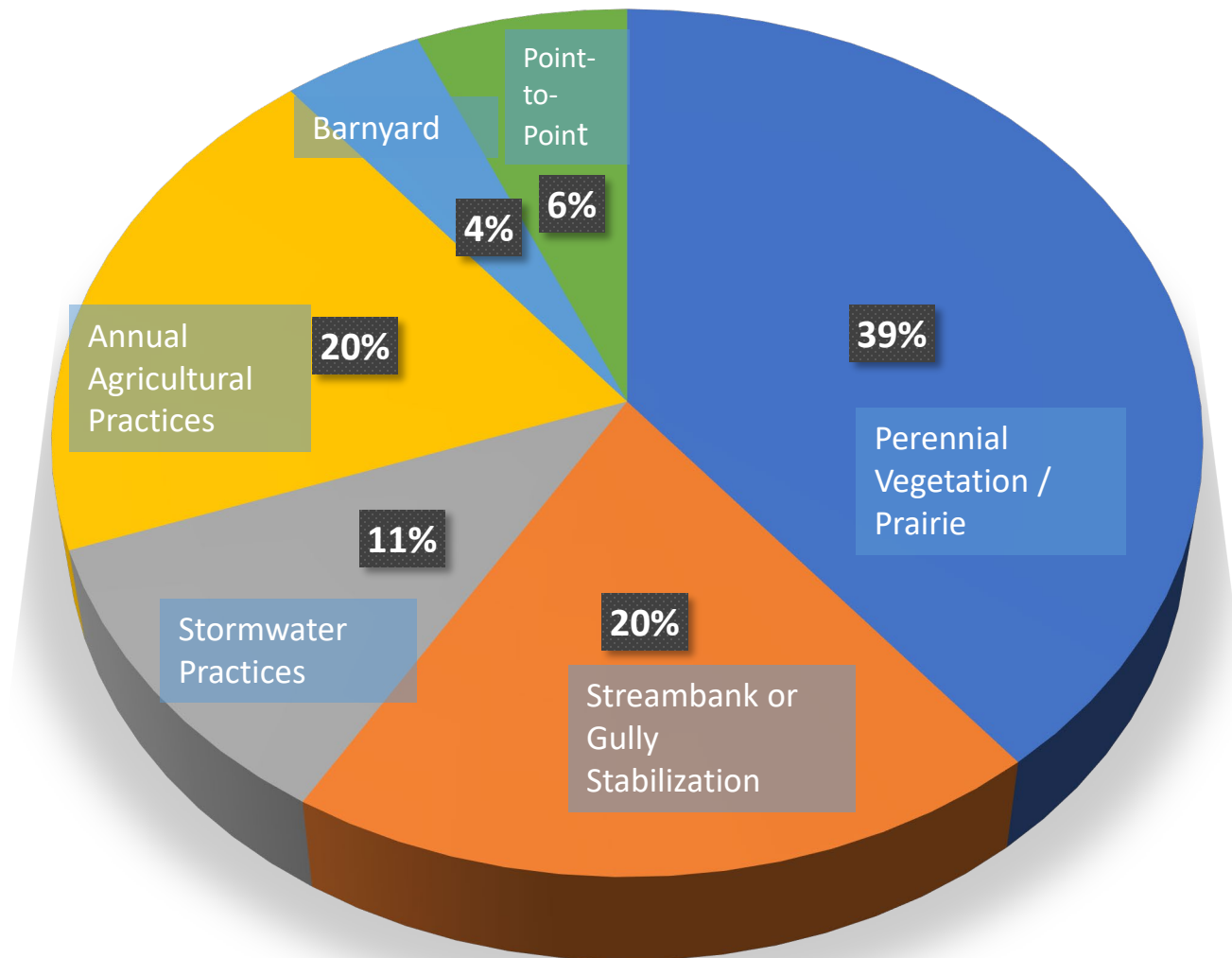
- 21 Adaptive Management
- 118 Multi-discharger variance
- 156 still in planning phase
- 42 individual variance
- 51 upgraded to meet limits
- 229 can meet current limits

Facilities in red, along with new or expanding dischargers, may still use WQT as a final compliance option. Permitted MS4s are also exploring WQT.



Compliance schedules and TMDL development schedules impact timing.

WQT Practices Statewide





2019 Guidance Update Process

- **A stakeholder group was assembled** to discuss these issues along with other potential concerns. The stakeholder group was comprised of consultants, dischargers and their representatives, agricultural groups, and environmental groups. We were able to draw from groups that had engaged in water quality trading or were considering it.
 - Site specific baseline
 - Credit threshold and interim floor (baseline)
 - Rotational averaging
 - Increase interim credit timeframe beyond 5-years
 - Eligible trading areas and geographic extent
- The guidance update process was initiated due to a Legislative mandate requiring the evaluation of all Department guidance documents.
- The process corresponded with the release of EPA's memo and draft policy guidance, which at times, dominated the conversations with stakeholders.



EPA Memo and Draft Policy Updates

- DNR's current framework was negotiated with EPA and already incorporates many of the concepts outlined in the EPA February memo and the September draft guidance.
- Some dischargers interpreted the EPA documents as they did not need to use trade ratios, trading could occur anywhere upstream, downstream or in adjacent watersheds, that credits could be banked, and existing or previously installed agricultural practices could be used to generate credits. In meetings, dischargers said that they had conversations with EPA confirming this to be all true.
- Environmental groups, and some dischargers, had a very different take.
- We went through the EPA documents step by step with stakeholders pointing out where Wisconsin's program already utilized the new proposed flexibility and how we thought that Wisconsin could incorporate some additional flexibilities into our framework while ensuring federal and state requirements were met.



EPA's Memo and Draft Guidance

(Wisconsin's Existing Program)

- Elimination of trade ratios
 - Wisconsin utilizes a trade ratio to add flexibility, encourage prioritization of effective management practices, and ensure that trades result in an improvement in water quality. WQ Trades must result in a water quality improvement - s. 283.84 (1m)(a), Wis. Stats.
- Water quality credits and off-sets maybe banked for future use.
 - Practices can be banked through the practice registration form but not credits. Nonpoint credits are good for one year.
- Working in a larger geographic area
 - Geographic extent of trades exist because a water quality trade is an offset of an end of pipe effluent limit; however, upstream and downstream trades allowed through the trade ratio. Also additional flexibility for downstream waters that serve as the point of standards application (POSA).

Example POSA

- For several TMDLs, we have downstream waters, typically lakes or reservoirs, with more stringent water quality criteria driving allocations.
- Tables in the TMDL identify how many credits must come from their local TMDL reach and how many can come from the drainage area of the downstream water.
- Each TMDL has an appendix with water quality trading and adaptive management¹ information.

1. As defined in NR 217

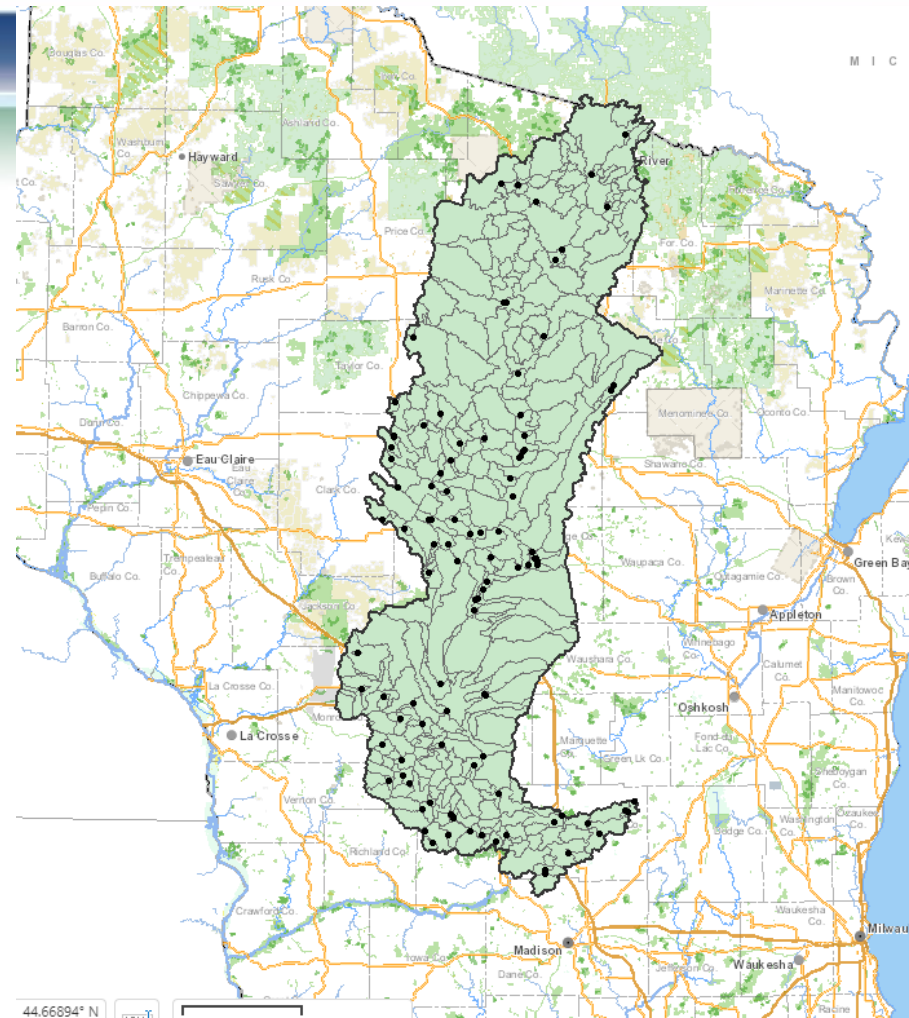


Table O-2. Allocations and Reach Phosphorus Targets by Permitted Point Source Based on Proposed Site-Specific Phosphorus Criteria.

Facility Name	Permit Number	TMDL Reach	TP Wasteload Allocation SSC (lbs./year)	Local Wasteload Allocation SSC (lbs./year)	Max Downstream Credits (lbs./year)	Downstream Reservoir	Adaptive Management Target (mg/L)
ABBOTSFORD WASTEWATER TREATMENT FACILITY	0023141	323	160	162	2	Big Eau Plaine	0.074
ABBYLAND FOODS INC ABBOTSFORD PLANT	0057436	323	198	201	3	Big Eau Plaine	0.074
ADAMS WASTEWATER TREATMENT FACILITY	0023159	202	486	1,328	842	Lake Wisconsin	0.021
ANTIGO CITY OF	0022144	216	1,874	4,121	2,247	Lake Wisconsin	0.036
ARPIN WASTEWATER TREATMENT FACILITY	0031267	314	42	42	0	-	0.075
ATHENS WASTEWATER TREATMENT FACILITY	0022365	215	209	304	95	Lake Wisconsin	0.045
AUBURNDALE WASTEWATER TREATMENT FACILITY	0022411	211	112	112	0	-	0.075



EPA's Memo and Draft Guidance

- EPA encourages simplicity and flexibility in implementing baseline concepts in TMDLs.

Note: EPA uses some key phrases in the memo and draft guidance:

- “comply with all applicable water quality standards”
- “be consistent with the assumptions and requirements of wasteload allocations in applicable EPA-approved TMDLs, consistent with 40 CFR 122.44(d)(1)(vii)”
- “provided there is a reasonable assurance that the overall load allocation will, over time, be met”
- “for facilities subject to permit conditions or other legal requirements, a program that uses current conditions as a baseline should require full compliance with legal requirements.”

Baseline Tables in Guidance

Renting Amazon server space allowed for hundreds of thousands of SnapPlus model runs to be generated.

Table 6. Wisconsin River Basin TMDL TP Summarized by TMDL Subbasin

WI River TMDL TP Parameters and Rounded Credit Threshold					Interim Floor Calculations		Feasibility Analysis
TMDL Subbasin	Baseline TP loss lb/ac/yr	TMDL % Reduction	TP Credit Threshold lb/ac/yr	Rounded TP Credit Threshold lb/ac/yr	Conservation Scenario 1 lb/ac/yr	Interim Floor lb/ac/yr	Conservation Scenario 2 lb/ac/yr
1	3.30	63%	1.19	1.50	0.99	NA	0.59
2	3.10	63%	1.14	1.50	0.80	NA	0.54
3	1.20	63%	0.45	0.50	0.37	NA	0.30
4	2.80	63%	1.02	1.00	0.96	NA	0.71
5	1.60	63%	0.58	0.50	0.72	0.72	0.50
6	3.10	63%	1.14	1.50	1.29	1.29	0.85
7	4.50	75%	1.10	1.50	1.32	1.32	0.81
8	1.90	63%	0.68	1.00	0.90	0.90	0.58

What is shown is an edge of field translation of the baseline condition and TMDL reductions from the watershed model. The credit threshold is rounded to account for the accuracy of SnapPlus, and feasibility scenarios represent standard agricultural practices that could be employed with results compared to the load allocation/credit threshold.



EPA's Memo and Draft Guidance

(Wisconsin's Existing Program)

- “would allow for individual nonpoint sources to generate pollutant reduction credits for any pollutant reduction above existing practices, provided there is reasonable assurance that the overall load allocation will, over time, be met.”
 - This concept is already captured through Wisconsin's use of interim credits. The concept of interim credits was not permitted under the 2003 Policy and was negotiated. Interim credits move us toward final compliance with the TMDL allocations.
 - Draft EPA guidance provided more flexibility on location of interim credits and duration of interim credits. Interim credits expanded from 5 to 10-year timeframes balancing concerns from stakeholders.

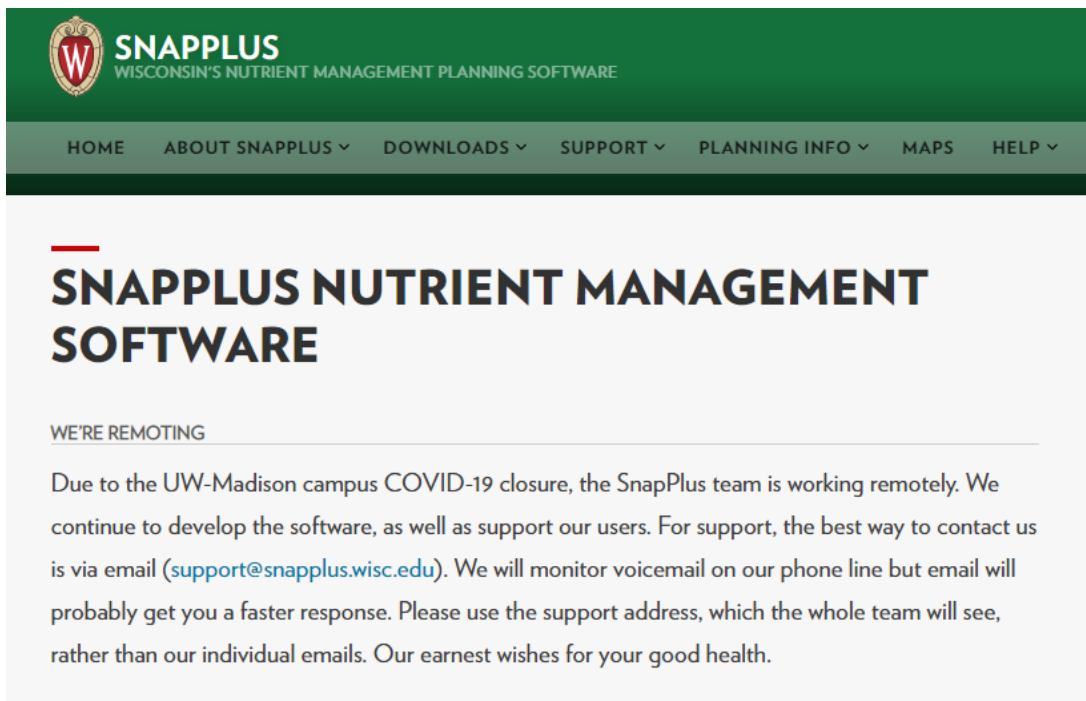
Additional Flexibilities: Site-specific Baseline

- Apply TMDL % reduction to current conditions to arrive at credit threshold
- Used for sources not explicitly quantified in TMDL
 - Streambank/gully Erosion
 - Unique sources of pollution
- Agricultural fields not addressed by Snap Plus edge-of-field number



Additional Flexibilities: Rounding

- Propose rounding edge of field reduction targets up to nearest half pound interval consistent with application of SnapPlus.
- Reasons:
 - SnapPlus annual edge of field P loss estimates based upon multiple runoff factors
 - Less confident with SnapPlus results at or below 1 lb/acre
 - Accuracy range of RUSLE2



The screenshot shows the SnapPlus website. The header is green with the SnapPlus logo (a red 'W' in a gold circle) and the text 'SNAPPLUS WISCONSIN'S NUTRIENT MANAGEMENT PLANNING SOFTWARE'. Below the header is a dark green navigation bar with links: HOME, ABOUT SNAPPLUS, DOWNLOADS, SUPPORT, PLANNING INFO, MAPS, and HELP. The main content area is white and features a red horizontal line above the heading 'SNAPPLUS NUTRIENT MANAGEMENT SOFTWARE'. Below the heading is a section titled 'WE'RE REMOTING' with a horizontal line underneath. The text in this section reads: 'Due to the UW-Madison campus COVID-19 closure, the SnapPlus team is working remotely. We continue to develop the software, as well as support our users. For support, the best way to contact us is via email (support@snapplus.wisc.edu). We will monitor voicemail on our phone line but email will probably get you a faster response. Please use the support address, which the whole team will see, rather than our individual emails. Our earnest wishes for your good health.'



Additional Flexibilities: Rotational Averaging

- Propose moving from annual based to a rotational average reduction method for calculating credits
- Averaging period reflects 5-year permit term; 6-year maximum length
- Reasons:
 - TMDL credit thresholds are based upon rotational averages
 - More certainty/flexibility to generate credits during 5-year permit term
 - The models were really intended to predict the rotation averages
 - Accounting year by year becomes problematic

Dairy Rotation - Cs-Cs-As-A-A-A; tillage on Cs and As years

New WQT Practice: No tillage on Cs and As years

	2018	2019	2020	2021	2022	2023	Average
Current P loss - lb/ac	4	5	2	0.5	0.5	0.5	2.1
Future P loss - lb/ac	1	1	1	0.5	0.5	0.5	0.8
Reduction - lb/ac	3	4	1	0	0	0	1.3



Addressed Stakeholder Concerns

- Trading policy is too complex
 - Balancing between a flexible program and complexity.
- Trade ratios are too high
 - Projects to date have averaged 1.8:1.
 - Trades involving nonpoint can be as low as 1.2:1. Most reliable nonpoint practices have an uncertainty ratio of 1:1.
 - Trade ratios provide the flexibility and consistency in the program while ensuring water quality requirements are met.
- Credit Threshold too restrictive
 - We have interim credits good for 10 years and through rotational averaging have made the credit threshold easier to reach – and more accurately depicted.

Updated Guidance

- Stakeholder input used to draft updated guidance. After an additional 21-day comment period, it was adopted in June 2020.
- Built on existing guidance and framework.
- Addresses and balances stakeholder concerns.
- Builds on new EPA flexibilities within the required legal frameworks.
- Involved extensive stakeholder input.



Guidance for Implementing Water Quality Trading in WPDES Permits

Guidance Number: 3200-3400-3800-2020-03
Wisconsin Department of Natural Resources
6/1/2020
Edition: 2

This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

APPROVED:
Adrian Stocks

Adrian Stocks
Director, Bureau of Water Quality
Wisconsin Department of Natural Resources

6/18/2020



New Effort: The Creation of a Central Clearinghouse

- In response to the emphasis on market-based compliance options, the WI Legislature passed Act 151 during the 2020 legislative session creating an additional approach for buying and selling water quality pollution credits through a yet to-be-established central clearinghouse.
- The law requires the Dept. of Administration (DOA) to partner with DNR to solicit a third party to operate a single statewide clearinghouse. The solicitation process involves the following steps:
 1. Request for Information – **completed**
 2. Request for Proposals (draft notice period)
 3. Request for Proposals (final).
 4. Evaluation of Proposals and Selection Process.
 5. DOA enters into a contract with the clearinghouse pursuant to s. 16.9685, Wis. Stats.
- Matt and I are learning a lot about Wisconsin's procurement process. We have mapped the key components and requirements of a clearinghouse.



Summer Sunset July 2020: Madison, Wisconsin



Questions

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