Session 4: Approaches to Nutrients Permitting Through Improved Technology Requirements, System Optimization, and Permitting Variances

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Statewide Phosphorus Standards

Rivers

100 µg/L

Streams

75 µg/L

Reservoirs

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

Inland Lakes

Ranges from 15-30 µg/L

Great Lakes

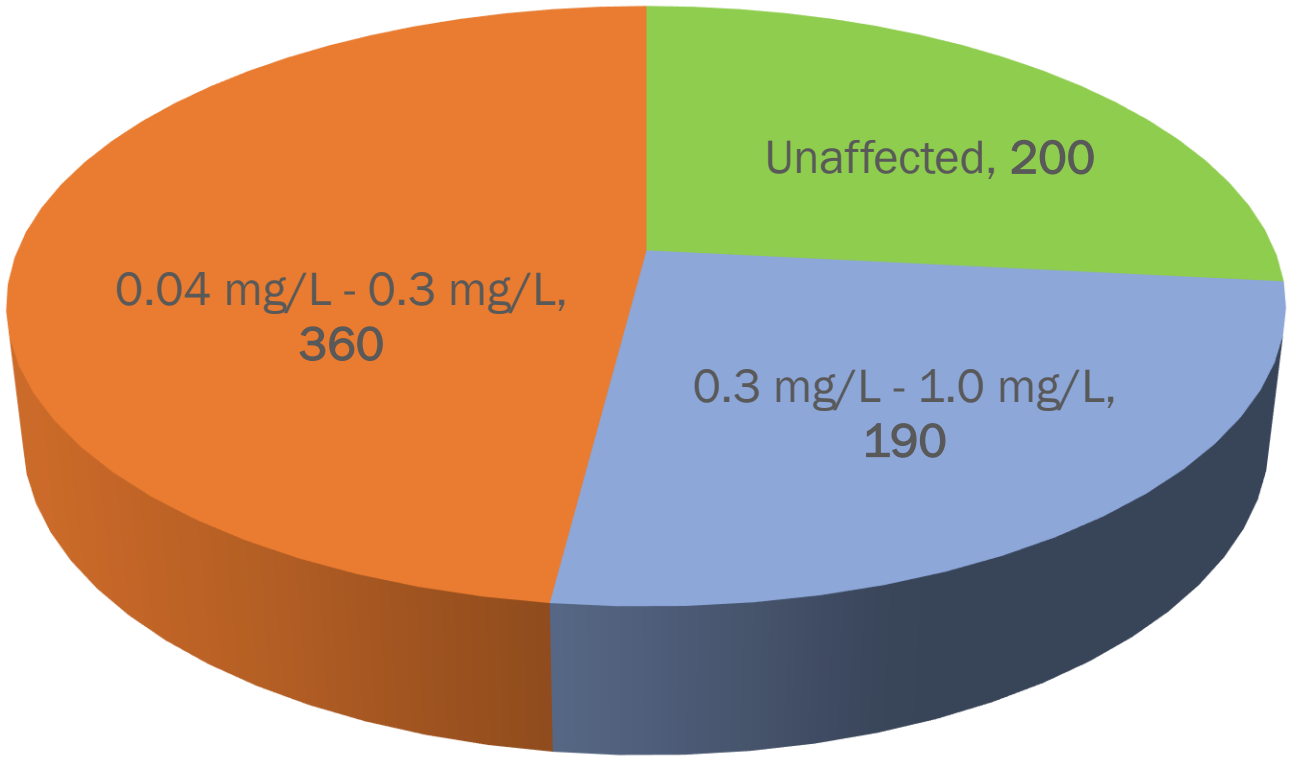
- Lake Michigan = 7 µg/L
- Lake Superior = 5 µg/L

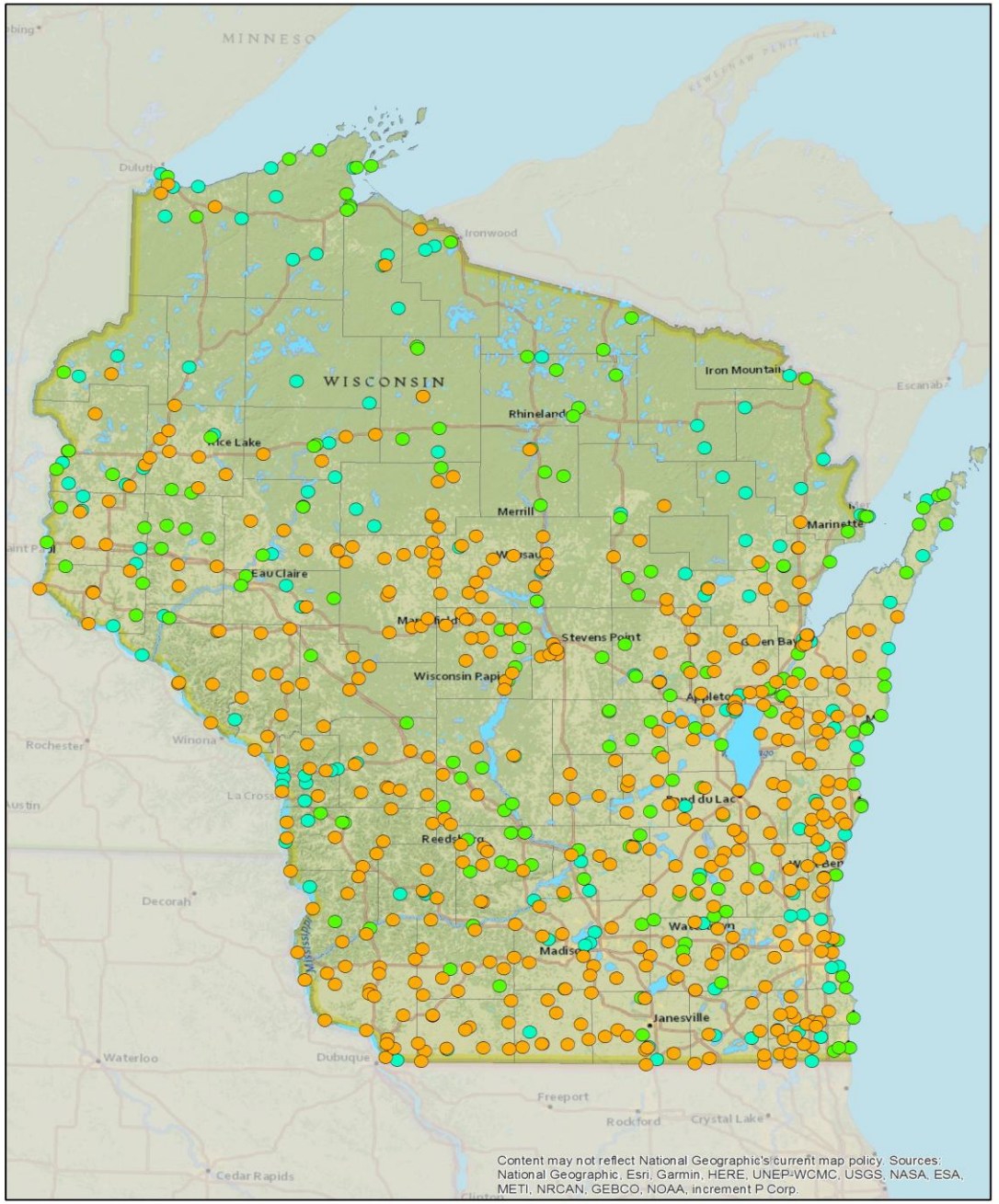
- Growing Season Median Value (rivers & streams)
- Summer Average Value (lakes & reservoirs)

Water Quality Based Effluent Limits: Total Phosphorus

Permitted Facilities:

- 750 surface water dischargers

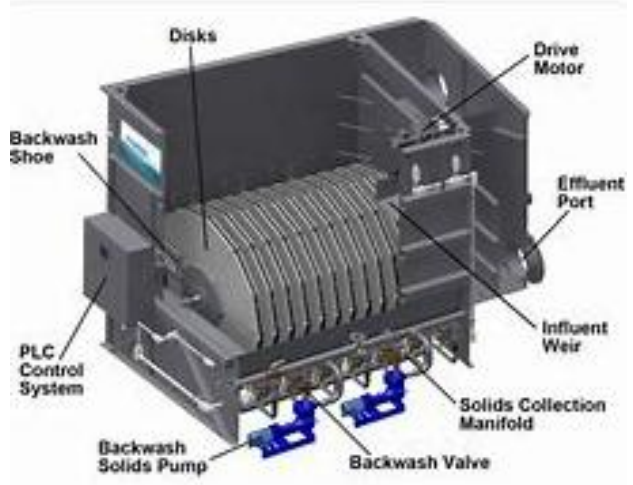




Treatment Technology

- Tertiary Filtration is typically required to achieve low phosphorus limits (below 0.2 – 0.4 mg/L, depending on facility type)

- Biological and chemical treatment may achieve mid-range phosphorus limits



2015 Economic Impact Analysis

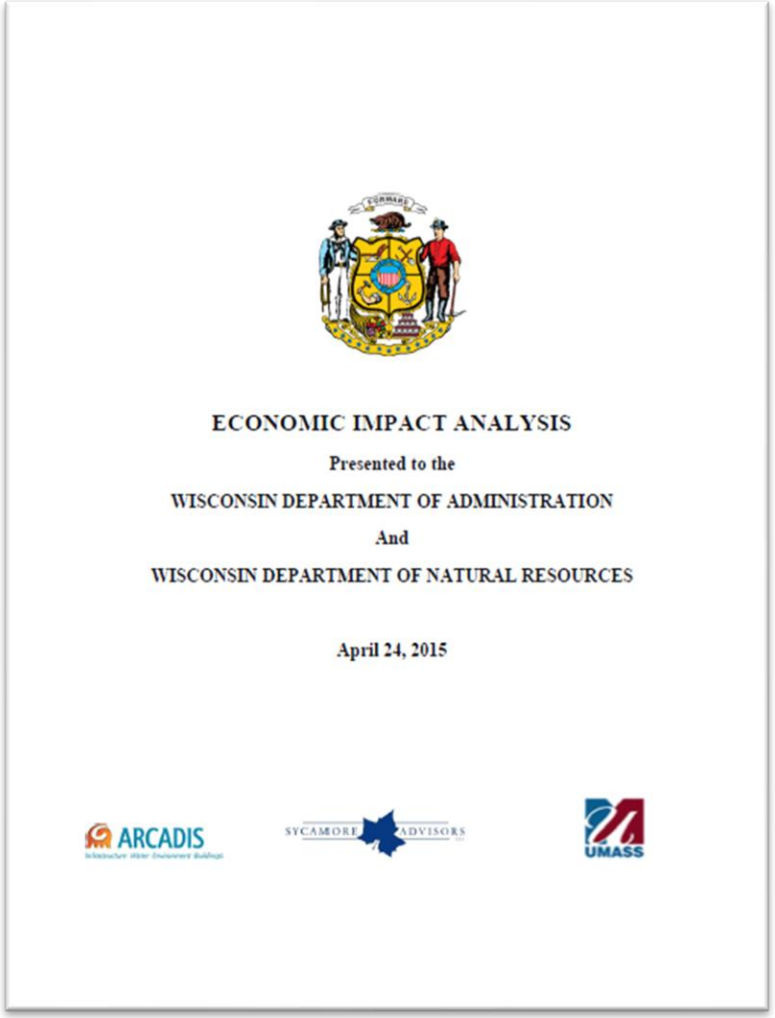
- Capital costs for additional treatment technology ($7B)
- Increased facility operational costs ($405 M annually)
- Broader impacts to Wisconsin's economy

- Immediate implementation would:
  - Double or triple sewer rates for many communities
  - Force many industries to close, relocate, or scale back

Table 3-2: Statewide Economic Impacts, 2017 and 2025

Economic Impacts	2017	2025
Total Employment (Jobs)	-1,608	-4,517
Gross State Product (Millions of Fixed 2014 Dollars)	-$177.3	-$616.6
Total Wages (Millions of Fixed 2014 Dollars)	-$68.3	-$238.3
Population (Individuals)	-2,036	-10,964

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.


ECONOMIC IMPACT ANALYSIS

Presented to the

WISCONSIN DEPARTMENT OF ADMINISTRATION

And

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

April 24, 2015

ARCADIS

SYCAMORE ADVISORS

UMASS

Initial Roll-out With Regulatory Flexibilities

To make phosphorus regulations manageable for dischargers, Wisconsin has developed phosphorus compliance and variance options:

- Extended compliance schedules (s. NR 217.17, Wis. Adm. Code)
  - Up to 9 years to optimize, plan, and implement a solution
- Water Quality Trading (s. 283.84, Wis. Stats.)
  - Pound-for-pound pollutant offset
- Adaptive Management (s. NR 217.18, Wis. Adm. Code)
  - Effort to achieve the criterion in the discharger's receiving water
- Multi-discharger Variance (s. 283.16, Wis. Stats)
  - Mandatory watershed phosphorus offset (self-directed or via County LCD)
- Individual Variance (s. 283.15, Wis. Stats)
  - More flexibility for the most economically disadvantaged communities

Memorable Quote #1

“I don’t know what you expect to get besides conflict with limits that low.”

-Grant Weaver

Answer to Grant:

Variances is what you get.

A lot of variances.

- Multi-discharger Variance:
  - ~170 facilities
- Individual Phosphorus Variance:
  - ~40 facilities

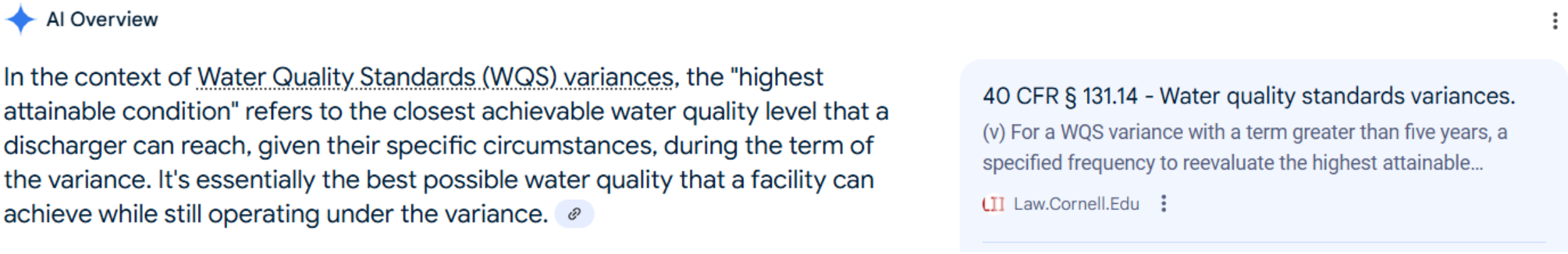
Memorable Quote #2

"What is the point of adopting a standard if you give everyone a variance from the standard?"

-Frustrated Skeptic

Answer to Frustrated Skeptic:

Do not underestimate the power of highest attainable condition.



MDV's "Two-pronged" Approach :

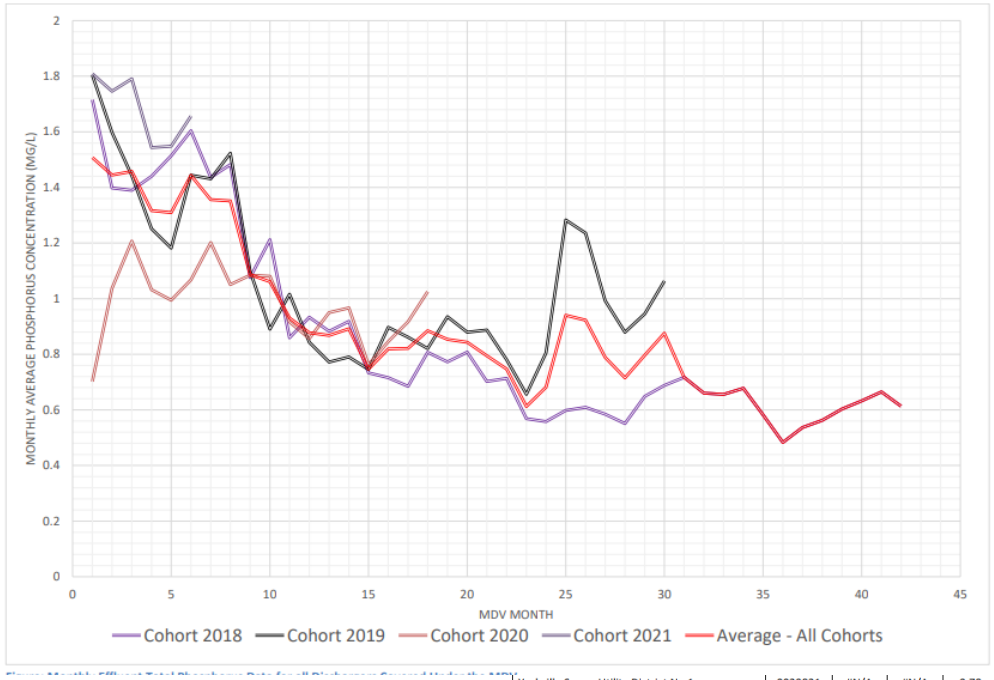
Phosphorus Effluent Reductions

- Mandated by statute and permit
- Ongoing optimization required
- Driven by economic incentive to reduce nonpoint source offset requirement

Nonpoint Source Reductions

- Mandated by statute and permit
- Self-directed, Third-party, and County Payment Options
- County Payment Option
  - Dischargers pay $50/lb for phosphorus discharged
  - Relies on pre-established nonpoint source implementation framework (counties)
  - NR 151 Ag Performance Standards
  - Counties are required to prioritize when planning and quantify reductions achieved

MDV Implementation 2017 - 2025

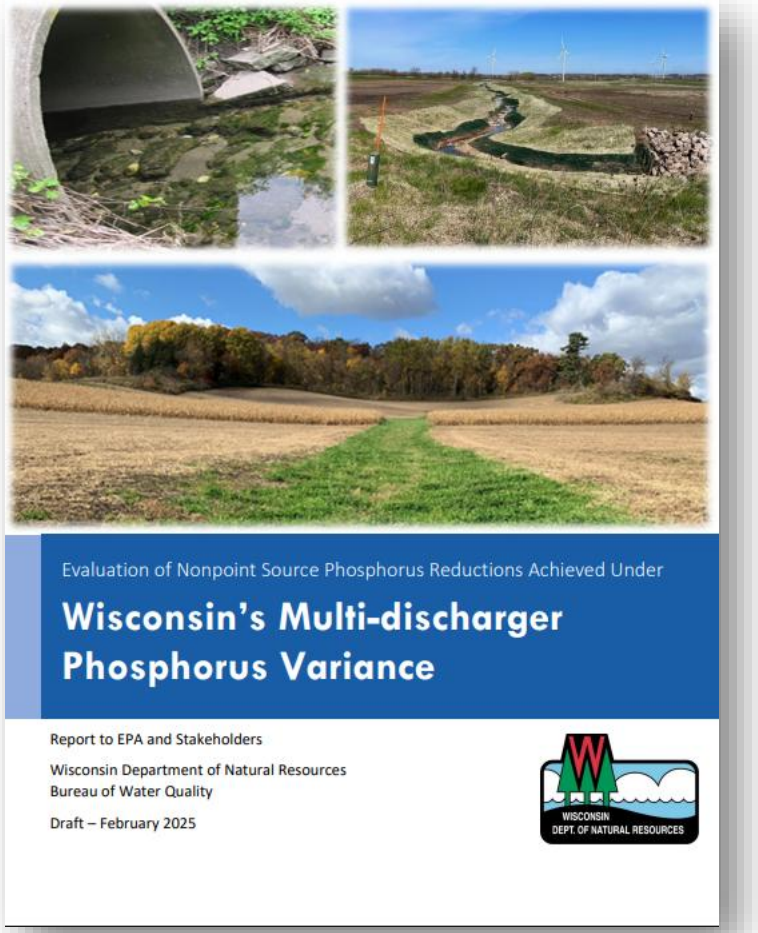


					2020	2021[3]
Yorkville Sewer Utility District No 1	0029831	#N/A	#N/A	0.78	0.58	1.5
Stoddard Wastewater Treatment Facility	0028304	#N/A	0.77	0.73	0.37	0.39
Union Center Wastewater Treatment Facility	0025640	#N/A	0.09	0.07	0.25	0.2
Lakeland Sanitary District # 1	0061387	#N/A	1.03	1.12	0.84	1.17
Village of Union Grove	0028291	#N/A	#N/A	#N/A	1.97	0.23
Fountain City WWTF	0024040	#N/A	1.15	0.9	0.51	0.55
Vesper Wastewater Treatment Facility	0030309	#N/A	0.99	#N/A	0.98	0.77
Owen Wastewater Treatment Facility	0020940	#N/A	0.50	0.74	0.37	0.43
Mondovi Wastewater Treatment Facility	0020591	#N/A	0.61	0.49	0.44	0.61
Galesville Wastewater Treatment Plant	0021725	#N/A	3.67	2.76	2.19	0.79
Viola Wastewater Treatment Facility	0021148	#N/A	3.54	1.18	0.76	1.37
Fennimore Wastewater Treatment Facility	0023981	#N/A	#N/A	0.9	0.3	0.55
Grande Cheese Company - Juda	0063207	#N/A	0.91	0.71	0.6	0.75

- Point sources are required to have phosphorus treatment
  - Many small facilities adopt chemical phosphorus removal
- 2022 Evaluation shows early progress much more quickly than statutory timeline
- 2024 median monthly result 0.42 mg/L

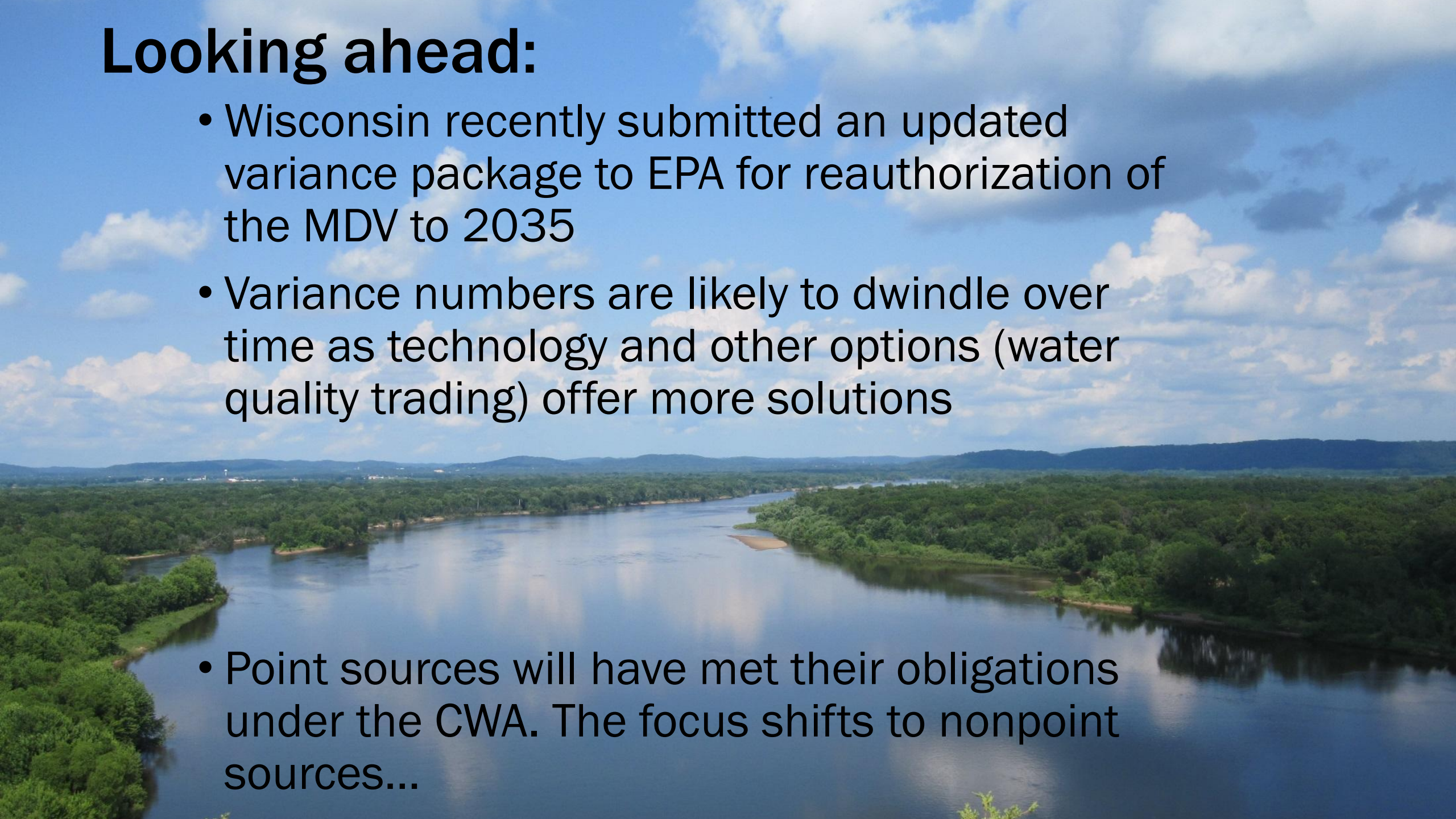
MDV Implementation 2017 - 2025

- Over $7 million for agricultural nonpoint reductions
- Over 800 BMPs (i.e., nutrient mgmt., gully stabilization, cover crops, no-till)
- Results outlined in nonpoint source evaluation document
  - Field-scale modeling shows counties achieve ~20,000 lb/year P reduction
- Compare to point source phosphorus discharged above WQBELs at ~25,000 lb/year



Looking ahead:

- Wisconsin recently submitted an updated variance package to EPA for reauthorization of the MDV to 2035
- Variance numbers are likely to dwindle over time as technology and other options (water quality trading) offer more solutions



- Point sources will have met their obligations under the CWA. The focus shifts to nonpoint sources…

CONNECT WITH US

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"WILD WISCONSIN:
OFF THE RECORD"