Allocation Process & Draft Results

Northeast Lakeshore TMDL

December 16, 2021

WISCONSIN
DEPT. OF NATURAL RESOURCES

Today’s Format

- Introductions
- Presentation covering the allocation process and draft allocation results
- Panel to address questions

- Both the recorded presentation and slides will be available on the DNR website.

https://dnr.wi.gov/topic/TMDLs/NELakeshore.html

or just search “NE Lakeshore TMDL”

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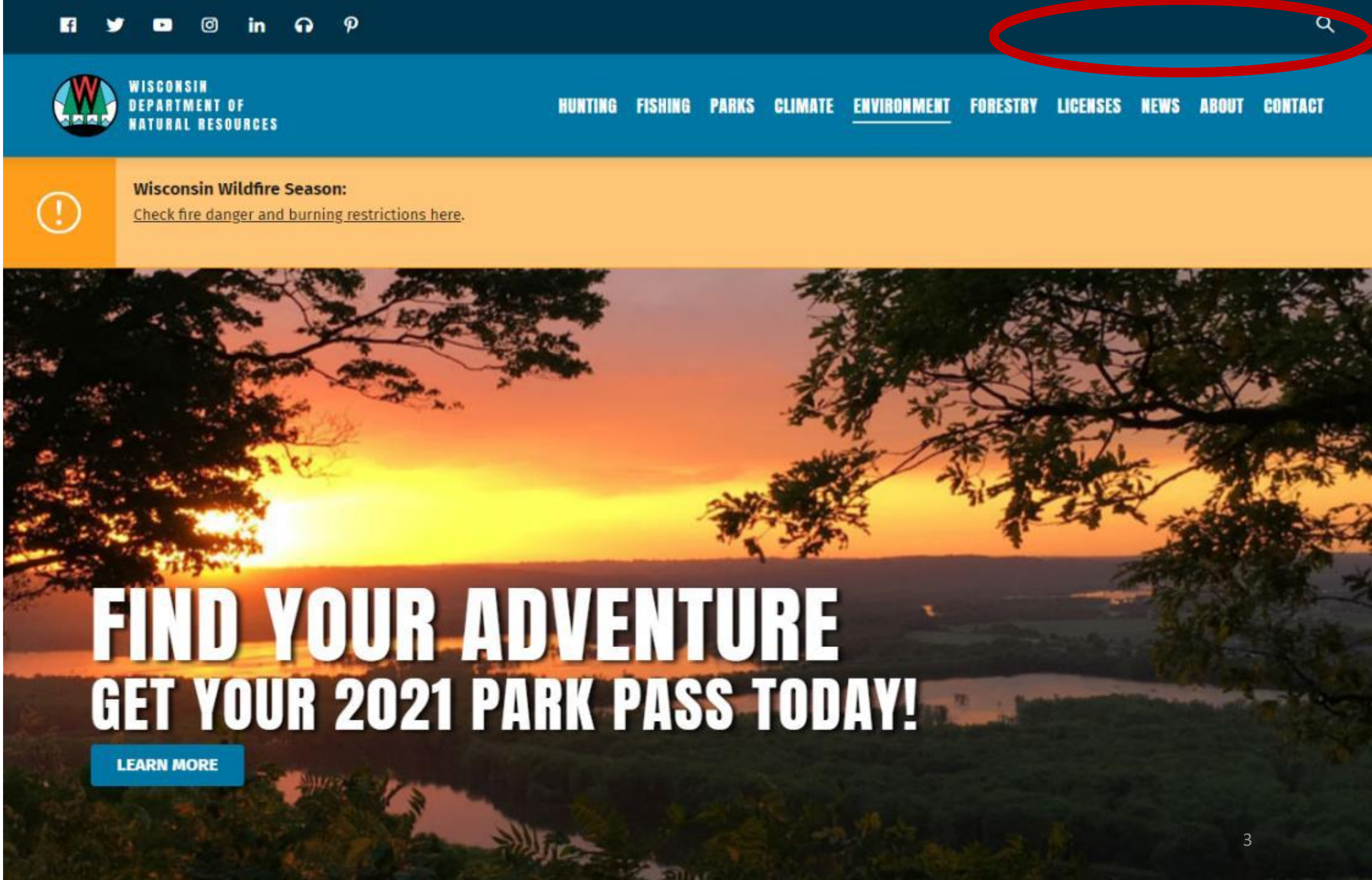
Subscribe to receive email updates about the Northeast Lakeshore TMDL.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NORTHEAST LAKESHORE TMDL

A FRAMEWORK FOR WATER QUALITY IMPROVEMENT

South Branch of the Manitowoc River

Subscribe to receive email updates about the Northeast Lakeshore TMDL.

The DNR, together with many partners throughout the basins, is working to improve the surface water quality of tributaries, streams, rivers and lakes within the Northeast Lakeshore (NEL) TMDL basins. The NEL TMDL is focused on

For more information, contact:

Kim Oldenborg
Northeast Lakeshore TMDL coordinator
Water Quality Program
tel:+1-608-266-7037

PAST WEBINARS

March 2021 Informational Webinar

Baseline Load Results and Allocation Process

- March 23, 2021
- **Recorded presentation:** Watershed Model Results & Allocation Process
- Webinar presentation slides [PDF]

Summer 2020 Informational Webinar Series:
The TMDL Process and Watershed Model Development

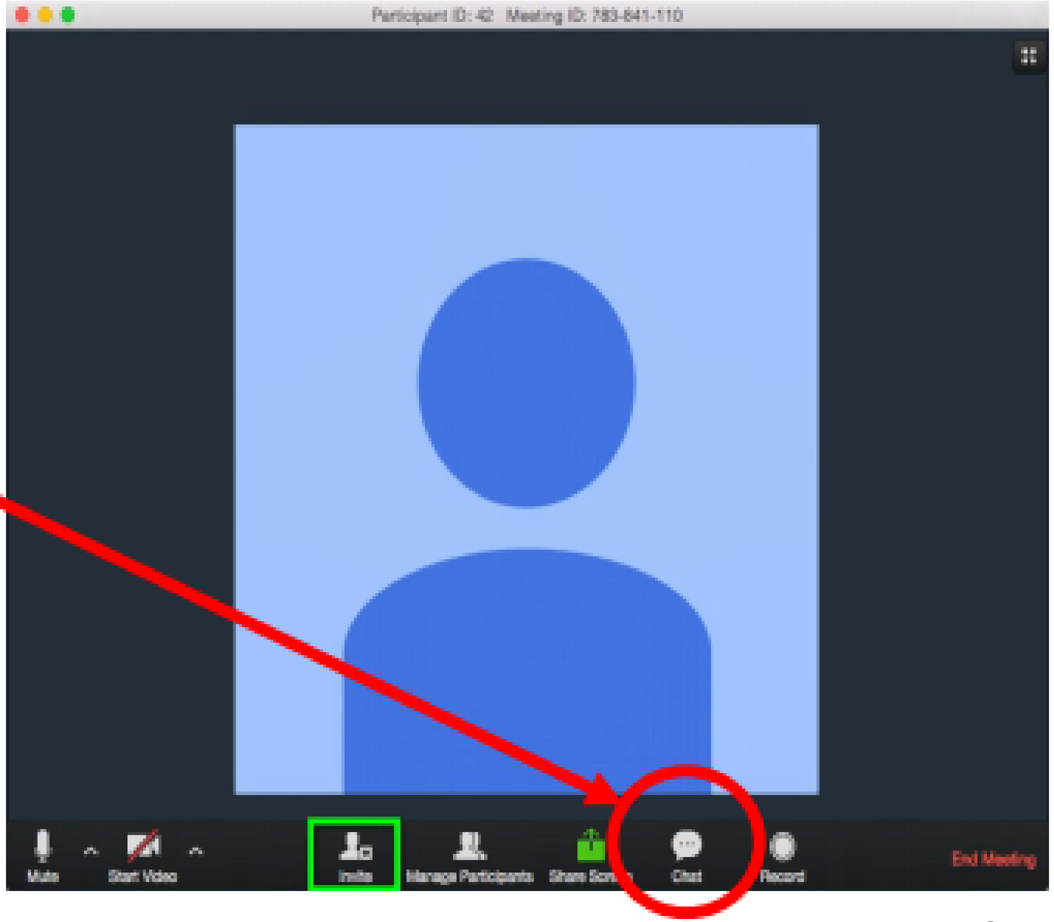
In summer 2020, the DNR presented a series of public informational webinars to introduce development of the Soil & Water Assessment Tool (SWAT) watershed model for the NE Lakeshore TMDL. The webinar announcement flyer [PDF] summarizes the topics of each webinar. Recordings and PDFs of the webinar presentations are below.

- **Webinar 1: TMDL process and introduction to the NE Lakeshore TMDL**
- **Webinar 2: Water Quality Data and Impairments**
- **Webinar 3: Watershed Model Introduction and Data Inputs**
- **Webinar 4: Watershed Model Setup**

Zoom

Click **Chat** in the meeting controls.

NOTE: If don't see controls, tap screen and they will pop up.



Today's Presenters and Panel

Kevin Kirsch
Statewide TMDL Coordinator

Pat Oldenburg
Lake Modeler and Wisconsin River Basin TMDL Coordinator

Aaron Fisch
Water Quality Modeler

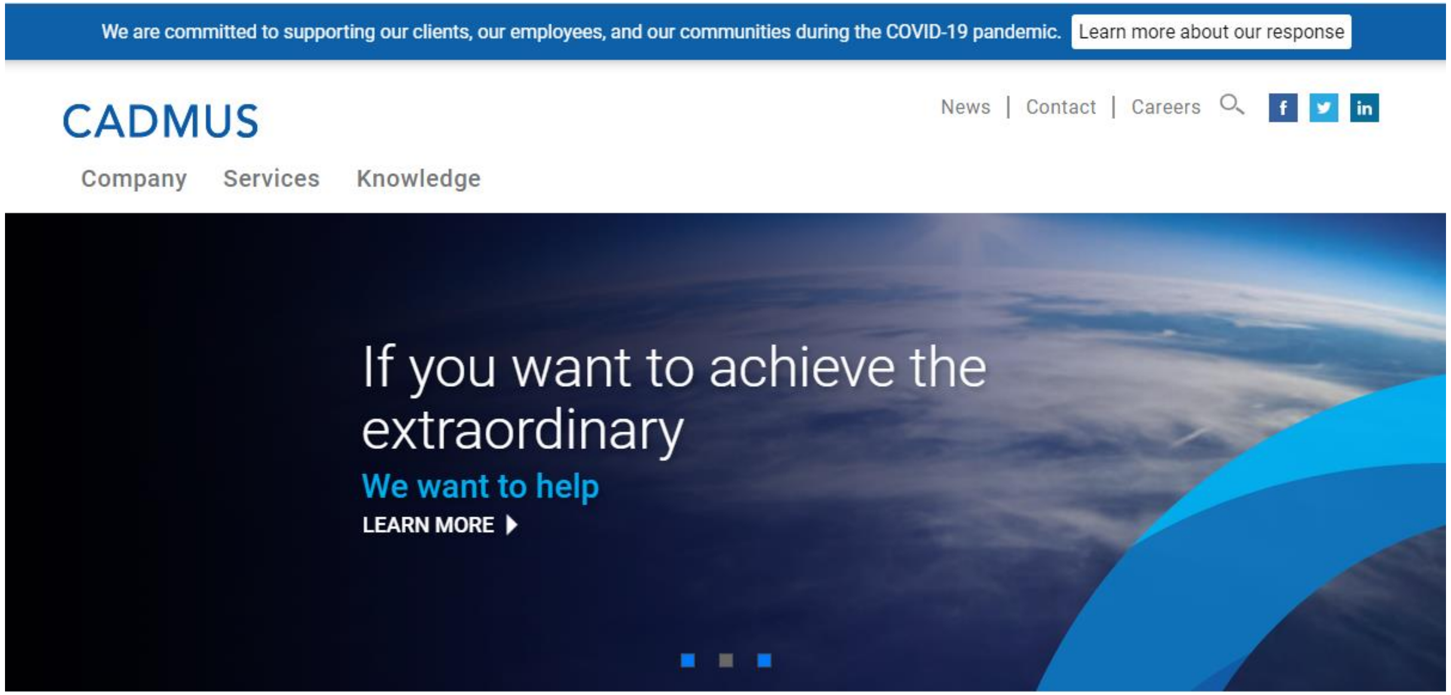
Eric Hettler, PE
TMDL Modeler

Nate Willis
Wastewater Engineer

Keith Marquardt
NE Region TMDL Coordinator

Special Thanks to Kim Oldenborg:

Kim Oldenborg
NE Lakeshore TMDL
Coordinator



Kim served as project coordinator for three years; however, in June 2021 funding for her position ended. I am very happy to report though that Kim was quickly hired by CADMUS and we look forward to working with her again. CADMUS is the US EPA contractor that developed the SWAT model for the NE Lakeshore TMDL and has supported numerous other TMDL efforts in Wisconsin.

Presentation Outline

- TMDL Background
- Review Baseline Loads
- Loading Capacity and Lake Modeling
- Draft Allocations
- Outline Implementation and Next Steps

NE Lakeshore TMDL
anticipated timeline

NORTHEAST LAKESHORE TMDL

A FRAMEWORK FOR WATER QUALITY IMPROVEMENT

South Branch of the Manitowoc River

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Stream monitoring (2017–2019)

Watershed model contract: Nov. 2018 – May 2021

today

2017 — WI legislature supports NE Lakeshore TMDL

2018

2019 — Completed inventory of WPDES permit holders and effluent monitoring data

2020

Completed collection of agricultural management data

Completed analysis of stream monitoring data

Summer 2020
4 Part Webinar on Watershed model development
Public comment period on a portion of the draft watershed model report

2021

Spring 2021 (March 24th, 10 AM)
Webinar on draft baseline loads and allocation methods
Public comment period on full draft of the watershed model report.

Winter 2021
Webinar on draft allocation results
Public comment period on draft allocations

2022

Mid 2022: Public comment period and hearing on TMDL report.. Anticipated submittal of TMDL report to EPA for approval

2023: Anticipated start of the TMDL implementation phase

Comment Period

Lake Modeling Report
Draft Allocation Tables

Find information on the
NE Lakeshore TMDL webpage

Send General TMDL and Allocation Comments to:
kevin.kirsch@wisconsin.gov

Send Questions Regarding WLA and Wastewater Discharges to:
Nate Willis
nathaniel.willis@wisconsin.gov

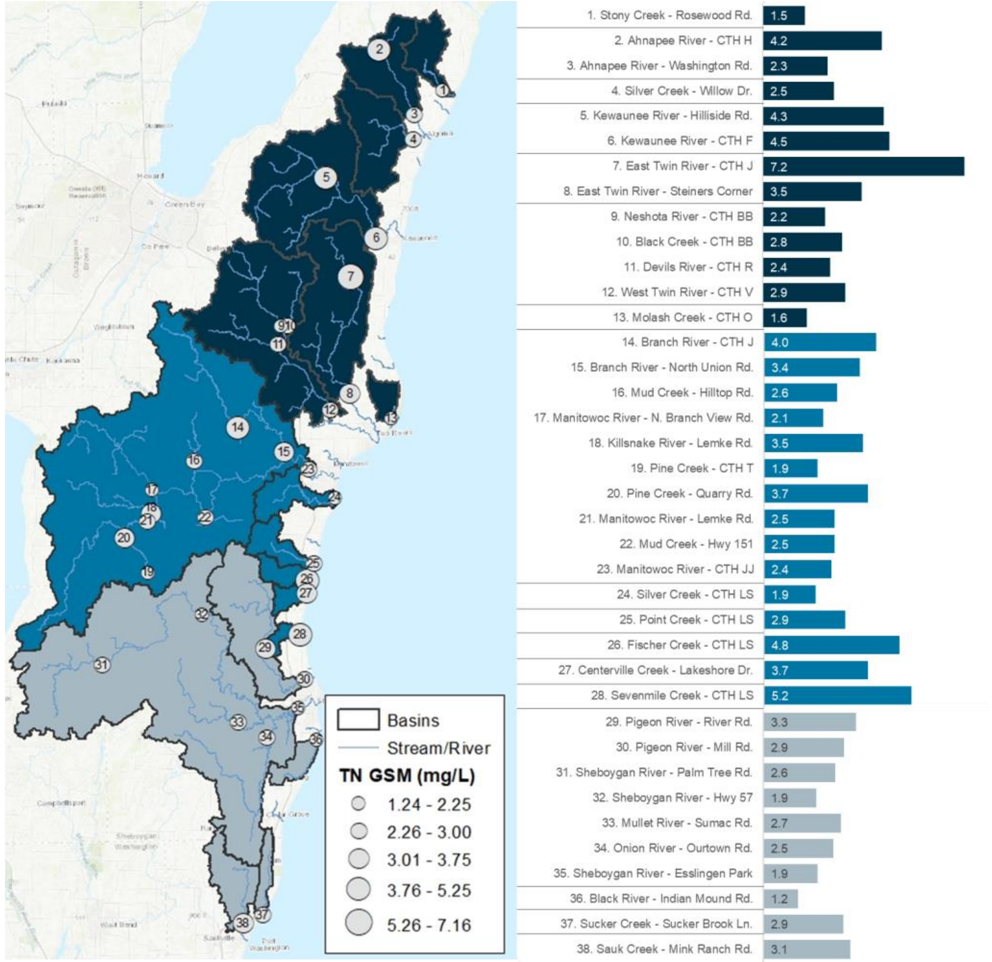
Comment Period	Topic
October 2020 (past)	Watershed Model Report 1. Overview 2. Model Setup
Spring 2021 (past)	Watershed Model Report 3. Calibration and Validation **Approach** 4. Calibration and Validation **Data** 5. Calibration and Validation **Results** 6. **Discussion** of Calibration and Validation 7. Summary of Model Results 8. References
December 17, 2021, through COB January 21, 2022	Draft Allocations (including inland lake modeling results)

Project Background
TMDL and Nitrogen Analysis

Northeast Lakeshore Nitrogen Analysis

Goals of Analysis

- Assess nitrogen in surface water
- Summarize available water quality data
- Identify locations on landscape with high nitrogen applications
- Identify factors contributing to surface water nitrogen concentrations

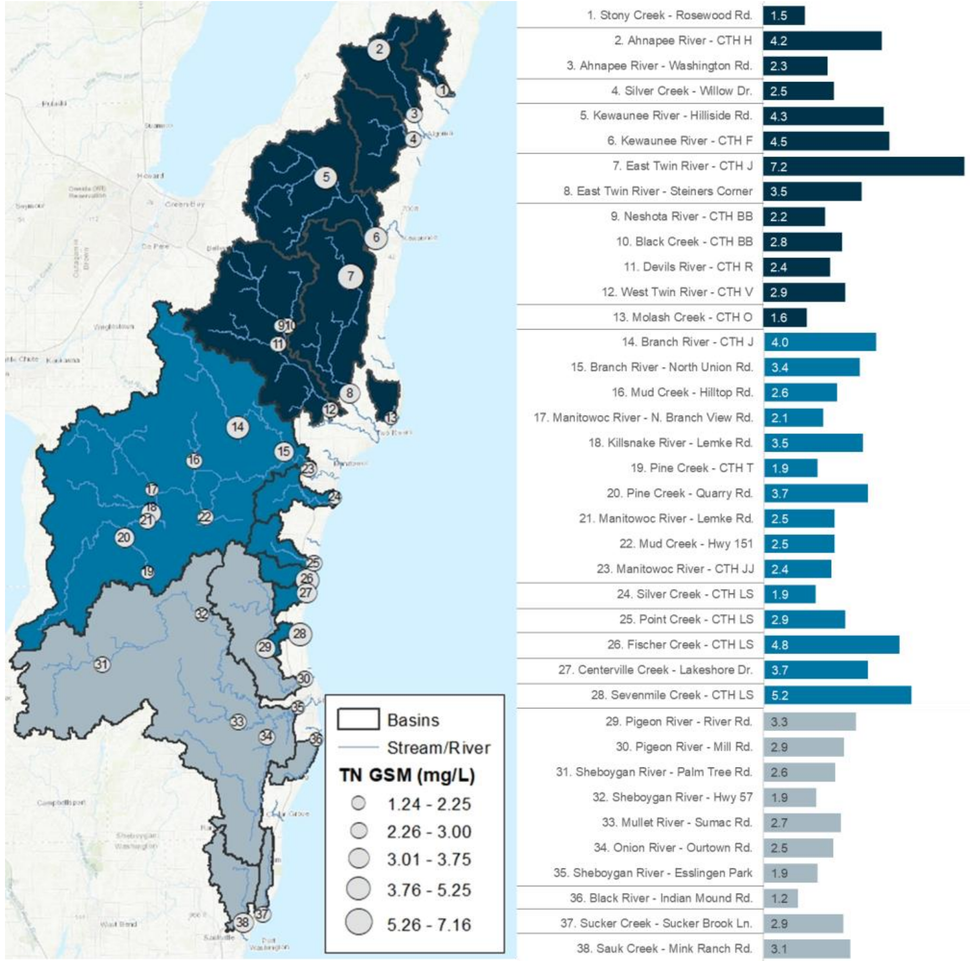


Total Nitrogen Growing Season Median concentration

Northeast Lakeshore Nitrogen Analysis

Deliverables of Analysis (Spring 2022)

- Webinar to summarize results
- Stand-alone report detailing the analysis



Total Nitrogen Growing Season Median concentration

Background

Study area

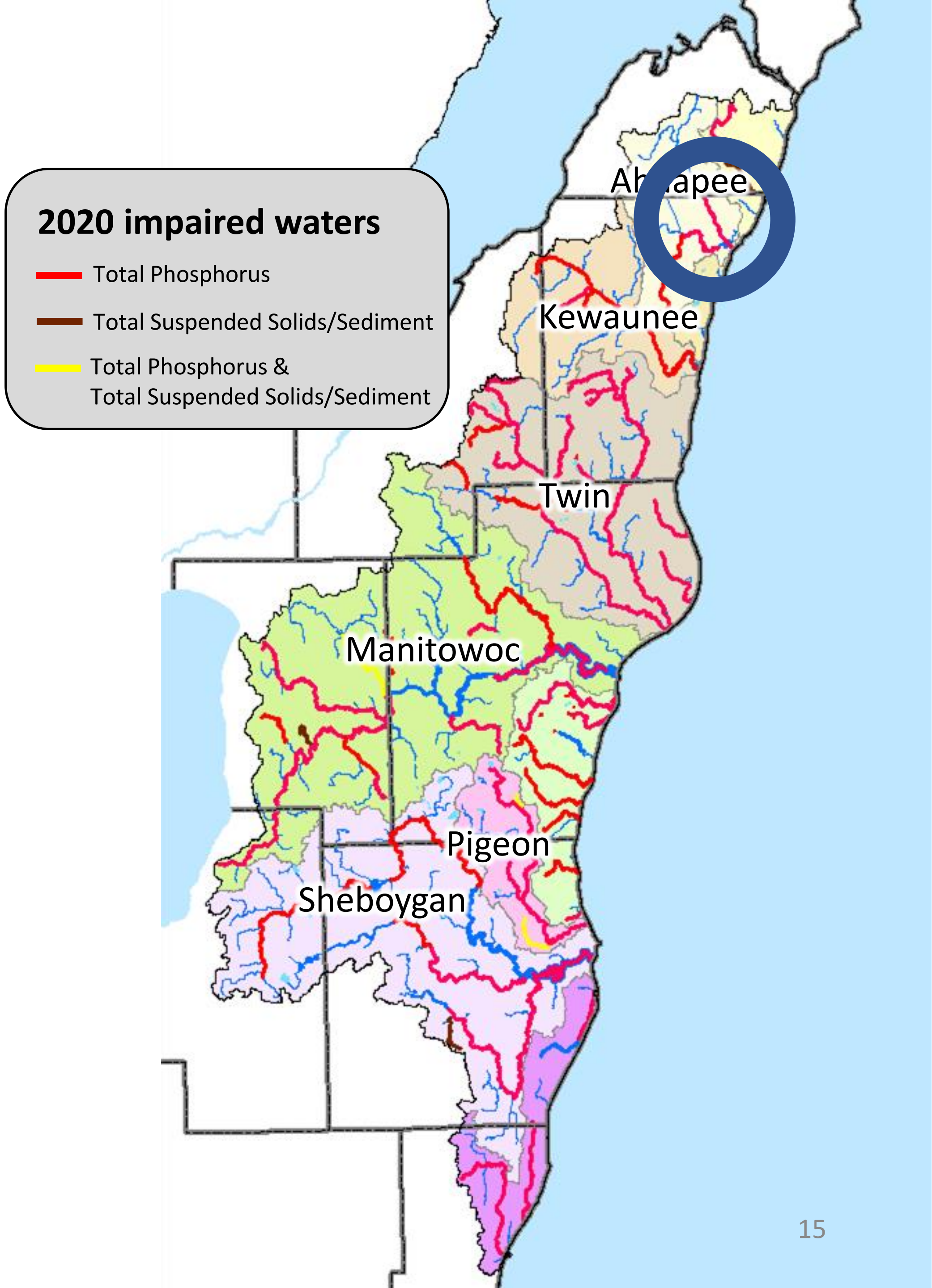
Covers nearly 2,000 square miles
Includes many major river basins

Impaired Stream Segments
TP: 73
TSS: 3
TP & TSS: 3
Impaired Lakes
TP: 13

Addresses phosphorus and sediment impaired waters

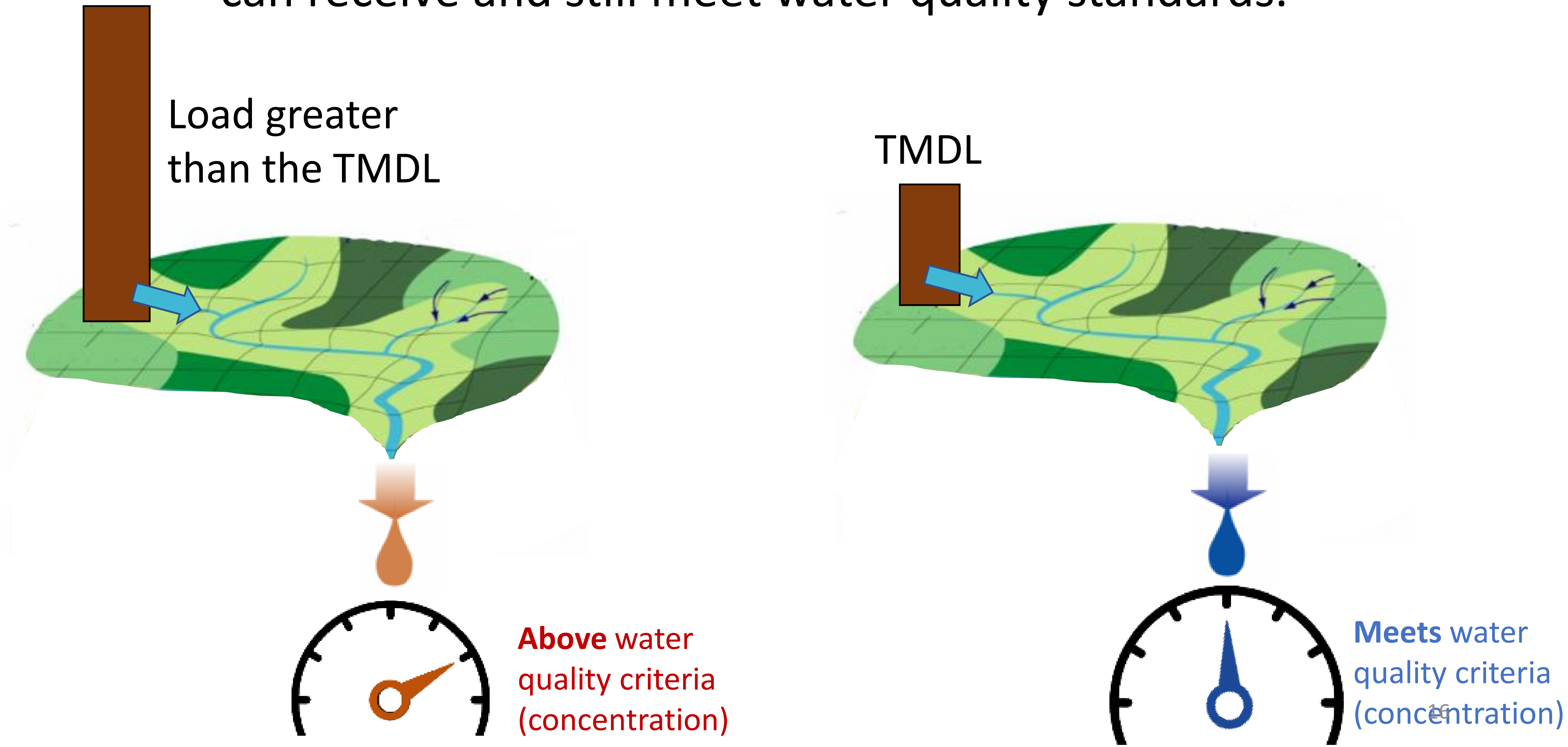
Focused on waters draining to Lake Michigan, but not Lake Michigan

Funding from WI legislature in 2017



Total Maximum Daily Load (TMDL):

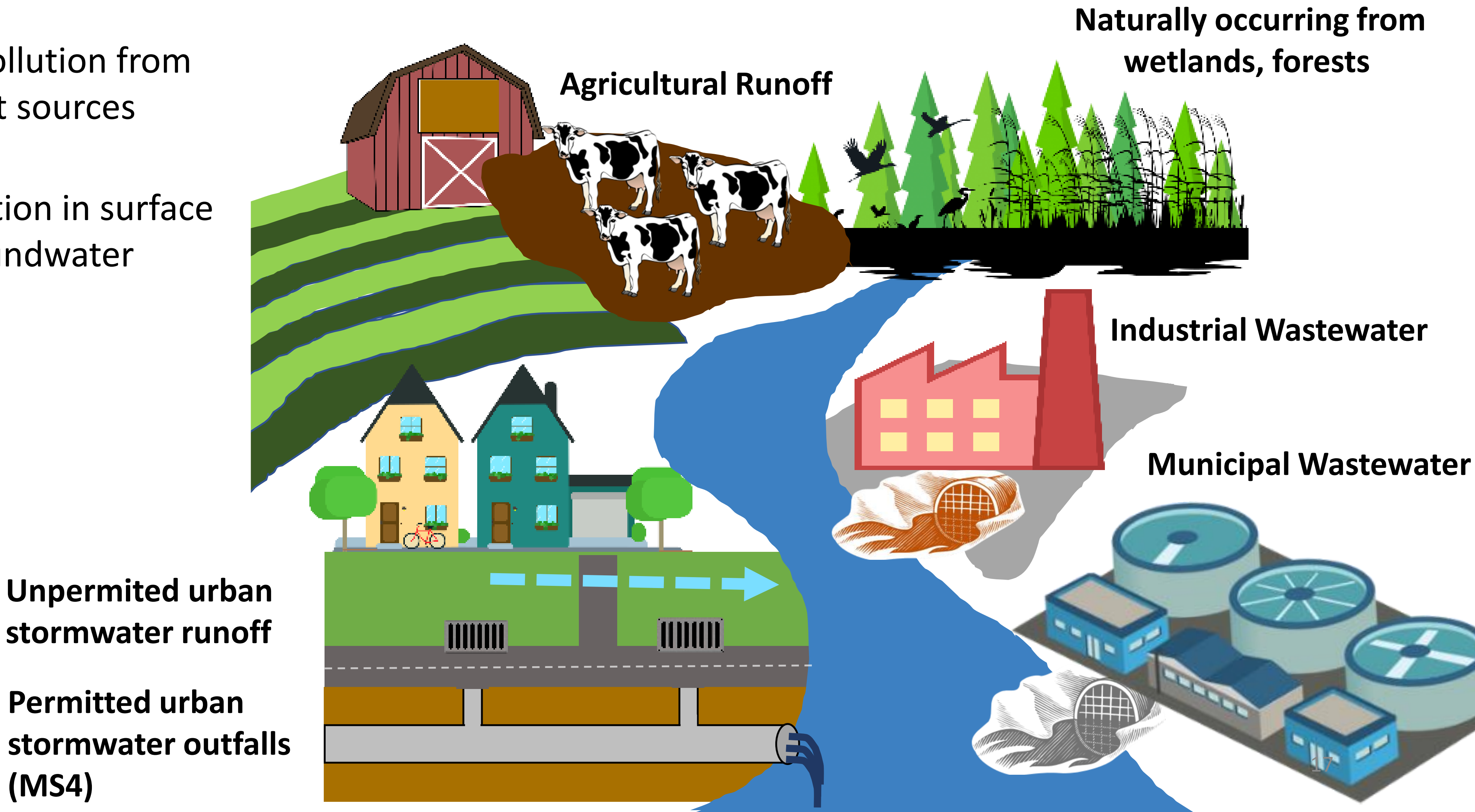
Estimates the ***amount*** of pollutant a waterbody can receive and still meet water quality standards.



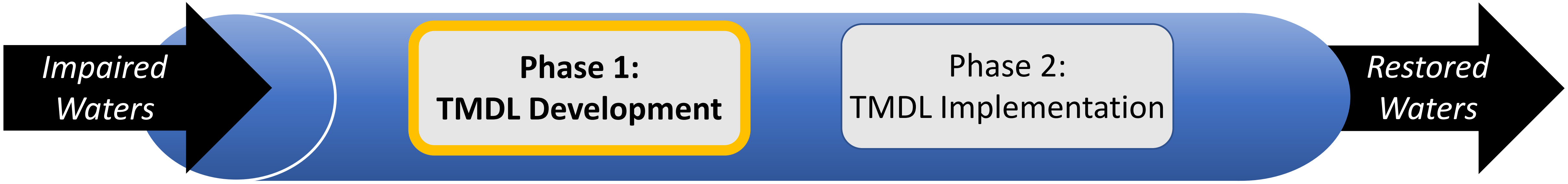
Total Maximum Daily Load (TMDL)
A framework for watershed restoration

TMDLs address pollution from many different sources

TMDLs address pollution in surface waters, not groundwater



Total Maximum Daily Load Process



TMDL Development Steps

Public outreach/communication

1 Calculate Baseline Loads

2 Determine Loading Capacity (TMDL)

3 Allocate load among sources

What are the current pollutant loads and how much is coming from each source?

What amount of pollutant can a waterbody receive?

What amount of pollutant reduction is needed from each source?

TMDL Development Steps

Public outreach/communication

1 Calculate Baseline Loads

What are the current pollutant loads and how much is coming from each source?

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What amount of pollutant reduction is needed from each source?

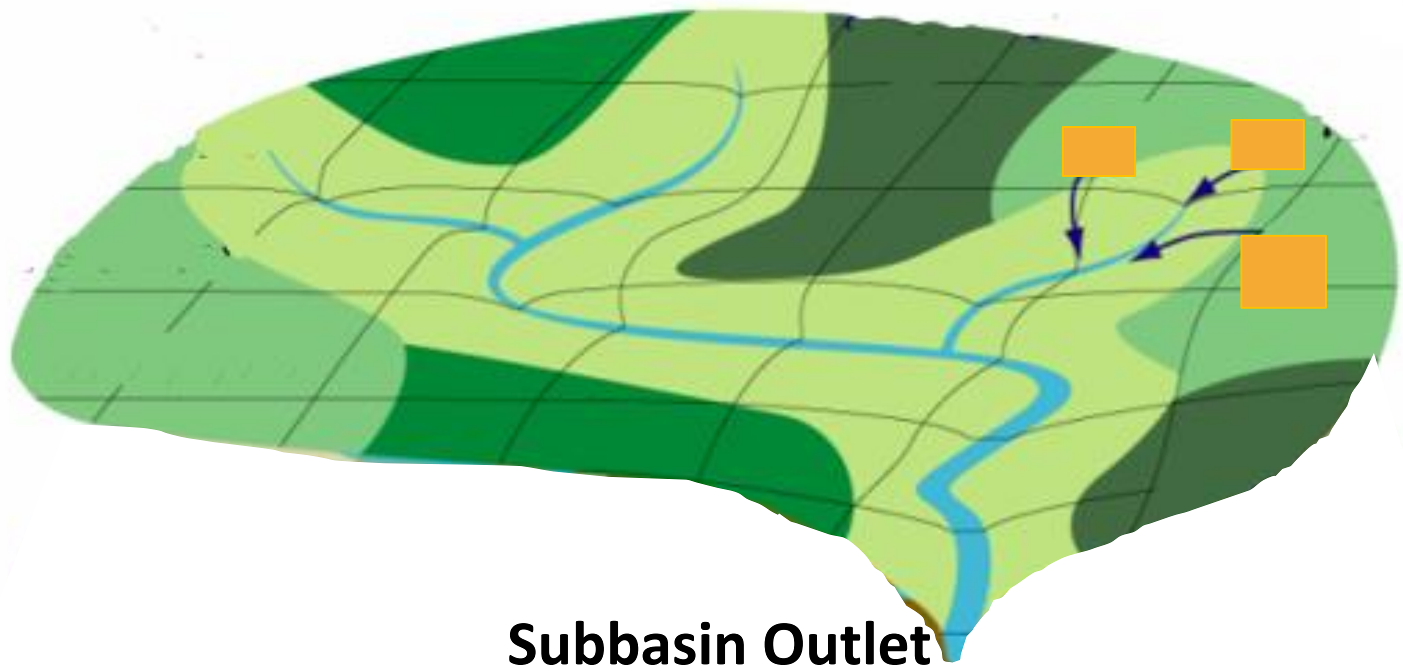
Summary of Baseline Pollutant Loadings

Basin scale:
Agricultural sources are predominant, as is agricultural land cover

Subbasin scale, used for allocations:
Relative contributions varied among sources (ag, urban, point source)

Variability in both phosphorus and TSS rates generally explained by variations in land cover, soils, and slope

Scale: Edge of Field vs Subbasin

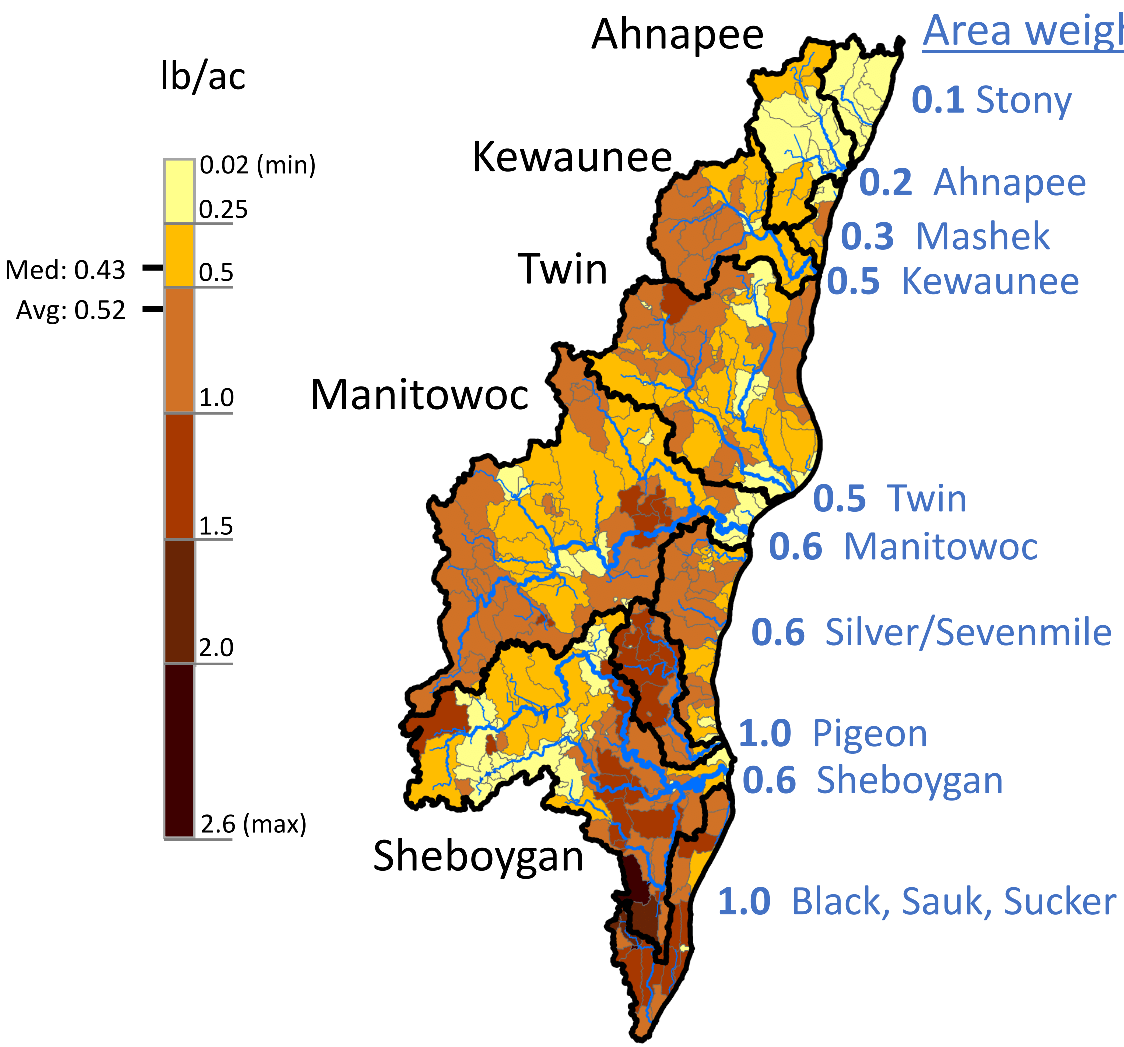


- SWAT modeled baseline loads and the allocations are based on delivered pollutant loads to the subbasin outlet.
- Models such as SnapPlus deliver pollutants to the edge of field or the first perennial stream, not the subbasin outlet.
- As a result of delivery processes, loads at the subbasin outlet can be lower than sum of edge of field loads.

Baseline TP Rate (lb/ac)

SWAT modeled results represent delivered loads aggregated by subbasin

Nonpoint Sources (agricultural, urban, natural)



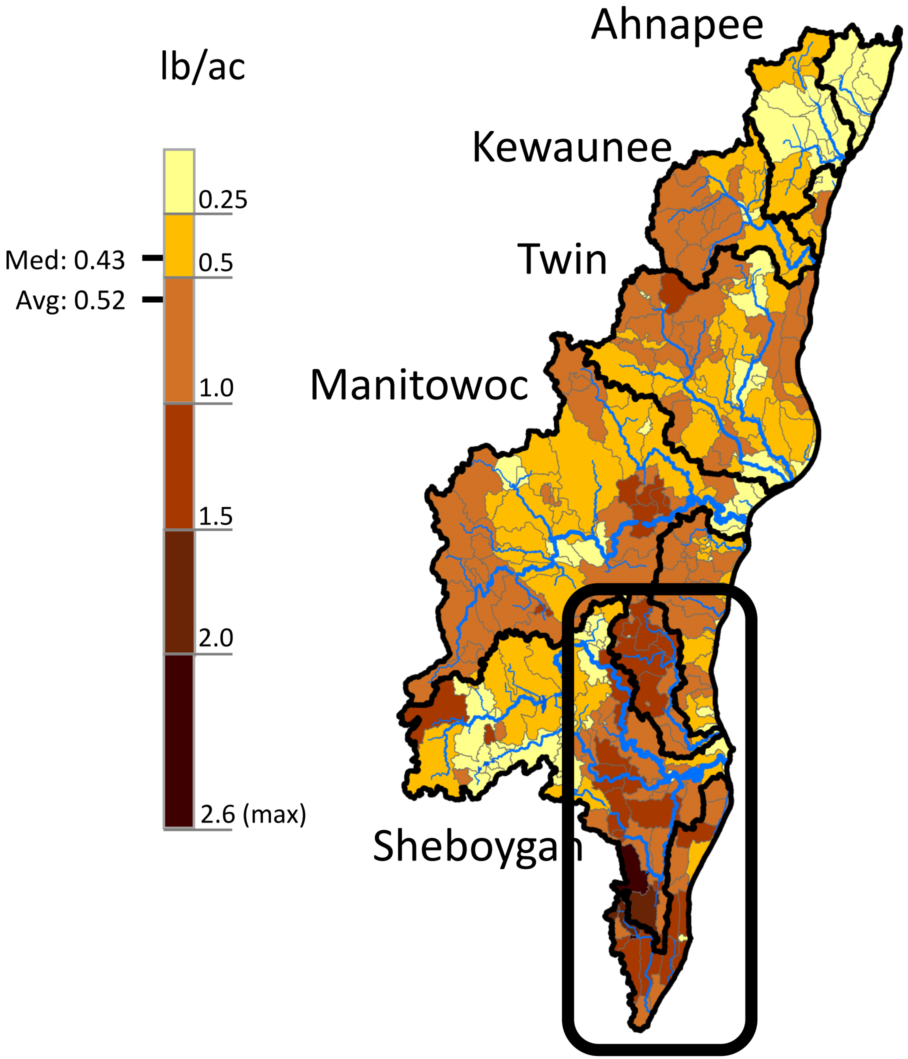
Generalized trends

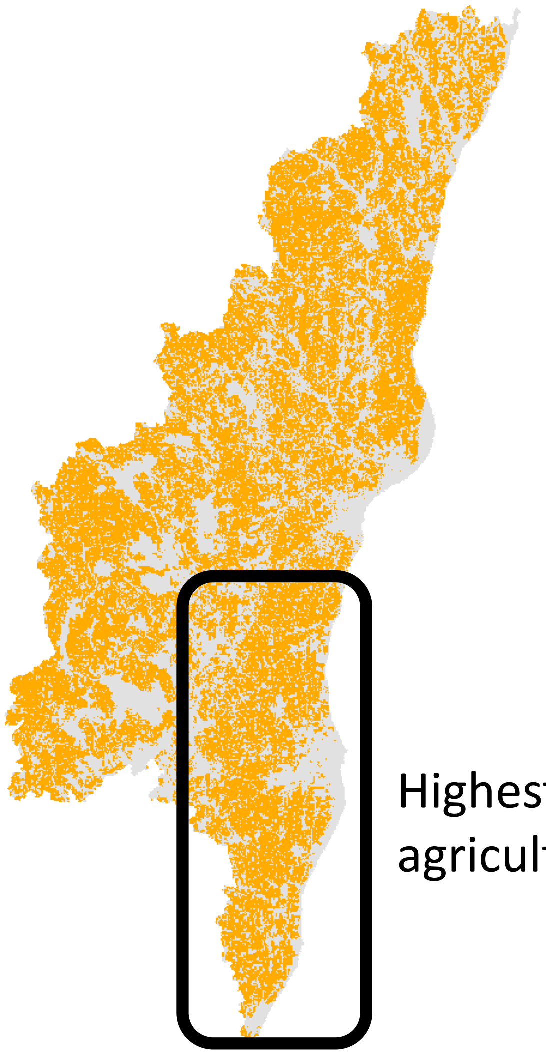
North to South

TP Rate (lb./ac)

SWAT modeled results represent delivered loads aggregated by subbasin

Nonpoint Sources (agricultural, urban, natural)





Generalized Trends

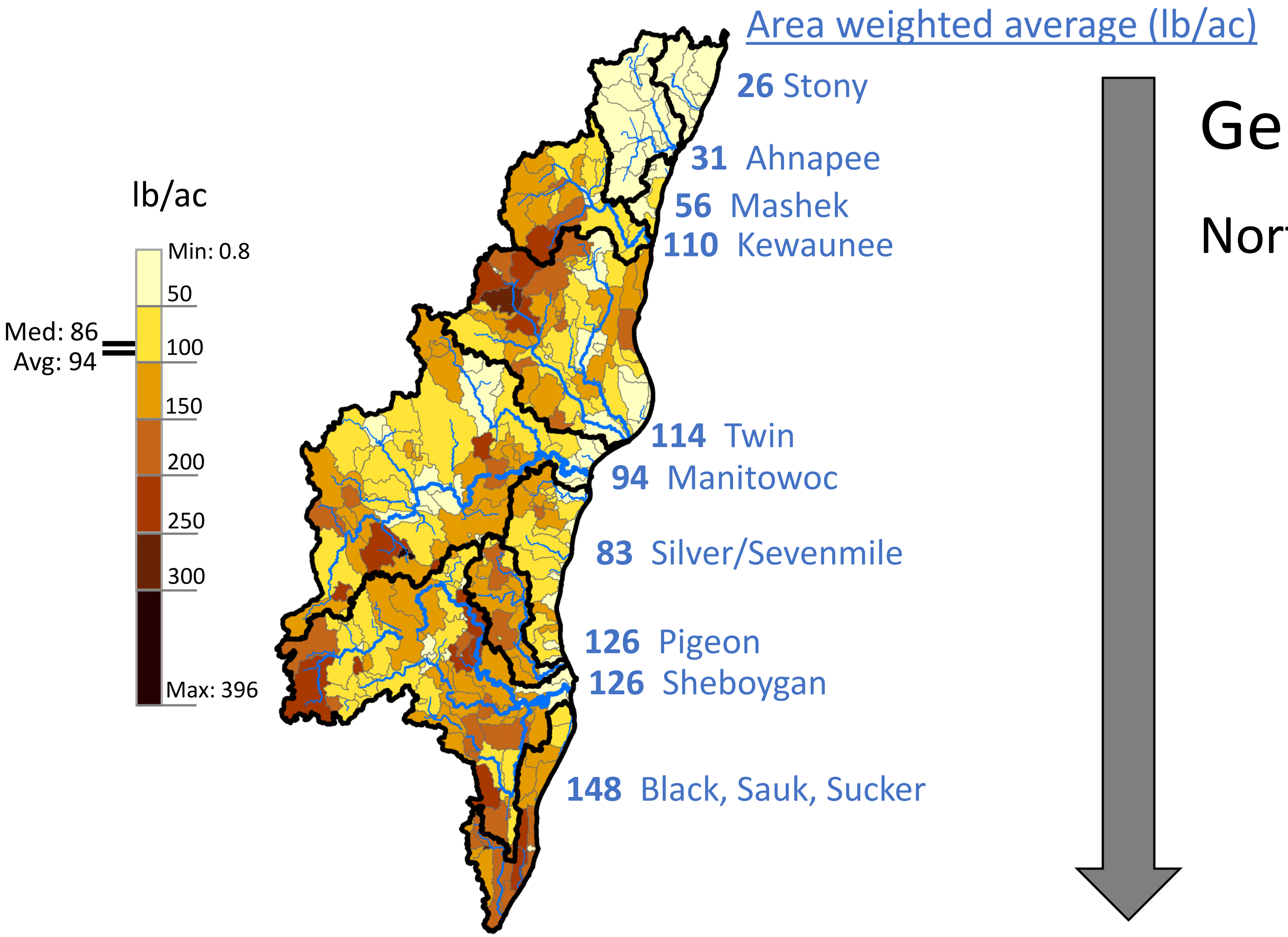
Higher loading rates generally occurred in subbasins with more **agricultural area**

Highest rates generally found in agricultural areas with Cash Grain farming

Baseline TSS Rate (lb./ac)

SWAT modeled results represent delivered loads aggregated by subbasin

Nonpoint Sources (agricultural, urban, natural)



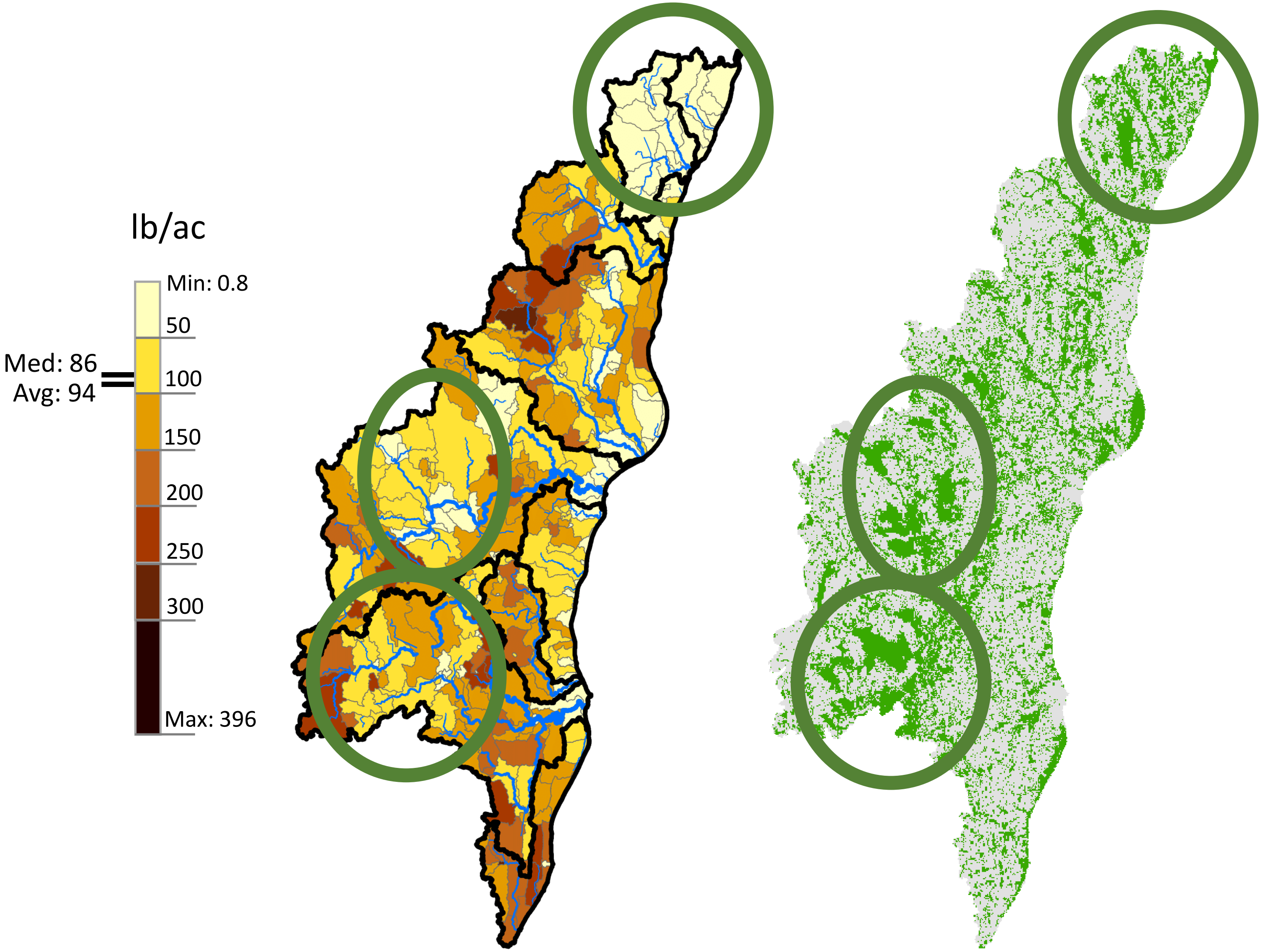
Generalized Trends

North to South

Baseline TSS Rate (lb./ac)

SWAT modeled results represent delivered loads aggregated by subbasin

Nonpoint Sources (agricultural, urban, natural)



Generalized Trends

very similar to phosphorus

Lower loading rates generally occurred in subbasins with more **natural area**

TMDL Development Steps

Public outreach/communication

1 Calculate Baseline Loads

What are the current pollutant loads and how much is coming from each source?

2 Determine Loading Capacity (TMDL)

What amount of pollutant can a waterbody receive?

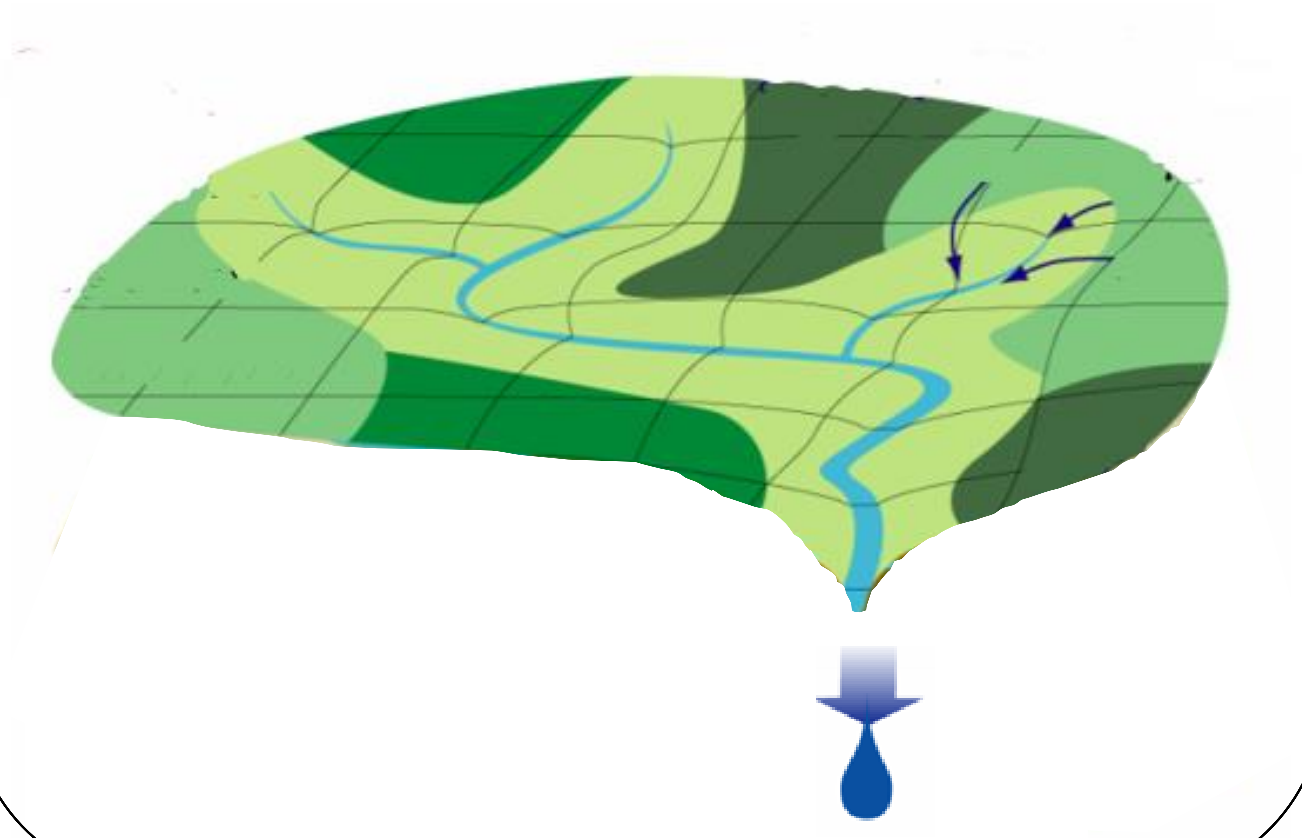
3 Allocate load among sources

What amount of pollutant reduction is needed from each source?

Loading capacity (TMDL)

Unique value for each of the 321 subbasins

Stream flow from watershed model



x

Water quality criteria or target

Total phosphorus (NR 102.06)

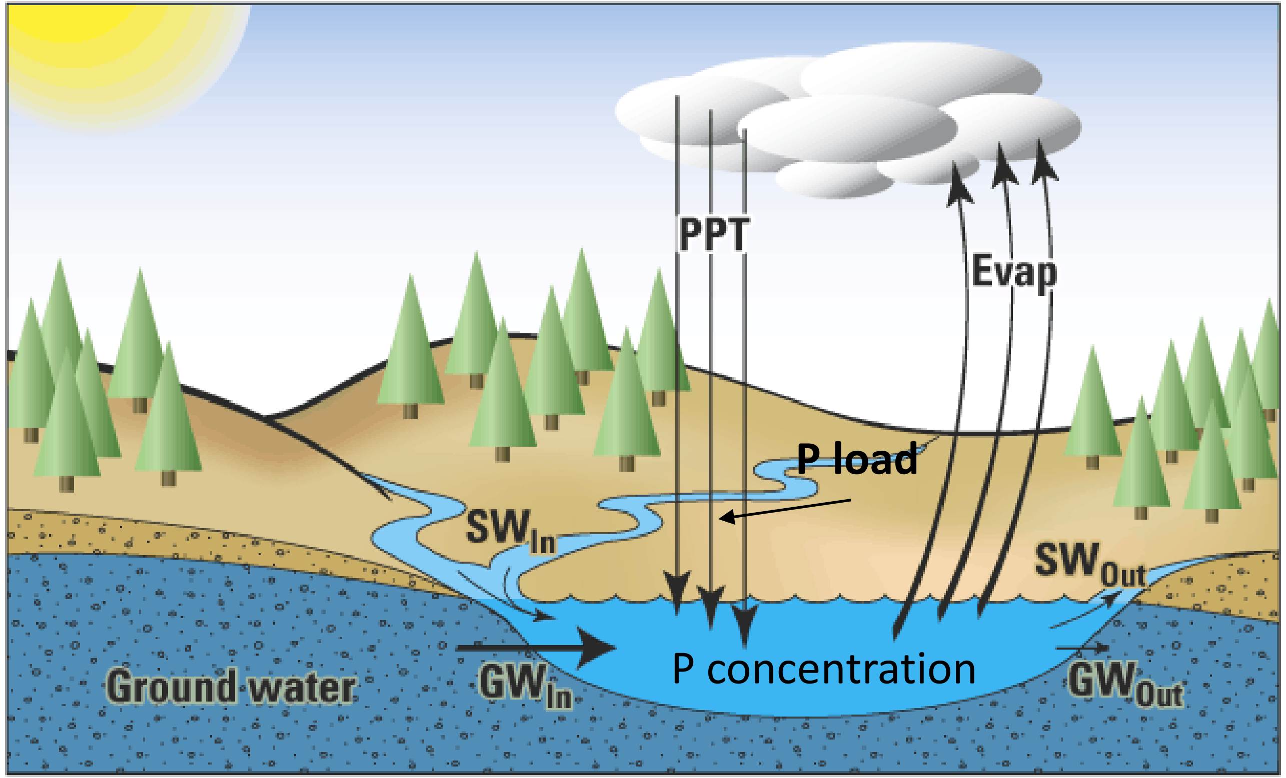
- Most streams and rivers in NE Lakeshore area 75 ug/L
- Manitowoc River 100 ug/L
- Sheboygan 100 ug/L

Lake Modeling
Loading Capacity

Pat Oldenburg

Loading capacity (TMDL)

Lakes: loading capacity from lake model



Water quality criteria or target

Total phosphorus (NR 102.06)

- 26 lakes evaluated for the TMDL

Two-story fishery lakes

- 1 of 3 exceeding 15 μg/L TP criterion

Deep seepage lakes

- 10 of 13 exceeding 20 μg/L TP criterion

Deep drainage lakes

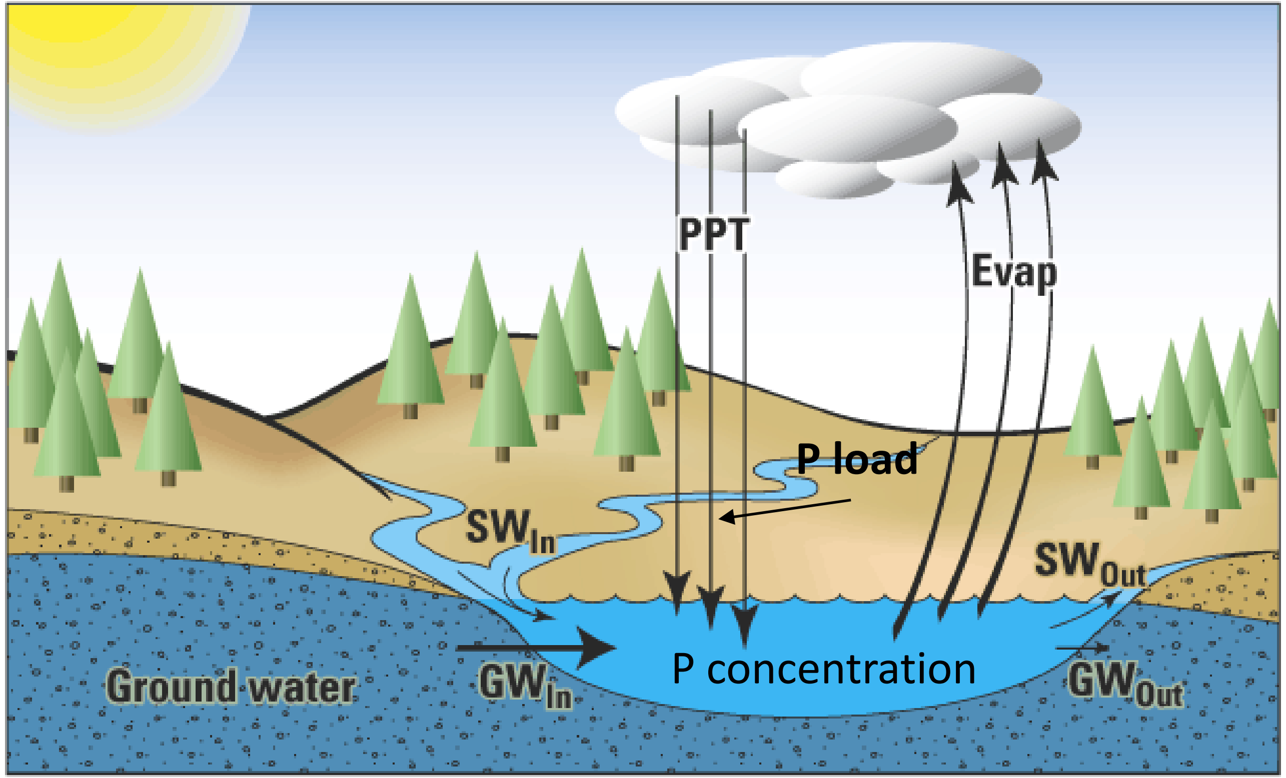
- 8 of 9 exceeding 30 μg/L TP criterion

Shallow lakes

- 1 not exceeding 40 μg/L TP criterion

Loading capacity (TMDL)

Lakes: loading capacity from lake model



Model Characteristics

Empirical models

- Based on observed relationships between in-lake TP lake and monitored hydraulic and TP loading in other lakes

Model selection criteria

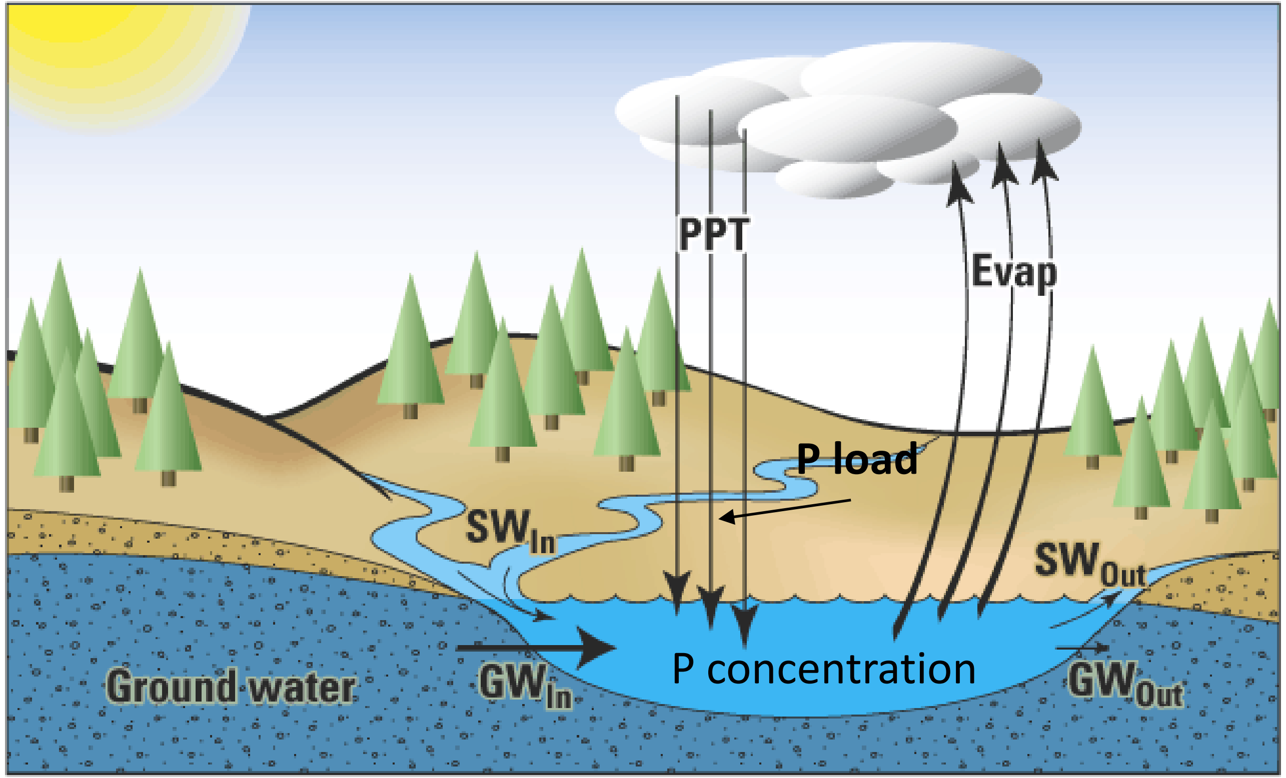
- Predict growing season TP
- Commonly used in Wisconsin

Models evaluated for each lake

- Canfield-Bachmann 1981 Natural Lakes
- Canfield-Bachmann 1981 Artificial Lakes
- Walker 1987 Reservoirs
- Reckow 1979 Natural Lakes
- Reckow 1977 Anoxic Lakes
- Reckow 1977 Oxic Lakes (qs < 50 m/yr)

Loading capacity (TMDL)

Lakes: loading capacity from lake model



Model inputs

Lake Data

- Lake area and volume: DNR lake maps
- Water quality data: 1-17 years of data/lake, median 8 years of data/lake

Hydraulic loading

- Groundwater & surface water: SWAT model
- Net direct precipitation: county averages

Nutrient loading

- Watershed: SWAT model
- Nearshore septic: housing density & occupancy
- Direct deposition: statewide average

A quick word about watersheds

Original watershed boundary

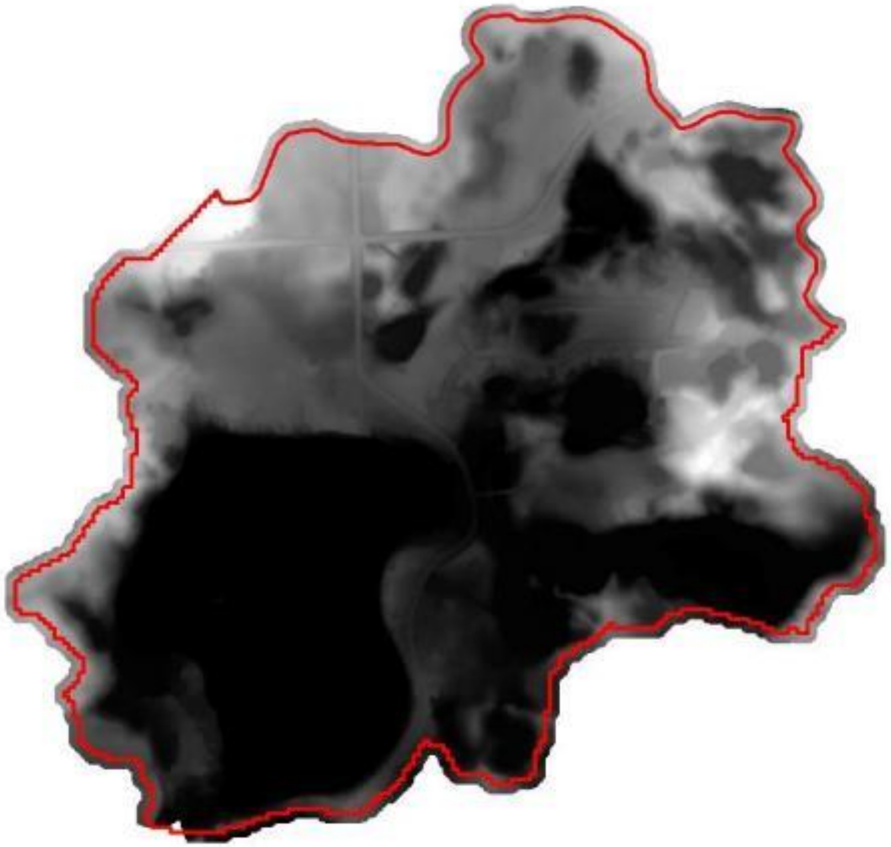
SWAT Model inputs

Basin-wide model

- Relatively coarse digital evaluation model (30x30 m grid)
- Many modeled lake watersheds small, some with many small depressions

A quick word about watersheds

Detailed digital elevation model



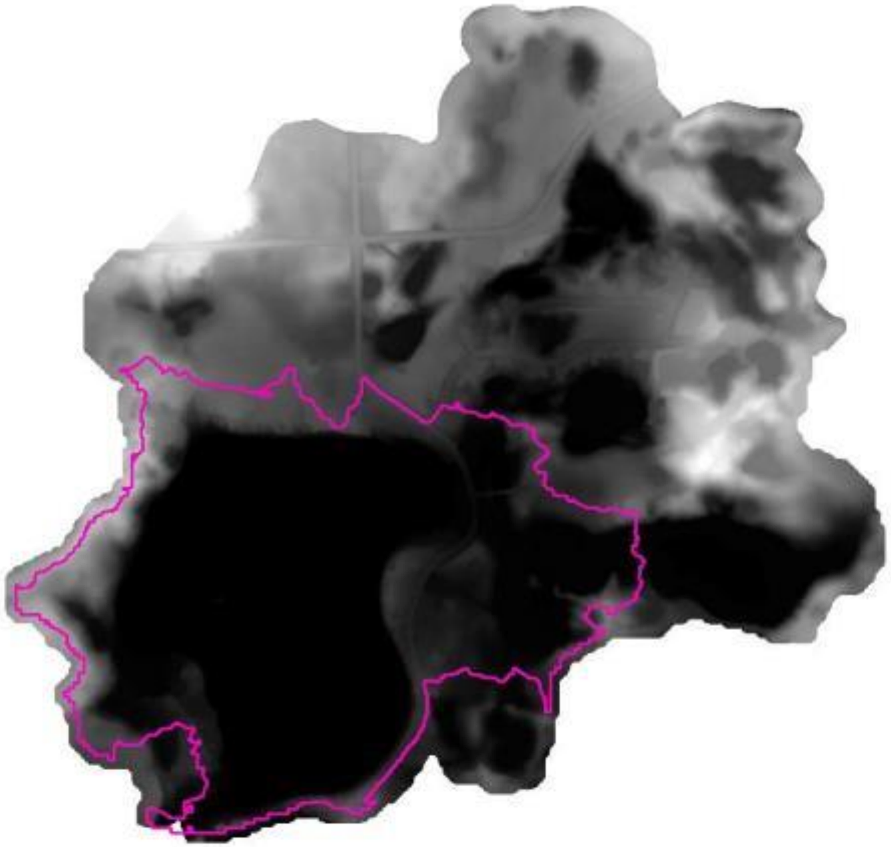
SWAT Model inputs

Basin-wide model

- Relatively coarse digital evaluation model (30x30 m grid)
- Many modeled lake watersheds small, some with many small depressions
- Used fine detailed digital evaluation model (0.6x0.6 m grid) to refine watershed boundary

A quick word about watersheds

Final watershed boundary



SWAT Model inputs

Basin-wide model

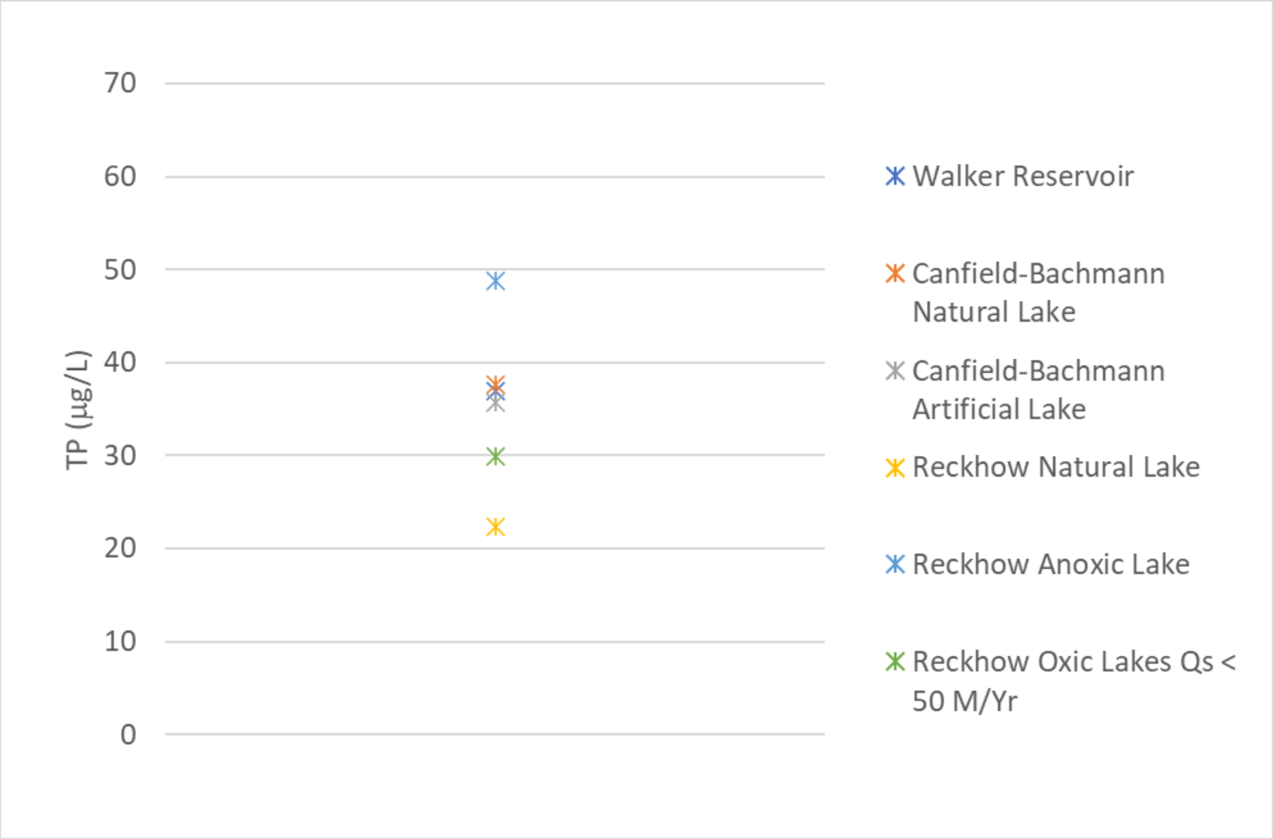
- Relatively coarse digital evaluation model (30x30 m grid)
- Many modeled lake watersheds small, some with many small depressions
- Used fine detailed digital evaluation model (0.6x0.6 m grid) to refine watershed boundary

Final lake model input

- Reduce watershed SWAT hydraulic and phosphorus loads proportionally to reduced watershed size

Loading capacity (TMDL)

Example lake model results



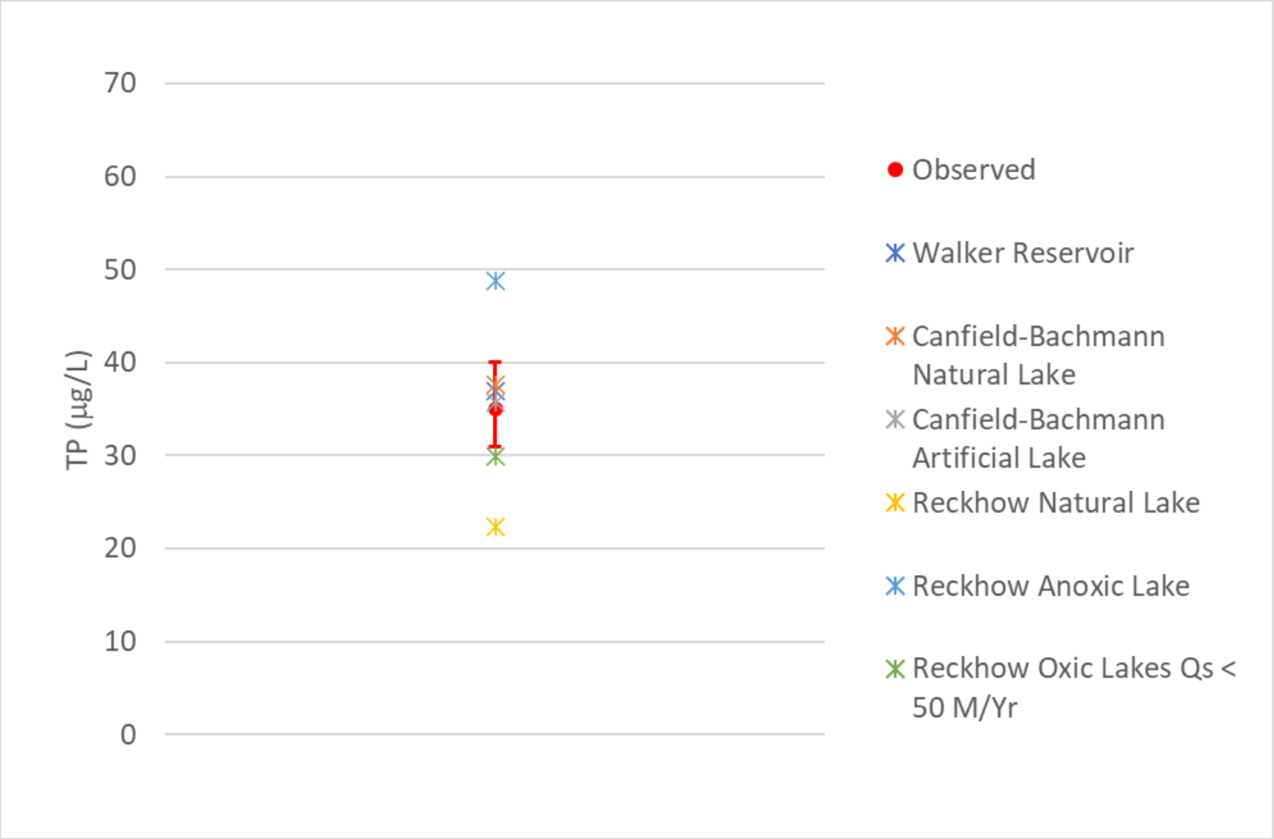
Modeling Approach

- Refined hydraulic and nutrient loads applied to lake response models
- Each model predicts a unique in-lake TP for given hydraulic and nutrient load
- Observed monitoring results compared to model predictions

- How the observed results compare to the model predictions dictates how the models are applied

Loading capacity (TMDL)

Example lake model results



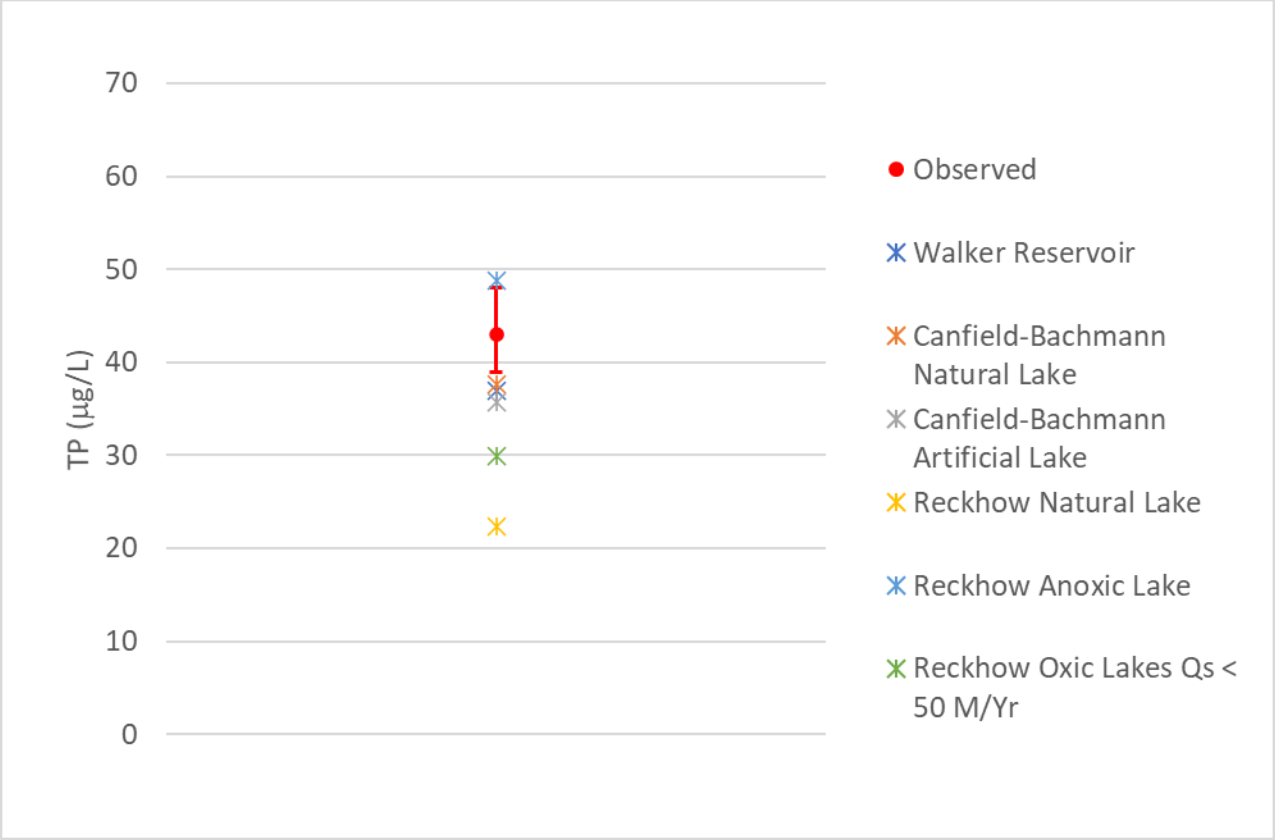
Modeling Approach

Modeling Approach A:

- Lake meeting water quality criteria, model fit indicates good estimate of nutrient loads
- Loading capacity based on maintaining existing water quality
- 6 Lakes in this category

Loading capacity (TMDL)

Example lake model results



Modeling Approach

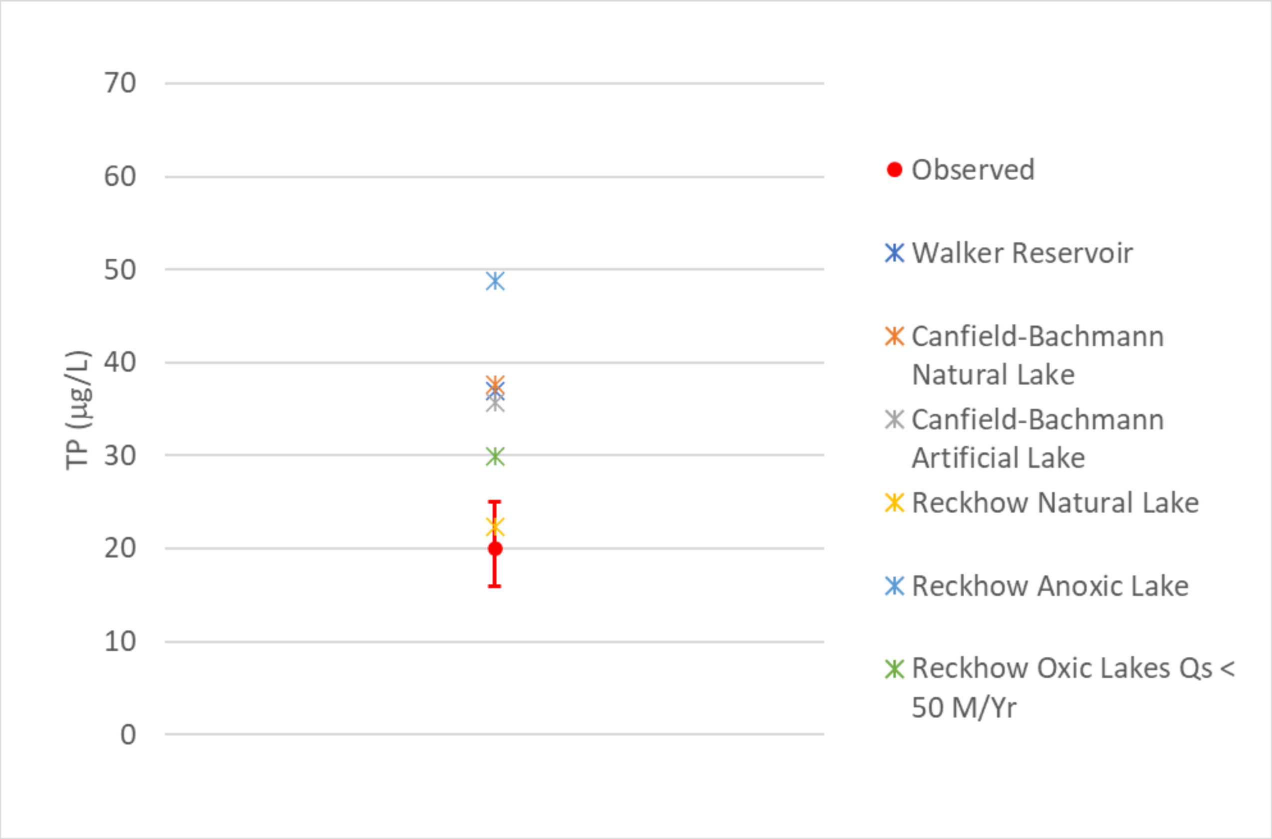
Modeling Approach B:

- Lake not meeting water quality criteria, model fit indicates good estimate of nutrient loads
- Loading capacity based on weighted average of two closest response models bracketing the observed data

- 11 Lakes in this category

Loading capacity (TMDL)

Example lake model results



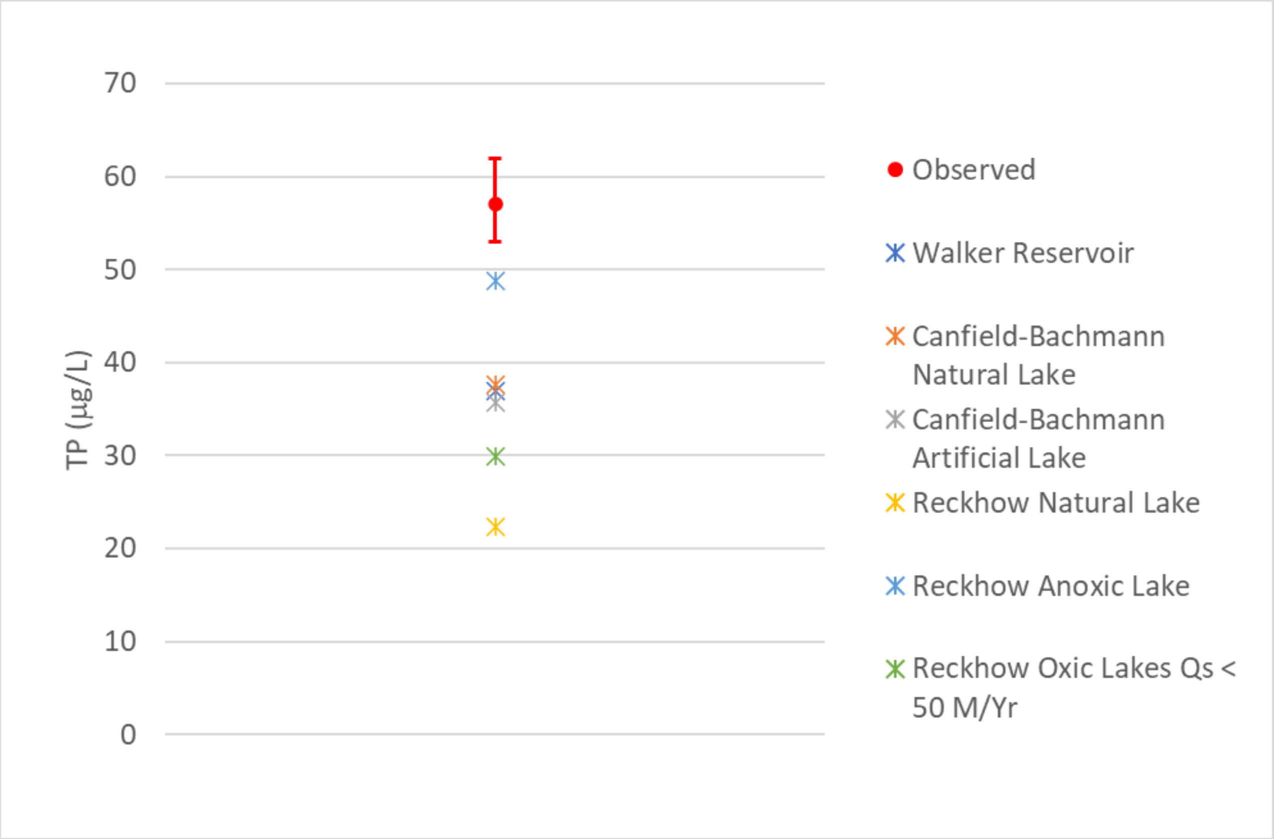
Modeling Approach

Modeling Approach C:

- Lake not meeting water quality criteria, model fit indicates slight overestimate of nutrient loads
- Loading capacity based on the response model that most closely matched the observed data
- 3 Lakes in this category

Loading capacity (TMDL)

Example lake model results



Modeling Approach

Modeling Approach D:

- Lake not meeting water quality criteria, model fit indicates underestimate of nutrient loads
- Two possible explanations:
  - Underestimated eternal loads
  - Substantial internal loading (perhaps the likely scenario based on these specific lakes)
- Loading capacity based on geometric mean of applicable models

- 4 Lakes in this category

Loading capacity (TMDL)

Round Lake July 1938

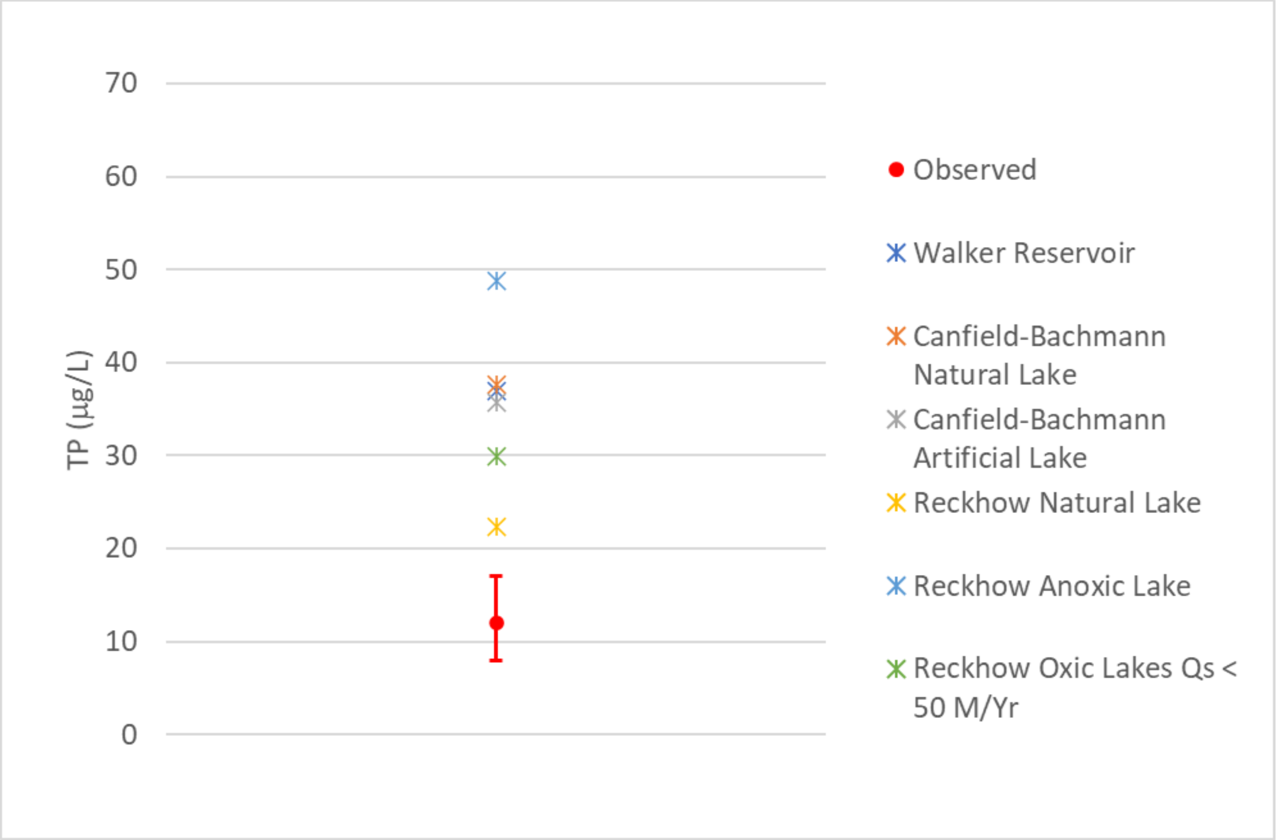
Modeling Approach

Modeling Approach D:

- Round Lake Example
    - 1938 Air photo indicates possible barnyard on lake shore
    - Working theory: high historic external nutrient loads lead to current high internal loading

Loading capacity (TMDL)

Example lake model results



Modeling Approach

Modeling Approach E:

- Model fit indicates overestimate of nutrient loads
- Back calculated load based on lake models and current water quality indicate SWAT loads greatly overestimated
- Loading capacity based on geometric mean of applicable models; only one impaired

- 2 Lakes in this category

Loading capacity (TMDL)

Example lake

Summary

Estimated external loads were able to accurately in-lake TP in 20 of the 26 lakes examined

- Some fine-tuning of watersheds needed

External load estimates underpredicted in-lake TP in 4 lakes

- Possible internal loading issues

External load estimates overpredicted in-lake TP in 2 lakes

Allocation Process and Draft Allocation Results

Aaron Fisch

TMDL Development Steps

Public outreach/communication

1 Calculate Baseline Loads

What are the current pollutant loads and how much is coming from each source?

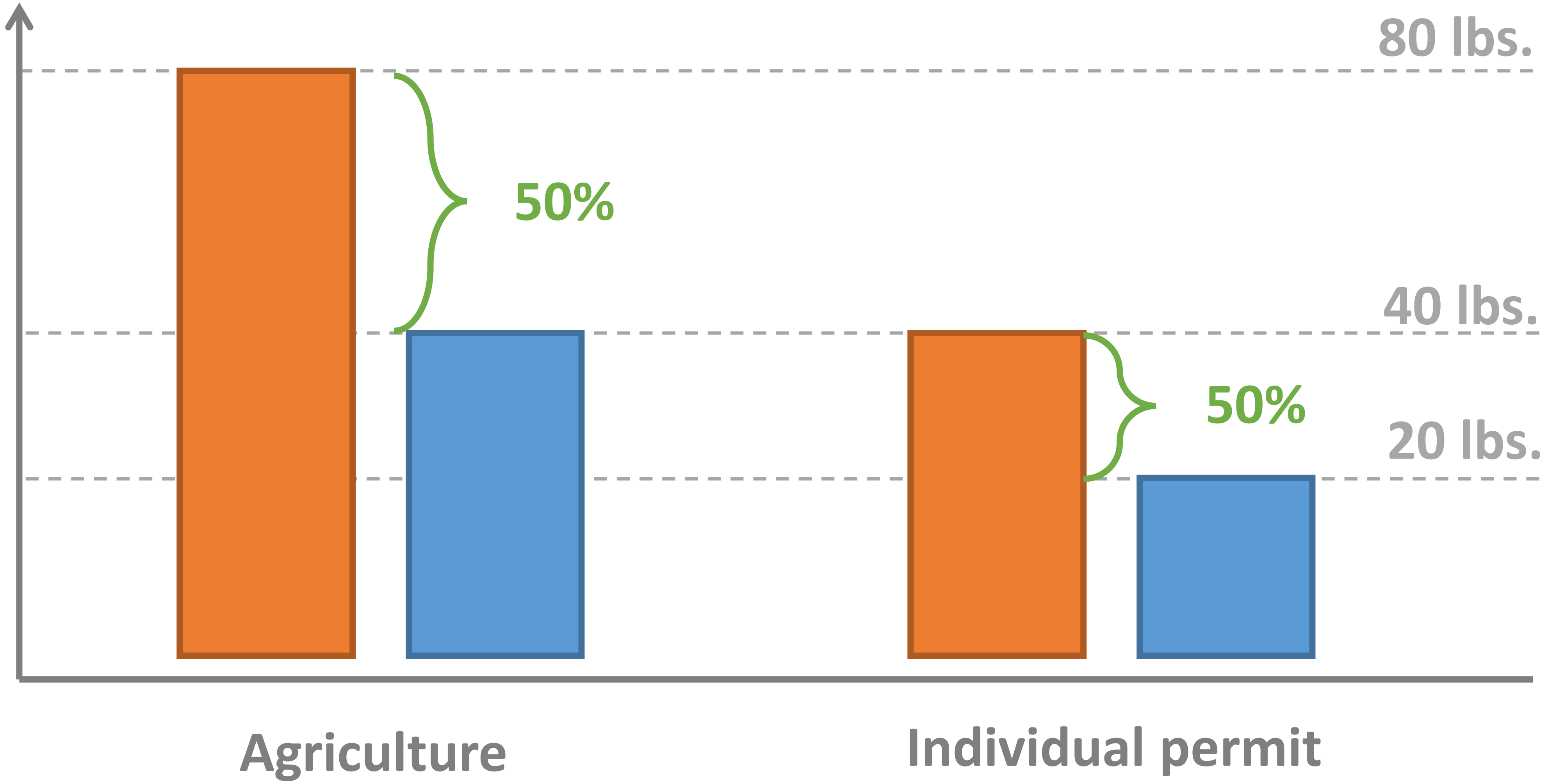
2 Determine Loading Capacity (TMDL)

What amount of pollutant can a waterbody receive?

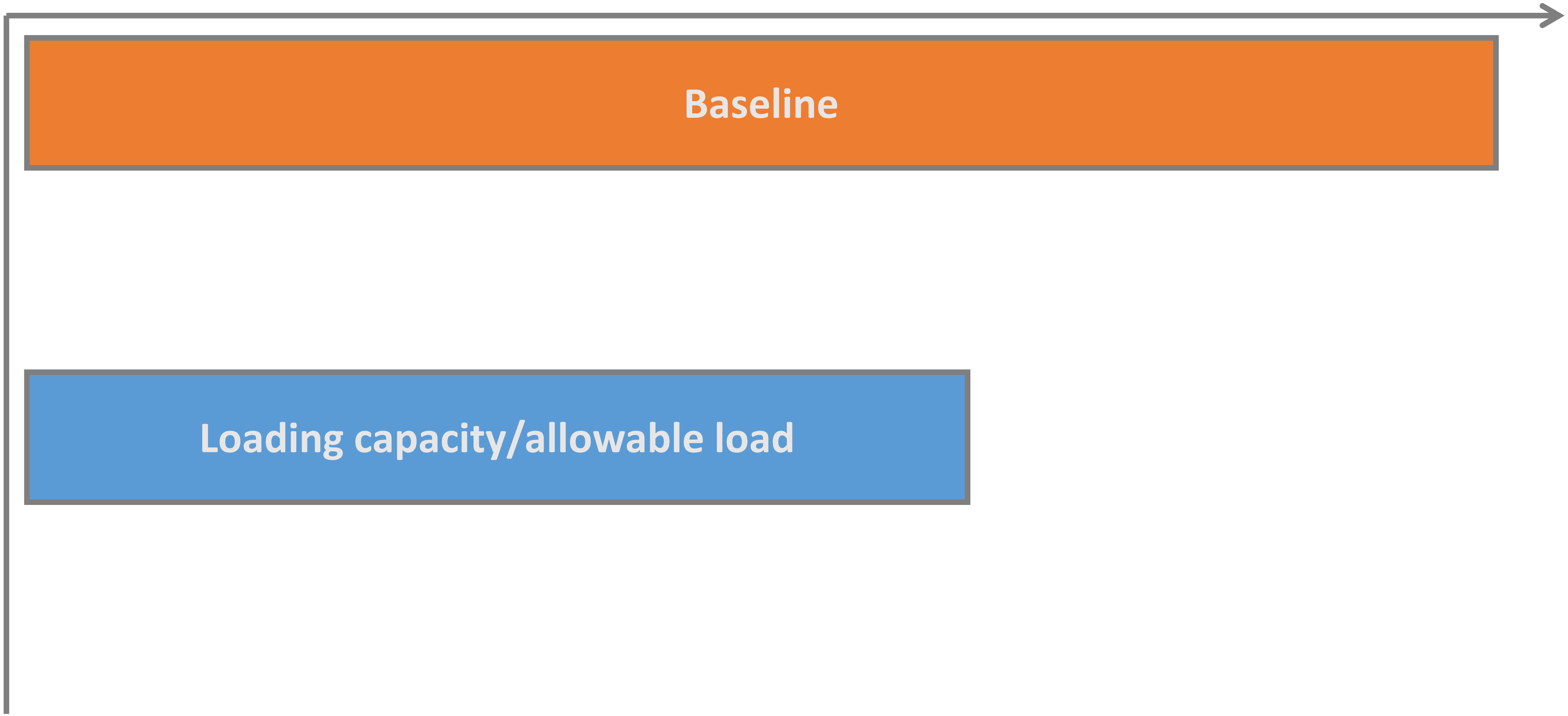
3 Allocate load among sources

What amount of pollutant reduction is needed from each source?

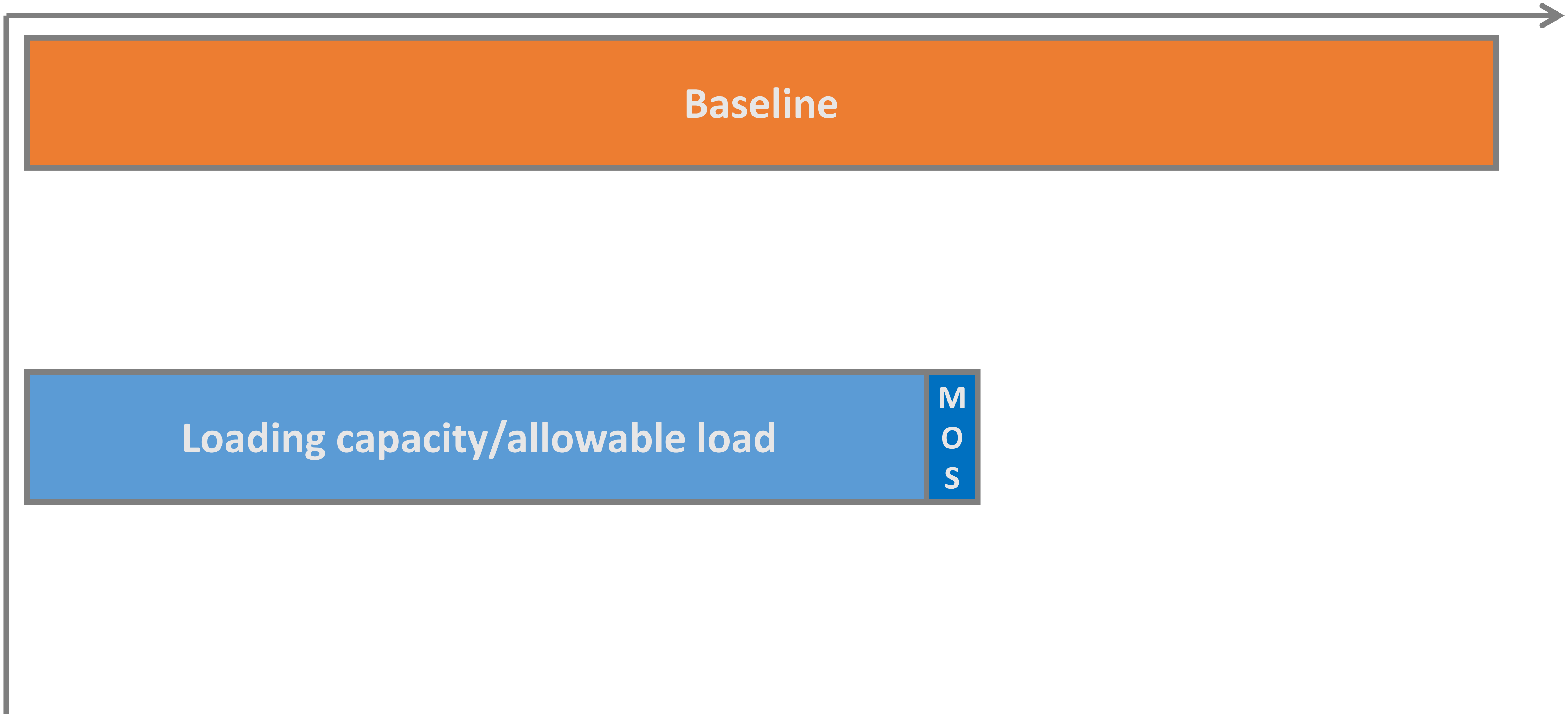
Proportional Mass Reduction by Subbasin (Equal Percent Reduction)



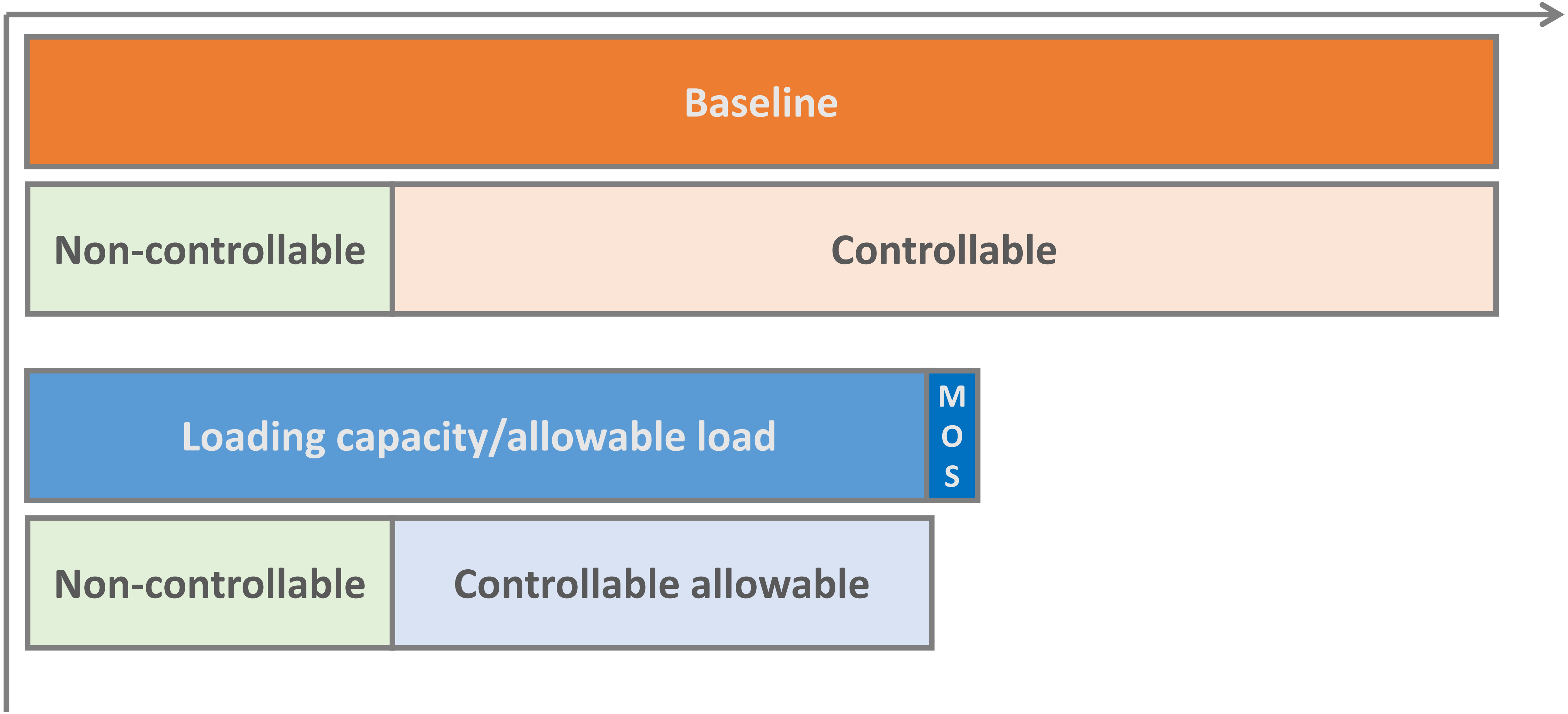
Allocation Process



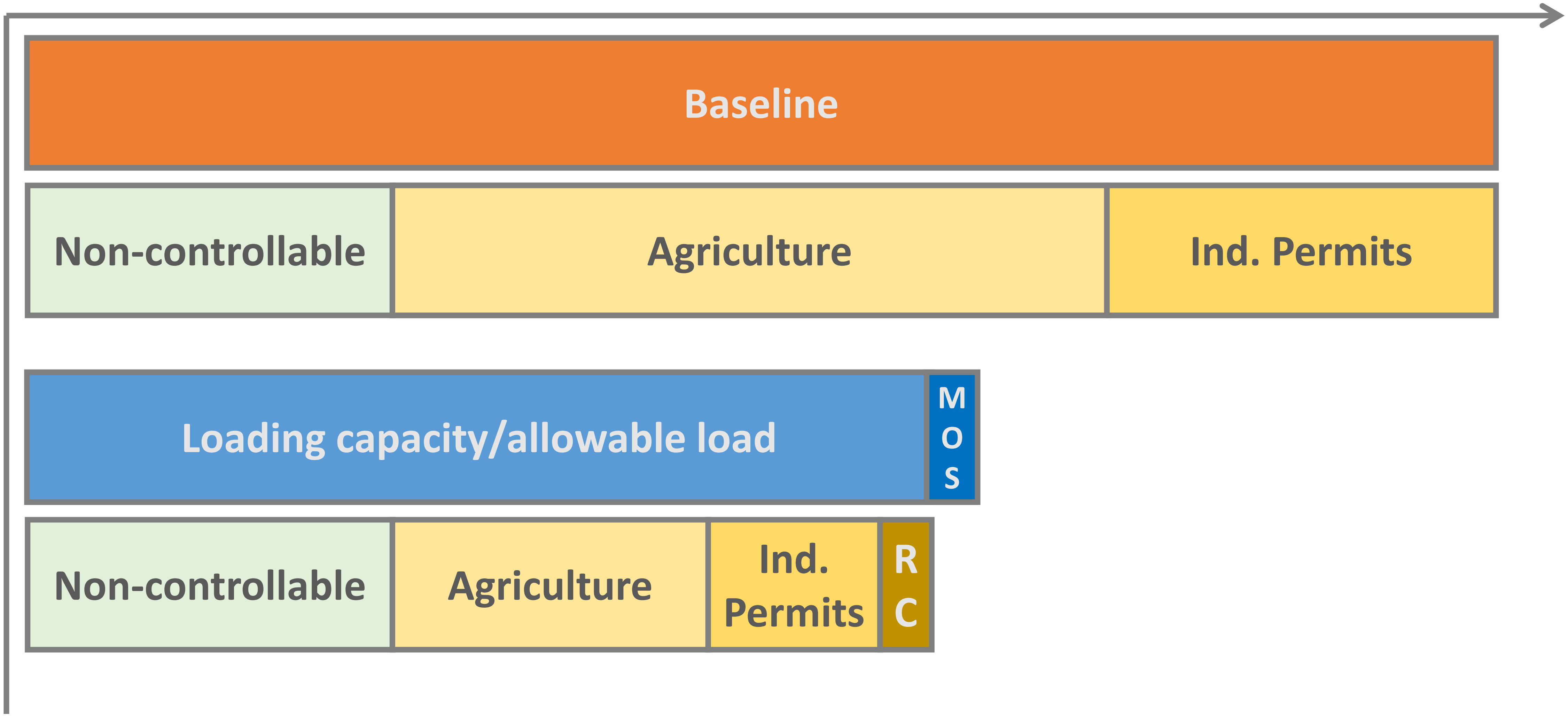
Allocation Process



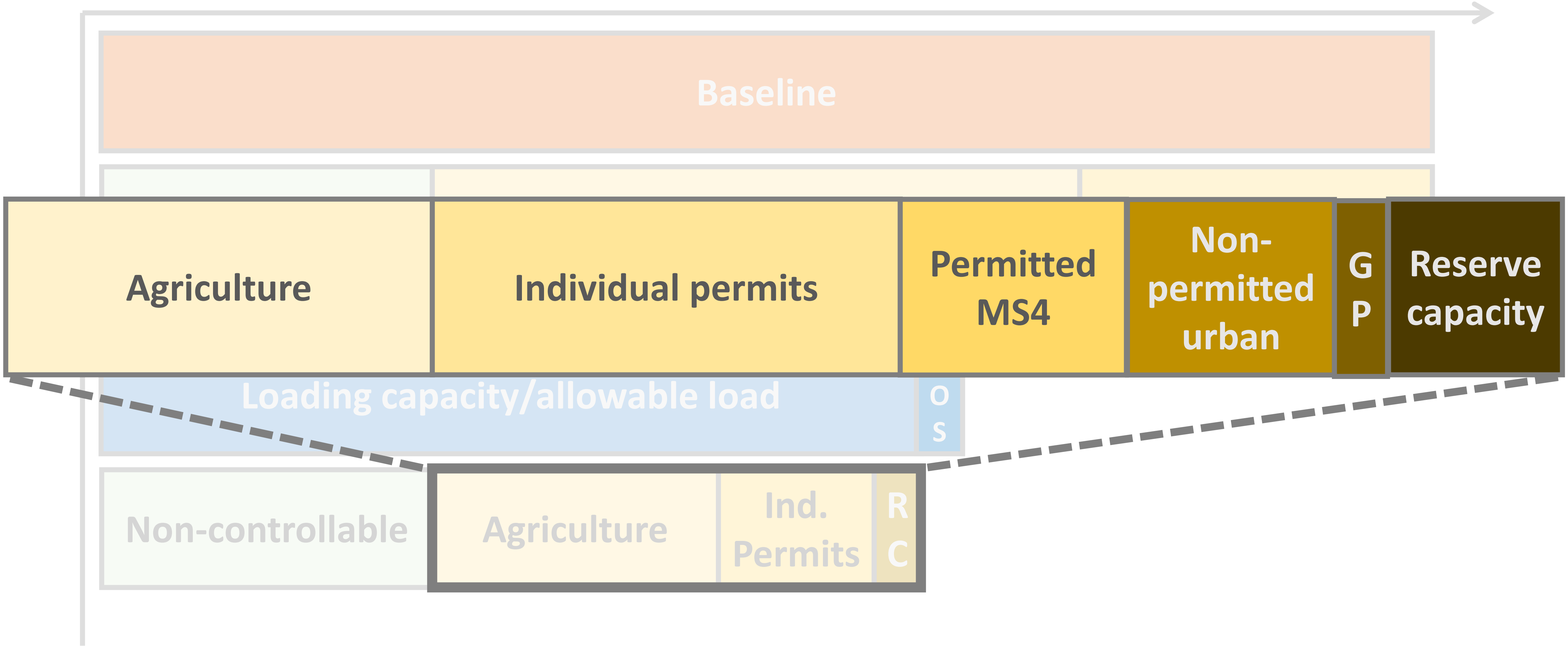
Allocation Process



Allocation Process



Allocation Process



Allocation Process

Divides the TMDL among sources

TMDL

What are the sources?

1) Load allocation

Nonpoint sources

2) Wasteload allocation

Point sources

3) Margin of Safety

4) Reserve Capacity

Allocation Process

Divides the TMDL among sources

TMDL

What are the sources?

1) Load allocation

Controllable sources

- Agricultural
- Non-permitted Urban

Uncontrollable sources

- Natural

2) Wasteload allocation

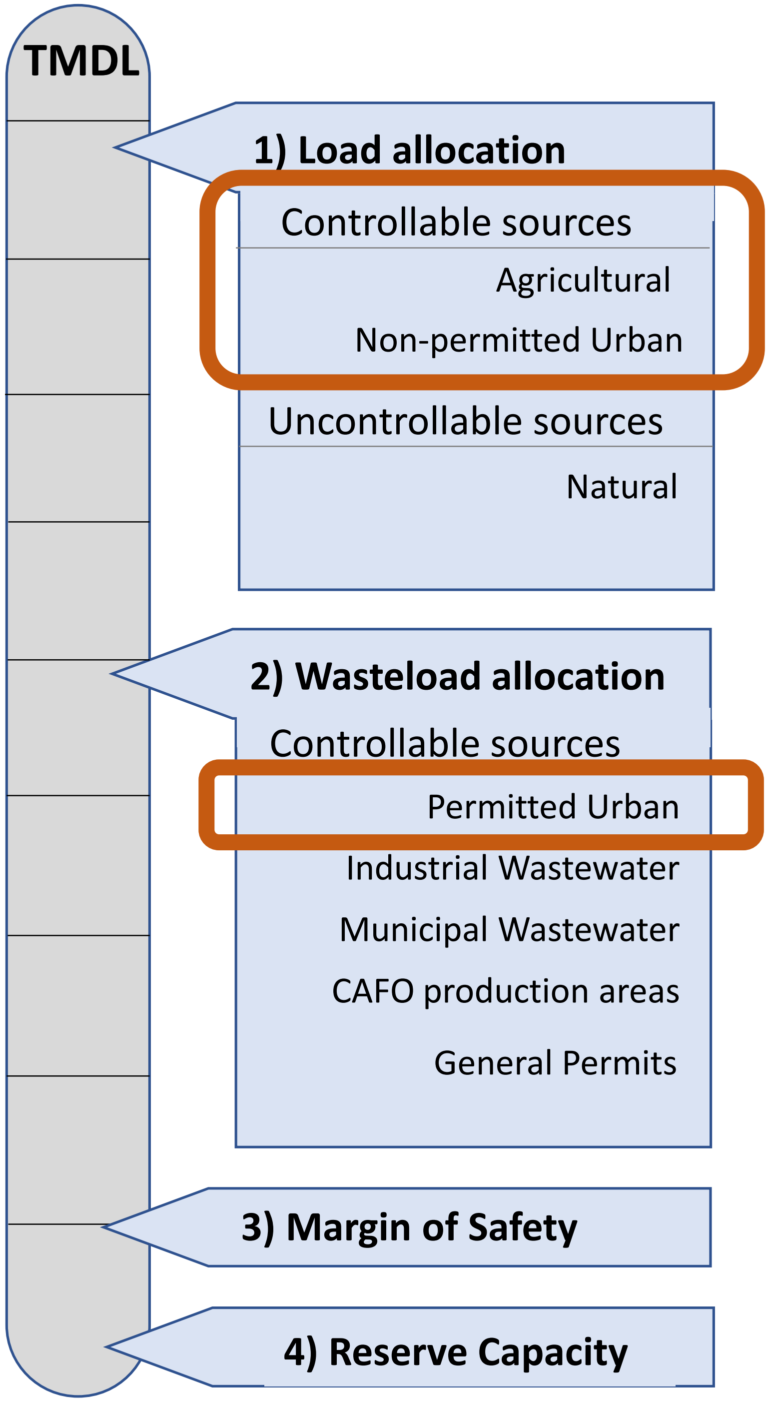
Controllable sources

- Permitted Urban
- Industrial Wastewater
- Municipal Wastewater
- CAFO production areas
- General Permits

3) Margin of Safety

4) Reserve Capacity

Allocation Process



Controllable sources:

Agricultural, non-permitted urban, permitted urban (MS4)

How is it allocated?

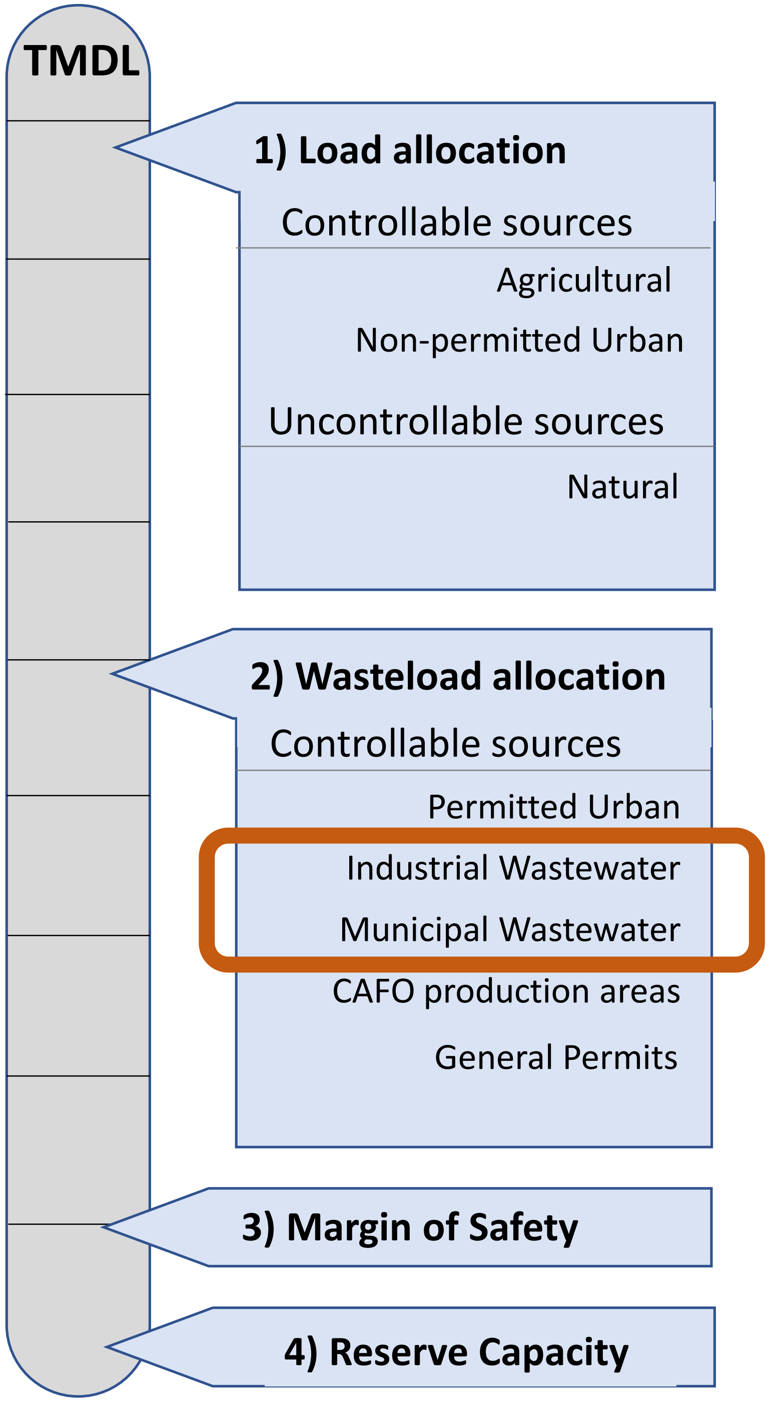
Receive an allocation proportional to their baseline load

How are baseline loads determined?

Modeled

**Permitted MS4 baseline starts at a 20% reduction of TSS (20% from “no controls” is permitted). If 20% of TSS was reduced, an estimated 15% of TP would result, so the baseline for TP is 15% from “no controls”.*

Allocation Process



Controllable sources:

Industrial Wastewater & Municipal wastewater

How is it allocated?

Receive an allocation proportional to their baseline load

How are baseline loads determined?

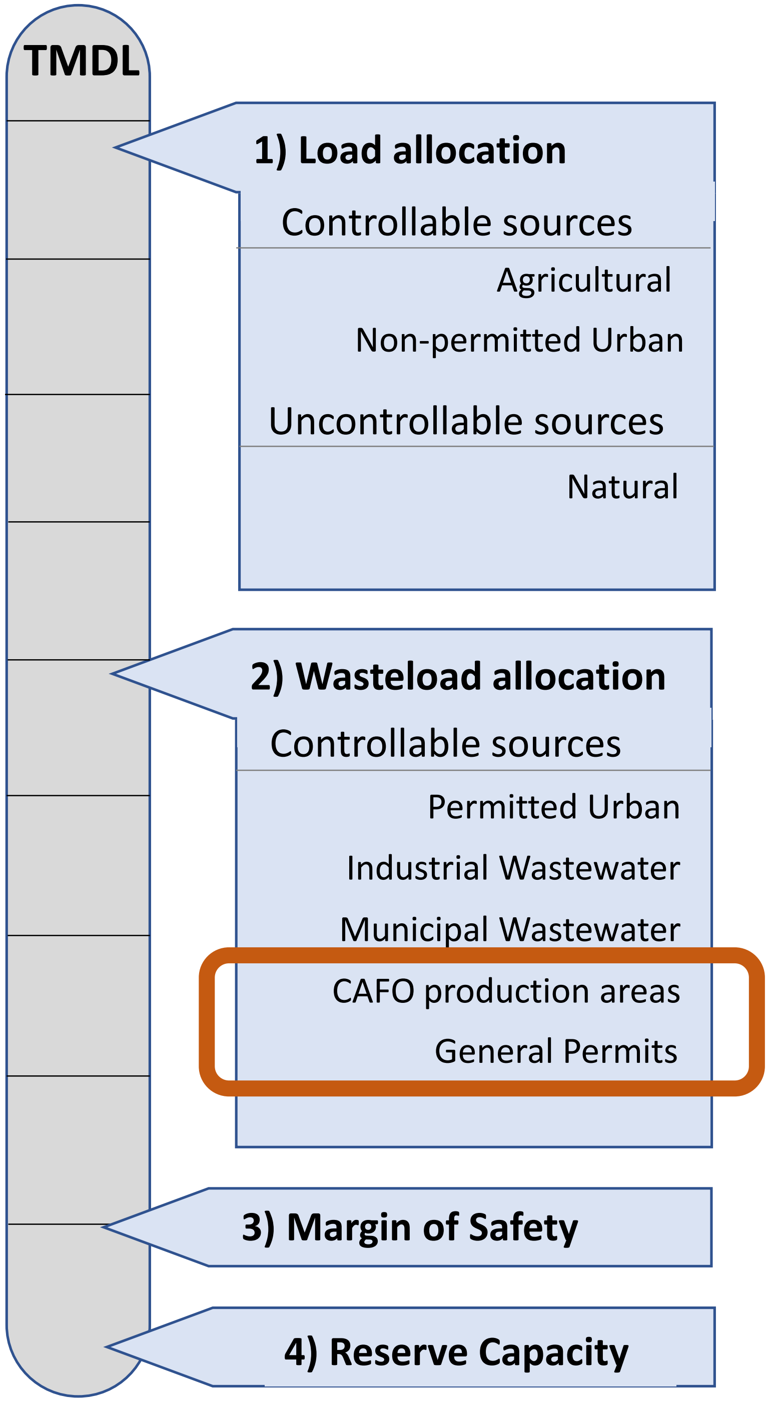
Industrial Wastewater

- Baseline flow = Max annual average flow between 2015 - 2020
- Baseline TP conc. = 1 mg/L or effluent average if NCCW
- Baseline TSS conc. = current permitted limit or effluent average

Municipal wastewater

- Baseline flow = 1) Design flow or 2) Max annual average flow between 2015 – 2020 (which ever is highest)
- Baseline TP conc = 1 mg/L
- Baseline TSS conc = current permitted limit

Allocation Process



Controllable sources:

CAFO production areas and General Permits

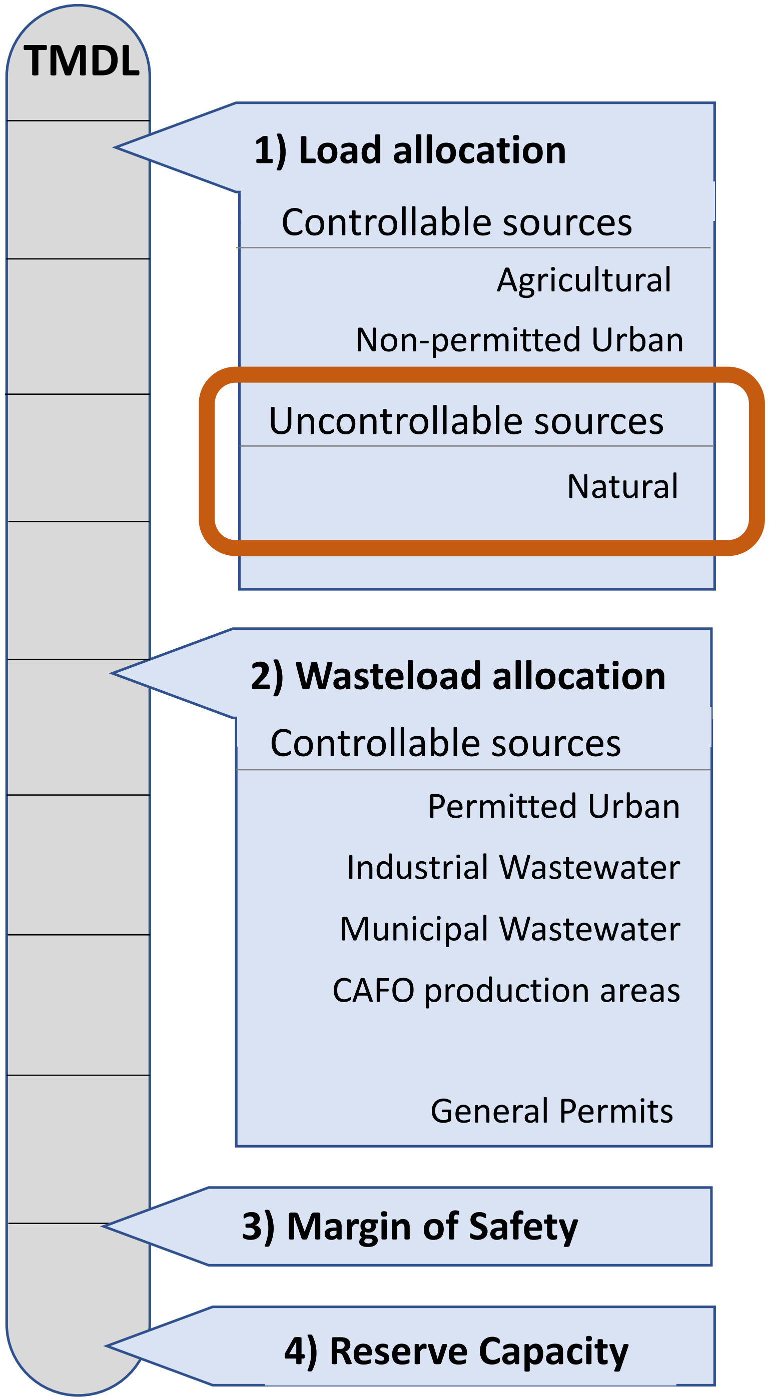
How is it allocated?

CAFO production area = 0 assigned to production areas (fields covered by ag nonpoint)

General Permits

- Within a permitted MS4 boundary, stormwater permits included within the MS4 allocation
- General permits and stormwater permits outside MS4 boundary are assigned a wasteload allocation based on 1% of the controllable allowable load
    - *This differs from past TMDLs. Prior TMDLs used a fraction of the non-permitted urban load. This method is simpler and more consistent across subbasins.

Allocation Process



Uncontrollable sources:

Natural

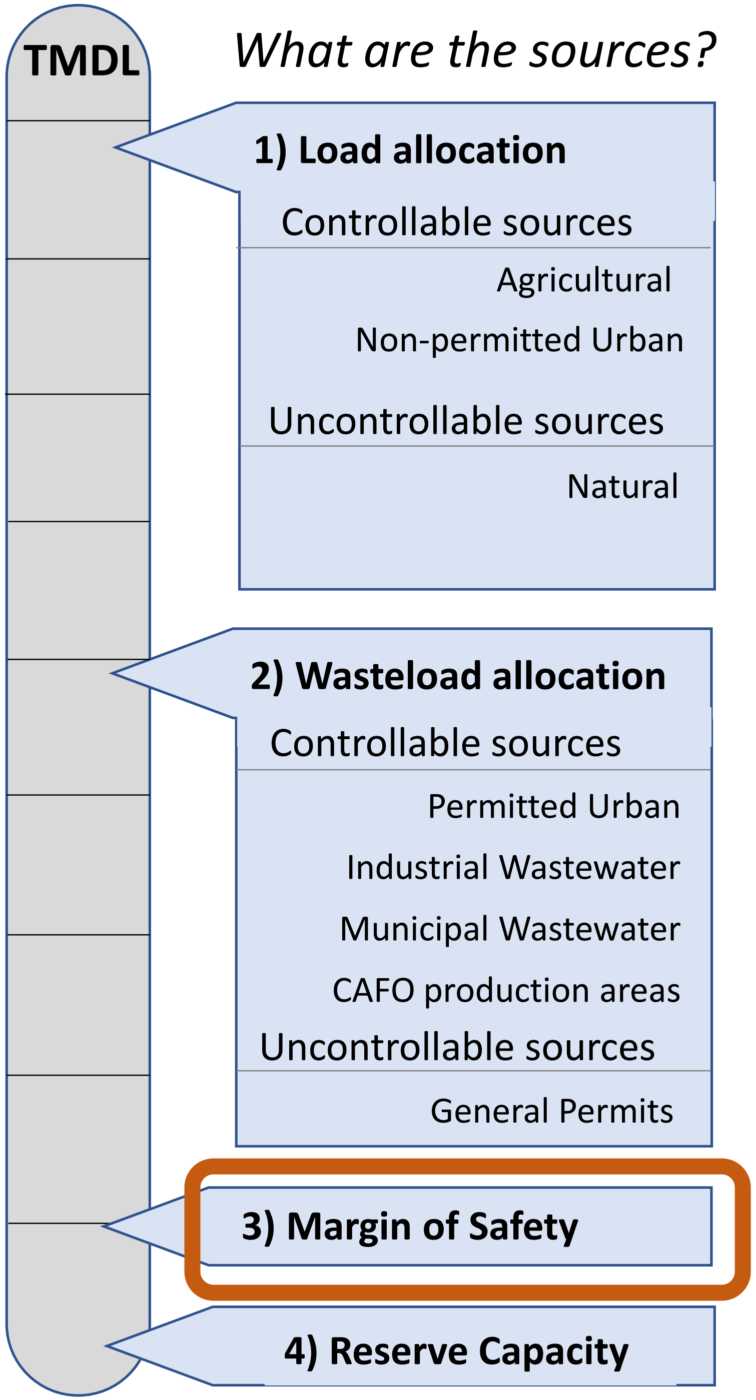
How is it allocated?

No percent reduction from their baseline load

How are baseline loads determined?

Modeled

Allocation Process



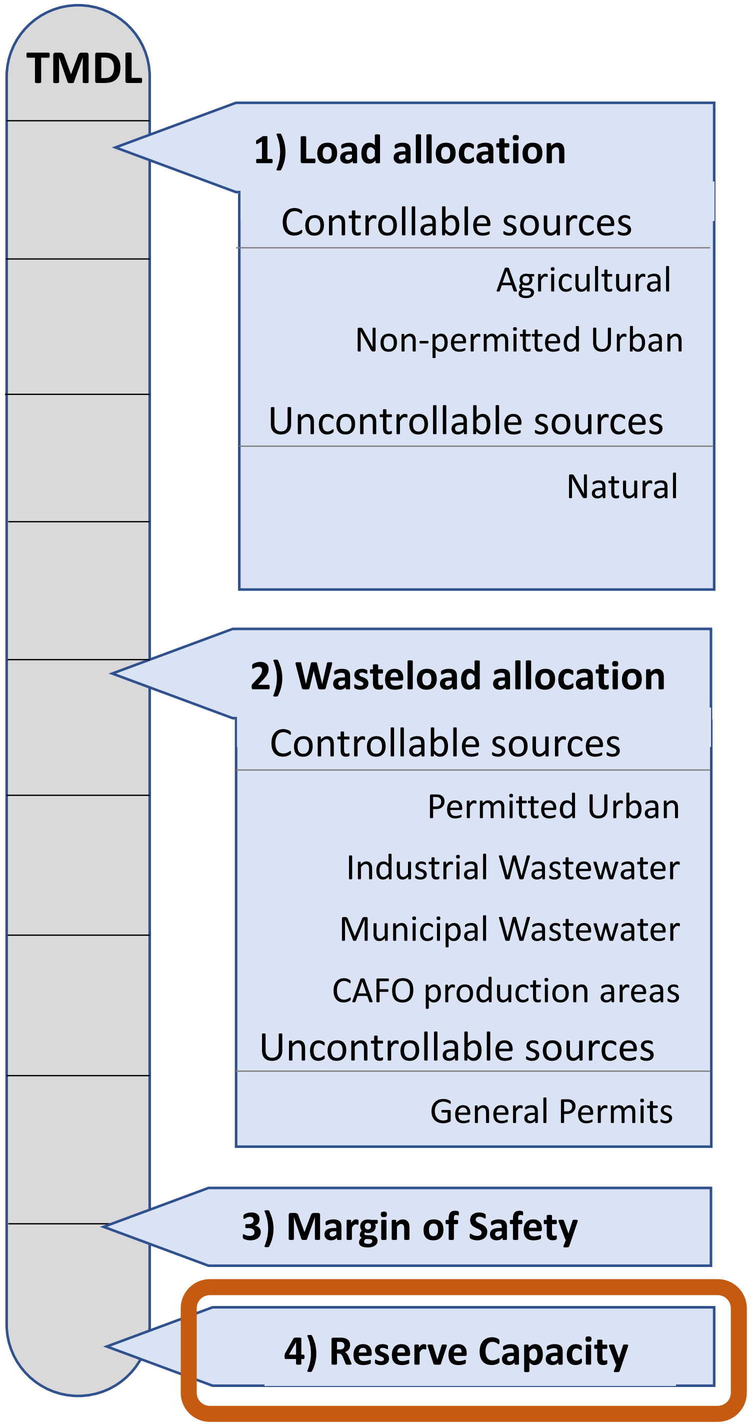
Margin of Safety:

- Required by EPA as part of the TMDL
- Accounts for uncertainty in the data and modeling using to develop the TMDL

How is it allocated?

- Implicit, through conservative model assumptions, such as the use of a 90% confidence interval when translating SWAT loads to growing season median TP criteria (details will follow in TMDL report)

Allocation Process



Reserve Capacity:

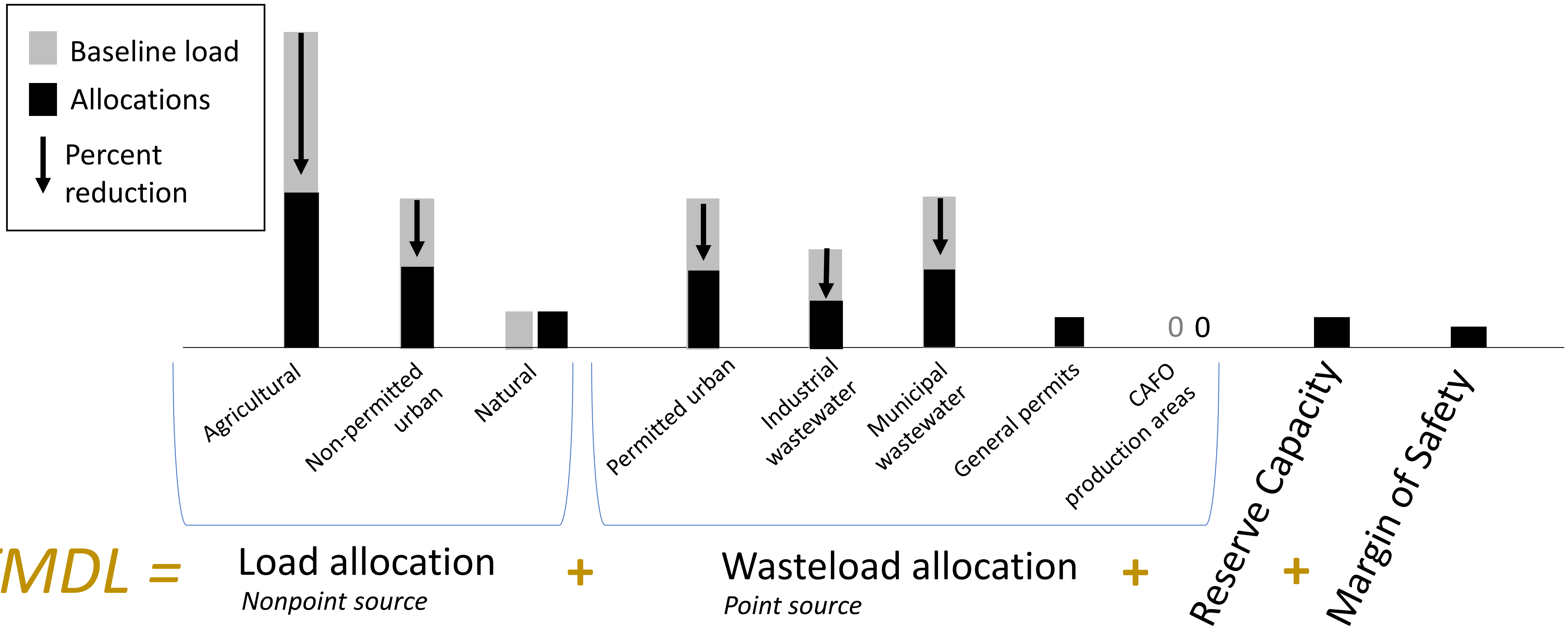
- Included in each subbasin to account for new or expanding dischargers

How is it allocated?

- For individual facilities, indirectly through the use of their facility design flows (design flows are an overestimate of actual use)
- For each subbasin, an additional set aside of 5% of the controllable allowable load
- Reserve capacity is cumulative as you move through the drainage network, (i.e., downstream reaches can draw reserve capacity from upstream reaches)

Allocation Process Summary

How is the TMDL divided among sources?



TMDL = Load allocation *Nonpoint source* + Wasteload allocation *Point source* + Reserve Capacity + Margin of Safety

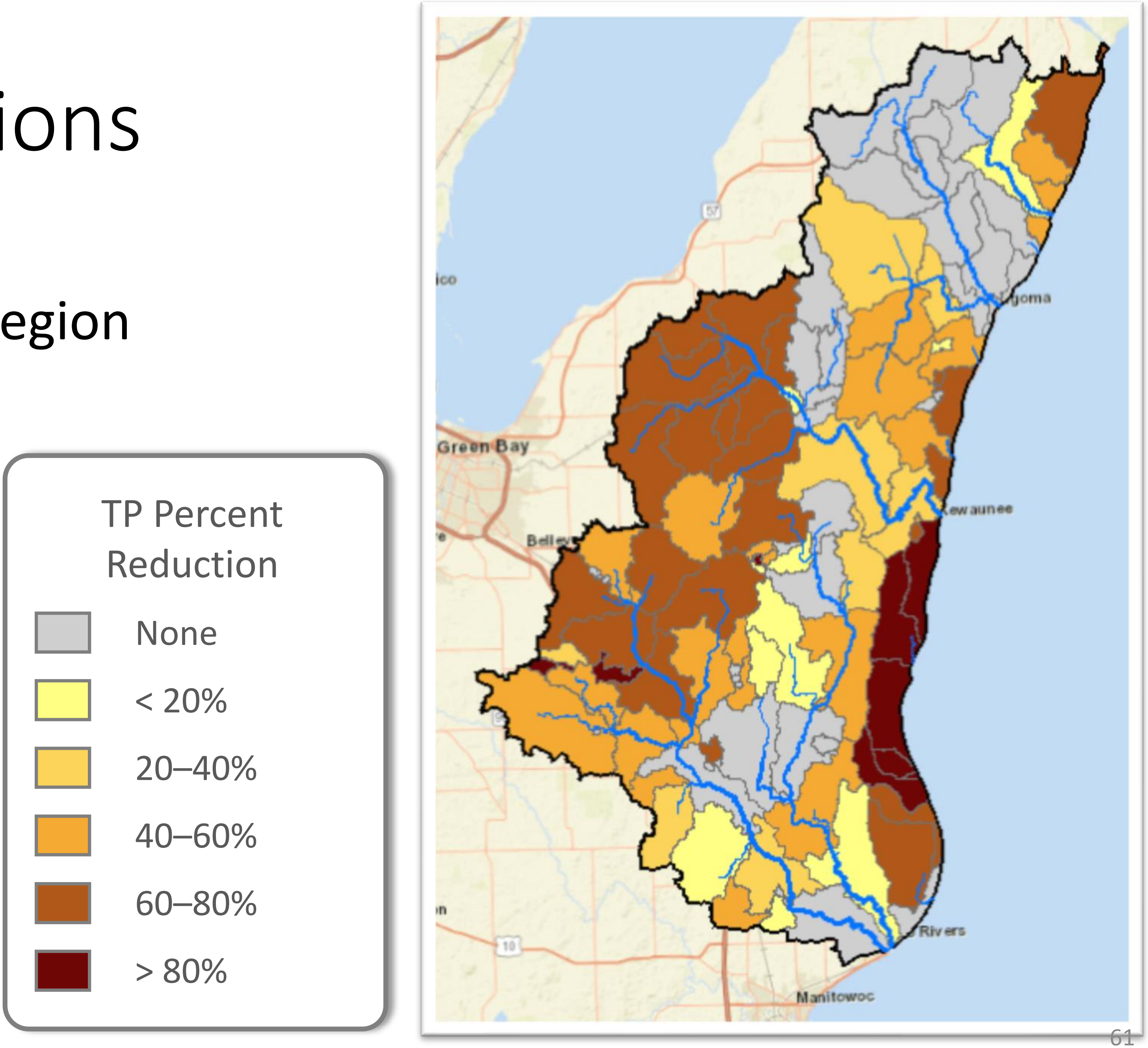
Percent Reductions

Total Phosphorus

Kewaunee River Basin Region

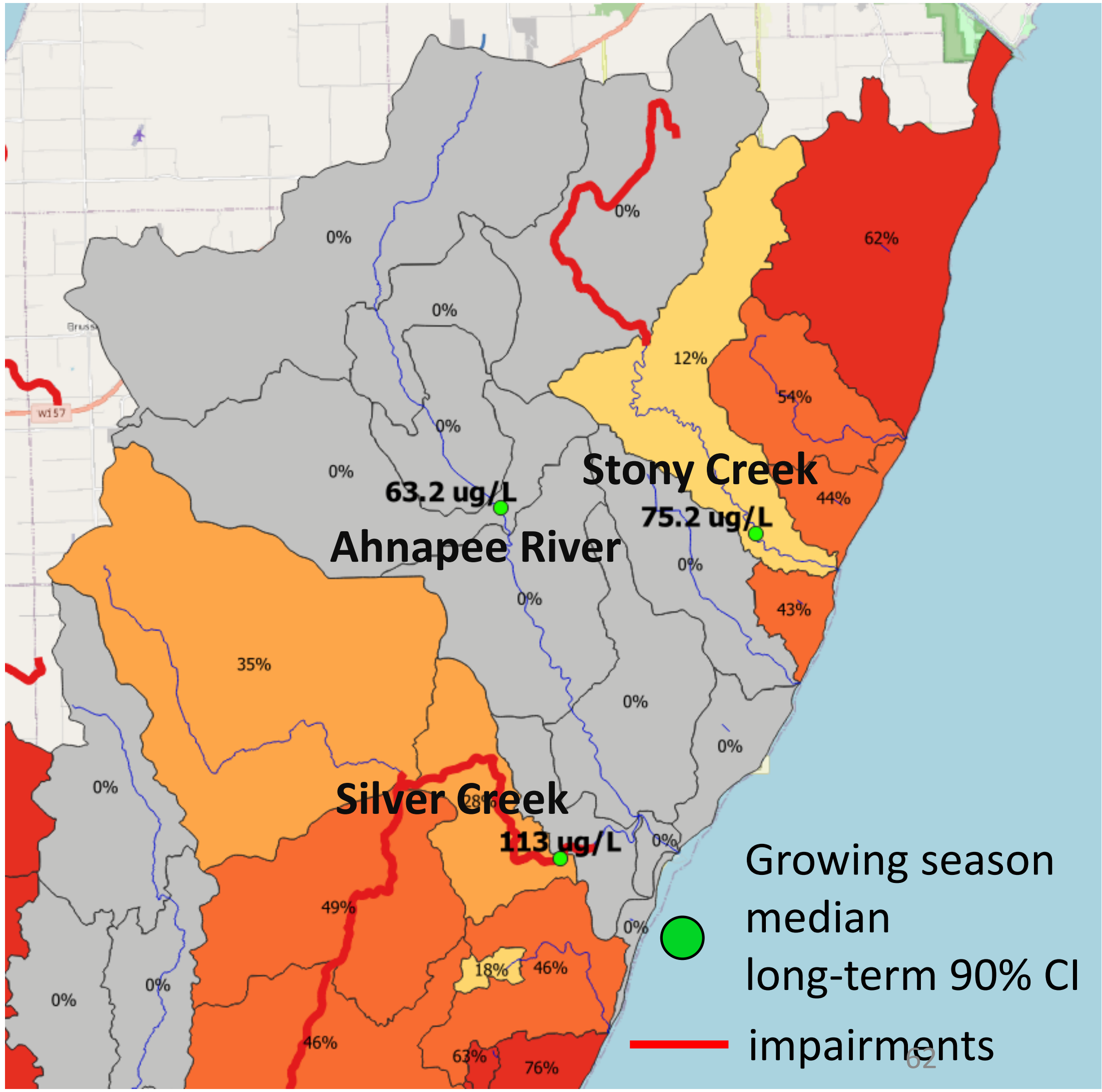
Main Takeaway(s):

- Most subbasins have reductions except for those within the Ahnapee River basin



Aside #1: Allocations vs. Monitoring data QA/QC

- Percent reductions were compared with impairment listings and monitoring data to ensure consistency
- Example: Silver Creek, Ahnapee River, and Stony Creek percent reductions align with impairments and monitoring data



Percent Reductions

Total Phosphorus

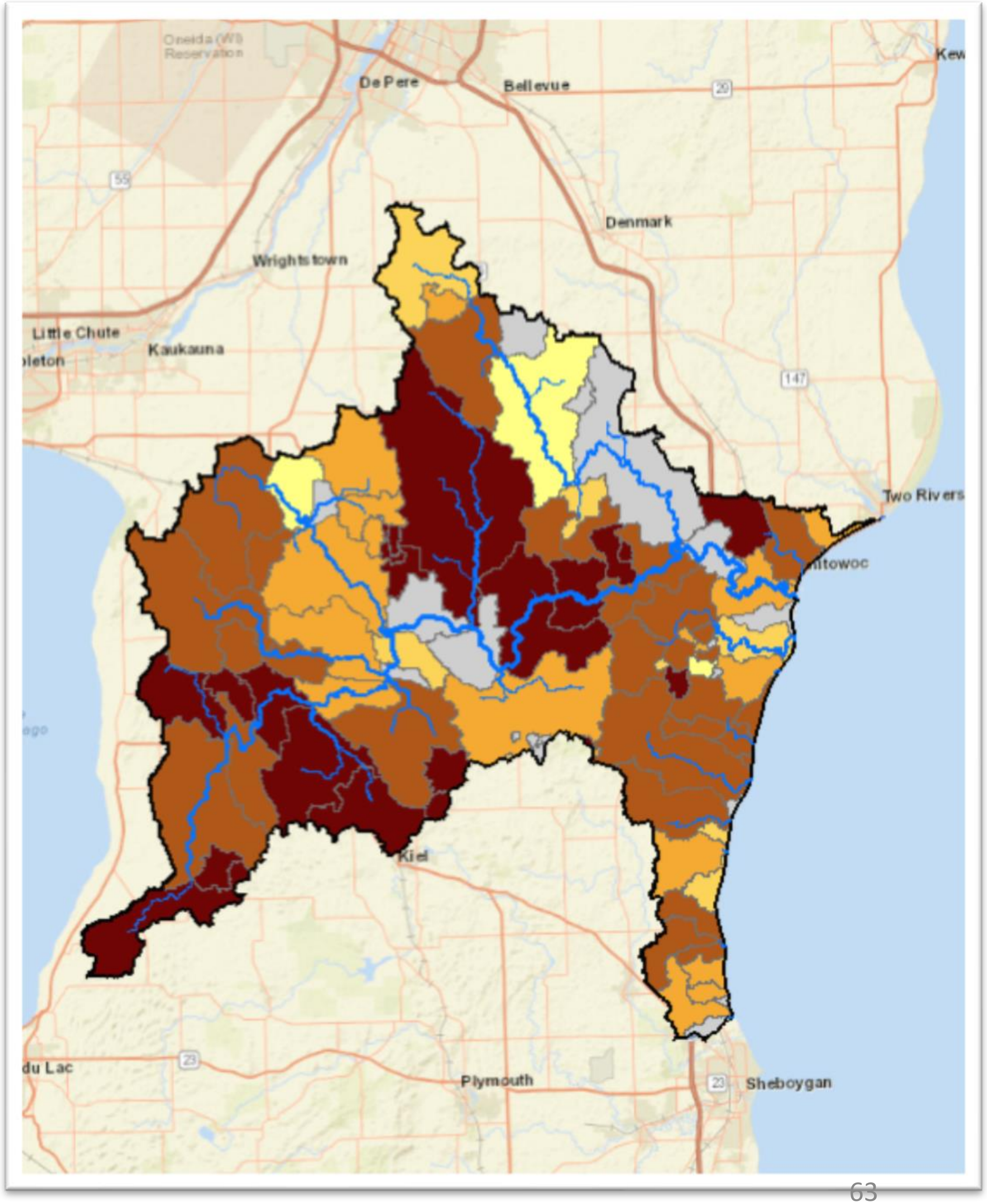
Manitowoc River Basin Region

Main Takeaway(s):

- Almost all subbasins have reductions, and those that are in the major agricultural areas have the highest, upwards of 80%

TP Percent Reduction

- None
- < 20%
- 20–40%
- 40–60%
- 60–80%
- > 80%



Percent Reductions

Total Phosphorus

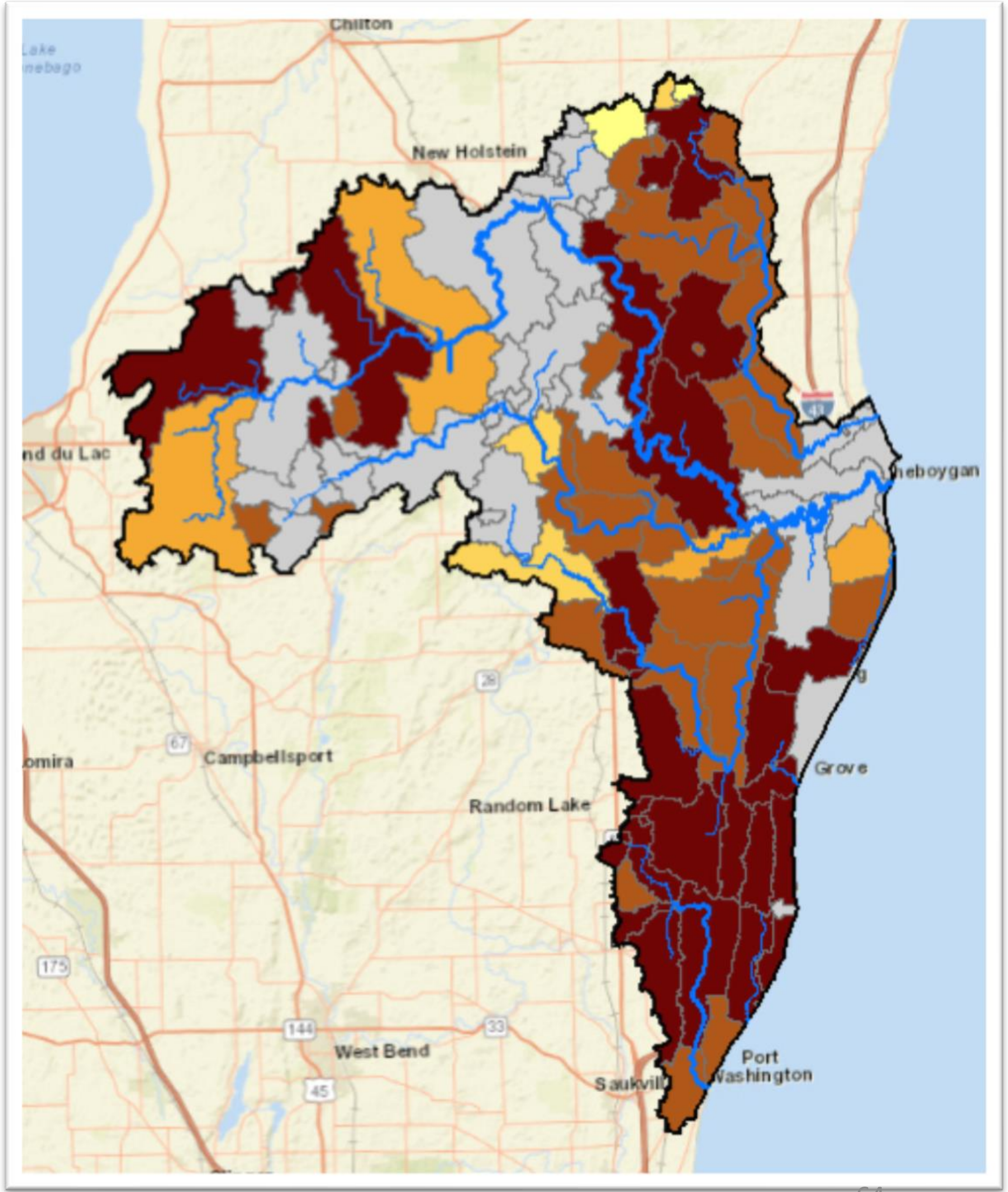
Sheboygan River Basin Region

Main Takeaway(s):

- The Onion River, Black River, and Sauk Creek on the south end have high reductions
- Areas with expansive wetland areas (such as the Mullet River and Sheboygan Marsh areas) have no reductions

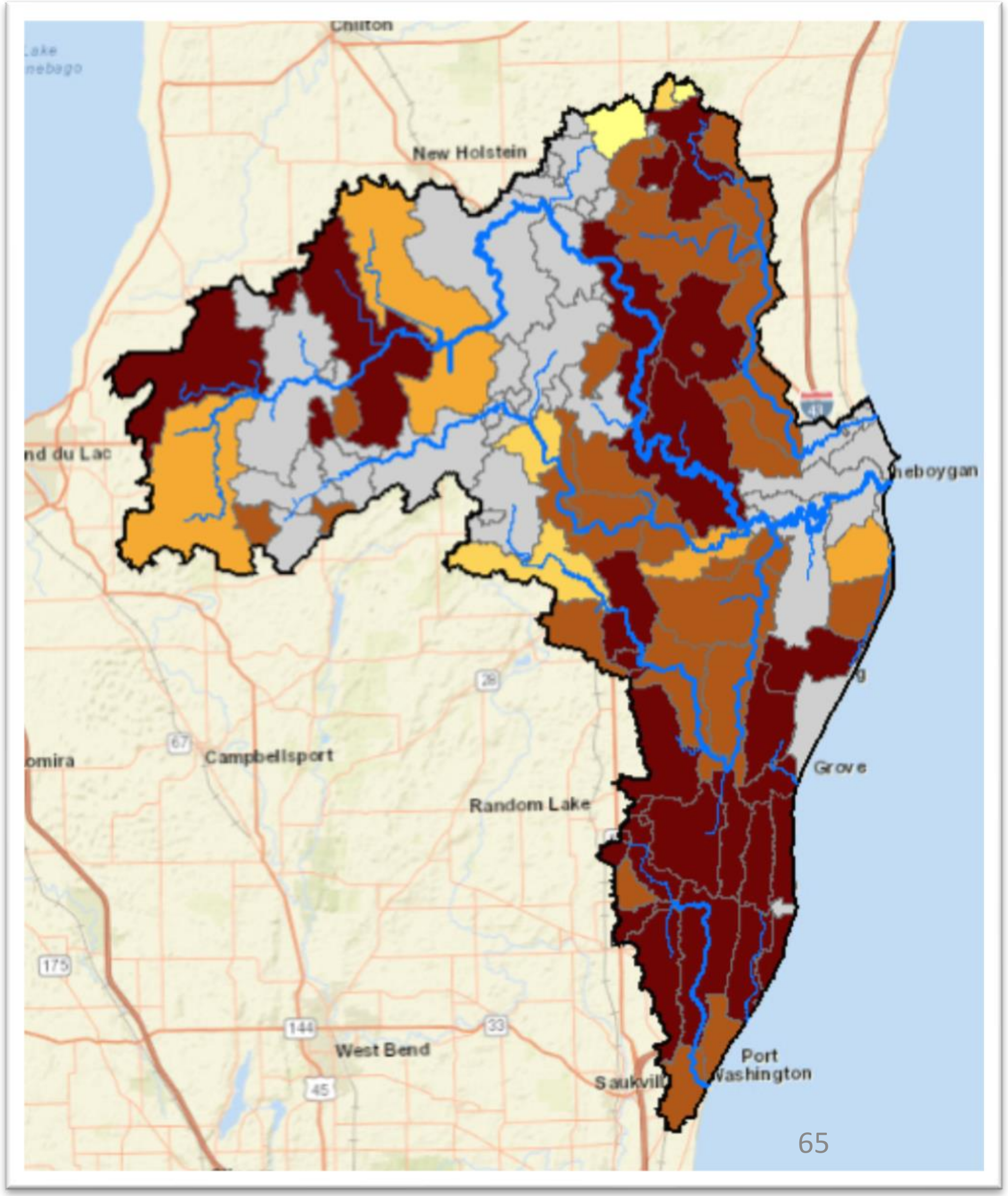
TP Percent Reduction

- None
- < 20%
- 20–40%
- 40–60%
- 60–80%
- > 80%



Aside #2: My river is polluted, why is there no reduction?

- Previous TMDLs in Wisconsin have had more uniform percent reductions. This was a result of the TMDL being driven by reductions associated with downstream lakes with lower criteria.
- Local water quality is driven by local pollution. If upstream sources are eliminated, local sources drive reductions. Elimination of upstream sources may resolve downstream impairments without any local reduction.



Percent Reductions

Total Suspended Solids

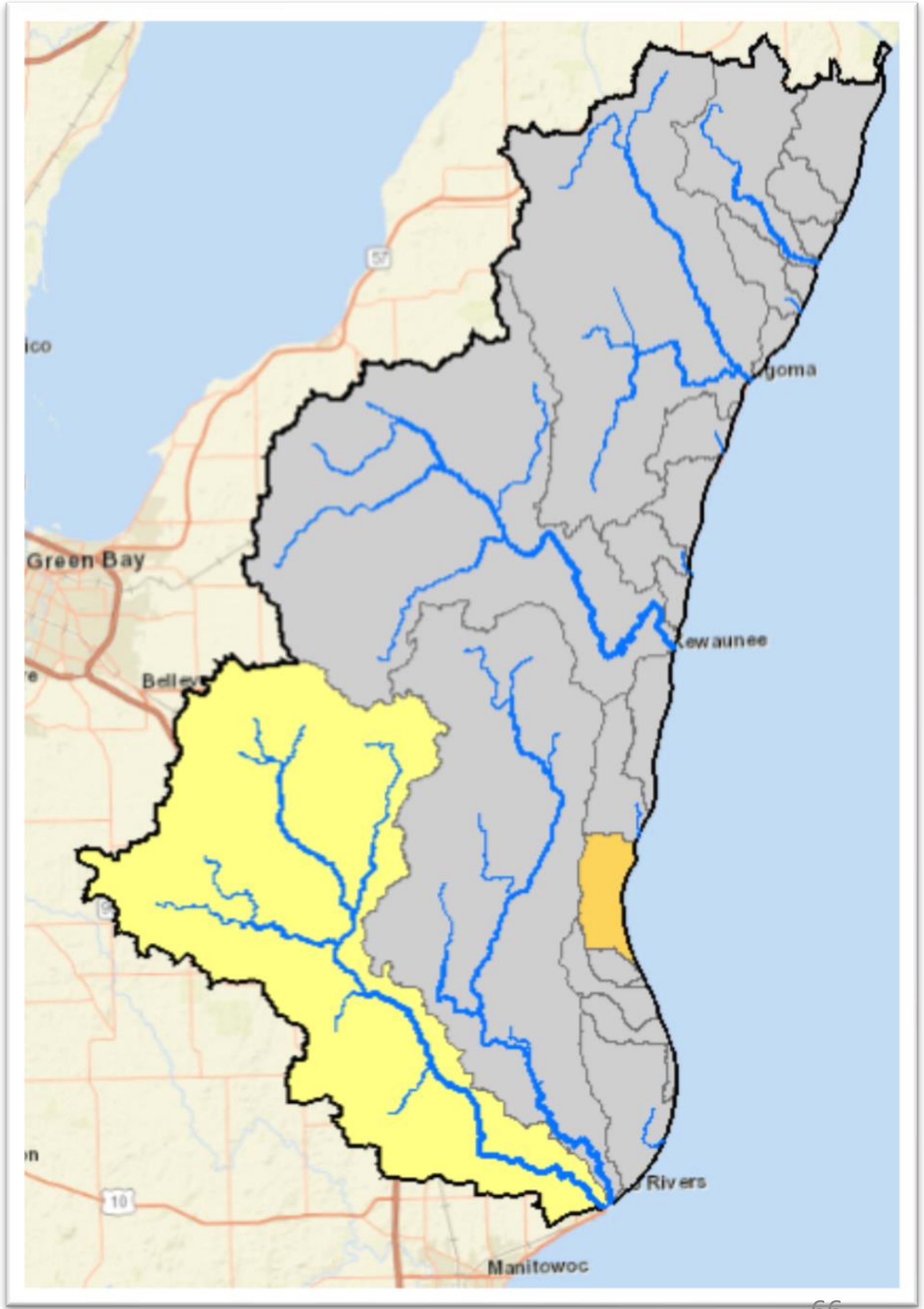
Kewaunee River Basin Region

Main Takeaway(s):

- The only major basin with a reduction is the West Twin River basin

TP Percent Reduction

- None
- < 20%
- 20–40%
- 40–60%
- 60–80%
- > 80%



Percent Reductions

Total Suspended Solids

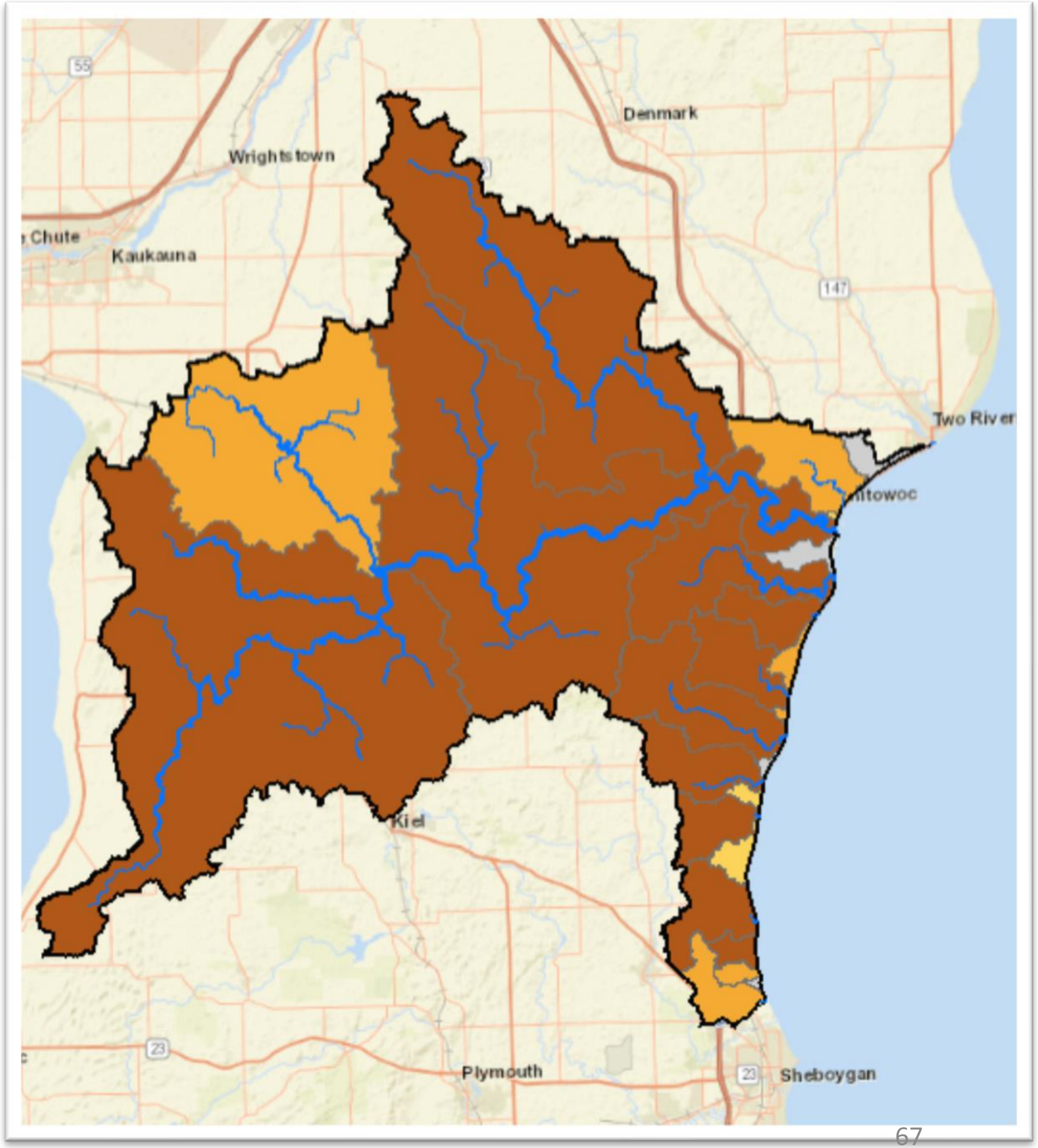
Manitowoc River Basin Region

Main Takeaway(s):

- All basins will require between 40 and 80% reductions

TP Percent Reduction

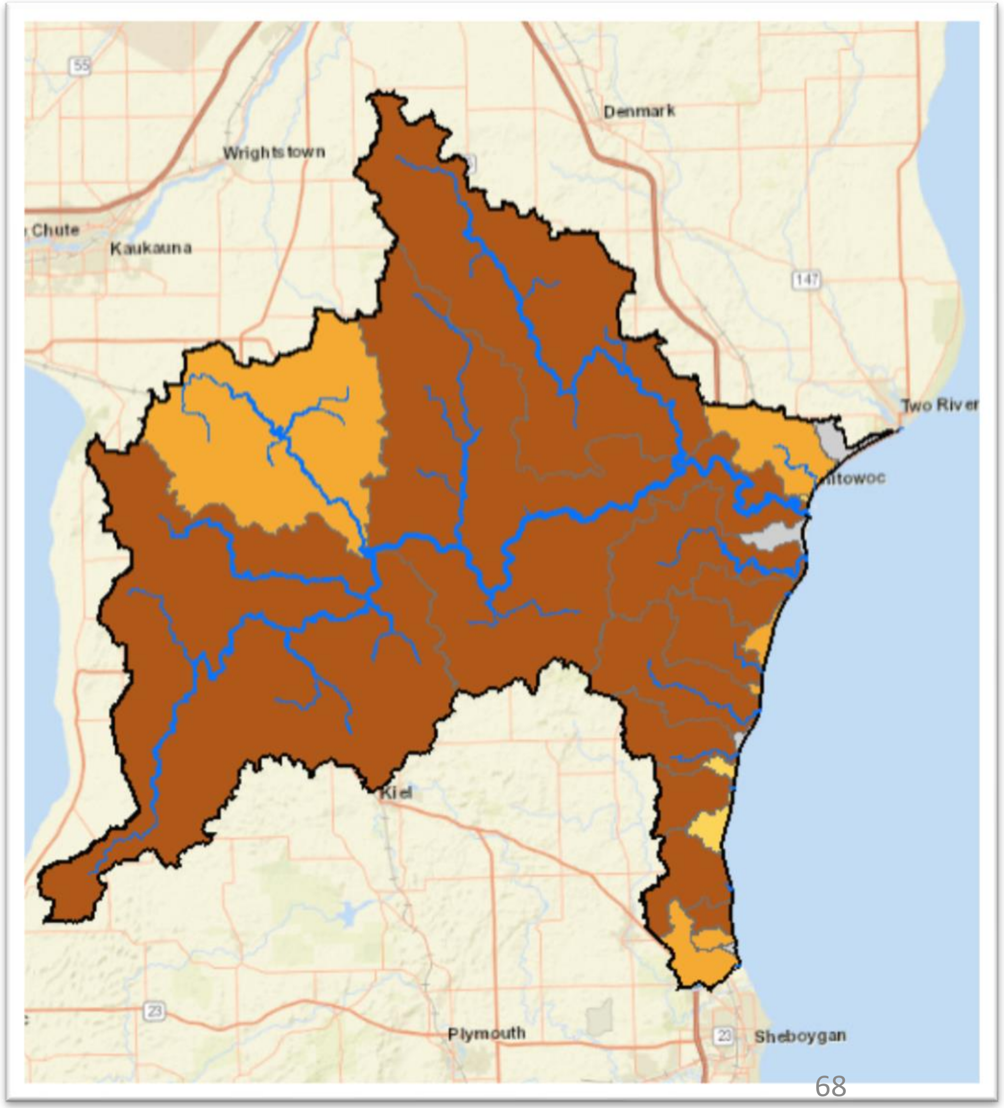
(grey)	None
(light yellow)	< 20%
(yellow)	20–40%
(orange)	40–60%
(brown)	60–80%
(dark red)	> 80%



Aside #3: Agricultural reductions

- Question:
  - Do all farm fields need to reduce sediment loss by 70%?

- Answer:
  - No. Sediment loss from farm fields will vary greatly. We will be releasing TP/TSS agricultural targets in terms of yields (lbs./acre/yr., rather than percent reduction) in the next webinar. Fields that already meet those targets will not require additional reductions.



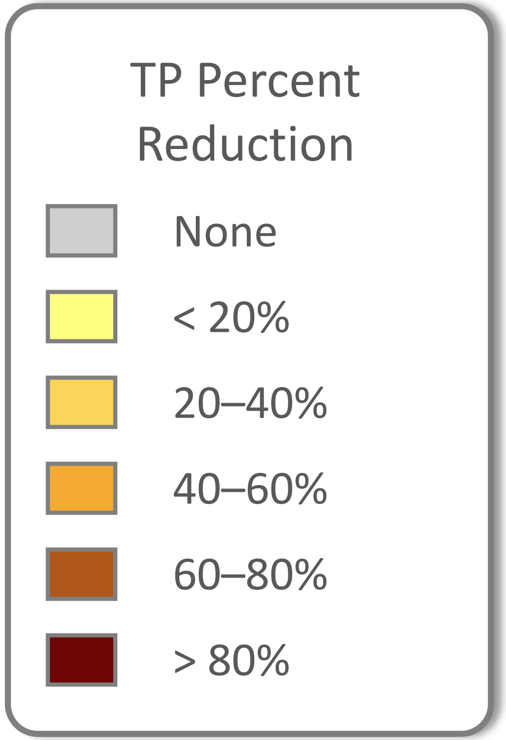
Percent Reductions

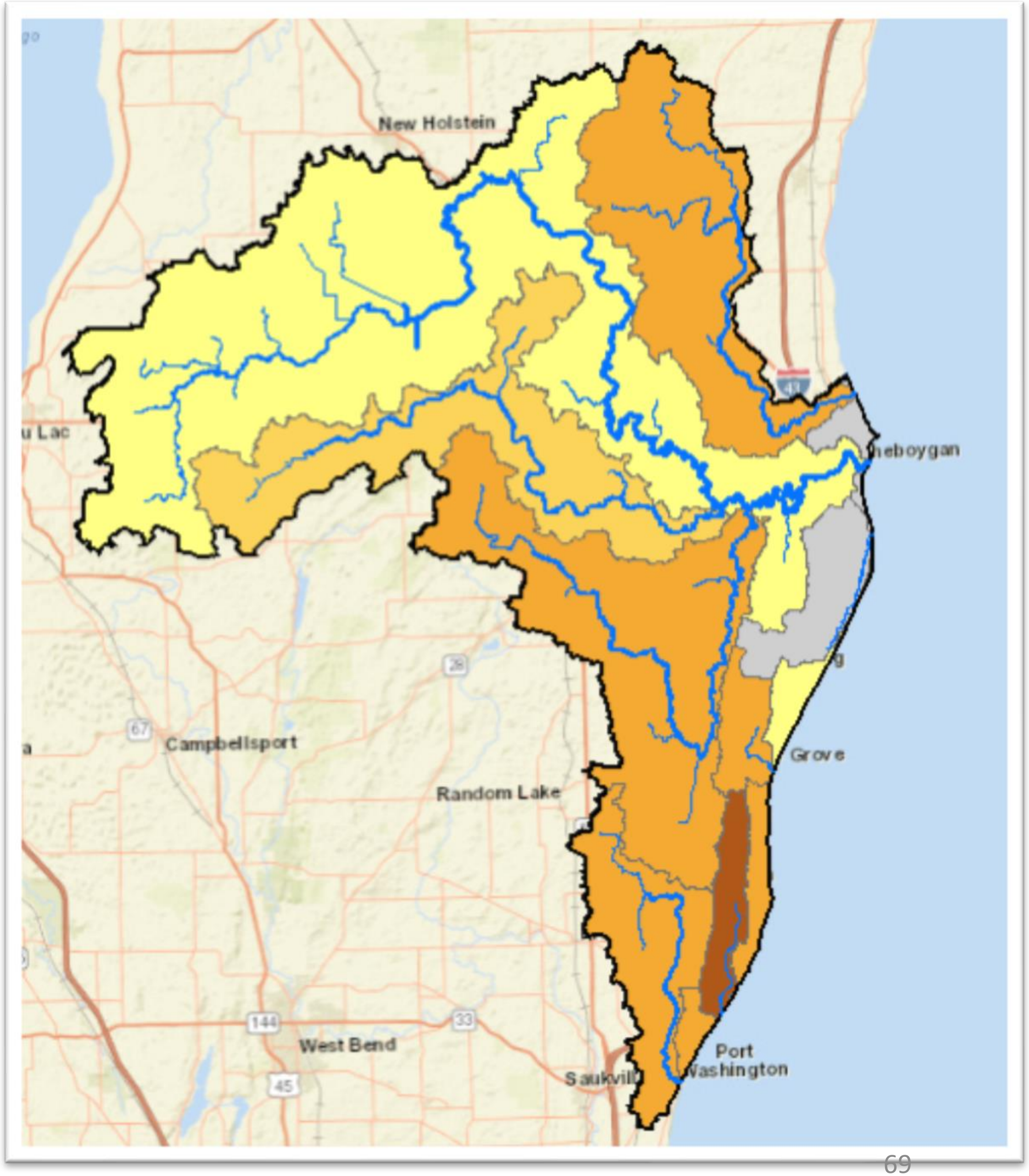
Total Suspended Solids

Sheboygan River Basin Region

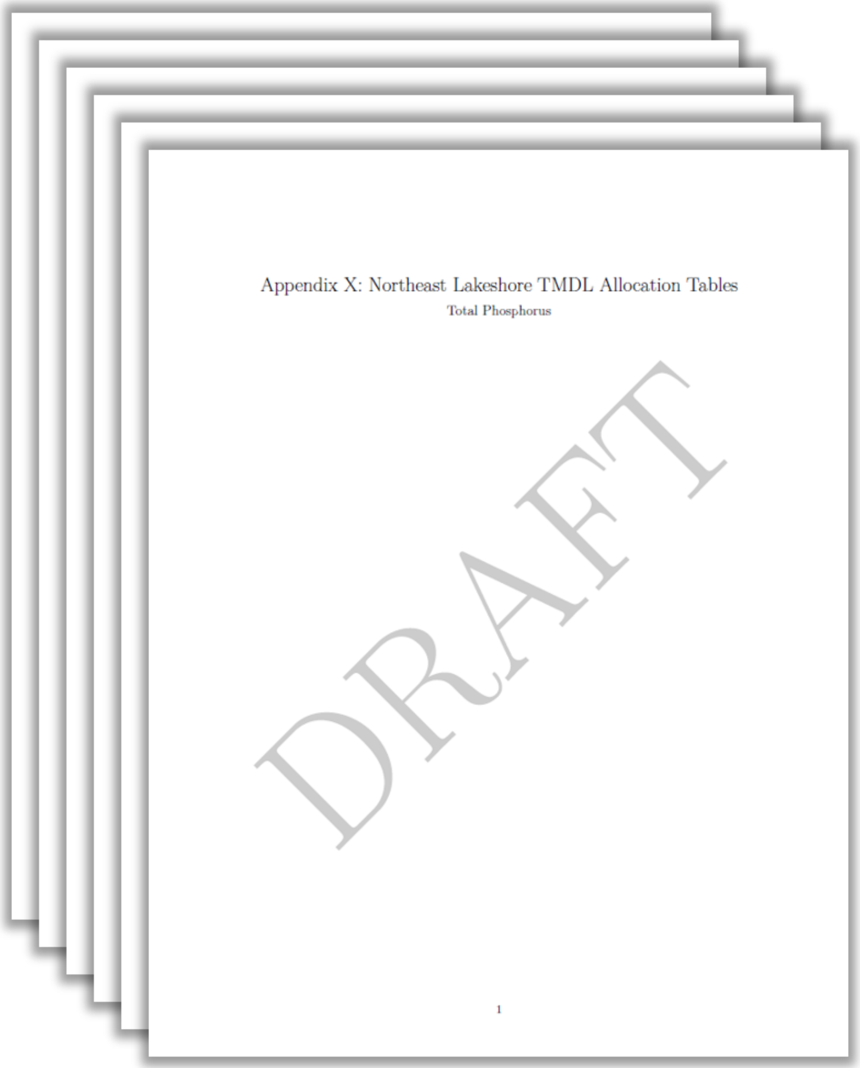
Main Takeaway(s):

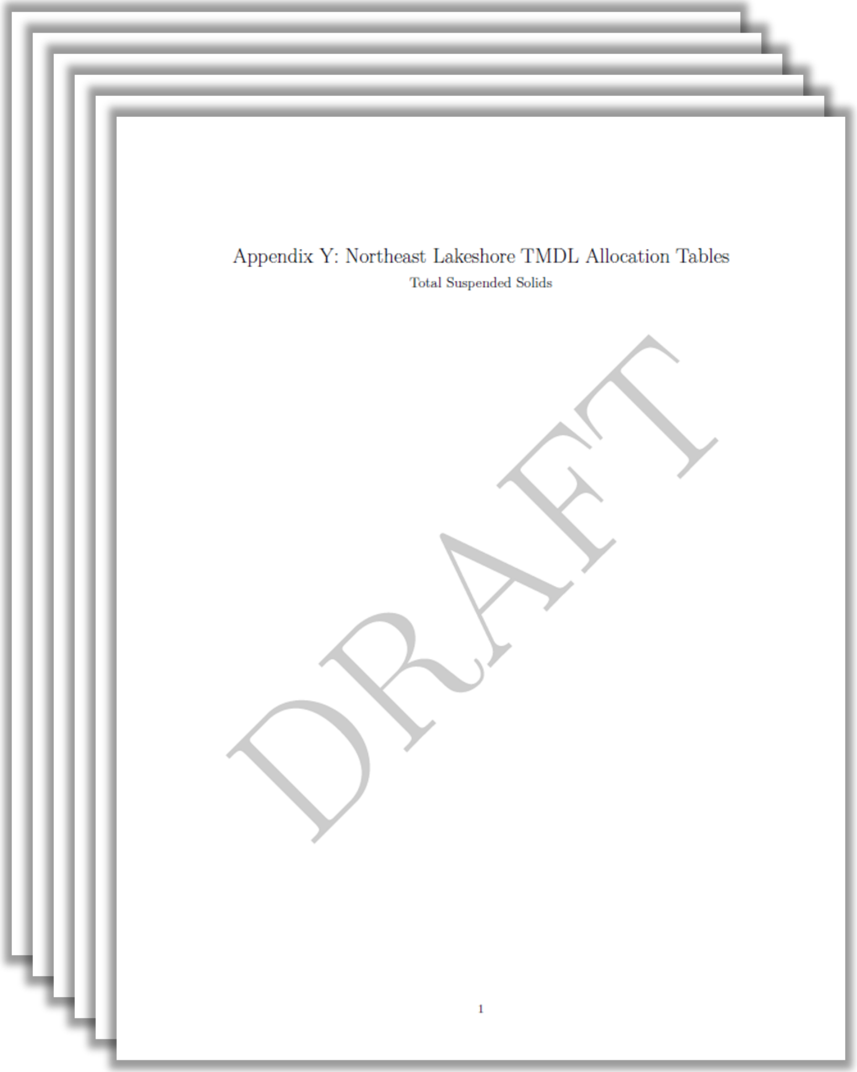
- All basins will require between 10 and 60% reductions, except Sucker Creek, which will require 70%





How to Interpret Draft Allocation Results





How to Interpret Draft Allocation Results

Appendix X. Total Phosphorus

- Kewaunee River Basin Region
  - Annual load allocations by reach
  - Daily load allocations by reach
  - Individual permit allocations
  - MS4 allocations
  - Percent reductions by reach
- Manitowoc River Basin Region
- Sheboygan River Basin Region

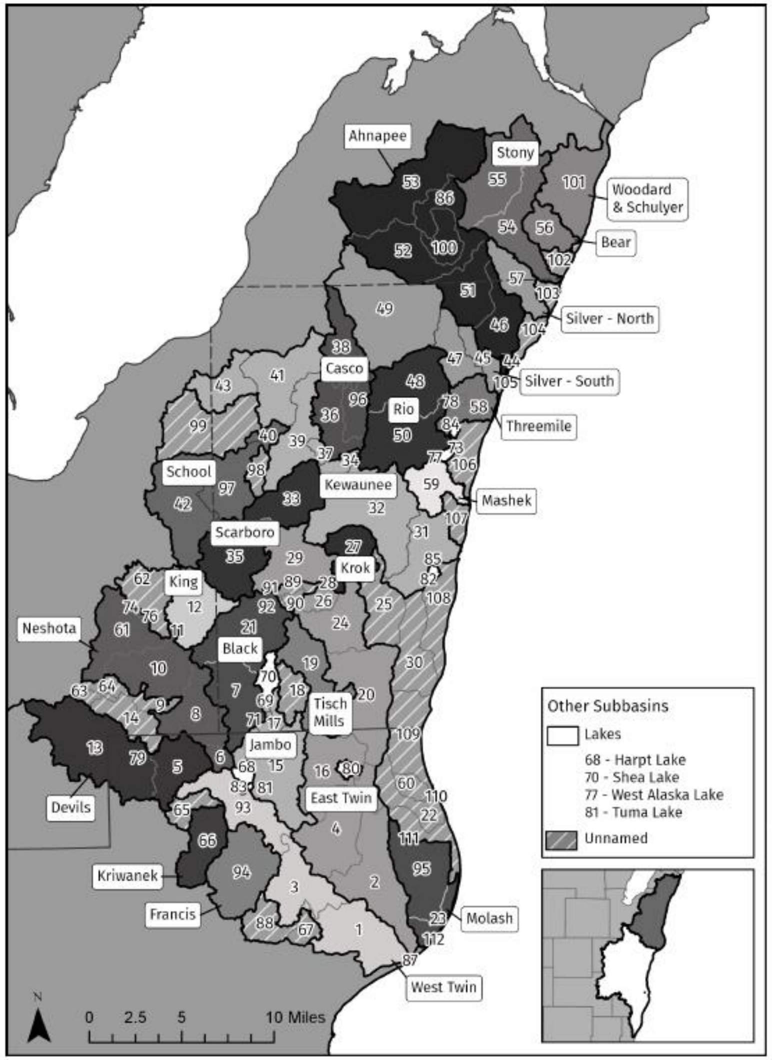
Appendix Y. Total Suspended Solids

- Kewaunee River Basin Region
  - Annual load allocations by reach
  - Daily load allocations by reach
  - Individual permit allocations
  - MS4 allocations
  - Percent reductions by reach
- Manitowoc River Basin Region
- Sheboygan River Basin Region

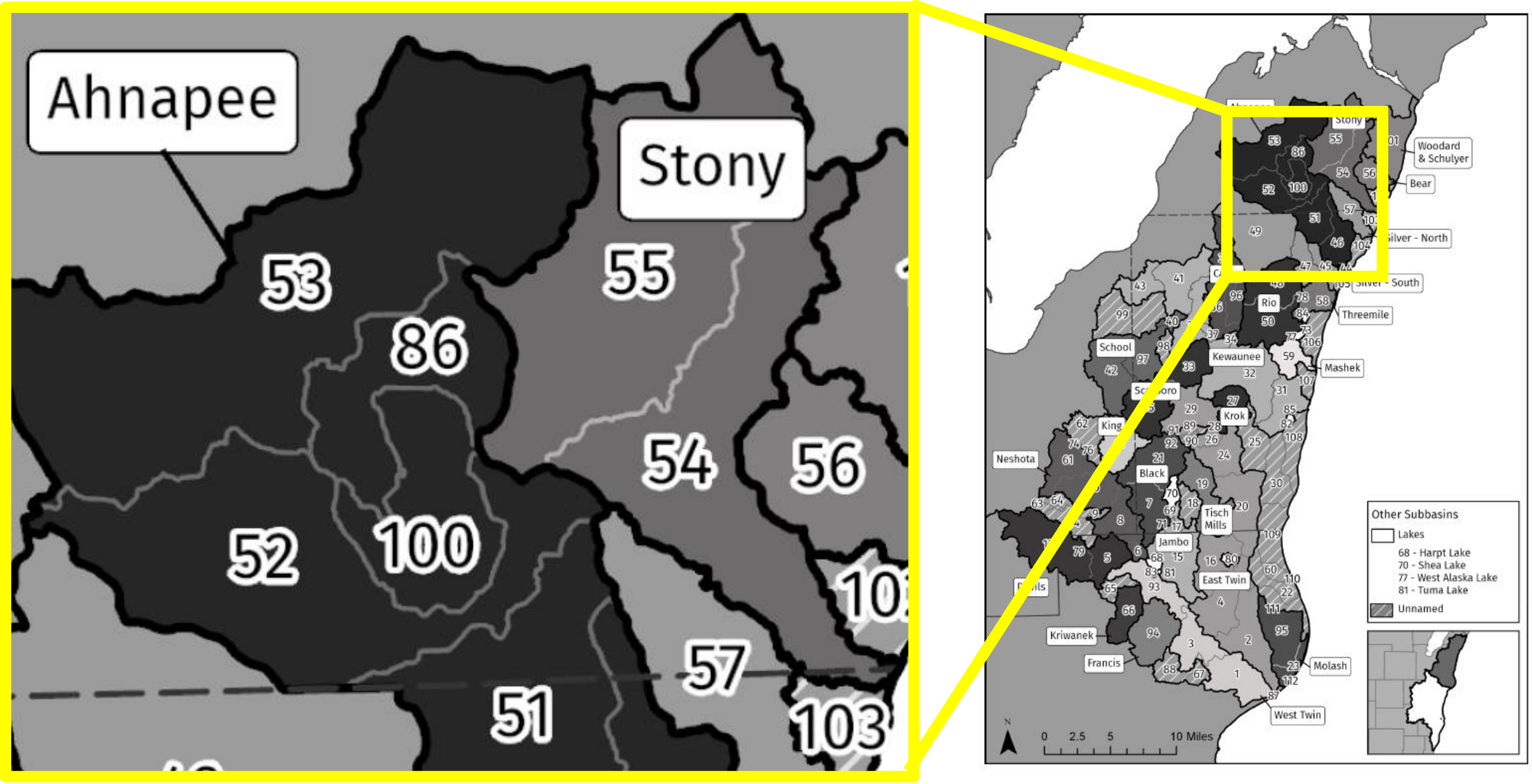
How to Interpret Draft Allocation Results

Appendix X. Total Phosphorus

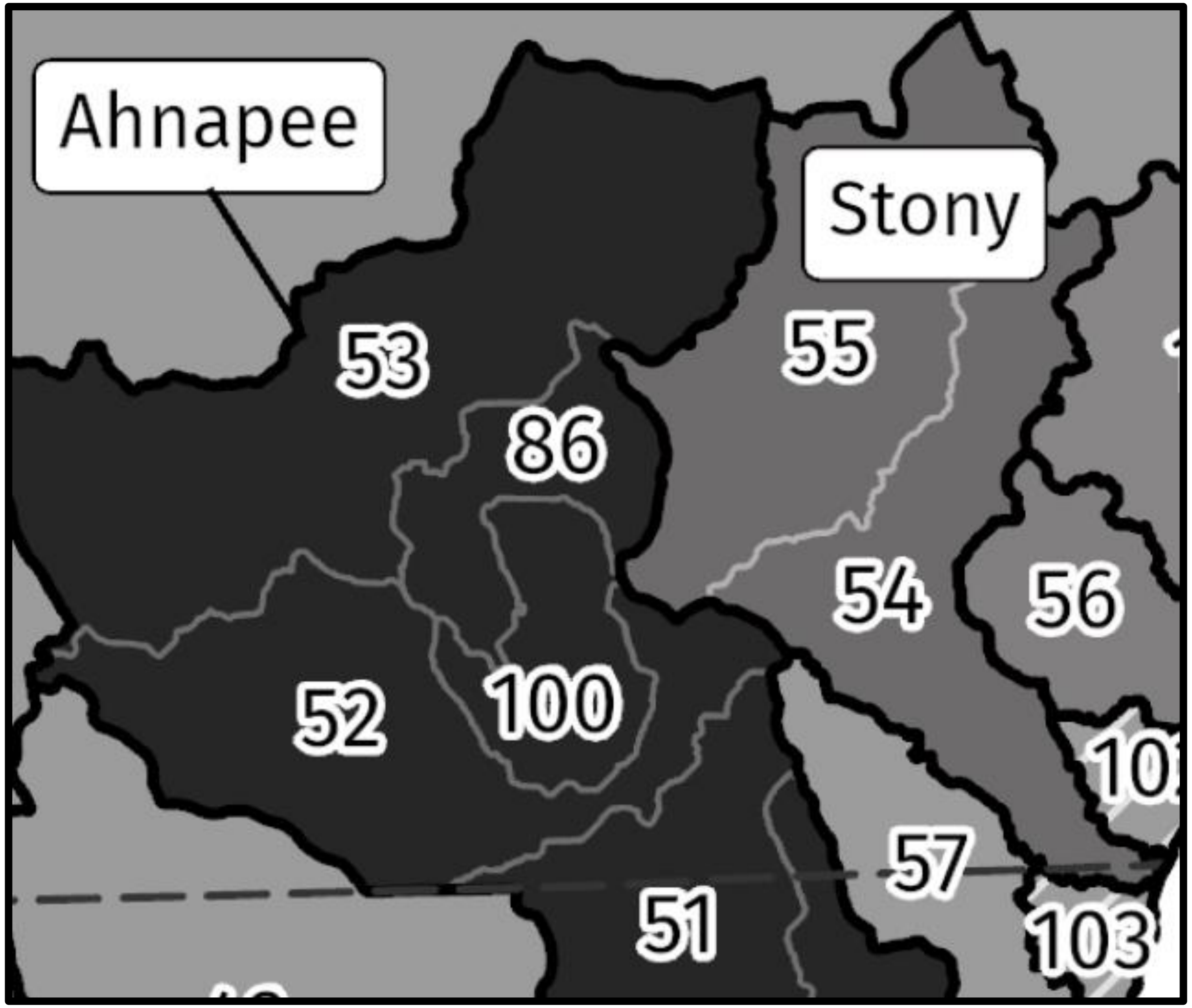
- Kewaunee River Basin Region
  - Annual load allocations by reach
  - Daily load allocations by reach
  - Individual permit allocations
  - MS4 allocations
  - Percent reductions by reach
- Manitowoc River Basin Region
- Sheboygan River Basin Region



How to Interpret Draft Allocation Results



How to Interpret Draft Allocation Results



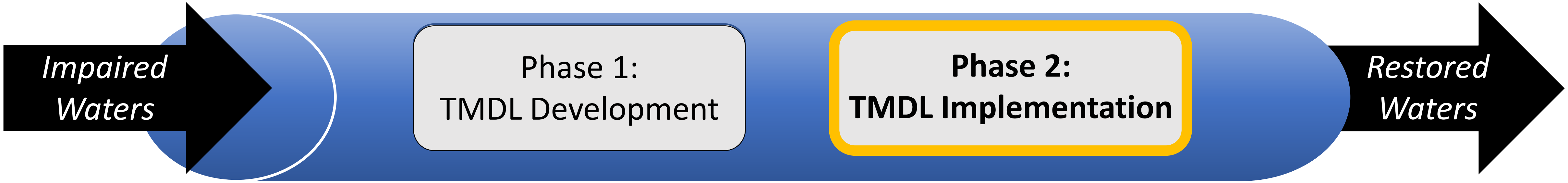
Rch	Load cap. (lbs/year)	Res. cap. (lbs/year)	Alloc. (lbs/year)
1	3,438	56	1,057
2	3,392	159	2,983
3	2,595	116	2,186
4	2,799	122	2,296
5	1,354	52	975
6	271	12	218
7	1,750	82	1,539
8	1,845	77	1,441
9	611	29	537
10	2,095	90	1,692
11	69	2.7	51
12	1,928	81	1,516
13	4,231	194	3,650
14	1,101	48	909
15	3,275	144	2,709

Implementation Overview

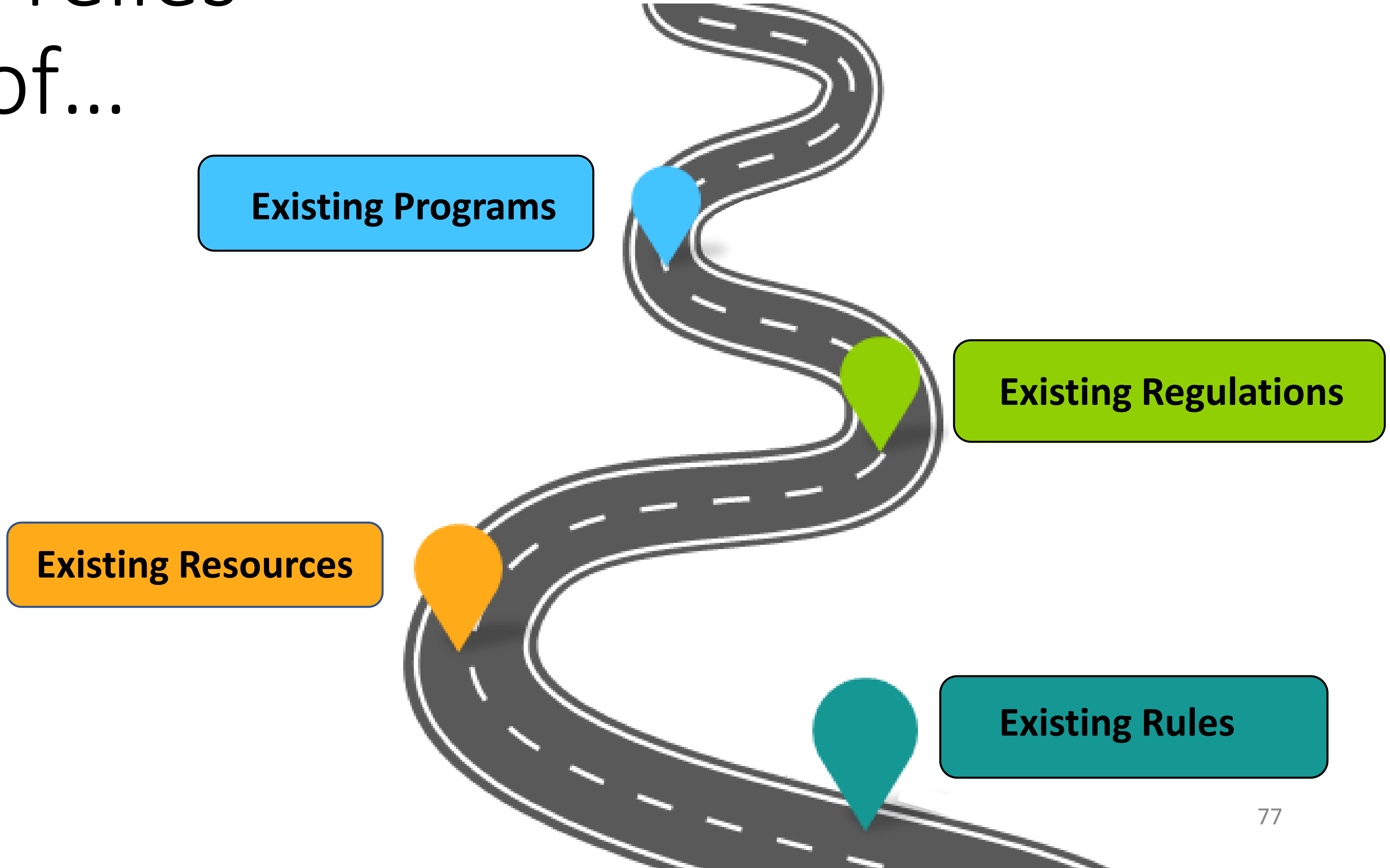
Kevin Kirsch

Nate Willis

Total Maximum Daily Load Process



Implementation of TMDL plans relies on the use of…



Implementation Overview

Agricultural

MS4

Wastewater

Existing programs and standards

- Existing County and Federal programs (NRCS)
- NR 151 performance standards

Two phases

1. All farms and cropland – meet NR 151 (this may meet the TMDL goals)

2. Critical fields – may to do more to meet TMDL targets

   Compliance with TMDL agricultural targets is voluntary unless promulgated through NR 151.004.
   Cost share requirements still in place

Implementation Overview

Agricultural

MS4

Wastewater

Edge of field targets (SnapPlus)

Translates TMDL allocations into a value that can easily be compared to nutrient management plans on a field scale.

Actual percent reductions will vary by field depending on its current conditions compared to the baseline condition specific in the TMDL.

TMDL Subbasin	TP			TSS		
	Baseline (lbs./ac/yr)	% Reduction	Target (lbs./ac/yr)	Baseline (tons/ac/yr)	% Reduction	Target (tons/ac/yr)
1	1.68	88%	0.20	1.71	47%	0.91
2	2.74	79%	0.57	2.72	47%	1.45
3	3.41	79%	0.71	3.29	79%	0.69
4	2.10	88%	0.25	1.80	47%	0.96
5	3.14	74%	0.83	2.64	64%	0.96

Implementation Overview

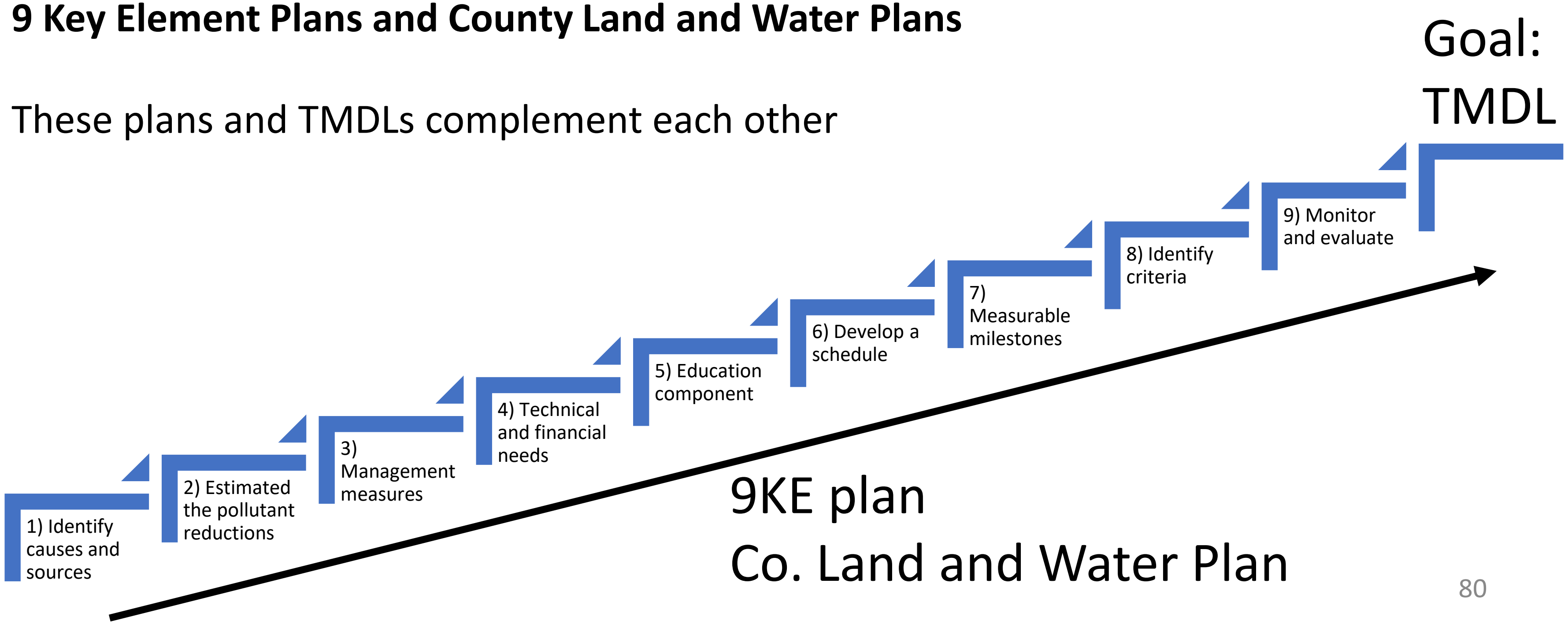
Agricultural

MS4

Wastewater

9 Key Element Plans and County Land and Water Plans

These plans and TMDLs complement each other



Implementation Overview

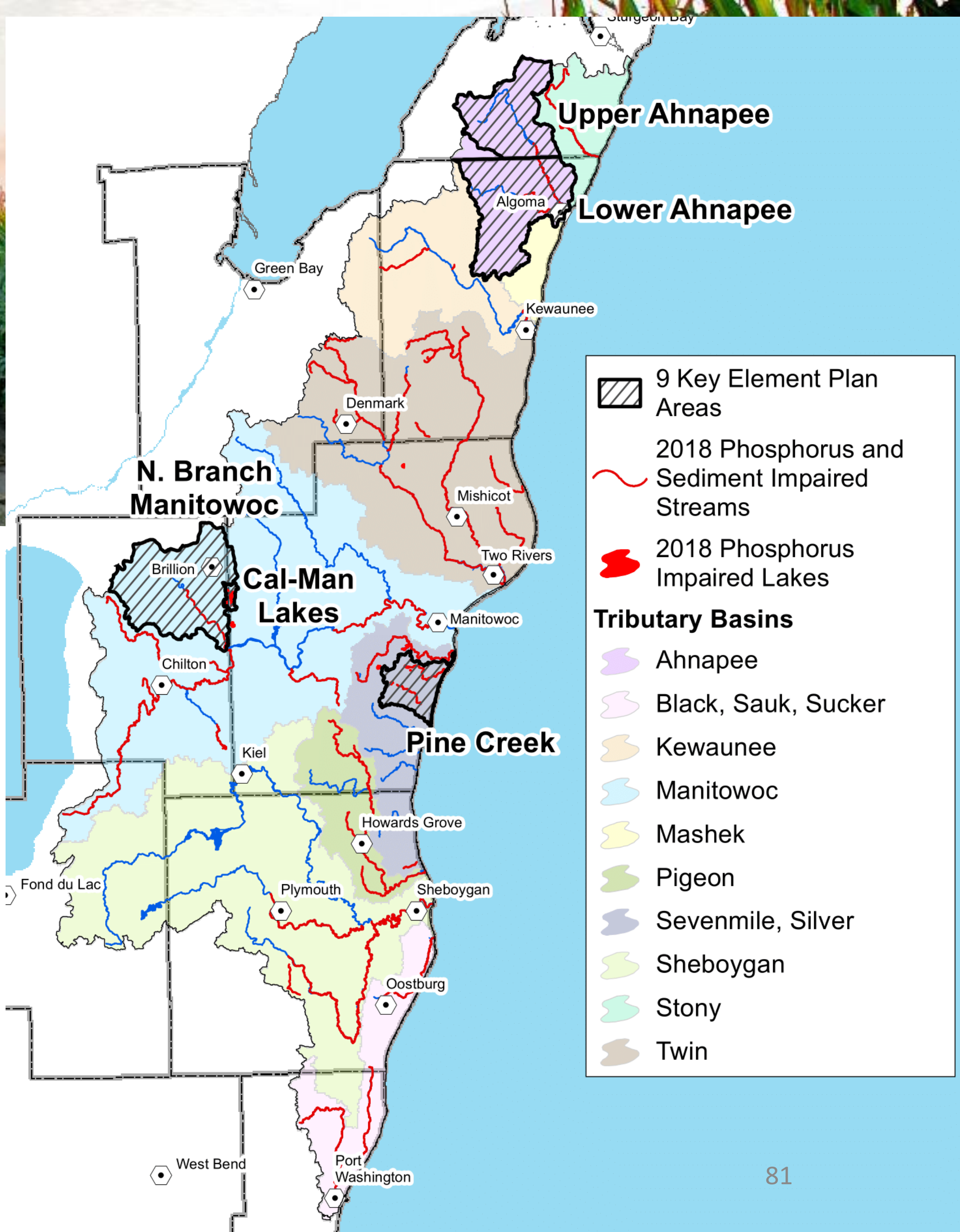
Agricultural

MS4

Wastewater

9 Key Element Plans

- Agricultural implementation and planning does not have to wait for an approved TMDL
- Five 9KE plans already approved
- Kewaunee River in development



Implementation Overview

Agricultural

MS4

Wastewater

- Assigned individual allocations for each subbasin; however, implemented using percent reduction. The allocated loads again represent delivered loads and as such are not directly transferable to output from WinSLAMM.

- Implemented in an MS4 permit with an extended compliance schedule with specified benchmarks.

- MS4 TMDL Implementation Guidance: https://dnr.wi.gov/topic/stormwater/documents/ms4tmdlimpguidance.pdf

Implementation Overview

Agricultural

MS4

Wastewater

- Implemented through NR 217 and WPDES permits.

Once EPA has approved the TMDL (anticipated 2022), permits can be issued with the TMDL derived mass allocations.

- Typically, the TMDL limit will become effective upon the next permit reissuance.

Implementation Overview

Agricultural

MS4

Wastewater

FAQ

- What is my TMDL limit?
- When does the limit become effective?

Tables with mass allocations and equivalent concentrations based on the assumed baseline flows and are available on the NE Lakeshore TMDL website.

Questions: Nate Willis (nathaniel.willis@wisconsin.gov)

Wastewater Allocation and Equivalent Concentration Summary Tables

<u>Municipal Facilities</u>: Mass allocations and equivalent concentrations calculated using design flow.

Municipal Facilities			Total Phosphorus (TP)					Total Suspended Solids (TSS)						
Facility Name	Permit No.	Baseline Flow (MGD)	TMDL TP WLA (lbs per year)	TP Month Limit (lbs/day)	TP 6-mo Limit (lbs/day)	TP Equivalent Monthly Concentration - Baseline flow (mg/L)	TP Equivalent 6-Month Concentration -Baseline flow (mg/L)	TMDL TSS WLA (lbs per year)	TSS Limit Mo avg (lbs/day)	TSS Limit weekly avg (lbs/day)	TSS Limit daily max (lbs/day)	TSS Equivalent Monthly Concentration (mg/L)	TSS Equivalent weekly Concentration (mg/L)	TSS Equivalent Daily Concentration (mg/L)

<u>Industrial Facilities</u>: Mass allocations and equivalent concentrations calculated using highest annual average flow.

Industrial Facilities			Total Phosphorus (TP)					Total Suspended Solids (TSS)						
Facility Name	Permit No.	Baseline Flow (MGD)	TMDL TP WLA (lbs per year)	TP Month Limit (lbs/day)	TP 6-mo Limit (lbs/day)	TP Equivalent Monthly Concentration - Baseline flow (mg/L)	TP Equivalent 6-Month Concentration -Baseline flow (mg/L)	TMDL TSS WLA (lbs per year)	TSS Limit Mo avg (lbs/day)	TSS Limit weekly avg (lbs/day)	TSS Limit daily max (lbs/day)	TSS Equivalent Monthly Concentration (mg/L)	TSS Equivalent weekly Concentration (mg/L)	TSS Equivalent Daily Concentration (mg/L)

Comment Period

Lake Modeling Report
Draft Allocation Tables

Find information on the
NE Lakeshore TMDL webpage

Send General TMDL and Allocation Comments to:
kevin.kirsch@wisconsin.gov

Send Questions Regarding WLA and Wastewater Discharges to:
Nate Willis
nathaniel.willis@wisconsin.gov

Comment Period	Topic
October 2020 (past)	Watershed Model Report 1. Overview 2. Model Setup
Spring 2021 (past)	Watershed Model Report 3. Calibration and Validation **Approach** 4. Calibration and Validation **Data** 5. Calibration and Validation **Results** 6. **Discussion** of Calibration and Validation 7. Summary of Model Results 8. References
December 17, 2021, through COB January 21, 2022	Draft Allocations (including inland lake modeling results)