MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Getting Started with Watershed Planning: *The Framework*

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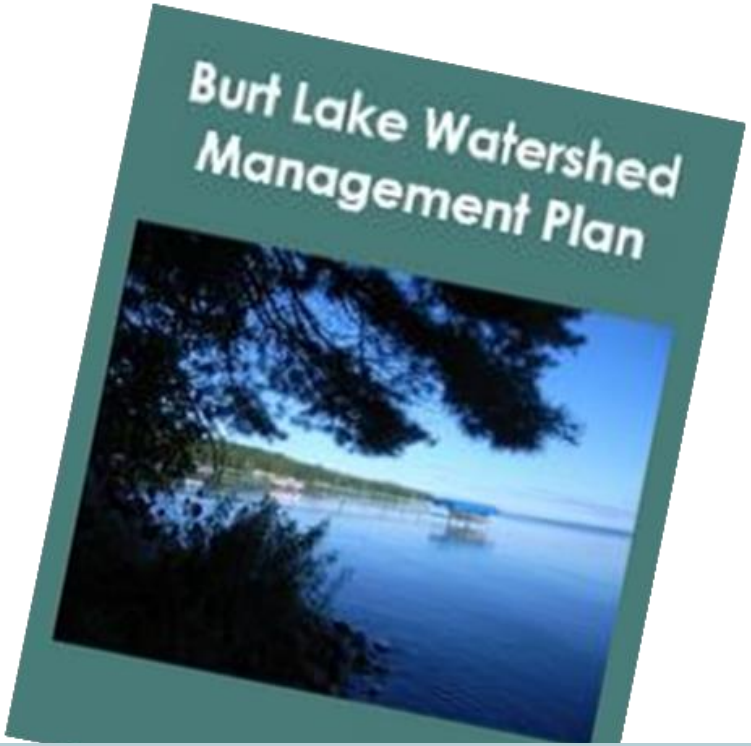
Watershed Approach

What is a watershed?

An area of land that drains water into a specific waterbody.



What is a Watershed Plan?

1) Process to Identify problems and threats
2) Provides a framework for addressing the issues

Why develop a watershed plan?

Protect and restore designated uses.

More impactful improvement and protection efforts.

Achieve common goals and build support.

Leverage funding for implementation of best management practices

Designated Uses

Impaired Waterbody?

Doesn't meet criteria to support its designated use/s.

*Not addressed through Michigan's Nonpoint Source Program

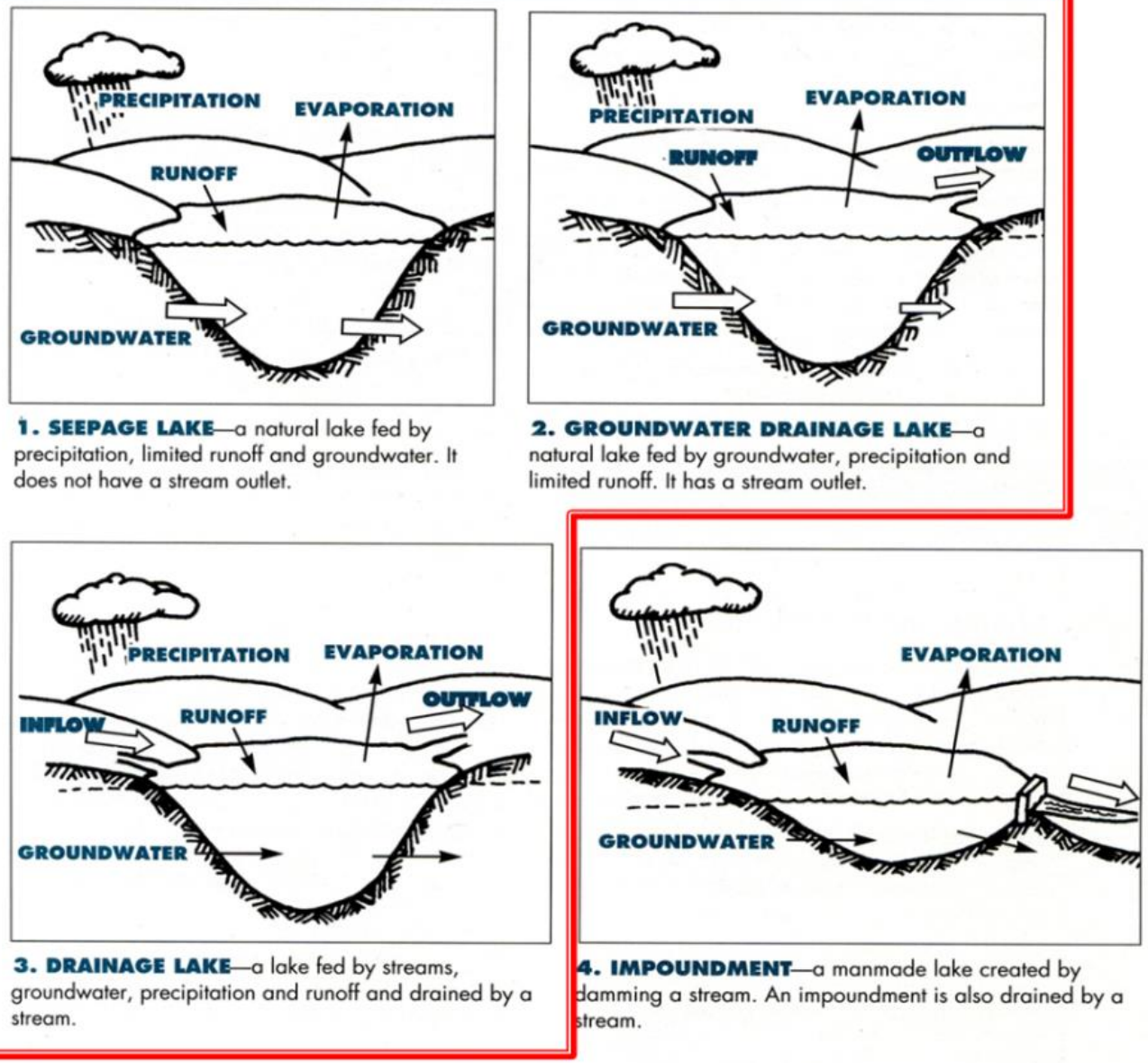
All surface waters of the state are designated for and shall be protected for all the following uses

Part 4 Rules, Part 31, PA 451, as amended****

1. Agriculture*
2. Industrial water supply*
3. Public water supply at the point of intake*
4. Navigation*
5. **Warmwater fishery**
6. **Other indigenous aquatic life and wildlife**
7. **Partial body contact recreation**
8. **Total body contact recreation-May 1-Oct 31**
9. **Cold water fishery – where applicable**
10. Fish Consumption*

Why develop a watershed plan?

Lake Type impacts nutrient retention



MI NPS Program

(aka Watershed Management Program)

Two Main Goals

- **Restore** - **#1 Priority** ***Impaired waterbodies***
- **Protect** ***High quality waters***

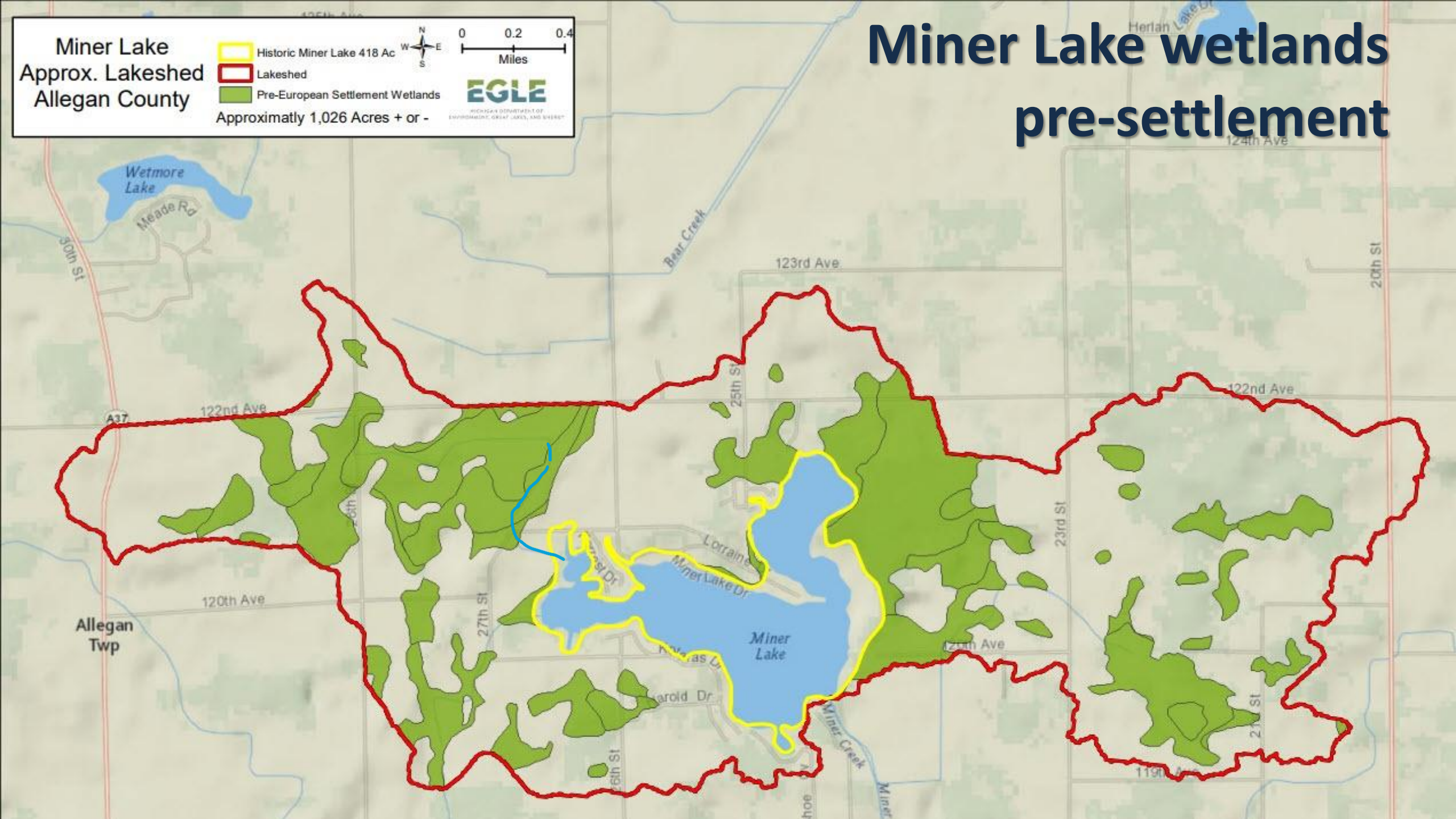
Nonpoint source Pollution

- Caused by rainfall or snowmelt runoff
- Many diffuse sources
- Not regulated
- Difficult to manage

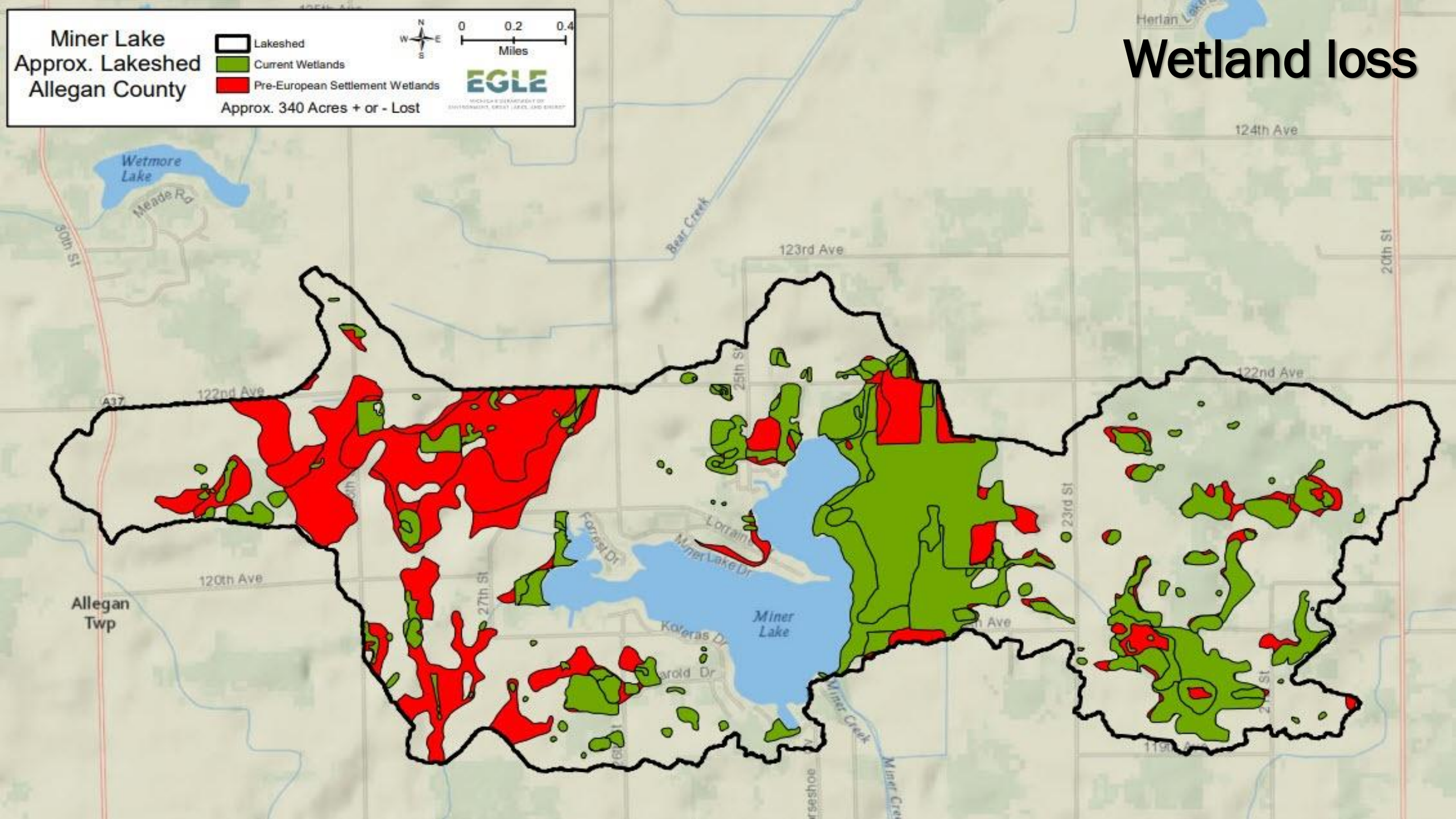
Volume of Water: NPS Problem

Impervious surfaces, filled/drained wetlands

Miner Lake wetlands pre-settlement

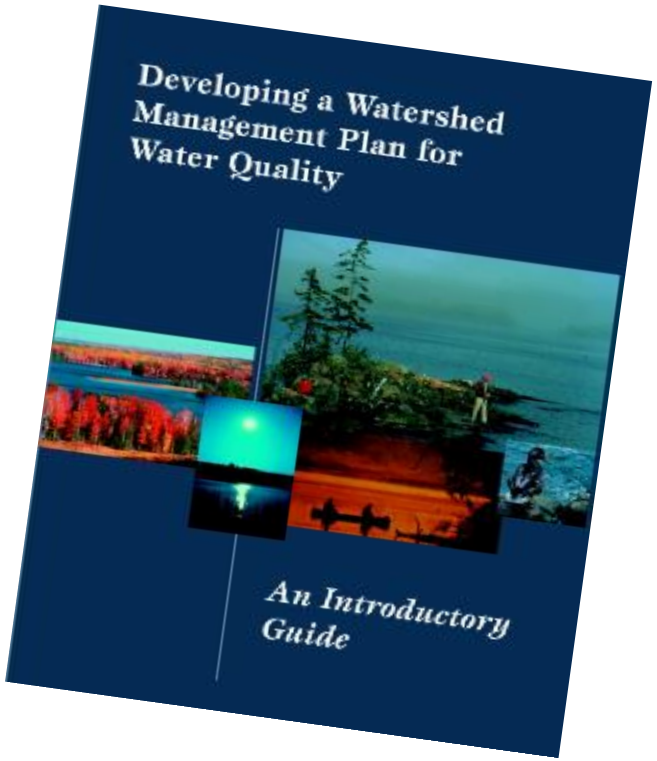


Wetland loss



Watershed Plan Criteria

Approved
Watershed Plans Must Meet Specific Criteria



Terminology:

- Section 319 Clean Water Act
- Nine-Key elements

Watershed Plans ….

Can be overwhelming!

They should:

- Include the areas draining to the lake
- Be useful for local residents
- Be easy to read to use when making decisions

Also

Ensure encouragement and networking.

Focus on a few tasks at time.

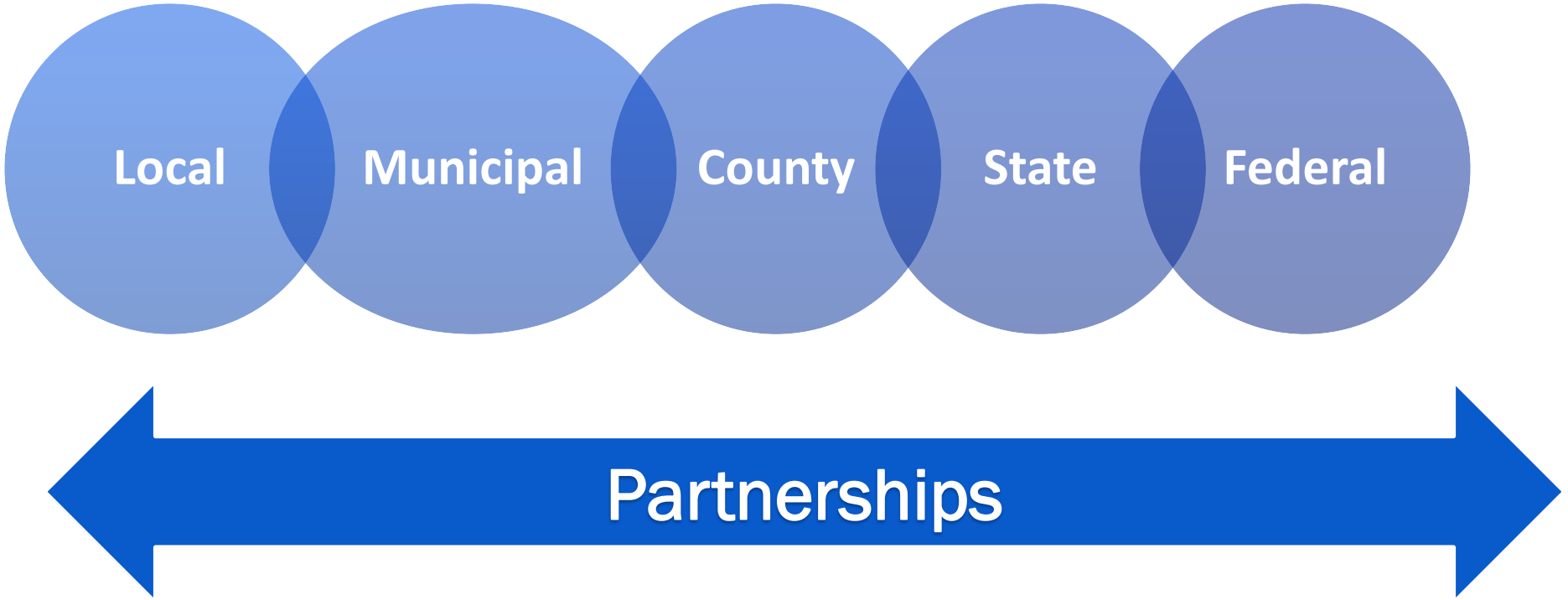
Annual review of accomplishments.

Step by Step Process

- Build partnerships.
- Characterize the watershed to identify problems.
- Set goals and identify solutions.
- Design an implementation program.
- Implement the plan.
- Measure progress and adjust.

Getting Started: *Put together a team*

Who should be at the table?

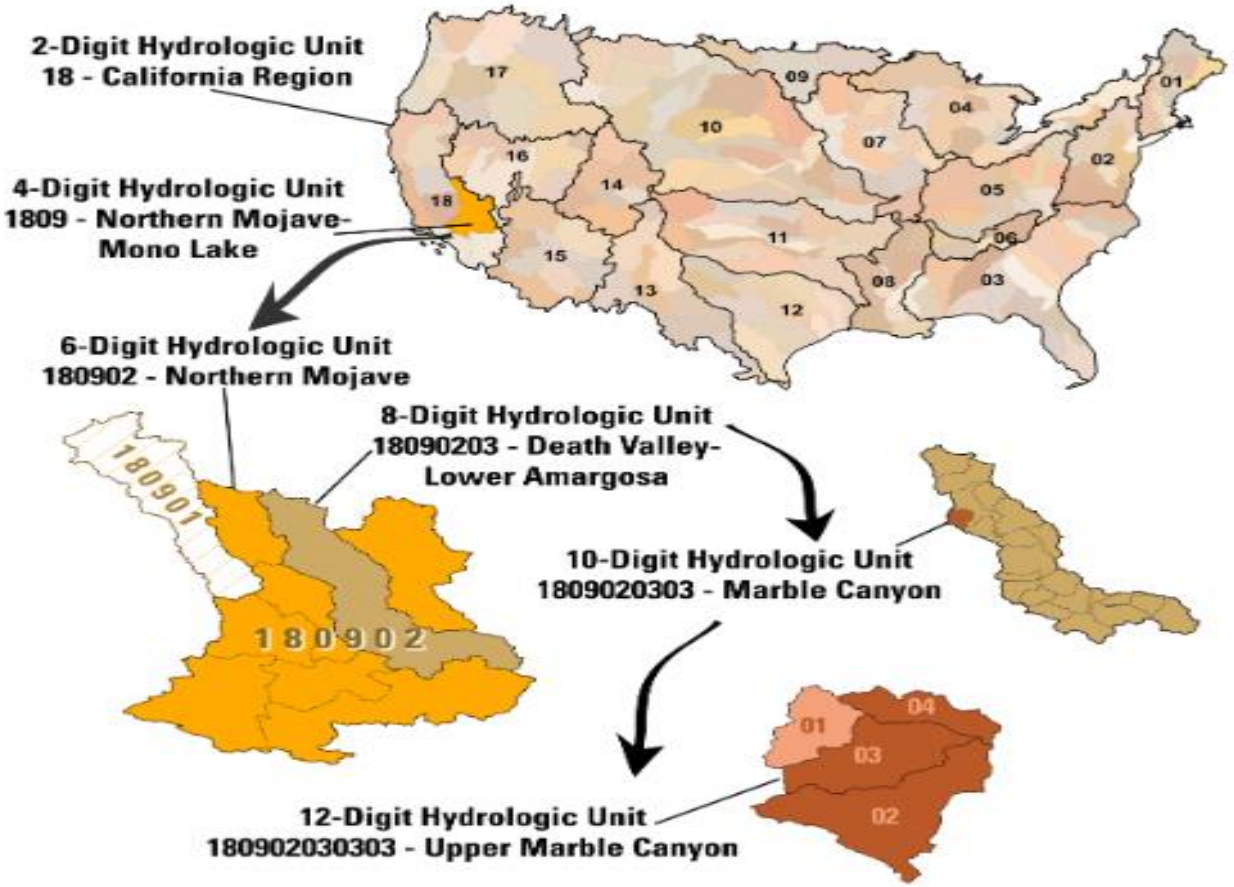


Determining Scale of a Watershed Plan

Hydrologic Unit Codes (HUCs)

Watersheds are delineated by USGS using a nationwide system based on surface hydrologic features.

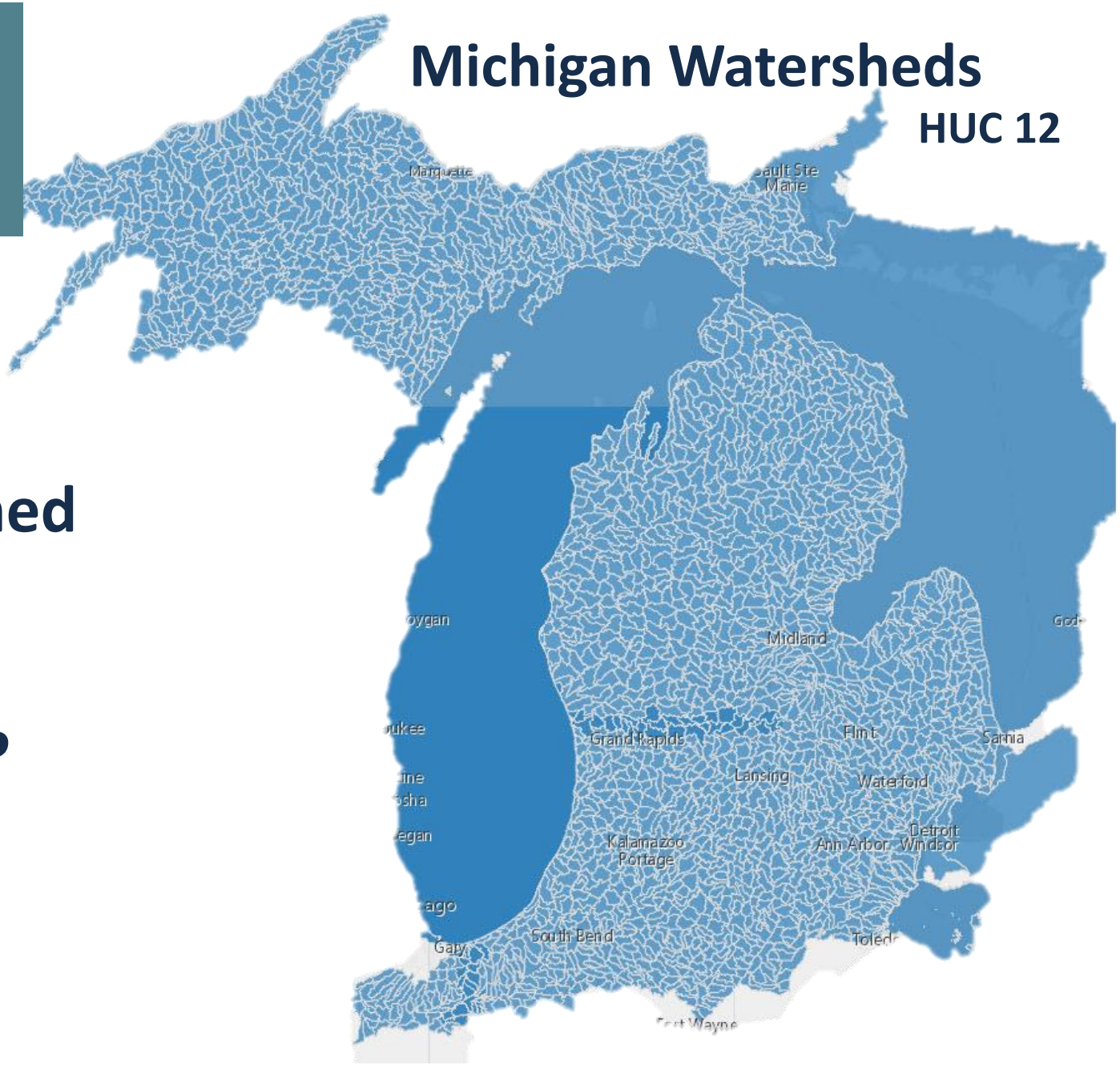
Where are the watershed boundaries?



Determining Scale of a Watershed Plan

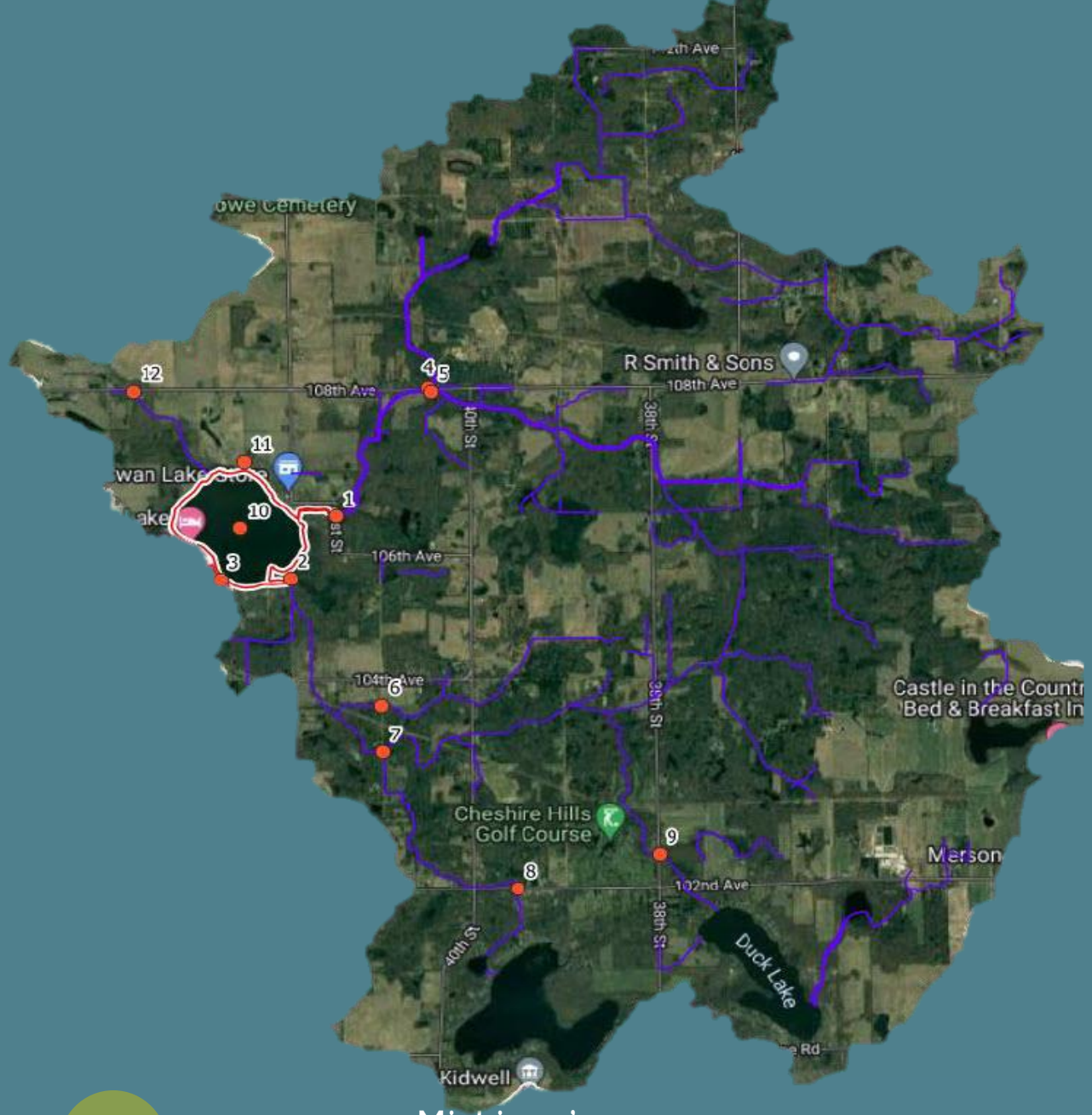
Michigan Watersheds

HUC 12



Where are the watershed boundaries?

- ***Where do you start?***
- ***Where do you end?***



Where are the watershed boundaries?

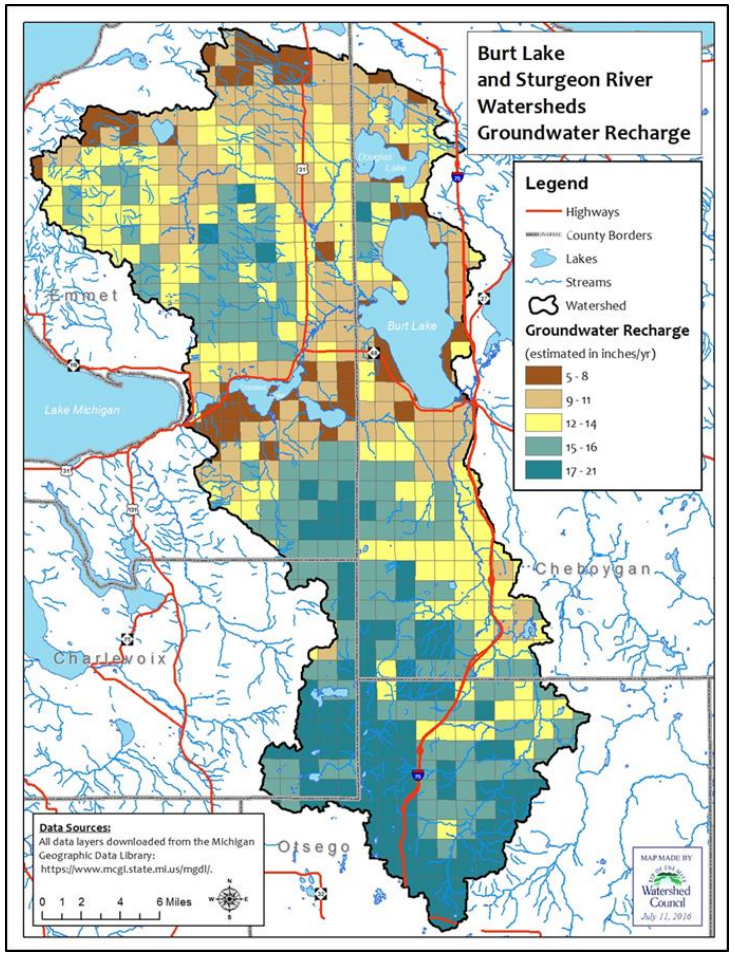
- *Where do you start?*
- *Where do you end?*

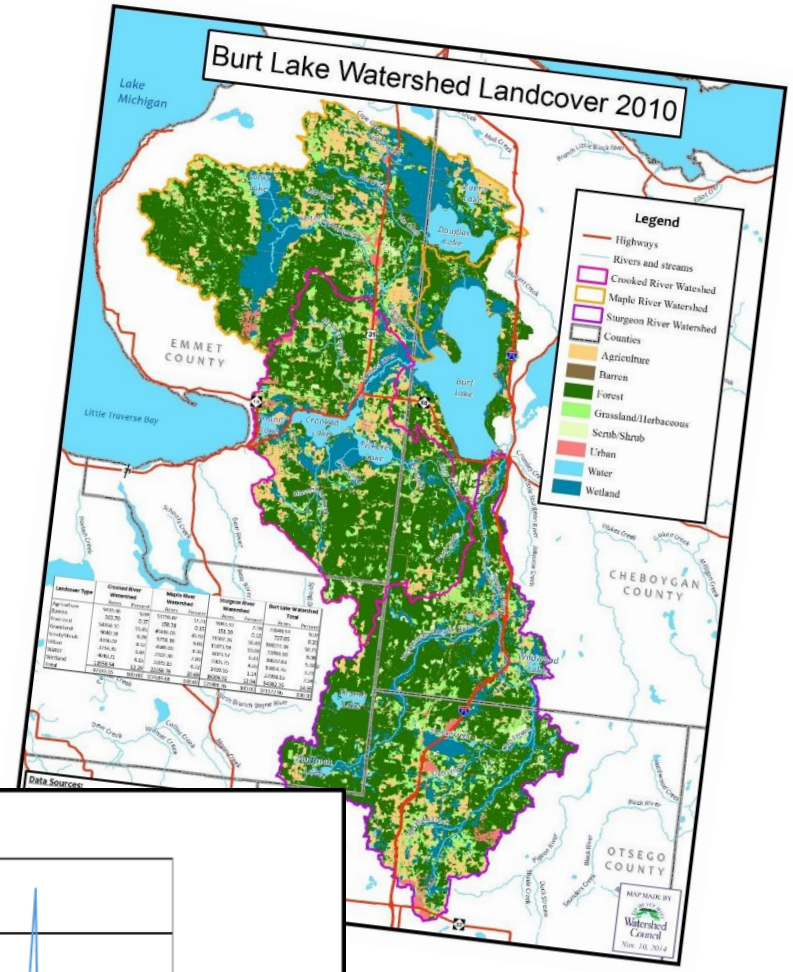
Characterization:

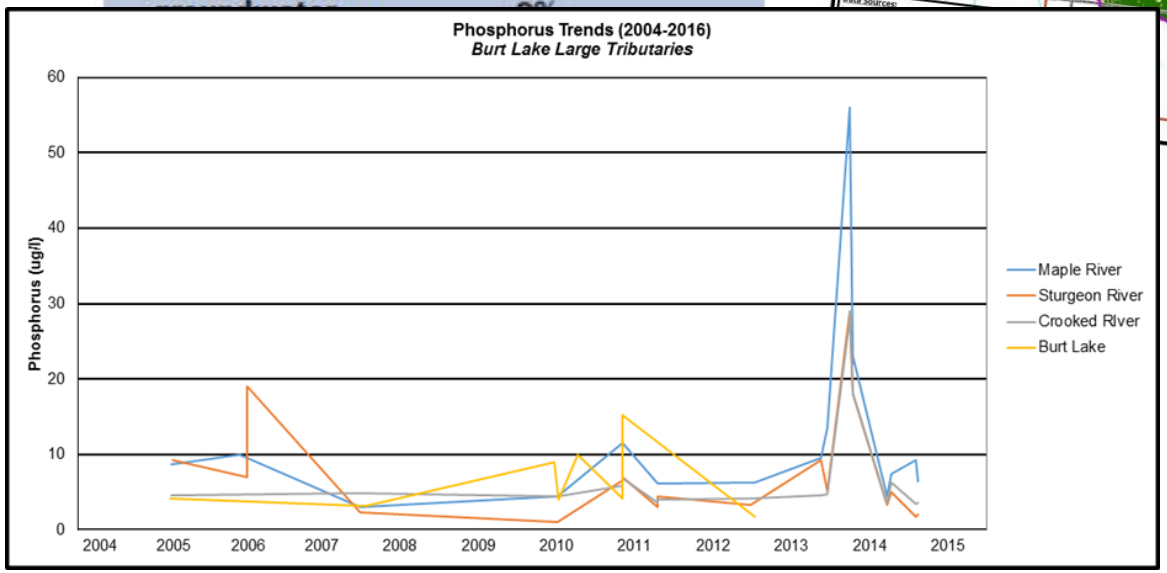
What do you know about the lake Watershed:

TABLE 2. Lake Hale's physical characteristics.

Watershed	3054 acres
Lake area	413 acres
Maximum depth	62 ft.
Average depth	14 ft.
Volume	5782 acre-ft. (~2 billion gal.)
Residence time	1.9 yrs.
Rainfall	30 in.
Water budget input:	
groundwater	32%
Hale Creek	35%
other surface runoff	16%
direct rainfall	17%
Water budget exit:	







Inventory: Find the source/cause!
What to do?

Problems?

Erosion/Sediment
Nutrients/Algae blooms
E. Coli
Flashiness/flooding?
Temperature

High quality areas?

Set Goals *Designated and Desired Uses*

Examples

Goal 1: Protect water quality of the watershed's lakes and streams

Goal 2: Protect and restore aquatic and riparian habitats

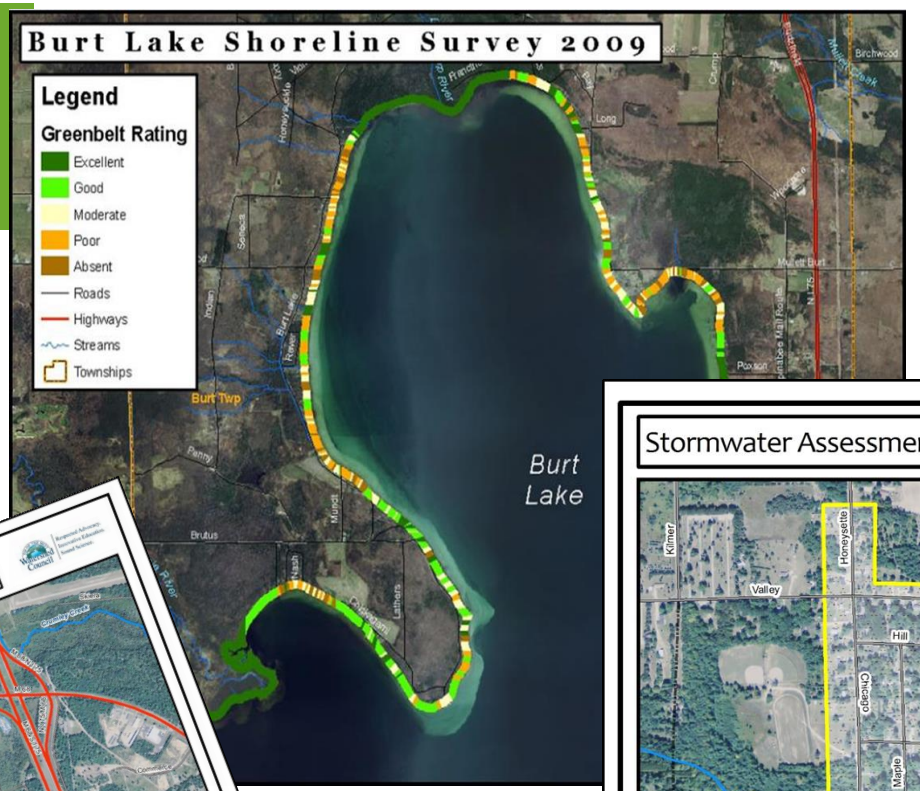
Goal 3: Sustain tourism, recreational opportunities, and industry in a manner consistent with water quality protection

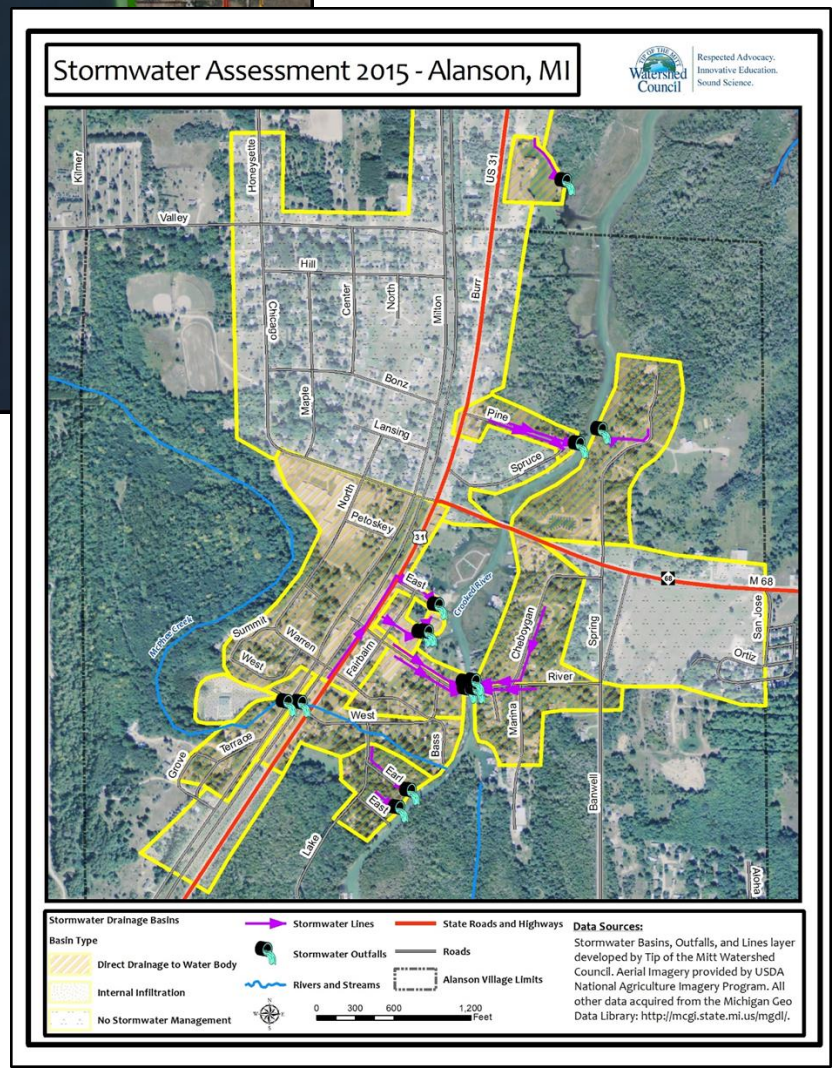
Goal 4: Protect regional and local hydrology

Goal 5: Protect watershed from future threats/emerging issues

Inventory/Assessment Tools Examples

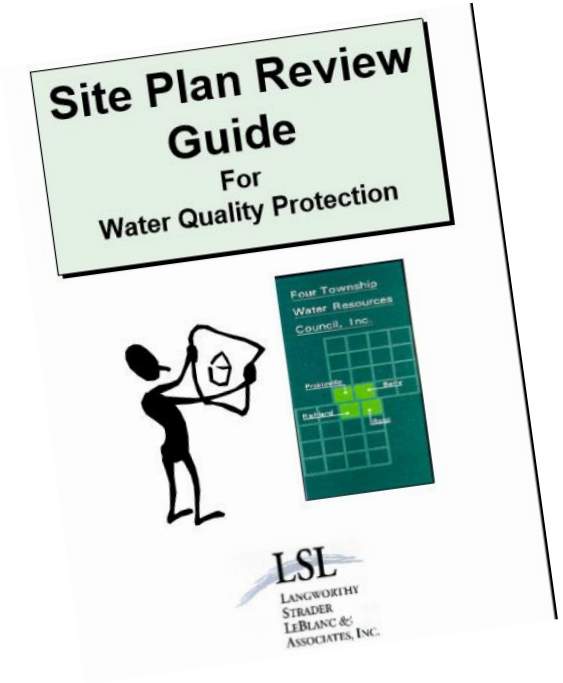
- Monitoring
- Erosion
- Shoreline Inventories
- Agriculture Inventory
- Stormwater Assessments

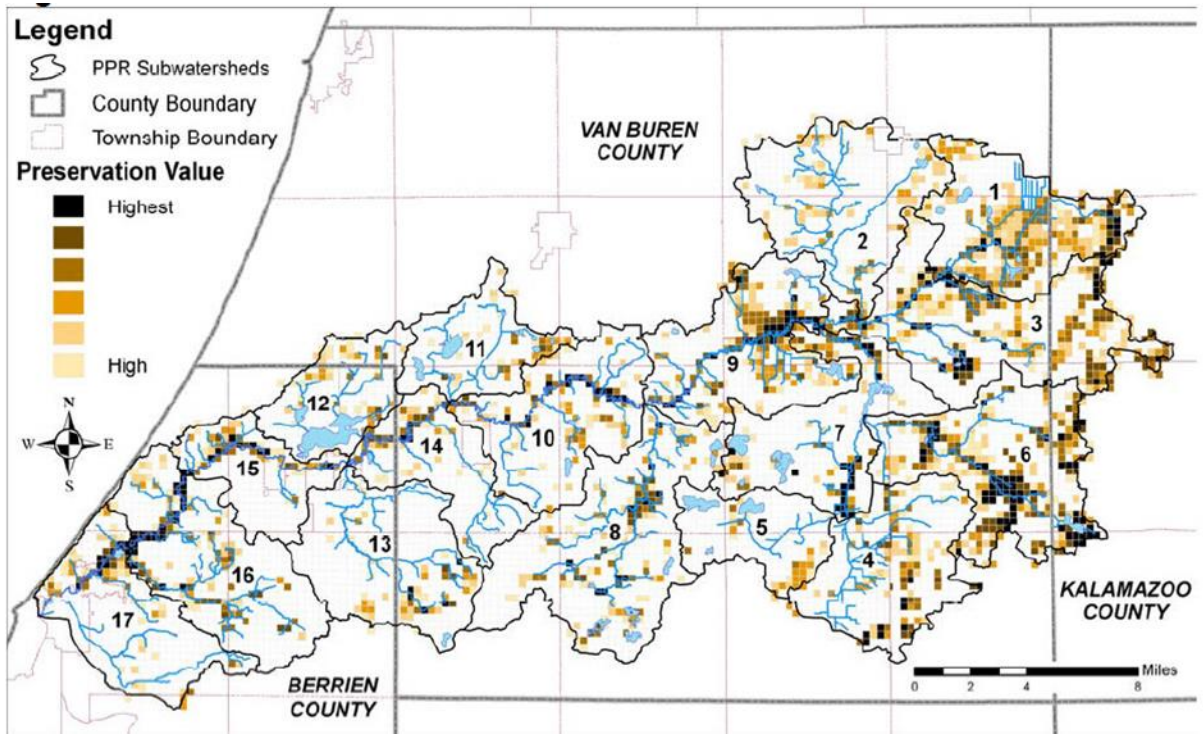


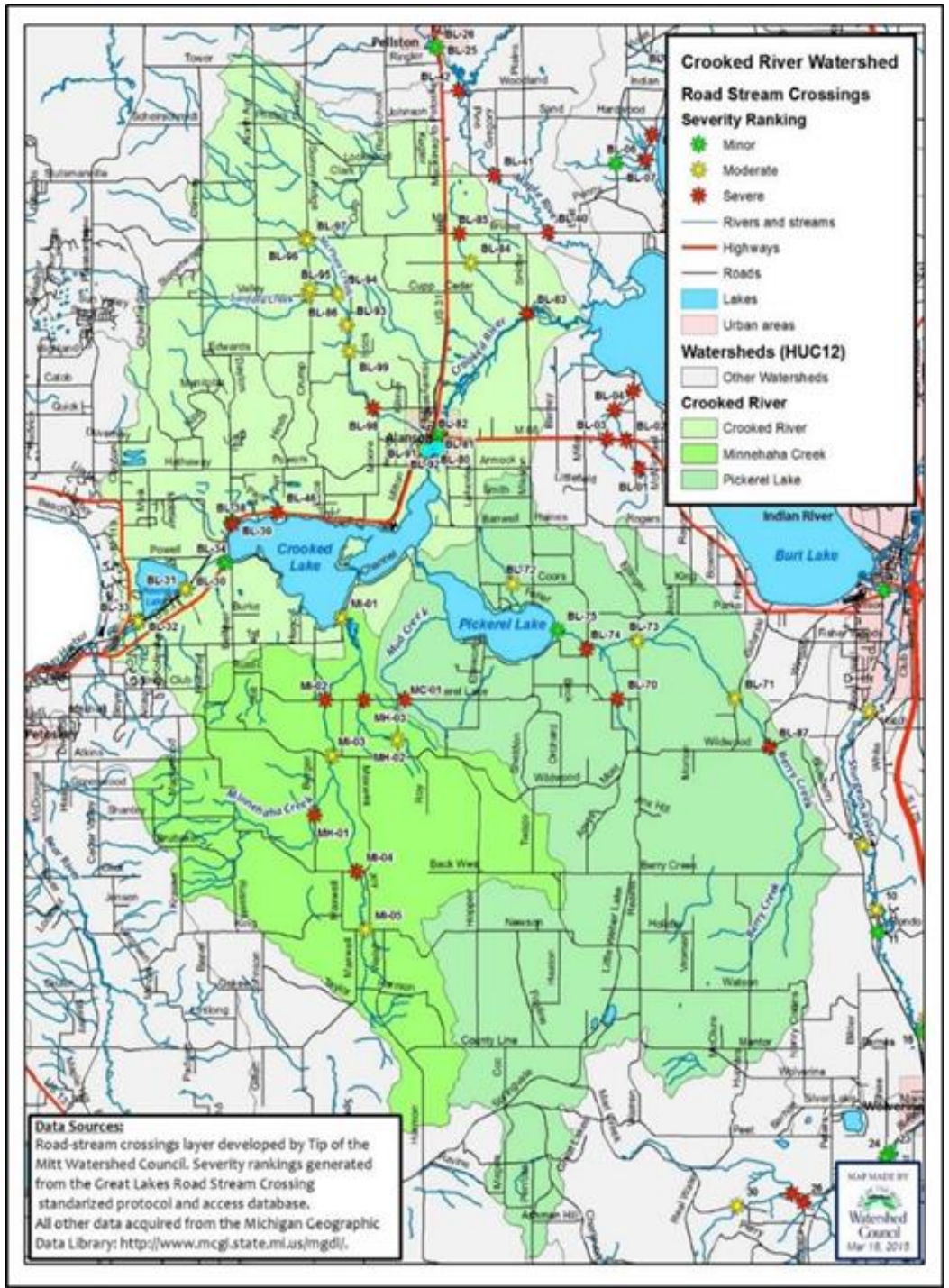


Inventory/Assessment Tools Examples

- Land Use Planning
- Wetland Functional Assessment
- Conservation Planning

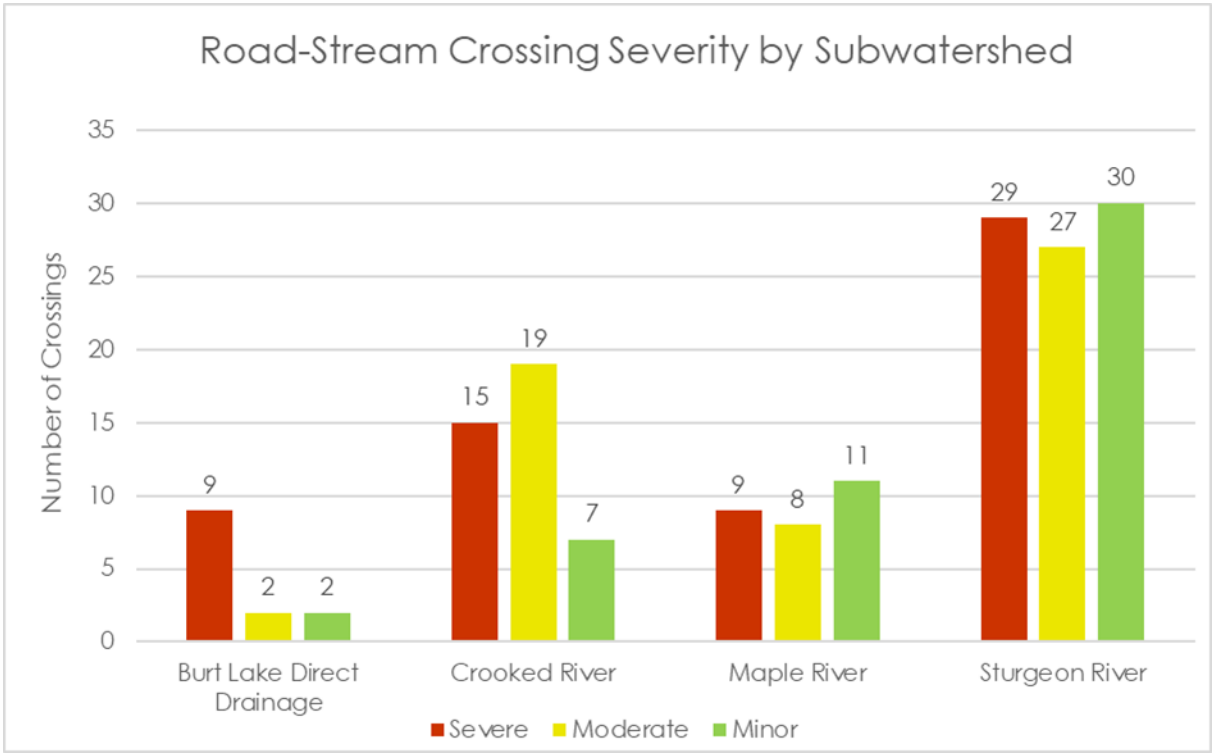






Where should the work begin?
Prioritize

Upstream Critical Areas



- Set goals and identify solutions.
- Design an implementation program

Table 29 - Category B: Stormwater and Runoff

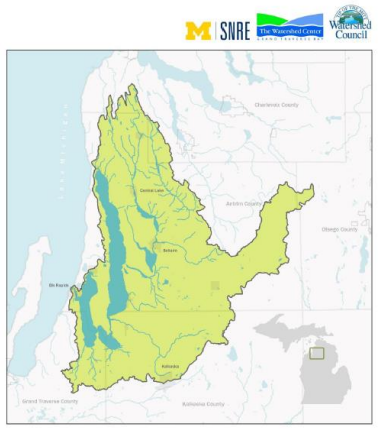
	Task	Unit Cost	Estimated Total Cost	Milestone 2021-2023	Milestone 2024-2027	Milestone 2028-2030	Potential Project Partners	Potential Funding Sources	Objectives Addressed
B1	Update stormwater infra-structure and impervious surface maps. Identify problem sites and institute Green Infrastructure BMP's for all new construction.	unknown		X	Maps and BMP educa-tion in place	C	County Planning Depts; MSUE; Networks Northwest	Local foundations; in-kind funding	2d; 3c
	Priority - Low	Notes							
B2	Inventory & monitor all streams for nutrients, *E. coli*, and other pollut-ants, including thermal stressors. Institute BMP's as appropriate.	See task I2	See task I2	Existing program continues	Progbram expanded to additional sites	C	LMWCC	LMWCC funds; volunteers	3a; 3b; 3e
	Priority - High	Notes	This is a continuation and expansion of existing LMWCC program. For costs, see I2						
B3	Promote shoreline steward-ship education through Michigan Natural Shoreline Partnership and local conservation districts	no new costs identified		X	Information available on Websites or through Township mailings	C	Conser-vation Districts; MNSP		3c; 3e
	Priority - Medium	Notes							

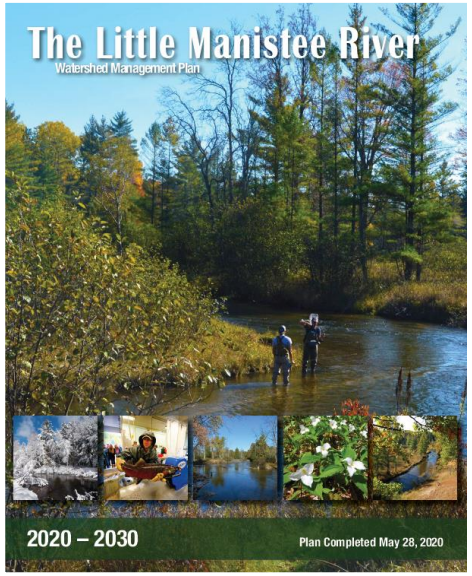
Task #	Implementation Task	Goal/Obj.	Priority	Milestones	Costs	Partners	Target Audience*	Y1: 2021	Y2: 2022	Y3: 2023	Y4: 2024	Y5: 2025	Y6: 2026	Y7: 2027	Y8: 2028	Y9: 2029	Y10: 2030
Planning, Zoning, and Land Use																	
IE-PZL-1	Design and implement a grass-roots citizen action program that focuses on local land use advocacy, better understanding local decision making around water, and fosters and empowers passionate citizens to join local elected and appointed boards and commissions and other leadership roles	5.2, 5.3, 5.5	High	Design program-2021 Begin implementation and continue each year-2022	Staff: $5,000/yr Tot:$50K	TWC LGOV	ALL										
	Notes: This work will be conducted as part of TWC's Grand Traverse Baykeeper Program. The program will be designed in 2021 and implementation will begin immediately and continue annually.																
IE-PZL-2	Inform local planning and zoning officials regarding up-to-date information on planning, zoning, and design innovations relating to the protection of water quality. This will be done by tracking new projects being proposed/reviewed at local government meetings and providing comments regularly as appropriate. *Note: This task is similar to Implementation Tasks PZL-3 and PZL-10 from Table 60.*	5.4, 5.7	High	Ongoing	Staff: $10,000/yr Tot:$100K	TWC LGOV	LGOV										
	Notes: Because of the nature of this task, it will be completed on an as-needed, ongoing basis. TWC staff will review proposals from priority communities as they are presented at local government meetings for review to ensure it complies with local zoning and state/federal standards. Comments will be made during review period as appropriate/necessary. The task will be completed as part of the TWC Grand Traverse Baykeeper Program activities.																

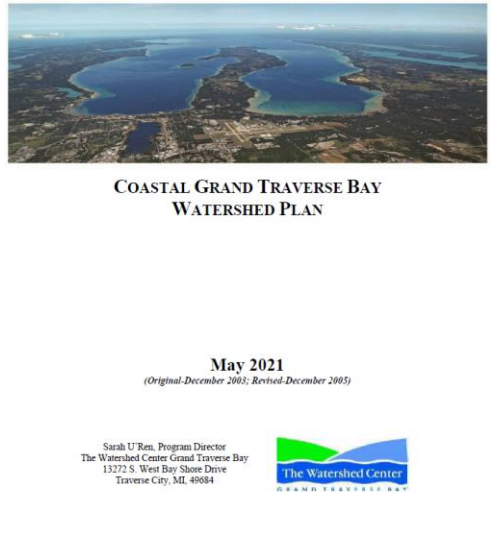
Priority	Road/Stream Crossing		Unit Cost	Est. Total Cost	Milestone 2023-2024	Milestone 2025-2027	Milestone 2028-2032	Potential Project Partners	Potential Funding Sources	Objectives Addressed
High	RX.1	Conduct/repeat RSX inventories throughout the Watershed on a priority subwatershed basis, beginning with previously non-inventoried subwatersheds followed by subwatersheds with inventories older than 10 years old.	NA	$22,000	NA	Funding and Inventory	NA	ACD, KCD, TOMWC, TWC, Road Commissions	PF, SG, PO	1.1
		Notes: Secure funding to conduct survey; Completion of inventory and results summary; Completion of inventory and upload data to www.northernmichiganstreams.org.								

Measure and Make Progress

- Update plan every 10 years. (generally)
- Technical updates as needed.







Funding for Watershed Planning?

Grant Funding: *Extremely Limited*

- EGLE Nonpoint Source Program
- DNR Aquatic Habitat
- Midwest Glacial Lakes Partnership
- Great Lakes Restoration Initiative

Other Potential Options:

- Lake Improvement Boards
- Lake Associations
- Local Community & Company Foundations

Map of approved watershed plans

www.mi.gov/nps

About the Map

This map highlights Michigan's Nonpoint Source Programs approved nine-element watershed management plans.

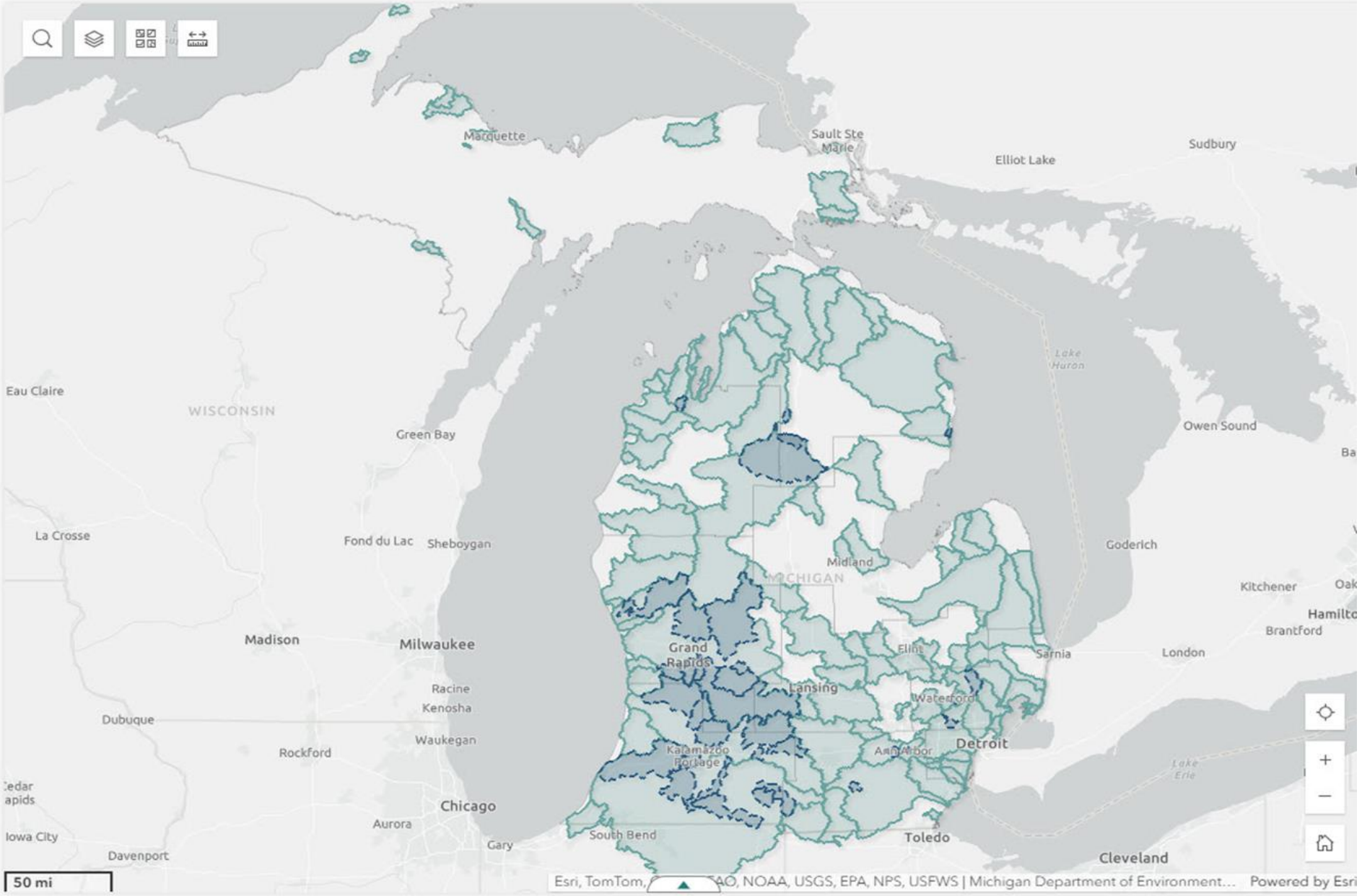
All watershed management plans funded or approved through Michigan's Nonpoint Source Program are designed to meet the United States Environmental Protection Agency's nine-element requirement. The primary goals of a nine-element plan are to restore and protect a waterbody's designated uses. Designated uses are recognized uses of water established by state and federal water quality programs. All surface waters of the state of Michigan are designated for, and shall be protected for the following uses:

- Agriculture*
- Navigation*
- Industrial water supply*
- Warmwater fishery
- Coldwater fishery
- Other indigenous aquatic life and wildlife
- Partial body contact recreation
- Total body contact recreation between May 1 and October 31
- Fish consumption*
- Public water supply *

*Not addressed through Michigan's Nonpoint Source Program watershed management

About Map

Near Me



EPA United States Environmental Protection Agency

FREE

https://www.epa.gov/watershedacademy

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Document your learning by meeting the requirements for the Watershed Academy's Watershed Management Training Certificate. Read more here.

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View all webinars

Watershed Resources

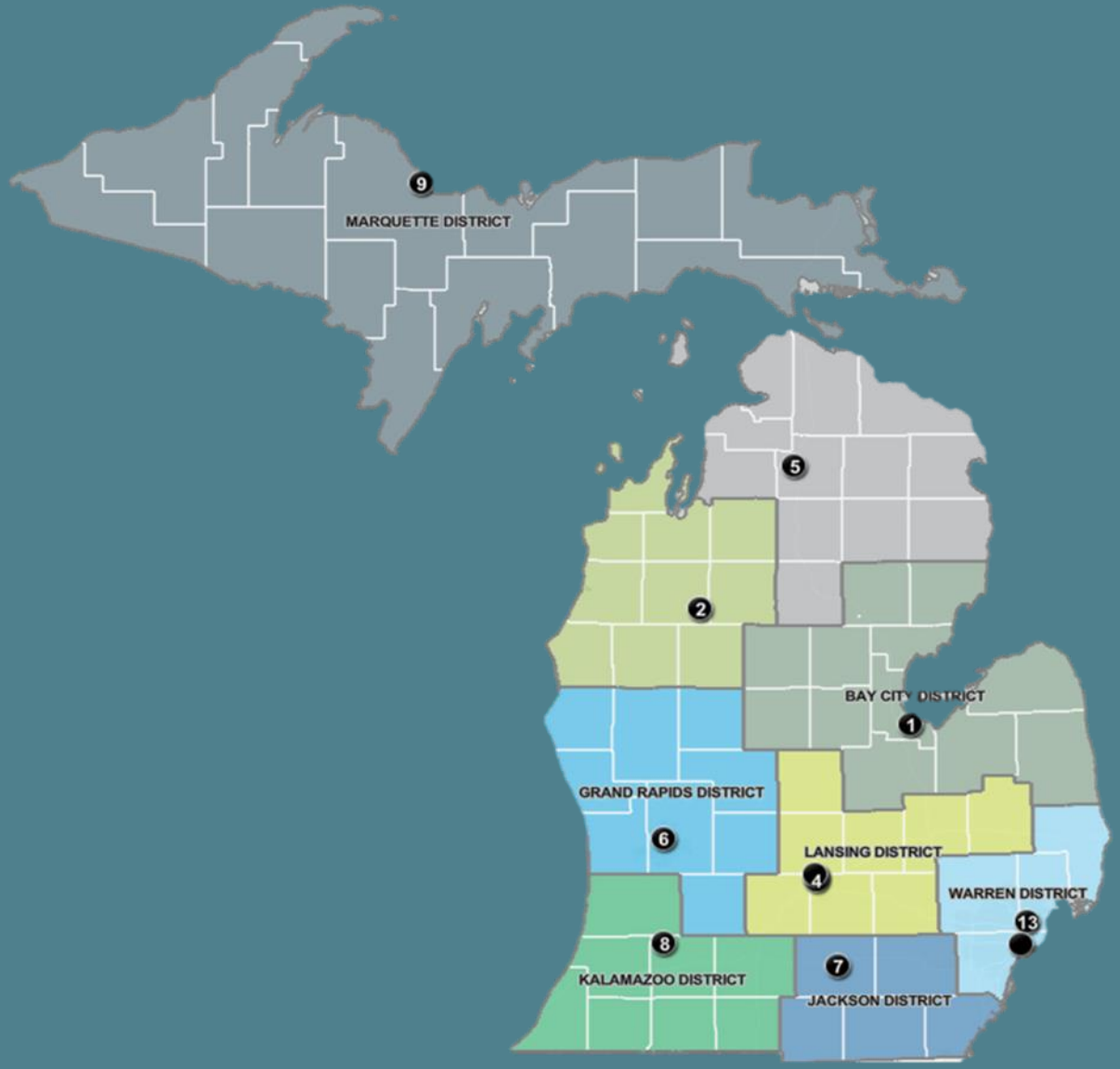
Explore watershed resources related to climate change, data management, the Clean Water Act and more.

View watershed resources

Michigan Water Environment Association

https://www.mi-wea.org/watershedcert

- 8 Courses
- Entirely online and can be accessed 24/7.
- Each course cost: $100 each.



Get Started on Watershed Planning

Contact NPS District Staff

www.mi.gov/nps

EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY | District Offices

Not ready for a full watershed plan?

Start with

1. Know complete watershed boundary
2. Know your lake type
3. Know the residence time
4. Water chemistry Monitoring

Not ready for a full watershed plan?

Start with

1. Shoreline inventory/score the shore
2. Land use planning analysis
3. Identify areas to permanently protect.
4. Stormwater runoff inventory

Questions

Michigan Department of
Environment, Great Lakes, and Energy

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