THE GRASS RIVER ADAPTIVE MANAGEMENT PLAN

This is a copy of the report presentation we did and at Grass River and for the Three Lakes Association membership. Some of the slides may need more context, so if you have any questions feel free to contact Jenn Wright at Jenn@grassriver.org.

Photo by Aaron Holznagle

Outline

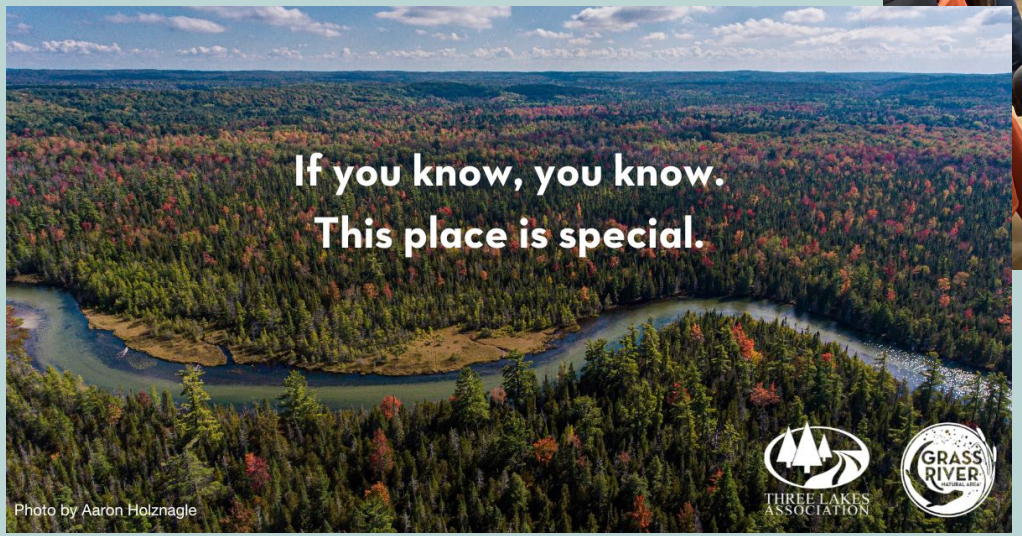
- How we got here
- Plan contents
- Immediate next steps

How We Got Here

- Needed a plan
- Oct 2021: GR Connects is born

How We Got Here Cont'd

- Received EGLE grant in March 2022
  - GR Connects
  - Built geodatabase
  - Social media campaign
  - Writing of the plan

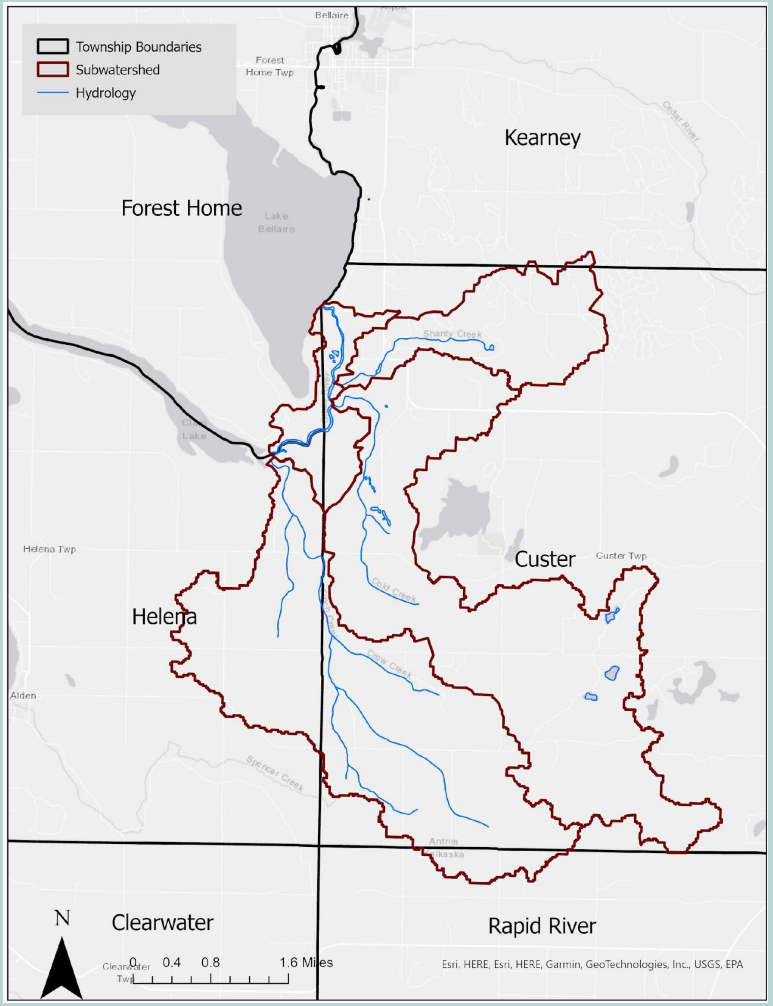


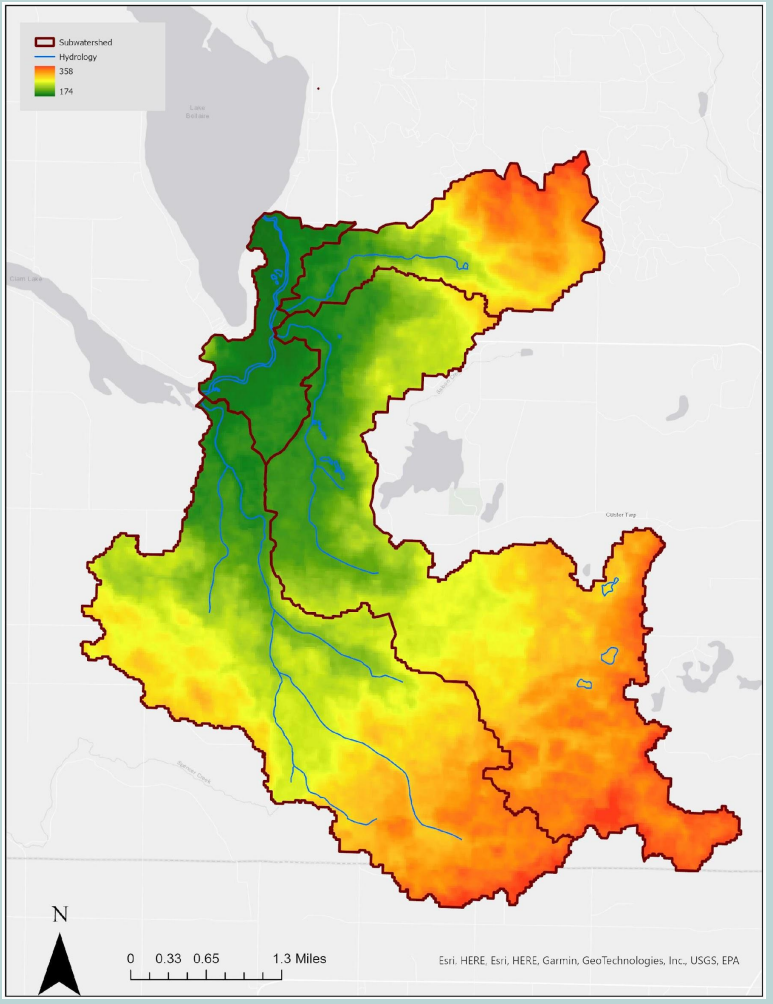
Contents of the Plan

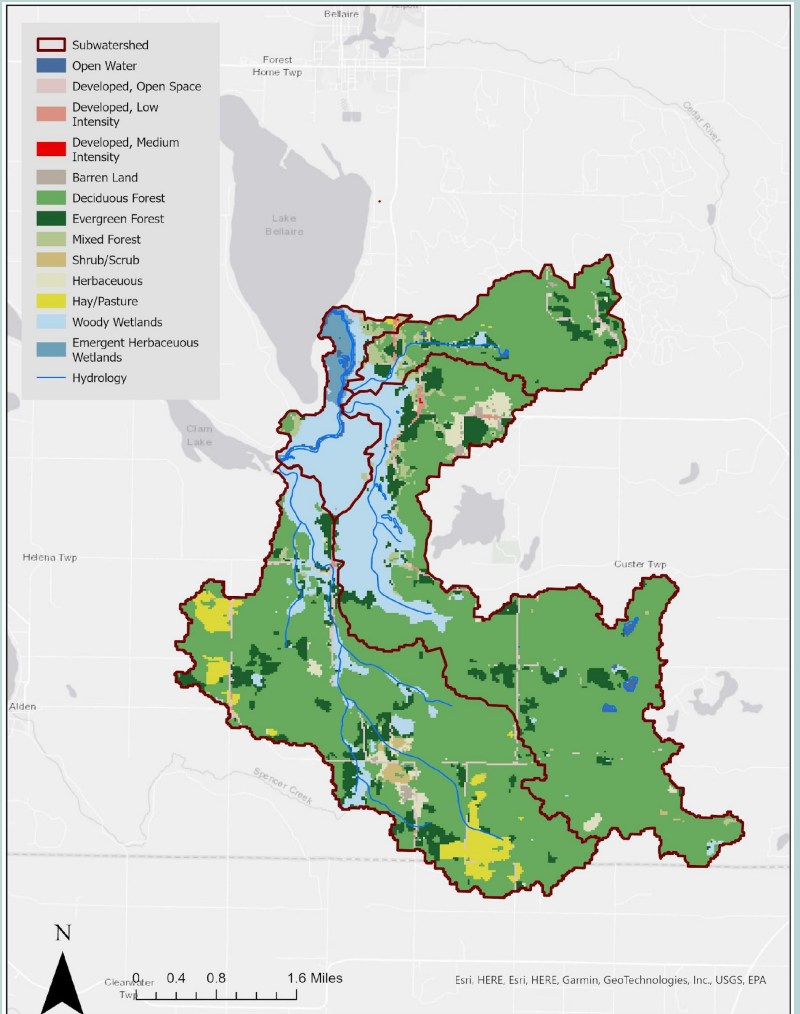
- Watershed Characterization
- Ecological Stressors
- Previous Efforts
- Vision, Goals, and Objectives
- Implementation Strategy
- Evaluation

Watershed Characterization

Township	County	2020 Population	Area (mi^2)	Population Density ($people/mi^2$)
Helena	Antrim	937	23.1	40.7
Custer	Antrim	1,150	35.2	32.7
Forest Home	Antrim	1,205	33.5	36.0
Kearny	Antrim	1,197	35.3	33.9
Rapid City	Kalkaska	1,245	35.2	35.4
Total		4,537	127	35.7







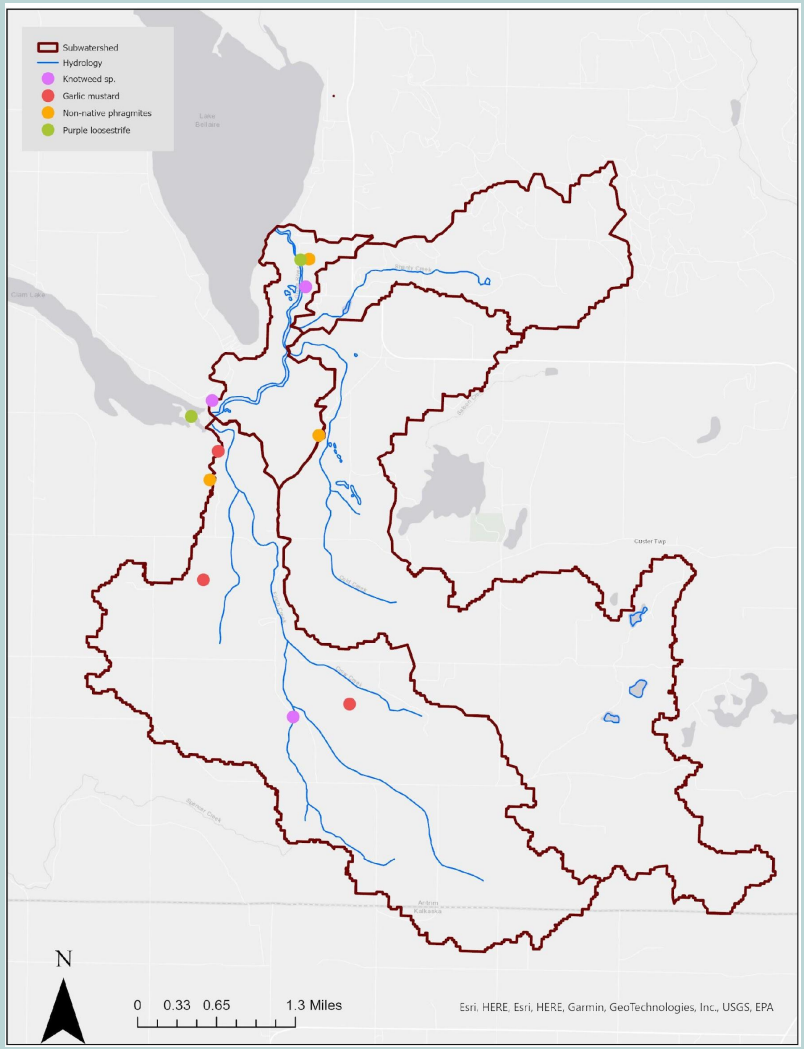
Ecological Stressors: Sedimentation

- Fast creeks = slow river
- Problem: changes aquatic habitats and impairs navigability
- Model prediction: > 620 tons of sediment every yr (13 dump trucks)
- Various contributing sources

Ecological Stressor: Irresponsible Recreation

- No wake, but consistent lack of compliance
- Problem: cause bank erosion = sedimentation

Ecological Stressor: Invasive Species



<u>Main species of concern</u>

- Purple loosestrife
- Non-native phragmites
- Garlic mustard
- Knotweed spp.

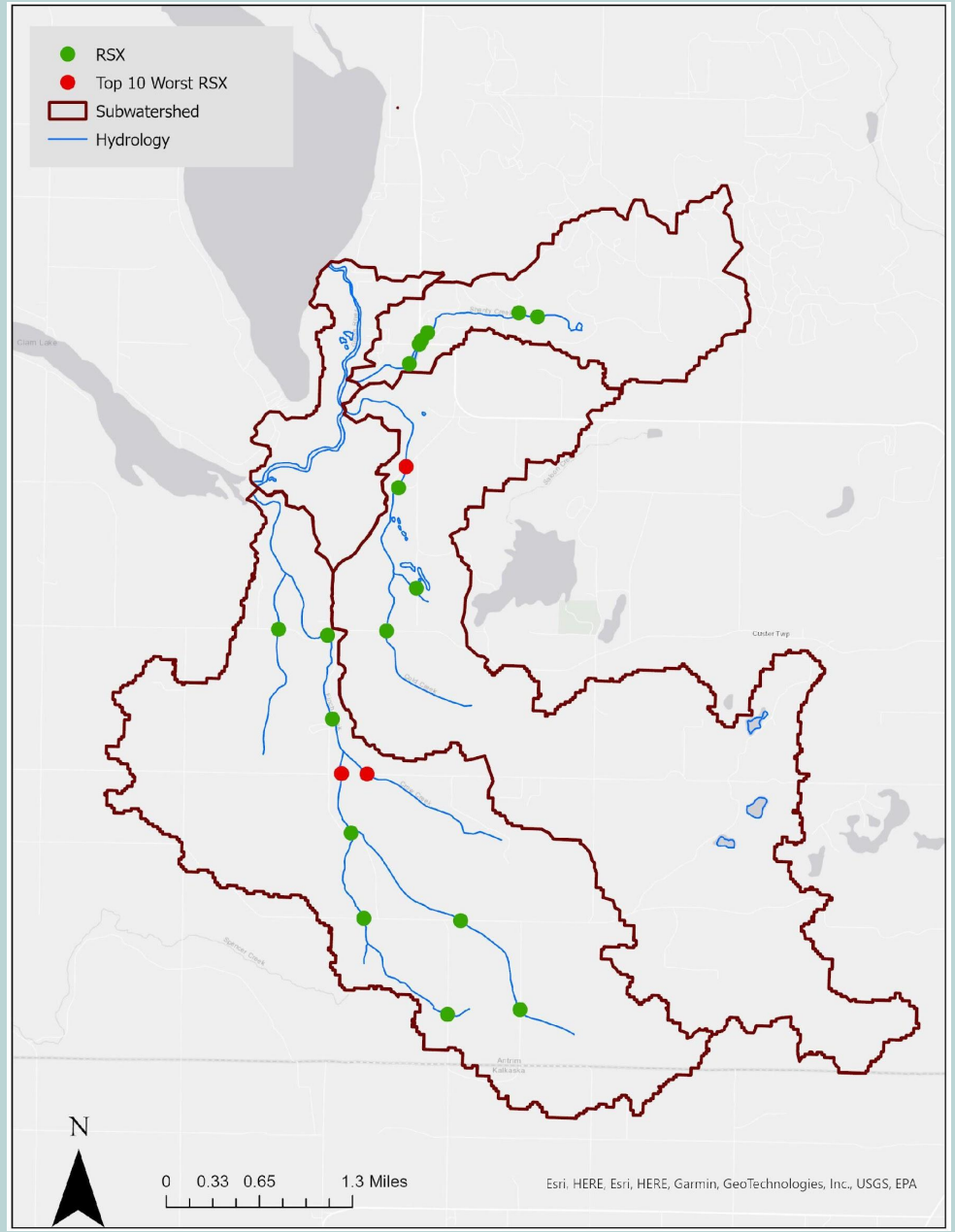
Problem: invasive species change habitats, outcompete native species, impede view and access to water

Ecological Stressor: Invasive Species

- New Zealand Mudsnails

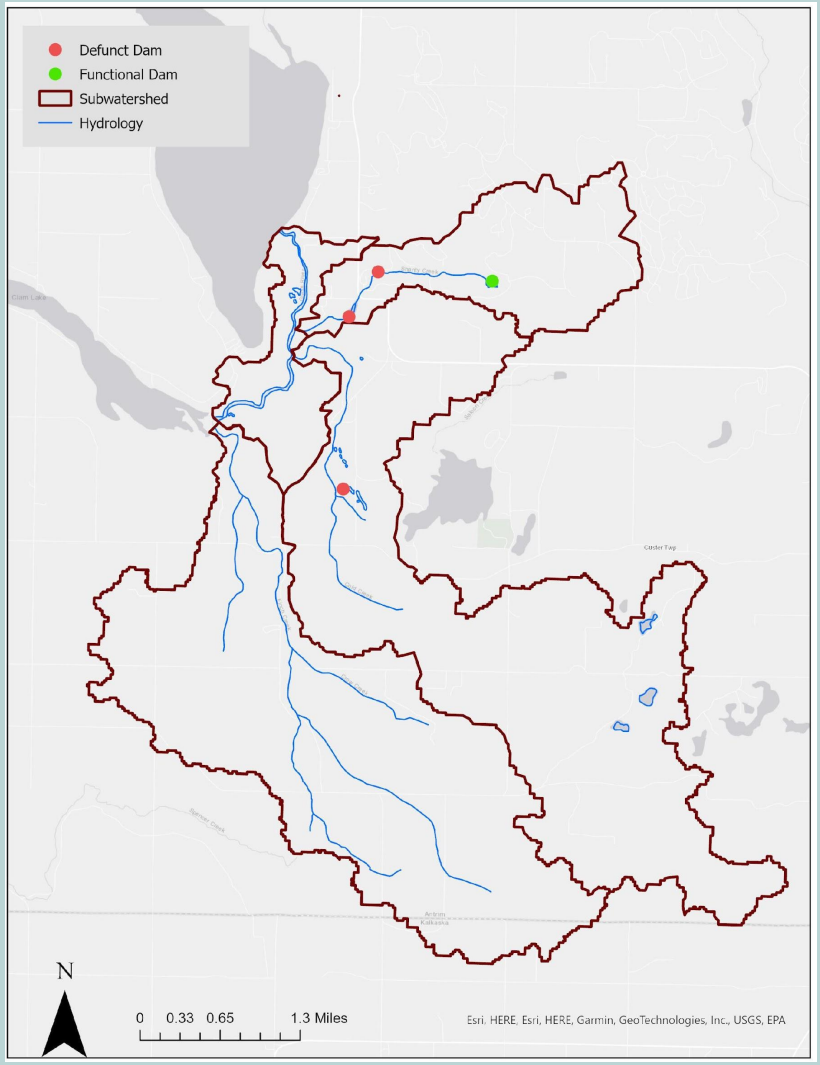
Ecological Stressor: Flow Alteration Structures - RSXs

- Poor road-stream crossings are a problem because
  - Sedimentation
  - Barriers for aquatic organisms



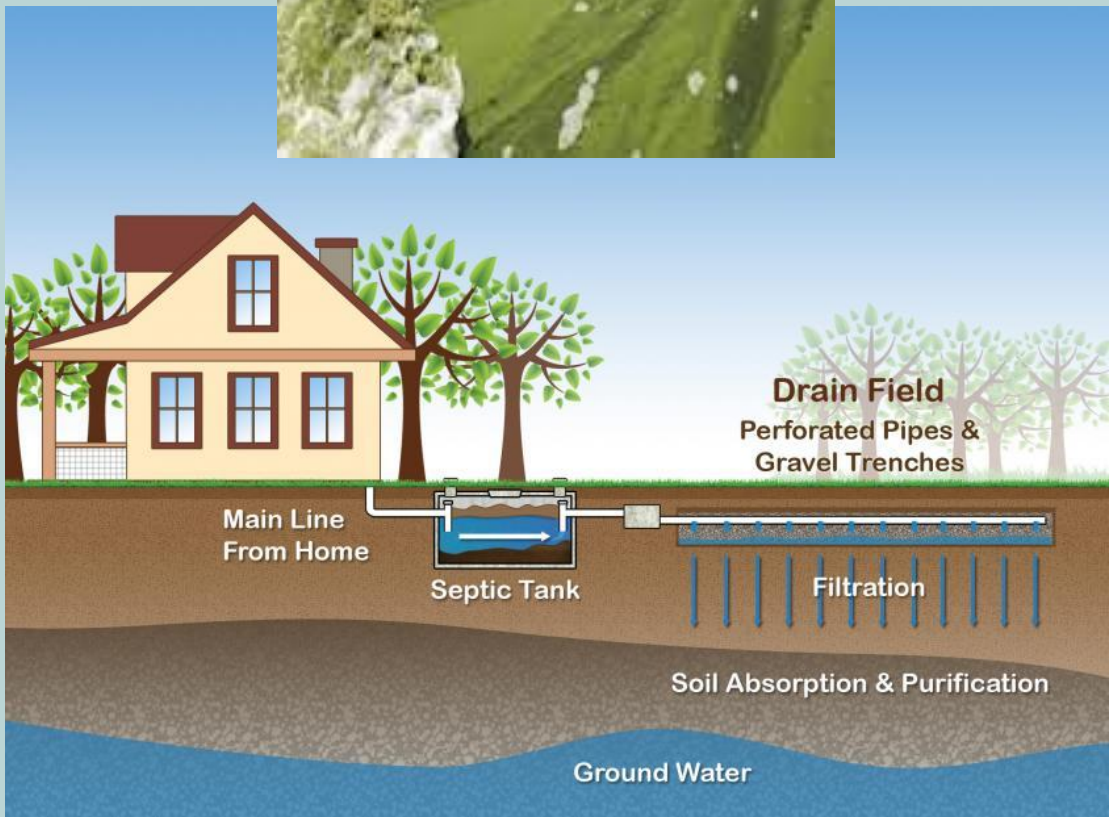
Ecological Stressor: Flow Alteration Structures - Dams

- 4 small dams on/near tributaries
  - Problem: dams fragment aquatic habitat and release sediment when they fail



Ecological Stressor: Septic Systems

- MI is only state in nation without a statewide septic code
- Concerns
  - Pathogens
  - Excess nutrients algal blooms



Ecological Stressor: Land Use

“A significant acreage within [the Finch, Cold, and Shanty] creeksheds has been converted from forest to human landscape such as lawns, roads, and golf courses” (ERCOL Watershed Management Plan).

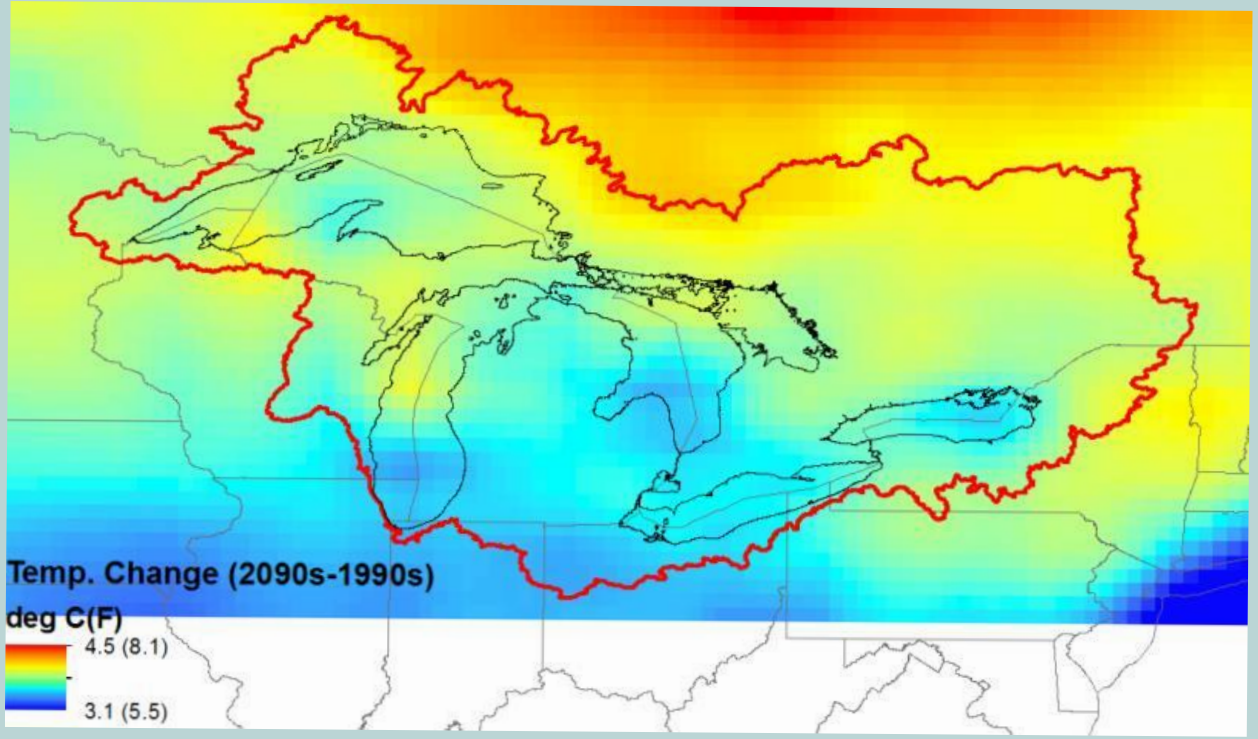
Findings/Recommendations: Shanty Creek

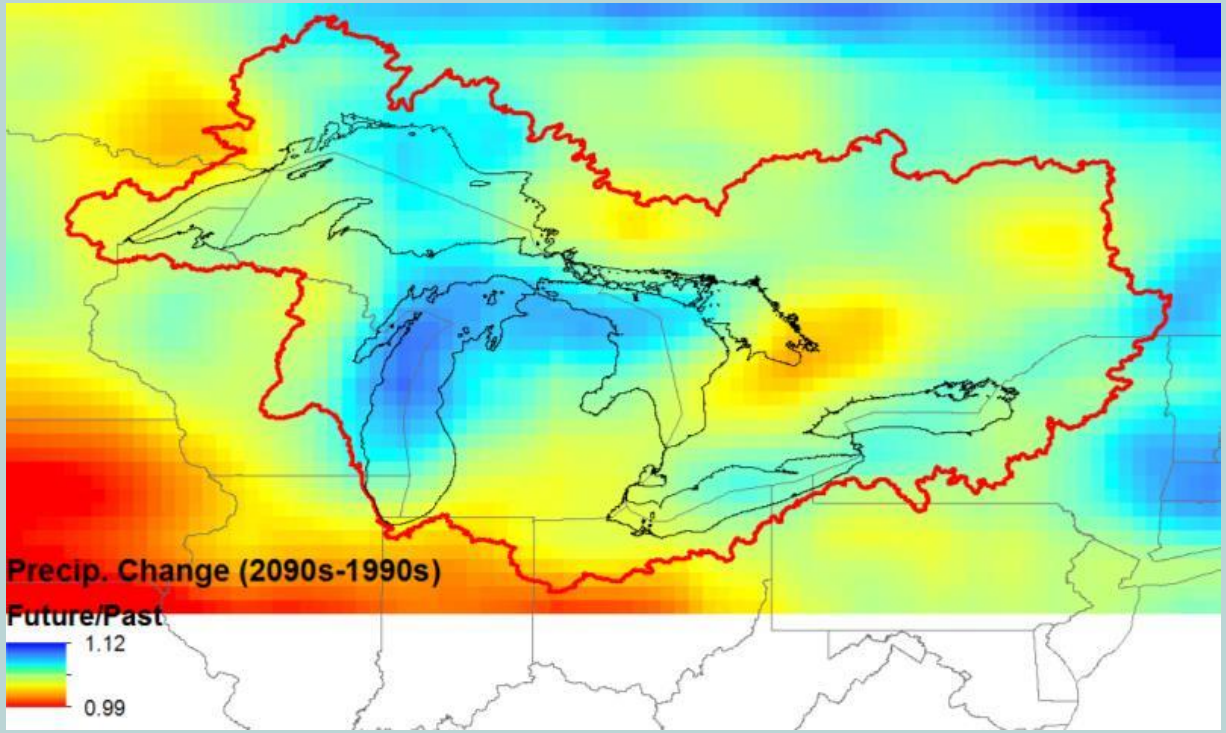
- Lack of Buffer Along Shanty Creek -
  ~Findings:
  - Creek runs through The Legend golf course green on hole #8 and has mowed lawn to the banks of the creek

  ~Recommendations:
  - Install a greenbelt buffer along this stretch of the creek, suggested depth of 50-75 feet, or eliminate mowing

Ecological Stressor: Climate Change

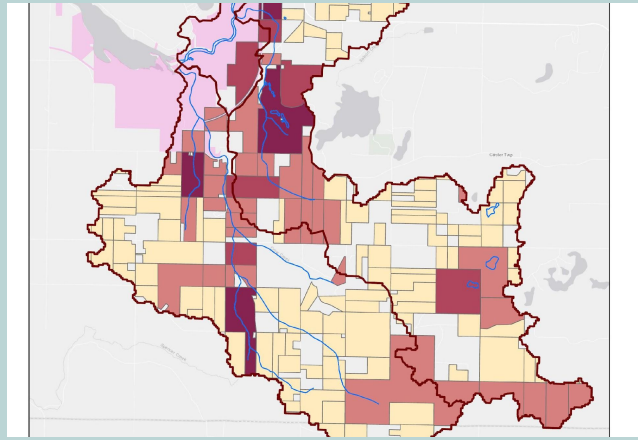
- Warmer, wetter, less snow, more extreme precipitation events

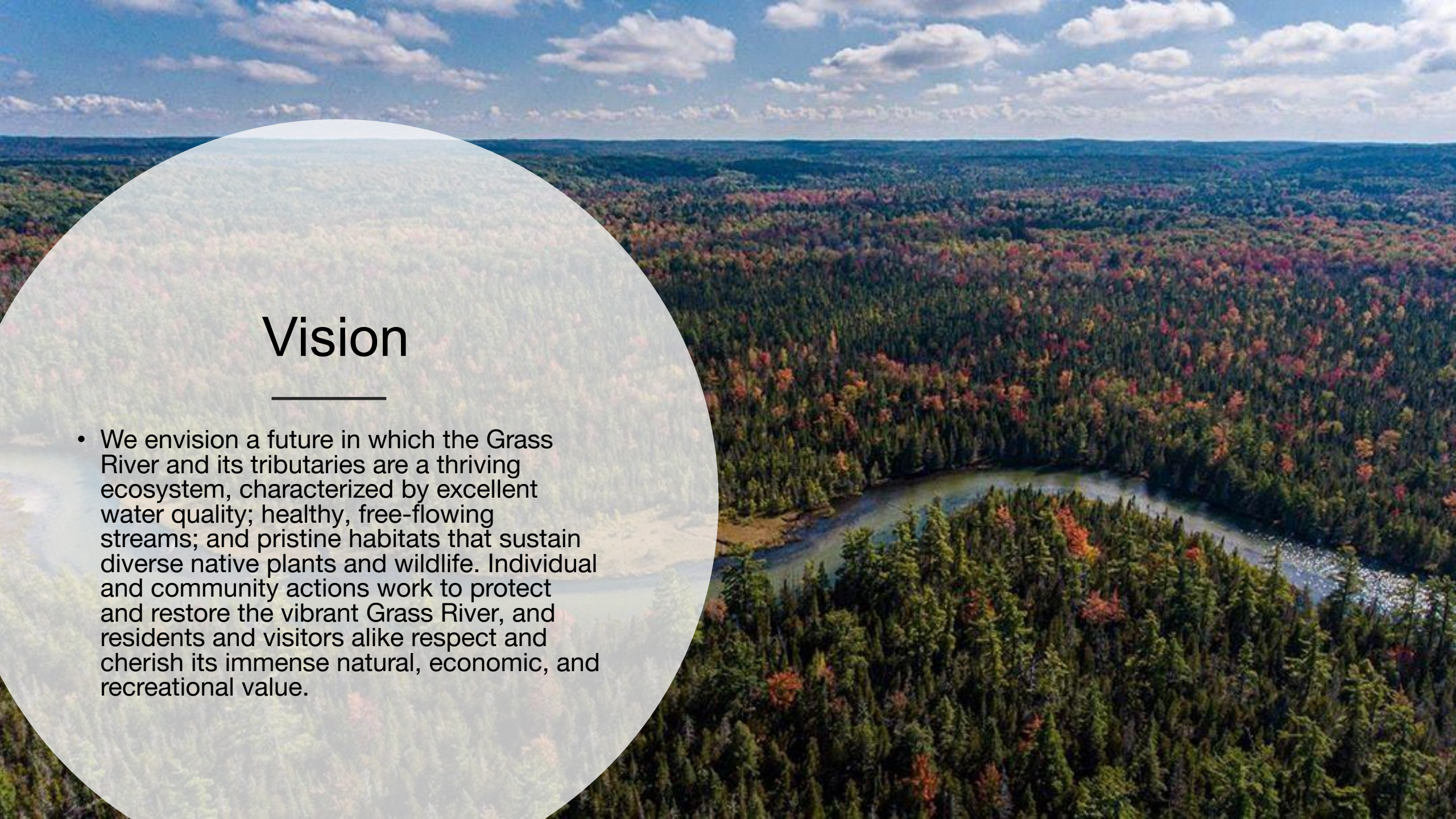




Previous Efforts

- Large woody debris
- RSX improvement
- Community engagement
- Stream monitoring
- Invasives control
- Parcel prioritization
- Previous studies





Vision

- We envision a future in which the Grass River and its tributaries are a thriving ecosystem, characterized by excellent water quality; healthy, free-flowing streams; and pristine habitats that sustain diverse native plants and wildlife. Individual and community actions work to protect and restore the vibrant Grass River, and residents and visitors alike respect and cherish its immense natural, economic, and recreational value.

Goals

1) Protect the diversity of aquatic habitats
2) Protect and improve water quality
3) Enhance and maintain recreational opportunities that preserve water quality and support the local economy
4) Promote sustainable land management practices that conserve and protect natural resources, character, and heritage
5) Integrate climate-resilient practices and efforts
6) Develop and maintain effective education and outreach efforts

Objectives

Goal	Objective Code	Objective	Analogous ERCOL plan objective
1: Protect the diversity of aquatic habitats	1a	Inventory and monitor aquatic habitats to document conditions and changes	1.1
	1b	Protect and restore diverse river and stream habitats	1.2
	1c	Protect and restore riparian corridors, floodplains, and wetland areas	1.3
	1d	Protect and restore natural hydrologic connectivity and integrity	1.5
	1e	Monitor and manage invasive species populations to promote the integrity of native populations	1.6
	1f	Protect and restore critical habitat for threatened/endangered species, species of special concern, or species of regional significance	1.4
2: Protect and improve water quality	2a	Establish effective, standardized water quality monitoring procedures	2.1
	2b	Reduce sediment inputs to surface waters	2.3
	2c	Reduce chemical, thermal, nutrient, bacterial, and other harmful inputs to surface waters and groundwater	2.2, 2.4, 2.6, 2.7
3: Enhance and maintain recreational opportunities that preserve water quality and support the local economy	3a	Maintain boating navigability	3.1
	3b	Create, maintain, and promote protocols or infrastructure to help limit spread of invasive species	3.3
	3c	Create infrastructure, promote regulations, and develop a culture that encourages stewardship through recreation	3.5
	3d	Maintain open space, parks, greenways, and natural areas for public enjoyment	4.3
4: Promote sustainable land management practices that conserve and protect the natural resources, character, and heritage of the watershed	4a	Maintain natural beauty and wilderness character of the river corridor	4.1, 4.2
	4b	Protect priority areas to preserve ecological integrity and watershed quality	4.4
	4c	Promote low impact development techniques and green infrastructure throughout the watershed	4.5
	4d	Increase local governmental awareness as to the impacts of development on natural resources and biological communities	4.6
	4e	Promote regulatory tools that prevent or reduce environmental degradation in riparian zones, drainage areas, and sensitive landscapes	4.7
	4f	Promote voluntary best management practices that prevent or reduce environmental degradation in riparian zones, drainage areas, and sensitive landscapes	4.8

Objectives Cont'd

5: Integrate climate-resilient practices and efforts throughout the watershed	**5a**	**Develop adaptive management strategies based on climate predictions and observed patterns**	**5.2**
	5b	Develop infrastructure resilient to increased storm severity and climate variability	5.3
	5c	Promote and sustain biodiversity and ecological integrity in light of changing environmental conditions	5.4
6: Develop and maintain effective education and outreach efforts to support watershed protection	6a	Maintain a working knowledge of current and emerging issues affecting the Grass River sub-watershed	6.1
	6b	Regularly inform public about research, projects, and opportunities for contribution/collaboration within the watershed	6.2
	6c	Engage stakeholders in actions that prevent and mitigate current and emerging issues in the watershed	6.3, 6.4
	6d	Maintain place-based learning and organized citizen science opportunities	6.5
	6e	Develop a culture of community pride and stewardship of the river	
	6f	Develop a network of river ambassadors who are committed to and engaged in protecting the watershed	

Implementation Strategy

Priority	Aquatic Habitat	Objectives Addressed	Milestone 2024-2025	Milestone 2026-2027	Milestone 2028-2032	Estimated Cost	Potential Partners	Potential Funding Sources
High	Conduct a full RSX inventory on all RSXs in the sub-watershed	1a, 6a	Conduct inventory			$7,000	ACD, TOMWC, TWC, ACRC	PF, SG, PO
	Improve priority RSXs for better hydrology, erosion control, and fish passage	1b, 1d, 1f, 2b, 2c, 3a, 5a, 5b, 5c		Improve	Improve	$500,000	ACD, TOMWC, TWC, ACRC	PF, SG, FG, PO, LG
	Remove priority small dams and other water control infrastructure	1b, 1d, 1f, 2b, 2c, 3a, 5a, 5b, 5c, 6c			Remove	$200,000	TOMWC, TWC	SG, FG, PO, CS
Medium	Strategically install large woody debris to naturally scour channel and facilitate sediment transport	1b, 1f, 3a, 5c	Determine locations	Installation	Monitor	$100,000	ACD	SG, PF, PO
	Compile known information about small dams and water control infrastructure and work to fill in gaps with remotely gathered data	1a, 6a	Compile data			$2,000	TOMWC, TWC	SG, FG, PO
	Develop and implement outreach and education strategy targeting owners of small dams, focusing on the benefits of removing dams and water control infrastructure	4f, 5c, 6c, 6e		Develop campaign	-Implement campaign	$3,000	TOMWC, TWC	PF, SG, FG, PO
Low	Conduct a fish survey in Grass River and the three tributaries to determine if the species assemblage has changed since the last survey in 1981	1a, 6a		Conduct survey		$2,000	MDNR, EGLE	CS, PF

- Aquatic habitat
- Invasive species
- Land protection
- Land use
- Planning and zoning
- Recreation
- Septic systems
- Streambank protection
- Water quality monitoring

Evaluation Strategy

- Advisory committee will meet quarterly to evaluate progress toward:
  - Completing implementation tasks
  - Improving/maintaining water quality
  - Improving and protecting land resources/habitat
  - Community engagement

Immediate Next Steps: No-wake

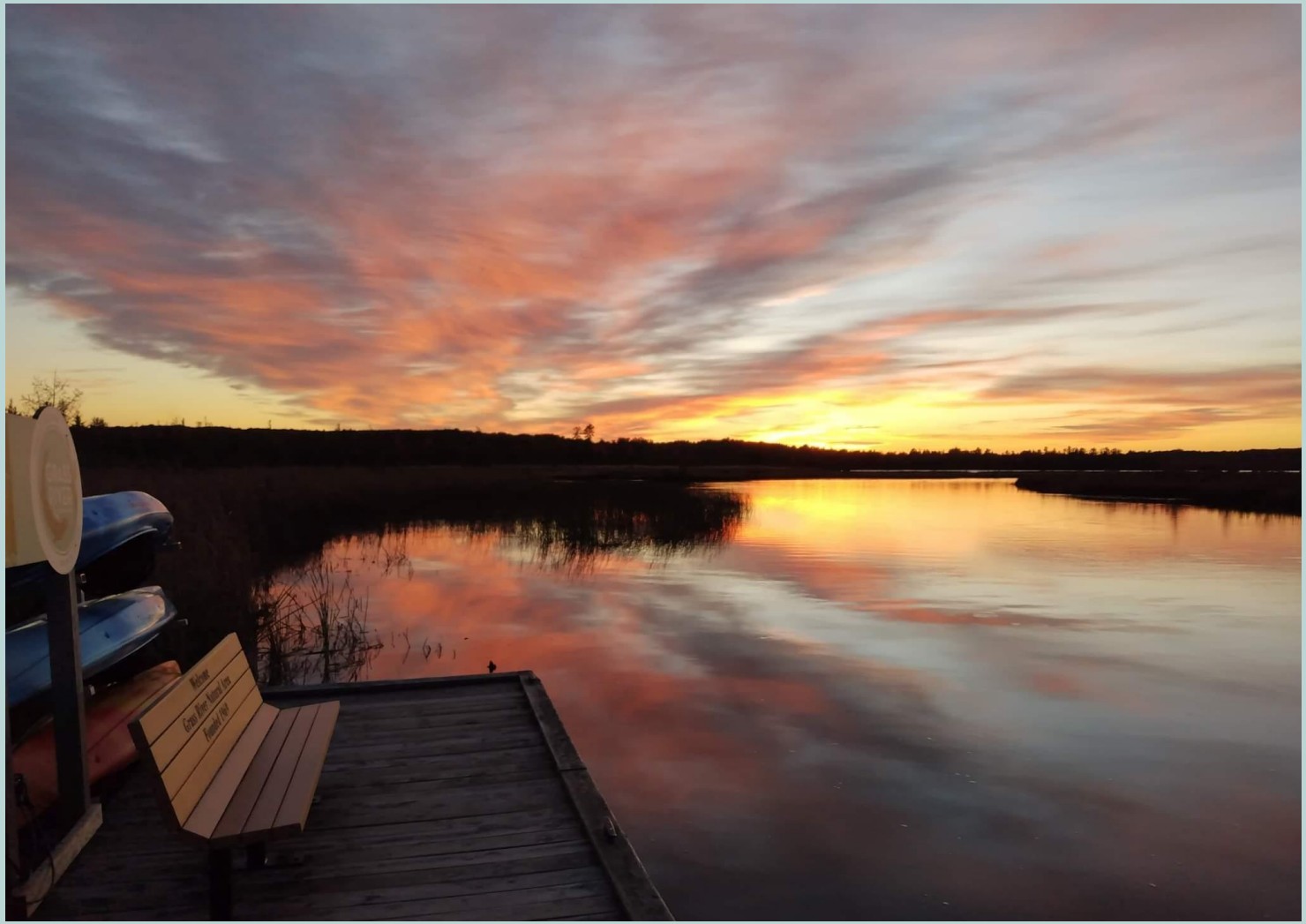
- New signage
- Pulling out old signage

Immediate Next Steps: Shoreline protection

- Adding debris/signage

Immediate Next Steps: Shared messaging

- River ambassadors pilot program



Immediate Next Steps: Enforcement

Immediate Next Steps: Ordinance Update

- Adding language around no-wake
- Adding language around not pulling up onto banks

Immediate Next Steps: Extended Outreach

- Op-Ed in Antrim Review
- Short video
- Working with boat rentals

Thank you!

- EGLE
- ERCOL-WPIT
- The Watershed Center Grand Traverse Bay
- Tip of the Mitt Watershed Council
- Land Information Access Alliance (LIAA)
- Dan Ariza
- Conservation Resource Alliance
- Grand Traverse Bay Band of Ottawa and Chippewa Indians
- Grand Traverse Regional Land Conservancy
- Friends of Clam Lake
- Glen Lake Association
- MDNR
- CAKE CISMA
- Township Boards: Helena, Custer, & Forest Home
- Antrim County Commissioners
- Antrim County local businesses
- Riparians and tributary landowners
- Conservation collaborators
- Dr. Anthony Kendall – MSU
- Dr. Paul Richards – SUNY Brockport
- Michigan Natural Features Inventory (MNFI)
- MiCorps (Michigan Clean Water Corps)
- GRNA stream monitoring volunteers
- Antrim Conservation District
- Shanty Creek Resort
- Antrim County Road Commission
- Ken Reed
- Bill Hershey
- Mark Stone
- Chris Hale
- Paddle Antrim
- General public

Questions?

Contact Jenn Wright at Jenn@grassriver.org

This project has been funded wholly or in part through Michigan Department of Environment, Great Lakes, and Energy's Nonpoint Source Program using Watershed Council Support funds.

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Michigan's Nonpoint Source Program