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More info at Michigan.gov/ForestToMiFaucet, YouTube.com/@MichiganSAF, and https://www.rivercare.org/wildroots/

Forest to Mi Faucet: big picture ideas

- Where does your drinking water come from?
- How does land use impact water quality?
- Forests are best land use to protect drinking water
- Forest to Mi Faucet - partners and 3 main actions
- What can YOU do to protect drinking water?
- *Getting Michigan's forestry & logging community to pay attention to WATER.*

FOREST TO MI FAUCET

Is our freshwater infinite, free and pure?

Is Michigan taking good care of its land and water?

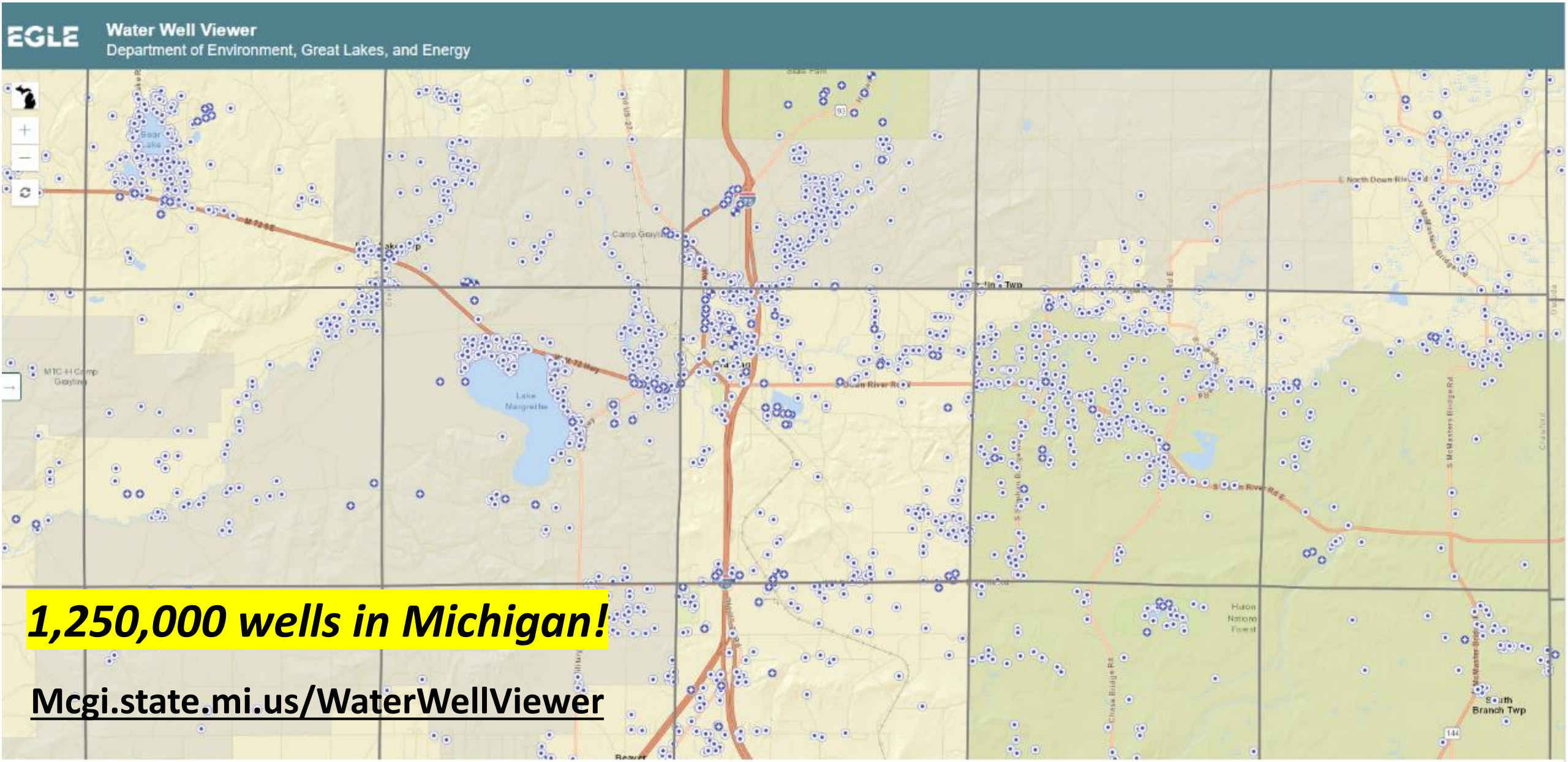
Forests

- 20 million acres (includes 4.5 m wetlands)
- 56% of our land area
- Other land uses
  - 10 m acres agriculture (28%)
  - 2 m wetlands [non-forest] (8%)
  - 2 m acres urban (6%)
- $21 billion forest products industry
  - ***are we taking good care of forests?***

Water

- 26 million acres
  - 25 m Great Lakes
  - 1 m inland lakes
- 10,889 lakes > 5 acres
- 52,053 miles of rivers
- 3,049 miles Great Lakes shoreline
- MI has 9% of world's fresh water!
- Water is a PUBLIC GOOD - $$$???
  - ***are we taking good care of water?***

RURAL *drinking water* for 2.5 million Michiganders

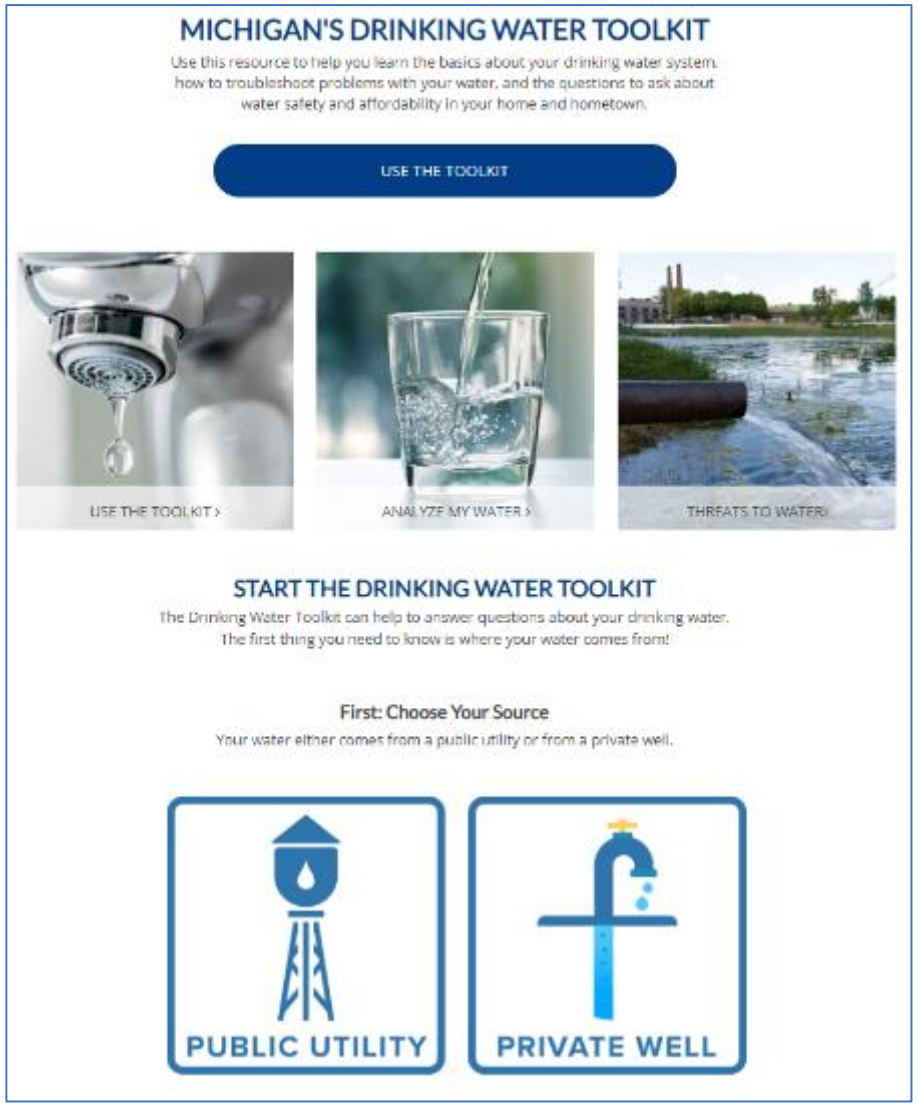


1,250,000 wells in Michigan!

Mcgi.state.mi.us/WaterWellViewer

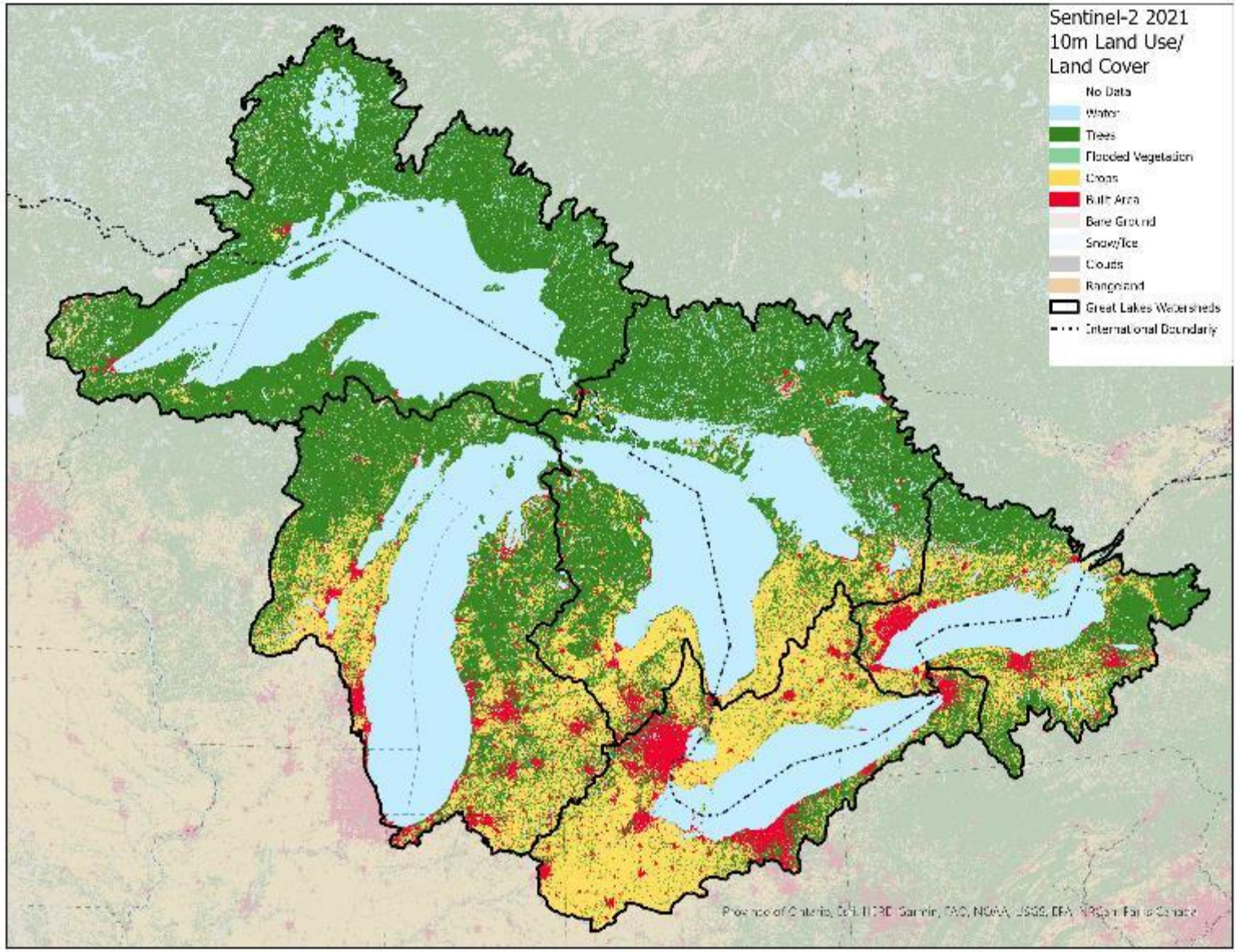
URBAN *drinking water* for 7.5 million Michiganders

- Groundwater Wells (1.8 million people in Michigan)
  - Kalamazoo, Lansing, Jackson, Gaylord, Cadillac …
- Rivers (~150k people in Michigan)
  - Ann Arbor – Huron River (128k people)
  - Adrian – Wolf Creek (20k people)
  - *Flint – Flint River (*now back to GLWA*)*
- Great Lakes (5.7 million people in Michigan)
  - Marquette, Traverse City, Alpena, Grand Rapids …
  - Detroit: Great Lakes Water Authority (GLWA)
    - 3.8 million people, 112 communities, 8 counties



MIDrinkingWater.org/find_your_public_water_type

Which Great Lake do you want to drink?



Map produced by John Esch (EGLE) EschJ@Michigan.gov on 8/25/22.

Great Lakes Land Cover

Lake Superior

91% forest, 1% ag, 2% urban

Lake Huron

67% forest, 22% ag, 6% urban

Lake Michigan

49% forest, 32% ag, 10% urban

Lake Ontario

49% forest, 34% ag, 12% urban

Lake Erie

19% forest, 61% ag, 18% urban

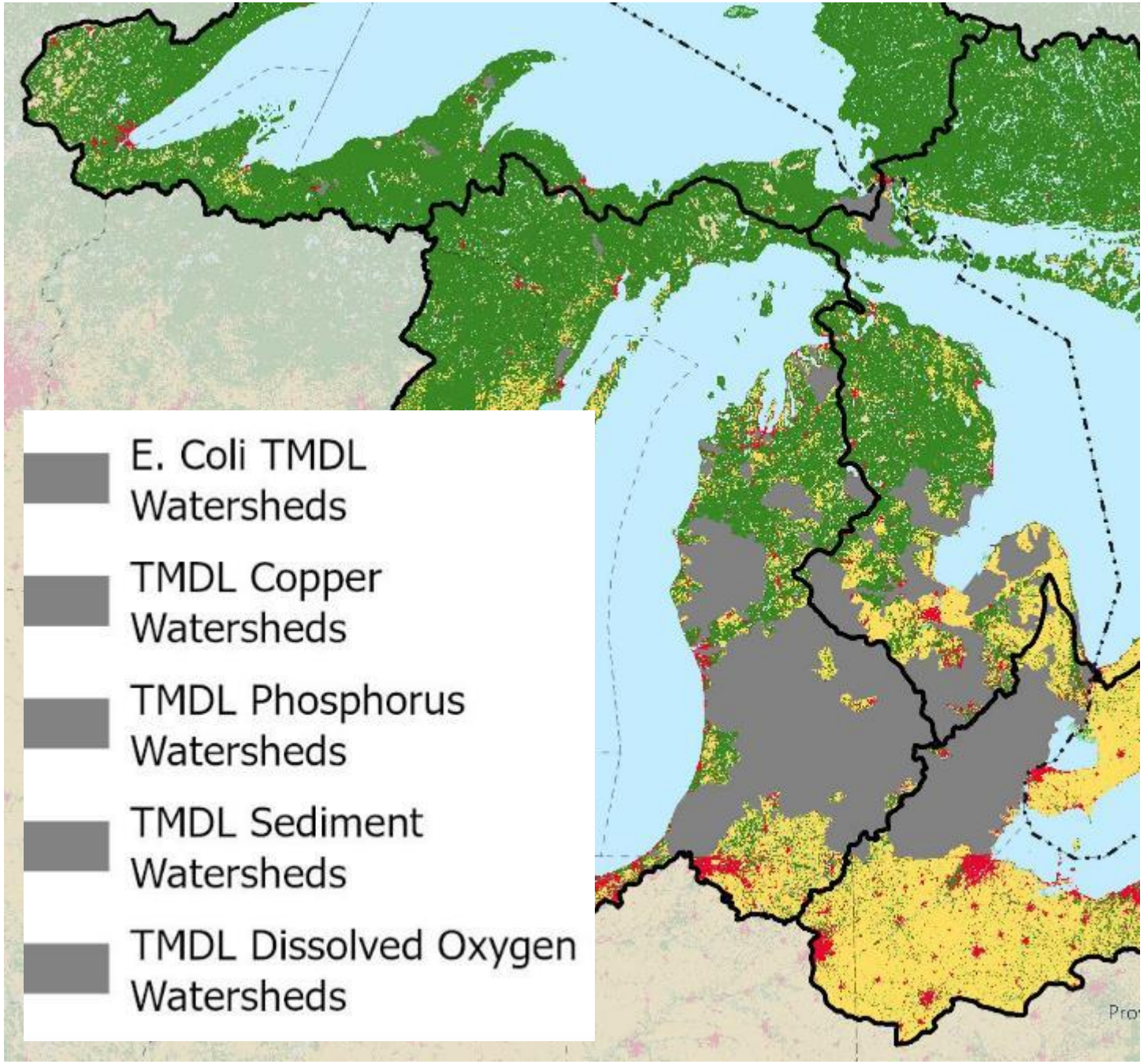
Source: EPA 2022 State of Great Lakes Technical Report (forest & forested wetland)

State of the Great Lakes 2022 Report, EPA & Canada

As forest cover declines, so does lake quality.

City	Municipal Water Source	EPA's Lake Status	Forest Cover in Watershed
Marquette	Lake Superior	**Good**	91%
Detroit	Lake Huron	**Good**	67%
Toronto	Lake Ontario	**Fair**	49%
Grand Rapids	Lake Michigan	**Fair**	49%
Monroe	Lake Erie	**Poor**	19%

Photo: GreatLakesNow.org /2022/07/2022-forecast-harmful-algal-blooms-forecast-lake-erie



Map produced by John Esch (EGLE) EschJ@Michigan.gov on 8/25/22.

As forest cover declines, pollution increases.

"Total Maximum Daily Load"

Maximum amount of pollution allowed by Clean Water Act.

Michigan.gov/TMDL

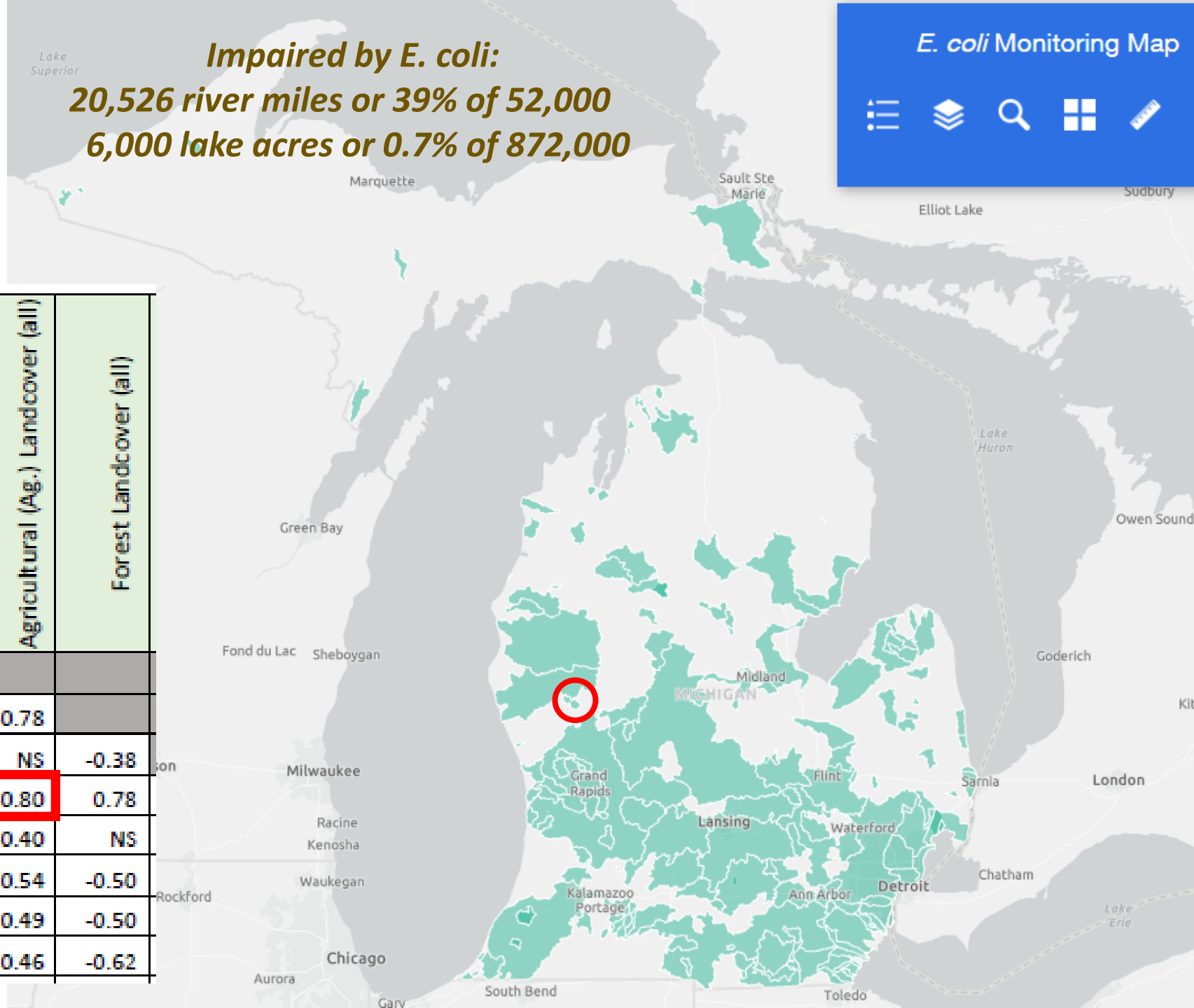
Excludes TMDLs for PCBs & mercury (cover most of MI, industrial source)

Land cover correlation with E. coli TMDL

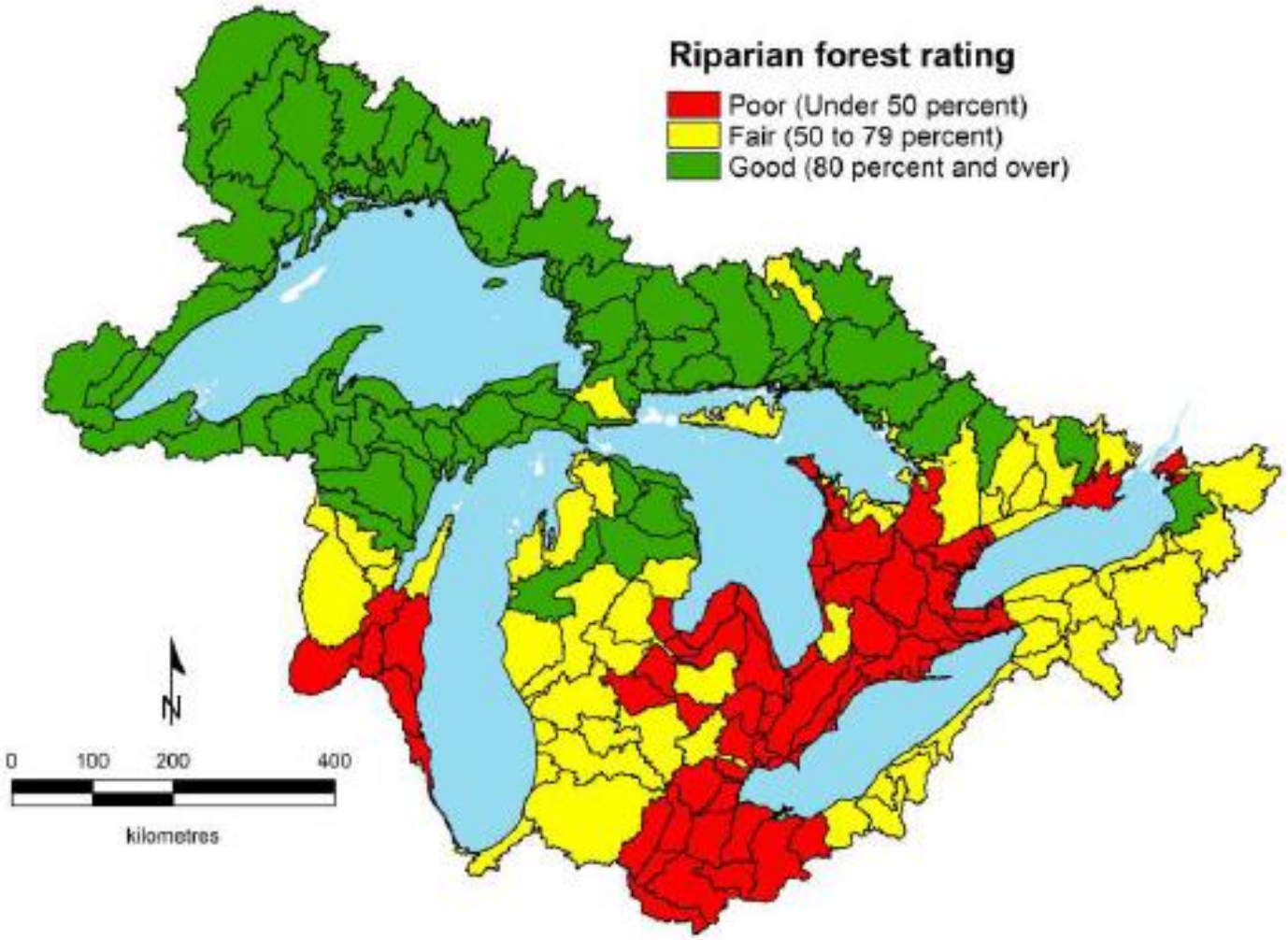
E. coli live in intestinal tract of warm-blooded animals

Impaired by E. coli:
20,526 river miles or 39% of 52,000
6,000 lake acres or 0.7% of 872,000

WCMP Watershed Variables and Characteristics	*E. coli* (geomean)	Agricultural (Ag.) Landcover (all)	Forest Landcover (all)
Agricultural (Ag.) Landcover (all)	0.58		
Forest Landcover (all)	-0.63	-0.78	
Developed Landcover (all)	0.29	NS	-0.38
Natural Riparian Buffer	-0.52	-0.80	0.78
Wetland Landcover (all)	-0.18	-0.40	NS
Lost Wetland (% of original)	0.31	0.54	-0.50
Septic System Density	0.46	0.49	-0.50
Population Density	0.53	0.46	-0.62



Forest Cover inside 30m Riparian Zone



- Superior – 96%
- Huron – 78%
- Michigan – 66%
- Ontario – 65%
- Erie – 35%

Source: EPA's State of the Great Lakes 2022 Technical Report

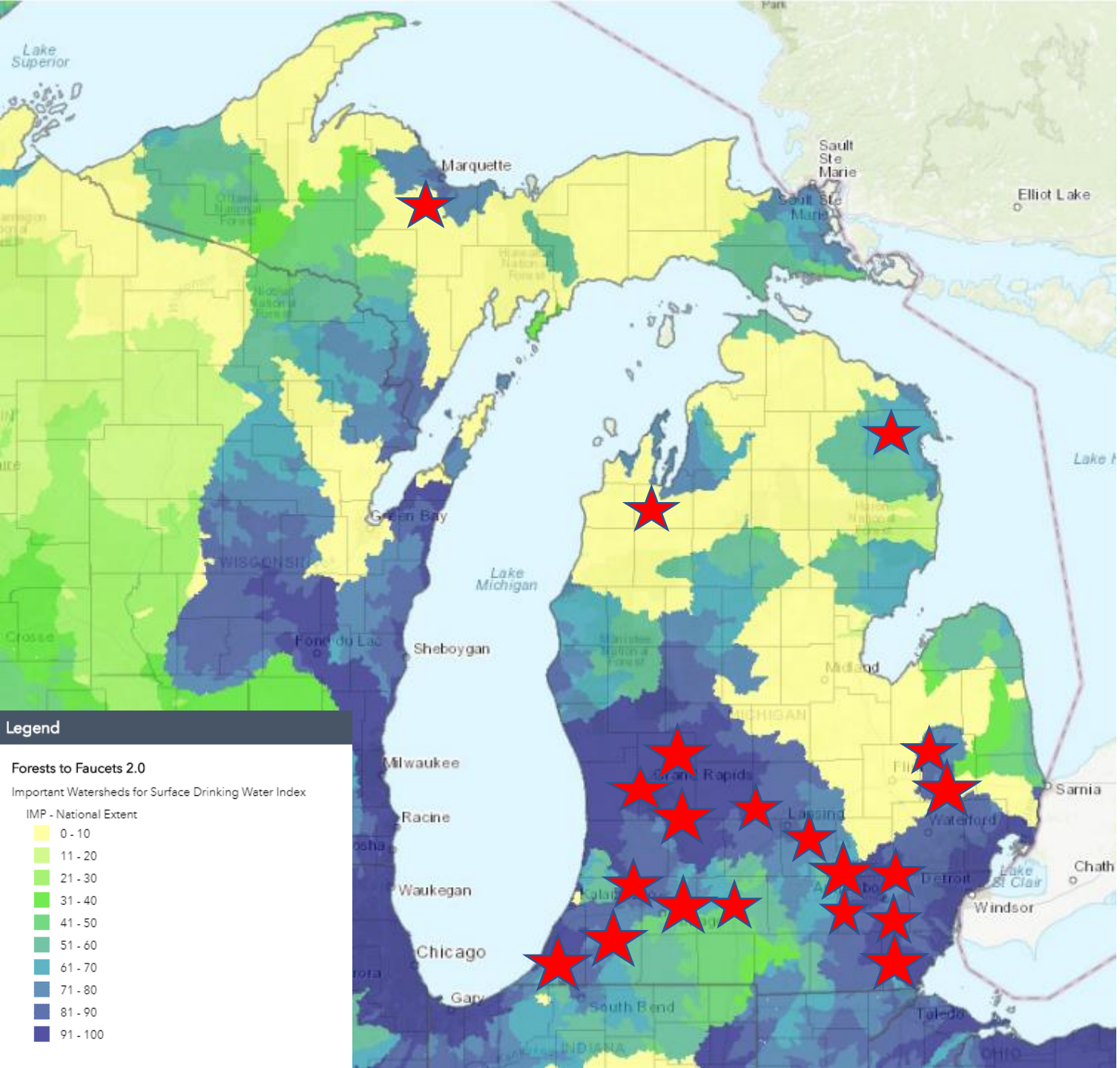
What must Michigan do to protect its land and water?

Transform our Culture

- Consumers
  - Consume less…stuff, beef, gasoline, etc.
  - Pay more for quality & less pollution
- Corporations (economy *and* ecology)
  - Forest certification & better managing
  - Right to Farm/Forest is ***NOT*** right to pollute
- Culture
  - Land & water are not infinite, free or *ours*
  - Responsibility, not just individual rights
  - PUBLIC TRUST, not just personal property

Improve our Policy

- Local
  - Land use, zoning, protection (30% by 2030)
  - Water users pay for better upstream land use
- State
  - Statewide septic code & separate CSOs
  - *Best Man. Practices mandatory in forest & ag*
  - Invest in infrastructure (Michigan is D+)
- Federal
  - Clean Water Act should include nonpoint
  - End perverse subsidies that harm water



Forests to Faucets 2.0

What forests should we protect and enhance for surface drinking water?

Connecting Forests, Water & Communities

USDA Forest Service, 2011

★ = 20 Project Partners on Forest to Mi Faucet

Forest to Mi Faucet Team

5 Watershed Councils

- Huron River Watershed Council
- Flint River Watershed Coalition
- Kalamazoo River Watershed Council
- Lower Grand River Org. of Watersheds
- River Raisin Watershed Council

5 Land Conservancies

- Legacy Land Conservancy
- SE Michigan Land Conservancy
- Mid Michigan Land Conservancy
- Land Conservancy of West Michigan
- Southwest Michigan Land Conservancy

3 Regional Conservation Groups

- Superior Watershed Partnership
- Conservation Resource Alliance
- Huron Pines

3 Conservation Districts

- Kent Conservation District
- Genesee Conservation District
- Washtenaw Conservation District

3 Statewide Associations

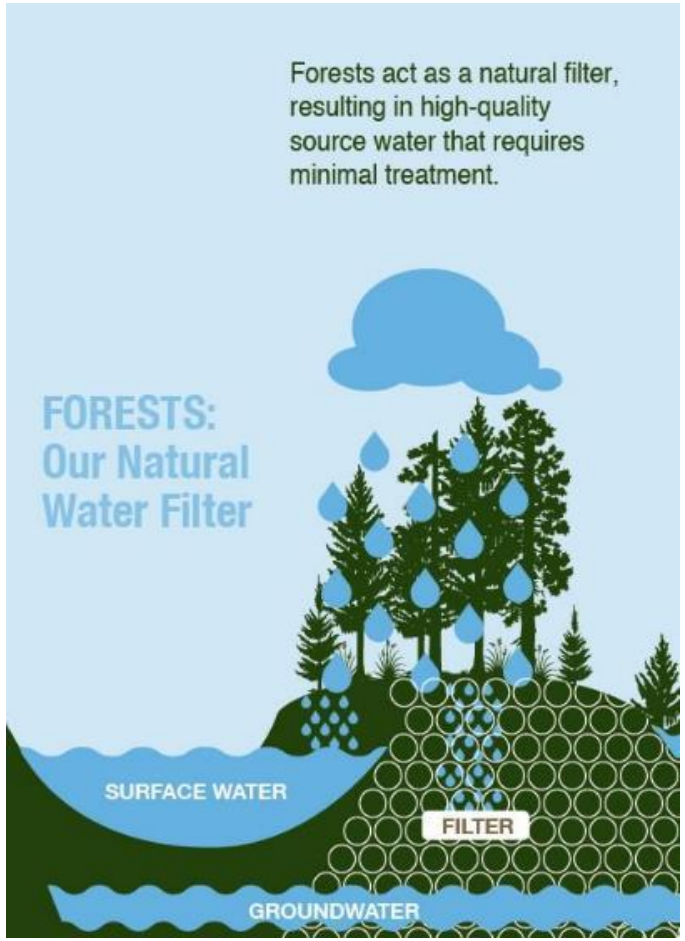
- Michigan Forest Association
- Michigan Association of Timbermen
- Michigan Prescribed Fire Council

1 National Nonprofit

- Old Growth Forest Network

Project administered by DNR Forest Stewardship Program and funded by USDA Forest Service

How do forests protect clean water?



Source: Oregon Forest Resources Institute

- Vegetation slows water velocity (vertical & horizontal)
- Undisturbed soils and leaf layer reduce runoff & erosion
- Soil and vegetation filter pollutants
- Minimal infrastructure and impermeable surfaces
- Infrequent and small chemical spills
- Forests regulate timing and magnitude of stream flow

Municipal Water Utilities

- Establishing new partnerships with 15+ utilities
  - ***How can we help reduce treatment costs?***
- Implement Source Water Protection Plans
  - Source water protection area
  - Pollution: point source & nonpoint (land use)
  - Management options to protect water
- Outreach & education to customers and public
  - Urban residents and rural landowners upstream
- Establish groundwork for a future payment for ecosystem service market

City of Alpena MICHIGAN

Source Water Intake Protection Plan Update - January 2019

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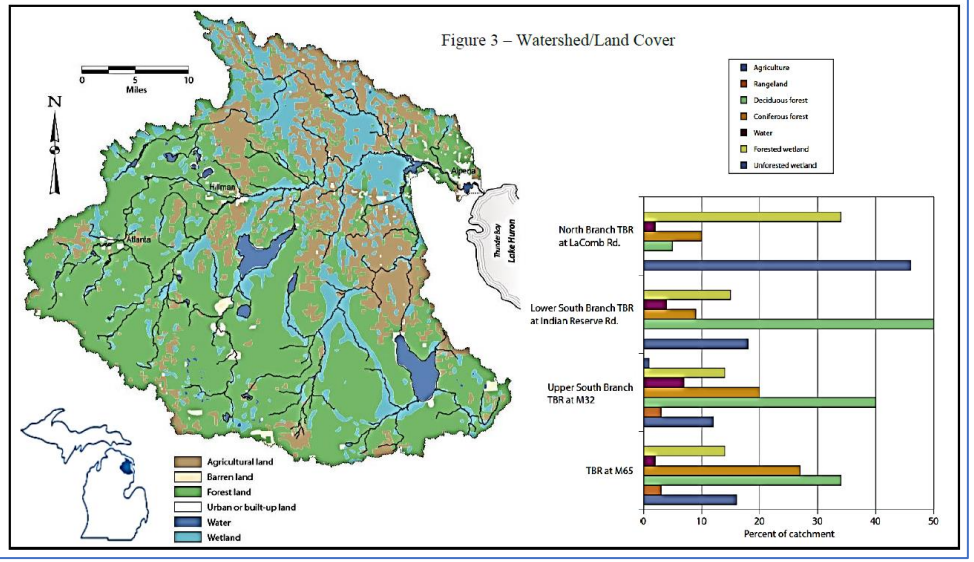
City of Alpena MICHIGAN

Source Water Intake Protection Plan Update - January 2019

Figure 3 – Watershed/Land Cover

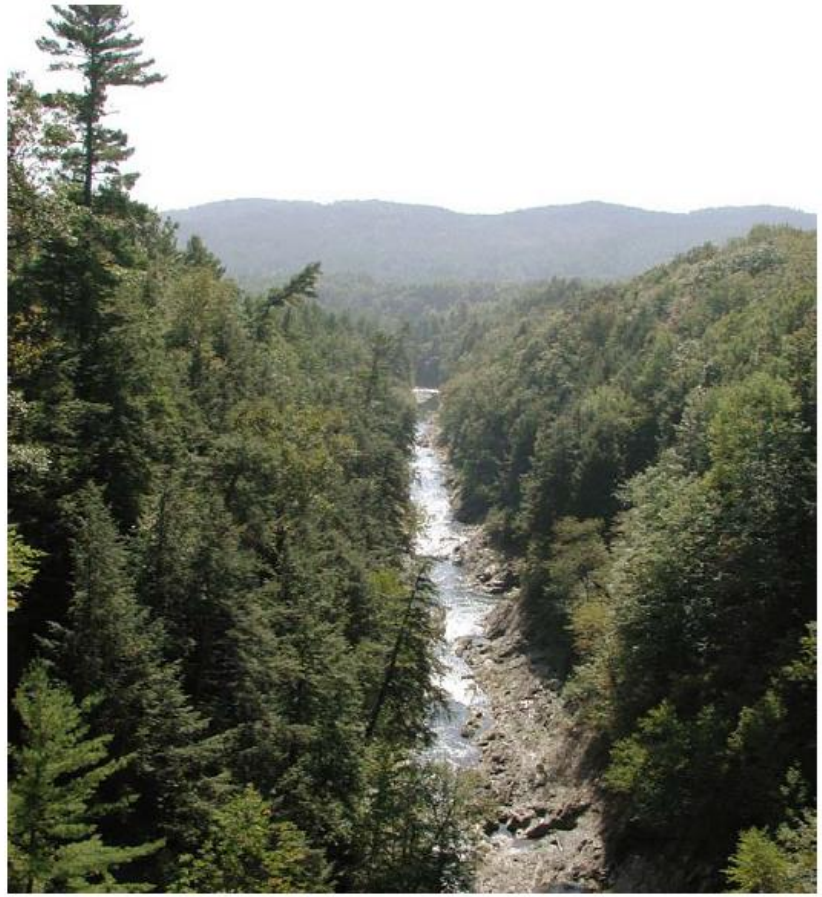


Three Forestry Solutions

- PROTECT important forests
  - Public ownership (38% of MI forests) for Public Trust
  - Private: conservation easements, preserves, zoning
  - 6% of Michigan forests legally restrict timber harvesting

- MANAGE all forests better
  - Logger training and forestry Best Management Practices
  - Forest certification (SFI, FSC, Tree Farm)
  - Empower landowners (plans, peers, people, programs)

- EXPAND forests in strategic places
  - Riparian buffers & agroforestry
  - Urban forests & green infrastructure
  - Afforestation (convert important land back to forest)



PROTECT

Watershed Councils

- How can we help water utilities?
- Protected watersheds
- Education for public
- mi-wea.org/watershed_groups.php

Land Conservancies

- Conservation easements & nature preserves
- Outreach to landowners
- HeartOfTheLakes.org

United Nations Convention on Biological Diversity

- UNCBD suggests 30% of land & water protected
- USGS PAD-US database inaccurate and incomplete

MANAGE WELL

Foresters

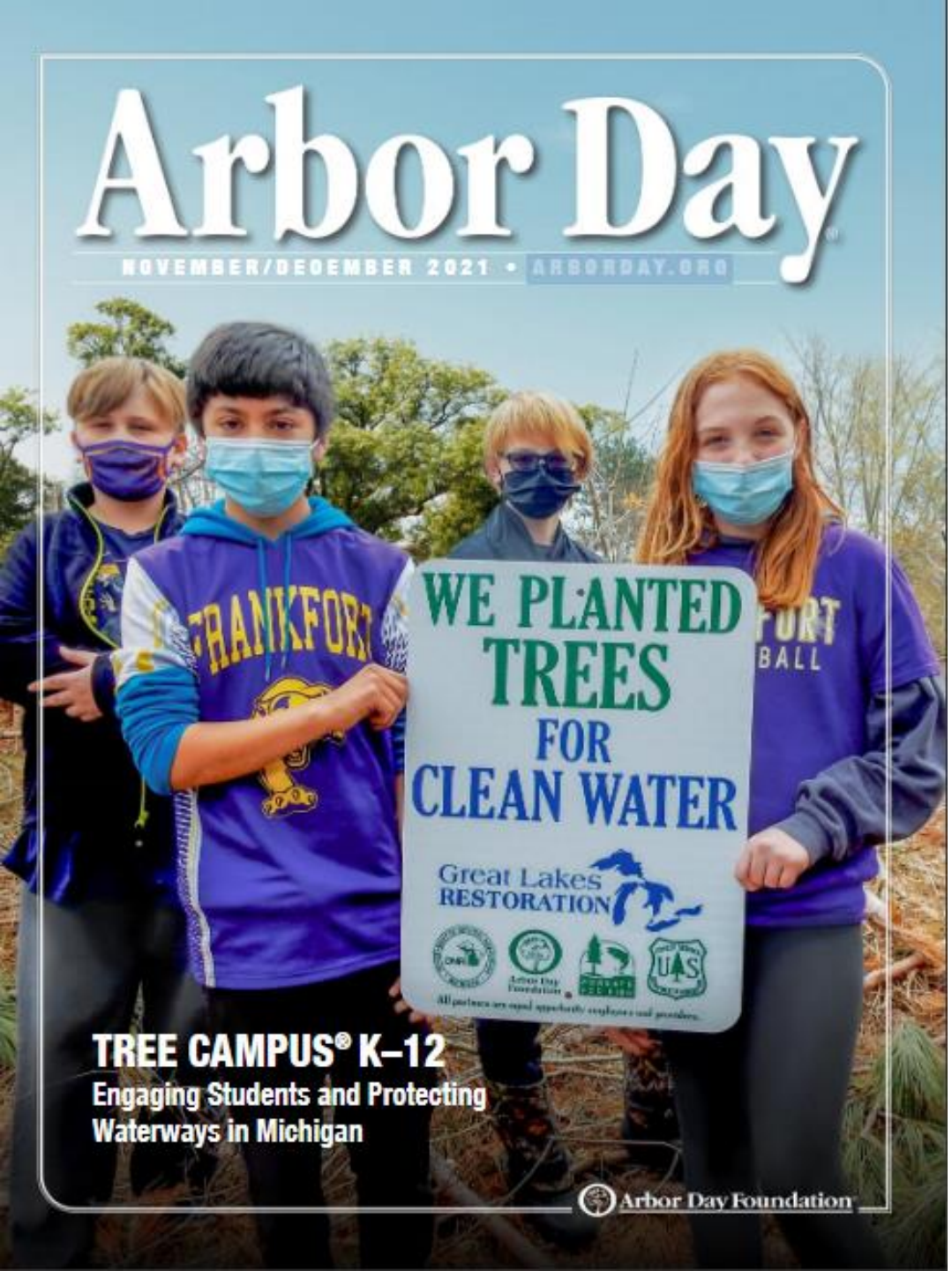
- Forest certification for better management
- Consulting Foresters – MichiganACF.org

Landowners

- 250 new Michigan Forest Association members
- 29% of landowners use forester for timber sale (2018 National Woodland Owner Survey)

Loggers are key to improved management

- 25 new Michigan Master Loggers in southern LP
- Help SFI train 1,000 loggers statewide on BMPs



EXPAND

Planting Trees EMPOWERS People

Partners to plant 80,000 trees

- *Rural and urban riparian areas*

DNR plants 5 million trees annually

- 750,000 in Forest to Mi Faucet priority areas

Tree Planting Organizations

- ReLeaf Michigan, American Forests
- Arbor Day Foundation, One Tree Planted
- Greening of Detroit, Friends of GR Parks
- MACD.org and PlantMichiganGreen.com

What can YOU do?

- To help protect forests?
- To help manage forests better?
- To plant more trees in urban and rural areas?
- Something else to protect drinking water?
  - Become a Clean Water Ambassador
  - Collect data with Michigan Clean Water Corps
  - Maintain SepticSmart, wildflowers instead of lawn …
  - Grow a garden, eat less meat, **better policy**, urban rain gardens …
  - Natural shorelines, buy certified lumber, shop at local farmers markets …

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