

TIP OF THE MITT  
Watershed Council

# Michigan Swimmer's Itch Partnership

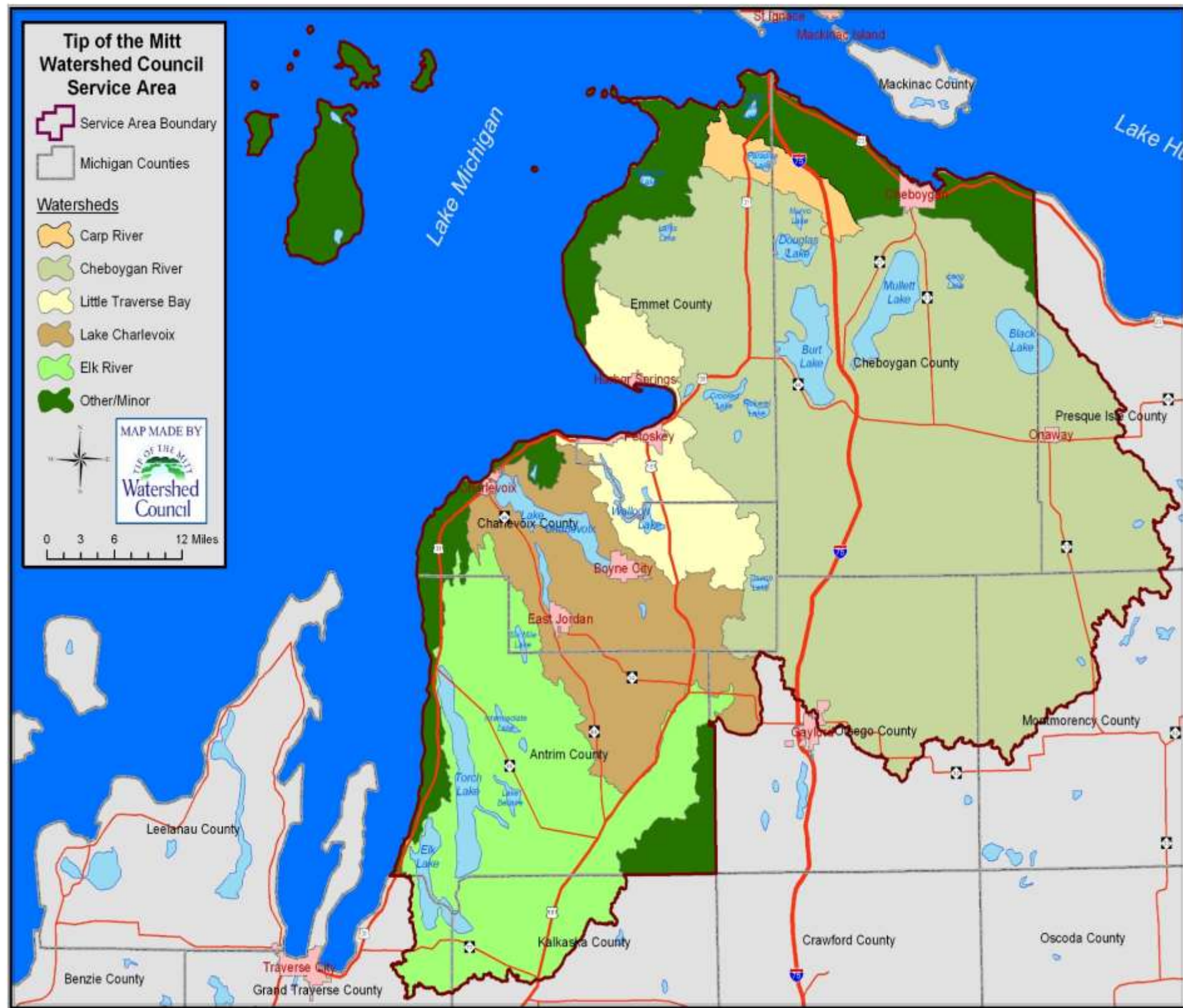
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Caroline Keson

# Our Mission

The Tip of the Mitt Watershed Council speaks for Northern Michigan's waters. We are dedicated to protecting our lakes, streams, wetlands, and groundwater through respected advocacy, innovative education, technically sound water quality monitoring, thorough research, and restoration actions. We achieve our mission by empowering others and we believe in the capacity to make a positive difference. We work locally, regionally, and throughout the Great Lakes Basin to achieve our goals.

# Our Service Area



Tip of the Mitt Watershed Council's service area includes the water resources in Antrim, Charlevoix, Cheboygan, and Emmet Counties.

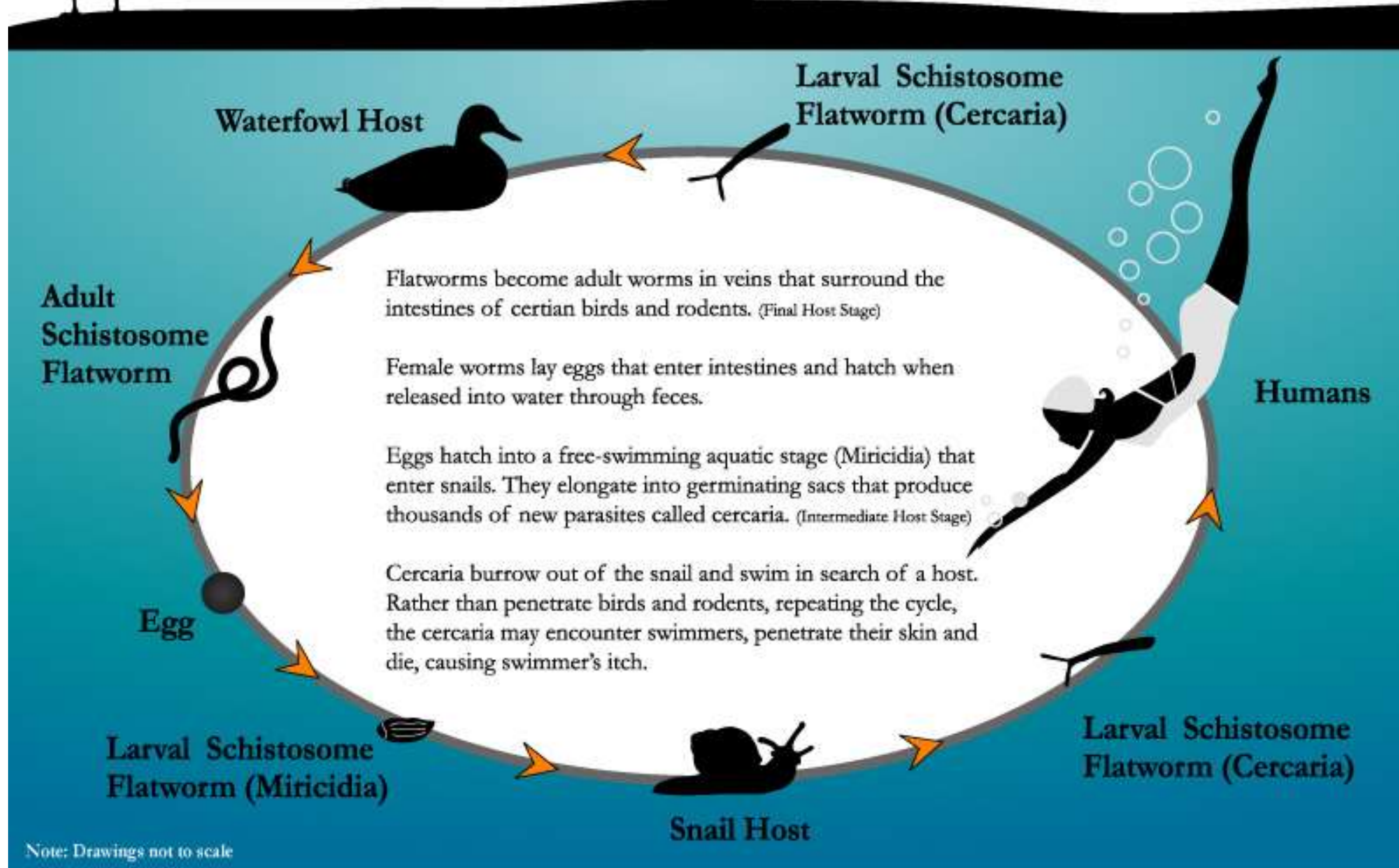
Water resources in our service area include:

- More than 2,500 miles of rivers and streams
- Multiple blue-ribbon trout streams
- 14 lakes larger than 1,000 acres (among the largest in the State)
- 38 lakes between 100 - 1,000 acres
- 184 lakes between 10 - 100 acres
- 1,600 lakes that are less than 10 acres
- 363,998 acres of wetlands



# The Life Cycle of Swimmer's Itch

Here is the cycle that leads a parasite to enter the skin of vulnerable lake swimmers, causing a painful itch.



# History of Swimmer's Itch

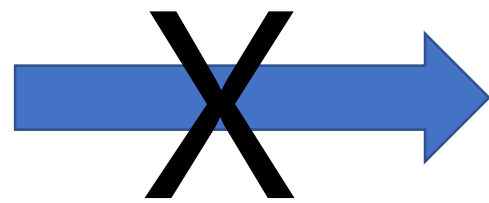
- 1928 Swimmer's itch discovered on Douglas Lake in Cheboygan County
- Early 1980s Common Merganser is discovered to be the main culprit. Merganser removal work begins.
- 2017: Public Act 107 of 2017—pilot project begins, Michigan Swimmer's Itch Partnership begins



Loker Laboratory

# What is Common Merganser removal?

- Birds are trapped before ducklings can imprint on a lake
- Birds are moved to relocation sites



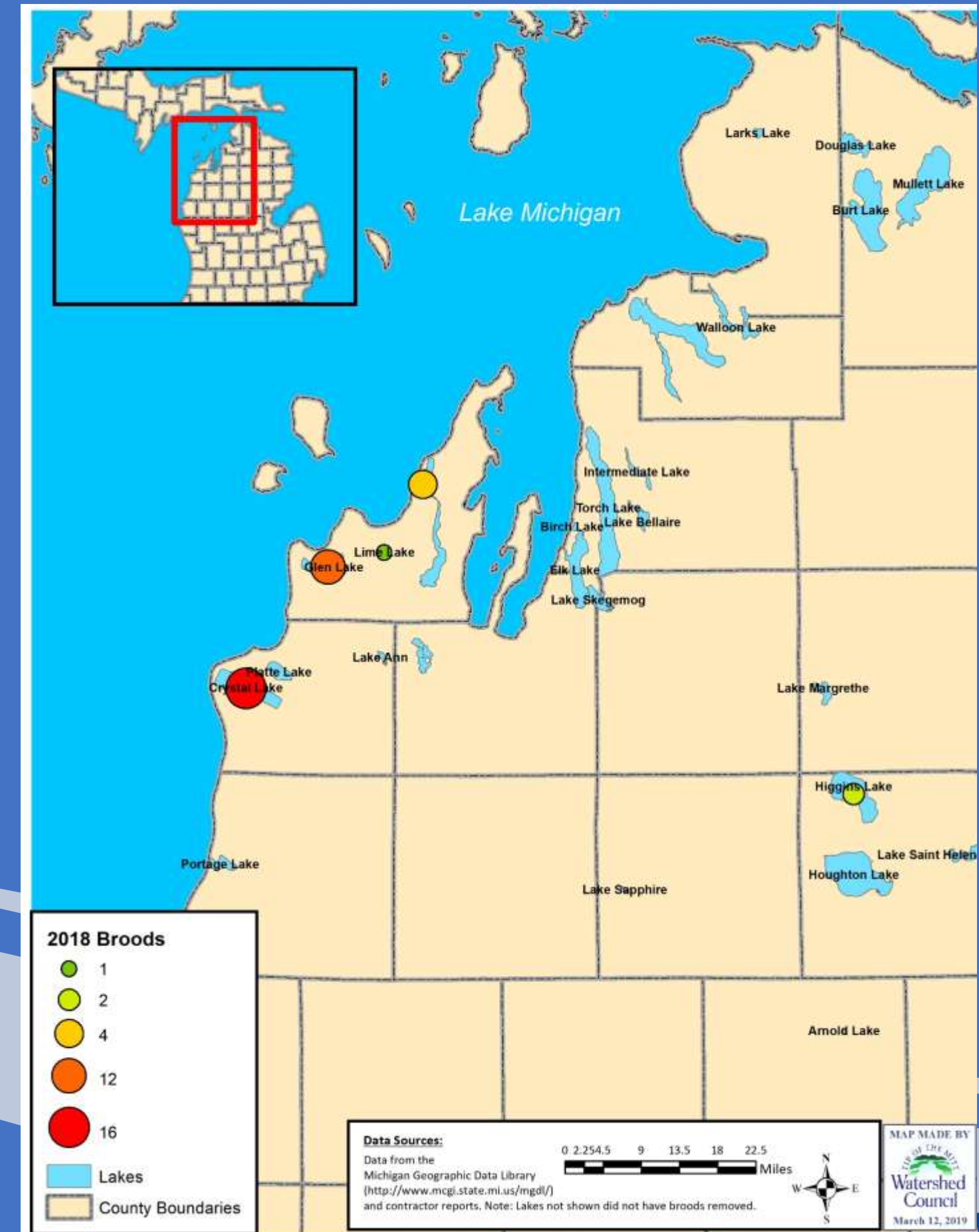
# Year 1 of Partnership



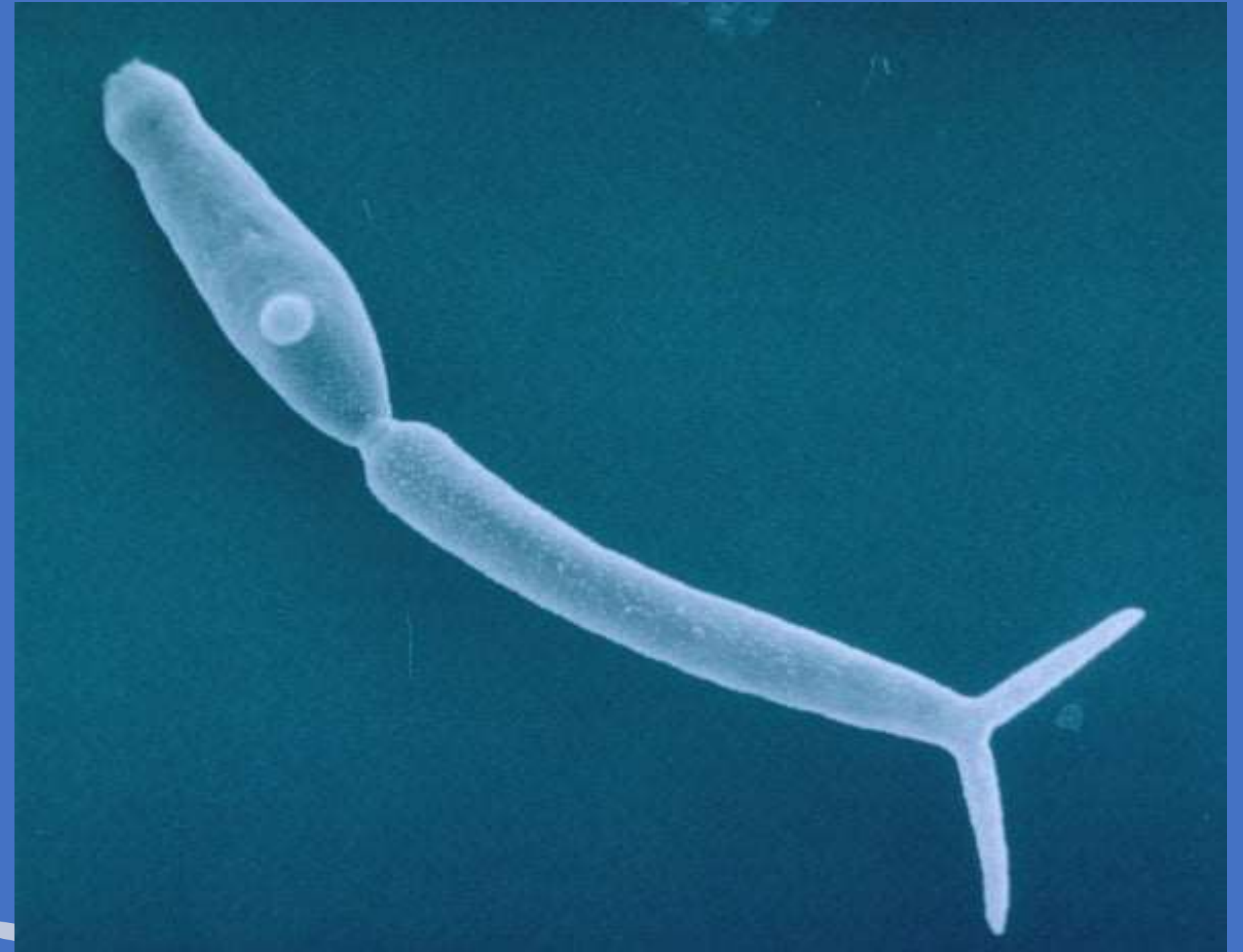
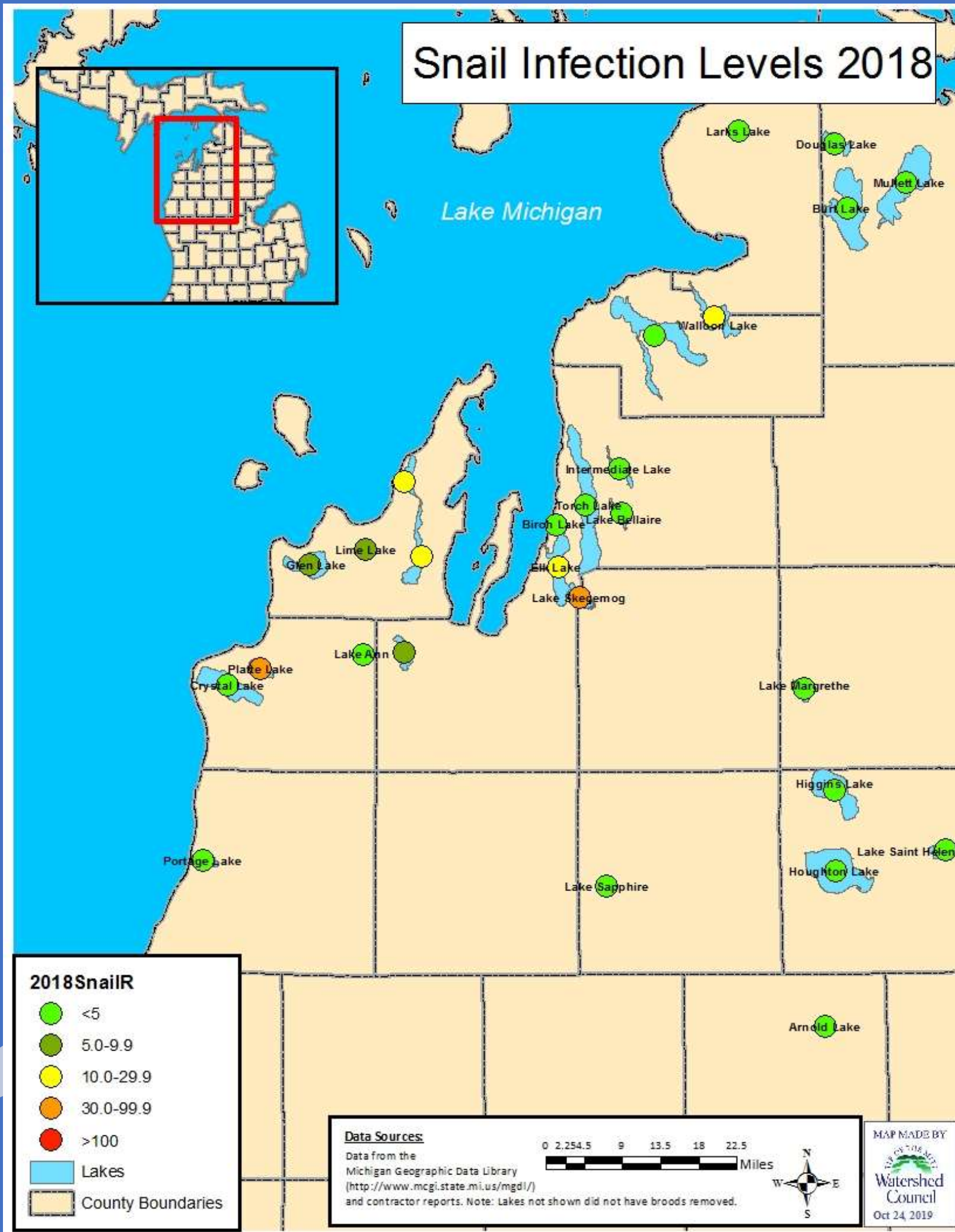
- Informal grouping of lakes (Higgins, Glen, Crystal, Leelanau, Lime)
- Oakland University Study of 16 lakes
- qPCR research

# Year 2 of Partnership

- Merganser Control Permit Program
- 5 lakes removed 35 broods
- 7 lakes conducted assessments
- 10 release sites analyzed
- Equipment and training





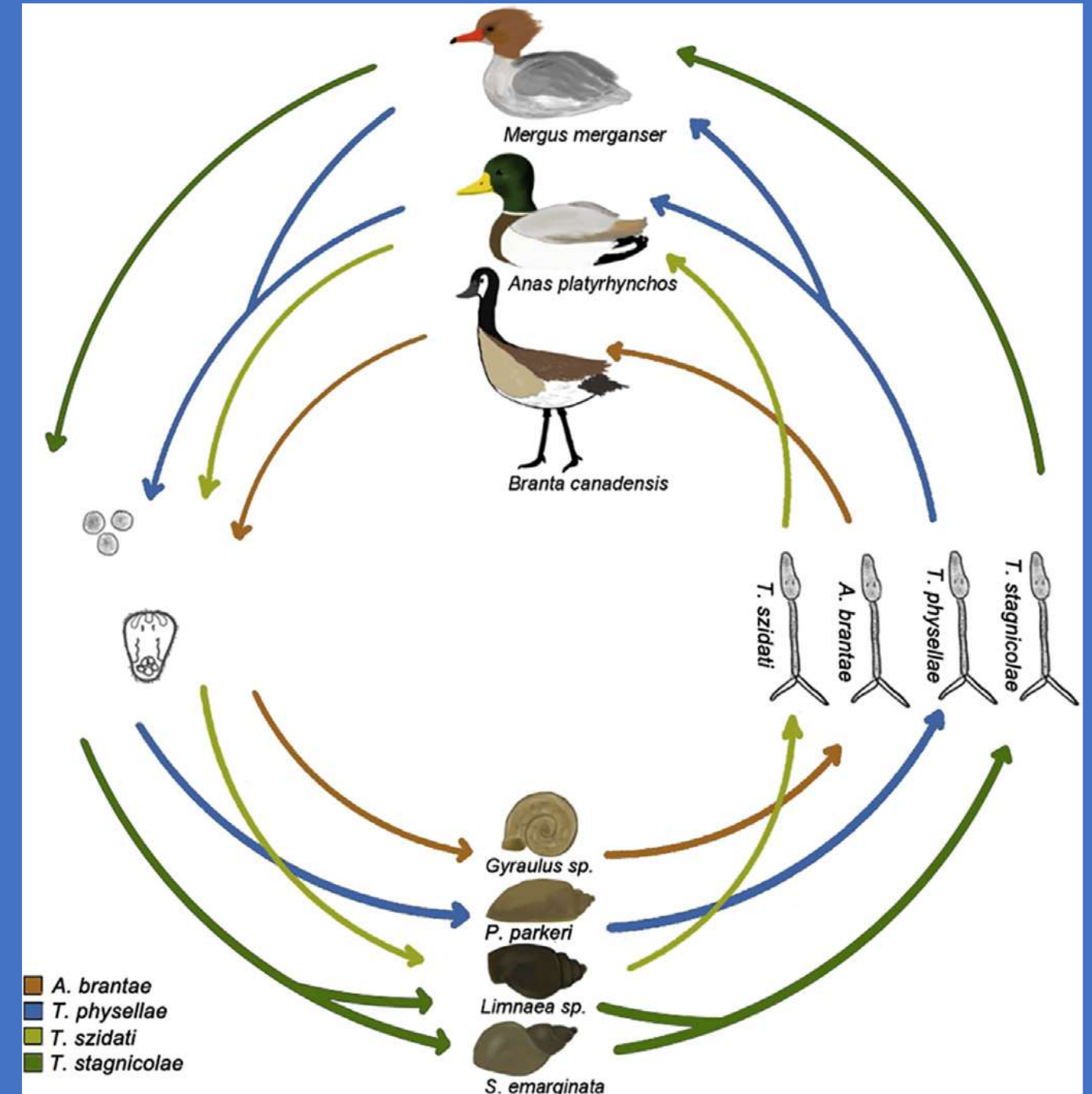


Credit: Curt Blankespoor

# Year 2 of Partnership

- Cercariae concentrate at the top of the water column in downwind areas (Rudko, et al. 2018)
- Using qPCR to assess specific swimmer's itch cercariae (Rudko, et al. 2019)
- Snail infection level vs. qPCR (Blankespoor & De Jong, 2018)

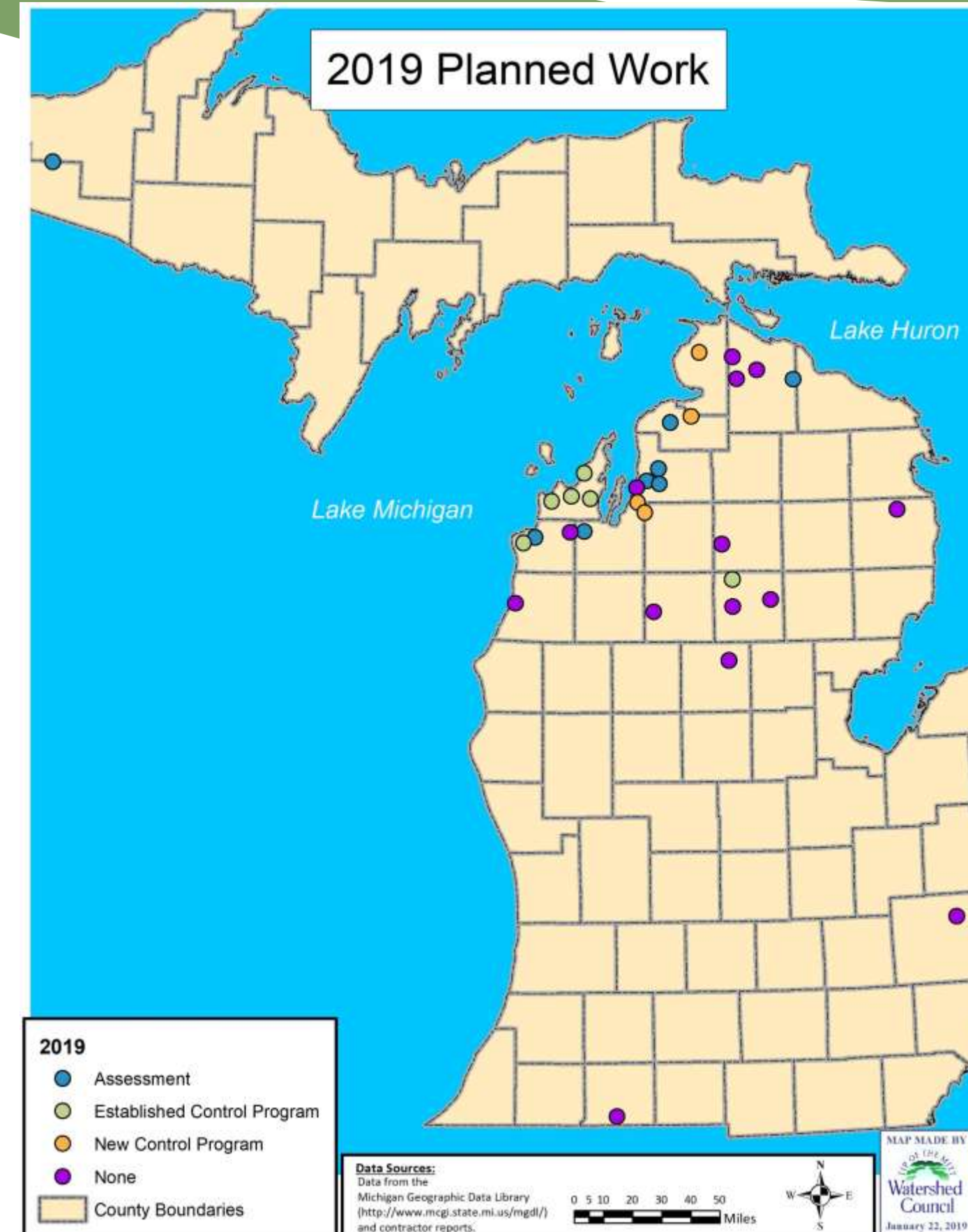
Snail Infection Level	Category	qPCR (cercariae/25 L)
< 0.24%	<b>Ideal</b>	< 5
0.25-0.49%	Tolerable	5.0-9.9
0.50-0.99%	Moderate	10.0-29.9
1.00-1.99%	Severe	30.0-99.9
> 2.00%	<b>Epidemic</b>	> 100



Lifecycles of *T. stagnicola*, *A. brantae*, *T. szidati*, and *T. physellae*.  
Life cycle summary of the avian schistosome species targeted for species-specific qPCR tests designed in this study.

# Year 3 of Partnership

- 6 lakes removed 32 broods
- 6 lake assessments
- Equipment and training
- State-wide snail survey
- Merganser relocation effectiveness
- Common merganser behavior



# Annual Conference

- November 10, 2019
- Kirtland Community College in Grayling
- 9am-3pm
- Register at

[www.watershedcouncil.org](http://www.watershedcouncil.org)

“Attend an Event”

“Register Online”



Credit: Curt Blankespoor

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# Thank You

- Caroline Keson

Phone: (231) 347-1181

- caroline@watershedcouncil.org

**Tip of the Mitt Watershed Council**

426 Bay Street

Petoskey, MI 49770



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