

# Invasive Rock Snot Threatens Lake Superior and North Shore Streams



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# Lake Superior Didymo

- first collected Aug 1961, Grand Marais MN

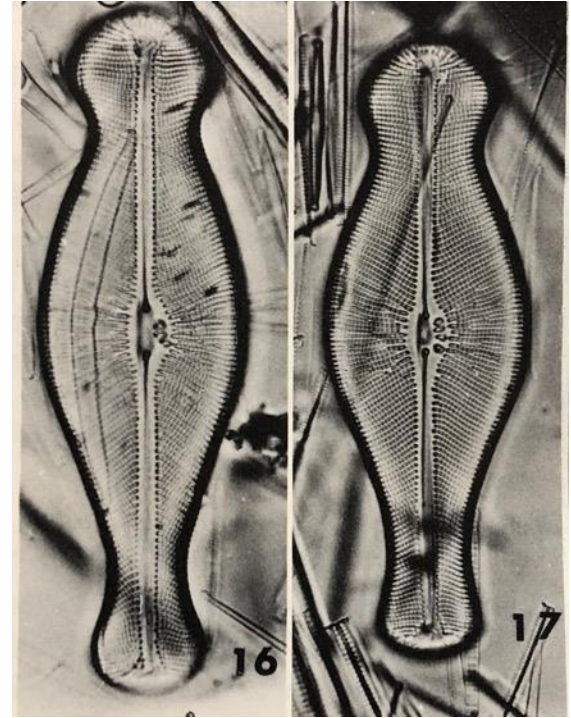


Stoermer wedding 1961



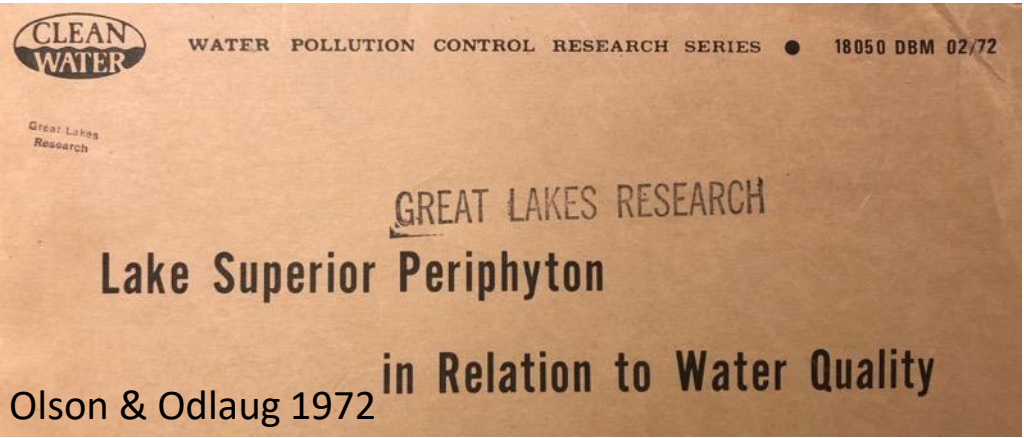
8. *G. herculeana*, Lake Huron.
9. *Didymosphenia geminata*, Lake Superior.
10. *Cymbella cistula* var. *gibbosa*, Lake Huron.
11. *Amphora calumetica*, Lake Michigan.

A quantitative investigation of shape variation in *Didymosphenia* (Lyngbye) M. Schmidt (Bacillariophyta)



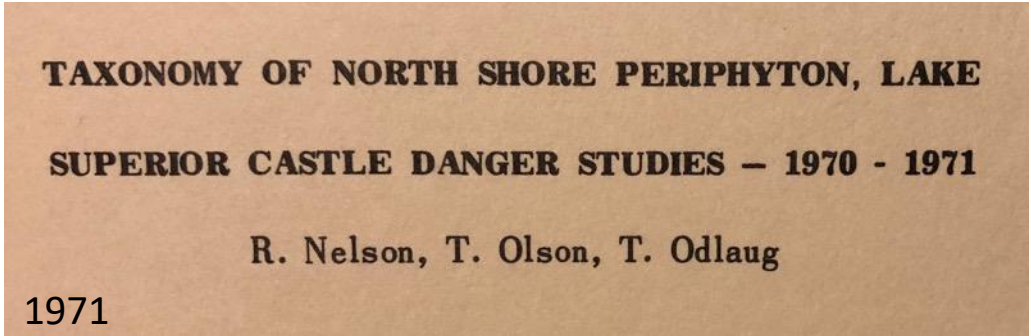
Figs 16, 17. *D. geminata*, Lake Superior (series S, specimens S10)  
Figs 18–21. *D. geminata*, China (series CH, specimens CH3, CH1)

Stoermer 1980, Stoermer et al. 1986

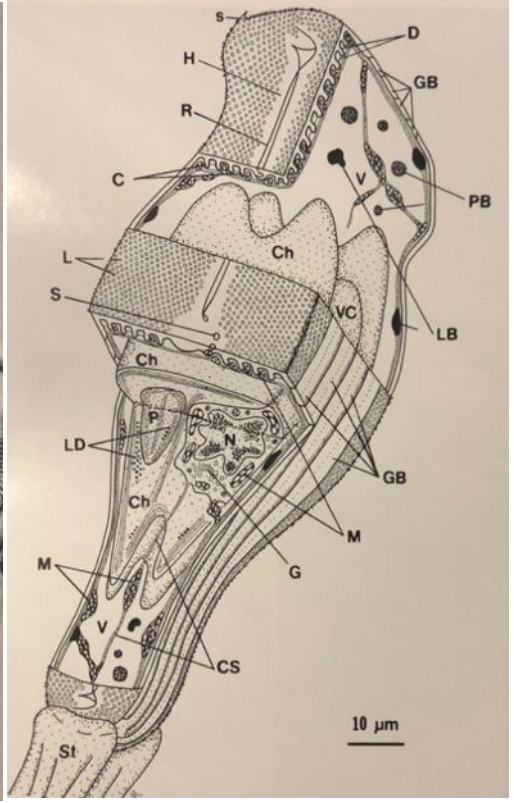
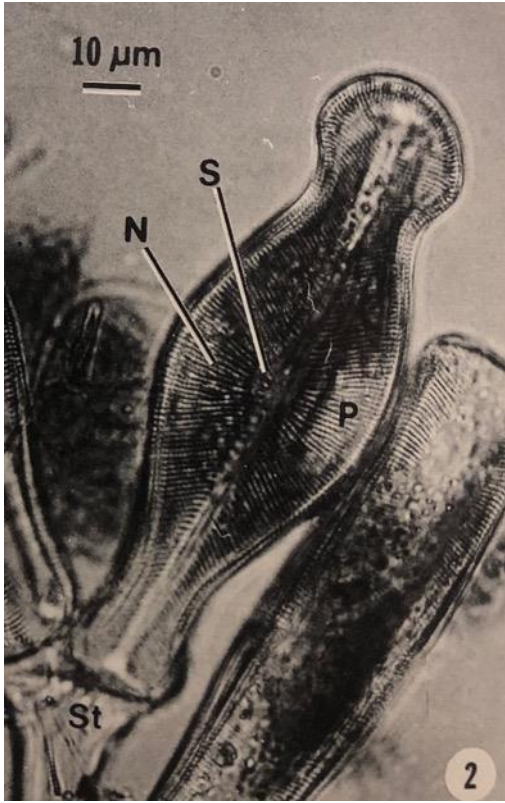


# Lake Superior Didymo

- reported variously in literature 1960s-1990s
- periphyton studies 1965-1971



Fragilaria crotonesis  
Kitton  
Gomphonema geminatum  
(Lyngbye) C. A. Agardh  
Gomphonema spp.  
Melosira granulata  
(Ehrenberg) Palfs



Moffat 1994



# Lake Superior Didymo goes bad?

'That's not toilet paper, it's rock snot!'



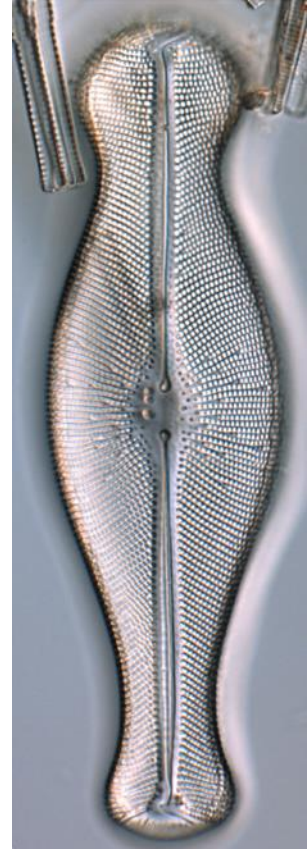
- noted increased abundance in late 2000s-2020
- white paper Thompson & Jenson 2009
- began opportunistic survey efforts

## In Lake Superior, a problem algae lies dormant - but why?

Stephanie Hemphill Knife River, Minn. November 8, 2010 9:00 a.m.

Listen *Didymo*

On the gently curving beach at Knife River, just north of Duluth, a cluster of wave-lapped boulders is a good place to find *Didymosphenia*



Rock snot found in 2020. Submit

MPRnews



# August 2018 – Poplar River invaded!

610  
103.9 **KDAL**  
NEWS · WEATHER · SPORTS

NEWS, WEATHER, SPORTS  
610 AM • 103.9 FM Duluth

NEWS

## Trout-snuffing 'rock snot' confirmed in North Shore stream

A nasty cold-water algae nicknamed "rock snot" has been found near Lutsen along the North Shore of Lake Superior's Poplar River stream. The freshwater algae...

Written By: John P. Myers | October 26, 2018

**'Rock Snot' algae located in the Poplar River**

Local News  
5:20am  
| Joe Friedrichs - Sun, 10/28/18

There is snot in the river. Literally. The Minnesota Department of Natural Resources anglers, hikers and other users of the Poplar River are aware that a species of freshwater algae also known as "rock snot," has been found in the upstream waters of the river near Lutsen. The Lake Superior splash zone where the algae is documented. Algae experts at the Sciencemuseum at the University of Wisconsin-Duluth are currently identifying the species. DNR biologists will be monitoring the river this fall according to the agency.

View full slideshow



News ▶ Local ▶ "Rock Snot" Algae Found In Poplar River

## "Rock Snot" Algae Found In Poplar River

Friday, October 26, 2018 4:43 a.m. CDT by Dave Strand

## 'Rock snot' algae confirmed in Minnesota

By **John Myers** on Oct 26, 2018 at 9:53 am



**BOREAL**  
Your Access to the Arrowhead



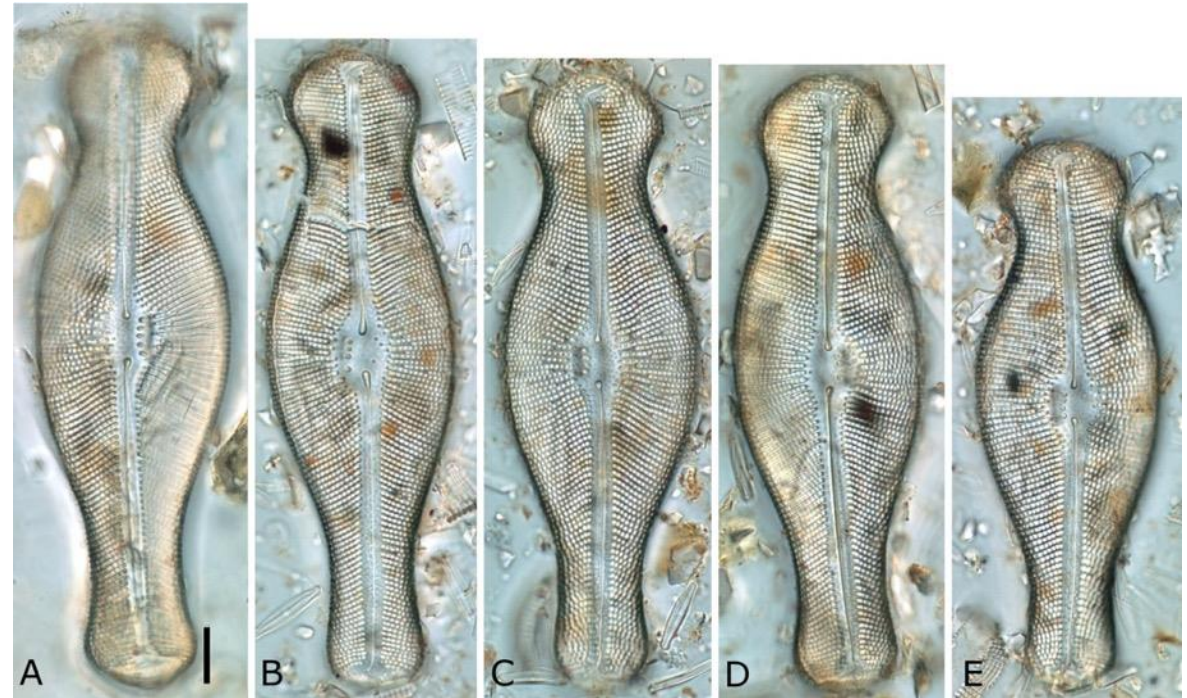
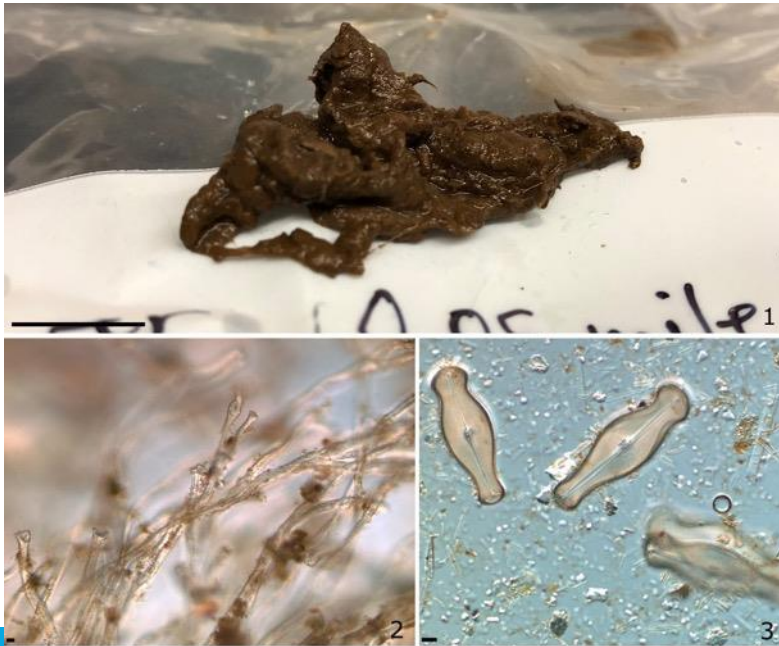
**WTIP**  
NORTH SHORE COMMUNITY  
90.7 FM

Park Rapids  
**Enterprise**  
Giving information life!

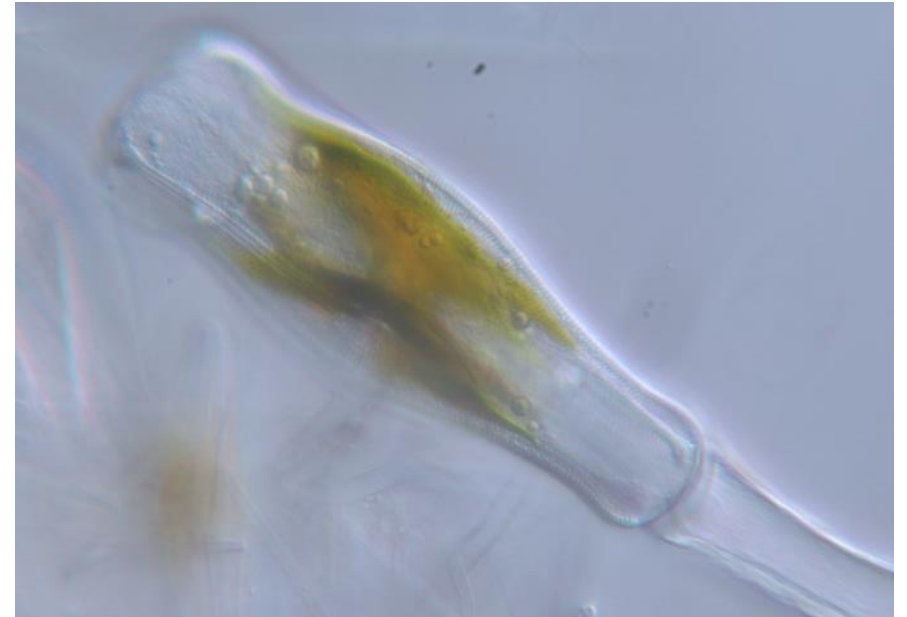


# Poplar River Didymo

- Aug/Sept 2018
- abundant didymo mats
- clearly not Lake Superior mats



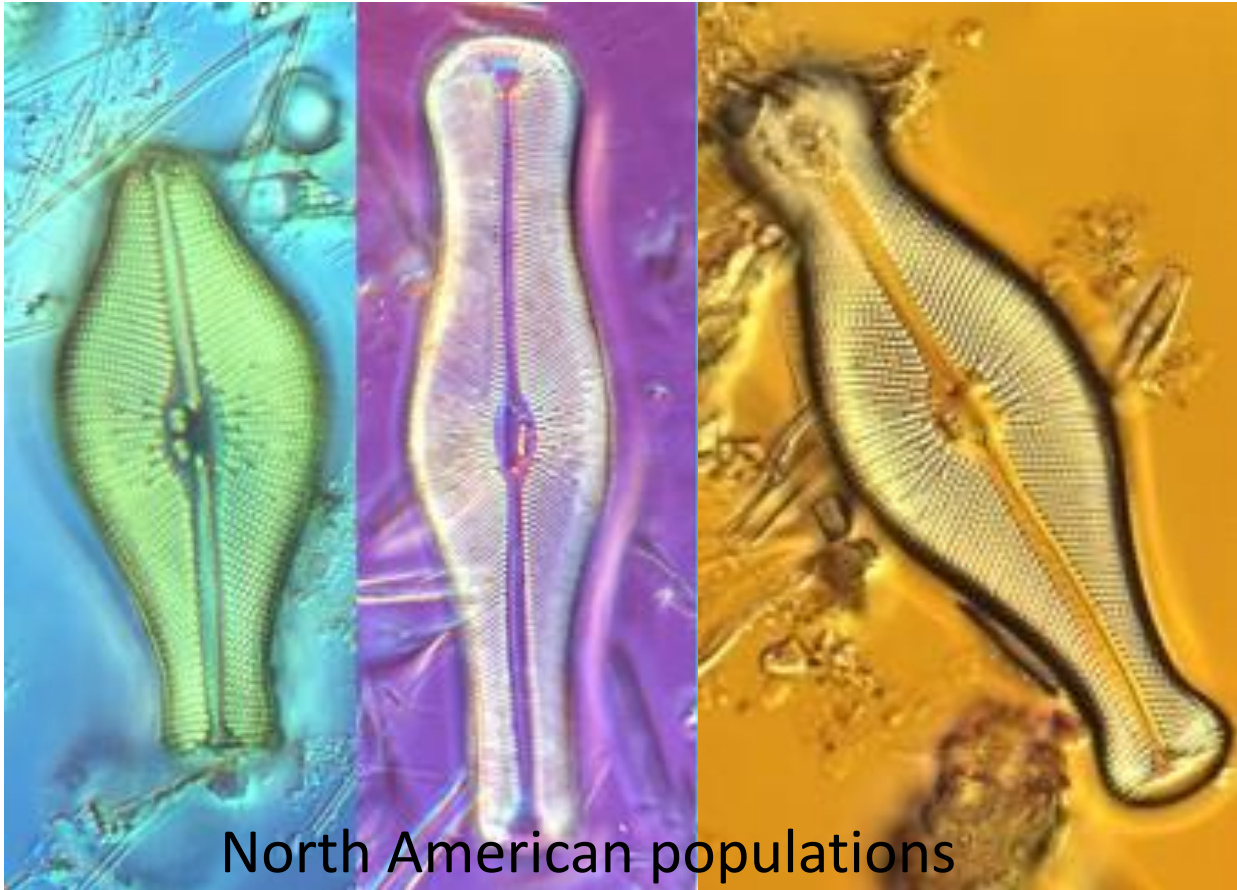
# Renewed Efforts on Lk Superior Didymo – triple threat





# What these projects will do:

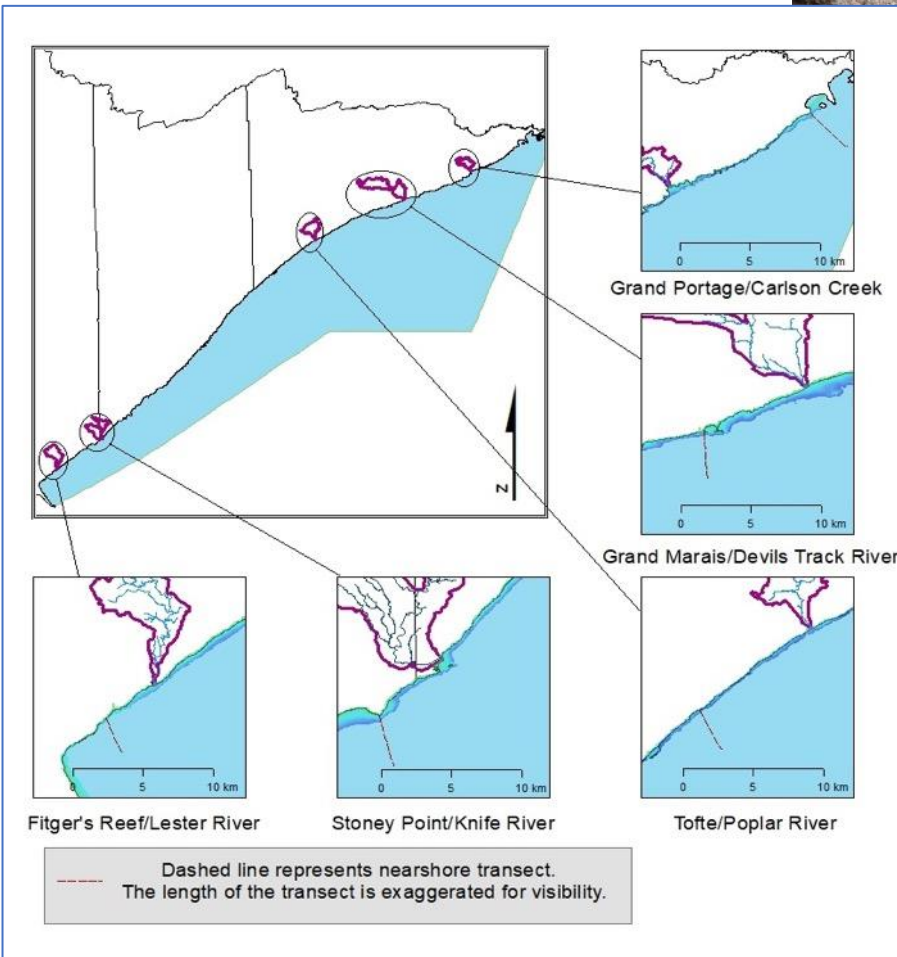
- Determine the source of Didymo in N Shore streams/Lk Superior – molecular
  - whole genome sequencing (pool-seq), identify and extract single nucleotide polymorphisms
  - determine genetic diversity, fixation indices, population structure, and phylogeographic relatedness





# What these projects will do:

- Determine the source of Didymo in N Shore streams/Lk Superior – molecular
- Understand the distribution, dynamics, effect of Didymo – monitoring '21-'23

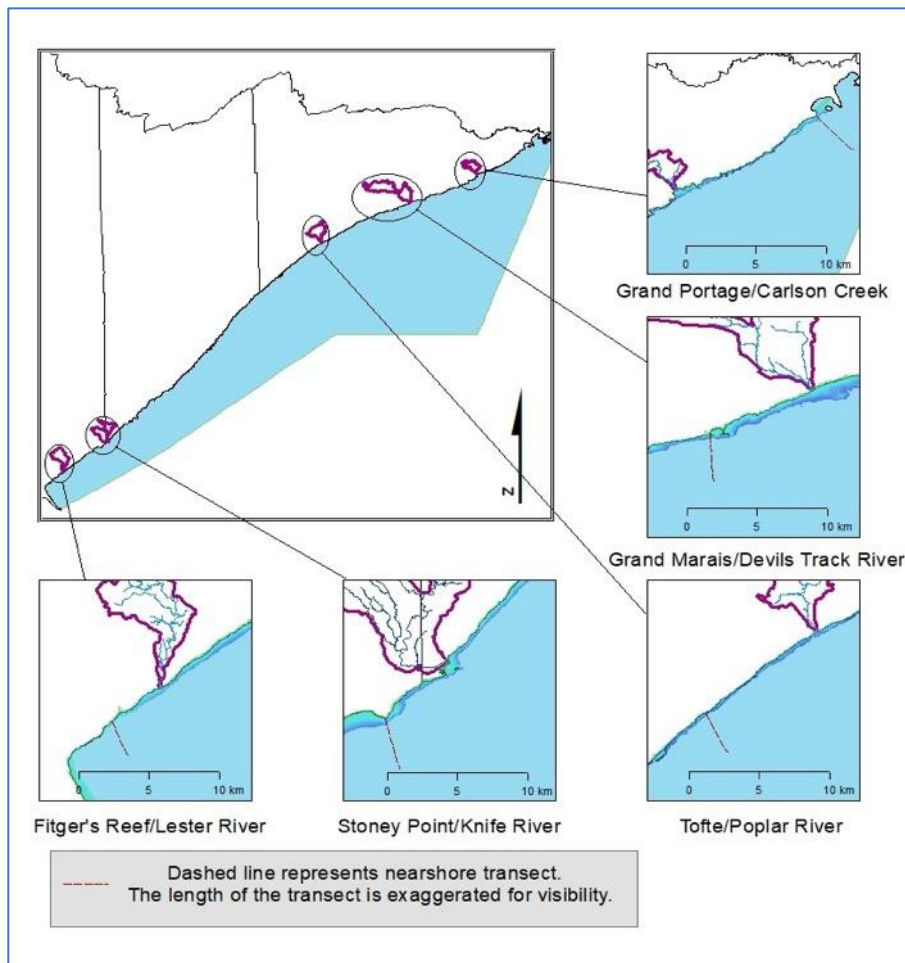


Deploy continuous loggers  
Monthly monitoring of 5 streams/lake transects  
Water quality, algae, 16S, ecological condition



# What these projects will do:

- Determine the source of Didymo in N Shore streams/Lk Superior – molecular
- Understand the distribution, dynamics, effect of Didymo – monitoring '21-'23



Lake Transects

Monthly gill netting (Sept – Nov)

Deploy egg mats

Invertebrate communities

value - added



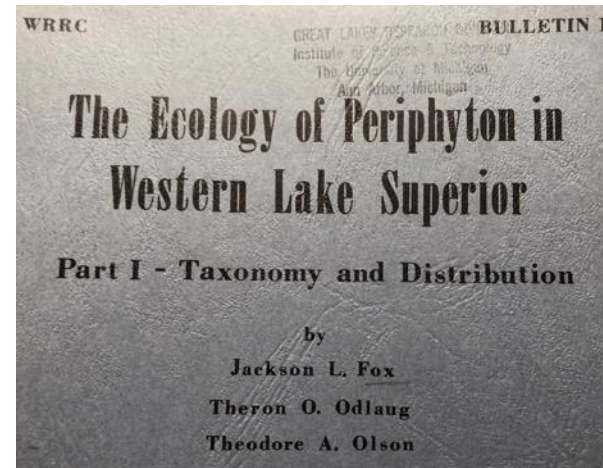
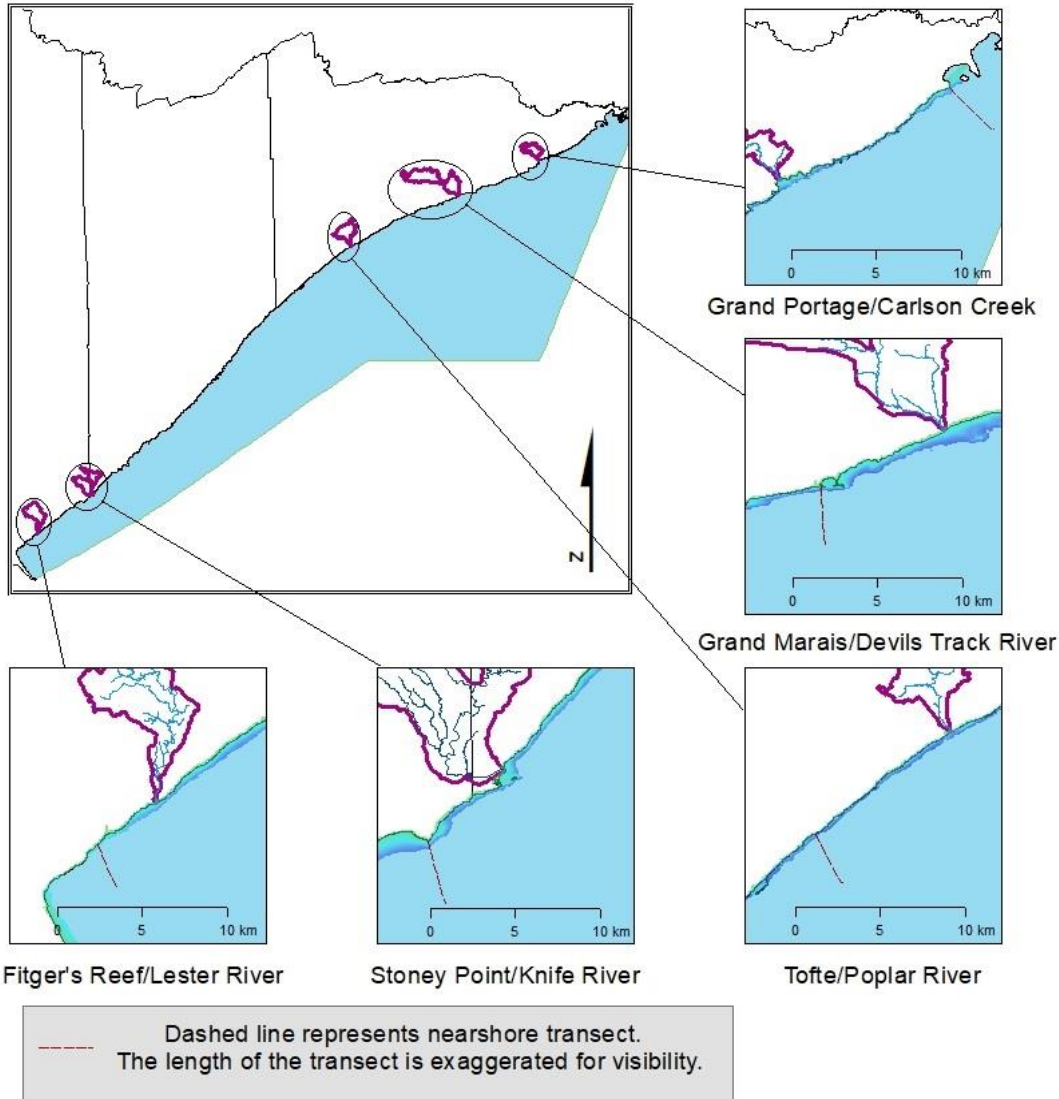




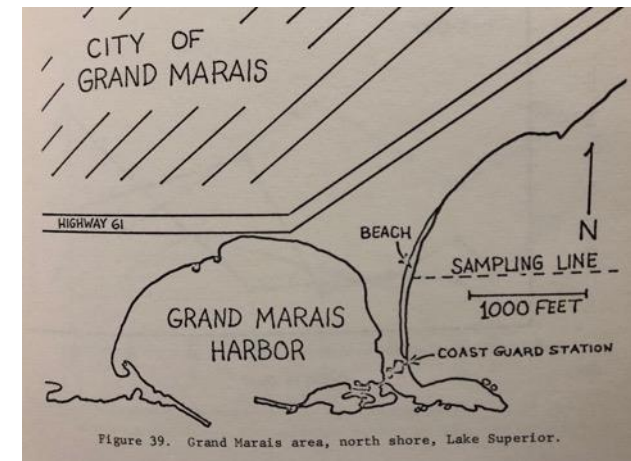


# Field campaign

- leverage 1960s/1970s data

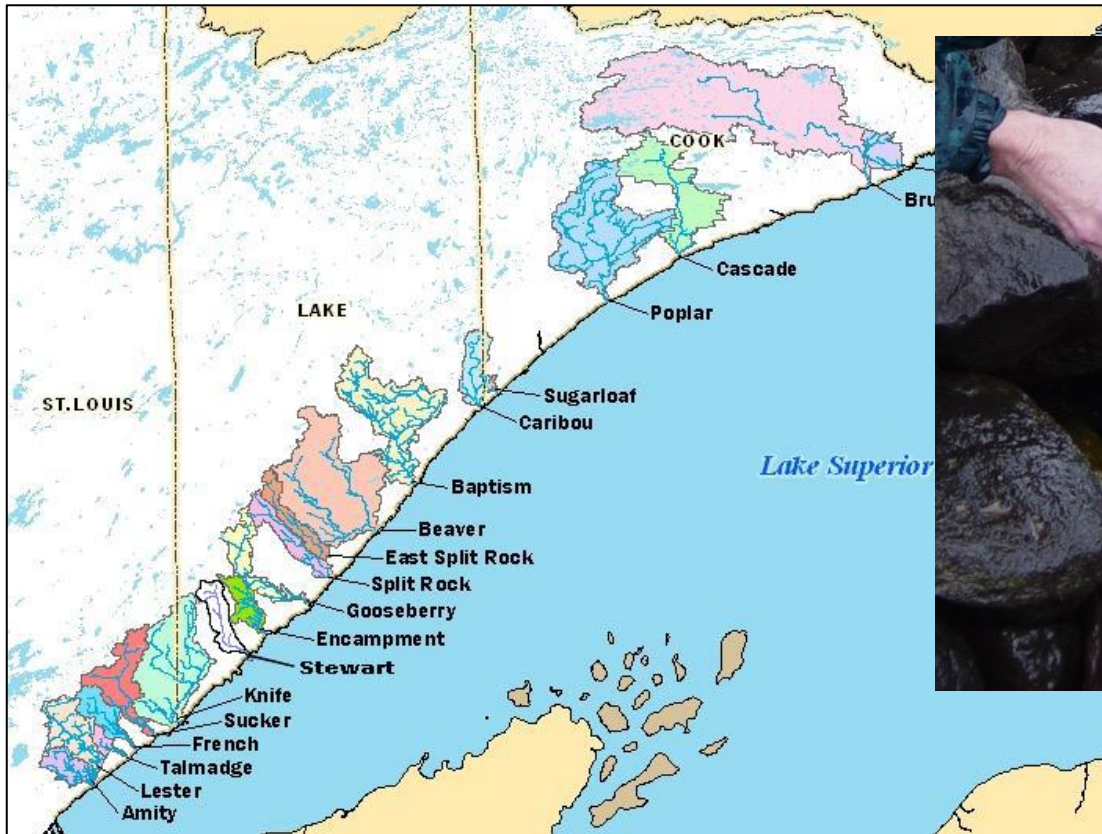


Fox et al. 1969



# What these projects will do:

- Determine the source of Didymo in N Shore streams/Lk Superior – molecular
- Understand the distribution, dynamics, effect of Didymo – monitoring
- Determine what N Shore streams are at risk – full survey



Annual surveys of 20 North Shore streams

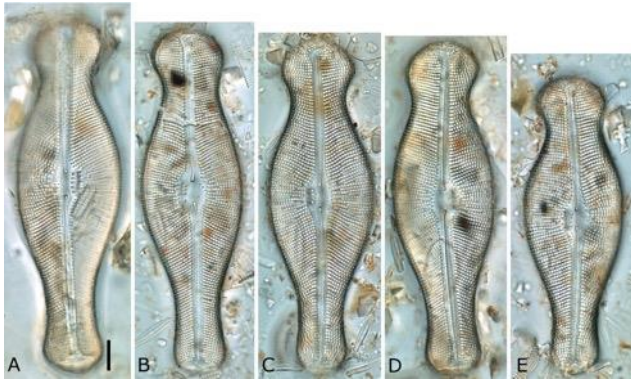


# What these projects will do:

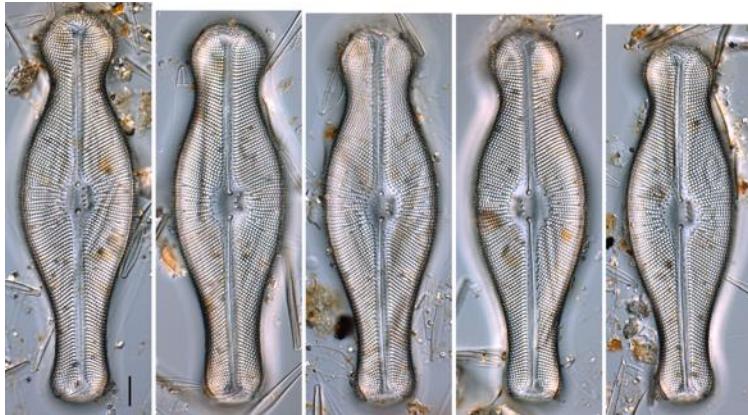
- Determine the source of Didymo in N Shore streams
- Understand the distribution, dynamics, effect of Didymo
- Determine what N Shore streams are at risk
- Reach and teach with our project partners!



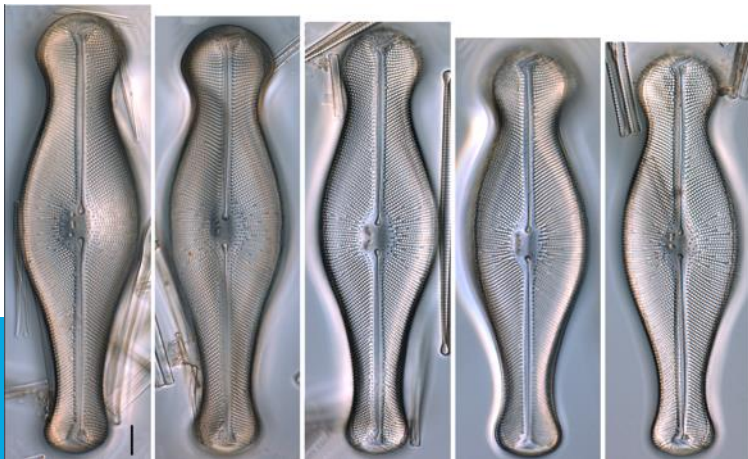




Poplar River,  
Minnesota



Boulder Cr,  
Colorado



Beaver Bay,  
Lake Superior

Thanks and please  
share your rock  
snot!

[medlund@smm.org](mailto:medlund@smm.org)

