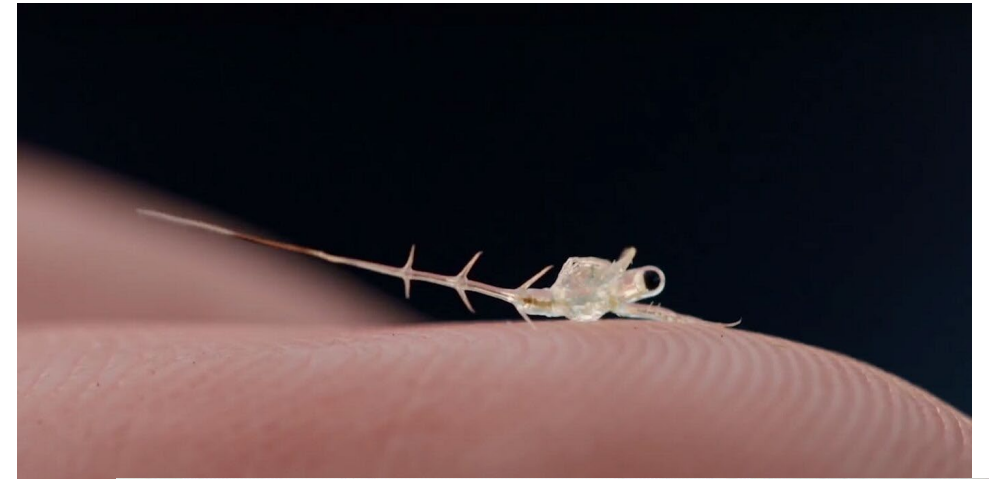
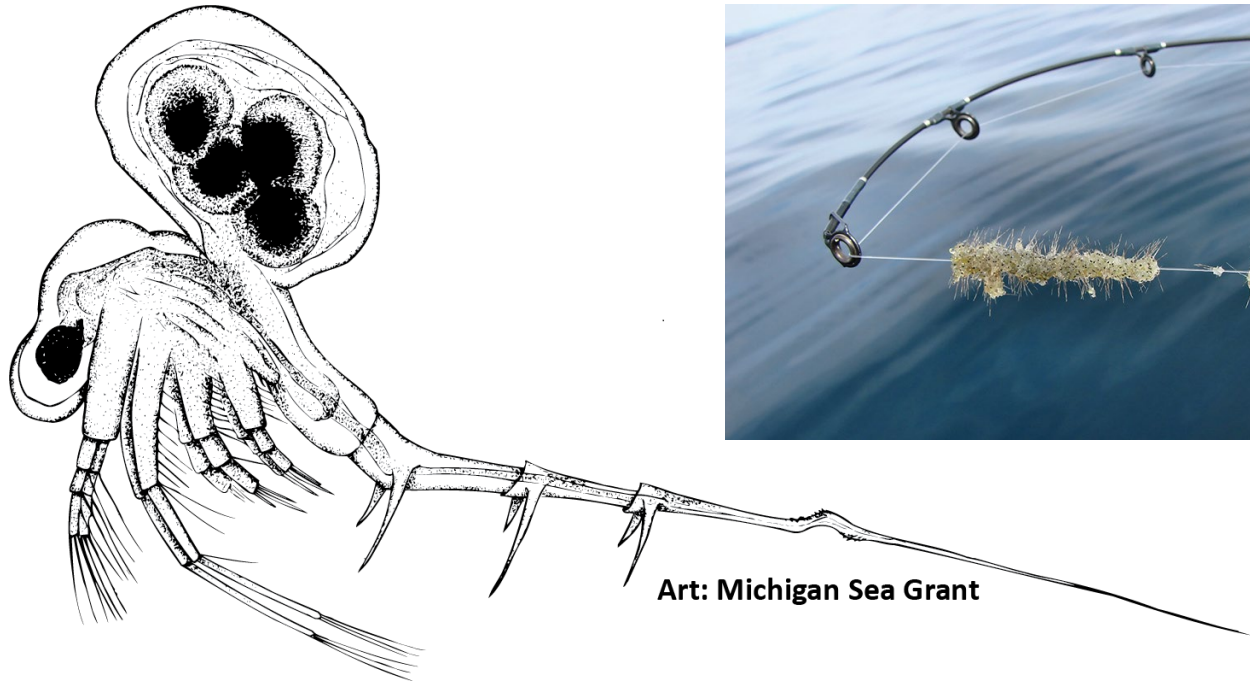


Spiney Waterflea (*Bythotrephes* sp.)

Jamie VandenLangenberg, AIS Biologist for Northern Region

Identification

- Large zooplankton, roughly 1/4"-1/2" long, translucent body
- Long spine that extends from its abdomen, giving the reason for its name.
- Dark black eye that can easily be seen against its contrasting light body.



Cercopagis (Fishhook waterflea)

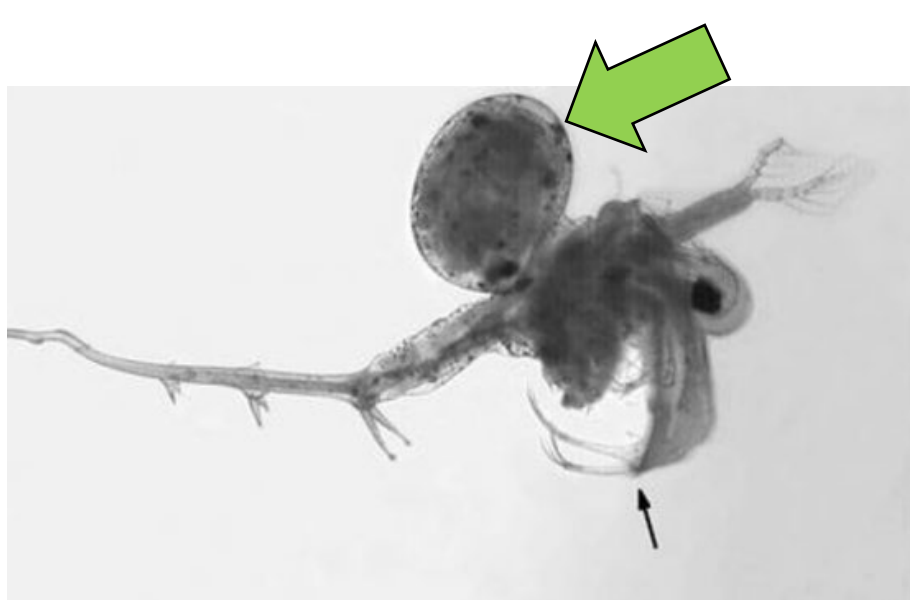


Bythotrephes (Spiny waterflea)



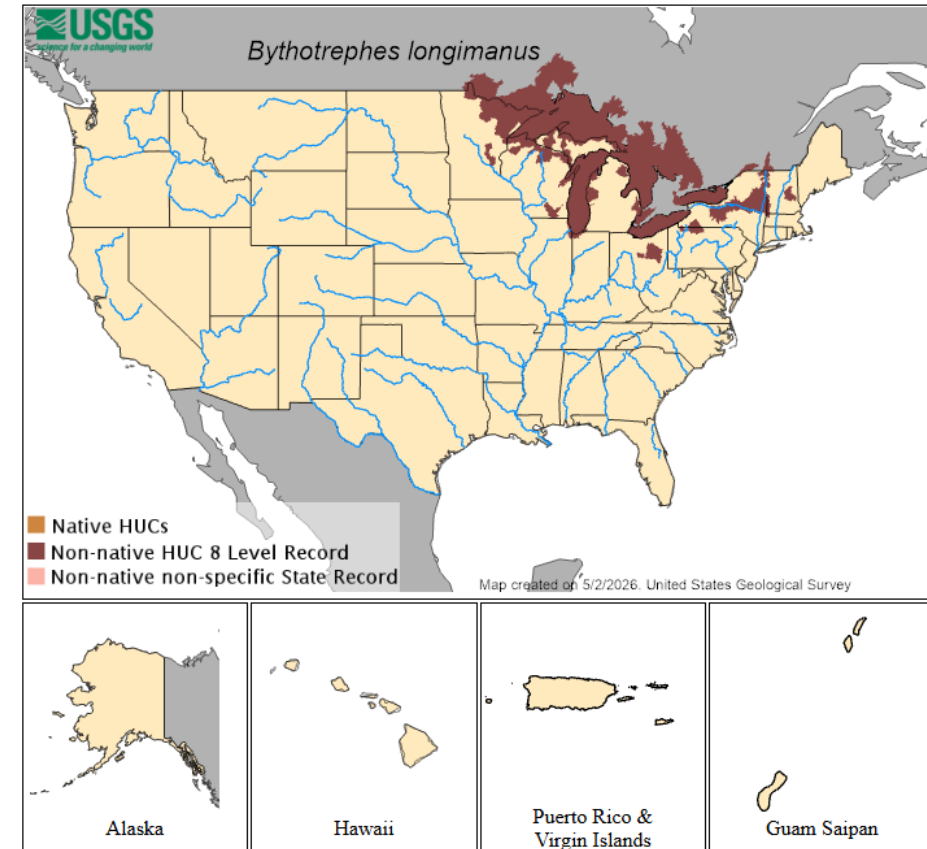
Reproduction

- Reach reproductive maturity in about 14 days
- Spiney waterflea reproduce both sexually and through parthenogenesis (or the ability for females to produce asexually)
- The eggs they lay can go into a state of diapause (aka “resting eggs”) and survive harsh conditions, including passage through fish digestive system



Distribution

- *Bythotrephes* is established in all of the Great Lakes and many inland lakes in the region. Densities are very low in Lake Ontario, low in areas of Lake Superior, moderate to high in Lake Michigan and in Lake Huron, and very high in the central basin of Lake Erie (Barbiero et al. 2001; Vanderploeg et al. 2002; Brown and Branstrator 2004; Pothoven et al. 2012, Barbiero et al. 2019)



[Hydrologic Unit Codes \(HUCs\) Explained](#)
[Interactive maps: Point Distribution Maps](#)

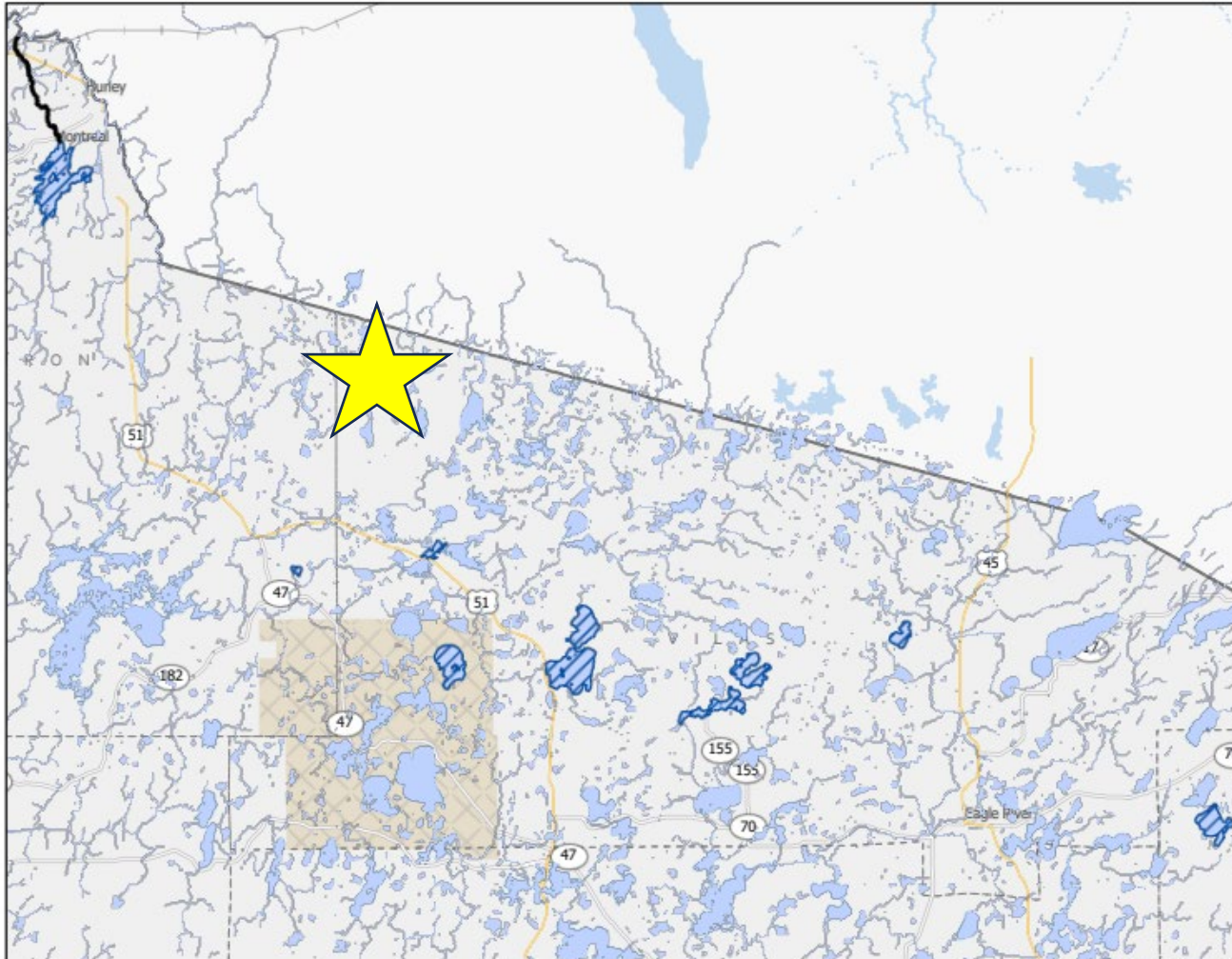
Map of current global distribution











Waterbody	Status	Waterbody ID Code (WBIC)	Year First Found	Details
Calumet County (1)				
Lake Winnebago	Verified	131100	2022	Details
Dane County (4)				
Lake Kegonsa	Verified	802600	2009	Details
Lake Mendota	Verified	805400	2009	Details
Lake Monona	Verified	804600	2009	Details
Lake Waubesa	Verified	803700	2009	Details
Door County (4)				
Little Sturgeon Bay	Verified	92		Details
Rowleys Bay	Verified	20		Details
Sturgeon Bay	Verified	88		Details
Sturgeon Bay Canal	Verified	96700		Details
Douglas County (1)				
Whitefish Lake	No Longer Observed	2694000	2006	Details
Florence County (1)				
Menominee River - below Michigamme dam	Verified	701900	2024	Details
Fond du Lac County (1)				
Lake Winnebago	Verified	131100	2022	Details
Forest County (1)				
Butternut Lake	Verified	692400	2014	Details

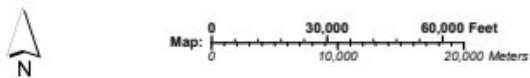
Iron County (3)				
Gile Flowage	Verified	2942300	2003	Details
Sandy Beach Lake	Verified	2316100	2024	Details
West Branch Montreal River	Verified	2942100	2018	Details
Marinette County (1)				
Menominee River - below Michigamme dam	Verified	701900	2024	Details
Outagamie County (2)				
Fox River (Riverside Park)	Verified	117900	2016	Details
Fox River at Sunset Point Park	Verified	117900	2017	Details
Vilas County (6)				
Ike Walton Lake	Verified	2321800	2015	Details
Plum Lake	Verified	1592400	2019	Details
Spider Lake	Verified and Vouchered	2329500	2025	Details
Star Lake	Verified	1593100	2013	Details
Stormy Lake	Verified	1020300	2007	Details
Trout Lake	Verified	2331600	2014	Details
Winnebago County (1)				
Lake Winnebago	Verified	131100	2022	Details
County Not Specified (3)				
Green Bay	Verified			Details
Lake Michigan	Verified	20	1986	Details
Lake Superior	Verified	2751220	1987	Details

26 Total locations where spiny waterflea has been detected in Wisconsin



- Legend:** (some map layers may not be displayed)
-  Verified Spiny Waterflea Lines
 -  Verified Spiny Waterflea Areas
 -  Rivers and Streams
 -  Intermittent Streams
 -  Open Water
 -  Rivers and Streams
 -  Intermittent Streams
 -  Open Water

Notes:



Service Layer Credits:
 DNR Basic Feature VTL (WTM): Wisconsin Department of Natural Resources, GIS Section, Surface Water (cache); WIDNR, USGS, and other data, Invasive Invertebrates Locations: WI Dept. of Natural Resources, Water Division

Map projection: NAD 1983 HARN Wisconsin TM

This map is a product generated by a DNR web mapping application.

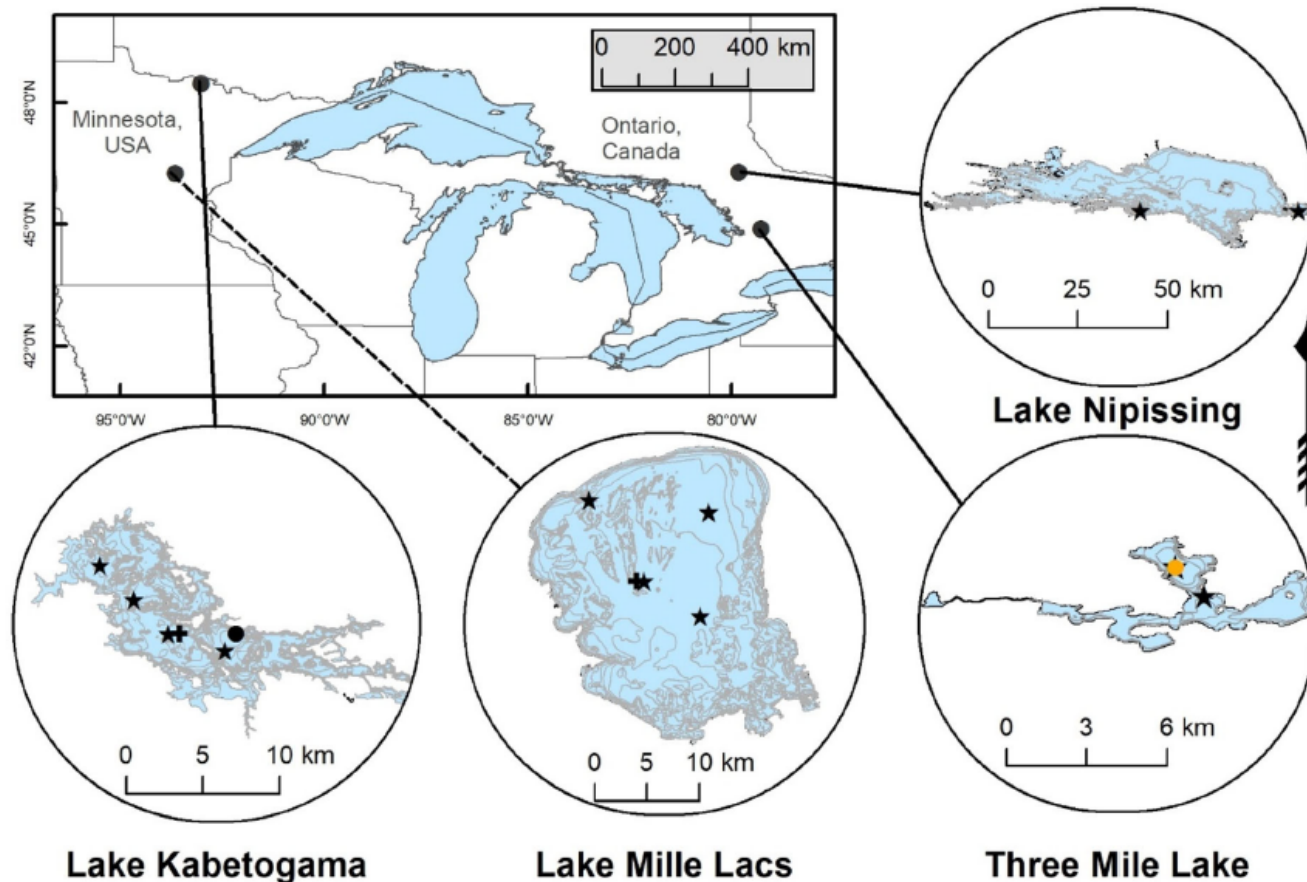
This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: <https://dnr.wisconsin.gov/legal>

Date Printed: 5/26/2026 11:50 AM

Early presence of *Bythotrephes cederstro* mii (Cladocera: Cercopagidae) in lake sediments in North America: evidence or artifact?

Nichole E. DeWeese . Elizabeth J. Favot . Donn K. Branstrator . Euan D. Reavie . John P. Smol . Daniel R. Engstrom . Heidi M. Rantala . Shawn P. Schottler . Andrew M. Paterson

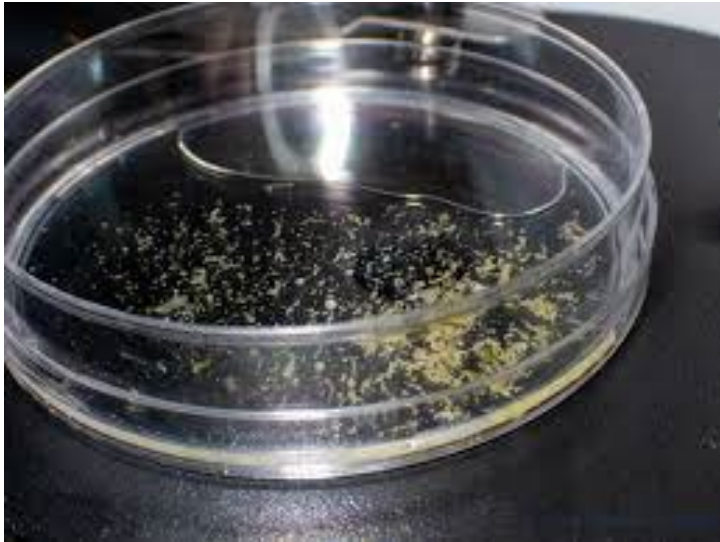
Received: 1 March 2021 / Accepted: 31 July 2021



This study presents evidence of exoskeletal remains, including mandibles, tail spines, and resting eggs, in ^{210}Pb -dated lake sediment cores, which suggests that *B. cederstro* mii was already resident in four inland North American lakes (two in Minnesota, USA; two in Ontario, Canada) by at least the early 1900s. Densities of exoskeletal remains were low and relatively steady from first appearance until about 1990, after which time they increased in all cores. The earliest evidence that we found was a mandible at 33-cm depth (pre-1650) in the sediments of Three Mile Lake, Ontario, Canada.

Sampling – Ekman Dredge

- Using a zooplankton tow net to collect either a vertical or horizontal tow sample
- Collect dead adults, spines, resting eggs, pieces of spiny waterflea
- Sent to the state lab, or can be analyzed by the collector



Sampling – Which is better?

QUALITATIVE:

Ekman Sediment Sample

- Helps determine presence
- Can be done year-round
- However- to verify an established population, live adults must be sampled using tows.

Oblique/Horizontal Tow

- Determines presence
- Can be used to verify a new population
- Seasonal, often only detectable during late summer/fall

QUANTITATIVE:

Vertical Lake Tow

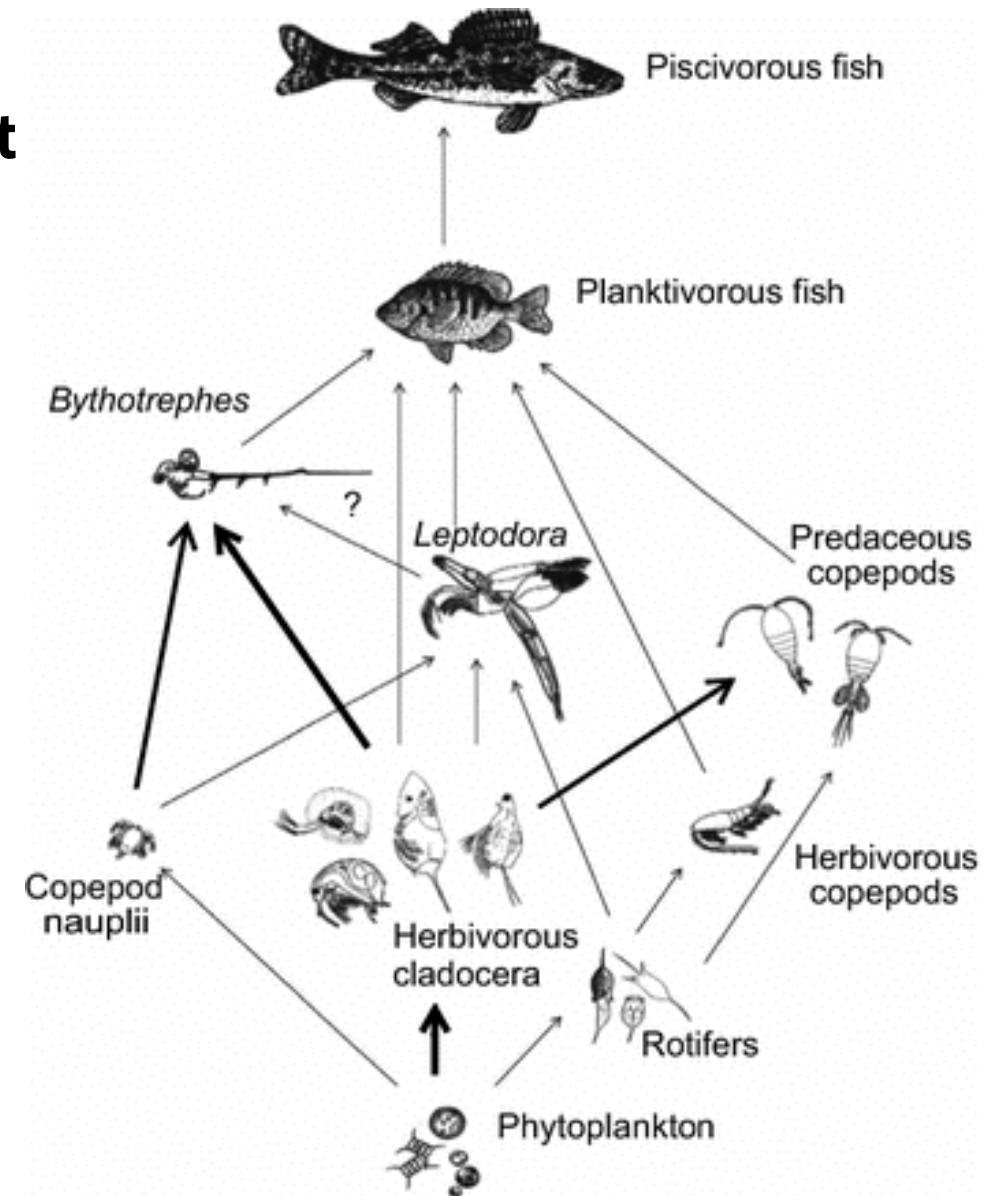
- Long-term-trend analysis
- Can be used to estimate abundance

Planktivory in the changing Lake Huron zooplankton community: *Bythotrephes* consumption exceeds that of *Mysis* and fish

[DAVID B. BUNNELL](#), [BRUCE M. DAVIS](#), [DAVID M. WARNER](#), [MARGRET A. CHRISCINSKE](#), [EDWARD F. ROSEMAN](#)

First published: 27 January 2011

- Tested the hypothesis that excessive predation by fish (rainbow smelt *Osmerus mordax*, bloater *Coregonus hoyi*) and invertebrates (*Mysis relicta*, *Bythotrephes longimanus*) had driven observed declines in cladoceran and cyclopoid copepod biomass
- *Bythotrephes* was the dominant planktivore and estimated to have eaten 78% of all zooplankton consumed
- Consumption by fish was only 3% of all zooplankton consumed



Walleye growth declines following zebra mussel and Bythotrephes invasion

Gretchen J. A. Hansen . Tyler D. Ahrenstorff . Bethany J. Bethke . Joshua D. Dumke . Jodie Hirsch . Katya E. Kovalenko . Jaime F. LeDuc . Yan P. Maki . Heidi M. Rantala . Tyler Wagner

Received: 3 July 2019 / Accepted: 3 January 2020 / Published online: 24 January 2020

Walleye growth decreases after spiny water flea and zebra mussel invasion

Results based on a recent study by Hansen et al. (2020)



Spiny water fleas (SWF) invade a waterbody

- SWF reproduce by the millions
- SWF eat zooplankton (microscopic animals) an important food source for first-year walleye
- SWF drastically reduce the amount of zooplankton in a lake



Zebra mussels (ZM) invade a waterbody

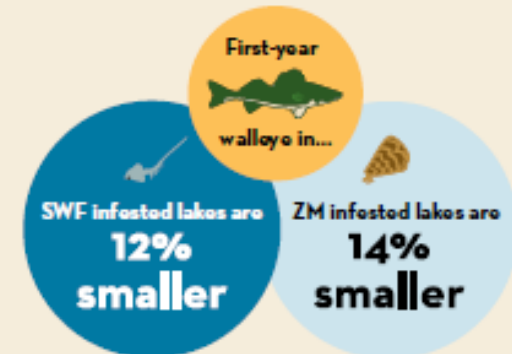
- ZM reproduce by the millions
- They feed on phytoplankton (microscopic plants), the main food source for zooplankton
- ZM may reduce the amount of phytoplankton and zooplankton in a lake



How SWF and ZM impact walleye

- First-year walleye eat zooplankton because they are readily available and easy to consume
- Fewer zooplankton mean walleye switch to eating other prey items, some of which are harder to consume and lower quality food
- Feeding on prey that is difficult to eat requires more energy spent on less nutritious food

Result: first-year walleye have a slower growth rate.



than first-year walleye in uninvaded lakes.



Before *launching* and before *leaving* **YOU MUST:**

- ✓ **INSPECT** boats, trailers, and equipment.
- ✓ **REMOVE** all attached aquatic plants and animals.
- ✓ **DRAIN** all water from boats, vehicles, and equipment.
- ✓ **NEVER MOVE** plants or live fish away from a waterbody.*



STOP AQUATIC HITCHHIKERS!

Prevent the spread of invasive species, it's the law



- Bleach *does not* kill resting eggs
- Decontamination includes hot pressure water at 140F
- Cleaning all fishing line and reels/rods
- Wiping equipment down with Swedish dish cloths



CONNECT WITH US

Jamie VandenLangenberg

jamie.vandenlangenberg@wisconsin.gov

715-892-5941



@WIDNR



@WI_DNR



/WIDNRTV



"WILD WISCONSIN:
OFF THE RECORD"