Rapid response actions following the discovery of round gobies in Little Lake Butte des Morts

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Round Goby Impacts

• Aggressive territorial fish with a voracious appetite
• Eats the eggs and young of native fish
• Influences spawning of other fish species
• Alters the food web
• Can reproduce up to 6x in a season
• ‘Bait-stealing’ nuisance
Round Goby Invasion History

• First observed in the St. Clair River and Lake Huron in 1990, and by 1995 was found in all the Great Lakes.

• Until recently, believed to only have spread to inland rivers up to the first impassable barrier.

• In the Fox River only found downstream of the Rapid Croche dam.

• In August 2015, an angler reported catching a goby immediately below the Neenah Dam in Little Lake Butte des Morts.

Source: Kornis & Mercado-Silva, April 2011. Fishes of Wisconsin.
• Rapid Croche Lock operated from 1850’s until 1988.
• During the 1970’s and 1980’s, the sea lamprey and other AIS began to establish in the Great Lakes.
• Rapid Croche Lock was closed and a solid barrier placed and maintained at the lock site.
• Goby reported upstream of Rapid Croche in August 2015.
Rapid Response Framework

- Early Detection & Reporting
- Verification
- Notification
- Rapid Risk Assessment
- Planning
- Rapid Response
- Monitoring & Evaluation
- Restoration
Verification and Rapid Assessment

• On September 2, 2015, WDNR Fisheries and Aquatic Invasive Species Teams angled in numerous locations near the original report, and caught two gobies immediately below the Neenah Dam.

• WDNR Fisheries crews also deployed minnow traps, mini-fyke nets, and electroshocked to determine the range and extent of the population.
Education and Outreach

- Round goby ‘watch’ signs posted at public access sites and various bait shops in the area.
- Outreach to hundreds of individual anglers.
- High level of traditional and social media coverage.
- WDNR staff follow-up on all angler submitted calls and reports.
- Online goby reporting tool.
Closing and Decontamination of the Menasha Lock

- On September 4, 2015, the Department worked with the Fox River Navigation System Authority (FRNSA) to close the Menasha Lock in order to prevent upstream movement of gobies into the Lake Winnebago system.

- This sudden closure of the locks stranded eight large recreational vessels from navigating to their overwintering dry-dock locations.

- A decontamination plan was developed to allow a passage through the Menasha lock, in conjunction with a Rotenone treatment to kill any gobies which may be present in the lock chamber.
Round Goby Trapping Locations

Legend
- Red circle: Round Goby
- Green circle: Minnow Trap
- Blue square: Dam

Goby Monitoring Locations 2015 & 2016

783 Traps
6,134 Trap Hours
UW-Oshkosh CBCW Angling

• UW-Oshkosh Clean Boats Clean Waters (CBCW) interns conducted angling for gobies on Lake Winnebago in between interactions with boaters.
• Provided goby ‘wallet card’ to all boaters with information on goby identification and what to do if they catch one.
• Angling used standardized gear (size #14 hooks, red worms, etc.)
• No gobies caught – data entered in SWIMS.
Education and Outreach (cont.)

• Don’t use/transport round goby signs posted at shore access sites in multiple languages.

• Education and outreach push during sturgeon season and other area fishing tournaments.

• Sturgeon stomach analysis for presence of gobies.
What are the potential ecological impacts of round gobies on the Winnebago system?

Predicting impacts of aquatic invasive species is difficult as every waterbody is unique and there are numerous variables that can influence the level of impact. A particular invasive species will have an impact on a specific waterbody. Introduced species will have some sort of an impact on the ecosystem, but the magnitude and direction of impact is hard to predict. The impact will almost never be all positive or all negative; the risk is in not knowing exactly how bad (or good) that impact will be until the ecosystem has already undergone changes.

Another difficulty is that the impact may not be immediately dramatic or even visible. Subtle changes caused by the introduction of a new invasive species can take a long time to display dramatic changes in the system. The ecosystem may reach a tipping point where those small changes add up to large ecosystem impacts over time.

Larger fish have been known to eat gobies and this invasive species can become another potential source of food for game fish. The addition of round gobies into the food web may be beneficial to certain species, while detrimental to others. Each species has a niche, or “way of life” which is defined by the environmental conditions, resources, and interactions it needs to survive at various stages of its life. The goby, like most other invasive species, is very efficient at displacing native species from their respective niches. As a result, the lakes experience similar food webs with fewer animal/plant species. With fewer species, the system is more vulnerable to collapsing if something happens to part of the food web. Everything is interconnected like a spider web; if one strand of the web is cut, the entire web is affected.

The Winnebago ecosystem is unique, and while it is true that it contains many of the same fish species that are present in other waters with established gobies, it doesn’t mean that the ecosystem will experience the same results as other established goby waters if the round goby gets into Lake Winnebago. With the round goby situation in the Winnebago system, we can say one thing with absolute certainty; if we can prevent their introduction to begin with, we will not need to take on the risk of the potential negative effects on the ecosystem if they do become established.

Frequently Asked Questions

How do I identify a round goby?

Round gobies have a black spot on the first dorsal fin and a fused pelvic fin that resembles a suction cup (no native fish in the Great Lakes has a fused pelvic fin). Juvenile gobies are a solid slate gray. Gobies are usually 2.5-6 in. long, but a few have been found up to 9.75 in. long. The fused pelvic fin is one of the easiest ways to identify a round goby and differentiate it from similar-looking native species including the mottled sculpin and log perch.

Native look-aikes

- Log Perch
- Mottled Sculpin
- Round Goby
- Fused Pelvic Fin
- Round Goby

Questions? Comments?
Contact: Chris Acy
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There is a DNR online reporting tool and phone number (920-424-3050) that the public can use to report a suspected round goby if one is caught. Record your location, date caught, take high quality photos, and save the specimen and freeze it in a re-sealable bag. Make sure to take an image of the fused pelvic fin and a photo of the side of the fish. Due to the large number of anglers that fish Winnebago, this method is a valuable monitoring resource to help determine if a population exists in that lake.

Revised: January 2018
Cross-connections?
Lawson Channel
Lawson Channel
Menasha Channel
Menasha Channel
eDNA

- **1 site high abundance**
  - Green Bay / Suamico River

- **2 sites low-moderate abundance**
  - Kelly Brook + connected waters
  - Little Lake Butte des Morts

- **4 sites undetermined presence**
  - Wolf River @ Shawano Dam
  - Lake Winnebago @ Menasha
  - Lake Winnebago @ Oshkosh
  - Lake Winneconne

- **1 site round goby absent**
  - Black River @ LaCrosse
eDNA
Results

Proportion of positive samples by site

- Green Bay
- Kelly Brook
- LLBDM
- Wolf River
- Winnebago (Menasha)
- Winnebago (Oshkosh)
- Winneconne
- Black River

Preliminary results provided by:
- Green Bay
- Kelly Brook
- LLBDM
- Wolf River
- Winnebago (Menasha)
- Winnebago (Oshkosh)
- Winneconne
- Black River
Next Steps

• Continue education, outreach, and encouraging angler reporting through various media outlets and the online goby reporting tool
• Continue to collaboratively conduct presence/absence detection monitoring for round gobies on Lake Winnebago and Upper Pool Lakes
• Continue exploration of long-term strategies to prevent gobies from entering the Winnebago system or other inland waterbodies
• Continue strengthening relationships between both internal and external partners
• Conduct preliminary studies in collaboration with other agencies on the use of innovative technologies (such as CO$_2$ barriers) to prevent spread of gobies and other non-native fish species
What can you do to help?

**How to Identify a Round Goby** (adult shown)

- Fin may be tinged in green
- Black spot
- Frog-like raised eyes
- Thick lips
- Body mostly slate gray, mottled with black to brown spots
- Single scallop-shaped pelvic (bottom) fin

**General Characteristics**

- No native fish in the Great Lakes has the single pelvic fin
- Young are solid slate gray
- Usually 3-6 inches (7.6 - 15.2 cm) long; may be up to 10 inches (25.4 cm)

*Project of the Great Lakes Sea Grant Network and U.S. Fish and Wildlife Service*

*Credit: Donna Francis*
How to Identify a Round Goby

- Frog-like raised eyes
- Thick lips
- Fused ‘suction-cup’ pelvic (bottom) fin
- Large black spot on first dorsal (top) fin
Report Sightings to WDNR

[Image: HEY ANGLERS! Caught this fish? Tell us about it]

http://dnr.wi.gov/u/?q=132

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http://dnr.wi.gov/topic/invasives/
Follow the Law!

- Do **NOT** use round gobies for bait!
- Never move live fish away from a waterbody.
- Empty bait buckets in the trash before going to another location*.
- Buy minnows from a Wisconsin bait dealer.
- Drain all water from boats, livewells, and equipment.

*You may take leftover minnows away from any state water and use them again on that same water. You may use leftover minnows on other waters only if no lake or river water or other fish were added to their container.
Questions?

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Photo: Paul Skawinski