Invasive Species of the Great Lakes: the Round Goby

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- **Invasive Species**: organisms that are introduced into a non-native ecosystem and which cause, or are likely to cause, harm to the economy, environment or human health.  
  (US Fish and Wildlife Service)
1. At source port

2. During voyage

3. At destination port

4. During voyage

- Loading ballast water
- Cargo hold empty
- Discharging ballast water
- Cargo hold full
Round Goby

- Bottom dwelling fish
- Inhabit rocky shores
- Native to the Black and Caspian seas
- Usually 3–6” but can get up to 10”
Round Goby

• Reproduce up to 6 times a summer
• Survive in poor water quality
• Well developed sensory systems
  – Enhances their ability to detect water movement
  – Enables them to feed in the dark

www.seagrant.umn.edu
Problems with the goby

- Rapid population growth-densities can exceed 20 fish/m²
- Preys on lake trout eggs and other small fish eggs and fry in laboratory experiments
- Compete with rainbow darters and other native fish for eating small macroinvertebrates
- They compete with native fish for habitat and spawning sites
- Nuisance to fishermen—they aggressively take bait
- Could result in higher bioaccumulation of toxins
Benefits from the Goby

- Water snake food
- Eats zebra mussels
- Feed several sportfishes
Lake Erie Water Snake

“Northern Water Snake” Photo by: Vicki DeLoach
Nerodia sipedon insularum

- Subspecies of Northern Water Snake
- Live in/around Lake Erie in Ohio and Canada
- Typically eat small fish and amphibians
- Non-venomous
- Oviparous—live births, not eggs
Placement on the List

• Federally Threatened in 1999
• Primary reason: humans:
  – Fishing-caught on hooks
  – Road kill
  – Intentional Extermination
• Secondary Reason:
  – Contaminants
  – Invasive Species
Removal from the List

• Removed from the list by The Department of the Interior (U.S. Fish and Wildlife) in Sept. 2011.
• Found +90% of their diet consisted of the round goby.
• Population surveys went from 5,130 in 2001 to 9,800 in 2010
• “Safe” population is from 5,555 to 6,100.
Options for control of goby population

• Educate people on identifying the goby
• Ensure that no round gobies are accidentally released into fishing areas
• Implementing Ballast water exchange laws that restrict and regulate the dumping of ballast water within North American waterways.
• electrical barriers
• piscicides

http://www.iiseagrant.org/nabinvader/Lakes/suspects/suspect_gabby.html
It’s complicated...
Bibliography

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