

Rainbow smelt in Wisconsin: Distribution, impacts, and management

Chris Solomon
Center for Limnology
Univ. of Wisconsin, Madison

Hi, my name is...

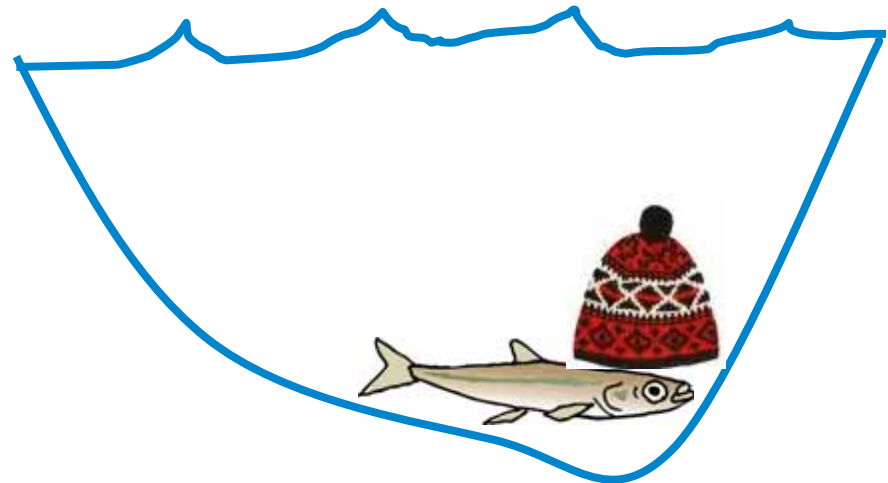
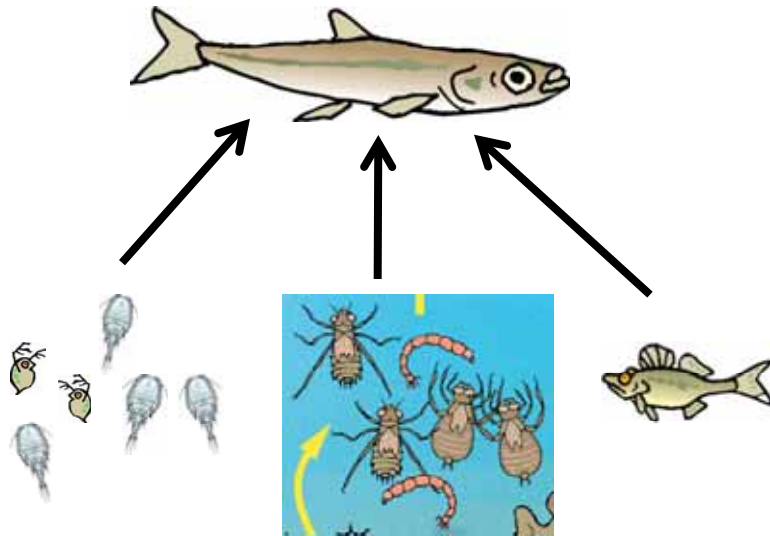
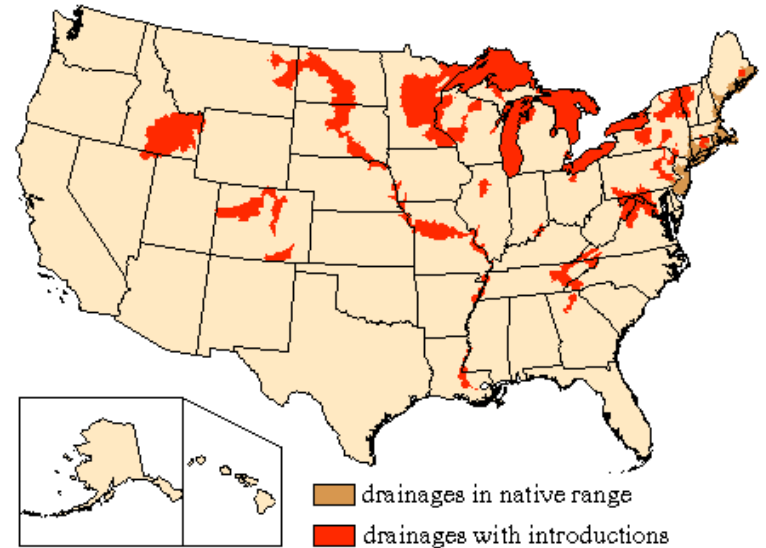


Rainbow smelt
(*Osmerus mordax*)

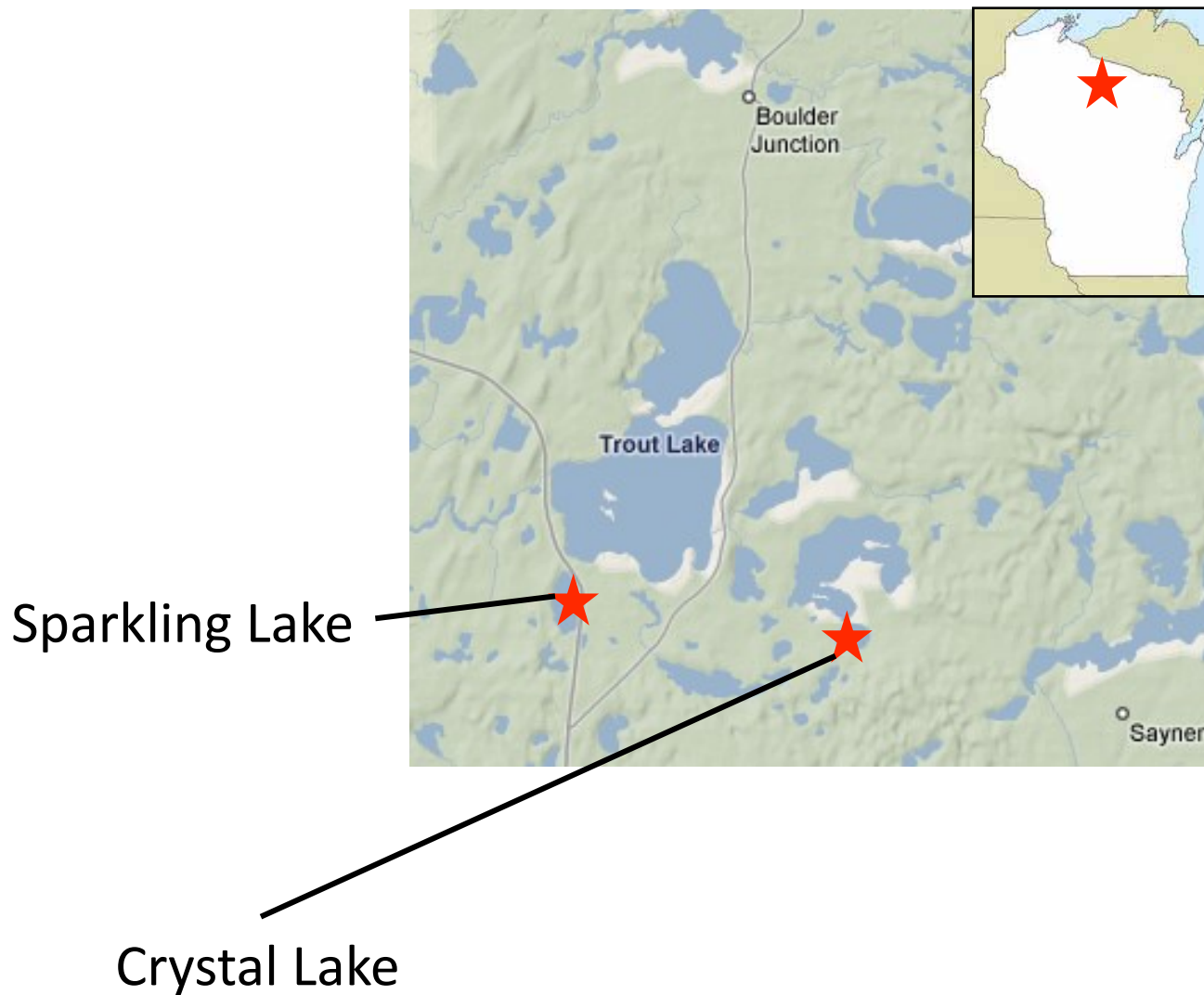
Size: 10-30 cm



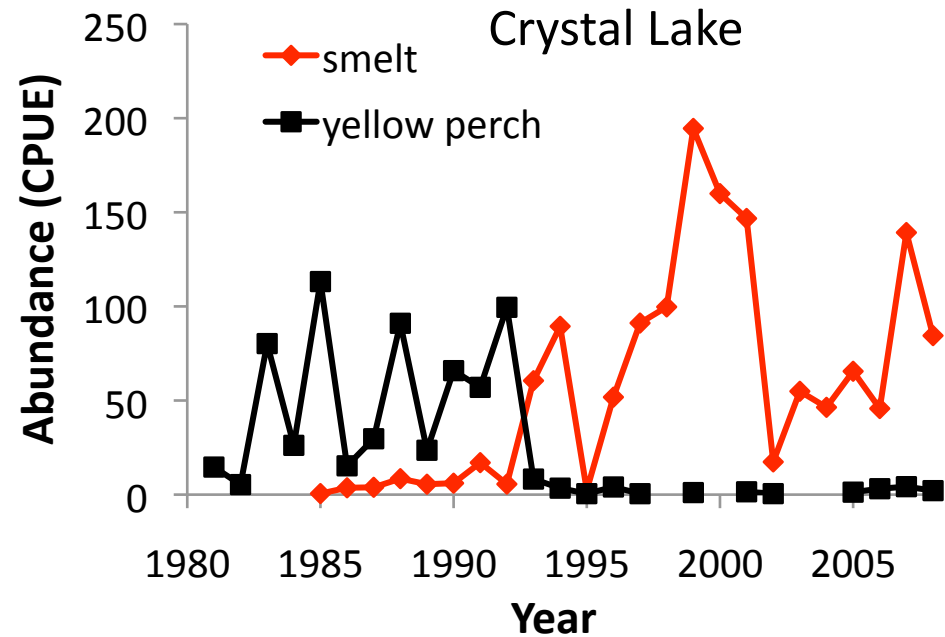
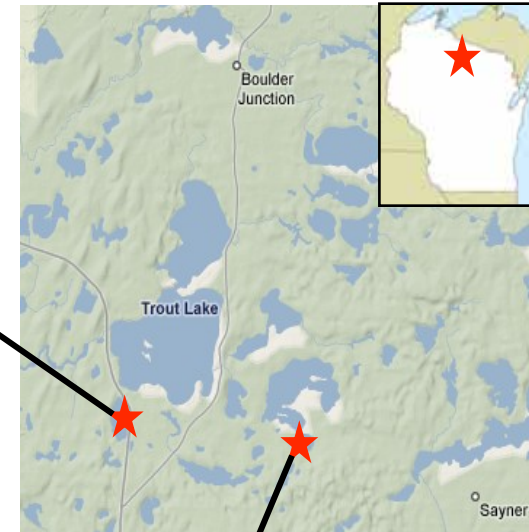
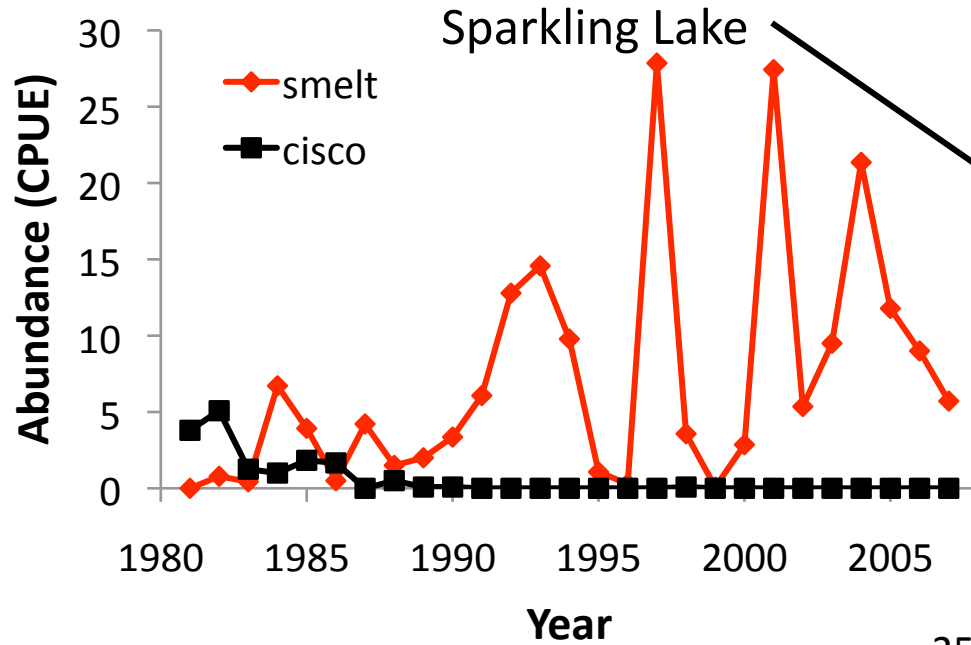
Osmerus mordax



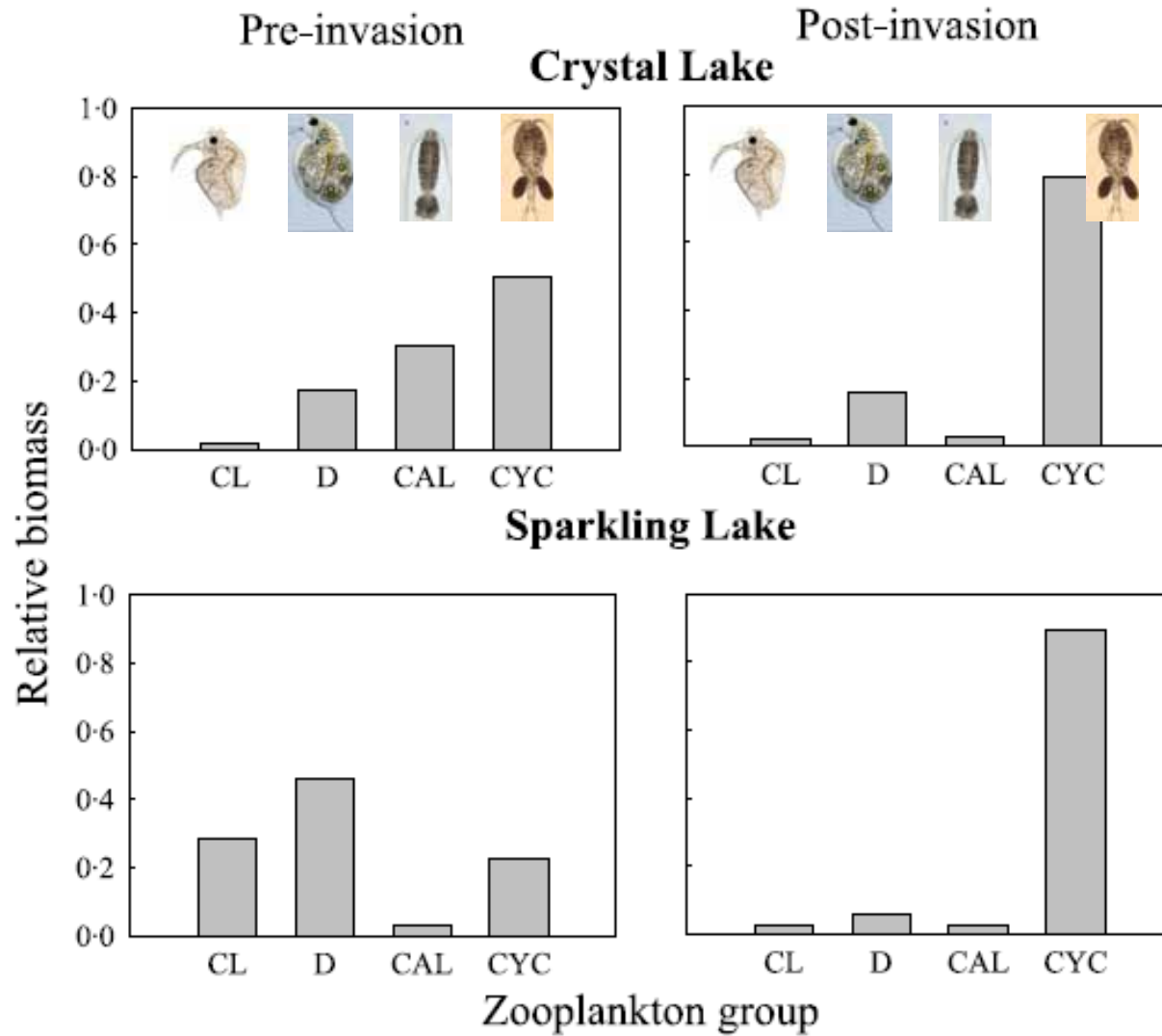
Impacts of smelt – 2 case studies



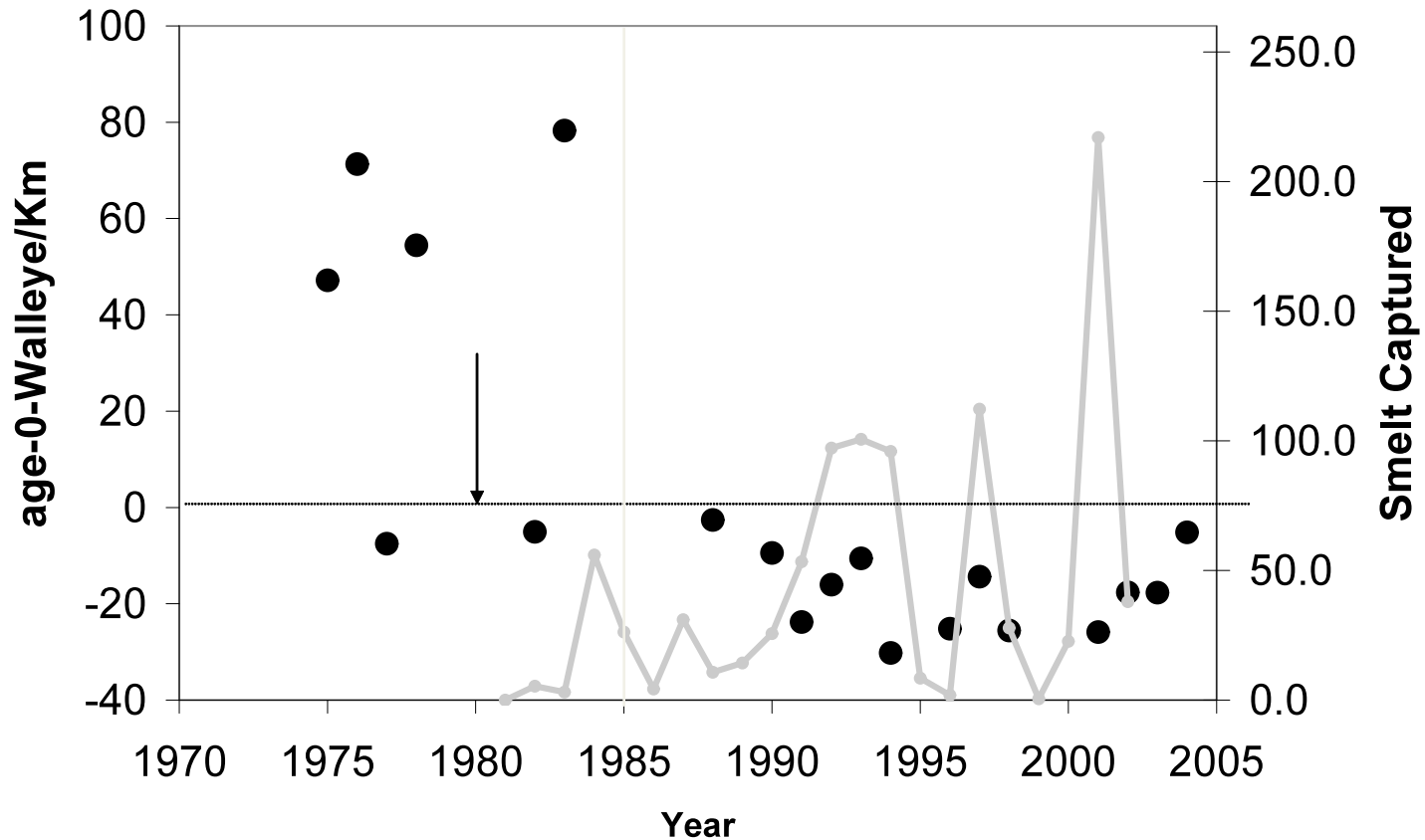
Impacts of smelt – fish



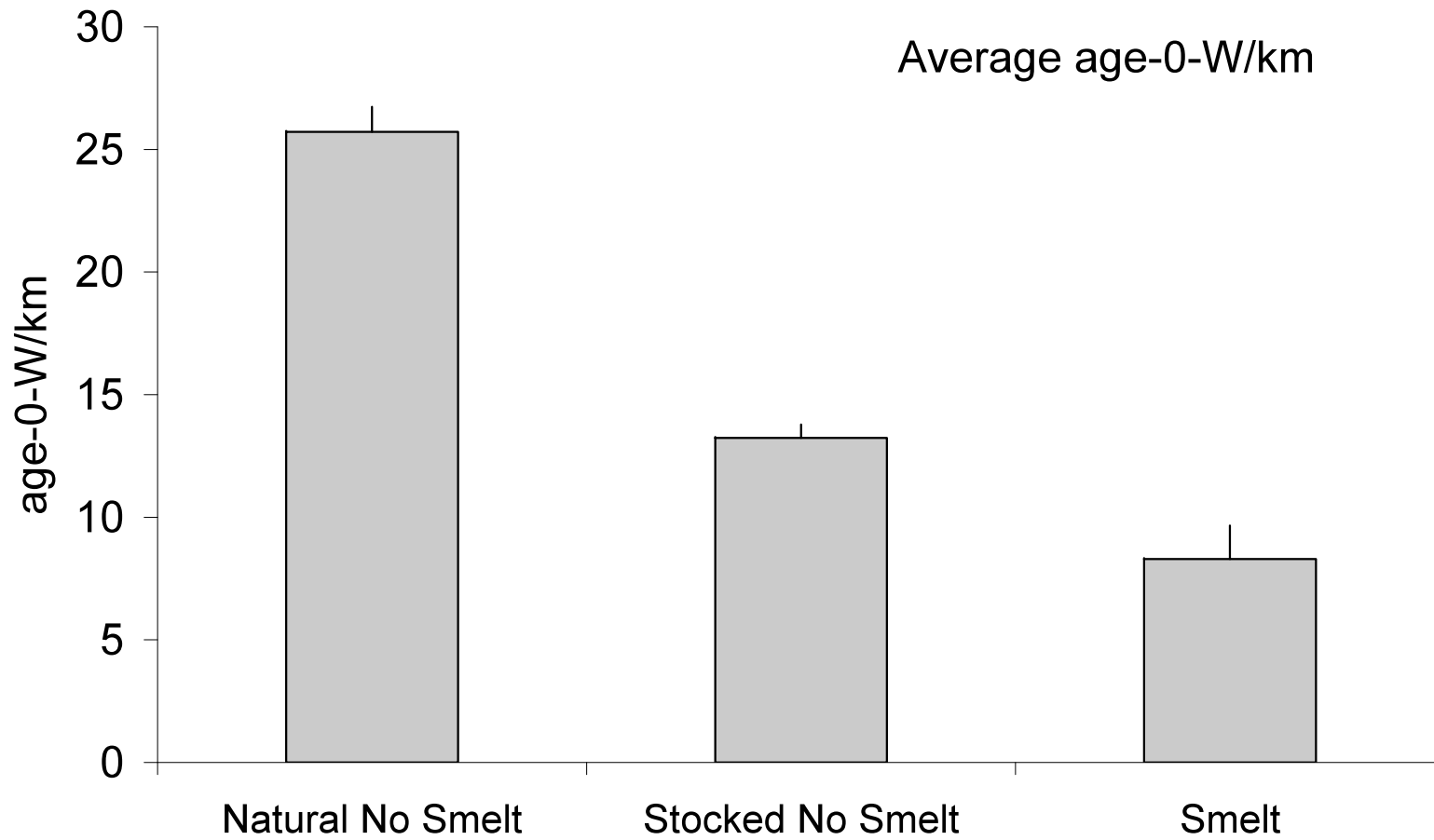
Impacts of smelt – zooplankton



Impacts of smelt – walleye recruitment

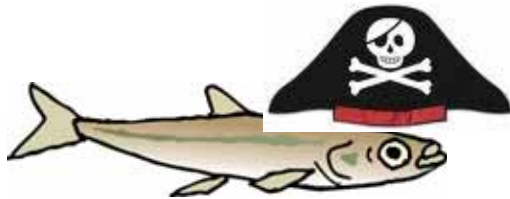


Walleye recruitment



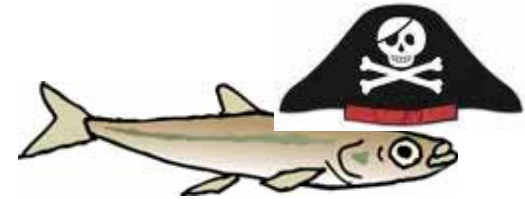
Summary: Impacts of smelt

- Changes to zooplankton assemblage
- Reductions or losses of
 - Walleye
 - Cisco (and other whitefishes)
 - Yellow perch
 - Lake trout

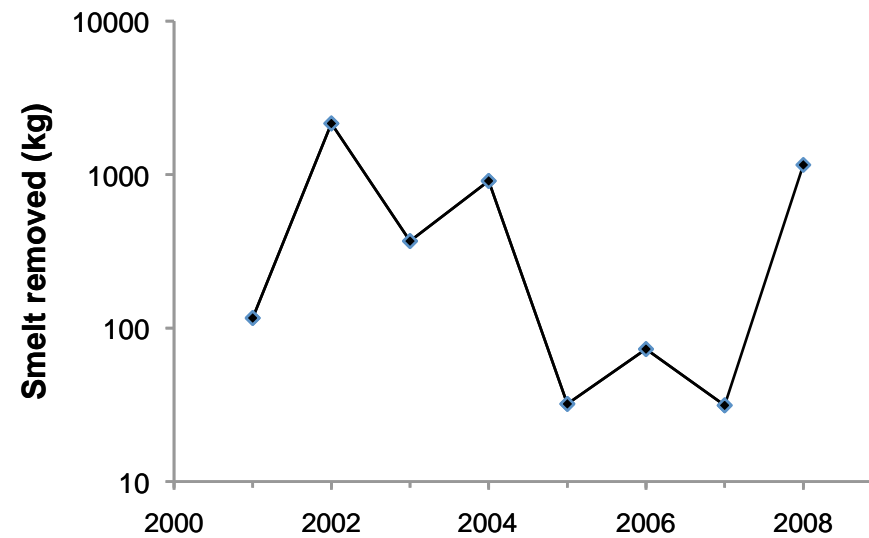


What can we do?

- Remove them
- Increase their predators
- Keep them out

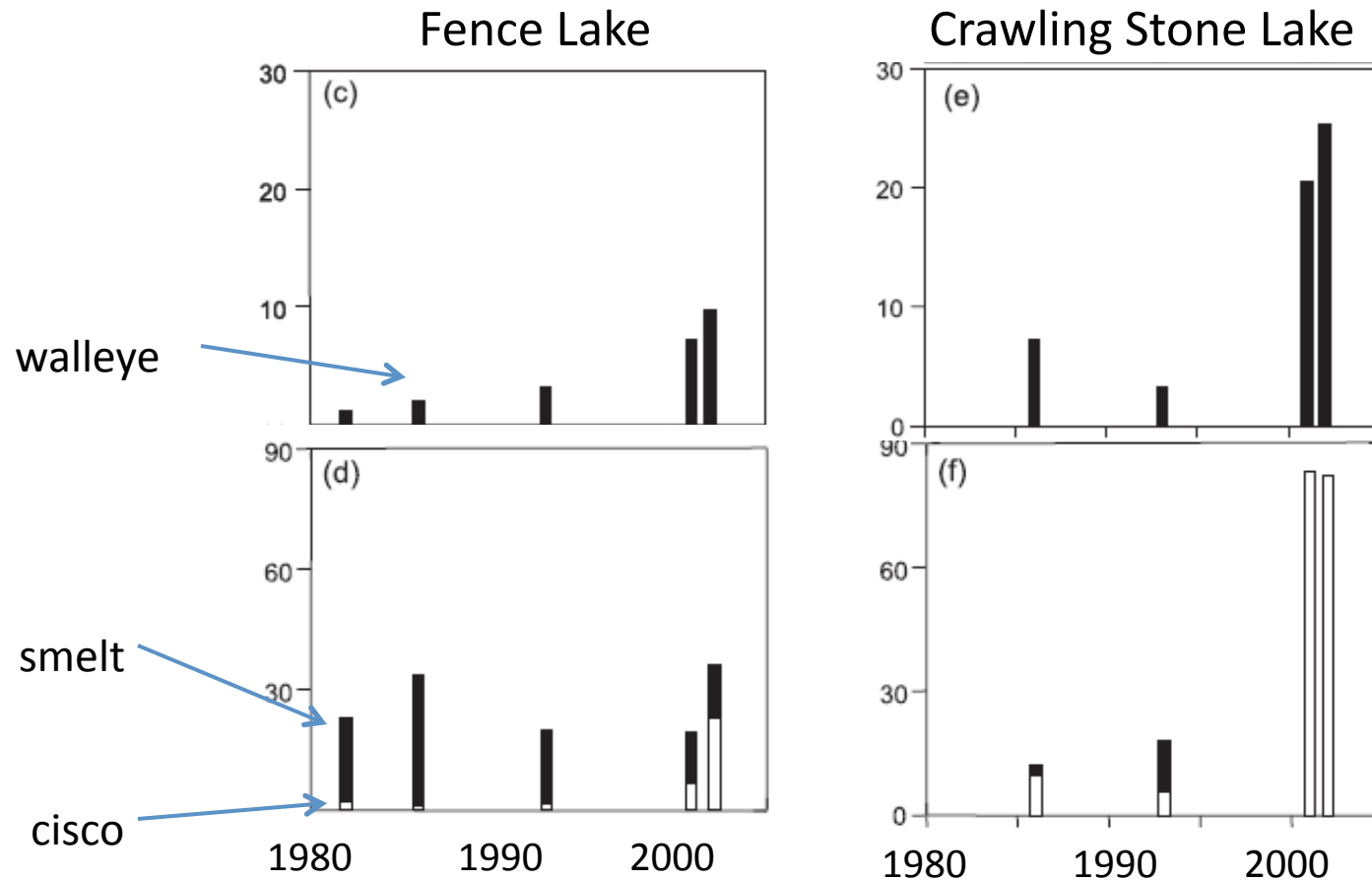


Smelt removal



Removal is tricky, time-intensive, and may not succeed

Increase predators – fisheries management



Looks promising

More walleye = good (although less growth = bad?)

An ounce of prevention...

- Take precautions to avoid spread
 - Disposal of smelt guts

- Target our efforts – “smart prevention”



Smart prevention

Can smelt get there?

5100 lakes



Can smelt live there?

2200 lakes



Will smelt have an impact?

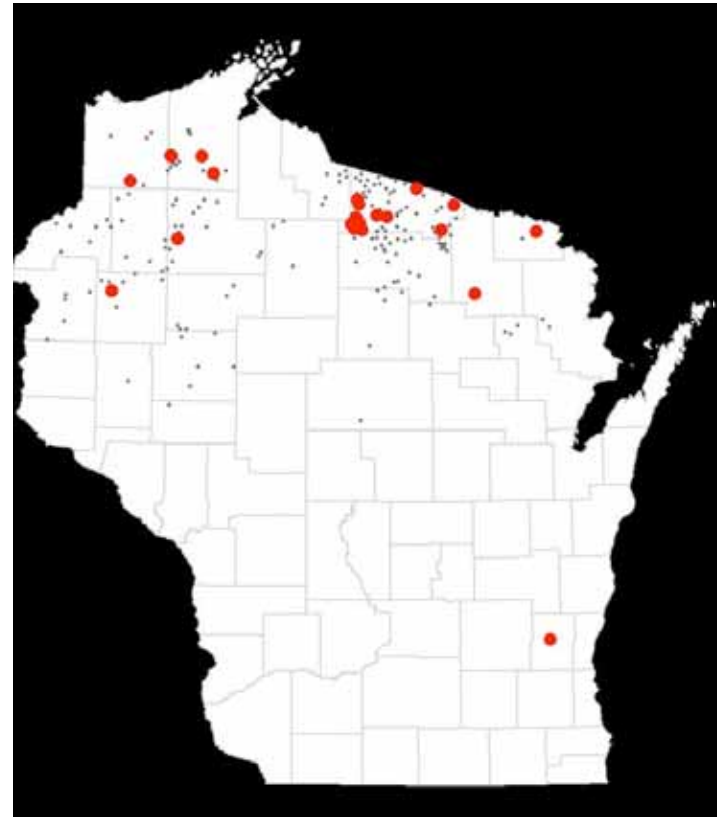
530 lakes



180 lakes

24 lakes currently invaded

Risks and opportunities



Thanks to...

Smelt researchers:

Bea Beisner, Tom Hrabik, Damon Krueger, Brian Roth,
Norman Mercado Silva, Jake Vander Zanden

Wisconsin DNR (Steve Gilbert)

Trout Lake Station

National Science Foundation