



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

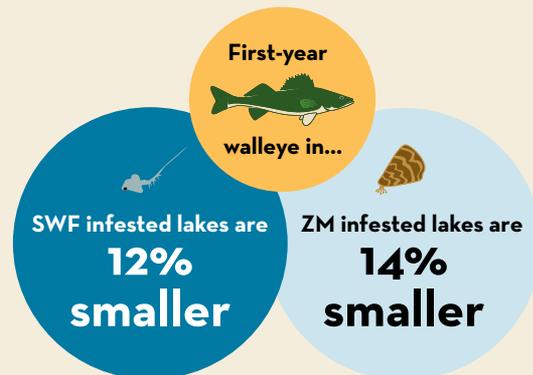
- ZM reproduce by the millions
- They feed on phytoplankton (microscopic plants), the main food source for zooplankton
- ZM may reduce the amount of phytoplankton and zooplankton in a lake



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.

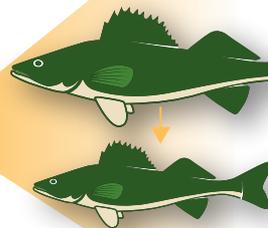
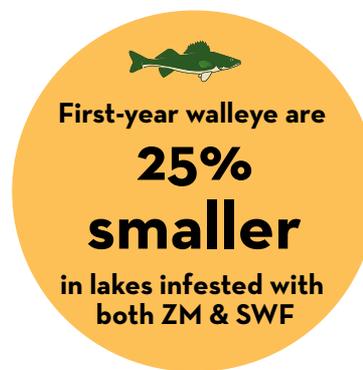


than first-year walleye in uninvaded lakes.



Why slower growth rate in first-year walleye is a problem

- Higher mortality due to increased predation on first-year walleye
- Lower energy reserves leading to lower winter survival
- Delayed access to a more diverse, energy rich diet due to their smaller size
- Smaller and fewer walleyes survive to the next age class



The publication upon which this is based (Hansen et al. 2020), summarizes a study of spiny water flea and zebra mussel impacts on walleye growth in nine Minnesota lakes. The dataset used in the study spans 35 years, from 1983-2018. Funding was provided by the Minnesota Environment and Natural Resource Trust Fund as recommended by the Minnesota Aquatic Invasive Species Research Center and the Legislative-Citizen Commission on Minnesota Resources. For more information visit: z.umn.edu/walleyegrowth

