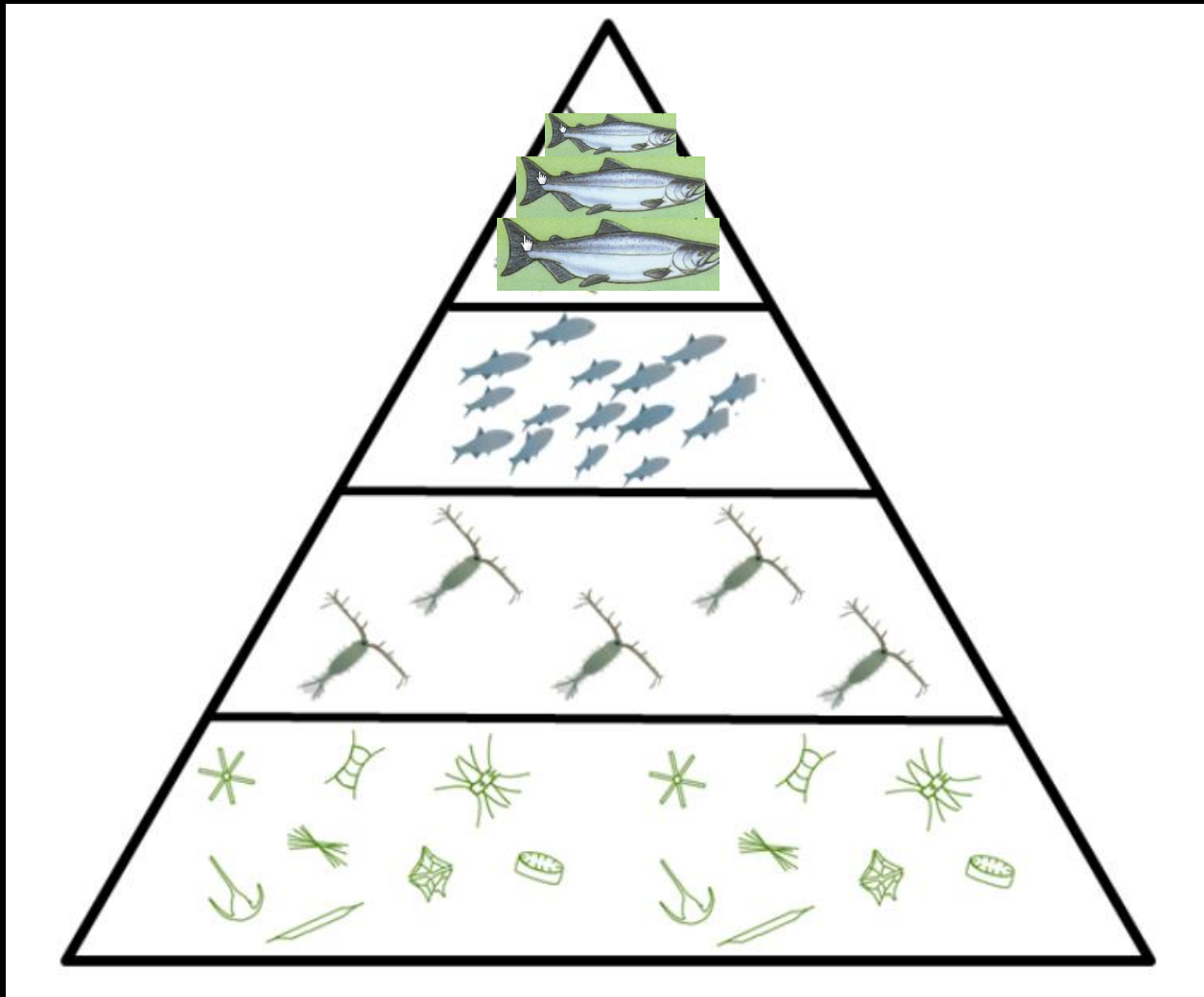




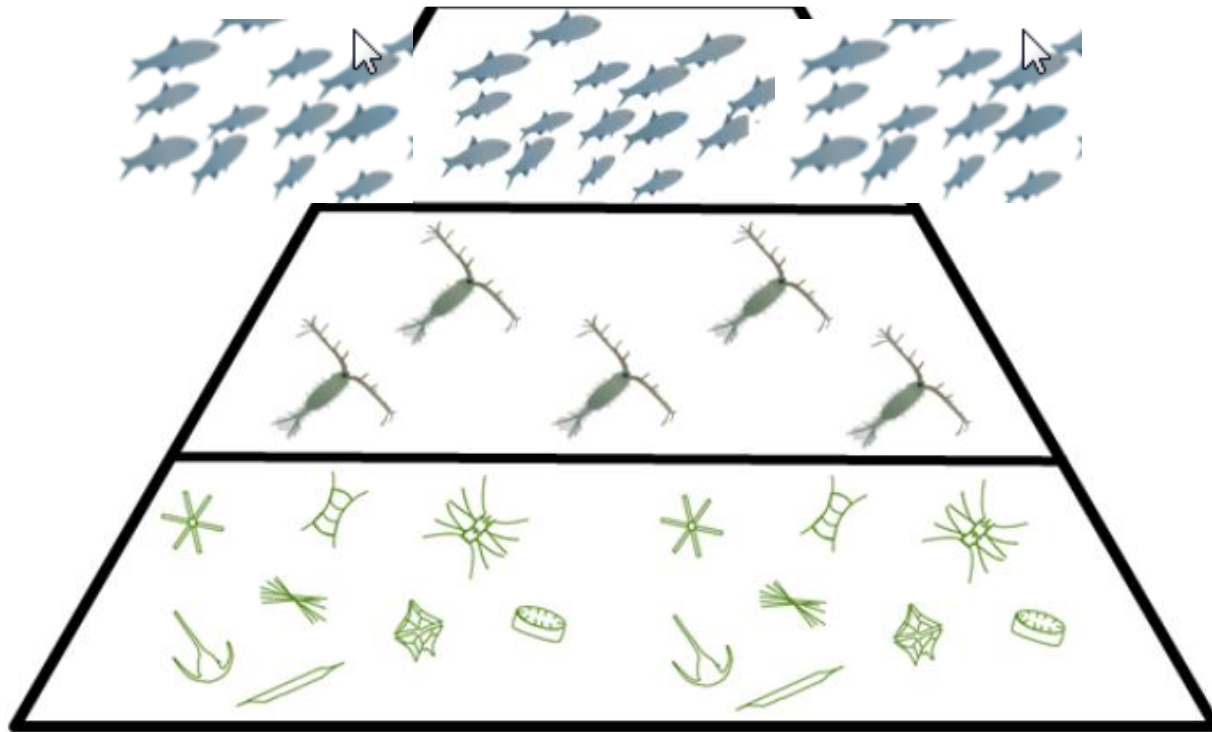
Lake Michigan Salmon Update 2024

Brian Gunderman
Southern Lake Michigan
Unit Manager

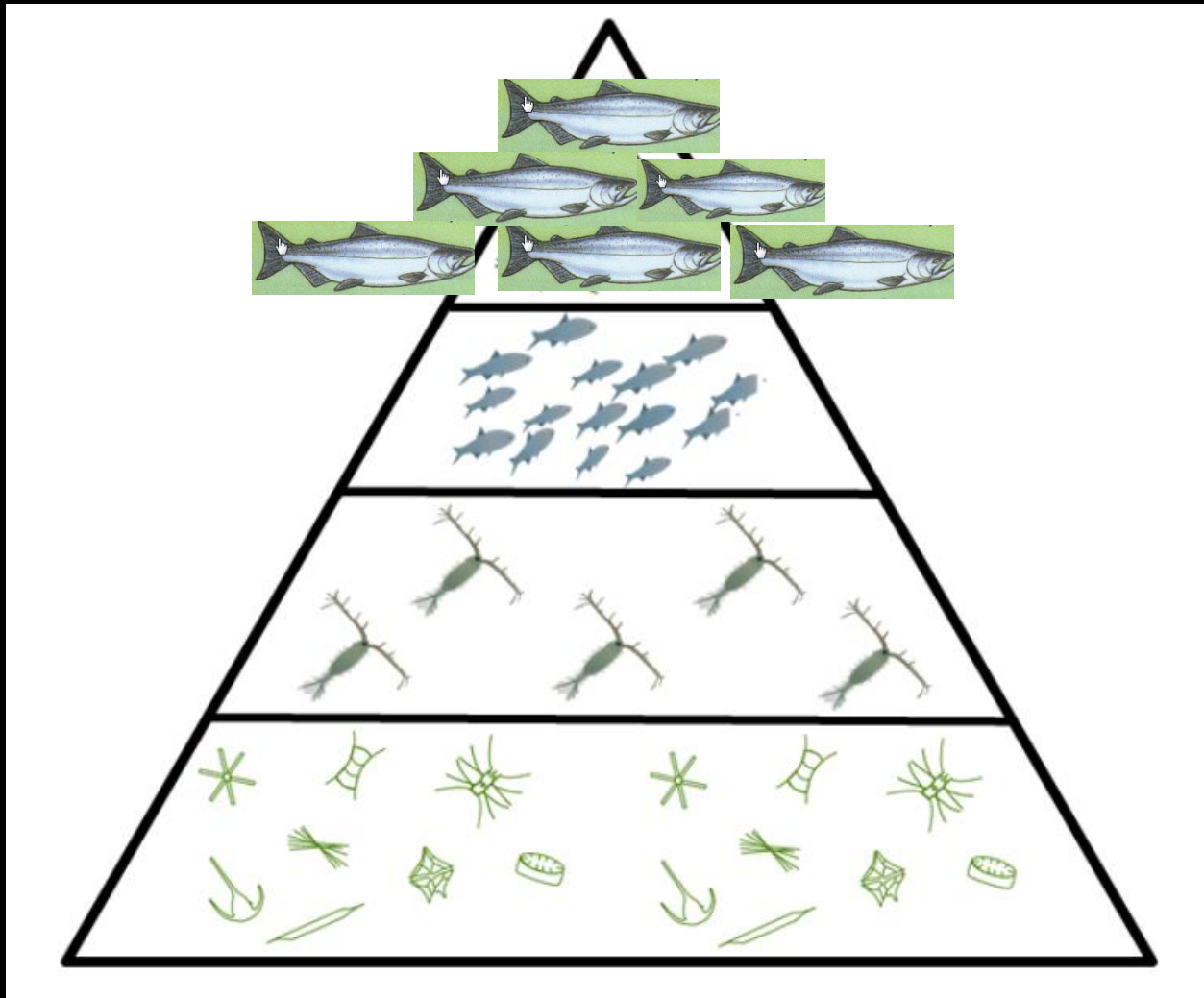
Balanced Food Pyramid



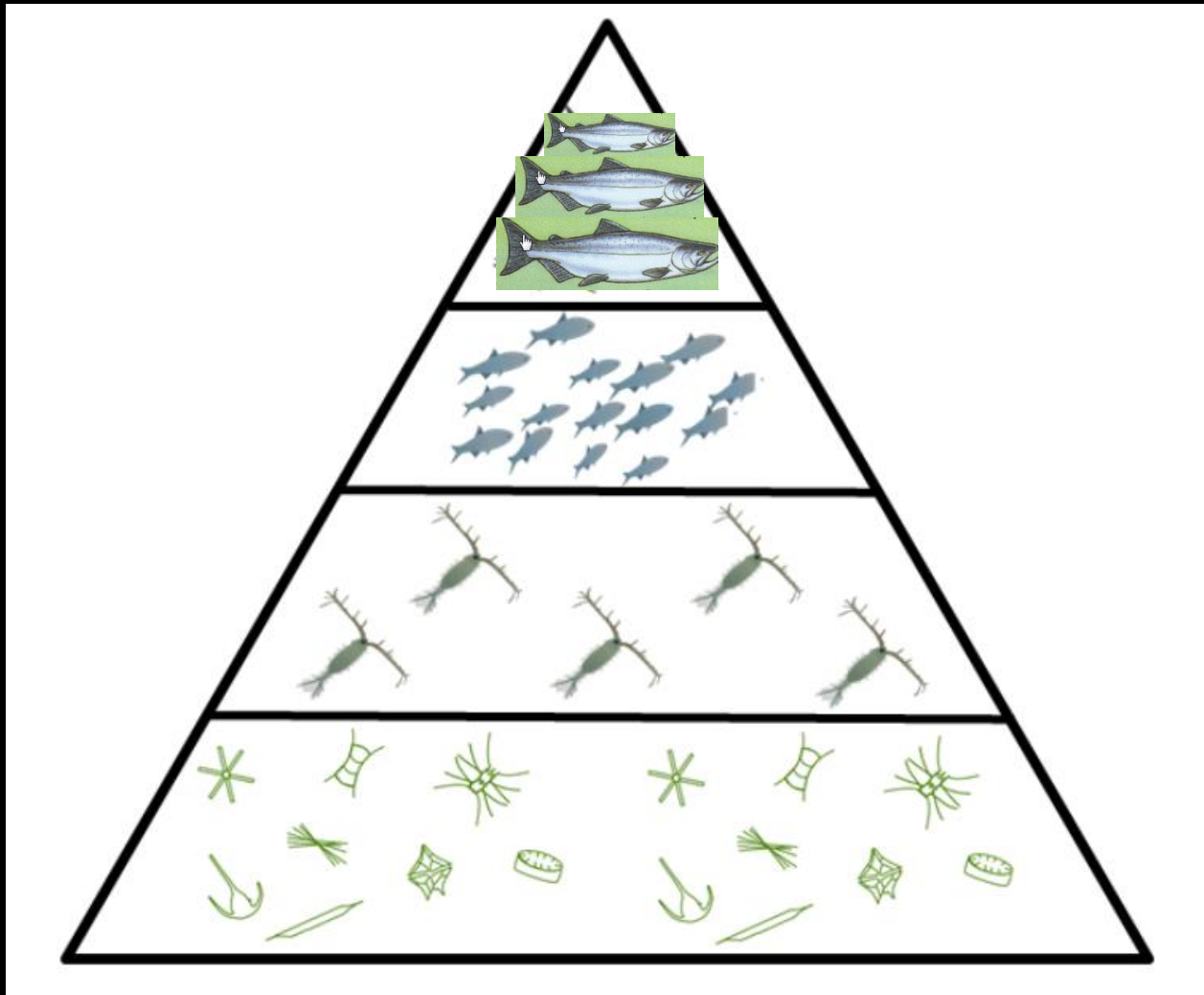
1950's-1982 Unbalanced



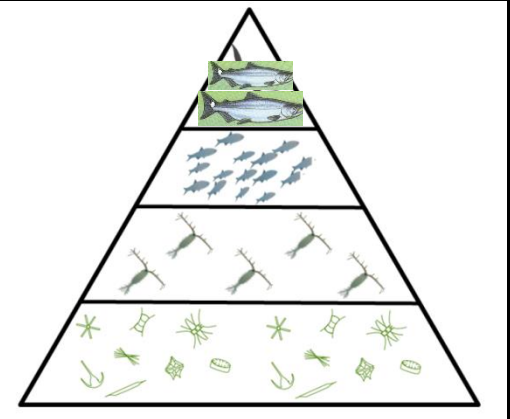
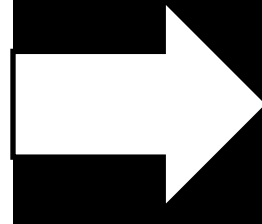
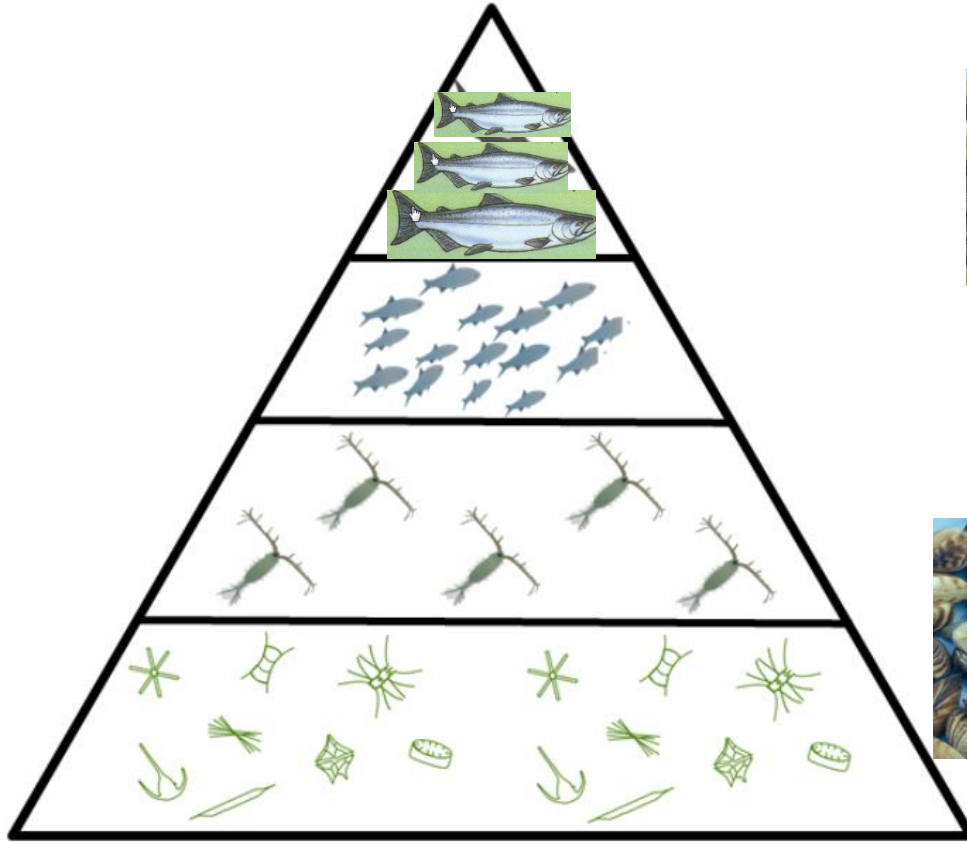
1982 -1990 Unbalanced



1990-2002 Balanced



2003-2024 Sometimes Balanced And Changing



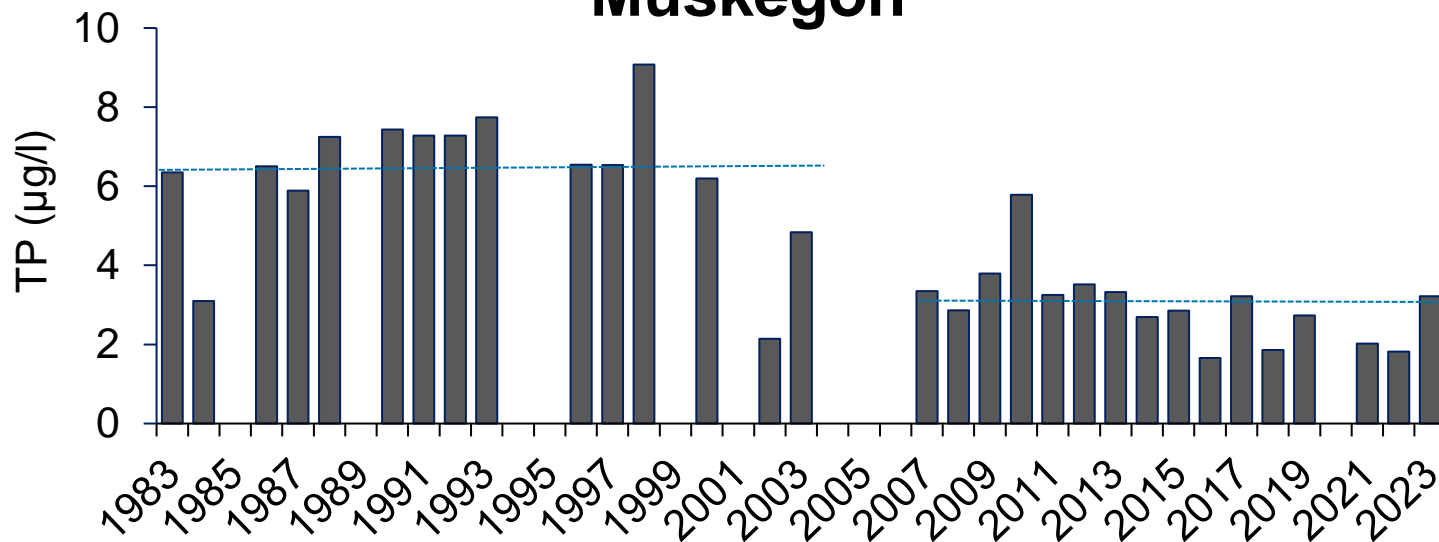
Team Effort

- Illinois DNR
- Indiana DNR
- Michigan DNR
- Wisconsin DNR
- United States Fish & Wildlife Service
- United States Geological Survey
- United States Environmental Protection Agency
- National Oceanic & Atmospheric Administration
- Sault Tribe of Chippewa Indians
- Little Traverse Bay Bands of Odawa Indians
- Grand Traverse Band of Ottawa & Chippewa Indians
- Little River Band of Ottawa Indians
- Bay Mills Indian Community
- Various universities



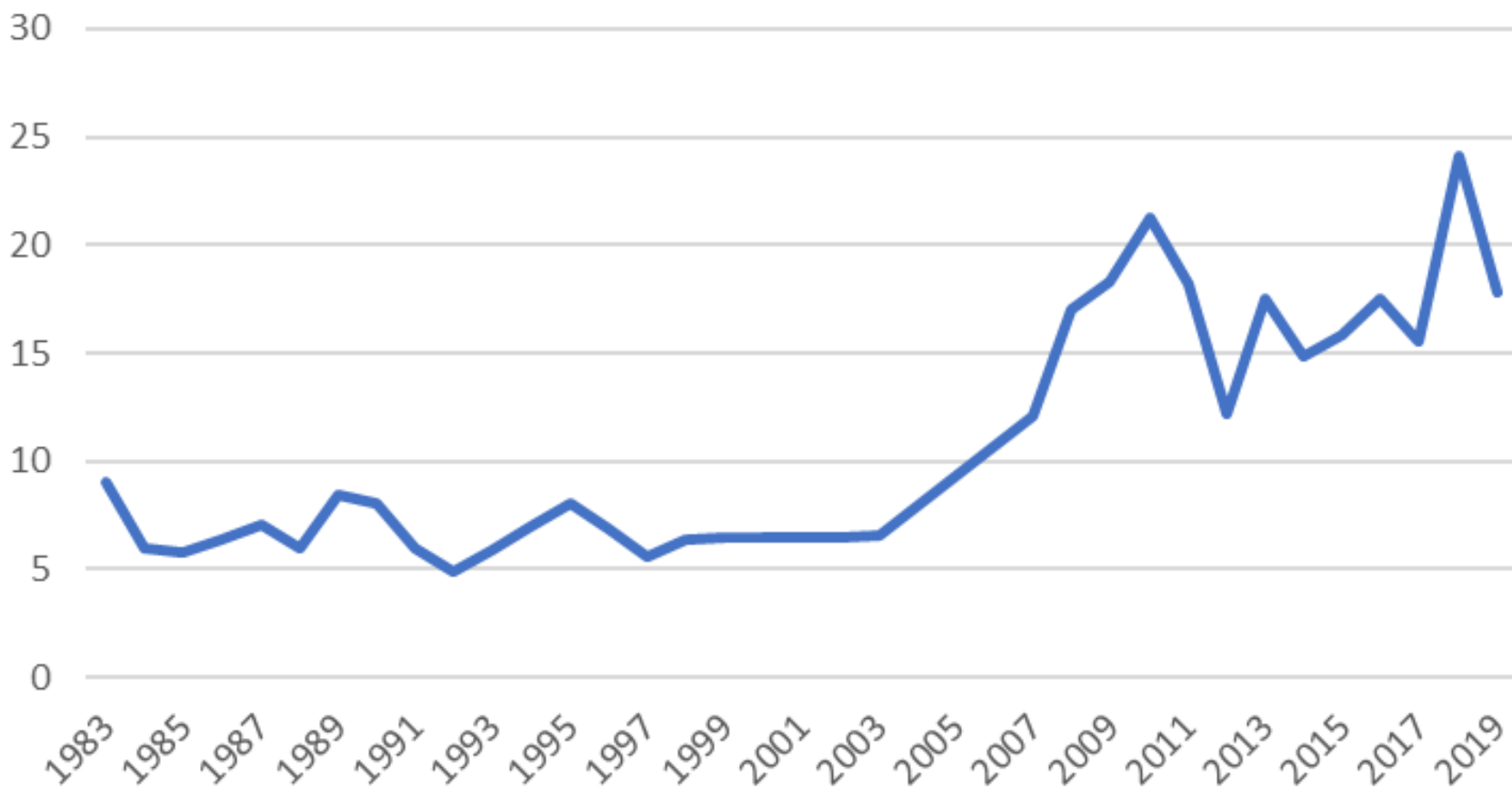


Offshore May Total Phosphorus Muskegon



Water Clarity

Water Clarity in Meters



Diporeia long-term trends



1994/95

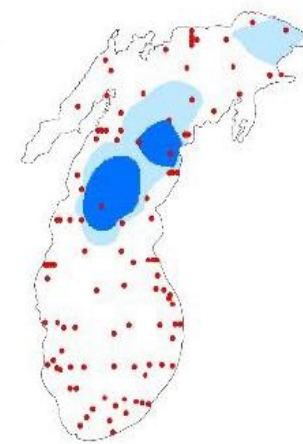
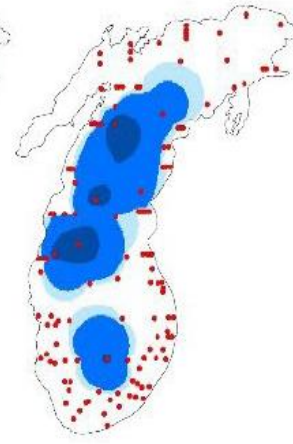
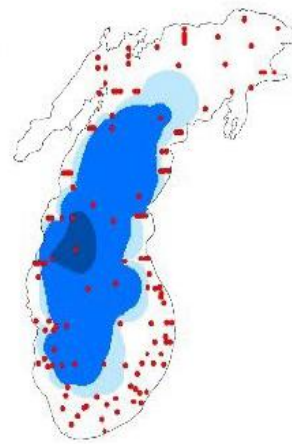
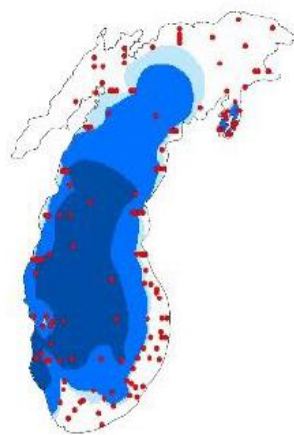
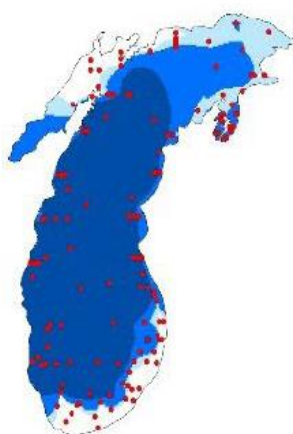
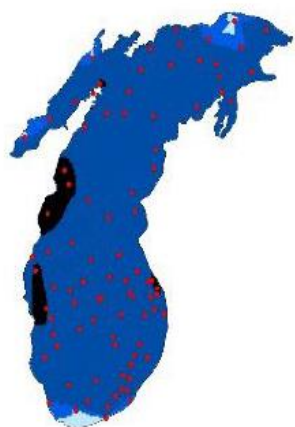
2000

2005

2010

2015

2021



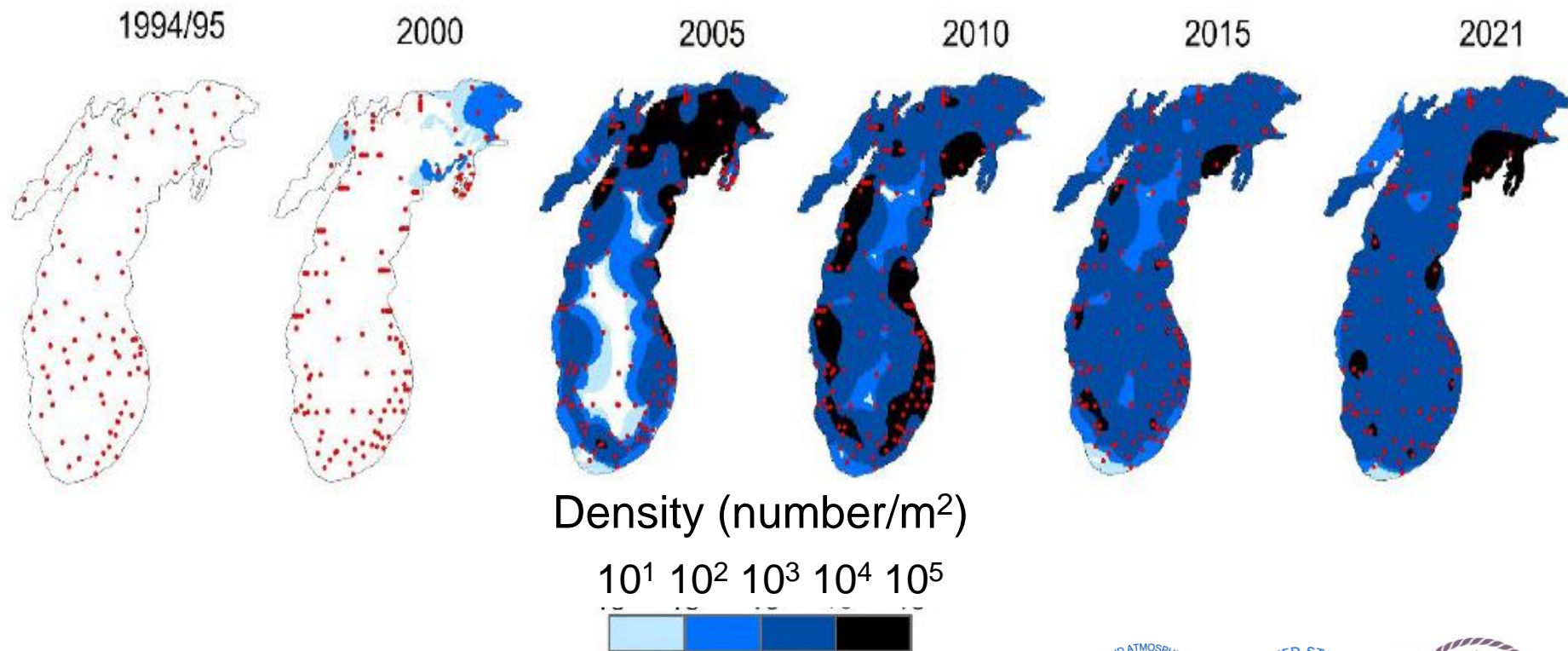
Density (number/m²)

10¹ 10² 10³ 10⁴ 10⁵



Slide content provided by A. Scofield, L. Burlakova,
S. Karatayev, and A. Elgin

Dreissena bugensis long-term trends



Slide content provided by A. Scofield, L. Burlakova, S. Karatayev, and A. Elgin

Fall Bottom Trawl (Forage Assessment)

- Indices provided (since 1973)
 - YAO alewife, bloater, rainbow smelt
 - Deepwater and slimy sculpin, ninespine stickleback, age-0 perch, round goby

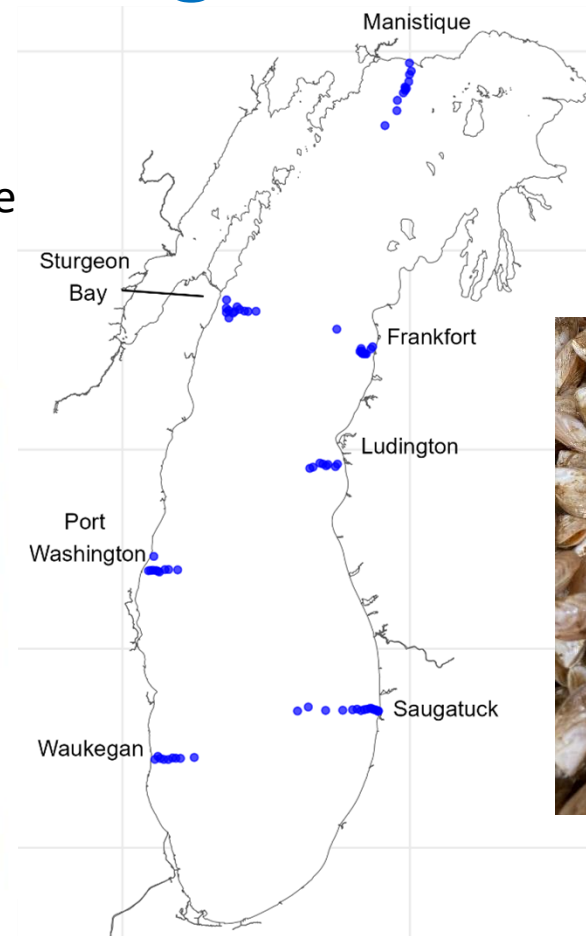
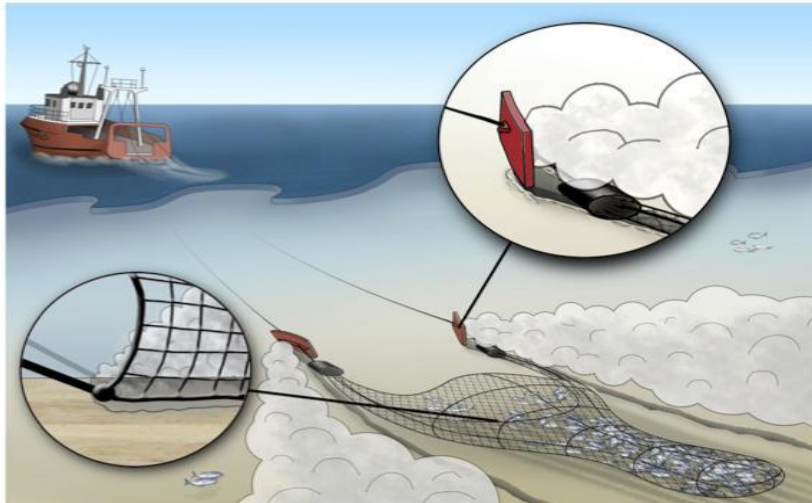
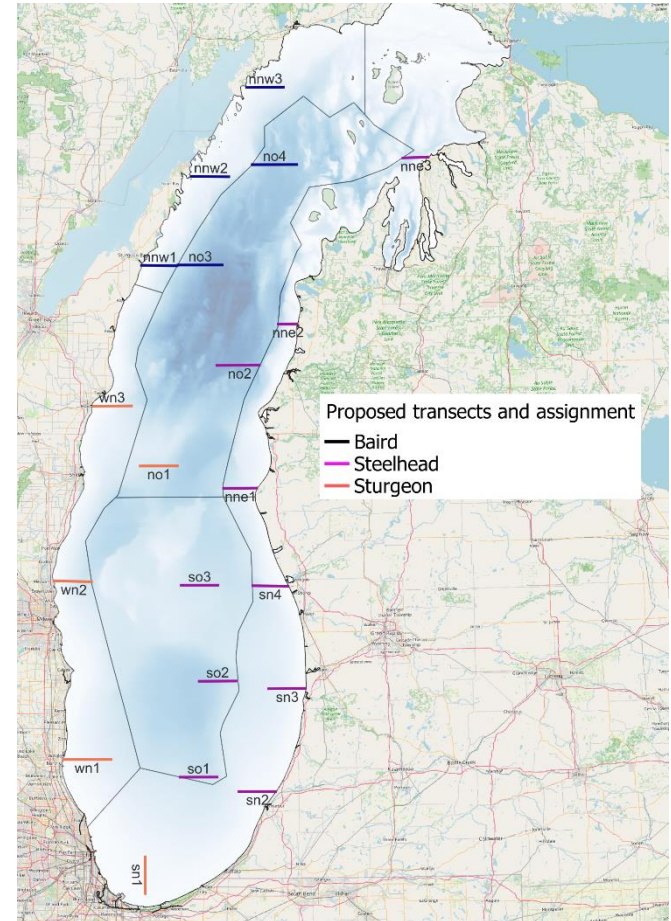
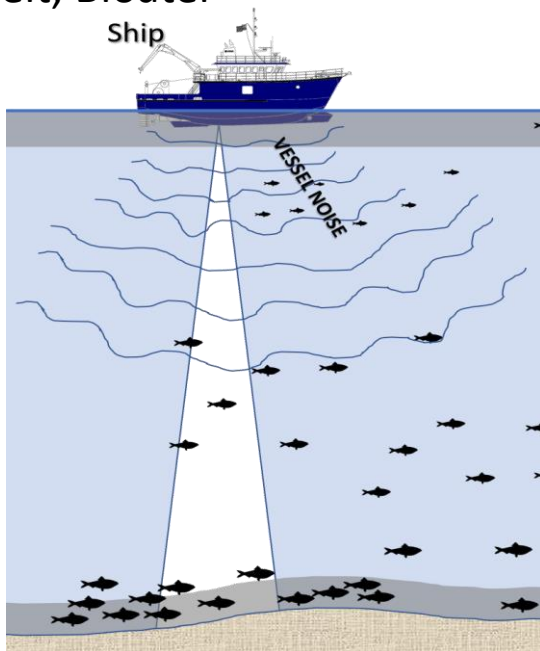


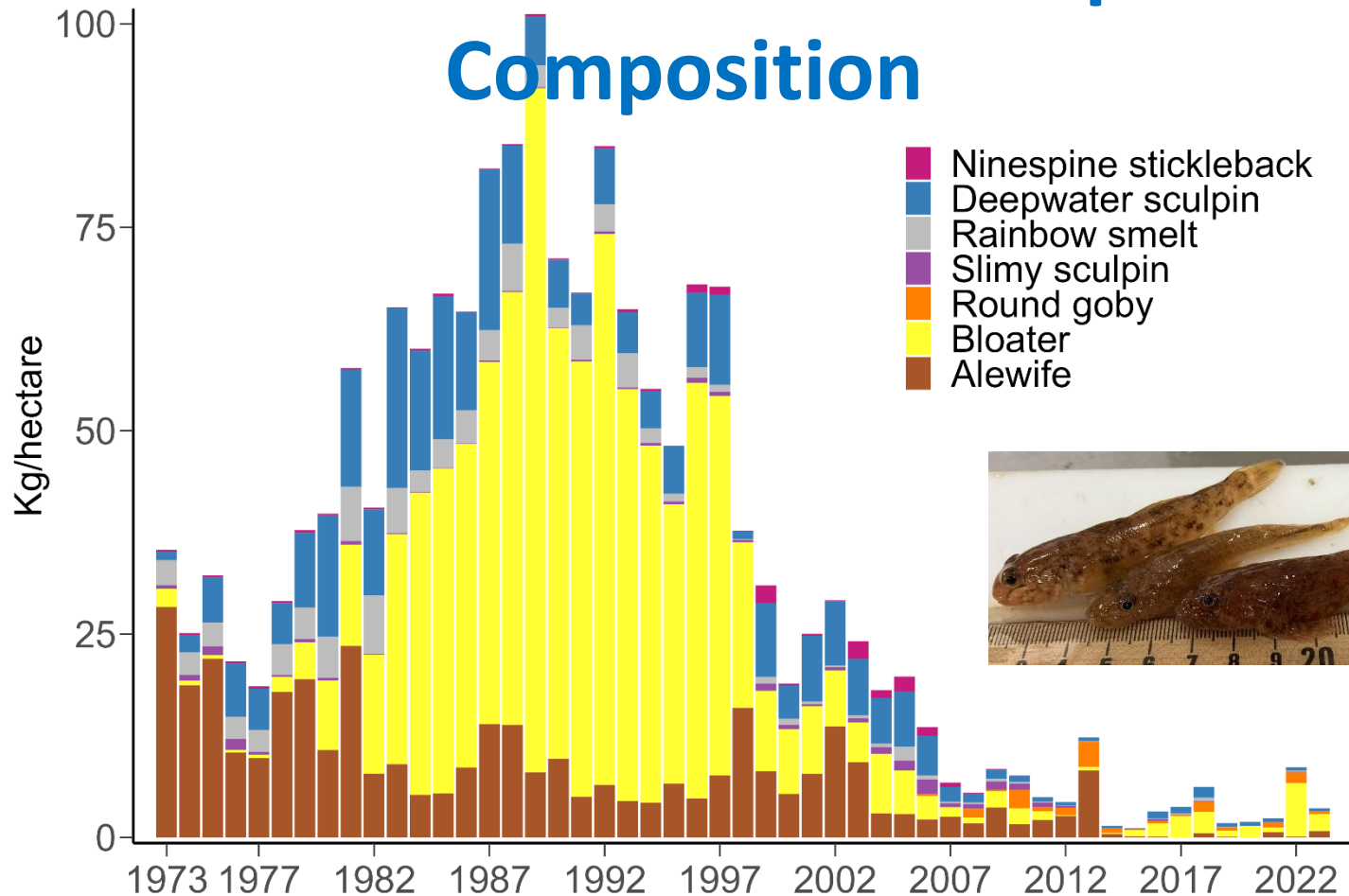
Photo credit: Patty Dieter

Hydroacoustic Survey

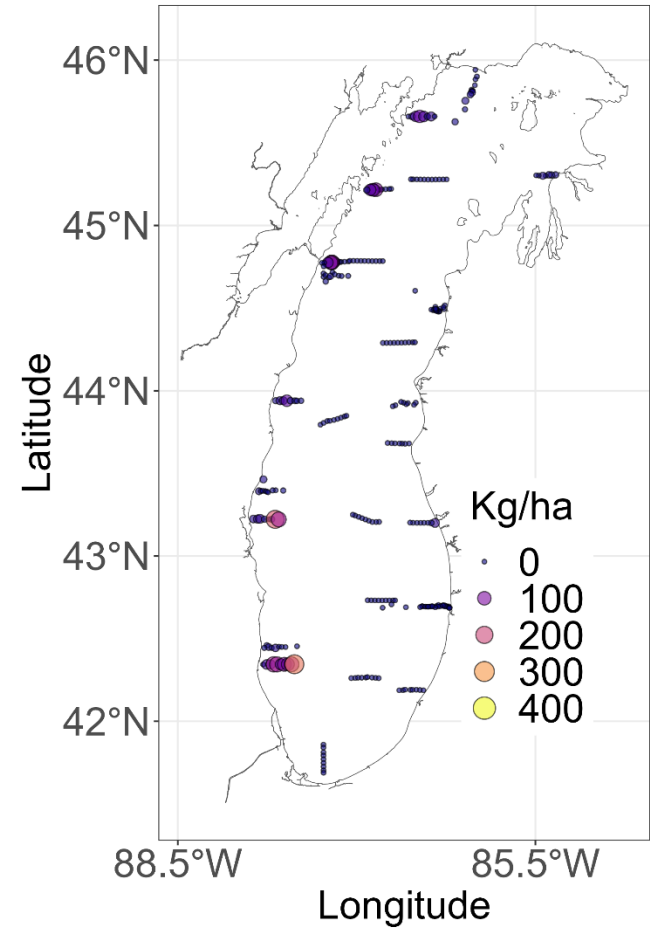
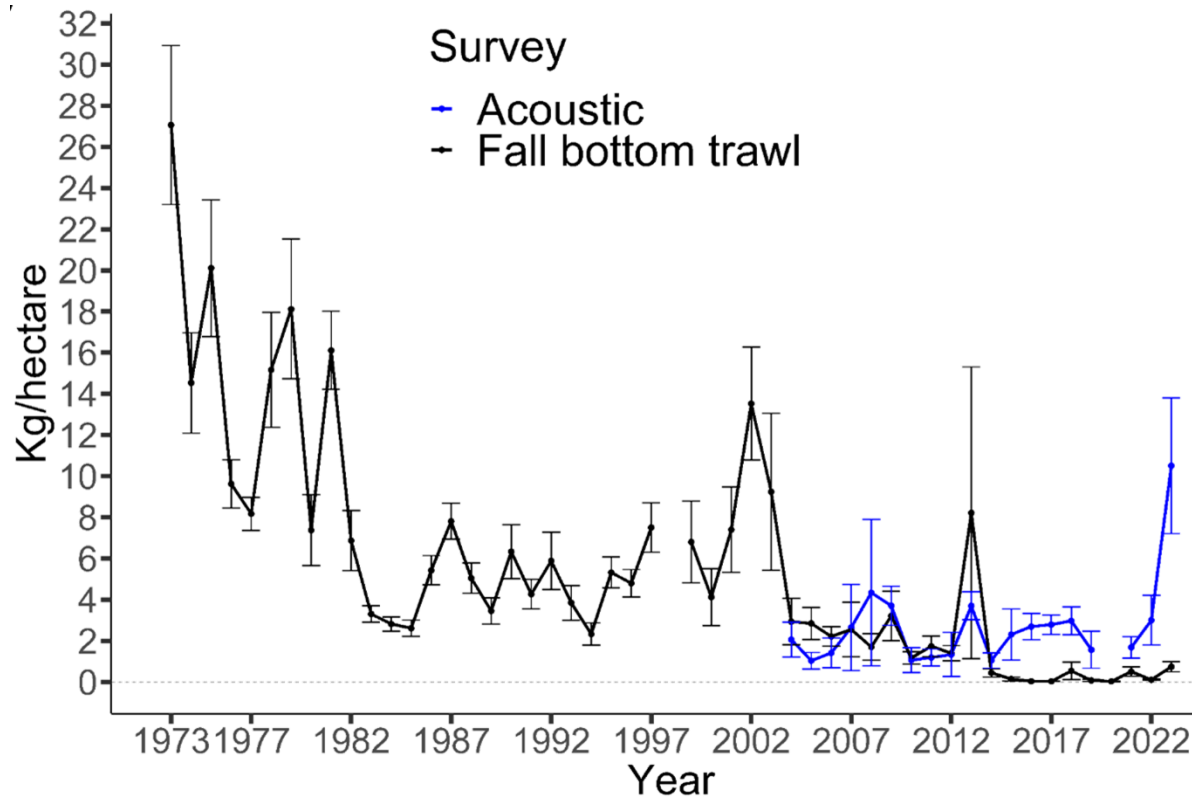
- Indices provided (since 2004)
 - Age-0 alewife
 - Yearling and older (YAO) alewife
 - Smelt, Bloater



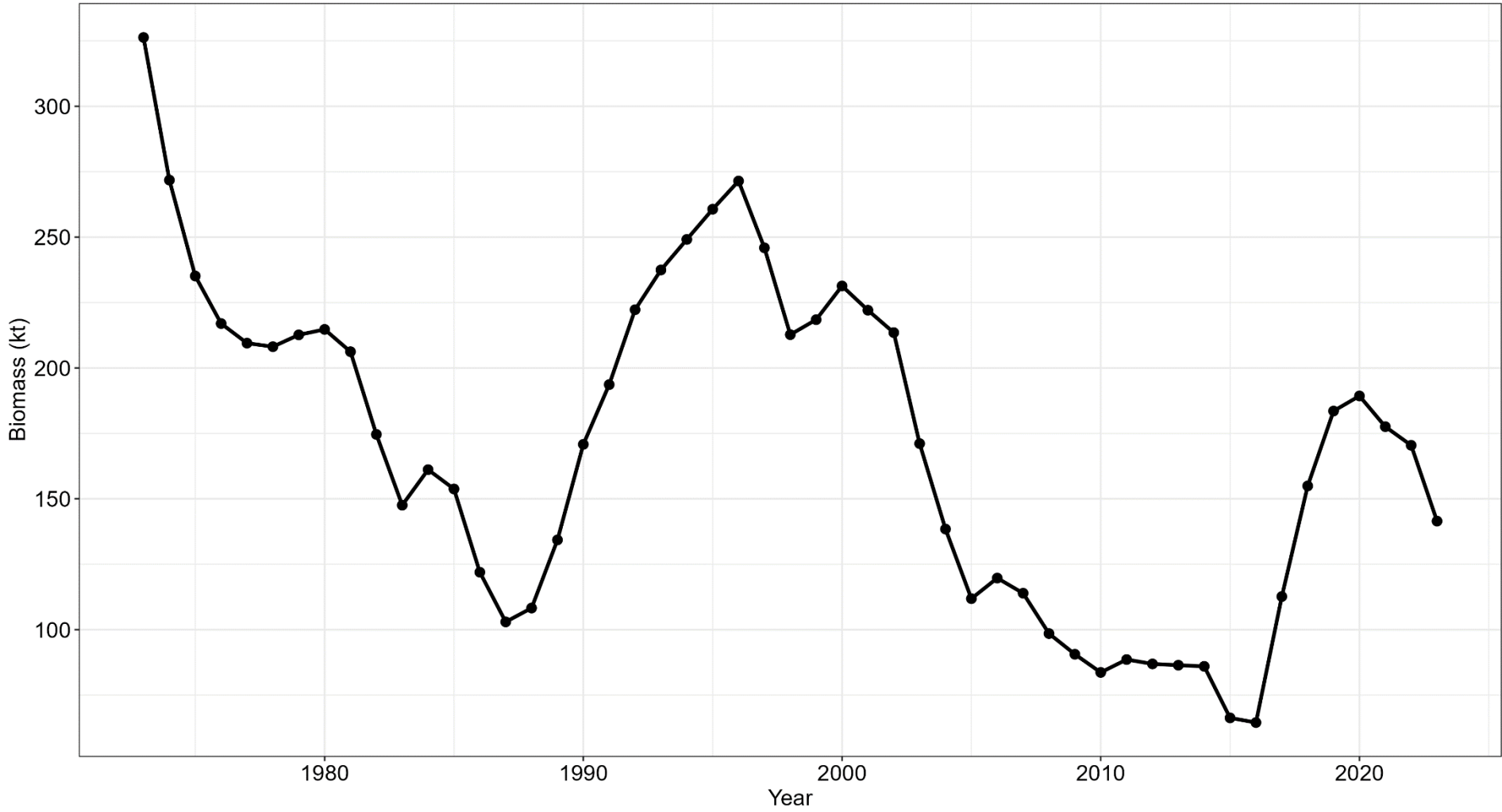
Results: Fall Bottom Trawl Species Composition



Results: YAO Alewife (≥ 100 mm)

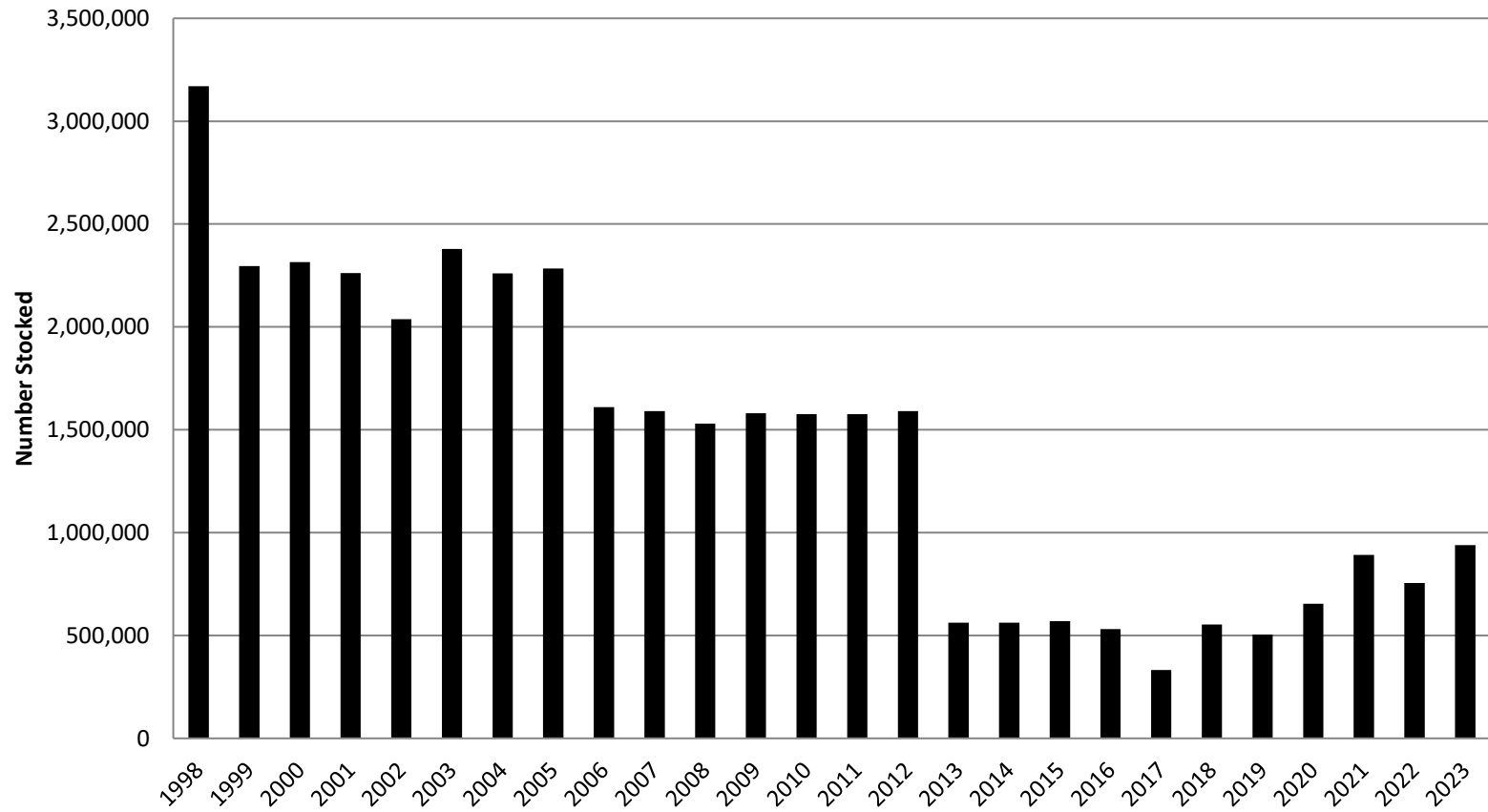


Alewife Age 1+ Biomass

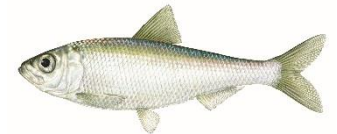
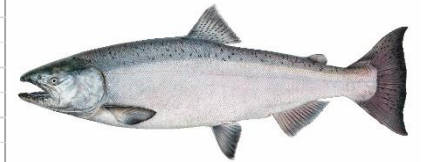
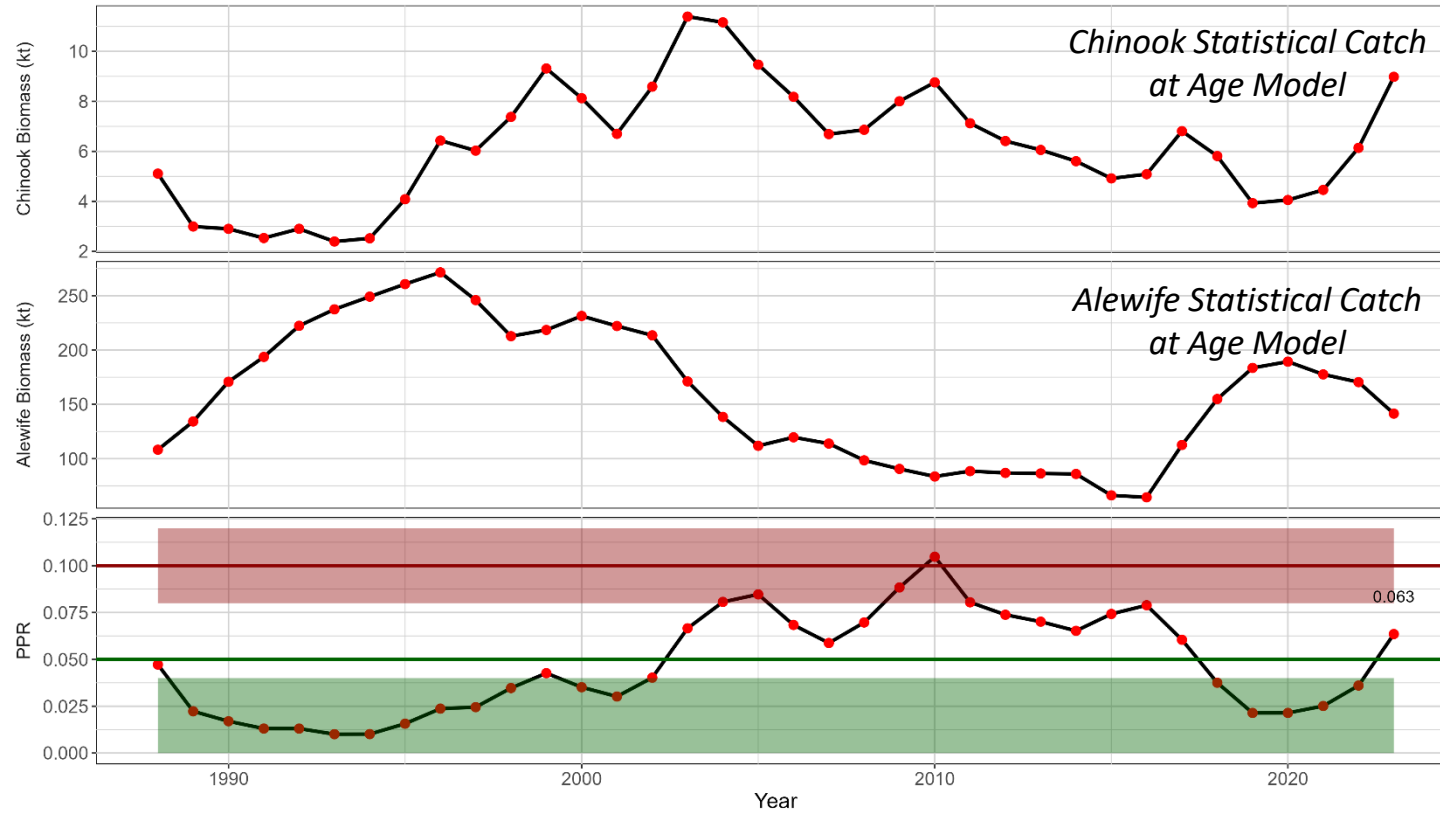


Michigan Chinook Stocking

Chinook Salmon



2023 Predator Prey Ratio



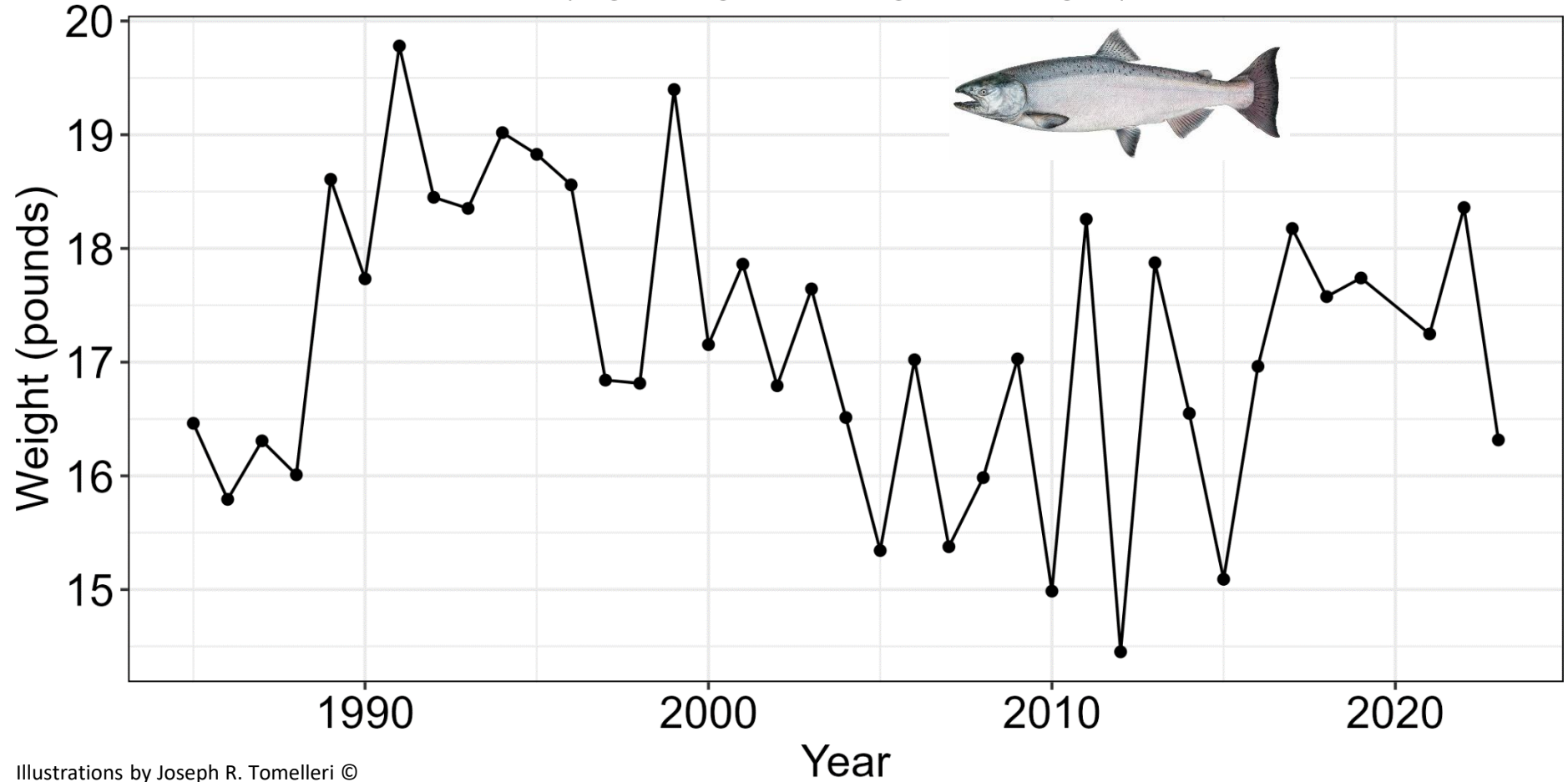
$$\frac{\text{Chinook Biomass}}{\text{Alewife Biomass}}$$

2023 Auxiliary Indicators

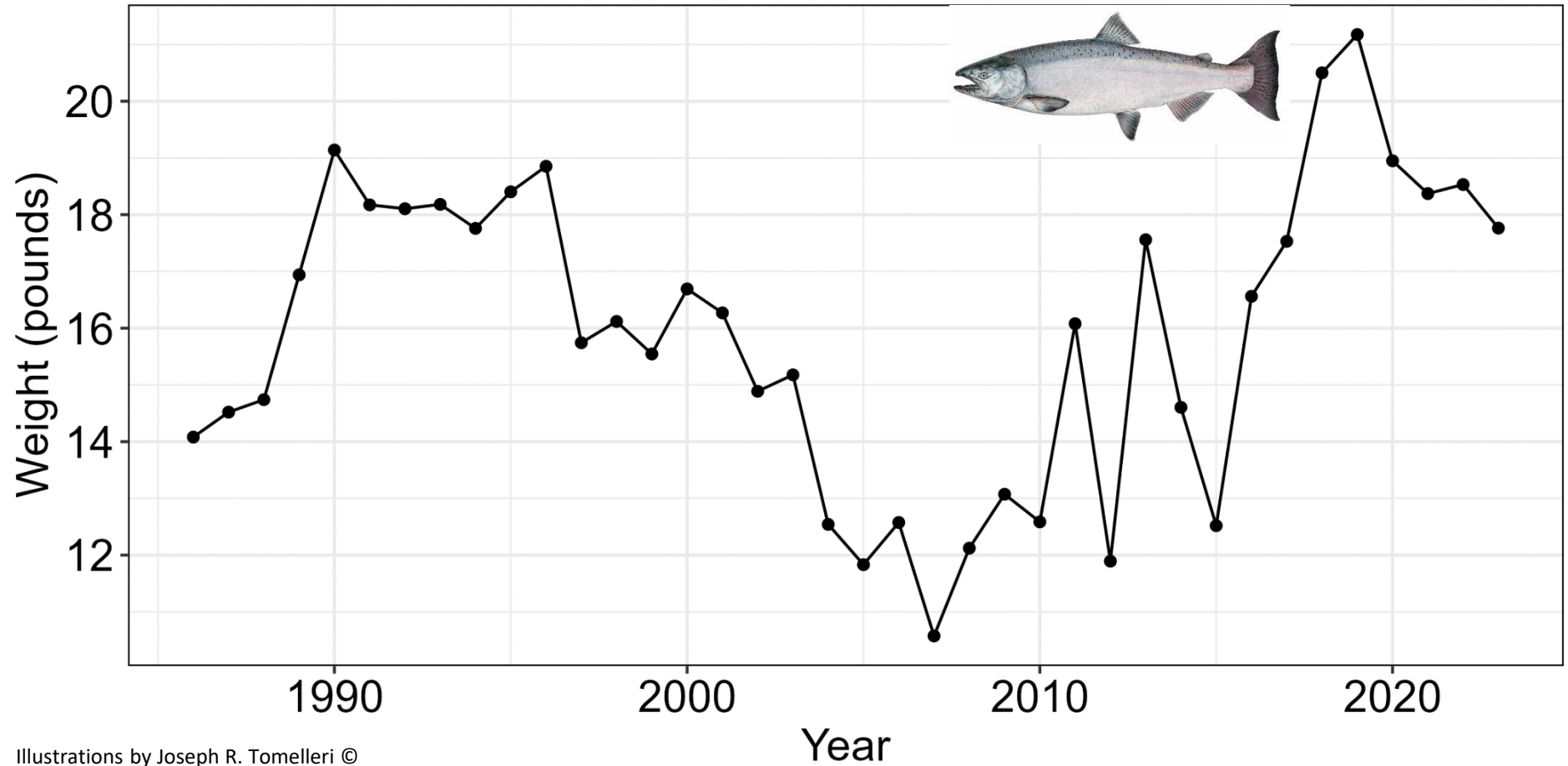
- Indicator 1: Standard weight of 35 inch Chinook Salmon (Jul 1 – Aug 15)
- Indicator 2: Weight of Age-3 female Chinook returning weirs and harbors
- Indicator 3: Catch-per-hour for Chinook salmon from charter boats
- Indicator 4: Percent composition of angler harvested weight by species
- Indicator 5: Lake-wide biomass of alewife
- Indicator 6: Age structure of the alewife population

Standard Weight of 35-Inch Chinook Salmon

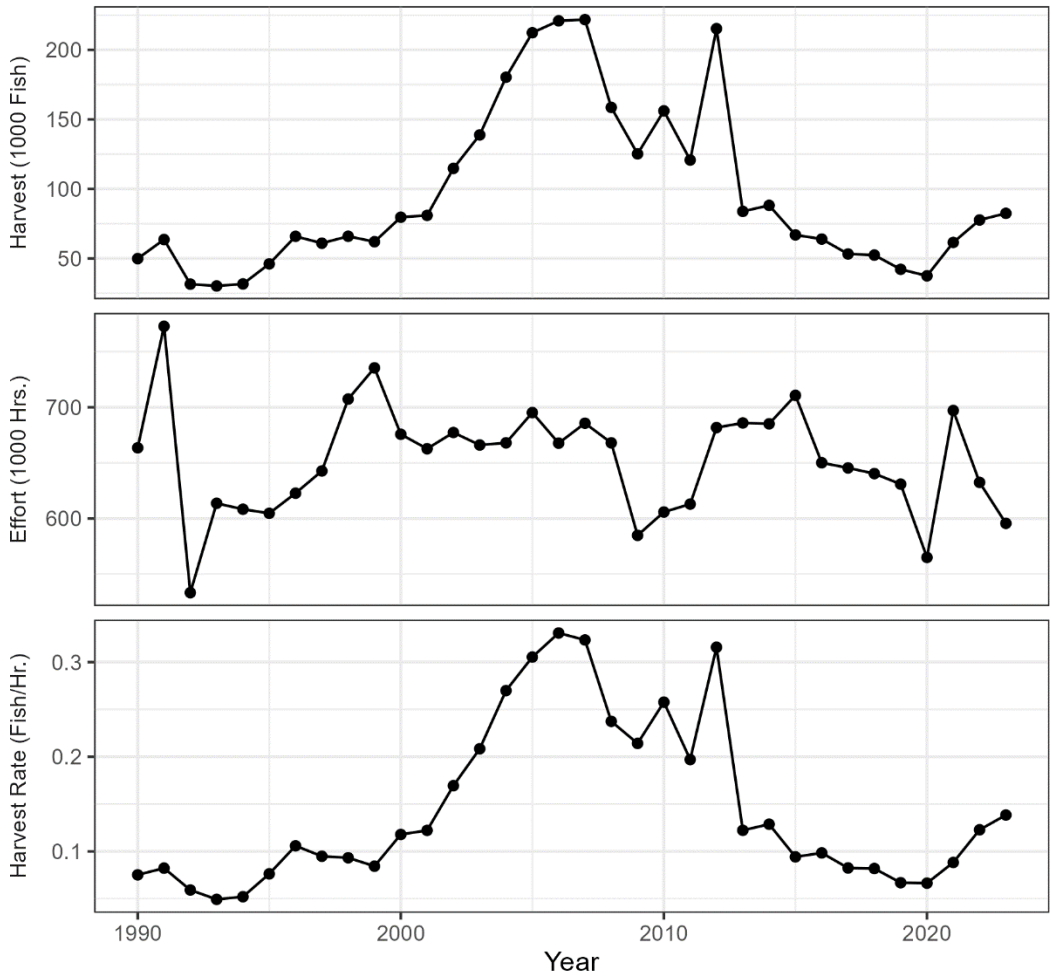
(angler caught fish during Jul 1 to Aug 15)



Average Weight of Age-3 Female Chinook Salmon (fall weir and harbor surveys - all states)



Harvest and Effort for Chinook Salmon (Charter Fishery)



Acknowledgments

- Steve Pothoven (NOAA)
- Dave Warner (USGS)
- Ben Turschak (MDNR)
- Jay Wesley (MDNR)



For More Information

- GLFC Lake Michigan Committee

<https://glfc.org/lake-michigan-committee.php>

- Brian Gunderman

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269-251-2645



Lake Michigan Sport Harvest of Salmonine Fishes

