Predator/Prey Ratio Analysis & Salmonid Working Group Updates

Salmonid Working Group:
- Dave Warner, Chuck Madenjian (USGS)
- Jory Jonas, Ben Turschak, Mark Tonello (MI DNR)
- Nick Legler (chair), Iyob Tsehaye (WI DNR)
- Brian Breidert, Ben Dickinson (IN DNR)
- Steve Robillard (IL DNR)
- Chuck Bronte, Matt Kornis, Rob Elliott (USFWS)
- Richard Clark (QFC, MSU)
- Barton, Nathan (GTB)
- Czesny, Sergiusz (INHS)
- Clark, Eric (Sault Tribe)

Key Collaborations:
- Great Lakes Fishery Commission
- Lake Michigan Committee
- Planktivore Working Group
- USFWS Mass Marking Program
- Several agencies & personal provided input, data, etc.
- QFC at MSU
Chinook Total
Lake Biomass / Alewife Total
Lake Biomass = P/P Ratio

Year X  Year Y  Year Z
Chinook Total Lake Biomass \div Alewif Total Lake Biomass = P/P Ratio

Maybe stock more fish?

Low Ratio
Chinook Total Lake Biomass ÷ Alewive Total Lake Biomass = P/P Ratio

Chinook / Alewive (PPR)

Year X  Year Y  Year Z
(Hypothetical Data)

High Ratio

Maybe stock less fish?
Chinook Total Lake Biomass ÷ Alewifre Total Lake Biomass = P/P Ratio

Chinook / Alewifre (PPR)

Year X Year Y Year Z

Intermediate

(Hypothetical Data)
Statistical Catch at Age Model (SCAA)

- Number stocked
- Number wild
- Angler hours
- Angler harvest
- Harvest age composition
- Updates with data through 2018

Chinook SCAA

- Weir age composition
- Weight-at-age at harvest/spawn
- Weight-at-age at annulus formation
- Standard weight of 35 inch Chinook

Abundance by age for Chinook salmon

Biomass

Recent estimates of % wild at age 1 have consistently been around 50% (e.g., high 2013 = 64.8%; low 2014 = 38.6%; 2018 = 60.4%).
Targeted Angler **Effort** for Salmon/TROUT
Lake MI (boat only; charter & non-charter; all states)

- 2009-2018 fairly constant, average 2.3 million hour
- 2018 = 2.02 million hours
Targeted Angler Effort for Salmon/TROUT
Lake MI (boat only; charter & non-charter; all states)

2018 only

Hours Fished by State for just 2018

Total = 2.02 million

- Michigan: 892,827
- Wisconsin: 832,515
- Illinois: 196,503
- Indiana: 96,528

Hours fished by state for just 2018
Numbers of Chinook Harvested
Lake MI (all types of fishing except stream; all states)
Numbers of Chinook **Harvested**
Lake MI (all types of fishing except stream; all states)

**2018 only**

Chinook harvested by state for just 2018

**Total = 160,750 million**
Statistical Catch at Age Model (SCAA)

- Number stocked
- Number wild
- Angler hours
- Angler harvest
- Harvest age composition

Updates with data through 2018

Chinook SCAA

- Weir age composition
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Abundance by age for Chinook salmon

Biomass

Total Lake Wide Chinook Biomass

Total Lake Wide Alewife Biomass

= PPR
A simple but important point about the PPR...

\[
\frac{14,744,683 \text{ kg Chinook salmon (like in 2013)}}{294,893,662 \text{ kg Alewife (hypothetical)}} = 0.05
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\frac{3,980,384 \text{ kg Chinook salmon (like in 2015)}}{79,607,686 \text{ kgs Alewife (hypothetical)}} = 0.05
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