Management of Salmon and Trout in Lake Michigan

Great Lakes Conference

March 7, 2023

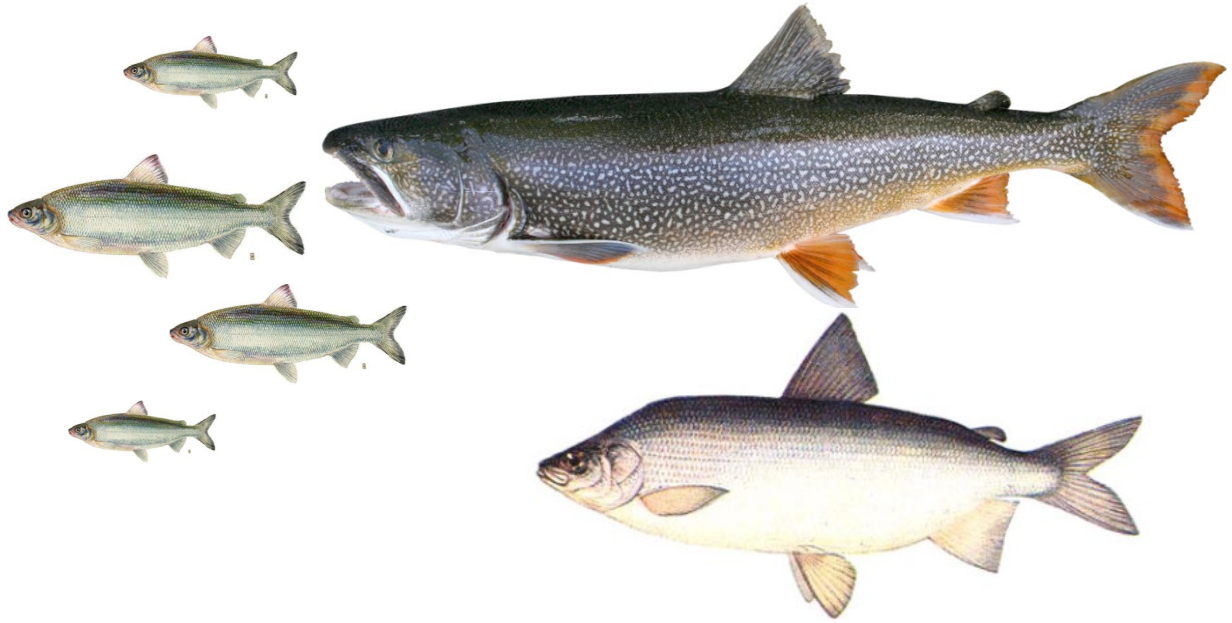
Jay Wesley

MDNR-Lake Michigan Basin Coordinator

Management of Salmon and Trout in Lake Michigan

- History of Lake Michigan Fishery
- Joint Management –Great Lakes Fishery Commission
- Past Salmon and Trout Management
- Current Chinook Salmon Management

History of Lake Michigan Fishery



History of Lake Michigan Fishery

Lake Trout
Whitefish
Cisco
Chubs

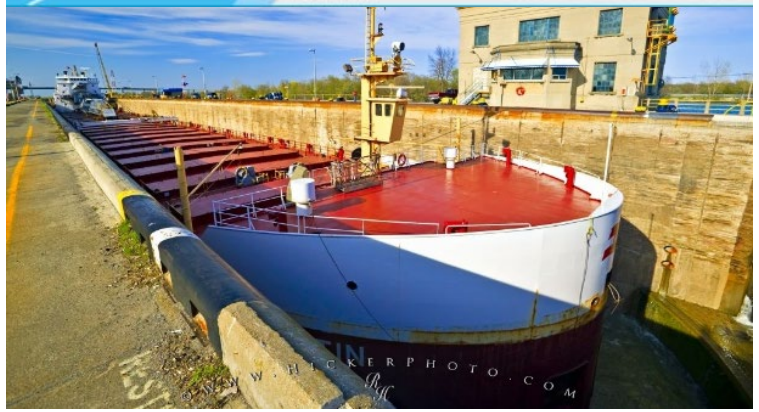
Walleye,
burbot

59 million
pounds

10,000 –
20,000
fishers

History of Lake Michigan

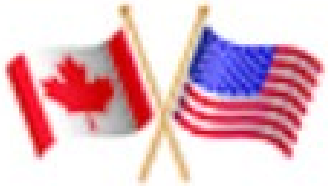
History of Lake Michigan



Entire Fishery Crashed in 1950s

CONVENTION ON GREAT LAKES FISHERIES (1954)

Great Lakes Fisheries Convention Act



Great Lakes Fishery Act of 1956

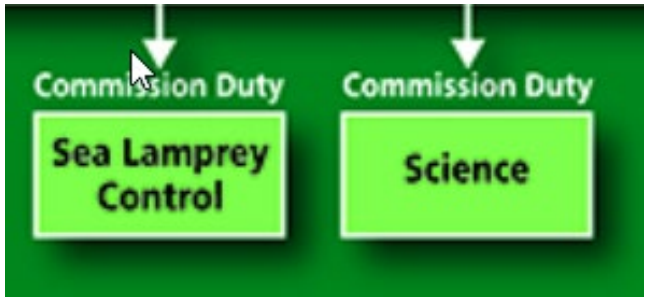
Great Lakes Fishery Commission

CANADIAN SECTION **U.S. SECTION**

Secretariat

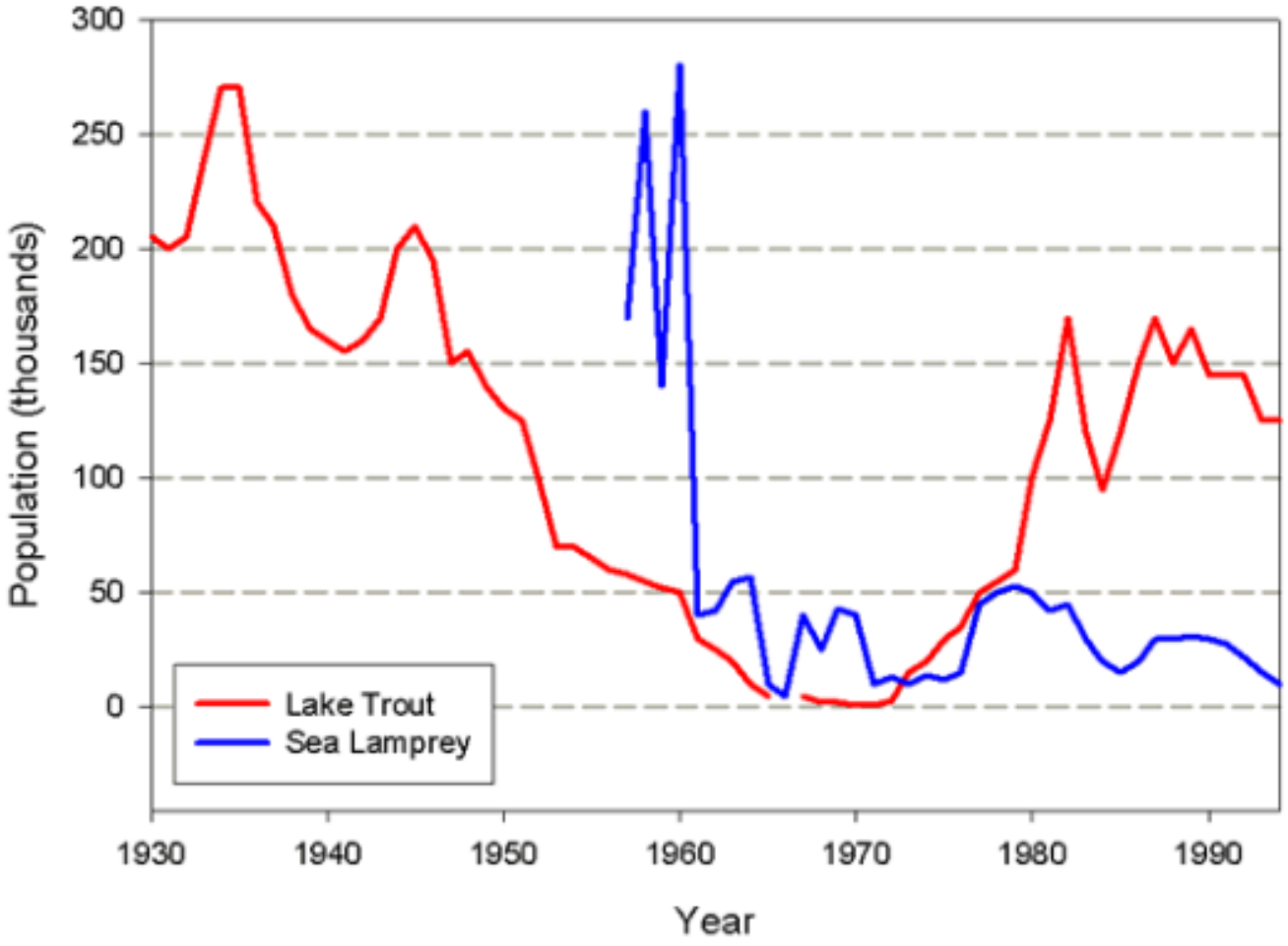
Programs:

- Sea lamprey control
- Fishery management
- Science
- Program management
- Communications



History of the Great Lakes

Sea Lamprey Control



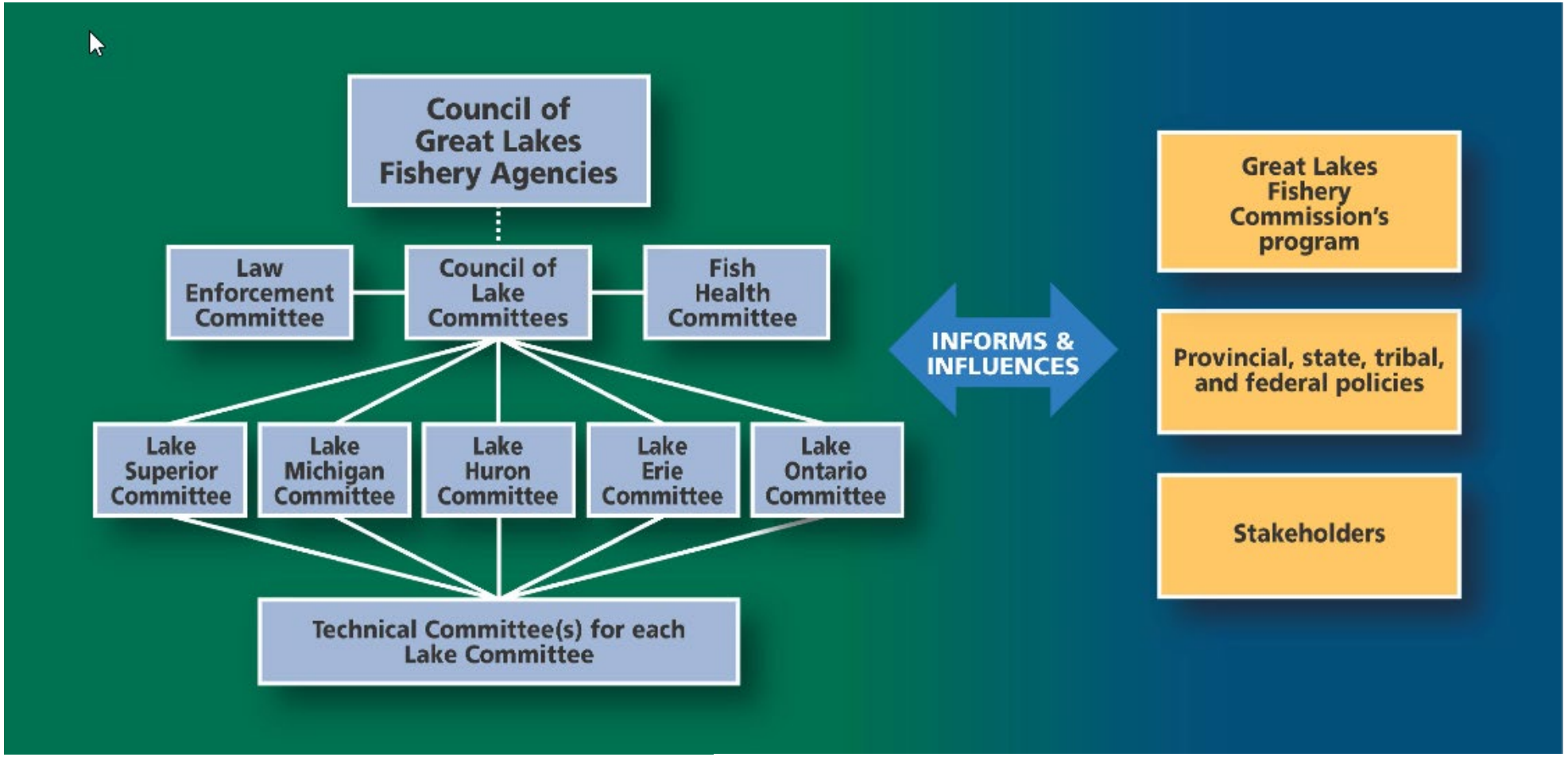
Early Salmon and Trout Management

1965 USFWS Lake Trout

1966 Coho Salmon from Oregon
1967 Chinook Salmon Washington

Renewed Fishery

Lake Committees (1981) – Collaborative Management



Lake Michigan Committee =

A LAKEWIDE MANAGEMENT PLAN FOR LAKE TROUT REHABILITATION IN LAKE MICHIGAN

Prepared by

Lake Michigan Lake Trout Technical Committee

March 19, 1985

Salmonine (Salmon and Trout) Objectives

Establish a diverse salmonine community capable of sustaining an annual harvest of 2.7 to 6.8 million kg (6 to 15 million lbs), of which 20-25% is lake trout.

Establish self-sustaining lake trout populations

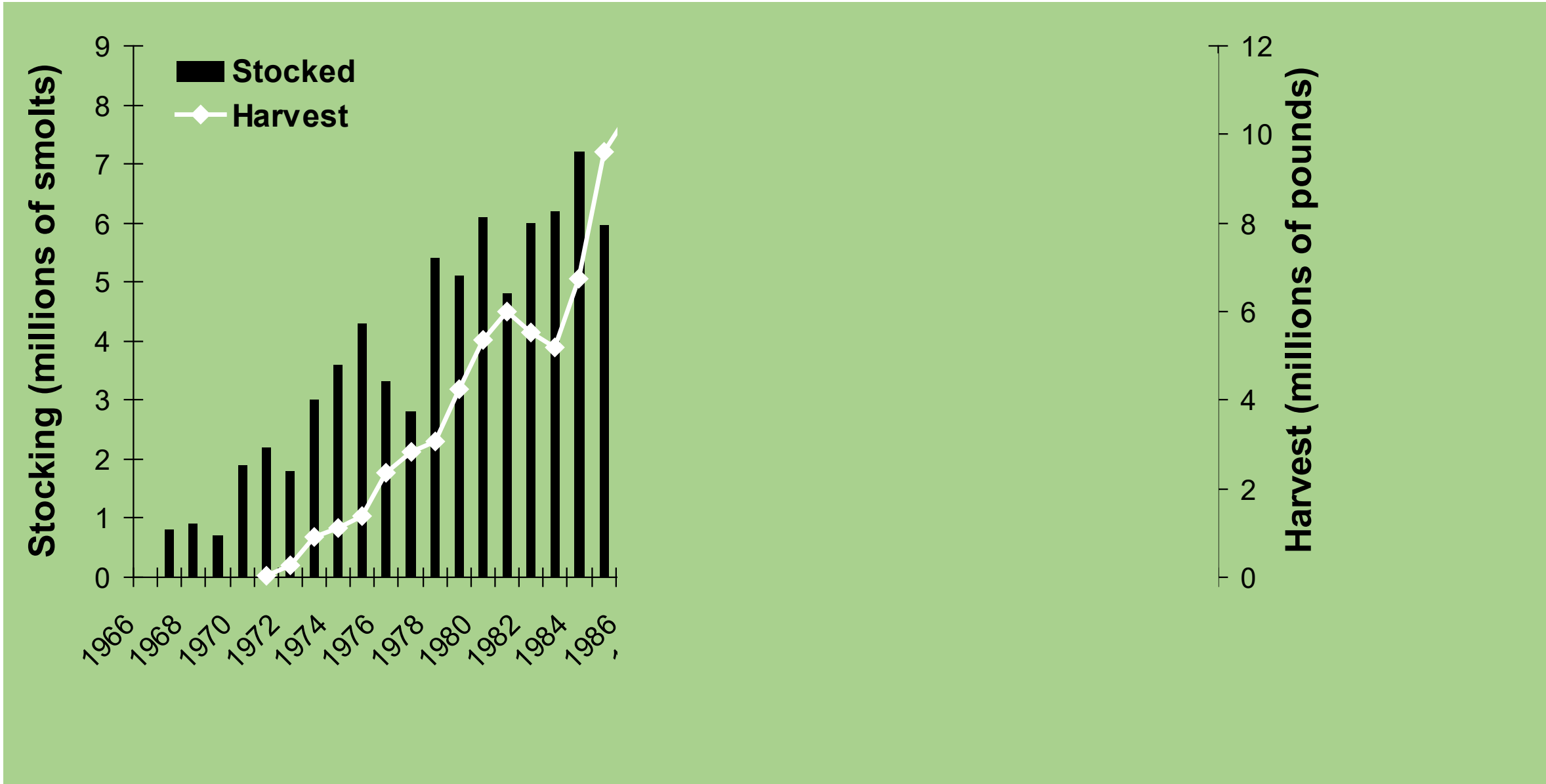
A Guide for the Rehabilitation of Lake Trout in Lake Michigan

Great Lakes Fishery Commission

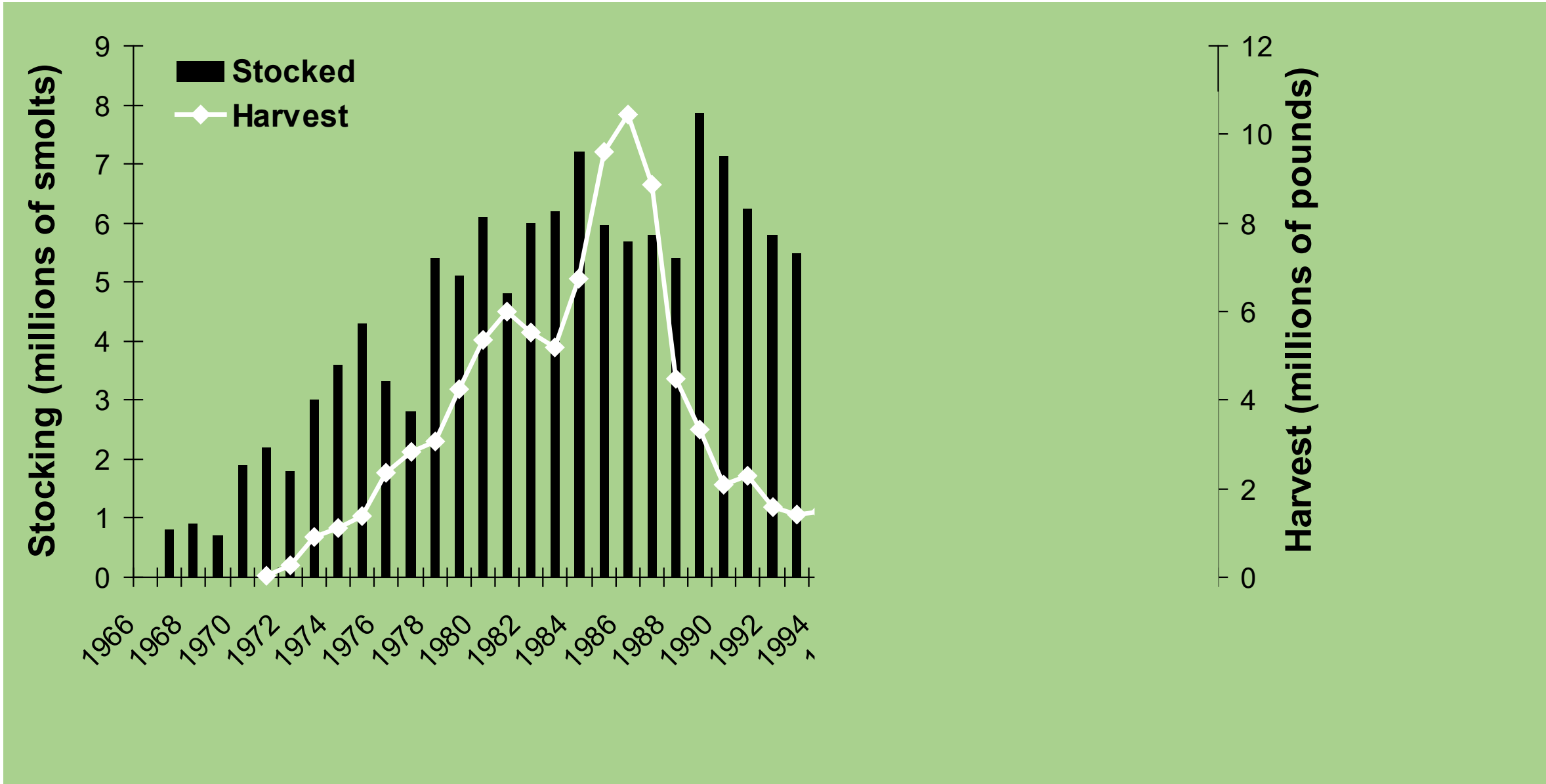
Miscellaneous Publication 2008-01

A Fisheries Management Implementation Strategy for the Rehabilitation of Lake Trout in Lake Michigan (2011)

Lake Michigan Chinook Salmon Stocking and Harvest

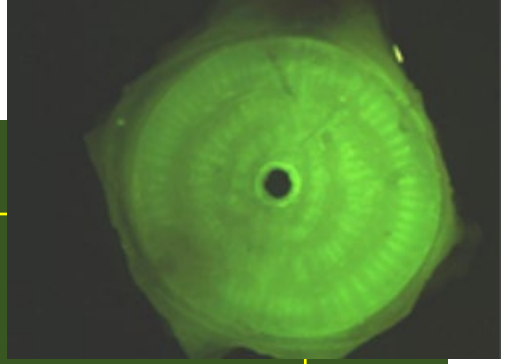


Lake Michigan Chinook Salmon Stocking and Harvest

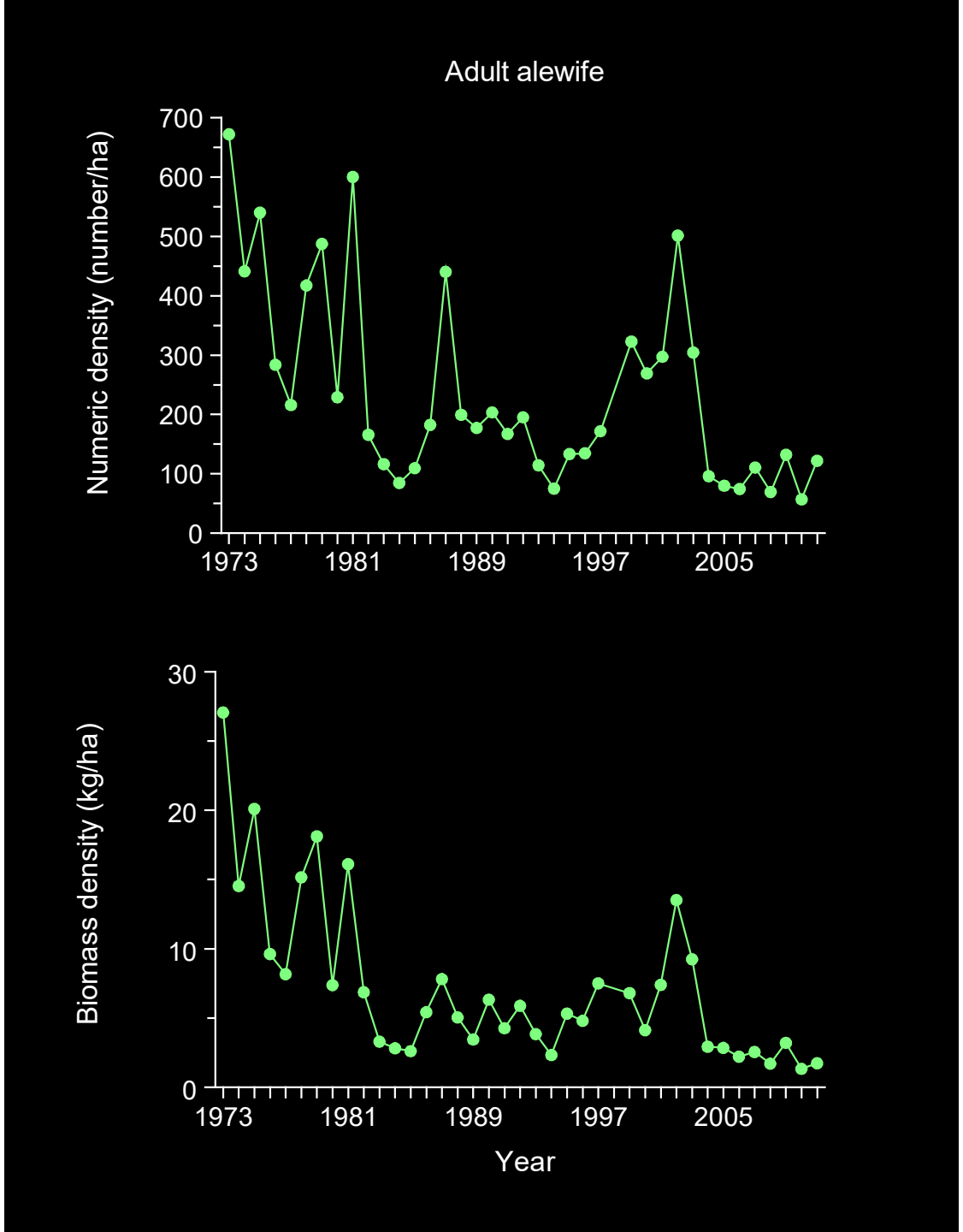


Post 1990s Salmon Crash

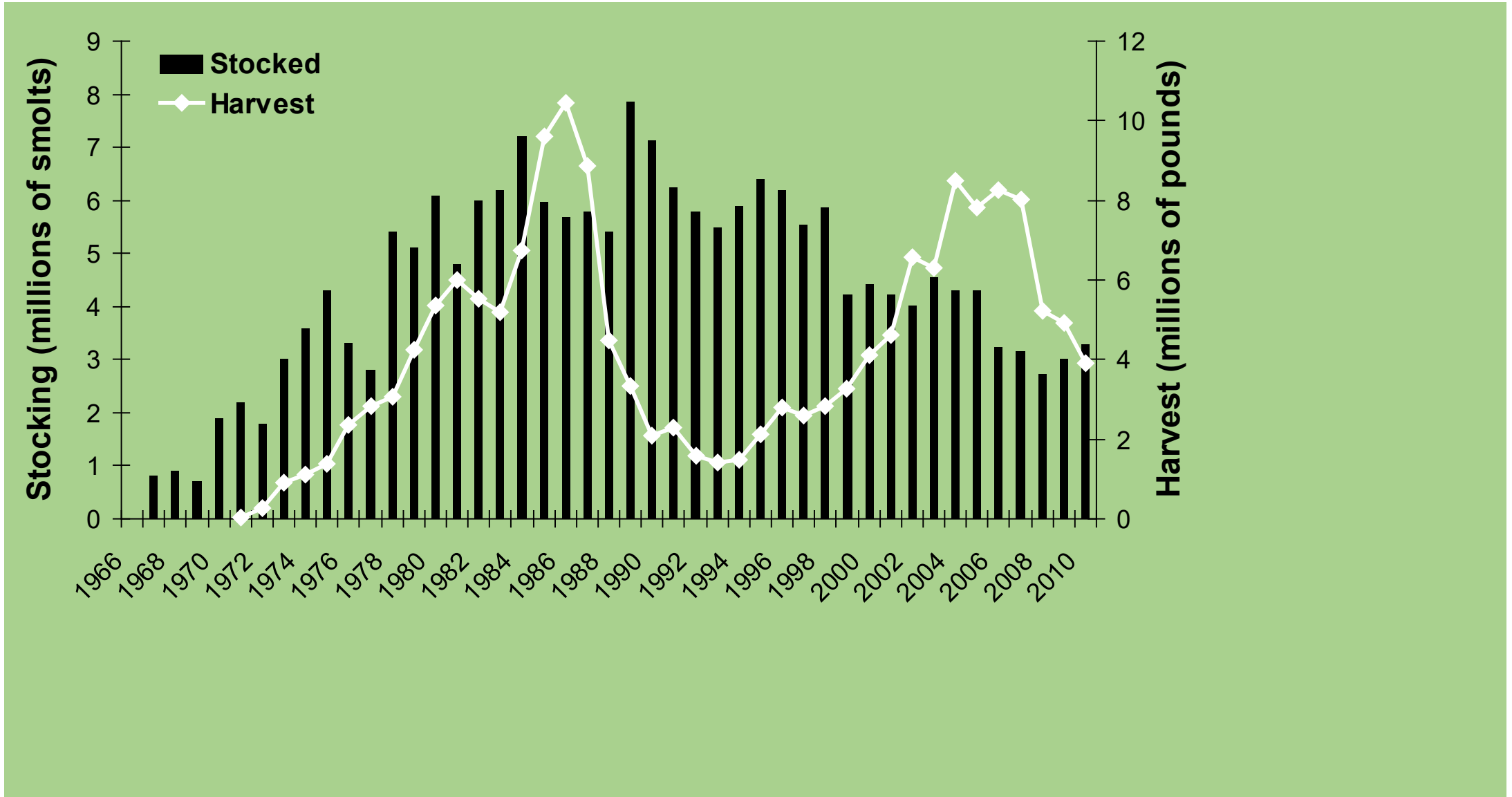
- More commitment to research
- More collaborative research and management
- Citizen Advisors (task groups)
- Sea Grant Fishery Workshops
- Lake Michigan Committee Stocking reduction 1999



Millions of smolts
12
10
8
6
4
2
0
Total
Stocked
Natural
1967
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
2009

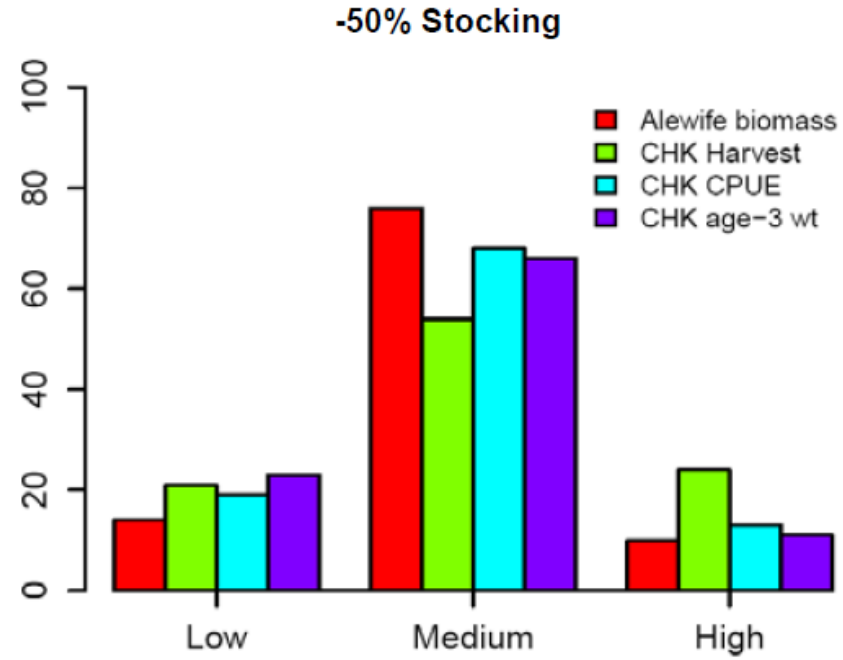

Adult alewife
Numeric density (number/ha)
700
600
500
400
300
200
100
0
1973
1981
1989
1997
2005
Biomass density (kg/ha)
30
20
10
0
1973
1981
1989
1997
2005
Year

Lake Michigan Chinook Salmon Stocking and Harvest

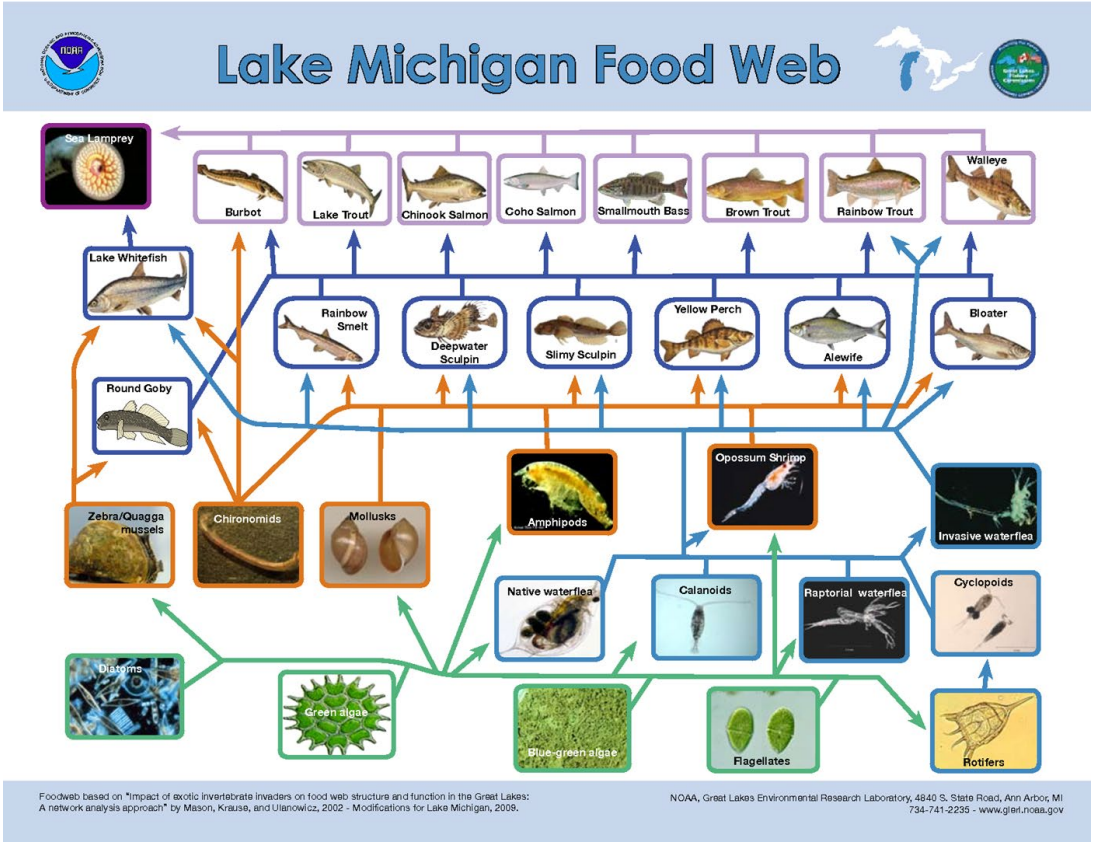


Lake Michigan Committee Collaboration

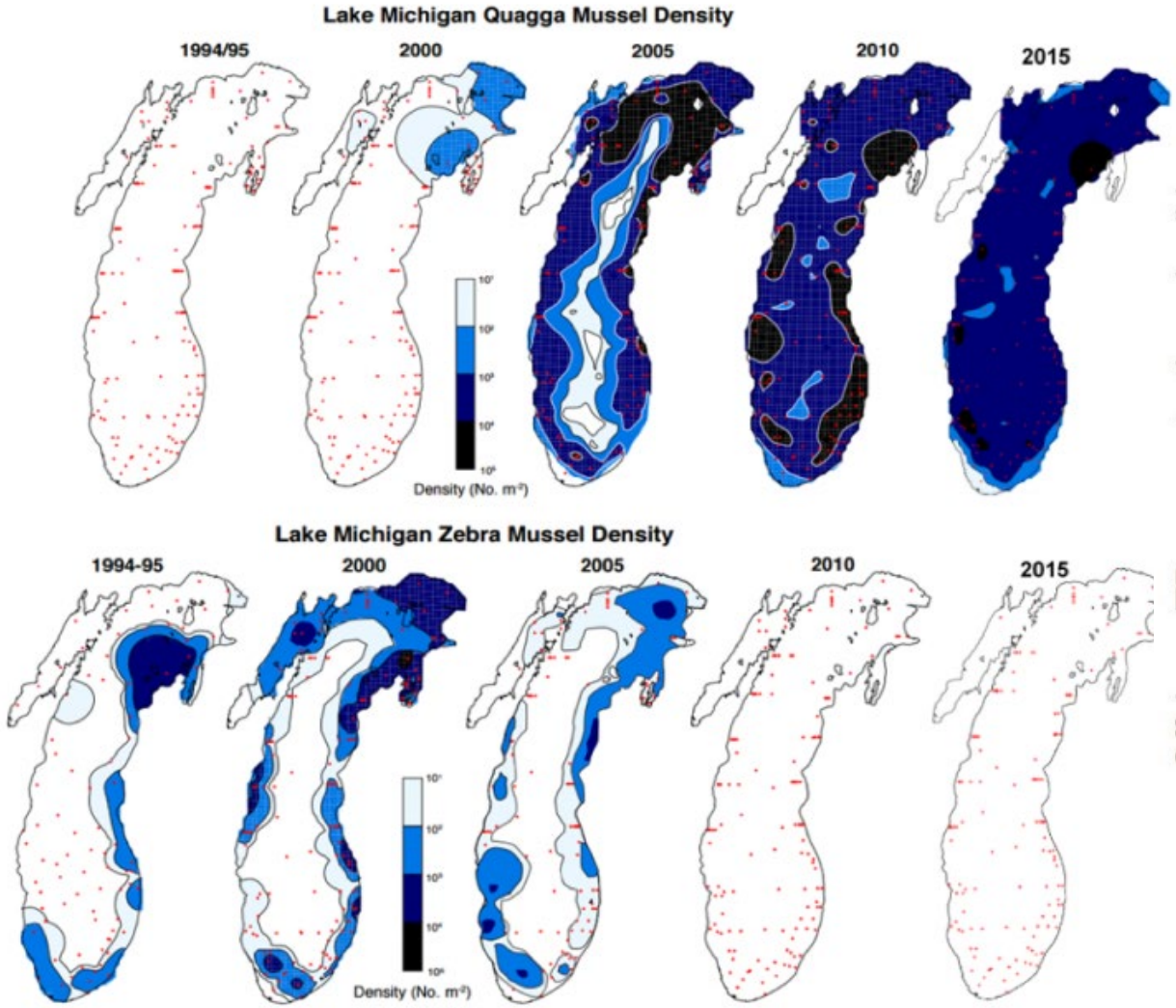
- Decreasing alewife
- Structured Decision Analysis
  - ID Goals/Objectives
  - Uncertainties
  - Forecast Models
- Public support to reduce stocking
  - 50%

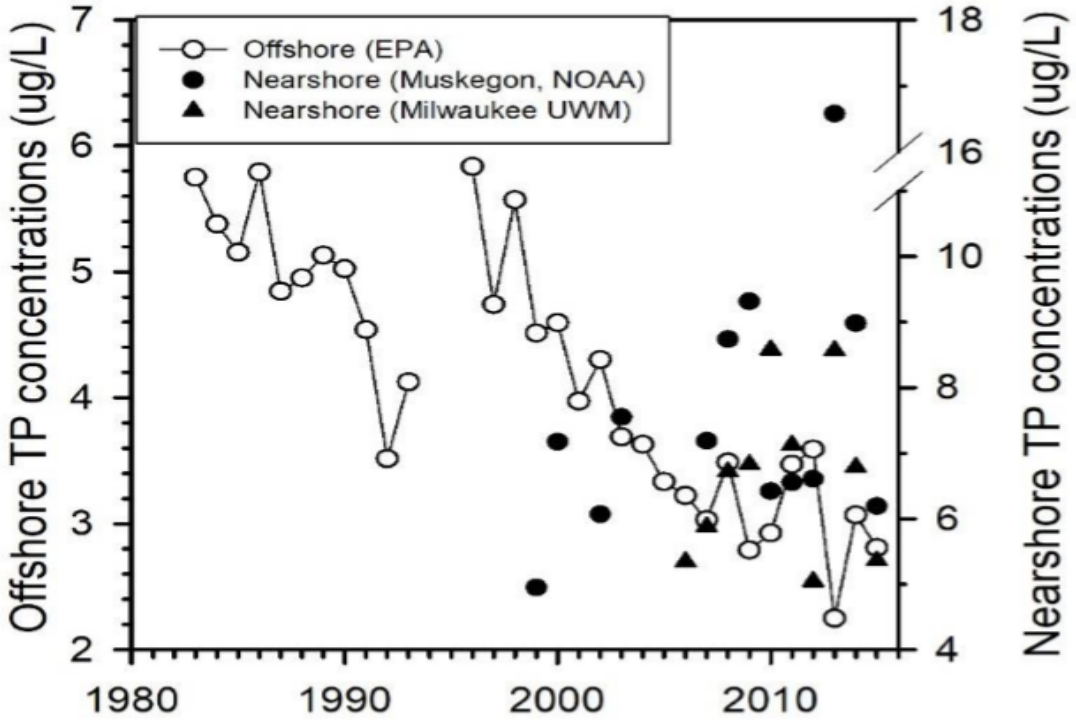


Zebra and Quagga Mussels

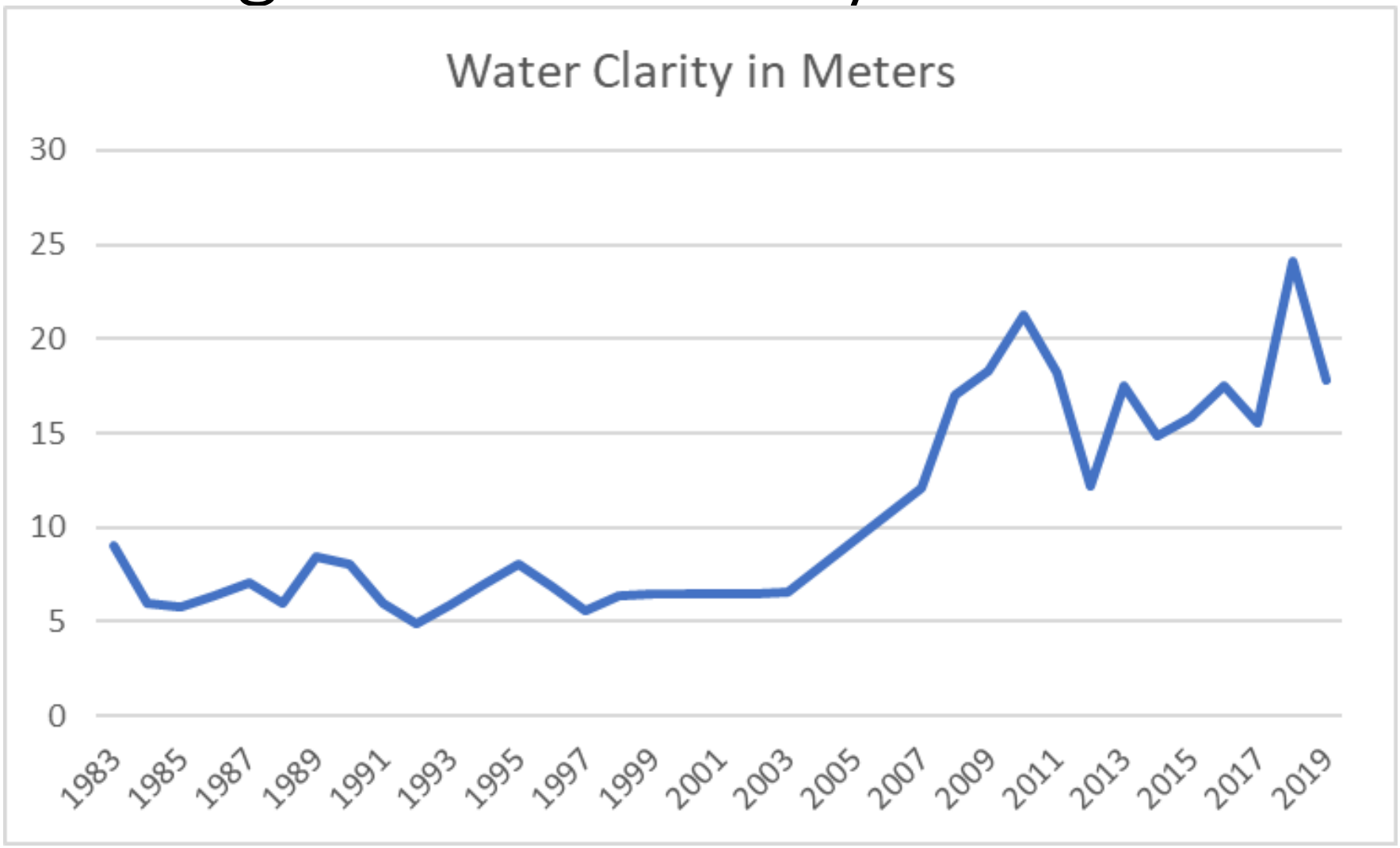


Invasive Mussels and Lake Productivity

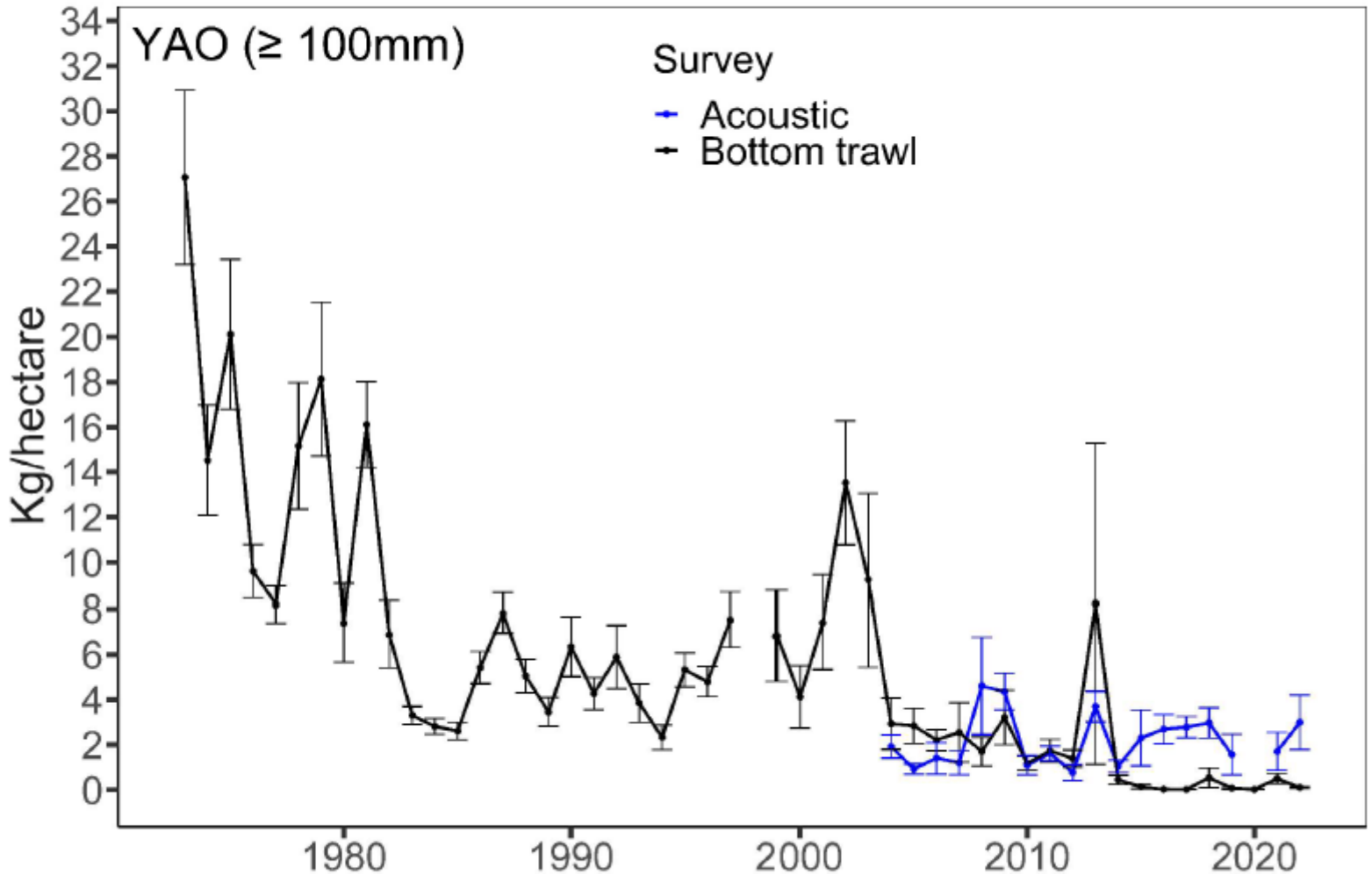


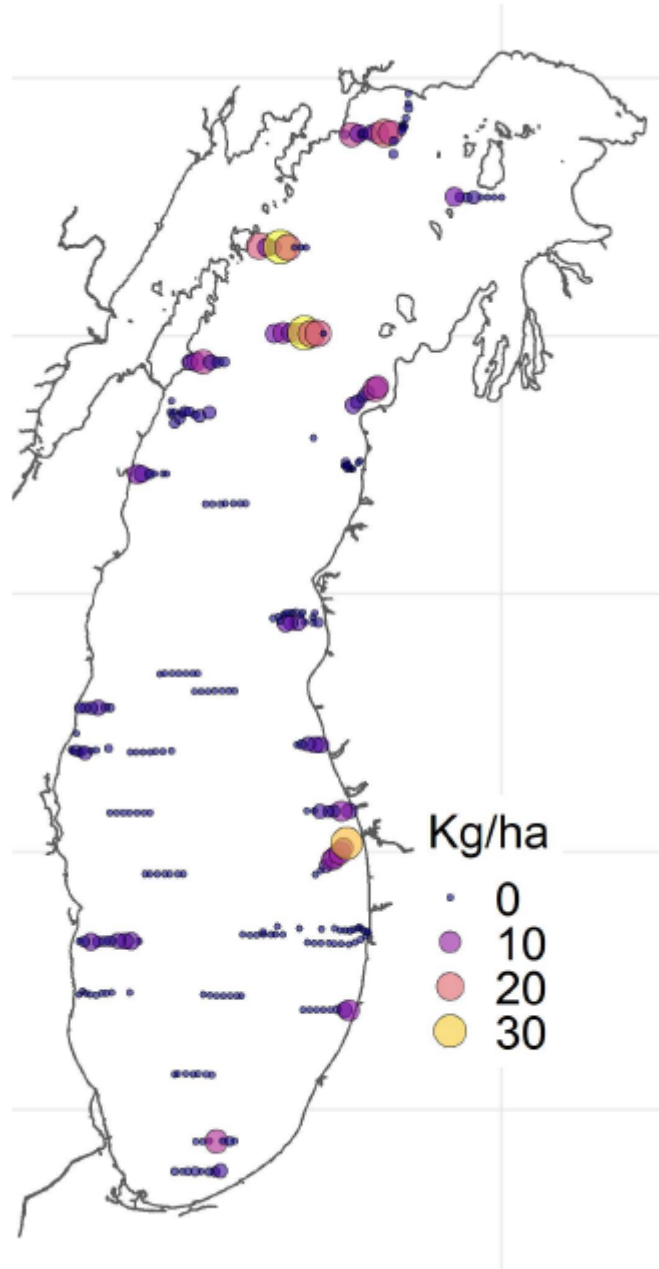


Lake Michigan Water Clarity



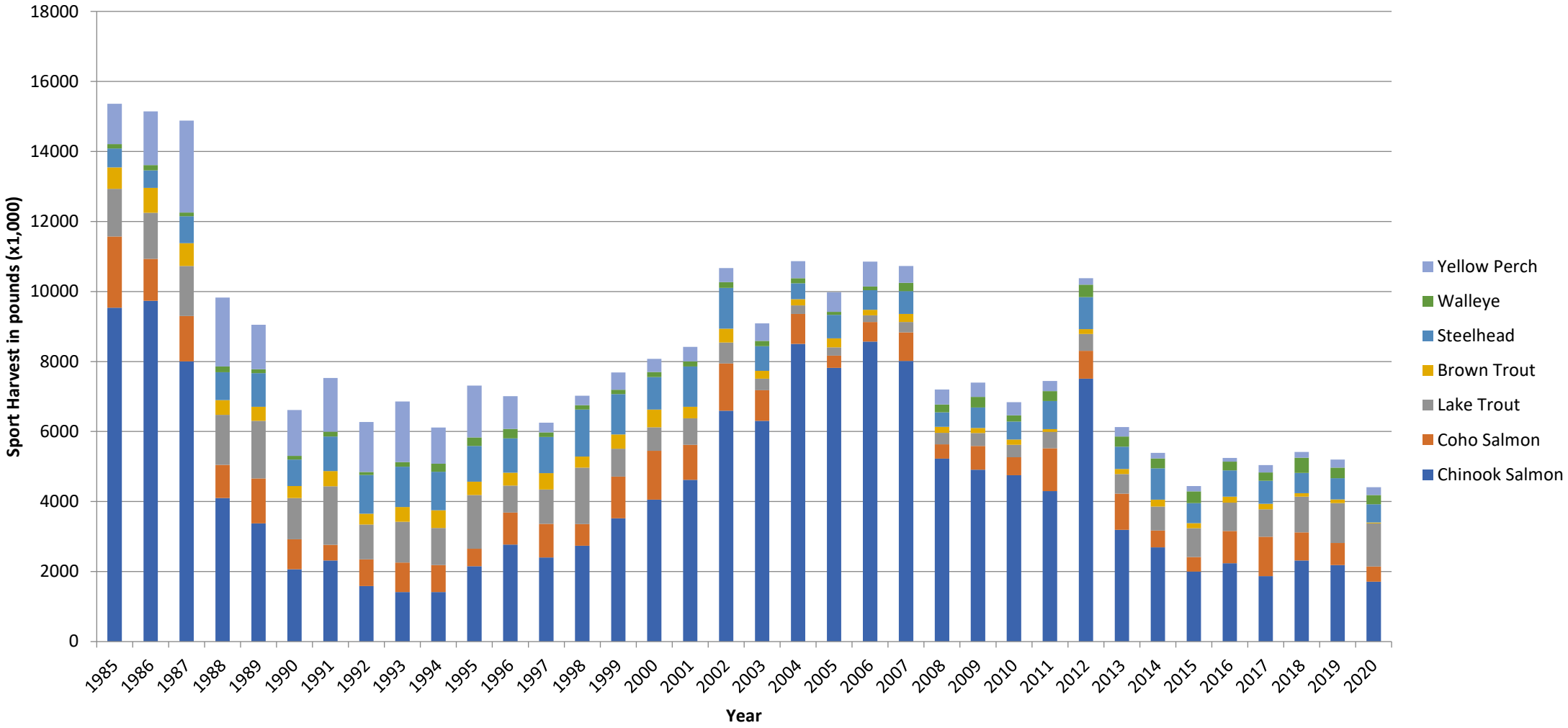
YAO Alewife



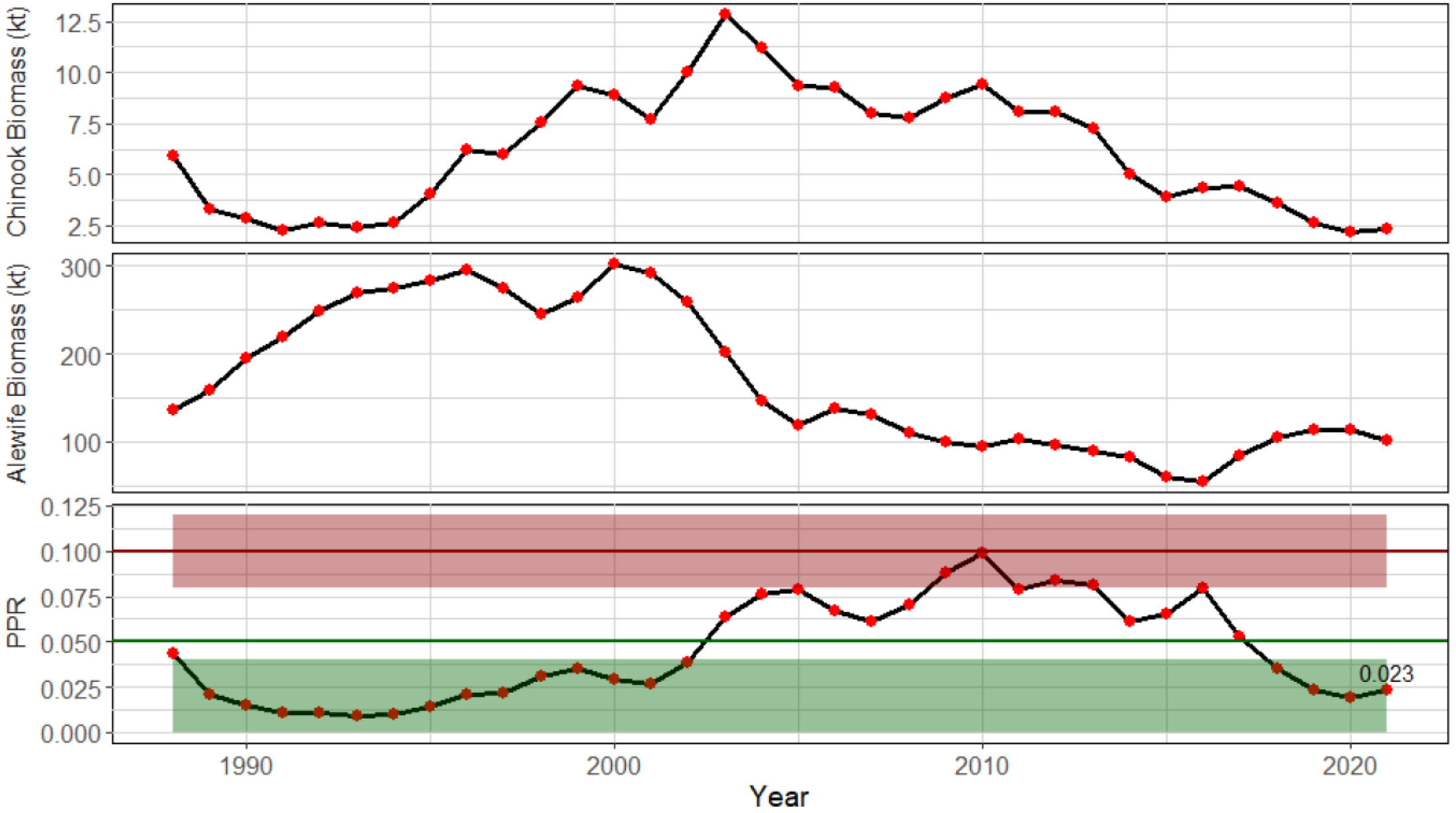


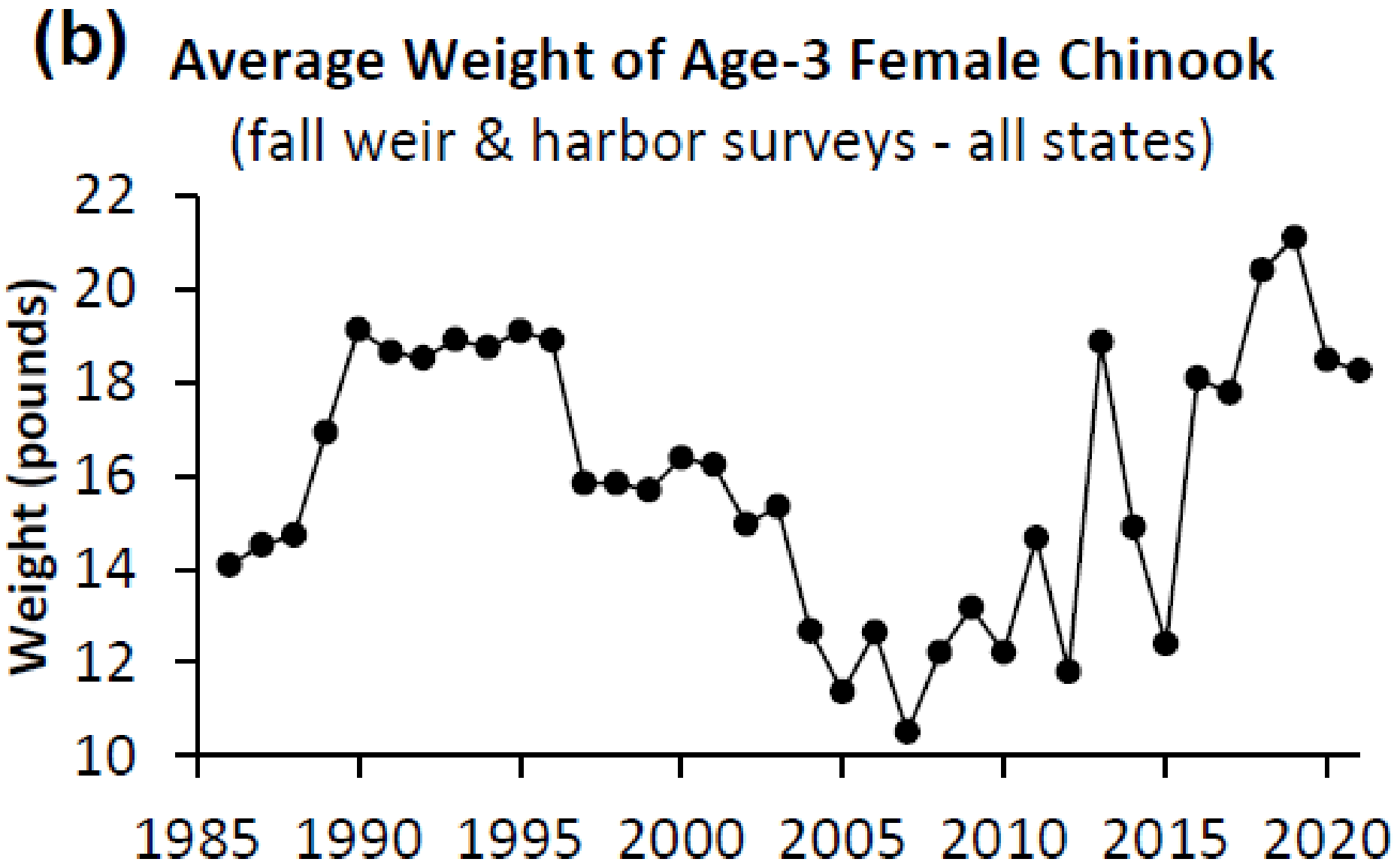
Lower Productivity = Lower Harvest

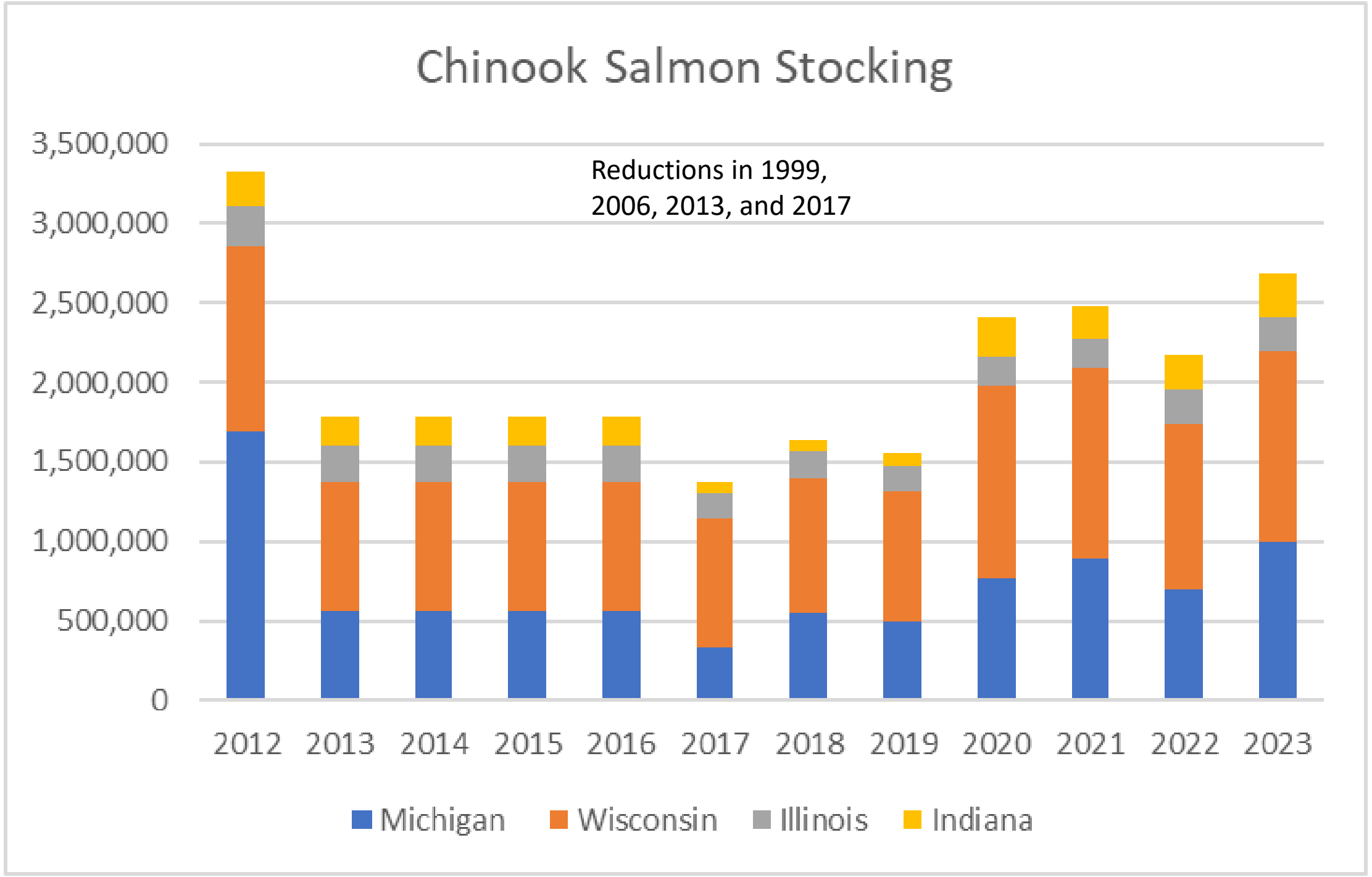
Recreation



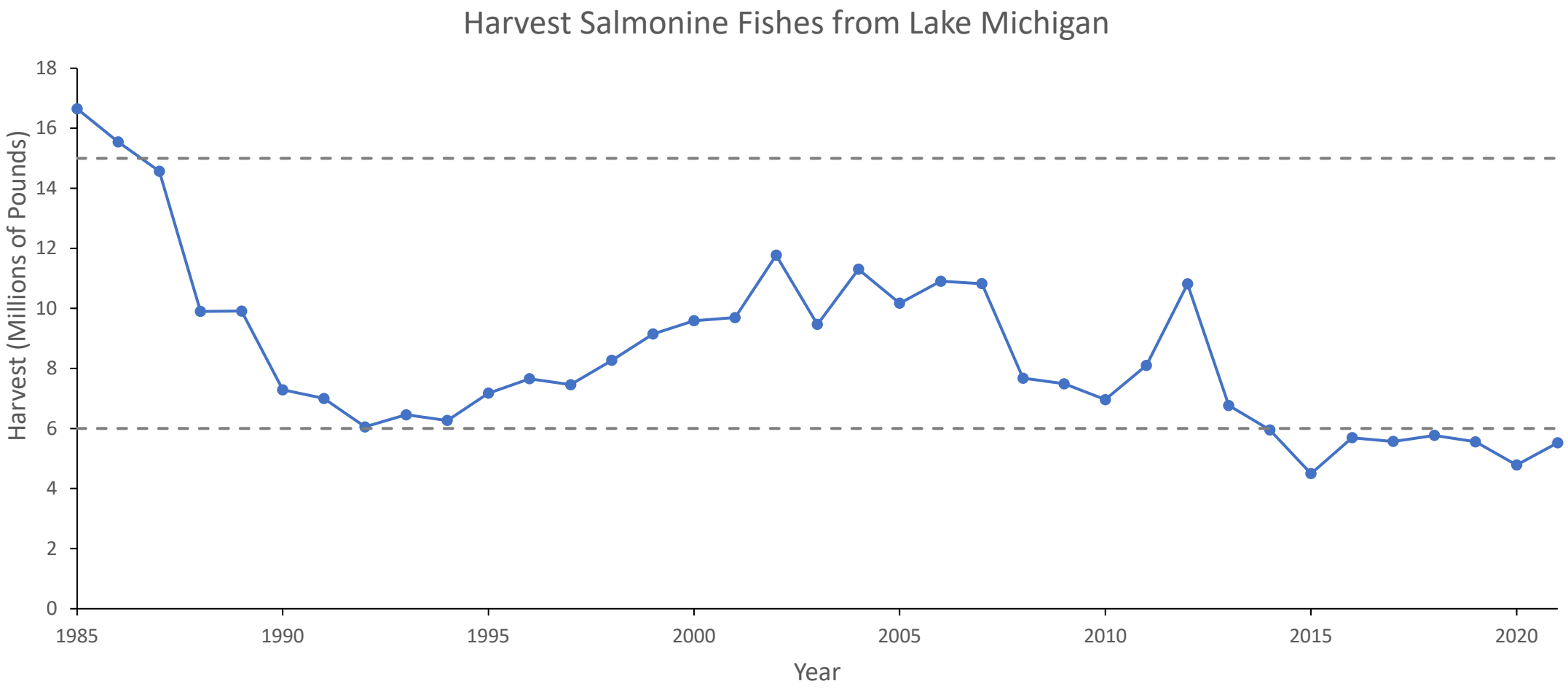
Predator Prey Ratio




(b) Average Weight of Age-3 Female Chinook
(fall weir & harbor surveys - all states)
Weight (pounds)
22
20
18
16
14
12
10
1985
1990
1995
2000
2005
2010
2015
2020


Chinook Salmon Stocking
Reductions in 1999,
2006, 2013, and 2017
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Michigan
Wisconsin
Illinois
Indiana

Salmonine FCO – 6 to 15 million pounds



Lake Michigan Salmon and Trout Management

- Invasive species, habitat destruction, overfishing
- Great Lakes Fishery Commission and Joint Strategic Plan
- System continues to change requiring active management
- Society values, economics, and ecosystem fluctuations
- Need for continued collaboration (fish, water quality, habitat, invasives, water use, climate)

Questions?