

Cornell University

Fisheries Surveys of Oneida Lake, NY 1956-2026



Tom Brooking

Olaf Jensen

Cam Davis

Samantha LaSalle

Lars Rudstam

Mete Rice

Kristen Holeck

Chris Hotaling



Funding provided by:

Ocean and Great Lakes Ecosystem Conservation Act

New York State Department of Environmental Conservation

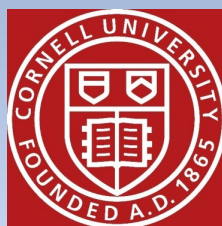
Cornell Biological Field Station Brown Endowment



Cornell Biological Field Station

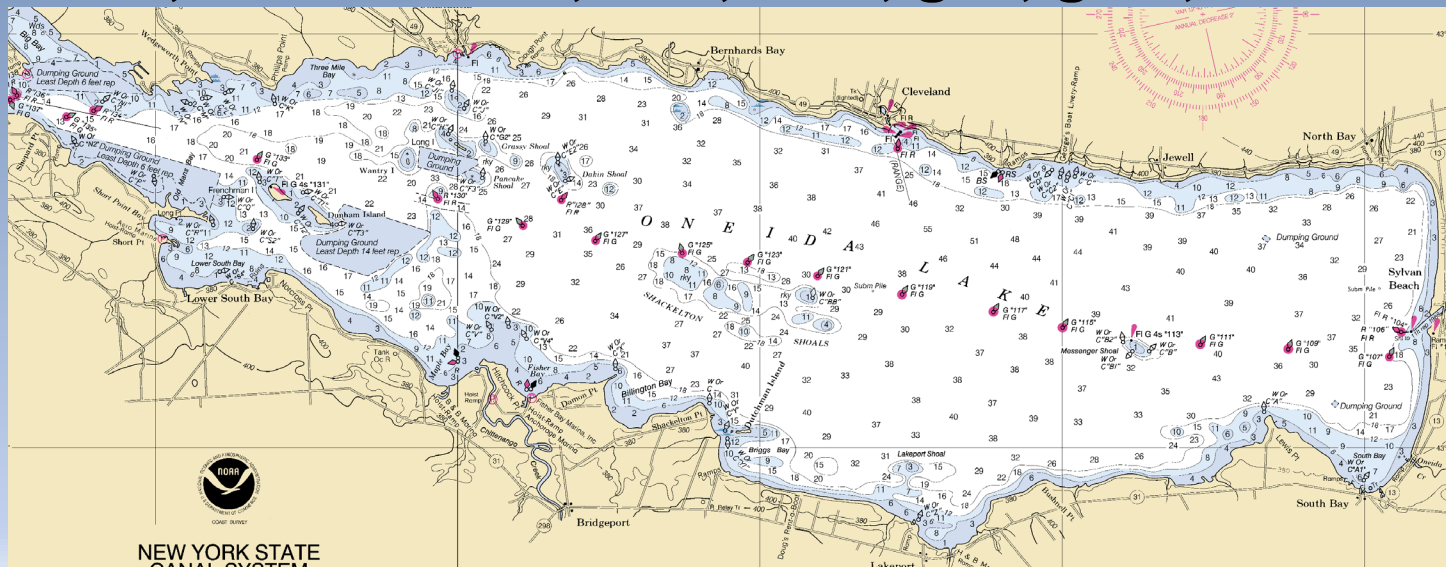
900 Shackelton Point Rd.

Bridgeport, NY 13030



Oneida Lake

- **Largest surface area completely within NYS**
 - 20 mi long, 4 mi wide = 80 sq. miles
- **Popular fishery for walleye, perch, and bass**
 - 400,000 angler-hrs/yr, harvest 75,000 walleye/yr
 - >40 bass fishing tournaments per year
- **Huge economic driver**
 - >\$50 million to CNY economy
 - Marinas, hotels, bait shops, gas stations, restaurants
 - Boats, tow vehicles, bait, food, gas, gear, travel



With lots of use comes problems

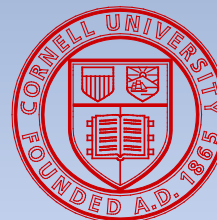
- Fishing pressure
 - Harvest affects fish populations
 - Do they have enough food? Baitfish, food chain
- High productivity – both positive and negative effects
 - Nutrient runoff
 - Algae blooms
- Invasive species – both positive and negative effects
 - Zebra mussels/quagga mussels
 - Round gobies
 - Cormorants
 - Bythotrephes water fleas
- Ecosystem changes, global warming, urbanization, sedimentation, land-use changes

We don't like change!!!

But the only constant is... change

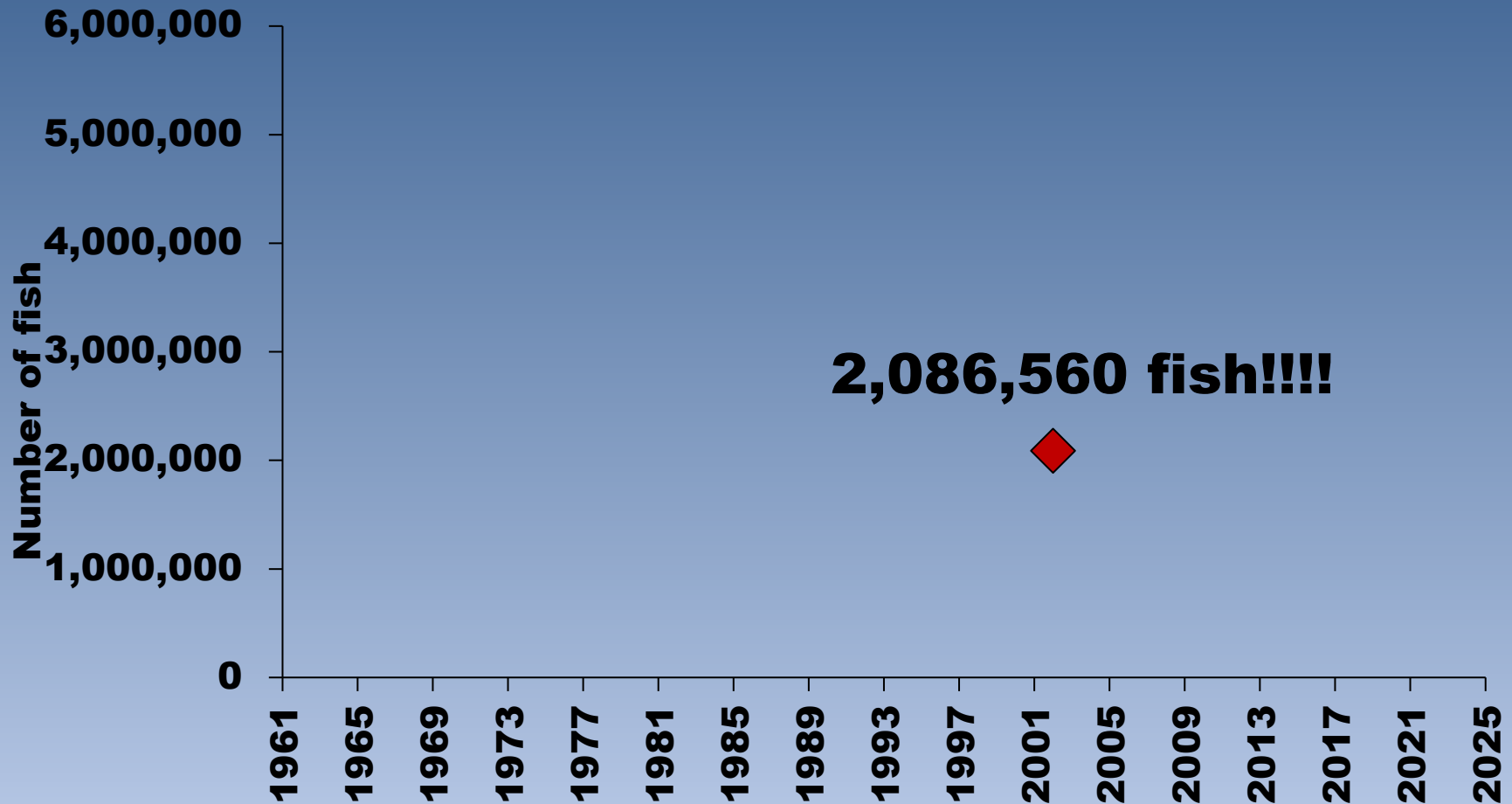
Cornell University Biological Field Station

- **Research station donated to Cornell in 1950's**
- **Fish research began in 1956 – Now 70 years of data!!**
- **Became nationally recognized for fish research**
- **Strong cooperative project with DEC to manage the fish populations using the best scientific data available – **Informed Decision Making****
- **The value of long-term data – interpreting the magnitude of variability**

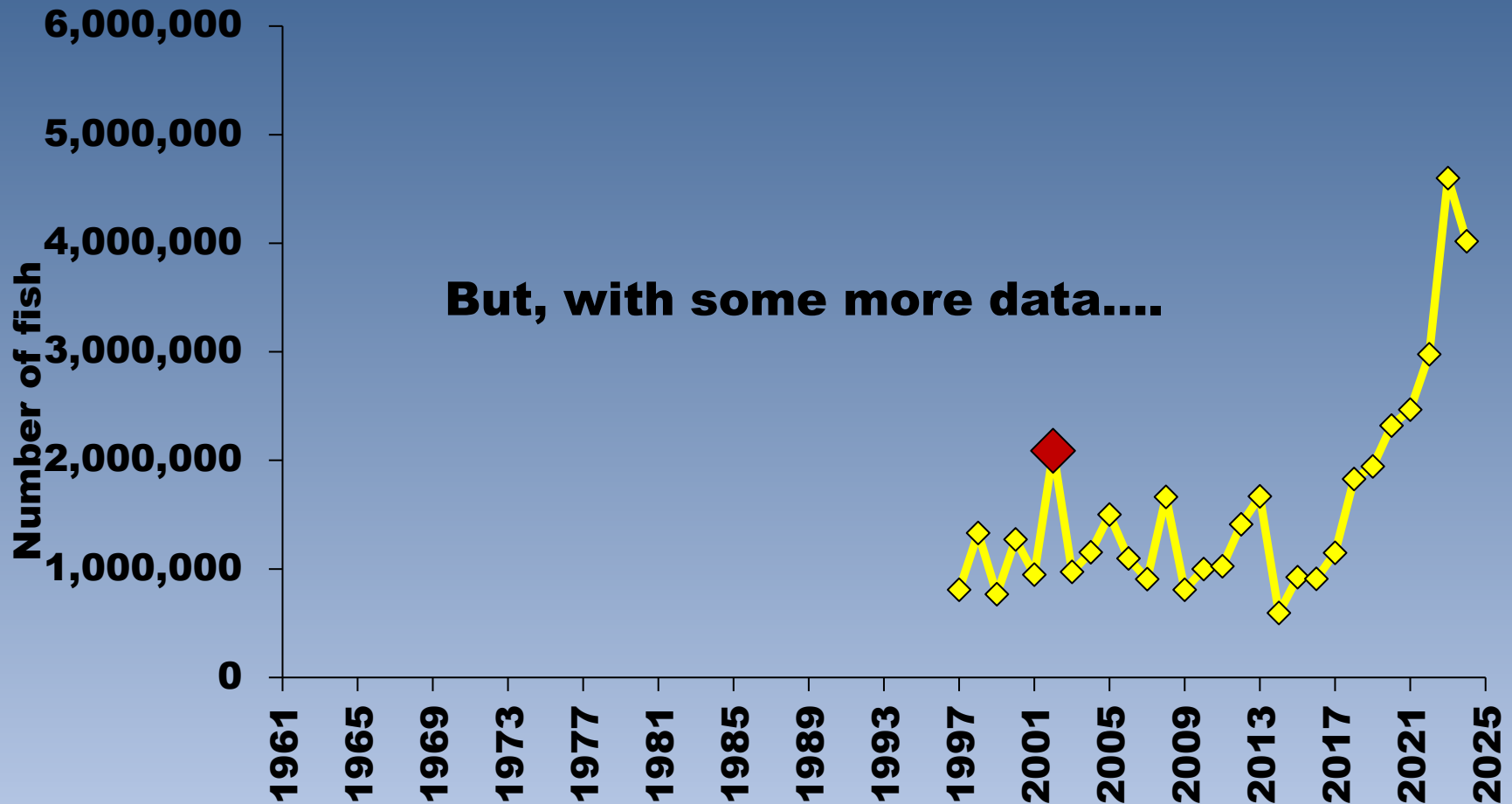


Cornell University

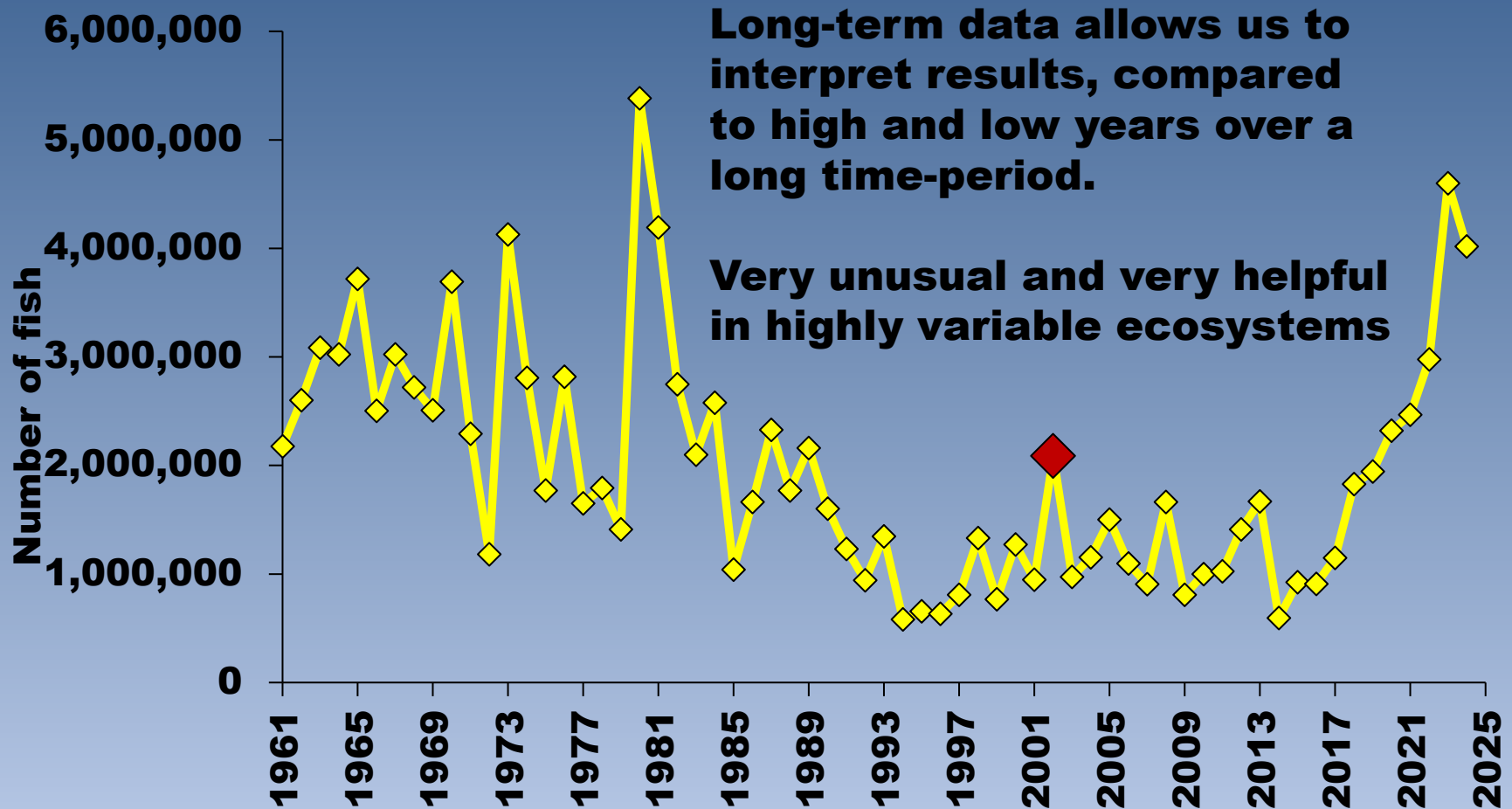
Example of variability: Fish Population “X”



Example of variability: Fish Population “X”



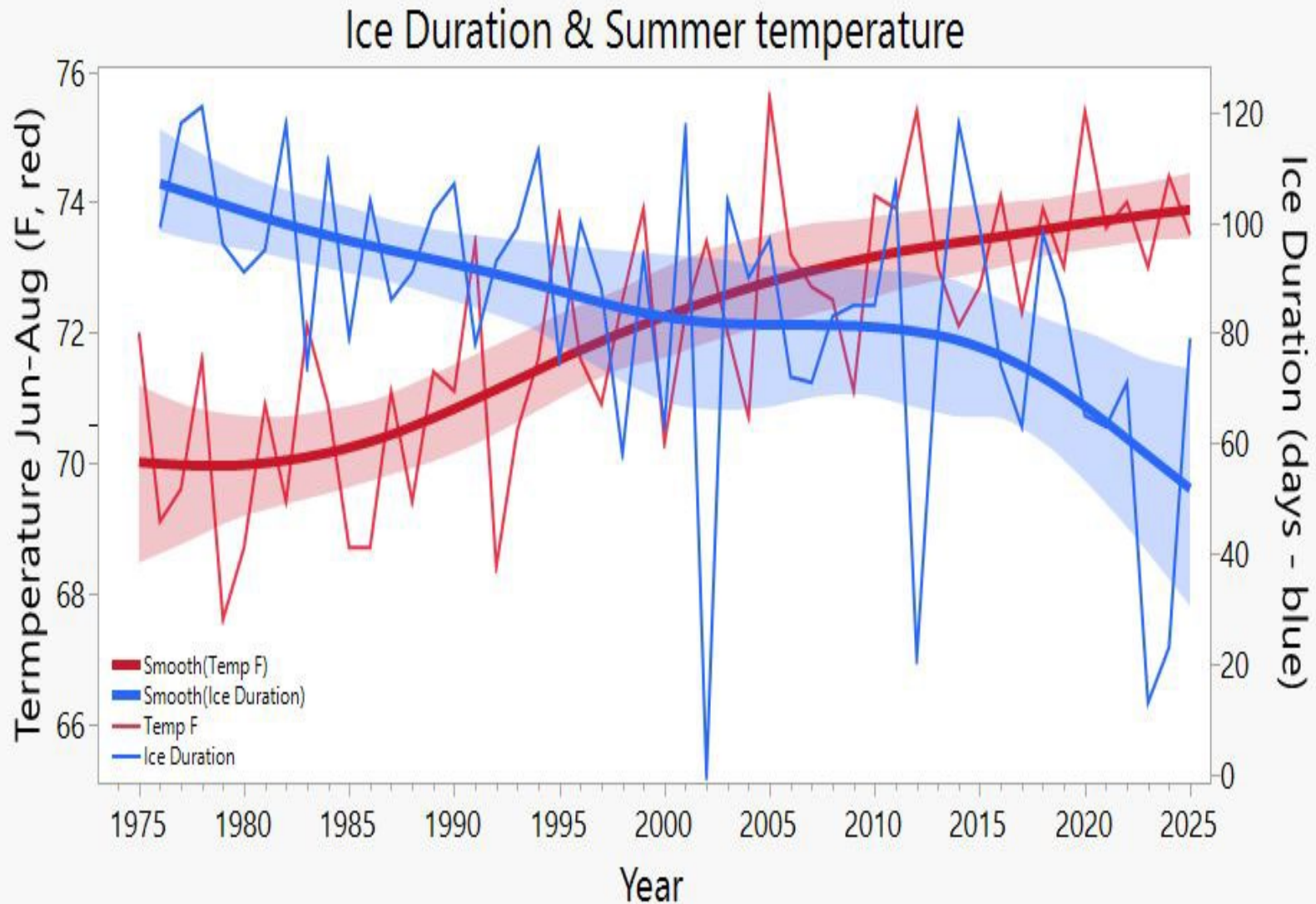
Example of variability: Fish Population “X”



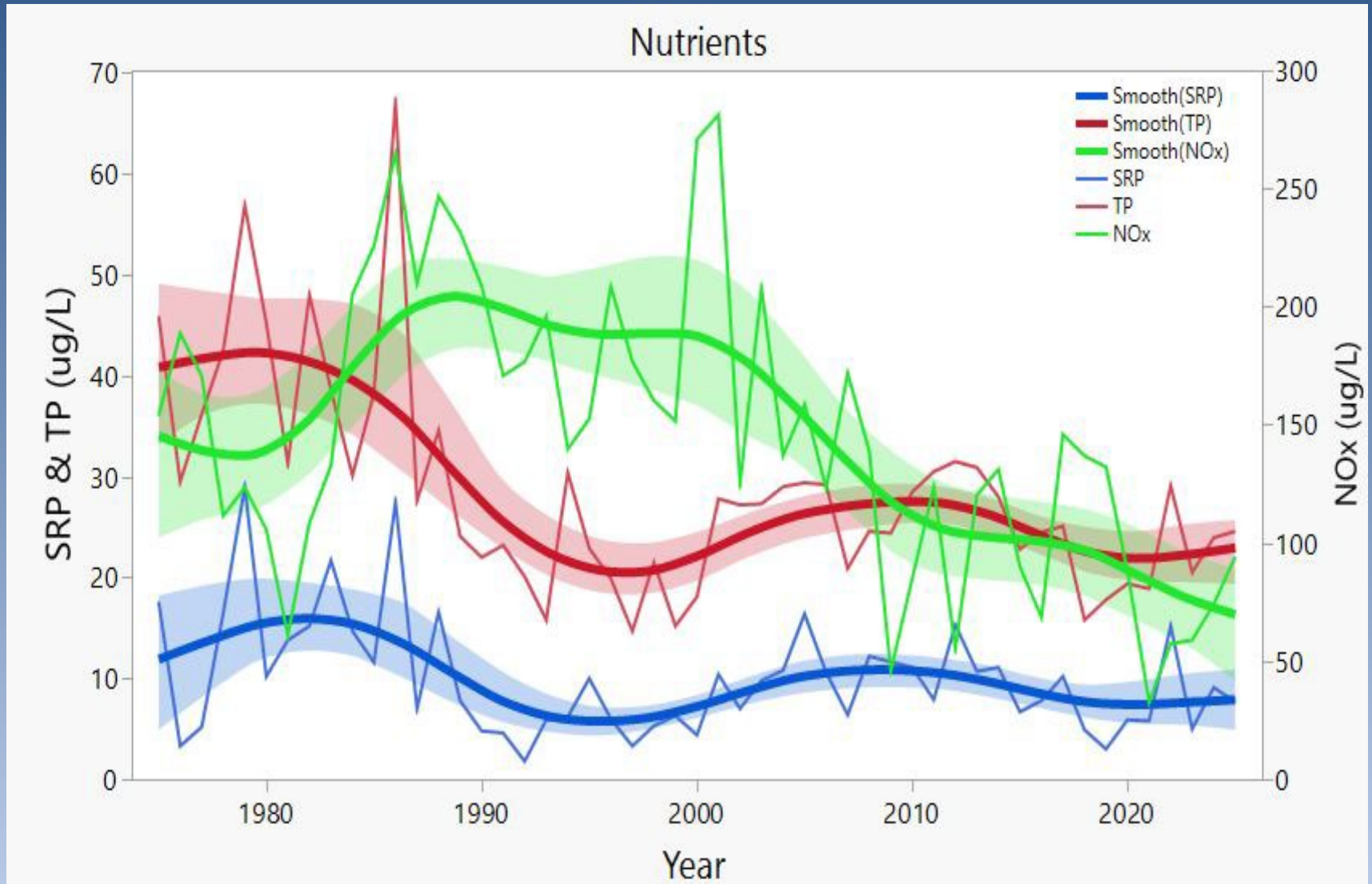
Outline – 2025

- **Water quality and nutrients**
- **Zooplankton and benthic invertebrates**
- **Walleye – Population, growth, young**
- **Yellow Perch**
- **Largemouth and smallmouth bass**
- **Lake sturgeon**
- **Round goby**
- **Cormorants and Anglers**
- **Summary**

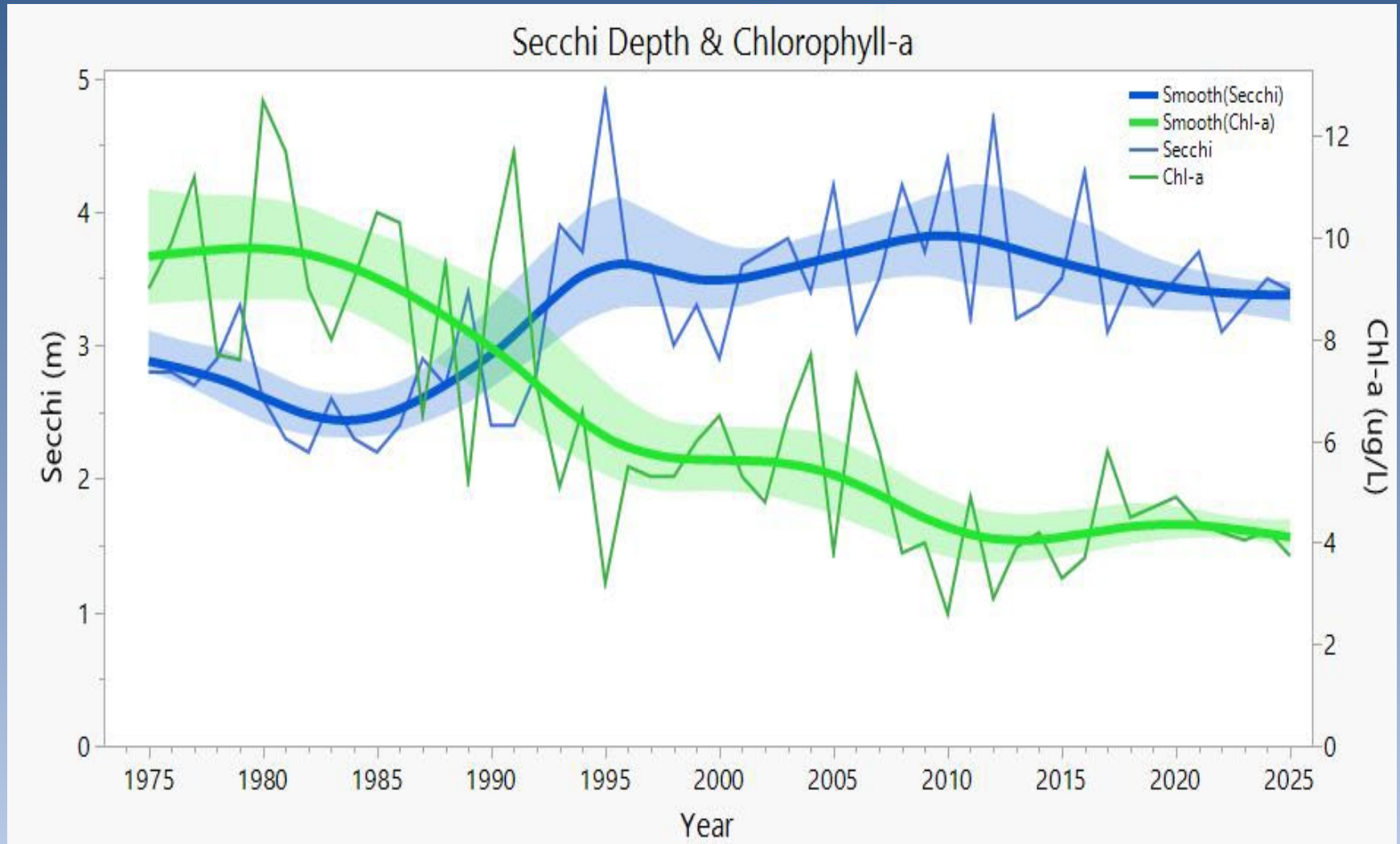
Water Temperature and Ice Duration



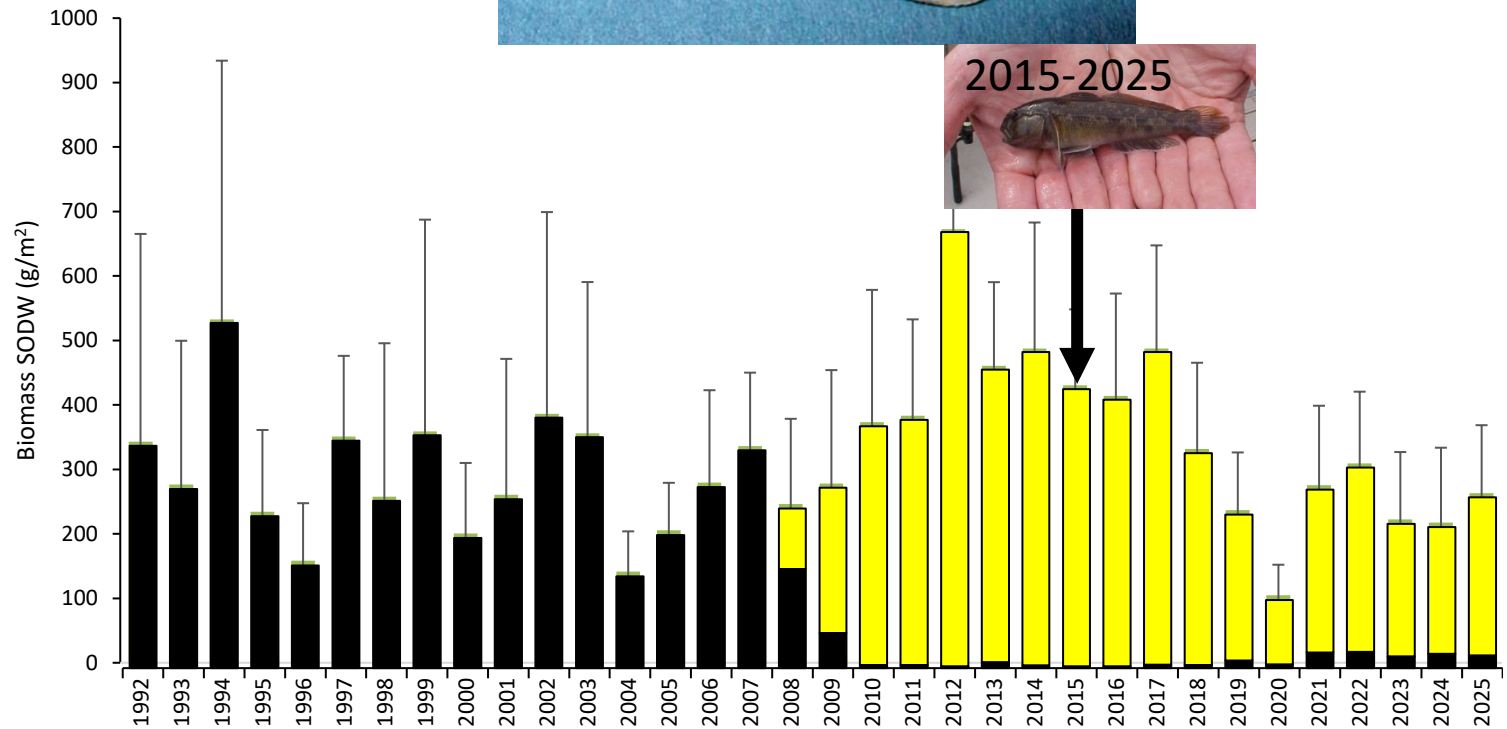
Nutrients – Phosphorus and Nitrogen



Water Clarity and Chlorophyll-a



Zebra and Quagga Mussels



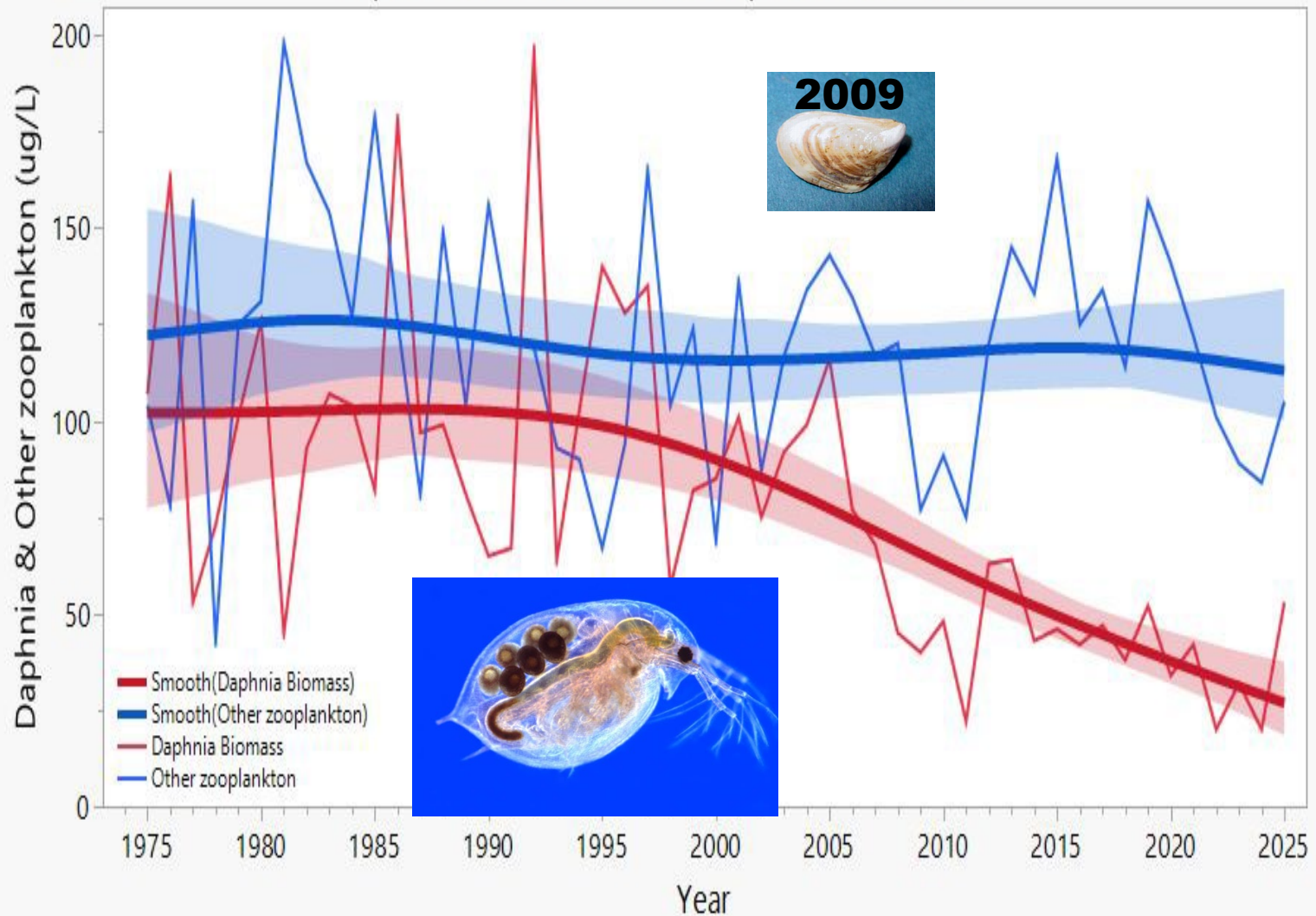
Zooplankton

2019

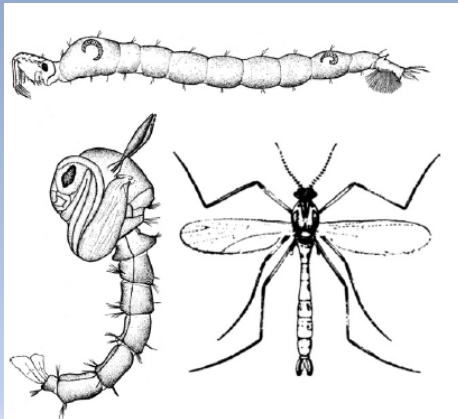
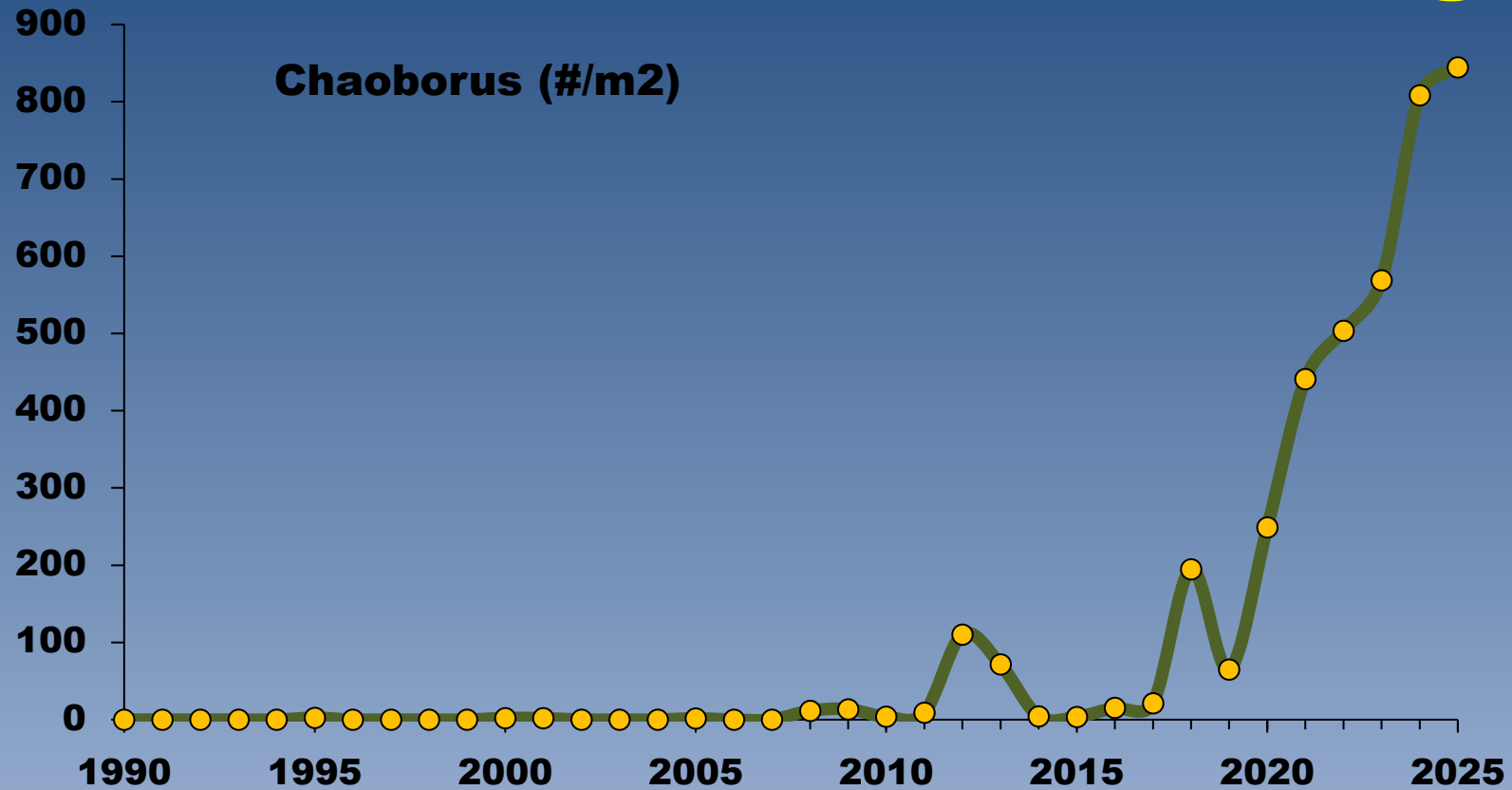


Bythotrephes – Spiny water flea

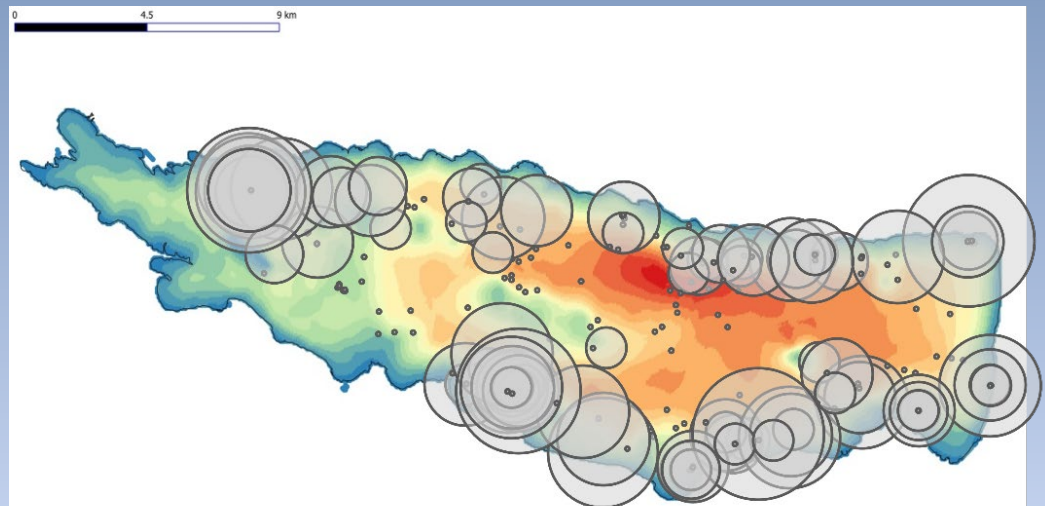
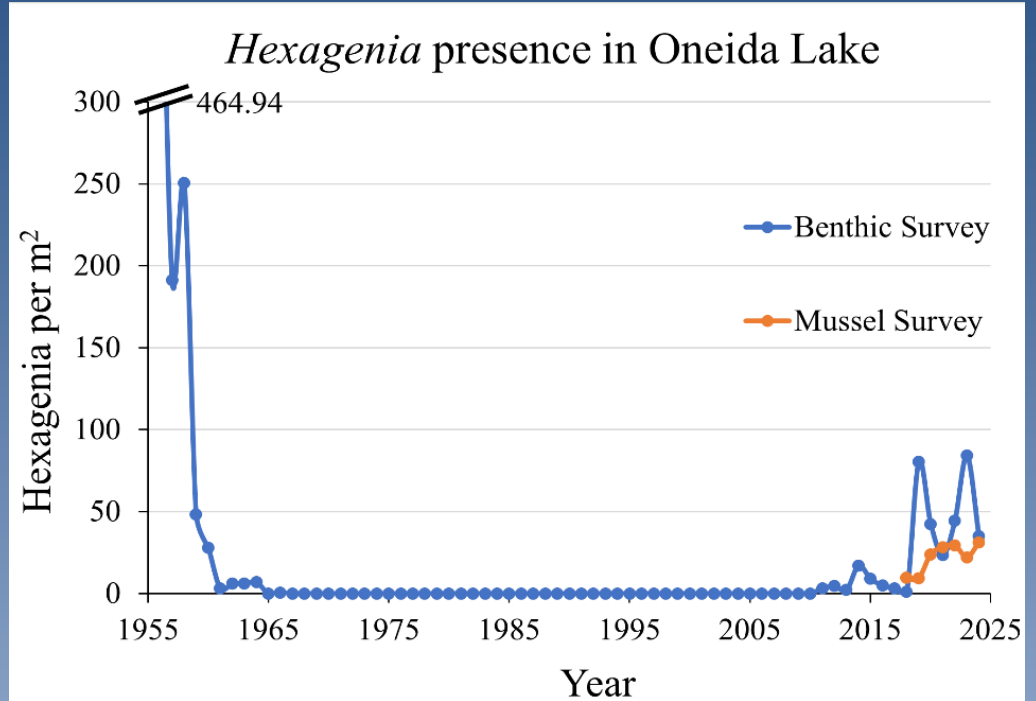
Daphnia Biomass & Other zooplankton



Chaoborus – phantom midge



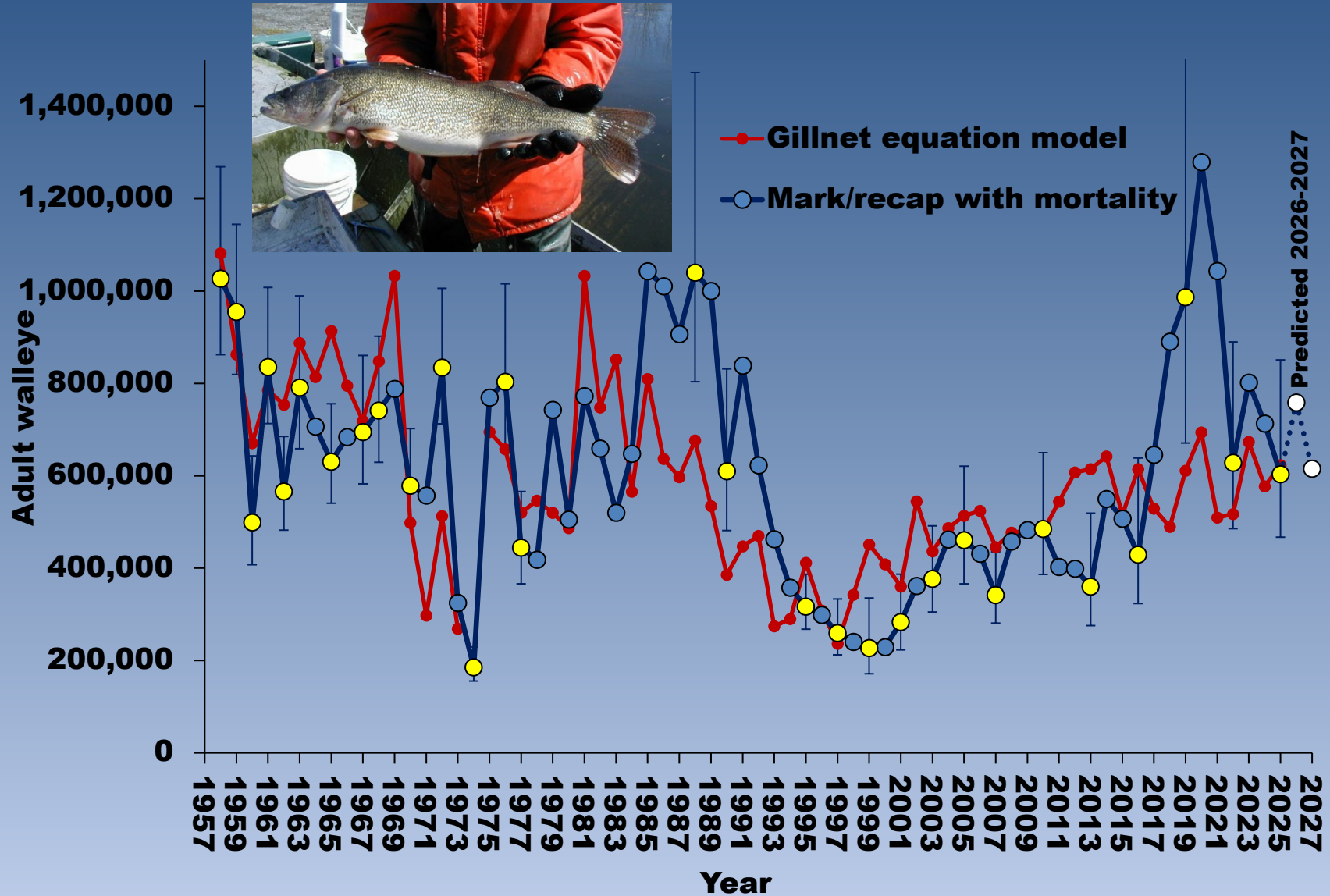
Mayflies



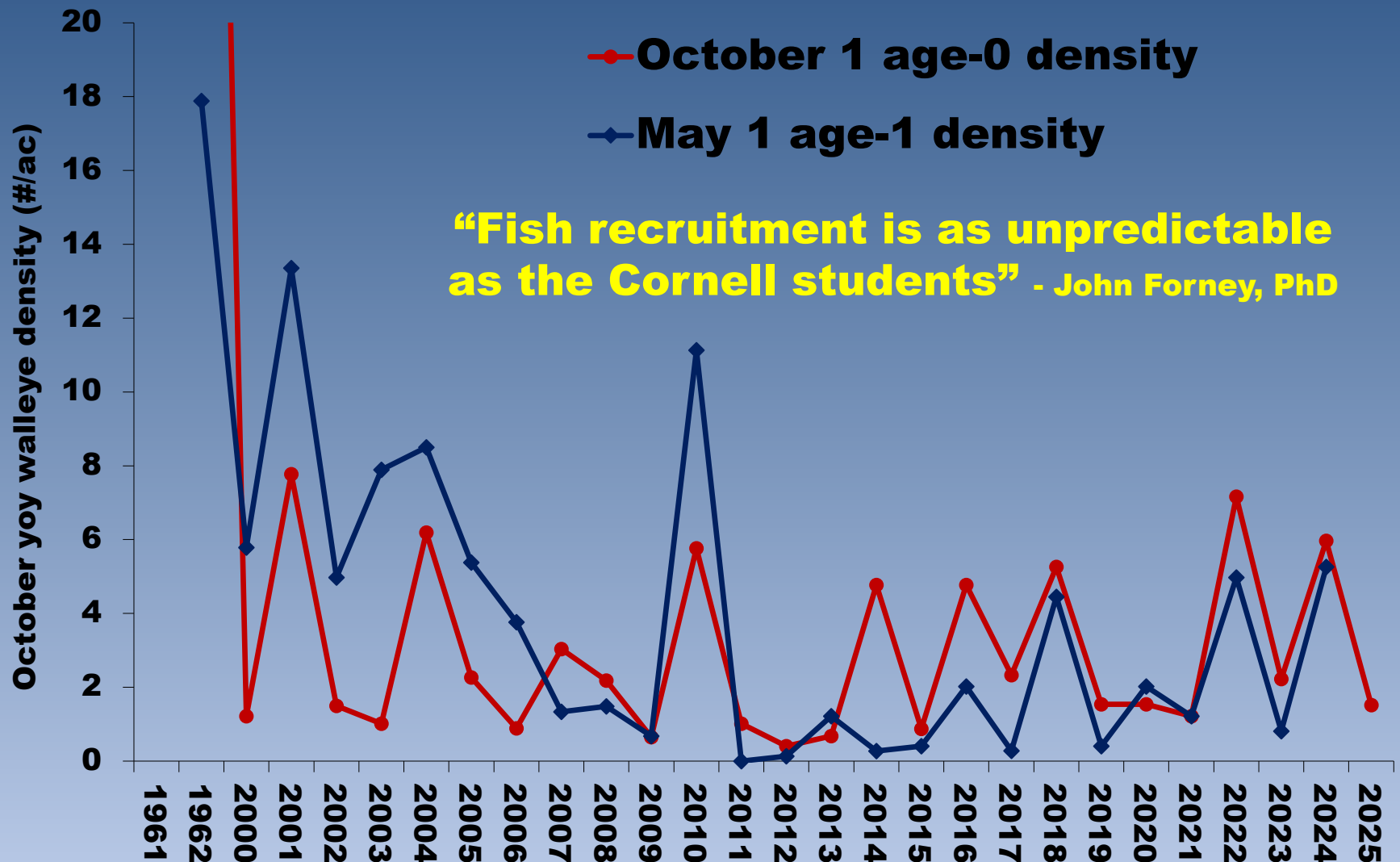
Fish



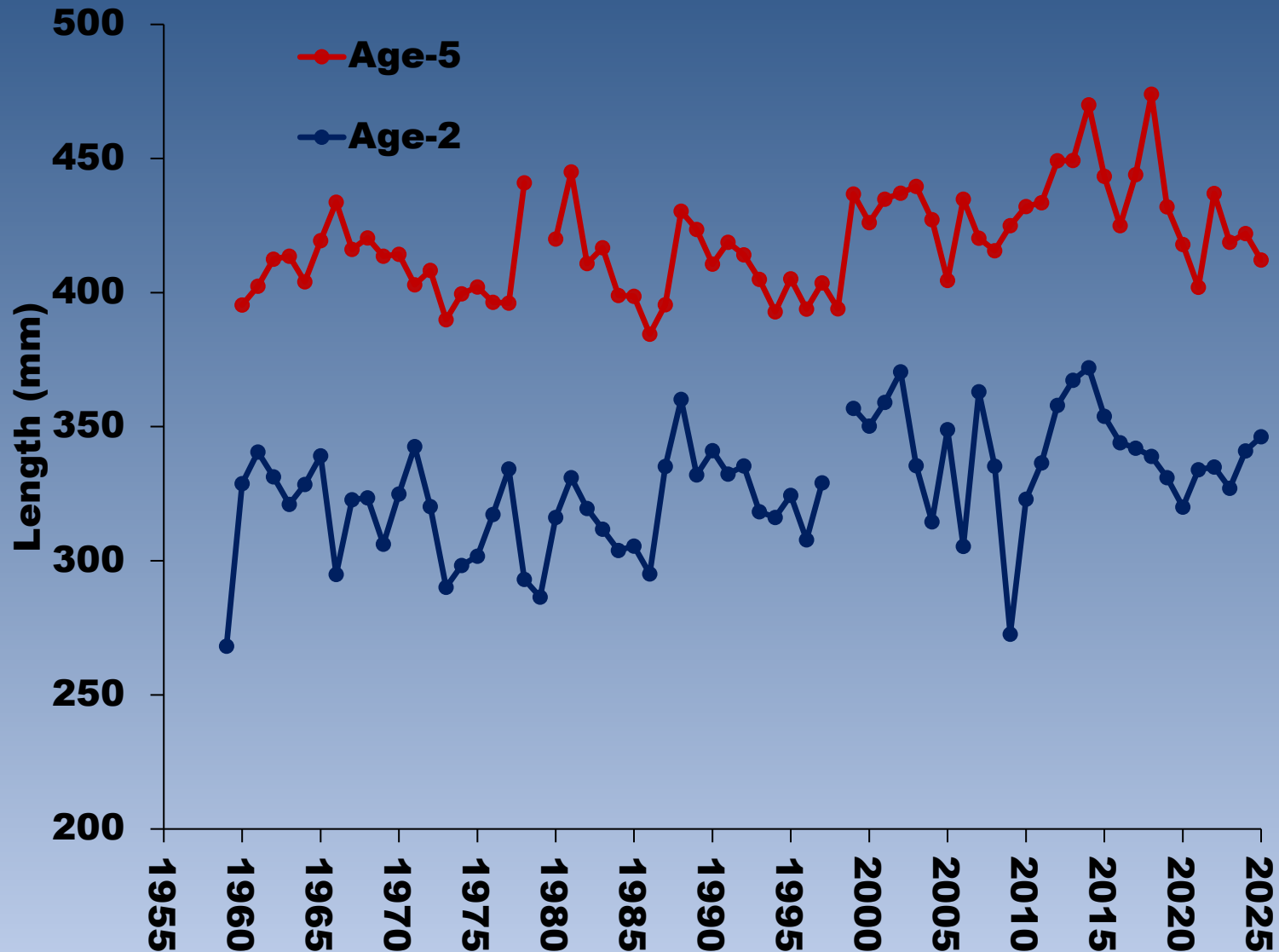
Walleye adult population



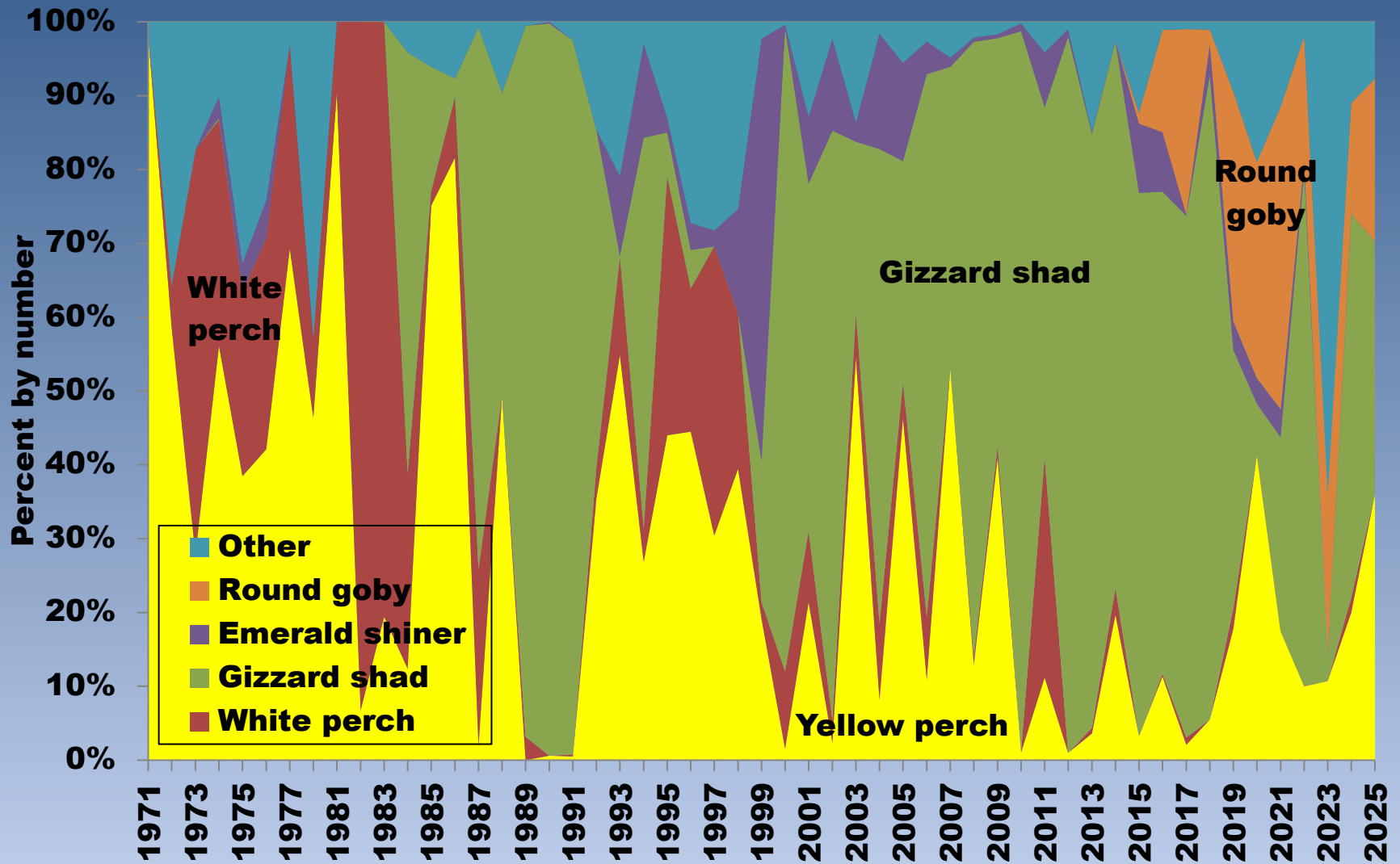
Walleye young fish



Walleye length at age



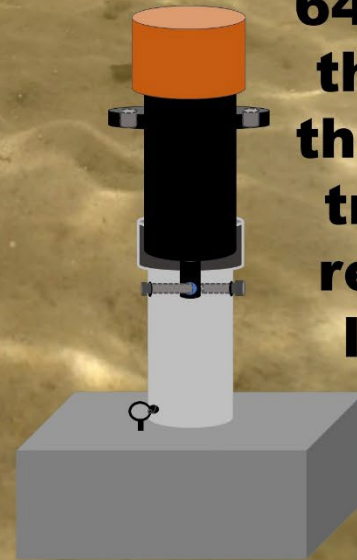
Walleye diet



Oneida Lake Walleye Telemetry Project

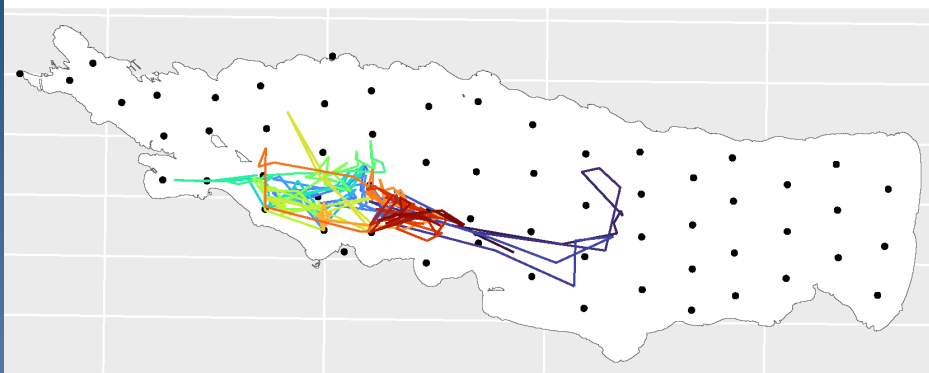


**Transmitters
implanted inside
200 walleye;
send out a signal
every 4 minutes**

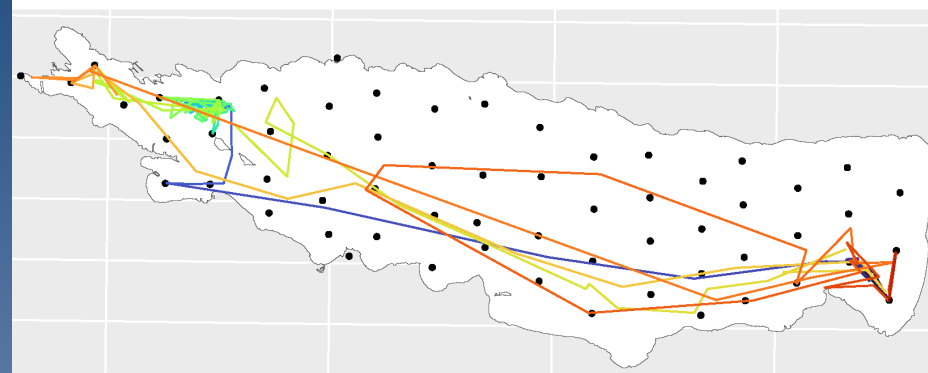


**64 receivers
throughout
the lake and
tributaries
record fish
locations**

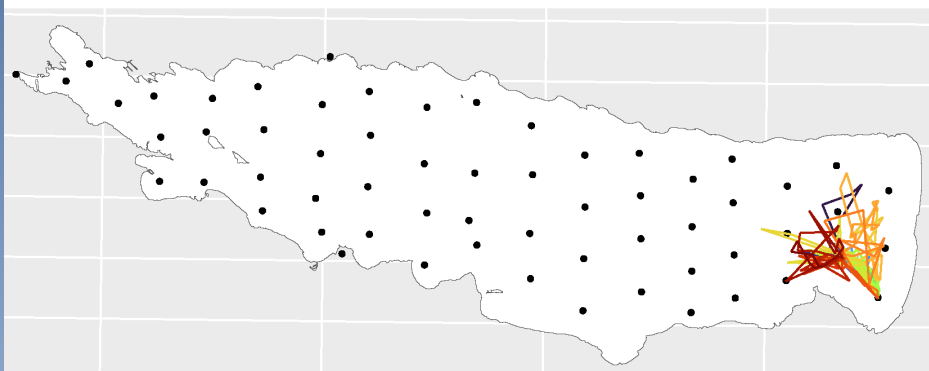
22472001, release: 2023-09-20, location: Shackelton Pt, sex: NA



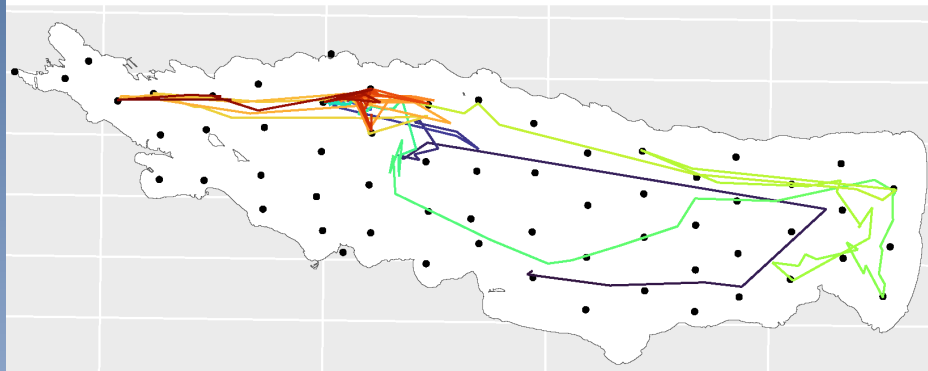
22398001, release: 2023-10-03, location: Lewis Pt, sex: NA



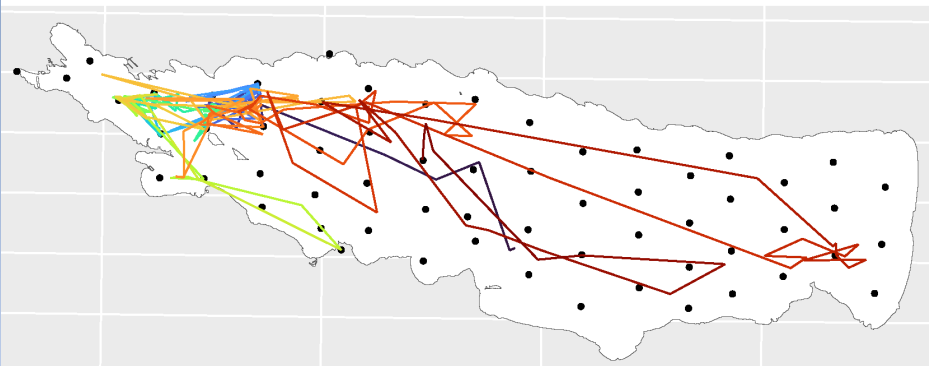
22394001, release: 2023-10-03, location: Lewis Pt, sex: NA



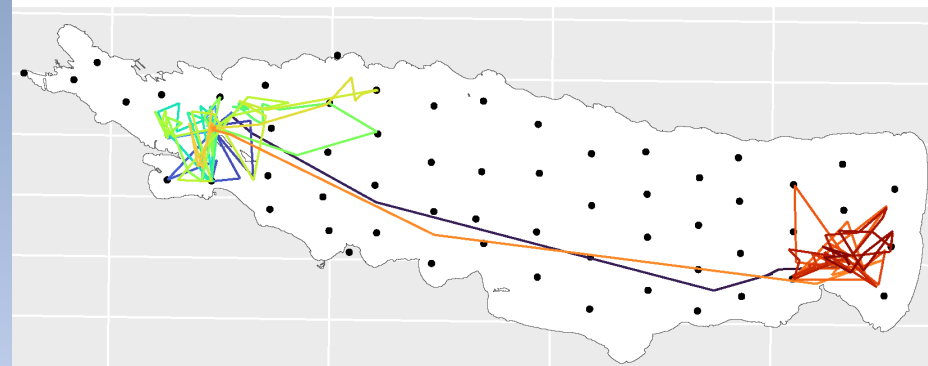
22412001, release: 2023-10-03, location: Shackelton Pt, sex: NA



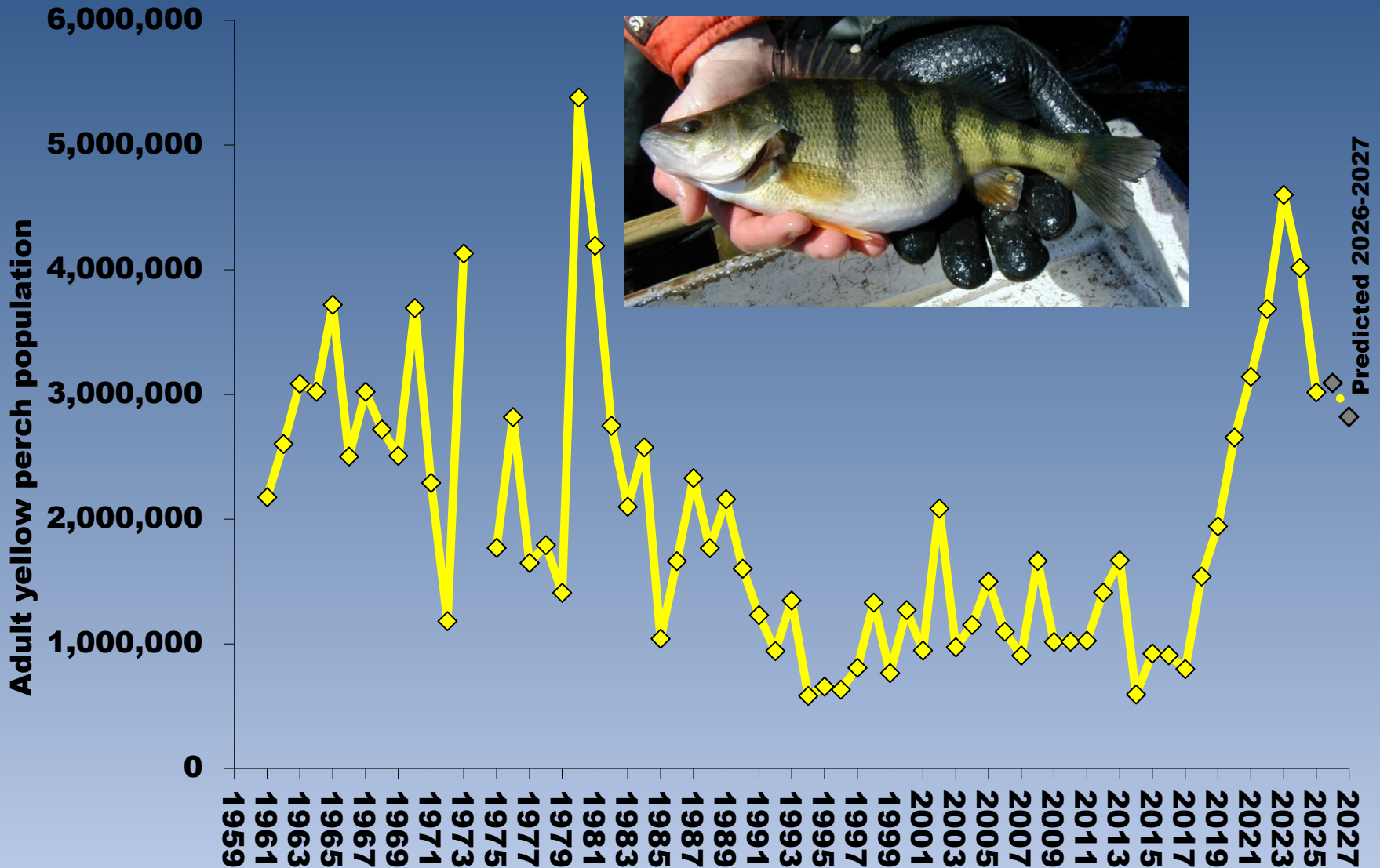
22389001, release: 2023-10-03, location: Shackelton Pt, sex: NA



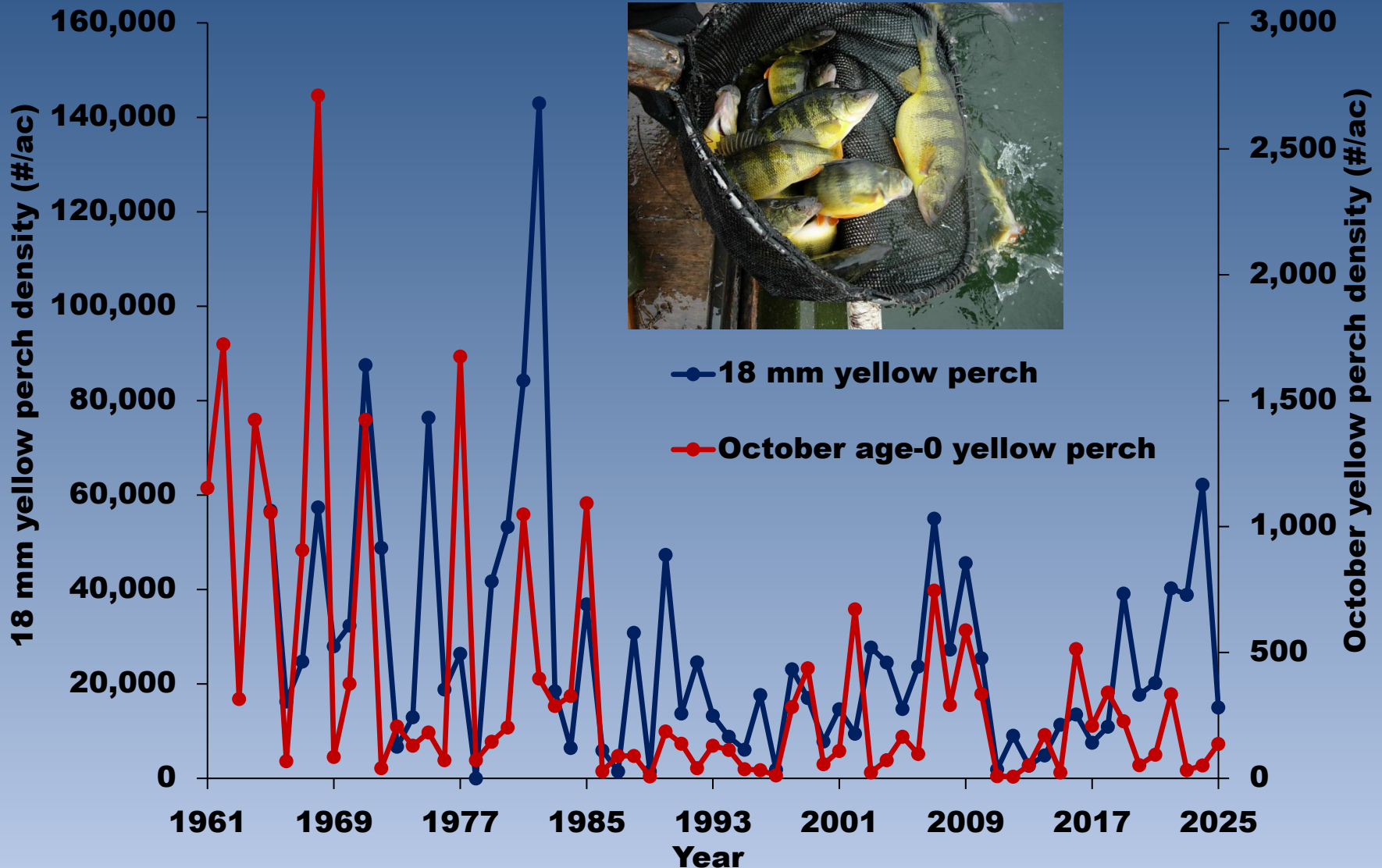
22407001, release: 2023-10-03, location: Lewis Pt, sex: F



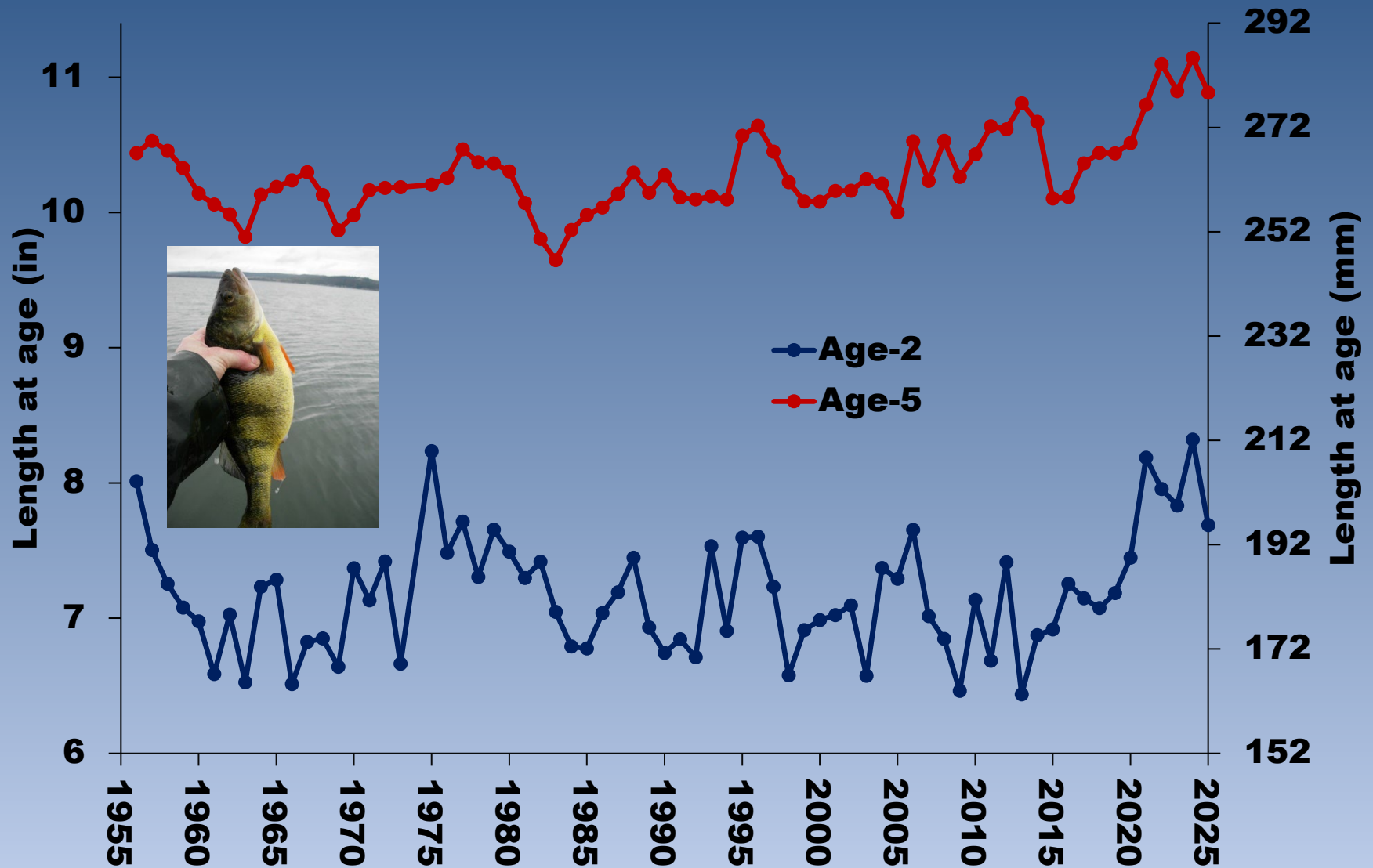
Yellow Perch population



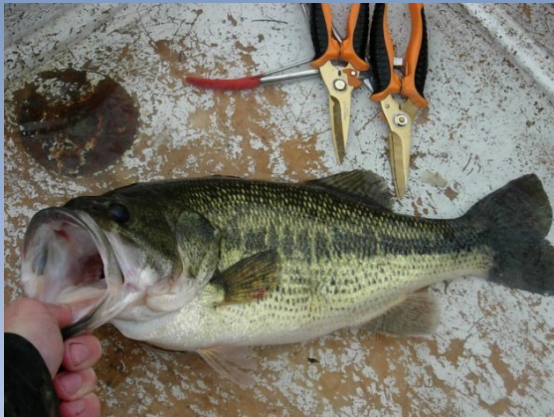
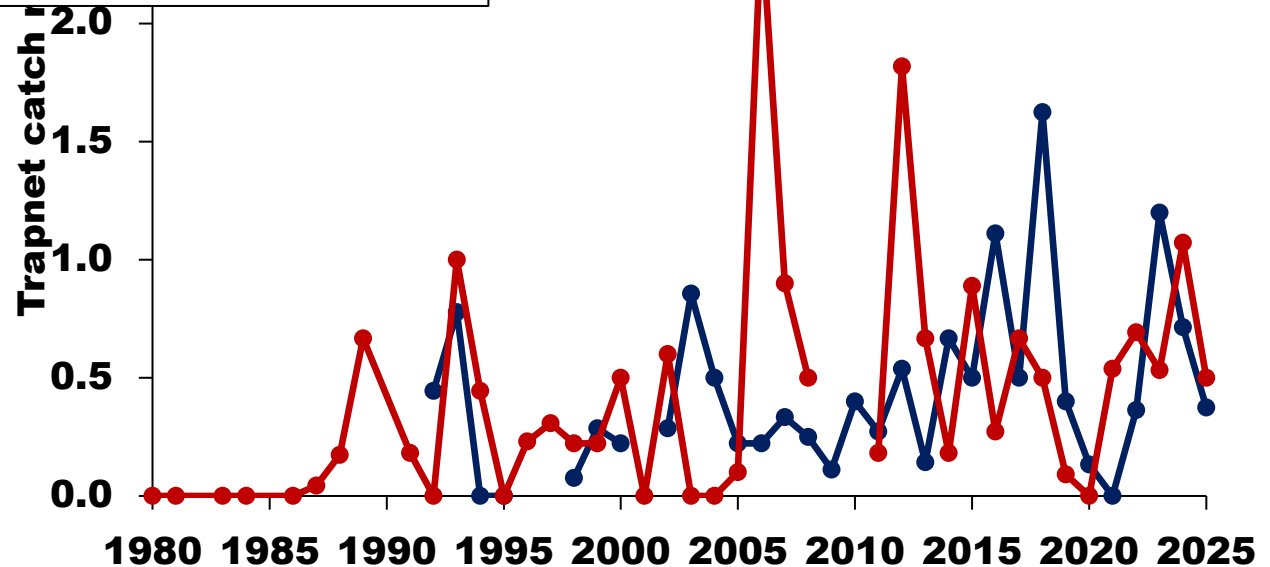
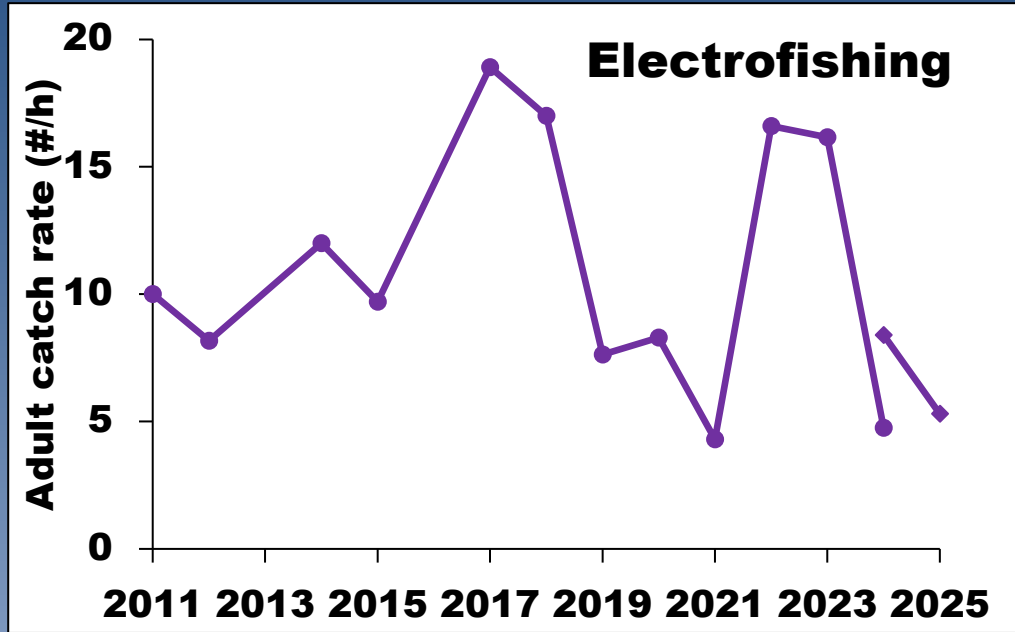
Yellow perch young fish



Yellow Perch length at age



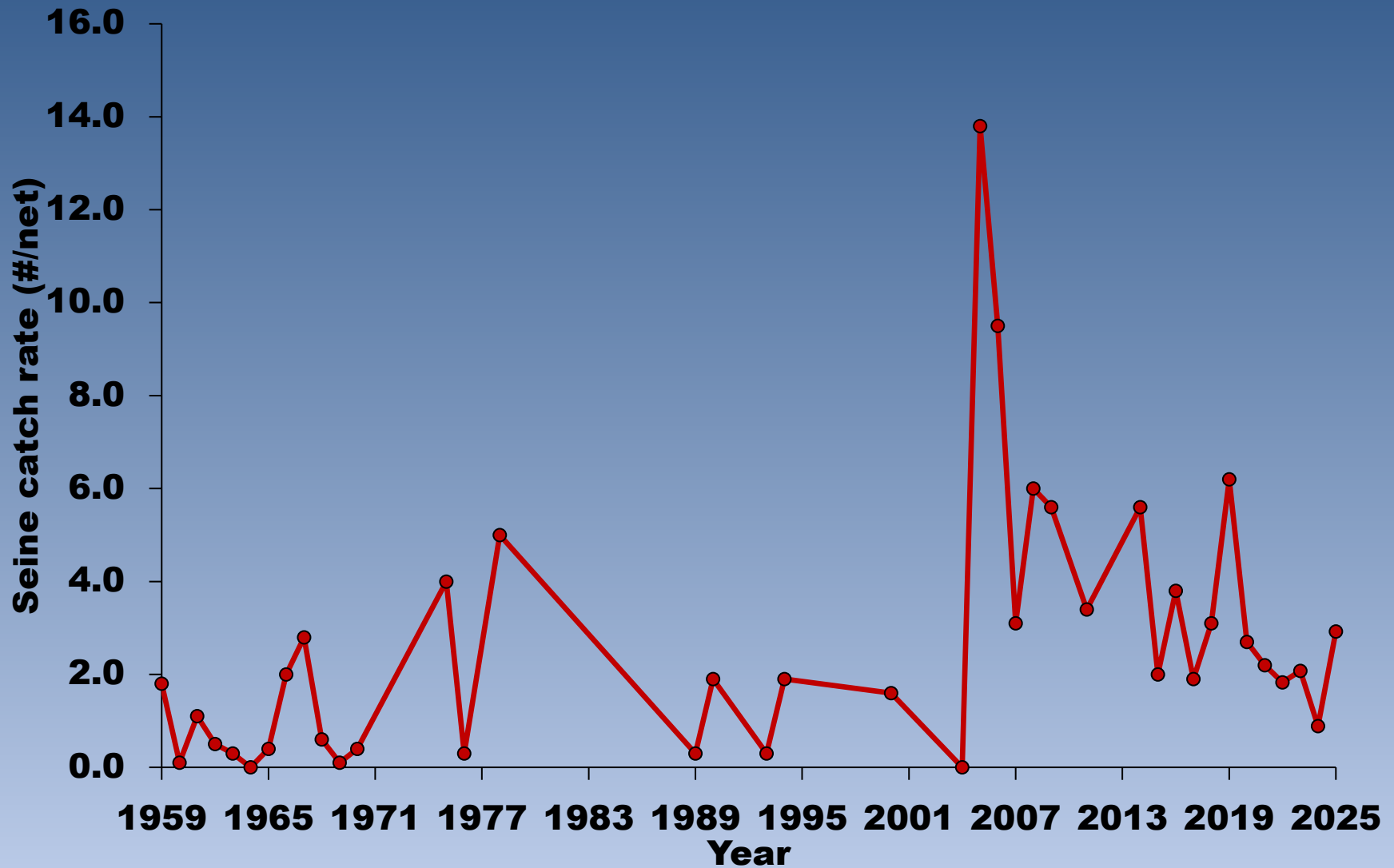
Largemouth Bass Adults



Beach Seine

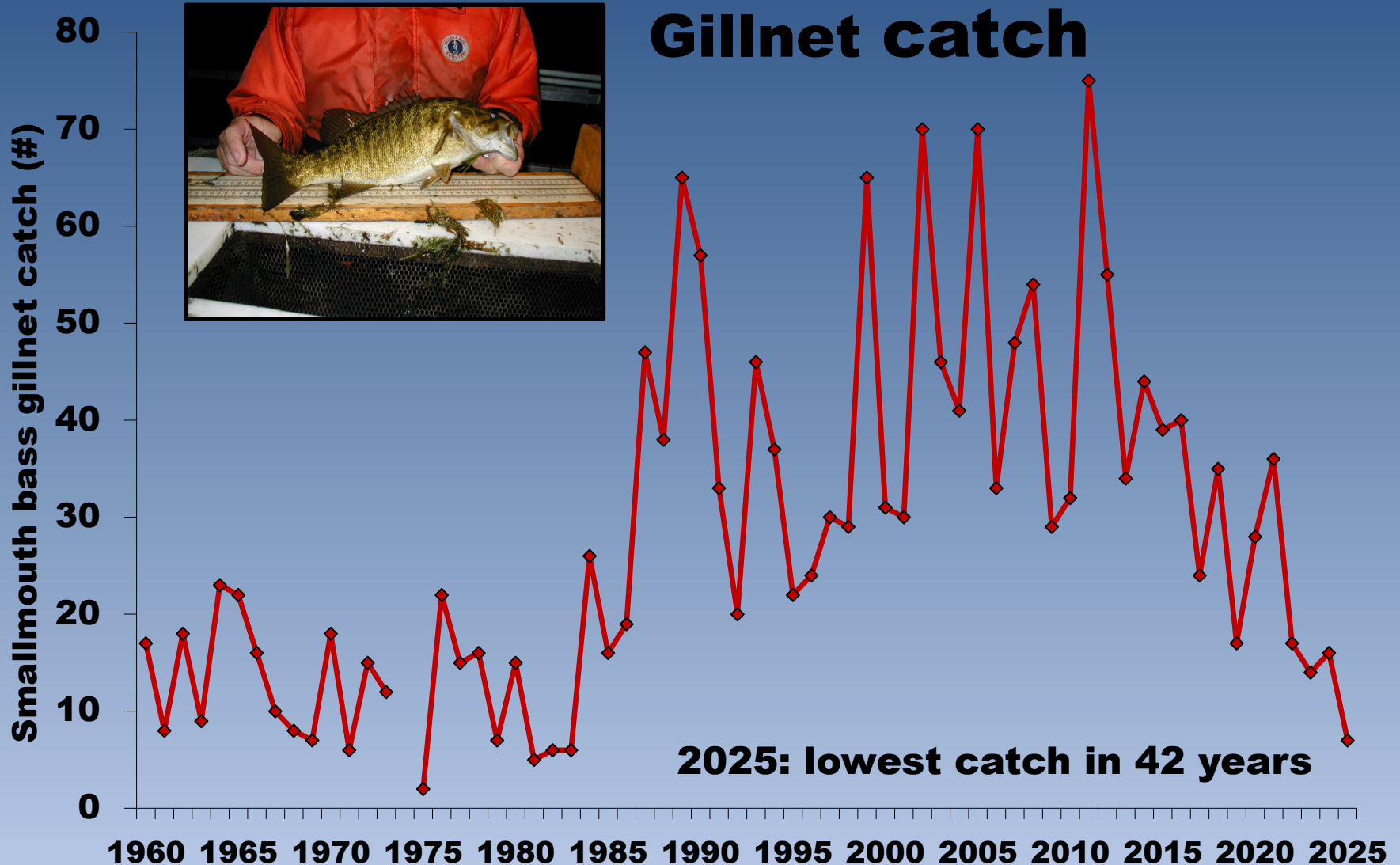


Largemouth Bass young



Smallmouth Bass Adults

Gillnet catch



Smallmouth Bass Young

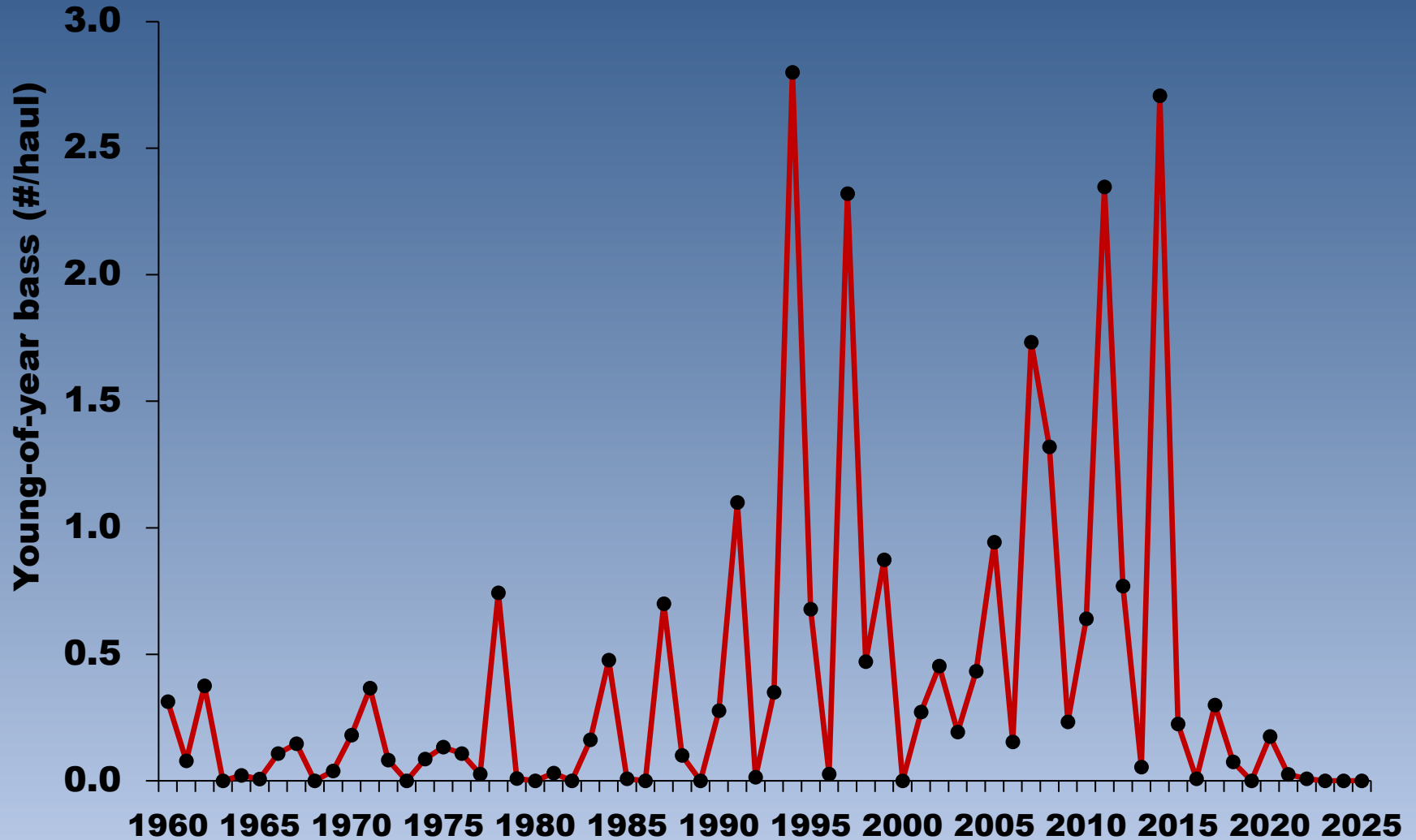
Beach seine catch



Smallmouth Bass young trawl catch



Smallmouth Bass young Trawl catch



Sturgeon



Lake Sturgeon

Were once abundant in Great Lakes
Almost went extinct

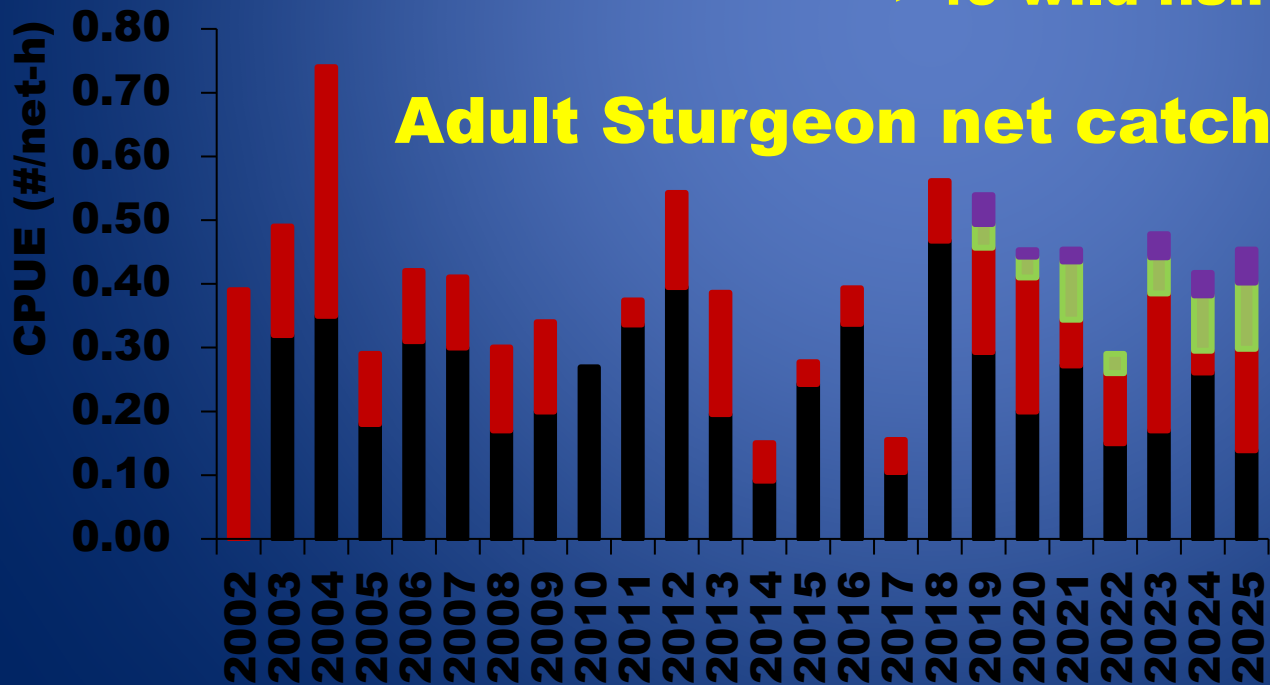
Live over 100 yrs, grow to over 250 lbs
NYSDEC/USFWS – Reintroduction Program

Stocked since 1995 (31 yrs)

Excellent growth and survival

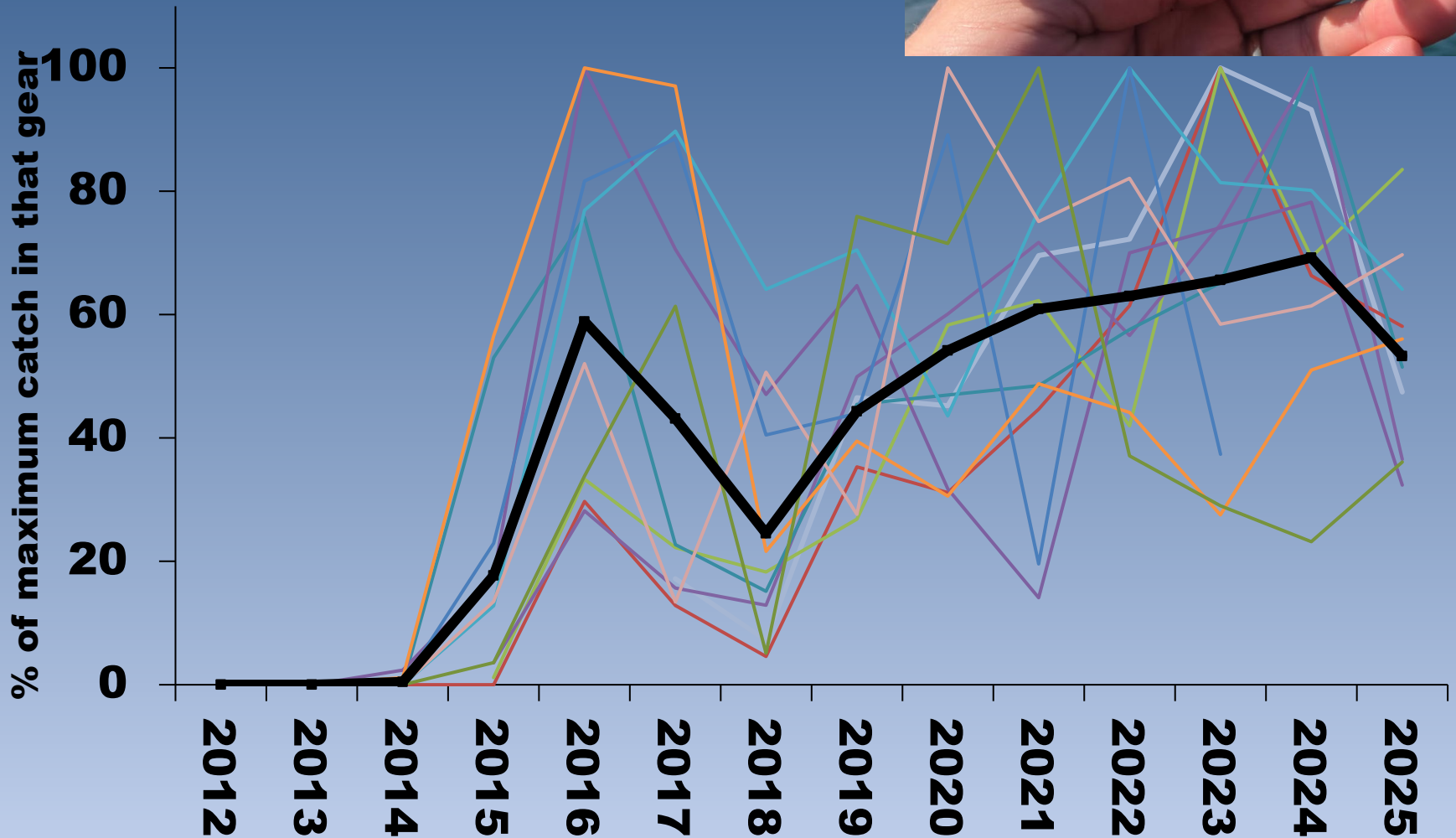
Largest - 159 lbs, May 19, 2021

>40 wild fish since 2011

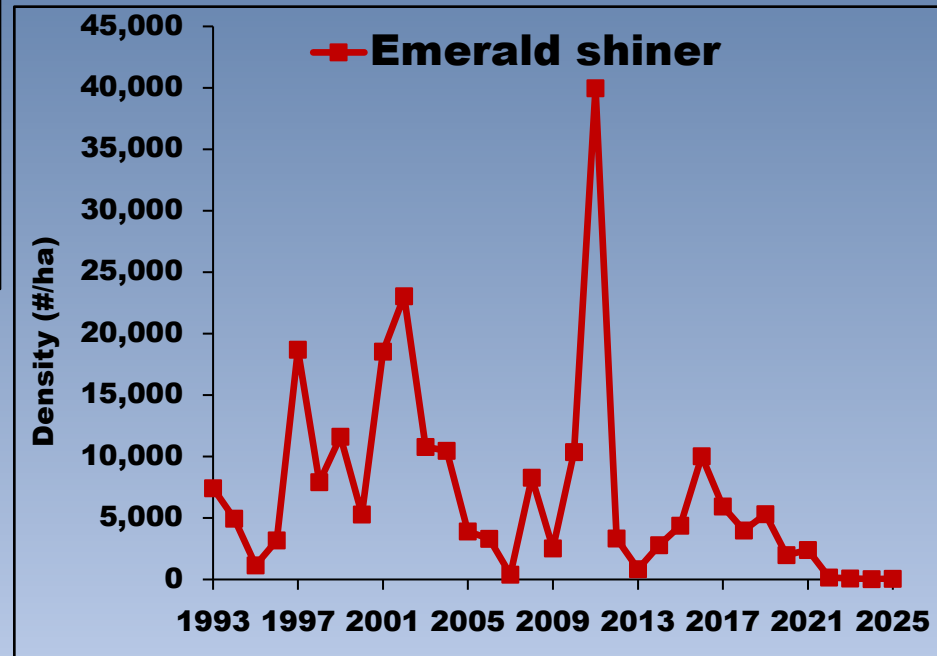
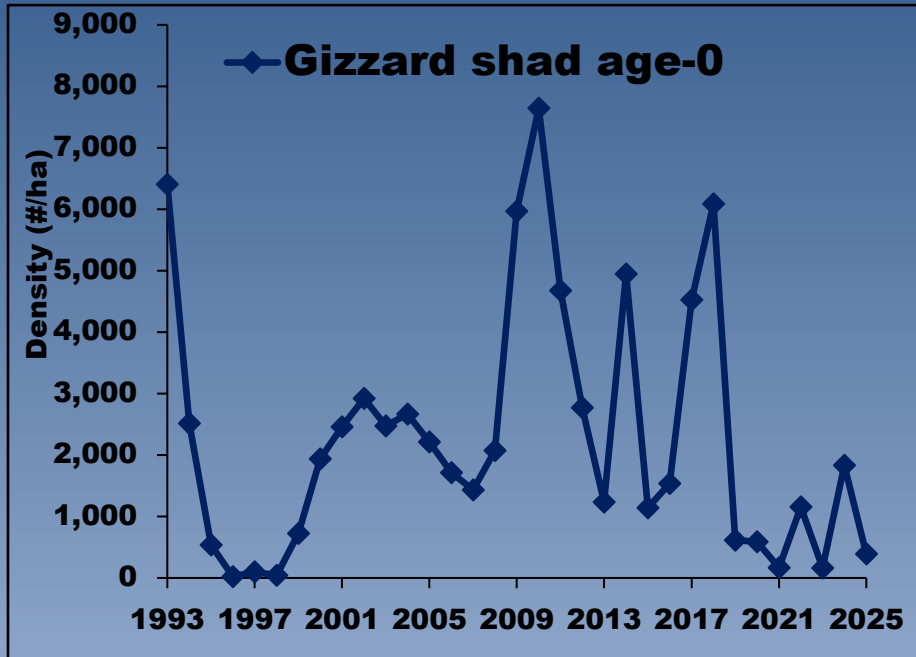


Round Goby

Up to 20,000 per acre!

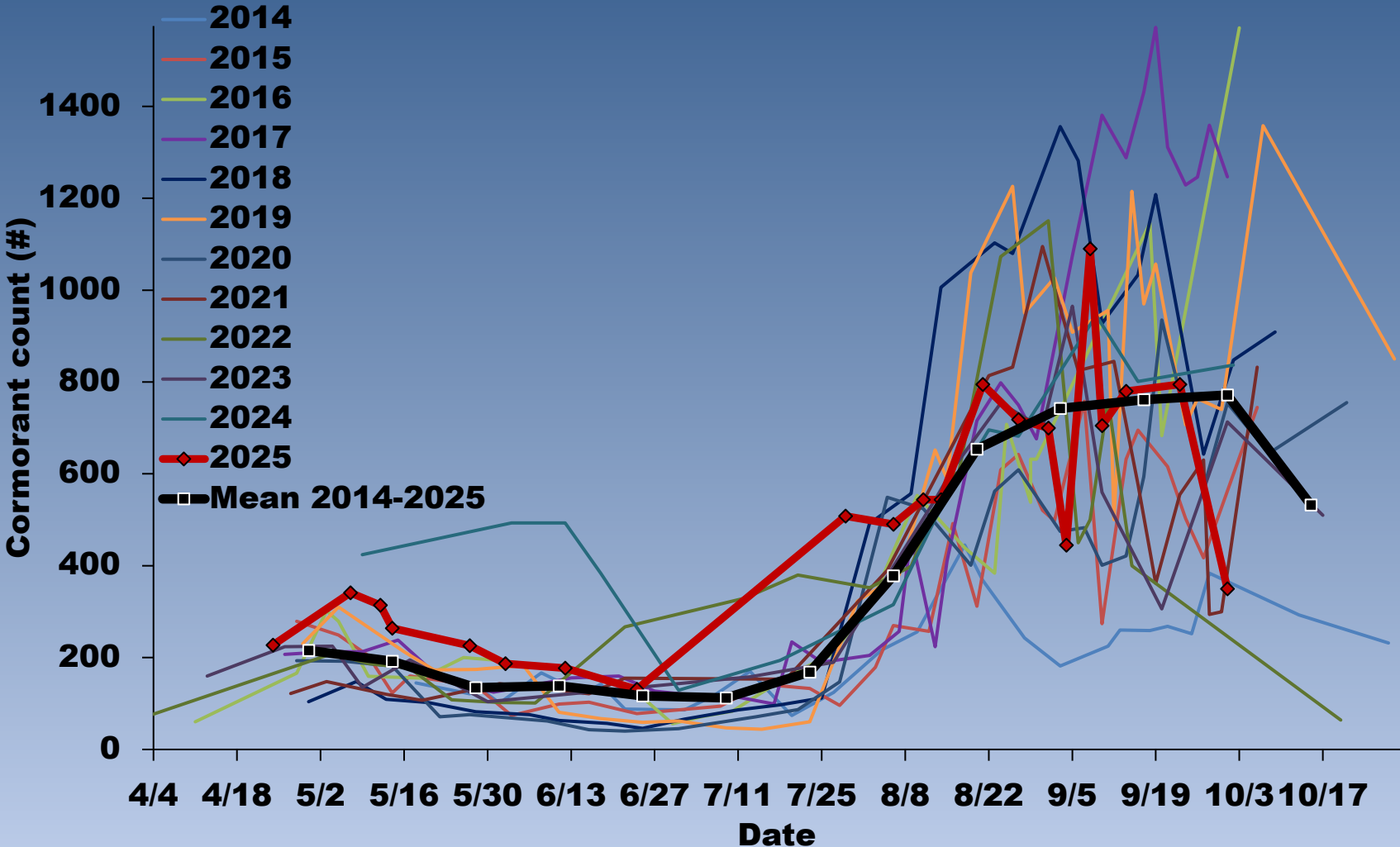


Gizzard Shad and Emerald Shiners



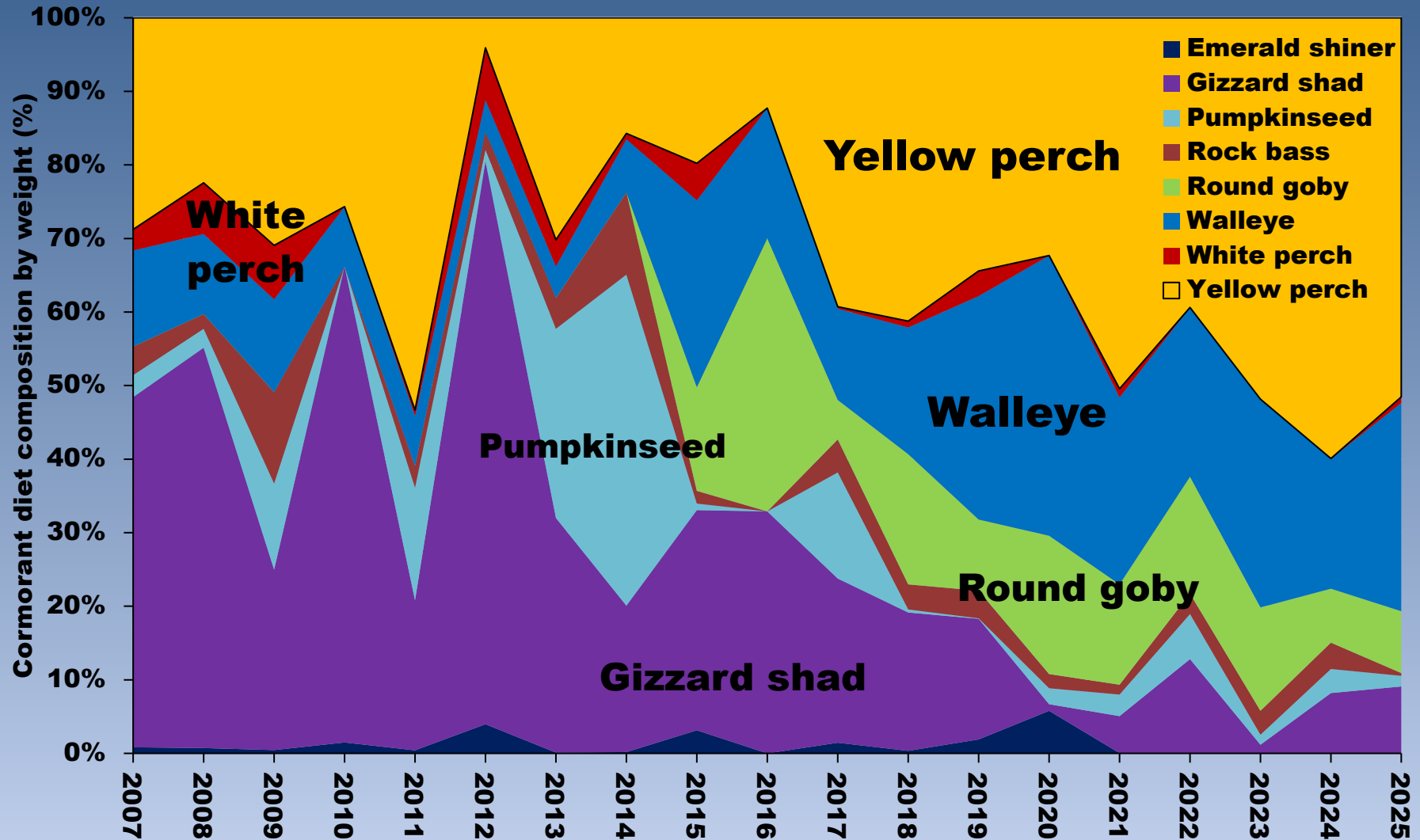
Cormorant counts

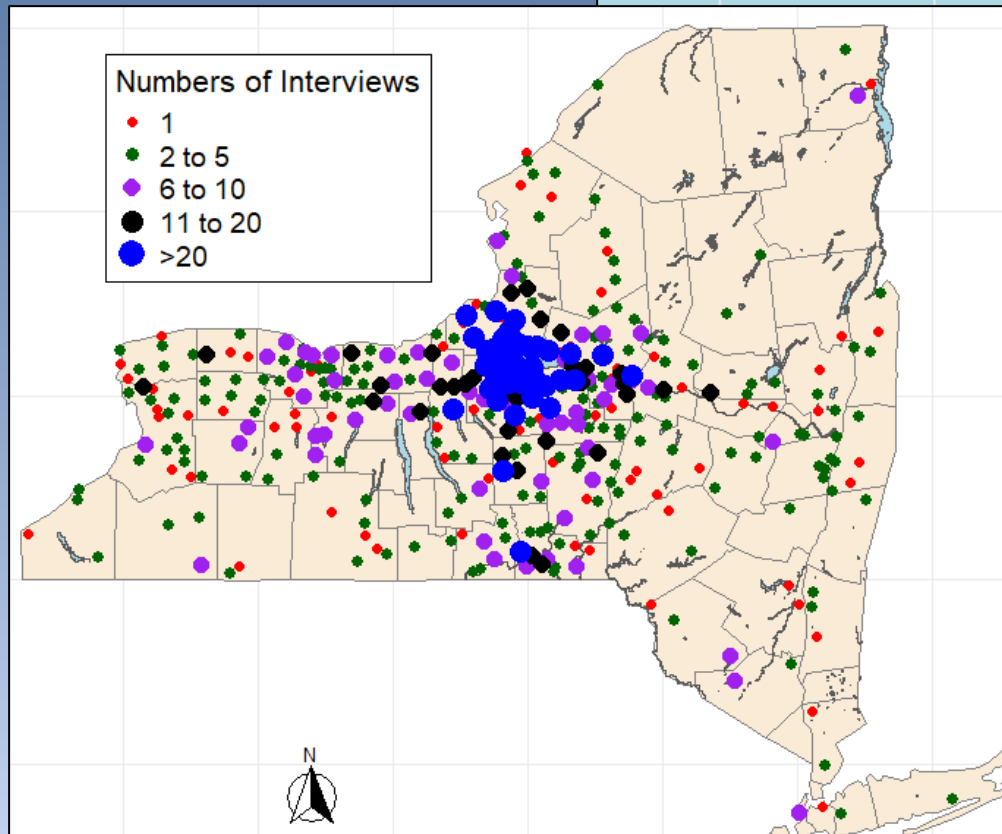
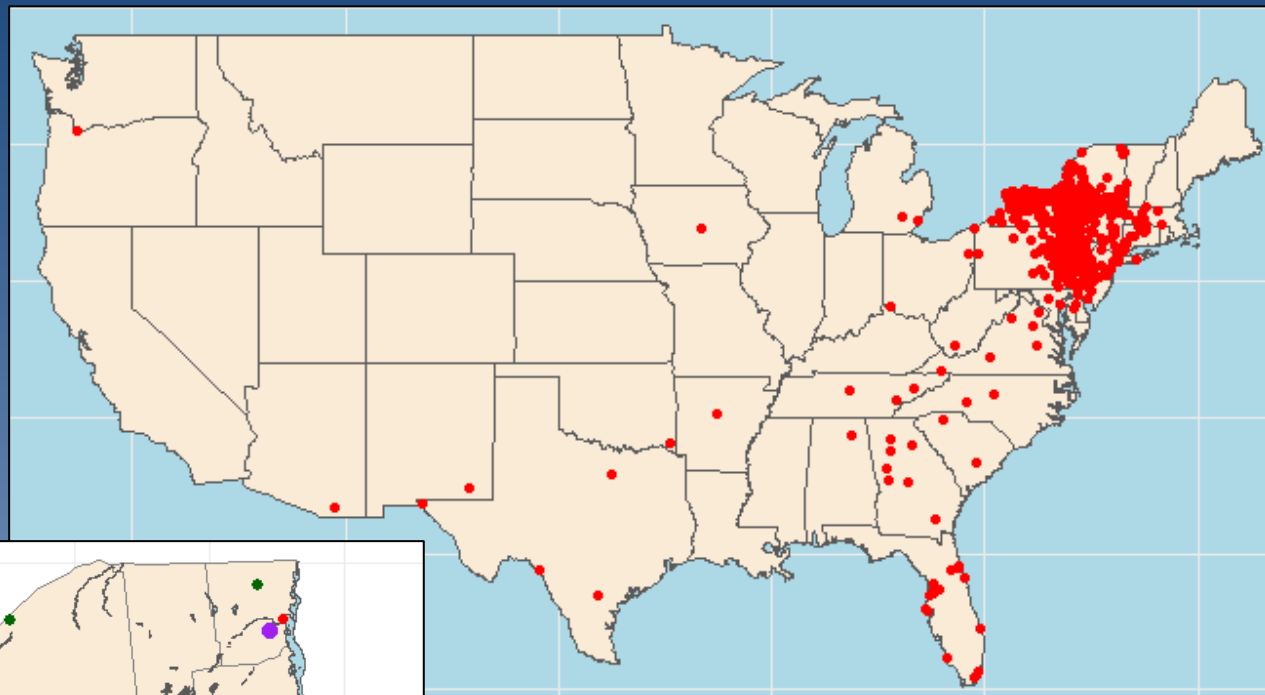
NYSDEC Region 6 and Region 7



Cormorant Diets 2025

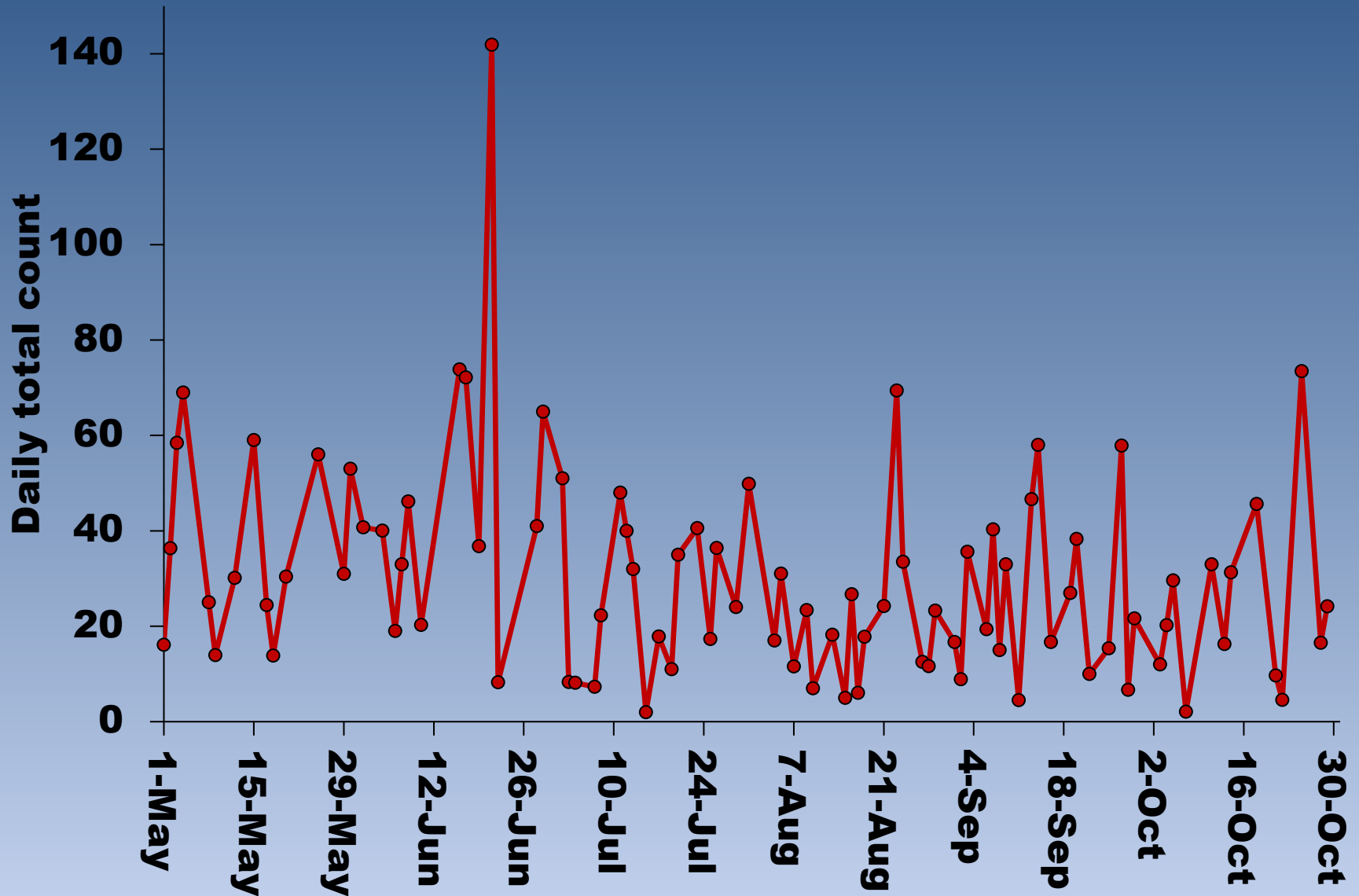
270 birds, 1,221 diet items, 15 species



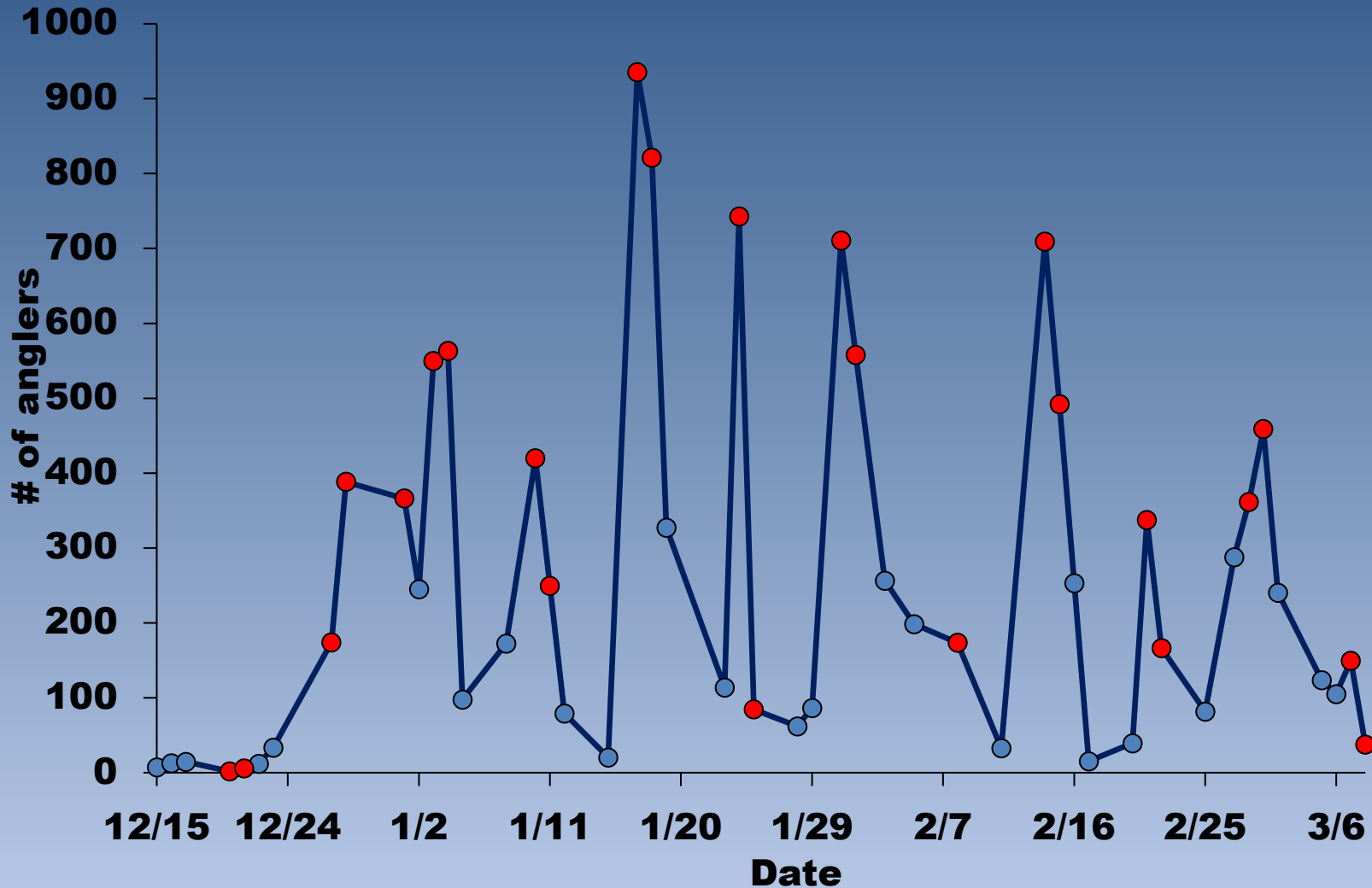


Angler Survey Zip Codes

Boat Counts, May 1 – October 31



Ice Fishing Daily Angler Counts



2025 Summary

- **Walleye population expected to remain stable in the next couple yrs**
- **YP populations still above average**
- **Smallmouth Bass populations are decreasing**
- **Gobies are abundant**
- **Zooplankton is undergoing large changes**

70 years of data!

- **Allows us to interpret results based on long-term data (high variability)**
- **Make recommendations to NYSDEC**
 - **Change regulations if necessary**
 - **Respond to public concerns**
- **Research the ways each change in the foodweb affects the fish populations**
 - **Cooperation with other agencies and researchers**
- **Not possible without long-term data**

Thank you!
NYS Federation of Lake Assoc.
Tarki Heath
Dwyer Park

