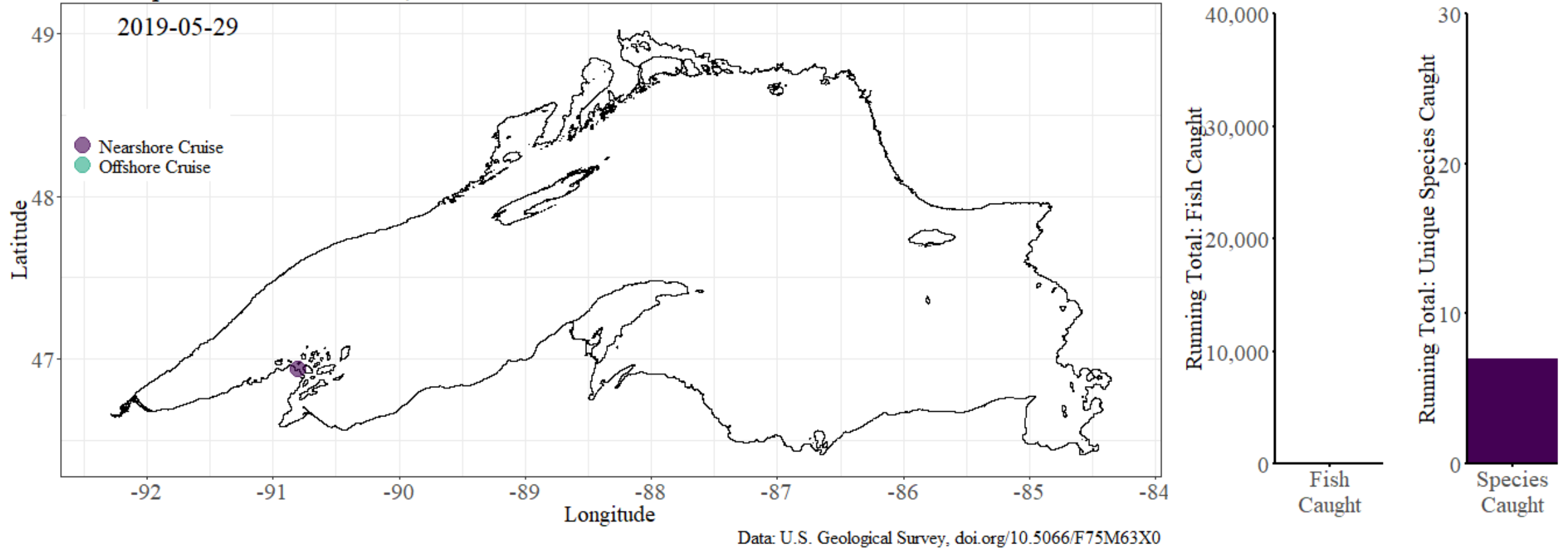


Questions for the Lake Superior Annual Bottom Trawl Surveys

Lake Superior Fish Collections, USGS R/V KIYI 2019



U.S. Geological Survey Lake Superior Biological Station
Ashland, Wisconsin

Lake Superior Prey Fish Community Objective

A self-sustaining assemblage of prey dominated by indigenous species at populations capable of supporting desired populations of predators and a managed commercial fishery

Status

/ stādəs / *noun*

Relative standing at a particular time

Prey Fish Status	▼
Sustainable	
Untenable	
Unsure	

Trend

/ trend / *noun*

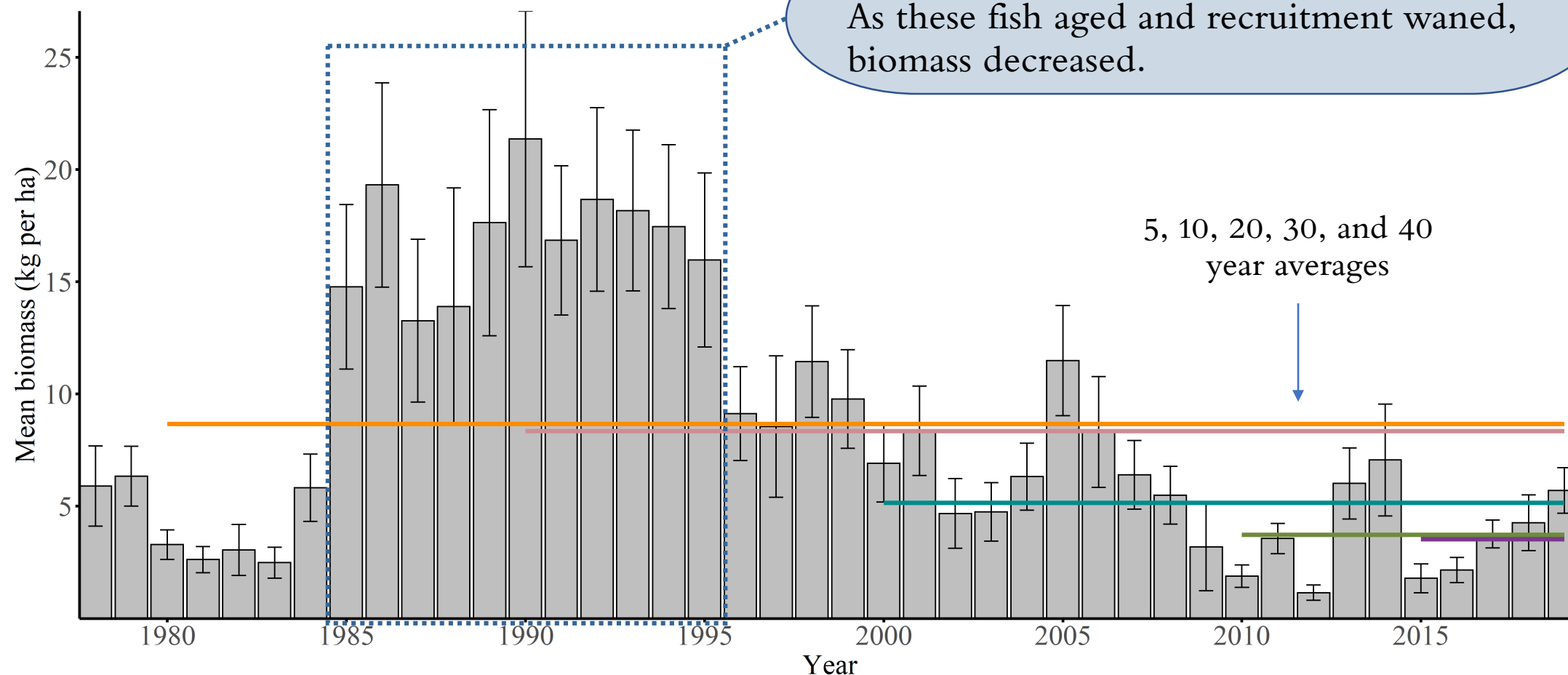
General direction in which something is changing

Prey Fish Trend	▼
Up	
Down	
Stable	
It depends	

Nearshore Prey Fish Biomass

Lake Superior Nearshore Fish Biomass

USGS bottom trawl assessment



Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

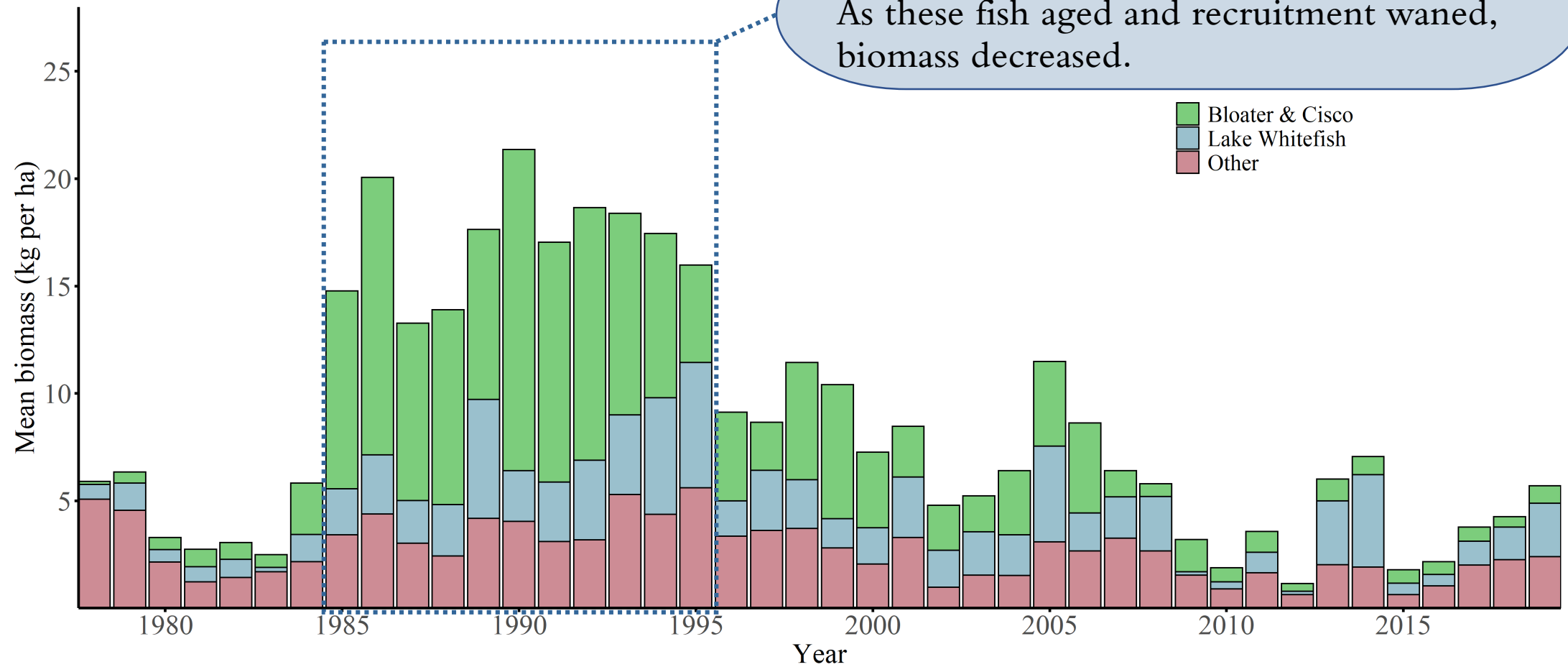
Status:

Trend: The general direction in which something is changing

Nearshore Prey Fish Biomass

Lake Superior Nearshore Fish Biomass

USGS bottom trawl assessment

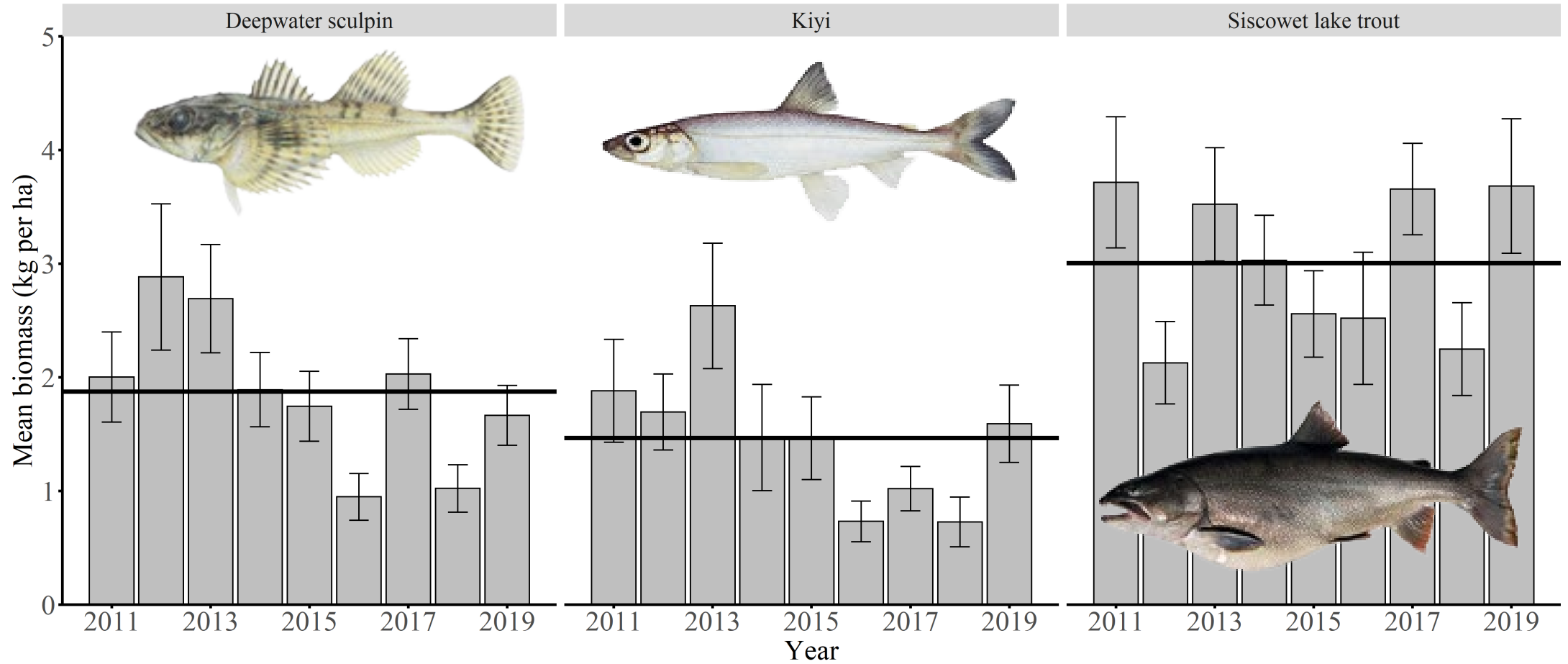


Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

Offshore Fish Biomass

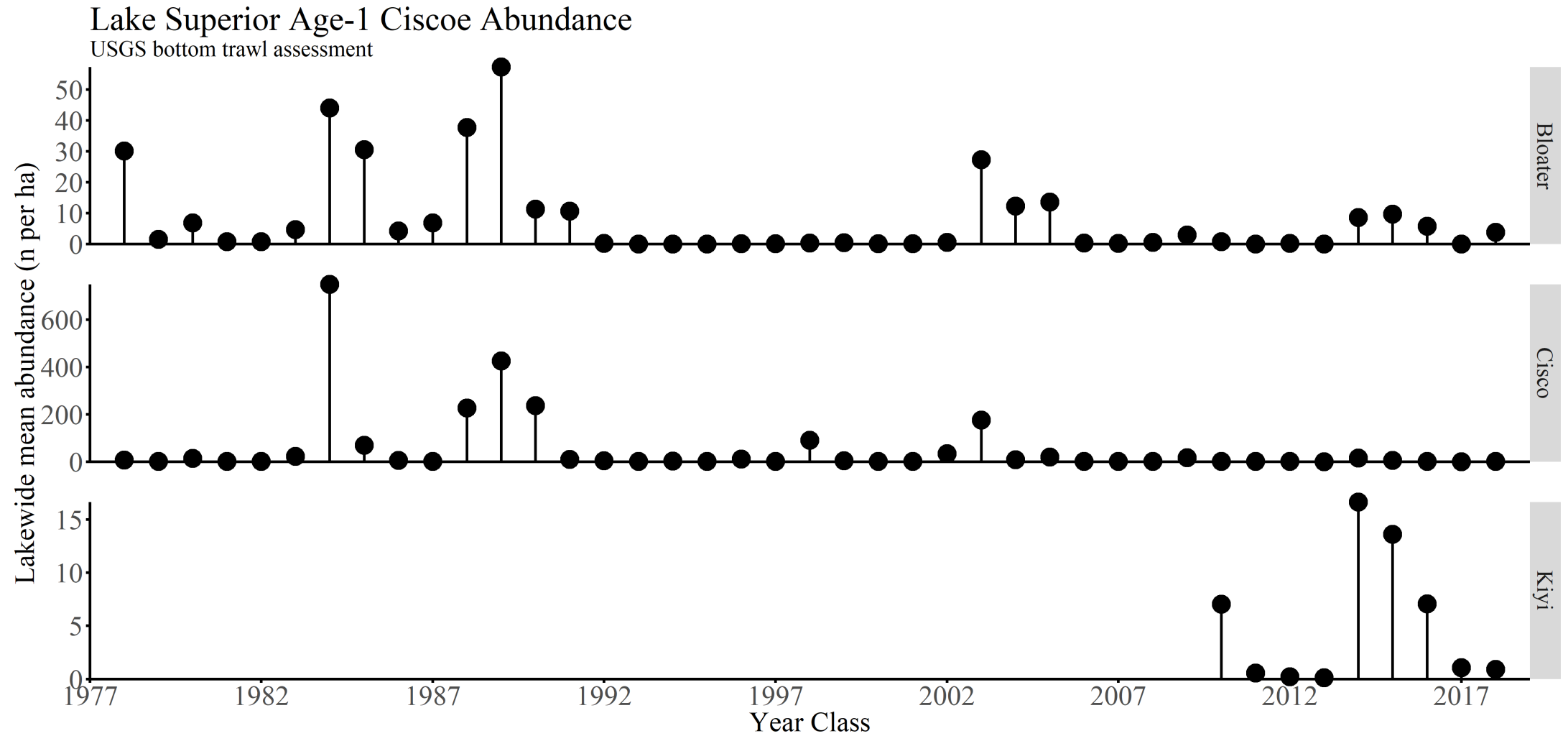
Lake Superior Offshore Fish Biomass

USGS bottom trawl assessment



Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

Age-1 Ciscoe Trends

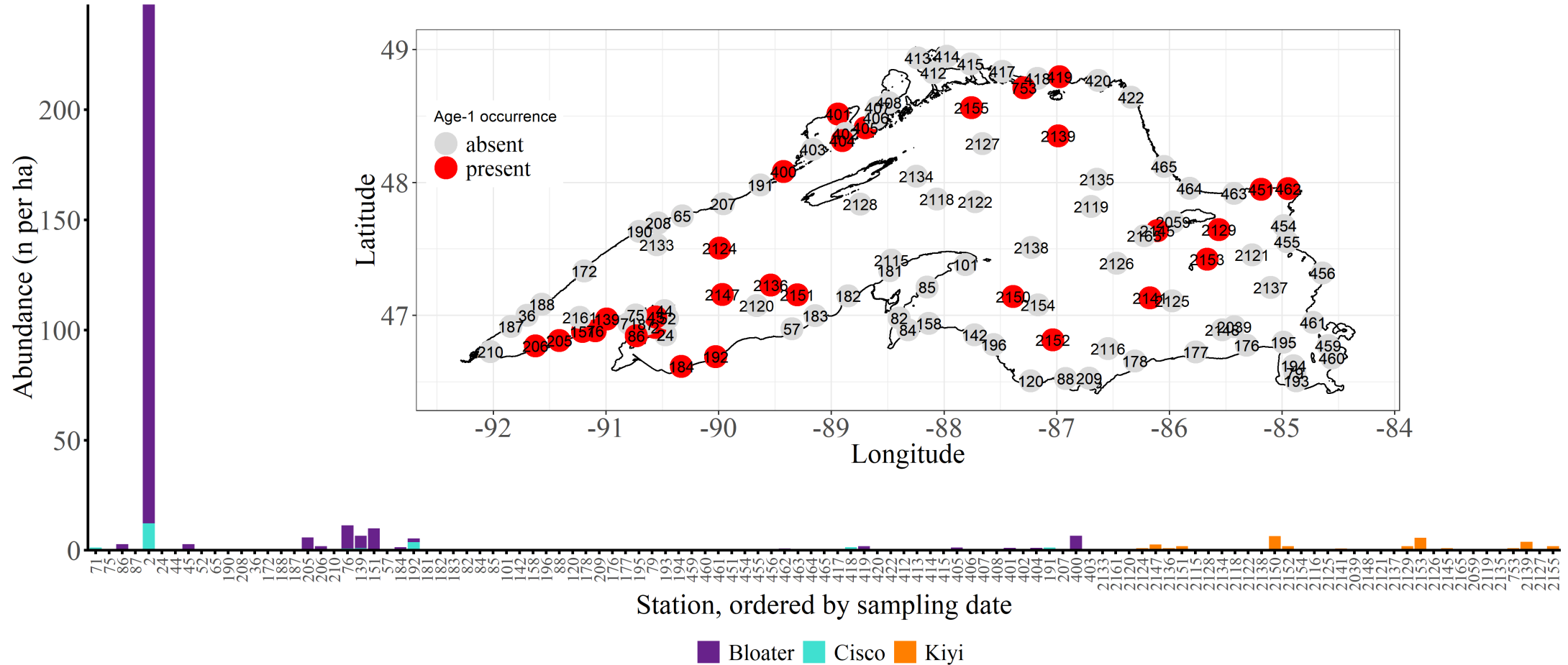


Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

2019 Ciscoe Age-1 Collections

Lake Superior Age-1 Ciscoe Abundance

USGS bottom trawl assessment, 2019

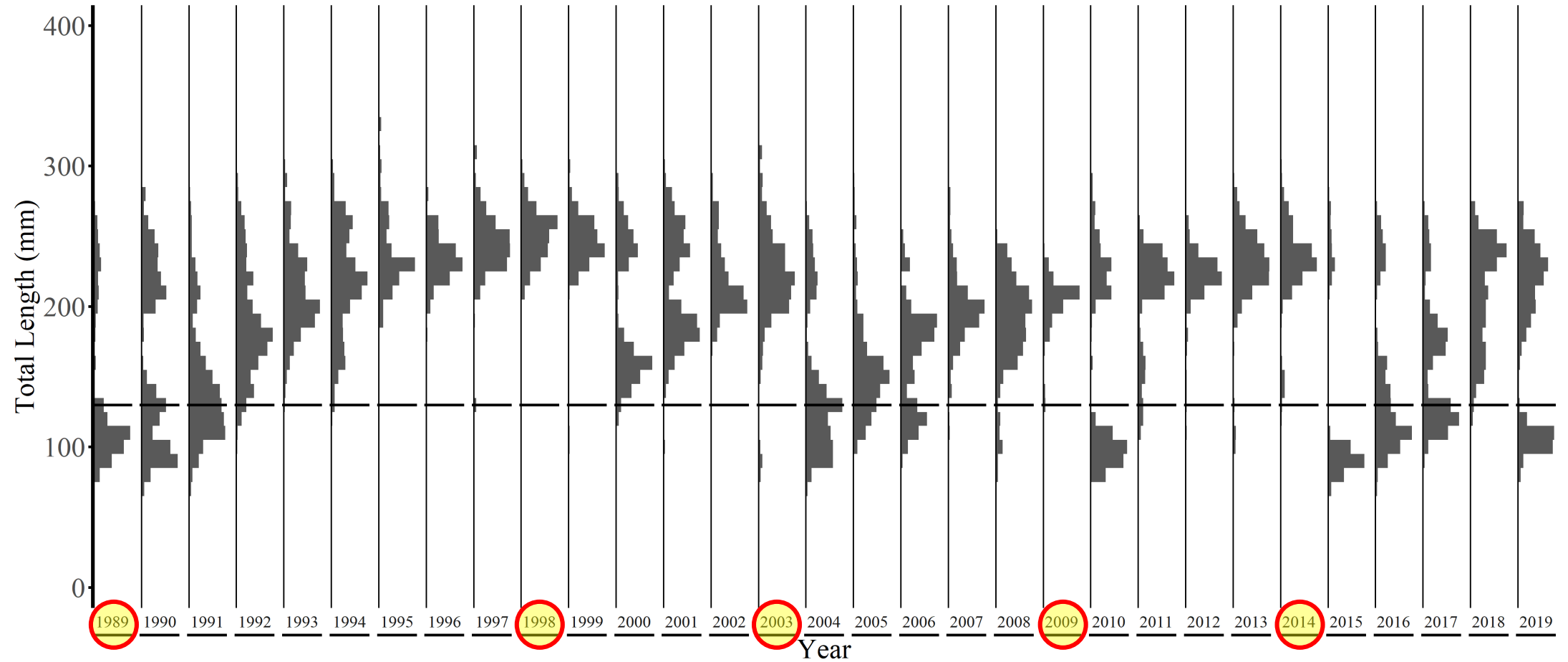


Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

Bloater Annual Length Frequency

Lake Superior Bloater Length Frequency

Nearshore spring bottom trawl collections, 1989-2019

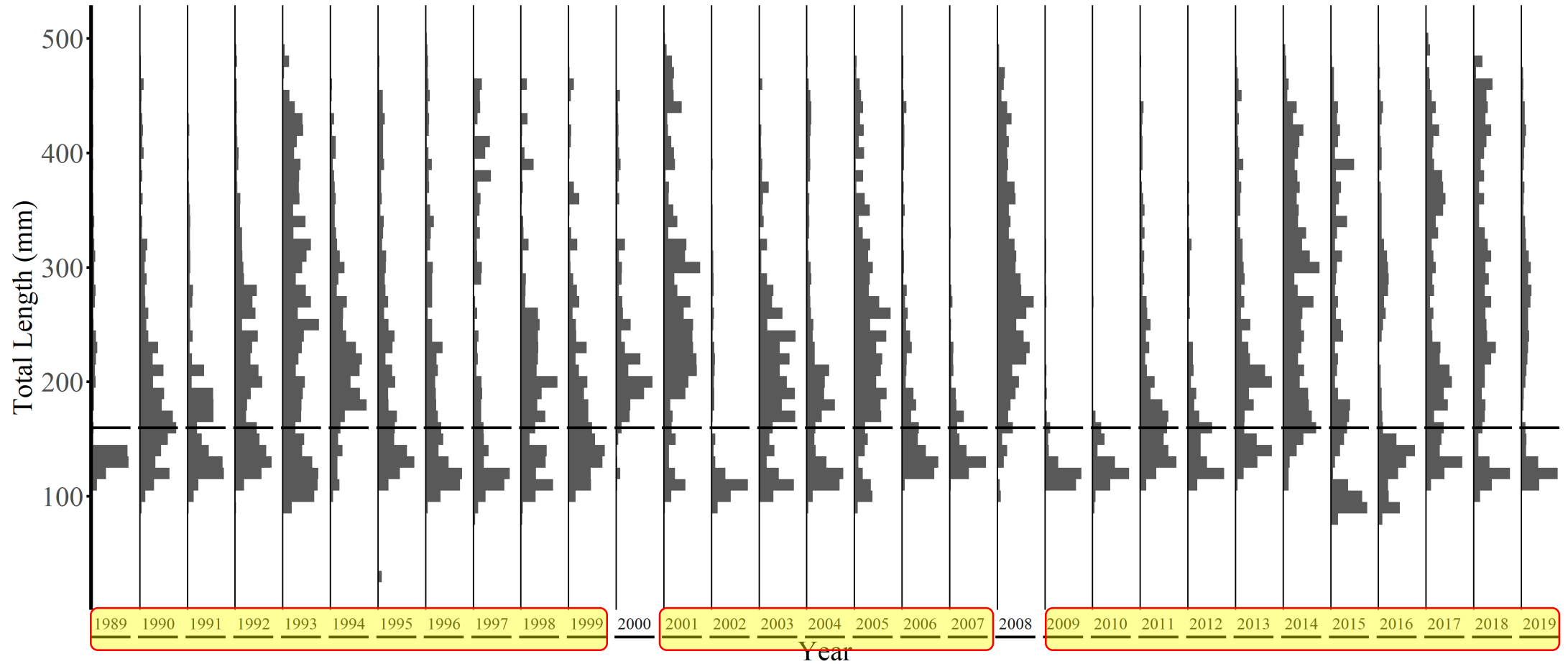


Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

Lake Whitefish Annual Length Frequency

Lake Superior Lake Whitefish (<500 mm) Length Frequency

Nearshore spring bottom trawl collections, 1989-2019

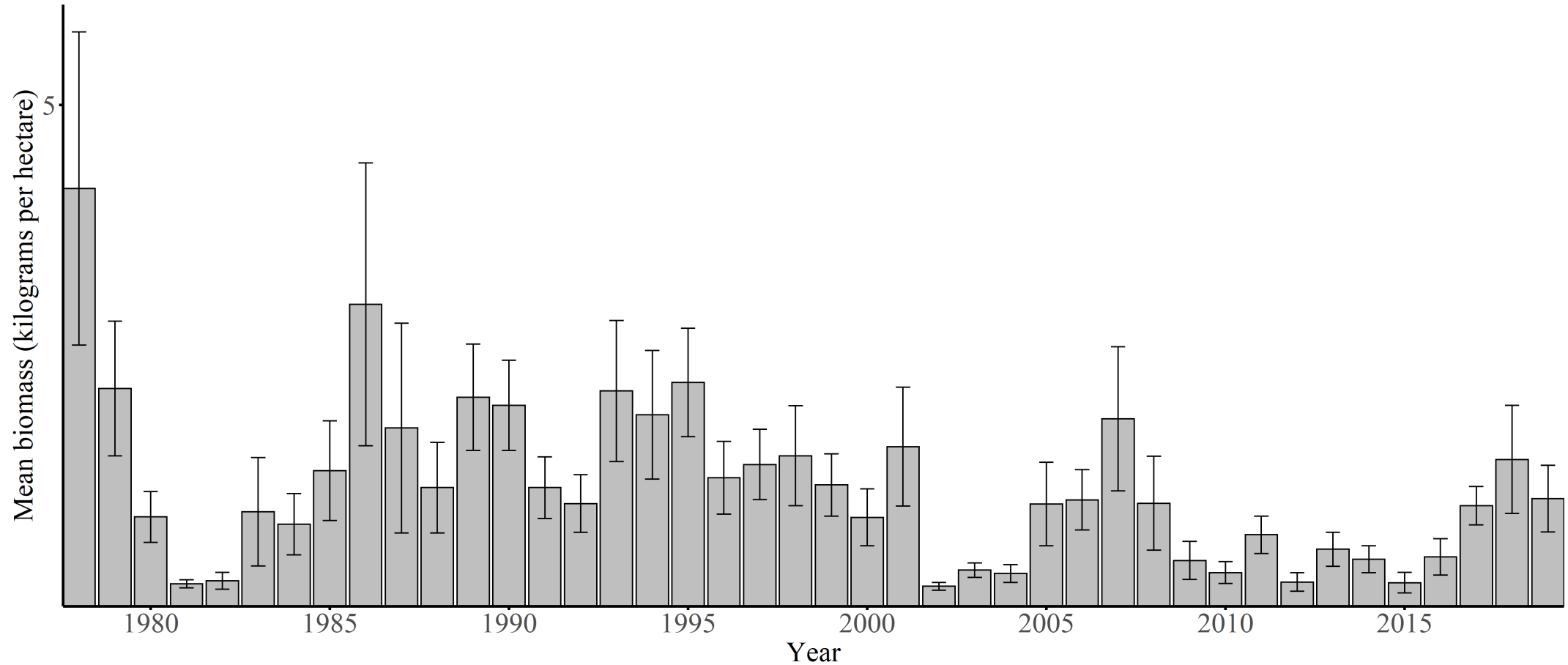


Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

Lean Lake Trout Prey

Lake Superior Nearshore Rainbow Smelt Biomass

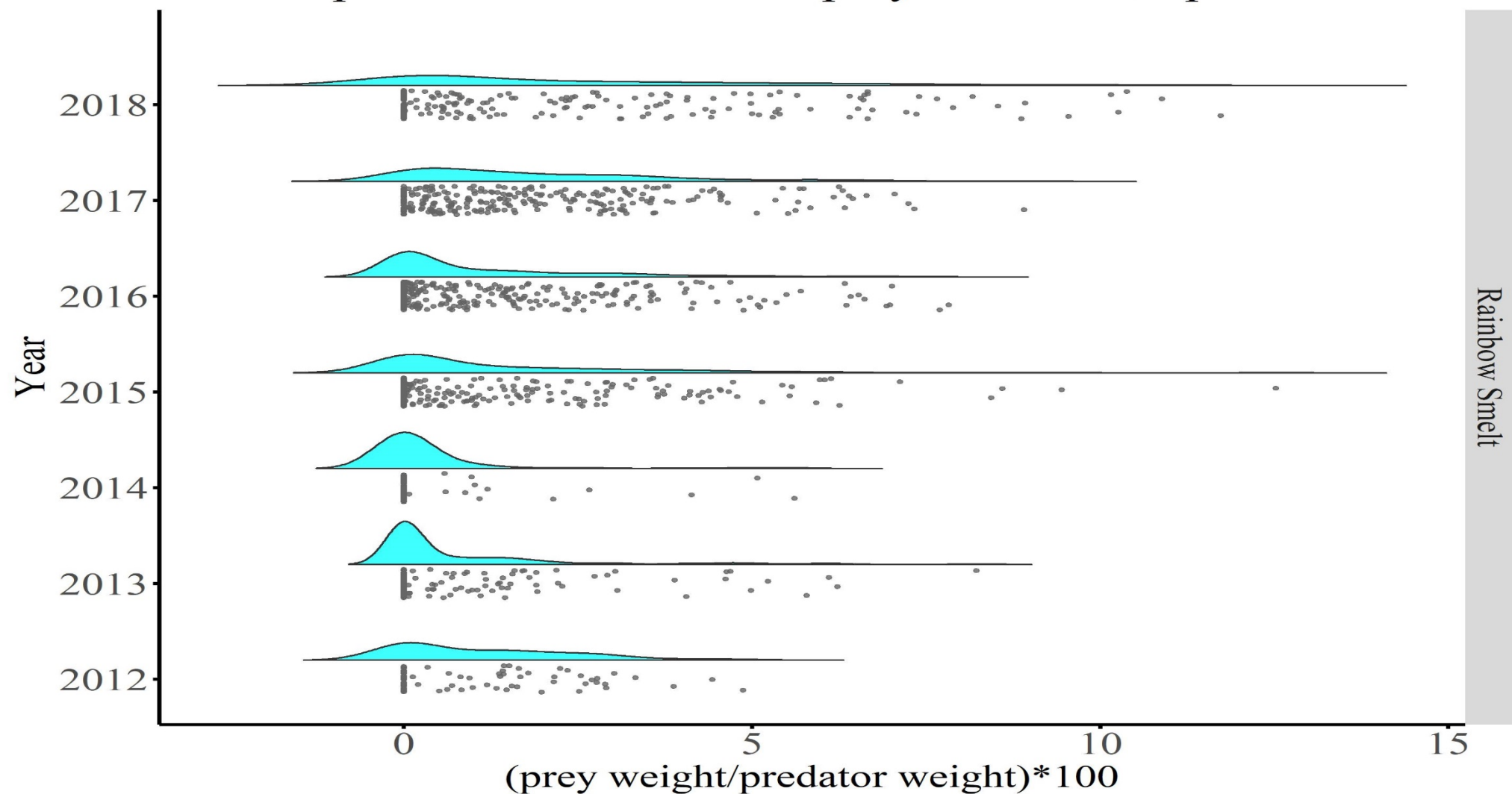
USGS bottom trawl assessment



Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0

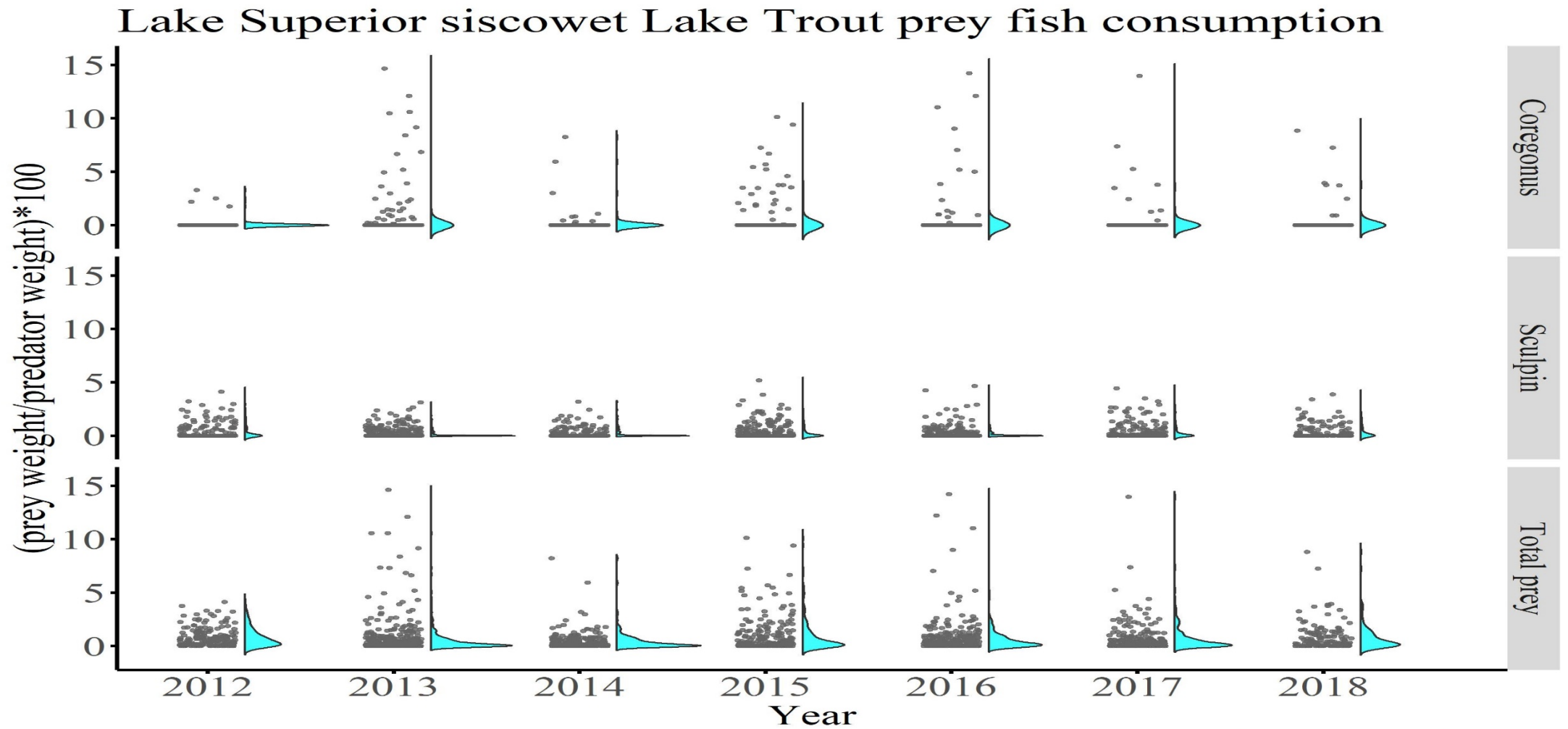
Lean Lake Trout Prey Fish Consumption

Lake Superior lean Lake Trout prey fish consumption



Data: USGS and WI-DNR stomach content analyses

Siscowet Lake Trout Prey Fish Consumption

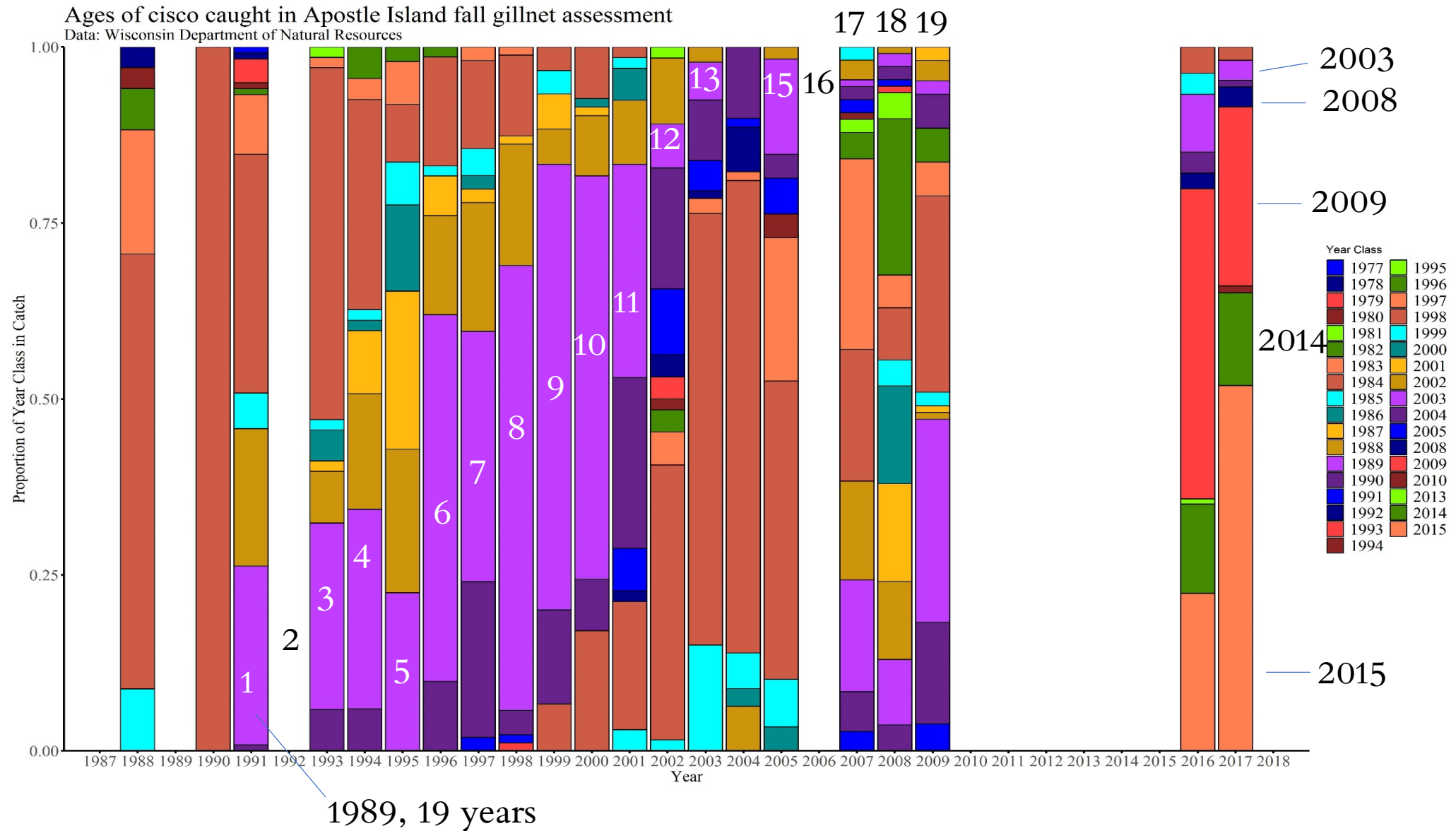


Data: USGS and WI-DNR stomach content analyses

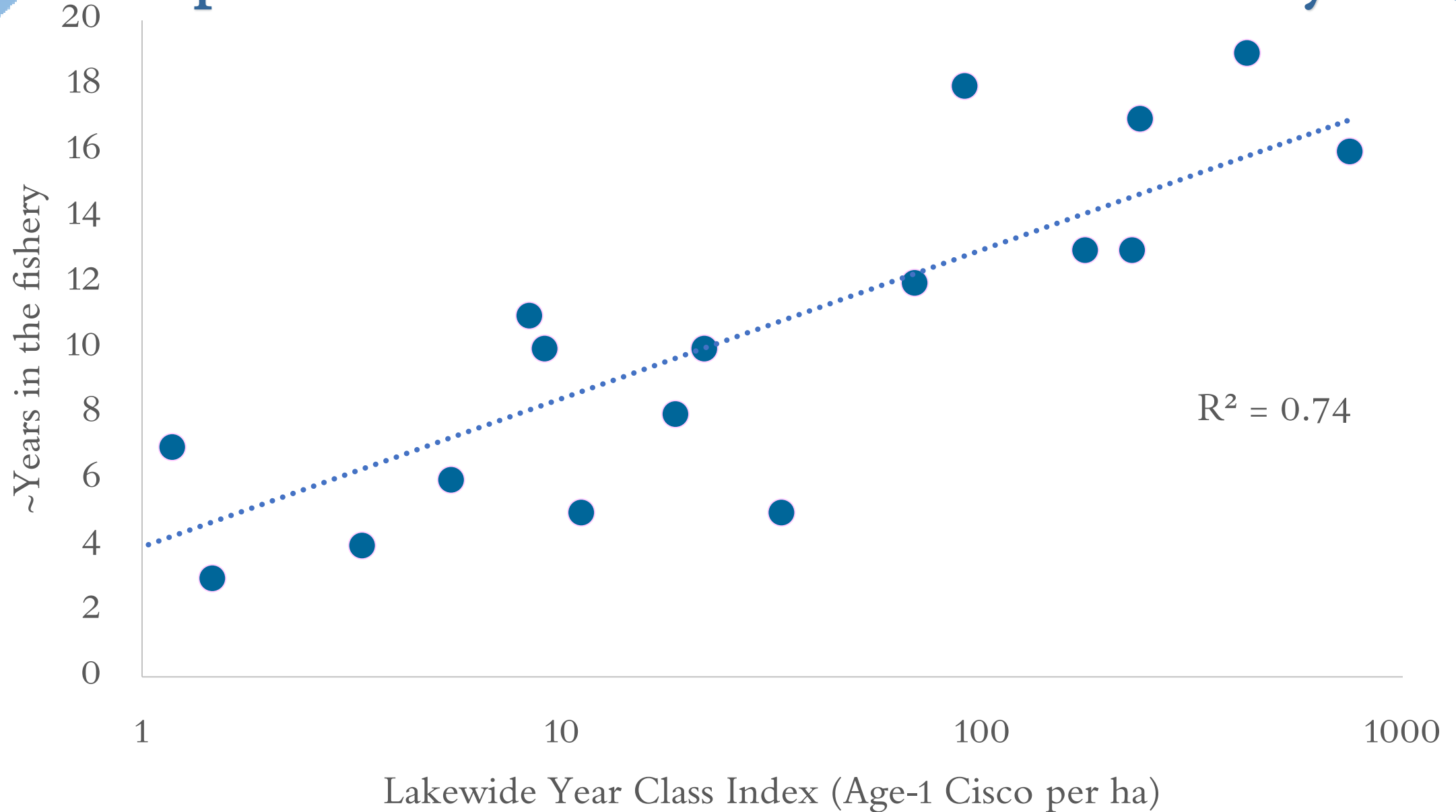
How Many Age-1 Cisco Does It Take To See A Return To The Fishery?



Step 1: Age Composition of the Fishery



Step 2: Year Class Contribution To The Fishery

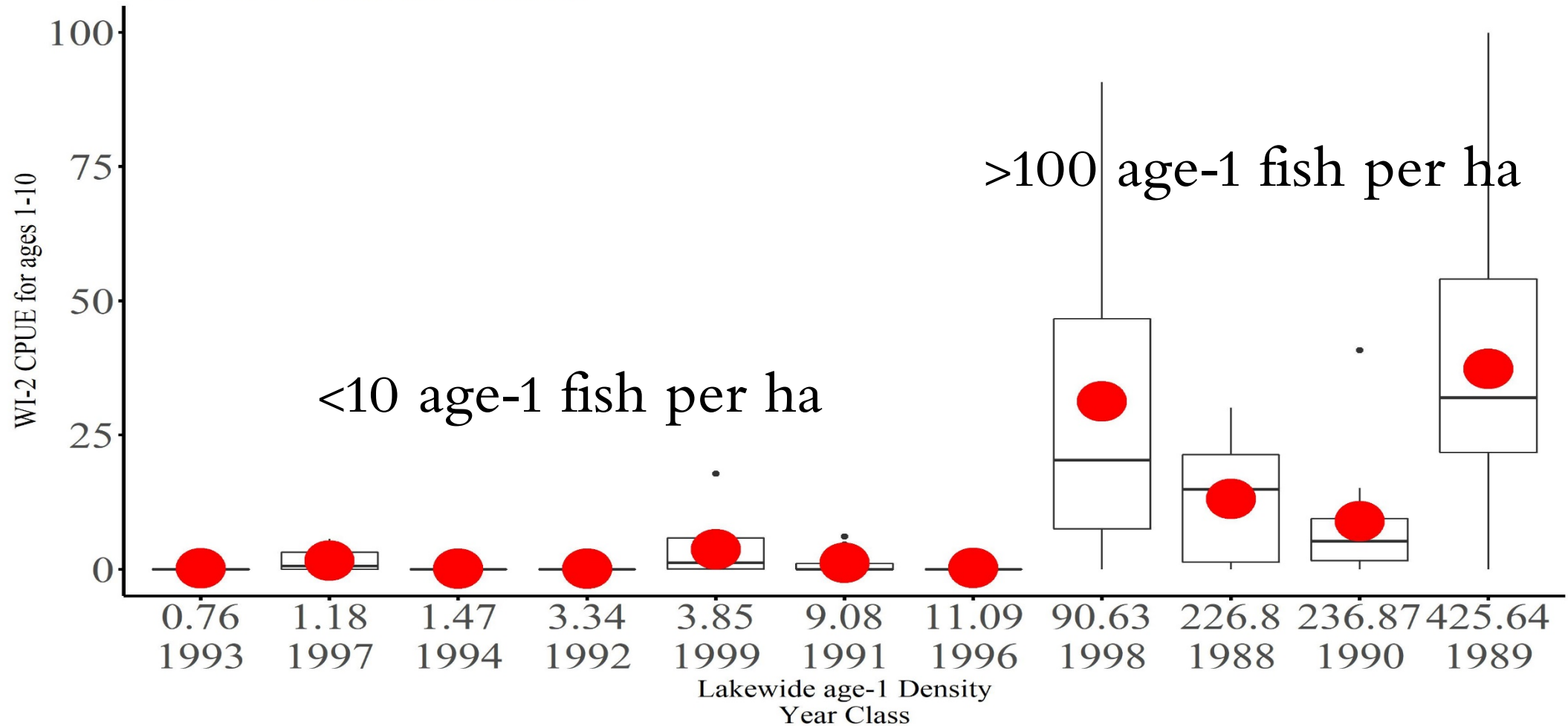


Step 2: Year Class Contribution To The Fishery

CPUE of cisco year classes in Lake Superior

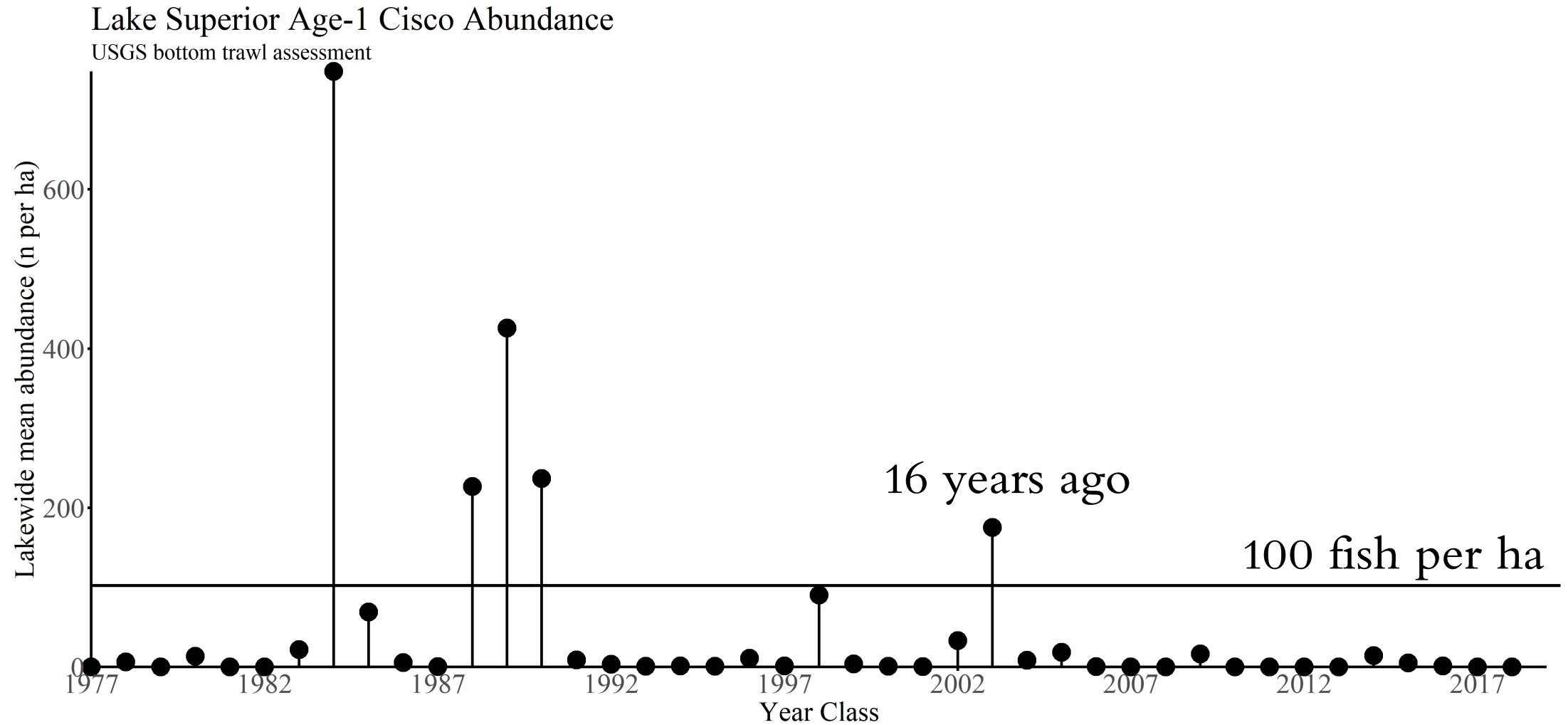
Data: Age-1--USGS lakewide bottom trawl surveys

CPUE--WI-DNR fall cisco assessment



CPUE = Number of age 1-10 fish per 1200 feet of net per hour

Cisco Year Class Strength



Data: U.S. Geological Survey, doi.org/10.5066/F75M63X0