Upper and Lower Clam Lake 2017 Comprehensive Fish Survey

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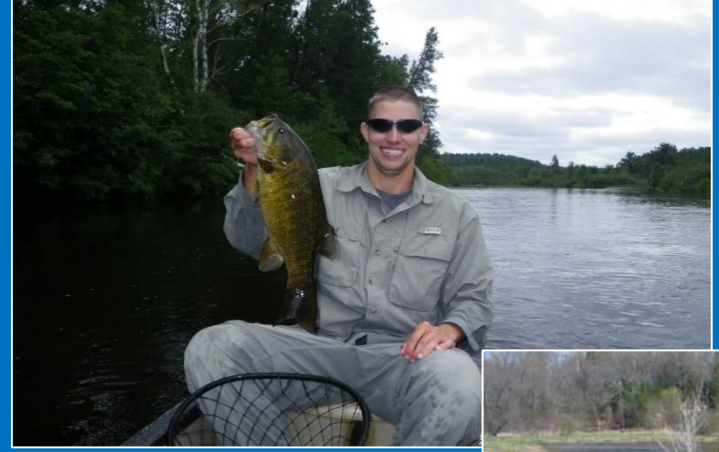
Our crew

- Myself, four years with Wisconsin DNR and 10 years working fisheries in 5 states
- Kent Bass, advanced fisheries technician – over 25 years fisheries experience in Wisconsin
- Josh Kucko, fisheries tech, with us since 2012



Goals for this talk

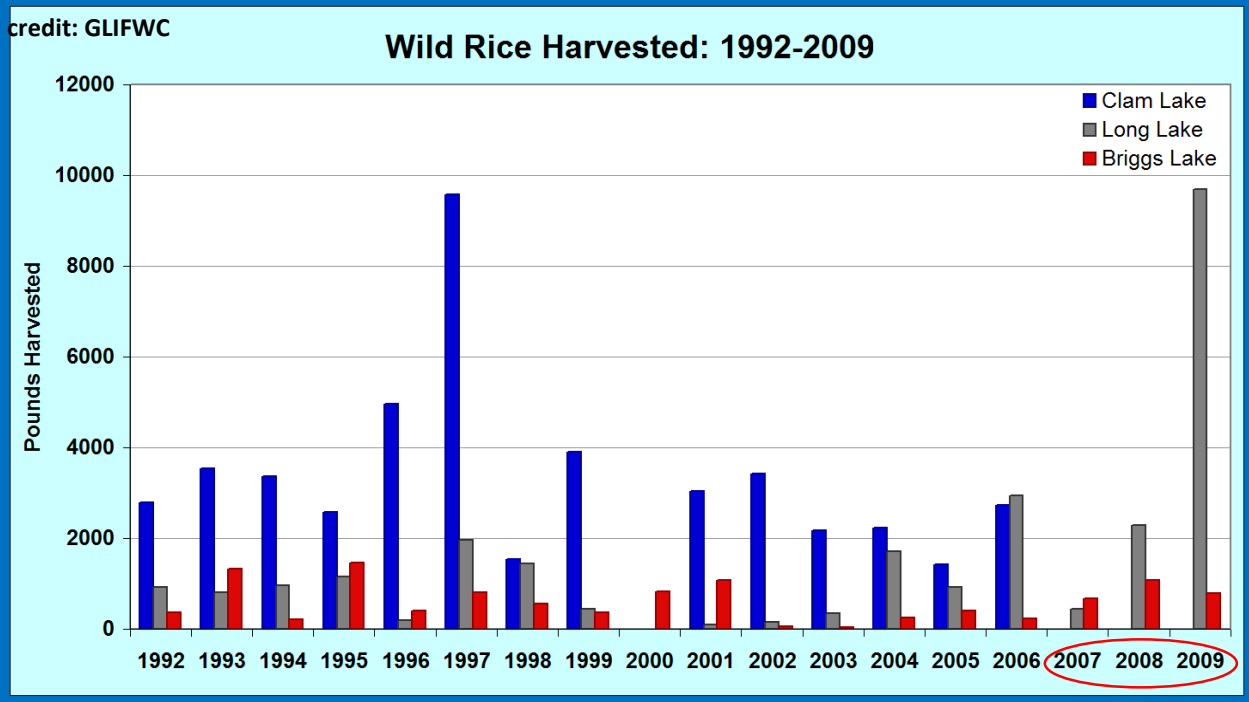
- Lakes & History
- 2017 Survey Methods
- Results
- What does this mean
- Management options
- Questions

Historical Clam Lake

- Shallow, fertile
  - Max. depth 11 ft.
- Clearer than present
- DENSE VEGETATION
  - Mechanical Control common

Historical Fishery/Wild Rice

- Big bluegill fishery, regionally known for abundant/big panfish
- Top wild rice water in state for harvest
- Excellent waterfowl hunting



WHAT CHANGED? – 2005 Common Carp Boom

INCREASES

- TURBIDITY(Turbid state)
- COMMON CARP
- CHANNEL CATFISH
- WALLEYE

DECREASES

- BLUEGILL
- NORTHERN PIKE
- VEGETATION
- WILD RICE
- WATERFOWL

Wild Rice Changes

PRE-CARP(2006)

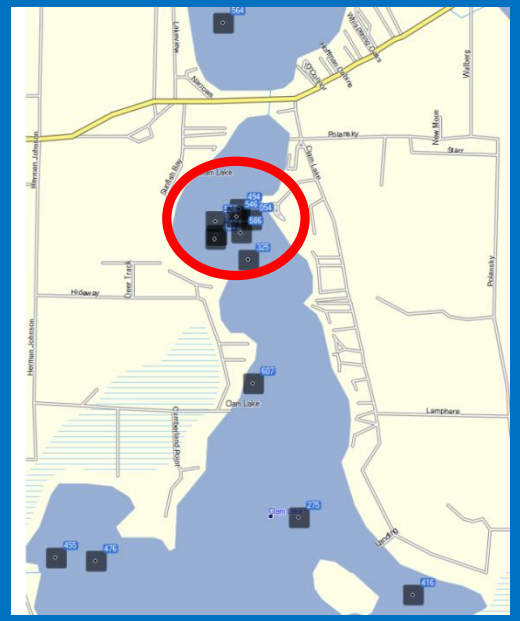
Wild Rice Changes

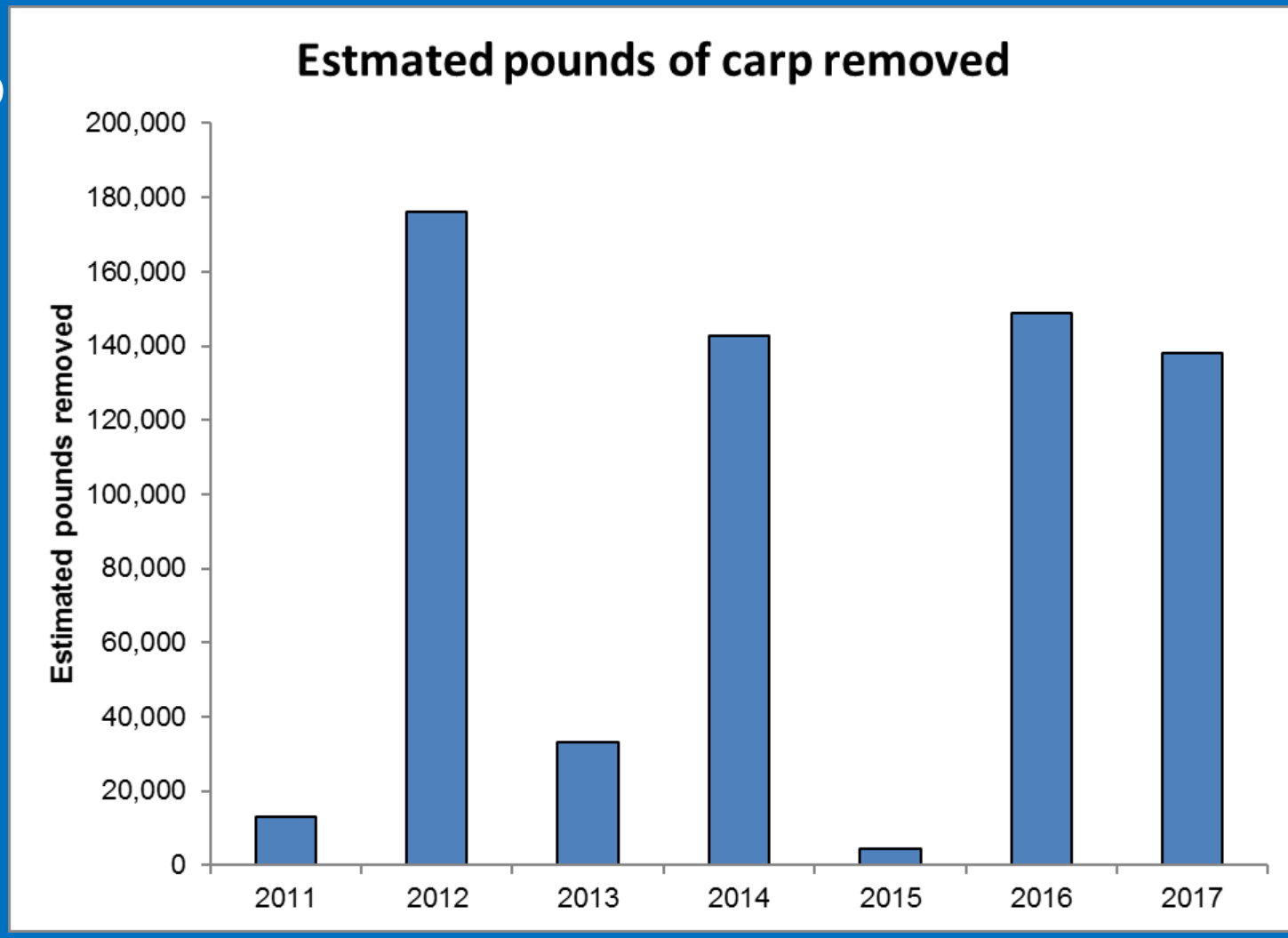
PRE-CARP(2006)

POST-CARP(2008)

Commercial Netting

- Carp removals begin in 2011
- Utilize “judas fish” with radio transmitters
- Since 2011 an estimated **656,000 lbs** removed





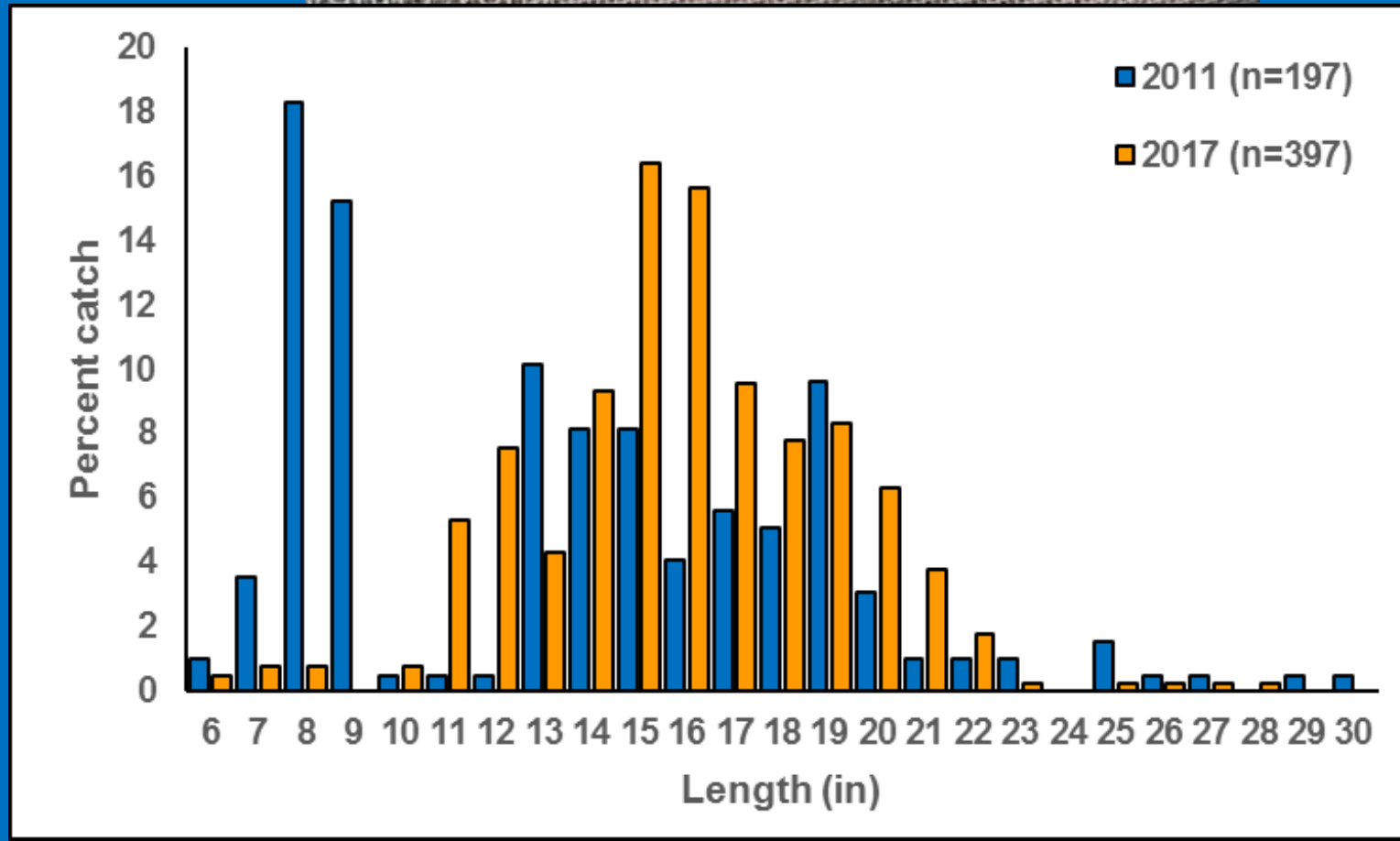
Carp Removal

2017 Survey Methods

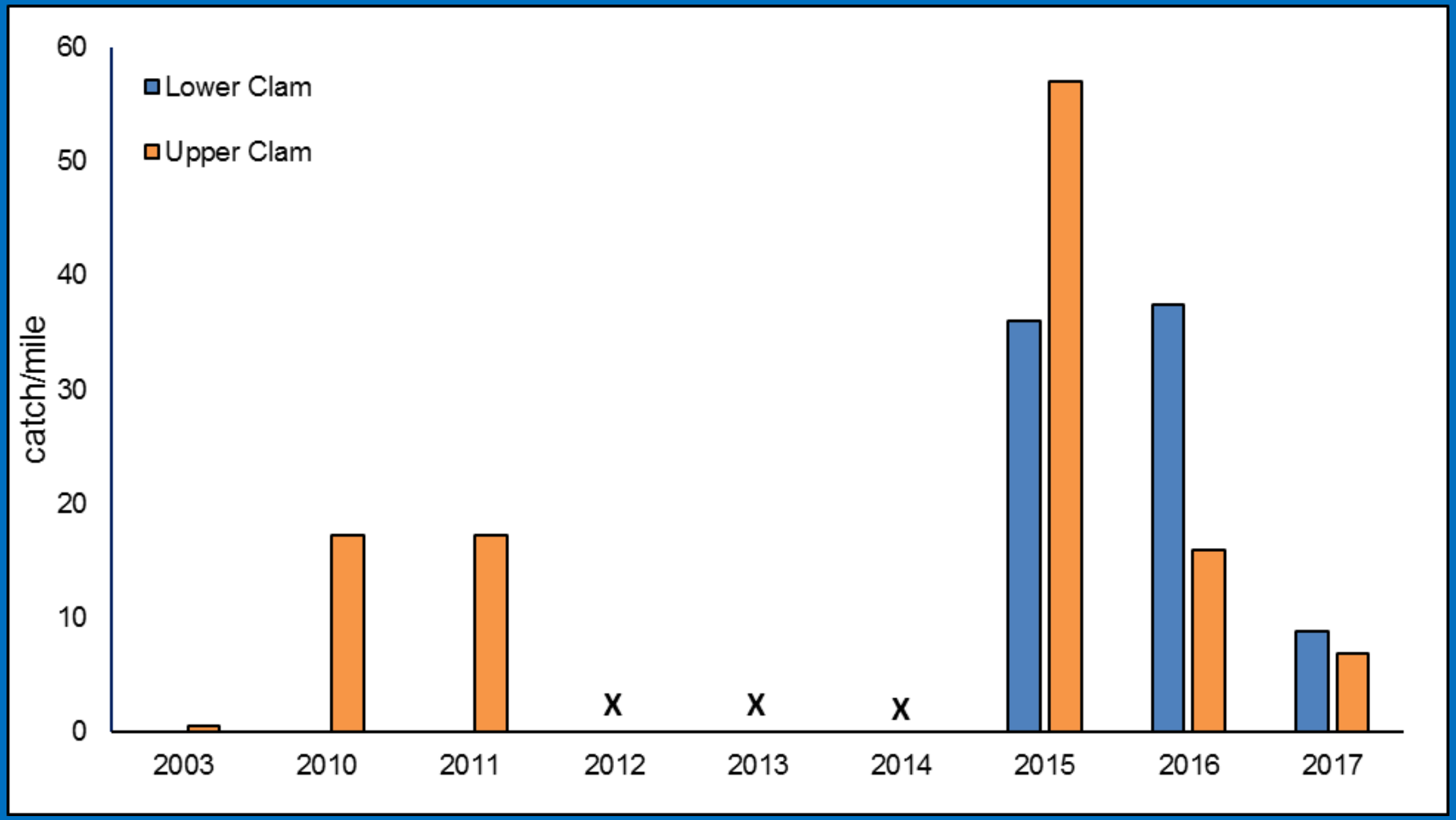
- Last survey was in 2011
- Netted for northern pike
- Electrofished Clam River for walleye
- Night electrofished Clam Lake for bass/panfish
- Summer netted for channel catfish
- Mini-fyke nets set for juvenile fish
- Fall electrofishing for juvenile walleye
- Data collected on carp

2017 Results – Walleye

- Clam River catch was 42.6 fish/mile
- Netting catch was 0.3 fish/net night, similar to 2004 and decreased since 2011 (3.3 fish/net night)
- Growth was average for NW Wisconsin
- Average size increased for walleye since 2011 (+0.8 inches males, +2.2 inches females)



Clam Lake Walleye Recruitment



2017 Results – Northern Pike

- Catch increased from 12 fish/net night (2011) to 33 fish/net night(~3X)
- Average length decreased by an inch from 19.8 to 18.8 inch avg.
- Levels are similar to 2004 numbers

2017 Results – Largemouth/Smallmouth Bass

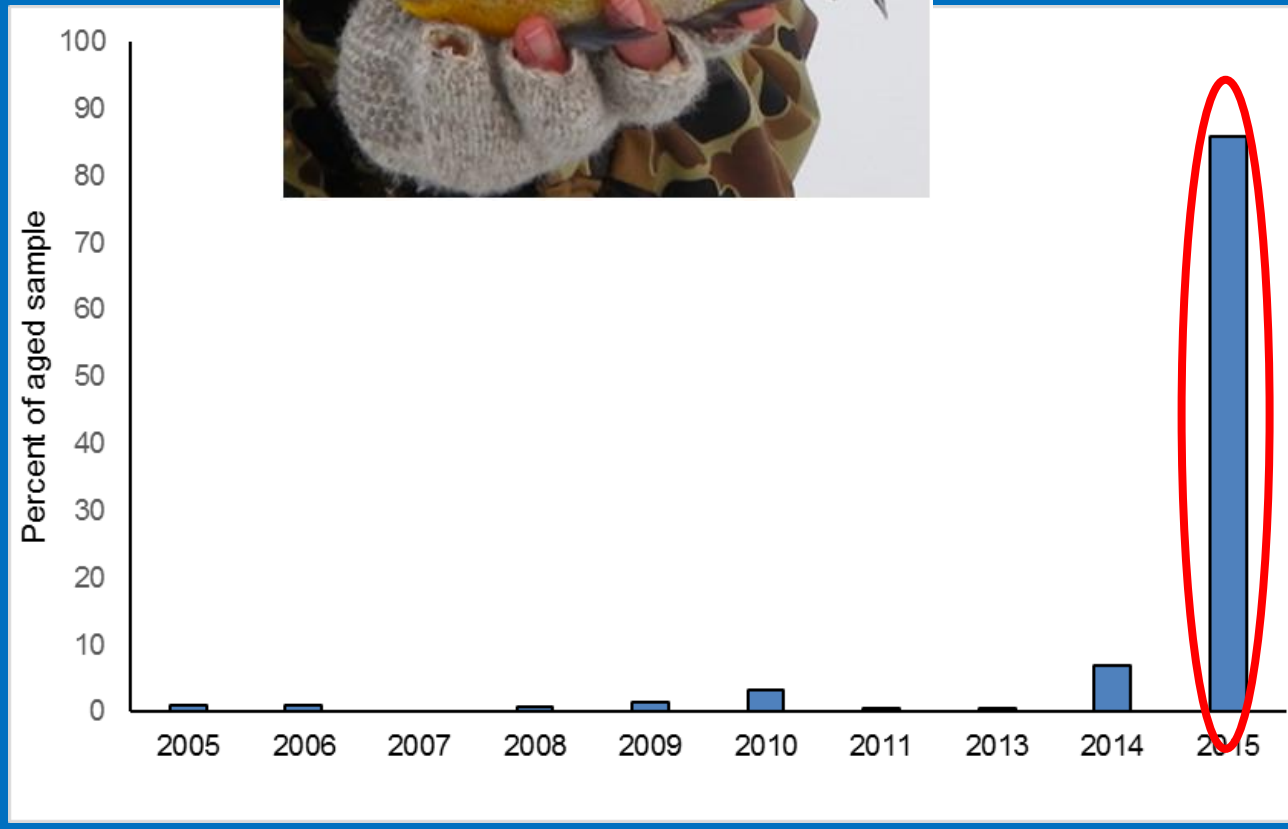
- Low densities
- 13 largemouth bass and 18 smallmouth bass
- Electrofishing catch rate for both has never been above 6.4 fish/mile
- Average size is good, 14.4 inch for largemouth and 12.2 inch for smallmouth bass

2017 Results – Channel Catfish

- 18 fish collected
- 16 were captured electrofishing
- Average size was 24.7 inches
- Appear to be low density

2017 Results – Bluegill

- Catch rate increased from 2.2 to 22.8 fish/mile (10X)
- Average size decreased from 7.2 inch to 5.6 inch
- Most fish were 2 years old from 2015
- These fish ranged from 3.6 inch to 6.8 inch, wide growth range
- Relatively fragile



2017 Results – Black Crappie

- Collected 102 black crappie ranging from 3.2 to 13.0 inch
- 14% were over 10 inch
- Electrofishing catch rates decreased from 27.3 fish/mile to 12.0 fish/mile

2017 Results – Yellow Perch

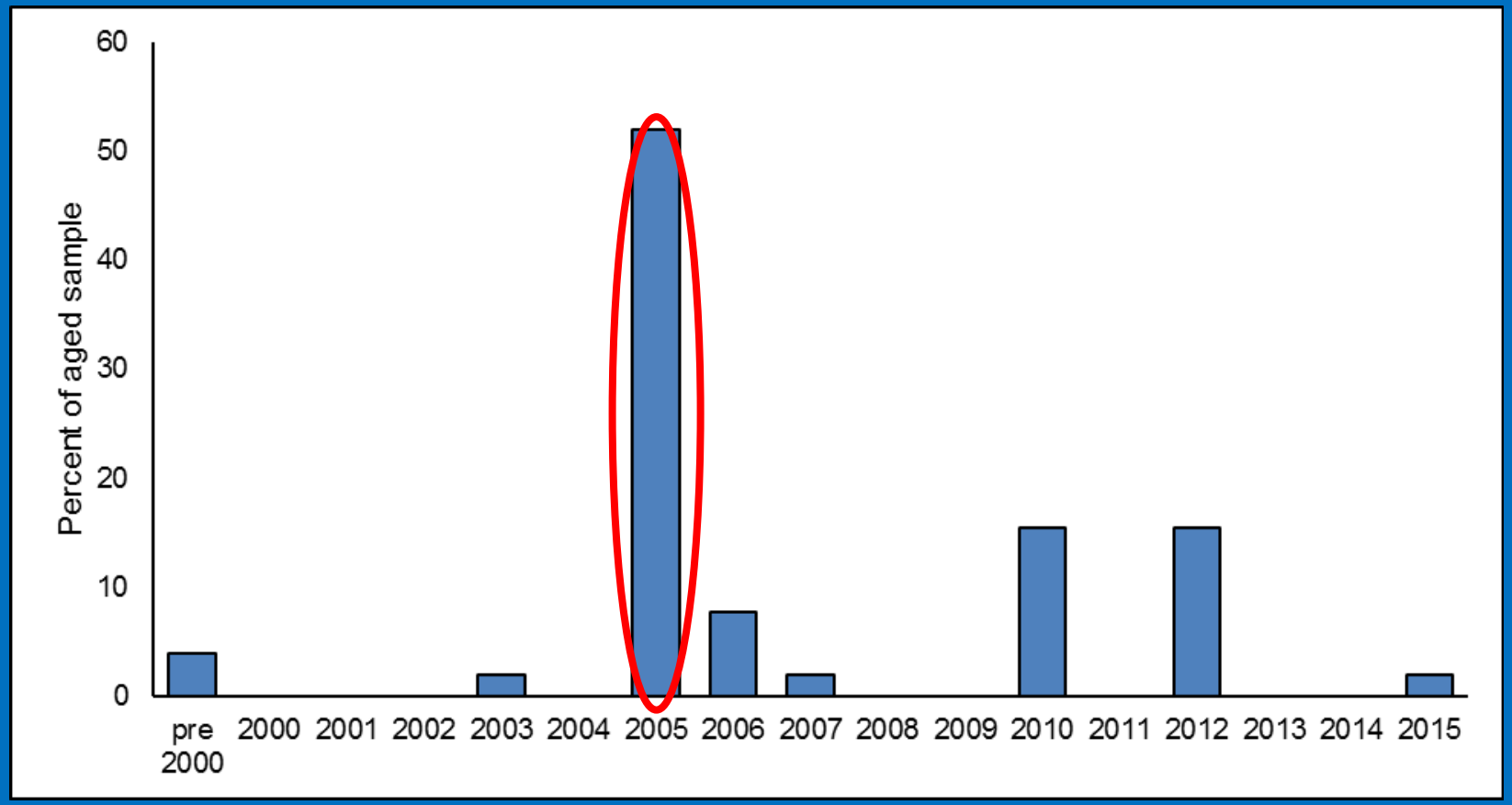
- Catch rate increased from 0 (2011) to 23 fish/mile
- Average size was 4.4 inch, an increase from 1995 (3.4 inch)
- Seem to have benefitted from absence of bluegill and increased vegetation?

2017 Results – Common Carp

- Adult catch rates in nets decreased from 15.3 fish/net night (2011) to 0.1 fish/net night
- One carp was observed in spring electrofishing
- Sixteen adults were observed in fall, catch rate = 2.8 fish/mile

2017 Results- Common Carp Aging

- Due to low numbers we used aging from common carp collected during the 2017 removal
- 2005 is still the dominant year class driving the carp population



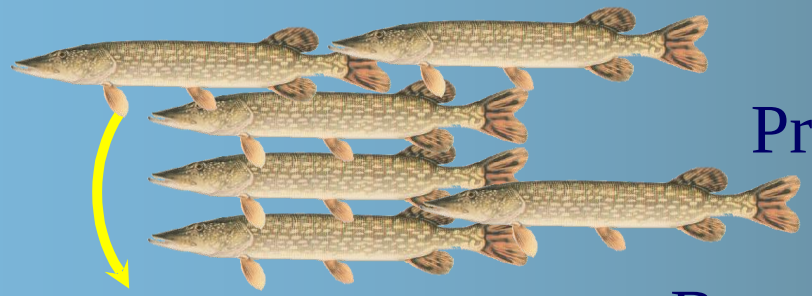
2017 results- Young Carp

- 33.2 fish/net night in 2017
- Highest density ever seen
- Ranged from 2.0 – 4.2 inches
- St. Croix Targeted Young Carp and averaged 129.3 fish/net night

What does this mean?

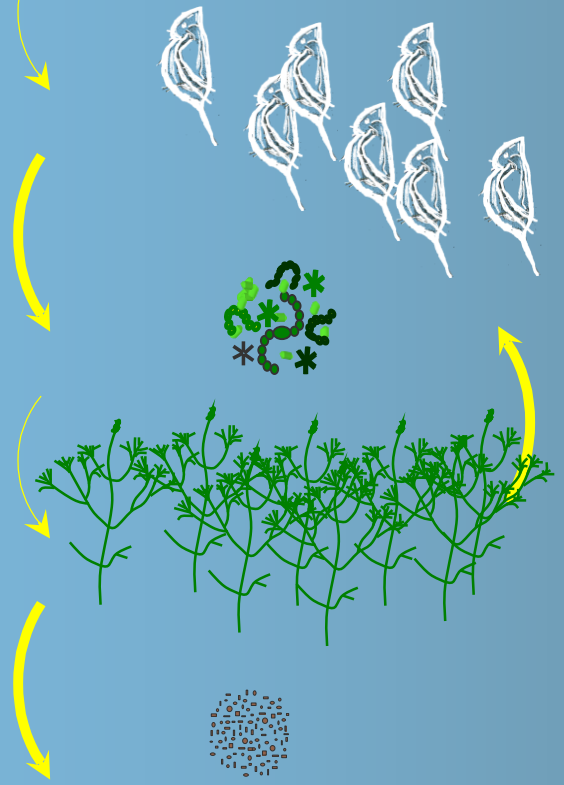
- Northern Pike, Bluegill, and Yellow Perch densities have increased. For bluegill, this increase seems unstable because it is made up of one sustained year class
- Walleye and catfish densities appear to be declining as the lake becomes clearer/more vegetated
- Carp removals appear to have lowered adult carp densities. The remaining adults produced a very large year class of young carp.
- Clam Lake fishery/ecosystem is complex and changes wildly in short amounts of time

Clear-water State



Predators

Bottom feeders



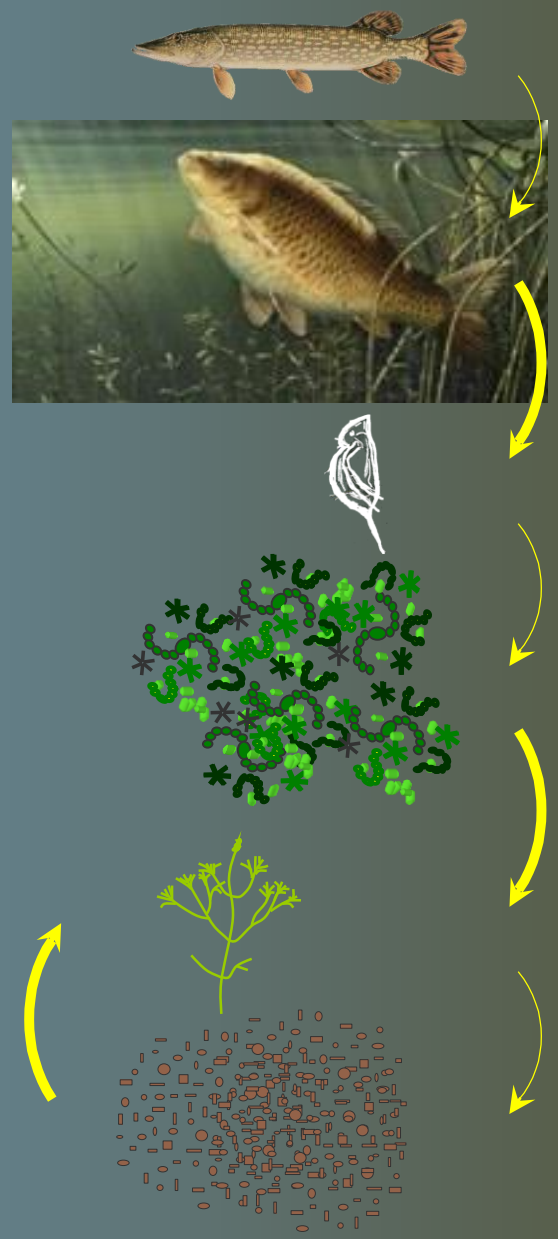
Zooplankton grazing

Algae

Aquatic plants

Sediment Resuspension

Turbid-water State



N. Hansel-Welch & M.B. Butler, 1997

Turbid vs. Clear State

Lake State	Abundant Gamefish Species	Carp Abundance	Aquatic Vegetation Density	Wild Rice Density	Waterfowl Density
Turbid	Walleye, Channel Catfish, Yellow Perch	High	Low	Low	Low
Clear	Bluegill, Northern Pike, Largemouth Bass	Low	High	High	High

Fisheries Management Options

- 1.) Work with stakeholders, St Croix Tribe, Clam Lake PRD, and other interested parties to **remove** carp
- **End goal** – restore natural fishery, wild rice, and waterfowl conditions
- DOING THIS NOW

- 2.) Pursue option 1 for period of time until it appears ineffective
- **Alter/discontinue** carp management or see what happens naturally with the lake for a period of time.
- Will carp populations stay low or rebound?
- HAVEN'T DONE THIS

Questions???