



# Unique Fish of the Chippewa River

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## Extensive Fisheries Inventory – 2001 & 2002

- Lower Chippewa (Dells Dam to the Mississippi River) 60 miles – Spring, summer and fall
- 65 species were captured
- 9 species – state threatened, endangered or of special concern
- Index of Biotic Integrity indicated that the lower Chippewa River fish community was in excellent condition
- Substantial decline in the shovelnose sturgeon population was observed – 2019 Update



# Chippewa River Sampling

- Late summer baseline river monitoring - electrofishing
  - Eau Claire - Dells Dam to I-94 Bridge
  - Durand – Ninemile Slough to Hwy 10 Bridge
  - Ella – Ella to Nelson



# Lower Chippewa River Fish Community

- Habitat varies – Upper, Middle, Lower - High Diversity
- Most common fish – Shorthead Redhorse
- Gamefish
  - Smallmouth bass – Common throughout
  - Walleye – Common throughout
  - Muskellunge – More common upstream – Eau Claire
  - Sauger – More common downstream – Ella
- Threatened and Endangered Fish
  - Blue Sucker – More common in Durand and Eau Claire
  - River Redhorse – More common in Durand
  - Crystal Darter – More common in Durand

# Blue Sucker



# Mooneye





# Shorthead Redhorse





# Golden Redhorse



# Silver Redhorse



# Northern Hogsucker

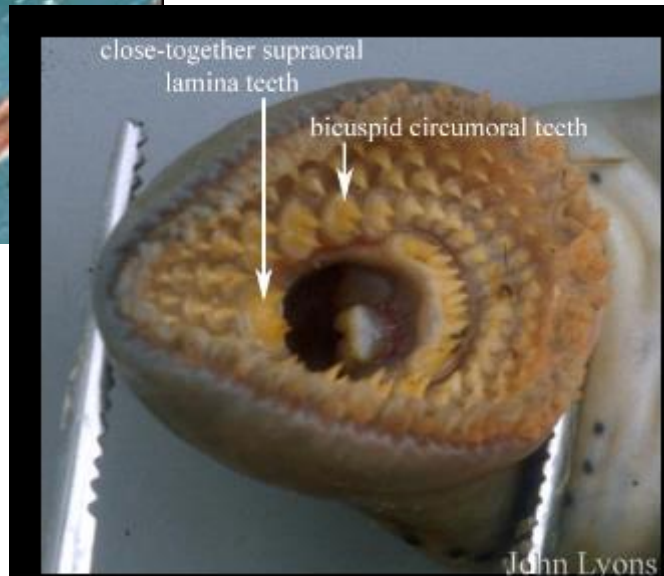




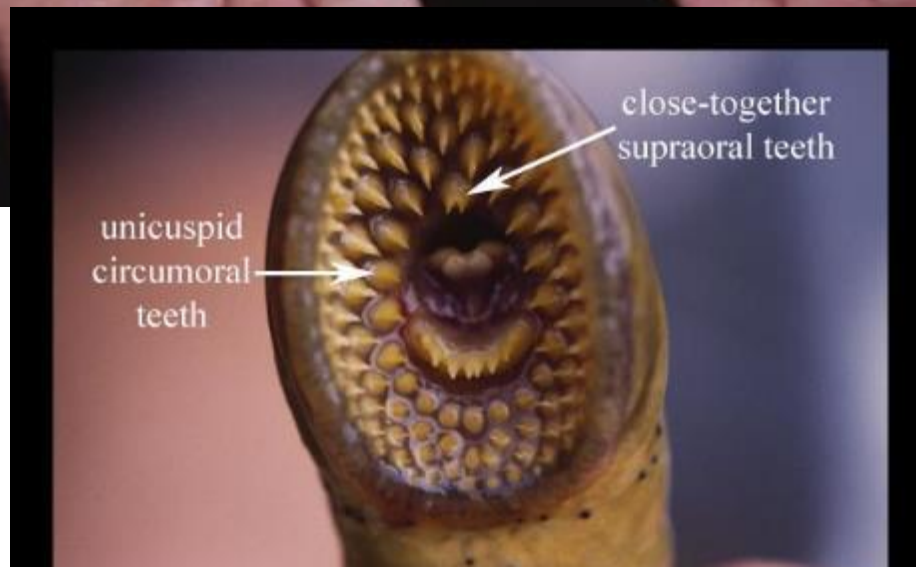
# Smallmouth Buffalo



# Chestnut Lamprey



# Silver Lamprey

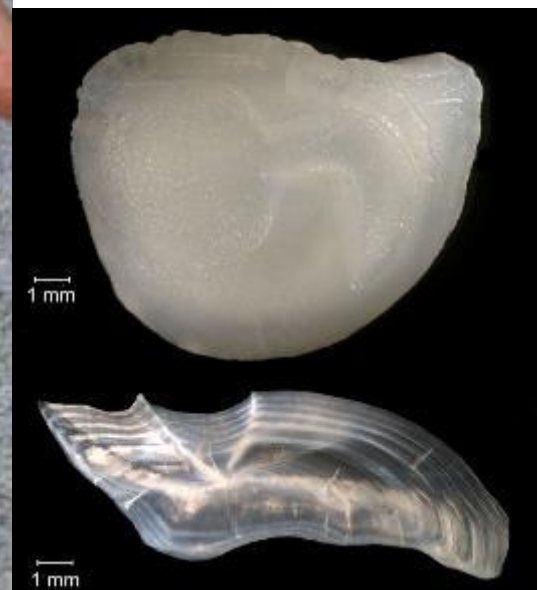




# Gizzard Shad



# Freshwater Drum





# Quillback





# River Carpsucker



# Highfin Carpsucker





# River Redhorse





# Emerald Shiner



# White Bass



# Longnose Gar





# Shortnose Gar



# Walleye





# Sauger



# Smallmouth Bass





# Northern Pike



# Muskellunge





# Crystal Darter



# Channel Catfish





# Flathead Catfish





# Shovelnose Sturgeon



# Lake Sturgeon

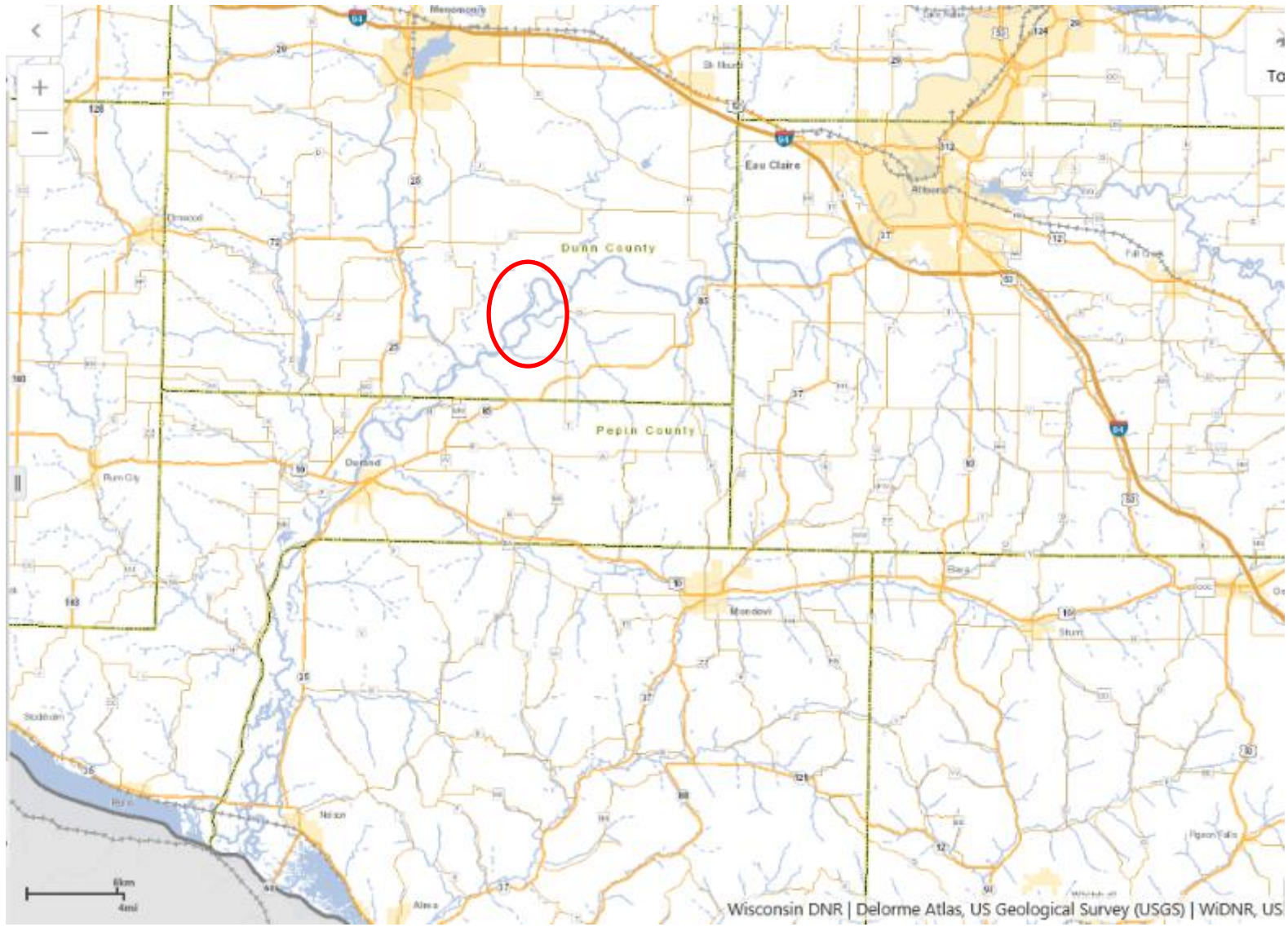


# **Digging Deep: A look at the shovelnose sturgeon population in the lower Chippewa River**





# Study Area



# Timeline of Previous Fisheries Work

- 1972-73 - Lyle Christenson
  - Chippewa River – Red Cedar to Durand
  - PE 2,330 and 2,696 (Christenson 1975)
    - PE=150-176/mile CPUE 20/mile
  - Movement was limited
    - Average movement 3 miles upstream and 4.7 miles down
- 1972-79 - Christenson and Hatzembeler (1996)
  - Average home range of 2.1 miles – external tags

# Timeline of Previous Fisheries Work

- 1999-2005 WI DNR
  - 65 surveys – 280 river miles – CPUE 0.58 SNS/mile
  - Speculated depletion stocks due to commercial fishing of Mississippi River
- 2001-2002 (Hatzenbeler, Engel, and Wanner)
  - Movement study – 12 SNS telemetry tagged
  - Home range was 0.5 miles
  - Movement between the Chippewa and Mississippi River limited





# Timeline of Previous Fisheries Work

- 2004 – Hook and line season closed in the lower Chippewa River system
  - Currently no hook and line season
- 2006 – Spawning concentration located
  - Meridean Slough - 4.5 miles
- 2006-2011 PE – Meridean Slough
  - 1,317 to 1,781 fish
  - Population = stable



## 2019 Survey – Methods

- Where: Chippewa River Meridean Slough
- When: June 10<sup>th</sup>- June 26<sup>th</sup>
  - 6 sampling events
  - Water temp: 61-69 degrees
- How: 2 mini booms – pulsed DC
- What: Fork length, sex, PIT tag, subsample weights and pectoral fin ray – aging
- Population Estimate – Schnabel



















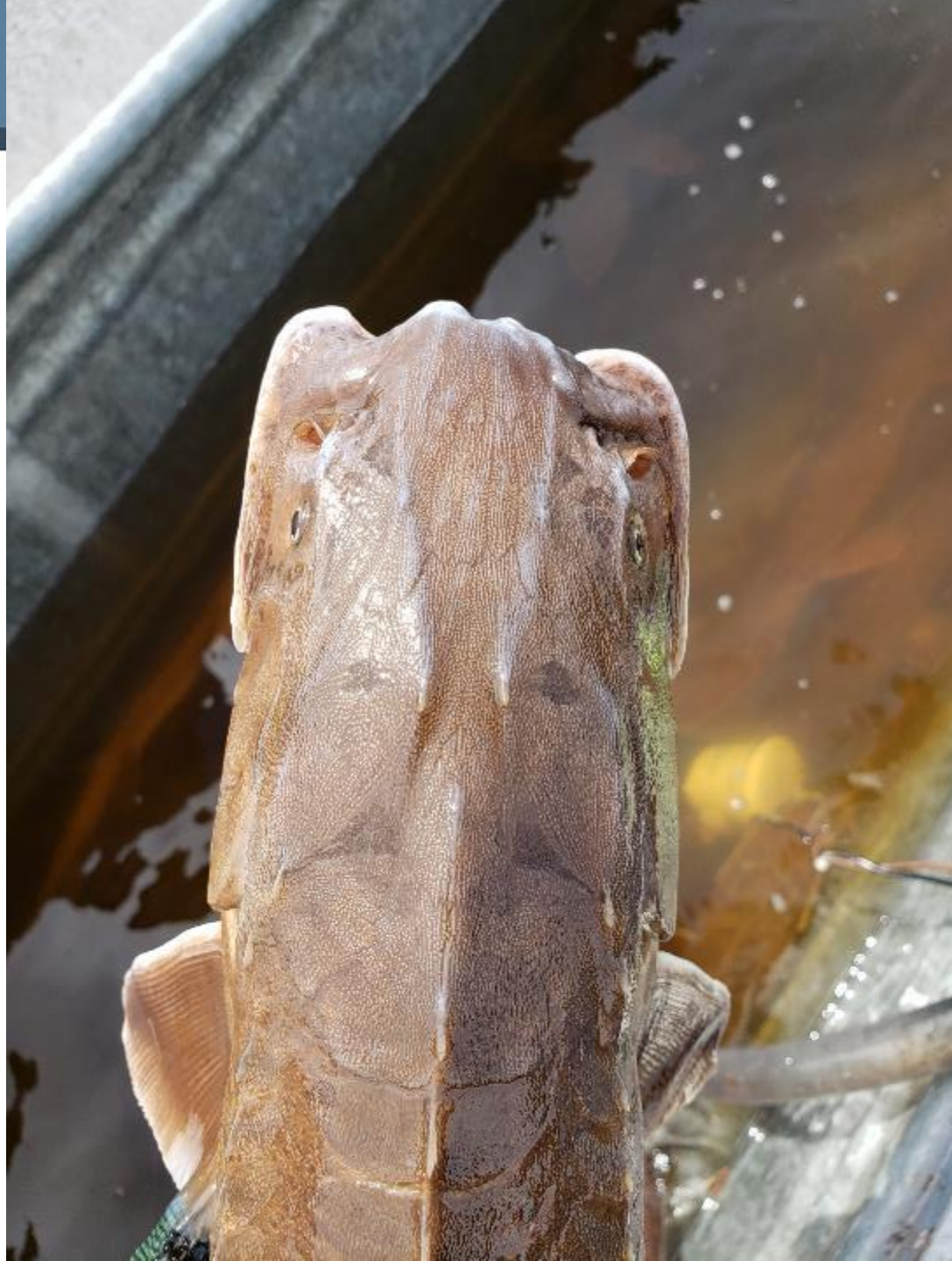


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# 2019 Survey – Results

Event (Day) (t)	Number Caught C(t)	Number Recaptured R(t)	Number Marked M(t)	Marked At Large Total
6/10/2019	170	0	170	0
6/11/2019	213	6	207	170
6/13/2019	281	16	265	377
6/17/2019	252	22	230	642
6/20/2019	319	31	288	872
6/26/2019	75	11	64	1160

Schanbel Population Estimate: 7,691 (C.I. +/- 1,654) or 1,709/mile

CPUE = 48.5/mile

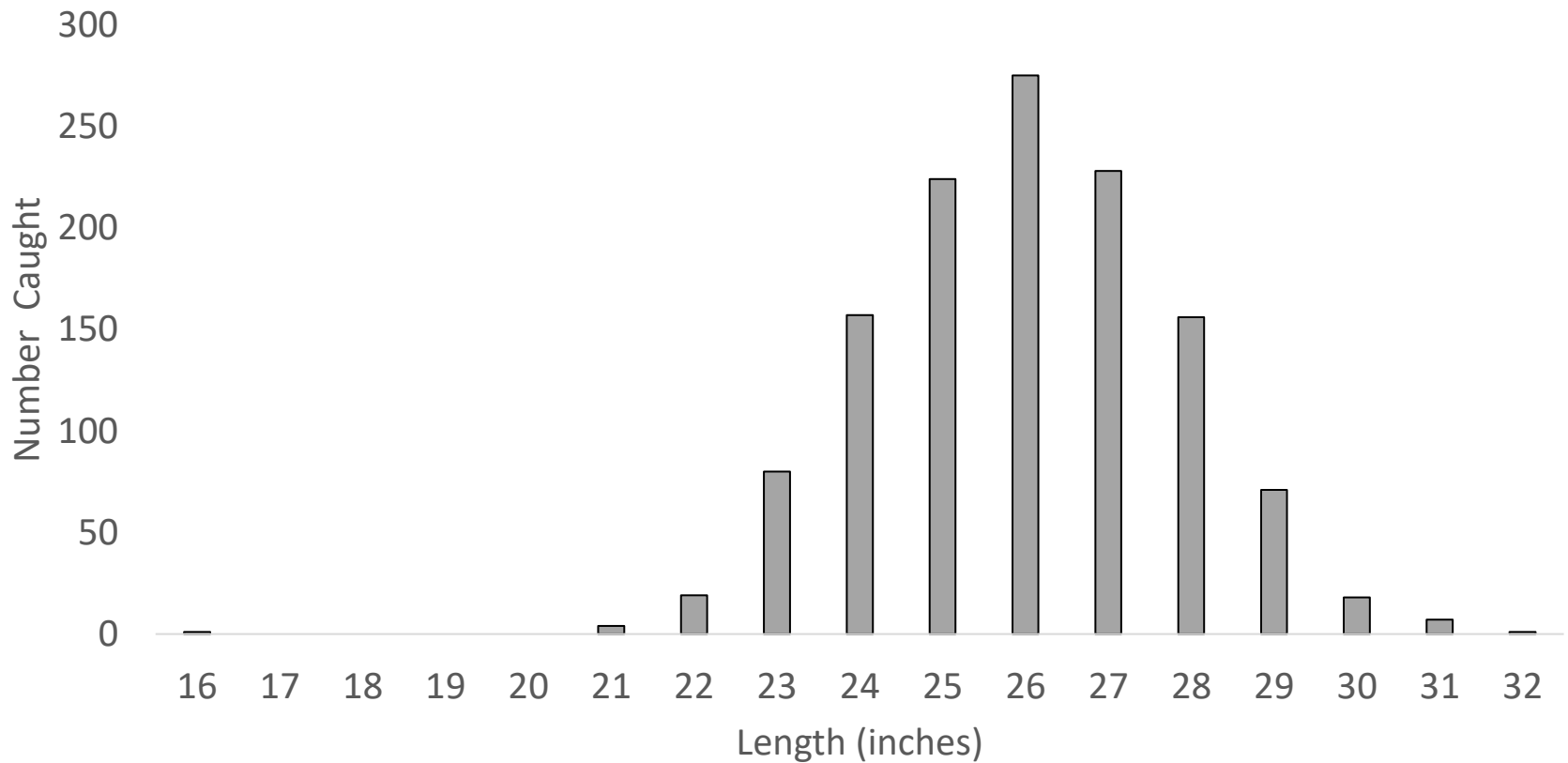
Sex ratio: 79% male, 4.4% female, 16.5% unknown

72 tagged from 2006-2011



# 2019 Survey – Results

## Shovelnose Length Frequency



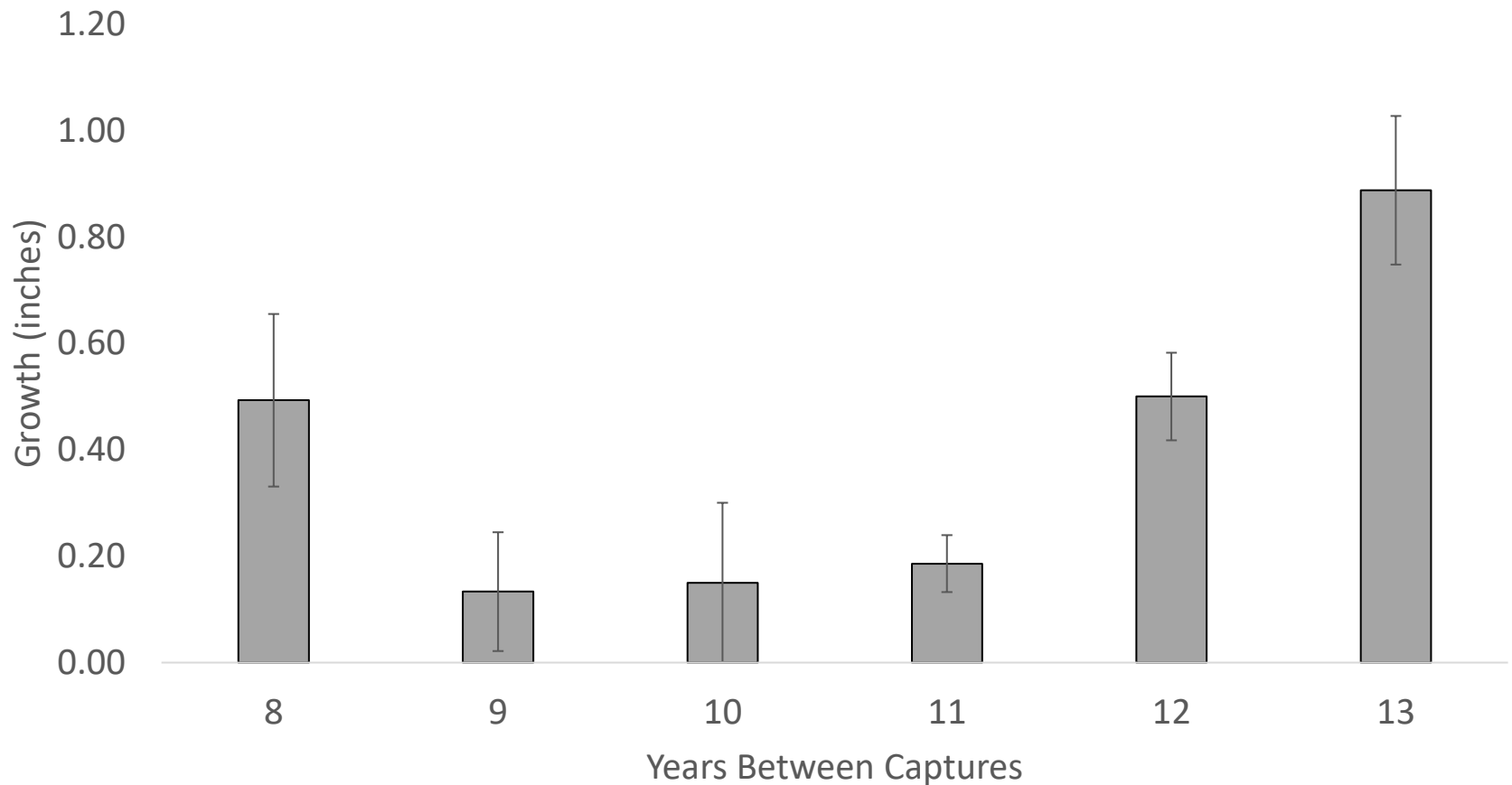
**Males: 21.0"-31.8"    Females: 24.1"-32.1"**

**Mode: 1972-1973 - 24.5"**

**Mode: 2006-2011 – 27.5"**

# 2019 Survey – Results

## Shovelnose Growth from Recaptures

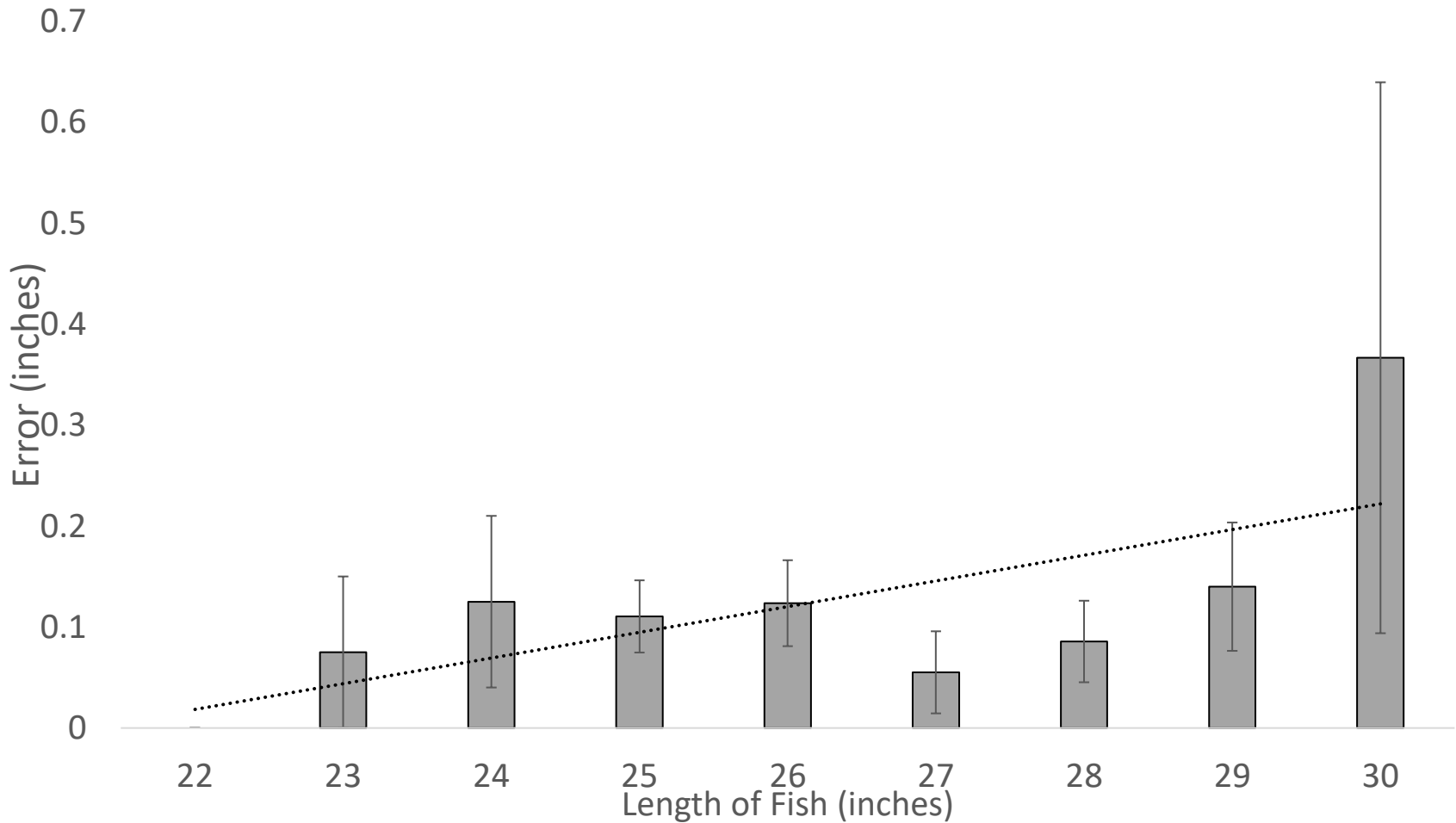


N=72



# 2019 Survey – Results

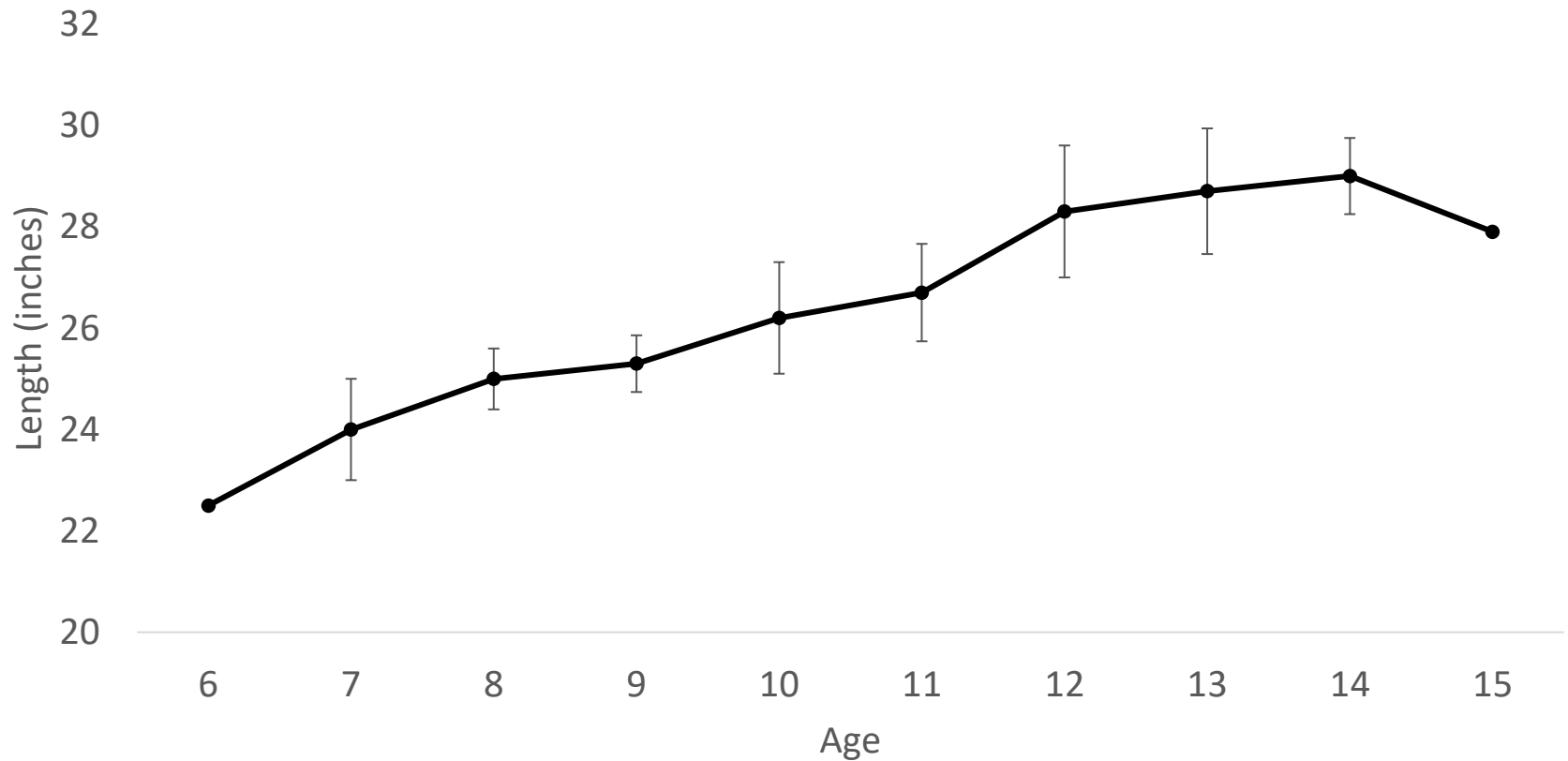
## Measurement Error



N=92

# 2019 Survey – Results

Male Shovelnose Length-at-Age



N=40



# Conclusions

- Substantial increase PE
  - 3 fold from PEs in 1972-1973 – non-spawners
  - 6 fold from PEs in 2006-2011 - spawners
    - Similar water temps and methods in 2019 survey
- Due to uncertainty in aging we do not know whether these are young, new fish or older fish that were not sampled in previous surveys
- Growth – very slow -  $<0.1$ " per year
- Repeat survey - similar results?

# Conclusions/Management Implications

- Collect more aging samples – likely underestimating age
  - Collect fin rays from fish tagged in 2006-2011 – know these are at least 13-18 years old
- If population sustains or increases open a conservative hook and line season



# Lake Sturgeon Assessments and Projects

- Gillnetting survey downstream of Dells Dam
  - Prespawn
- Dip-netting survey downstream of Jim Falls
  - During active spawning
- Hook-and-line survey downstream of Dells Dam
  - Juvenile Assessment
- Data collected from hook-and-line season
- Movement project

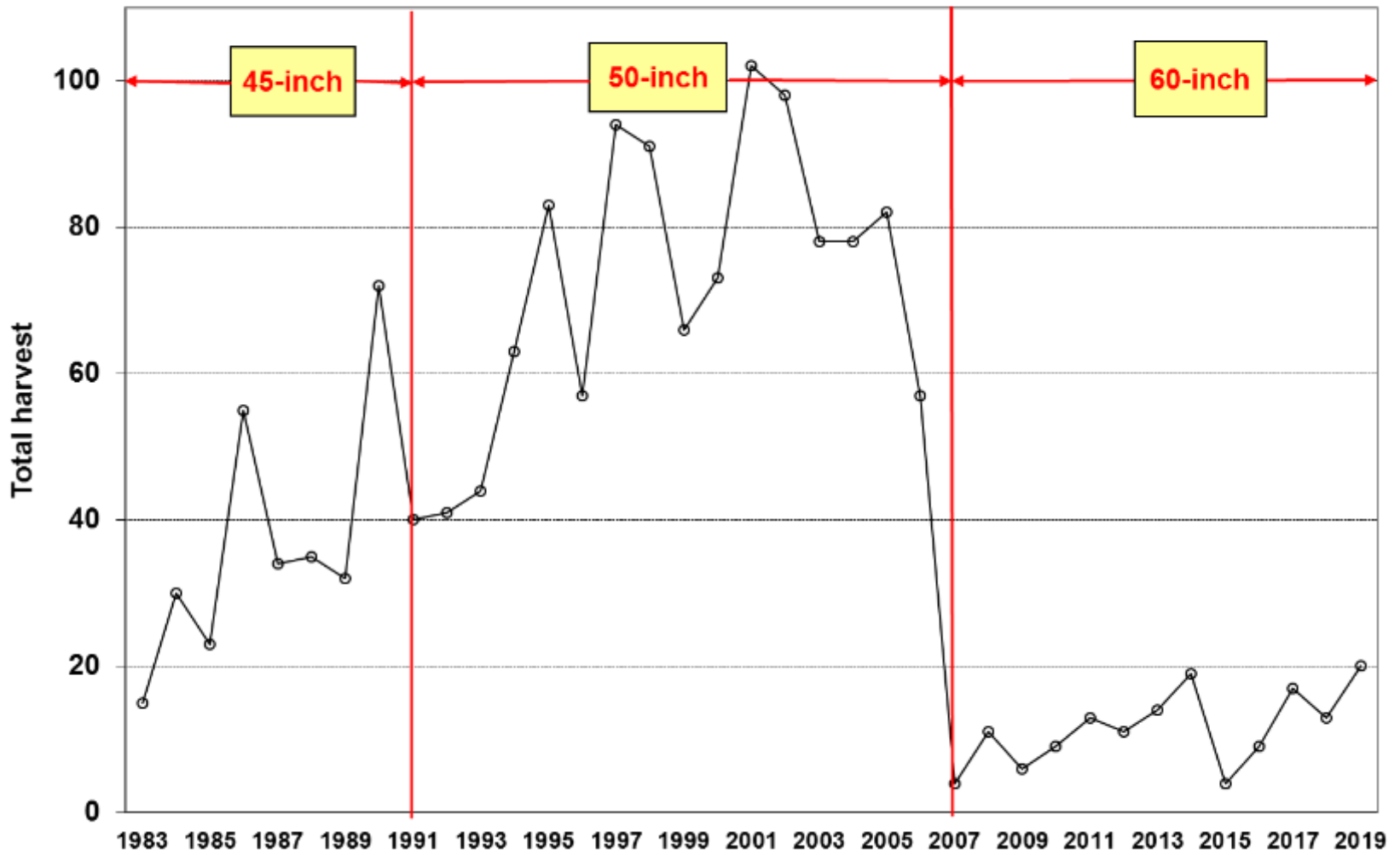


# Lake Sturgeon Hook and Line Season

- Bag limit: 1 fish per year
- First Saturday in September – September 30<sup>th</sup>
- Size limit: 60 inch minimum
  - Since 2007
- Mandatory in-person registration

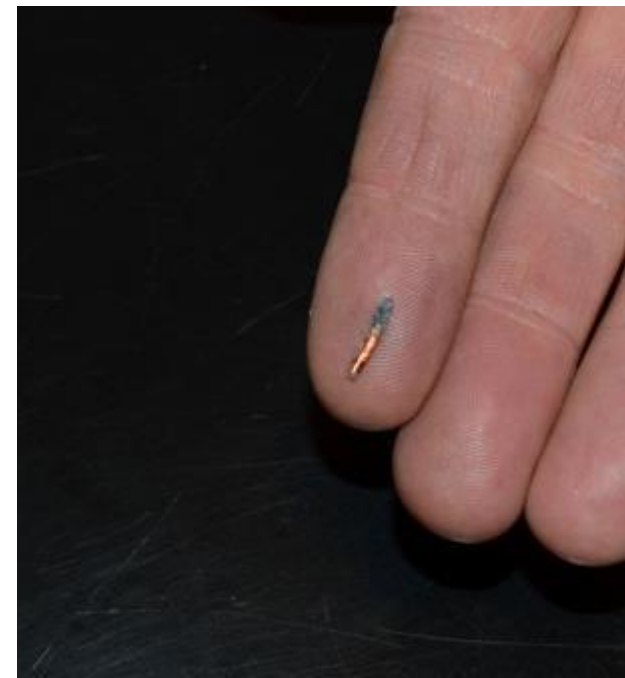


Lake sturgeon harvest in the lower Chippewa River under various minimum size regulations, 1983-2019



# Lake Sturgeon Survey Data Collected

- Collect biological data
  - Length, weight, sex
- Collect tagging information
- PIT tag and floy tag fish
  - Interesting capture histories





















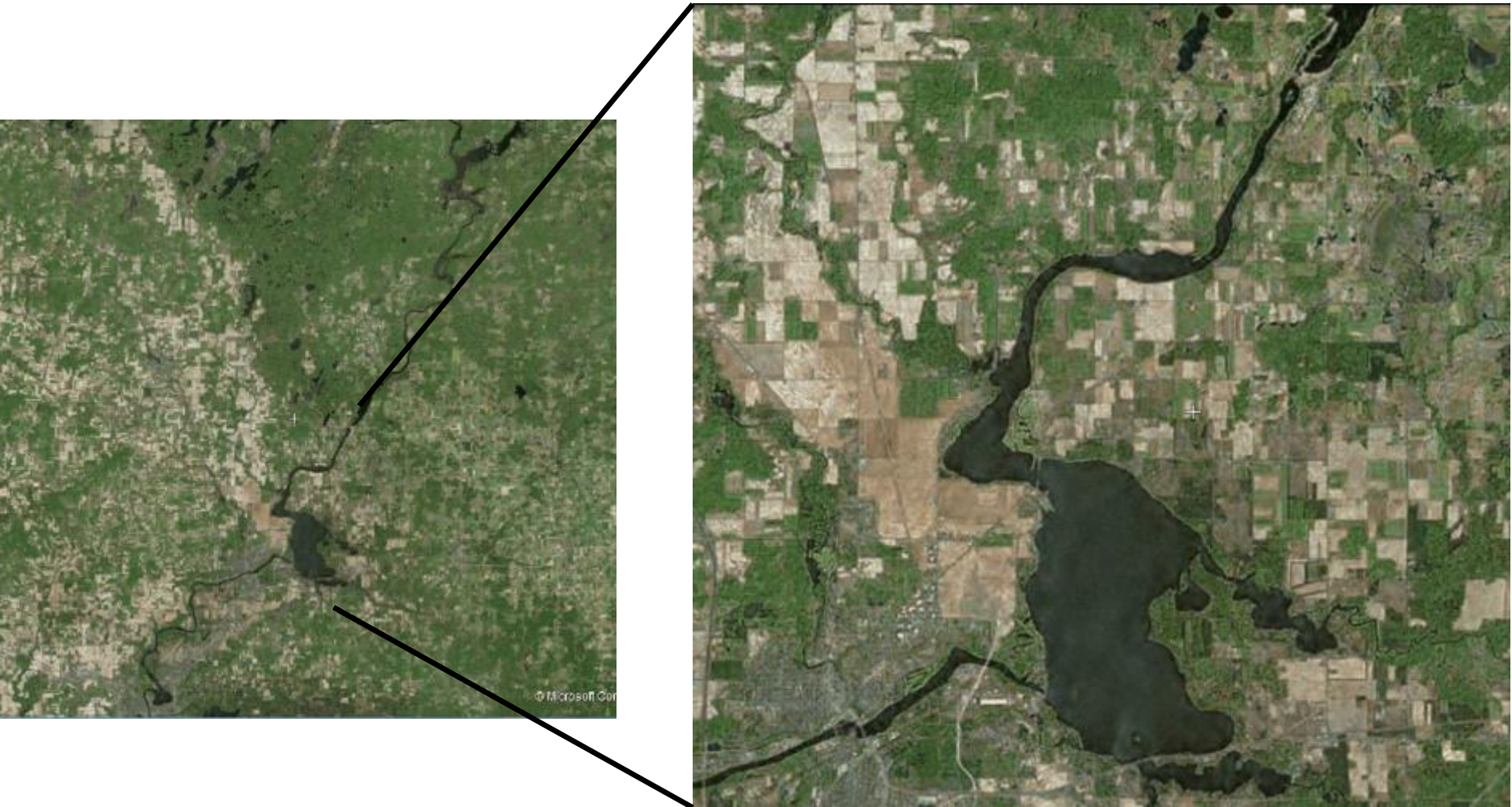








# Lake Wissota/Jim Falls









































# Lake Sturgeon Movement

- PIT tag #: 43600F1447
  - 10/20/1999 – Chippewa River - Jim Falls Dam – 48.5” 21.5lbs
  - 6/21/2016 – Chippewa River – Jim Falls Dam – 50.9” 28.3lbs
- PIT tag #: 430E457C21
  - 10/20/1999 – Chippewa River – Jim Falls Dam – 55.8” 32.5lbs
  - 5/09/2003 – Chippewa River – Jim Falls Dam - 56.8” 32.1lbs
  - 6/4/2015 – Red Cedar – Menomin Dam – 58” 25.5lbs
- Floy Tag #: 0462
  - 5/20/2006 – Chippewa River – Jim Falls - 53.8” 32.3lbs
  - 6/?/2016 – Mississippi River – Trempeleau - 59”
    - 10 years, 137 miles, 7 dams
- Floy Tag #:?
  - Tagged at Jim Falls on the Chippewa River
  - Recaptured on the Mississippi River in Missouri near the Iowa boarder





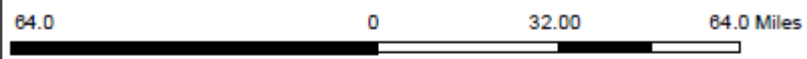
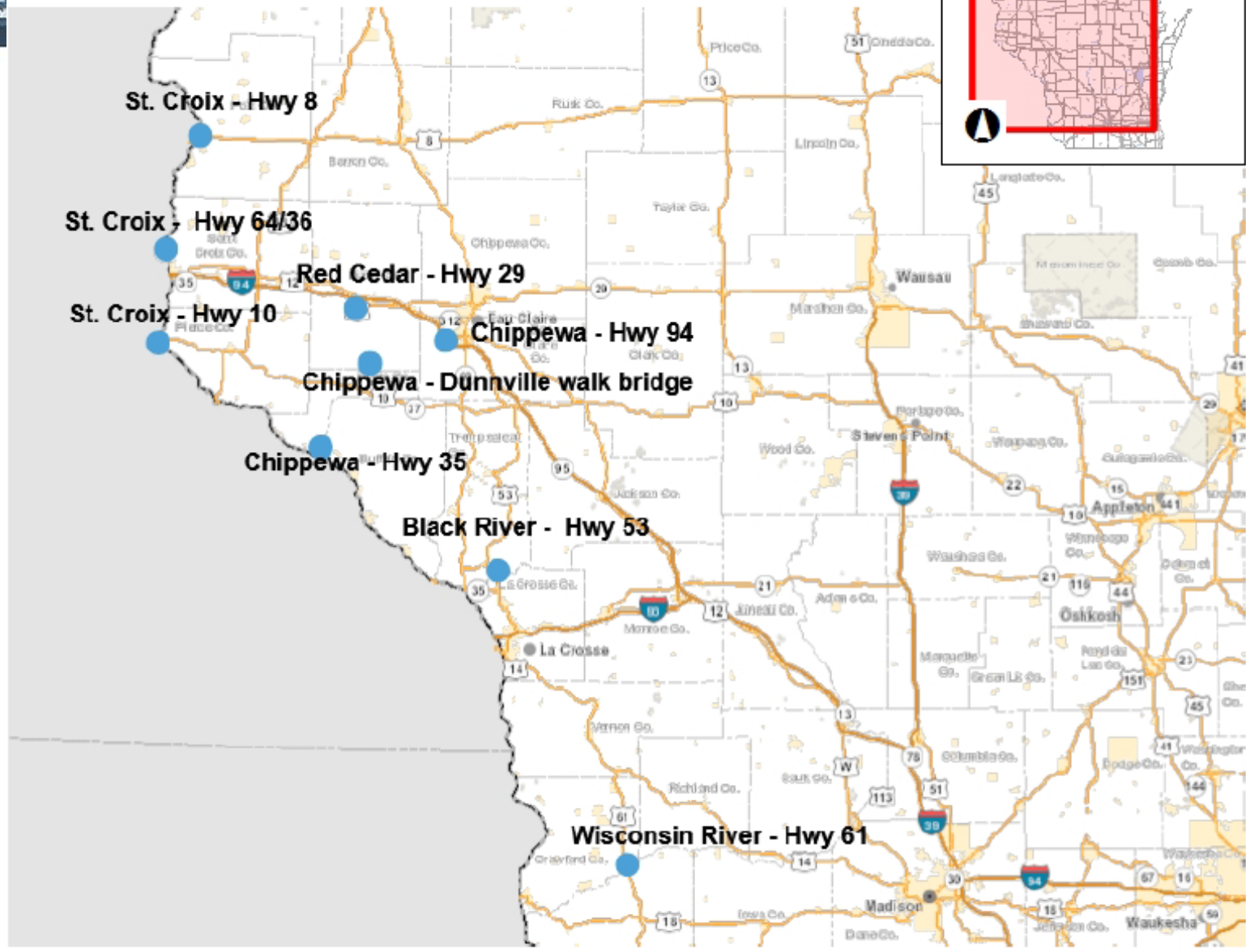
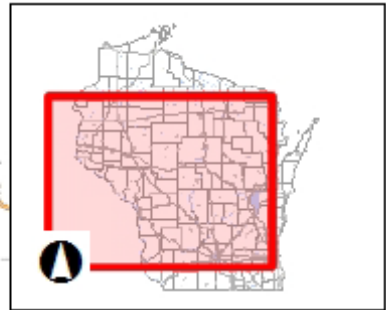
# Lake Sturgeon Movement Study

- Tag 77 lake sturgeon with hydroacoustic transmitters
  - Chippewa River, St. Croix River, and Red Cedar
- Deploy 10 receivers throughout the tributaries of the Mississippi River





# Acoustic Receiver Locations - Lake Sturgeon Hydroacoustics



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# Questions?

