

# Lake Sturgeon Restoration in the Great Lakes



*Photo Credit: Adam Lintz*

James Boase (USFWS), John Lindgren (MNDNR), Rob Elliott (USFWS), Marty Holtgren (MDNR), Mike Thomas (MDNR) and Dawn Dittman (USGS)

**26<sup>th</sup> Annual Great Lakes Conference, East Lansing, MI  
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# St. Louis River AOC Lake Sturgeon Rehabilitation Program

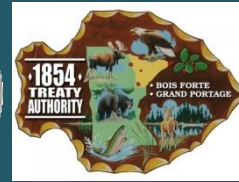
(John Lindgren Minnesota DNR)





# St. Louis River Lake Sturgeon Rehabilitation Program

## - Addressing a Delisting Target for Removal of BUI #2 -



### Stocking

Year	Minnesota			Wisconsin			Total		Age in 2016
	FRY	FGL	Strain	FRY	FGL	Strain	FRY	FGL	
1983				102,000	2,700	Wolf R	102,000	2,700	33
1984				162,000	18,000	Wolf R	162,000	18,000	32
1985		4,900	Wolf R	59,000	2,700	Wolf R	59,000	7,600	31
1986		400	Wolf R					400	30
1987									
1988		18,200	Wolf R		6,000	Wolf R		24,200	28
1989		7,200	Wolf R	50,000	100	Wolf R	50,000	7,300	27
1990		10,300	Wolf R	25,000		Wolf R	25,000	10,300	26
1991		5,500	Wolf R	96,000	4,500	Wolf R	96,000	10,000	25
1992	83,000		Wolf R		13,500	Wolf R	83,000	13,500	24
1993			Wolf R	7,000	19,300	Wolf R	7,000	19,300	23
1994			Wolf R	151,000	14,500	Wolf R	151,000	14,500	22
1995									
1996									
1997									
1998		6,800	Sturgeon R					6,800	
1999	46,000		Sturgeon R				46,000		17
2000		7,980	Sturgeon R					7,980	16
<b>TOTAL WR</b>	<b>83,000</b>	<b>46,500</b>		<b>652,000</b>	<b>81,300</b>		<b>735,000</b>	<b>127,800</b>	
<b>TOTAL SR</b>	<b>46,000</b>	<b>14,780</b>					<b>46,000</b>	<b>14,780</b>	



# Population Assessment

Micro Tagging  
(>61,000 tagged fingerlings)



PIT Tagging  
(>500 tagged juveniles)



Acoustic Tagging  
(32 fish to be tagged in 2016)



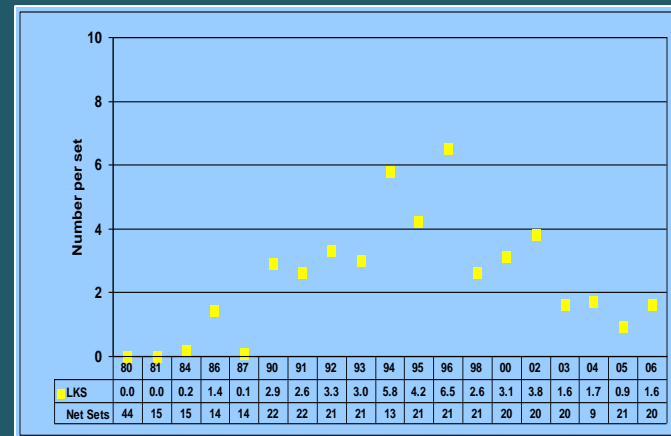
Spring Spawning  
Assessment



Spring Drifting Fry  
Assessment



Summer Index Netting  
Assessment





# 2009 Spawning Habitat Enhancement Project



Fond du Lac Dam



# 2015 Spawning Habitat Enhancement Project



Chambers Grove

# St. Louis River AOC Video



# Menominee River AOC Fish Passage Program

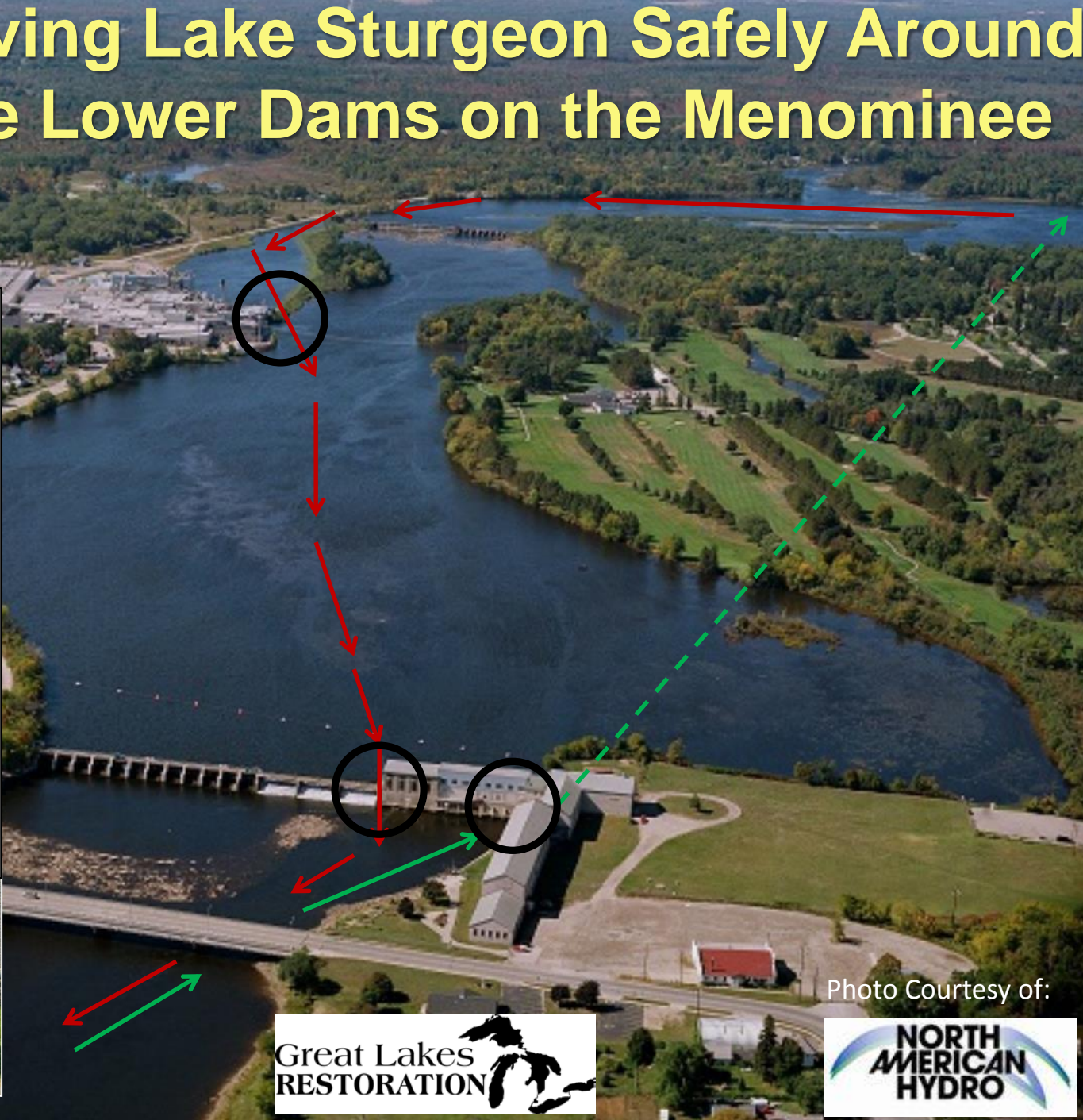
(Rob Elliott US Fish and Wildlife Service)







# Moving Lake Sturgeon Safely Around the Lower Dams on the Menominee



Putting water, wildlife,  
and people back in rivers.



Photo Courtesy of:







# Moving Lake Sturgeon Safely Around the Lower Dams on the Menominee



**HYDROPOWER REFORM COALITION**  
Putting water, wildlife, and people back in rivers.

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Photo Courtesy of:



# Menominee River AOC Fish Passage Video



# Lake Michigan Streamside Rearing Programs

(Marty Holtgren Michigan DNR)





# Streamside Rearing Facilities in Lake Michigan Basin

Multi-Jurisdictional  
*Old and New Partners*  
Basin-wide

Milwaukee River AOC  
Kalamazoo River AOC



- ✚ Streamside Extirpated
- ✳ Streamside Remnant
- ▲ Known Population
- Historic Population
- ★ Remnant Landlocked Population
- ★ Grand River Population





# Partners



Marty Holtgren (MDNR), Ed Baker (MDNR), Rob Elliott (USFWS) and Brad Eggold (WDNR)

# What happened? How We Did It?

## Results:

- >20,000 sturgeon stocked since 2003
- Dozens of partnerships

## How:

- Formed partnerships around sturgeon and rivers.
- Developed shared values and goals for sturgeon and river restoration.
- Cultural reconnections.



# Lake Michigan Streamside Rearing Video

# St Clair AOC - Detroit River AOC Sturgeon Habitat Program

(Mike Thomas, Michigan DNR)





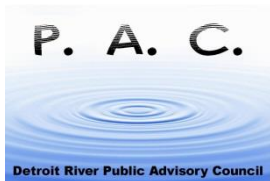
# Partners



Essex Region  
Conservation  
Authority



Ministry of Natural Resources



## Michigan Coastal Management Program



# Identify the Problem – Understand Your System

## St. Clair – Detroit River System

### Historically

- ◆ Huge runs of fish spawned here.
- ◆ Largest commercial GL fishery in late 1800s.
- ◆ Habitat destruction – Loss of critical habitat.

### Today

- ◆ Origin of much of Lake Erie's commercial catch, \$2 billion/yr.
- ◆ More than 65 species of fish.
  - 16 are threatened or endangered.
- ◆ Largest remaining population of lake sturgeon in the Great Lakes.





# Reef Locations in the St Clair Detroit River System

## Reef Siting

### Early Projects

- Locations selected via expert knowledge of the system

### Recent Projects

- System-wide models were developed to identify candidate sites



# St Clair - Detroit River System Video



# Genesee River AOC

## Lake Sturgeon Restoration/Research

(Dawn Dittman, USGS)



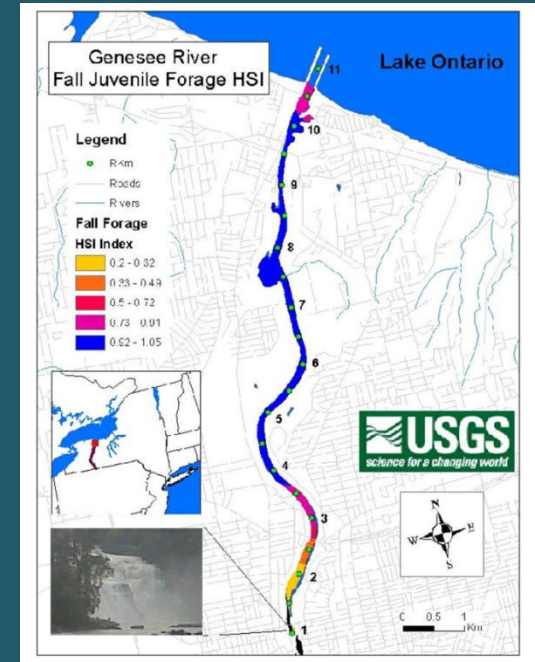
# Genesee River AOC Lake Sturgeon

De-Listing Criteria: Lake sturgeon of different life stages inhabit the Genesee River up to the Lower Falls and the Embayment, or physical and biological habitat are suitable for sturgeon

Evaluation of Habitat Use by Experimentally Released Juveniles:

2003-2004: 1,900 Fall Fingerlings

Mark/recapture, survival/ habitat use / retention in the river.



**2013 average size  
847mm 4.09kg  
33 inches and 9 lbs**



**High  
Survivorship of  
Stocked Lake  
Sturgeon**

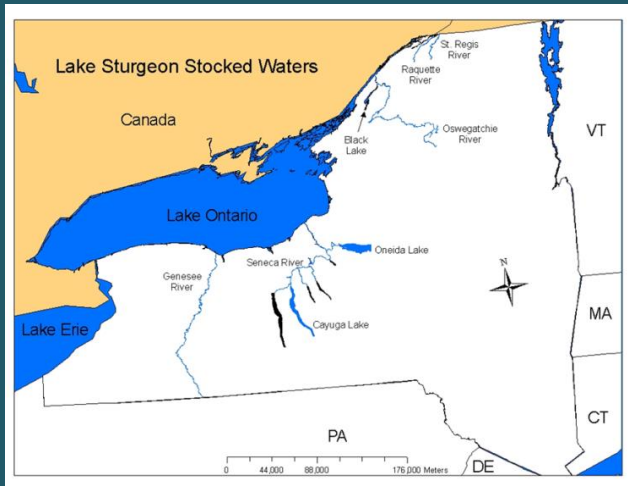




# GLRI Project: Sturgeon Blood & Tissue Assay of Pollutants in Rochester Embayment AOC

## BIOINDICATOR OF ENVIRONMENTAL HEALTH

**Goal: Compare the Rochester AOC BUI linked chemical contaminant concentrations in Lake Sturgeon blood serum with contaminant levels in Lake Sturgeon from a control water.**



- Age Matched Lake Sturgeon (Stocked in 2003 & 2004)
- Genesee River: Rochester Embayment AOC
- Oswegatchie River

The Lake Sturgeon tissue concentration comparison between the Rochester Embayment AOC and the Oswegatchie River non-AOC control site results indicate no AOC-specific BUIs for PCB congeners, dioxins/furans, mirex, mercury or cadmium. Detected elevated silver and nickel concentrations in the Genesee sturgeon tissues are not of animal or human health concern or specific to any fish consumption restrictions listed in health or AOC advisories.



# Genesee River AOC Video



# Niagara River AOC and Massena/Akwesasne AOC

(Dawn Dittman, USGS)



# Massena/Akwesasne AOC

## Populations BUI Delisting Criteria

- Lake Sturgeon or other sentinel species are present and successfully reproducing in the AOC

Spawning Population Assessment :

St. Lawrence River at Massena

2009-10 (442 fish) 1997-98 (354 fish) 1969-70 (134 fish)

2014: 199 captured

5 % Females



# Niagara River AOC

BUI – Degradation of Fish and Wildlife Populations

Population Status of Lake Sturgeon.

Upper Niagara 2012-2014

Chris Legard

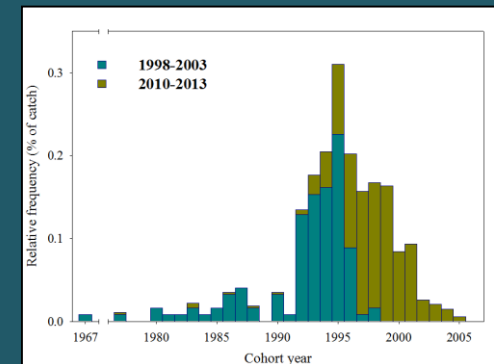
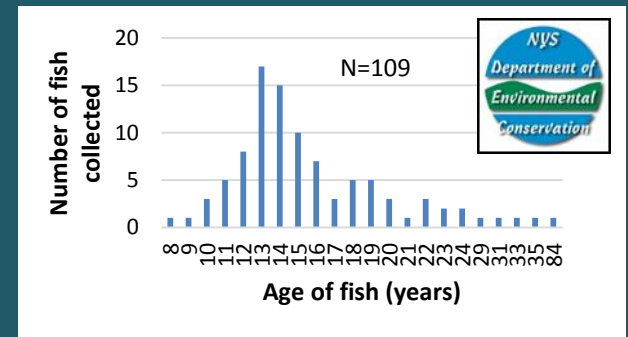
Lower Niagara River: Population Status

Sex, stage, contaminants

Habitat selection Diet

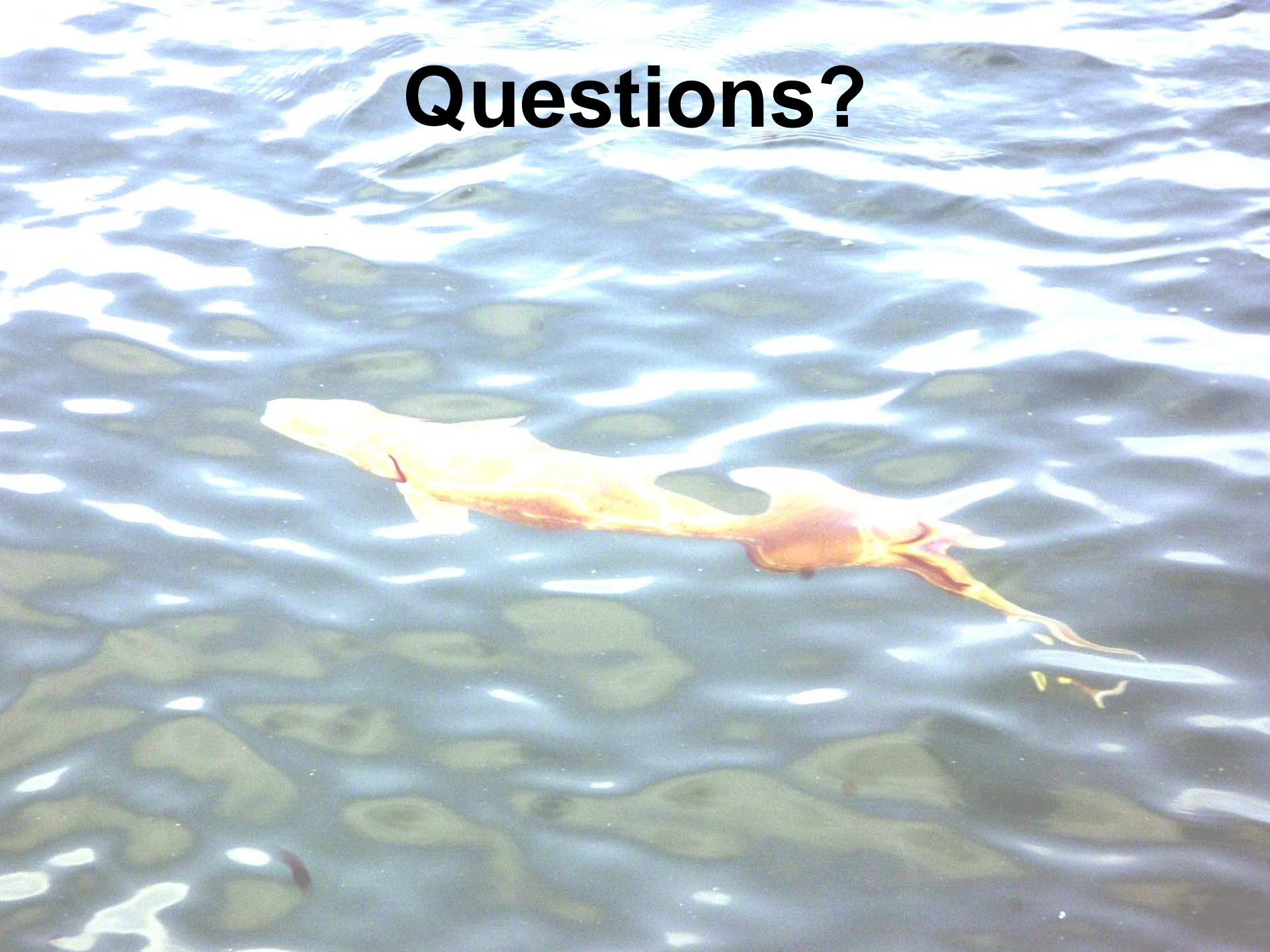


Dimitry Gorsky , Gregory R. Jacobs, John A. Sweka,  
Michelle Casto-Yerty, and Betsy Trometer





**Questions?**



# Questions?

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