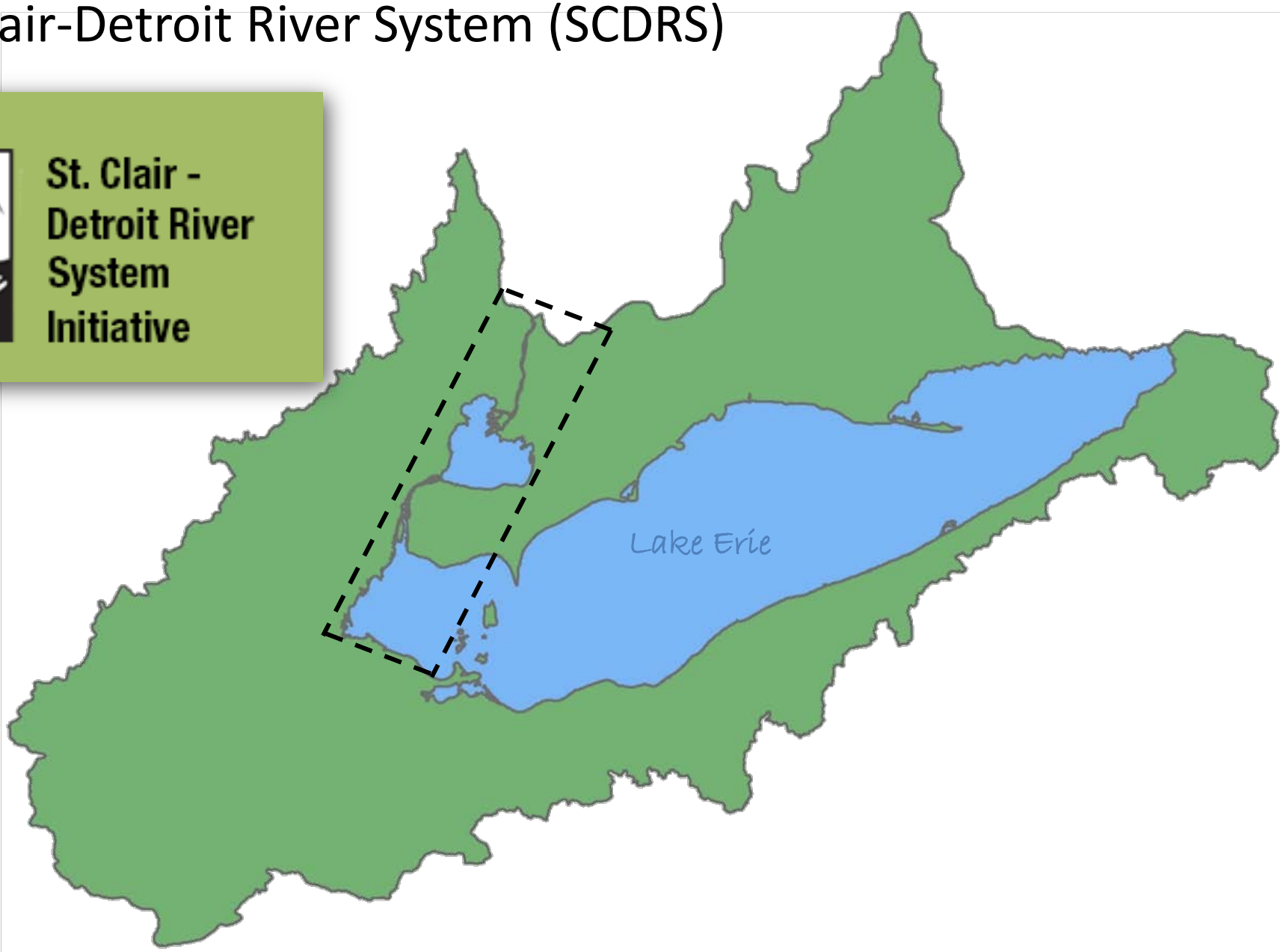
Alpena Fish and Wildlife Conservation Office

Lake Erie Lake Sturgeon Working Group Meeting, 2015
Buffalo, NY

St. Clair-Detroit River System (SCDRS)

St. Clair - Detroit River System Initiative



U.S. FISH & WILDLIFE SERVICE

St. Clair-Detroit River System (SCDRS)

Mark-Recapture Assessments

Annually tag lake sturgeon in Southern Lake Huron and Detroit River

Provides information regarding population size, survival, movement, age and growth

Southern Lake Huron
Stock size = 35,484 (95% CI = 25,939 – 45,030)

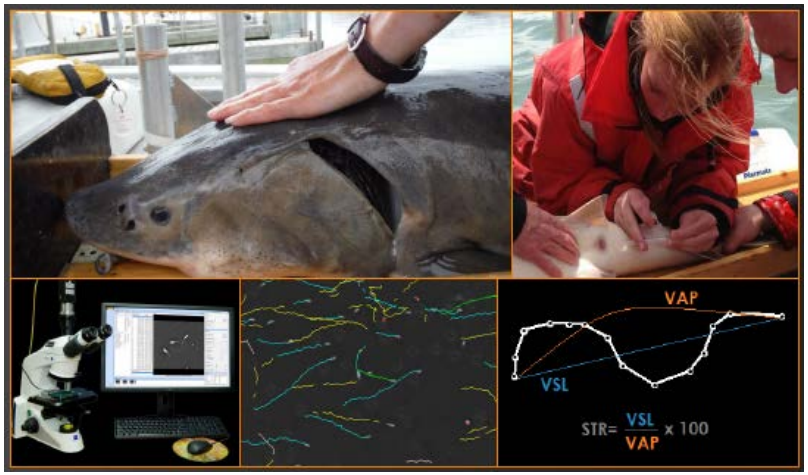
Detroit River
Stock size = 4,068 (95% CI = 869 – 7,268)

St. Clair-Detroit River System (SCDRS)

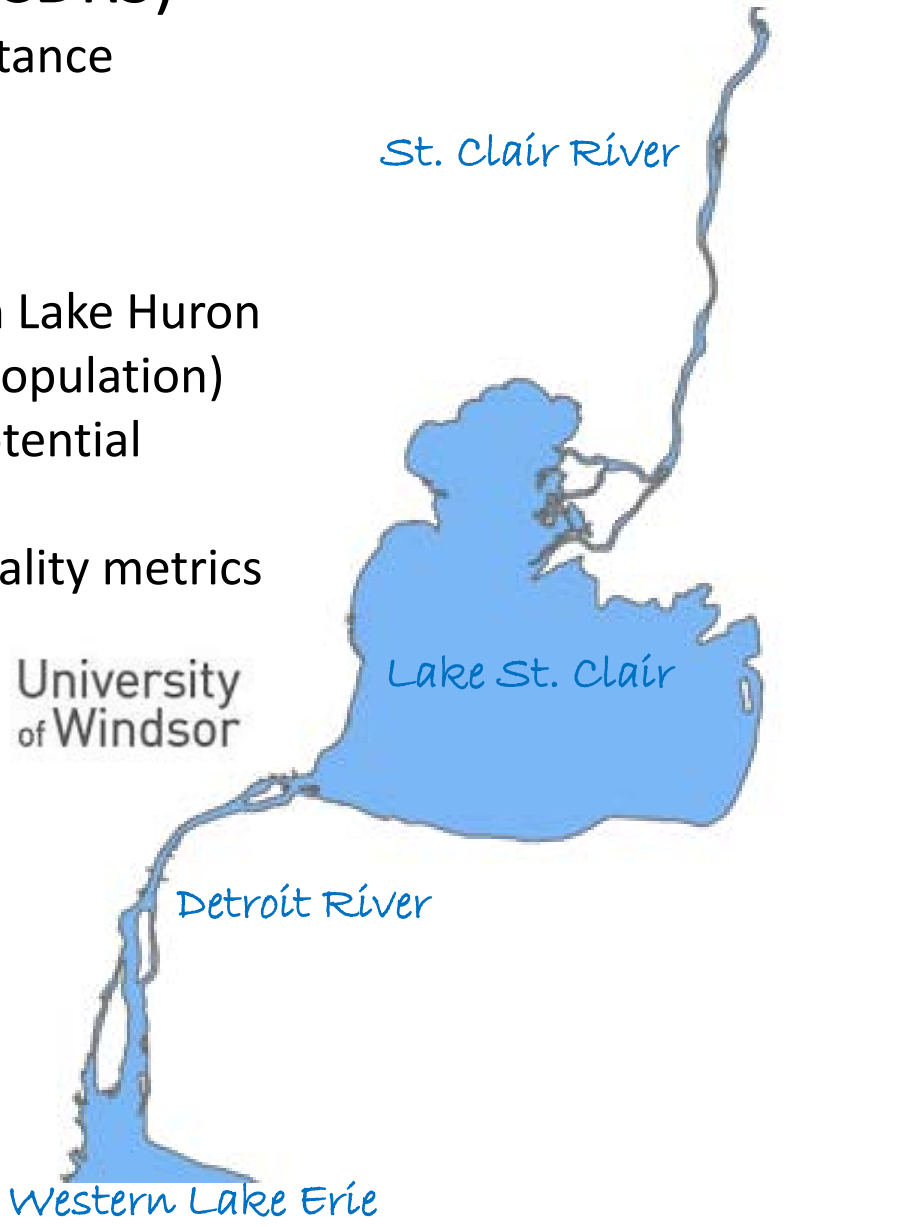
Restoration of Lake Sturgeon and the Importance of Sperm Quality

Investigate sperm quality between southern Lake Huron (large population) and Detroit River (small population) to determine differences in reproduction potential

No differences observed between sperm quality metrics



University of Windsor



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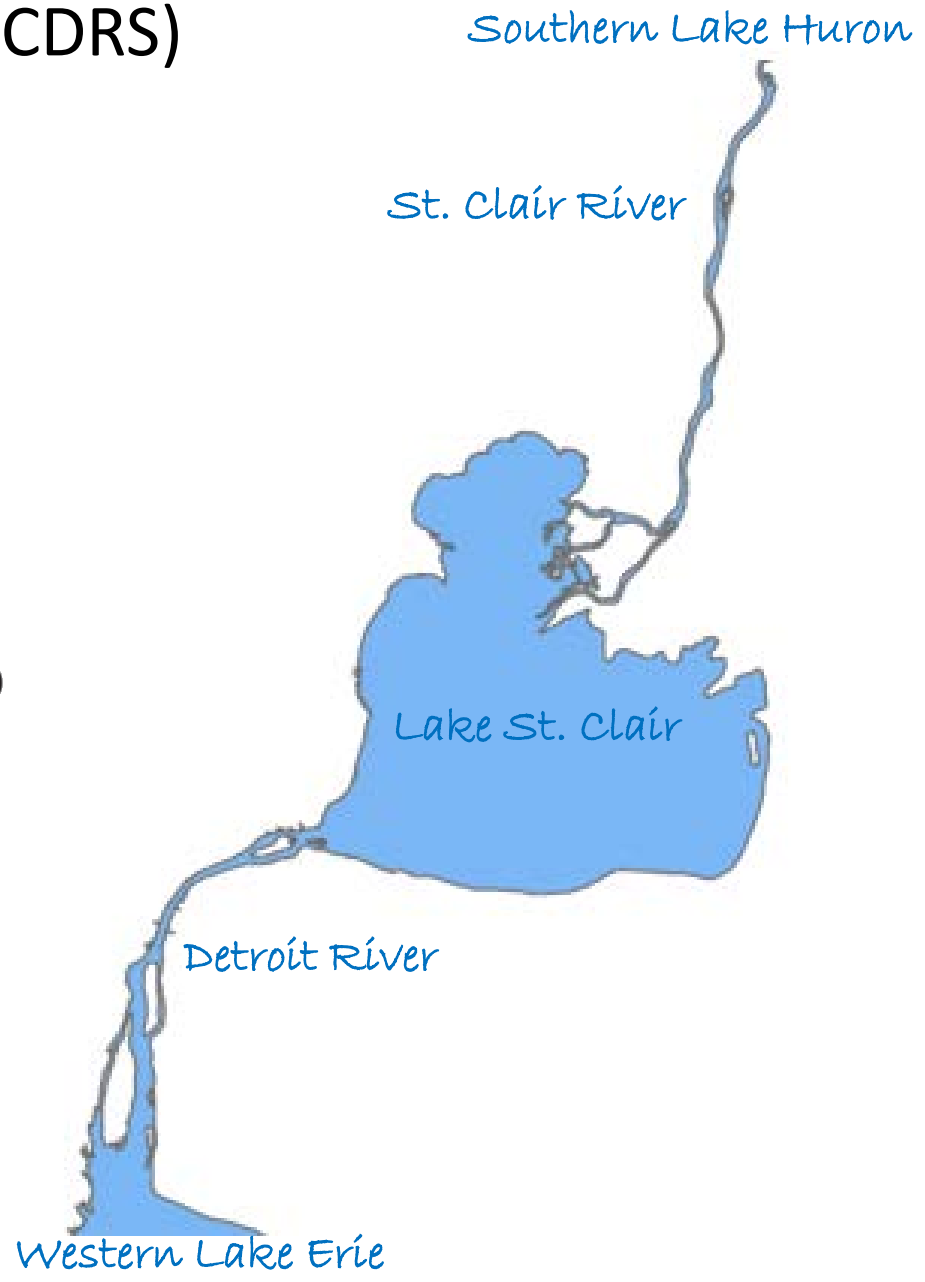
St. Clair-Detroit River System (SCDRS)

Telemetry Project



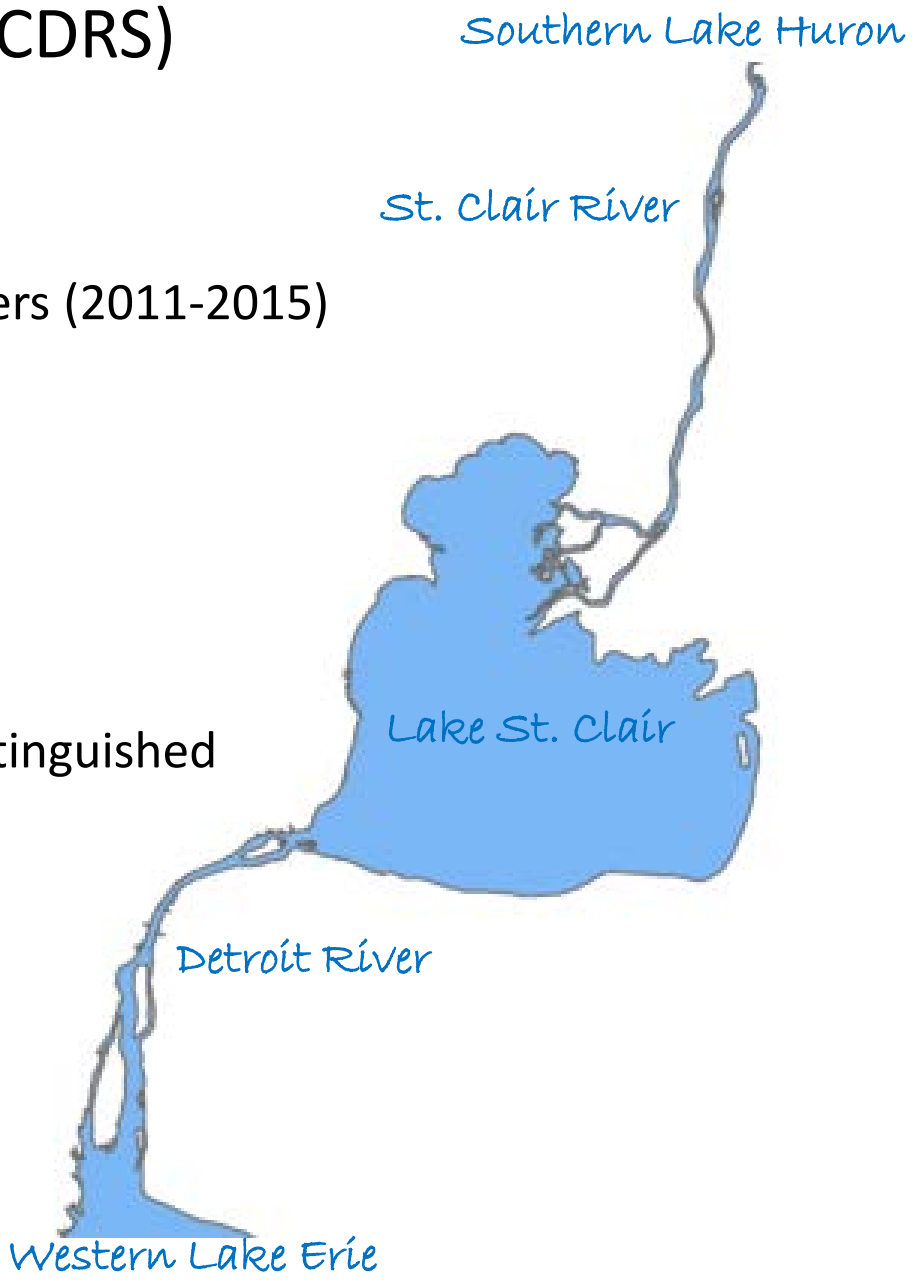
St. Clair-Detroit River System (SCDRS)

Telemetry Project

279 lake sturgeon implanted with transmitters (2011-2015)

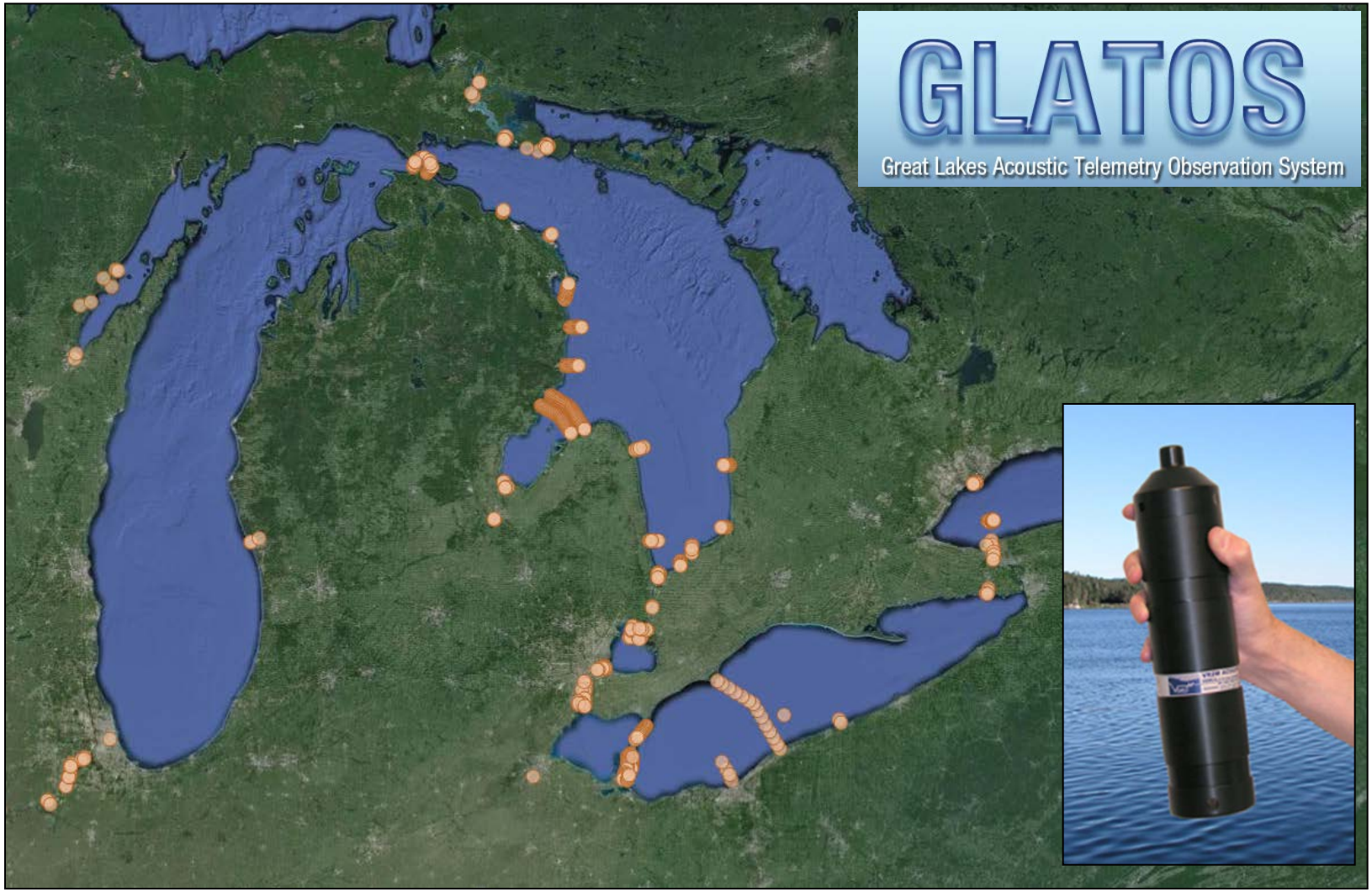
Southern Lake Huron – 117
Lower St. Clair River – 86
Detroit River – 76

Blood and morphometric data collected to determine if river vs lake morphs can be distinguished



St. Clair-Detroit River System (SCDRS)

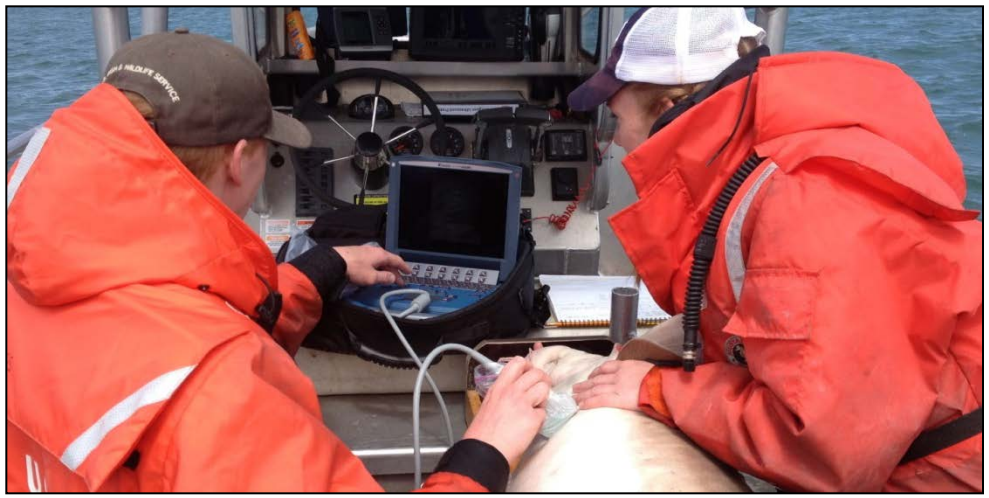
Telemetry Project



St. Clair-Detroit River System (SCDRS)

Ultrasound for Sex Determination

Transmitter implantation of lake sturgeon allows us to test the utility of an ultrasound unit in the field to determine the sex and reproductive stage of lake sturgeon



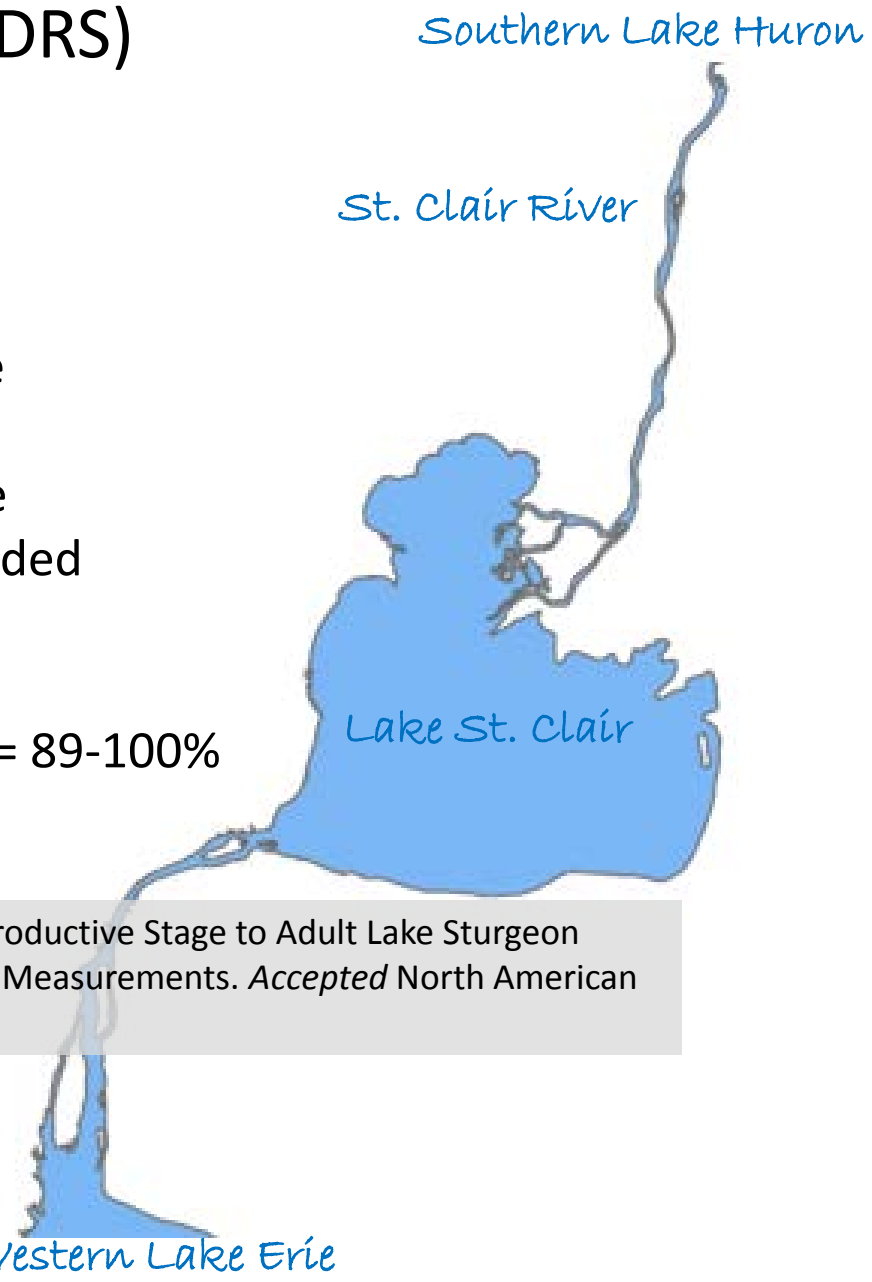
St. Clair-Detroit River System (SCDRS)

Ultrasound for Sex Determination

Ultrasound images were collected from 148 sturgeon of known sex and reproductive stage

Sex was accurately assigned to 88 - 96% of the individuals sampled, however accuracy depended on maturity

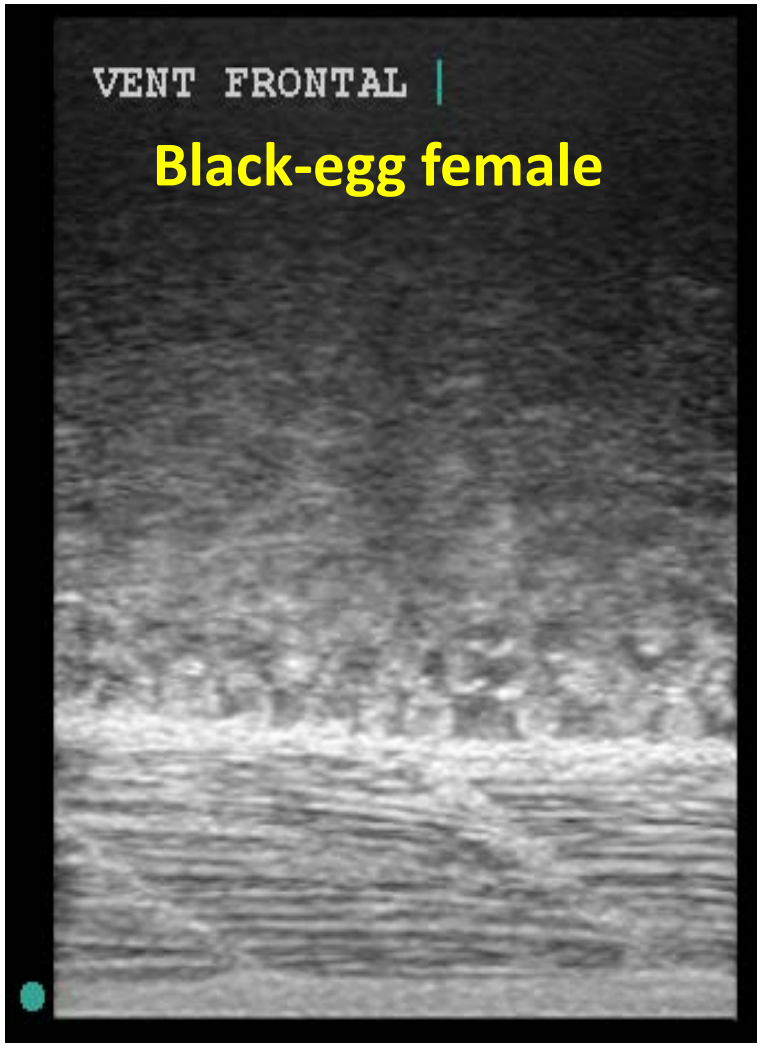
Black-egg females and fully-developed males = 89-100%
Yellow-egg females = 33-67%

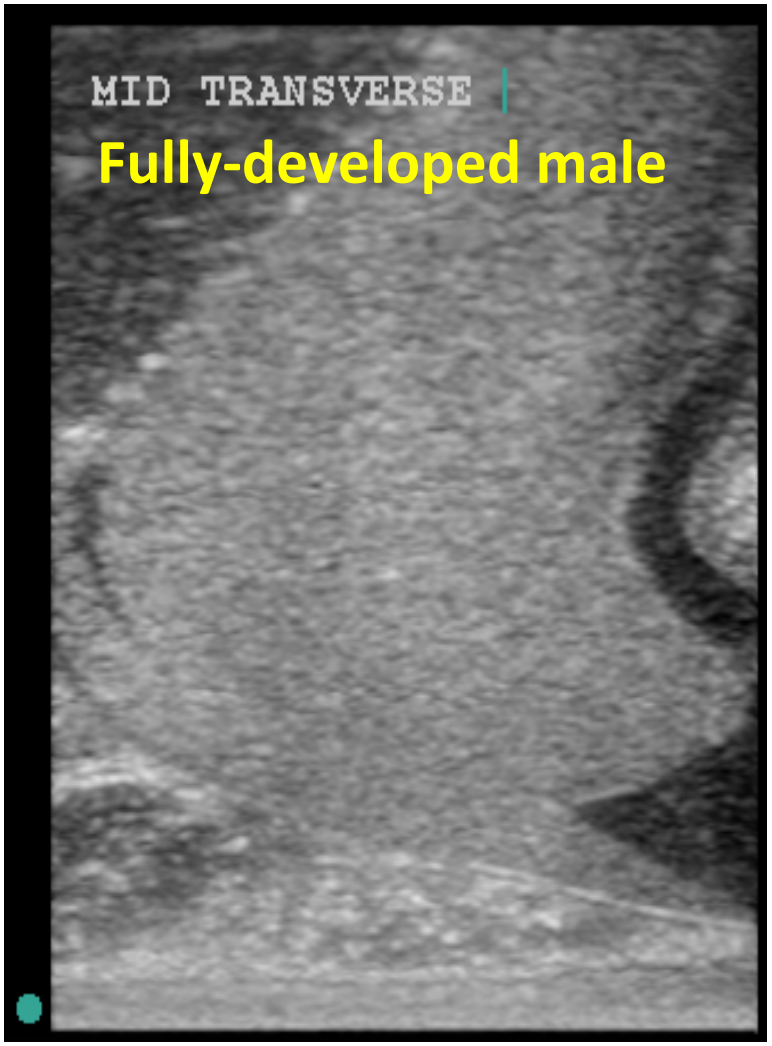


Chiotti, J., J. Boase, D. Hondorp, A. Briggs. Assigning Sex and Reproductive Stage to Adult Lake Sturgeon using Ultrasonography and Common Morphological Measurements. *Accepted* North American Journal of Fisheries Management.

St. Clair-Detroit River System (SCDRS)

Ultrasound for Sex Determination





St. Clair-Detroit River System (SCDRS)

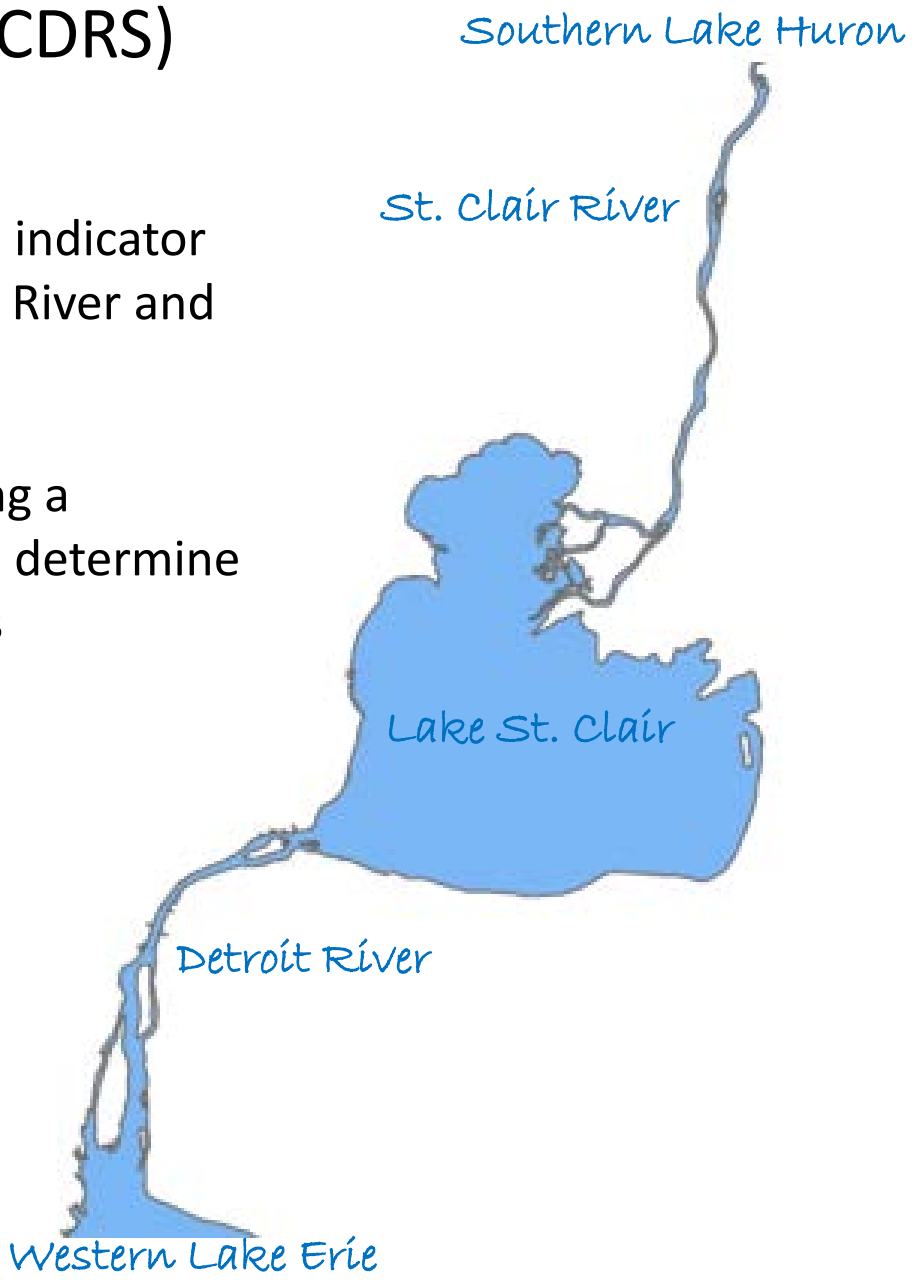
State of the Strait

The lake sturgeon has been designated as in indicator of ecosystem health in the "Strait" – Detroit River and Western Lake Erie

We are currently in the process of developing a workshop with stakeholders in the SCDRS to determine assessment metrics and quantifiable targets

Potential Metrics

- Natural Reproduction – Spawning
- Juvenile Abundance
- Length and Age Distribution
- Adult Population Abundance
- Genetics



St. Clair-Detroit River System (SCDRS)

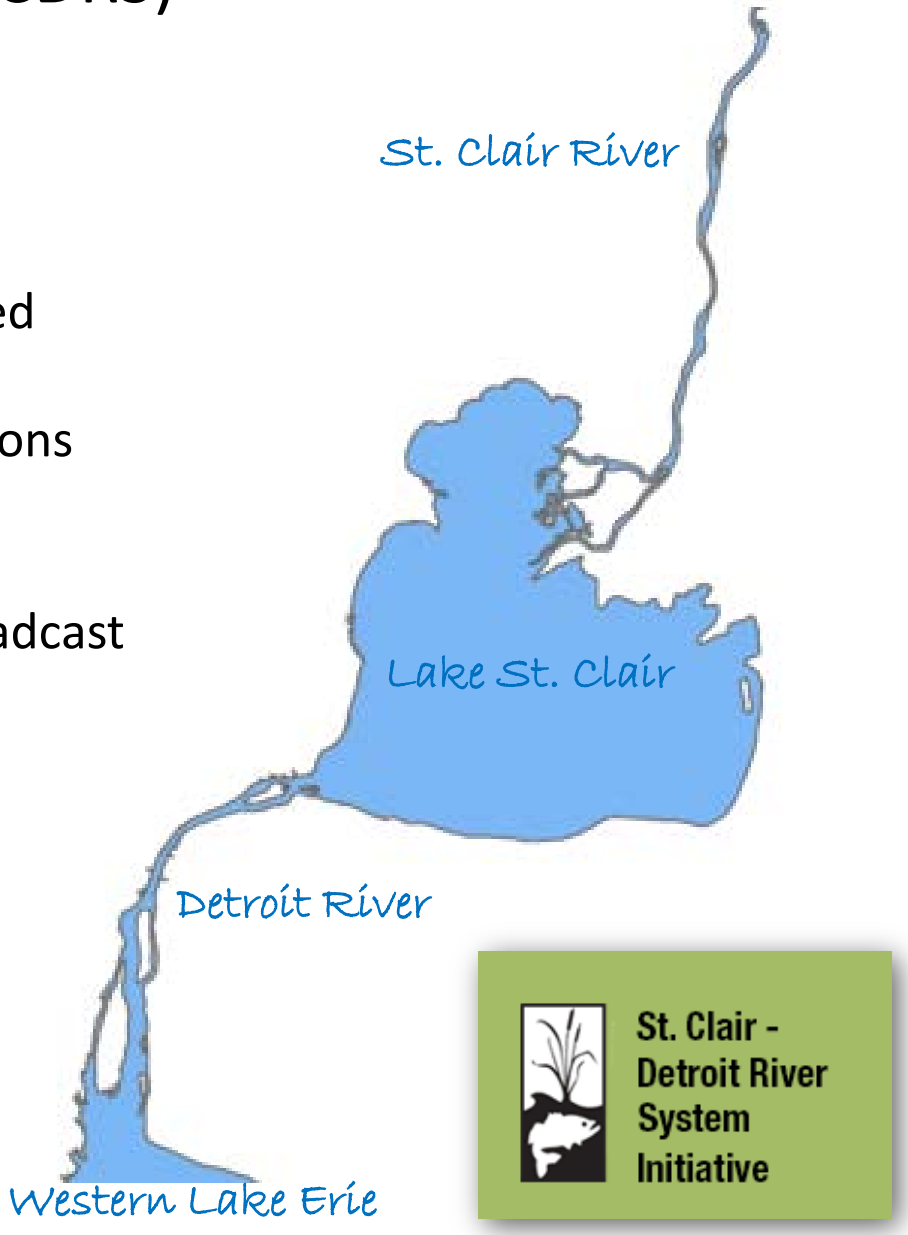
Habitat Restoration

St. Clair and Detroit River Areas of Concern

Beneficial Use Impairments (BUI's) Addressed

3) Degradation of fish and wildlife populations
14) Loss of fish and wildlife habitat

Restore spawning habitat for lithophilic broadcast spawners



St. Clair - Detroit River System Initiative

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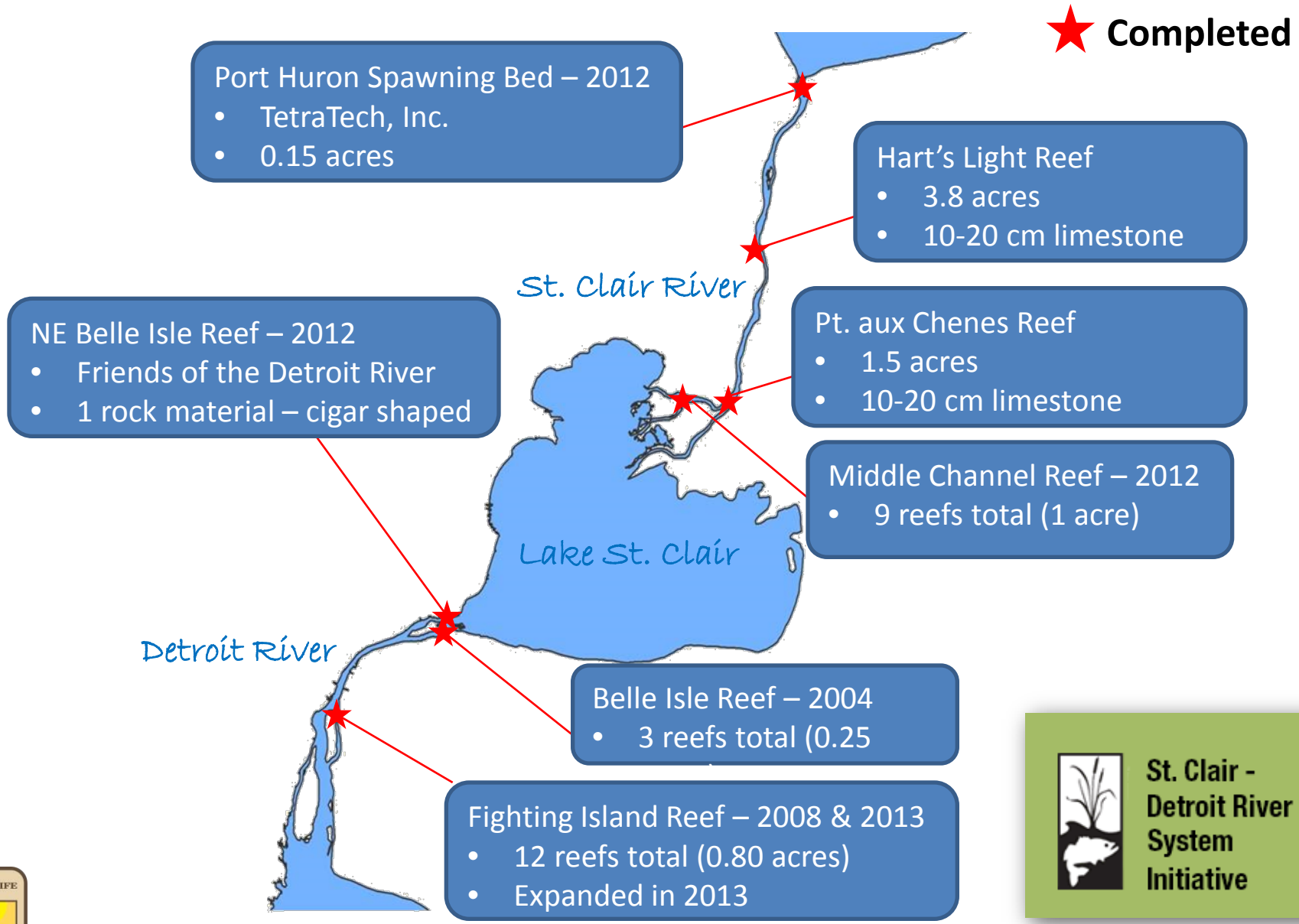

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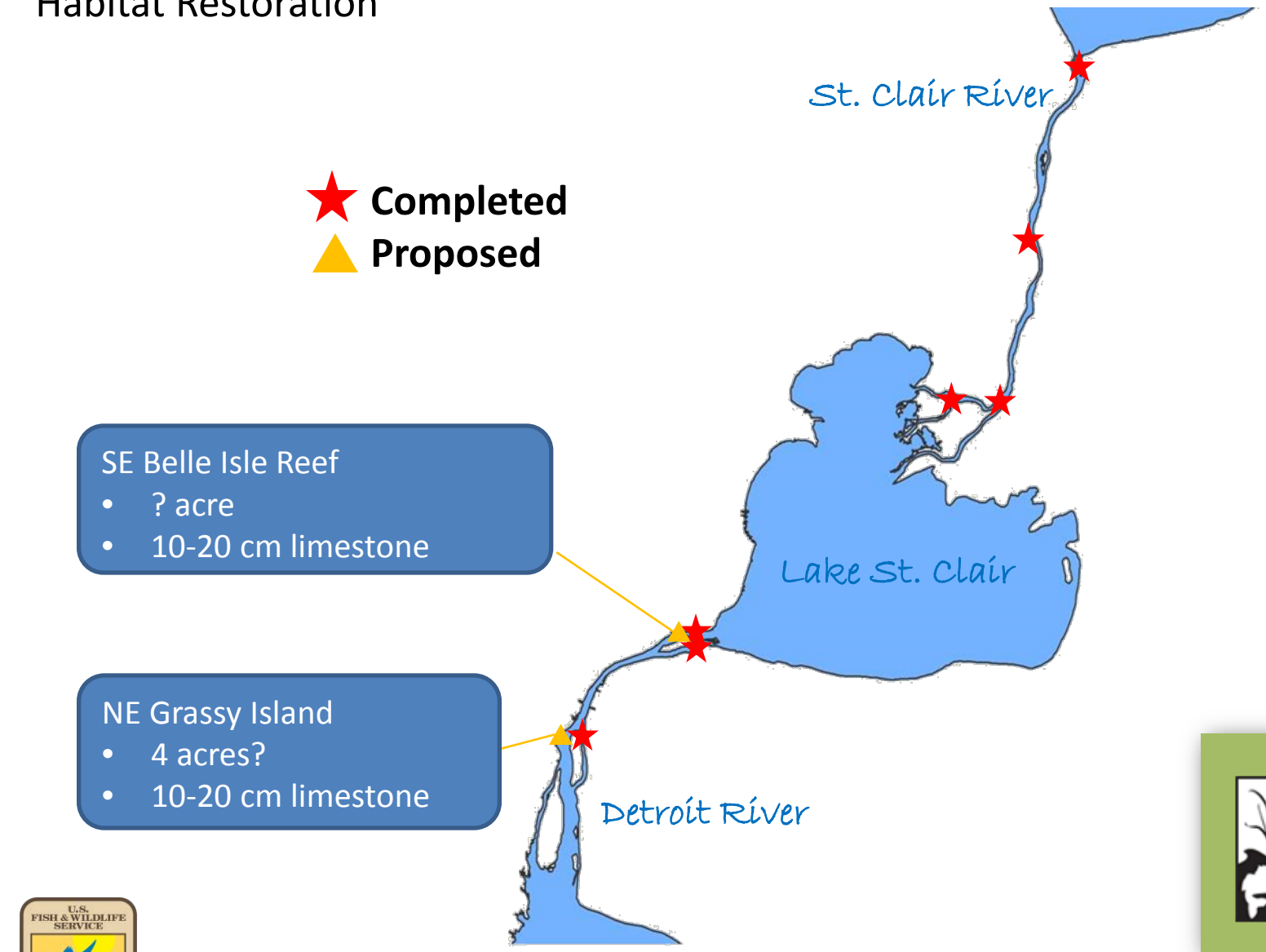
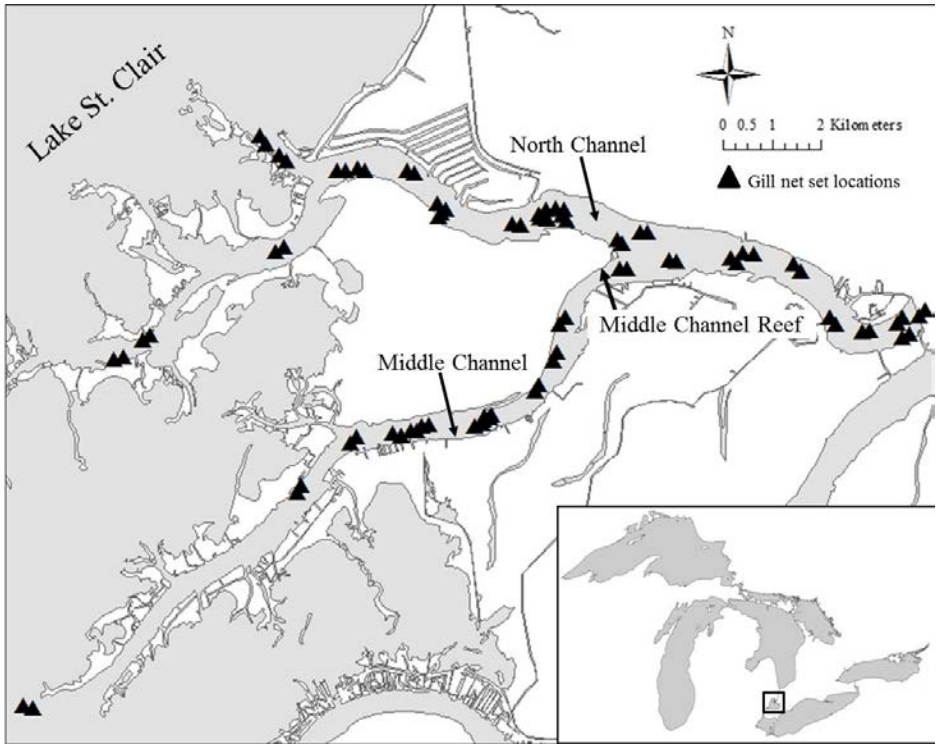
Habitat Restoration



St. Clair - Detroit River System Initiative

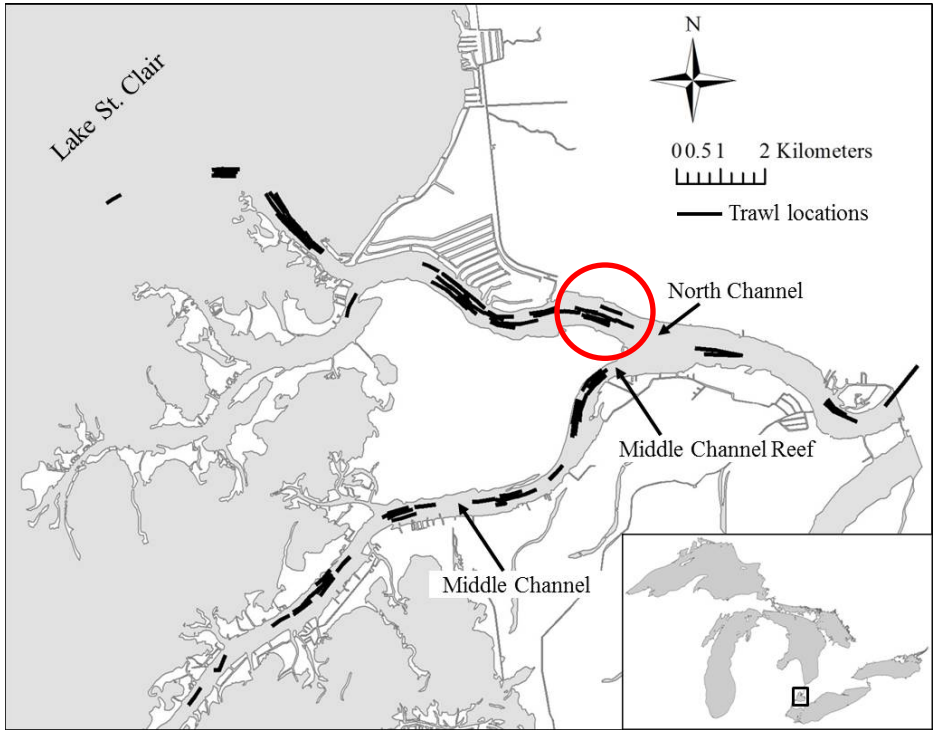
St. Clair-Detroit River System (SCDRS)

Juvenile Assessments – YOY and Age-1



2012

3 YOY = 190, 134, 162 mm



St. Clair-Detroit River System (SCDRS)

Juvenile Assessments – YOY and Age-1

2013

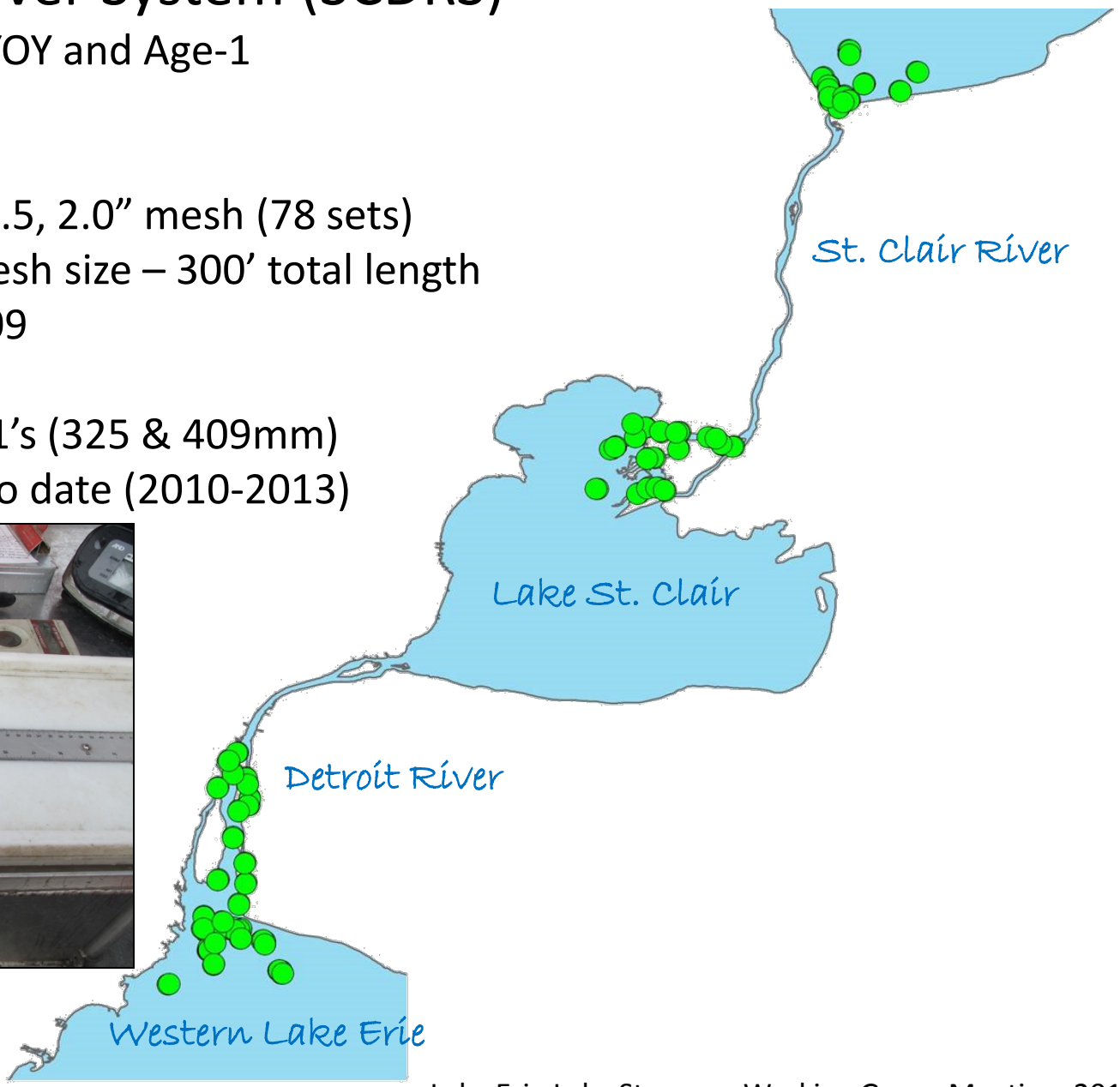
Small mesh gill net 1.0, 1.5, 2.0” mesh (78 sets)

2 – 50’ panels of each mesh size – 300’ total length

Based on Barth et al. 2009

No YOY captured, 2 age-1’s (325 & 409mm)

Only six YOY’s captured to date (2010-2013)

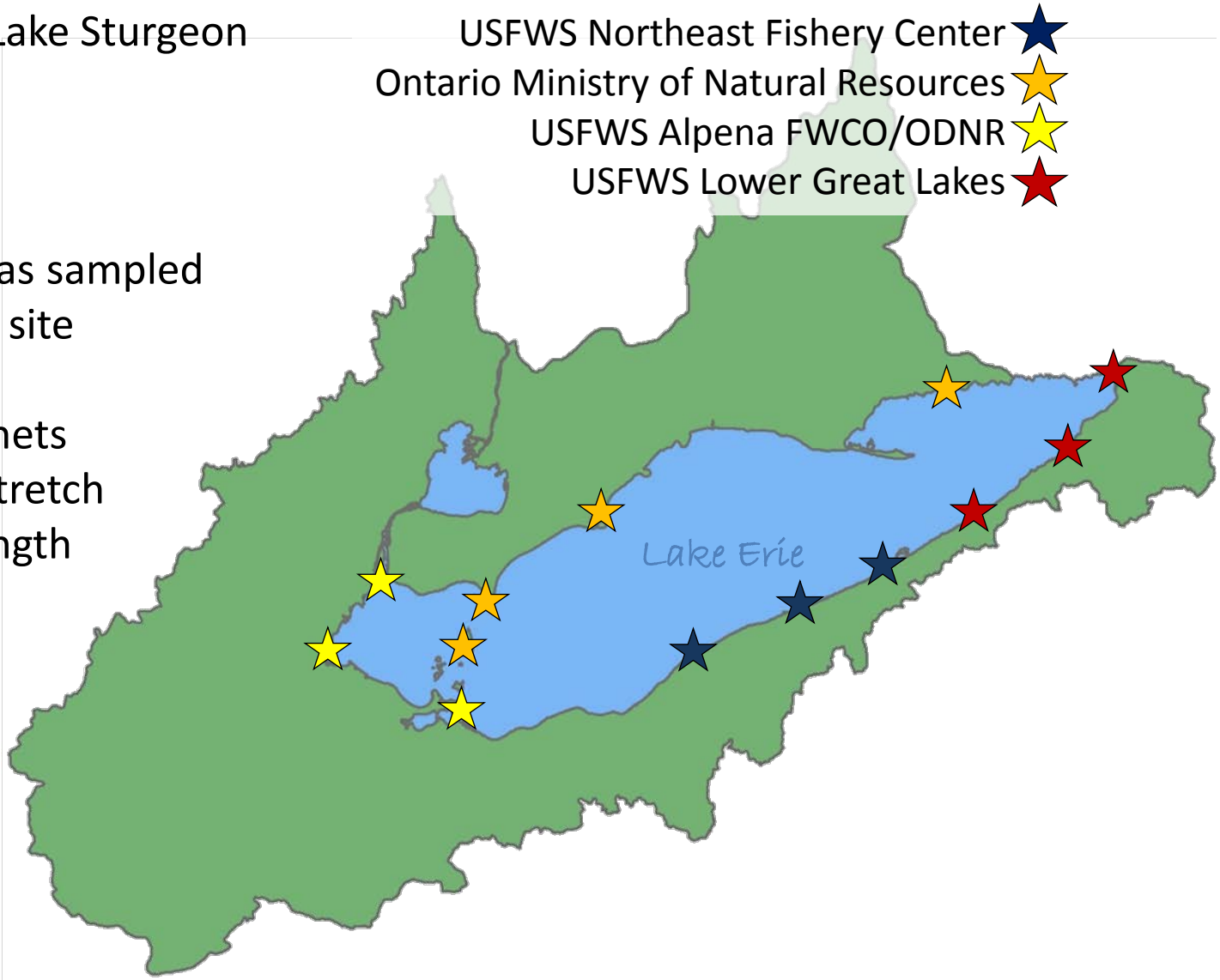


Lake Erie Basin

Basin-wide Juvenile Lake Sturgeon Assessment

Methods

- 13 tributaries/areas sampled
- 8 -16 net sets per site
- 3 sampling zones
- Experimental gill nets
  - 4.5”, 8”,10” stretch
  - 500-1000’ length



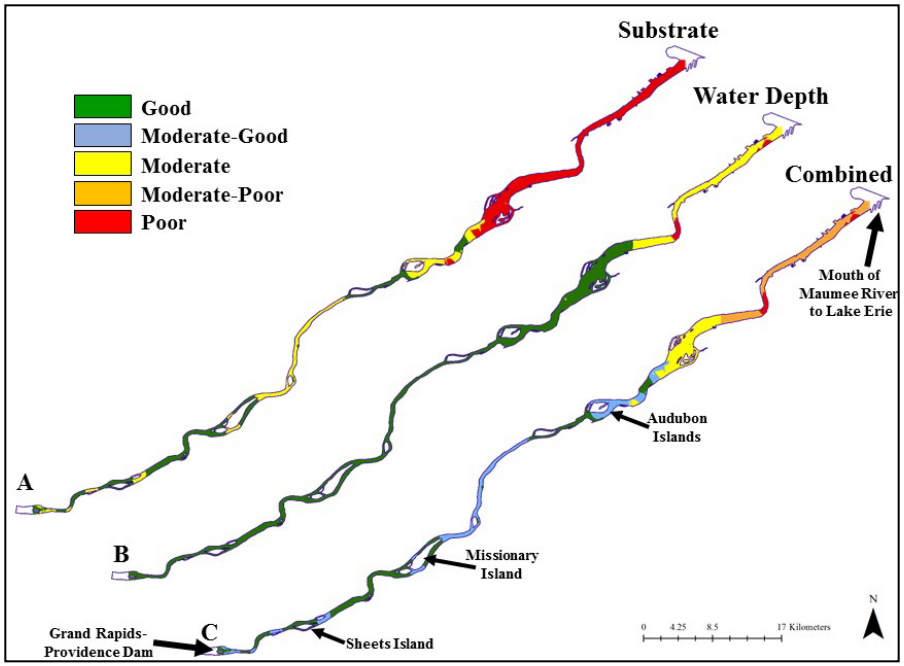
Lake Erie Basin

Maumee River Habitat Suitability Project and Lake Sturgeon Restoration Plan

Habitat Measurements

- Substrate composition
- Water depth
- Water velocity
- Water temperature
- Dissolved oxygen
- Available habitat area

Habitat Suitability Index



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