



**St. Clair -  
Detroit River  
System  
Initiative**

**St. Clair – Detroit River System Initiative Annual Meeting  
“Charting the Course for Action in the St. Clair-Detroit River System”**

**Thursday March 1, 2018**

**Weber’s Inn**

**Ann Arbor, Michigan**

**Briefing Updates**

# 2018 Annual Meeting

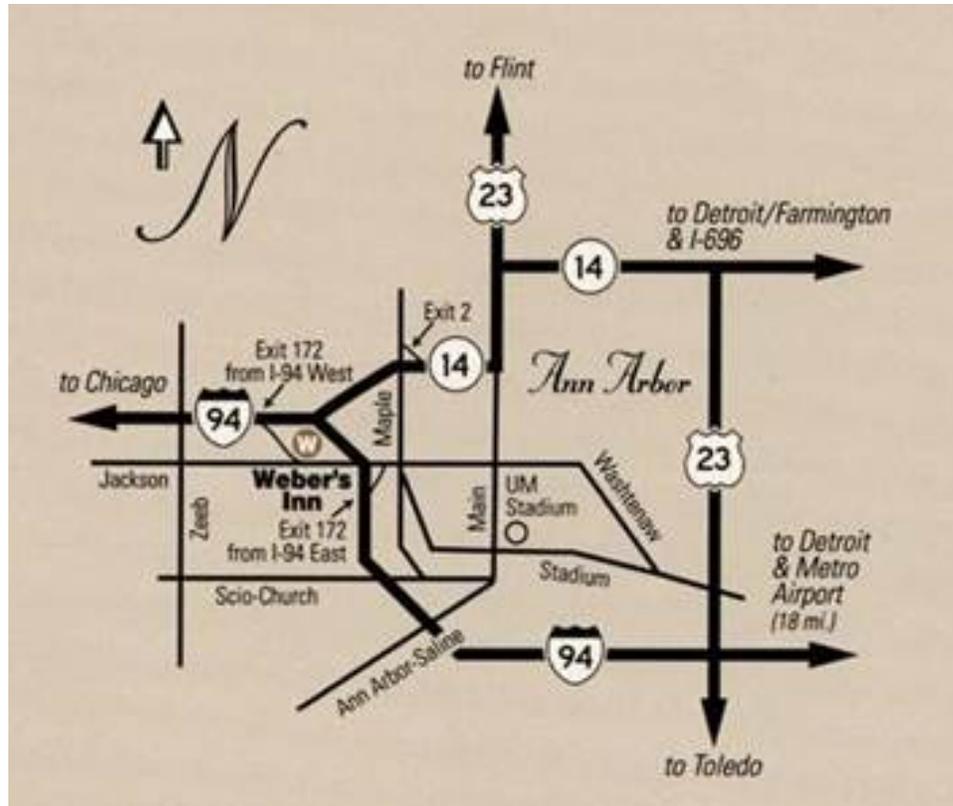
"Charting the Course for Action in the St. Clair-Detroit River System"

Thursday March 1, 2018

Weber's Inn

3050 Jackson Avenue, Ann Arbor, MI 48103

9:00 a.m. - 5:00 p.m. EST



Thank you to our 2018 SCDRS Initiative  
Meeting sponsors.

**SMITHGROUP JJR**



HERPETOLOGICAL RESOURCE & MANAGEMENT

**ECT** *Environmental  
Consulting &  
Technology, Inc.*



**DTE Energy**®



# St. Clair – Detroit River System Initiative Annual Meeting Agenda

March 1, 2018, Weber's Inn, Ann Arbor MI

- 8:00 – 9:00** Registration and networking (Continental breakfast)
- 9:00 – 9:10** Welcome/housekeeping (Jim Boase, SCDRS Initiative Chair and USFWS)
- 9:10 – 9:20** Steering Committee Report, Discussion/Input from members (Jim Boase)
- 9:20 – 9:30** Communication Subcommittee (Michelle Selzer, DNR-OGL)
- 9:30 – 9:45** Great Lakes Acoustic Telemetry Observation System in the SCDRS (Aaron Fisk, University of Windsor)
- 9:45 – 10:15** **BREAK**
- 10:15-10:45** 2019 Lake Erie LAMP & CSMI Update (Beth Hinchey-Malloy, EPA-GLNPO)
- 10:45- 4:45 SCDRS Priority Objectives, Indicators Status Update & Discussion**
- 10:45 – 11:00** SCDRS Priority Objectives Updates (Ed Roseman, USGS; Justin Chiotti, USFWS)
- 11:00 – 11:25** Grass Carp (Travis Hartman, OHDNR)
- 11:25 – 12:20** Binational AOC Updates – U.S./CAN St. Clair River & Detroit River
- U.S. AOC Updates (Melanie Foose, DNR- OGL)
- CAN AOC Updates (April White, ECCC; Claire Sanders, DRCC)
- CAN AOC GIS project (Alice Grgicak-Mannion, U of Windsor)
- 12:20 -12:40** Lake St. Clair/Thames River Water Quality and HAB Assessment: An Ontario Perspective (Ngan Diep, OMECC)
- 12:40-1:45** **LUNCH (Networking, Poster Session, Group Photo)**
- 1:45-2:10** U.S. Coastal Wetland Restoration Prioritization Tool (Kurt Kowalski, USGS)
- 2:10 – 2:35** U.S. Coastal Wetland & Softening Shoreline efforts (Michelle Selzer)
- 2:35 – 3:00** Functional River Spawning Habitat (Ed Roseman)
- 3:00 – 3:30** **BREAK** (P.M. snacks)
- 3:30 -3:55** Contaminants of emerging concern in the SCDRS (Wayne State University)
- 3:55 – 4:20** Detroit River Nutrient Project (Lynn Vaccaro, University of Michigan)
- 4:20 – 4:45** Protect Native Rare Species (Andrew Drake, DFO)
- 4:45 – 5:00** Closing remarks, Next Steps (Sue Doka, DFO and Canadian Co-chair)
- 5:00 – 7:00** Social and Poster Session

Thank you Sponsors!





## 2018 Briefing Update

### Agency

University of Toledo - Lake Erie Center

### Contact

Zach Amidon

zachary.amidon@utoledo.edu

607-262-0672

### Title

Distribution and survival of Lake Whitefish (*Coregonus clupeaformis*) early life stages in Western Lake Erie

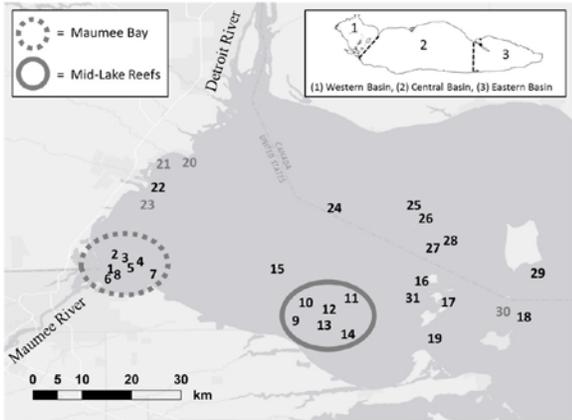
### Update

Historically, Lake Whitefish (*Coregonus clupeaformis*) supported a valuable commercial fishery in Lake Erie, averaging 2.5 million pounds harvested annually from 1900 to 1950. However, by the 1950s, overfishing and degradation of spawning areas in the Detroit River, Maumee Bay, and lake reefs and shoals contributed to the populations collapse. This decline prompted management agencies to take steps to improve the aquatic ecosystem of Lake Erie. An increased harvest of adult Lake Whitefish in the 1990s suggested the young were successfully recruiting to the fishery, but information on where they were spawning and which areas were being used as nurseries for larvae remained unknown. Lake whitefish eggs and larvae were incidentally captured as part of a walleye study in late 1990s on two western basin reefs providing evidence of successful spawning and hatching in the area. While the catch of early life history stages of Lake Whitefish provide evidence that Lake Whitefish are using the western basin as a spawning and nursery area, the extent of use is unknown. The goal of our current ongoing research is to 1) identify the spawning distribution and overwinter egg survival of contemporary Lake Whitefish by documenting egg deposition in western Lake Erie, and 2) document the spatial distribution and abundance of Lake Whitefish larvae in the western basin.

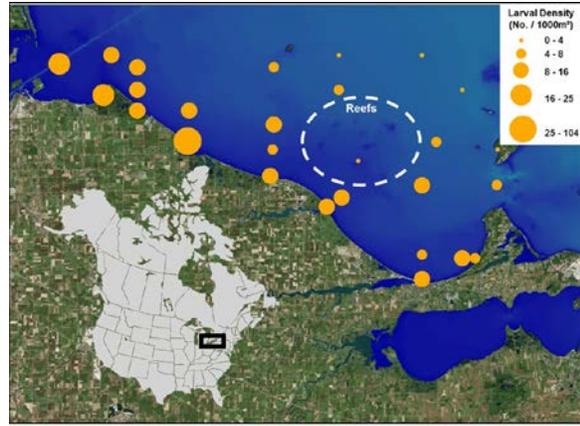
To identify the spawning distribution of Lake Whitefish in the western basin of Lake Erie, 31 potential spawning locations were sampled for eggs in 2016 and 2017 using a 39-kg iron sled attached to a diaphragm pump. Viable eggs were collected at 27 of 31 sampled locations, verifying that lake whitefish spawned in Maumee Bay, on the mid-lake reefs, and at 17 additional sites in 2016 and 2017. To identify the overwinter survival of eggs, six locations in Maumee Bay and six locations on the mid-lake reefs were sampled weekly when possible throughout the winter incubation period (November 2016 to March 2017). Eggs were detected at all 12 locations in November shortly after being spawned. However, in February eggs were detected at 5 out of 6 mid-lake reef locations and no eggs were detected in Maumee Bay. This information indicates that over winter egg survival may be limiting Lake Whitefish recruitment in Lake Erie.

To document the spatial distribution and abundance of Lake Whitefish larvae use, 27 sample locations were spaced out across the southern portion of the western basin where many known spawning locations occurred. Each site was visited once per week from March 19th 2017 to June 1st 2017 and samples were collected by towing a paired bongo net. Lake Whitefish larvae were collected from 26 out of 27 locations.

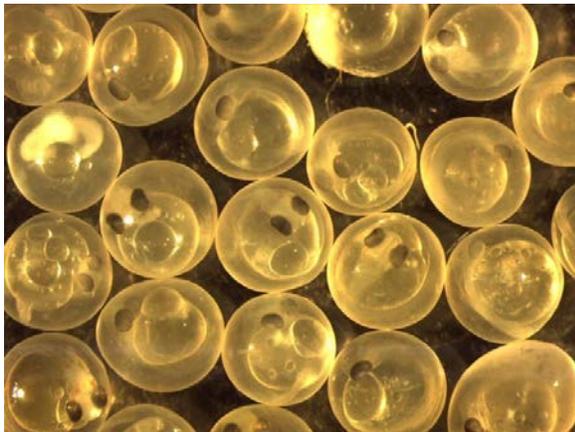
Highest larval densities were found near the southern shoreline highlighting the importance of shallow nearshore areas as a nursery for Lake Whitefish early life stages.



Map of egg sampling locations in western Lake Erie. Site numbers correspond to Map ID in Table 1. Black numbers represent locations where viable eggs were detected. Grey numbers represent locations where viable eggs were not detected.



Western basin of Lake Erie dot density map of seasonal average larval densities by site.



Lake whitefish eggs. Photo credit – Zach Amidon.



Lake whitefish larvae. Photo credit – Zach Amidon.



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service

### Contact

Anjanette Bowen and Jessica Bowser

anjanette\_bowen@fws.gov

989-356-5014

### Title

U. S. Fish and Wildlife Service Early Detection Monitoring for Non-native Aquatic Species

### SCDRS Initiative Objective(s)

Implement preventive strategies through information/education programs and management of potential sources and pathways (e.g., ballast water, live release, etc.), Develop integrated pest management for established AIS (e.g., common carp, Dreissenid mussels, gobies, grass carp)

### Update

In keeping with priorities described in the Great Lakes Restoration Initiative Action Plan, the U. S. Fish and Wildlife Service collected field samples in 2013-2017 as part of a new early detection monitoring program focusing on non-native fishes, amphipods and bivalves. In the St. Clair-Detroit River System, collections were made in Lake St. Clair and Maumee Bay of Lake Erie due to the high risk of first introduction of priority non-native species. Maumee Bay has been sampled annually since 2013 and Lake St. Clair was added to the sampling regime in 2017.

Ichthyoplankton sampling occurred in Maumee Bay in late May through July 2017. A total of 22 bongo net tows were completed during night in open water areas and 38 light traps were deployed in backwaters near macrophyte-covered nursery areas. Samples are in the process of taxonomic identification by Alpena FWCO staff.

Juvenile and adult fish sampling was conducted at Lake St. Clair and Maumee Bay during August through November 2017. Sampling in Lake St. Clair occurred during October-November, and a total of 4,248 fish representing 25 species were collected using two traditional sampling gears - paired fyke nets and bottom trawls. Paired fyke nets (n = 15 sets) resulted in the capture of 2,501 fish representing 18 species. Bottom trawls (n = 15 tows) captured 1,747 fish and 18 species. Sampling in Maumee Bay occurred during August-September, and 35 species were identified from 12,393 total fishes collected among three traditional sampling gears - paired fyke nets, bottom trawls, and electrofishing. Paired fyke nets (n = 15 sets) collected 3,981 fish representing 27 species. Bottom trawling (n=15 trawls) captured 7,729 fish representing 18 species. Electrofishing (n = 15 transects) captured 683 fish and 22 species. Fish were identified to species and released, except Round Gobies which were retained dead. Fin clips and photographs were taken from EDM project singleton and doubleton species to contribute to a genetic validation project conducted by the USFWS Whitney Genetics Laboratory (LaCrosse, WI).

One goal of this project is to estimate, using rarefaction, how much sampling effort and time is required to achieve at least a 95% detection rate of species present at a location using the current suite of sampling gears. We have reached an estimated 86% sampling efficiency for juvenile and adult fishes in Maumee Bay for all gear types combined over the cumulative period of 2013-2017. Sampling in 2017 at Lake St. Clair reached an estimated 62% sampling efficiency for juvenile and adult fishes using all gears combined.

Benthic sampling was conducted in Maumee Bay. Amphipod traps and Hester-Dendy colonization samplers were used in May –July and July –October, respectively. This represents year four of the benthic monitoring portion of the early detection monitoring program. A total of 20 amphipod traps were set for four hours. Also, five gangs consisting of three Hester-Dendy colonization samplers and three rock bags on each gang were set for 91 days each. Benthos samples are currently in the process of being identified by Alpena FWCO staff.

U.S. Fish and Wildlife Service early detection monitoring activities were conducted in cooperation with the USEPA, U.S. Geological Survey, Ohio and Michigan departments of natural resources, Ontario Ministry of Natural Resources and Forestry, and the University of Toledo.

<http://www.fws.gov/midwest/alpena/programs.html>



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service Alpena FWCO - Detroit River Substation, Ohio Department of Natural Resources, Toledo Zoo, Ontario Ministry of Natural Resources and Forestry, University of Toledo, Michigan Department of Natural Resources, U.S. Geological Survey

### Contact

Justin Chiotti, Kent Bekker, Doug Aloisi, Rich Drouin, Chris Davis, Christine Mayer, Jessica Collier, James Boase, Christopher Vandergoot, Eric Weimer, James Francis  
justin\_chiotti@fws.gov  
248-891-0087

### Title

Maumee River Lake Sturgeon Restoration Program

### SCDRS Initiative Objective(s)

Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribes

### Update

Lake sturgeon recruitment in the Lake Erie basin is currently supported by two connecting channels, the St. Clair – Detroit River System and Niagara River. Historically, there were 16 other spawning populations in Lake Erie. In an effort to delist this endangered species in the State of Ohio and throughout the Lake Erie basin, efforts are underway to rehabilitate lake sturgeon populations in suitable river systems. The Maumee River, located in western Lake Erie, historically supported large runs of lake sturgeon, but currently are considered functionally extirpated from this system. A habitat suitability model for spawning adult and age-0 lake sturgeon indicates sufficient habitat is present in the Maumee River. Therefore, the river is a strong candidate for a lake sturgeon reintroduction. A lake sturgeon restoration plan has been drafted for the system and supported by the Great Lakes Fishery Commission Lake Erie Committee. Lake sturgeon will be reared by the Toledo Zoo and Genoa National Fish Hatchery. The habitat suitability model and restoration plan will provide the foundation for the Maumee River Lake Sturgeon Restoration Program, a multi-agency, international effort leading towards the restoration of the lake sturgeon population in Lake Erie. Beginning in 2018, 3,000 fingerling lake sturgeon will be stocked in the Maumee River in the fall of each year for a duration of 25 years.

<https://www.wildtoledo.org/lake-erie-sturgeon/>



A fall fingerling lake sturgeon with a passive integrated transponder tag. Photo Credit - Jennifer Johnson (USFWS)



The current status of the Maumee River Lake Sturgeon Rearing Facility located on Toledo Zoo property along the Maumee River. Photo Credit - Kent Bekker (Toledo Zoo).



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service Alpena FWCO - Detroit River Substation,

### Contact

Justin Chiotti and James Boase

justin\_chiotti@fws.gov

248-891-0087

### Title

Juvenile Lake Sturgeon Assessments in the St. Clair-Detroit River System

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribes

### Update

The U.S. Fish and Wildlife Service (Service) has been conducting juvenile lake sturgeon assessments in the St. Clair-Detroit River System (SCDRS) since 2010 to evaluate habitat restoration efforts and gain better understanding of juvenile distribution and abundance in the system. In past years, juvenile lake sturgeon have been targeted using otter trawls (4.9 and 6.1 m head rope; 3 mm and 32 mm cod end, respectively), monofilament gill nets (small mesh nets - 25, 38 and 51 mm mesh, 91 m in length; basin wide nets - 114, 203, and 254 mm mesh, 305 m in length), and setlines (1/0 hook size). In 2017, the Service set experimental multifilament gill nets (mesh ranging from 76 to 152 mm, 107 m in length) and setlines (50, 1/0 size hooks per line) in western Lake Erie near the Detroit River mouth and in Maumee Bay.

Western Lake Erie near Detroit River mouth: In 2017, thirty-two (772 hours of effort) experimental multifilament gill nets were set in western Lake Erie to target juvenile lake sturgeon. Nets were set between August 29th and October 5th, when water temperatures were between 18.6°C and 23.1°C. Nine juvenile lake sturgeon (658-970 mm) were captured. One individual was captured in 88.9 mm mesh, one in 114.3 mm mesh, three individuals in 127 mm mesh, and four in 139.7 mm mesh. Since 2015, 18 juvenile lake sturgeon (574-970 mm) have been captured in 98 experimental multifilament net sets near the Detroit River mouth (2,235 hours of effort) for a CPUE of 8.05 fish per 1,000 net hours.

In addition to the multifilament gill nets sets in 2017, we also deployed 29 setlines (50, 1/0 size hooks per line) to compare catch rates of juvenile lake sturgeon between these two gear types. Setlines were set between September 5th and November 13th, when water temperatures were between 5.4°C and 22.6°C. Eight juvenile lake sturgeon (553-855 mm) were captured.

Two of the juvenile lake sturgeon captured in 2017 received an acoustic transmitter to monitor movements in Lake Erie and the Detroit River. This work is part of an ongoing research project titled

“Spatial ecology of juvenile lake sturgeon (*Acipenser fulvescens*) in the Detroit River.”

Maumee Bay: Juvenile lake sturgeon assessments were also conducted in Maumee Bay near the Maumee River mouth in order to collect data prior to fingerling lake sturgeon stocked in the fall of 2018. A total of 18 setlines (50, 1/0 size hooks per line) were deployed between September 25th – 28th. Water temperature during this time period ranged from 24.0°C – 25.1°C. No juvenile lake sturgeon were captured.

2018 Field Plans: In 2018, juvenile lake sturgeon will be targeted in western Lake Erie and Maumee Bay August – October using setlines. There are several reasons why setlines will be used as the primary gear type targeting juvenile sturgeon. While the multimesh gill nets and setlines had similar catch rates, far more staff time is needed when deploying gill nets due to cleaning vegetation from the nets. Another possible advantage is reduced mortality associated with setlines. One disadvantage of using setlines is that the smallest lake sturgeon we have captured using 1/0 hooks is 553 mm. Therefore, our setlines will likely be targeting age-2 lake sturgeon and older. Habitat attributes will also be collected at each setline location such as substrate, water flow, water temperature, and dissolved oxygen.

Assessments conducted in cooperation with: Michigan DNR, University of Michigan, Ontario Ministry of Natural Resources, and U.S. Geological Survey.

<https://www.fws.gov/midwest/alpena/programs.html>



U.S. Fish and Wildlife Service biological science technicians Paige Wigren and Jennifer Johnson holding lake sturgeon captured during an assessment in western Lake Erie. Photo Credit - Justin Chiotti (USFWS)



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service

### Contact

Jennifer Johnson, Justin Chiotti, and James Boase

justin\_chiotti@fws.gov

248-891-0087

### Title

Northern Madtom (*Noturus stigmosus*) use of artificial reefs in the St. Clair – Detroit River System

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribes

### Update

The Detroit and St. Clair rivers historically supported an abundant fishery; however like many river systems, these rivers have been greatly altered. The creation of navigation channels and other anthropogenic disturbances have resulted in the decline of native fish populations and loss of fish and wildlife habitat. In order to restore these beneficial use impairments, artificial fish spawning reefs have been constructed in the Detroit and St. Clair rivers. Currently 7 reefs have been constructed adding over 16 acres of spawning habitat to the system. While Walleye, Lake Sturgeon, and Lake Whitefish were the target species, other lithophilic species could also be benefiting from the reefs. One species to potentially benefit from the construction of artificial reefs is the Northern Madtom (*Noturus stigmosus*). Northern Madtom are a small Ictalurid catfish listed as globally vulnerable and endangered in the state of Michigan and Province of Ontario. Like other catfish species, these fish are cavity nesters; yet, not much else is known about this species as it is historically found in small, isolated populations.

Galvanized gee minnow traps were used to compare the relative abundance of Northern Madtom and other small benthic fishes between artificial reefs and control sites in the Detroit and St. Clair rivers during five months of 2017. Minnow traps were deployed overnight at three reef and three control sites in each river. A total of 704 minnow traps were deployed using four different bait types (cheese, night crawlers, dog food, no bait) to determine bait preference. Water quality data, current velocity, and substrate information was collected at each site.

A total of 78 Northern Madtom were captured, 57 of which were caught in the St. Clair River. Northern Madtom were captured at all reef and controls sites in the St. Clair River with reef sites having higher catch rates with the exception of Hart's Light. In the Detroit River, the control sites had higher catch rates than the reef sites. Relative abundance, nonetheless, did not differ statistically between reef and control sites. Northern Madtom were captured in each of the four bait types. Fifty-four out of the 78 were captured with night crawlers making it the statistically preferred bait type. While each of the bait types

have captured Northern Madtoms over the course of this study (2016-2017), night crawlers have caught significantly more with 88 of the 129 (68.2%) captured in this bait type Other species caught during this study included Burbot, Largemouth Bass, Logperch, Mottled Sculpin, Rock Bass, Round Goby, Silver Lamprey, Slimy Sculpin, Smallmouth Bass, Stonecat, and Yellow Perch. Eight unique species were captured in the Detroit River and ten different species in the St. Clair River. Round Gobies were the most abundant fish and were caught at every site. Water quality data, current velocity, and substrate information have not been analyzed at this time.

In 2018, sampling will occur over a similar temporal scale in hopes to elucidate seasonal patterns in habitat use. This work will enable us to develop a better sampling strategy for Northern Madtom in large river systems.

<https://www.fws.gov/midwest/alpena/programs.html>



A Northern Madtom captured during minnow trap assessments in the St. Clair - Detroit River System.  
Photo Credit - USFWS



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service Alpena FWCO - Detroit River Substation

### Contact

Justin Chiotti and James Boase

justin\_chiotti@fws.gov

248-891-0087

### Title

Adult Lake Sturgeon Setline Assessments

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribes

### Update

**Detroit River Update:** The U.S. Fish and Wildlife Service (Service) has been conducting setline assessments in the Detroit River annually since 2002 to obtain information on adult and subadult lake sturgeon. This data is used to obtain growth information, genetics, distribution, potential spawning sites, and population demographic information. To date, the Service has tagged 477 lake sturgeon in the Detroit River. Using mark-recapture data, the estimated population size of adult and subadult lake sturgeon in the Detroit River is approximately 4,500 individuals. In the spring of 2017, 60 lake sturgeon were captured during setline assessments including eight recaptures. Since 2012, 76 lake sturgeon captured in the Detroit River have received transmitters as part of a larger project funded by the Great Lakes Fishery Trust to monitor movement throughout the St. Clair-Detroit River System, though no additional fish were implanted with transmitters in 2017.

**Southern Lake Huron Update:** Beginning in 2012 the Service began deploying setlines in the upper St. Clair River and southern Lake Huron near Port Huron to collect lake sturgeon as part of the Great Lakes Fishery Trust lake sturgeon movement project. Since 2012, 367 lake sturgeon have been captured and tagged during these assessments with 55 being captured in 2017 including five recaptures. In 2014, the Service began to tag lake sturgeon captured as bycatch in the commercial trap nets of Purdy Fisheries, LTD. To date, 407 lake sturgeon have been tagged and/or checked for tags as part of this project (131 in 2017). Based on mark-recapture data collected since 2012, the population estimate of lake sturgeon in the upper St. Clair River/southern Lake Huron is 14,791 individuals. Since 2012, 120 lake sturgeon captured in southern Lake Huron have received transmitters as part of the Great Lakes Fishery Trust funded lake sturgeon movement project, though no additional fish were tagged with transmitters in 2017.

**Ultrasound:** An ultrasound unit was purchased by the Service in 2012 to evaluate the utility of this gear to determine sex and maturity status of lake sturgeon in the field. The Great Lakes Fishery Trust Lake Sturgeon movement project provided the opportunity to test the ultrasound on fish of known sex since a

small incision would be needed to insert transmitters. In 2016, ultrasound images were taken of 139 lake sturgeon. Since 2012, ultrasound images have been collected from 784 adult lake sturgeon in the St. Clair-Detroit River System (Chiotti et al. 2016).

2018 Field Plans: The Service plans to continue lake sturgeon mark-recapture assessments in the Detroit River and southern Lake Huron to provide information regarding lake sturgeon demographics.

This work is conducted in cooperation with: US Geological Survey Great Lakes Science Center, Michigan Department of Natural Resources, Great Lakes Fishery Commission, and Ontario Ministry of Natural Resources and Forestry.

<https://www.fws.gov/midwest/alpena/programs.html>



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service

### Contact

Justin Chiotti, James Boase, and Paige Wigren

justin\_chiotti@fws.gov

248-891-0087

### Title

Adult Fish Community Assessments Associated with the Reef Projects in the St. Clair-Detroit River System

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat

### Update

The U.S. Fish and Wildlife Service (Service) has been deploying gill nets to monitor the adult fish community before and after the construction of reefs within the St. Clair-Detroit River System. In 2017, experimental gill nets were fished bi-weekly in the spring and fall at several locations in the Detroit River. Locations in the Detroit River included East Belle Isle Reef, Fighting Island Reef, and Grassy Island Reef and a control in the Trenton Chanel. Suspended nets were also deployed six feet from the surface to target lake whitefish. Beginning in fall 2014, two minnow traps were attached to the gill nets in an effort to monitor the benthic fish community.

In the spring of 2017, seventeen (406 hours of effort) experimental multifilament gill nets were set in the Detroit River set between March 27th and May 25th, when water temperatures were between 2.3°C and 14.3°C. Spring species richness based on gill net catch at the Detroit River sites was highest at Belle Isle Reef (10), followed by Fighting Island Reef (9), and Grassy Island Reef (9). Walleye were the most common species captured at East Belle Isle Reef (0.34/hour), and Fighting Island Reef (0.15/hour), Grassy Island Reef (0.77/hour).

In the fall of 2017, twenty-two (534 hours of effort) experimental multifilament gill nets were set in the Detroit River set between November 2nd - 29th, when water temperatures were between 4.0°C and 14.3°C. Fall species richness based on gill net catch at the Detroit River sites was highest at Belle Isle Reef (4) and Fighting Island Reef (4), and lowest at Grassy Island Reef (1). Walleye was the most common species captured at Fighting Island Reef (0.03/hour) and Belle Isle Reef (0.74/hour). Walleye was the only species captured at Grassy Island Reef (0.01/hour). Seven suspended nets were captured one Gizzard Shad and one Atlantic Salmon were captured in these nets, however this was the first Atlantic Salmon that has been captured by the Service in the Detroit River.

Minnow traps captured round goby (0.59/hour) logperch (0.5/hour), mudpuppy (0.54/hour), rock bass

(0.06/hour) and yellow perch (0.06/hour) during reef sampling in the Detroit River.

This work is conducted in cooperation with: US Geological Survey Great Lakes Science Center, Michigan Department of Natural Resources, and Ontario Ministry of Natural Resources and Forestry.

<https://www.fws.gov/midwest/alpena/programs.html>



Brian Schmidt and Jennifer Johnson with the U.S. Fish and Wildlife Service Alpena FWCO - Detroit River Substation holding two walleye captured during spring gill net assessments on the Detroit River. Credit - USFWS



## 2018 Briefing Update

### Agency

Fisheries & Oceans Canada, Great Lakes Laboratory for Fisheries and Aquatic Sciences

### Contact

Susan Doka

susan.doka@dfo-mpo.gc.ca

905-336-4498

### Title

Fish Habitat Assessments in the St Clair - Detroit River System

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase riparian complexity/connectivity through increased softened shorelines and native riparian veg., Increase continuous area of functional wetlands and their connectivity to the SCDRS, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribs, Increase hydrological lateral connectivity between main channel habitats (e.g., islands) and shallow water habitat

### Update

We have updated digital elevations models (multiple data sources), completed thorough substrate type mapping (multiple data sources), and recorded vegetation cover in rivermouths leading to the St Clair and Detroit Rivers (DFO). We have also undertaken extensive habitat and fish surveys of the Walpole Island and delta areas of the St Clair system (DFO). We record logger temperatures and dissolved oxygen (DOT) in backwater and wetland areas (DFO) and have compiled mid-channel buoy info (EC/NOAA). Working with partners we have toxicity maps for the SCDRS too (UWindsor). All these variables are being used to generate full spatial layers for the area which will be used to determine conservation, protection, and restoration (CPR) priorities.

[https://www.researchgate.net/profile/Susan\\_Doka](https://www.researchgate.net/profile/Susan_Doka)



## 2018 Briefing Update

### Agency

U.S. Geological Survey Great Lakes Science Center and Michigan Department of Natural Resources

### Contact

Jason Fischer, Greg Kennedy, Edward Roseman, Todd Wills, Christine Mayer  
jfischer@usgs.gov, gkenedy@usgs.gov, eroseman@usgs.gov, willst@michigan.gov,  
christine.mayer@utoledo.edu

### Title

Physical habitat assessment in the St. Clair-Detroit River System

### SCDRS Initiative Objective(s)

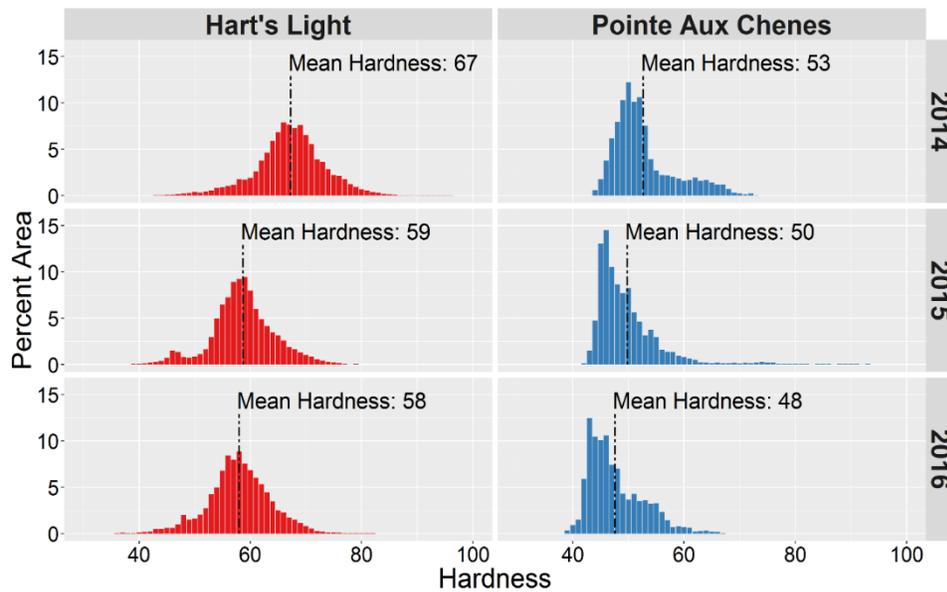
Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat

### Update

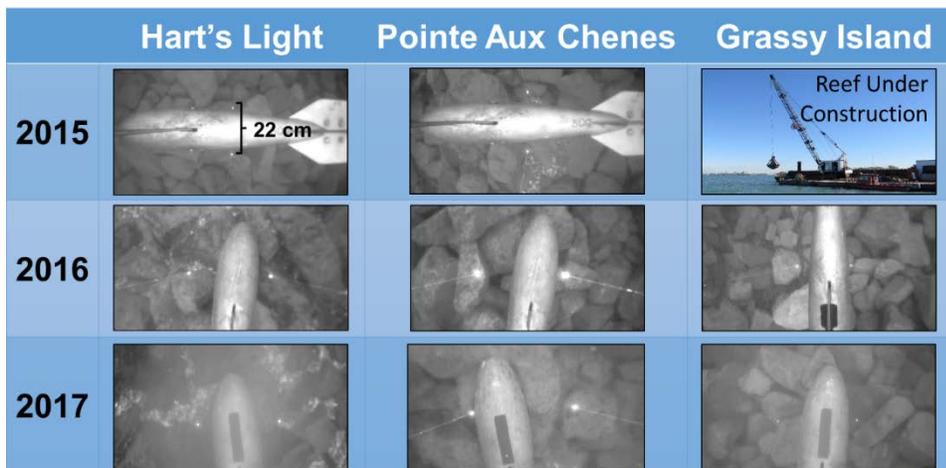
The U.S. Geological Survey Great Lakes Science Center and Michigan Department of Natural Resources continued monitoring the physical maturation of artificial fish spawning reefs in the St. Clair-Detroit River System (SCDRS) in 2017, including the Belle Isle Reef Complex constructed in December 2016 (Figure 1, right. Map created by MI Sea Grant). Monitoring consisted of side-scan sonar and underwater video surveys to quantify changes in surficial sediment composition and the degree of infilling by fine sediments on the reefs. Because reefs constructed after 2013 (Harts Light, Pointe Aux Chenes, Grassy Island, and Belle Isle) were developed using a revised protocol to minimize the likelihood of sediment deposition over the reefs, our assessment of reef maturation has primarily focused on these reefs. Sonar surveys were used to quantify bottom hardness and showed a slight reduction in hardness at the Harts Light and Pointe Aux Chenes reefs within the first year of construction, but hardness appeared to stabilize thereafter, suggesting minimal infiltration of fine sediments over the reefs (Figure 2). This was corroborated with underwater video surveys which showed minimal accumulation of fine sediments over the reefs.

Moving into 2018 we will continue evaluating the maturation of artificial reef projects in the SCDRS. We are also anticipating the construction of the Fort Wayne Reef, the final artificial reef restoration project slated for the Detroit River, in early 2018.





**Figure 1:** Percent area of a given bottom hardness at the Hart's Light and Pointe Aux Chenes Reefs from 2014-2016. The hardness index ranges from 0-100 with lower values corresponding to “softer” substrates (e.g., sand and silt).



**Photo 1:** Frames from underwater video at the Hart's Light, Pointe Aux Chenes, and Grassy Island Reefs from 2015-2017 showing reef rock has remained exposed, although Dreissenid mussel shells are visible within the Hart's Light Reef. The two laser points, highlighted in the top left panel, are 22 cm apart and provide a size reference in the frames. The sounding weight in the image was used to keep the camera stable and near the riverbed.



## 2018 Briefing Update

### Agency

U.S. Geological Survey Upper Midwest Water Science Center (formerly Michigan-Ohio Water Science Center)

### Contact

Ralph Haefner  
rhaefner@usgs.gov  
(517) 887-8927

### Title

USGS monitoring activities on the tributaries and Connecting Channels of the Great Lakes

### SCDRS Initiative Objective(s)

Reduce loading from regulated and unregulated sources of TP/DRP, Identify contaminants of concern (e.g. pharmaceuticals and personal care products, microplastics) determine sources, and develop load reduction strategies

### Update

Understanding streamflow through the SCDRS and from tributaries that flow into the SCDRS is critical to restoration. The USGS operates two stream gages on connecting channels between Lake Huron and Lake Erie: site number 04159130 "St. Clair River at Port Huron, MI" and site 04165710 "Detroit River at Fort Wayne at Detroit, MI." At both these sites, index velocity methods are used to report streamflow on the Internet. Additional stream gages on tributaries to the connecting channels include sites on the Clinton River, River Rouge, Ecorse River, Huron River, and River Raisin. All USGS data are available for inspection or download at <https://mi.water.usgs.gov/>

Project work has included finalizing our report on nutrient distributions in the Trenton Channel as reported in the 2017 SCDRS Briefing Book. This report will describe the distribution of nutrients, suspended sediment, and velocities in the Trenton Channel, Detroit, Michigan 2014-2015. Through GLRI, we are starting an expanded sampling program on the Detroit River near the mouth of the River Rouge to determine nutrient, suspended sediment, and chloride concentrations. Two samples will be collected each month for a total of 24 samples over two years. This effort is being done in close communication and coordination with Environment and Climate Change Canada. The National Water Quality Assessment (NAWQA) program continues to sample at the Clinton River at Sterling Heights, MI (04161820). The objective of this sampling is to determine the status and trends in physical and chemical constituents in water through 24 yearly sampling trips. Analyses include a wide variety of major and trace elements, nutrients, and pesticides. The U.S. Geological Survey (USGS) also is working in the Great Lakes to characterize the spatio-temporal life cycle of harmful algal blooms, their associated toxins, the genes responsible for cyanotoxin production, and HAB-associated microbial communities in relation to algal bloom formation and toxin production. Most of the work has focused on the western Lake Erie basin with additional work being done in Saginaw Bay (Lake Huron), Grand Traverse Bay (Lake Michigan), and Green Bay (Lake Michigan).

<https://mi.water.usgs.gov/>



## 2018 Briefing Update

### Agency

U.S. Geological Survey Upper Midwest Water Science Center (formerly Michigan-Ohio Water Science Center)

### Contact

Ralph Haefner; Angela Brennan  
rhaefner@usgs.gov; akbrennan@usgs.gov  
(517) 887-8927; (517) 887-8905

### Title

Contaminants of Emerging Concern in Great Lakes Tributaries

### SCDRS Initiative Objective(s)

Identify contaminants of concern (e.g. pharmaceuticals and personal care products, microplastics) determine sources, and develop load reduction strategies

### Update

One of the major objectives of the GLRI Action Plan II is to “Identify emerging contaminants and assess impacts on the Great Lakes fish and wildlife.” There are long-term programs for monitoring of selected contaminants in fish, lake sediments, air, precipitation, and lake water but an analogous program for defining contributions from Great Lakes tributaries in the U.S. did not exist on a spatial scale that could be used to evaluate impacts in tributaries of all five lakes. This project incorporates consistent contaminant surveillance in concert with evaluation of biological effects to provide a biologically-relevant prioritization of contaminants in a systematic manner for multiple watersheds that will inform needs throughout the Great Lakes. The primary project objective of this GLRI-funded project is to implement a surveillance system for identifying emerging contaminants, their potential biological effects, and relative importance in Great Lakes Tributaries. For FY18, samples for pharmaceuticals, organic waste compounds, per- and poly-fluoroalkyl substances (PFAS), and metabolomics will be conducted quarterly (beginning November, 2017) in Michigan and Ohio. Samples will be collected at 4 sites in Michigan (Saginaw, Rouge, Clinton, and the Grand River) and 3 sites in Ohio (Maumee, Portage, and Cuyahoga). Passive samplers will be deployed in spring 2018 and retrieved approximately 30 days after (estimated sampling 18 sites in Michigan and 11 sites in Ohio). The passive sampling devices will be analyzed for PAHs, pharmaceuticals, and other waste-indicator compounds.

<https://mi.water.usgs.gov/>



## 2018 Briefing Update

### Agency

Michigan DNR Fisheries Division, Lake St. Clair Fisheries Research Station

### Contact

Jan Hessenauer, Andrew Briggs, and Todd Wills

### Title

Assessment Program Summary for 2017 – Lake St. Clair Fisheries Research Station (LSCFRS)

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribs, Develop surveillance monitoring for AIS based on habitat requirements and availability

### Update

Assessment activity scheduled for LSCFRS staff in 2017 was completed. A brief description of individual surveys follows. In addition to forming a component of MDNR invasive species monitoring efforts in the SCDRS, value-added samples collected during these surveys contribute to diet studies, disease surveillance, contaminant monitoring, parasite investigations, and genetic studies.

1. Lake St. Clair fish community trap net survey – This survey consists of small mesh trap nets fished from late April through mid-May at 4 sites in Anchor Bay, Lake St. Clair. The principal species typically captured include smallmouth bass, rock bass, channel catfish, northern pike, muskellunge, white bass, white perch, yellow perch, freshwater drum, and various species of suckers.
2. Lake St. Clair fish community trawl survey – This survey includes 10m headrope bottom trawling in Anchor Bay, Lake St. Clair during late May and early September. Total effort ranges from 6 to 16 trawl tows per year. This gear is most efficient at capturing small fish and provides an index of abundance for many of the forage species. The September trawls also provide an index of year-class strength for yellow perch and smallmouth bass as age 0 fish each year.
3. St. Clair River sturgeon setline survey – The sturgeon setline survey has been conducted annually since 1997, except for 2003. This survey is conducted each year beginning in late May and continuing for 3 or 4 weeks. The survey gear includes 8 setlines (each with 25 hooks) baited with round gobies. Annual effort typically ranges from 80 to 100 overnight sets. Two hook sizes have been used to sample a broader size range of lake sturgeon. This survey is the principal source of mark-recapture data used in estimating the abundance of lake sturgeon in the St. Clair River.
4. Lake Erie fish community trawl survey – This was the 4th year of a new that survey includes 10m headrope bottom trawling in the Michigan waters of Western Lake Erie during early to mid-August. Total effort is expected to approach 8-10 trawl tows per year and index and randomly selected survey grids

previously sampled by the USGS. This gear is most efficient at capturing small fish and provides an index of abundance for many forage species as well as age 0 yellow perch and walleye.

5. Lake Erie walleye fall gill net survey – This survey consists of 1300' experimental multifilament gill nets fished overnight at 2 index locations twice during early October in Michigan waters of Lake Erie. The gill net gangs are canned on 6' strings to sample the upper portion of the water column. Walleye are generally the dominant species in the catch, but gizzard shad, white perch, and white bass, are also caught in substantial numbers. This survey provides an annual index of abundance by year-class for walleye in the Michigan waters of Lake Erie and is also used in estimating walleye abundance for interagency quota allocation purposes. In 2017, catch rates of age-2 walleye were high, reflecting the strong 2015 year class.

6. Reef sonar surveys – This work consists of side-scan and single-beam sonar surveys at artificial reefs constructed in the SCDRS to annually document reef conditions. Side scan surveys were completed at the Middle Channel, Point Aux Chene, Harts Light, Grassy Island, and Fighting Island reef sites in 2017.

7. Cormorant nest survey – LSCFRS staff have conducted visual counts of cormorant nests by boat on Lake St. Clair on an intermittent basis beginning in 2004. Nests have been documented on the navigational structures along the shipping channel near the head of the Detroit River and on Grassy Island in the St. Clair River delta. This is a one-day survey with the small vessel. In 2017, 6 navigation structures and Grassy Island combined for a total of 242 nests, a 55 nest increase from the 2016 survey total and the highest number of nests observed to date.



## 2018 Briefing Update

### Agency

U.S. Fish and Wildlife Service Sea Lamprey Control Program

### Contact

Aaron Jubar

AARON\_JUBAR@FWS.GOV

231-398-4227

### Title

Sea Lamprey Assessment of the St. Clair- Detroit River System During 2017 and Survey Plans for 2018

### SCDRS Initiative Objective(s)

Apply integrated pest management for sea lampreys in the SCDRS

### Update

Background: U.S. Fish and Wildlife Service (FWS) and Fisheries and Oceans, Canada, (DFO) work as agents of the Great Lakes Fishery Commission (GLFC) to deliver integrated control of sea lampreys throughout the Great Lakes. Adult sea lamprey (SL) abundance in Lake Erie increased in 2017 following seven years of gradual declines. The 2017 index of adult SL abundance was 14,743, which is less than the record-high level from 2010, but remains well-above the Lake Erie target level of 3,039. These elevated abundances continue to persist despite considerable treatment effort in the past decade, including consecutive treatments of all SL-producing tributaries to Lake Erie during 2008-2010, and in 2013. During 2016, three SL-producing streams were treated in Lake Erie. Four stream treatments were conducted in Lake Erie during spring 2017. The SCDRS is known to harbor a larval SL population within the confines of the St. Clair River (SCR) as well as in the delta of Lake St. Clair. Previous assessment of this population suggested that density was low, infestation widespread, SL production likely minimal, and that SL mortality during migration through the SCDRS would result in a minimal contribution of parasitic SL to the Lake Erie basin. Because assessment information from other tributaries to Lake Erie could not identify an untreated source of SL production, the control agents intensified assessment effort on the SCDRS during 2011-2014. From 2015-2017, a baseline effort of larval surveys was applied along with alternative sampling for outmigrating juvenile SL. Survey findings continue to indicate a significant larval SL population persists in the SCR. Potential treatment of the SCR has been delayed until 2020 at the earliest.

2017 results: During the 2017 field season, 36 granular Bayluscide (GB) surveys covering 18,000 m<sup>2</sup> were conducted in the upper river and three main delta channels for the purpose of delineating the boundaries and extent of areas known to harbor sea lamprey larvae. An additional 16 GB surveys were conducted at index sites (split evenly between upper and lower river) to monitor relative abundance through time. The total catch of 49 SL larvae (size range 47-151mm) was scattered throughout the river, and no new high density areas were detected. There were no surveys conducted in the Detroit River during 2017. Based on previous surveys, the Detroit River continues to have no larval SL production. The third year of a partnership agreement between the GLFC and Walpole Island First Nation (WIFN) to

collect outmigrating juvenile lampreys continued in November 2017 – January 2018. The project is administered through the DFO, and volunteers from WIFN monitor floating fyke nets affixed to navigational buoys. The netting project resulted in 98 SL juveniles collected along with several Ichthyomyzon juveniles.

Plans for 2018 and beyond: Sea Lamprey control agents from the FWS and DFO will continue gathering baseline monitoring data in preparation for potential SCR plot treatments during 2020. The agents will also continue preparation of information to acquire the appropriate treatment permits, and will revise the SCDRS SL Plan with updated larval, juvenile, and adult population and habitat information. Exploration of alternative SL control methods will continue. Larval assessment efforts in the SCR for 2018 will remain at or below baseline levels, whereas efforts in 2019 will likely increase in order to further refine and delineate potential treatment areas. The partnership between the GLFC and WIFN to monitor fyke nets in the SCR will continue during winter 2018, with the continuing goal of establishing a long-term index of outmigrating juveniles. The Detroit River will be surveyed with GB in 2018.

<http://www.glfc.org/sea-lamprey.php>

<http://www.fws.gov/midwest/fisheries/sea-lamprey.html>

<http://www.dfo-mpo.gc.ca/species-especes/profiles-profilis/sealamprey-lamproiemarine-eng.html>



## 2018 Briefing Update

### Agency

Friends of the Detroit River

### Contact

Sam Lovall, Glenn Palmgren and Paul Evanoff

sam.lovall@gmail.com, palmgreng@michigan.gov, Paul.Evanoff@smithgroupjjr.com

248-797-5667, 517-284-6121, 734-669-2706

### Title

Lake Okonoka Restoration with River Connection and Shoreline Restoration

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase riparian complexity/connectivity through increased softened shorelines and native riparian veg., Increase continuous area of functional wetlands and their connectivity to the SCDRS, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribs, Increase hydrological lateral connectivity between main channel habitats (e.g., islands) and shallow water habitat

### Update

Lake Okonoka is on Belle Isle – at the “gateway” to the Detroit River. This project makes advancements in reconnecting Belle Isle’s internal waterways to the river and restoring the isle’s wet-mesic flatwoods forest to enhance habitat for a great diversity of animal and plant species. It includes: 1.) A hydrologic assessment and pre-design of Belle Isle’s interconnected lakes, canals and 200-acre wet-mesic flatwoods forest, which could lead to habitat restoration of 286 acres for fish and wildlife within a dense urban area. 2.) Design and engineering for improving the hydrologic function of Lake Okonoka by enhancing its connectivity to the Blue Heron Lagoon and Detroit River, coupled with habitat enhancements along Belle Isle’s south shore adjacent to the South Fishing Pier. 3.) Final engineering for item 2. – above. 4.) Implementation of Item 2. – above. The project is necessary for removal of the Loss of Fish and Wildlife Habitat and Degradation of Fish and Wildlife Populations Beneficial Use Impairments in the Detroit River Area of Concern.

In 2014, NOAA awarded a GLRI grant to Friends of the Detroit River (FDR) to complete this project. The hydrology/pre-design work was completed in 2015. SmithGroupJJR published a final report that documents the analysis work and outlines conceptual recommendations for restoration strategies in October of 2016. Design and engineering for improving Lake Okonoka’s hydrologic connectivity to the Blue Heron Lagoon, along with making a new connection from the lake to the Detroit river, and making habitat enhancements along the isle’s south shore was completed in June of 2016, and a joint permit application was submitted to the MDEQ and USACE. A permit was issued by MDEQ in September of 2016 and by the USACE in September of 2017.

In 2015, NOAA awarded FDR with funding to complete final engineering for the bridge and culvert structures associated with Lake Okonoka’s connections to the Blue Heron Lagoon and the Detroit River, which require the seal of a professional engineer certified by MDOT for bridge and culvert design. Bidding documents were completed with this funding as well.





11-6-17: Aerial view of Lake Okonoka following it's draining and a heavy rain - existing deep pool on right will remain full throughout construction.  
credit: Friends of the Detroit River



Deep channels are cut into the bottom of Lake Okonoka for fish and kayak passage during times of low water.  
credit: Friends of the Detroit River



New basking logs are in place around the perimeter of the lake (currently drained.)  
credit: SmithGroupJJR



## 2018 Briefing Update

### Agency

Friends of Detroit River, NOAA - Restoration Center

### Contact

Bob Burns, Sam Lovall, Tricia Blicharski, Terry Heatlie, John O'Meara  
rlb315@comcast.net, sam.lovall@gmail.com, blicharskifdr@gmail.com, terry.heatlie@noaa.gov,  
jomeara@ectinc.com  
(734) 288-3889

### Title

Stony and Celeron Islands Restoration

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase continuous area of functional wetlands and their connectivity to the SCDRS, Increase river spawning habitat

### Update

The purpose of the proposed projects is to restore historic shoals and create additional shoals that will protect Stony and Celeron Islands from further erosion and provide backwater area while restoring coastal wetland habitat. The implementation of these projects is the first step in completing a major habitat re-construction among the islands in the lower part of the Detroit River.

**Stony Island** - The Island's wetlands are owned by the State of Michigan, and are under the jurisdiction of the Pointe Mouille State Game Area. The island's two major coastal wetland areas, known locally as the upper and lower bays, historically have been protected by the two limestone dikes, which provided the necessary protection from the river's currents and wave surges. The dikes that protect the coastal wetlands have disappeared under the effects of decades of erosion and the wetland areas have degraded.

The project is currently wrapping up construction and includes the creation of a 600 LF of habitat shoal island in the upper bay for turn habitat and creation of approximately 3,000 of habitat shoals in the upper and lower bays. Additionally, an area of shoreline habitat has been constructed along one of the south bay shoals as well as variety of other habitat elements. Shoal construction is 98% complete and will be finalized in the spring of this year. Upland habitats (snake hibernacula, turtle nesting areas and other structural habitats) are completed.

**Celeron Island** - The Island's wetlands are owned by the State of Michigan, and are under the jurisdiction of the Pointe Mouille State Game Area. The island has remnants of emergent and submergent aquatic plants. These areas are important spawning, nursery and refuge areas for sport, commercial and forage fish species. It is also situated within a major flyway and is therefore an important resting spot for migratory birds and waterfowl.

The loss of the protective shoreline has led to the degradation of much of the complex wetland associations that lined the outer shoreline and the inner bay at the center of the island and a reduction in the once abundant beds of submergent aquatic vegetation.

The proposed project includes the creation of a series of habitat shoals totaling 2,800 LF near the southern shore of Celeron Island. A depressed area will be created to provide deeper water habitat. Additionally, about 1,500 lft of barrier beach will be reestablished. A variety of habitat elements have been incorporated to provide multiple niche habitats in support of existing fish and wildlife species. The project is scheduled to begin construction in the spring 2018.

<http://www.detroitriver.org/>

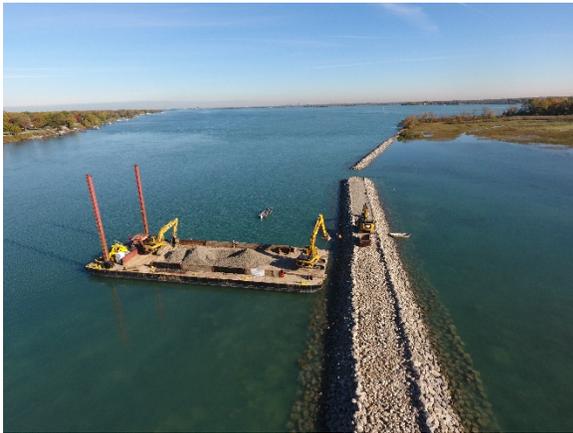


Figure 1. Aerial construction of shoal.



Figure 2. Shoal construction operation.



Figure 3. Upper bay shoal aerial.



## 2018 Briefing Update

### Agency

Herpetological Resource and Management

### Contact

David Mifsud

DMifsud@herprman.com

313-268-6189

### Title

Mudpuppy Assessment and Habitat Restoration Along the St. Clair-Detroit River System

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI

### Update

In 2017, Herpetological Resource and Management and partners Eastern Michigan University completed their assessment of Mudpuppy (*Necturus maculosus*) populations along the St. Clair-Detroit River System (SCDRS). This work was initiated in 2014 through funding provided by a U.S. Fish and Wildlife, Great Lakes Fish and Wildlife Restoration Act Grant. Mudpuppies serve important roles in local ecosystems as indicators of environmental health as well as obligate hosts to the State Endangered Salamander Mussel. This study evaluated Mudpuppy distribution, health, and genetic structure along the SCDRS to determine effects of restoration and habitat fragmentation and implemented new restoration projects as well. The project supported a wide range of collaborators including USGS, USFWS, MDNR, Michigan Sea Grant, Huron-Clinton Metropolitan Authority, Belle Isle Aquarium, and University of Michigan.

During the last year of this study, HRM conducted near shore sampling at 16 separate sites with over 95 trap locations. In total, over 3,000 trap hours were recorded. Final surveys were focused on southern portions of the project area and largely restricted to the Detroit River and Lake Erie. During these efforts, Mudpuppies were captured from new points within southern Detroit River while non-detection was once again recorded for Lake Erie further indicating this area warrants more focused assessments. At EMU, eDNA analyses were completed in 2017 and results show strong correlation between positive trapping data and eDNA presence. Genetic diversity analyses on the local scale are currently ongoing with initial results indicating connectivity among SCDRS sample sites. Outreach efforts were also conducted with partners Michigan Sea Grant and included development of educational videos aimed at informing community members about the importance of Mudpuppies as biological indicators. m

Final report preparation is ongoing and will be completed in early March. The project team is actively seeking additional funding to continue this project and further Mudpuppy conservation in the SCDRS.

[www.herprman.com](http://www.herprman.com)



Juvenile Mudpuppy captured from the southern Detroit River in 2017.



HRM and project partner Michigan Sea Grant filming Mudpuppies at the Potter Park Zoo as part of the recent education and outreach efforts.



## 2018 Briefing Update

### Agency

Herpetological Resource and Management

### Contact

David Mifsud  
dmifsud@herprman.com  
313-268-6189

### Title

Celeron Island Amphibian and Reptile Pre-Construction Assessments

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI

### Update

In 2017, Herpetological Resource and Management (HRM) conducted herpetofaunal assessments on Celeron Island as part of a restoration project. In 2014, HRM was contracted by Environmental Consulting & Technology, Inc (ECT) to conduct baseline studies and assist in habitat restoration targeting amphibians and reptiles on the Detroit River island. Work was funded through grants to Friends of the Detroit River (FODR) from the National Oceanic Atmospheric Administration (NOAA). Several opportunities were identified for improving herpetofauna habitat based on initial work and later incorporated into the overall restoration plan of Celeron Island. Pre-construction monitoring in 2017 established baseline data of species richness, abundance and distribution and these results will be used to help evaluate wildlife response following completion of restoration construction. This project will contribute to restoring lost habitats and degraded fish and wildlife populations within the Detroit River. These actions will help address measures needed for the removal of Beneficial Use Impairments and ultimately delisting this region as an Area of Concern.

[www.herprman.com](http://www.herprman.com)



Eastern American Toad observed on Celeron Island during HRMs herpetofaunal assessments.



Northern Brown Snake observed on Celeron Island during HRMs herpetofauna assessments.



## 2018 Briefing Update

### Agency

U.S. Geological Survey Great Lakes Science Center

### Contact

Ed Roseman  
eroseman@usgs.gov  
734-214-7237

### Title

Larval fish studies in the St. Clair-Detroit River System

### SCDRS Initiative Objective(s)

Complete habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat, Identify and protect critical habitat areas for rare species, including river mouth habitats & connectivity within tribs

### Update

Objectives: Assess and measure the community composition, phenology, species abundances, spatial extent, movement, and production of larval fishes in and transported through the system.

Milestones: During 2017, 448 bongo net samples were collected from the Detroit River (DR). To sample lake sturgeon larval drift, 77 D-frame sets were fished in the DR near the Grassy Island reef and the Belle Isle reef complex.

Results Overview: Results below are based on the samples completed, not all larval identifications have not been completed at the time of this update. In the DR bongo samples identified to date, species found include lake whitefish, walleye, yellow perch, Morone spp. (white bass/white perch), suckers, and several native forage fish species, among others. In the DR D-frame samples identified to date, species found include lake sturgeon, mottled sculpin, coregonids, yellow perch, catostomids, percids, rainbow smelt, and gobids. Lake sturgeon were collected below the Belle Isle reefs and in the Trenton Channel (control site).

2018 Plans: Larval sampling will continue in the DR, St. Clair River, and Lake St. Clair with an emphasis on post-construction assessments of constructed habitats near Belle Isle and Fort Wayne reefs. In the DR and river mouth area, intensive bongo collections will occur. Sampling for larval lake sturgeon is scheduled to occur in the DR near Fort Wayne and Belle Isle reefs.



## 2018 Briefing Update

### Agency

U.S. Geological Survey Great Lakes Science Center

### Contact,

Ed Roseman, Greg Kennedy  
eroseman@usgs.gov, gkenedy@usgs.gov  
734-214-7237, 734-214-7215

### Title

Egg deposition in the St. Clair – Detroit River System

### SCDRS Initiative Objective(s)

Evaluate habitat improvement projects to remove loss of fish and wildlife habitat BUI, Increase river spawning habitat

### Update

Objectives: Assess and measure the community composition, phenology, and spatial extent of egg deposition by lithophilic broadcast spawning fishes in the Detroit (DR) and St. Clair (SCR) rivers.

Milestones: Intensive longitudinal studies of fish egg deposition using eggmats on natural habitat have been occurring in the DR since 2007 and in the SCR since 2010. Multiple habitat types were sampled in each river including main channels, channel fringes, shallow island margins, rivermouths, and open lake areas. In addition, spawning reefs were constructed in the DR at Belle Isle (2004 and expanded 2016), Fighting Island (2008 and expanded in 2013), Grassy Island (2015), and in the SCR at Middle Channel (2012), Hart's Light (2014), and Pointe aux Chenes (2014). Studies of egg deposition occurred at the reef sites, and at control sites upstream and downstream, during both pre- and post-construction years. Spring egg collection and rearing focused on walleye, suckers, and lake sturgeon, while fall collection and rearing has focused on lake whitefish.

### *Results Overview, 2017*

#### *Spring*

The full length of the DR was sampled in the spring; however, the majority of our effort was centered around spawning restoration reef sites listed above. Eggmats were placed at reef areas for both pre- and post-assessment. Pre-assessment sites included the Fort Wayne reef restoration site and a shoreline restoration site upstream of Belle Isle (UDSR). Post-assessment sites were Belle Isle, Fighting Island, and Grassy Island reefs. Non-reef (natural habitat) sites included sites in the Trenton Channel near the north end of Grosse Ile, and long-term monitoring sites near the mouth of the river, including the head of Livingstone Channel, Hole-in-the-Wall (HIW), and Sugar Island. Walleye eggs were collected at all sites except UDSR. The greatest densities of walleye eggs continue to be collected at HIW and Grassy Island. Sucker eggs were collected in low densities throughout the river, except for Fighting Island, where sucker eggs were collected at higher densities. Lake sturgeon eggs were collected for the first time at the Belle Isle reefs (both older and newer reefs) and the upstream control site for Fort Wayne pre-assessment, and

as in previous years, where collected again at the Fighting Island and Grassy Island reefs. Overall egg density followed trends seen in previous years.

Sampling in the SCR was limited to the lake sturgeon spawning season and focused on post-assessment at Middle Channel, Hart's Light, and Pointe aux Chenes restoration reefs, and at Mazlinka's reef (the historic sturgeon spawning site in the North Channel at Algonac). Lake sturgeon eggs were collected (in order of decreasing density) from Hart's Light, Pointe aux Chenes, and Mazlinka's reefs.

#### *Fall*

Fall sampling for fish eggs in the DR were in the same geographic areas as spring, with the exception of Livingstone Channel, HIW, and Sugar Island, which were not sampled. Only lake whitefish eggs were collected and they were collected from all areas, but the greatest densities were at Grassy Island non-reef sites.

Sampling for fish eggs in the SCR was not conducted in fall 2017.

2018 Plans: Future plans for studying egg deposition as a measure of spawning habitat quality include: DR – pre-assessment at the Fort Wayne reef, post-assessment at Belle Isle, Fighting Island, and Grassy Island reefs, and continue sampling index stations in the lower river. SCR – Effort in the SCR will be reduced to just the Hart's Light and Point aux Chenes artificial reefs with limited control sites (upstream Algonac and Mazlinka's).



## 2018 Briefing Update

### Agency

Michigan Office of the Great Lakes

### Contact

Michelle Selzer  
selzerm@michigan.gov  
517-284-5050

### Title

Michigan's Lake Erie Domestic Action Plan Highlights

### SCDRS Initiative Objective(s)

Reduce loading from regulated and unregulated sources of TP/DRP

### Update

Michigan's Portion of the Lake Erie Basin

Michigan has 5,800 square miles of area tributary to Lake Erie. It encompasses urban area; the Detroit Metropolitan area, as well as other urban areas. It also encompasses agricultural areas. For purposes of the DAP and the Collaborative Agreement that was signed by Michigan, Ohio and Ontario, we are focused on three major watersheds in this area. These include the mouth of the Detroit River (to account for all sources of flow to the upstream St. Clair-Detroit River System), the River Raisin, and Michigan's portion of the Maumee River watershed.

### Major Sources of Phosphorus

Major sources of phosphorus (P) in the Michigan watershed to Lake Erie include; municipal Waste Water Treatment Plants (WWTP) and stormwater point sources, non-point sources, and agricultural sources. Each of the priority watersheds has an identified dominant source that will be addressed. The mouth of the Detroit River is point source, while River Raisin and Michigan's portion of the Maumee watershed are agricultural sources.

### Municipal sources

Michigan has the unique situation where one WWTP dominates the overall flow discharged to the Detroit River, then to Lake Erie: The Great Lakes Water Authority Water Resource Recovery Facility (GLWA WRRF) (formerly the Detroit Water and Sewerage Department WWTP). This plant serves 3 million people and treats an average of 650 million gallons per day. The annual phosphorus load from the GLWA WRRF made up 38 percent of the phosphorus load of the Detroit River in 2008 and has since been reduced by 400 Metric Tons (MT). There are three additional WWTPs that will be addressed in this DAP: the Wayne County Downriver WWTF (DWTF), the Ypsilanti Community Utilities Authority (YCUA) WWTP, and the Monroe Metro WWTF. These four WWTPs discharge over 90 percent of the total P load from point sources to Lake Erie. Other WWTPs and lagoon systems that are tributary to Lake Erie are not being addressed in this plan because addressing each and every WWTP and lagoon system will not significantly affect the overall P load reduction to Lake Erie. Other municipal sources include all the urban

MS4 (storm water) facilities. These are also being brought into an individual permitting process.

#### Agricultural sources

Agriculture is the predominate land use in the River Raisin and Michigan's portion of the Maumee River Basin. The predominant crops are corn, soybeans and wheat. There are 14 Confined Animal Feeding Operations (CAFOs) in Michigan's portion of the Western Lake Erie Basin (WLEB). Nine of these CAFOs are for dairy, three are for swine, and two are for heifers. The latest general permit ensures protection of all water resources, including: storage, comprehensive Nutrient Management Plans, and other needed requirements. These CAFOs have been and will continue to be inspected for compliance with permit conditions. For permitted CAFOs in the state of Michigan, the National Pollution Discharge Elimination System (NPDES) permit requires six months of available liquid manure storage by December 1st in any given year. The approach on agricultural lands will use comprehensive conservation planning to identify site-specific management practices for individual fields. These Best Management Plans will result in the greatest environmental benefit, while maintaining productivity. This will ensure that technical and financial assistance can be utilized most efficiently and effectively.

[www.michigan.gov/deqgreatlakes](http://www.michigan.gov/deqgreatlakes)