# Detroit River Canadian Cleanup

## 2021-2022 Annual Report

## A MESSAGE FROM THE DETROIT RIVER CANADIAN PUBLIC ADVISORY COUNCIL (PAC)

As we know, Covid events of the past two years have made our task difficult. Thanks to members of PAC and interested parties for their patience. Hopefully we can organize an in person meeting sometime this calendar year.

The big news is the proposed establishment of the Ojibway National Urban Park in the Ojibway Complex, the Government of Canada announcing plans at a public meeting last fall. On February 1, Parks Canada forwarded $586,000 to the City of Windsor to assess the nuts and bolts of the project. Local MPs Brain Masse and Irek Kusmierczyk are enthused and optimistic, Brian introducing a private member's bill in the House of Commons and Irek making sure the protocols required by the various federal departments are moving along. Both are working toward the same goal, a Windsor national urban park including Ojibway Shores on the riverfront.

Good news for the Detroit River Canadian Cleanup. The Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health is the federal-provincial agreement that supports the restoration and protection of the Great Lakes basin ecosystem has been renewed. This ensures the good work of the DRCC will continue under the capable direction of Remedial Action Plan Coordinator Jackie Serran. Congratulations and thanks to the senior governments.

On February 17, the Biden Administration announced that the recently passed Infrastructure bill earmarks up to a billion dollars for Great Lakes improvements including millions for the Detroit River.

Projects include shoreline and wetland restoration from Belle Isle to the mouth of the river across from Amherstburg.

Many thanks to RAP coordinator Jackie Serran and her assistant Gina Pannunzio for their support and encouragement.

Tom Henderson, Chair
Public Advisory Council, DRCC

*The Detroit River Canadian PAC is a group of citizen volunteers and representatives from non-government organizations dedicated to improving the health of the Detroit River ecosystem. If you are interested in getting involved in the PAC, please contact the Remedial Action Plan Coordinator at postmaster@detroitriver.ca.*

**1**
**Beneficial use status changed!**

**2**
**Habitat restoration projects in progress**

DETROIT RIVER
Canadian Public Advisory Council

**DRCC 10 virtual and 4 in person outreach events and engaged over 1000 people!**

**Results of 3 agency studies on the Detroit River received**

I ♥ DR
www.detroitriver.ca

## Overview of Beneficial Uses

Under the Great Lakes Water Quality Agreement, 14 "beneficial uses" were identified and used to establish Areas of Concern within the Great Lakes. These beneficial uses generally include recreational, ecological, and economic benefits that come from a healthy environment. When the quality of the environment is degraded and cannot support the intended beneficial use, they are designated as "impaired" and cleanup actions are identified to restore the impairment. If there is insufficient data to make a determination of "impaired" or "not impaired", further assessment (e.g., scientific study) is recommended. As of March 2022, the Detroit River Canadian Area of Concern (AOC) has four remaining impaired beneficial uses and ten unimpaired (including nine whose status has been changed from "impaired" or "requires further assessment" to "not impaired" since the start of the AOC program in 1987).

# Focus: Beneficial Use Redesignation

**The Detroit River Canadian Cleanup (DRCC) is pleased to announce the official status change of the Degradation of Phytoplankton and Zooplankton Beneficial Use Impairment from "requires further assessment" to "not impaired"! We congratulate all members of the DRCC and local community that have worked so diligently in attaining this milestone.**

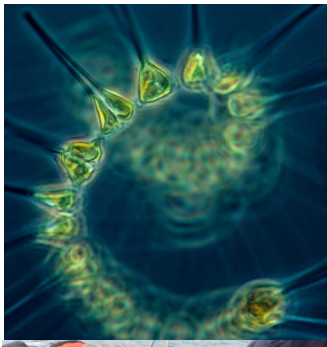
## Degradation of Phytoplankton and Zooplankton

Phytoplankton and zooplankton populations make up the base of the aquatic food web and are an important food source. Plankton are small (usually microscopic), floating organisms that live in freshwater and marine ecosystems. Phytoplankton are tiny plants including diatoms, desmids, and algae that require photosynthesis to live, while zooplankton are small animals that feed on those tiny plants and are a key piece in supporting the local fishery.

Insufficient data on the phytoplankton and zooplankton populations in the Detroit River led to this BUI being identified as "requires further assessment" and the need for additional studies including a comprehensive study in 2019 by the Department of Fisheries and Oceans (DFO).

From July to November 2019, scientists from the DFO sampled eight sites in the Detroit River to assess phytoplankton and zooplankton community composition in the water column to help in determining the status of the Degradation of Phytoplankton and Zooplankton Populations beneficial use.

### Key findings of the study were:



- Phytoplankton and zooplankton populations were low, but their levels were consistent with expectations of a fast-flowing river environment, like the Detroit River.
- Despite the low phytoplankton populations, primary production rates (i.e., when plants make their own food and use that food to live and grow) were moderately high, indicating that the river supports viable phytoplankton populations.
- Zooplankton populations decreased significantly from upstream at Peche Island to downstream in Amherstburg and the community was predominantly comprised of small organisms suggesting the larger zooplankton are being readily consumed by fish in this stretch of the river.
- The type of fish food in the river provides insight into the health of the food web. Healthy food webs have a high percentage of plankton and zooplankton populations as a food source for fish. Over 80% of the fish food in the Detroit River is made up of plankton, which is higher than other AOCs with impaired or requires further assessment status for this beneficial use.

Based on the research results, there is no evidence of impairment within the phytoplankton and zooplankton communities of the Detroit River AOC. As a result, the DRCC recommended the status of this beneficial use be designated as 'not impaired'. The various DRCC work groups, the public, U.S. government agencies, and local Indigenous communities reviewed the status assessment report outlining the science to support this recommendation. Federal and provincial governments supported the official change in status of this beneficial use to 'not impaired' in September 2021.

**This is the ninth beneficial use status change for the Detroit River AOC and we look forward to seeing more progress in the coming years on the remaining four impairments.**

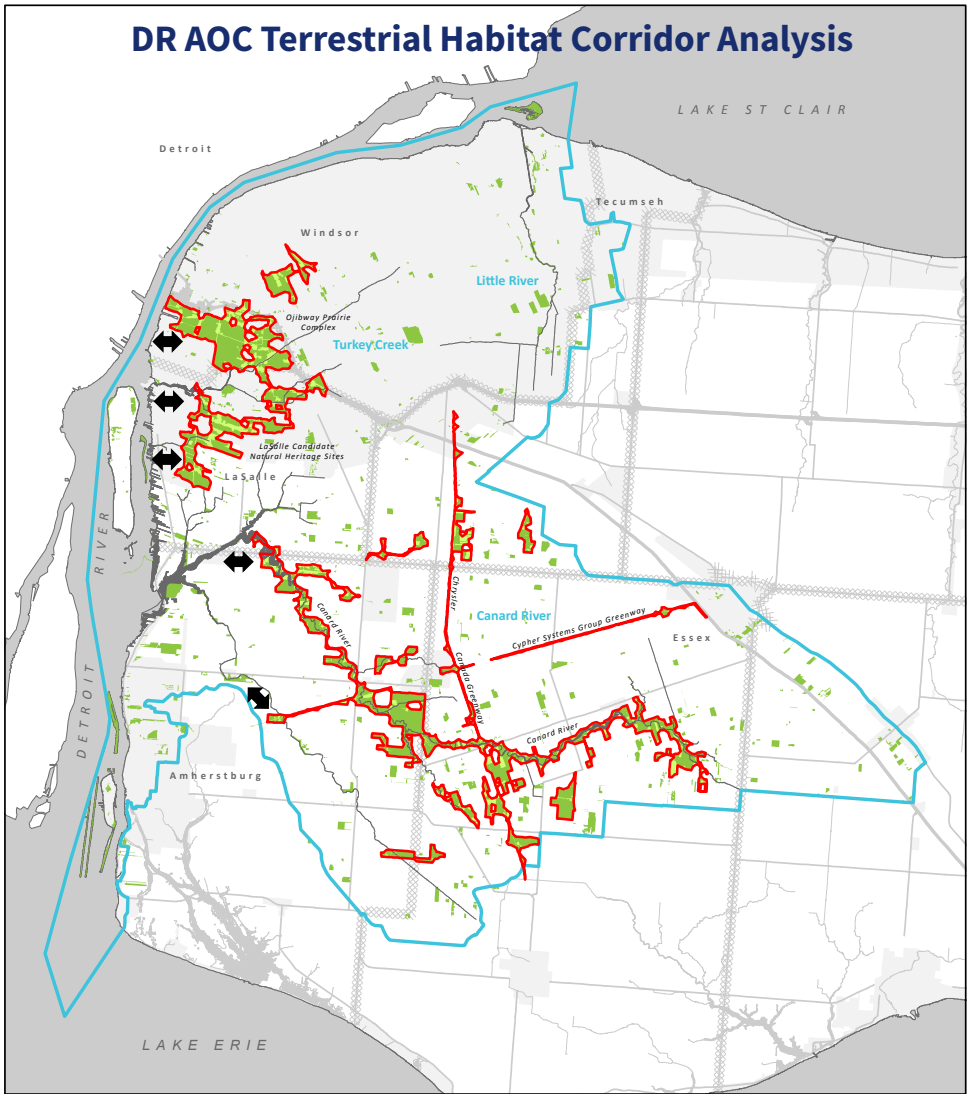
# Focus: Habitat

## Sub-criteria established for the Degradation of Fish and Wildlife Populations and Loss of Fish and Wildlife Habitat Beneficial Uses

The DRCC's Research and Monitoring Habitat Work Group established sub-criteria for two beneficial use impairments: Degradation of Fish and Wildlife Populations and Loss of Fish and Wildlife Habitat. The purpose of the sub-criteria is to facilitate decision-making on the status of these BUIs by creating a list of specific and measurable goals that need to be achieved under each BUI before the BUI can be considered 'not impaired'. Actions required to meet the sub-criteria are identified in the DRCC's annual work plan.

# Mapping Exercise Quantifies 20 Years of Habitat Restoration

An in-depth mapping exercise was undertaken by Essex Region Conservation Authority (ERCA) with support from Environment and Climate Change Canada (ECCC) to map habitat restoration efforts within the Detroit River watershed. A watershed is an area of land that separates waters flowing to different rivers, basins, or seas. The River Canard, Little River and Turkey Creek are the three watersheds that flow into the Detroit River. Between 2000 and 2020, a total of 277 habitat restoration projects have been completed to increase and improve habitat in the Detroit River and its watershed. These include 207 tree planting projects, 56 wetland restoration projects, 32 prairie restoration projects, 18 shoreline restoration projects, 15 fish habitat projects and 12 native garden projects! In total, over 3.8 million m2 (3.8 km2) of trees were planted over this period. Additionally, over 10,100 m (10.1 km) of shoreline has been rehabilitated as a part of the habitat restoration projects.




Map Key

- Detroit River AOC and AOC Watershed
- Terrestrial Habitat Corridor
- Existing Terrestrial Habitat (includes Habitat Restoration Projects)
- Ecosystem Connection between Terrestrial Habitat Corridor & Detroit River

*Detroit River AOC Terrestrial Habitat Corridor Analysis – from Geo-Spatial Data Compilation and Analysis to Assess Progress Towards BUI 14 in the Detroit River AOC 2000-2020.*

# Prescribed Burn at Collavino Wetland




Progress was made on restoring the Collavino wetland at the mouth of the Canard River. The Collavino wetland is 30.3 ha (75 acres) in size and has been designated as a Provincially Significant Wetland. In 2019, with funding support from ECCC, ERCA repaired the existing dyke and installed pumping infrastructure and water level control structures to manipulate water levels on the inside of the dyke. In 2021, the water levels were drawn down in the marsh to prepare for a prescribed burn to remove invasive Phragmites australis to enhance the wetland habitat for marsh birds and other wildlife. The prescribed burn took place in March 2022, successfully burning the dense Phragmites in the wetland. The plan is to flood the cell in the coming months to ensure the Phragmites does not return. Next year, the water levels will be drawn down to expose the native aquatic plant seedbed such as Arrowheads, Swamp rose mallow and common cattail, which is expected to increase native plant presence within the wetlands to improve habitat use by birds and other wildlife.

# Potential Detroit River Habitat Projects

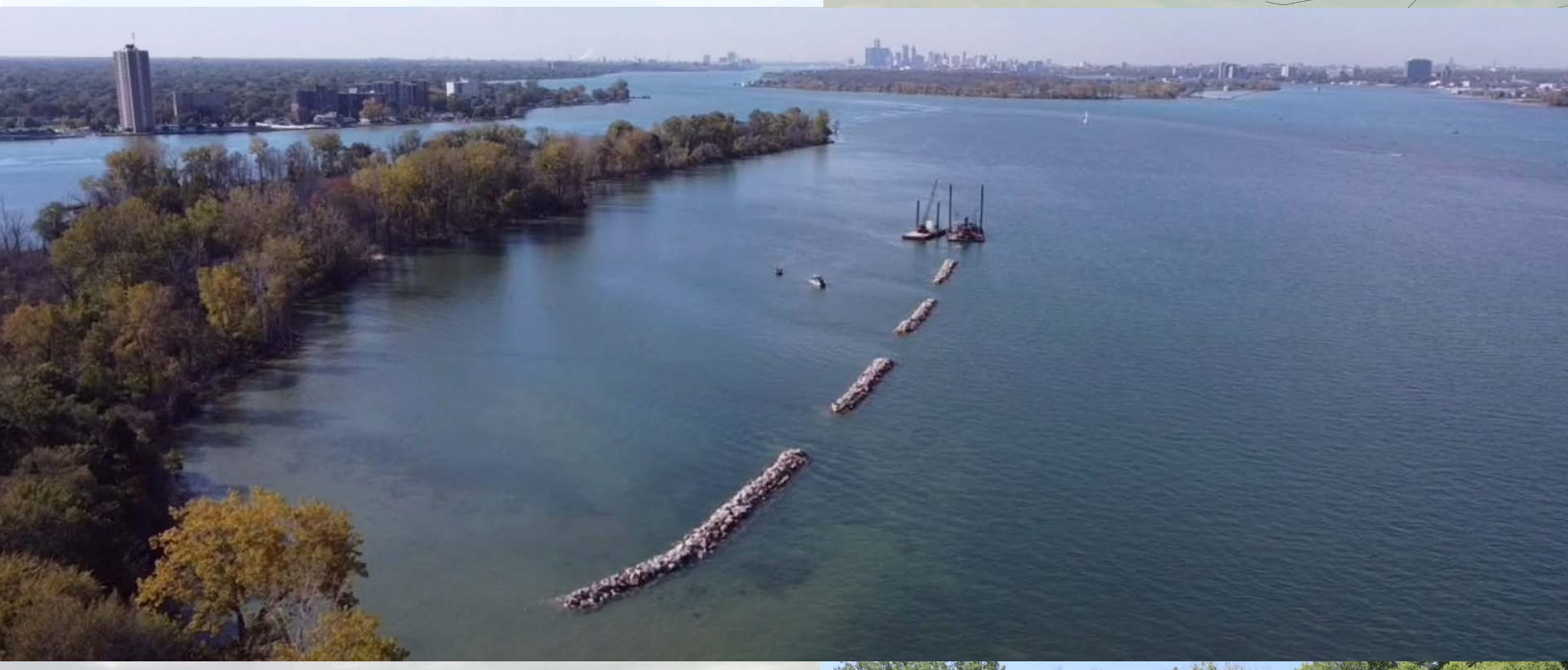
The Detroit River Canadian Cleanup (DRCC) has begun working with partners on two potential projects to create and restore coastal wetlands and fish habitat in the Detroit River. An engineering assessment has been completed for the MMM Hunt Club marsh and surrounding dykes. In 2021, the Canadian Wildlife Service (CWS) sampled this wetland for submerged aquatic vegetation, water quality, invertebrates and marsh birds, creating a baseline for future monitoring efforts. In addition, the DRCC and BASF completed engineering designs for a potential habitat project, similar to the fish habitat and erosion mitigation approach at Peche Island, for the south end of Fighting Island. Should funding become available in the future for both these projects, the DRCC and partners will work towards permitting, planning, and implementing the restoration projects. The DRCC looks forward to continue working with its partners on these projects.

# Peche Island Erosion Mitigation and Fish Habitat Project

In 2021-22, progress was made towards constructing the largest erosion mitigation and fish habitat project, to date, on the Canadian side of the Detroit River at Peche Island. This project was made possible through funding and cooperation from our project partners - City of Windsor, ERCA, ECCC, Swim Drink Fish, and the Ontario Ministry of Natural Resources and Forestry (MNRF).

In 2020, the DRCC and ERCA obtained all permits required to begin construction of the Peche Island project. The project consists of a soft shoreline revetment on the northeast side of Peche Island and nine sheltering islands on the north side of Peche Island. Construction of the project began in October 2020 when four of the nine sheltering islands were constructed.

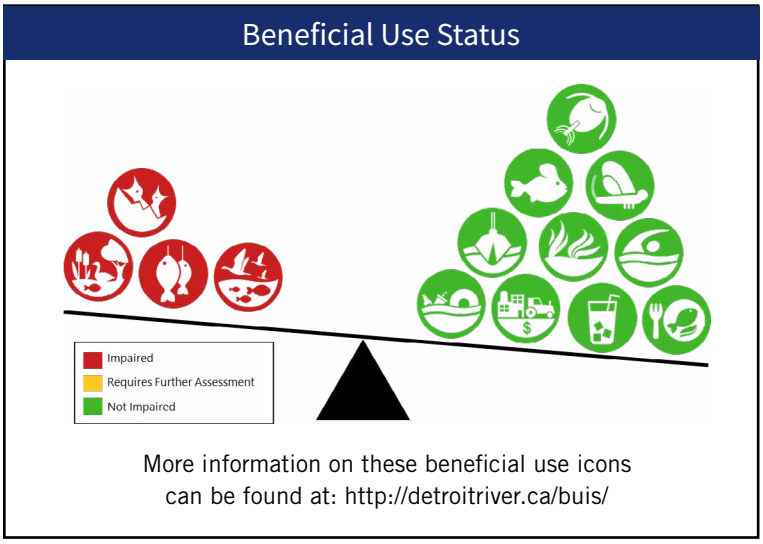
In fall 2021, construction began again, which involved constructing two additional islands (for a total of 6) as well as a portion of the revetment on the northeast side of the island. To date, approximately 7 ha of calm water area that fish can use to spawn and forage, and where aquatic plants can establish has been created. Once the calm water area is established, it is expected that it will become an important habitat area for fish and other wildlife.



# Focus: Monitoring and Research

## Beneficial Use Status

**When beneficial uses are impaired, further scientific studies and projects are required for these beneficial uses. The projects and research described below help to provide the scientific evidence required to determine when a beneficial use is no longer impaired.**



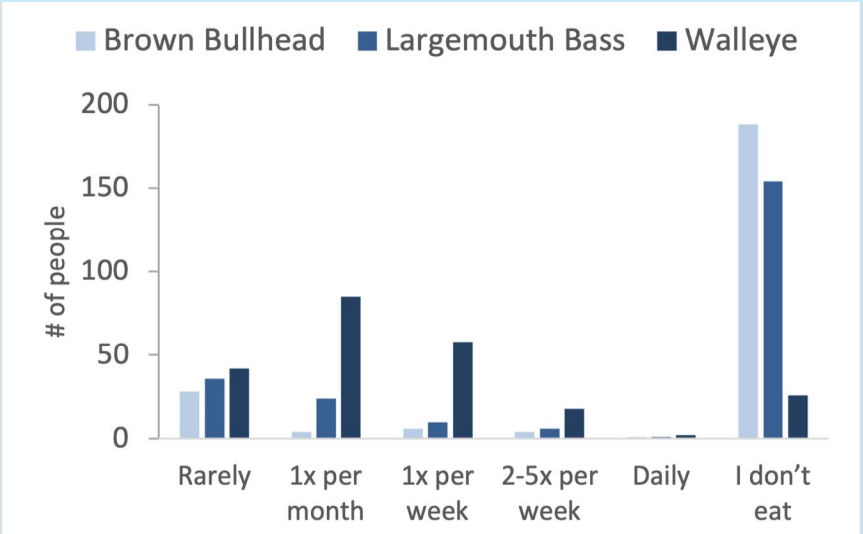

## Restrictions on Fish Consumption

When contaminant levels, such as mercury and polychlorinated biphenyls (PCBs), are high in fish, consumption advisories, may recommend that people and sensitive populations (e.g., children, pregnant women) limit or avoid eating certain sizes and species of fish caught in specific areas of the Detroit River (Ontario Ministry of Environment, Conservation and Parks (MECP) Guide to Eating Fish). Researchers from the Great Lakes Institute for Environmental Research (GLIER) at the University of Windsor have compiled and analyzed advisory data from across the Great lakes to identify whether consumption advisories for our indicator species (walleye, brown bullhead, and largemouth bass for sensitive populations) are similar to other non-AOC Great Lakes sites. A draft report summarizing the findings of their analysis for the fish consumption beneficial use is complete and the Monitoring and Research Work Group are in the process of reviewing this report.

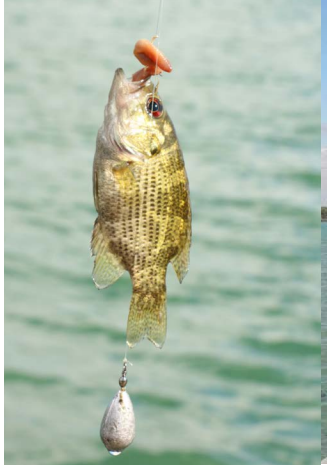
### Fish Consumption Survey

To provide another line of evidence for the assessment of the fish consumption beneficial use, the Detroit River Canadian Cleanup (DRCC) continued with their fish consumption survey (launched in 2019) to collect data on what people catch and eat from the Detroit River. Over 350 surveys have been completed to date. Results from the surveys show that most anglers (65%) eat the fish they catch from the river (4 to 8 oz of fish per meal about 1 to 4 times per month, on average) and the most common fish consumed from the Detroit River are

**Frequency of Eating Indicator Species from the Detroit River**



walleye, yellow perch, white perch, and white/silver bass. The DRCC has closed the public survey and will work on collecting responses from Indigenous communities in 2022. The findings for the fish consumption survey will be used to assist with the final evaluation of the Restrictions on Fish Consumption BUI #1.



## Tree Swallow Monitoring

Environment and Climate Change Canada's (ECCC) wildlife toxicologists have completed a four-year analysis of tree swallow reproduction and contaminant exposure. This study was conducted to support the Bird or Animal Deformities or Other Reproductive Problems BUI #5, which also includes herring gull and cormorants, snapping turtles and leopard frogs to assess the potential impacts of contaminant burdens on growth and reproduction in birds and animals in the Detroit River.

Tree swallows were used to assess reproduction and contaminant exposure at nesting sites along the Canadian side of the Detroit River within the AOC from 2016–2019. Tree swallows are an appropriate indicator species as they feed on insects that emerge from the bottom of the river, where they may be exposed to contaminated sediment. When the birds eat the insects, they can accumulate these toxins. To facilitate monitoring in study areas, nest boxes were installed at three sites along the Detroit River shoreline downstream from historical industrial and municipal point and non-point sources. These sites include Riverdance Park and Windsor Salt (combined for some analyses) and White Sands Conservation Area. Nest boxes were also installed at a reference site upstream of these sources along the Detroit River at Shanfield Shores Park and Sandpoint Beach Park. Tree swallows readily utilized these nest boxes with occupancy of boxes increasing over time at three of four study sites while occupancy at the upstream reference site remained low throughout the study.

To assess exposure, contaminants were measured in nesting tree swallows and assorted health parameters were examined in 16-day-old nestlings at these sites. Concentrations of all compounds in eggs were below those associated with adverse effects on reproduction (with one exception). This is consistent with good reproductive success at all four nesting sites over the four study years. When assessed against delisting criteria for this beneficial use, these results support a recommendation of no impairment for reproduction associated with contaminant-induced effects in nesting tree swallows.

# Post Construction Monitoring – Peche Island

In the fall of 2021, biologists from the Department of Fisheries and Oceans (DFO) completed post-construction monitoring to assess the fish community and aquatic vegetation establishment in the backwater area (behind the four sheltering islands) constructed on the northwest side of Peche Island. Calm water areas such as the one created by this project are rare in the upper Detroit River. Results of the post construction monitoring show that the mean SAV coverage increased behind the islands from 10% pre-construction to 49.3% one-year post-construction. Further, 20 new native fish species not previously recorded in past surveys were captured and 13 native species were caught in their juvenile and adult life stages. These results indicate the sheltering islands are creating fish habitat that will contribute to healthy and productive fisheries in the Detroit River. This project supports long standing efforts to meet delisting criteria outlined in both the fish and wildlife populations as well as habitat beneficial uses.

# Monitoring Wetlands and Marsh Bird Populations

Since 2011, researchers have monitored coastal wetland habitat and marsh bird populations at selected sites in the Detroit River. By understanding populations of marsh birds and potential factors that affect marsh bird scores, the DRCC can assess the fish and wildlife populations and loss of wildlife habitat beneficial uses. Researchers collect data on water quality, submerged aquatic vegetation, aquatic macroinvertebrates and breeding marsh bird communities. Monitoring continued in the summer 2021 at seven wetlands on the Detroit River including MMM Hunt Club, Collavino and the 5 core sites. The research team completed data entry and is analyzing Indices of Biotic Integrity (IBIs).

IBIs are used to assess the habitat condition of wetland and nearshore areas in the Detroit River. These indices integrate complex ecological or community data into a single metric or score that can be tracked and understood. Previous results indicate that marsh bird IBI scores for Detroit River wetlands are low and the Canadian Wildlife Services (CWS) and Birds Canada are currently trying to determine reasons for the low marsh bird scores so that restoration actions can be implemented. The marsh bird scores overtime will be used to assist with the final evaluation of the Loss of Fish and Wildlife Habitat BUI #14.

## Next Steps

- The DRCC will assess the sub-criteria developed for both the degraded fish and wildlife populations and loss of fish and wildlife habitat beneficial uses.
- DFO Scientists will continue to work towards developing and applying a variety of Detroit River specific models, including habitat gains due to restoration projects, in order to assess what aquatic habitat exists within the Detroit River to address the loss of fish and wildlife habitat beneficial use.
- DRCC will complete a draft status assessment report for the fish component of the Degradation of Fish and Wildlife beneficial use.
- DRCC will complete a draft status assessment report for the Bird and Animal Deformities and Reproduction Problems beneficial use.
- ECCC will continue to investigate potential reasons for poor marsh bird populations and identify potential remedial actions to improve marsh bird populations within coastal wetlands.
- DRCC will implement fish and wildlife habitat restoration and enhancement projects in the Detroit River to address the loss of fish and wildlife habitat and degraded wildlife populations beneficial use.
- DRCC will continue to monitor issues and implement and promote remedial action plan projects

# Focus: 100-Year-Old Sturgeon Caught in the Detroit River

A once in a lifetime catch for the U.S. Fish and Wildlife Service! A 240 lbs, 6'10" long lake sturgeon with a girth of nearly 4' was caught on the American side of the Detroit River in April 2021. This fish is one of the largest lake sturgeon ever recorded in the U.S.

Based on its girth and size, it is assumed to be a female and that she has been roaming our waters for over 100 years and likely hatched in the Detroit River around 1920 when Detroit became the 4th largest city in America. She was quickly released back into the river after being documented to hopefully live for many more years.

*Photo credit: Photo taken by the Alpena Fish and Wildlife Conservation Office, of the U.S. Fish and Wildlife Service.*

# Focus: Community Outreach

**The Detroit River Canadian Cleanup (DRCC) participated in 10 virtual and 4 in person outreach events between the spring of 2021 and end of winter 2022. Through these efforts, thousands of individuals celebrated ongoing restoration efforts in the Detroit River AOC, learned about Detroit River history, projects, the DRCC program, and more!**

## Virtual Earth Day Celebrations

The DRCC, with members of the Detroit River Coalition (DRC) hosted a variety of Earth Week celebrations in 2021 that included virtual, passive and in person programs. Due to Covid-19 restrictions, the DRCC hosted only virtual programs including a well attended virtual Bingo evening. We also hosted a joint habitat restoration presentation with our colleagues from Friends of the Detroit River. Bob Burns, the Detroit Riverkeeper, presented some of the habitat projects on the U.S. side of the river to date, and our Remedial Action Plan Coordinator highlighted our habitat efforts on the Canadian side of the river. The DRC also held an art contest where both art and photo winners were awarded prizes. Congratulations to all and thanks to everyone who submitted their art and photos.

## Sandwich Litter Cleanups and Community Tree Planting


In the fall of 2021, two litter cleanups and a community tree planting took place in Sandwich, a Windsor community on the shores of the Detroit River. The College Avenue Bikeway is more green due to the tremendous efforts of 25 volunteers who planted 30 native large stock trees increasing the urban canopy and shade in Windsor.

Volunteers and partners including the Essex Region Conservation Authority (ERCA) and the Windsor Port Authority (WPA) removed accumulated debris and litter at McKee and Queen's Dock Parks in Sandwich. A total of 40 volunteers removed over 350 lbs of garbage! Funding for these three initiatives was provided by the Gordie Howe International Bridge Community Benefits Plan.

# Virtual Fishing Guide

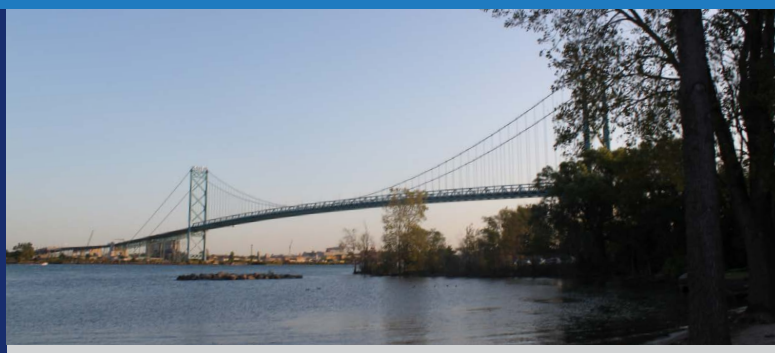
In 2017 and 2018, the DRCC hosted Learn to Fish events to provide an opportunity for new anglers to learn how to fish, while taking advantage of Ontario's license free family fishing weekends. Due to Covid-19 restrictions and high water levels, we did not host in 2020 and 2021. As a work around, the DRCC launched a Virtual Learn to Fish Guide for the Detroit River as a resource hub for anglers on our website.
Visit http://detroitriver.ca/learntofish to learn to fish virtually!


**The Detroit River Canadian Cleanup is supported by two main funding agencies – Environment and Climate Change Canada and the Ontario Ministry of Environment, Conservation, and Parks.**

**Other agencies involved in the DRCC include**

- Environment and Climate Change Canada
- Ontario Ministry of Environment, Conservation, & Parks
- Essex Region Conservation Authority
- Ontario Ministry of Natural Resources and Forestry
- Fisheries and Oceans Canada
- Canadian Wildlife Service
- City of Windsor
- Town of LaSalle
- Town of Amherstburg
- UNIFOR Local 200
- Citizens Environmental Alliance
- Essex Field Naturalists' Club
- Windsor Port Authority
- University of Windsor
- Brighton Beach Power
- Aamjiwnaang First Nation
- Caldwell First Nation
- Walpole Island First Nation

**...and many dedicated citizens like you!**



## Acronyms

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|---|---|
| **AOC** | Area of Concern |
| **DFO** | Department of Fisheries and Oceans |
| **DRC** | Detroit River Coalition |
| **DRCC** | Detroit River Canadian Cleanup |
| **CWS** | Canadian Wildlife Service |
| **ECCC** | Environment and Climate Change Canada |
| **ERCA** | Essex Region Conservation Authority |
| **IBI** | Index of Biotic Integrity |
| **PAC** | Public Advisory Council |
| **SAV** | Submerged Aquatic Vegetation |

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