



**HABITAT IMPROVEMENT PROJECTS IN THE  
DETROIT RIVER AND ST. CLAIR RIVER  
AREAS OF CONCERN  
TO REMOVE THE *LOSS OF FISH AND WILDLIFE HABITAT BUI***

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ECCC



# ST. CLAIR RIVER



# HABITAT BUI DELISTING (REMOVAL) CRITERIA: ST. CLAIR RIVER

1. Administrative and legislative mechanisms are in place to protect recognized aquatic, wetland and terrestrial habitats from destruction or degradation.
  2. **Wetland coverage** within the sub-watersheds of Area 1A is 6-10%, or is restored to the extent possible, **and 155 ha of wetland habitat is rehabilitated, created, or protected within the Chenal Ecarte, Walpole Island First Nation delta, or along the eastern shore of Lake St. Clair.**
  3. **Habitat connectivity** between the St. Clair River and Sydenham River and between Walpole Island First Nation, Bickford Oak Woods, and the Aamjiwnaang First Nation has been improved.
  4. 50% of the major **tributary lengths** in Area 1A are buffered by a minimum width of 5 m of natural vegetation or buffered to the extent possible.
  5. Nearshore and **shoreline fish habitat** has been enhanced at 6-12 priority sites along the St. Clair River to demonstrate the benefits of integrating shoreline protection with fish habitat enhancement.
  6. **Wetland habitat** components (i.e. water quality, submerged aquatic vegetation, aquatic invertebrates, fish, and birds) achieve a quality ranking of “Good” or better based on Water Quality Index (WQI) **Indices of Biological Integrity** (IBI) scores for a 3-year period, or when mean WQI/IBI scores within the AOC are shown to be statistically comparable to those outside the AOC for a 3-year period.
  7. A long-term *Fish and Wildlife Habitat Management Plan* for Ontario is completed to facilitate habitat restoration and protection beyond AOC delisting.
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# LOSS OF FISH AND WILDLIFE HABITAT BUI REMOVAL FOR ST. CLAIR RIVER AOC

*PO: Complete habitat improvement projects to remove loss of fish and wildlife habitat beneficial use impairment (BUI)*

## SCDRS Indicator

## Canadian Input

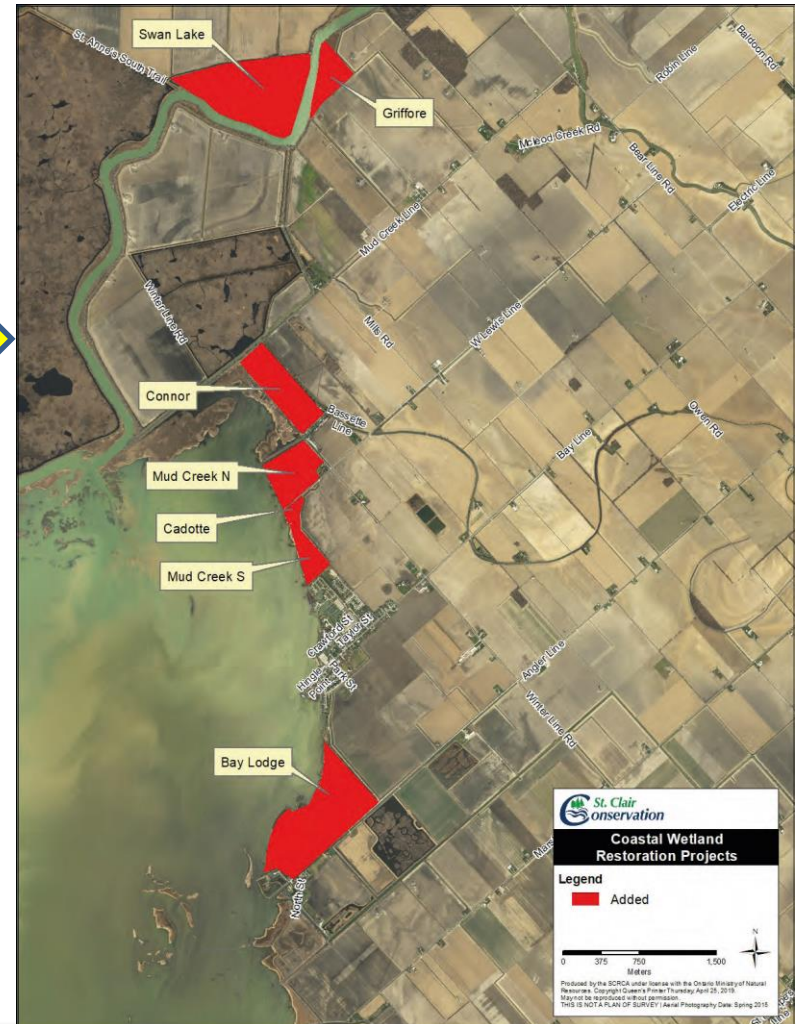
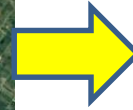
Number of projects completed leading to removal of BUI.

No specific number of projects to complete for BUI removal however, 7 projects completed in priority area of AOC (delta and Mitchell's Bay on LSC) since 2010.

BUI removal goal **155 ha** and the **7** projects total = **215 ha**

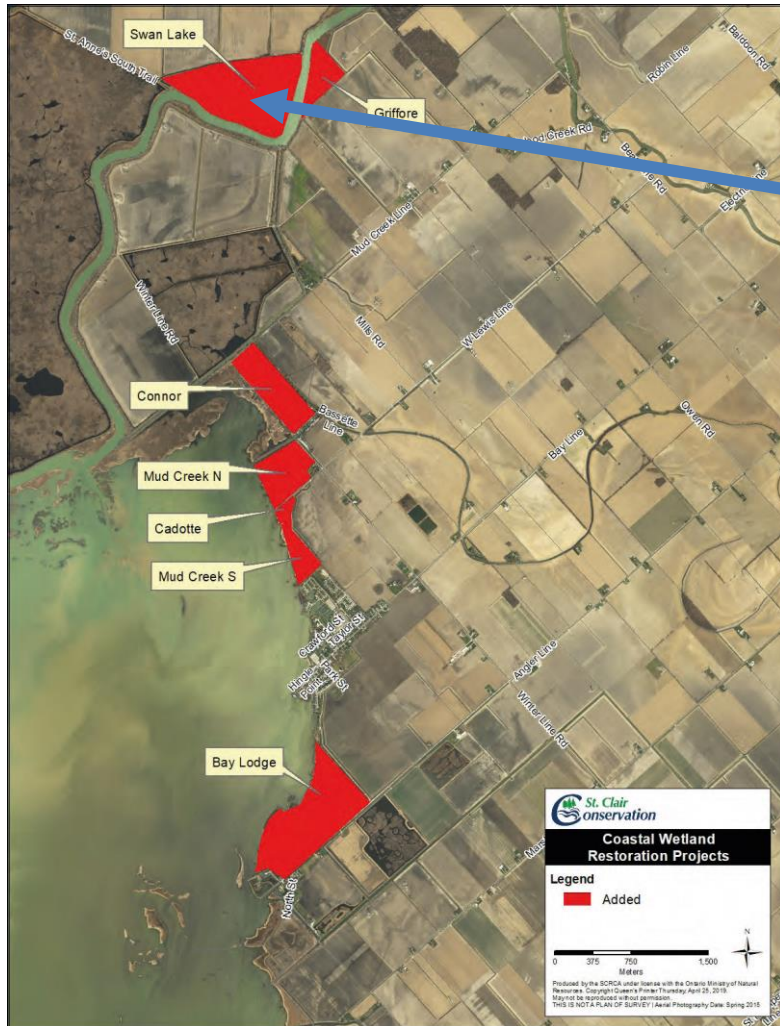
One project, a 675 ha wetland, is scheduled for completion in 2021.

# WETLAND RESTORATION PROJECTS COMPLETED IN THE AOC PRIORITY





# WETLAND RESTORATION PROJECTS COMPLETED IN THE AOC PRIORITY



**Swan Lake and Bush Marsh** restoration projects in collaboration with WIFN are the largest project.

**Multiple coastal wetlands** enhanced/restored along the eastern shore of Lake St. Clair (Mitchell's Bay) in collaboration with landowners.



# SWAN LAKE MARSH

163 ACRES/70 HA

Traditional ponds and fish channels were overgrown.



Excavated ponds and fish channels.

# SWAN LAKE FISH POND

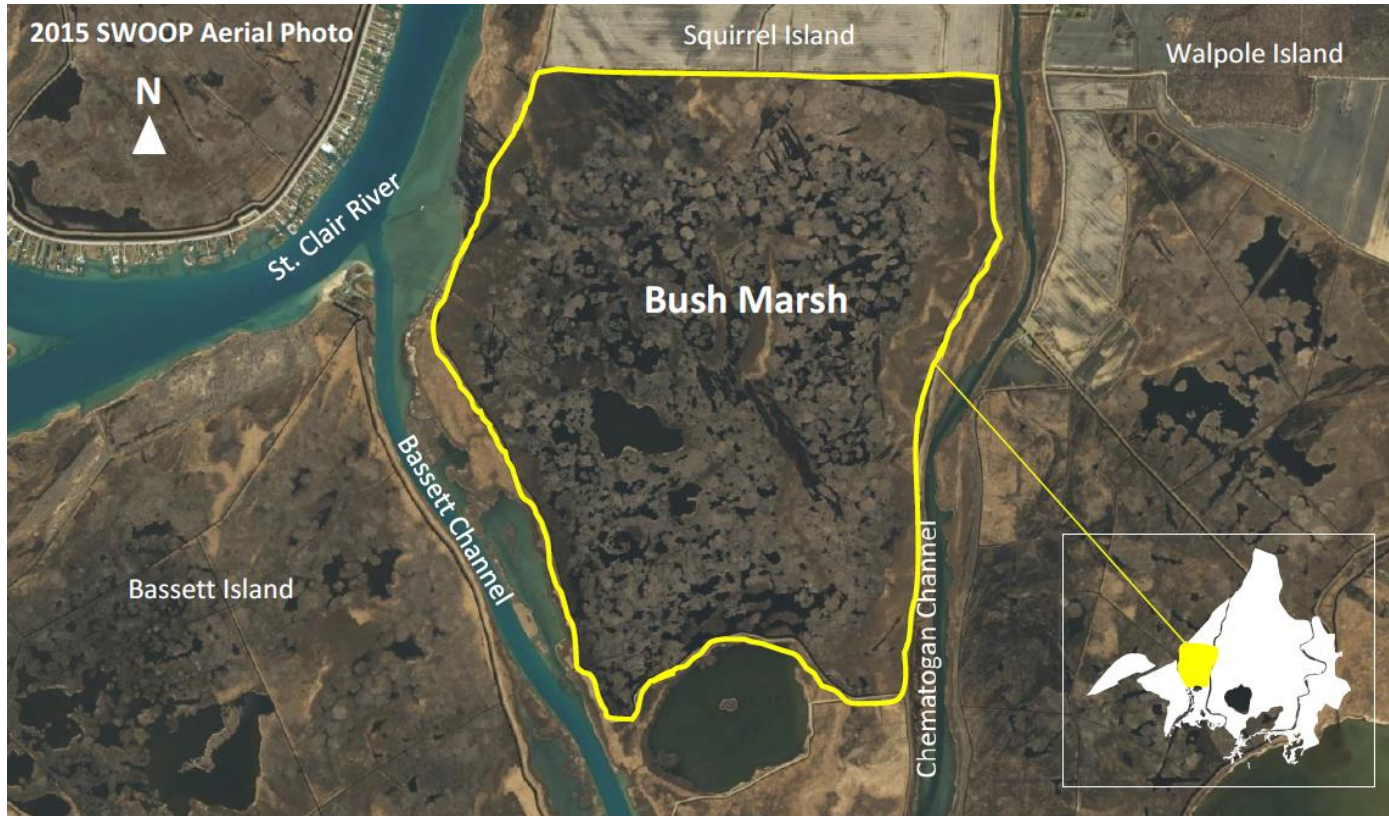
15 HA

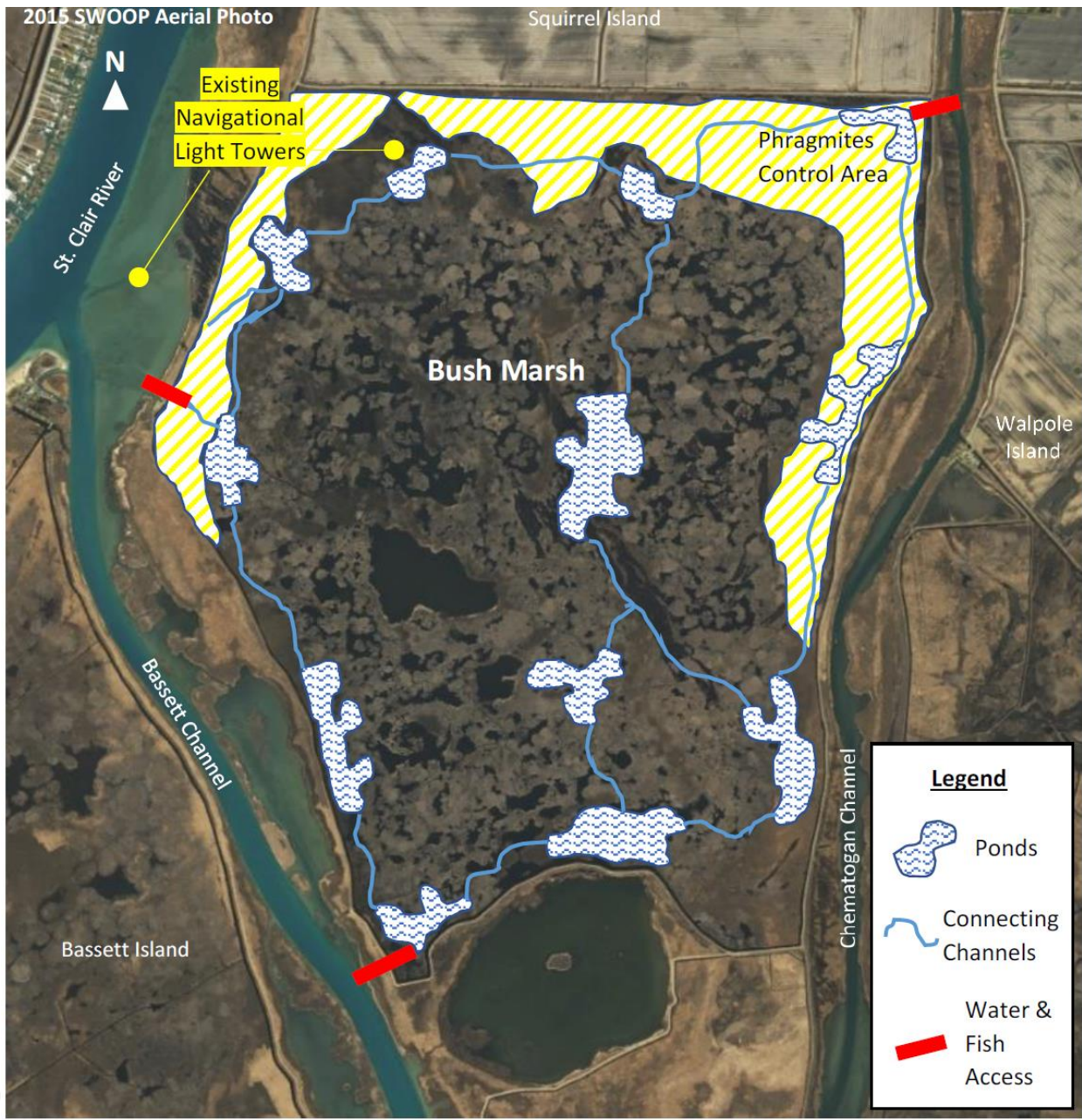




# BUSH MARSH - 2021

675 HA





# Conceptual Plan for Bush Marsh.

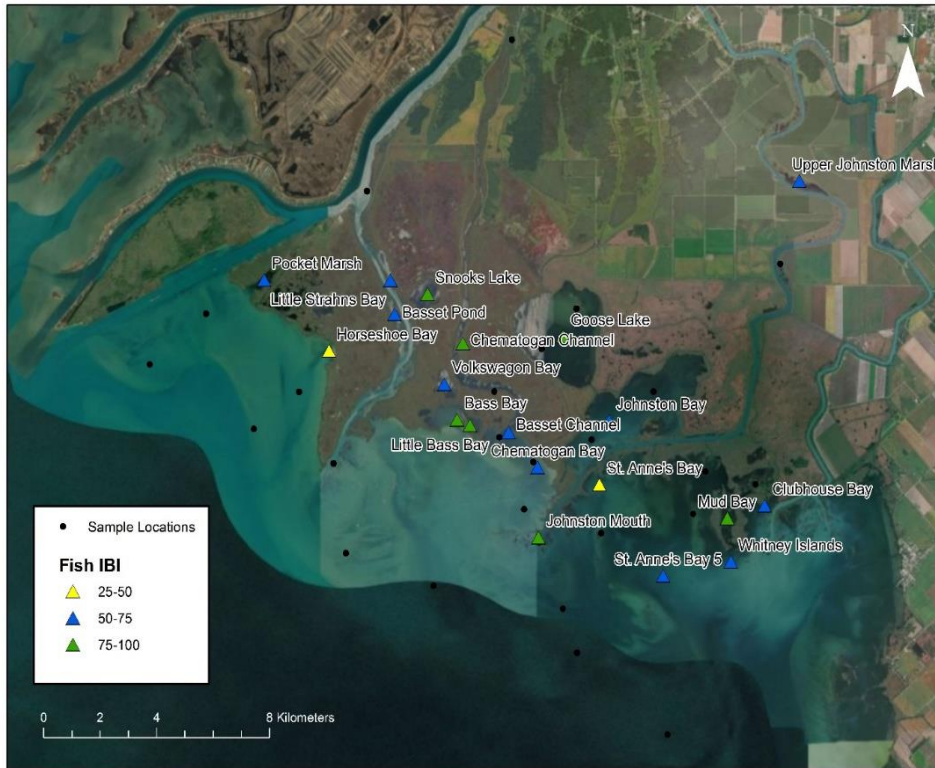
Fish access via installation of culverts similar to Swan Lake.

Fish will have access to the marsh for the first time in 60 years.



# SCIENCE

## 2015 WIFN fish community and fish habitat surveys



- Examined fish community composition to inform the health of marsh habitats
- 52 Fyke Net Sets
- 105 Electrofishing Transects
- 9465 individual fish caught from 56 different species over 4 weeks

# SCIENCE

Post-coastal wetland monitoring for fish community conducted in 2017, 2018 and 2019 by DFO.

DFO found no evidence for differences in fish IBI scores for wetlands within the DR AOC or SCR AOC (either restored or un-restored) relative to reference wetlands in the Walpole Island Delta. For most sites sampled using either electrofishing or fyke nets, fish IBI scores generally fell between 60-80,





# SCIENCE

**HEAT** = Habitat Ecosystem Assessment Tool or also known as the **Fish Habitat suitability model**.

Application to assess habitat gain/loss of projects in the SCR.



Net positive benefit 343.2  
units

Shoreline restoration at  
Guthrie Park



## INPUT TO OTHER SCDRS PO

*PO: Increase continuous area of ecologically functional wetlands and their connectivity to SCDRS.*

SCDRS Indicator	Canadian Input (Wetland habitat parameters to be “Good or better”)
Percent of accessible tributary habitat.	All tributaries are accessible. * Access to traditional wetlands in the WIFN delta.
Maintain and increase wetland acreage.	Have increased wetland acreage over the AOC. Still vulnerable, particularly coastal wetlands.
Marsh Bird IBI	Ranges from <b>Fair – Excellent</b> assessed across the 6 AOC wetlands (minus WIFN). Added assessment of 4 restored coastal wetland sites.
Invertebrate IBI	Ranges from <b>Good - Very good</b> (typically very good)
Amphibian IBI	Not assessed on Canadian side by RAP. Citizen science.
Wetland Fish Index (WFI)	DFO has assessed fish community in restored coastal wetlands in SCR and DR and similar to those in WIFN.

# ***INPUT TO OTHER SCDRS PO***

***PO: Increase riparian complexity/connectivity through increased softened shorelines and native riparian vegetation.***

<b>SCDRS Indicator</b>	<b>Canadian Input</b>
Artificial shoreline index: increase percentage of softened shoreline by removing artificial structures.	<p>Completed 12 projects; restoring a total of nearly 2000 m (1.2 miles) of shoreline.</p> <p>Application of HEAT to assess positive/benefit towards fish habitat.</p> <p>Nearly 60% of tributaries (6 of 8 tributaries) buffered with a minimum 5m buffer.</p> <p>Connection of wetlands to the SCR via projects with WIFN.</p> <p>2020 digitizing dyked wetlands within the delta.</p>

# DETROIT RIVER



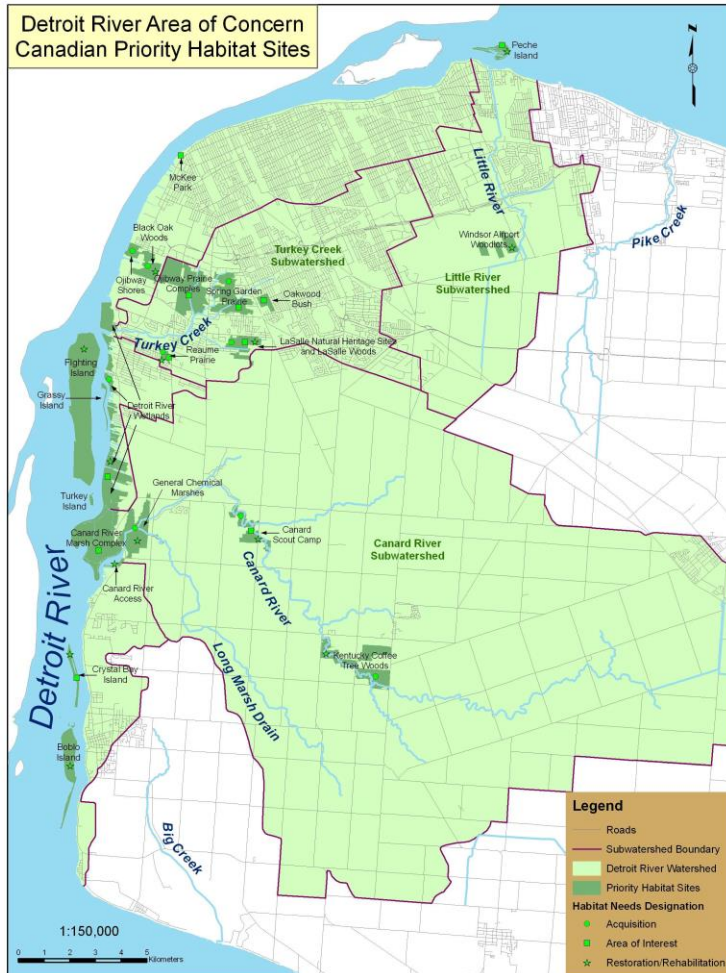


# HABITAT BUI DELISTING (REMOVAL) CRITERIA: DETROIT RIVER

**This BUI will be considered to be 'not impaired' when....**

- *Coastal wetlands: Protect existing coastal wetland habitat and restore wetland function in priority areas of the AOC and its watershed (as identified in the 2007 Detroit River AOC Canadian Priority Habitat Sites and the 2002 Essex Region Biodiversity Conservation Strategy).*
  - *Aquatic & riparian habitat: Protect existing deep water, coastal spawning, and tributary fish and aquatic wildlife habitat and restore ecosystem function in priority areas in, and hydrologically connected to, the Detroit River.*
  - *Shoreline softening: Develop and begin to implement a shoreline management strategy to soften and naturalize Detroit River Canadian shoreline, whenever opportunities arise.*
  - *Terrestrial habitat: Protect existing natural terrestrial corridors and restore ecosystem function between the Detroit River and the Ojibway Prairie Complex, the LaSalle Candidate Natural Heritage sites, and other major identified habitat sites (as identified in the 2007 Detroit River AOC Canadian Priority Habitat Sites and the 2002 Essex Region Biodiversity Conservation Strategy).*
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# PRIORITY HABITAT PROJECTS



Notes: Canard River Marsh Complex - specific portions of the marsh may have separate designations (Canard River Access & General Chemical Marshes); Detroit River Wetlands include Grassy Island and Turkey Island.



## Detroit River Area of Concern Canadian Priority Habitat Sites

### Detroit River Rehabilitation Site Survey 2015

Lake Erie Management Unit, 2016

Habitat  
Detroit River

DRAFT REPORT



### Detroit River Habitat Feasibility Study

March 2016



# LOSS OF FISH AND WILDLIFE HABITAT BUI REMOVAL FOR DETROIT RIVER AOC

*PO: Complete habitat improvement projects to remove loss of fish and wildlife habitat beneficial use impairment (BUI)*

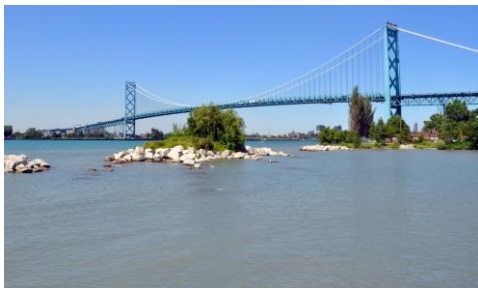
## SCDRS Indicator

## Canadian Input

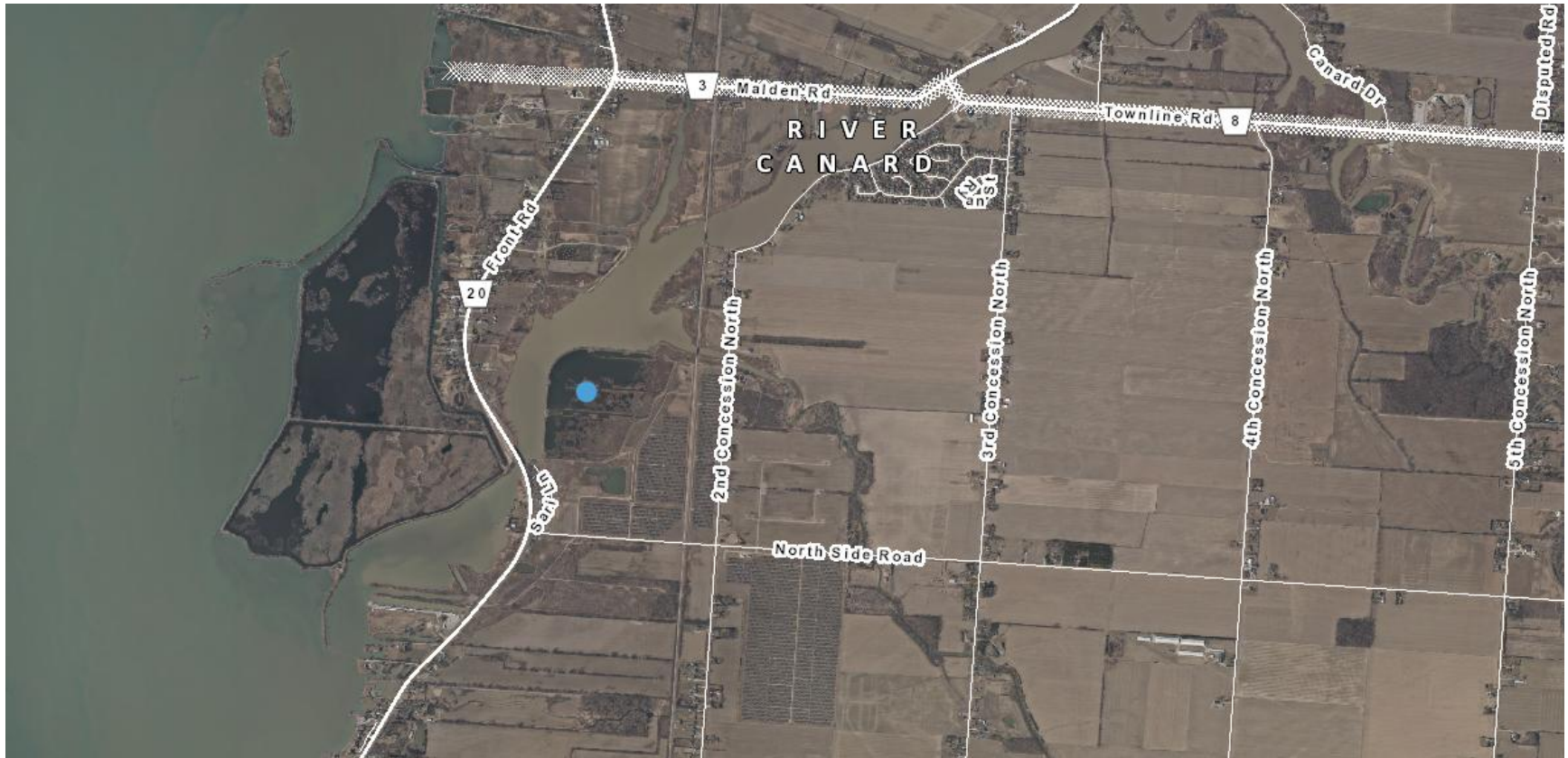
Number of projects completed leading to removal of BUI.

No specific number of projects to remove BUI but have completed baseline studies on 20 sites and detailed feasibility studies on 7.

Have completed several habitat projects and two additional projects are underway.



# COLLAVINO WETLAND RESTORATION





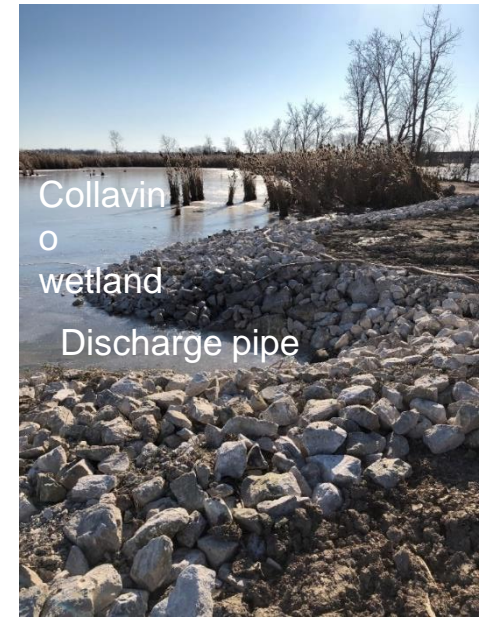
# COLLAVINO WETLAND RESTORATION



Canard  
River

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# CONSTRUCTION OF PROJECT







Least Bittern



Blanding's Turtle



# PECHE ISLAND



# PECHE ISLAND



# SOLUTION

## Legend

- North sheltering islands
- Shoals
- Revetment
- Northern Extent of Northern Madtom Critical Habitat

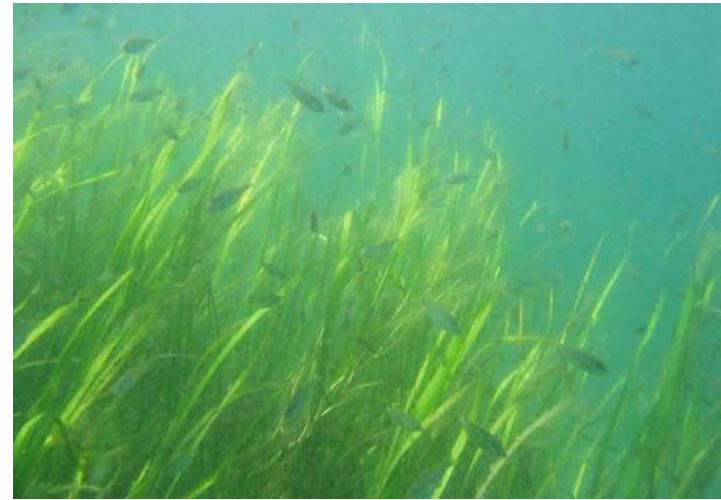




# FISH HABITAT



# HABITAT BENEFITS OF THE PROJECT



Channel Darter

50mm



Northern Madtom

100mm

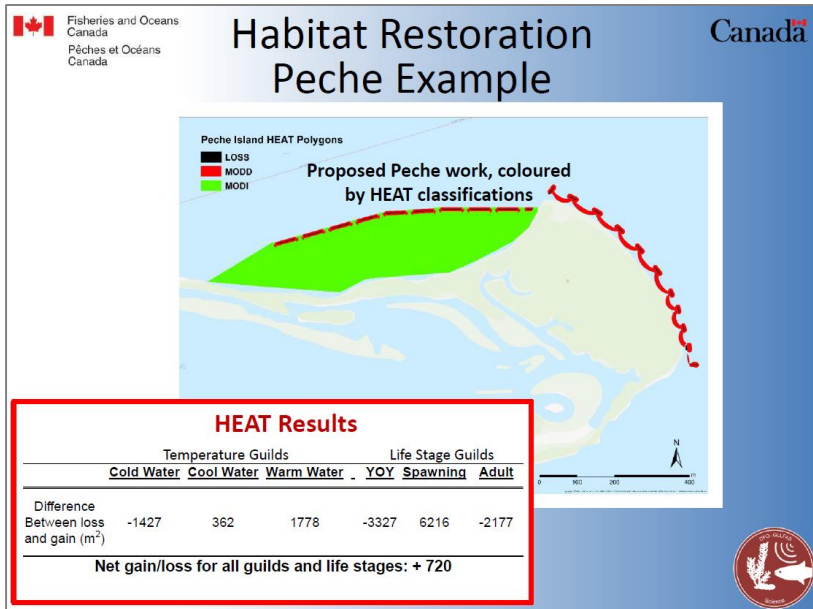
# PROJECT STATUS

- Awaiting permits
- Construction expected to begin in late summer 2020
- Completion of project December 2020





# SCIENCE



## IBI Calibration Project :

Compiled existing environmental and biological data from within the DR AOC and adjacent areas to identify degraded/non-degraded thresholds for habitat quality parameters e.g. water quality, invertebrates, SAV and marsh birds.

HEAT tool applied to Peche Island project.

Will be applied to help inform BUI 14.

# ***SUPPORT TO OTHER SCDRS PO***

***PO: Increase continuous area of ecologically functional wetlands and their connectivity to SCDRS.***

<b>SCDRS Indicator</b>	<b>Canadian Input (Wetland habitat parameters to be “Good or better”)</b>
Percent of accessible tributary habitat.	All tributaries are accessible.
Maintain and increase wetland acreage.	Slight increase as of report in 2014.  2021 Updated information.
Marsh Bird IBI	Poor – low end of fair. 8 years of data.  Calibrating IBI for local
Invertebrate IBI	Good
Amphibian IBI	Not assessed by ECCC. Citizen science.
Wetland Fish Index (WFI)	No WFI but DFO compared fish community to WIFN and no difference.

**PO: Increase riparian complexity/connectivity through increased softened shorelines and native riparian vegetation.**

**SCDRS Indicator**

**Canadian Input**

Artificial shoreline index: increase percentage of softened shoreline by removing artificial structures.

2018 analysis revealed **61%** of shoreline is soft and **39%** is hard.





# THANK YOU

