

# Fisheries Science in the “18” 2022 Update

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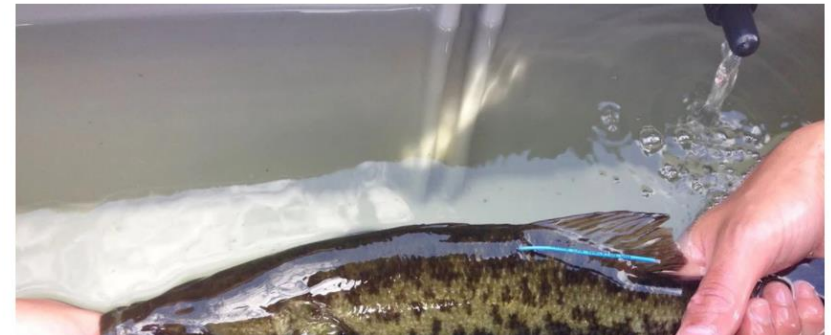
Science / Local News



## Science of Summer: A researcher's quest to catch 10,000 fish

Tom Spears

Jul 12, 2018 • July 12, 2018 • 3 minute read • [Join the conversation](#)



- **Tagging study in the Rideau Waterway**
- **Goal to tag 10,000 fish between 2018 and 2022**
- **Over 500 RECAPS**
- **3 recaps in adjacent reach of the canal**
- **Assess movement, growth, connectivity**

## Ten Year Study of Muskellunge Movement and Habitat Use (Juveniles to Adults)



- Working with hydraulic engineer for detailed habitat mapping

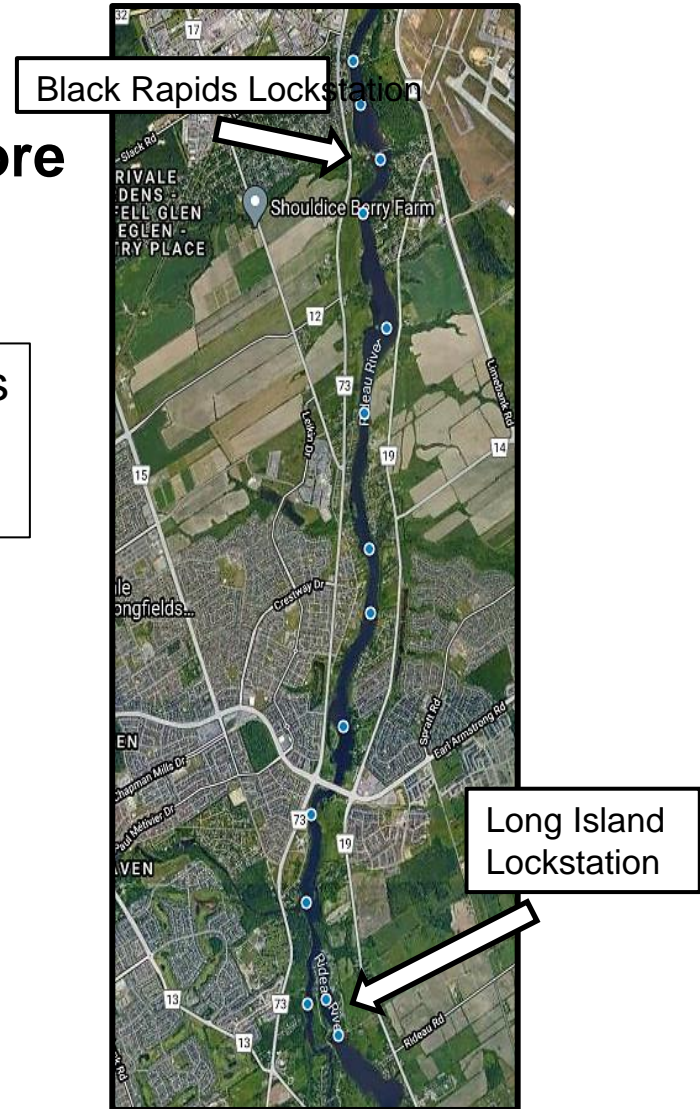


## Habitat use and connectivity

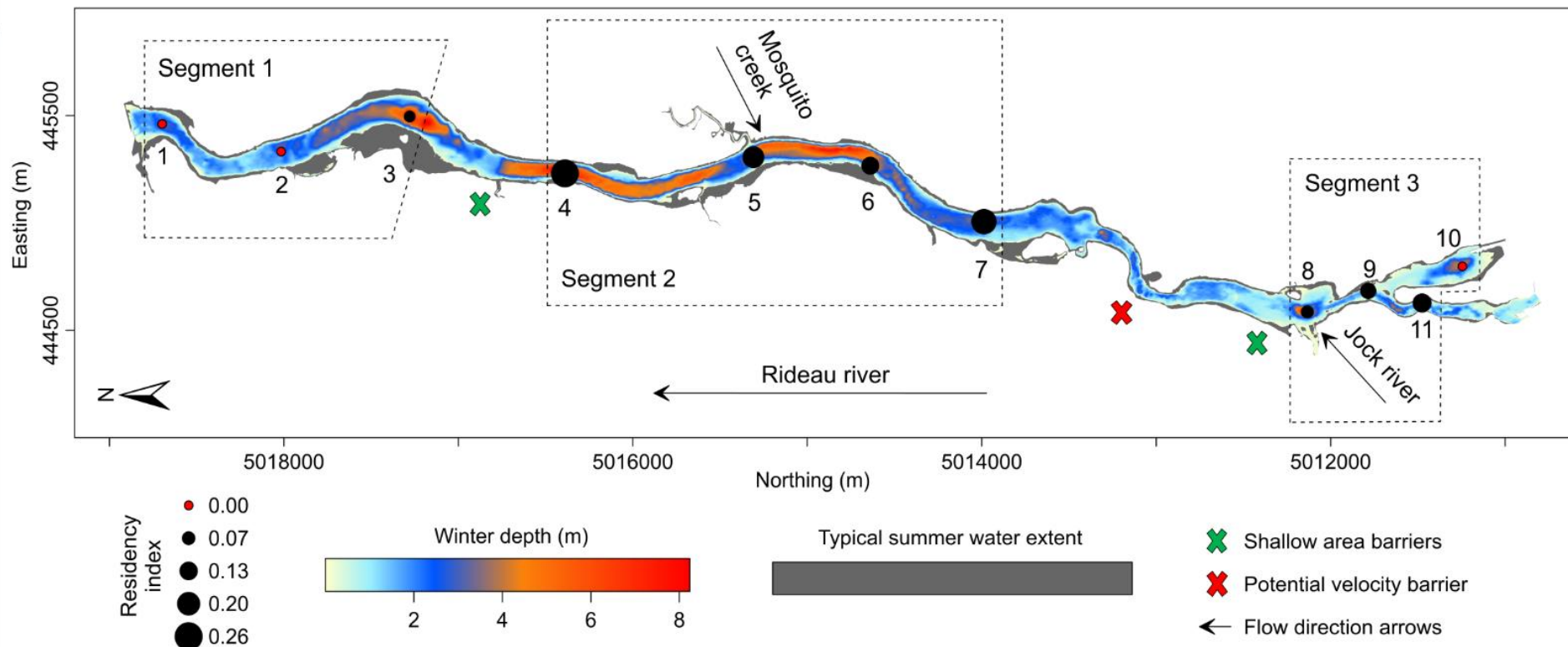
**15 acoustically tagged in fall 2020; 10 more in June 2021; 10 more this spring**

- Overwintering
- Spawning locations
- General connectivity
- Sub-adult vs. adult movements
- Restoration planning

14 receivers  
~9-km

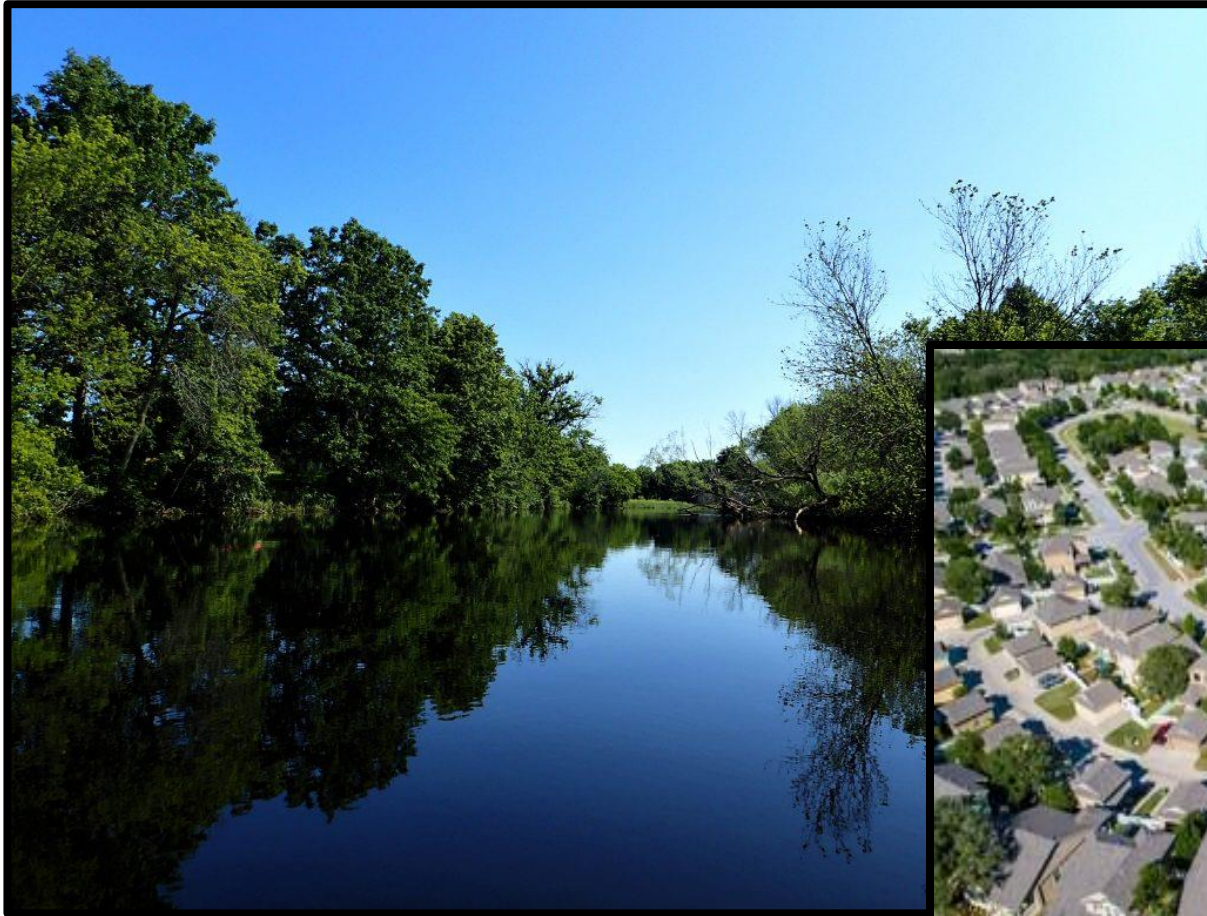


## Muskellunge overwintering behaviour in the Eccolands Reach of the Rideau Canal

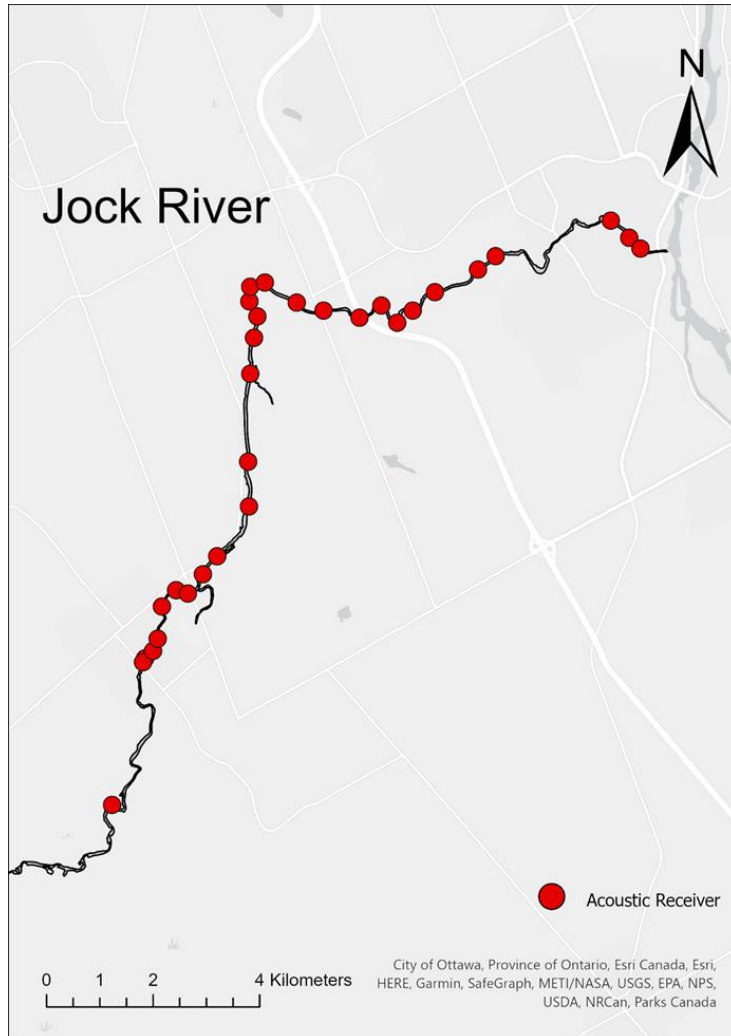




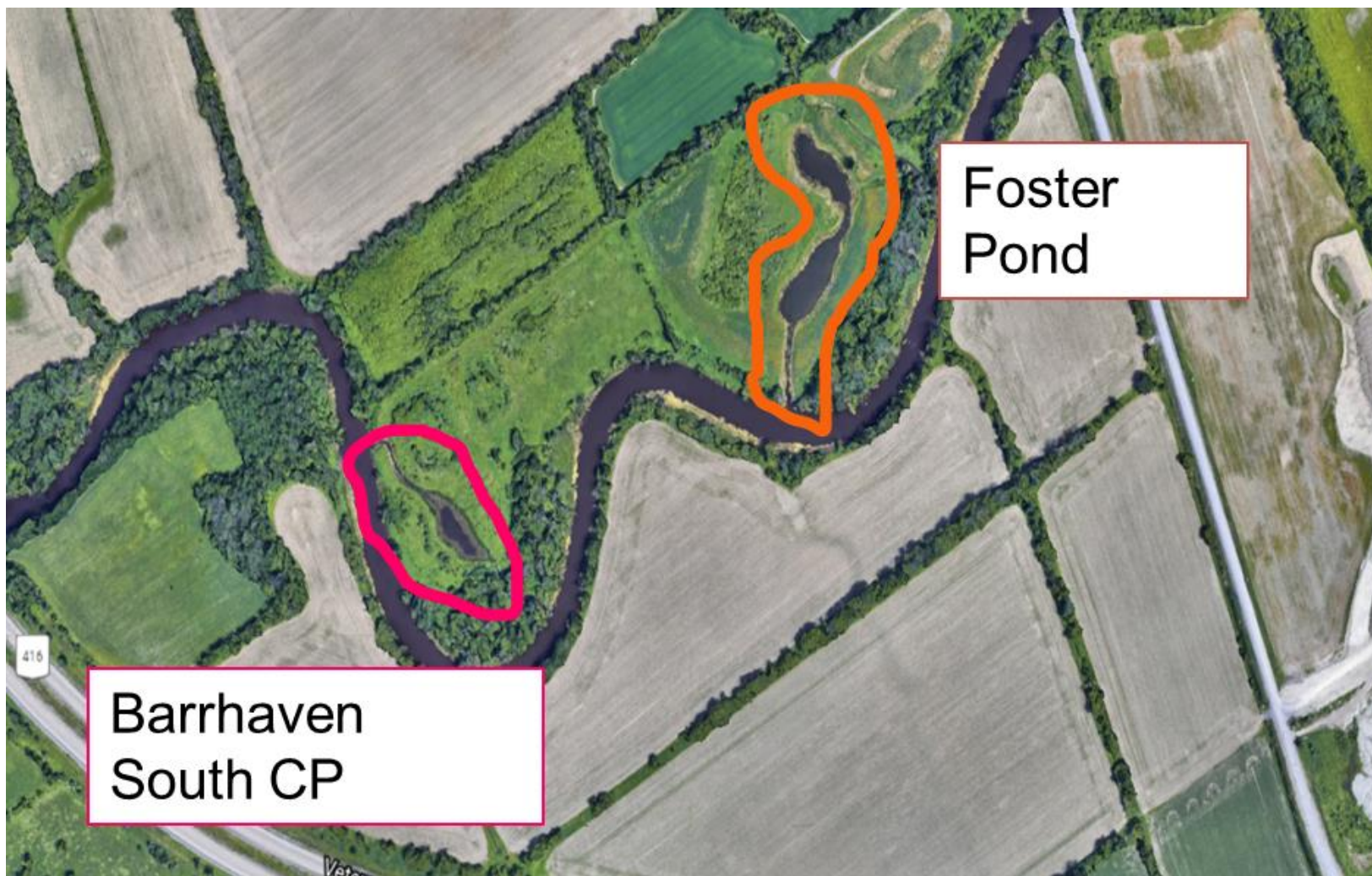
**Lots of ongoing urban development in the Jock River basin...**



## Using acoustic telemetry to assess broad-scale movements (and connectivity with the Rideau)









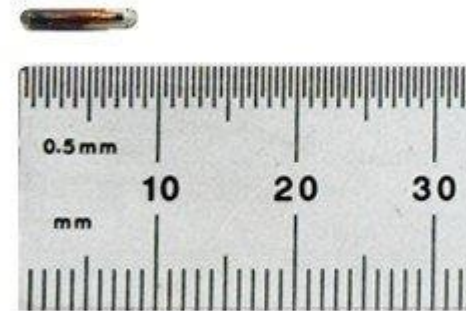




If designed correctly, these areas should provide:

- Spawning habitat in the spring for muskie and pike
- Slow-moving off-channel habitat
- Floodplain habitat
- Nursery habitat for fishes (growth and feeding)
- Refugia (woody debris cover)

**But just because we make it doesn't mean fish use it!**







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3:37

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SPORTS

## Little Fish Tales: Micro Fishers Focus On The Species, Not Size

October 27, 2016 · 4:42 AM ET

Heard on [Morning Edition](#)

SEBASTIÁN MARTINEZ

FROM



*Ben Cantrell*

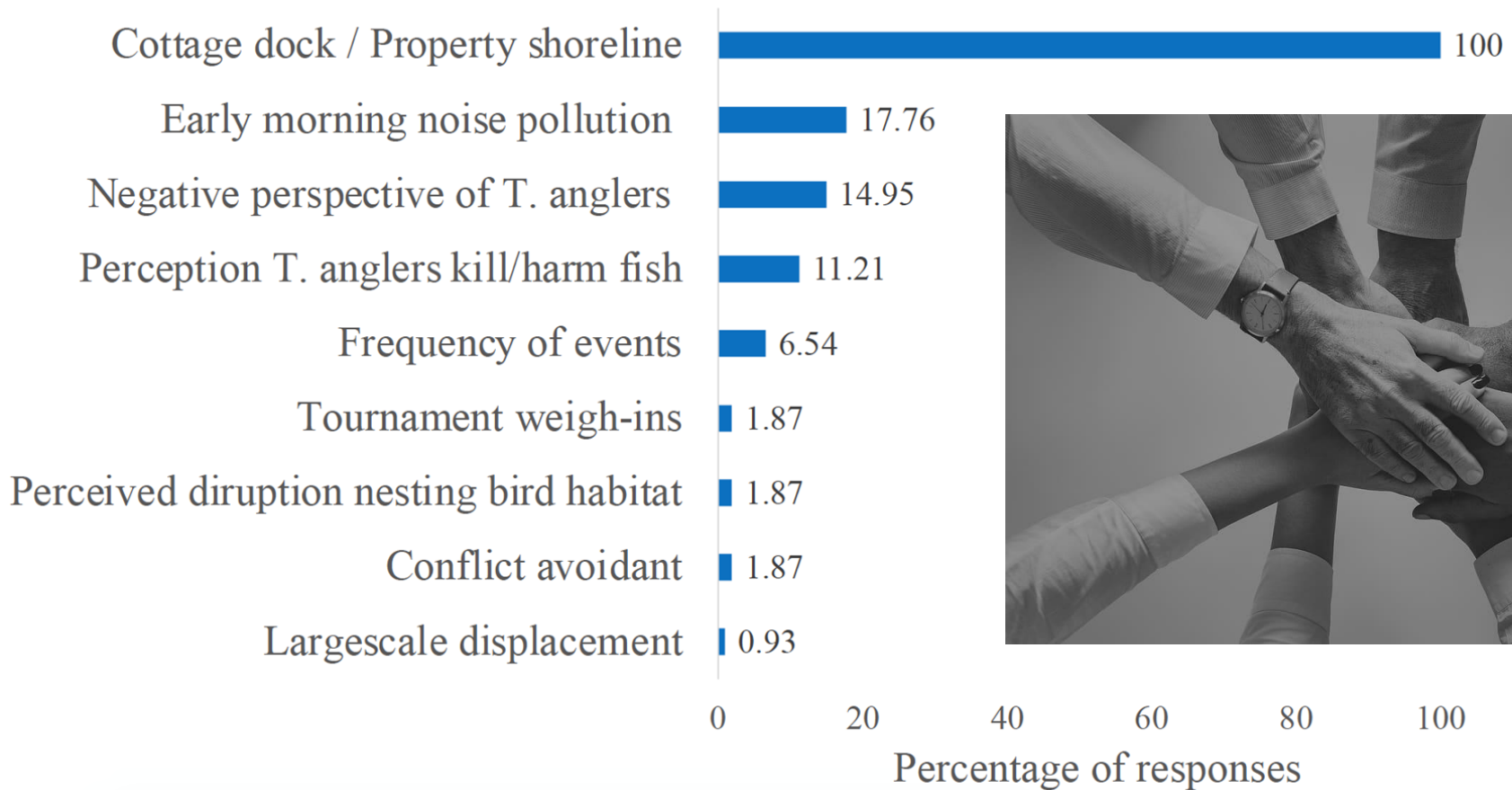


## Smallmouth bass mortality 24 hr after hook removal

- **Control = 0%**
- **Barbed hooks TTG 24%**
- **Barbless hooks TTG 8.3%**
- **Barbed hooks left in 14.3%**
- **Barbless hooks were left in 4.6%**



## Identified Themes of Conflict Between Cottagers and Tournament Anglers







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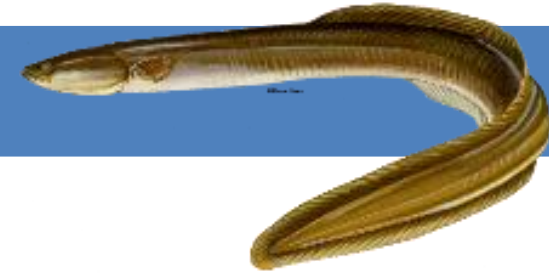
Using expert knowledge to estimate the potential for native American Eel (*Anguilla rostrata*) and invasive Asian Carp (*Cyprinus spp.*) to move through the Rideau Canal and Trent-Severn Waterway



# Species of interest

## American Eel (*Anguilla rostrata*)

- Native species
- Important species for indigenous peoples
- COSEWIC status: threatened
- Catadromous species
- Very rarely observed and recorded



## Asian Carp (*Cyprinus spp.*)

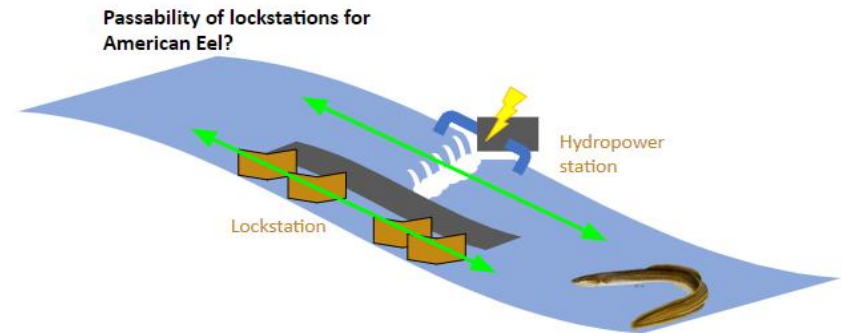
- Invasive alien species
- Not present in Lake Ontario, Rideau Canal or Trent-Severn
- Recorded in the western basin of Lake Erie
- Modify native ecosystems



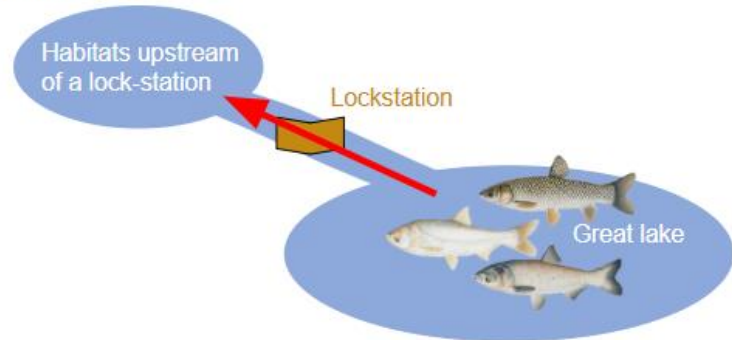
## Key research questions

What is the probability that American Eel can benefit from using lockstations for passage into the Rideau Canal and Trent-Severn Waterways?

What is the probability that Asian Carp can be introduced into the Rideau Canal and Trent-Severn Waterways using lockstations for passage?



**Risk of invasion via lockstations?**







## Findings

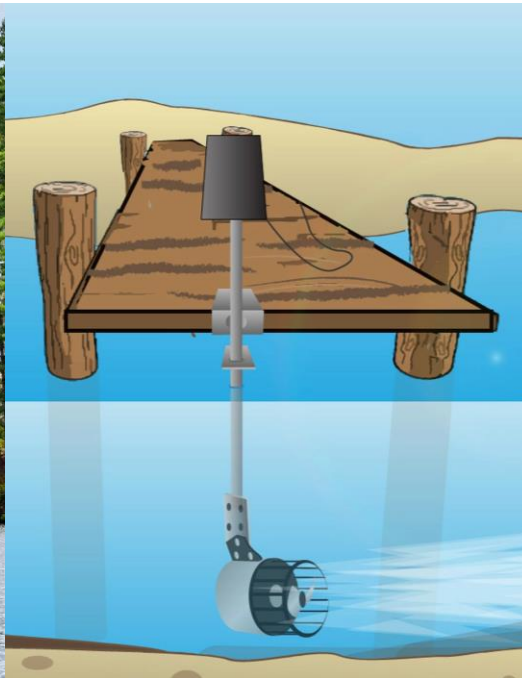
### **American Eel:**

- Low-moderate overall passability at Kingston Mills (10-40/100 fish)

### **Asian Carp:**

- Low-moderate (25-40%) probability of invasion of Planktivorous Asian Carp at Kingston Mills
- Low-moderate (10-40%) probability invasion of Herbivorous Asian Carp at Kingston Mills

**The GOAL of this partnership is to generate usable knowledge to address and mitigate pandemic-related pressures on freshwater ecosystems, which will help ensure that the ecosystem services provided by these aquatic systems remain healthy and managed sustainably.**





- Obj 1: Evaluate the efficacy and environmental impacts of different aquatic-weed removal approaches
- Obj 2: Identify opportunities for making conservation gains related to shoreline alterations through testing of different armouring methods
- Obj 3: Test the impacts of boat wake and wash dynamics on different shoreline habitat and associated biological communities
- Obj 4: Assess how various socioeconomic and psychological factors influence individual behaviour and engagement in lake stewardship and understand how knowledge seeking behaviours relate to understanding of impacts of shoreline changes as well as level of lake stewardship
- Obj 5. Generate evidence syntheses to guide decision making related to aquatic weed control and shoreline development (including erosion controls)





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