



Asian Carp Early Detection Surveillance in the Canadian Waters of the Great Lakes



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Outline

- DFO's Asian Carp Early Detection Surveillance Program
- Traditional Surveillance Gears
- DFO's targeted sampling methods for Grass Carp





DFO's Asian Carp Program - Overview

Program Goal

Protect the integrity of the Great Lakes basin by preventing the introduction (arrival, establishment and spread) of Asian carps.

Program Framework

Multi-discipline approach within **4 Program Pillars**:

1. Prevention	2. Early Warning	3. Response	4. Management
<ul style="list-style-type: none">• Outreach• Research• Risk assessment	<ul style="list-style-type: none">• Surveillance	<ul style="list-style-type: none">• Advice and analysis• Action	<ul style="list-style-type: none">• Regulations• Pathway management



Asian Carps = 4 Species



Grass Carp



Bighead Carp



Silver Carp



Black Carp



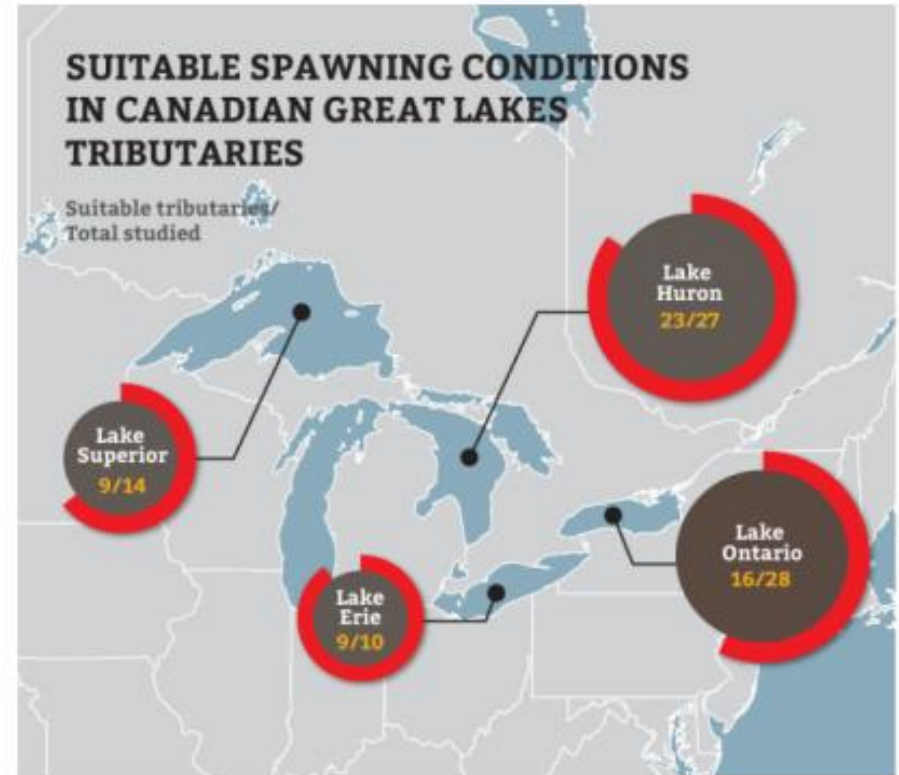
Surveillance Site Selection

- Establish early detection sites in areas at highest risk for arrival and establishment
- Targeted and repeated sampling
- Pre-impact baseline



Surveillance Site Selection

- Started in 2013
- May to November
- 34 locations in lakes Superior, Huron, Erie, Ontario
- Site selection based on modelling of suitable spawning habitat
- Large wetlands included in monitoring





Traditional Gear Surveillance

- Training in Illinois
- Learned from partners to develop sampling protocols





Traditional Gear Surveillance





Traditional Gear Surveillance





Traditional Gear Surveillance

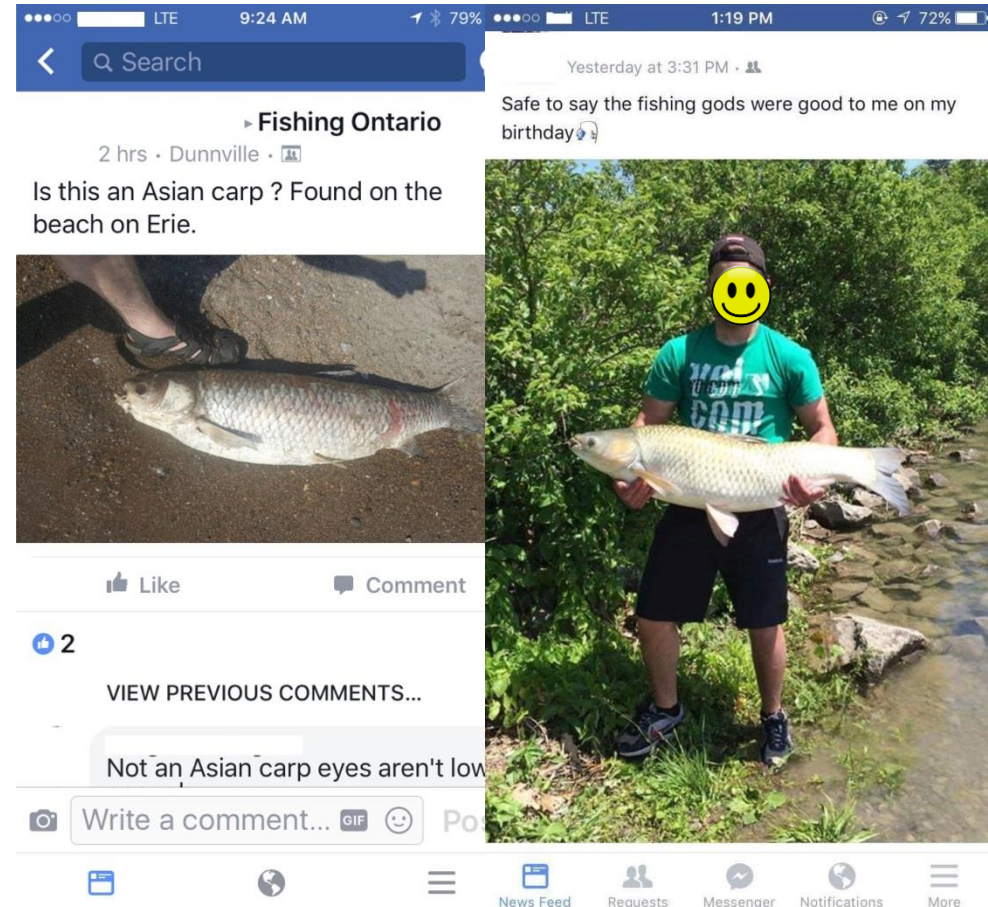
Combined active and passive:

Tied-down **Gill and Trammel Nets** (7.6-10.2 cm bar mesh; 3.1-5.5 m depth tied to 2.4-4.3 m depth; 91-273 m length)



Targeted Grass Carp Sampling

- To date only Grass Carp
- Targeted sampling developed with a focus on GC
- Captures in early detection, commercial fishing, social media reports
- Followed-up with targeted sampling (not response operations)





Targeted Grass Carp Sampling

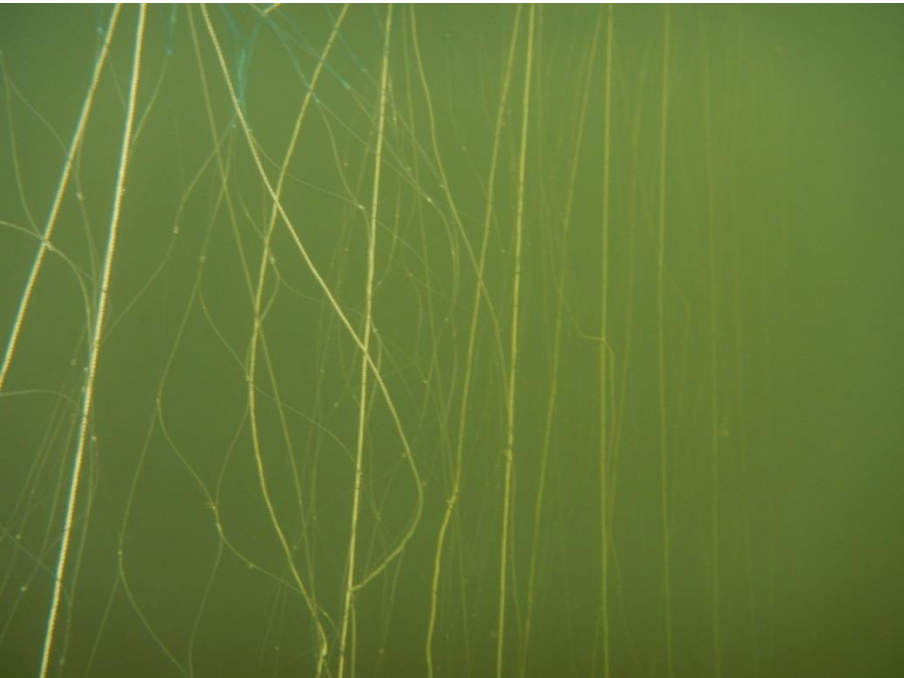
- Identify suitable habitat (heavy cover/structure, logs/woody debris, undercut banks)
- Approach quietly, surround area with trammel net
- Shock outside, then shock inside net – methodically covering area – extra effort in complex habitat/holding cover





Targeted Grass Carp Sampling

- Fish can be chased towards one end or other – pushed into net
- Remove entangled fish (large pier dip-net), leave block net in place





Targeted Grass Carp Sampling

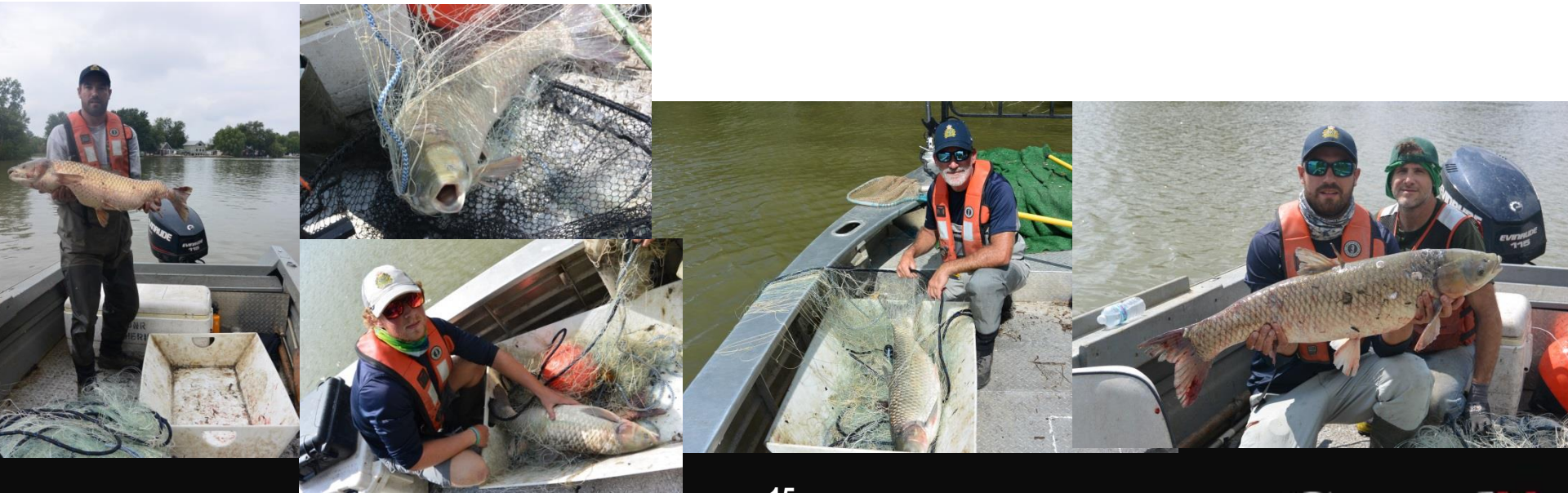
- Targeted sampling – Lake Gibson
- Area of recreational capture determined
- Boat electrofishing/trammel block nets, fyke nets, hoop nets, trap nets
- Day 3 – found adjacent to weed bed and woody debris
- 9/10 fish entangled in trammel net (other captured by efish when pushed into shore)





Targeted Grass Carp Sampling

- Ohio collaborative sampling effort August 2017
- Assess ability to capture Grass Carp
- Targeted sampling: 8 Grass Carp captured in 2 days, 7 entangled in trammel/gill nets, one by boat efish





Targeted Grass Carp Sampling

- Pros/cons - sticky net (fish and debris), two boats, limited to low flow, efishing helps remove fishes before entangled in net, efishing quieter than pounding
- Custom efish boat for netting and Boat electrofishing (24' Henley; dual-boom; 7.5 kW Generator Powered Pulsator)





Thank you!

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