Ontario marbled crayfish update

June 27, 2024

Great Lakes Panel on Aquatic Nuisance Species Meeting

Colin Lake – Ontario Ministry of Natural Resources

Brook Schryer – Ontario Federation of Anglers and Hunters

Ontario

OFAH

thanks to the working group!

Conservation Halton

ONTARIO'S INVADING SPECIES AWARENESS PROGRAM

CITY OF Burlington

OFAH

Ontario

Fisheries and Oceans Canada
Pêches et Océans Canada

Dr. Přemek Hamr

background

- *Procambarus virginalis*
  - marbled crayfish, or marmorkrebs
- first appeared in the pet trade in Germany in the mid 1990s
- thought to be derived from a closely-related North American crayfish (*P. fallax*)
- marbled crayfish are triploid, are all female, and reproduce parthenogenetically (clone)
- 7.5-13 cm long

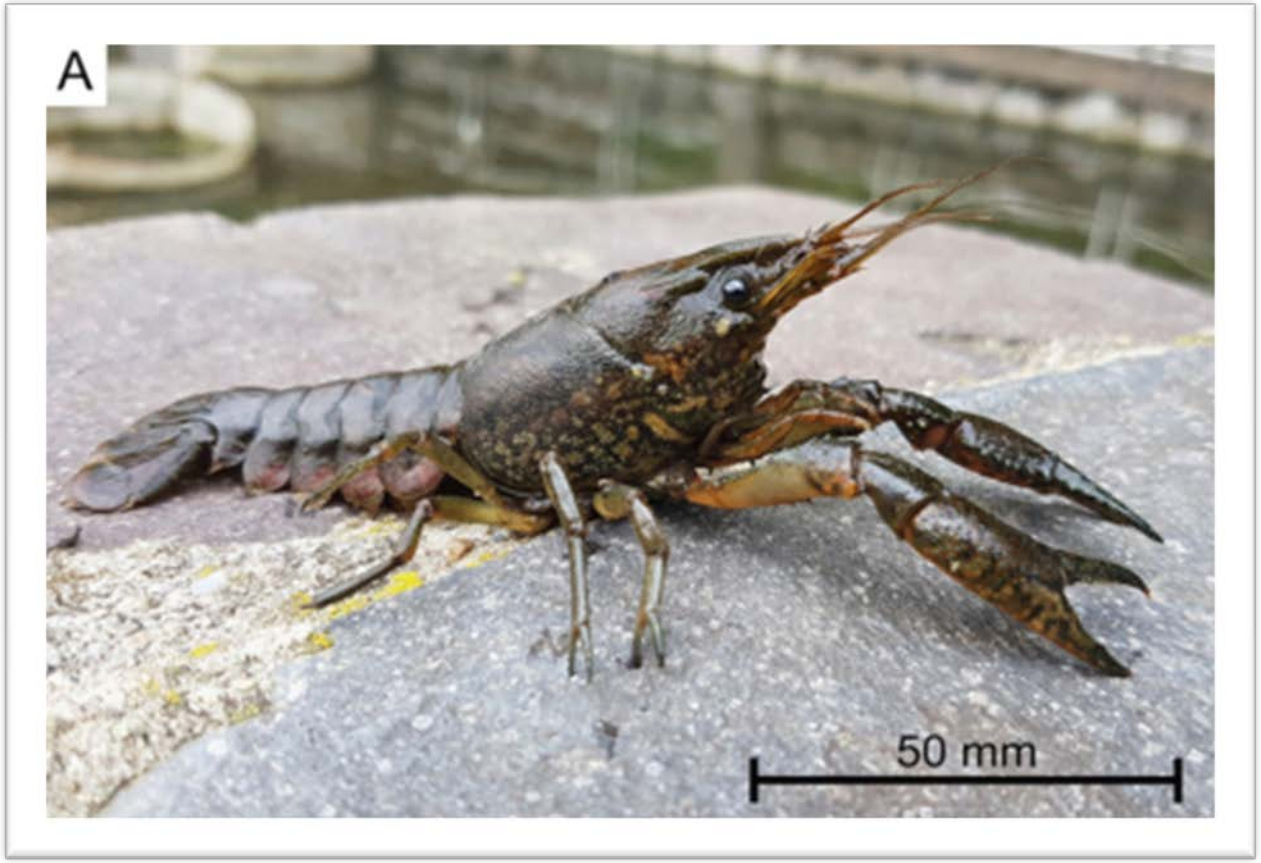
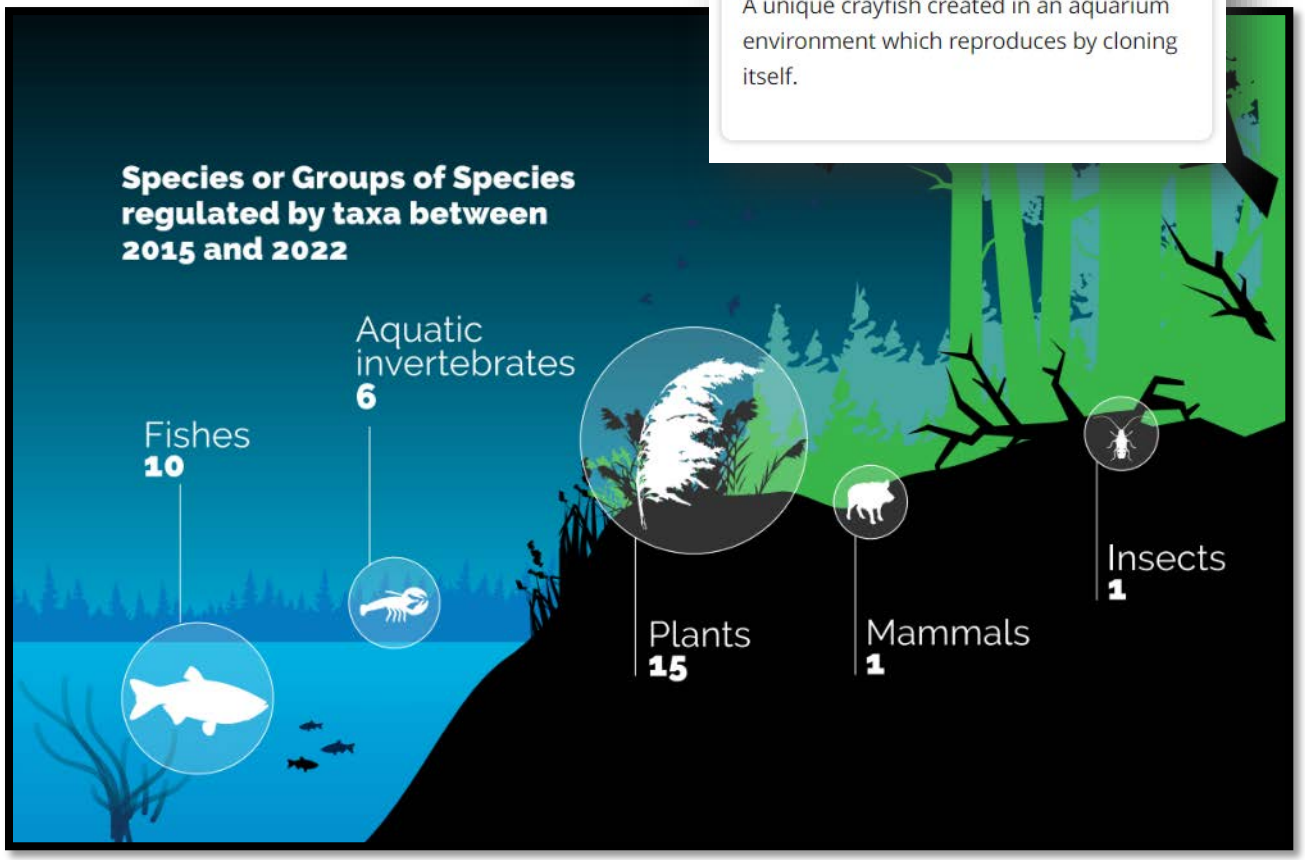


image from: Pârvulescu et al., 2017.

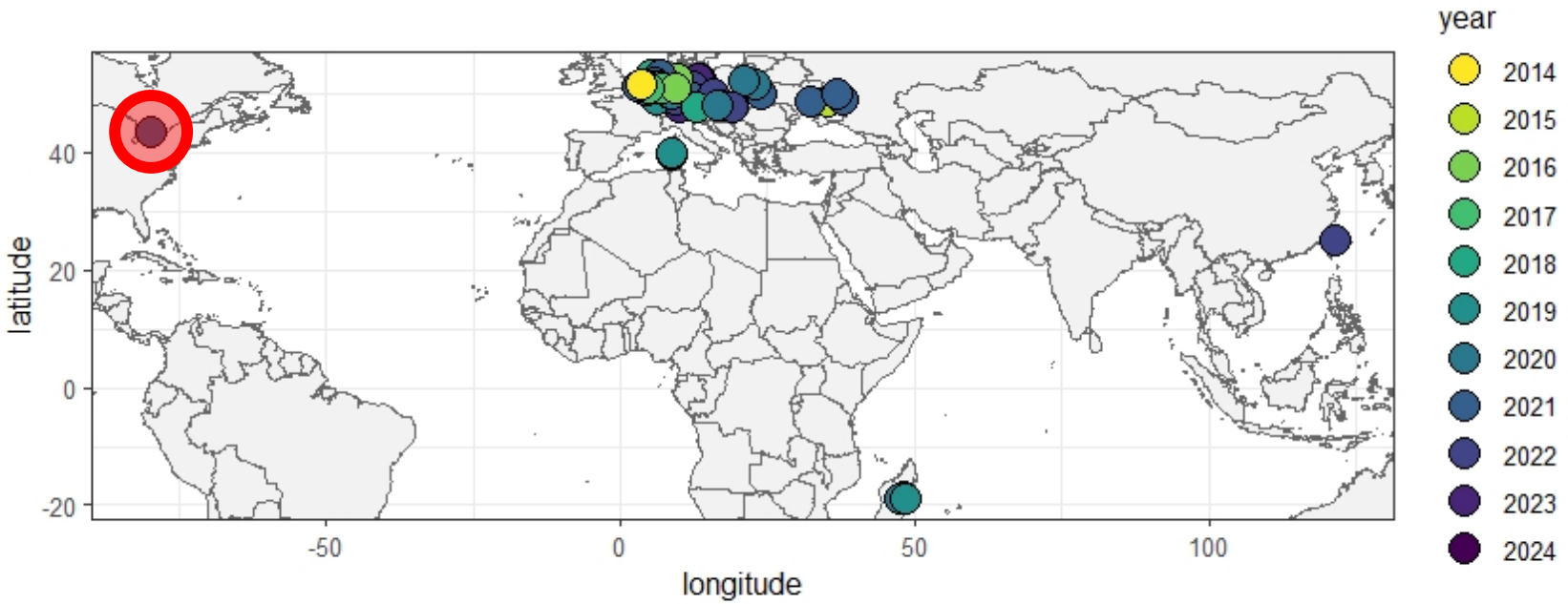
legislation

- Ontario's Invasive Species Act (2015)
- two classes of invasive species regulated under the act: **prohibited** and **restricted**.
- illegal to import, possess, deposit, release, transport, breed/grow, buy, sell, lease or trade prohibited invasive species.
- *P. virginalis* was listed as **prohibited** under the ISA in 2022; the entire Genus was prohibited in January 2024.



distribution

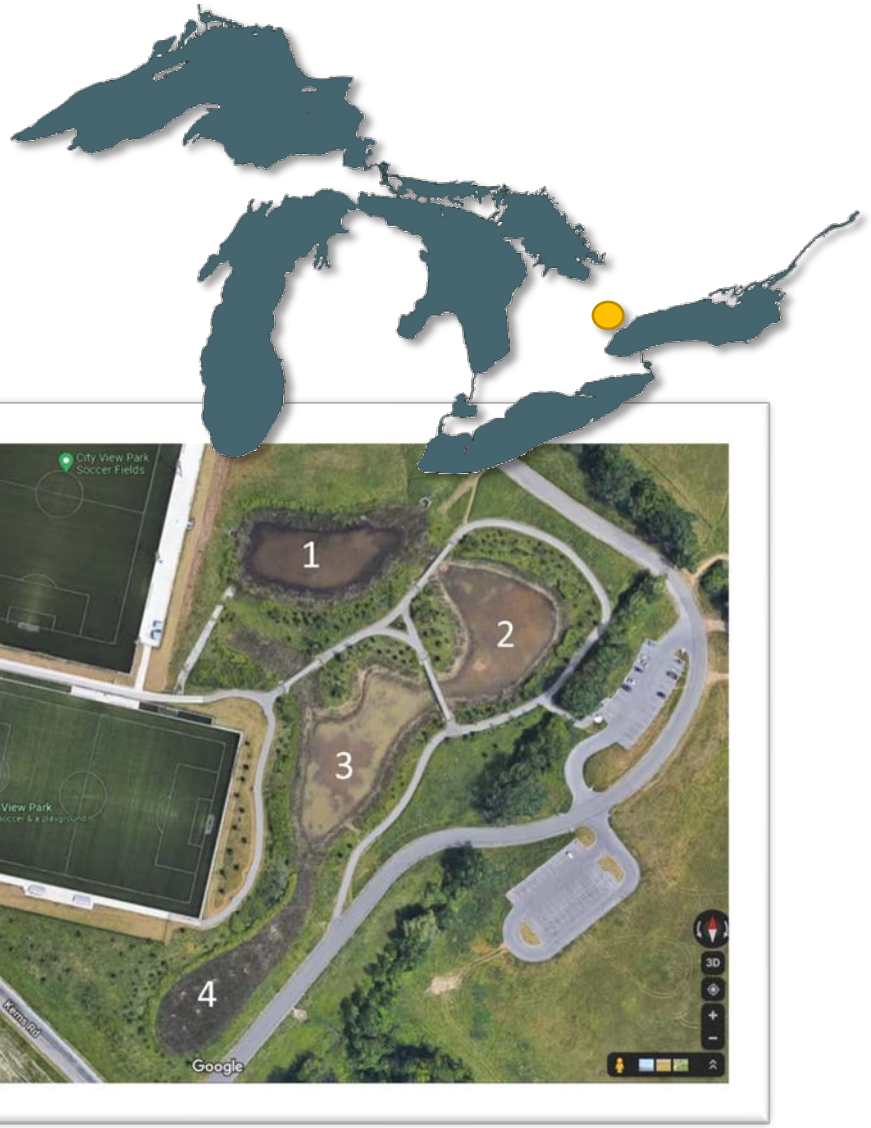
- found in the wild in Germany in 2003
- introduced to Madagascar in ~2005 (id in 2007)
- Japan 2006; Israel 2018
- popular in the pet trade; unregulated movement in early days
- many observations in Europe
- first reported in NA (Burlington, Ontario) in 2021

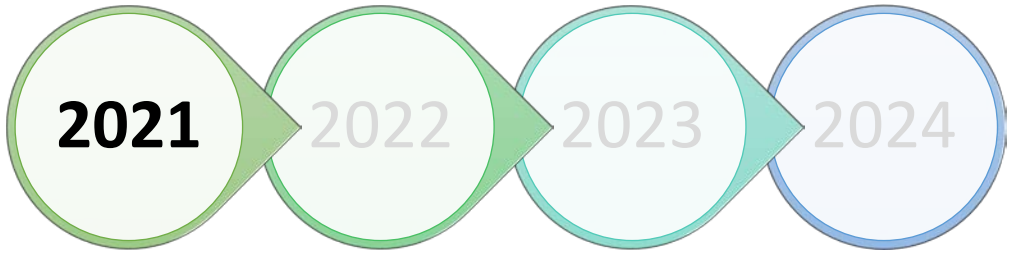


GBIF.org (20 June 2024) GBIF Occurrence Download https://doi.org/10.15468/dl.z3d8ts

Ontario observation

- 2021 (fall): crayfish found in Burlington (City View Park) containing a small network of stormwater control ponds.
- Not connected to any tributaries or Lake Ontario
- Was initially incorrectly identified in iNaturalist
- early outreach to academia – Dr. Přemek Hamr (aka Dr. Crayfish)

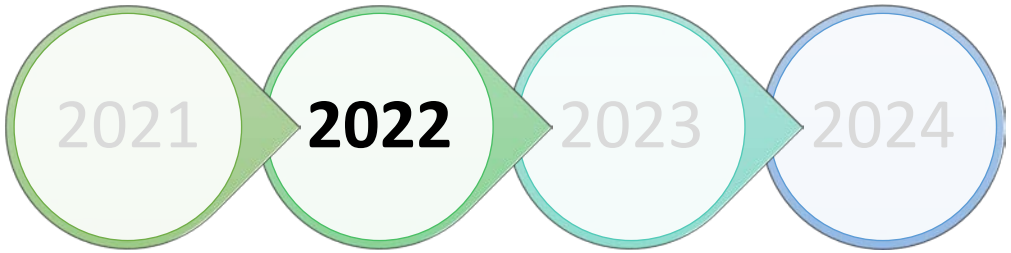




Ontario observation

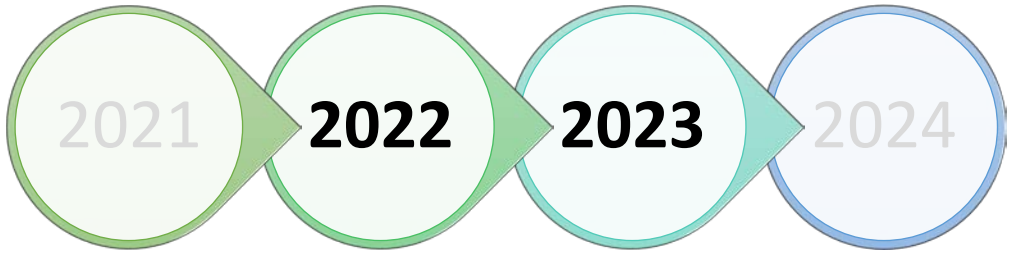
- Photo from October 2021 observation positively identified in 2022
- 2022 (spring): efforts made to collect specimens (none found)
- 2022 (Aug): eDNA sampling – weak detections, but still no individuals captured

Photo 164567482, (c) Nicole Bucik. October 17, 2021
https://www.inaturalist.org/observations/98794697



water draw-down

- 2022 - 2023 (winter): contractor retained by the City of Burlington
- water drained and pumped to lower the water level
- less insulation for the crayfish; want to allow the substrate to freeze
- temps should ensure crayfish are less mobile



more observations

- 2023 (July): crayfish captured – including juveniles
- Oct – eDNA, e-fishing, passive and active netting. n=25 captured
- sampling done at other nearby locations – <u>none captured</u>

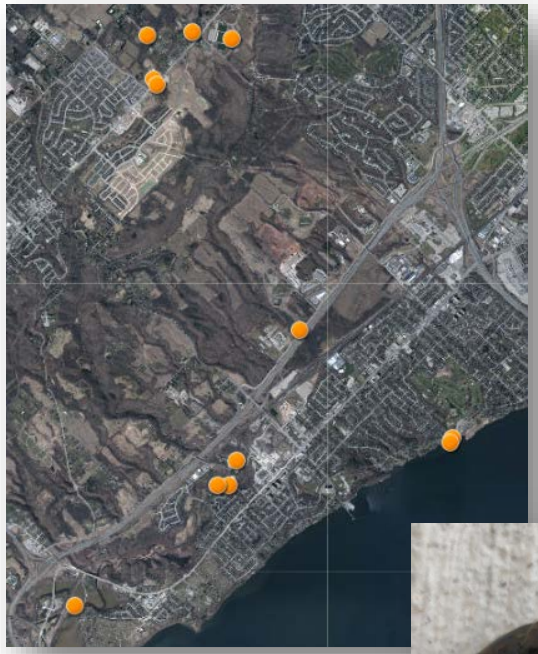
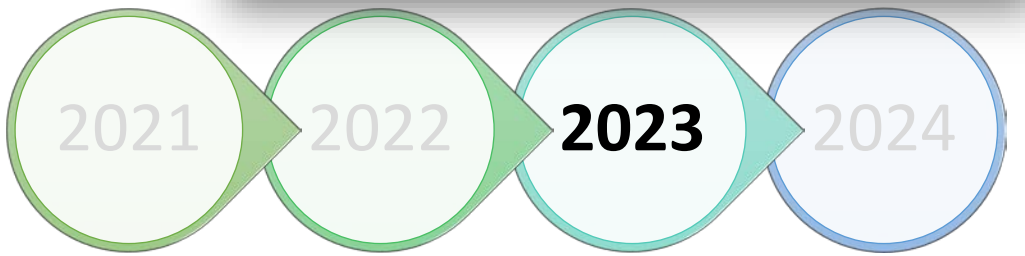
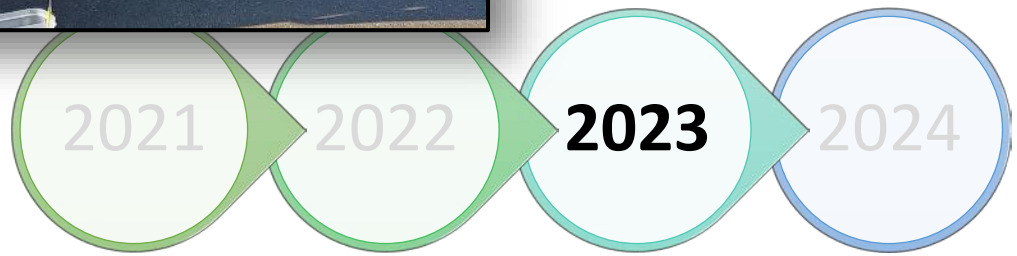


Photo 306105690, (c) Dr. Přemek Hamr. July 26, 2023
https://uk.inaturalist.org/observations/176093003



October Surveillance Efforts

- October 24 & 25
- Halltech OSMOS eDNA sampler
- Areas:
  - Novak Pond
  - Falcon Creek
  - Grindstone Creek
  - City View Ponds
- City View still only place where both animals caught and +ve eDNA

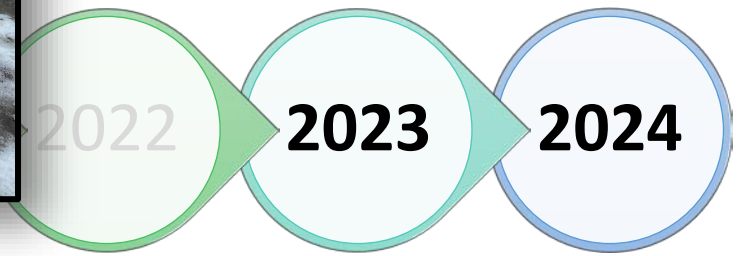


water draw-down

- **Dec 2023 -** water drained and pumped to lower the water level
- n = 54 crayfish collected
- low water levels maintained through pumping until mid **Jan 2024**
- short window of cold weather
- it did warm up (rain)
- ponds started to fill up
- done again in mid **Feb 2024**
- would like lower temperatures for longer duration

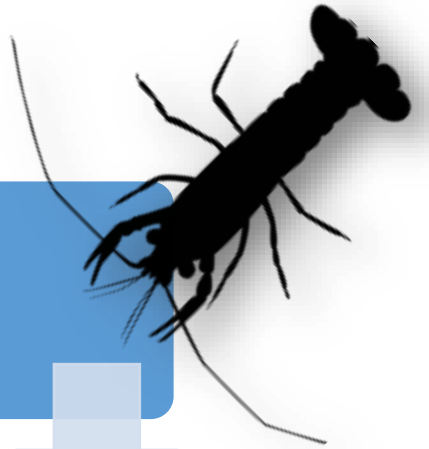
Dec 2023

Jan 2024



current activities

- regular trapping occurring
- collaboration with academia
- investigating potential use of chemical control
- new eDNA survey done in early June (no data yet)



2021 first obs.

2022 ID confirmed eDNA +ve

draw-down

2023 sampling & monitoring

draw-down

2024 draw-down, sampling & monitoring

priorities

- ongoing monitoring
- better understanding of life history
- define the boundaries of this population
- limit/prevent spread
- continue to work on control methods
- outreach and communication

photos: DFO

MONITORING & REPORTING

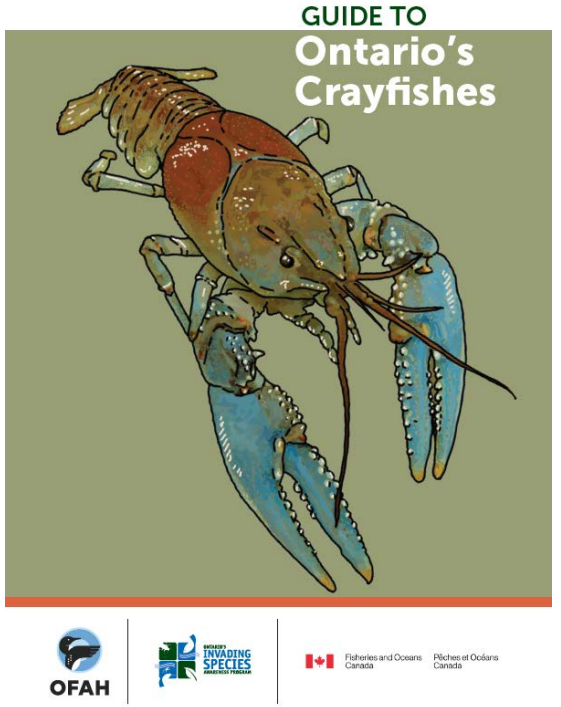
PROVIDE TRACKING

EDUCATION & OUTREACH

ONTARIO'S INVADING SPECIES AWARENESS PROGRAM

EDDMapS find · map · track

iNaturalist



Facilitate monitoring and early detection initiatives. Est 1992.

Added to EDDMapS and Invasive Species in Ontario Project

Through funding from DFO

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