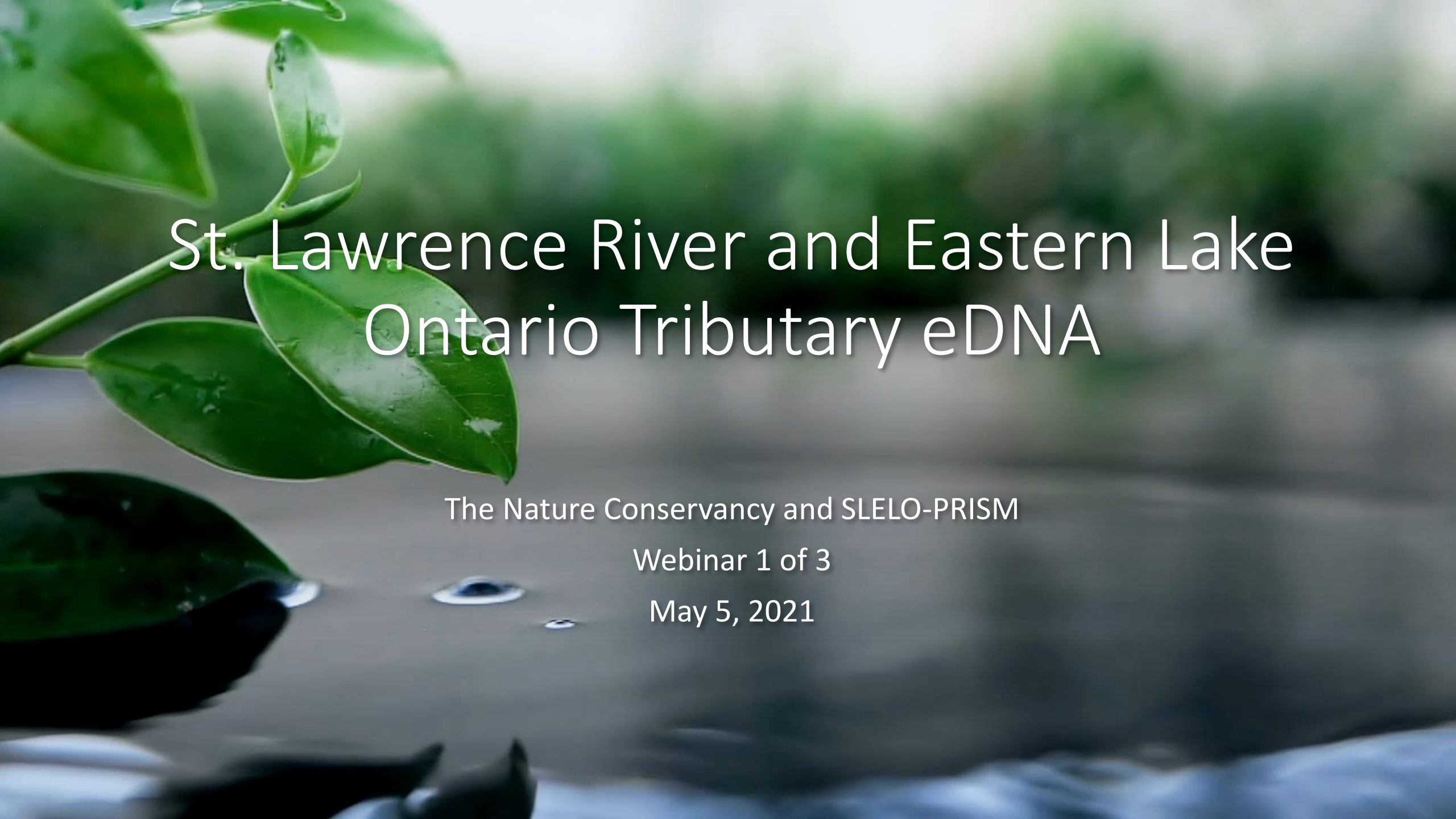
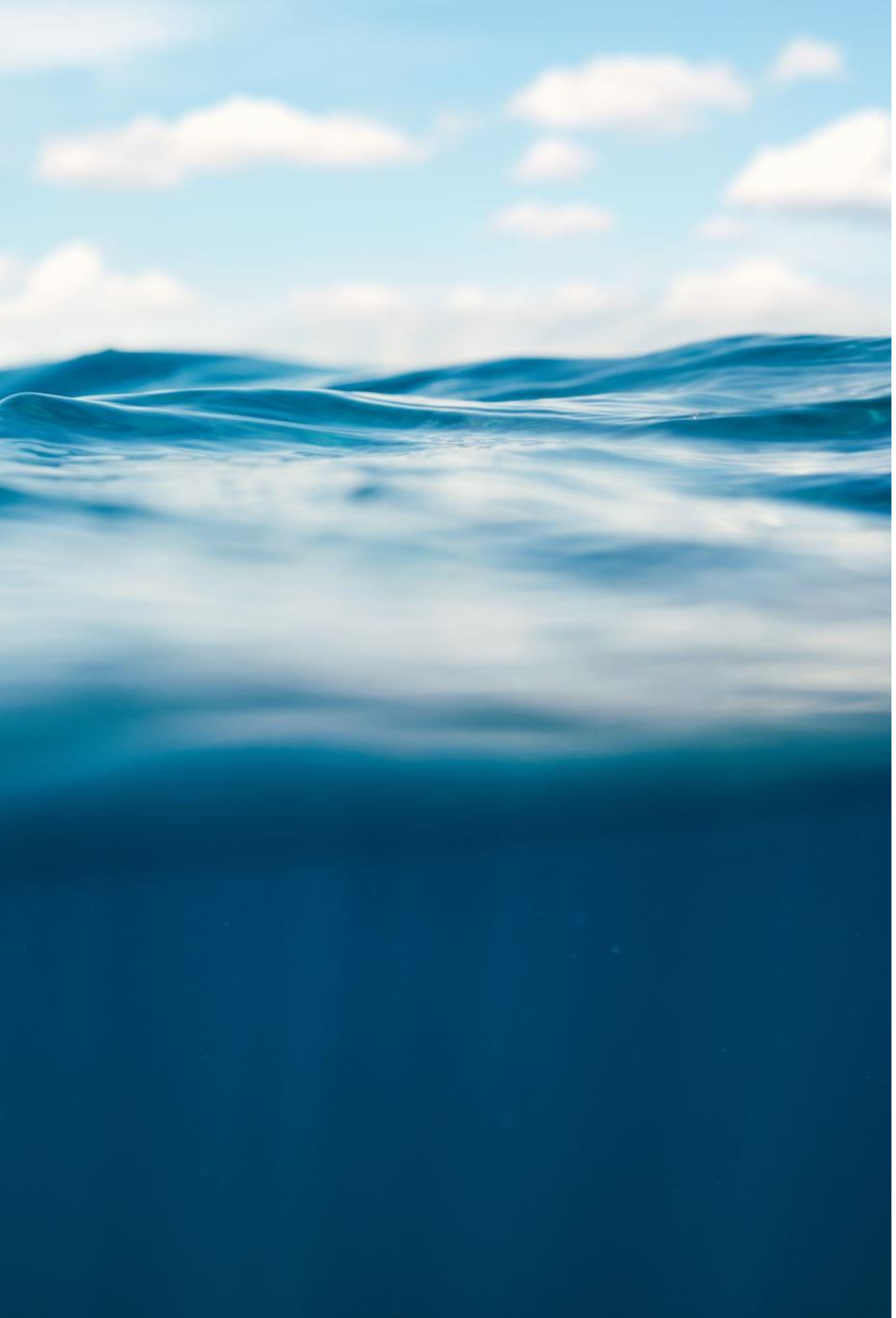


St. Lawrence River and Eastern Lake Ontario Tributary eDNA

The Nature Conservancy and SLELO-PRISM

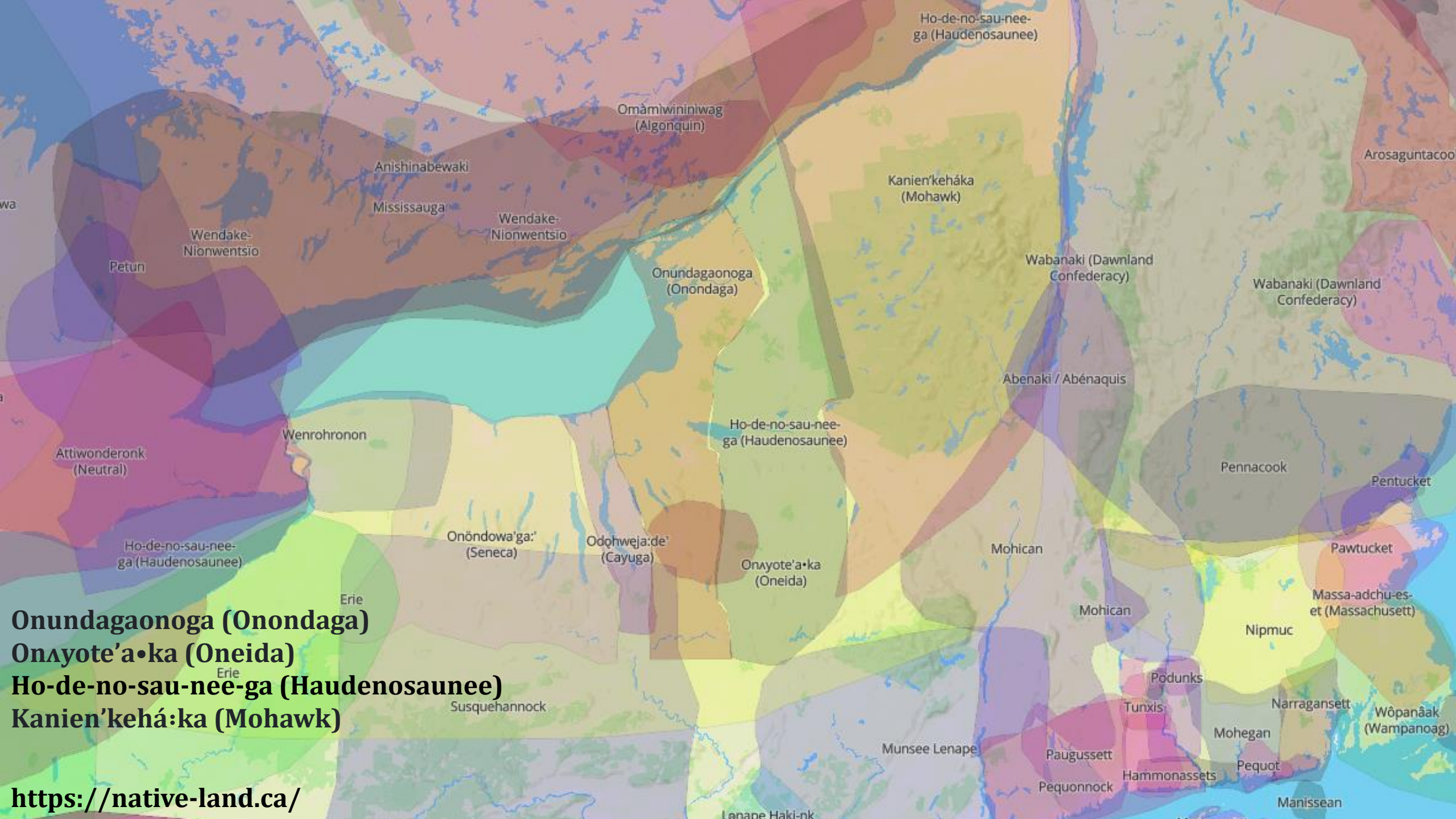
Webinar 1 of 3

May 5, 2021



Presentation Outline

- Who are we?
  - The Nature Conservancy
  - St Lawrence Eastern Lake Ontario – Partnership for Regional Invasive Species Management (SLELO-PRISM)
- Project Overview
- Learn about our funder – the Arconic Foundation
- Q&A



Onundagaonoga (Onondaga)
Onʌyote'a•ka (Oneida)
Ho-de-no-sau-nee-ga (Haudenosaunee)
Kanien'kehá꞉ka (Mohawk)

https://native-land.ca/

The Nature Conservancy

Our mission is to conserve the lands and waters on which all life depends.

Our vision is a world where the diversity of life thrives, and people act to conserve nature for its own sake and its ability to fulfill our needs and enrich our lives.

Our Priorities

We are focusing on these key areas in order to achieve our ambitious mission.

Tackle Climate Change

Protect Land & Water

Provide Food & Water Sustainably

Build Healthy Cities

The Nature Conservancy
New York

NYS Volunteer Programs

Volunteer programs across NYS that utilize efficient statewide services, ensure that team members and volunteers have meaningful experiences and advance the work of The Nature Conservancy.

NYS Volunteer Programs Team

Mary Ripka - NYS Volunteer Programs Manager

Becca Kusa - Volunteer Coordinator, Mashomack Preserve

Nydra Moore - Volunteer Coordinator, NYC

Marianela Jimenez - Volunteer Coordinator, LI

Brian Straniti - Volunteer Coordinator, ENY

Beth Pelkey - Volunteer Coordinator, ADK

Great Lakes Sustainable Fisheries

Why Great Lakes Fisheries?

Fisheries Project Partnerships

State Agencies

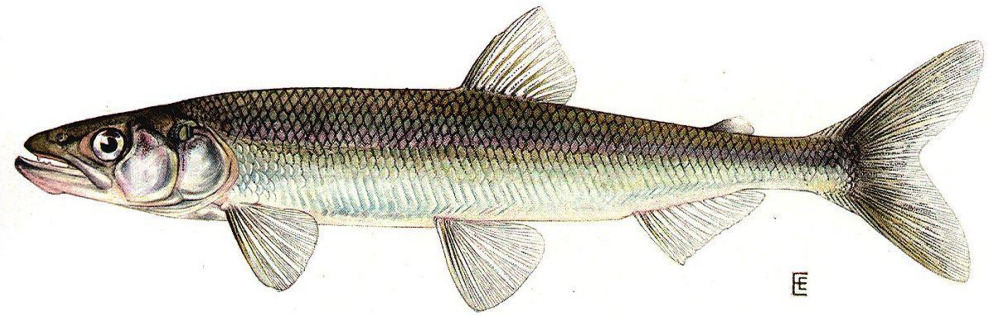
Fisheries Agencies

Binational/Federal Agencies

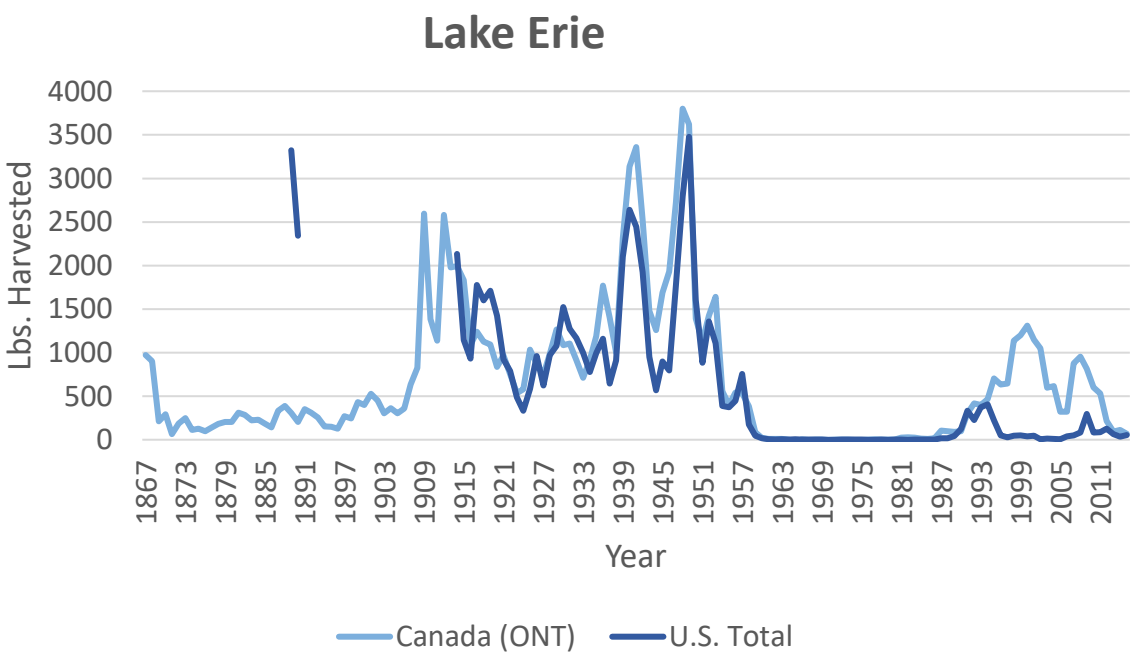
Universities

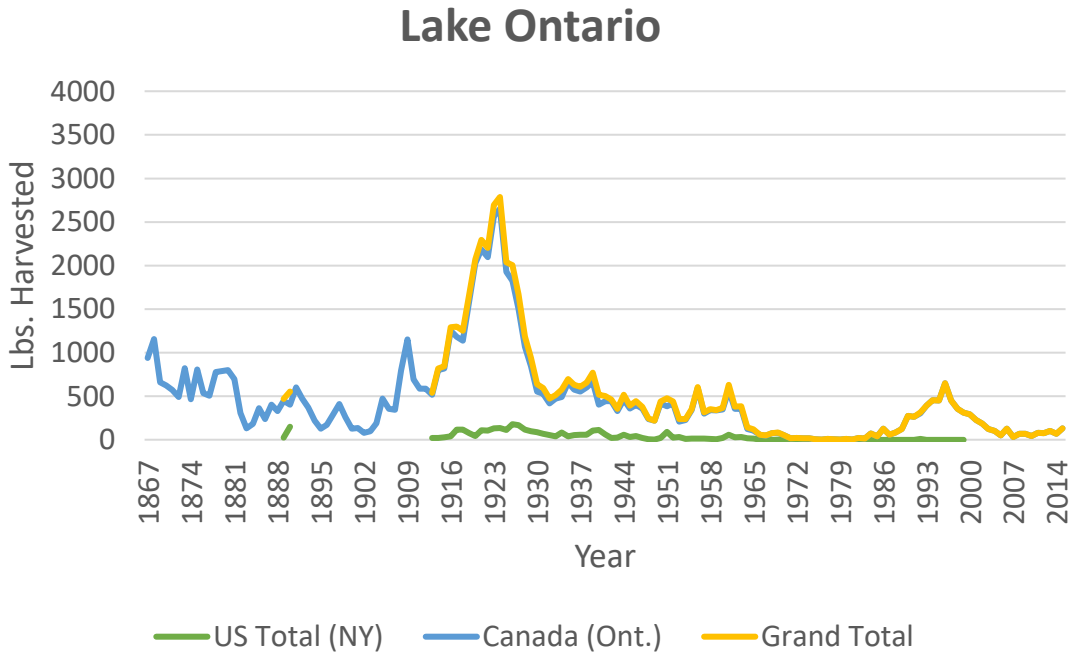
Focus on Forage: Cisco and Lake Whitefish


ARL BESS

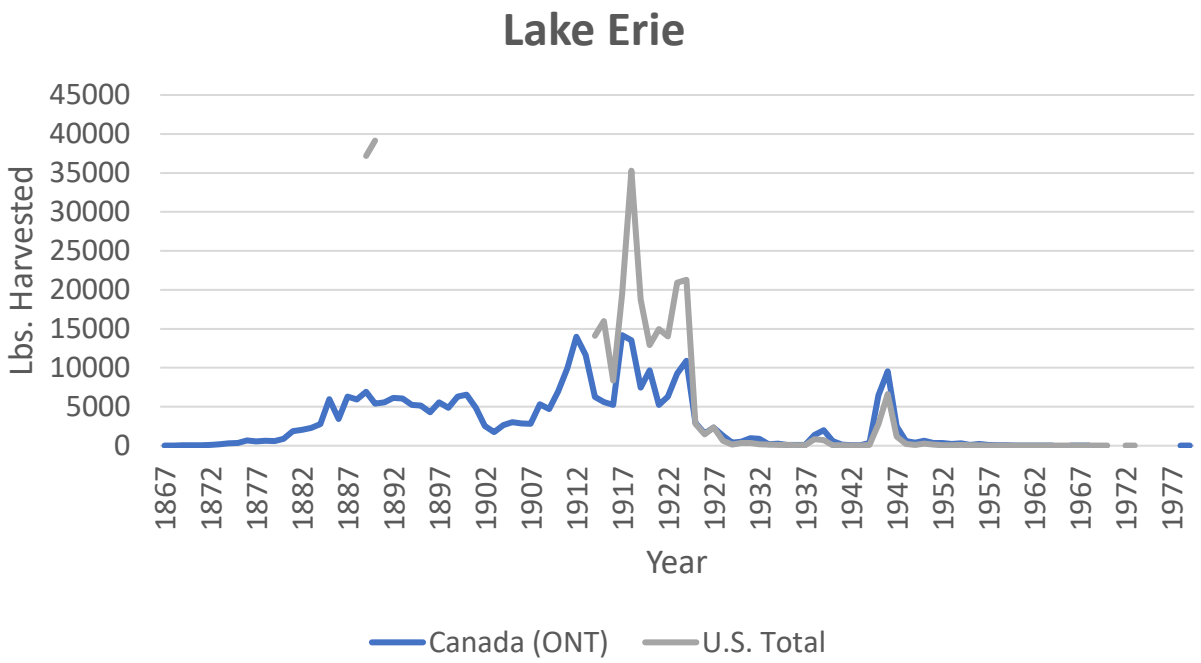


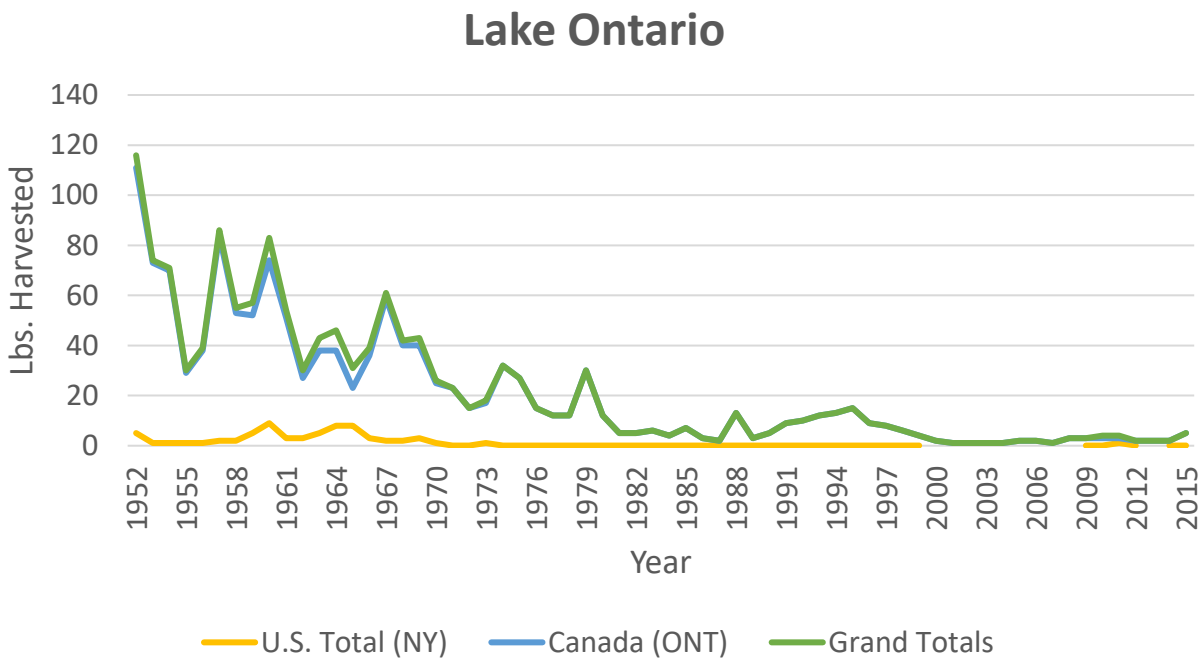
Commercial Harvest – Lake Whitefish





Commercial Harvest – Cisco





What does this have to do with tributaries?

Journal of Great Lakes Research xxx (xxxx) xxx

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Recolonization of lake whitefish river spawning ecotypes and estimates of riverine larval production in Green Bay, Lake Michigan

Andrew L. Ransom [a], Christopher J. Houghton [a], S. Dale Hanson [b], Scott P. Hansen [c], Lydia R. Doerr [a], Patrick S. Forsythe [a,*]

[a] University of Wisconsin-Green Bay, Department of Natural and Applied Sciences, 2420 Nicolet Drive, Green Bay, WI 54311, United States
[b] U.S. Fish and Wildlife Service, Green Bay Fish and Wildlife Conservation Office, 2661 Scott Tower Drive, New Franken, WI 54229, United States
[c] Wisconsin Department of Natural Resources, Bureau of Fisheries Management, 110 S Neenah Ave, Sturgeon Bay, WI 54235, United States

ARTICLE INFO

ABSTRACT

As only one spawning population has been extensively studied for habitat choice (Chaumont Bay), more research is needed on spawning habitat and behavior in other Lake Ontario populations. The contemporary spawning locations and habitats of the Bay of Quinte population is largely unknown. Also, the existence of other ecomorphs and spawning strategies in other lakes (e.g., lakes Michigan and Superior) brings into question whether there may be other spawning strategies present in Lake Ontario as well.

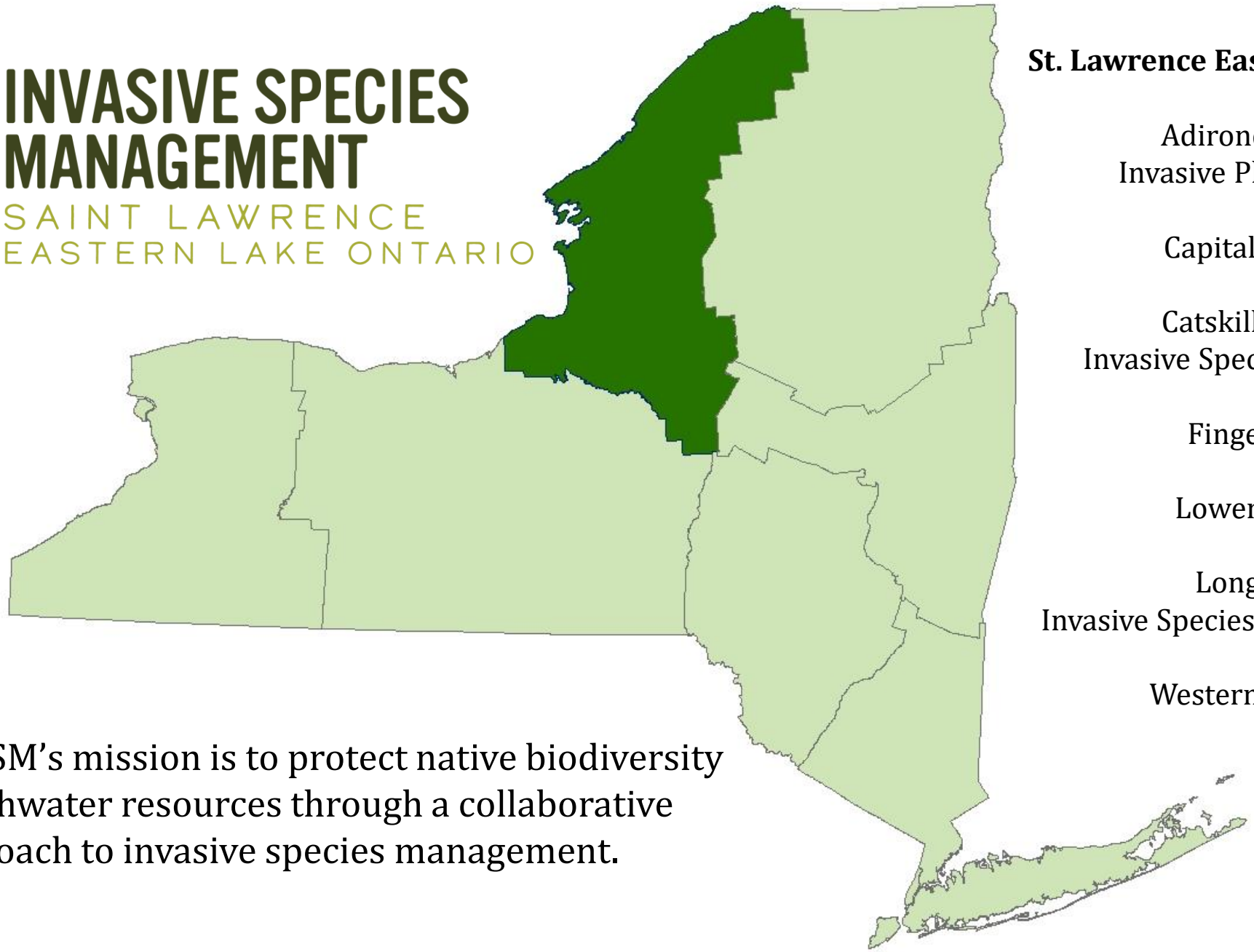
From: Identifying Research Priorities for Cisco in Lake Ontario: A Workshop Summary Report (2018)

INVASIVE SPECIES MANAGEMENT

SAINT LAWRENCE
EASTERN LAKE ONTARIO

INVASIVE SPECIES MANAGEMENT

SAINT LAWRENCE
EASTERN LAKE ONTARIO



St. Lawrence Eastern Lake Ontario

Adirondack Park
Invasive Plant Program

Capital-Mohawk

Catskill Regional
Invasive Species Partnership

Finger Lakes

Lower Hudson

Long Island
Invasive Species Management Area

Western New York

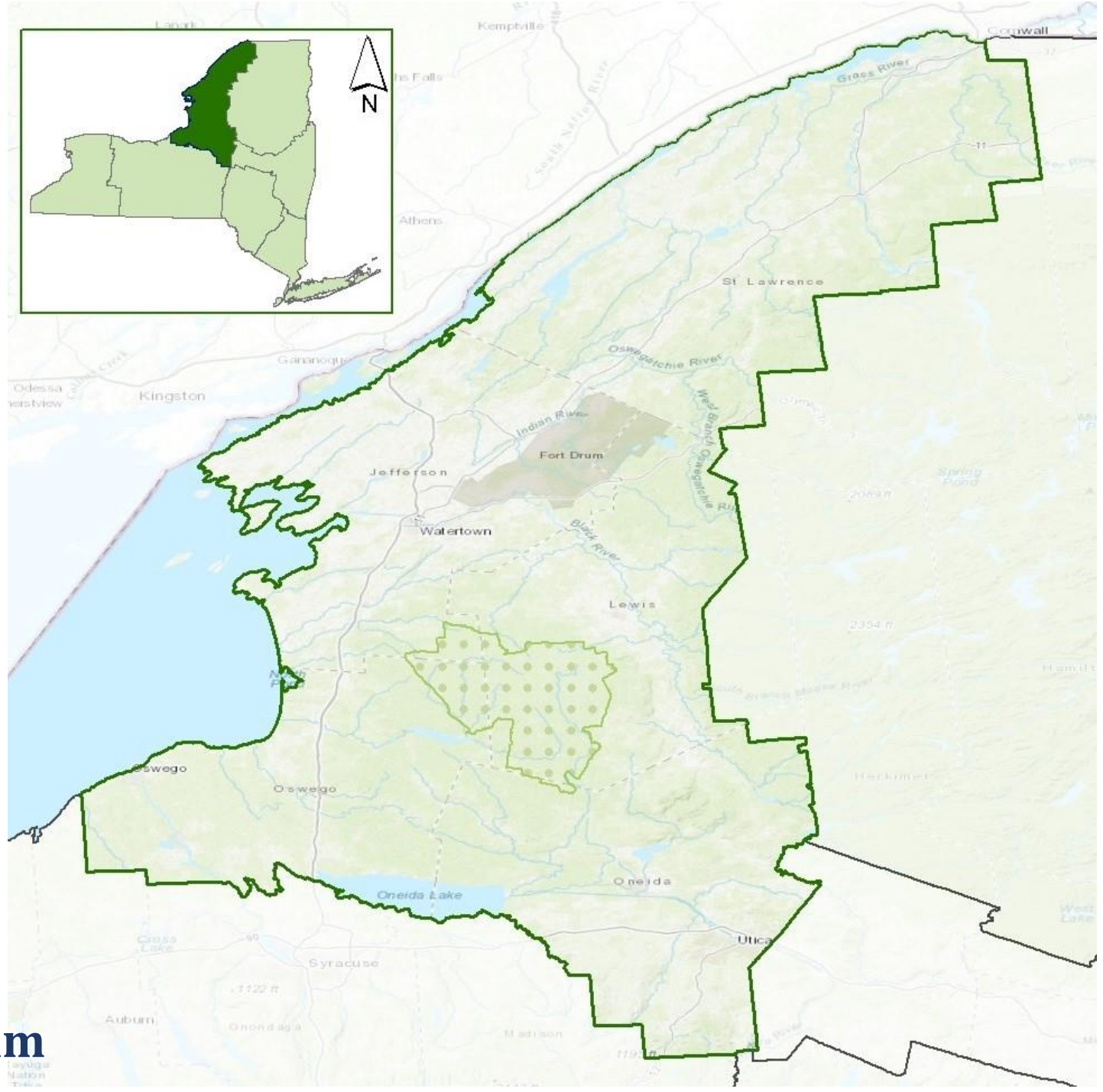
SLELO PRISM's mission is to protect native biodiversity and freshwater resources through a collaborative approach to invasive species management.

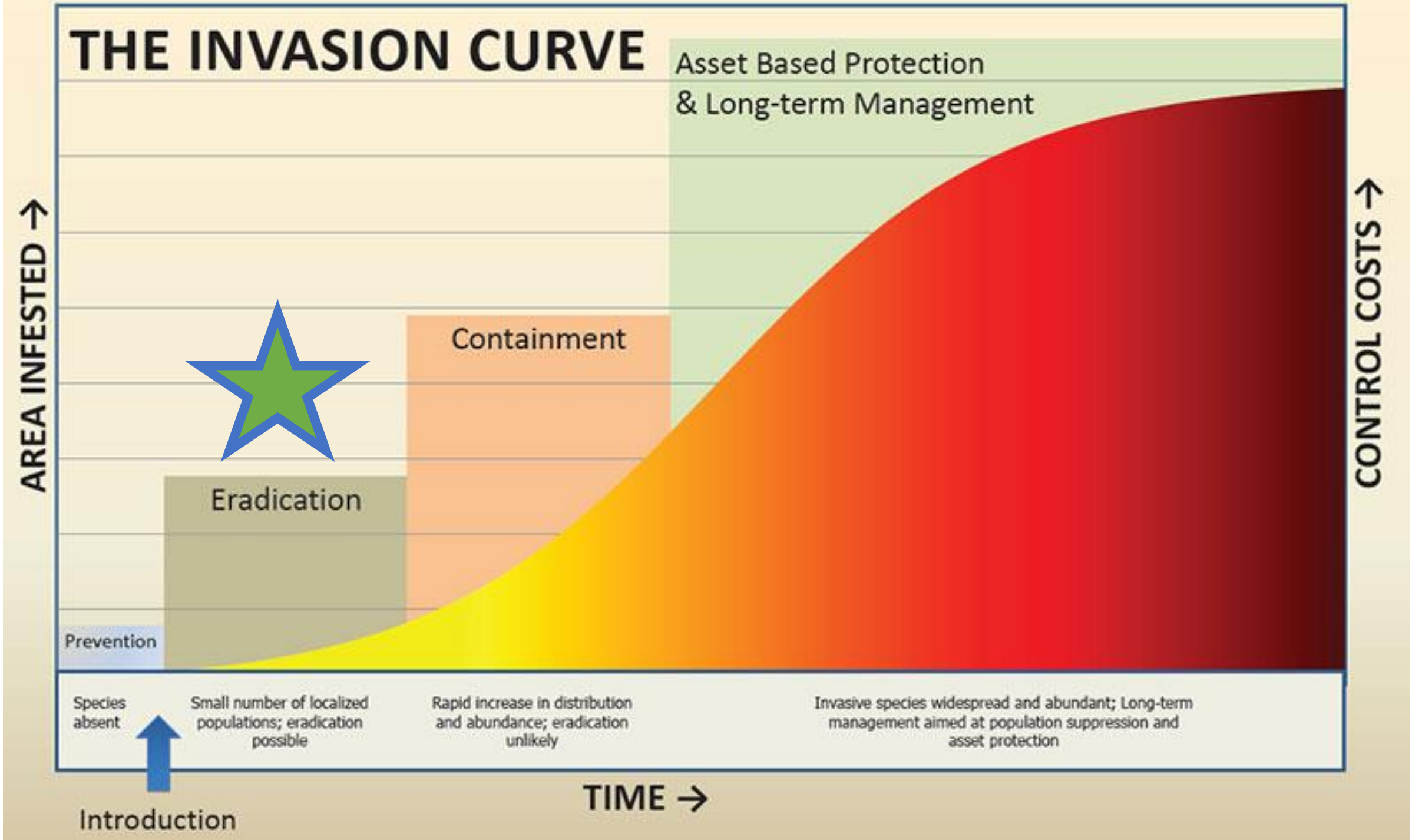
Core Programming

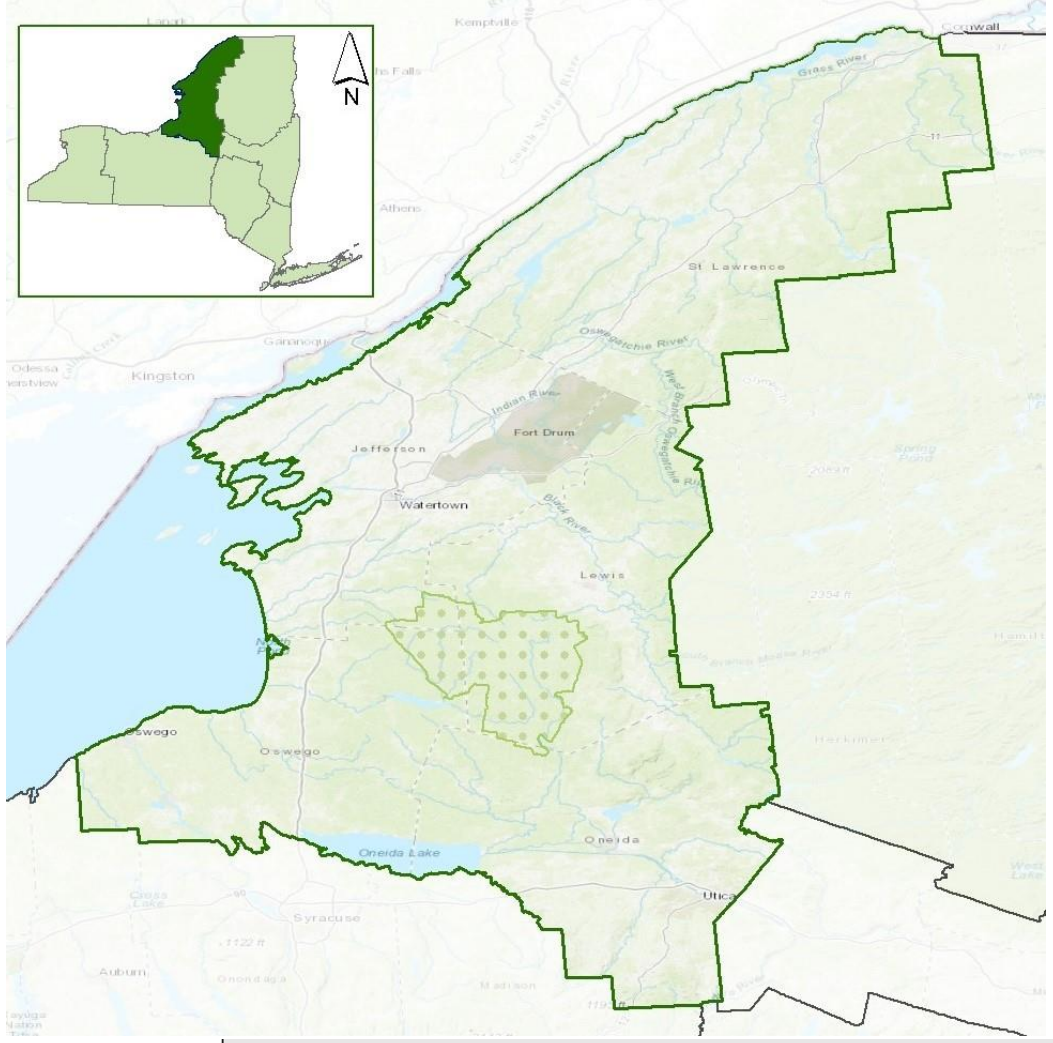
Prevention
Early Detection
Rapid Response
Management and Control
Education and Outreach

Special Initiatives

AIS Macrophyte Nutrient Analysis
Aquatic Restoration Initiative
Black River Trail
Environmental DNA Monitoring
Pollinator Pathway
Spotted Lanternfly Spotters
Tug Hill Forest Restoration
Urban Forest Sustainability Initiative
Watercraft Inspection Steward Program




THE INVASION CURVE
Asset Based Protection
& Long-term Management
Containment
Eradication
Prevention
AREA INFESTED →
CONTROL COSTS →
Species absent
Small number of localized populations; eradication possible
Rapid increase in distribution and abundance; eradication unlikely
Invasive species widespread and abundant; Long-term management aimed at population suppression and asset protection
Introduction
TIME →



Our formal process/criteria for nominating a PCA includes:

1. The site must be sponsored by a SLELO partner -*not owned by*
2. The site must have uniqueness or ecological importance such as unique habitat, grassland, Alvar, wetland, dune, freshwater spawning area, fen, bog, etc.
3. The site "should be" host to a rare, threatened or endangered species.
4. We do not provide resources or work on private property unless it is part of a larger conservation project or effort, e.g., *Salmon River Initiative*
5. Site info is then presented by the sponsor to the SLELO partnership for consideration.

Species of Concern

Target Species
- Black & Pale Swallow-wort
- Emerald Ash Borer
- Eurasian Water Milfoil
- European Frog-bit
- Giant Hogweed
- Glossy Buckthorn
- Hemimysis
- Japanese Knotweed
- Japanese Stilt Grass
- Leafy Spurge
- Phragmites
- Purple Loosestrife
- Water Chestnut
- Wild Chervil

Prevention Watch-List Species
- Asian Carp
- Asian Clam
- Asian Jumping Worm
- Asian Long-horned Beetle
- Fanwort
- Feral Swine
- Hemlock Woolly Adelgid
- Hydrilla
- Kudzu (Vine)
- Mile-a-Minute Vine
- New Zealand Mud Snail
- Porcelain Berry
- Rock Snot (didymo)
- Rusty Crayfish
- Spotted Lanternfly
- Tench
- Water Soldier

General Invasive Species List
- Japanese Honeysuckle
- Leek Moth
- Round Goby
- Sirex Woodwasp
- Spring Viraemia
- Spiny Waterflea
- Spotted Knapweed
- Viral Hemorrhagic Septicemia
- White Nose Syndrome
- Zebra Mussel & Quagga Mussel

Notable Native Species
- Blanding's Turtle
- Bog Buckmoth
- Green Pitcher Plant
- Hellbender
- Magnificent Bryozoan
- Piping Plover
- Prairie Smoke
- Ram's Head Lady's Slipper

		Difficulty of Eradication/Cost of Control Abundance (In PRISM plus Buffer)				
		None in PRISM	**Low** (Eradication/Full containment may be feasible)	**Medium** (Strategic management to contain infestations and slow spread in PRISM)	**High** (Established/widespread in PRISM; only strategic localized management)	**N/A**
Impact (current and future)	**Very High or High**	Tier 1 *Early Detection/Prevention* Not in Prism, but within 100 mile buffer or introduction pathway exists. Highest level of early detection survey efforts.	Tier 2 *Eradication* Present in Prism, but at low abundance with suitable treatment methods available to make eradication feasible within Priority Conservation Areas (PCA's).	Tier 3 *Suppression* Too widespread for eradication from PRISM, but some areas remain unaffected. Targeted management to suppress the population within Priority Conservation Areas (PCA's).	Tier 4 *Local Control* Present and widespread throughout PRISM with no chance of eradication. Localized management applied to protect high priority resources like rare plant or recreation assets.	Tier 5 *Monitor* Species that may or may not be in PRISM but are difficult to respond to or that require more knowledge of.

	Difficulty of Eradication/Cost of Control Abundance (In PRISM plus Buffer)				
	Low None in PRISM	Medium (Eradication/Full containment may be feasible)	Medium (Strategic management to contain infestations and slow spread in PRISM)	High (Established/widespread in PRISM; only strategic localized management)	N/A
Impact Very High or High	Tier 1 *Early Detection/Prevention* Not in Prism, but within 100 mile buffer or introduction pathway exists. Highest level of early detection survey efforts.	Tier 2 *Eradication* Present in Prism, but at low abundance with suitable treatment methods available to make eradication feasible within Priority Conservation Areas (PCA's).	Tier 3 *Suppression* Too widespread for eradication from PRISM, but some areas remain unaffected. Targeted management to suppress the population within Priority Conservation Areas (PCA's).	Tier 4 *Local Control* Present and widespread throughout PRISM with no chance of eradication. Localized management applied to protect high priority resources like rare plant or recreation assets.	Tier 5 *Monitor* Species that may or may not be in PRISM but are difficult to respond to or that require more knowledge of.

Asian Jumping Worm
Asian Long Horned Beetle
Silver, Big Head, Black, and Grass Carp Species
Hydrilla
Kudzu
Mile-A-Minute Vine
Slender False Brome
Spotted lanternfly
Water Lettuce
Water Hyacinth
Water Soldier

Asian Clam
Fanwort
Giant Hogweed
Hemimysis
Hemlock Woolly Adelgid
Porcelainberry
Spiny Water Flea
Tench

Black & Pale Swallow-wort
Japanese Knotweed
Japanese Stiltgrass
Oriental Bittersweet
Phragmites/Common Reed
Rusty Crayfish
Starry Stonewort
Tree-of-Heaven
Water Chestnut
Wild Chervil
Yellow Iris

Common Buckthorn
Curly Leaf Pondweed
Emerald Ash Borer
Eurasian Water Milfoil
European Frogbit
Feral Swine
Glossy Buckthorn
Leafy Spurge
Purple Loosestrife
Round Goby
Spotted Knapweed
Wild Parsnip
Zebra/Quagga Mussel

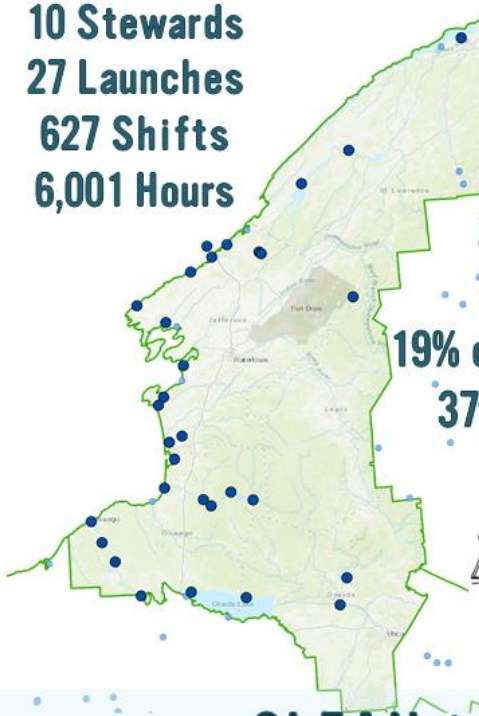
LEGEND:

- Insects
- Aquatic Species
- Mammals
- Woody Plants
- Graminoids
- Forbs
- Vines
- Subterranean

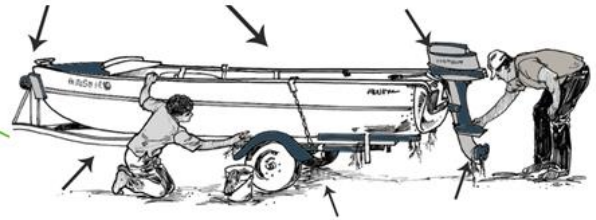
Watercraft Inspection Steward Program
Co-administered by SLELO PRISM and TILT

2020 SLELO PRISM - TILT Watercraft Inspection Steward Program

10 Stewards
27 Launches
627 Shifts
6,001 Hours



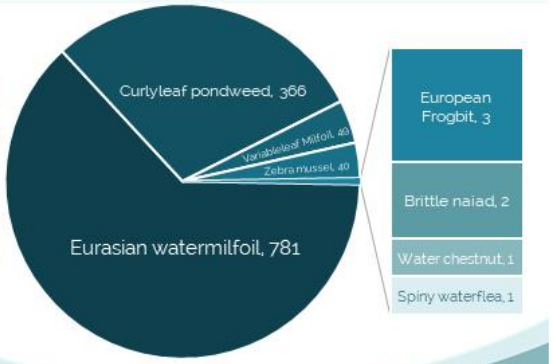
27,375 People Encountered
95.6% Boater Participation
19% of Boats registered outside NY
37 State and Province Visitors



CLEAN + DRAIN + DRY

PROTECTING OUR WATERS FROM AQUATIC INVASIVE SPECIES

10,598 Surveys
1,339 "Dirty boats"
1,243 AIS intercepted



INVASIVE SPECIES MANAGEMENT
SAINT LAWRENCE EASTERN LAKE ONTARIO

"Teaming Up To Stop The Spread of Invasive Species"

www.sleloinvasives.org

www.sleloinvasives.org/field-reports

Early Detection and Monitoring Efforts

Black Lake
Black River
Chaumont Barrens
Chaumont Bay
- Guffin Bay

Delta Lake
Fish Creek WMA
French Creek
Tug Hill Plateau (ISPZ)
Lake Ontario Shoreline
- Black Pond
- Deer Creek Marsh WMA
- El Dorado Preserve
- Lakeview WMA
- Sandy Pond

Little John WMA
Mud Bay
Mud Lake
Oneida Lake
- Three Mile Bay WMA

Perch River WMA
Salmon River Estuary
Silver Lake Fen
Upper and Lower Lakes WMA
Whetstone Reservoir

Aquatic Restoration Initiative
Phase I Complete

<u>Study Area:</u>

Lakeview WMA

Sandy Creek

South Sandy Creek

Deer Creek Marsh WMA

Deer Creek

<u>Methods:</u>

Aquatic and Riparian Species

Visual Observation

Rake Tosses

Horizontal Plankton Tows

Aquatic Live Traps

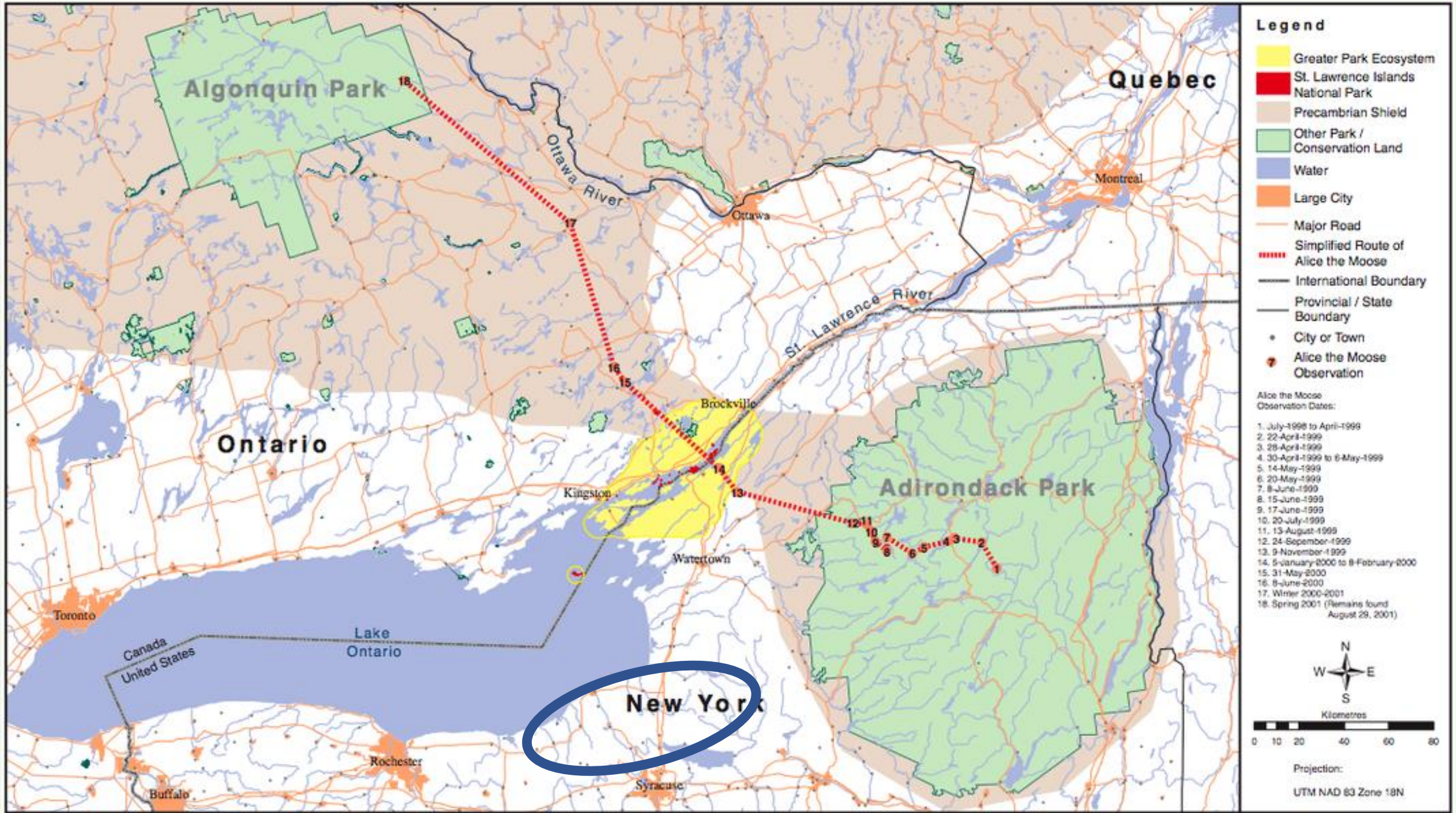
<u>Results:</u>

Complete Analysis

Restoration Recommendations

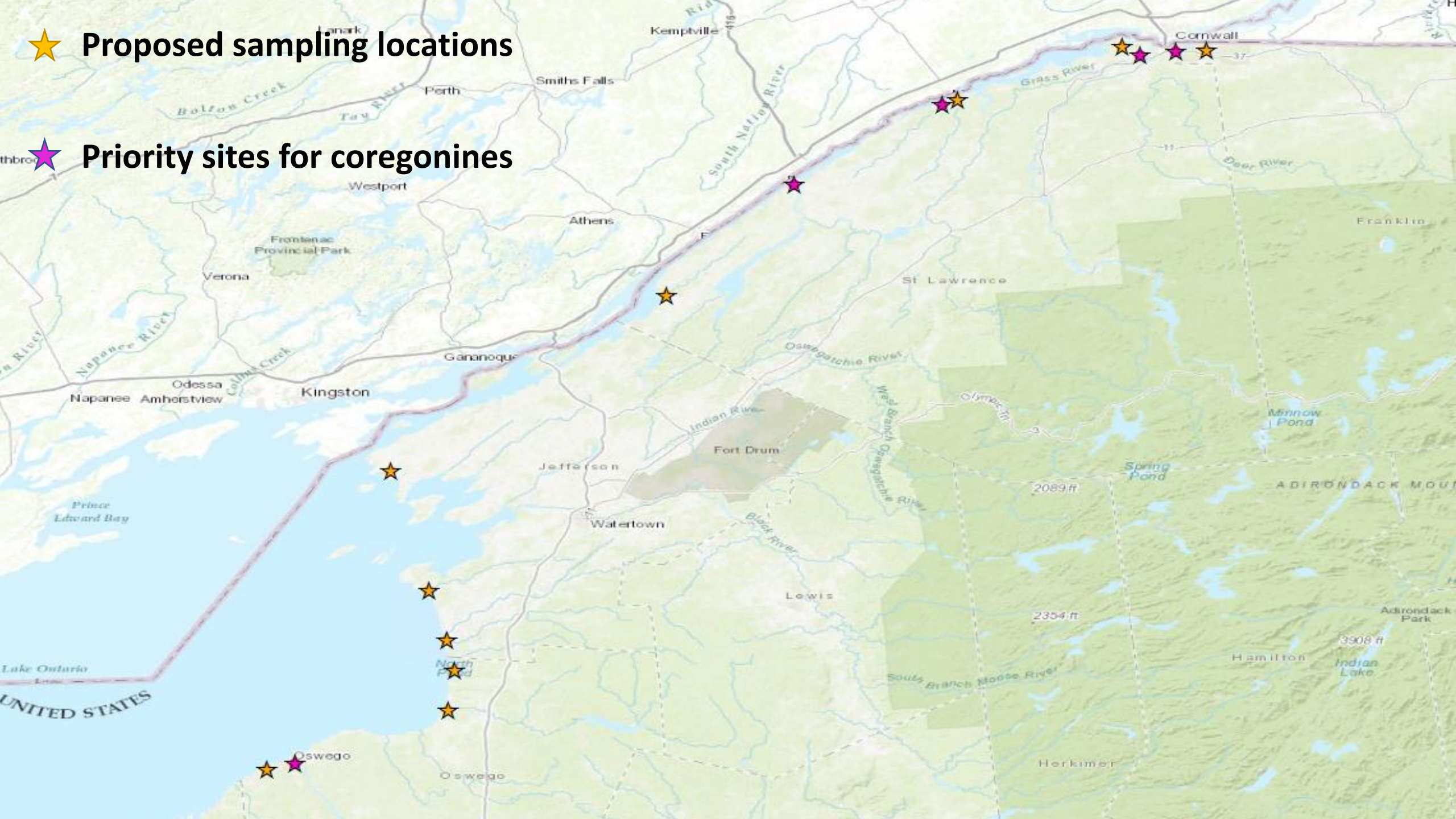
Map 6.1

Alice the Moose: The A2A Link



Project Overview

Explore tributaries of Eastern Lake Ontario and the St. Lawrence River using environmental DNA (eDNA), to assess presence of coregonines during the spawning season, and detect and respond to the presence of aquatic invasive species.

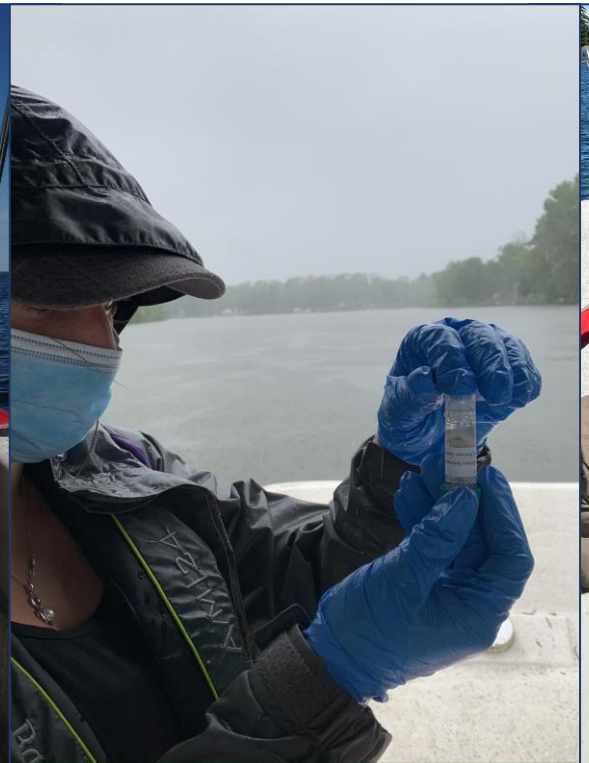

Proposed sampling locations
Priority sites for coregonines
Lanark
Kemptville
Cornwall
Perth
Smiths Falls
Bolton Creek
Tay River
South Nation River
Grass River
Deer River
Westport
Athens
Frontenac Provincial Park
Verona
St Lawrence
Franklin
Napanee River
Gananoque
Oswegatchie River
Odessa
Napanee
Amherstview
Kingston
Indian River
West Branch Oswegatchie River
Olympic Trl
Minnow Pond
Fort Drum
Jefferson
Spring Pond
2089 ft
ADIRONDACK MOUN
Prince Edward Bay
Watertown
Black River
Lewis
2354 ft
Adirondack Park
3908 ft
Hamilton
Indian Lake
Lake Ontario
South Branch Moose River
UNITED STATES
Oswego
Oswego
Herkimer

The Nature Conservancy

INVASIVE SPECIES MANAGEMENT
SAINT LAWRENCE EASTERN LAKE ONTARIO

Key partners:

USGS
USFWS
NYSDEC
NY Sea Grant
SUNY Oswego
SUNY ESF – TIBS
Cornell University
St. Regis Mohawk Tribe


Volunteers Needed:

Assisting with mobile lab setup
Collecting water samples
Transporting water samples
Capturing photos or videos
Assisting with information sharing
And more!

www.sleloinvasives.org/eDNA

- Partner with nonprofit and community organizations to strengthen its communities by enhancing education through skill-building learning experiences, promoting environmental sustainability, and advancing social equity.

- Independently endowed with assets of approximately $180 million and invests in the communities of Arconic Corporation.

Join Us for Our Next Webinar

Introduction to eDNA and the target species

Wednesday, June 16th, 12 – 1 pm EST

www.sleloinvasives.org/edna/

Questions?

Type your question in the chat box OR
Type “R” or raise your hand to ask your question directly