Eastern Lake Ontario Invasive Species Symposium

Live Webinar
06/24/2021

10:05AM EST

SUSTAINING HEALTHY WATERS

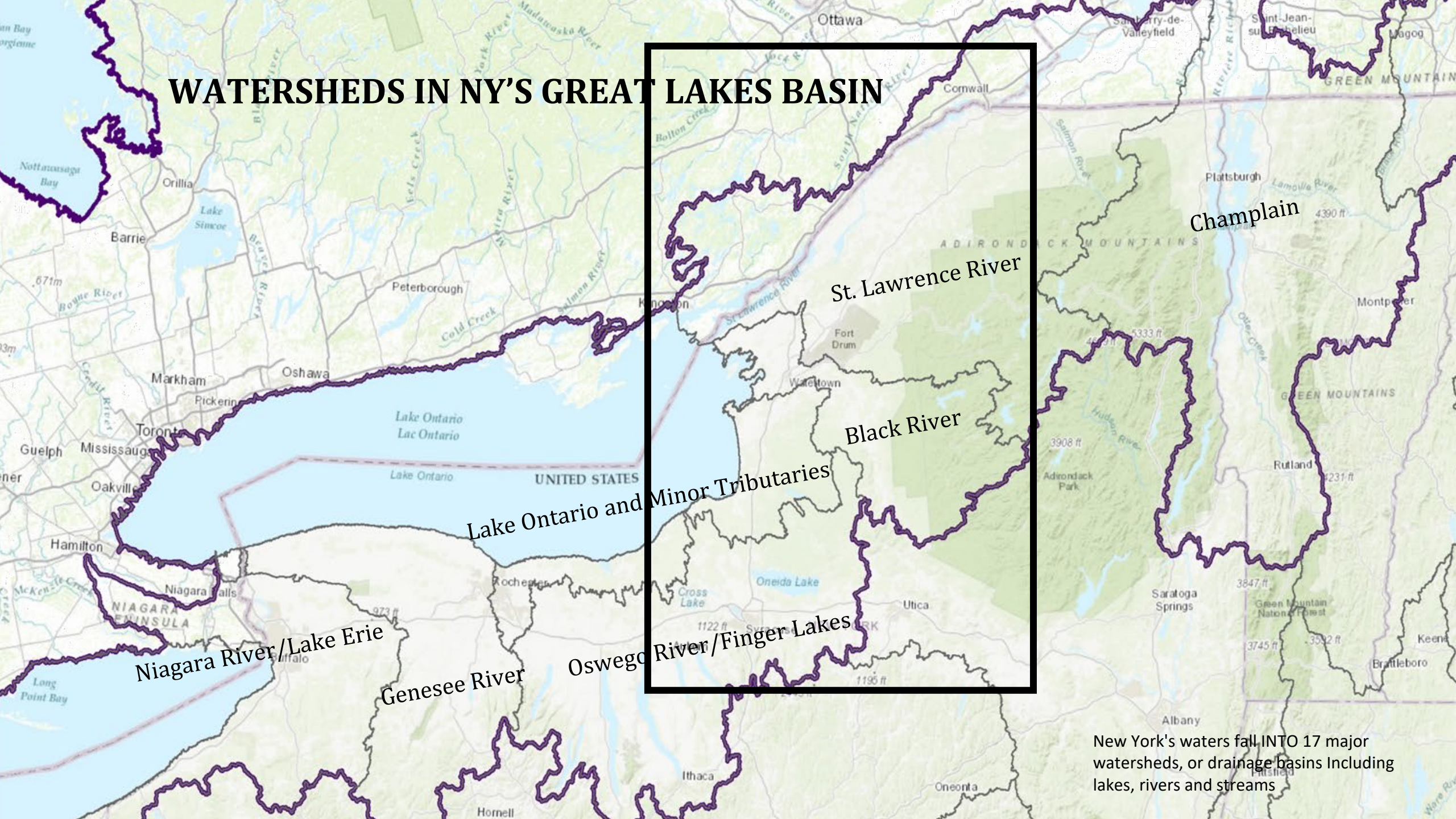
Brittney Rogers – SLELO PRISM
Aquatic Restoration and Resiliency Coordinator

INVASIVE SPECIES MANAGEMENT
SAINT LAWRENCE EASTERN LAKE ONTARIO

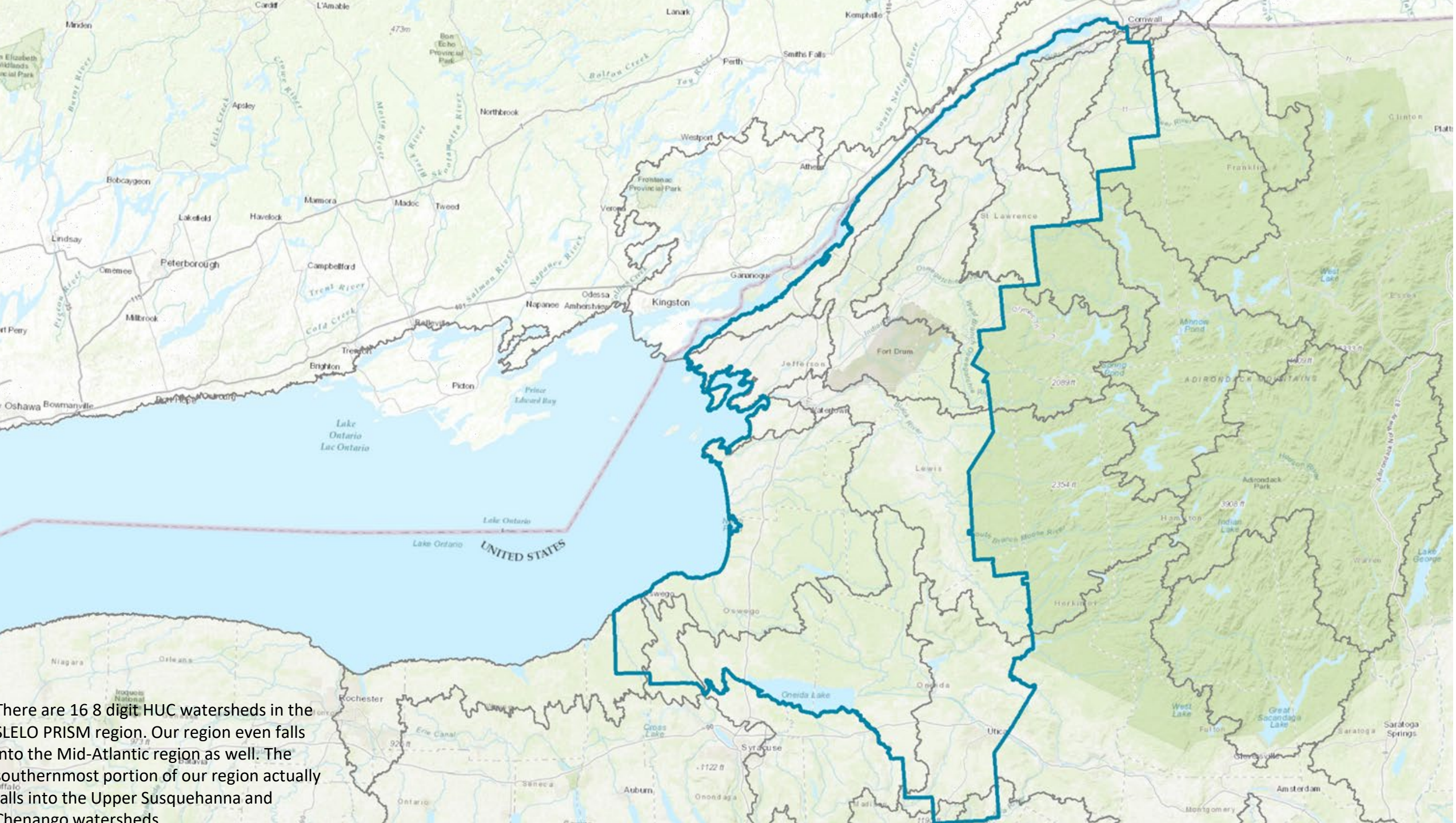
GREAT LAKES BASIN

he GL Basin flowing west to east eventually
eaches the ocean, and this basin is a larger
atershed containing the watersheds of
everal other smaller rivers and streams.
hared with Canada and spanning more than
50 miles from west to east, these vast
land freshwater seas provide water for
onsumption, transportation, power,
ecreation and a host of other uses.

WATERSHEDS IN NY'S GREAT LAKES BASIN

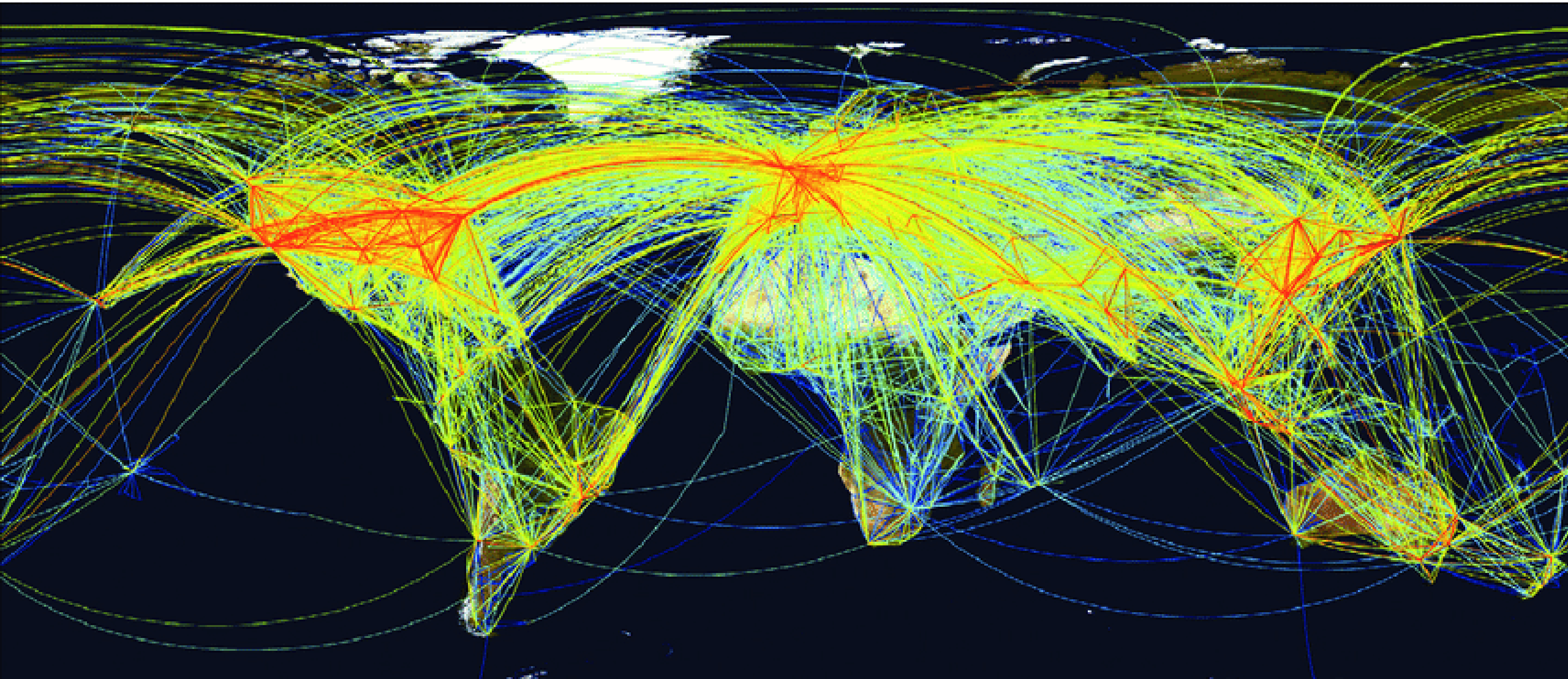


New York's waters fall INTO 17 major watersheds, or drainage basins Including lakes, rivers and streams



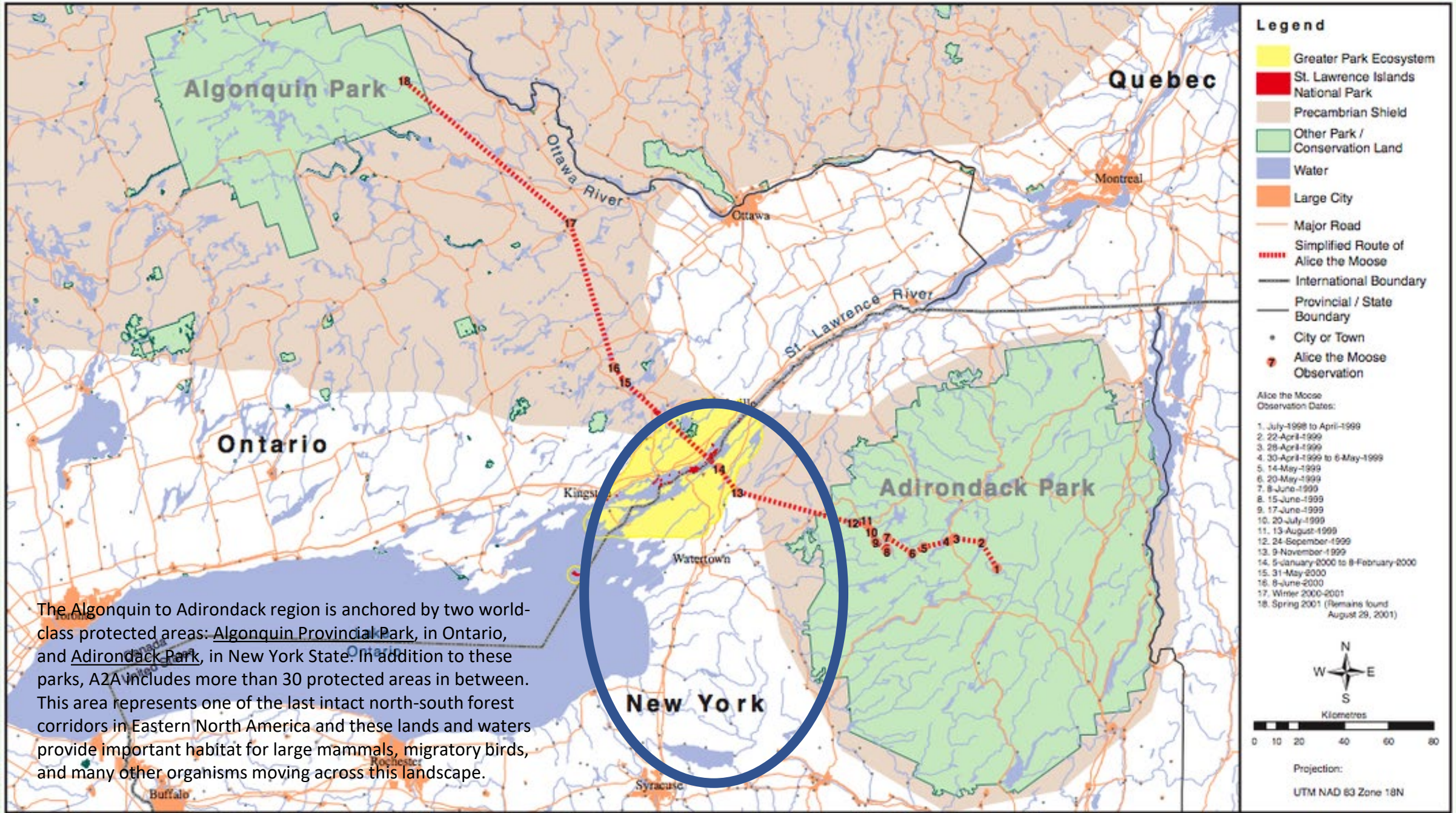
There are 16 8 digit HUC watersheds in the SLELO PRISM region. Our region even falls into the Mid-Atlantic region as well. The southernmost portion of our region actually falls into the Upper Susquehanna and Chenango watersheds

New York State is a ‘Continental Hub’ for the import and export of invasive species



Map 6.1

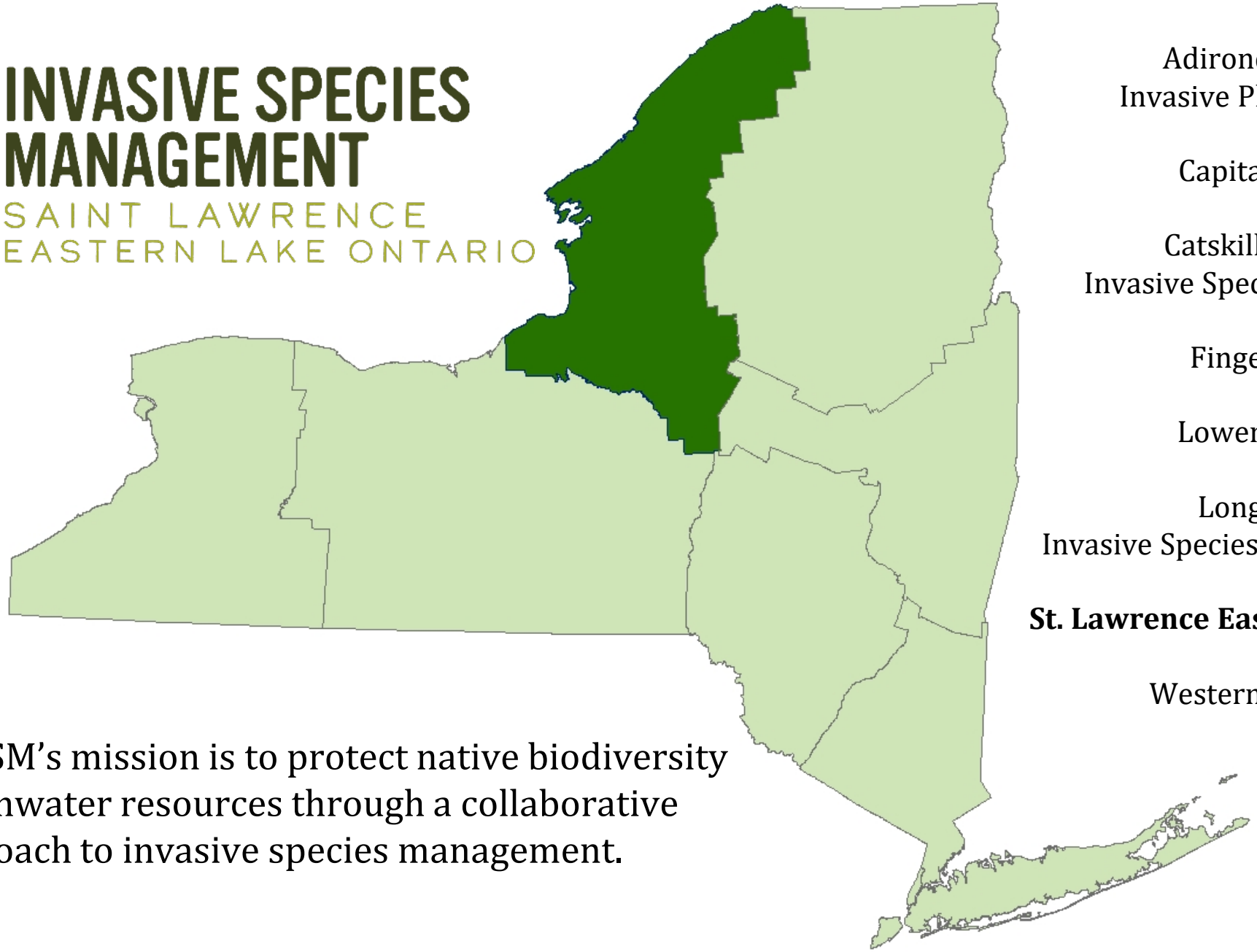
Alice the Moose: The A2A Link



The Algonquin to Adirondack region is anchored by two world-class protected areas: Algonquin Provincial Park, in Ontario, and Adirondack Park, in New York State. In addition to these parks, A2A includes more than 30 protected areas in between. This area represents one of the last intact north-south forest corridors in Eastern North America and these lands and waters provide important habitat for large mammals, migratory birds, and many other organisms moving across this landscape.

INVASIVE SPECIES MANAGEMENT

SAINT LAWRENCE
EASTERN LAKE ONTARIO



Adirondack Park
Invasive Plant Program

Capital Region

Catskill Regional
Invasive Species Partnership

Finger Lakes

Lower Hudson

Long Island
Invasive Species Management Area

St. Lawrence Eastern Lake Ontario

Western New York

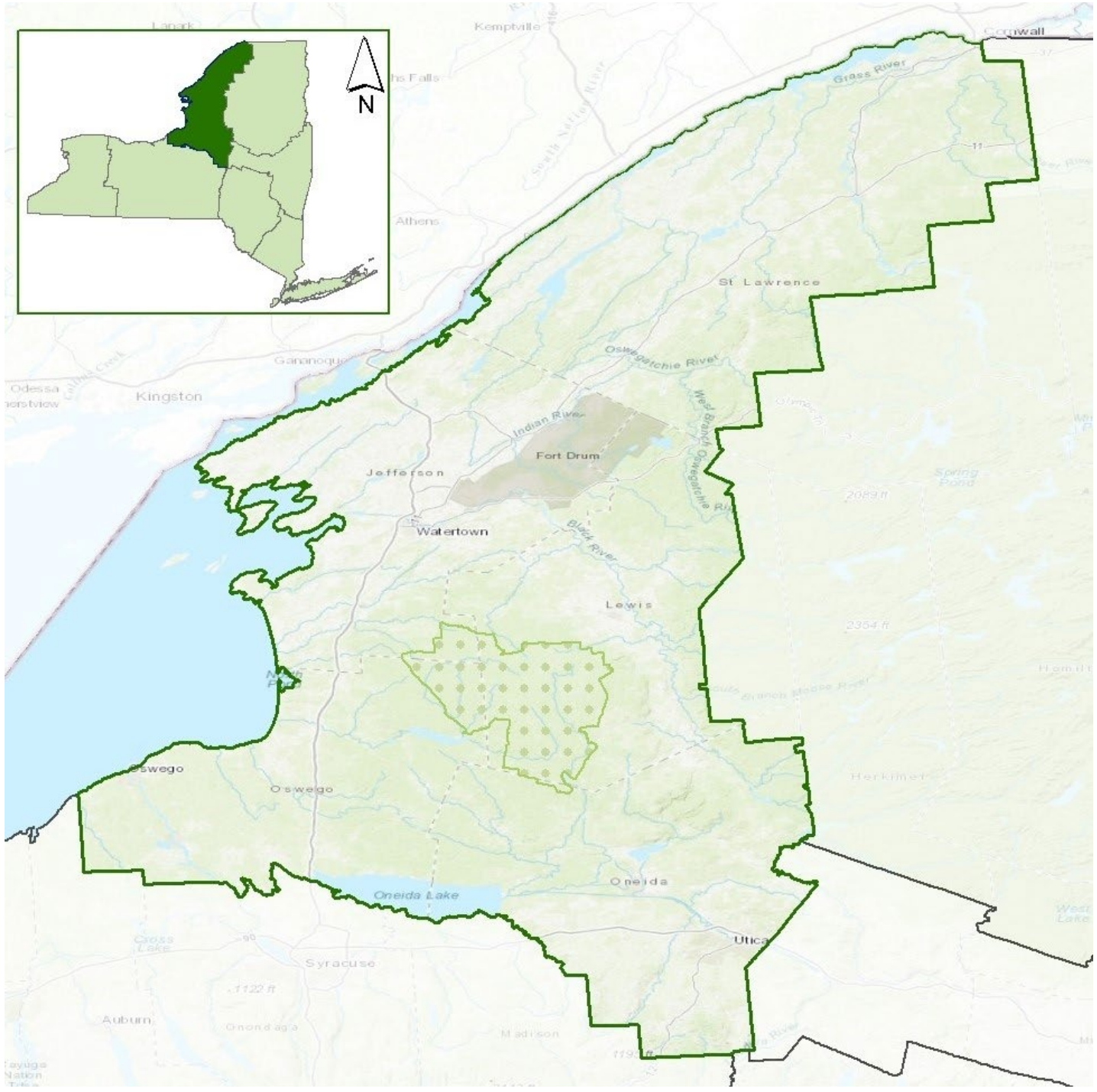
SLELO PRISM's mission is to protect native biodiversity and freshwater resources through a collaborative approach to invasive species management.

Core Programming

Prevention
Early Detection
Rapid Response
Management and Control
Ecological Restoration
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



		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 (current and future)	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

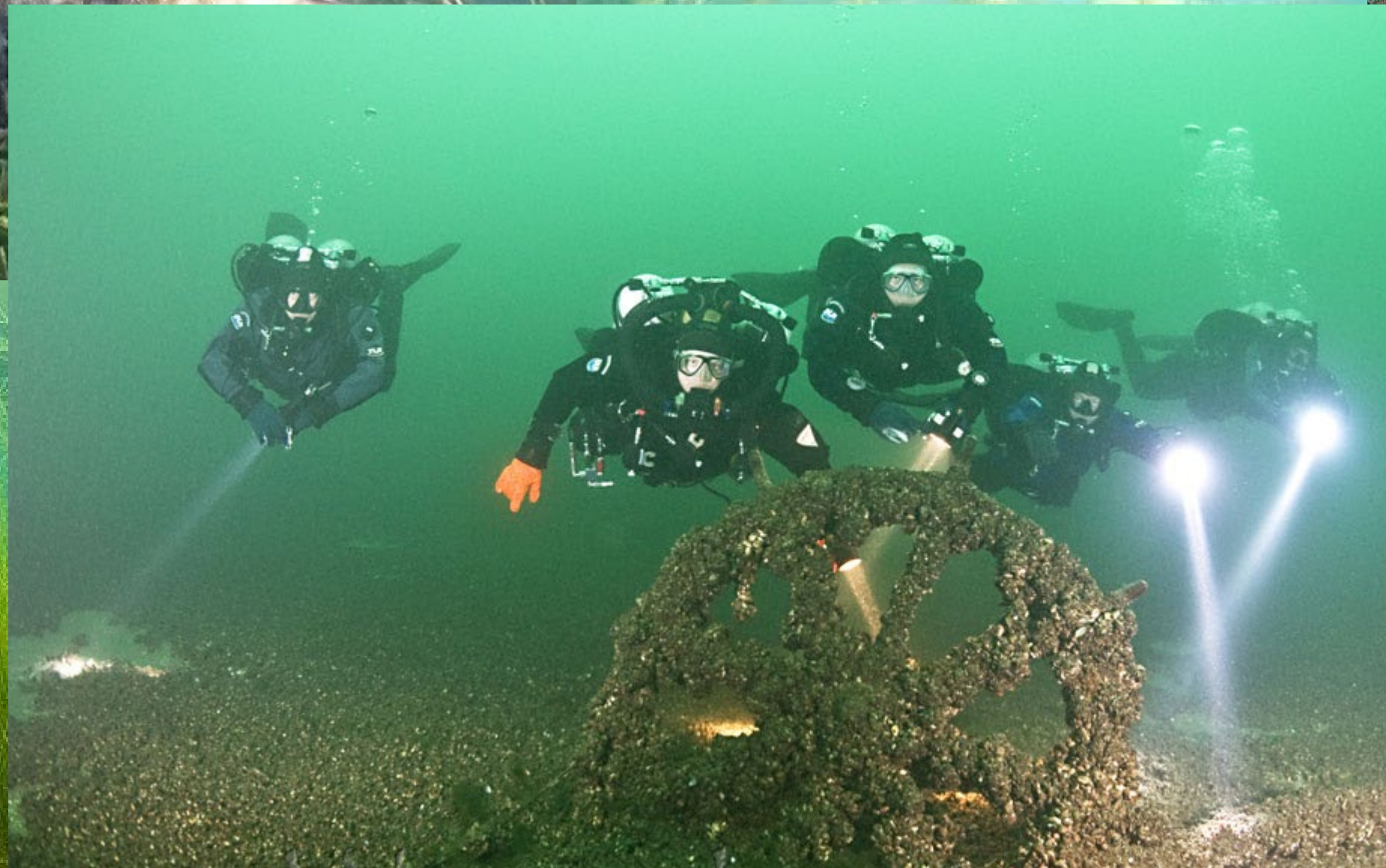
Asian Clam
Fanwort
Giant Hogweed
Hemimysis
Hemlock Woolly Adelgid
Porcelainberry
Spiny Water Flea
Tench

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
Honeysuckle Spp.
Leafy Spurge
Purple Loosestrife
Round Goby
Spotted Knapweed
Wild Parsnip
Zebra/Quagga Mussel

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

www.sleloinvasives.org/tiered-species-list



it is essential we recognize that In
ition to providing a variety of services for
nan populations, including recreational
ortunities, these systems are essential
tributors to biodiversity and ecological
ductivity. We must look beyond the
face of the water and dive deeper into
se systems.

RESTORATION

Aquatic Restoration Initiative Phase I

Study Area:

Sandy Creek

South Sandy Creek

Deer Creek

Methods:

Aquatic and Riparian Species

Visual Observation

Rake Tosses

Horizontal Plankton Tows

Aquatic Live Traps

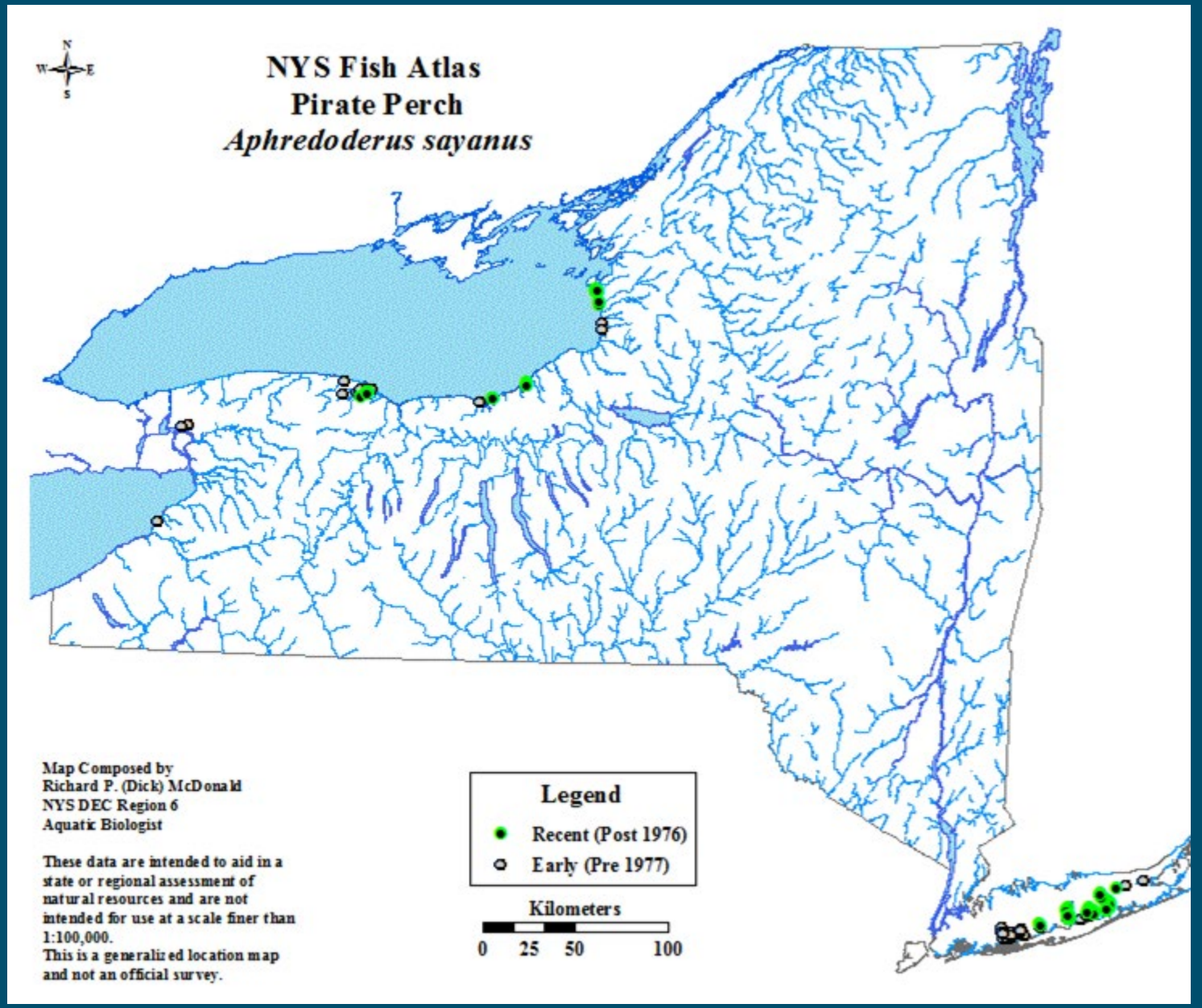
Results:

Complete Analysis

Restoration Recommendations

Rootz

Aquatic Restoration Initiative Phase I



Aquatic Restoration Initiative Phase I

Final Report of Findings

November 2020 Photograph courtesy of The Nature Conservancy

Final Report

Phase 1: Aquatic and Riparian Invasive Species Inventory and Habitat Assessment

Aquatic Restoration Initiative

This plan was prepared for The Nature Conservancy, as the host organization for the Saint Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management.

The Nature Conservancy

INVASIVE SPECIES MANAGEMENT SAINT LAWRENCE EASTERN LAKE ONTARIO

Rootz

www.sleloinvasives.org/aquaticrestoration

Aquatic Restoration Initiative Phase II

Riparian Area Management and Restoration

Suppress Invasive Species

Stem and Foliar
Herbicide applications

Mechanical Removal

Biological Control

Restore Native Species

Cardno®

MANAGEMENT

Water Chestnut

Trapa natans

Water chestnut Management in SLELO PRISM

HERBICIDE TREATMENT

BIOLOGICAL CONTROL

MANUAL REMOVAL

2018 Water Chestnut Pulls

Battle Island
Grindstone Creek
Lakeview WMA
Little Salmon River
Mexico Point
Oneida Lake
Oswego County SWCD
Port Ontario
Rice Creek
Sage Creek

= 33,500 Pounds

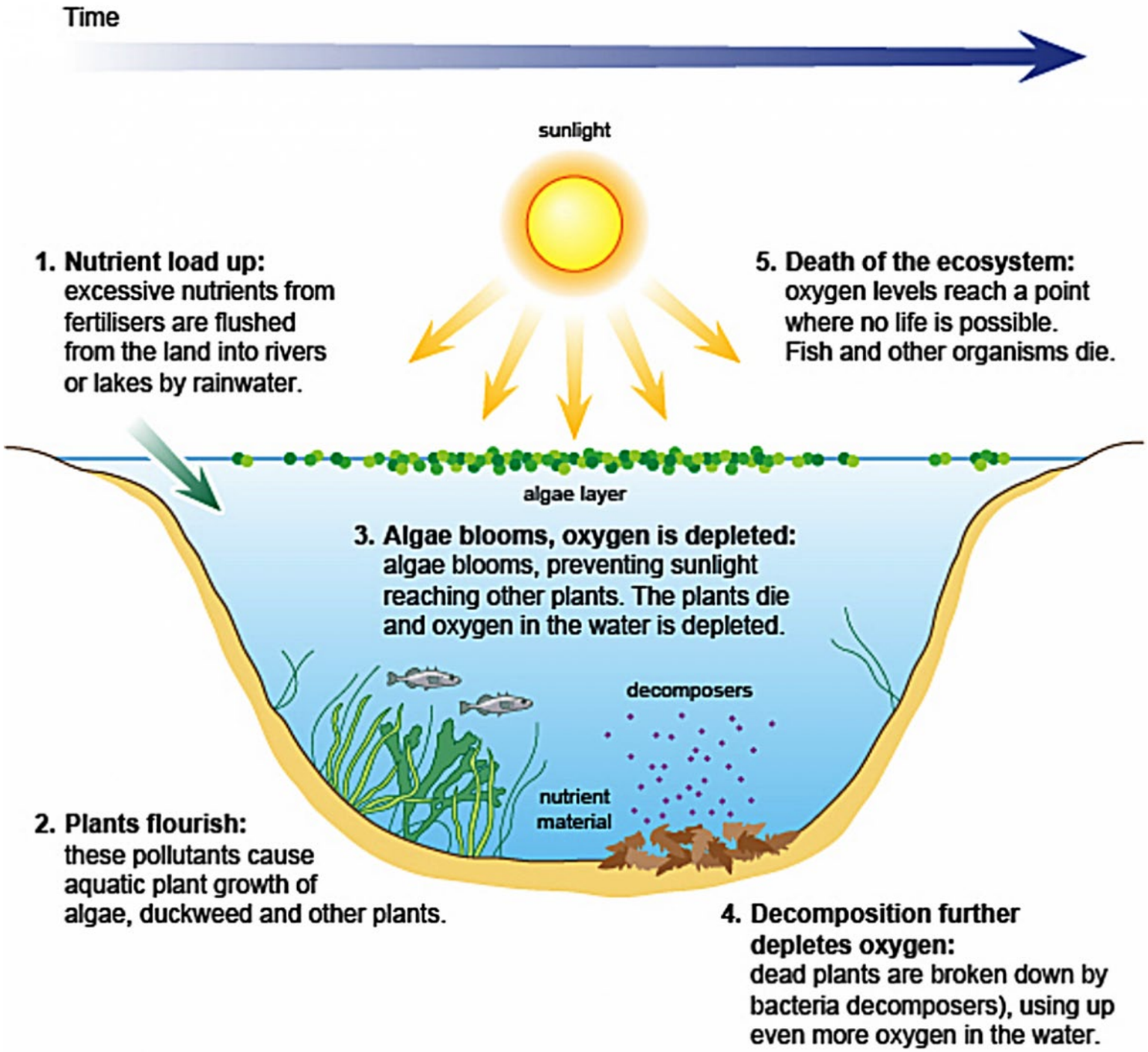
2019 Water Chestnut Pulls

Battle Island
Grindstone Creek
Guffin Bay/Creek
Lakeview WMA
Little Salmon River
Mexico Point
Oneida Lake
Oswego County SWCD
Port Ontario
Rice Creek
Rockland
Utica Marsh

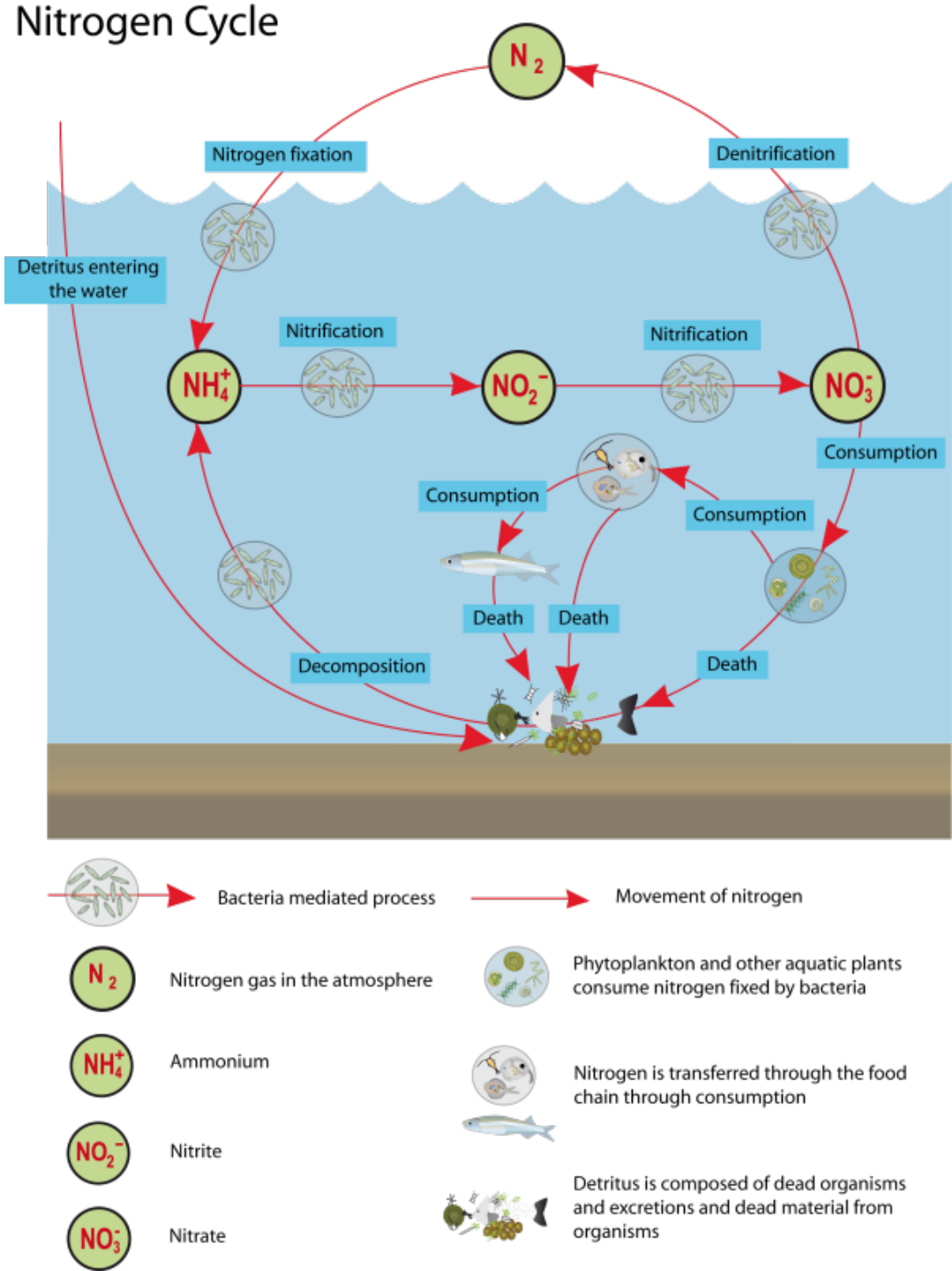
= 35,500 Pounds

How Do We Measure SUCCESS?

What impact is water chestnut having on the ecosystems they are growing in?

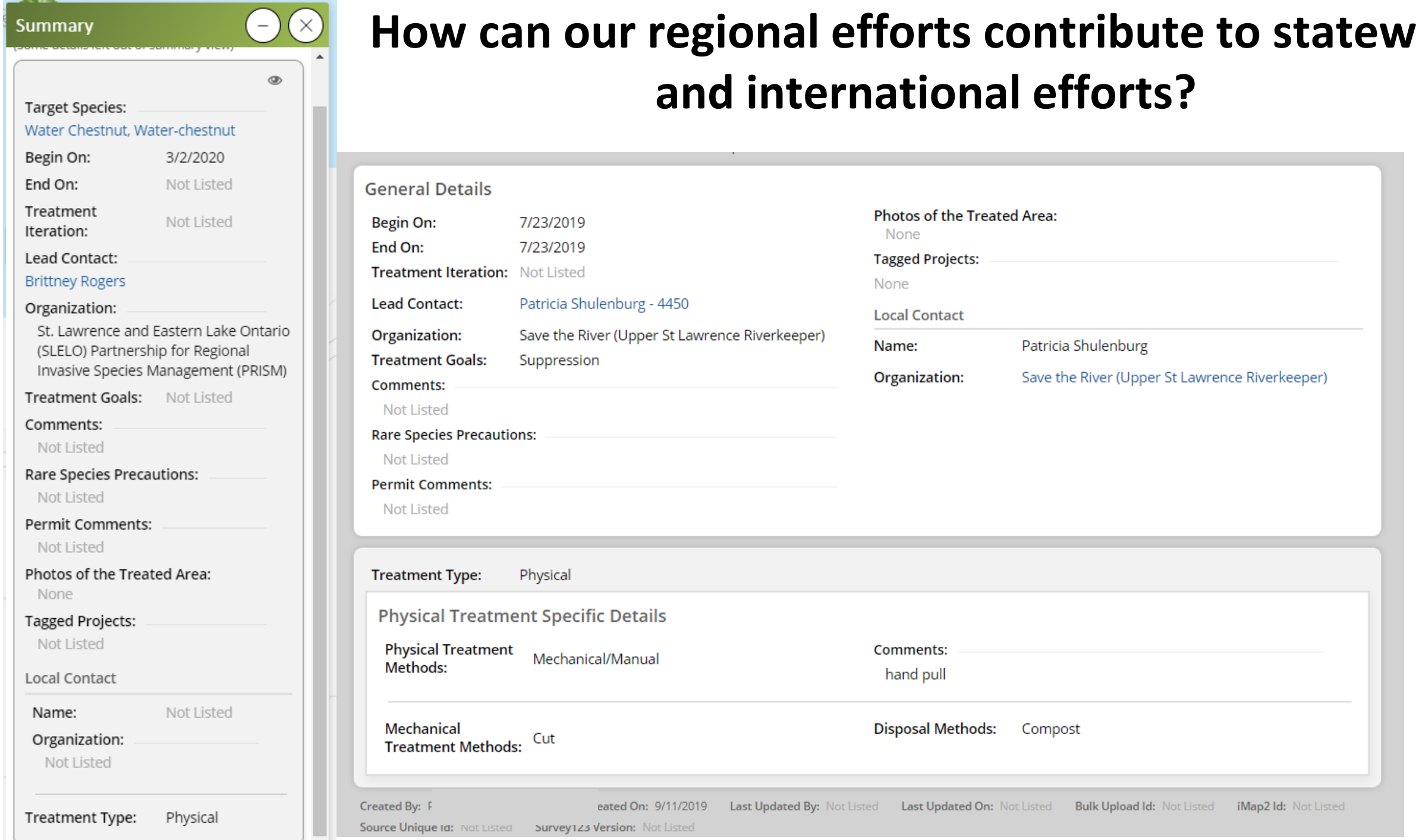


What impact are manual removal efforts having on the nutrients in the ecosystems they are growing in?



What happens in these ecosystems if water chestnut populations are controlled?

How can our regional efforts contribute to statewide and international efforts?



Water chestnut Management – How do we measure success?

Thousands of pounds of Eurasian water chestnut (EWC) are r

Help Track Efforts Across the State &

Report Efforts to iMapI

Step 1: Create an iMapInvas & Join an Organiza

1. Go to NYimapinvasives.org and click Login in the top
2. Enter your info. Under **Jurisdiction**, select the primary state you will collect data.
3. Click Join and you will receive an email (check spam f
4. Click on the hyperlink ("click here") in the email, and it will t to the User Agreement.
5. After reading, click Accept Agreement and you will see a pop that says "Account Activated". Click Return to Login
6. Type your username (email) and password and click Log I

7. To enter a water chestnut pull, you will need to join your organization (or the "No Affiliation Organization (NY)" if you are not affiliated). To join an ORGANIZATION, click the MENU icon in the top left corner of the screen and select "Your Account" from the drop-down.
8. Click EDIT on the top Right. Scroll down to the organizations box and click "REQUEST TO JOIN."
9. Type your organization into the search bar and select it from the dropdown menu and click "REQUEST TO JOIN."
10. Press SAVE on the top right; request is pending until accepted by organization. Follow the same steps to join Projects.

Step 2: Survey Before You Remove

- Survey the infestation in advance or at the beginning of the hand-pull removal effort.

Optional Pro-tip:
Drop water chestnut point records around the perimeter of the infestation using the mobile app to help you draw the infestation in iMap later

Step 3: Locate the Infestation in iMap

Step 4: Create Multi-Record Searched Area

Click "**Create Record**" at the top, select "**Multi-Record Searched Area Record**" and leave "**Polygon**" as the shape type.

Click "**Change Basemaps**" on the right-hand side of the screen to switch to **Satellite imagery**. This will allow you to use landmarks to

Use the + symbol to trace the fu area you surveyed including area where water chestnut wasn't

Step 5: Record the Hand-Pull as a Treatment

Click "**Find Record**," and then select "**Searched Area**" for type and enter your searched area record or use the **zoom tools** or **filter tools** to locate the observations and click "**Find**."
Fill out the details outlined below:
It is very important to list the biomass type and amount removed such as 100 garbage bags, etc.

Step 6: Post Treatment Survey Record

If targeted WC is still present at the site of the pull:
Conduct a general survey of area infested (same as pre-treatment assessment above, Step 4), and record the areas where the species is present. If another treatment is needed, please enter another treatment once performed (see step 5).

If WC is not present (appears to be eliminated): Create a Not Detected record

- Use Create Record tool and select **Not detected**. Draw a polygon around the area you surveyed for WC but did not find it – this should include some or all your treatment record within it.
- Enter **Time searched** to convey search effort
- **Reason for Not Detecting** – select **Due to Treatment**
- **Presumed Eliminated**: Y/N (admin only). This is intended for areas where water chestnut was eradicated and not seen for the following 3 or more years, contact imapinvasives@dec.ny.gov if you would like us to select "Yes". **Once you've submitted your post-treatment survey record (whether present or absent) additional post-treatment follow-up fields that measure treatment effectiveness will be available.**

www.sleloinvasives.org/links-resources

EARLY DETECTION

iMap3 - Forest Pest Data Collection

Searched Area Fields

Site Name

Disturbance Type

Choose disturbance type.

- Natural

Disturbance Severity

Heavy Disturbance: Greatly reduced plan
Moderate Disturbance: Intact canopy and
Light Disturbance: Minimal disturbance t
No Disturbance: No soil disturbance, no s

None

Native Vegetation Distribution

How is the native vegetation distributed?

- Subdominant

Landscape Type

- Lake/Pond
- Agricultural
- Forested
- Grassland
- Human Dominated
- Riparian
- Wetland

Crew Details

Weather Details

Species Surveyed

Species: *

If no species are displayed, please ensure that either Scien

Hemlock Woolly Adelgid

Taxa Type:

Animal Insect

Detected / Not Detected: *

Was the species detected?

- Detected

Species Polygon

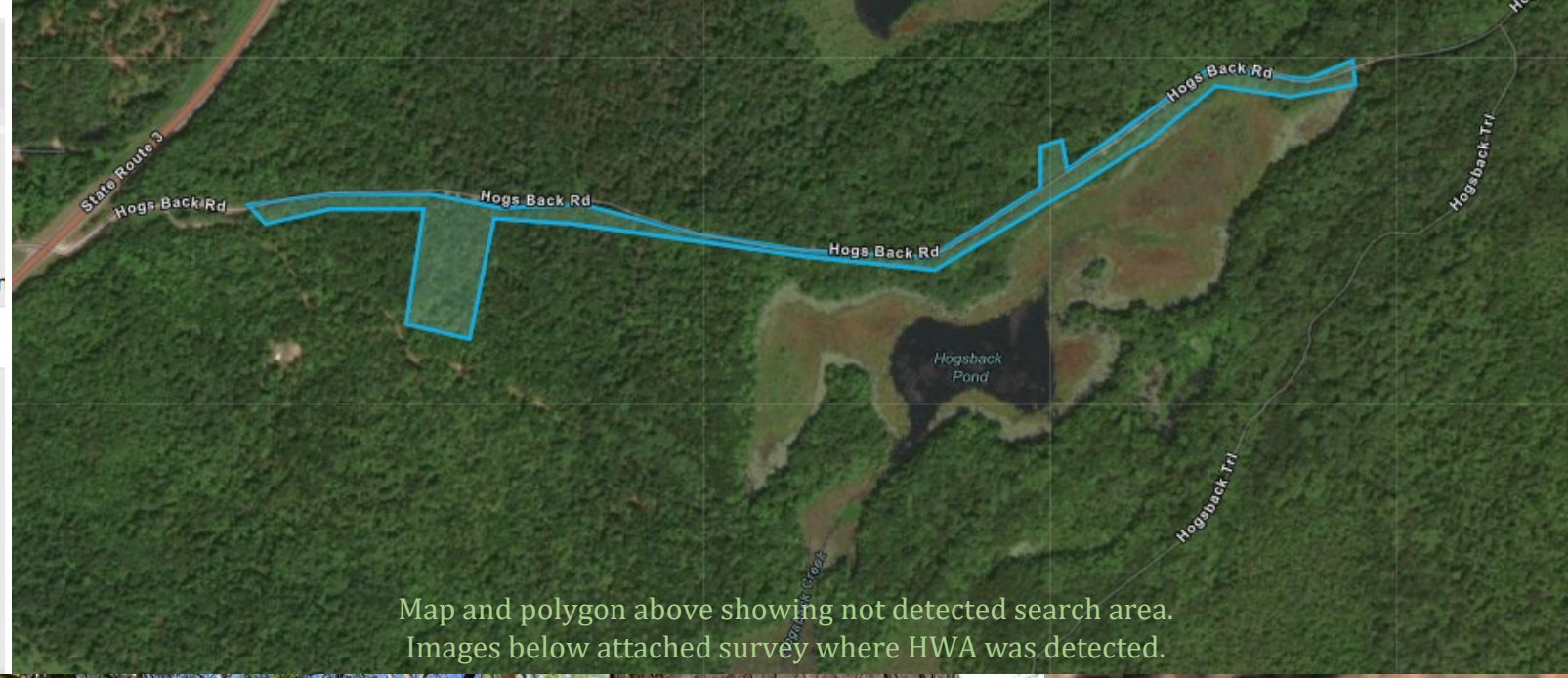
Not Detected Record Fields

Hemlock Prioritization Metrics

Hemlock Stand Traits and Valu

Hemlock Stand Characteristics

Treatments Applied



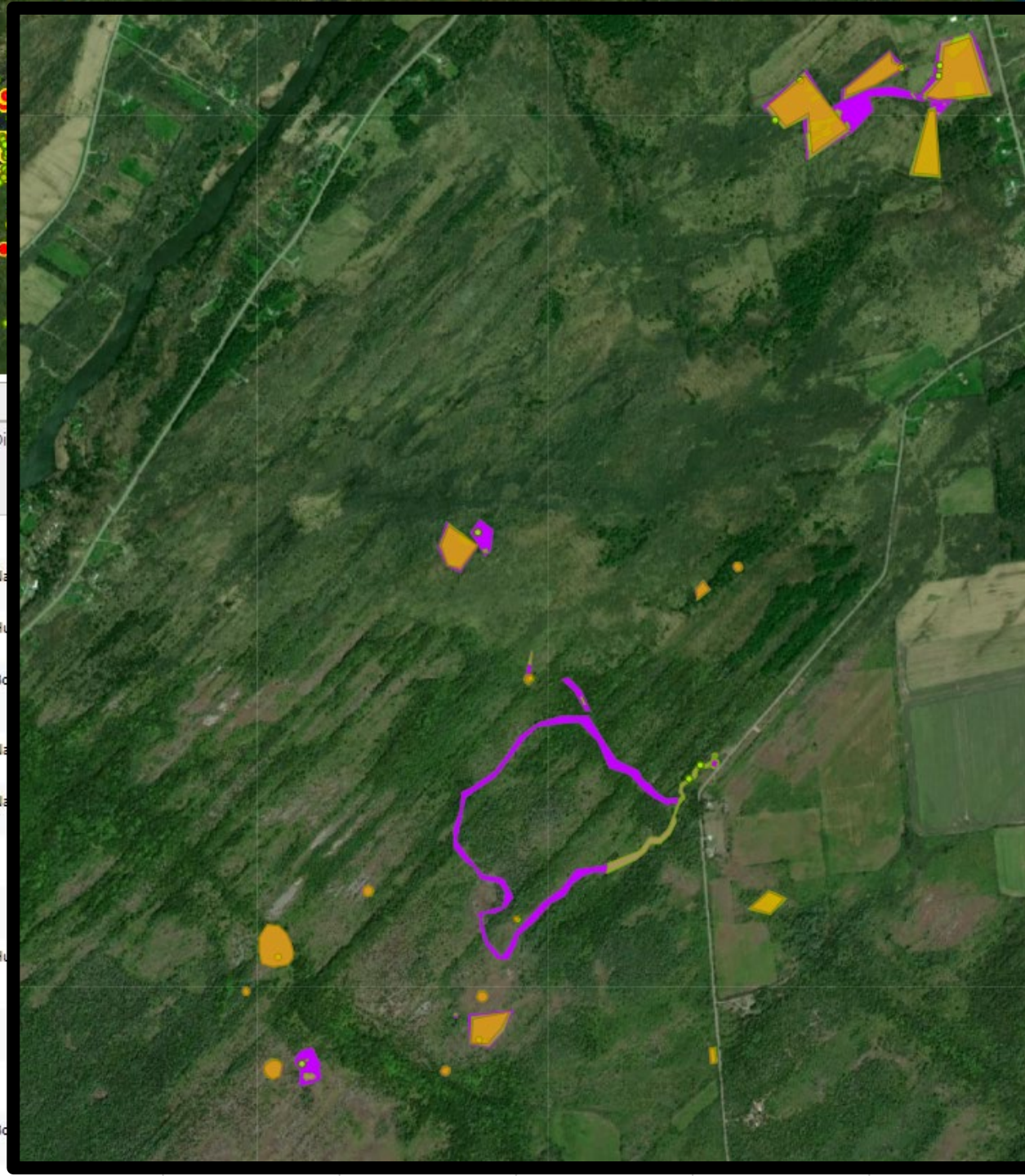
Map and polygon above showing not detected search area.
Images below attached survey where HWA was detected.

iMapInvasives

iMap Mobile Advanced (iMMA)

imap3 mobile advanced - Searched Area (Features: 320, Selected: 0)

Organization ID	Date	Site Name	Survey Type	Landscape Type	Landscape Type Comments	Di
748	12/31/2019, 7:00 PM	Limerick Cedars - LC 2				
748	6/24/2020, 5:49 PM	Chaumont Barrens New Site	Terrestrial	Forested		Na
748	6/22/2020, 11:42 AM	Chaumont Barrens	Terrestrial	Grassland		Hu
748	6/23/2020, 8:45 AM	Chaumont Barrens	Terrestrial	Grassland		Bo
748	6/24/2020, 12:36 PM	New Chaumont Barrens Site	Terrestrial	Grassland		Na
748	6/24/2020, 2:02 PM	Chaumont Barrens - CB 3	Terrestrial	Grassland	fixed other location	Na
748	6/24/2020, 3:54 PM	New Chaumont Barrens Site 2	Terrestrial			
748	6/24/2020, 4:19 PM	Updated Search Area CB12	Terrestrial	Grassland		
748	6/25/2020, 8:58 AM	Deer Creek Marsh WMA	Terrestrial	Forested	parking area is mowed adjacent to the forest	Hu
748	6/25/2020, 3:46 PM	Deer Creek Parking Area 4	Terrestrial	Forested		
748	6/25/2020, 4:20 PM	Japanese Barberry				
748	6/25/2020, 4:22 PM	DCM Japanese Barberry	Terrestrial	Forested		Bo



SAS Pro

Survey Methods

General survey method

- [ ] Top water
- [ ] Underwater
- [ ] Dry land/shoreline

Specific survey method

- [ ] Benthic grab
- [ ] Electric shock
- [ ] Net - fishing
- [ ] Net - plankton
- [ ] Trap
- [ ] Rake-toss

Survey method comments

Water Depth

Whole Rake Abundance *

0 (No Plants) 1 (Trace)

Species detected on rake toss

To add multiple species, tap the + icon at the lower right side of this section.

Species *

Please select a **Rake Toss Abundance Method** at the top of the survey form.

Present Species Comments

Image of Species

Add/Remove species records detected on this rake toss using the icons immediately below.

Conducting Aquatic Field Surveys in SLELO PRISM

Priority Conservation Areas

Black Lake
Black Pond WMA
Black River
Chaumont Bay
Guffin Bay
Deer Creek WMA
Delta Lake
Fish Creek
French Creek
Lakeview WMA
Mud Bay
Mud Lake
Oneida Lake
Perch River
Salmon River Estuary
Sandy Pond
Upper and Lower Lakes WMA
Whetstone Reservoir

18 PCAs are being surveyed using new tool just mentioned… SAS Pro

We've conducted 193 rake tosses throughout the SLELO region and I'm happy to report we have not encountered any Tier 1 species.

Utricularia vulgaris

www.sleloinvasives.org/field-reports

Conducting Aquatic Field Surveys in SLELO PRISM

Understanding What We're Protecting

Working with the NY Natural Heritage Program and NY Flora Association to update distribution lists of native aquatic species encountered

Scientific_Name	Common_Name	Family	Native	Status_State	State_Rank	Global_Rank	Habitat
Aldrovanda vesiculosa	waterwheel plant	Droseraceae	N		SE	G3	
Alisma gramineum	grass-leaved water plantain	Alismataceae	Y		S4	G5	
Azolla cristata	**mosquito fern**	**Salviniaceae**	**Y**		**SNR**	**G5**	**Still or slow moving water of lakes, ponds**
Bidens beckii	Beck's water marigold	Asteraceae	Y		S3	G4G5	Ponds and lakes.
Brasenia schreberi	**watershield**	**Cabombaceae**	**Y**		**S5**	**G5**	**Ponds, lakes, and slow moving streams.**
Cabomba caroliniana	**fanwort**	**Cabombaceae**	**U**		**SNR**	**G3G5**	**Slow moving streams. Rare or absent fro**
Callitriche hermaphroditica	autumn water starwort	Plantaginaceae	Y	Endangered-State	S1	G5	
Callitriche heterophylla ssp. heterophylla	large water starwort	Plantaginaceae	Y		S5	G5	Slow moving streams and still waters
Callitriche palustris	vernal water starwort	Plantaginaceae	Y		S5	G5	Ditches, streams, tidal streams, and c
Callitriche stagnalis	common water starwort	Plantaginaceae	N		SE	GNR	
Callitriche terrestris	terrestrial water starwort	Plantaginaceae	Y	Threatened-State	S2S3	G5	Mesic to wet-mesic exposed soils in v
Ceratophyllum demersum	**common coontail**	**Ceratophyllaceae**	**Y**		**S5**	**G5**	**A very common aquatic plant. Ponds, lak**
Ceratophyllum echinatum	**spiny-fruited coontail**	**Ceratophyllaceae**	**Y**		**S3**	**G4?**	**Much less common than C. demersum bu**
Crassula aquatica	pygmyweed	Crassulaceae	Y	Endangered-State	S1	G5	Fresh to brackish tidal marshes in op
Egeria densa	Brazilian waterweed	Hydrocharitaceae	N		SE	G5	
Eichhornia crassipes	**water hyacinth**	**Pontederiaceae**	**N**		**SE**	**G5**	
Elatine americana	American waterwort	Elatinaceae	Y	Endangered-State	S1	G4	
Elatine minima	lesser waterwort	Elatinaceae	Y		S4	G5	Submerged in shallow water near edg
Elatine triandra	Eurasian waterwort	Elatinaceae	N		SE	G5	Submerged in shallow water near edg
Elodea canadensis	Canada waterweed	Hydrocharitaceae	Y		S5	G5	Lakes, ponds, small pools, streams, t
Elodea nuttallii	**Nuttall's waterweed**	**Hydrocharitaceae**	**Y**		**S5**	**G5**	**Quiet acidic waters of lakes, ponds, and s**
Eriocaulon aquaticum	northern pipewort, northern hatpins	Eriocaulaceae	Y		S5	G5	Emergent from edges of acidic lakes.
Heteranthera dubia	water star grass	Pontederiaceae	Y		S5	G5	Ponds, lakes, and streams in alkaline
Hottonia inflata	American featherfoil	Primulaceae	Y	Threatened-State	S2	G4	Vernal pools, ponds, and slow moving
Hydrilla verticillata	**hydrilla, water thyme**	**Hydrocharitaceae**	**N**		**SE**	**GNR**	**An invasive aquatic of lakes and ponds.**
Hydrocharis morsus-ranae	**European frog's bit**	**Hydrocharitaceae**	**N**		**SE**	**GNR**	**Marshes, edges of ponds, shrub swamps,**
Hydrocotyle ranunculoides	swamp marsh pennywort	Araliaceae	Y	Endangered-State	S1	G5	
Isoetes echinospora × I. engelmannii = I. xeatonii	Eaton's quillwort	Isoetaceae	Y		SNA	GNA	
Isoetes echinospora × I. septentrionalis = I. xrobusta	robust quillwort	Isoetaceae	Y		SNA	GNA	
Isoetes echinospora ssp. muricata	spiny-spored quillwort	Isoetaceae	Y		S4	G5T5	Submerged and rooted aquatic on the
Isoetes engelmannii	Engelmann's quillwort	Isoetaceae	Y		S5	G4	
Isoetes engelmannii × I. septentrionalis	hybrid quillwort	Isoetaceae	Y		SNA	GNA	
Isoetes lacustris	lake quillwort	Isoetaceae	Y	Rare-State	S3	G5	
Isoetes septentrionalis	northern shore quillwort	Isoetaceae	Y	Endangered-State	S1	GNA	
Isoetes tuckermanii	Tuckerman's quillwort	Isoetaceae	Y		S4	G4	Edges of often acidic lakes.
Lemna minor	**common duckweed**	**Araceae**	**Y**		**S5**	**G5**	**Quiet water of lakes, ponds, vernal pools,**
Lemna perpusilla	flowering duckweed	Araceae	Y	Endangered-State	S1	G5	

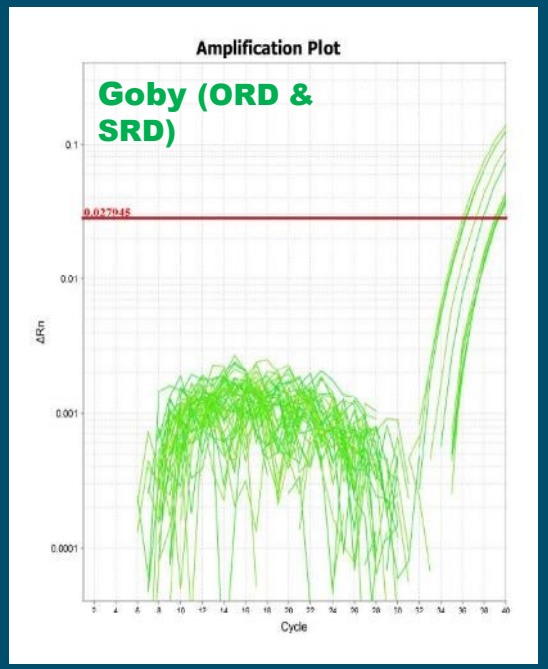
Currently in progress, more to come!

2021 Tributary eDNA Project
Overview and Target Species

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.

Sampling Process

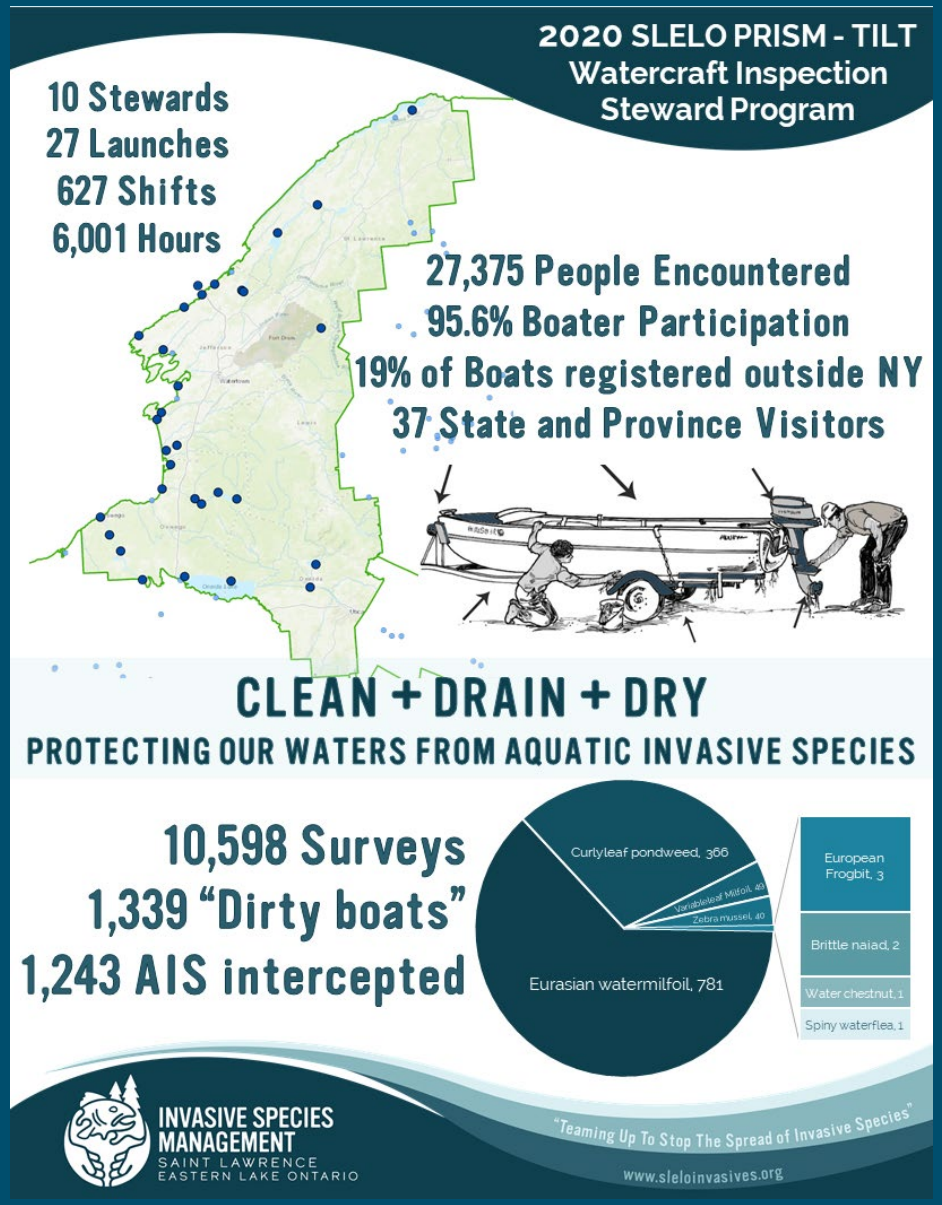
Collect → Concentrate → Extract → Amplify → Detect

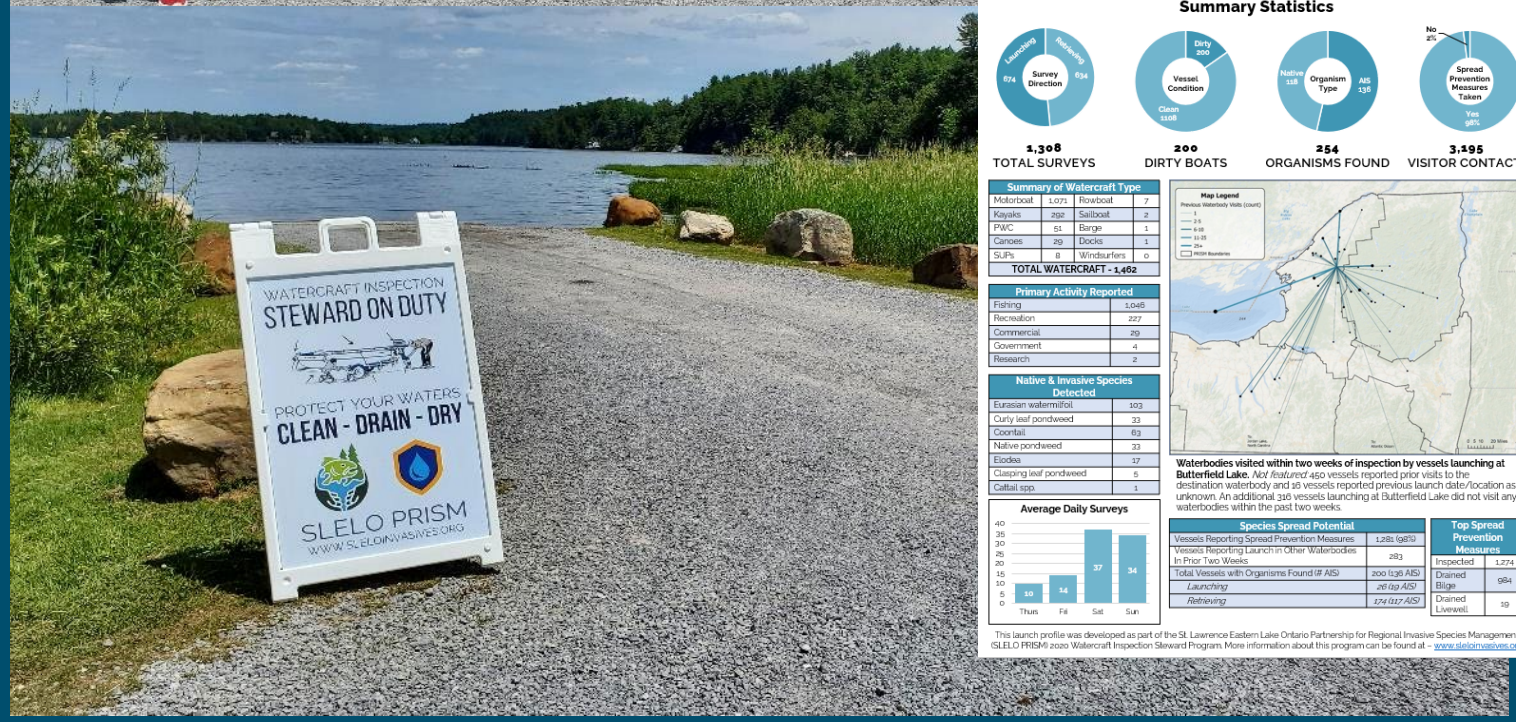


www.sleloinvasives.org/eDN

PREVENTION

Watercraft Inspection Steward Program
Hosted by SLELO PRISM and TILT





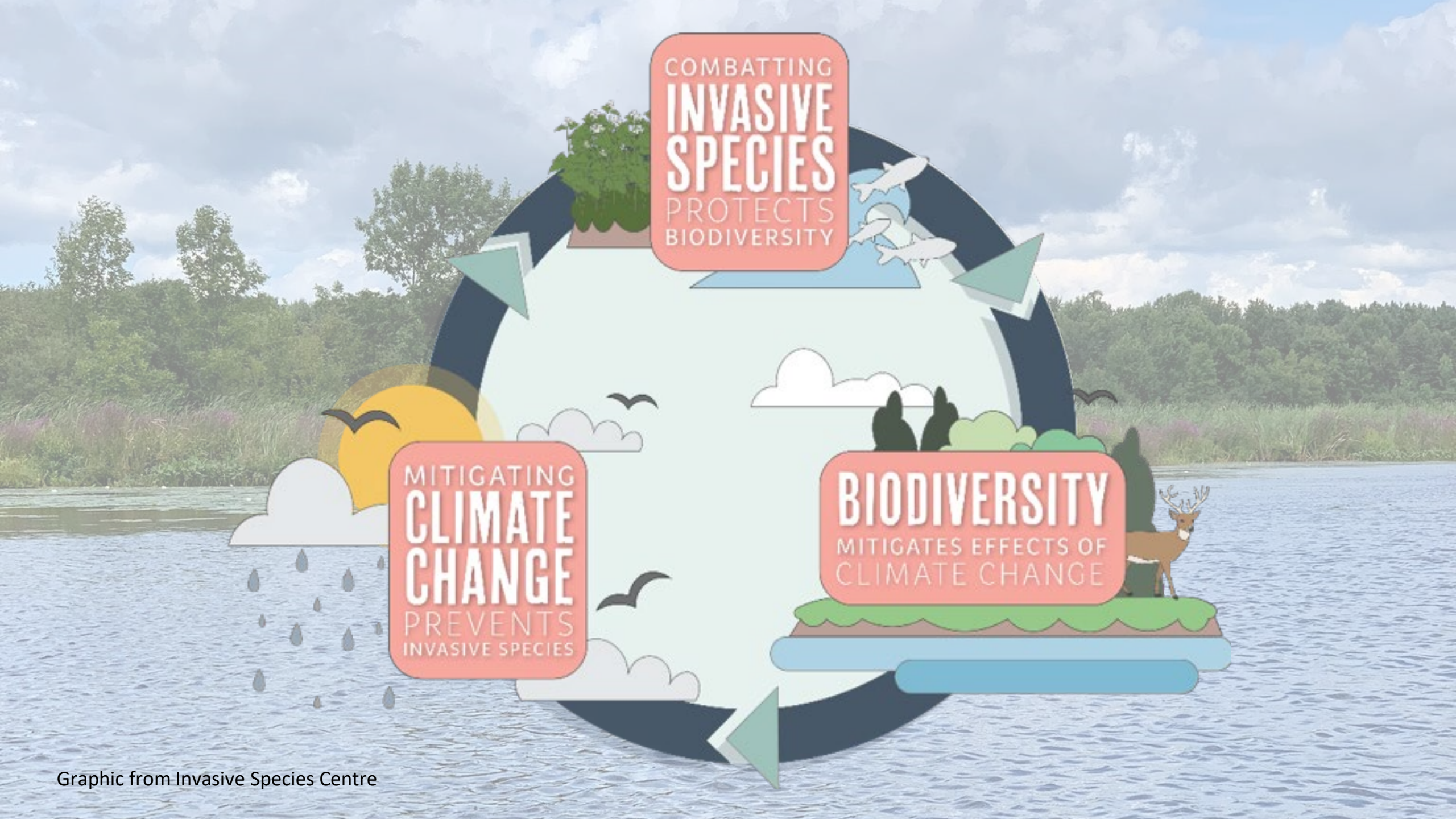
Spreading Awareness - Not Invasives

In 2020 we were in the field about 50 days and spent over 350 hours surveying our PCAs, assessing our management sites, studying the black river trail and collecting eDNA samples.

Volunteers Needed “on the water”:

Reporting Aquatic Invasive Species
Capturing photos or videos
Mobile eDNA lab setup
Collecting eDNA water samples
Leading hands-on aquatic experiences
And more!

www.sleloinvasives.org/voluntee



Graphic from Invasive Species Centre

Contact Information:

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INVASIVE SPECIES MANAGEMENT
SAINT LAWRENCE
EASTERN LAKE ONTARIO