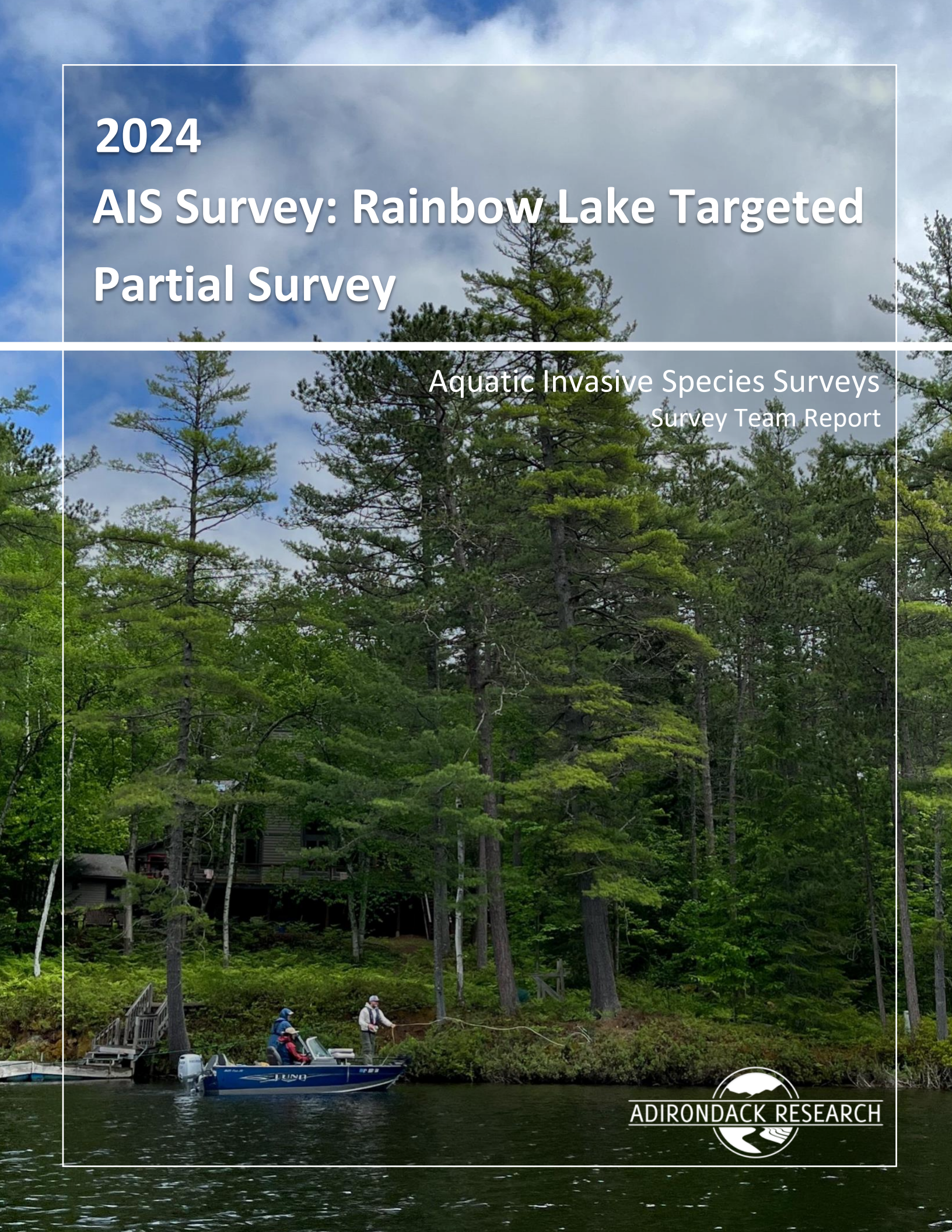
2024
AIS Survey: Rainbow Lake Targeted Partial Survey

Aquatic Invasive Species Surveys

Survey Team Report



ADIRONDACK RESEARCH

2024 Rainbow Lake Targeted Partial Aquatic Invasive Species Survey

Written by:
Ezra Schwartzberg, Ph.D., Morgan Hilliard
Adirondack Research
June 2024

Surveyed by:
Justin Wolford, Morgan Hilliard, Gage Root, and Abby Paro

Client:
Peter Geertz
Rainbow Lake Association, Inc.
Email: pcgeertz@gmail.com

Consultant:
Dr. Ezra Schwartzberg, Director
Adirondack Research, LLC
73 Church Street, Suite 2
Saranac Lake, NY 12983
Office: (518) 278-6070
Email: ezra@adkres.org.org
Website: www.adkres.org

Cover image: Survey technicians Justin Wolford and Gage Root, accompanied by Brian Greene, Aquatic Invasive Coordinator for Adirondack Park Invasive Plant Program (APIPP), tossing a rake off a research boat in 2023. Photo by Tucker Wells.

Executive Summary

The purpose of this partial lake monitoring effort was to fully inspect and survey the areas of the lake that are most at risk to invasive species establishment. By carrying out these surveys the crews ensured that the water body is currently free of invasive species. Our crew also collected generalized data on native species presence on the water body. In the case that any invasive species was found our crew would have mapped out any and all invasive plant beds.

Table of Contents

Photos

Photo: Our survey team on Rainbow Lake in 2019.

Methods

Below is a description of the survey methods used while surveying your lake. We've included a brief description of the equipment used, our cleaning procedure for all of our equipment before accessing your lake, and a description of our survey techniques.

Equipment

Equipment used while completing the Aquatic Invasive Species (AIS) survey of the lake consisted of double-sided rakes for collecting plant samples from under the water, an iPad 4 mini that is cellular-enabled for data collection and GPS tracking, a motor boat(s) or canoe(s), and a Lowrance HDS 7 Live sonar unit with transducer. All data and observations are recorded using ESRI's Field Maps – a mapping and data collection software. These tools allow us to accurately map our travel path and delineate any invasive plant beds (if found).

Cleaning

As our team is frequently moving from one water body to another, specific precautions were taken to ensure that all equipment used was decontaminated and free of AIS before and after entering your lake. This is done by thoroughly washing and decontaminating all of our equipment using a high-pressure washer with hot water (120-160 degrees Fahrenheit).

Monitoring Techniques

While out on the water body our crew focused on surveying the littoral zones in priority areas around the lake for aquatic plants. The littoral zone typically encompasses the area from shoreline to a depth of about 15 feet. The team surveyed the littoral zone in a zig-zag pattern searching for plant beds employing both visual observation and regular rake tosses informed by sonar output. The sonar guidance allowed us to target sample areas with plant growth over more sandy or otherwise bare areas of lake bottom. All plants retrieved by rake toss or seen by visual inspection were identified to the best of our abilities (usually to the species level, but sometimes to genus). Our team is highly trained in identifying both native and invasive aquatic plants and survey to the standards up held by the Adirondack Park Invasive Plant Program (APIPP). In addition to this, we carry several aquatic plants guides such as, the "Maine Field Guide to Invasive Aquatic Plants and their common native look-a likes" by Lake Stewards of Maine for aiding in onsite identification.

Given our variety of mapping equipment, we are able to accurately map any AIS infestations immediately upon discovery. If an AIS infestation had been discovered an occurrence point would have been dropped in Field Maps and the entire bed would have been mapped out with an assessment polygon. The occurrence point contains information such as the date, who made the observation, species, and photos. After the occurrence point gets collected and assessment polygon would be mapped out by circumnavigating the exterior of the plant bed while recording our position with GPS. Based upon how much AIS was observed on the rake toss a percent cover of the invasive plant bed is assigned to each assessment polygon. As the

assessment polygon and occurrence points are marked with GPS points changes in acreage, percent cover and placement in the water body can be tracked over time.

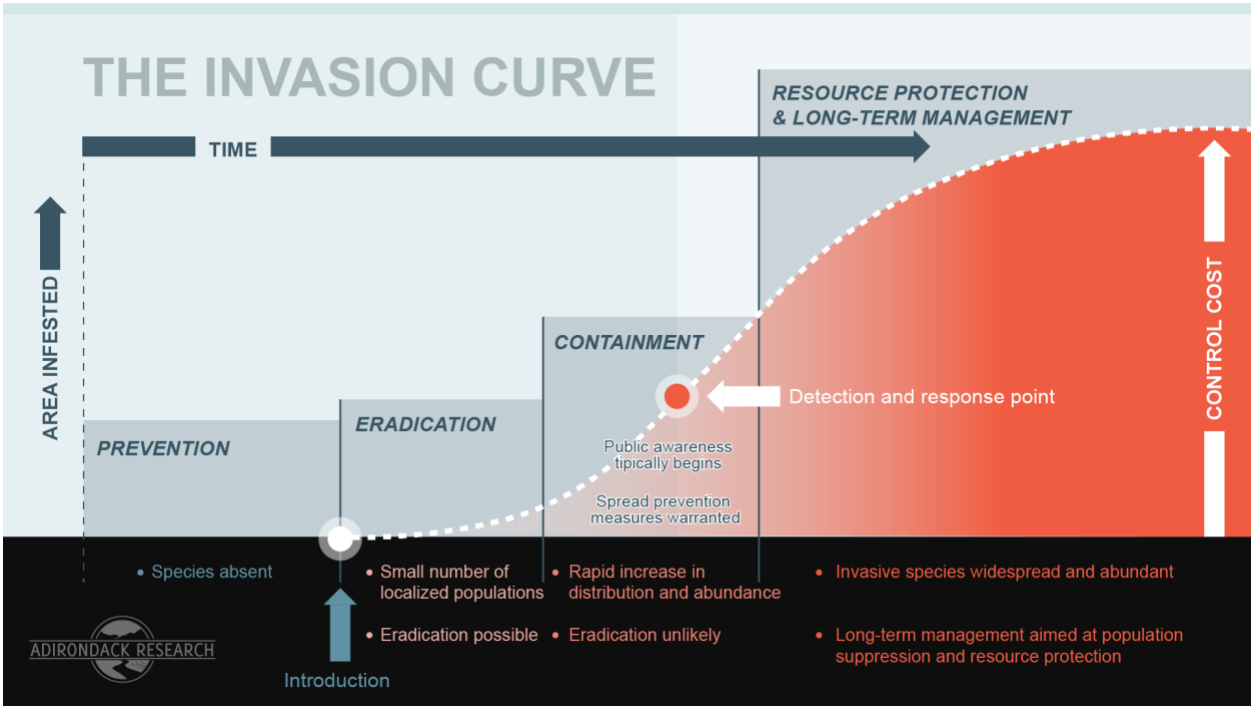
Invasive plant species (if found) and native species that were discovered over the course of the survey were identified, recorded and noted in the Results section of this report.

Data and Research Limitations

We collected sonar data from this survey, but we did not process the data in a third-party lake characteristics mapping program such as C-Map BioBase or ReefMaster. Sonar has been processed in the past during surveys conducted for the Adirondack Park Invasive Plant Program. The bathymetry shown in the included maps are from those previous surveys.

Recommendations

We recommend performing yearly early detection surveys. There are currently no invasive species present in the waterway. However, data supports that the earlier a detection of AIS on a body of water, the quicker and most effectively a management strategy can be devised.



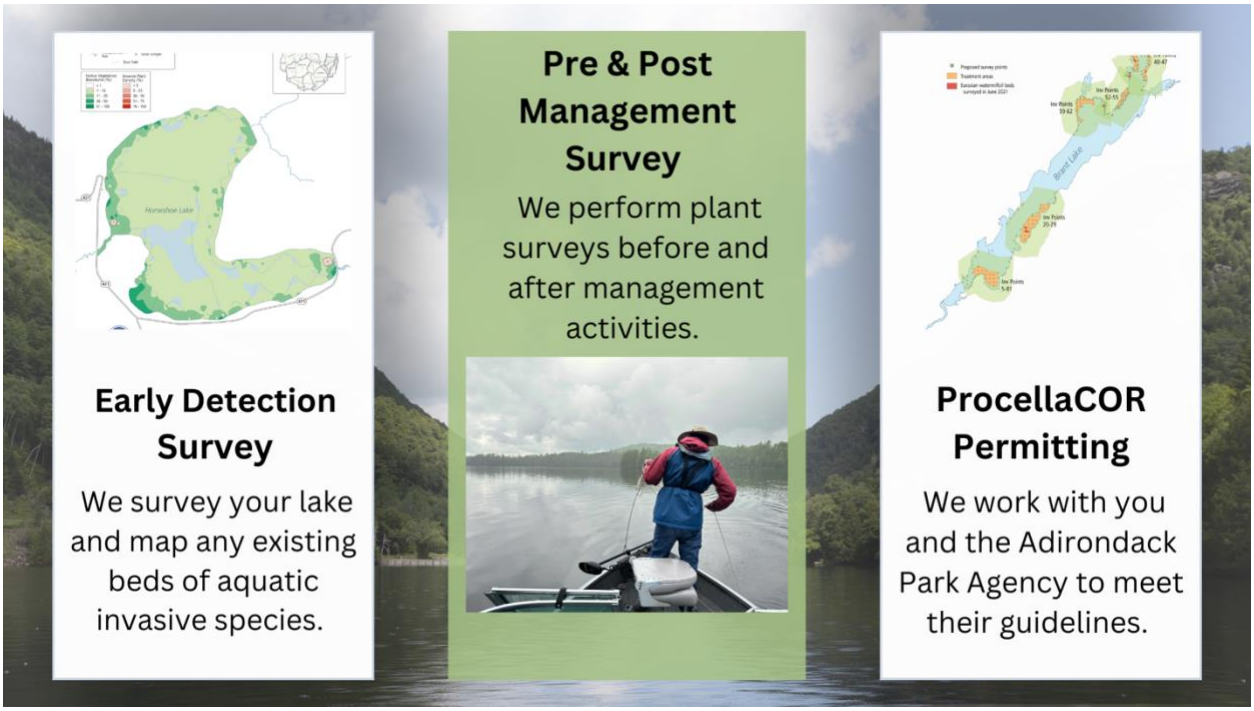
Conclusions

Rainbow Lake is free from aquatic invasive plants in the areas we searched.

Other services we offer

In addition to Early Detection Survey's, Adirondack Research also offers Pre and Post management surveys to determine the effectiveness and success of AIS management work conducted on a water body. Also offered is the ProcellaCOR Permitting Survey. ProcellaCOR is

an herbicide used to treat AIS such as Eurasian Watermilfoil. A survey of aquatic species is required for a permit to be issued.



Maps

The map included in this report has been created using publicly accessible data showing roads and lake boundary. When available, we also include publicly accessible bathymetry data from the NYS DEC. If found, invasive plant beds are also shown on the included map. Raw sonar data files from our survey can be supplied to you if requested. The dotted line on the maps shows our survey path this year.

Rainbow Lake

Survey Date: 6/20/2024
Last Surveyed: 2023
Survey Team: Morgan Hilliard, Justin Wolford

Lake Description

Rainbow Lake is 362 acres with approximately 11.7 miles of shoreline. It is located in the Town of Rainbow Lake in Franklin County in the Saranac River watershed. The team launched one motorboat at a public launch.

Aquatic Invasive Plant Presence

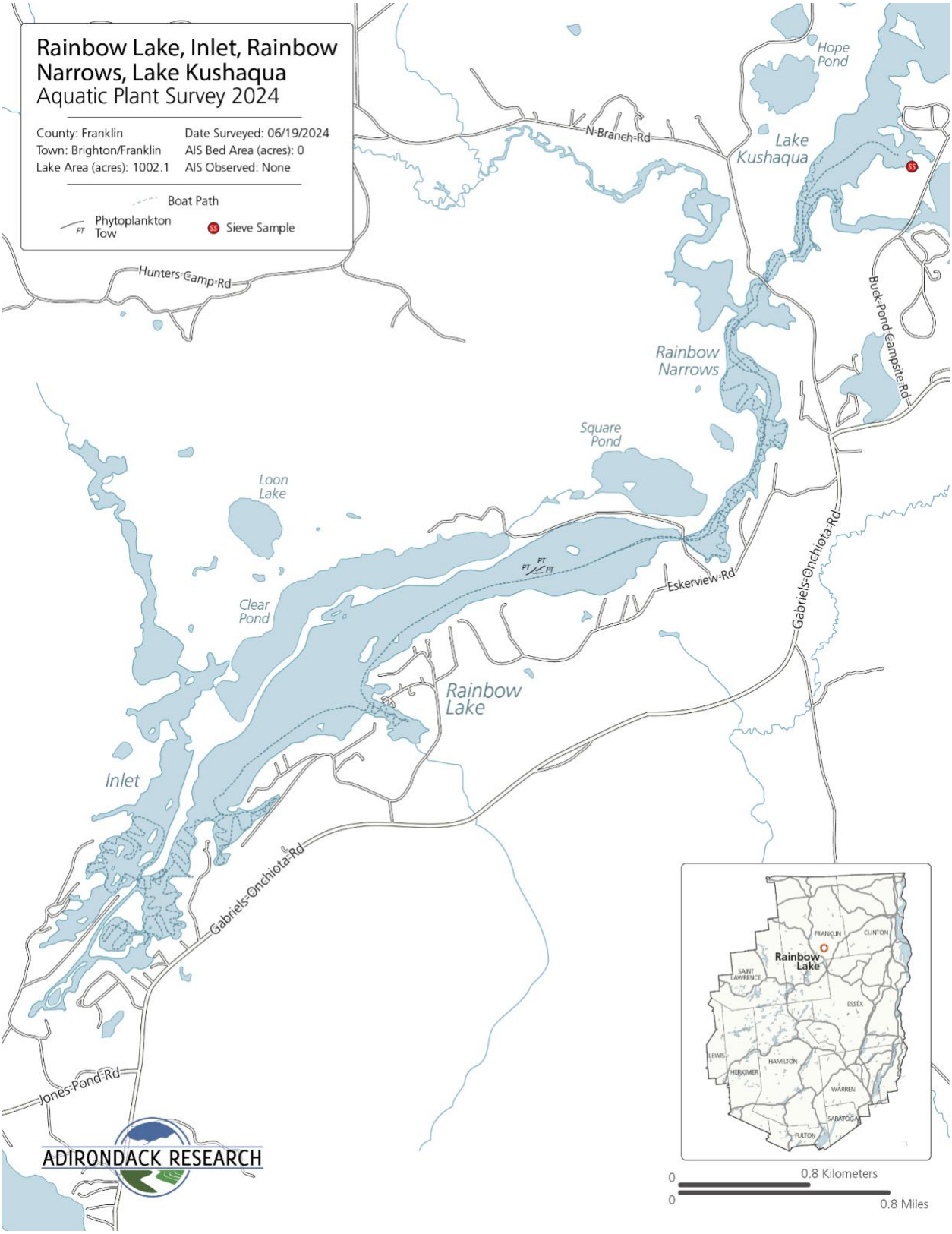
No invasives detected.

Native Plant Biota

Comprehensive surveys were not prioritized in 2022 as invasive species were the primary focus of the surveys. The following native plants were found: Eelgrass *(Zostera),* Waterweed *(Elodea),* Large-leaf pondweed *(Potamogeton amplifolius),* Spatterdock (*Nuphar lutea),* Robbins Pondweed *(Potamogeton robbinsii),* Nitella *(Nitella flexilis),* Bladderwort (*Utricularia macrorhiza*), Northern Watermilfoil (*Myriophyllum sibiricum*), Small Pondweed (Potamogeton pusillus), Watershield (*Brasenia schreberi*), Floating-leaf Pondweed (Potamogeton natans), and Muskgrass (*Chara sp.*).

Aquatic Invasive Animal Presence

Plankton tows were conducted resulting in no detection of invasive zooplankton. Sediment sieves were taken to determine the presence of invasive mollusks. None were detected.


Rainbow Lake, Inlet, Rainbow Narrows, Lake Kushaqua
Aquatic Plant Survey 2024
County: Franklin
Town: Brighton/Franklin
Lake Area (acres): 1002.1
Date Surveyed: 06/19/2024
AIS Bed Area (acres): 0
AIS Observed: None
Boat Path
Phytoplankton Tow
Sieve Sample
Hope Pond
N-Branch-Rd
Lake Kushaqua
Hunters-Camp-Rd
Buck-Pond-Campsite-Rd
Rainbow Narrows
Square Pond
Loon Lake
Clear Pond
Eskerview-Rd
Gabriels-Onchiota-Rd
Rainbow Lake
Inlet
Jones-Pond-Rd
ADIRONDACK RESEARCH
Rainbow Lake
FRANKLIN
CLINTON
SAINT LAWRENCE
ESSEX
LEWIS
HAMILTON
HERKIMER
WARREN
SARATOGA
FULTON
0
0.8 Kilometers
0
0.8 Miles