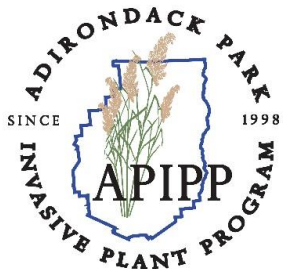


New Tools for AIS Surveillance: Lake Management Tracker Project & BioBase Lake Characteristic Mapping

Erin Vennie-Vollrath, Leigh Walrath, Ezra Schwartzberg & Janelle Hoh



**Adirondack
Park Agency**



**Adirondack
Research**

New York State's Partnerships for Regional Invasive Species Management (PRISMs)



Mission:

To protect the Adirondacks from the negative impacts of non-native invasive species

Goals:

1. Prevent new introductions
2. Rapidly detect and eradicate new infestations
3. Manage existing priority infestations to mitigate impacts

Activities:

Coordination, Prevention, Education & Outreach, Survey & Mapping, Control & Management, Monitoring, Research, Planning, Policies, Funding

Partnerships:

3 staff, 1 seasonal
Survey & Rapid Response Teams
4 principal partners (+4 new ones)
30+ cooperating organizations
100s of volunteers



Funding: New York State Environmental Protection Fund (5 year contracts)

Lake Management Tracker

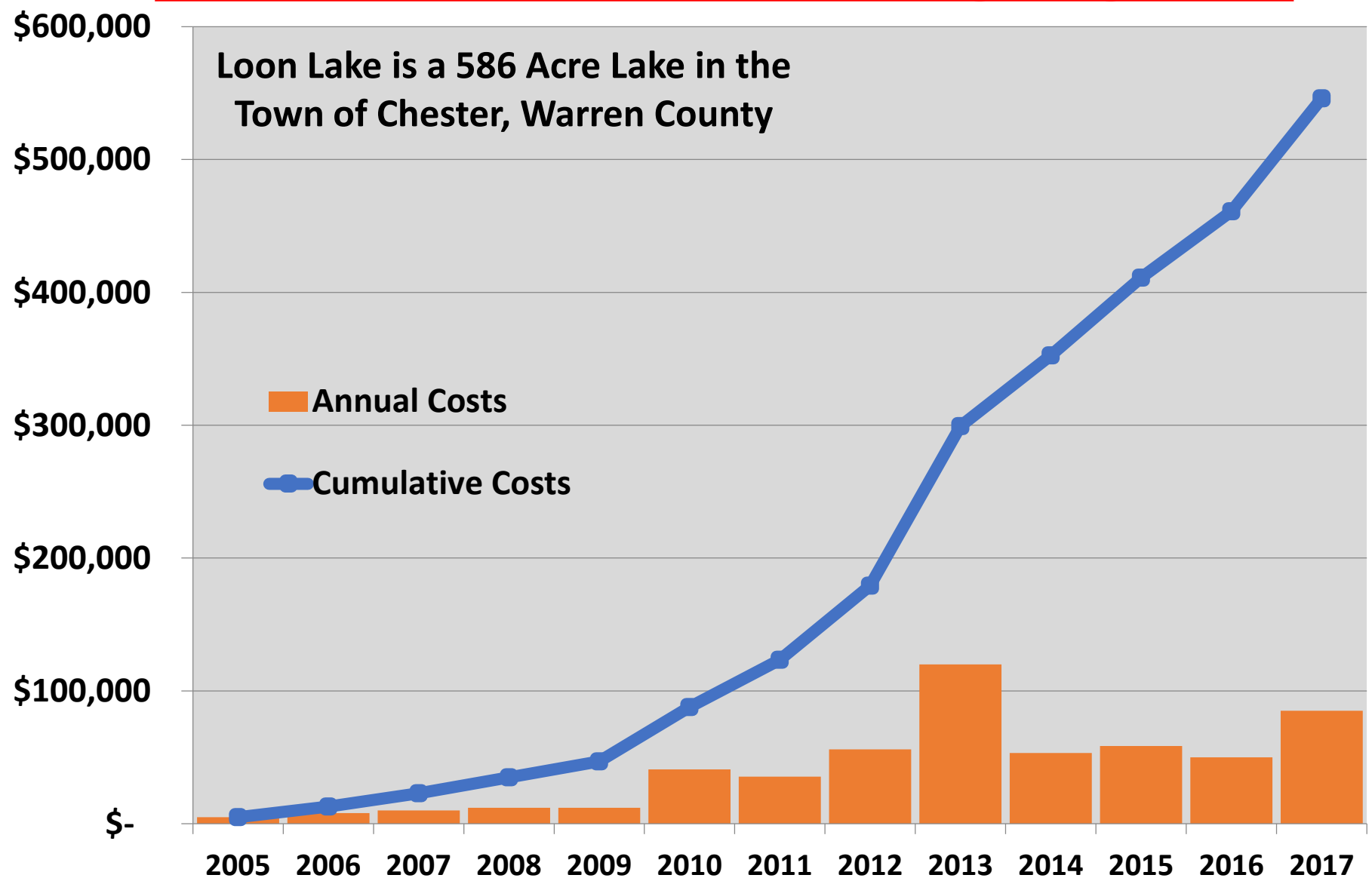


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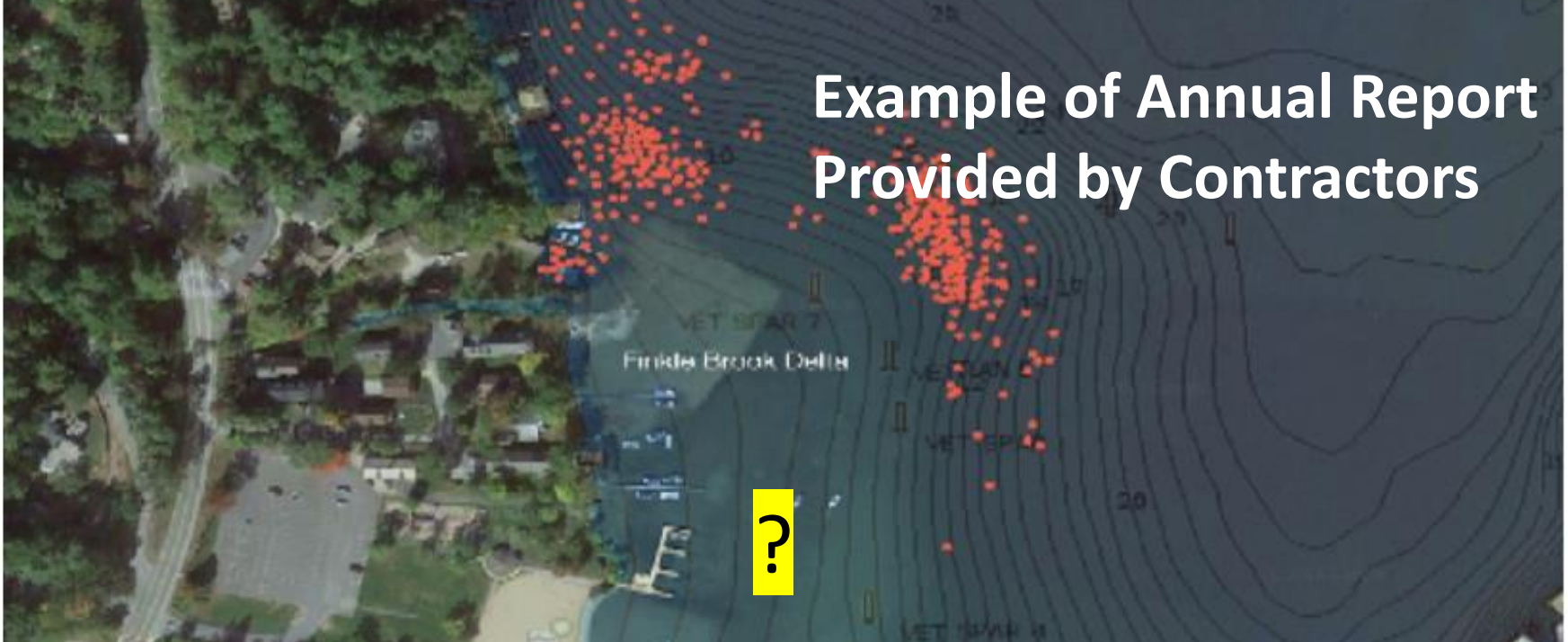


Adirondack Lakes Alliance and the Loon Lake Park District Association Asked:

“How do we know if we’re making progress?”



Example of Annual Report Provided by Contractors



In general, harvest reports only report where activities have occurred and amount of material harvested. Severity, areal extent, and progress in managing an infestation can only be inferred.

Site #	Site Name	# of Days	2018	2017	2016	2015
1	North West Bay	14	1050 bks 36,750 lbs	224 bgs	1005 bgs	310.5 bgs
4	Huddle Bay			2 bgs	-	265 bgs
5	W. Green Island					70.84 bgs
6	Sunset Bay	21	22,720 lbs			261 bgs
7	LG Village			-	21 bgs	840 bgs

1 Bucket = Approximately 1.5 Bags

The Survey

What's needed:

Lake with dedicated group of trained volunteers,

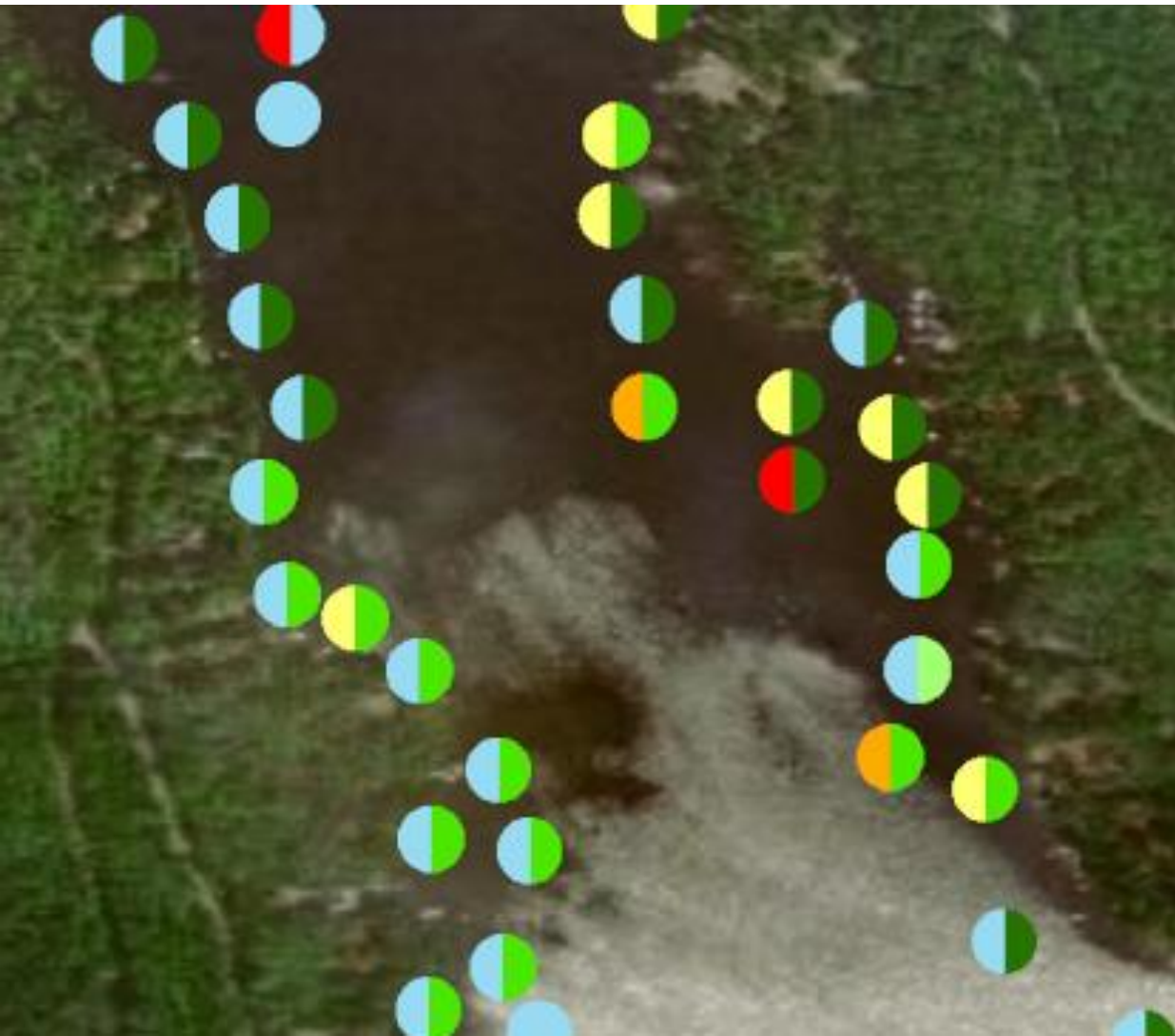
Aquascope, Survey Rake, Polarized Sunglasses,

Two portable devices (tablet or phone) with decent gps and compass.







Survey Designed to Rapidly Assess Invasive and All Native Plant Distribution and Qualitative Abundance





- Allows Assessment of Change Over Time -



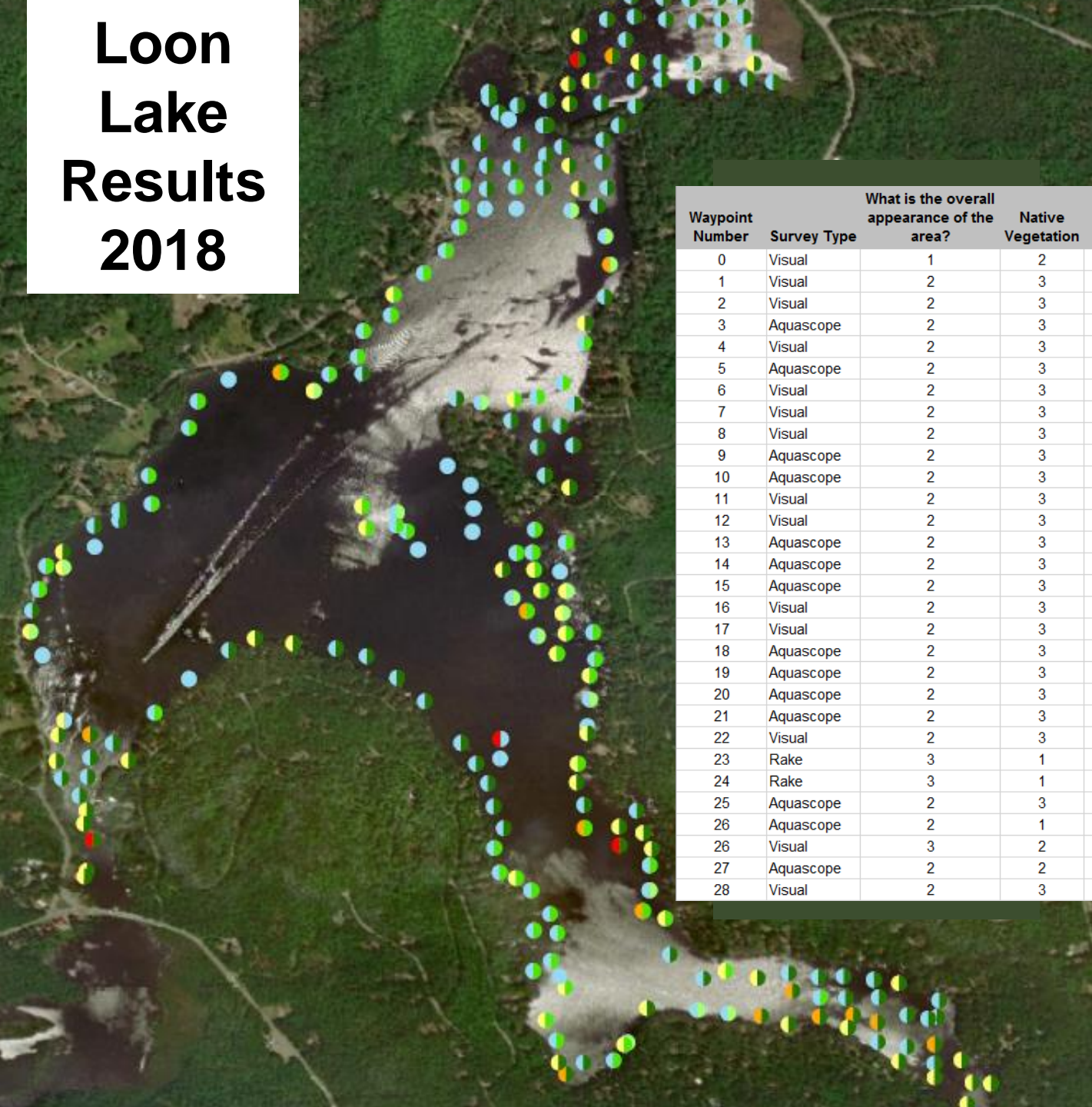
Native Vegetation Abundance

-  No Native Vegetation
-  Few Plants Widely Scattered
-  Trace to Sparse
-  Moderate to Dense

Eurasian Watermilfoil Abundance

-  No Eurasian Watermilfoil
-  Few Plants Widely Scattered
-  Trace to Sparse
-  Moderate to Dense

Loon Lake Results 2018



Waypoint Number	Survey Type	What is the overall appearance of the area?	Native Vegetation	Eurasian Watermilfoil	Date	Latitude	Longitude
0	Visual	1	2	1	2018-10-05 4:00	43.66214	-
1	Visual	2	3	2	2018-09-20 4:00	43.6625204	-
2	Visual	2	3	1	2018-09-20 4:00	43.66284942	-
3	Aquascope	2	3	1	2018-09-20 4:00	43.66292838	-
4	Visual	2	3	2	2018-09-20 4:00	43.66325086	-
5	Aquascope	2	3	1	2018-09-20 4:00	43.66395807	-
6	Visual	2	3	1	2018-09-20 4:00	43.66469336	-
7	Visual	2	3	1	2018-09-20 4:00	43.6645508	-
8	Visual	2	3	1	2018-09-20 4:00	43.66452371	-
9	Aquascope	2	3	1	2018-09-20 4:00	43.66517316	-
10	Aquascope	2	3	0	2018-09-20 4:00	43.66507512	-
11	Visual	2	3	1	2018-09-20 4:00	43.66513622	-
12	Visual	2	3	1	2018-09-20 4:00	43.66606374	-
13	Aquascope	2	3	0	2018-09-20 4:00	43.665674	-
14	Aquascope	2	3	0	2018-09-20 4:00	43.66554074	-
15	Aquascope	2	3	2	2018-09-20 4:00	43.66560562	-
16	Visual	2	3	0	2018-09-20 4:00	43.66635933	-
17	Visual	2	3	0	2018-09-20 4:00	43.66640656	-
18	Aquascope	2	3	2	2018-09-20 4:00	43.66621345	-
19	Aquascope	2	3	2	2018-09-20 4:00	43.66642432	-
20	Aquascope	2	3	2	2018-09-20 4:00	43.66637361	-
21	Aquascope	2	3	1	2018-09-20 4:00	43.66615122	-
22	Visual	2	3	2	2018-09-20 4:00	43.66638047	-
23	Rake	3	1	0	2018-09-20 4:00	43.66645888	-
24	Rake	3	1	0	2018-09-20 4:00	43.66654912	-
25	Aquascope	2	3	1	2018-09-20 4:00	43.66659646	-
26	Aquascope	2	1	0	2018-09-20 4:00	43.6665366	-
26	Visual	3	2	1	2018-09-23 4:00	43.6655954	-
27	Aquascope	2	2	0	2018-09-28 4:00	43.6651692	-
28	Visual	2	3	0	2018-09-28 4:00	43.6651063	-

Loon Lake 2018 Results

	Native		Eurasian Watermilfoil	
None	18	7%	162	66%
Few Plants Widely Scattered	17	7%	63	26%
Trace/Sparse	61	25%	16	7%
Moderate/Dense	149	61%	4	2%
Total	245	100%	245	100%

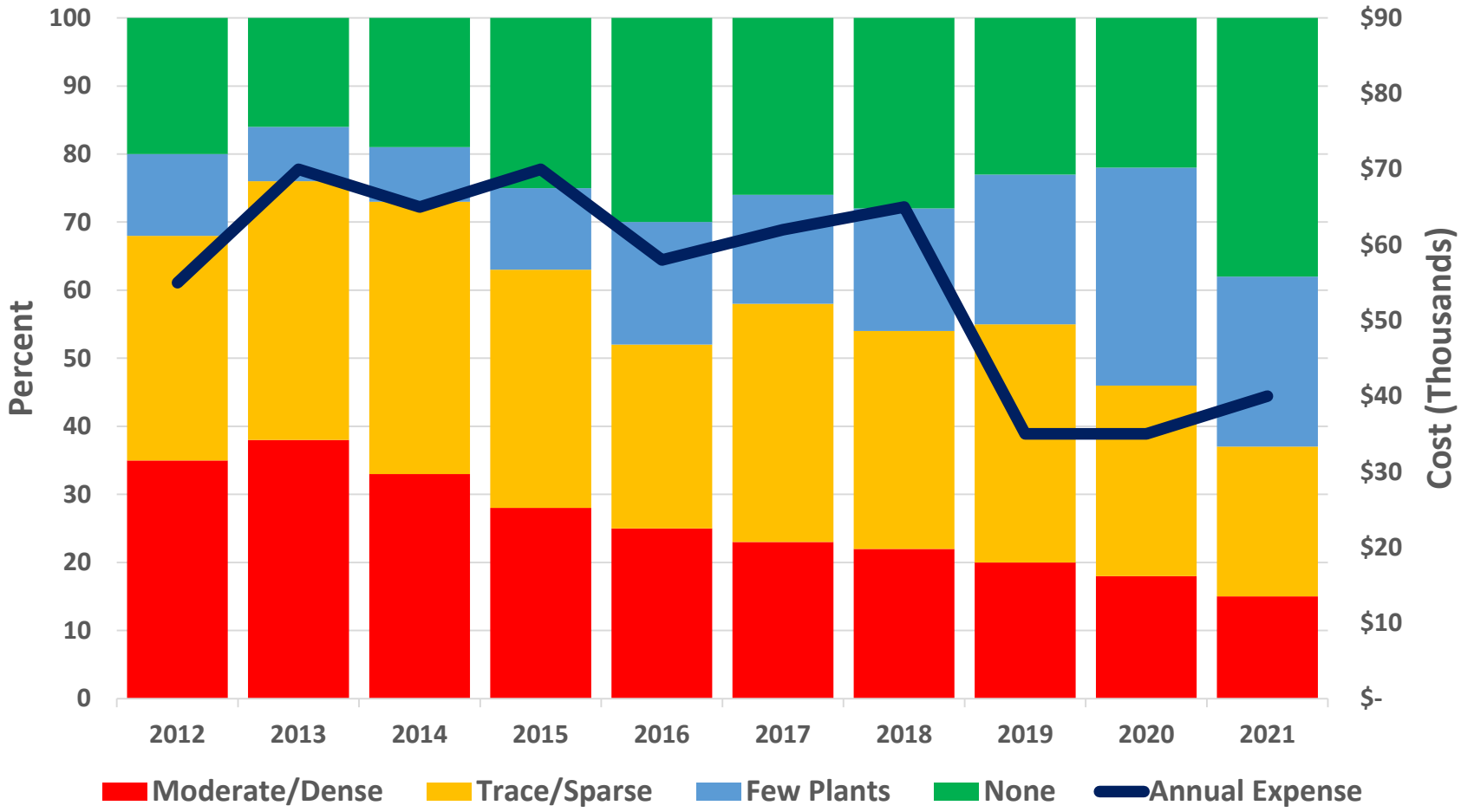
Each survey site represents approximately 1 acre.

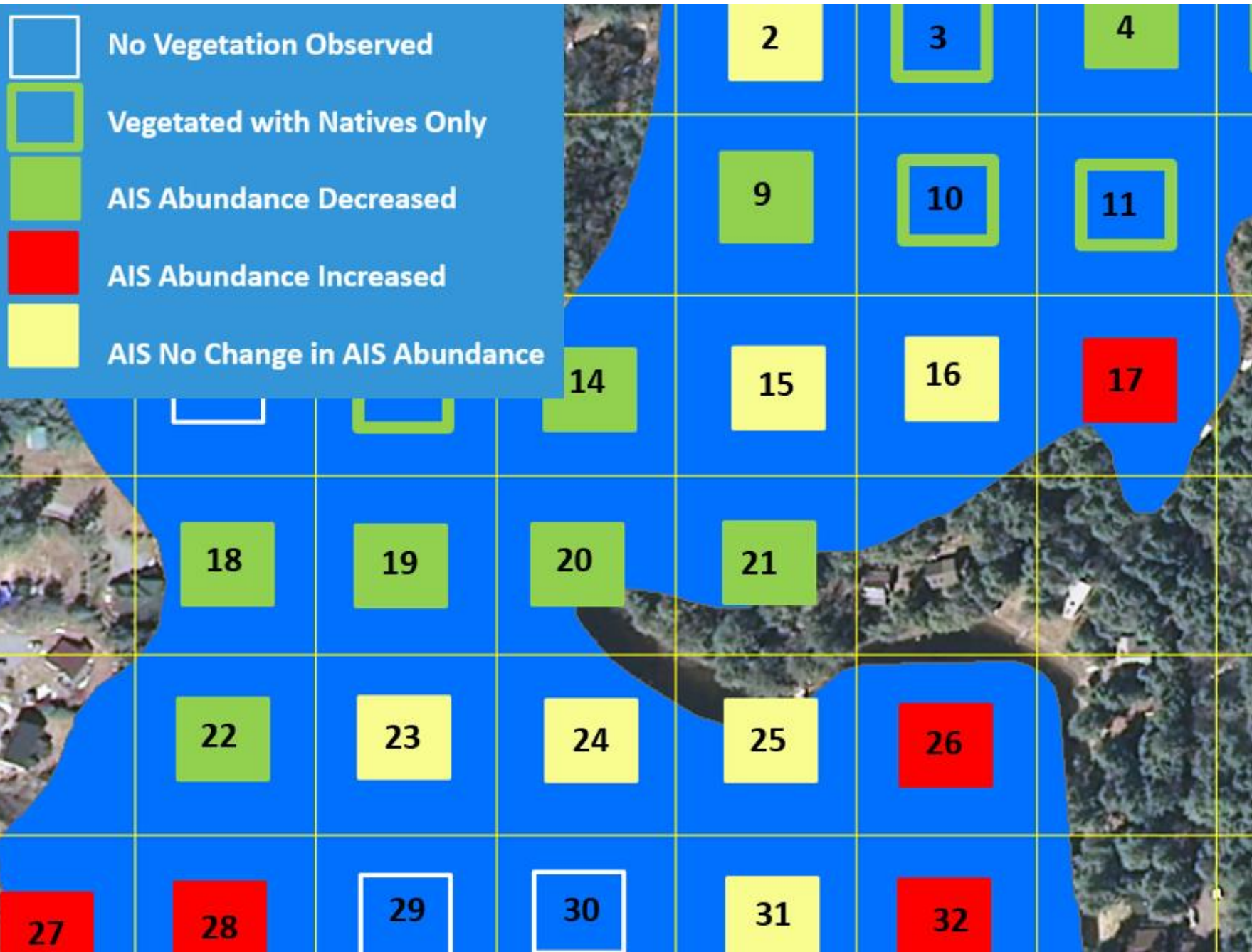
- 4 Acres of Moderate to Dense Eurasian watermilfoil**
- 16 Acres of Trace to Sparse Eurasian watermilfoil**

35% of Survey Sites found to have Eurasian watermilfoil

Hypothetical Example

Assessment Over Time – Lake-wide Results







2019 Project

Loon Lake

Lake Hadlock

Chateaugay Lake

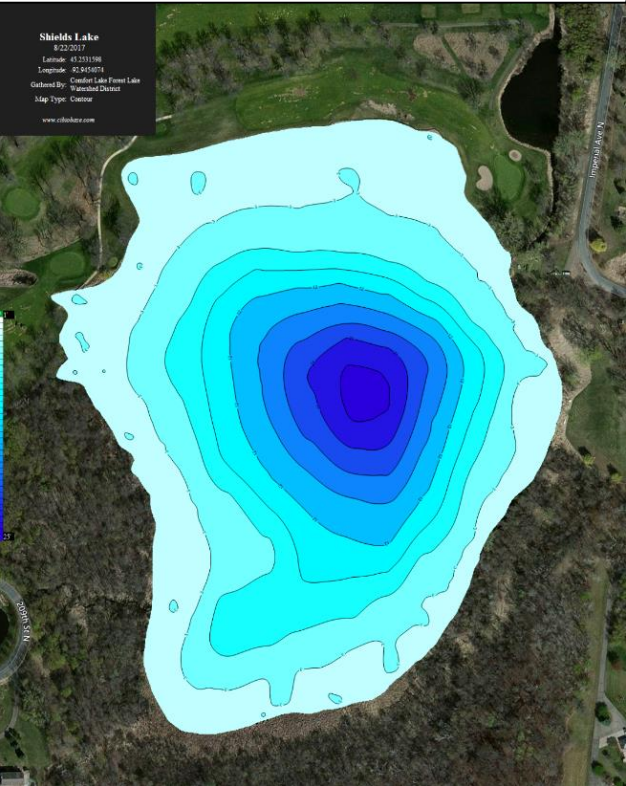
Lincoln Pond

Paradox Lake

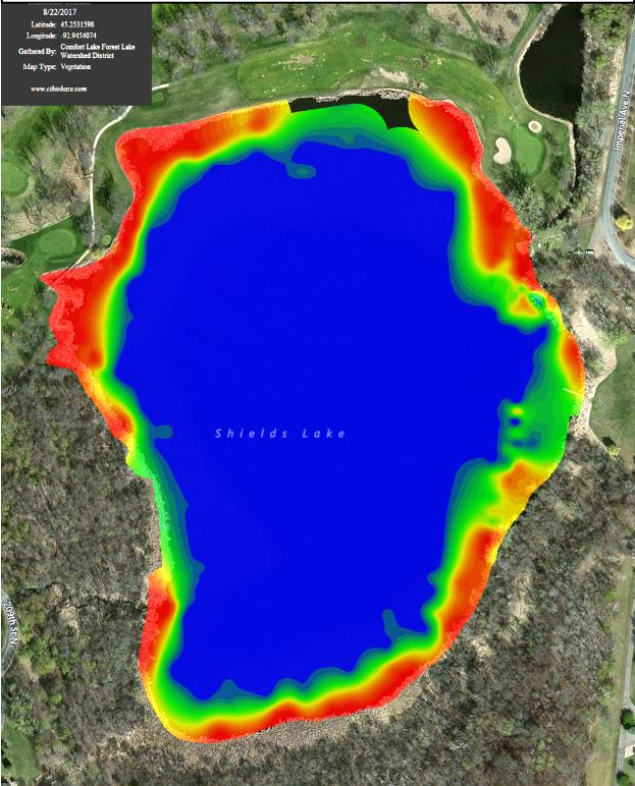
Friends Lake

BioBase Lake Mapping

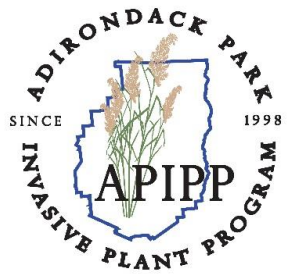
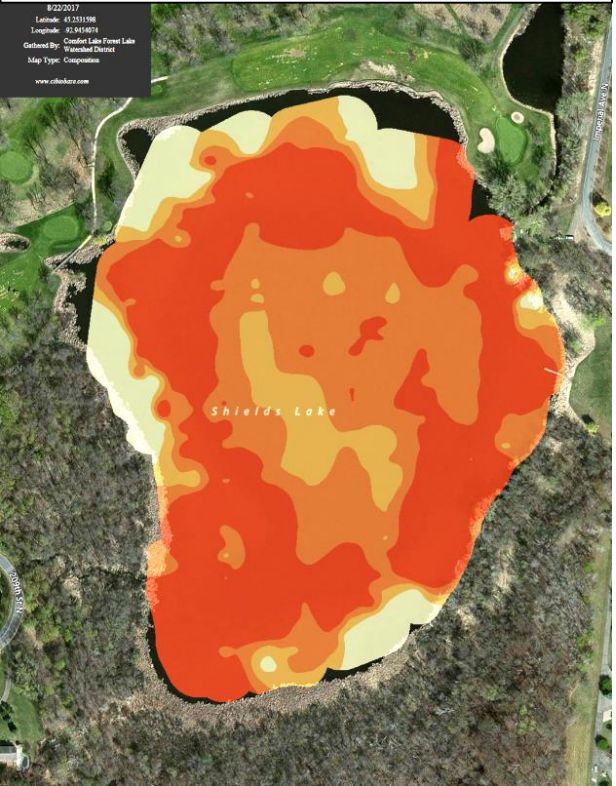
Lake Depth



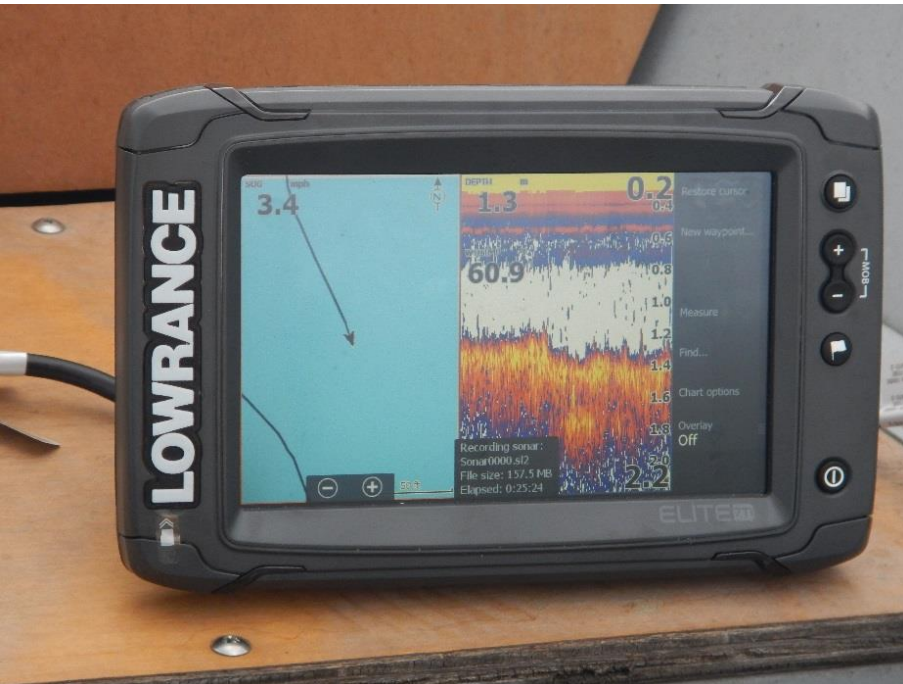
Vegetation Biovolume



Bottom Hardness



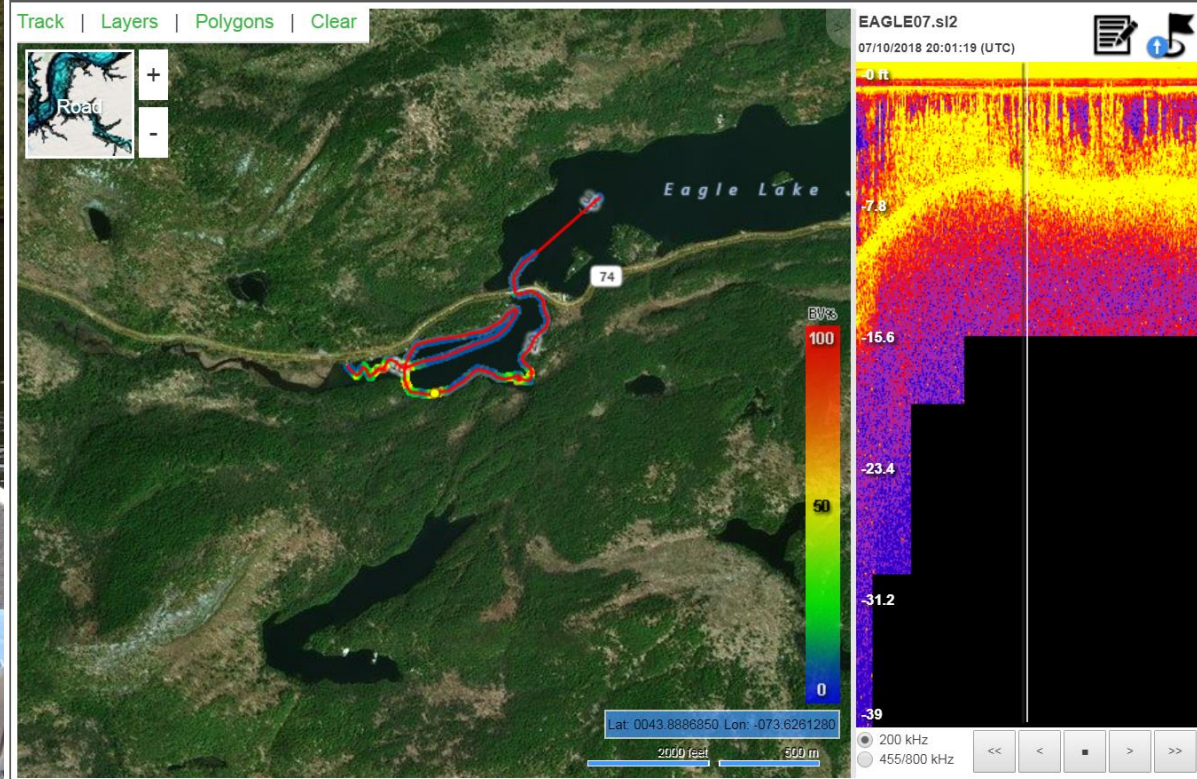
EQUIPMENT



High-end recreational grade sonar and a down-looking broadband transducer



2018 & 2019 AIS EARLY DETECTION TEAM



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Research

INVASIVE PLANT MOBILE MONITORING SYSTEM (IPMMS)



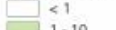
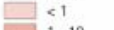
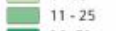

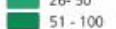
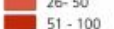



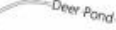
Esri Collector App

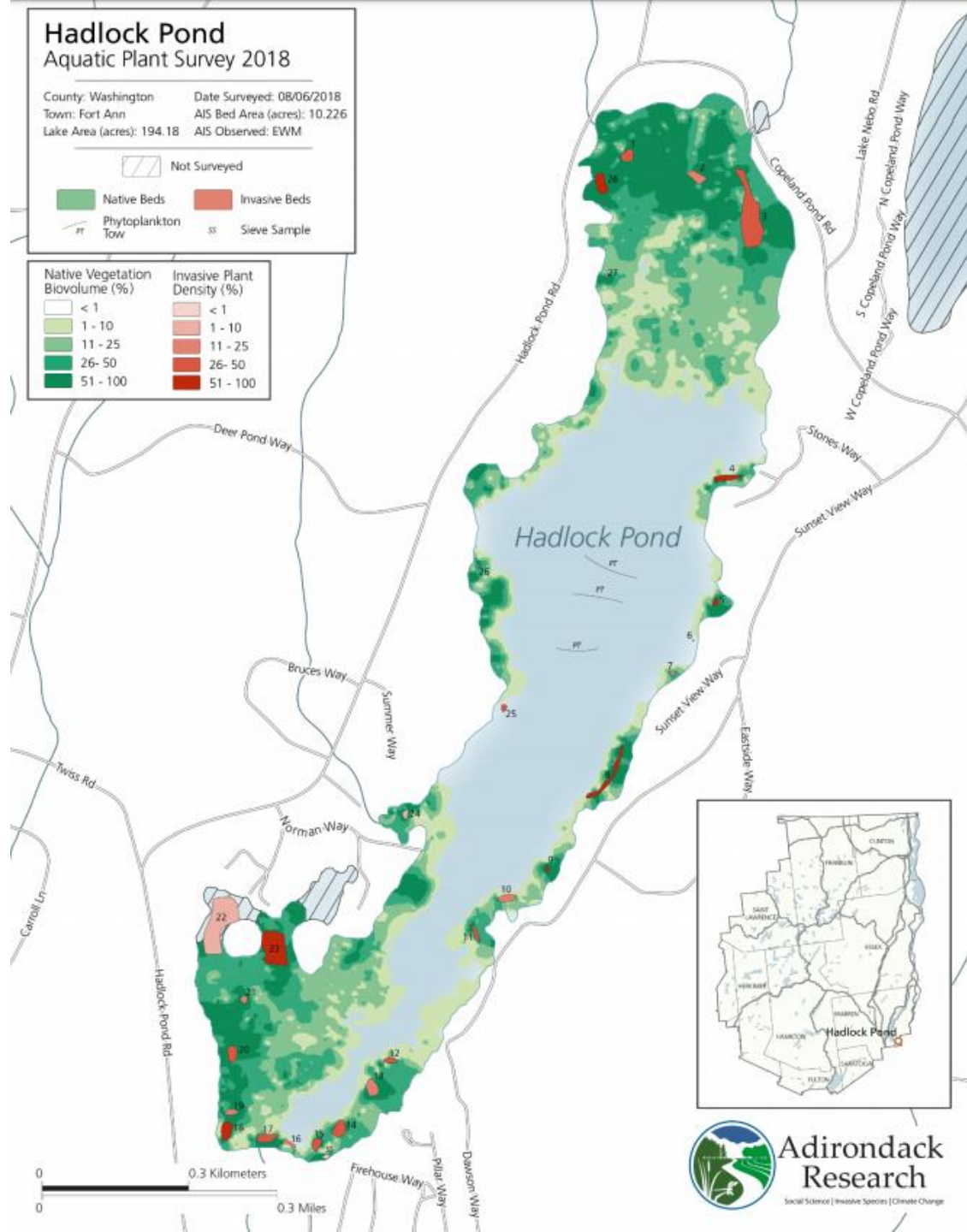


Hadlock Pond Aquatic Plant Survey 2018

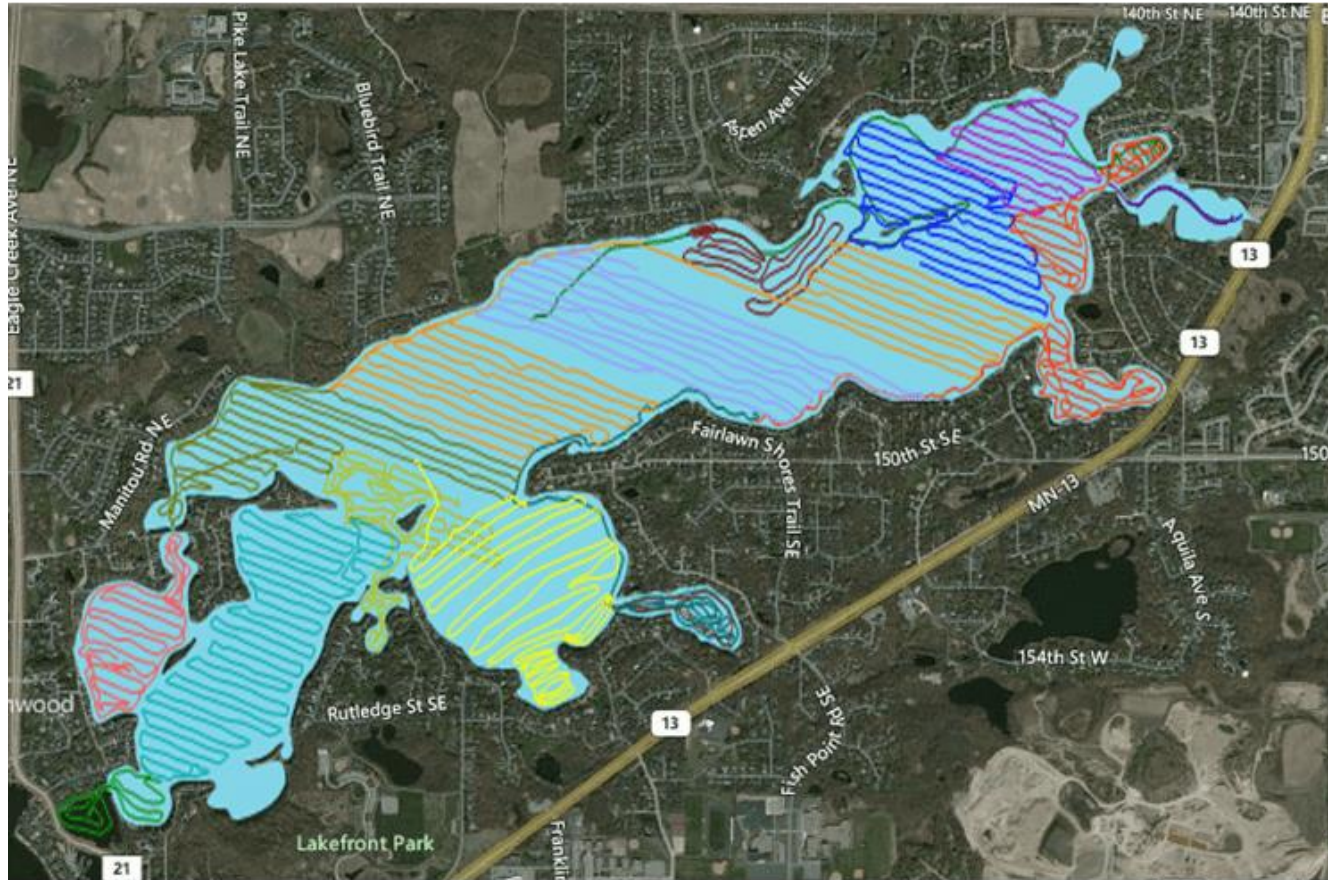
County: Washington Date Surveyed: 08/06/2018
 Town: Fort Ann AIS Bed Area (acres): 10.226
 Lake Area (acres): 194.18 AIS Observed: EWM

-  Not Surveyed
-  Native Beds
-  Invasive Beds
-  Phytoplankton Tow
-  Sieve Sample

Native Vegetation Biovolume (%)	Invasive Plant Density (%)
 < 1	 < 1
 1 - 10	 1 - 10
 11 - 25	 11 - 25
 26 - 50	 26 - 50
 51 - 100	 51 - 100

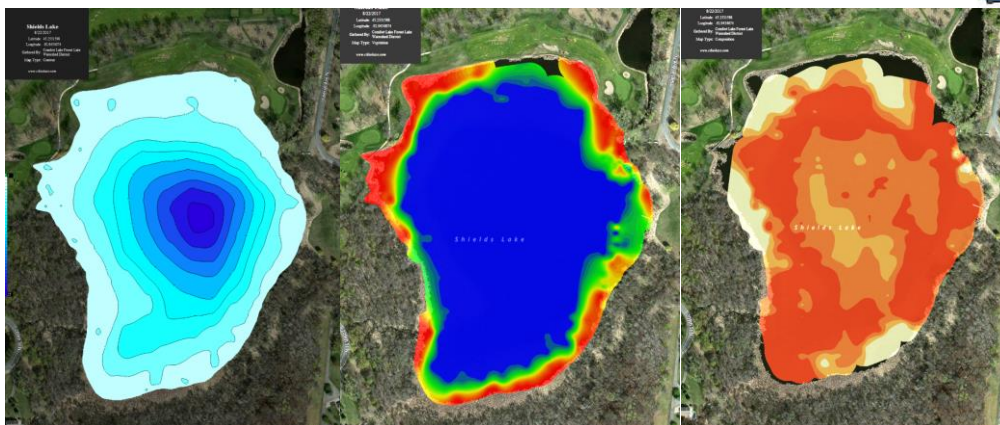
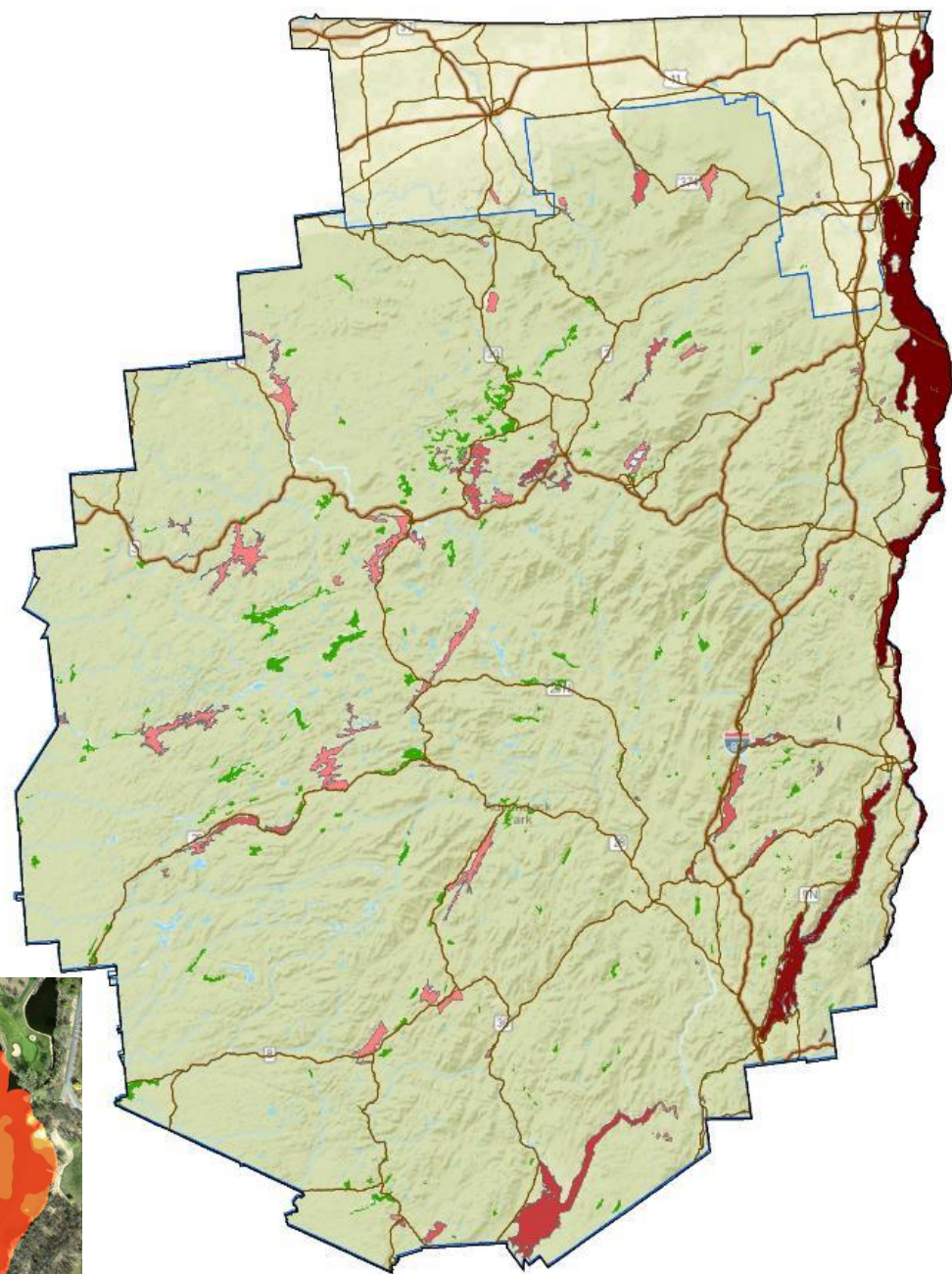


CITIZEN SCIENCE PROJECT



Lake Vulnerability Assessment

- BioBase Data
- Water Chemistry
- Boating Pressure
- Elevation
- Landscape Characteristics
- Boater Origin
- Etc.



Questions?

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518-891-4050

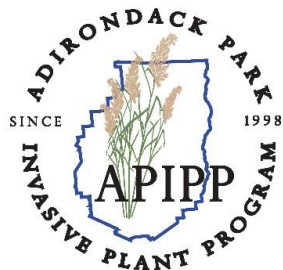
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