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AE Commercial Diving Services 2019 Lake George Eurasian Milfoil Management Report

Submitted to:



**Lake George
Park Commission**

The Lake George Park Commission (LGPC)
75 Fort George Rd, Lake George, NY 12845
www.lgpc.state.ny.us

THE FUND *for* LAKE GEORGE



The Fund for Lake George (FUND)
PO Box 352, Lake George, NY 12845
www.fundforlakegeorge.org



LAKE GEORGE ASSOCIATION
Protecting Our Water. Educating for the Future
- SINCE 1885 -

The Lake George Association (LGA)
2392 New York 9N, Lake George, NY 12845
www.lakegeorgeassociation.org

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PART I: AECDS 2018 Harvesting Site Totals Comparison

(Sites highlighted in gray are sites worked in 2019)

Site #	Site Name	2019 # of Days	2019	2018	2017	2016
1	North West Bay	19.5	7400 lbs	1050 bks 36,750 lbs	224 bgs	1005 bgs
4	Huddle Bay		n/a		2 bgs	-
5	W. Green Island		n/a		4 bgs	-
6	Sunset Bay	47.5	18,330	649 bks 22,720 lbs	100 bgs	428 bgs
7	LG Village				-	21 bgs
11	Warner Bay	12.5	4440 lbs	1.5 bks 52.5 lbs	152 bgs	212 bgs
14	Harris Bay	12	4665 lbs	80.5 bks 2820 lbs	606.75 bgs	385 bgs
15	Finkle Brook/ Finkle Brook Delta	9	1430 lbs	289.5 10,135 lbs	12.5 bgs	-
19	Dunham's Bay	12	3765 lbs	4 bks 140 lbs	8 bgs	34 bgs
25	Basin Bay		n/a	n/a	99 bgs	-
26	Bay SW of Cannon PT	13	6555 lbs	55 bks 1925 lbs	87 bgs	69 bgs
30	N. Tea Island Bay	8	1000 lbs	20 bks 700 lbs	3 bgs	13 bgs
43	Bolton Bay		n/a		.5 bgs	-
46	Leontine/ Clay Shoal		n/a		14.5 bgs	-
48	Gull Bay		n/a		110 bgs	424 bgs
56	S. Sawmill Bay		n/a		.5 bgs	-
107	Elizabeth Island	6	810 lbs		10 bgs	54 bgs
117	Glenbernie Blair's Bay		n/a		286 bgs	575 bgs
145	Juniper Island		n/a		.5 bgs	-
161	E. of Speaker Heck Island		n/a		84 bgs	-
164	N. Leontine Shoal		n/a		4 bgs	-
165	Basin Bay Shoal		n/a		16 bgs	-
185	Oahu Island		n/a		20 bgs	-
202	Long Island/ Assembly Pt/ Middle Bay Shoal	10	1455 lbs	245 bks 8580 lbs	118 bgs	-
204	Roger's Rock Campground		n/a		26 bgs	-
U/K	Oakley Way		n/a	15 bks 525 lbs	-	-
U/K	DEC Facility	1.5	675 lbs			
U/K	Dog Beach/ SE Boat Launch	4	390 lbs			
U/K	Million Dollar Beach/ Boat Launch	13.5	5835 lbs			
U/K	Echo Bay	3.5	775 lbs			
U/K	Indian Bay	21	6570 lbs			

U/K	Eichlerville Bay	12	4970 lbs			
U/K	Clay Island	33.5	13250 lbs			
Year Total, Buckets				2409.5		
<i>Year Total, Bags</i>				<i>Apx. 3373.3</i>	<i>1,988.25 bgs</i>	<i>3,220 bgs</i>
Year Total Pounds		238.5 Crew days	92,315	84,332.5 lbs	49,706.25	80,500

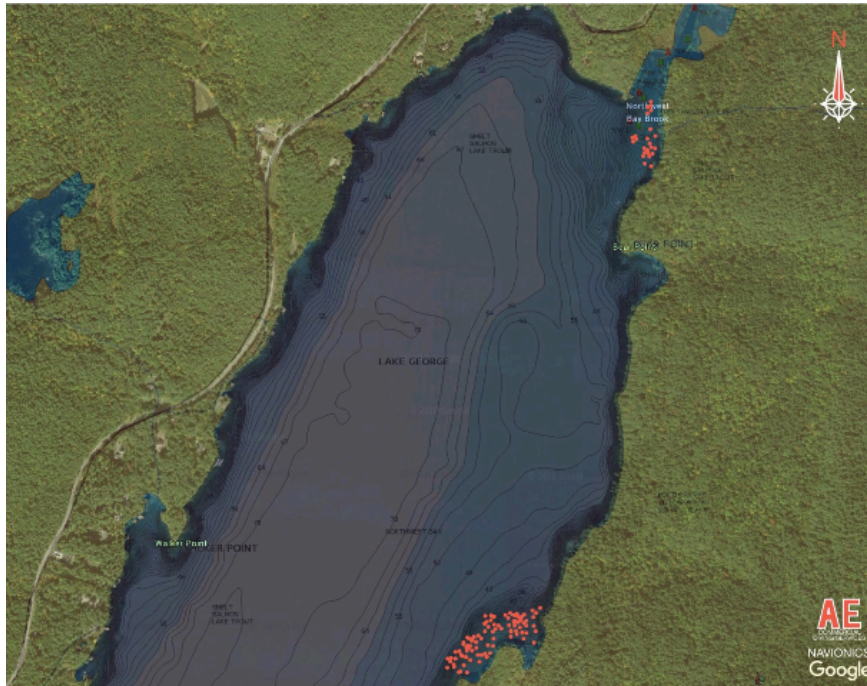
NOTE:

~ Totals are reported only in pounds this year.

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Part II: Location Analysis

- **Northwest Bay**



Summary:

The areas worked furthest north in NWB, near the outlet, have had the best success. The bottom is much softer, comprised mostly of mud and native vegetation.

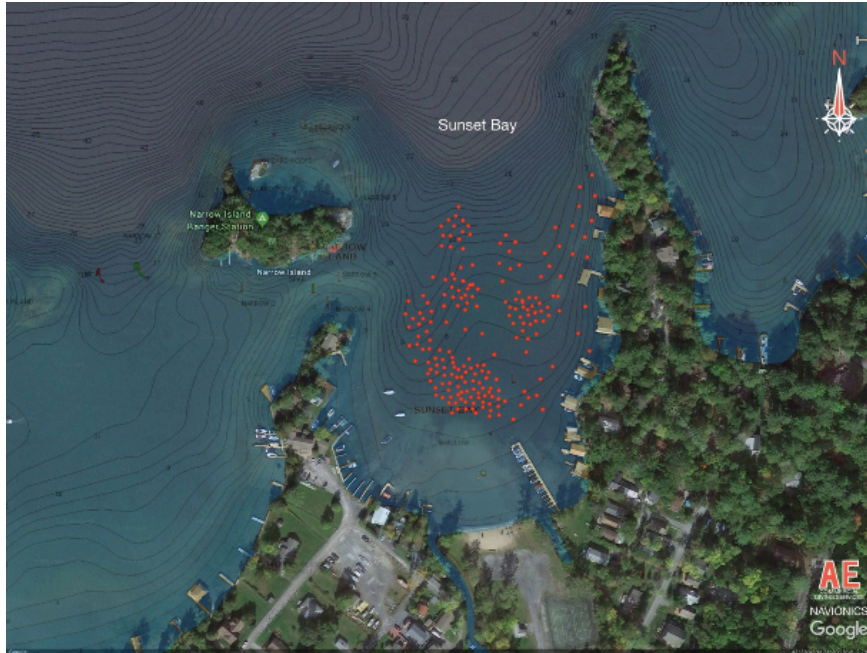
As you head down the east shoreline to the southern sectors of NWB the bottom composition becomes less optimal. The lake bottom becomes rockier and the soft sediment seems to shift to more of a clay base. This can cause poor visibility due to the nature of agitated clay in the water column. These southern sectors are comprised of dense beds located on large rock deposits. Therefore, the invasive plants are harder to eradicate due to the difficulty of digging roots from the rocky bottom.

Recommendations:

It is imperative that we continue to remove the invasive plants in this site, however; it is important to recognize how the changes in bottom composition from the northern sector to the southern sector of this site affect productivity. The increase in pounds of invasive Eurasian Watermilfoil removed this year as compared to last year from this site is a clear indication that progress can be made with more time on site, as the days on site increased by five. It also suggests that many contextual factors must be considered when evaluating productivity. Site to site comparison is less informative than annual data from a site contrasted against that same site's past annual data.

Additionally, there are many fishermen who frequent these areas; continued efforts to educate fishermen on how they can help to reduce fragmentation is essential, as our observations of the southern sectors of this site demonstrate a 'moving' of the main beds south-ward, which is consistent with observed fishing patterns for boaters in the areas. We also recommend that education regarding safety standards and marine/boaters safety rules for boating in the vicinity of divers continue as this site proves to be hazardous for our crews.

- **Sunset Bay**



Summary:

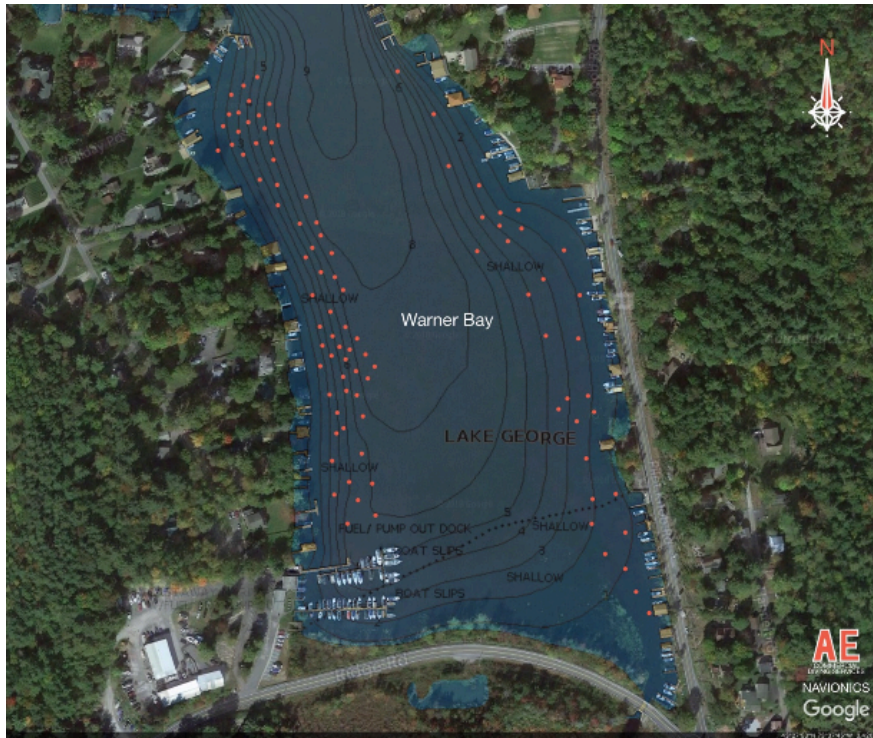
Two harvesters and an occasional hand pulling crew worked in Sunset Bay in the 2019 season. We put a good deal of time and effort into the bay in 2018 and made a good deal of progress. We increased our efforts in 2019, which pushed progress along. The bottom composition is ideal for the removal of root systems and there is an abundance of native vegetation that can, (and often will), take over once invasive Eurasian Watermilfoil is removed. Because of these conditions, we expected to see additional progress in the 2020 season.

Recommendations:

There is a good chance that there is a dense bed of Eurasian Watermilfoil located north of Sunset Bay that is seeding further infestation. We recommend a survey of the area early in the season to determine if this is indeed contributing to the sparse to moderate growth we observed in roughly 50% of the bay.

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- **Warner Bay**



Summary:

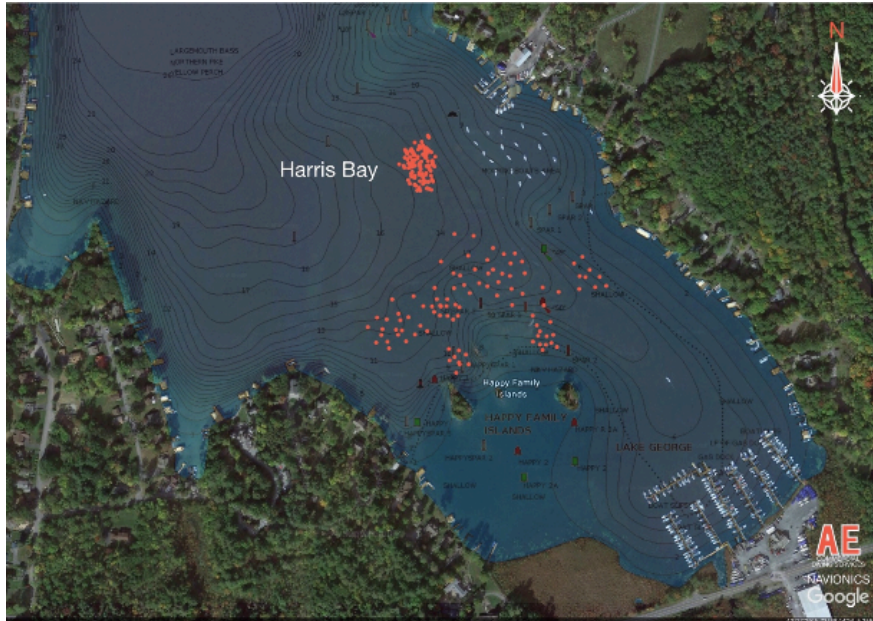
Warner Bay has sporadic growth down both the east and west shorelines. The middle of the bay, when surveyed, appeared to be free of Eurasian Watermilfoil, as it has in past years. We visited Warner Bay throughout the summer with a hand pulling crew, and a harvester was brought in to help remove areas that would have been too time consuming for hand pulling crews a couple of times. The inlet into Warner Bay creates a low visibility situation for the dive crews.

Recommendations:

While sporadic growth can often be best addressed through hand pulling, the large, spread-out nature of the bay, coupled with visibility concerns and boat traffic, have led us to believe that suction harvesting would be a more effective control method.

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- **Harris Bay**



Summary:

Harris Bay has proven to be a tricky site to the wide variety of bottom composition, topography, and sediment. The area surrounding the islands consists of boulders and rocks, making it difficult to remove plants *and* their entire root systems. As a result, the risk for regrowth is high, and will require monitoring.

As you move away from the islands, some sectors of Harris Bay shift dramatically to soft sediment with clusters of native vegetation. These areas are showing the most improvement and are more easily controlled.

Farther still from the islands, however, large flat sectors open-up with a depth ideal for invasive Eurasian Watermilfoil to proliferate. These open ‘plane-like’ sections make conditions ideal for the invasive plants to take over quickly in large, dense beds if left unchecked.

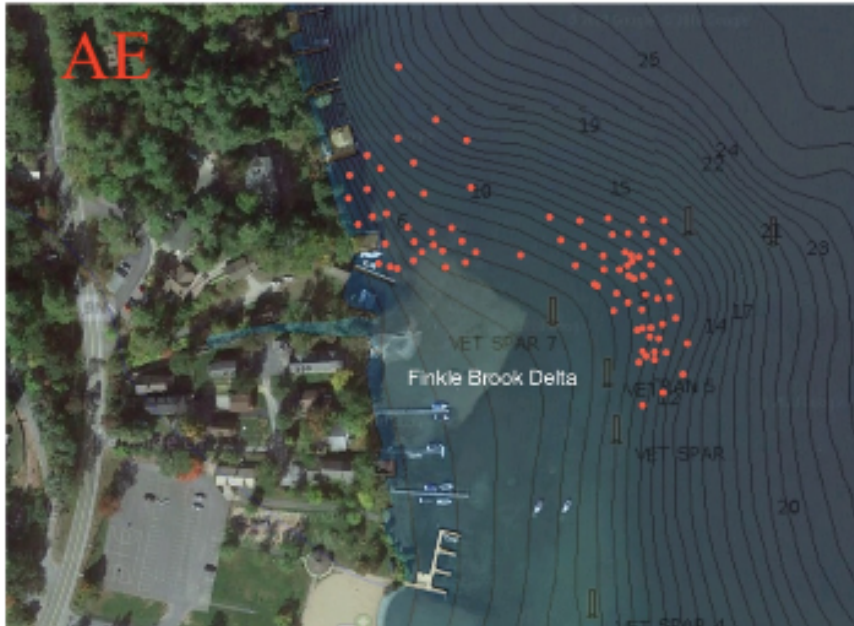
Progress is being made but at a much slower pace than was hoped. Areas worked in 2018 remained open in 2019 but new spots continue to pop up due to the conditions described above.

Recommendations:

Harris Bay is complex and requires vigilance. Ongoing discussion regarding the site is recommended to ensure progress is not undone.

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- **Finkle Brook/Finkle Brook Delta**



Summary:

The Finkle Brook Site is broken into two distinct sectors: the delta and the off-shore sector adjacent to the beach park. Work completed in the delta in 2018 has proven to have a positive effect on the reduction of invasive Eurasian Watermilfoil. Very little regrowth was found near the inlet of Finkle Brook or the immediate area of the delta in 2019.

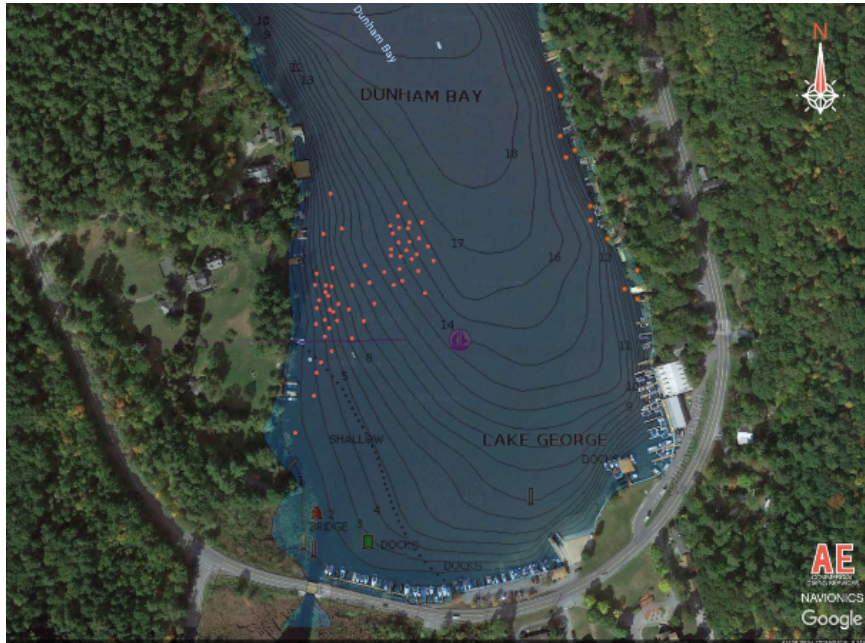
The offshore sector had slightly more new growth than the inlet, but still showed a reduction due to work completed in 2018.

Recommendations:

We believe growth in the offshore sector of Finkle Brook may be related to regrowth in part, however; a patch discovered a few hundred meters southeast is suspected to be contributing to regrowth in the area due to fragmentation.

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- **Dunham's Bay**



Summary:

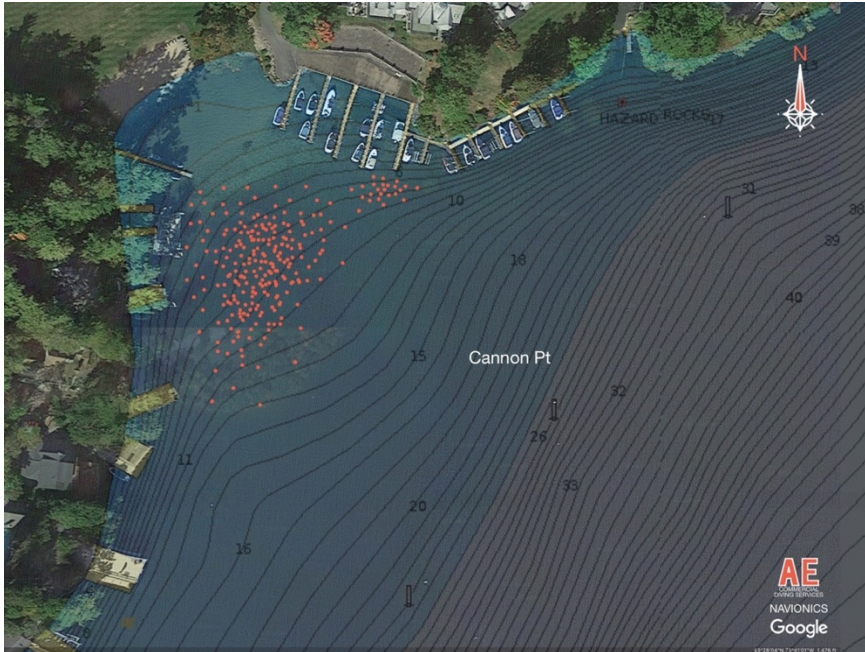
Overall, Dunham's Bay looked very good. There was a sporadic vein of milfoil along roughly 60% of the eastern shore. The western shore revealed very little growth of Eurasian Watermilfoil, with only a few plants along its entirety. The bulk of harvesting efforts in Dunham's Bay was in the center of the bay in roughly 20 - 25 feet of water. The bed was small but dense. It was located at an old bottom barrier site.

Recommendations:

In the coming season, it will be very important to monitor Dunham's Bay, as there is a very busy marina on site. Though most of the dense growth was away from the marina, boat traffic could lead to fragmentation and spread of Eurasian Watermilfoil quickly. Continued DASH and frequent surveys are essential to keeping Dunham's Bay on a trajectory towards optimum containment and control.

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- **Cannon Point/ Bay SW of Cannon Point**



Summary:

When we began work at Cannon Point in 2019, we found that it resembled how it had looked before commencing work in 2018: a dense bed of invasive Eurasian Watermilfoil was located southwest of the point, in roughly the same place as 2018, though the bed had shifted slightly to the east.

There are several contributing factors to why work in this area has only held the advancement of the Eurasian Watermilfoil at bay rather than reduce it. First, the lake bottom at this site is a dense sandy base that encourages deep root growth. Removing the entire root ball of the invasive Eurasian Watermilfoil plants that grows here is time consuming and difficult, though clearly imperative.

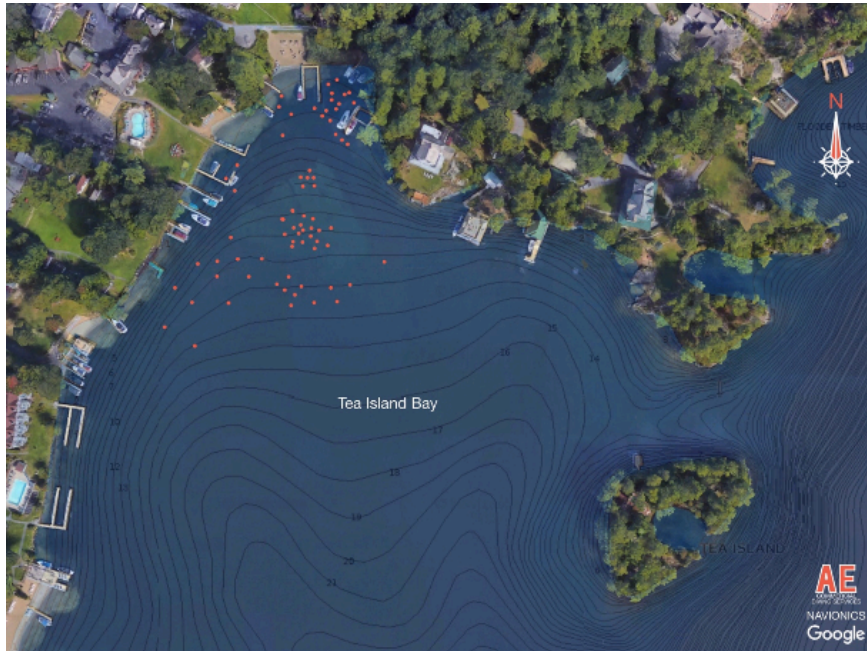
Next, this site is thick with native plant life that is punctuated with Eurasian Watermilfoil. Removing the invasive plant without damage or destruction of these native plants is very difficult and leads to a situation where divers are sorting through stems at the bottom of the lake in poor visibility conditions.

Finally, Cannon Point is rife with boat traffic and we suspect the perpetual traffic is leading to a rapid regrowth potential through fragmentation.

Recommendations:

It is crucial that the dense bed of Eurasian Watermilfoil be held in check to reduce movement of the bed into areas south of Cannon Point, as was observed occurring between 2018 and 2019, or beyond. The increase of days allotted to this site, (5 in 2018 to 13 in 2019), allowed for a more robust removal of invasive Eurasian Watermilfoil and must continue in order to control this site's infestation. With a continued aggressive approach to Cannon Point, we are hopeful that the natural complicating factors of the site will be eventually be overwhelmed by effort and a reduction will be seen in Eurasian Watermilfoil.

- **N. Tea Island Bay/Tea Island**



Summary:

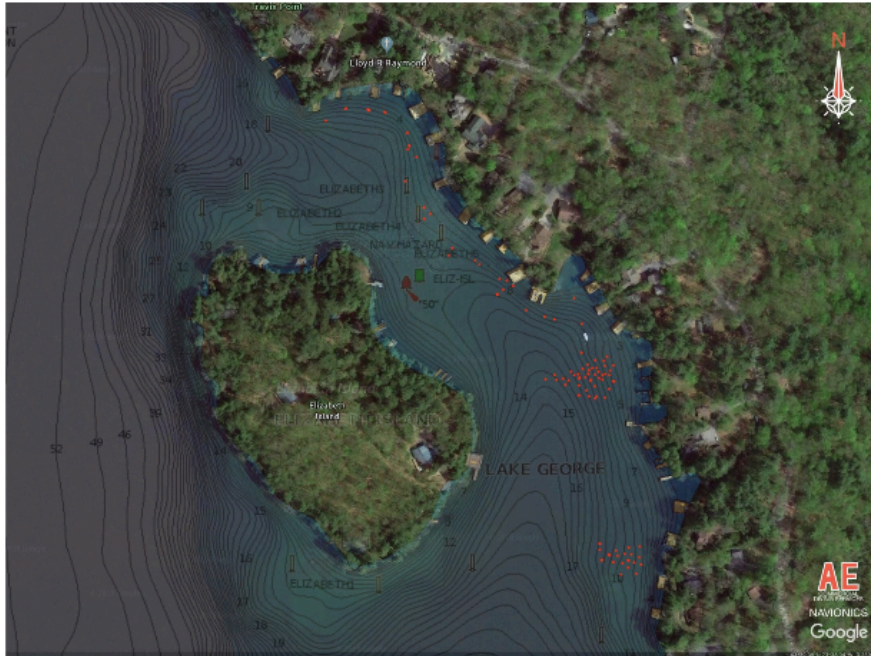
The initial survey prior to the commencement of work in 2019 revealed that work in 2018 on the Tea Island site was successful in significantly reducing the infestation of Eurasian Watermilfoil. This made for quick work at the site. However, the shallow areas of the site, especially in the areas around the resorts and their docks, revealed new growth that was more complicated to remove.

Recommendations:

New growth at this site, (most likely due to fragmentation caused by a high tempo of boat traffic), is in areas where DASH work is much harder to conduct, such as under and around docks and moorings. We recommend that close attention be paid to the trend of regrowth at this site in order to prevent a relapse into a denser area of infestation, especially in shallow areas.

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- **Elizabeth Island**



Summary:

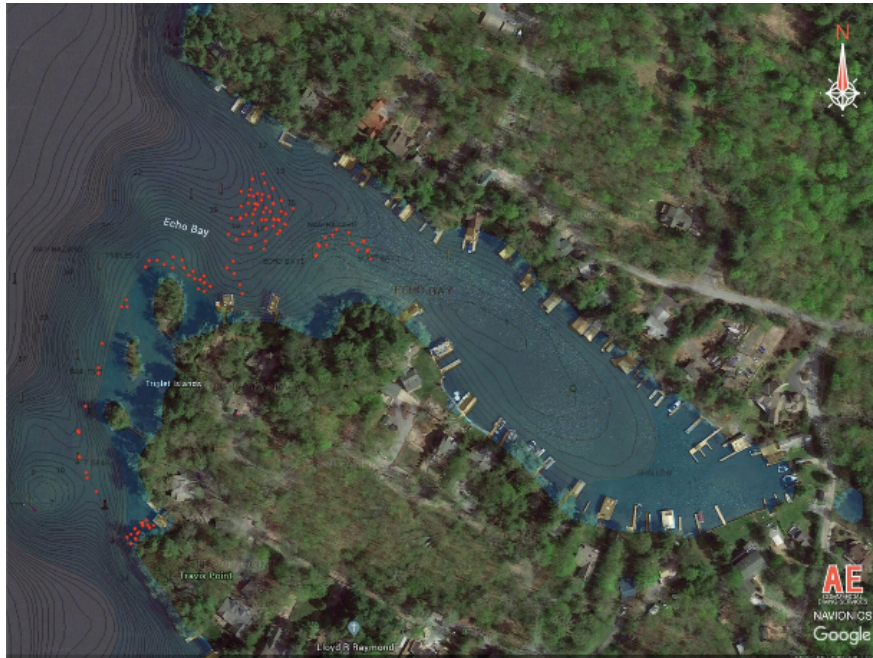
The Elizabeth Island site, (new to us in 2019), was completed faster than anticipated. There were only a few small dense beds in areas of shallow water, and the crews had no problem finding them and removing them.

Recommendations:

Though the work was fast and straightforward at this site, the dense beds were located on rocky deposits which make for a difficult removal of the Eurasian Milfoil root ball. Because of this, we recommend a site survey of the area in 2020 to ensure the beds have not moved or become larger.

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- **Echo Bay**



Summary:

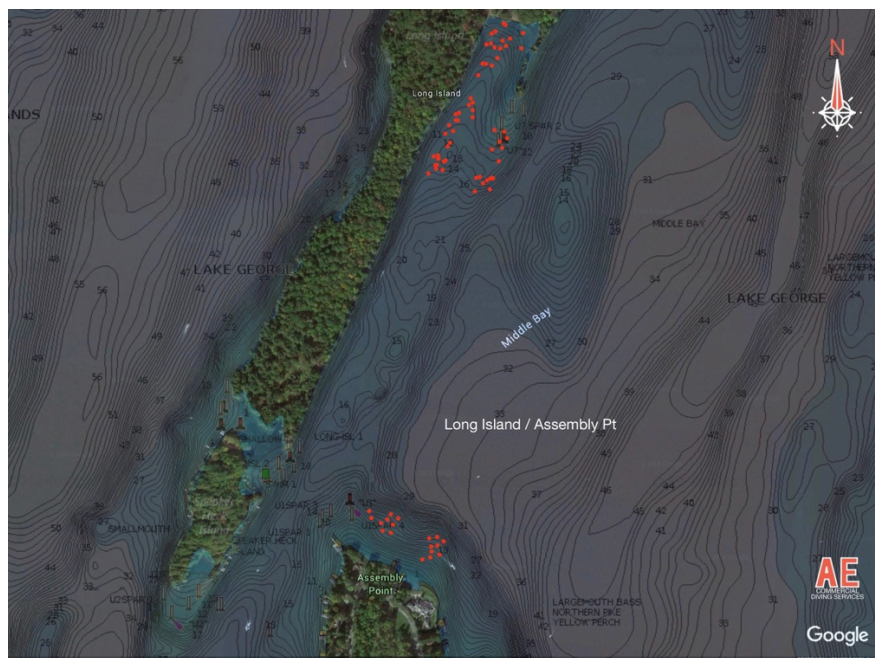
Usually combined with Elizabeth Island, this site was separated out this year due to its contextual challenges. The site was moderate infested with Eurasian Watermilfoil at the mouth of the bay that spread southward around the point and islands. This created challenges for our crews to anchor, dive, and transit safely given the high boat traffic in an out of work zone. Transiting and working around the point southward was also hazardous for these reasons. The bottom composition was also challenging; a rocky bottom layered upon with mud made it challenging to remove the root balls of the Eurasian Watermilfoil. A steady current around the point and islands stirred up the mud and made visibility tricky.

Recommendations:

It is imperative that boater education continue, regarding both how to reduce the spread of Eurasian Watermilfoil as well as how to maintain boater safety regulations while transiting in the vicinity of divers. Going forward, it will also be important for geography of the site to be recognized as a formidable challenge for the safety and productivity of our crews; even the safest boaters following the strictest guidelines for diver safety create a potential danger to crews because of the small mouth of the bay and depth.

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- **Long Island/Assembly Pt/ Middle Bay Shoal**



Summary:

The Long Island site looked to be greatly improved as compared to when it was initial observed, (prior to DASH in 2018). Due to the rocky bottom composition, we expected to find regrowth, but were happy to see a serious decline. The northern and southern sectors each prove to have their own challenges, but overall, the site work here was done more easily than expected.

Recommendations:

We recommend that a hand pulling crew continue to monitor the site throughout the season for any potential DASH needs that may arise.

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- **DEC Facility:**



Summary:

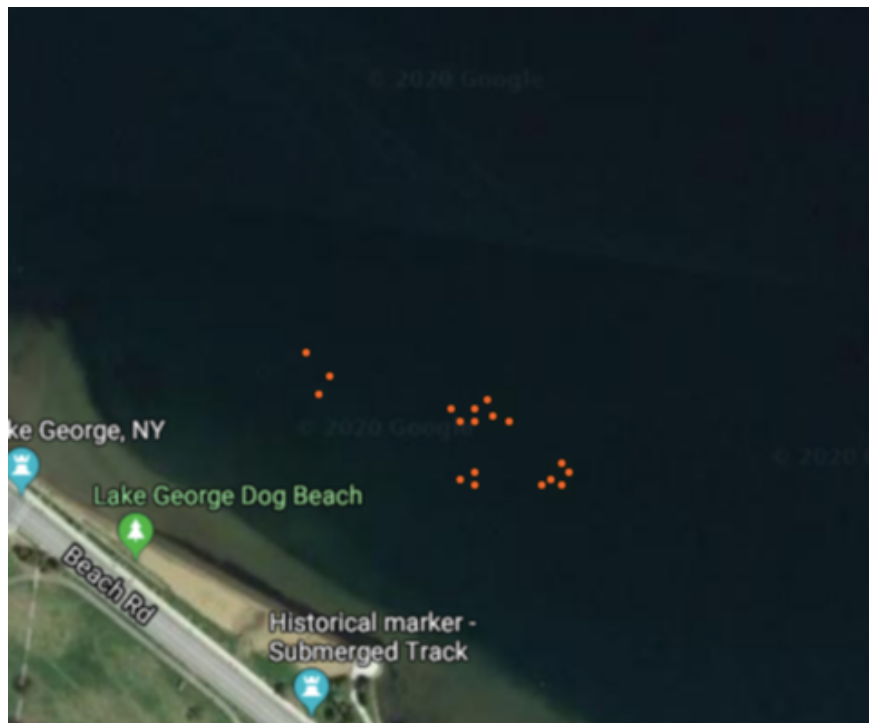
The DEC site was completed quickly. The 2019 season was the first time AED harvested the area and we only found sporadic growth with a couple small clusters of medium sized plants.

Recommendations:

This area should be monitored due to a new patch discovered in the channel, however, we believe it will continue to prove to be one of the less-challenging sites in 2020.

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- **Dog Beach/SE Boat Launch**



Summary:

This site proved to be a very challenging area to perform DASH at. The bottom composition was mostly loose sediment on a steep grade, which made it difficult to anchor properly at the site. Wind was also a factor in keeping anchored. While visibility was good most of the time, it was very difficult for crews to work into the good visibility due to the above-mentioned anchoring issues.

Recommendations:

This site will continue to prove challenging to work, but is an essential area of infestation to work away at given its location in a high traffic area.

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- **Million Dollar Beach/Boat Launch**



Summary:

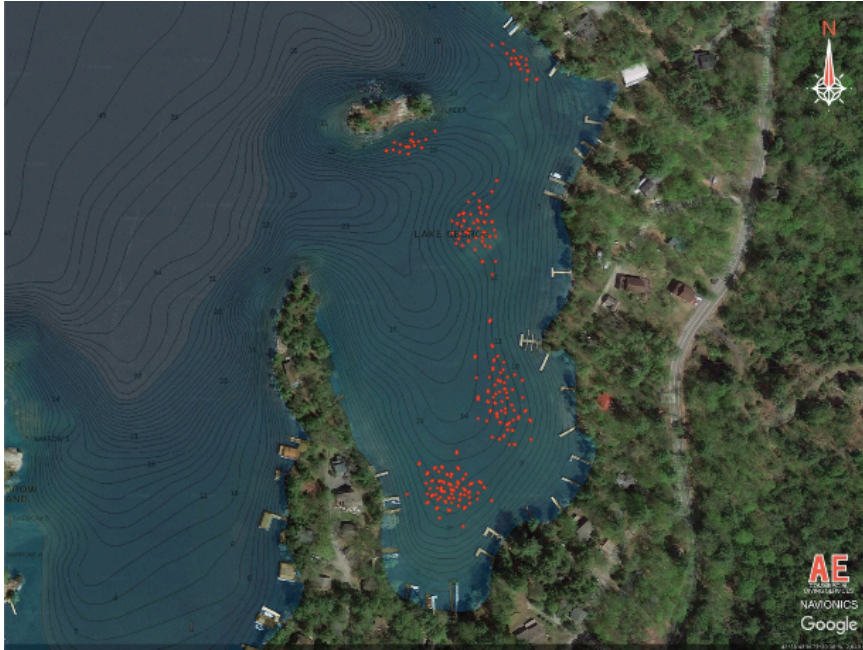
The boat launch at Million Dollar Beach harbored a large dense patch of Eurasian Watermilfoil. The patch began to east of the launch and extended norward up the shore. The bottom composition at this site was ideal for harvesting, consisting of a soft sediment. Because of the almost complete removal of the Eurasian Watermilfoil, (seeds and roots may be still present in the bottom), we expect that the site to be greatly improved for the beginning of the 2020 boating season. However, due to the nature of it being a boat launch where sediment is stirred by launching vessels, vessels possibly bringing Eurasian Milfoil back from other parts of the lake to the site when preparing to exit, and strong winds naturally pushing any fragmentation towards that corner of the lake, we fully anticipate a flare up of infestation after the season has begun.

Additionally, this site proved challenging to our divers' safety as many boaters seem unaware of how to behave in the vicinity of diver flags and buoys.

Recommendations:

It is imperative that boater education continue, regarding both how to reduce the spread of Eurasian Watermilfoil as well as how to maintain boater safety regulations while transiting in the vicinity of divers. We are grateful for the efforts of the boat launch monitors and know that their job is already a difficult one, especially in the peak of the season. We would be happy to provide a reproducible information flyer to be given to boaters or to create a sign that would be posted at the launch reminding boaters of the proper precautions and boater safety responsibilities for those transiting near divers and their boats.

- **Indian Bay**



Summary:

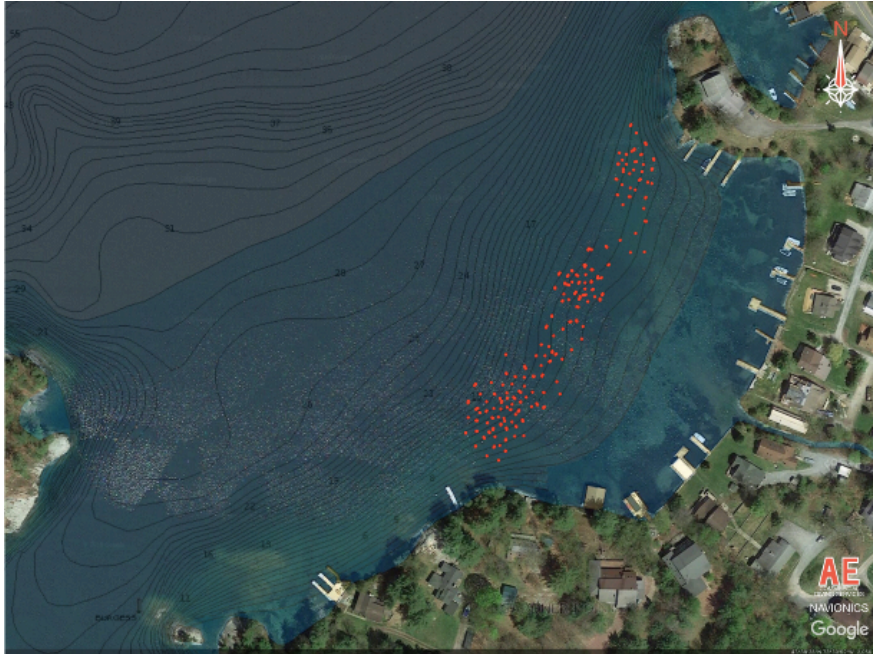
Indian Bay contained several isolated dense beds of Eurasian Watermilfoil, with sporadic growth throughout the shallows. The sandy bottom composition made harvesting easier for the two DASH crews and the hand pulling team. However, this site was worked last in the season and was not completely harvested before the season ended.

Recommendations:

We recommend that Indian Bay be revisited earlier in the 2020 season in order to eliminate the potential for fragmentation out of *and* inside of this site that is probable due to the high-traffic nature of the bay.

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- **Eichlerville Bay**



Summary:

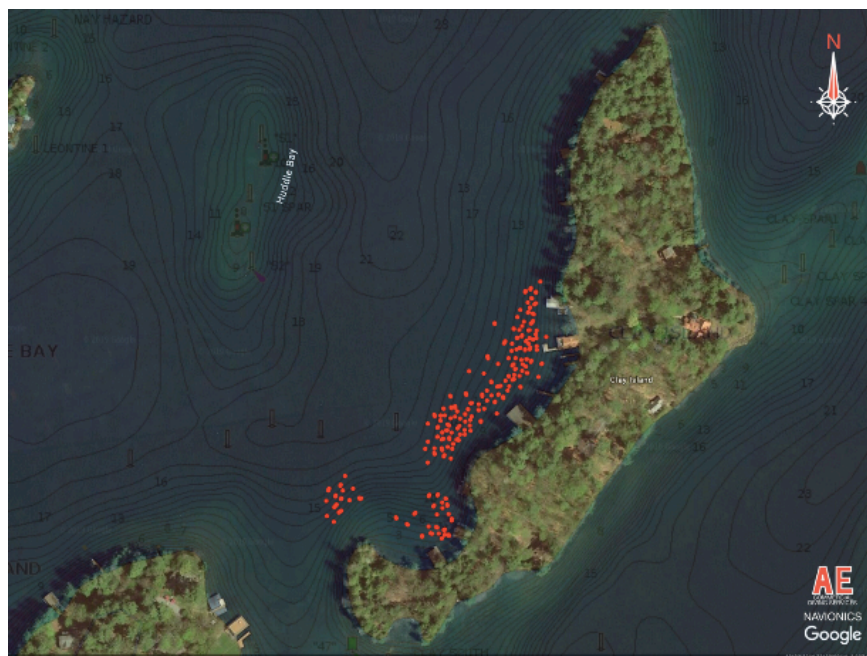
Eichlerville Bay revealed two dense beds of Eurasian Watermilfoil connected by a smaller line of moderate growth. Two DASH crews worked the large patches towards each other and through to each other in the areas of moderate growth. Harvesting was completed in this area; however, the varied bottom composition causes concerns to potential regrowth. Because the site was done late in the season, it was not possible to check for regrowth after harvesting in 2019. A rocky bottom composition layered with mud on top, Eichlerville Bay was a complex site to remove invasive Eurasian Watermilfoil from, with a great deal of uncertainty if complete root removal was accomplished.

Recommendations:

Because this site was completed at the end of the DASH season in 2019, we recommend that it be revisited earlier in the 2020 season in order to check regrowth and eliminate the potential for fragmentation into other areas, (which is possible in this high traffic site).

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- **Clay Island**



Summary:

The Clay Island site consisted of a large dense bed on the western shore of Clay Island. The site was worked with two harvesters and occasionally a hand pulling crew. The harvesters started on opposite ends of the dense bed and worked to reach each other in the center. After completion, the site seemed to hold for the remainder of the summer. However, the bottom composition consisted of sand and clay. This makes eradicating root systems more troublesome.

Recommendations:

This site should be revisited earlier in 2020 to survey potential regrowth and ensure its removal as quickly as possible. The clay/sand bottom composition will continue to make this site a priority each year.

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