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**June 22, 2024**

## **Extraction Report**

Location: Sunrise Lake, Middleton, NH

Date(s): June 17, 2024, June 18, 2024, June 19, 2024

Exotic/Invasive Plant(s): Variable milfoil

Diver(s): Sarah MacNeilage Patey, Jamie Burleigh

Support Crew: None

Total amount extracted (in gallons): 101.25

Total time worked (in hours): 25.0

Detailed report includes Extraction Narrative, Extraction Log, Maps, Photos

### Narrative:

On the request of NH DES, divers determined to extract from all areas of the lake before directing their efforts to Pinkham Cove, where most of the variable milfoil existed. Divers chose to circumnavigate Sunrise Lake in a clockwise southerly direction. They extracted from the two coves along Shore Drive first. In the first cove, divers extracted from three spots, the third being found between the lily pads and the shoreline and collected fragments along the lakebed. The plants were small, no more than two feet long, but had been chopped up. In the second cove, far into the wooded inlet, divers extracted three smaller plants past the abundant bladderwort.

In the beach area of the public boat launch, divers extracted eleven plants, all but four over by the shoreline being large and very visible from the surface. Plants were firmly rooted with roots growing from the fronds. Fronds on these plants easily exceeded five feet, and like most very large plants, were surrounded by smaller growth. Divers rechecked the area after the initial extraction, and ultimately left a marker where the largest plant grew to recheck the following day. Divers transited north to just before the islands, where in a clay bottom four plants were extracted. One was of medium-large size and contributed to the bulk of the extraction. Divers left a mark at this spot as well to recheck the following day.

At the end of the first day, divers extracted from the incredibly shallow, craggy, rock-laden cove just north of the islands and inland from the loon island. There the fronds on the plants were long and voluminous, laying over along the bottom, but would have reached the surface and flowered were they upright. Instead of one root ball, plants grew in-between the rocks, making extraction slower, and likely less complete, as rocks needed to be moved where feasible, and not all the roots could be extracted as wholly. In this area many fragments were found along the outskirts of the variable milfoil mass.

Divers began the second day by rechecking the public boat launch beach, the cove just north, and the craggy cove. At the first site, little of the largest plant remained and it was extracted. An additional small plant was found;

divers removed their marker. At the second site, divers extracted the remnants of the larger plant and removed their marker. In the craggy rocks, divers collected any fragments and extracted those attempting to re-root. Drivers navigated to the marina area, but along the western side, they could not find the two plants marked by NH DES. On the eastern side of the marina, divers extracted two plants abutting the reeds. Both were small, a foot tall, but with five to ten shorter fronds.

In the small cove tucked in along Dowling Road, divers marked two plants in the mouth of the cove, and in choosing a place to anchor, they marked an additional eleven, primarily along the eastern wooden side. Once underwater, divers found another fifteen very small plants. While the variable milfoil plants in this cove were numerous, they were very small. Most were one to two fronds. The largest was tucked away between two logs under dense tree cover; its fronds were three feet long and of the fluffy quality of a mature plant. In the cove off Lake Shore Drive, divers extracted four very small plants situated amongst the grass and lilies on the wooden shoreline on the western side. The fronds on the biggest plant were two feet long.

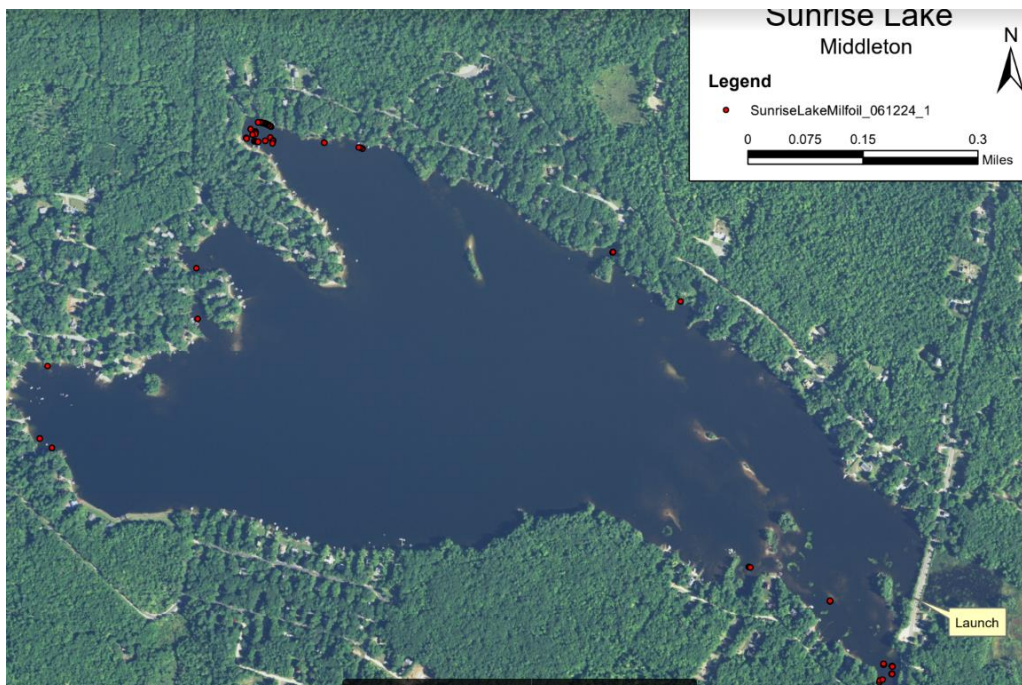
Divers concluded the second day extracting from the two sites surrounding the resident-only boat launch. In the site south of the inlet, divers extracted two large and one medium plant from a swath behind a pontoon boat. These plants nearly reached the surface, had a large root ball, but also had a vast network of interconnected roots along the lakebed. The bottom type, being of silt and sand, cleared up quickly, and divers were able to recheck the area as they worked, but still left a marker to recheck the area on the third day for certainty. In the reeds just north of the boat launch and before Pinkham Cove, divers extracted two medium sized plants with looped roots connecting them. Divers left a marker here too to check in the morning. To prepare for extraction in Pinkham Cove, divers left markers on the western side of the cove. Divers noted the proximity of the plants to the surface and the density of growth in the cove.

On the third day, divers rechecked both sites on opposite sides of the resident-only boat launch. At both sites, the fragments of the plants were collected. In the area just north of the boat launch, two more very small plants were extracted. Divers spent the rest of the day extracting from Pinkham Cove. In the cove, divers began by extracting from the western edge and towards the middle. Being a federal holiday, there were many families at home and at play in the cove, divers changed their extraction area to the on the eastern side to remove the growth available to fragment with the periodic use of a Sea-Doo from one of the homes. With few exceptions, all the plants the divers extracted were very large, creating a field-like look. The plants exhibited mature root systems with large root balls, crawling looped fronds creating new plants, and roots growing on the fronds. Divers will return the following week to continue extracting from this cove.

Log:

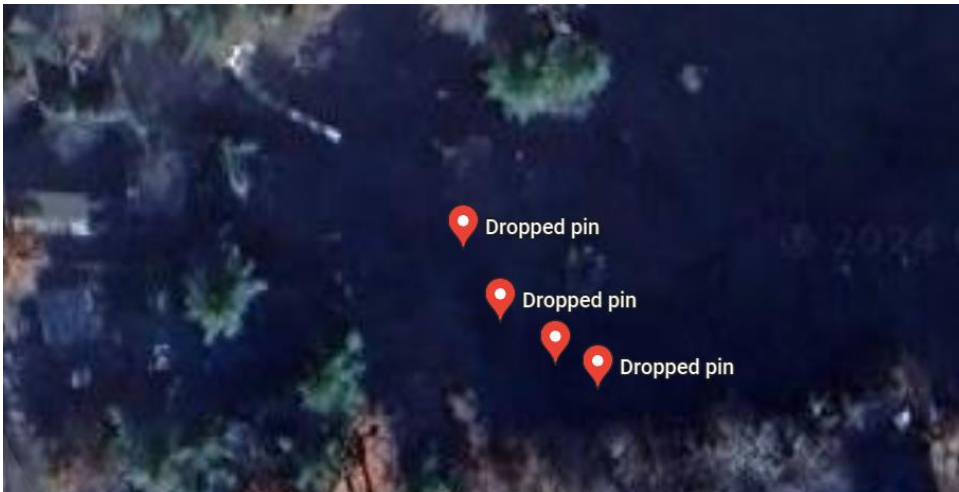
Diver	Date	Water Body	Vessel Used	Extraction Location	Number of Bags	Yield (Gallons)	Bottom Type
Jamie Burleigh	6/17/2024	Sunrise Lake	16' Starcraft	Shore Drive cove (1)	1	1.00	Silt
Jamie Burleigh	6/17/2024	Sunrise Lake	16' Starcraft	Shore Drive cove (2)	1	2.00	Silt
Sarah MacNeilage Patey	6/17/2024	Sunrise Lake	16' Starcraft	Shore Drive cove (2)	1	0.50	Silt
Jamie Burleigh	6/17/2024	Sunrise Lake	16' Starcraft	Public launch beach	3	7.00	Silt
Sarah MacNeilage Patey	6/17/2024	Sunrise Lake	16' Starcraft	Public launch beach	3	7.00	Silt
Jamie Burleigh	6/17/2024	Sunrise Lake	16' Starcraft	Auclair Rd south	2	4.00	Clay
Sarah MacNeilage Patey	6/17/2024	Sunrise Lake	16' Starcraft	Auclair Rd south	1	3.00	Clay
Jamie Burleigh	6/17/2024	Sunrise Lake	16' Starcraft	Auclair Rd north	2	6.00	Craggy rocks
Sarah MacNeilage Patey	6/17/2024	Sunrise Lake	16' Starcraft	Auclair Rd north	2	4.00	Craggy rocks
				<b>6/17/2024 total</b>		<b>34.50</b>	
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Public launch beach	1	0.50	Silt
Sarah MacNeilage Patey	6/18/2024	Sunrise Lake	16' Starcraft	Public launch beach	1	0.25	Silt
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Auclair Rd south	1	0.25	Clay
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Auclair Rd north	1	0.25	Craggy rocks
Sarah MacNeilage Patey	6/18/2024	Sunrise Lake	16' Starcraft	Marina	1	0.25	Silt, sand
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Dowling Road cove	1	1.00	Silt
Sarah MacNeilage Patey	6/18/2024	Sunrise Lake	16' Starcraft	Dowling Road cove	1	1.00	Silt
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Lake Shore Road cove	1	0.25	Silt
Sarah MacNeilage Patey	6/18/2024	Sunrise Lake	16' Starcraft	Lake Shore Road cove	1	0.50	Silt
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Resident launch south	1	2.00	Silt, sand
Sarah MacNeilage Patey	6/18/2024	Sunrise Lake	16' Starcraft	Resident launch south	2	4.00	Silt, sand
Jamie Burleigh	6/18/2024	Sunrise Lake	16' Starcraft	Resident launch north	1	0.50	Silt
				<b>6/18/2024 total</b>		<b>10.75</b>	
Jamie Burleigh	6/19/2024	Sunrise Lake	16' Starcraft	Pinkham Cove	7	33.00	
Sarah MacNeilage Patey	6/19/2024	Sunrise Lake	16' Starcraft	Pinkham Cove	6	23.00	
				<b>6/19/2024 total</b>		<b>56.00</b>	
				<b>Total gallons extracted</b>		<b>101.25</b>	

Maps:

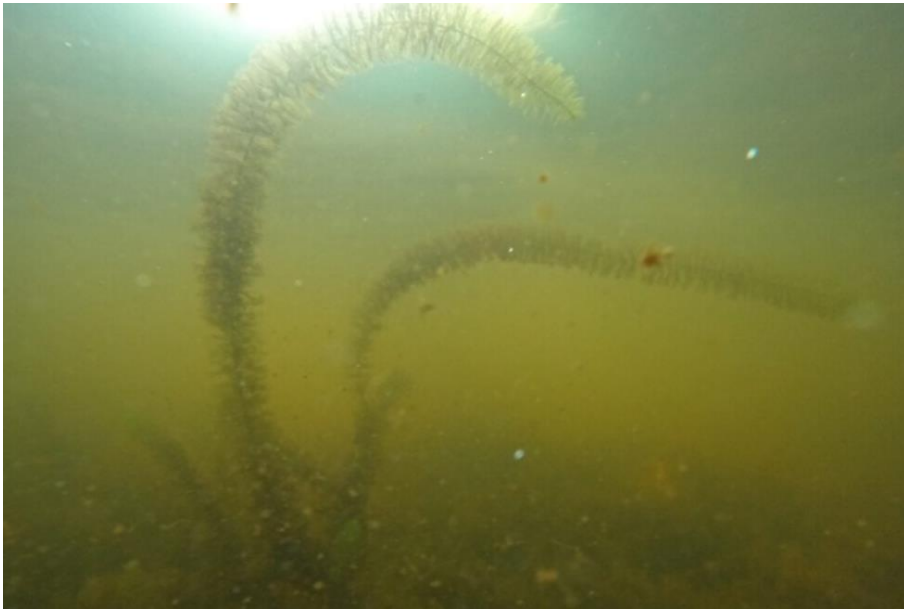




Additional points mapped off Dowling Road (left) and off Lakeshore Drive (below).



Photos:



Small variable milfoil plant found in the second cove off Shore Drive.

Part of the very large, sprawling variable milfoil plant in the craggy, rock-laden area north of the separating islands off Auclair Road.







Two of the variable milfoil plants in the public launch beach area.



Large variable milfoil plants  
inundated with bladderwort in  
Pinkham Cove off the  
resident-only boat launch.





While this variable milfoil plant situated between two downed trees in the Dowling Road cove appeared voluminous, it amounted to very little once extracted.



Small, many-frond variable milfoil plant in the marina next to some reeds. Directly behind it was another plant of similar size.



Very large variable  
milfoil plant in Pinkham  
Cove.



Low-laying variable  
milfoil plant spanning  
more than fifteen feet  
extracted from the area  
just south of the resident-  
only boat launch.



Variable milfoil  
in Pinkham Cove  
embedded in  
bladderwort.