

Lake Waccamaw Hydrilla Monitoring Report

August 26th - 27th, 2020

NC Aquatic Weed Control Program

Introduction

The North Carolina Aquatic Weed Control Program (AWCP) is conducting a monitoring program at Lake Waccamaw during the 2020 growing season to determine presence/absence of Hydrilla. This report covers the second monitoring cycle of the year.

Background

Lake Waccamaw experienced a Hydrilla infestation which expanded to ~900 acres by 2012. Beginning in 2013 and continuing for 7 years (2013-2019) the lake was treated with an aquatic-use herbicide to remove Hydrilla. The initial treatment area was ~960 acres. The treatment area is the area that was directly targeted with the herbicide. The herbicide applied was a slow-release pelleted formulation of fluridone. Beginning in 2018 the treatment target area was reduced from the initial treatment of 960 acres to 455 acres, leaving approximately 500 acres of the initial treatment area without direct treatment (Map 1). The technical advisory group recommended a reduced treatment based on the results of multiple tuber surveys. Multiple tuber surveys had been conducted since the start of the project and in 2017 a more intensive tuber survey of the entire ~960 was performed. The 2017 tuber survey suggested that the tuber bank was significantly reduced (a result of the annual herbicide treatments), and that tubers remained only in the epicenter of the infestation. The technical advisory group recommended that a reduced treatment area paired with a monitoring program be implemented in 2018, whereas the monitoring would focus specifically on the ~500 acres that were released from direct treatment. That approach was duplicated in 2019.

The monitoring program adopted by the technical advisory group in 2018 included these components: hydro-acoustic sensing, lake-bottom rake drags, rake tosses, and visual reconnaissance through snorkeling. The monitoring proposal (separate document) provides details on these components.

By the end of 2019 the herbicide program had run its planned 7-year course. Beginning in 2020 the monitoring program was expanded to include the entire area (~960 acres) plus the area around the State Parks boat ramp. The technical advisory group modified the program by eliminating the lake-bottom rake drags (see 2019 reports for a description of this method) and modified the schedule such that activities would begin later into the growing season.

Results

Rake tosses were conducted at pre-determined points (see Map 2 & Table 1) and conducted whenever SAV showed up on the real-time image display of the hydro-acoustic unit (Lowrance HDS). Rake tosses did not recover any plants. Mussels were recovered regularly. On a couple occasions the real-time display suggested presence of SAV; however, even targeted rake tosses recovered no plants.

Rake tosses were also conducted around the State Park boat ramp. No Hydrilla was detected.

Hydro-acoustic data was collected to determine the bio-volume (BV) of SAV along the shoreline within Zone 1 & 2 to a depth of 6 feet. See Map 3 and Diagram 1.

Visual investigation via snorkeling and wading was conducted 8/26/20, see Map 4. Conditions were good. Water was tannic but no suspended particles. No submersed vegetation, only Narrowleaf Spatterdock (*Nuphar luteum* ssp. *sagittifolium*) was observed. Areas that were snorkeled during the previous monitoring cycle had Spatterdock with Chara (at low density) associated with it, but the areas snorkeled during this monitoring cycle had little to no Spatterdock. An additional snorkeling event was performed. This additional event was done outside of the monitoring area. At the south end of the lake a single transect was snorkeled from ~3' depth to ~1' depth running perpendicular to the shoreline. There was a significant amount of Lavender Bladderwort (*Utricularia resupinata*) observed and in some areas the density was such that it resembled carpet. Also observed were softball-sized masses/tangles of *Eleocharis* which were associated with fish nests and some of these tangles formed a ring just inside the edge of the fish net.

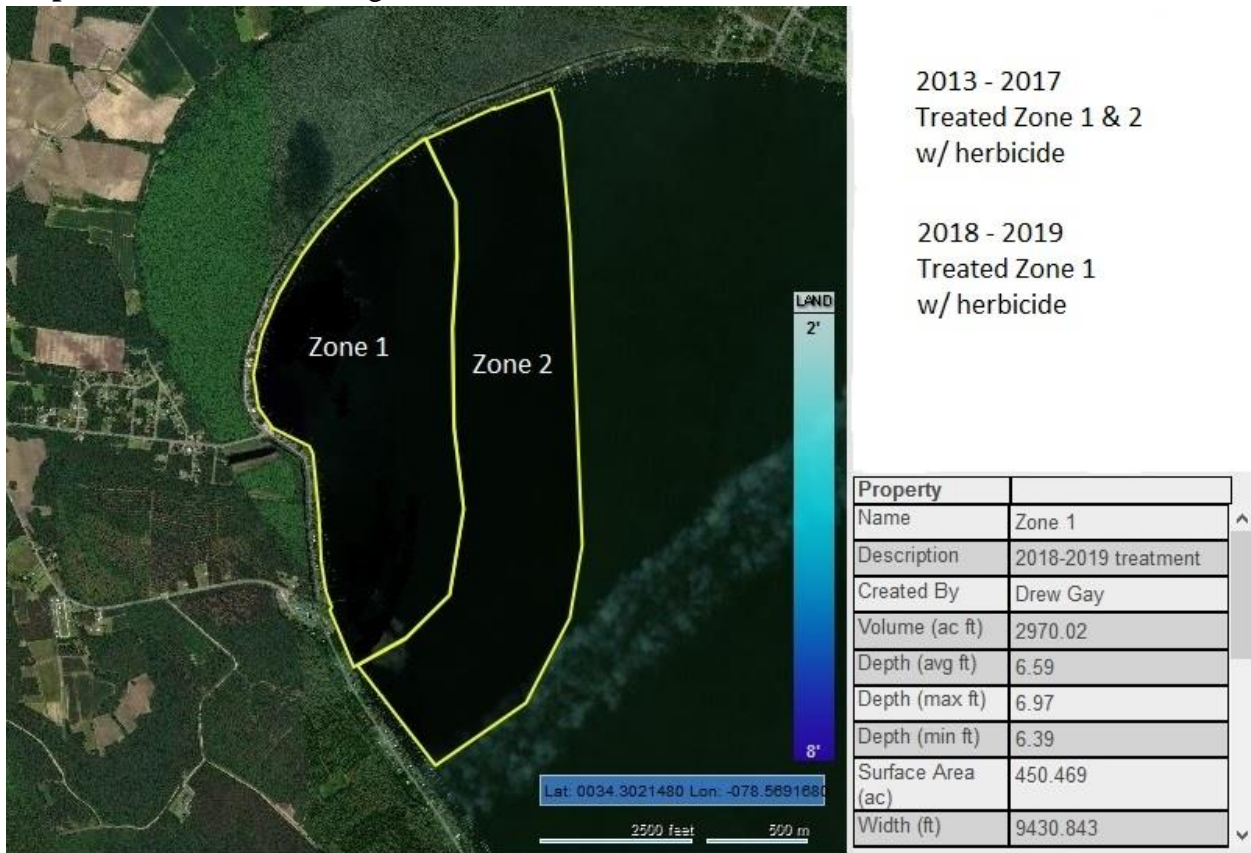
Narrowleaf Spatterdock remains common along the shoreline where the water does not exceed 4' depth.

Secchi depths were also recorded at different locations within Zone 1 (see Map 5 and Table 2). The average Secchi reading across the three sites was just under 3 feet.

Summary

No Hydrilla was detected. The water is darker compared to 2018 & 2019 due to increased input of tannic surface water from the surrounding swamps. Reduced light penetration is likely to be the major driver contributing to the relatively low macrophyte productivity that was observed.

Map 1. Area of lake showing treatment area.



Map 2. Rake sampling points. Note: Zone 2 is defined by a black line, which is difficult to see on this image.

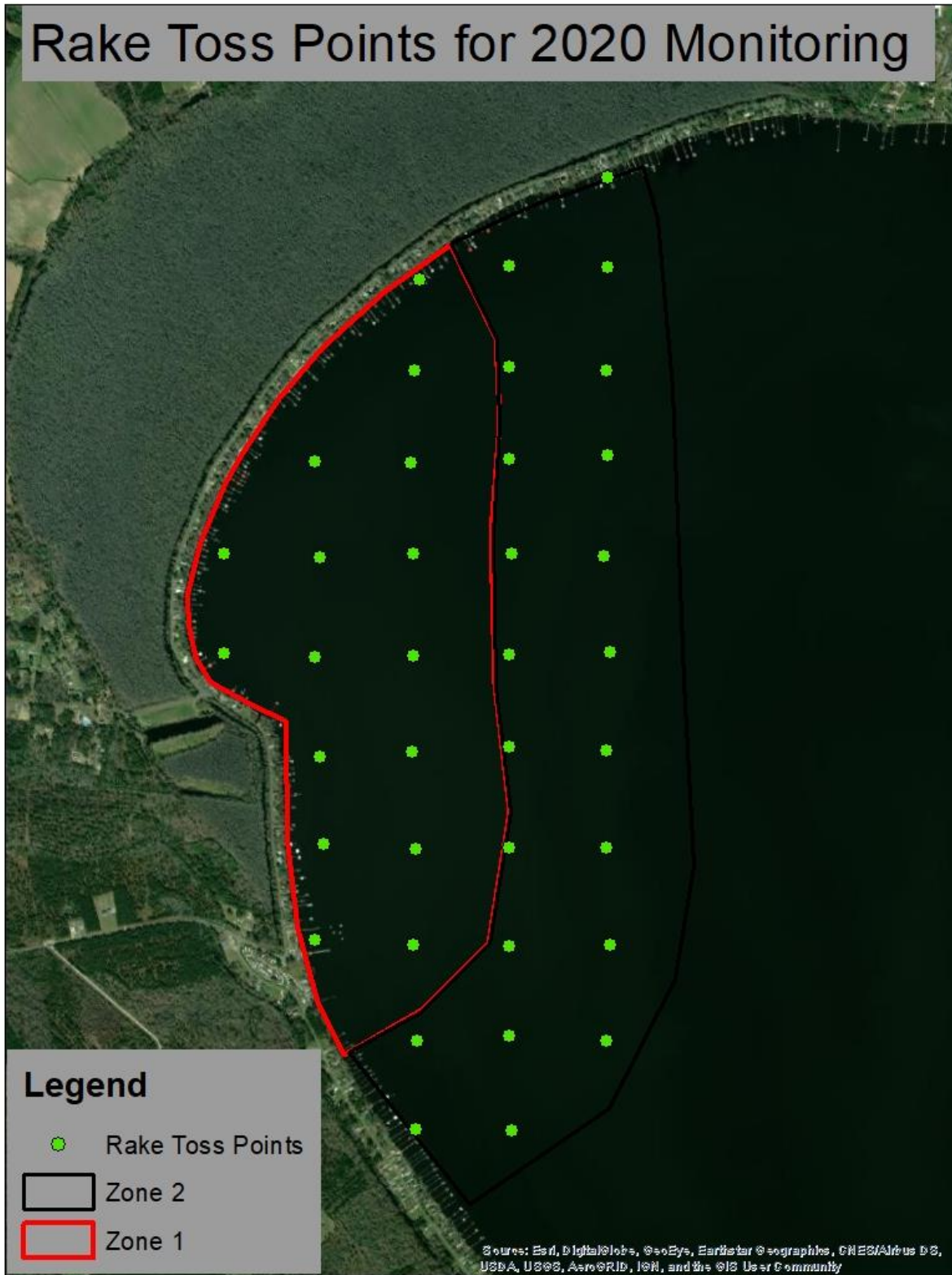


Table 1. Longitude and Latitude values for rake toss sampling points (these are the points on Map 2).

Name	Y	X
W1	34.30713	-78.5481
W10	34.29298	-78.5482
W107	34.29853	-78.5378
W11	34.28999	-78.5446
W115	34.29567	-78.5378
W12	34.28735	-78.5446
W13	34.2928	-78.5447
W130	34.2928	-78.5377
W131	34.28995	-78.5378
W14	34.29567	-78.5446
W15	34.29853	-78.5447
W16	34.30138	-78.5446
W17	34.30441	-78.5446
W18	34.30993	-78.5412
W19	34.30718	-78.5412
W2	34.30429	-78.548
W20	34.30707	-78.5447
W21	34.3129	-78.5411
W22	34.31552	-78.5376
W23	34.31284	-78.5376
W24	34.30438	-78.5411
W25	34.30429	-78.5378
W26	34.30728	-78.5377
W27	34.30981	-78.5377
W3	34.30442	-78.5514
W4	34.30148	-78.5514
W5	34.30134	-78.5481
W6	34.30981	-78.5445
W7	34.31252	-78.5444
W8	34.29839	-78.548
W9	34.29582	-78.5479
W91	34.30145	-78.5376
W92	34.3014	-78.5412
W93	34.29865	-78.5412
W94	34.29568	-78.5412
W95	34.29276	-78.5413
W96	34.29013	-78.5413
W97	34.28733	-78.5412

Map 3. Area where Hydrilla monitoring was conducted (red polygons).



Map 4. Area that was inspected via snorkeling & wading (highlighted in red).

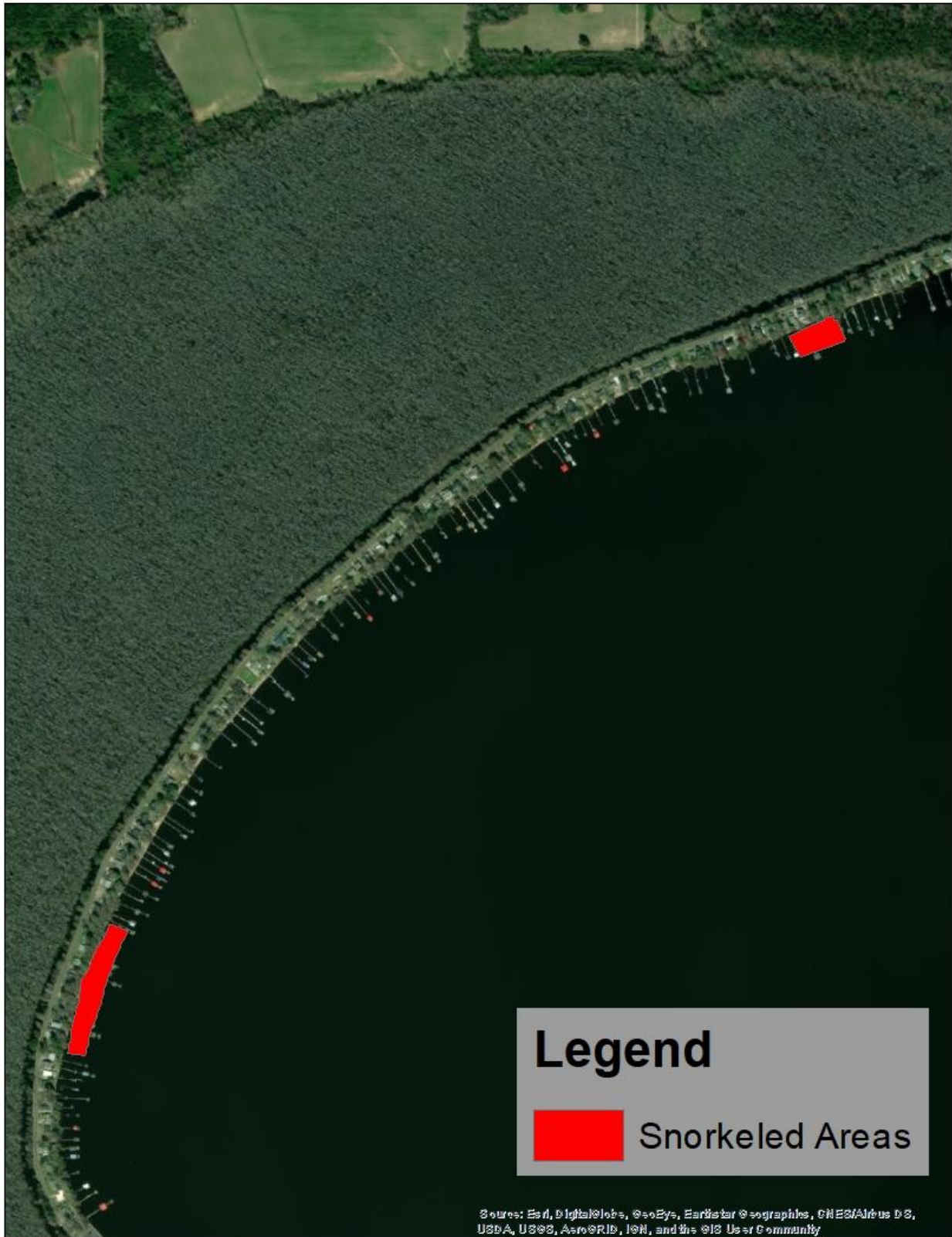
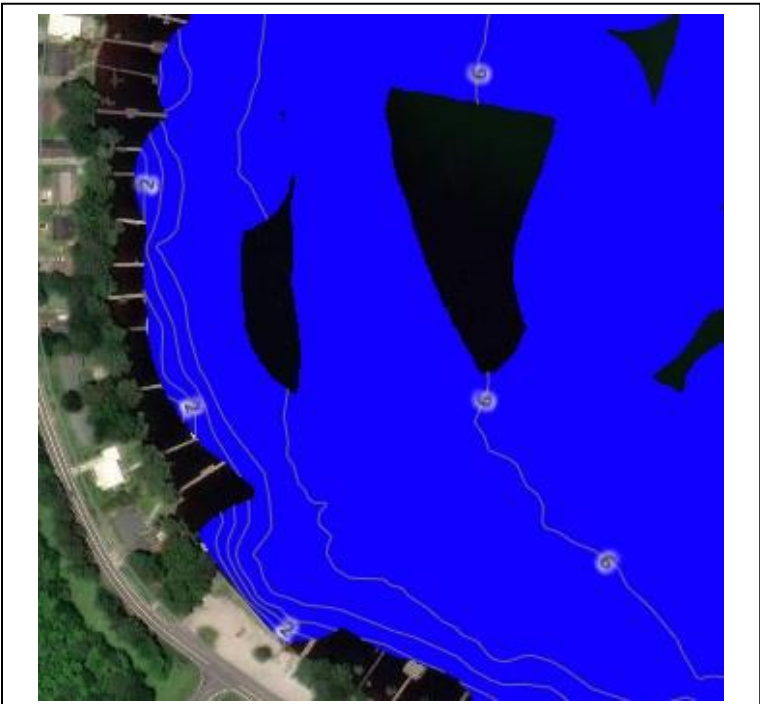


Diagram 1. Biobase website screenshot collection.



Zone 1 and 2 combined.



WRC Boat Ramp



North shoreline

Map 5. Map of Secchi disk locations.

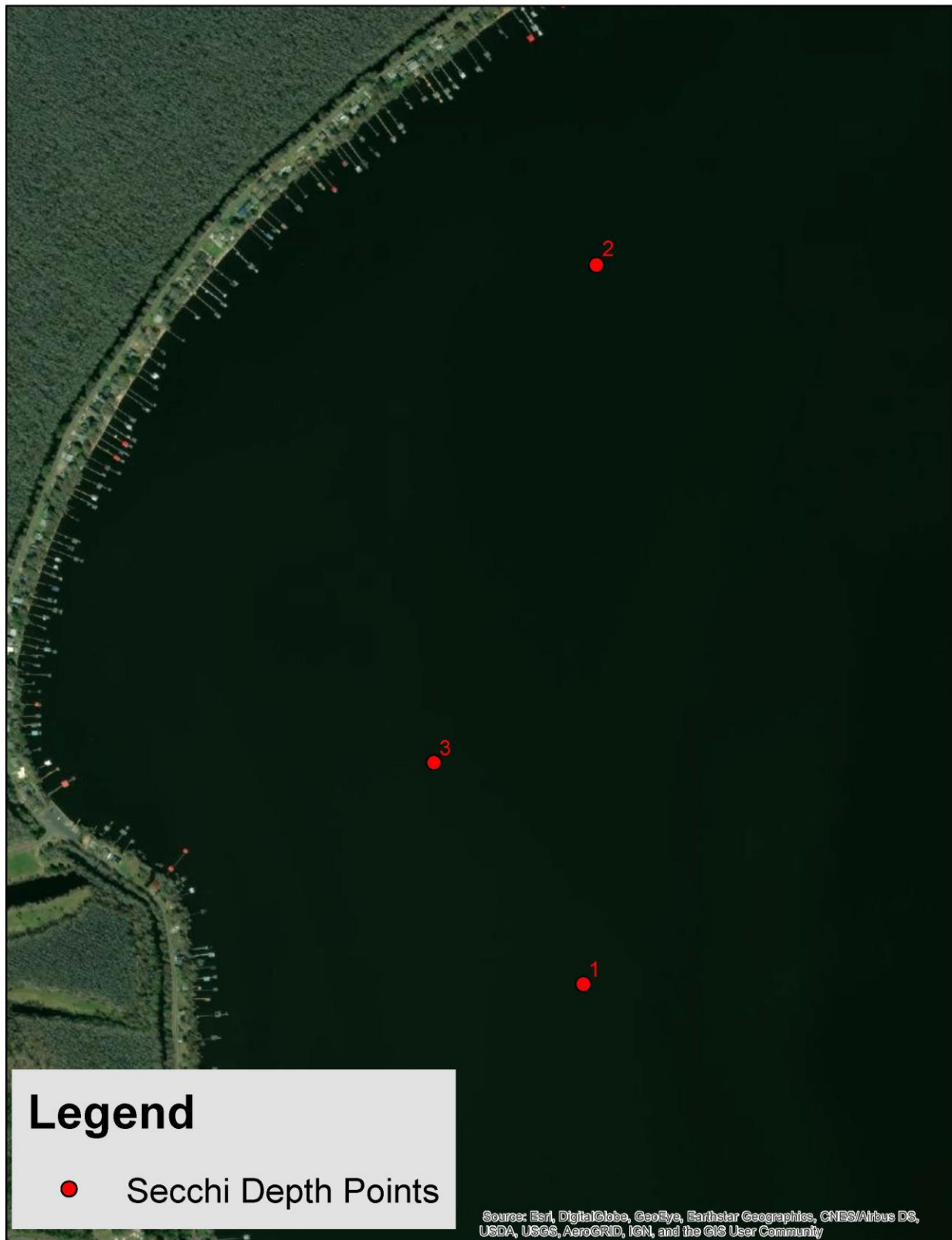


Table 2. Secchi Disk locations and results.

Site	Latitude	Longitude	Secchi reading
1	34.297745	-78.5415726	2.5 ft.
2	34.309628	-78.5412521	3 ft.
3	34.301415	-78.5445328	3 ft.