2019 White Lake

Aquatic Vegetation Survey

Survey Conducted by:

North Carolina State University

A whole lake aquatic vegetation survey of White Lake, Bladen Co. NC was completed October 15th. A total of 202 predetermined points based on a 5 ¾ acre grid pattern (Figure 1) were sampled. Sample locations (182) were based on a whole lake survey conducted by NCSU in 2014. An additional 20 points were added in 2017 to capture information in shallow water areas primarily on the north and west sides of the lake. At each sample point a 2-sided iron rake was thrown twice and all vegetation was identified and recorded (Table1 & 2). In addition to the rake samples each of the boats used were equipped with a high definition SONAR unit that has the ability to record plant biovolume, or plant height in the water column.

Compared to the 2018 survey there was a 19% increase in plant density lake wide, 84% density in 2019 compared to 65% in 2018. A total of 3 aquatic plant species and 1 aquatic moss were found in the lake. Hydrilla (*Hydrilla verticillata*) was only observed at 1 point in 2018 (Figure 3), but was detected at 3 point locations in 2019 (Figure 2). Although hydrilla point occurrence has increased in 2019, plant density remains at low levels. Only 1 or 2 small stems were observed at each point location. No floating fragments of hydrilla were found in 2019. Chara was found at 134 points in 2017, however no plants were observed in 2018 or 2019. The aquatic moss *Fontinalis antipyretica* was discerned at 65 points in 2018 (Figure 5) and 12 points in 2019 (Figure 4). Low watermilfoil (*Myriophyllum humile*) was the most common plant detected in 2014 and was not observed in 2017, or 2019. It was only found at 1 point in 2018. Proliferating spikerush (*Eleocharis baldwinii*) was observed at 113 points in 2018 (Figure 7) and 137 points in 2019 (Figure 6), an increase from 56% to 68%. Dwarf milfoil (*Myriophyllum tentellum*) was found at 40 points in 2018 (Figure 9), in 2019 it was observed at 68 point locations (Figure 8), an increase from 20% to 34%.

Despite the high frequency of plants observed in the lake, very few areas were found to have excessive plant height (Figure 10). The darker shades of green and orange show higher plant height in the water column. As can be seen these are primarily found along the edges of the lake in shallow water, so it is likely 6" - 1' of plants growing in 3 – 4' of water. The sonar estimates of plant density also may over estimate plant material in very shallow water.

The presence of hydrilla in the lake remains a concern. Continued monitoring and management of hydrilla should be priorities for 2020. Monitoring of plant populations to evaluate hydrilla management efforts will need to continue for several years to assist in returning the lake back to a more natural condition.

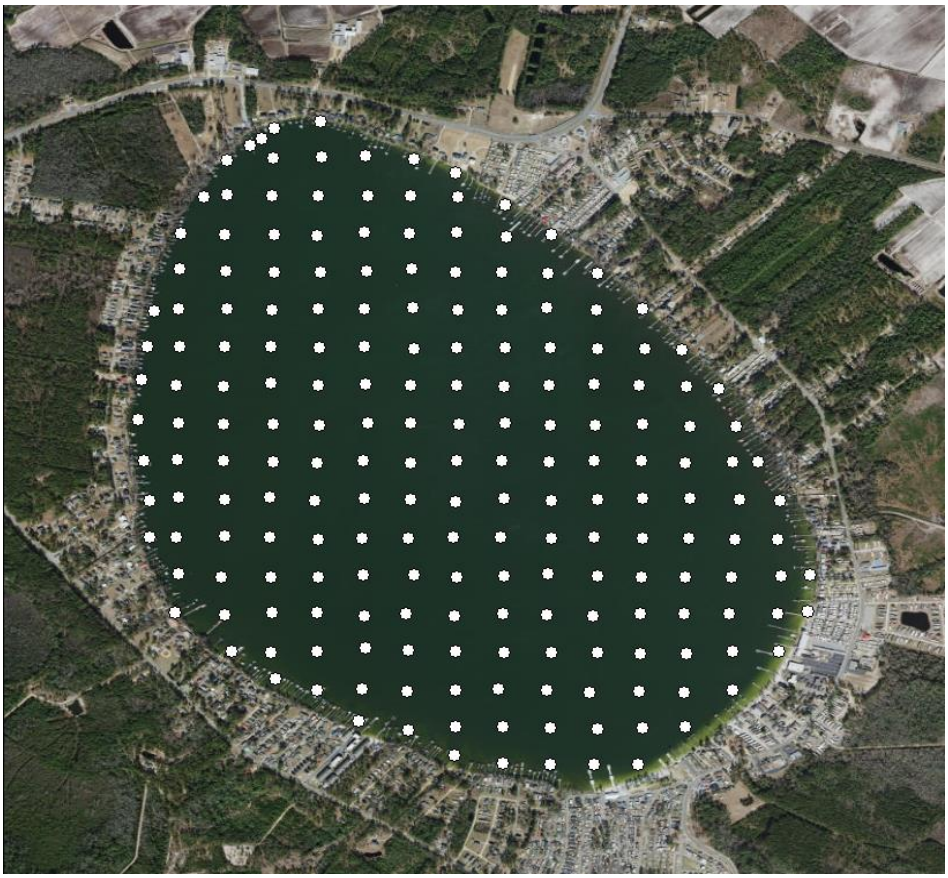

Figure 1. The 202 predetermined sample points in White Lake.

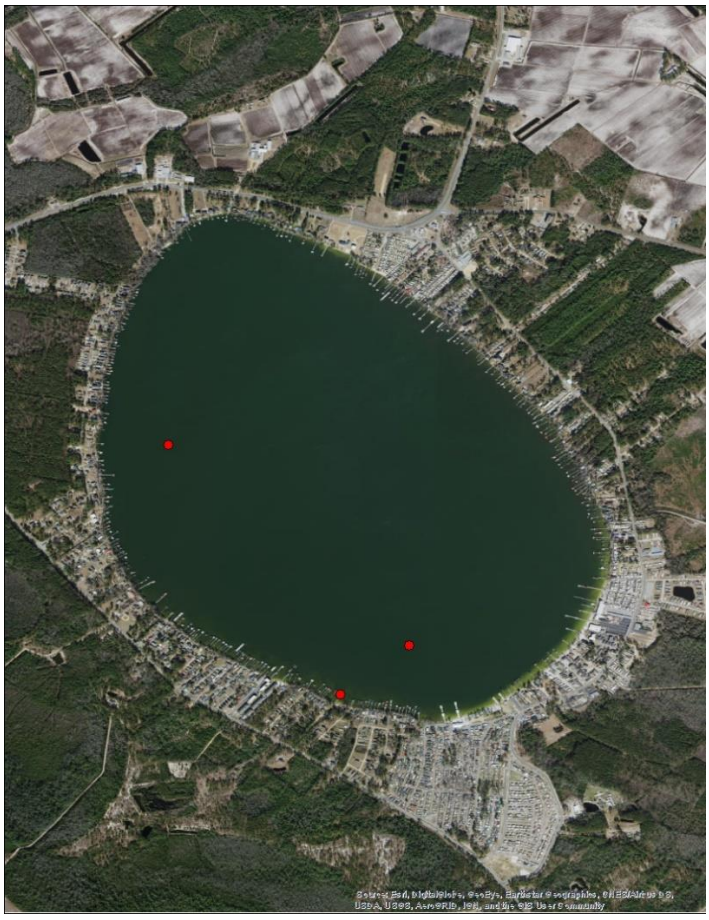

Figure 2. Hydrilla was found at 3 sample points in 2019.

Figure 3. Hydrilla was found at 1 sample point in 2018.

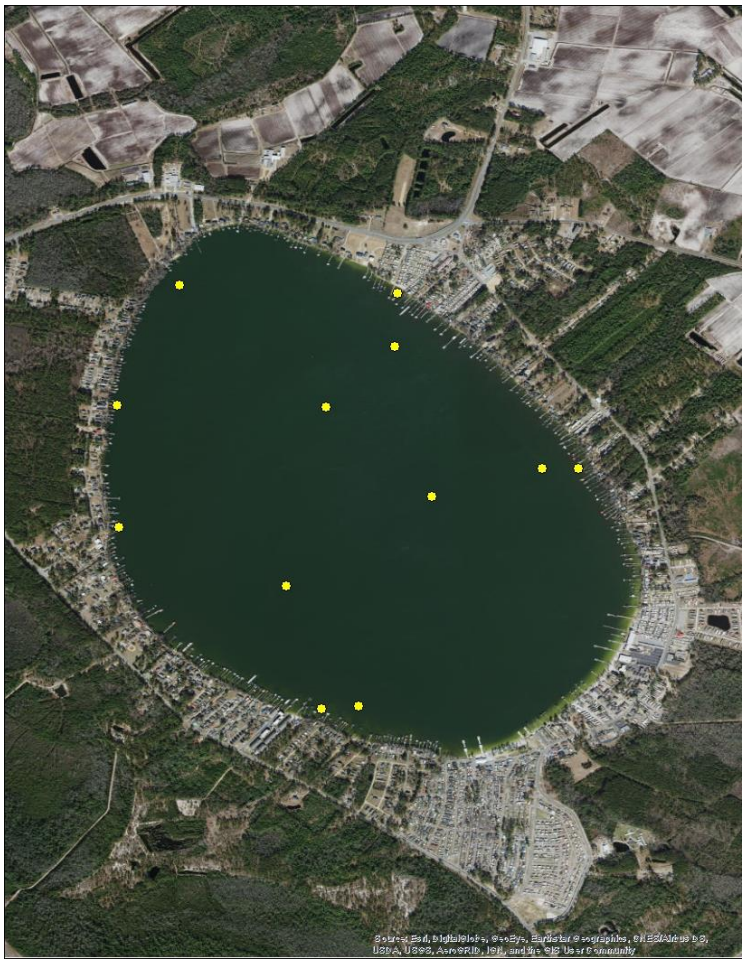

Figure 4. *Fontinalis* was detected at 12 sample points in 2019.

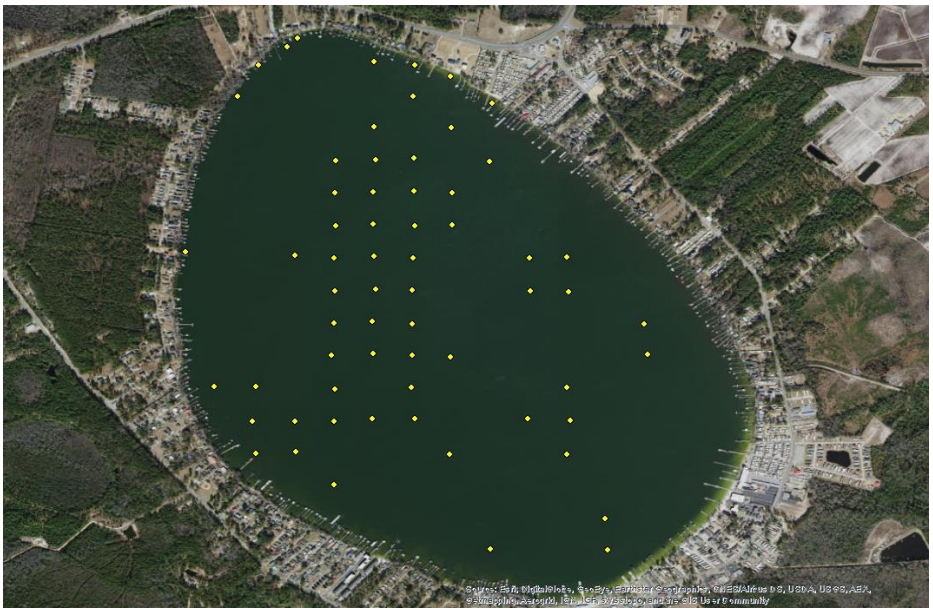

Figure 5. *Fontinalis* was detected at 65 sample points in 2018.

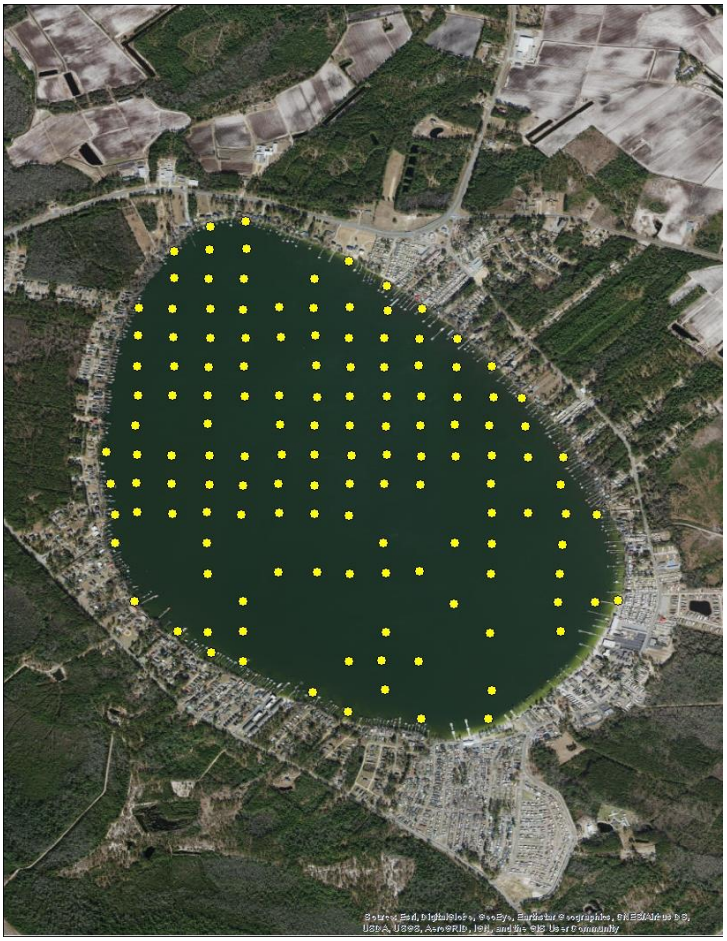

Figure 6. Spikerush was recorded at 137 sample points in 2019.

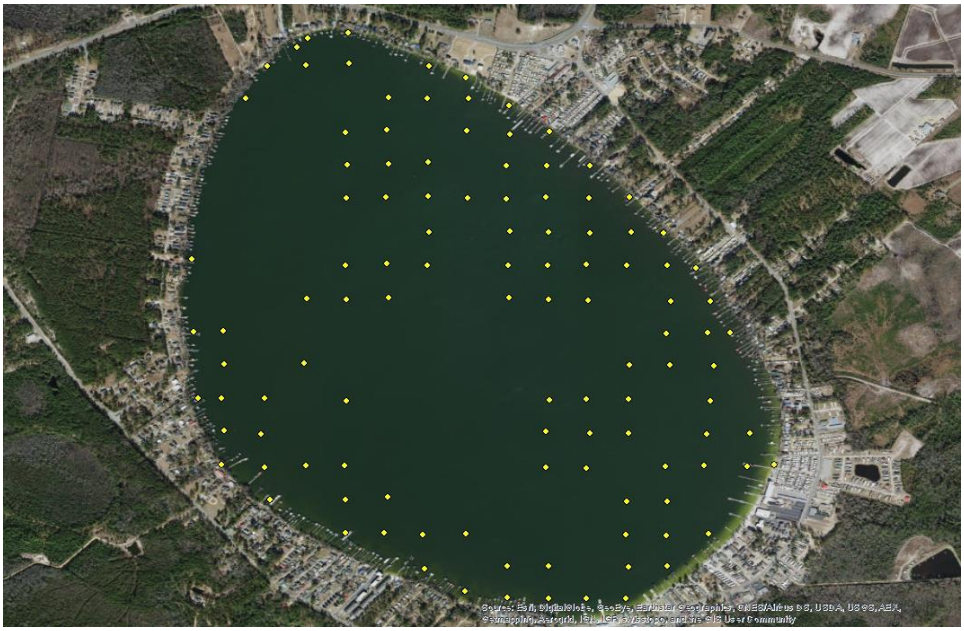

Figure 7. Spikerush was recorded at 113 sample points in 2018.

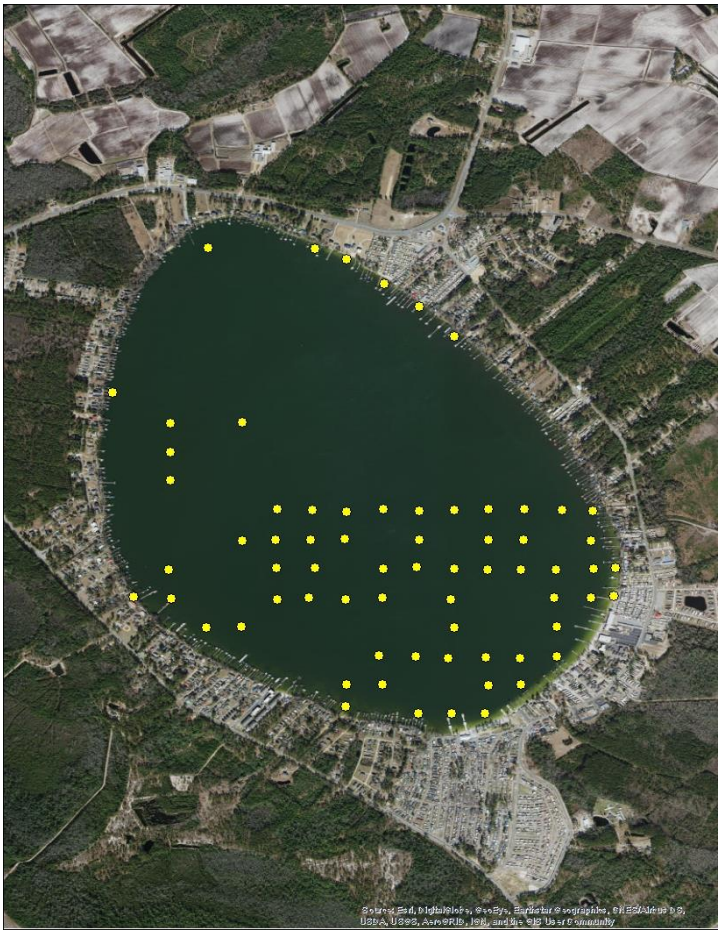

Figure 8. Dwarf milfoil was found at 68 sample points in 2019.

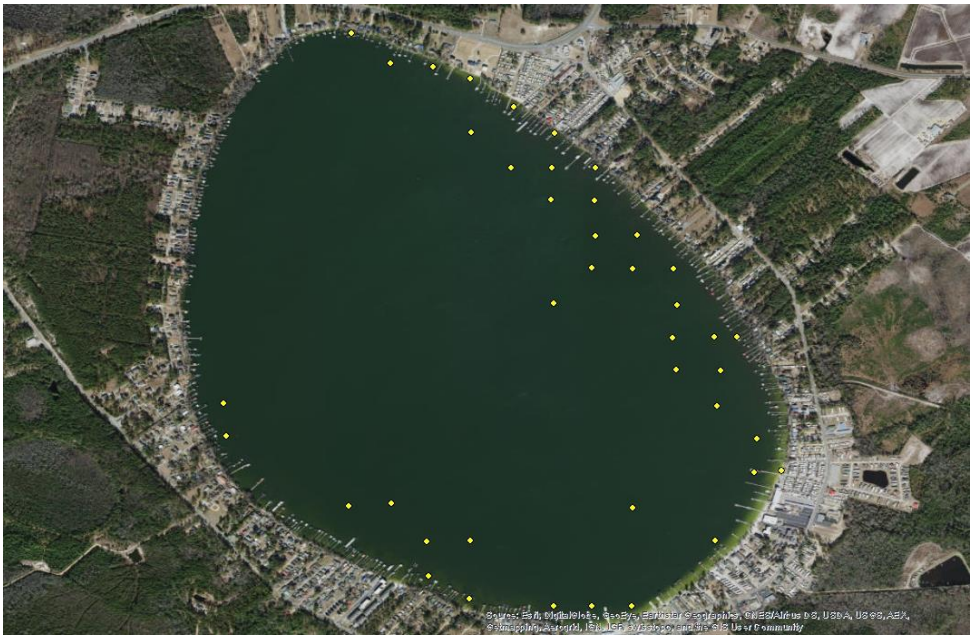

Figure 9. Dwarf milfoil was found at 30 sample points in 2018.

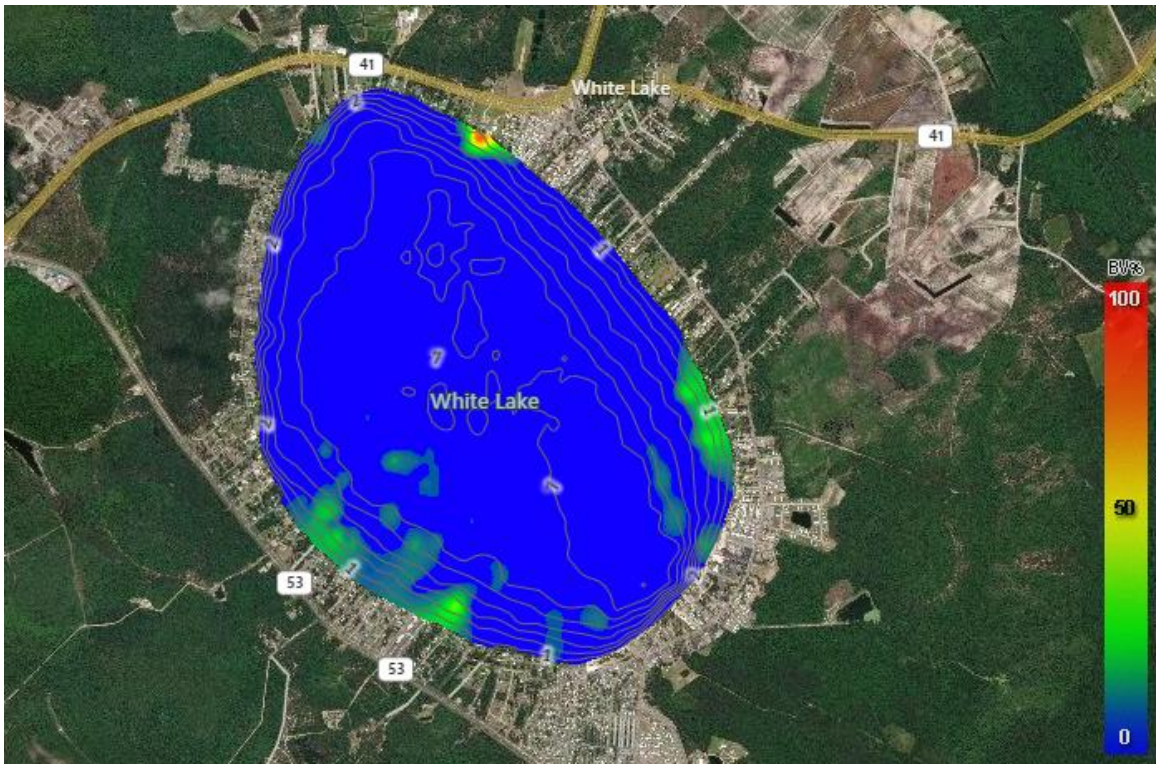

Figure 10. 2019 Biovolume or relative density of plants in the water column

Table 1: White Lake % Occurrence

Species	**2014**	**2017**	**2018**	**2019**
Hydrilla	0%	84%	0.5%	1.5%
Dwarf Milfoil	0%	15%	20%	34%
Spikerush	40%	9%	56%	68%
Aquatic Moss	43%	63%	32%	6%
Chara	29%	66%	0%	0%
Low Milfoil	54%	0%	.5%	0%
Bladderwort	14%	0%	0%	0%
No Vegetation	11%	6%	36%	16%
Vegetation	89%	93%	65%	84%

Table 2: White Lake Point Count

Species	2014	2017	2018	2019
Hydrilla	0	169	1	3
Dwarf Milfoil	0	30	40	68
Spikerush	73	18	113	137
Aquatic Moss	79	127	65	12
Chara	52	134	0	0
Low Milfoil	99	0	1	0
Bladderwort	25	0	0	0
No Vegetation	20	13	71	33
Vegetation	162	189	131	169