

Buffalo Lake

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Land & Water Conservation Department

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Buffalo Lake AIS Monitoring and Water Clarity Report

Field Dates: June 15th and June 16th, 2020
WBIC: 974200
Previous AIS Findings: Chinese Mystery Snail, Purple Loosestrife
New AIS Findings: Yellow Iris
Field Crew: Aubrey Nycz, AIS Project Leader, and Rachel Cook, AIS Project Assistant,
Oneida County Land and Water Conservation Department
Report By: Rachel Cook

On June 15th, 2020, Aubrey and I went to Buffalo Lake for AIS monitoring and to assess water clarity and quality. Buffalo Lake is a small 105 acre oligotrophic lake in Oneida County. It has one public boat landing located at the state campground. The shoreline of Buffalo Lake is mostly occupied by the American Legion State Forest, along with the state campground and some homes at the southern end of the lake. The lake has a maximum depth of 27ft, and the substrate is reported to be 60% sand, 25% gravel, 10% rock, and 5% muck. Along with reporting the depth and substrate, the Wisconsin Department of Natural Resources also reports that the lake has largemouth bass, smallmouth bass, walleye, and panfish present.

The weather while conducting research on Buffalo Lake was not ideal. The outside temperature was 65 degrees Fahrenheit, the sky was very cloudy and dark due to storms coming in from the west, it was fairly windy, and the water clarity was impaired due to the darkness and wind. We began monitoring on the southern shoreline before exiting the water due to storms. In this brief time, we noted many purple loosestrife plants and mechanically removed them.

We returned to Buffalo Lake on June 16th, 2020. The outside temperature was 74 degrees Fahrenheit, and it was sunny and fairly windy. Aubrey and I did a complete shoreline scan while meandering in and out with the canoe between different depths. We looked on the shoreline itself and also in the water, noting the plants and animals we had observed in the process.

To observe the water clarity and quality of Buffalo Lake, Aubrey and I went to the deep hole towards the middle of the lake. After locating the deep hole with our sonar unit, we used a Secchi disk to

measure water clarity and a dissolved oxygen meter to measure water health. Oxygen is needed for a healthy fish population, and for plants to respire at night. The measurements from the dissolved oxygen meter can tell us if the organisms in the lake are under stress. Both of these measurements were comparable to previous results, and there should be no concern for the water health on Buffalo Lake. The Secchi disk reading was 12 feet, and the dissolved oxygen readings can be found in table 2.

Aubrey and I did observe some Chinese Mystery Snails in Buffalo Lake, however, this invasive was already known to have been established here. Similar to previous reports, Purple Loosestrife seemed to still be occupying much of the shoreline. Aubrey and I manually removed as many plants as we could within our time there by digging the plants from the ground. This plant continues to be a concern for the residents of the lake, and the WDNR may need to consider chemical treatment or continued high removal of Purple Loosestrife on the lake within the immediate years. We also found two yellow iris plants on the southwest corner of the lake, which we dug out manually. Yellow iris has not previously been reported on this lake, so we hope that the early detection and removal will prevent its spread in coming years.

Besides these three invasives being present, Buffalo Lake still had many native plants and animals present and thriving. The four most common plants we observed were Jo-Pye-Weed, Pickerel Weed, Broad-Leaf Cattail, and Purple Loosestrife. These plants can be seen below in table 1.

Findings: Taken 10:00 a.m. – 2 p.m. on June 16th, 2020

Aquatic Invasive Species:

Purple Loosestrife was found along 80% of the shoreline on Buffalo Lake. Two yellow iris plants were found in the southwest corner of the lake on the shoreline.

Secchi: The Secchi reading on this lake was 12 feet out of a 25 foot maximum depth. The water looked clear and a blue/gray color, and the surface was a little wavy due to some wind.

Dissolved Oxygen: These measurements can be seen in Table 2.

Figure 1. Map of Oneida County, WI with Buffalo Lake circled in red (approximate location)

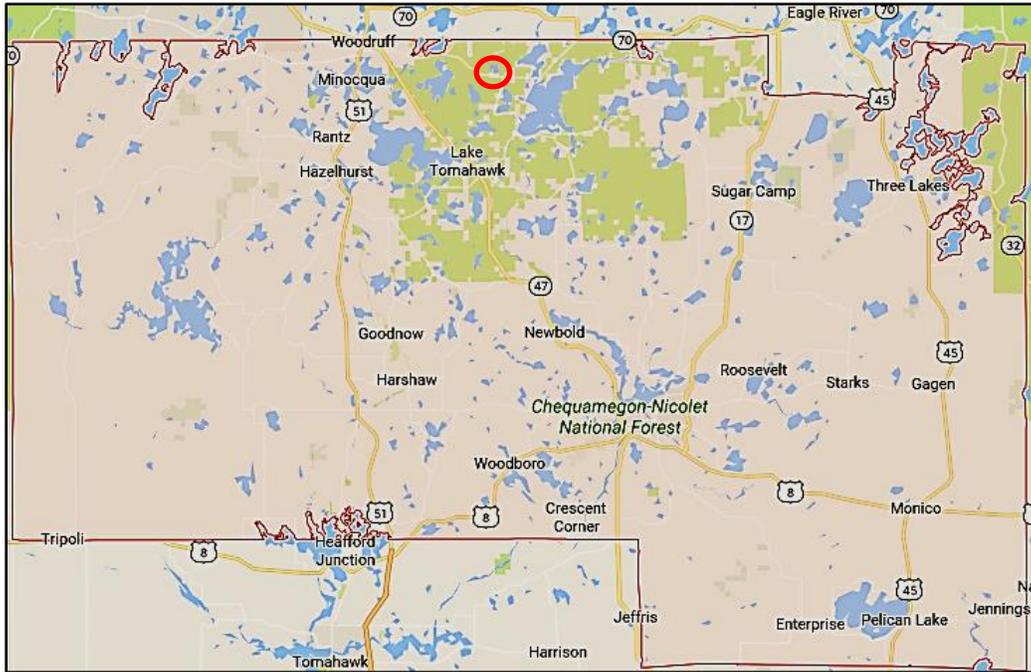


Figure 2. Map of Buffalo Lake with boat landing and location of Secchi disk reading labeled.

-  Deep hole & location of Secchi disk reading
-  Boat Landing
-  Purple Loosestrife

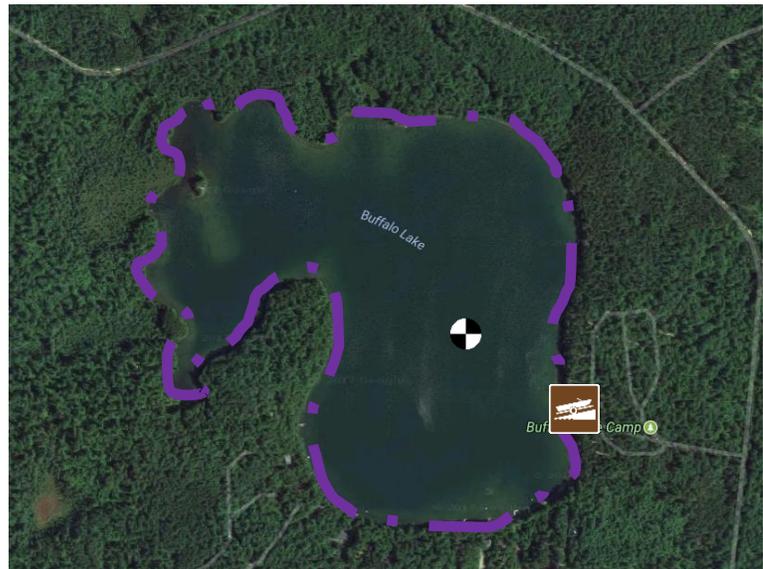


Table 1. Plants found in Buffalo Lake when monitoring.

<p>Common Name Scientific Plant Name</p>	<p>Description</p>	<p>Image</p>
<p>Pickereel Weed <i>Pontederia cordata</i></p>	<p>An aquatic plant with thin, bright green leaves. Emergent leaves tend to be arrow shaped with 6 parted, blue flowers. This plant is native.</p>	 <p>Photo Credit: ediblewildfood.com</p>
<p>Broad-Leaf Cattail <i>Typha latifolia</i></p>	<p>An herbaceous plant with leaves greater than 12 mm wide. The pollen that this plant contains is shed in clusters of four grains. This plant is native.</p>	 <p>Photo Credit: www.nwplants.com</p>
<p>Purple Loosestrife <i>Lythrum salicaria</i></p>	<p>A flowering plant with a square or 6-sided stem and smooth leaves. Flowers tend to be a pinkish purple with 6 petals. This plant is invasive!</p>	 <p>Photo Credit: Dave Britton</p>
<p>Joe Pye Weed <i>Eupatorium maculatum</i></p>	<p>Pink to purplish flowerheads in a flat cluster 3-5 inches across. Leaves are whorled in groups of 3-6, coarsely toothed, and pointed on both ends. Stems are usually green or purplish with purple spots. This plant is native.</p>	 <p>Photo Credit: Beth Zimmer</p>

Table 2. Dissolved oxygen levels and temperatures at the deep hole.

Depth (Feet)	Dissolved Oxygen Levels (mg/L)	Temperature (F)	Percent Dissolved Oxygen
2	9.19	68.6	106.7
4	9.18	68.1	106.0
6	9.20	67.9	106.1
8	9.41	67.8	108.4
10	9.22	67.6	105.8
12	9.22	67.4	105.7
14	11.34	61.3	121.3
16	11.44	57.1	116.3
18	11.34	55.8	113.5
20	11.20	54.5	111.1
22	11.29	53.4	108.0
24	2.51	51.3	23.7

Buffalo Lake AIS Monitoring and Water Clarity Report

Field Date: August 2nd, 2017
WBIC: 974200
Previous AIS Findings: Chinese Mystery Snail
New AIS Findings: Purple Loosestrife
Field Crew: Aubrey Nycz, AIS Project Leader, and Thomas Boisvert, AIS Project Assistant, Oneida County Land and Water Conservation Department
Report By: Thomas Boisvert

On August 2nd, 2017, Aubrey and I went to Buffalo Lake to implement AIS monitoring along with water clarity and quality assessments. Buffalo Lake is a small 105 acre oligotrophic lake located in Oneida County, and has one public boat launch located at the state campground. Besides the campground, Buffalo Lake's shoreline is composed of the American Legion State Forest, and a small number of homes along the Southern portion of the lake. The lake has a maximum depth of 27ft, and the substrate is reported to be 60% sand, 25% gravel, 10% rock, and 5% muck. Along with reporting the depth and substrate, the Wisconsin Department of Natural Resources also reports that the lake has largemouth bass, smallmouth bass, walleye, and panfish present. During our time on the lake though, very few fish were spotted.

The weather while conducting research on Buffalo Lake was not ideal. The outside temperature was 70 degrees Fahrenheit, the sky was overcast, there was moderate wind, and the water clarity was impaired due to waves. The weather at times proved difficult for maneuvering our canoe, and also keeping the secchi disk and Dissolved Oxygen meter vertical in the water column.

When conducting our AIS lake survey, Aubrey and I did a complete shoreline scan while meandering in and out between different depths. We looked on the shoreline itself and also in the water, noting the plants and animals we had observed in the process.

To observe the water clarity and quality of Buffalo Lake, Aubrey and I went to the deep hole on the northeast side of the lake towards the middle. After locating the deep hole with our sonar unit, we used a Secchi disk to measure water clarity and a dissolved oxygen meter to measure water health. Oxygen is needed for a healthy fish population, and for plants to respire at night as well. The measurements from the dissolved oxygen meter can tell us if the organisms in the lake would be under stress. Thankfully, both of these measurements were relatively average in nature, and there should be

no concern for the water health on Buffalo Lake. The Secchi disk reading was 13 feet, and the dissolved oxygen readings can be found in table 2.

Aubrey and I did observe some Chinese Mystery Snails in Buffalo Lake, however, this invasive was already known to have been established here. Unfortunately we did find a new invasive species on Buffalo Lake. Aubrey and I noticed that Purple Loosestrife appeared to be taking over Buffalo Lake. Aubrey and I estimate that 80% of the shoreline is composed of Purple Loosestrife. This is very concerning, and the WDNR should consider high removal of Purple Loosestrife on the lake within the immediate years. While on the lake, Aubrey and I did clip all visible flowers and remove some of the larger patches.

Besides these two invasives being present, Buffalo Lake still had many native plants and animals present and thriving. The three most common plants we observed were Pickerel Weed, Broad-Leaf Cattail, and Purple Loosestrife. These plants can be seen below in table 1.

Findings: Taken 11:00 a.m. – 1 p.m. on August 2nd, 2017

Aquatic Invasive Species:

Purple Loosestrife was found along 80% of the shoreline on Buffalo Lake.

Secchi: The Secchi reading on this lake was 13 feet out of a 27 foot maximum depth. The water color was a grayish color, and was hard to see down with the waves on the lake.

Dissolved Oxygen: These measurements can be seen in Table 2.

Figure 1. Map of Oneida County, WI with Buffalo Lake circled in red (approximate location)

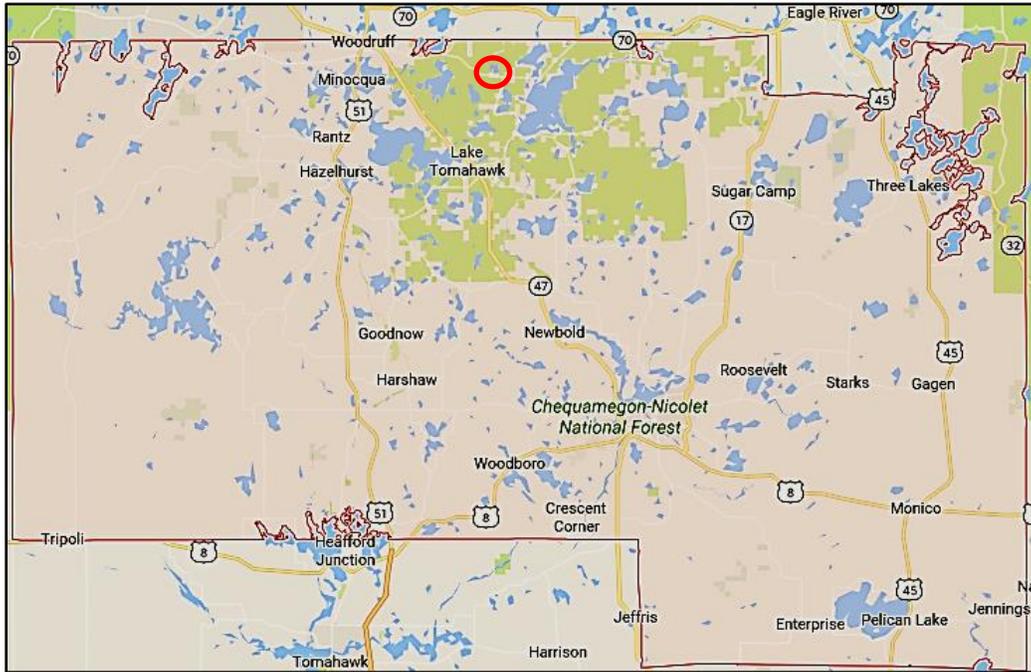


Figure 2. Map of Buffalo Lake with boat landing and location of Secchi disk reading labeled.

-  Deep hole & location of Secchi disk reading
- Secchi Disk Readings:
Buffalo Lake - Deep Hole
Coordinates - Not Available
-  Boat Landing
-  Purple Loosestrife

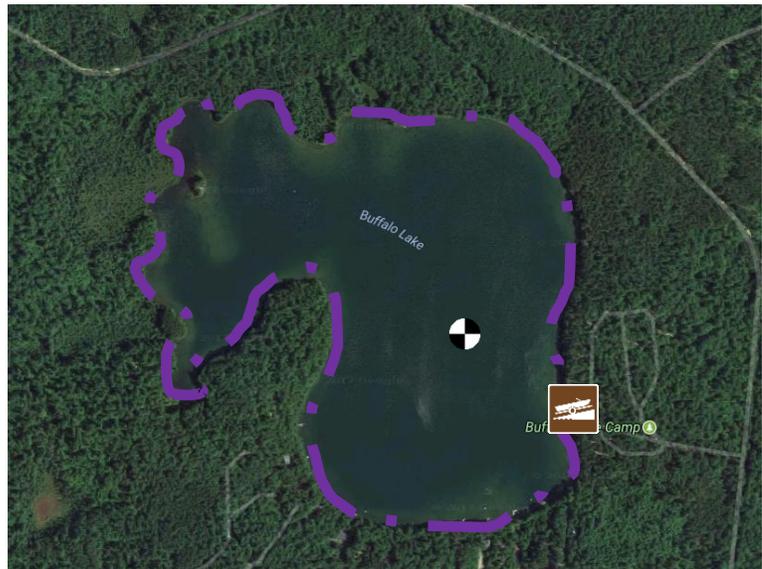


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<p>Purple Loosestrife <i>Lythrum salicaria</i></p>	<p>A flowering plant with a square or 6-sided stem and smooth leaves. Flowers tend to be a pinkish purple with 6 petals. This plant is invasive!</p>	 <p>Photo Credit: Dave Britton</p>

Table 2. Dissolved oxygen levels and temperatures at the deep hole.

Depth (Feet)	Dissolved Oxygen Levels (mg/L)	Temperature (F)	Percent Dissolved Oxygen
2	8.11	75.9°	102.1%
4	8.18	76.5°	103.7%
6	7.93	76.6°	100.5%
8	7.91	76.7°	100.5%
10	7.89	76.8°	100.3%
12	7.64	73.9°	94.2%
14	7.85	66.9°	89.7%
16	4.86	60.9°	51.8%
18	0.14	56.2°	1.4%