



# Northeast Aquatic Research, LLC

www.northeastaquaticresearch.net

74 Higgins Highway

Mansfield Center, CT 06250

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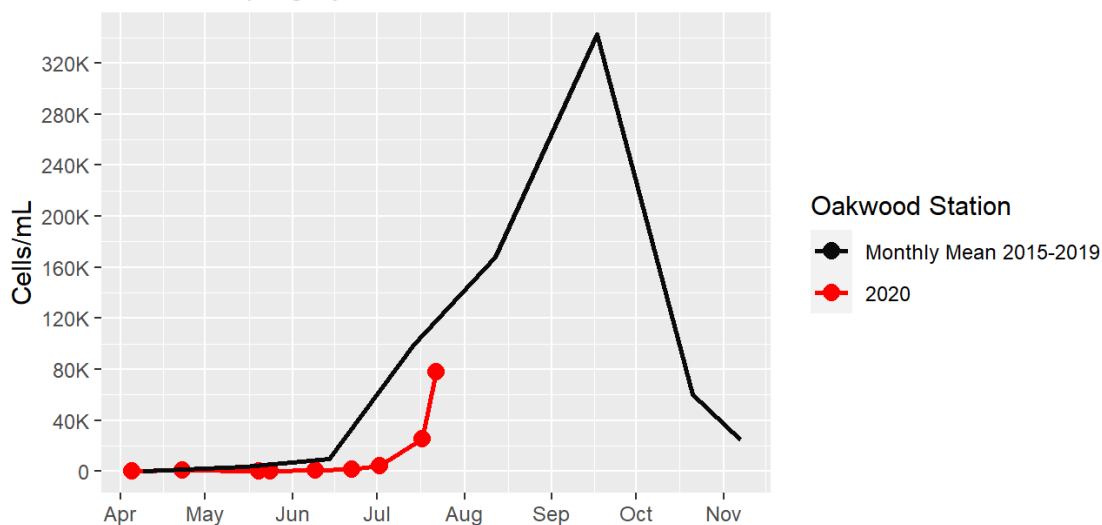
TO: Residents of East Hampton, CT  
ATTN: Town of East Hampton Conservation Lake Commission  
FROM: Hillary Kenyon Garovoy, Limnologist & Certified Lake Manager  
George Knoecklein, Ph.D. Principal Limnologist

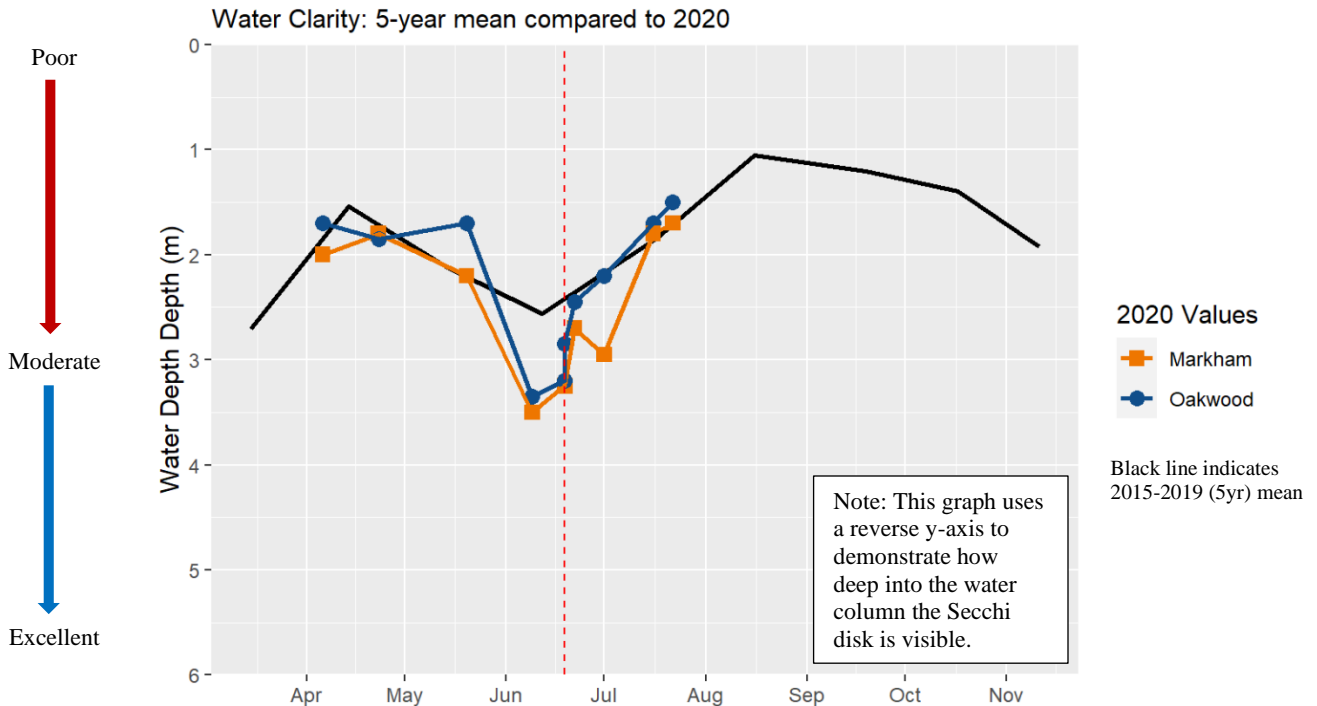
## RE: Results from July 2020 Water Quality Monitoring Visits

The following results display data collected on July 1<sup>st</sup>, 16<sup>th</sup>, and 22<sup>nd</sup>. July 16<sup>th</sup> was a partial monitoring visit where only water clarity and algae were measured. Sampling took place after the Oakwood bay destratification aeration system was turned on and before the Markham bay aeration system was activated. For immediate results of the Oakwood aeration system please refer to the 'June 2020 Aeration Monitoring Summary.'

Overall, the lake water clarity has measurably declined in July. This reduction in clarity appears to be a result of increasing phytoplankton in the water column at both the Markham and Oakwood bay monitoring stations. Both stations experienced an increase in cyanobacteria phytoplankton. The highest open water cyanobacteria count was 77,638 cells/mL at Oakwood bay, sampled on July 22<sup>nd</sup>. At this time, no shoreline cyanobacteria scums were visible, and the Chatham Health Department issued a formal beach observation statement urging residents to use caution and to avoid potential scums that could develop. Compared to the past five years of summer cyanobacteria trends, the July 2020 cell counts were lower than average. This trend comparison will be revisited following August cyanobacteria monitoring results.

Lake Pocotopaug Cyanobacteria Trends





As explained in the June 2020 water quality monitoring summaries, the lake experienced good water clarity in June of this year (roughly 3.5 meters), which was considerably better than the five-year average. Clarity in June, however, was immediately reduced when the Oakwood bay aeration system was turned on. The vertical dashed line indicates the date of the aeration system activation, when bottom-water mixed into the surface immediately obscuring clarity. A little over a week after the system was turned on, July water clarity at the Oakwood station was average, while the Markham bay station clarity was better than the 5yr mean. By mid-July, both stations had average water clarity, with the Oakwood station clarity slightly worse than average. As previously mentioned, the worsening water clarity in July corresponded with an increase in phytoplankton.

To summarize, the Oakwood bay aeration system has not yet improved water clarity in the lake, compared to previous years. Though there is a lower than average number of cells of cyanobacteria in Oakwood bay, the lake also has other types of phytoplankton, namely higher amounts of Diatom algae than typically seen in July. Tiny mineral particles may also linger in the water column, a result of bottom-water mixing into the surface when the aeration system was turned on.

In terms of lake oxygen, the destratification aeration system has done a good job aerating most of the bottom of Oakwood bay. Only the very deepest part of the bay has a small layer of anoxic water (less than 1-meter thick). Markham bay remained anoxic below roughly 5-meters in July, and drastic changes to oxygen are expected in that bay once the remainder of the aeration diffusers are activated.

Monitoring will continue through the rest of the summer season to determine effects of the Markham bay aeration system and to study any potential microbial additives applied to the lake. Temperature, oxygen, and conductivity profile data are included below.

Thank you,  
Hillary Kenyon, CLM

**Date: 07/01/2020**

**Markham Station (41.59949, -72.49493)**

Water clarity: **2.9 meters** (9.5 feet)

Water depth: 7.8 meters (25.6 feet)

Weather: mostly cloudy, calm, humid

Depth (m)	Temp (°C)	Oxygen (mg/L)	Oxygen Saturation %	Conductivity (µS)
0	25.7	8.4	105	200
1	25.7	8.4	104	201
2	25.7	8.3	103	201
3	25.6	8.2	102	200
4	24.6	7.5	92	199
5	18.5	1.0	11	202
6	16.2	0.9	9	202
7	13.4	0.3	3	219
7.8	12.3	0.3	3	245

**Oakwood Station (41.59758, -72.50849)**

Water clarity: **2.2 meters** (7.2 feet)

Water depth: 10.3 meters (33.8 feet)

Weather: Overcast, slight breeze to mostly calm

Depth (m)	Temp (°C)	Oxygen (mg/L)	Oxygen Saturation %	Conductivity (µS)
0	25.3	7.6	94	201
1	25.4	7.5	93	201
2	25.4	7.4	91	201
3	25.4	7.3	91	201
4	25.4	7.3	90	201
5	25.4	7.4	91	201
6	25.4	7.4	91	201
7	25.4	7.4	91	201
8	25.4	7.4	91	200
9	25.4	7.2	89	200
9.5	24.5	1.4	17	206
10	22.4	0.4	4	217
10.3	20	0.3	3	225

**Date: 07/22/2020**

**Markham Station (41.59949, -72.49493)**

Water clarity: **1.7 meters** (5.6 feet)

Water depth: 8 meters (26.2 feet)

Weather: Overcast, calm

Depth (m)	Temp (°C)	Oxygen (mg/L)	Oxygen Saturation %	Conductivity (µS)
0	28.5	9.0	116	209
1	28.5	9.2	118	209
2	28.3	9.1	118	208
3	27.8	8.5	109	206
4	26.2	5.1	63	205
5	20.3	1.1	12	207
6	16.7	0.3	3	210
7	14.9	0.3	3	226
8	12.9	0.2	2	287

**Oakwood Station (41.59758, -72.50849)**

Water clarity: **1.5 meters** (4.9 feet)

Water depth: 10 meters (32.8 feet)

Weather: Overcast, mostly calm

Depth (m)	Temp (°C)	Oxygen (mg/L)	Oxygen Saturation %	Conductivity (µS)
0	27.6	9.0	115	208
1	27.7	8.6	112	208
2	27.7	8.5	110	207
3	27.7	8.4	107	207
4	27.7	8.2	107	207
5	27.3	8.0	101	207
6	27.3	7.2	93	207
7	27.1	6.4	85	207
8	26.7	5.2	66	207
9	26.0	3.2	39	208
9.5	25.3	1.1	14	-
10	25.6	0.4	4	209