

Bearcamp Pond Water Quality Report for 2017 VLAP Testing

Submitted by Gail Colozzi, August, 2018

Water sampling is done 3X /year by the Water Quality Committee: Gail Colozzi, Bob Greene, Linda and Lou DeMaio, Mary Hillsgrove, and new to our committee – Andrea Everett-Wilson. Michael Henle and Gerry Butters participated in water sampling last August. Samples are collected in the deep spot, the inlet, the pre-inlet and the outlet. Sampling this summer was done on June 7th and July 18th; August sampling is scheduled for August 16th. New volunteers ensure that BCPA has enough trained volunteers to share this task going forward. This is a commitment of only one morning next summer. Anyone willing and able to make that commitment can receive training this year during the August 16th sampling. Please give Gail your name after this meeting or email bearcamppondassociation@gmail.com.

Results from 2017 VLAP testing are below; overall, the pond remains stable in the parameters tested each year, although

- pH – or hydrogen ions in water important for survival and reproduction of aquatic life is categorized as Bad. pH has always been highly variable at the epilimnion or top layer of water, and less than desirable for the middle – the metalimnion, and lower – the hypolimnion water layers. The NH standard is between 6.5- 8.0 and 2017 data indicates that the epilimnetic (top) layer at the pre-inlet and outlet were again within this desired range. Metalimnetic (middle) and hypolimnetic (lower) layers at deep spot, as well as, Inlet pH were less than desirable. The pond is considered an impaired water body, mainly due to pH – acidity from pollution, which affects all NH water bodies and with reduced pollution there may be improvement, but not for decades.
- Color – the color of the pond water was noted as tea colored in 2017. The pond water has darkened since water testing started in 1998 and DES is now monitoring this parameter in order to study its relationship to water clarity and quality.
- Chlorophyll-a, which causes algae growth was low June, moderate in July, then elevated in August. Chlorophyll A in 2017 was slightly higher than 2016, although greater than the State median. It's categorized as Good and stable over historical trend data.
- Dissolved Oxygen – categorized as cautionary given variably small margin increases and the need for more data collection, as this parameter has only been measured for the past several years.
- Conductivity – the water's ability to carry an electrical current through the presence of chloride ions and minerals, was very low in 2017 (less than the State median), though stable in historical trend data.
- Transparency or water clarity overall, while highly variable historically, remains stable. Without the viewscope it was less than the state median; with the viewscope, transparency was better and near the state median
- Turbidity – which is the suspended matter you can sometimes see in the water – e.g. algae, silt, clay were low in the pre-inlet and outlet were low. Turbidity in the inlet and deep spot were low in June then slightly elevated in July and August, as algae growth increased.
- ECOLI was categorized as **Very Good** and is not a problem; it is much less than the state standards for public beaches and surface waters – 88cts/100ml. Bearcamp Pond Beach is tested by the State 3X per year during the summer, since 2003, and reports from 2012 forward can be viewed at this website:
<http://www2.des.state.nh.us/DESOnestop/BCHList.aspx>
- Phosphorus – Is just that phosphorus in organic or non-organic form found in the water. Too much phosphorus leads to increased algae growth and the possibility of cyanobacteria - - which is commonly called blue green algae and can contain a number of toxins. Phosphorus was categorized as **Good** and stable, despite increases in August on the top layer of water which was slightly above the state median and a slight increase overall from 2016. Storm events flush the wetlands and can cause elevated nutrient levels which promote algae growth and increased nutrients. VLAP recommends watershed education and outreach efforts aimed at reducing nutrient and sediment loads to the pond.

DES has made recommendations in the 2016 report for shoreline property owners to follow Shoreline protection guidelines to prevent sand, dirt, and gravel run-off into the pond. DES has also recommended that the Town of Sandwich investigate stormwater management, and take measures to prevent dirt road erosion on Middle Rd, where the bridge is over the river, because dirt and gravel run-off, likely contribute to increased phosphorus and sediment entering the pond. In the 2014 and 2015 we wrote to the Town of Sandwich Selectmen but had received no response. The Selectmen had referred the matter to Jon Peaslee – Highway Dept. at the Aug 3, 2015 Selectmen's meeting. This past spring, Mary Hillsgrove contacted and inspected the site with Jon Peaslee, who determined that run-off is not a problem

Homeowners should also take care regarding stormwater management and shoreline protection – please read the article on the BCPA webpage about dumping sand on beachfronts. Resources for homeowners are available on the Bearcamp Pond website and sites below:

- US Forest Service – Environmentally Sensitive Road Maintenance for Dirt and Gravel Roads
- UNH Technology Transfer Center's Technical Assistance program <http://www.t2.unh.edu/technical-assistance>

- Penn State: <http://www.dirtandgravel.psu.edu/index.html>
- An online resource for home owners – NH Homeowners Guide to Stormwater Management.

CYANOBACTERIA PROJECT

Cyanobacteria continues to be an increasing problem in New England, across the country and globally. Many species of them produce dangerous toxins. Bearcamp Pond participated in the cyanomonitoring program last summer from June through September and will continue this program this summer. Gail Colozzi and Bob Greene collected and froze a water sample from the deep spot every other week and submitted to DES in October. In addition, we obtained a Cyanomonitoring microscope kit last summer and regularly collected, viewed samples for organisms, took digital photos and submitted these to BloomWatch for analysis and ID. Bearcamp samples and photos are part of the national database of cyanobacteria monitoring. There were large algae blooms last September down the river and in multiple areas on the pond. There was a large bloom in the south west cove in mid-May of this year which was unusual for both the location and the time of year. On both occasions, we submitted photos and DES collected samples for analysis. Those particular blooms were harmless.

Anyone can download and utilize the smartphone App BloomWatch to take and submit picture data to DES, should they see an algae bloom on the pond. Here's the link to the cyanobacteria monitoring website online for basic info: <http://cyanos.org/bloomwatch/> and using your smartphone. You can download the BloomWatch App on your smartphone for free from iTunes or the App store on your phone. We strongly encourage you to use the hand-outs about installing and using BloomWatch on your SmartPhone.

Exotic/Invasive Species Watch

Information and links to DES about preventing exotic aquatic species – plants and animals is on the BCPA website: bearcamppond.org - please pass this information to anyone who brings their own water craft onto the pond. In the past milfoil loomed as the only threat to pond health; but Amy Smagula has warned us that any water with any type of craft being launched puts that water at risk of invasive plant and animal species; some which are microscopic. NH passed some new laws in January 2017 to strengthen efforts in exotic species prevention. This summer there has been a large population of a native aquatic species – pipewort.

To reiterate what Amy Smagula (NH DES Limnologist/Aquatic Species Program Coordinator) told us last year: *"I do know that you have a population of native milfoil at your boat launch that is bright green. I have done DNA on it a couple of times to be sure it is native, and DNA confirms that. It should remain fairly low growing. If you start to see milfoil like plants growing taller than a foot or two, please let me know."*

BCPA posted new NHDES signs at both the boat launch and Town Beach on Bearcamp reflecting recent NH laws about exotic species prevention last summer with the Town of Sandwich's approval.

Bearcamp Pond Loon Report for 2018

Submitted by Gail Colozzi, August, 2018

The loons returned on April 13th per observations by Mary Hillsgrove. LPC Biologist John Cooley had inspected the nesting raft and LPC provided a new camo cover. Mary and Hayden Hillsgrove prepared a beautiful nest and the new camo cover, and launched it on May 10th. Unfortunately, for a second year, the loons did not nest. In addition to the pair, observers have noted one to two, other loons on the pond, as well as, some, what looked to be fighting behavior amongst the loons. It would be very helpful to get pictures of the banding on the loon's legs, so that LPC can identify the loons. We would appreciate anyone who is able to do that to submit a picture to bearcamppondassociation@gmail.com or to our website Bearcamppond.org.

Visit the website for the latest information about the pond, loons, lead-free tackle, exotic species prevention, and water quality.

Despite the new law, loons, unfortunately continue to die from ingestion of lead tackle.

Please inform and encourage family and guests and renters regarding loon behavior – watching them safely from a distance, as well as, making sure anyone fishing on the pond uses lead-free tackle.

The implementation of Senate Bill 89 (SB 89), a law that prohibits the sale and freshwater use of lead fishing sinkers and lead jigs weighing one ounce or less in NH began on June 16, 2016. Non-lead tackle are available in a variety of materials including tungsten, tin, bismuth, and steel among others. Collection receptacles for old lead tackle can be found at all New Hampshire Fish & Game regional offices and at The Loon Center in Moultonborough. The Loon Preservation Center distributes packets of non-lead fishing tackle at their headquarters – 183 Lees Mill Rd. in Moultonborough. New Hampshire Fish & Game has a [guide for anglers to help them identify jigs that are illegal](#). The Loon Preservation Committee and Fish and Game are part of a region-wide initiative called [Fish Lead Free](#) which is dedicated to providing resources for anglers to help them make the switch to non-lead tackle.