MARYLAND DEPARTMENT OF NATURAL RESOURCES

New and Noteworthy

Maryland Department of Natural Resources
Summer 2019 Update Concerning Deep Creek Lake

Informational Brochures Released

Aquatic invasive species (AIS) education continues to be a priority for the department here at Deep Creek Lake. To further AIS education, the department created a new AIS brochure in the spring of 2019 detailing how to properly clean and disinfect boats, trailers and gear before launching and after leaving any water body. These brochures have been disseminated to local marinas as well as placed at boat ramps, including the Deep Creek Lake State Park boat ramp, in effort to further communicate AIS education. For more information about the brochure and to learn more about aquatic invasive species, please see https://dnr.maryland.gov/Invasives/

The Deep Creek Lake Natural Resource Management Area (DCL NRMA), commonly referred to as the Lake Management Office, worked with the Maryland Natural Resource Police (NRP) and the Deep Creek Lake Property Owners Association (POA) to generate a "Tow Like A Pro" brochure over the winter. Brochures were sent to all dock permit holders as well as local businesses, marinas and other appropriate locations. The goal of the brochure was to provide suggestions for safe towing procedures related to water sports and to advise the public regarding areas that are the safest and best for towing. To view a copy of this brochure and learn more about safe boating, please visit the department's website at http://dnr.maryland.gov/nrp/Pages/BoatingSafety/home.aspx

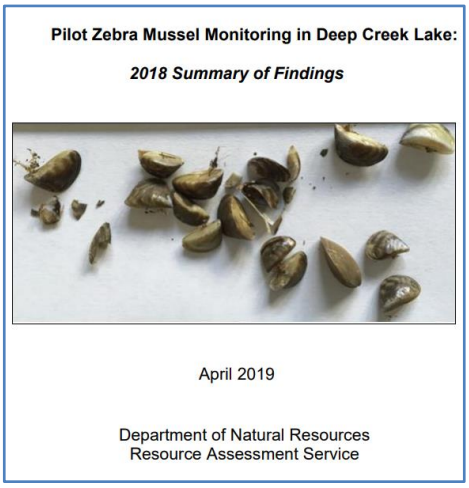
State Lakes Protection and Restoration Fund

In May 2018, Governor Hogan approved $1 million annually for 3 years for the State Lakes Protection and Restoration Fund. The funds are to support protection and restoration efforts at all 16 state-owned lakes and will be available beginning July 1, 2019. Roughly $420,000 of that money will be directly available in 2019 for projects at Deep Creek Lake. Planned projects at Deep Creek Lake include: 1) aquatic invasive species control efforts, 2) shoreline stabilization efforts and 3) construction of fish habitat structures. These projects were recommended through the open house process by citizens and lake managers. The department will again be conducting open houses to solicit projects beginning in July 2020.

Pilot Zebra Mussel Monitoring Program

Results of the 2018 Pilot Zebra Mussel Monitoring Program found no evidence of zebra mussels in Deep Creek Lake based on both visual analysis (SCUBA diving surveys) and presence/absence surveys (monitoring plates placed around the lake). The study also measured water quality to assess the ability of current lake conditions to support zebra mussels. Based on water quality data collected in 2018, it was determined that while Deep Creek Lake has suitable habitat for zebra mussels with regard to salinity, temperature, dissolved oxygen, conductivity and pH, it has an overall low risk of colonization by zebra mussels due to observed low calcium and water hardness concentrations.

The scientific literature suggests that North American populations of zebra mussels generally require a minimum of 10-12mg/L calcium to build and maintain their shells. Based on calcium and water hardness data from 2009 and 2018, Deep Creek Lake has average calcium concentrations ranging between 7-8 mg/L, suggesting that Deep Creek Lake is at low risk for zebra mussel colonization and survival. Because 2018 was a very wet year, it was recommended that at least two additional years of water quality monitoring be conducted and visual monitoring continue to better assess the risk of zebra mussels. As such, the monitoring program initiated in 2018 will continue in 2019. To view the full report, click here or go to Eyes on Deep Creek Lake. The department would like to thank Brookfield Renewable (the owners of the dam), and the Deep Creek Watershed Foundation Inc. for helping to fund the 2018 and 2019 monitoring programs.


Pilot Zebra Mussel Monitoring in Deep Creek Lake:

2018 Summary of Findings

April 2019

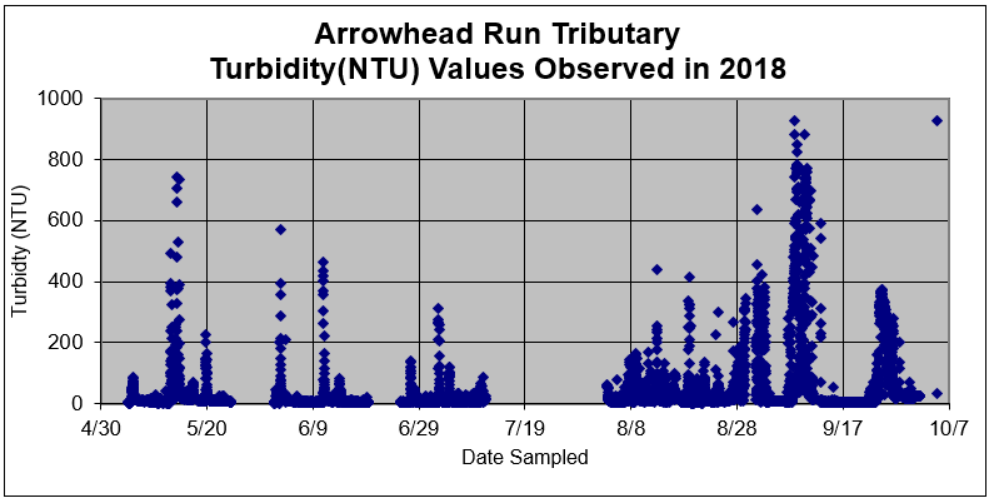
Department of Natural Resources
Resource Assessment Service

On-going projects

Lake Water Quality Monitoring

Lake-wide water quality sampling began again in April 2019 and will continue through October 2019. This represents the eleventh year of lake-wide water quality monitoring. The monitoring allows scientists and managers to form a baseline assessment of water quality conditions from which any future changes can be assessed. Additionally, the 2019 sampling season represents the third year in which nearshore, shallow water monitoring is the focus, with 25 nearshore locations being monitored in addition to four mainstem historic sites. This regular sampling will allow comparisons to be made over time. The data is available online at DNR's Eyes on Deep Creek Lake website. In addition to monitoring physical water quality parameters such as temperature, conductivity, dissolved oxygen, pH, chlorophyll, turbidity and depth at each site, scientists collect water samples at select sites to use in determining the amount of nutrients and suspended solids (sediments) in the water. Water clarity is also measured using a secchi disk. This measurement determines how far in the water column light penetrates, which is a good indication of overall water quality. Secchi depths in the lake generally range from 1m-6m (3ft-18ft) depending on the location and time of year.

This year marks the third year of continuous water quality monitoring. This effort allows scientists to deploy multi-parameter water quality meters that record data autonomously every 15 minutes. During the past two years, meters were rotated through the various coves of interest for roughly 2-3 weeks at a time, giving scientists a "snapshot" into the daily fluctuations in water quality as a result of natural and human events like storms and boat traffic. Starting in 2018, two meters were placed in Arrowhead Cove and tributary for the full monitoring season to track daily changes in water quality throughout the year. The data (shown below) help scientists to assess the impact of tributaries on lake water quality and identify additional areas of the lake in need of further investigation.



In 2019, scientists stopped rotating the meters throughout the coves and tributaries and instead have placed them in two coves and tributaries for the duration of the 2019 season. Deep Creek Cove and McHenry Cove are the two areas of the lake where scientists

are focusing their continuous monitoring efforts in 2019. This data will help create an 'ecological fingerprint' for these areas from which any future changes in water quality can be assessed. Scientists will additionally use this data to understand the variability that exists in these shallow water coves and direct future monitoring efforts.

***Hydrilla* Treatment and Monitoring**

This year represents the sixth consecutive year of herbicide treatment using flouridone (trade name SONAR) to treat the invasive aquatic plant, *Hydrilla verticillata*. The herbicide treatment is selective for hydrilla and works to inhibit the plant's ability to photosynthesize and produce chlorophyll (green pigment visible in plants). Hydrilla plants under herbicide treatment will turn pinkish white, and ultimately die. In 2019, 13 zones around the lake have been scheduled to be treated at 4 separate times throughout the summer months (June-August). Scientists are in the water routinely throughout the summer (pictured below) monitoring the efficacy of the treatment. Early monitoring results suggest the treatment continues to be successful at suppressing the growth of hydrilla. As of mid-July 2019, hydrilla could only be found in 4 of the 13 locations treated. The annual treatment effort has been so successful that by the end of August each year, no living hydrilla plants have been found in any of the treatment zones. For more information about the herbicide treatment please go to the DCL NRMA website.

Additional monitoring and on-going efforts

Submerged aquatic vegetation (SAV) monitoring will continue in 2019. This is a long-term monitoring program that takes place in late August and early September, during the peak of the SAV growing season, and provides baseline SAV data capable of detecting changes in the plant community over time. Shoreline surveys are also conducted in an effort to map vegetation of management concern as well as survey the shorelines for any new aquatic invasive species. Past annual reports can be found at the Eyes on Deep Creek Lake website.

Tributary monitoring continues at three of the main tributaries feeding Deep Creek Lake: Cherry Creek, North Glade Run and Arrowhead Run. U.S. Geological Survey (USGS) monitors each of the locations for flow, while department staff assess the quality of water. This monitoring determines the quantity of water entering DCL and assesses the quality of that water based on the amount of sediments and nutrients entering the lake from these streams. This data helps managers to understand how specific locations in the watershed affect the quality of receiving waters and may help identify sub-watersheds in need of additional study. Gage data is available in real time on the USGS website.

Voluntary boat inspections began again Memorial Day weekend and will continue at the Deep Creek Lake State Park boat ramp through Labor Day weekend 2019. Boat inspections are conducted by launch stewards, who are an essential part of helping to educate visitors and locals alike about the threat of aquatic invasive species, preventing additional introductions into Deep Creek Lake. Additionally, they collect valuable data that helps managers quantify the number of infected boats attempting to launch onto Deep Creek Lake and where those boats are originating. While the percentage of boats carrying organic matter has varied over time, it remains less than 5% of boats assessed. While low, this statistic underscores the need for continued prevention and education.

Upcoming DCL Public Meetings: Deep Creek Lake Policy and Review Board Meeting- July 29th Meeting time is at 6pm at the Deep Creek Lake State Park Discovery Center (898 State Park Rd.)

Contact Information: For more information concerning the Department of Natural Resources monitoring activities at Deep Creek Lake, contact Julie Bortz at Julie.bortz@maryland.gov.
Julie serves as the department's representative to the Deep Creek Lake Watershed Management Plan Administrative Council.