❖ Keeping Highlands Lakes Healthy

In 2019, residents of the Highlands Region became acutely aware of the importance of proper lake management. Headlines throughout the summer splashed the term "Harmful Algal Bloom" or "HAB" and anyone who had not heard the phrase before quickly became familiar with it.

A HAB is an algal bloom that can be dangerous to people, animals or the environment. Some HABs produce chemicals that can be toxic to humans and animals through contact or if ingested or inhaled. These toxins can also accumulate in fish and shellfish and can cause illness when consumed. A number of factors contribute to the development of HABs, many of which can be controlled through proactive lake management.

The Highlands RMP contains several goals related to lake management and accordingly, the Highlands Council offers grant funding and expertise to help municipalities manage and help prevent HABs. The Highlands Plan Conformance process recommends and can fund a variety of plans, including stormwater management, septic system management and maintenance, wastewater management, alternative wastewater planning, stream corridor protection and restoration, and more. The Highlands Council is currently funding several significant lake management projects that will help to reduce HABs in the future.

Lake Hopatcong

Although several lakes in the region – including Greenwood Lake, Lake Musconetcong, and Budd Lake – were affected by HABs in 2019, none received as much public attention as Lake Hopatcong, the largest freshwater lake in New Jersey. The lake was closed to swimming for nearly the entire summer season due to a persistent HAB. Local businesses were devastated, and residents and visitors were unable to enjoy this valuable natural resource.

The HAB which occurred last summer at Lake Hopatcong appears to be the result of several factors happening at once: significant rainfall, warm weather, stagnant water and excessive nutrient loading, specifically phosphorus. Phosphorus can be present in fertilizers and detergents and can be released from failing septic systems. It also can be naturally occurring in certain soils. Phosphorus overloads going into a lake can occur from stormwater runoff, wildlife droppings, failing septic systems, an overabundance of lake weeds, and erosion.

A Highlands Council-funded update to Lake Hopatcong's 2006 Lake Restoration Plan was already in progress as the HAB developed last

Lake Hopatcong State Park, Hopatcong Borough, Sussex County

summer. The update was specifically designed to expand the plan's recommendations and suggest additional ways to reduce phosphorus. The data collected has been instrumental in helping scientists recommend solutions. The grant award to the Lake Hopatcong Commission for this project was $109,000. All these efforts will contribute to improved lake health.

All restrictions on Lake Hopatcong were lifted by October. The Highlands Council continues to work closely with the Lake Hopatcong Commission, the Lake Hopatcong Foundation, the NJDEP, and the municipalities around the lake to support lake management efforts that can help reduce or prevent future HABs.

Greenwood Lake

For Greenwood Lake, which also experienced a very significant HAB in the summer of 2019, the Highlands Council funded an important update to Greenwood Lake Commission's Watershed Implementation Plan (WIP). The project provided an update to a 2006 Lake Restoration Plan, which had resulted in a significant reduction in the targeted phosphorus load but required an update to better reflect current lake conditions. While the WIP focused on the New Jersey end of the watershed, since the Commission is a bi-state organization, information and findings will be shared with the New York end of the watershed.

The Draft WIP was presented to the Greenwood Lake Commission in January 2020. It incorporates the results of a concerted water quality sampling effort with numerous recommended implementation projects designed to address pollutant loading. The award to the Greenwood Lake Commission for the creation of the WIP was $91,000.

Ringwood Borough Lakes

Ringwood Borough has numerous small lakes, some of which are privately owned and managed and some are owned by the Borough. While no lakes in Ringwood experienced HABs in 2019, Cupsaw Lake was affected in 2018, closing the beach to all recreation. The Borough Lakes Committee and the Borough Council collaboratively requested grant funding from the Highlands Council for the preparation of a Watershed-Based Assessment of watersheds feeding four lakes in the Borough. This regional approach to watershed planning recognizes that lakes are on the receiving end of impairments from the watersheds that feed them. These impairments include uncontrolled stormwater runoff, failing septic systems, nuisance weed production, stream corridor degradation, and other non-point sources of pollutants. Recommendations for projects to improve each lake's watershed quality will be developed following the collection of water quality data and intensive pollutant loading modelling. The grant awarded to Ringwood Borough was $91,555.

Inter-Agency Coordination and Outreach

Throughout the remainder of 2019 and continuing into 2020, the Highlands Council coordinated closely with the NJDEP, the lead agency responsible for monitoring and responding to the HABs. Highlands staff also increased outreach to municipalities regarding grant opportunities for planning projects that will contribute to improved lake health and could reduce future algal blooms. By late October 2019, the majority of HAB advisories in the New Jersey Highlands had been lifted.