

Protecting an Exceptional Resource

Water Quality in Newfound Lake and Implications for Future Land Use

By Boyd Smith

Newfound Lake has been identified as a High Quality water body by the New Hampshire Department of Environmental Services (NHDES). This is great news for everyone in the nine-town, 63,000-acre watershed, for the many species that live on or near the lake and for its thousands of recreational users. Newfound is considered High Quality under the state's anti-degradation rule due to its median phosphorus concentration of four parts per billion (ppb). Phosphorus is a nutrient that stimulates the growth of plants such as algae and other aquatic species. A little phosphorus is necessary for a healthy lake, as the algae and plants provide food and habitat for fish and other animals in the food chain. Too much phosphorus, however, leads to algae blooms, loss of water clarity, eutrophication and species decline.

The majority of phosphorus enters the lake through its tributaries, which in turn are fed by rain storms and snow melt. Storm water is the greatest threat to water quality, and as storm intensity continues to increase as predicted (note three "100-year" storms since 2006), this threat will continue to grow. Future development, forestry, road maintenance and other land use in the watershed must address storm water runoff issues appropriately to prevent phosphorus concentrations from increasing.

The NHDES limit for phosphorus in a High Quality water is 8 ppb. Under the anti-degradation rules, phosphorus can be added to the Lake in 20 percent increments of the "buffer" between Newfound's median concentration (4 ppb) and the NHDES limit (8 ppb). In other words, current regulations allow development and other land use to degrade water quality up to the 8 ppb limit, which is twice that of Newfound's median or existing condition. According to both anecdotal and scientific evidence, the clarity of the lake has declined in the past decade or so, and the amount of "slime" on the bottom has increased. Doubling phosphorus concentrations therefore presents a serious risk to the many values of the Lake and the economic vitality of the region.

A more responsible and thoughtful approach to managing water quality is for municipalities to agree to use the existing (4 ppb) phosphorus concentration as a target for land use management. To make this happen, the watershed communities would join and request that NHDES identify Newfound Lake as having exceptional resource quality and value or sensitive recreational uses: an obvious choice for all that live and visit in the area! Under the anti-degradation rule, this designation would prohibit adding phosphorus to the Lake or its watershed unless new projects could prove, through a public hearing process, overriding social and economic justification for the project and no reasonable alternatives to the proposed degradation.

Using phosphorus concentrations as a unit of measure helps municipalities manage growth and associated landscape changes by requiring Best Management Practices for project location and design. Using phosphorus as a target also unifies local and NHDES efforts to maintain low phosphorus levels.

In the near term, each watershed community is encouraged to adopt land use regulations that address stormwater issues onsite and eliminate phosphorus from project runoff, or at least to reduce it to predevelopment levels. In the long run, a watershed-wide approach to designate Newfound as the exceptional resource that it is will protect all our interests for years to come.

Author and affiliation: Boyd Smith is the Director of the Newfound Lake Region Association, a member-supported nonprofit. The Association – through education, programs and collaboration – promotes conservation and preservation of the region's natural, social and economic resources.