

## Balch Lake Water Quality Analysis Fall 2023

**Introduction.** We collected water samples on October 18, 2023. They were analyzed by Katahdin Analytics in Scarborough ME. Katahdin Analytics is a Maine-registered and -approved testing facility, which means they use only US and Maine-approved, state-of-the-art methods. The mid-October testing date was chosen because it represented the “quiet period” on the lake following the busy boating season during the summer. Along with a future early Spring sampling date, these data provide what should be considered baseline values. Katahdin tested >200 different compounds, including heavy metals, herbicides, oil and gasoline-related compounds, and E. coli levels. Notably, they also measured “forever chemicals” that have been found in approximately 30% of lakes tested in the US, including New England.

The following is a category-by-category analysis:

**Herbicides.** A broad range of possible herbicides were analyzed, including ProCellaCOR, the chemical BLIMP is currently using with NH EPA permission and guidance. We tested for a broad range of other herbicides in case run-off from a landowner using excessive amounts of herbicides might be occurring. All the herbicides tested were undetectable.

**Gas and Oil Compounds.** Katahdin analyzed a wide range of compounds that could result from discharge of gas and/or oil into the lake. The data indicates clearly that there is no contamination in Balch—all such compounds were undetectable. Since the samples were taken in mid-October, it will be important to follow up during the height of the boating season in July.

**Heavy Metals.** A wide range of metals were analyzed, including all of the metals implicated in human health issues. All heavy metals tested were either undetectable or 50-1,000 fold below federal and state limits. We can be highly confident that heavy metals, including mercury, are not a problem in Balch Lake.

**Organics.** These are compounds like acetone, phenols, chloroethanes, and other small organic compounds that are known to have significant human health effects. They are commonly found in fingernail mineral spirits, rust remover, oil-based paints and stains, dry cleaning products, fingernail polish remover, etc. All compounds examined were undetectable using state-of-the-art technology.

**“Forever Chemicals”.** This class of compounds represents a highly dangerous group because of their short- and long-term effects on human health, especially reproductive health, neurological/mental health, and cancer. Two different categories of “forever chemicals” were tested: BPA and similar man-made molecules often found in plastic bottles, plastic containers, and the lining of soda cans. The second category are the PFAS group of compounds, also man-made, which have been discovered in 20-30% of lakes that have tested for them nationally, including several in NH and Maine. Potentially dangerous levels of PFAS compounds have been found in the water supply of 34 Maine towns. Fortunately, none of these “forever chemicals” were detectable in Balch.

**E. coli.** This is a bacterium that is present in human feces. If detected above a very, very low limit, the water in which it is found is immediately quarantined from human use until the E. coli levels return to zero or near-zero. While a completely expected result, especially given the time of year the sample was collected, the level of E. coli in Balch Lake was zero.

**Conclusion.** Based on a thorough, state-of-the-art analysis, Balch Lake has an enviable level of water quality—none of the >200 compounds tested were detected or were orders of magnitude below regulatory limits. As planned, we will continue to assess these potentially harmful chemicals in the early Spring and mid-summer 2024. Based on recommendations from Katahdin Analytics, we are planning regular intervals of measurements going forward to ensure that our water quality remains high, and to ensure that we get “warning signs” early enough to intervene.