



TOWN OF SUDBURY
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Select Board
Town of Sudbury
Massachusetts

Dear Honorable Select Board Members:

You recently received information regarding water testing at Sewataro, this is a follow-up with perspectives from the Health Director, Conservation Coordinator and Sudbury Water District Executive Director. They were provided the results and requested to provide a response relative to their functional area of expertise. Below are the responses:

- Health Director: The only parameters that bathing water must meet for camps and public swimming are E.Coli and clarity. The recent results indicate favorable conditions at the time of testing. Bacteriological quality can fluctuate with factors such as rainfall and temperature. Testing at the time of opening and throughout the summer will be conducted and those results will be a better indicator of seasonal use. We encourage the camp to continue to test monthly until opening.
- Conservation Coordinator: Here is some additional information that may help the Select Board. The water results are generally favorable environmentally. The goal of the Commission will be to ensure the water quality stays as good if not better, from proposed activities.
 - Alkalinity is the measure of the water's ability to neutralize acids. Alkalinity is a function of rock and soils within the watershed. Higher alkalinity buffers water against rapid changes in pH. Freshwater systems are generally considered resistant to changes in pH if within the range of 20-200 mg/L. All samples taken fall within this range and were fairly consistent throughout all locations.
 - Dissolved Oxygen is the measure of oxygen contained within the water column for aquatic life to breathe. This fluctuates throughout the year and is a function of water temperature, plant communities in the water, and algae. A surface reading greater than 5 mg/L is considered within the range to maintain the health of aquatic life. All readings were above this threshold.
 - Nitrate is the form of nitrogen found in the water column. This form of nitrogen is the one most readily available for plant and algae growth. Levels of Nitrate are ideal below 0.30 mg/L. All samples exceed this threshold, though reduce precipitously through the site. Solitude will propose measures to reduce nitrate entering the site which will be evaluated by the Conservation Commission through the Notice of Intent process.
 - pH is the measure of the acidity or alkalinity of the waterbody, ranging from 0-14 with 7 being neutral. All samples were just slightly acidic but within range.
 - Phosphorus-ortho, or reactive phosphorus, is the amount of dissolved phosphorus in the water column that is available to chemically or biologically react and is available for plant and algae growth. 0.02 mg/L is the threshold over which algae growth can become problematic. This was not detected in any samples.
 - Phosphorus Total is the measure of all forms of phosphorus in the water column, which should generally have a concentration less than 0.03 mg/L. Over this threshold, a waterbody can

experience algal blooms or excessive plant growth. The water coming into the site had slightly elevated (0.04 mg/L) levels of total phosphorus but this dissipated within the site and was 0.01 mg/L leaving the site.

- Total Kjeldahl Nitrogen is the measure of nitrogen contained in organic compounds (proteins and amino acids) which is formed from the biological growth and decomposition. Desirable levels are considered to be 1.0 mg/L or lower. This parameter was not detected in any of the samples.
 - Total Dissolved Solids is a measure of inorganic salts and mineral content in solution within the water column. This is generally comprised of minerals and is a measure of cations and anions dissolved in the water. The measurement of total dissolved solids does not indicate that there is specific health risk or threat, but it can be used to provide insight into the status of the water over time and as a warning sign of a potential problem. Fresh water is generally between 0 and 1000 mg/L. TDS was found to fall within this range and was fairly consistent between locations.
 - Turbidity is the measure of the extent of light that is scattered by suspended material (soils, algae, and plankton) in the water column. Turbidity usually increases from vegetation decay. Turbidity in most water bodies rarely rises above 5 NTU (Nephelometric Turbidity Units). Values greater than 10 NTU indicates high suspended solids which is usually a result of stormwater run-off. All samples are well below this threshold.
 - E. Coli is associated with fecal material. In recreational waterbodies, the EPA standards in less than 126 colonies per 100 mL. All samples were below this threshold.
- Sudbury Water District Executive Director: There are no expressed concerns from the Sudbury Water District, encouragement was to confer with Health and Conservation.

Sincerely,

Henry L. Hayes, Jr.
Town Manager