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## Fact Sheet: Porcupine Lake Enhanced Water and Sediment Sampling

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Water and sediment will be sampled from Porcupine Lake and its tributaries in the late winter of 2020. The sampling will characterize nutrients and other parameters in the lake and tributaries to indicate if wastewater from aging sewer infrastructure has affected the under-ice, winter water and sediment quality.

The late winter can be a particularly sensitive time for lakes, because lake water has been isolated from oxygen in the atmosphere by ice for several months, and the aquatic plant community (which provides habitat and dissolved oxygen) has been dormant since the fall. Dissolved oxygen in water is critical for aquatic life and effects the balance of nutrients and other parameters in lake water. Open-water monitoring programs have been conducted on Porcupine Lake for many years, but it is important to understand the sensitive late-winter under-ice conditions.

The enhanced sampling program will evaluate water and sediment quality in Porcupine Lake, and at point sources suspected of contributing undesirable parameters to the lake from the sewage infrastructure or other activities. Winter 2020 sample locations are shown on the attached Figure, with a description of each sample's purpose in the attached Table.

At each sample location in the lake, two water samples will be collected from the depths that provide the best information on under-ice water quality:

- One sample ~ 0.1 m off the bottom to characterize water near the sediment-surface water interface, where oxygen may be most depleted and chemistry will indicate the influence of nutrients, metals and environmental parameters in sediment on water quality; and,
- One composite sample of the water column from ~0.5 m off bottom, to the base of ice, that will represent overall water quality.

At each point source and/or tributary location, a sample will be collected upstream of the source and downstream of it, to determine the relative change in water and sediment quality related to the source.

Sediment at each lake and point source sample location will be sampled to assess the content of nutrients, metals and other environmental parameters in the layer of sediment that can interact with surface water. Sediment can act as a sink or source of contaminants (depending on bio-physical-chemical conditions) and understanding the winter balance will assist in identifying the influence of sediment vs. point-source inputs.

Hutchinson Environmental will conduct the work. We have extensive experience assessing surface water and sediment for effects from septic, urban and industrial inputs, and look forward to completing a quality project for the City of Timmins.



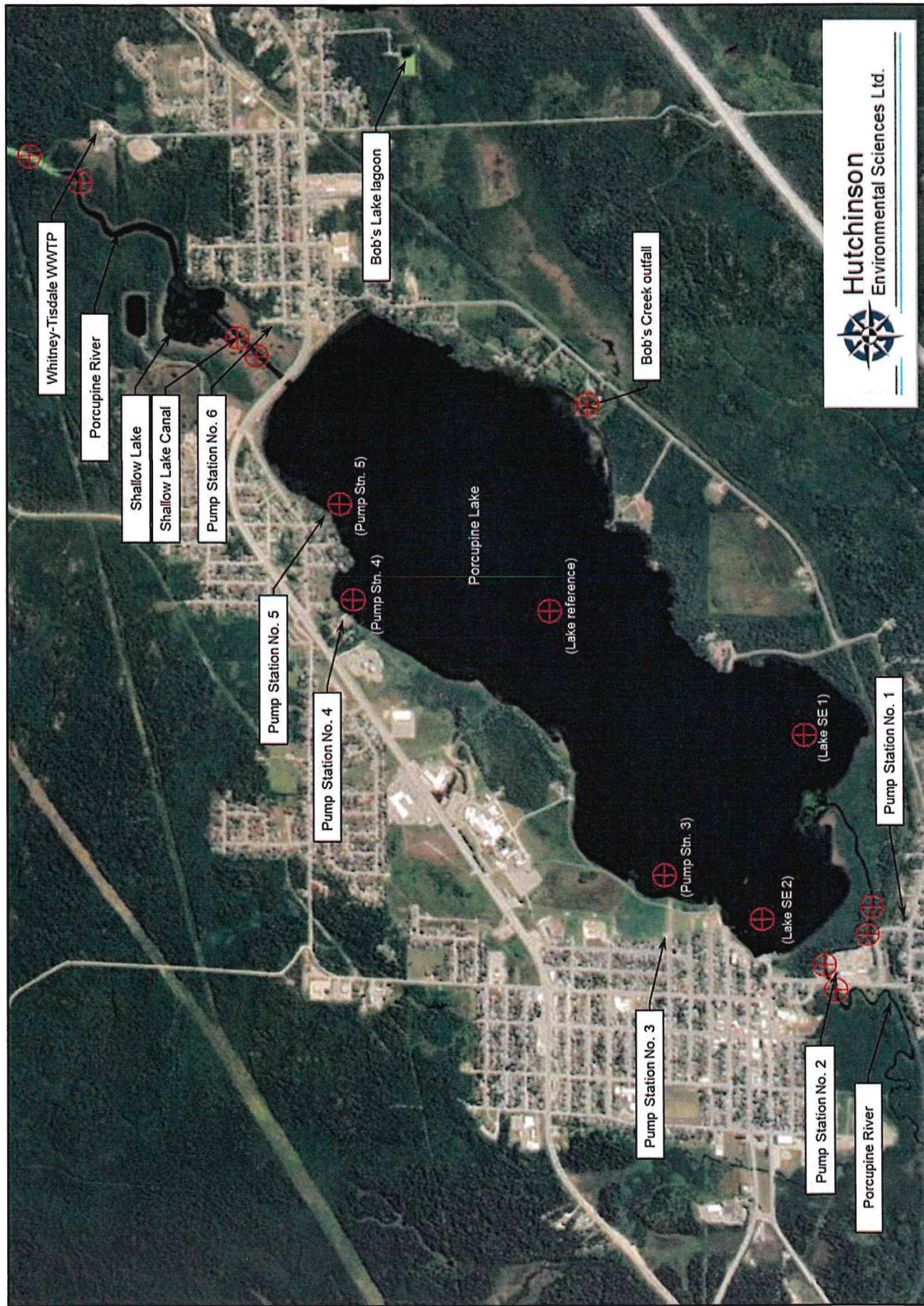


Figure 1. Surface water and sediment sample locations (shown in Red).