

Companion Document

**City of Kawartha Lakes – Investigative Upstream
Monitoring Report for Jennings Creek, Reforestation
Creek, and McLarens Creek**



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CONSERVATION**

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The Lake Management Plans (2014-2019) highlighted concerns regarding Jennings, Reforestation, and McLarens Creeks due to higher levels of nutrients and pollutants. As a response, the City of Kawartha Lakes initiated the Investigative Upstream Monitoring program. Kawartha Conservation's Integrated Watershed Management (IWM) staff monitored various locations along these creeks to identify specific hot spots with increased levels of nutrients and pollutants.

At each location, the IWM staff collected water samples for total phosphorus, nitrogen, chloride, and suspended solids. They also recorded water temperature, pH, conductivity, turbidity, and dissolved oxygen. The samples were processed in an accredited laboratory and compared against the Ontario Provincial Water Quality Objectives and Canadian Water Quality Guidelines for the Protection of Aquatic Life. Additionally, discharge measurements were taken at each location to assess the total mass of pollutants moving through the system and determine necessary measures to improve water quality.

The project spanned three years with monthly monitoring during spring, summer, and fall. In total, 17 sites were sampled: 5 along Jennings Creek, 7 along McLarens Creek, and 5 along Reforestation Creek. All creeks are located within the City of Kawartha Lakes, with Jennings Creek draining into the Scugog River, McLarens Creek draining into east Sturgeon Lake, and Reforestation Creek draining into Pigeon Lake (**Figure 1**).

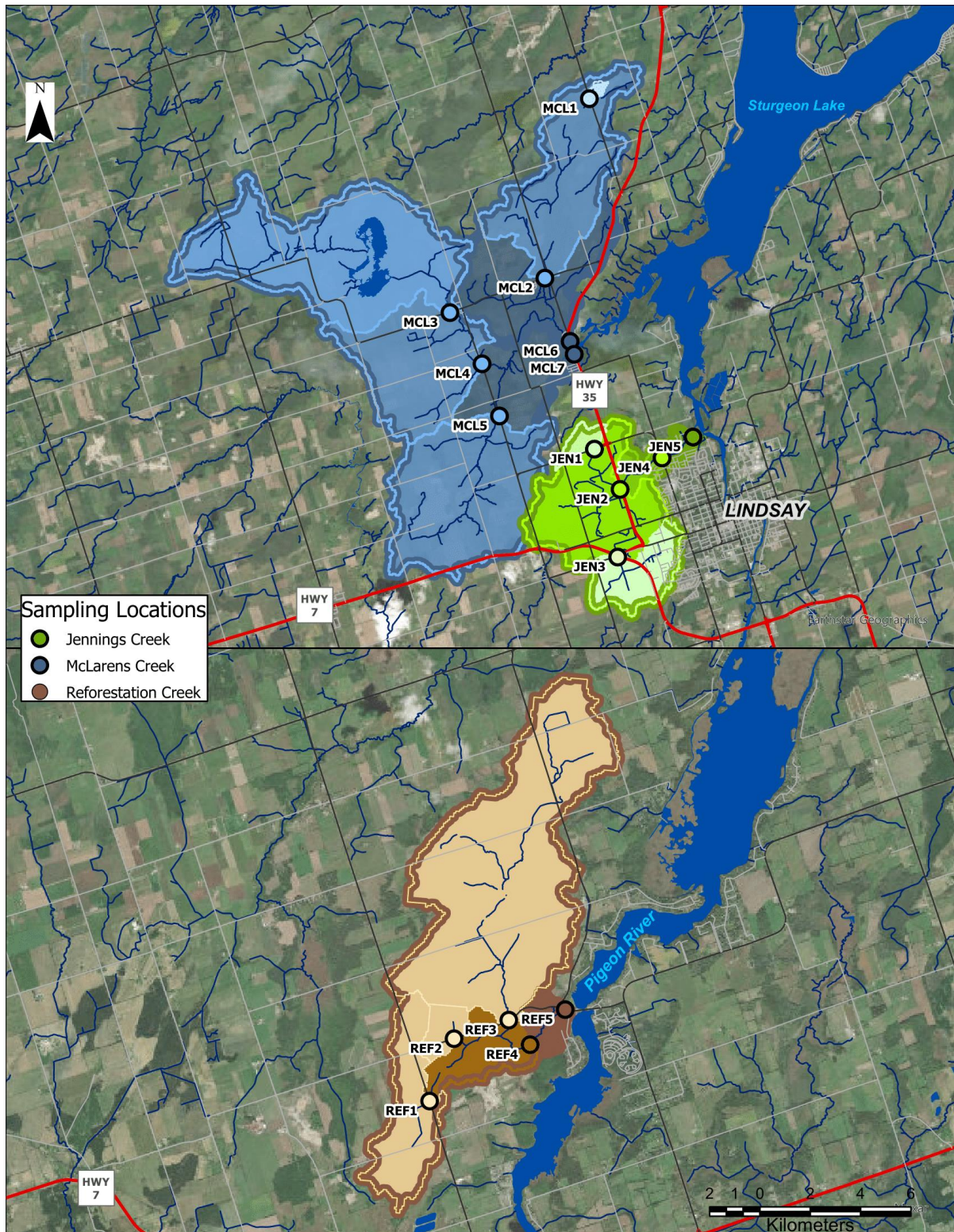


Figure 1. Locations and watersheds of each sampling site for Jennings ($n=5$), McLaren's ($n=7$), and Reforestation Creek ($n=5$).

The study's results indicated several important findings:

- Total phosphorus consistently exceeded the provincial objective in Jennings Creek (JEN1 to JEN4) and one site in Reforestation Creek (REF5), leading to excessive growth of aquatic plants.
- Levels of nitrogen, ie., ammonia and nitrate, are higher than those found in the natural environment indicated human activity influence in all tributaries.
- Ammonia levels were highest in Reforestation Creek due to its agricultural landcover, but there were no significant concerns for impacts on aquatic life.
- Nitrate levels exceeded thresholds at four sites (JEN1, MCL5, REF1, and REF2), indicating potential water quality issues.
- Jennings Creek (JEN3 and JEN5) showed consistently high chloride levels, likely from road salt application in developed areas.
- One site (REF1) in Reforestation Creek had chloride levels higher than the exposure thresholds, suggesting roads might be a source of chloride even in less developed areas.
- Total Suspended Solids were generally low, except for a few observations in Jennings Creek (JEN2-5), McLarens Creek (MCL2-5), and Reforestation Creek (REF2) with murky water that could harm fish gills and spawning grounds.

Contaminant loadings were calculated for each site to assess nutrient input. Reduction targets were set for chloride and total phosphorus to meet provincial objectives for two sites located on Jennings Creek (JEN3 and JEN5)

Based on the study's findings, Kawartha Conservation's Stewardship staff will seek cooperation from nearby landowners to implement nutrient and contaminant reduction projects at those high priority hot spot locations. Ongoing monitoring will be conducted to assess the success of these projects and track any ongoing trends. Additionally, a separate study will be proposed to determine background levels of total suspended solids in the Kawartha watershed.,

Acknowledgements

We would like to acknowledge that many Indigenous Nations have longstanding relationships, both historic and modern, with the territories upon which we are located. Today, this area is home to many Indigenous peoples from across Turtle Island. We acknowledge that our watershed forms a part of the treaty and traditional territory of the south-eastern Anishinaabeg. It is on these ancestral and Treaty lands that we live and work. To honour this legacy, we commit to being stewards of the natural environment and undertake to have a relationship of respect with our Treaty partners.

The region of Kawartha Lakes was referred to as *Gau-wautae-gummauh*, a glistening body of water, in anishinaabemowin. We are thankful to have an opportunity to work with Indigenous Peoples in the continued stewardship and care of this beautiful region.

This companion document was written by Tanner Liang, Water Quality Specialist. Peer editors include Ian McRae, Environmental Communications, Robert Stavinga, Watershed Resource Technician, and Nancy Aspden, Acting Manager, Integrated Watershed Management.

Others who have contributed to the development of this project include:

Deborah Balika, Source Water Protection Manager	Conservation Ontario
John Chambers, Marketing and Communications Specialist	Kawartha Conservation
Rob Stavinga, Watershed Resource Technician	Kawartha Conservation

Funding for this project was provided by the City of Kawartha Lakes.