McKenzie Creek Subwatershed: Fish & Macroinvertebrates Community Survey

March 2024

A collaboration with:

- **Department of Biology, University of Waterloo**
- **Lands and Resources, Six Nations of the Grand River**
- **Global Water Futures, environmental DNA project**
- ***Ohneganos***

Project Overview

This project was initiated as part of the ***Ohneganos*** water research program led by Dr. Dawn Martin-Hill of the Six Nations of the Grand River. *Ohneganos* aims to facilitate the creation of Indigenous water tools and promote Indigenous ecological knowledge, research, training, and education. Based on consultation with the community, we focused our efforts on contributing to a better understanding of the aquatic resources of the McKenzie Creek subwatershed.

Purpose of the McKenzie Creek Subwatershed Project

- To conduct a fish and macroinvertebrate assessment of the McKenzie Creek subwatershed.
- To initiate a dialogue with the Six Nations of the Grand River community about the aquatic resources and environmental quality of the river.
- To evaluate the feasibility of using environmental DNA, a non-invasive assessment method, to monitor the fish biodiversity of the McKenzie Creek subwatershed.

Collaborators

This was a collaborative effort involving individuals from multiple groups and organizations. The research group of Professor Mark Servos at the University of Waterloo, along with community members helped conduct this study as part of the Global Water Futures (Environmental DNA) and *Ohneganos* projects. Ethics permission for activities on Six Nations land was granted through the *Ohneganos* project. Lauren Jones of the Wildlife and Stewardship Department of the Six Nations of the Grand River Elected Council was instrumental in engaging landowners to facilitate land access to the study areas. Many community members allowed access to the river and assisted with the sampling.

Mark Servos

Environmental DNA
Global Water Futures

UNIVERSITY OF WATERLOO

SERVOS
Research Group

Lauren Jones

Project Overview

This report summarizes the results from the biological surveys of the McKenzie Creek subwatershed completed in the fall of 2022. In this report, additional information has been added compared to the preliminary report (provided in 2023) and includes:

- The macroinvertebrate data that was completed and graphed similarly to the fish data as well as two biotic indices that were included to assist with comparing among sites.
- The temperature profiles that were extended into 2023 and conductivity profiles that were added.
- Fourteen fish that could not be identified to species that have now been identified to species using DNA barcoding.

In this report, there will be a summary of the collected macroinvertebrates and fish, a snapshot of each site, a general outline of the sampling methods, and finally, additional data and information at the end.

Setting up seine nets as a downstream blocker net following eDNA water collection.