

## **Master of Engineering Multidisciplinary Project Listing**

**Supervisors: Dr. Alison Olechowski and Amber Gordon (Georgian Bay Forever)**

### **Protecting the Health of our water through the removal of in-water pollution**

#### **Overview:**

Plastics pollution in our freshwater, in any form – macro or micro, fibres or pellets, beads or foam, and the chemical concoctions that accompany them – are gaining momentum as a real crisis in our water systems.

The effects of all types of plastics pollution in our water can be seen, if not felt, all over the Great Lakes and its tributaries, all the way down to individual lakes and rivers in local municipalities. Although still a relatively new field of study, a recent report from Environment Canada supports the immediate need for more research on how all of this plastic pollution in our water and air, are affecting and impacting humans and aquatic life.

But, research takes time. Strategies to for large scale changes take time to implement. But it's time we don't have to sit and wait given the fact that 10,000 tonnes of garbage is estimated to be entering the Great Lakes every year! Diversion tactics and education need to happen now to drive positive action, while we implement larger strategies. Every action taken now, means a positive outcome for our natural resources.

#### **MEng Project Details:**

Georgian Bay Forever, a local Canadian Charity, is partnering with RBC Tech for Nature, to track “trash trips” in Georgian Bay to better inform local municipalities where diversion tactics could be placed to either stop point-source pollution or to remove garbage, plastics (both macro and micro), and other contaminants once they enter the water.

#### **Project Deliverables:**

- The candidate has the opportunity to create a working prototype of a capturing device that would remove many types of harmful contaminants/pollution once they have been released into the water body.

#### **Challenges to overcome:**

- Must be able to be mass produced and used in a majority of spaces without the need for complicated placement or installation criteria to be met.
- Must be easily adoptable
- Must be easily maintained, cleaned etc.
- Must remove a variety of contaminants and pollution including microplastics

#### **Funding:**

Funding available in the range of \$8,000-\$10,000.

**Start Date:** Fall 2022

**Application Deadline:** Sep 2, 2022

**Concept Deadline:** November 2022

**Prototype Deliverable Deadline:** January or February of 2023

**Application Details:** Please submit CV, transcript and a single paragraph describing your interest in the project in one file to Alison Olechowski ([a.olechowski@utoronto.ca](mailto:a.olechowski@utoronto.ca)).

**Research Area:** Design, Information Systems Engineering and Human Factors & Ergonomic