

**Principle Investigator: Katiana Pyper**

**Supervisor: Dr. Jonathan Van Hamme**

**Committee Members: Dr. Tom Pypker and Dr. Lauchlan Fraser**

**Title: Long term impact of biosolids in soil microbial communities during mine tailing reclamation**

We will examine the effects that adding biosolids ( $50-250 \text{ MgHa}^{-1}$ ) to copper mine tailings has on the microbial community present approximately 20 years after biosolid treatment and re-seeding. Core soil samples were extracted at a depth of 0-15cm in all treatment plots, including biosolid, no biosolids and no biosolids with fertilizer test plots. Extraction of DNA from all soil samples will then be executed and Polymerase Chain Reaction (PCR) will be used to amplify targeted genetic sequences to differentiate between bacteria and fungi. These amplified sequences will then undergo sequencing, and the sequence data output will be analyzed displaying the bacterial and fungal species presence and abundance in all samples. With this data, comparative statistics and other molecular techniques may be used to determine things such as pathogen presence and metal/microbe interactions. The importance of this project is to shed light on the effect biosolids use has on microbial communities in environmental practices, whether that is industrial or agricultural.