

Lucy Boyne

I am a 4th year student majoring in Environmental Science and minoring in Biology. I am studying methylmercury (MeHg) in freshwater invertebrates from two lakes in Kejimikujik National Park and National Historic Site, NS. MeHg bioaccumulates in wildlife and biomagnifies through food webs to neurotoxic levels in top predators such as fish and loons. This project aims to quantify the ratio between MeHg concentration and caloric content for a diversity of freshwater invertebrates that make up the base of the aquatic food web. This quantification will reveal which invertebrates are greater sources of MeHg to predators.

I am so grateful for the opportunity to plan and execute this research project. I have gained new field and lab skills, and I have developed a huge appreciation for the work that goes into environmental research! My love for environmental science continues to grow throughout my time at Acadia, and I feel lucky to get to dedicate my thesis research to an ecosystem that is so close to my heart: Kejimikujik!



Quantifying the MeHg:calorie ratio of aquatic invertebrates in Kejimikujik National Park and National Historic Site

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Objectives:

- Determine the MeHg concentrations, total mercury (THg) concentrations, caloric content, and MeHg:calorie ratios for a diverse range of freshwater invertebrates.
- Investigate how environmental characteristics may influence the MeHg:calorie ratios of freshwater invertebrates.

We have collected:

- Invertebrate samples to be analyzed for MeHg, THg, and caloric content
- Surface water samples to be analyzed for MeHg, THg, dissolved organic carbon, and various nutrients
- Decaying plant material samples to be analyzed for THg



Dragonfly adult perched on the lakeshore



Freshwater invertebrate sampling in Big Dam West Lake, Kejimikujik National Park and National Historic Site, NS



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