

Diversity of endophytes in eelgrass (*Zostera marina*) in the Canadian Maritimes

***Annelies Yates¹, Allison K. Walker¹**

¹*Department of Biology, Acadia University, Wolfville, Nova Scotia*

Zostera marina (eelgrass) is a widespread but globally declining seagrass species, and it is the most abundant seagrass in Canada. Eelgrass meadows are foundational components of many nearshore ecosystems and are crucial habitat for economically significant fish and shellfish species. They provide a suite of other ecosystem benefits, such as carbon sequestration and sediment stabilization. Much like terrestrial plants, marine plants form relationships with surrounding microbes. Endophytic fungi and bacteria support the health and fitness of their host, and though this dynamic has been documented in eelgrass and other marine plants elsewhere, it is an under researched field in the Canadian Maritimes. This project aims to catalogue the microbial diversity of eelgrass endophytes, compare communities across different sampling sites (NB, PEI, NS), and identify pathogens present in samples. Endophytes were targeted by surface sterilizing eelgrass leaf samples, and then identified by first extracting DNA from leaf tissue, and also from cultures emerging from plated sections of leaf tissue. PCR was used to amplify the ITS region of the extracted rDNA, and sequences were analyzed and characterized. Data collection is ongoing; preliminary results indicate eelgrass harbours fungal and bacterial endophytes with different analysis techniques revealing different species. This project contributes to the development of *Zostera marina* as a model organism for the study of marine plant-microbe interactions, and to the development of an eelgrass endophyte research protocol.

Keywords: eelgrass, endophyte, marine fungi, stress tolerance