Marine microbes are essential for decomposition and the recycling of nutrients in the ocean. Labyrinthulomycota are a group of saprobic marine protists that are characterized by extensions of their cell membrane called ectoplasmic nets. Although most are decomposers, some species of Labyrinthulomycota have been known to be opportunistic parasites of invertebrates. For example, *Thraustochytrid porteri* has been attributed to Sea Star Wasting Disease (SSWD) in British Columbia, which devastated purple sea star populations starting in 2013.

This project focused on identifying dominant Labyrinthulomycota species and determining patterns of diversity along the coast of BC. We also aimed to gather more information on whether they may be causing SSWD. We isolated growths from sick sea stars and decaying marine substrates from 12 sites along the coast, and identifying species using high-resolution microscopy and building phylogenies from 18S sequencing data. The isolates we obtained from this project were grouped into three major clades based on morphology and phylogenetic data. Members of the Oblongichytrium clade were present at almost all sites and grew on a wide variety of substrates. Thraustochytrids also grew on multiple substrate types but were less widespread, and only one member from the Aurantiochytrium clade was isolated. An Oblongichytrium species that had previously been attributed to SSWD was isolated from substrates other than sick sea stars, suggesting that it may have more generalist characteristics than previously thought.

Understanding the diversity and distribution of Labyrinthulomycota increases our understanding of their role in aquatic ecosystems and their potential role in SSWD.

Themes:

Check (highlight) the most applicable theme according to the abstract.

<table>
<thead>
<tr>
<th>Innovation and Technology</th>
<th>Health and Wellness</th>
<th>Culture and Society</th>
<th>Sustainability and Conservation</th>
</tr>
</thead>
</table>

Comments:

- Commented [A1]: What is "saprobic"?
- Commented [A2]: Can you simply say, "are"?
- Commented [A3]: Italic
- Commented [A4]: Can you turn this into active voice?
- Commented [A5]: Spaces after the period
- Commented [A6]: Jargon (especially the 18S sequencing data).
- Commented [A7]: Jargon
- Commented [A8]: Can you use something other than "understanding"? E.g. Our findings about... These data about... Learning more about...