

Vita

Candidate's name: Keelie Elana Taylor

Universities
Attended: University of Victoria (2022)
Bachelors of Science

University of New Brunswick (2024)
Masters of Science
Biology

Publications / Conference Presentations:

Taylor K. and Saunders G. W. 2023. Species diversity and phylogenetic context of rhodolith-forming coralline red algae in recently discovered Haida Gwaii rhodolith beds. Northeast Algal Symposium, Mystic, Connecticut (*International*, Poster presentation).

Taylor K. and Saunders G. W. 2024. Species diversity and phylogenetic context of rhodolith-forming coralline red algae in British Columbia with a focus on Haida Gwaii. PSA-ISOP-SEP Joint Meeting, Seattle, Washington (*International*, Oral presentation).

Species diversity, geographic distribution and phylogenetic context of rhodolith-forming coralline red algae in British Columbia

UNIVERSITY OF NEW BRUNSWICK
THESIS DEFENCE AND EXAMINATION

in Partial Fulfillment

of the Requirement for the Degree of
Master of Science

by

Keelie E. Taylor

in the Department of Biology

U.N.B., Fredericton, N.B.

**Tuesday, July 9th, 2024
1:00 p.m.**

Bailey Hall, Room 22 & via MS TEAMS

Examining Committee

Dr. Gary Saunders
Dr. Mark Sherrard
Dr. Audrey Limoges
Dr. Mike Duffy

Supervisor
Internal Examiner
External Examiner
Chair of Oral Examination

Abstract

Rhodolith collections in British Columbia (BC) have historically been limited and published regional species diversity data is poor. To address this, BC rhodolith collections were barcoded with the markers COI-5P, *rbcL*-3P and *psbA* to identify unique genetic groups, which were placed into a phylogenetic context with other coralline algae and observed anatomically. Six non-geniculate rhodolith-forming species were uncovered: *Boreolithothamnion astragalo* sp. prov., *Boreolithothamnion colliculosum* sp. prov., *Boreolithothamnion phymatodeum*, *Boreolithothamnion soriferum*, *Boreolithothamnion tanuense* sp. prov. and *Rhodolithia gracilis* gen. et. sp. prov., which has three varieties. Of particular interest, ITS sequences showed the variety *Rhodolithia gracilis* var. *gracilis* x *ramosa* var. prov. to be a hybrid of the other two varieties. Unexpectedly, rhodolith-like specimens of geniculate *Calliarthron tuberosum* and *Bossiella* sp. 1heteroforma were also uncovered. While understanding the full extent of BC rhodolith beds will require

additional sampling, these findings indicate that the rhodolith flora is widespread and diverse in BC.