

Vita

Candidate's name: Chandler Madison Stairs

Universities
Attended: University of New Brunswick (2015)
Bachelors of Science Honours

University of New Brunswick (2023)
Masters of Science
Biology

Conference Presentations:

Stairs, C.M. Stress tolerance, sea monsters, and collaboration. *Restigouche River Advisory Committee*, Campbellton, NB. 2023

Stairs, C.M. Trophic ecology of an underwater monster. *Fundy Dive Festival*, Huntsman, St. Andrews, NB. 2021

Stairs, C.M. Analyzing Atlantic wolffish diet using stable isotopes. *NBIS Thesis Pitch Competition*, Fredericton, NB. 2020
Video URL: https://www.youtube.com/watch?v=Wk_I8_wRTQs&t=15s

Stairs, C.M. Atlantic wolffish ecology in the Bay of Fundy. *Coastal Environmental Baseline Program Workshop, Department of Fisheries and Oceans*, St. John, NB. 2020

Stairs, C.M. Analyzing the diet of Atlantic wolffish using stable isotopes. *Three-Minute-Thesis, University of New Brunswick*, Fredericton, NB. 2020

Stairs, C.M. Atlantic wolffish ecology in the Bay of Fundy. *Girls Stem Up*, Fredericton, NB. [Poster Presentation]. 2020

How to catch a sea monster: acoustic telemetry and stable isotope analysis of Atlantic Wolffish (*Anarhichas lupus*)

UNIVERSITY OF NEW BRUNSWICK

THESIS DEFENCE AND EXAMINATION

in Partial Fulfillment

of the Requirement for the Degree of
Master of Science

by

Chandler M. Stairs

in the Department of Biology

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

Tuesday, August 8th, 2023
1:00 p.m.

Bailey Hall, Room 146

Examining Committee

Dr. Charles Sacobie
Dr. Tillmann Benfey
Dr. Jae Ogilvie
Dr. Adrian Reyes-Prieto

Supervisor
Internal Examiner
External Examiner
Chair of Oral Examination

Abstract

Atlantic wolffish (*Anarhichas lupus*) was the first fully marine species listed as an at-risk species by SARA in 2003, following an estimated 87% population decline between the late 1970s to the mid-1990s, with an estimated 60% decline in the mature population. Atlantic wolffish populations on the Scotian Shelf have declined 65% since 1980 and continue to decline. Therefore, we used acoustic telemetry to track continuous movements and migration patterns; scuba surveys to observe ecological behaviours in situ; and stable isotope analysis to estimate the trophic position of Atlantic wolffish from Deer Island Point, New Brunswick. Through acoustic telemetry and in-situ observations, we observed seasonal migrations associated with a spawning and foraging period, the courtship and formation of bonded pairs, tooth exchange, transient den use and abandonment, and egg-guarding. Additionally, we developed a capture method using compressed air to encourage wolffish out of the den and into a capture bag. Previous studies have

suggested Atlantic wolffish as are a keystone predator in kelp forests; we estimated the trophic position to be 3.7, supporting the idea that Atlantic wolffish are a keystone species. Lastly, we identified Deer Island Point as a critical habitat for Atlantic wolffish in the Bay of Fundy.