

## **Gwendolyn Keely Griffiths**

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### **EDUCATION**

September 2020-Current, Waterloo University (Waterloo, Ontario)

- Masters of Mathematics Teaching

September 2019-May 2021, **St. Francis Xavier University** (Antigonish, Nova Scotia)

- B.Ed. Secondary Education Science, Mathematics, and French Teachables

September 2012-May 2016, **University of British Columbia** (Vancouver, British Columbia)

- B.Sc. Hons. Marine Biology with Distinction

September 2016-December 2016, **Bamfield Marine Sciences Centre** (Bamfield, British Columbia)

- Fall semester student (5 courses and a directed studies project)

September 2007-June 2012, **Mackenzie High School** (Deep River, Ontario)

- Ontario Secondary School Diploma, Bilingual Certificate, Ontario Scholar

### **SKILLS**

- Fluent in English and French
- Strong Field Skills
  - Scientific diving with 173 scientific dives in seagrass meadows, rocky reefs, coral reefs, and kelp beds
  - Driving skiffs and small outboard motor boats
  - Using a variety of different tools to measure abiotic variables (CTD, YSI, refractometer, Niskin bottle)
  - Beach Seining with and without a boat
  - Intertidal surveys and experimental set up
  - Identifying invertebrates, fish, and macrophytes in the field
  - Habitat mapping using handheld GPS
  - Sediment coring
  - Seagrass and kelp collections while snorkelling or diving
  - Subtidal experiment set-up
  - Subtidal herbivory and predation assays coupled with GoPro deployments
  - PAM fluorometry
- Writing and submitting academic papers
- Database maintenance
- Species ID using microscopy
- Statistical analysis using computational methods
- Comfortable with basic programming in R and the packages stats, vegan, dplyr, phyloseq and ggplot2

- Experience driving a variety of manual and automatic vehicles

## **CERTIFICATIONS**

- Yoga Teacher Certification
- NLS lifeguard certification
- Lifesaving Instructor Certification
- Wilderness First Responder
- Class 4 Unrestricted Drivers License (up to 24 passengers)
- Paddle Canada, Paddle 1 Kayak Certification
- Pleasure Craft Operators Card
- Restricted Marine Radio Operator Certificate
- Canadian Association of Underwater Science certified Scientific Diver Level 1
- DFO diver-in-charge qualification
- PADI Divemaster, Rescue Diver Certification, Advanced Openwater, Drysuit Specialty
- Emergency and Standard First Aid (current)
- DAN oxygen provider
- Introduction to Lab Safety, WHMIS (current)

## **AWARDS**

May 2015-September 2015, National Science and Engineering Research Council-Undergraduate Student Research Award in Department of Zoology UBC (\$4500.00)

April 2016, 1<sup>st</sup> place UBC Botany Symposium undergrad poster contest (\$20.00)

April 2016, 1<sup>st</sup> place UBC Zoology Symposium undergrad poster contest (\$40.00)

May 2016, 2<sup>nd</sup> place Northwest Algae Seagrass Symposium poster contest (\$50.00)

May 2016, Bamfield Marine Science Centre Fall Program Entrance Scholarship (\$1000.00)

December 2016, Botany and Zoology Research Award (\$1250.00)

April 2019, Rising Youth Grant Recipient (\$750)

December 2020, Mitacs Accelerate Grant Recipient (\$15000)

## **RESEARCH PROJECTS**

December 2020-May 2021, **Investigation into the efficacy of online games to educate junior high students on ocean science and ocean careers** We recruited pre-service teachers who are teaching junior high science or social studies to use online games to teach their students about ocean science and available ocean careers in Nova Scotia. Teachers will use the games in their classrooms and then schedule an interview in which we will discuss the efficacy of the games for the various student demographics and ways the games could be improved to address the needs and interests of students.

May 2017-January 2019, **Seagrass shading field experiment through Coastal Benthic Ecology Lab at Bedford Institute of Oceanography** We investigated the effect of shade level and shade timing on the morphometric and biochemical response of *Zostera marina* plants in Port L'Hebert Nova Scotia. A total of 18 seagrass plots were shaded at varying times and intensities between May and October 2017. Every

three weeks plots were sampled for shoot density, plant morphometrics, carbohydrate storage, chlorophyll, and phenolic content. By analyzing the shading response of *Zostera marina* we found that this species is more vulnerable to structural shading in the fall compared to the spring. (Publication details below).

May 2016-September 2016, **Canadian Healthy Oceans Network initiative through O'Connor Lab.** We chose 8 seagrass meadows in Barkley Sound along a possible human impact gradient. With Emily Adamcynk (PhD candidate) we quantified seagrass metrics, infaunal and epifaunal invertebrate communities, fish communities, zooplankton communities, and abiotic variables (nutrients, temperature, dissolved oxygen). By analyzing the species composition of these meadows we tested if proximity to manmade fouling structures (boats, docks) could explain trends in the epifaunal invertebrate and fish communities.

September 2015-May 2019, **Investigation into algal zonation in a central coast seagrass meadow at the Hakai Research Institute.** We executed a seagrass reciprocal transplant between areas of high and low algal zonation. All shoots were swabbed for microbial community and quadrats at each site were analyzed for invertebrate grazer abundance. We analyzed seagrass and algal biomass data with invertebrate and microbial communities to identify any correlations between communities and algal biomass. We identified potential drivers for algal zonation in the Choked Pass seagrass meadow on Calvert Island, BC. (Honours thesis research)

## **PUBLICATIONS**

Wong, M. C., **Griffiths, G.**, & Vercaemer, B. (2020). Seasonal Response and Recovery of Eelgrass (*Zostera marina*) to Short-Term Reductions in Light Availability. *Estuaries and Coasts*, 43(1), 120-134.

## **TEACHING EXPERIENCE**

March 2021-April 2021, Fairview Junior High School, French Immersion 7,8,9 Science

- Used labs (build a battery), demonstrations (ice sculptures), and online platforms (phet) to teach physical sciences in an engaging and safe manner.

November 2020-December 2020, Fairview Junior High School, French Immersion 7,8,9 Science

- Used outdoor lessons (ecology lab) and technology (GoogleSheets/FipGrid) to teach engaging lessons under COVID protocols

March 2020-May 2020, **J.L Ilsley High School**, Chemistry 12 & Oceans 11 Teacher

- Adapted lessons for online learning using online platforms and videos

November 2019-December 2019, **J.L Ilsley High School**, Science 10 Teacher

- Used experiments to strengthen understanding of concepts
- Tutored math and science at lunch

## **WORK EXPERIENCE**

May 2021-June 2021, **Antigonish, Nova Scotia**, Researcher/Lesson Plan Developer (Under the supervision of Dr. Chris Gilham)

- Participating in focus groups brainstorming ideas for a male focused health curriculum in grades 5 & 6
- Responsible for developing health lesson plans for grade 5/6 male identifying students

December 2020-June 2021, **Antigonish, Nova Scotia**, Researcher (Under the supervision of Dr. Katarin Macleod)

- Investigating effectiveness of online ocean career games through partnership with Stellar Learning Strategies
- Responsible for planning and executing research and reporting game recommendations

June 2020-October 2020, **Develop Nova Scotia, Halifax, Nova Scotia**, Marina Ambassador

- Responsible for booking marina stays and overseeing marina activities
- Responsible for various marina maintenance tasks

April 2020 – June 2020, **Homework Hub, Halifax, Nova Scotia**, Online Math Tutor

- Tutored math to public school students through the gnspe online platform
- Used technological and verbal communication to teach mathematical concepts

April 2020-September 2020, **Connecting Math to Our Lives and Communities, Antigonish, Nova Scotia**, Lesson plan development and outreach

- Responsible for developing culturally relevant math activities
- Developing methods to connect math to the lives of students in Nova Scotia

October 2019-June 2020, **Paqtnek First Nation & Halifax, Nova Scotia**, Math Tutor

- Tutored math through Xproject and organization that connects St.FX students with youth in Mi'kmaw and African Nova Scotian communities.
- Tutored grade 11 math to a student in Spryfield and continued tutoring them online throughout pandemic

May 2019-September 2019, **Whynot Adventure Keji Outfitters: Kejimkujik National Park**, Canoe guide and rental tech

- Responsible for guest safety and happiness in the wilderness on backcountry canoe trips
- Offering interpretation on the park and its history during trips
- Responsible for packing and gear maintenance
- When not guiding, responsible for renting boats to the public for paddles around Keji

September 2018-May 2019, **Home of Trevor and Sarah Maclean: Halifax, Nova Scotia**, Nanny for their four children ages 1, 3, 6, and 8

- Responsible for children while parents were at work
- Involved in meal prep, swimming and reading lessons in addition to caring for children's safety and well being

April 2017-September 2018, **Department of Fisheries and Oceans Bedford Marine Institute: Halifax, Nova Scotia**, Biologist Level 1 (Under the supervision of Melisa Wong)

- Design and execution of light stress experiments in *Zostera marina*
- Responsible for statistical analyses and publication of field shading experiment results
- Subtidal field surveys of *Zostera marina*
- Underwater fluorometry measurements of *Zostera marina* photosynthesis
- Field and lab support for other lab members (sediment coring, lab maintenance, equipment maintenance)

March 2017-April 2017, **Home of Solveig Routier and Neil Price: Ottawa, Ontario**, Nanny for their children ages 1.5 and 3 years

- Responsible for children while their parents were at work
- Ensured nap time and swimming lessons were part of the daily routine

January 2017-March 2017, **Smithsonian Marine Station: Bocas Del Toro, Panama**, Intern (Under the supervision of Dr. Matthieu Leray)

- Assistant on fish predation and herbivory experiments in 60 subtidal sites
- Made herbivory and predation measures (squid pops, algae ropes)
- Used universal MarineGEO protocol to execute experiment

May 2016-September 2016, **University of British Columbia**, Researcher (Under the supervision of Dr. Mary O'Connor)

- Acting as head diver and coordinating underwater research for lab members
- Monthly sampling of local intertidal seagrass meadow
- Funded through the Canadian Healthy Oceans Network initiative to investigate human impacts in seagrass meadows
- Subtidal and intertidal field research at Bamfield Marine Sciences Centre and Hakai research institute

May 2015-September 2015, **University of British Columbia**, Researcher (Under the supervision of Dr. Mary O'Connor)

- Subtidal SCUBA seagrass sampling and collection at Hakai research institute
- Setting up subtidal seagrass invertebrate dispersal experiment and reciprocal microbial transplant
- Microbial seagrass swabbing and invertebrate sampling
- Conducting research project on what influences epiphyte load in seagrass meadows

May 2014-August 2014, **Strawberry Isle Marine Research Society**, Tofino BC, Research Assistant

- Species identification and database entry
- Mud flat core sampling and biomass quantification
- Killer whale and eel grass mapping using ARCMAP software
- Working with Adobe Photoshop, Adobe Pagemaker, and Microsoft Excel

December 2013-May 2014, **UBC Aquatic Centre**, Lifeguard and Instructor

- Maintaining safe environment for pool patrons
- Instructing various ages in swimming

May 2013-September 2013, **Bertho household, Villennes sur Seine, France**, Au Pair

- responsible for the safety and well-being of a four-year-old girl and 2 month old infant
- responsible for preparing meals for the family
- communicated entirely in french

September 2010-June 2012, **Deep River Community Pool, Ontario**, Lifeguard and Instructor

- instructing various ages in swimming
- responsible for all patrons in the building
- performing various maintenance tasks

## **VOLUNTEER EXPERIENCE**

September 2020-Current, **Shine Academics**, Tutoring Volunteer

- Tutored high school students math and science
- Tutored in person and over zoom

September 2019-Current, **Xproject**, Tutoring Volunteer

- Travel to Mi'kmaq and African Nova Scotian Communities to offer academic support. Xproject works with communities to provide what support they want or need from students at StFX.
- I will continue this work when I return to school in september

September 2017-March 2019, **Water polo Nova Scotia**, Volunteer

- Helped organize and run water polo events in Halifax as well as promote water polo to interested adults
- Received Rising Youth Grant to fund a water polo tournament to Newfoundland

February 2018-August 2018, **Give to Live: Big Swim**, Swimmer

- Swam from New Brunswick to PEI and fundraised \$1600 dollars for Brigadoon Village Kids Camps

February 2018-June 2018, **Discovery Centre**, Volunteer

- Designed a seagrass exhibit for the Ocean Gallery and collected organisms for the touch tank.

September 2017, **HaliblitZ (Halifax Bioblitz at Point Pleasant)**, Algae guide

- Ran an identification workshop on local algae species for the Ecology Action Centre

September 2017, **Torpedo Rays Charity Treasure Hunt**, Rescue Diver

- Volunteer for Torpedo Rays Dive Shop in Halifax
- The charity treasure hunt is an annual dive event where divers search for golf balls that have prize numbers. I suited up as a rescue diver to be ready to retrieve someone in case of emergency.

September 2016-December 2016, **Bamfield Marine Sciences Centre**, CAUS Diver

- Subtidal collections for the education program at Bamfield Marine Sciences centre
- After classes we would release the animals to the location they were collected

September 2015-September 2016, **Vancouver Aquarium, Harley Lab UBC**, CAUS Diver

- Subtidal surveys and collections
- Experiment set-up and maintenance

September 2014-May 2015, September 2015-May 2016, **O'Connor Lab UBC**, Field and lab assistant

- Monthly surveys and experiments in the local seagrass meadow
- Sampling *Daphnia pulex* and phytoplankton in laboratory temperature manipulation experiments

September 2013-December 2013, **University of British Columbia**, French Club Social Coordinator

- Organized events for members to attend and practice French
- Researched French pop culture to expose members to more authentic French art, music, food, and cinema

October 2011-April 2012, **Rotary International**, El Salvador humanitarian mission participant

- Responsible for fundraising for the purchase of stoves and water filters for citizens of the town San Jose Villa Nueva in El Salvador
- Embarked on a trip to donate medical supplies, school supplies, and clothes

September 2011-June 2012, **Mackenzie Community School**, Link Crew Coordinator

- Organized events for new high school students
- Acted as a mentor for younger students (tutoring, advice, support)

## **CONFERENCES**

Northwest Algal and Seagrass Symposium, Whitby Island, WA. May 2016. Poster Presenter

Pacific Ecology and Evolution Conference, Bamfield BC. February 2016. Presenter

Seagrass Conservation Network Community Working Group, Nanaimo BC. February 2015. Presenter

Hakai Research Symposium, Nanaimo BC. October 2016. Poster Presenter