

Qiting (Tina) Cai
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EDUCATION

Ph.D.	University of California, Santa Cruz , Santa Cruz, CA	2023 –
	Ecology and Evolutionary Biology Advisor: Joanna Kelley	
B.A.	Middlebury College , Middlebury, VT	May 2023
	Environmental Studies Joint Biology, GPA: 3.96/4.0 (<i>Summa Cum Laude</i>) High Honors Thesis: <i>The daily rhythm: exploring the influence of diel vertical migration patterns on bone density variation in lanternfishes (Teleostei: Myctophidae)</i> Advisor: Eric Moody	

AWARDS

Phi Beta Kappa Honors Society, Middlebury College	2023
Janet C. Curry '49 Award in the Biological Sciences, Middlebury College (\$800)	2023
College Scholar, Middlebury College	2019 – 2023
Asian & Pacific Islander American Scholar (\$2,500)	2019

GRANTS & FELLOWSHIPS

Summer Travel Grant, University of California, Santa Cruz (\$1,200)	2024
Graduate Research Fellowship, NSF (\$147,000)	2023
Chancellor's Fellowship, University of California, Santa Cruz (\$33,250)	2023
Academic Travel Fund, Middlebury College (\$1,000)	2023
Biology Department Student Research Grant, Middlebury College (\$1,000)	2022
Senior Research Project Supplement, Middlebury College (\$1,200)	2022
REU Summer Research Grant, NSF (\$6,000)	2022
Biology Department Student Research Grant, Middlebury College (\$250)	2021
Biology Department Student Summer Research Grant, Middlebury College (\$3,500)	2021

PUBLICATIONS

- Cai, Q.** & VanCompernelle, M. First evidence of microplastic ingestion by stream fishes in Paraguay. (In prep.)
- Costanza-Robinson M.S., B. Angstman, **Q. Cai**, C. Forbes, J.S. Keon, S. Lin, E.D. Neill, E. Roelofs, E. Peebles, & E.K. Moody. Comparison of inductively coupled plasma mass spectrometry and molybdenum blue colorimetry for total phosphorus determination in freshwater invertebrates. (Submitted. *PLOS ONE*)
- Blalock, A. G., **Cai, Q.**, Corman, J. R., Thomas, S. A., & Moody, E. K. (2024). Hydrology has stronger effects than periphyton stoichiometry on lotic invertebrate functional diversity across North America. *Freshwater Science*, 43(3), 340–352. <https://doi.org/10.1086/732096>

RESEARCH EXPERIENCE

UC Santa Cruz, Department of EEB ; Advisor: Dr. Joanna Kelley	September 2023 – Present
<i>Graduate Researcher</i> <i>Climate Change Adaptation Using Functional Genomics</i> Investigate the impacts of climate change on marine organisms, including intertidal mussels and polar fishes through the applications of genomic, epigenetic, and transcriptomic data.	
Middlebury College, Department of Biology ; Advisor: Dr. Eric Moody	February 2021 – May 2023
<i>Independent Research Student</i> <i>Morphological Adaptation in Lanternfish</i> Developed a senior thesis project studying the evolutionary history and diversity of lanternfish species (Family: Myctophidae) by comparing bone density of museum specimens through micro-CT scanning methods. Process micro-CT scan files using 3D-slicer and Image J, analyzed data using R.	

Pollution Tolerance in Atlantic killifish

Investigated the evolutionary trade-offs associated with pollution tolerant traits in Atlantic Killifish (*Fundulus heteroclitus*) through an analysis of their nutrient excretion content. Developed funding proposal and project goals, designed and refined experimental protocols with research advisor. Performed ICP-MS and fluorometer to collect water chemistry data and conducted analysis using R.

Stoichiometric Traits of Organisms In their Chemical Habitats (STOICH)

Studied how the availability of chemical elements controlled diversity and functional traits of aquatic benthic macroinvertebrates. Identified and processed 4,000+ samples to create a database of invertebrate body elemental composition. Performed statistical analysis using datasets from the National Ecological Observatory Network using R.

UC Berkeley, Department of Integrative Biology; Advisor: Dr. Chris Martin

June – August 2022

REU Scholar

Investigated the dietary composition of lanternfish species (Family Myctophidae) through DNA barcoding. Dissected lanternfish specimens, extracted DNA and performed PCR to sequence the mitochondrial cytochrome oxidase I (COI) gene of their stomach prey items. Analyzed results using R.

Middlebury School in Spain; Advisor: Dr. Francisco Seijo

January – May 2022

Independent Research Student

Evaluated feedback existing between fire cycles and ocean fertilization in Mediterranean type ecosystems in northern Spain. Conducted literature review to extract wildfire and fishery data. Completed a research report in Spanish.

FIRST-AUTHOR PRESENTATIONS

6. **Cai, Q.**, S.N. Bogan, J.L. Kelley (2024) Using comparative transcriptomics to understand responses to heat stress in polar fishes. [Poster] Annual Meeting of the Society for Molecular Biology and Evolution, Puerto Vallarta, Mexico.
5. **Cai, Q.**, S. Longo, A. M. Mychajliw, C.H. Martin, E.K. Moody (2023) The daily rhythm: exploring the influence of diel vertical migration on bone density variation in lanternfishes (Family Myctophidae). [Poster] Evolution Meeting, Albuquerque, NM.
4. **Cai, Q.** (2023) Exploring the effects of diel vertical migration on bone density variation in lanternfishes (Family Myctophidae) [Oral Presentation]. Biology Department Seminar, Senior Thesis Presentations, Middlebury College, VT.
3. **Cai, Q.**, E.K. Moody (2023) Exploring the effects of diel vertical migration on bone density variation in lanternfishes (Family Myctophidae) [Oral Presentation]. Spring Student Symposium, Middlebury College, VT.
2. **Cai, Q.**, D. Tian & C.H. Martin (2022) Determining dietary composition of lanternfishes and their trophic position in the marine food webs through DNA barcoding [Oral Presentation]. REU Research Symposium, University of California, Berkeley, CA.
1. **Cai, Q.**, E. Neill, J.S. Keon, E. Roelofs, M.S. Costanza-Robinson & E.K. Moody (2021) Determining levels of phosphorus in aquatic invertebrates [Oral Presentation]. Biology Department Seminar, Summer Research Student Presentations, Middlebury College, VT.

TEACHING EXPERIENCE**Middlebury College Biology Department***Peer tutor*

Spring 2020 & Fall 2021

Held review sessions for 100+ students in BIOL 0140 Ecology and Evolution and assisted students individually with course content.

Laboratory Teaching Assistant

Fall 2022 & Spring 2023

Assisted weekly small group experiments and answered student questions in BIOL 0145 Cell Biology and Genetics Lab. Held weekly TA hours for 70+ students regarding lab materials and course concepts.

Teaching Assistant

Spring 2023

Engaged 20 students of BIOL 0140 Ecology and Evolution in small-group active learning through facilitating weekly discussions regarding fundamental knowledge in ecology and evolution.

SERVICE**UC Santa Cruz Woman in Science and Engineering (WiSE)**

December 2023 – Present

GradPath Coordinator

Connect 60+ current graduate students across all disciplines with undergraduates who are interested in applying to graduate school. Create mentoring resources for mentor-mentee pairs and facilitate relationship building.

Seymour Marine Discovery Center

November 2023 – Present

Exhibit Guide

Monitor and assist guests at touch pools, interpret exhibits on display, and encourage curiosity among visitors about marine systems and research being done at UC Santa Cruz.

Middlebury College Biology Department Student Advisory Council

September 2021 – May 2023

Member

Organized departmental activities and provided advice to current and prospective biology majors. Advised the Biology Chair and faculty regarding new faculty appointments.

Middlebury College Alternative Break Program (MAlt)*Co-President*

April 2022 – May 2023

Mentored 60+ leaders and participants to develop both domestic and international community service trips to educate students on different social issues and contributed to service projects.

Co-Leader

May 2020 – April 2021

Led five students to develop a six-week winter term project *Environmental Conservation Efforts Amid the Pandemic*. Organized a campus-wide virtual speaker series by inviting leaders from environmental conservation organizations across the nation.

MENTORSHIP

Cientifico Latino GSMI (1); Project SHORT (2); UC Santa Cruz GradPath (2); UC Santa Cruz EEB P2P (2)