KIRA TREIBERGS

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EDUCATION

Harvard University Cambridge, MA
Ph.D., Organismic & Evolutionary Biology 2013- 2019
Dissertation: "How does a polymorphic colony divide labor among its modules? Colonial development in the marine invertebrate, *Bugulina stolonifera*"
Focus Area: Marine Invertebrate Zoology, Evolution, Developmental Biology; Advisor: Dr. Robert Woollacott

University of Oregon, Oregon Institute of Marine Biology Charleston, OR
M.S., Biology 2009–2012
Thesis: "Settlement and growth of the marine bryozoan *Schizoporella japonica*, and epifaunal development in the South Slough Estuary"
Focus Area: Marine Ecology, Larval Biology; Advisor: Dr. Richard Emlet

Wellesley College Wellesley, MA
Bachelor of Arts 2005–2009
Major in Biological Sciences, Minor in Music

CURRENT POSITION

Cornell University Ithaca, NY
Postdoctoral Associate in the Department of Ecology and Evolutionary Biology August 2022 to Present

- Project title: "Evaluating how open educational resources facilitate the implementation of NSF Vision and Change Principles across diverse institutions" (Advisor, Dr. Michelle Smith)
  - Leading a research team in conducting a scoping review of concepts and evidence-based teaching practices in open access lesson plans in undergraduate biology
  - Advising and mentoring two undergraduate researchers in discipline-based education research
    Sanah Ahmed, Class of 2023
    Tiffany Adjei-Opong, Class of 2025
  - Designing surveys to to explore author and user perspectives of open access lesson plans in undergraduate biology

PREVIOUS POSITION

Cornell University Ithaca, NY
Active Learning Initiative Postdoctoral Fellow in the Department of Natural Resources and the Environment July 2019 to July 2022

- Teaching and evidence-based curriculum development for the class 'Introductory Field Biology':
  - Led a course-wide transition from a solo field CURE (course-based undergraduate research project) in 2019 to a team field CURE, resulting in increased student success and enjoyment of course-based field research
  - Oversaw teaching and course logistics for the field CURE where students (162 total) ask questions, design, conduct, analyze, and communicate the results of self-directed field research projects
  - Developed surveys & analyzed data to understand student prior experiences, motivations, and concerns, and orchestrated course-level improvements based on findings, to maximize student success
  - Designed and administered student-centered curriculum materials related to teamwork skills, ethical collaboration, and science-process skills
  - Lead graduate student teaching assistants in development and implementation of a novel teaching module that is now a permanent component of the course entitled: Diversity, Equity and Inclusion in Field Biology, a conversation about 'Birding While Black' and Beyond
  - Organized and facilitated a rapid transition from an in-person course to an inclusive and engaging hybrid virtual/in-person course for Fall 2020 in response to COVID-19 Pandemic Safety

- Leading discipline-based education research on student outcomes of course-based field experiences (Advisor, Dr. Michelle Smith)
  - Conducted qualitative analysis of student field journal reflections from 'Introductory Field Biology', exploring students' affective outcomes of field laboratories through framework analysis, inductive, and deductive coding of survey responses and reflective field journals (with PhD candidate David Esparza and undergraduate researcher Jeannie Yamazaki)
  - Co-led a ten person team-based scoping review of the literature on the cognitive, affective, behavioral and skill-based learning outcomes of undergraduate field courses.

- Advised Senior undergraduate honors thesis students in discipline-based education research on the affective outcomes of field biology:
  Jeannie Yamazaki, Spring 2021— "Learning where you live: Sense of place in a campus-based field biology course"
  Ella De Bruijn, Spring 2022 — "Exploring Student Motivation in Field Biology: Field journal reflections shed light on what influences students' desire to learn"

- Teaching and curriculum development in Environment & Sustainability Capstone Courses
  - Developed and implemented a series of active learning, skills-based, teaching modules for use by over 50 Environment and Sustainability faculty affiliates to support the development and teaching of project-based capstone courses (Module topics: Teamwork, Communication, Project Management)
  - Advised 8 capstone course faculty about evidence-based course design decisions related to teamwork and collaboration in project-based courses
  - Led a series of teamwork. project management, and stakeholder communication teaching modules in capstone courses including: 'Woody Biofuels', 'Global Climate Change Science and Policy', 'Sustainable Climate Communities', 'Applied Wildlife Science' and 'Lake Source Cooling'

PREVIOUS TEACHING EXPERIENCE: HIGHER EDUCATION

Derek Bok Center for Teaching and Learning, Harvard University Cambridge, MA

Departmental Teaching Fellow in Organismic and Evolutionary Biology (OEB) August 2017 – July 2018

- Developed and co-taught:
  - Graduate student pedagogy course (OEB399) for 13 first-year graduate students (Fall 2017 and Spring 2018). Received 5.0/5.0 instructor evaluation from students in Fall 2017, and a 4.8/5.0 instructor evaluation in Spring 2018.
  - Pedagogy mentorship workshops for first time and experienced graduate teaching fellows, science communication workshops, professional development workshops for OEB graduate students (19 workshops in total)
- Provided video and in-person teaching consultations for graduate teaching fellows and feedback on their teaching practice
- Hosted weekly pedagogy office hours for OEB graduate student teachers

Teaching fellow for OEB399 'Graduate Pedagogy Seminar' Spring 2017

- Organized and co-hosted a department-wide graduate student research symposium for fourth-year graduate students
- Constructed and lead pedagogy workshops, field trips, and faculty seminars for graduate students
- Coordinated fortnightly faculty guest visits to the OEB 399 graduate student pedagogy course

Harvard College Cambridge, MA

Teaching Fellow for 'Foundations of Biological Diversity' [Organismic and Evolutionary Biology 10] Fall 2018, Fall 2016

- Taught weekly ecology, molecular biology, and microbial laboratories and reviewed material from lecture
- Supervised off-campus ecology field trips to Peddock's Island in Boston Harbor and the Harvard Forest in Petersham, MA
- Graded papers, problem sets, and exams, and held weekly office hours
- Created and led weekly active-learning activities to help students and other teaching fellows review material from lecture
- Received 4.6/5.0 instructor evaluation from students in 2018, and a 4.9/5.0 instructor evaluation from students in 2016

Teaching Fellow for 'Topics in Marine Biology' [Organismic and Evolutionary Biology 234] Spring 2016

- Counseled students to help them prepare weekly research projects and oral presentations
- Assessed weekly presentations and met with instructor to determine final grades
- Received 5.0/5.0 instructor evaluation from students

Teaching Fellow for 'Human Influence on Life in the Sea' [Science of Living Systems 22] Fall 2013, Fall 2015

- Taught weekly sections for undergraduates that included inquiry-based laboratory activities and discussion of peer reviewed marine science literature and held midterm and final review sessions
- Created and led active-learning activities in the laboratory for use by other teaching fellows
- Graded exams and laboratory reports
- Head Teaching fellow in 2015: Trained a second teaching fellow in laboratory and classroom discussion materials, coordinated grading
- Received 4.2/5.0 instructor evaluation from students in 2015, and a 4.2/5.0 instructor evaluation from students in 2013

University of Oregon Charleston, OR

Teaching Assistant for 'Marine Invertebrate Zoology' Spring 2012

- Guided students with lecture review and field identification, collection, and dissection of various marine organisms

Teaching Assistant for 'Marine Ecology' Summer 2012

- Consulted with students throughout the semester on the feasibility, logistics, design, execution, and data collection and analysis of individual semester-long individual research projects

TEACHING EXPERIENCE: PRIMARY EDUCATION AND PUBLIC OUTREACH

Crimson Academy Cambridge, MA

Summer Teaching Fellow Summer 2018

- Organized and facilitated inquiry-based molecular and microbial biology labs for Harvard Summer School high school students involved in the Crimson Academy program

Harvard Life Sciences Outreach Cambridge, MA

Teaching Assistant Spring 2018

- Trained high school students in molecular lab skills and co-led PCR and agarose gel laboratory activities

Concord Field Station High School Teacher Workshop Summer 2015

- Designed and presented an adaptable student-centered aquatic field ecology lesson plan to local high school teachers at the Concord Field Station.

Harvard Museum of Natural History Cambridge, MA

Graduate Student Volunteer September 2012 – present

- Delivered 5 annual talks on marine invertebrate diversity and dissertation research for approximately 25 elementary school children and their families for "I Heart Science Festival" and "Marine Science Family Weekend".
- Conceived curriculum for and taught a 5-day summer science week for 5th and 6th grade students (Summer 2015, 2016, 2017)

Coos County Public Schools Coos County, OR

NSF GK-12 Graduate Research Fellowship 2009-2011

- Taught weekly marine science lessons to students in grades K-6 at North Bay Elementary School and The Lighthouse School from 2009-2010
- Instructed K-6 teachers in eleven schools across Coos County to teach marine science lessons and collected and delivered live animals from 2010-2011

Oregon Institute of Marine Biology Charleston, OR

Graduate Student Volunteer 2009-2012

- Developed and led an inquiry-based marine science after-school research program at the Boys and Girls Club of Southwestern Oregon
- Introduced visiting classes of high school students and undergraduates to the organismal diversity of the Oregon Coast, gave research talks, laboratory tours, and led field trips to intertidal habitats
- Developed activities for and hosted marine science educational booths at various annual community festivals in the local community

JOURNAL PUBLICATIONS

- **Treibergs KA**, Esparza D, Yamazaki J, & Smith MK. 2022. Journal reflections shed light on challenges students face in an introductory field biology course. [under review in *Ecosphere*, submitted November 2022]
- **Treibergs KA**, Esparza D, Yamazaki J, Goebel M, & Smith MK. 2022. How do introductory field biology students feel? Journal reflections provide insight into student affect, *Ecology & Evolution*, 12(1): E9454. https://doi.org/10.1002/ece3.9454
- Shinbrot XA*, **Treibergs KA*,** Arcila Hernández LM, Esparza D, Ghezzi-Kopel K, Goebel, M, Graham, OJ, Heim, AB, Smith JA, & Smith, MK. 2022. The impact of field Courses on undergraduate knowledge, affect, behavior, and skills: A scoping review, *BioScience*, biac070. https://doi.org/10.1093/biosci/biac070 [* authors share first-authorship]
- Arcila Hernández LM, Chodkowski N, & **Treibergs KA**. 2022. A guide to implementing inclusive and accessible conference virtual poster sessions, *Journal of Microbiology & Biology Education*, 23(1): 1-9. https://doi.org/10.1128/jmbe.00237-21 [all three authors are equal contributors]
- Ward EG, O'Connell KB, Race A, Alwin A, Alwin, A, Cortijo-Robles K, Esparza D, Jolley A, McDevitt A, Patel M, Prevost LB, Shaulskiy S, Shinbrot X, **Treibergs KA**, Alvaro M, & Sea W. 2021. Affective Outcomes in the Field: A Review of the 2021 Undergraduate Field Experiences Research Network Meeting. *Bulletin of the Ecological Society of America*. 00(00):e01920. https://

doi.org/10.1002/bes2.1920

- **Treibergs KA**, Giribet G. 2020. Differential Gene Expression Between Polymorphic Zooids of the Marine Bryozoan *Bugulina stolonifera*. *G3,* 10(10):3843-3857. https://doi.org/10.1534/g3.120.401348.

INVITED ARTICLES & PRESS FEATURES

- Blackwood, K. August 25, 2022. Study identifies 'transformative learning experiences' of field courses. *Cornell Chronicle*, https://news.cornell.edu/stories/2022/08/study-identifies-transformative-learning-experiences-field-courses [postdoctoral research featured in article]
- Holmes, N & **Treibergs, KA**. February 24, 2022. Supporting equity among students in group work. *Times Higher Education, "The Campus"*, https://www.timeshighereducation.com/campus/supporting-equity-among-students-group-work
- Winnerstein, D. February 21, 2022. Field biology changes student perspectives. *Cornell Chronicle*, https://news.cornell.edu/stories/2022/02/field-biology-changes-student-perspectives [postdoctoral teaching featured in article]
- Cornell Center for Teaching Innovation, Media Team. Teamwork and Discovery in Field Biology. *Cornell Chronicle*, https://www.youtube.com/watch?v=45b3jtNI6Y0&t=3s [postdoctoral teaching featured in video]

INVITED PRESENTATIONS

- Invited Seminars:
  - **Treibergs, KA.** "Developing shared resources to support active and engaged learning in Capstone Courses in Environment & Sustainability"
    - Cornell University, Provost's Symposium on Teaching, "Ten years of Active Learning at Cornell." September 2022.
  - **Treibergs, KA** & Goebel, M. "Improving team-based student projects",
    - Cornell University, Active Learning Initiative faculty presentation. January 2022.
  - **Treibergs, KA.** "How Do Introductory Field Biology Students Feel in the Field? Field Journal Reflections Provide a Window Into Affective Outcomes"
    - Cornell University, Department of Natural Resources and the Environment (DNRE) Seminar Series. November 2021.
  - Shinbrot, XA & **Treibergs, KA**."Teaching Transferable Skills in Natural Resources through Teamwork & Debate"
    - Cornell University, Center for Teaching Innovation Seminar. November 2020.
    - Cornell University DNRE Seminar Series. October 2020.
    - Cornell Biogeochemistry, Environmental Sciences and Sustainability (BESS) Seminar Series. October 2020.
- Invited Workshops:
  - Goebel, M & **Treibergs, KA**. "What is active learning?"
    - Cornell University, DNRE. Presentation and workshop about active learning for 'Introduction to Graduate Studies' course
  - Holmes, N* & **Treibergs, KA***. "Envisioning opportunities and overcoming barriers for designing online labs".
    -Dahlem Center for Academic Teaching at the Freie Universität Berlin, Berlin Germany. Virtual workshop for international STEM faculty. March, 2021.
  - Shinbrot, XA & **Treibergs, KA**. "Workshopping solutions to common teamwork conflicts in the classroom.",
    - Cornell University, BESS Workshop for postdocs and graduate students. October, 2020.
  - **Treibergs, KA.** 'Teaching in the Laboratory'.
    - Harvard University, Bok Center for Teaching and Learning. Workshop for graduate teaching fellows at the 2018 Bok Center Fall Teaching Conference. September, 2018.
- Invited Panelist:
  - 'How to get to know your students: supporting student-centered undergraduate field experiences'. Undergraduate Field Experiences Research Network (UFERN) Community Conversation. August 2021.
  - 'Equity Change-making in the Classroom and Beyond'. Cornell University, Center for Teaching Instruction panel discussion and small group workshops. June 2021.
  - 'Alumnae Career Panel'. Wellesley College, Biology, Chemistry & Biochemistry Club, BC^2. April 2021.

ACADEMIC CONFERENCE PRESENTATIONS

- Accepted Short Talks [* presenting author]:
  - **Treibergs, KA***, Esparza, DE, Yamazaki, JY, Goebel, M, & Smith, MK. "Field journal reflections provide insights into the breadth of student affective outcomes in a campus-based undergraduate field course." Society for the Advancement of Biology Education Research (SABER) Annual Meeting in Minneapolis, MN. July 2022.
  - **Treibergs, KA***, Esparza, DE, Yamazaki, JY, Goebel, M, & Smith, MK. "How do introductory field biology students feel in

the field? Student reflections provide a window into affective outcomes." SABER Annual Meeting (Virtual). July 2021
    - **Treibergs, KA*.**"Reflections from a Discussion of Race, Identity and the Outdoors in the Field Biology Virtual Classroom"
        - Undergraduate Field Experience Research Network Meeting (Virtual). March 2021
        - Cornell Department of Natural Resources and the Environment Symposium, Antiracism Workshop (Virtual). February 2021
- Accepted Posters [* presenting author]:
    - **Treibergs, KA***, Yamazaki, JY & Smith, MK. "How do student attitudes towards teamwork change after participating in a field biology course with an emphasis on cooperative learning?" presented at SABER annual meeting (Virtual). July 2020.
    - **Treibergs, KA***. "How does a bryozoan colony divide labor among modules?" presented at the Society for Comparative and Integrative Biology Annual Meeting in San Francisco, CA. January 2018
    - **Treibergs, KA***. "Division of labor in the marine bryozoan, *Bugula stolonifera*" presented at the Society for Women in Marine Science Symposium in Narragansett, RI. March 2018
    - **Treibergs, KA*** & Emlet, R. "Settlers of the Slough: Can non-native fouling organisms survive in South Slough?" presented at the Heceta Head Coastal Conference in Florence, OR. October 2011
    - **Treibergs, KA*** & Emlet, R. "Adult morphology and larval size effects on settlement and growth of an encrusting bryozoan, *Schizoporella japonica* in Charleston, OR" presented at the Western Society of Naturalists Annual Meeting in San Diego, CA. October 2010.

LEADERSHIP, & SERVICE

Cornell University, Department of Natural Resources and the Environment Ithaca, NY

Organized and co-facilitated twice-monthly departmental discussion groups and workshops focused on antiracism and diversity, equity, inclusion, and justice. Audience included graduate students, post-docs and faculty members.

- "Conservation Justice Seminar and Discussion Series: Recognizing the past, forging the future in our teaching and scholarship" (Summer 2021 - present)
    - **Treibergs, KA.** "Anti-racist Teaching Interventions: Insights from developing and implementing an anti-racist claSsroom intervention in the Introductory Field Biology classroom", seminar leader and discussion leader. December 2021.
    - Morano, J & **Treibergs, KA**. "Field Work Culture, Safety & Inclusivity", seminar leader and discussion leader. November 2021.
- Antiracism book discussion and action group, organizer and discussion leader. September 2020 - January 2021.

Society for the Advancement of Biology Education Research (SABER)

- Conceptualized, organized and co-led the virtual poster session for the Society for the Advancement of Biology Education Research Annual Meeting. Spring - Summer 2020, Spring - Summer 2021.

LEADERSHIP EXPERIENCE & FELLOWSHIPS

- ENCOUR Fellowship (Ethics Network for Course-based Opportunities in Undergraduate Research), University of Texas at El Paso (fellowship recipient, 2020-2021)
    - Collaborated with the ENCOUR leadership team to use backwards design to develop an Ethics/Responsible Conduct of Research resource for 'Introductory Field Biology' course at Cornell University
    - Field-tested that resource in the context of a course-based undergraduate research experience, Fall 2020
    - Analyzing data for future dissemination of that material to the broader scientific community
- Cornell University Postdoctoral Leadership Program (participant 2019-2020)
- OEB Graduate Student Professional Development Program, Harvard University (program leader, 2018- 2019)
- OEB Mentorship Program, Harvard University (pedagogy mentor, 2016-2018)
- Oregon Marine Students Association, University of Oregon (Director, 2010-2012)
- Club Sailing Team, Wellesley College (President, 2005-2008)
- Sailing Instructor for children and adults (Great Harbor Yacht Club, Nantucket MA, 2007, Duxbury Bay Maritime School, Duxbury MA, 2001-2006)

AWARDS & CERTIFICATES

- Certificate in Excellence in Teaching from the Derek Bok Center for Teaching and Learning, Harvard University (2017)
- Certificate of Distinction in Teaching, Harvard University: Fall 2016, Spring 2016, Fall 2017, Fall 2018, Spring 2018, Fall 2018
- Simmons Award at the Harvard Center for Biological Imaging, Harvard University (2016-2017 and 2017-2018)

- National Estuarine Research Reserve Graduate Research Fellowship, University of Oregon: "Evaluating the presence and physiological tolerances of invasive fouling organisms in South Slough, Charleston, OR" (2011)

PROFESSIONAL SOCIETIES AND ORGANIZATIONS

Society for the Advancement of Biology Research	2019 - present
International Bryozoology Association, member	2012 - present
Dudley House Orchestra, cellist, Harvard University	Cambridge, MA 2011-2016
Oregon Marine Students Association, University of Oregon	Charleston, OR 2010-2012
Club Sailing Team (Treasurer, President), Wellesley College	Wellesley, MA 2005-2008
Chamber Music Society, Wellesley College	Wellesley, MA 2005-2009

SKILLS & OTHER INTERESTS

Pedagogy: Backwards design, inclusive teaching, fostering equitable student teamwork, implementing field-based course-based undergraduate-research experiences (CURES)

Qualitative Research: inductive and deductive coding using *nVivo* software, framework analysis, survey development, analysis of student reflections and interview data, scoping review methodology, survey design using *Qualtrics* software
Computing & Software: R, Unix, Microsoft Office, Canvas, Padlet, Jamboard, Slack, Trello, iNaturalist, eBird, Covidence

Scientific/Technical: transcriptomics/big data analysis, microdissection, light microscopy, confocal imaging, RNA isolation, culturing of microalgae and bryozoan colonies, field identification and collection of marine invertebrates

Language: intermediate Latvian, beginner French

Marine: 20+ years sailing and coastal boating experience (recreational boating and sailing instruction for children and adults)

Other: Co-creator of the design "Octopi Wallstreet," artwork and internet meme that highlights the fact that invertebrates are 97% of animal diversity (2011). Image published in the book "Staying with the Trouble" by Donna Haraway (Duke University Press, 2016).