

Kerry A. Whittaker, Ph.D.

Corning School of Ocean Studies

Maine Maritime Academy

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EDUCATION

- 2014 **Graduate School of Oceanography, University of Rhode Island**; Ph.D. Oceanography
Dissertation: Biogeography and nested patterns of genetic diversity in the diatom
Thalassiosira rotula
Advisor: Dr. Tatiana Rynearson
- 2011 **University of Hawaii**; CMORE: Microbial Oceanography Summer Course
- 2008 **Colby College**; B.A. Environmental Studies (Honors) and English, *Magna Cum Laude*
- 2006 **Boston University**; School for Field Studies (SFS) Fall Semester, Baja Sur, Mexico
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PROFESSIONAL EXPERIENCE

- 2020 – present **Visiting Sawyer Professor, Maine Maritime Academy (MMA)**
- Appointed to a visiting professor position in MMA's Corning School of Ocean Studies to assist in building a new Coastal and Marine Environmental Science major.
- 2019 – present **Guest Investigator, Woods Hole Oceanographic Institution**
- Appointed as a guest researcher at WHOI to pursue collaborative research on marine biodiversity to support WHOI's Ocean Twilight Zone project.
- 2017 – 2020 **Assistant Professor of Oceanography, Sea Education Association (SEA)**
- Directed field-and research-based interdisciplinary undergraduate semester programs involving ship-based oceanographic field techniques, lab techniques, science communication, and leadership.
- 2017 – 2020 **Chief Scientist, SSV Robert C. Seamans & SSV Corwith Cramer, SEA**
- Scientific director for semester voyages (4-6 weeks each) throughout the North Atlantic (Sargasso Sea, Western Atlantic) and South Pacific (Pacific Islands and New Zealand) aboard 134ft student sailing vessel and platform for oceanographic research.
 - Research focus on population genetics, marine and sediment microbial communities, *Sargassum*-associated fauna, holopelagic *Sargassum*, and eDNA of mesopelagic taxa
- 2015 – 2017 **Chair of Faculty and Marine Science Faculty, Coastal Studies for Girls**
- Held a leadership role in directing marine science education and curriculum development at an experiential semester school for science and leadership for 10th grade girls
 - Mentored independent student research projects in marine ecology and oceanography
 - Facilitated institutional and student interactions with marine science research, conservation, and policy entities in Maine through guest lectures, mentor matching, and curricular connections.
- 2015 – 2017 **Lecturer in Biology, Bates College**
- Developed and taught courses focused on marine ecology, biology, and

- oceanography
 - Mentored thesis students interested in marine and oceanographic sciences
- Spring 2015 **Lecturer in Biology, Bowdoin College**
- Lecturer for an upper-level undergraduate course in evolution, foundational course for Biology majors
- 2014 **Knauss Sea Grant Fellowship, NOAA NMFS Office of Protected Resources:**
- Received competitive one-year fellowship in marine policy. Placed in NOAA's National Marine Fisheries Office of Protected Resources, Endangered Species Listing division.
 - Responded to ESA listing petitions and provided technical expertise by performing status reviews, and writing 90-day findings and 12-month findings on petitioned species.
 - Attended congressional hearings, and participated in the preparatory briefing process for congressional witnesses to the House Subcommittee on Natural Resources.
 - Facilitated planning and organization of an agency workshop on ESA-listing of distinct population segments and the extinction risk assessment process.
- 2008 – 2014 **Research Assistant, URI/ PhD Research**
- Developed and used molecular tools to study marine phytoplankton diversity and its relationship to functional diversity, carbon cycling, and ocean ecology.
 - Expanded understanding of phytoplankton population ecology and biogeography with regard to ecosystem dynamics over space and time, and the impact of climate change on these dynamics.
 - Advised undergraduate assistants and directed undergraduate research projects.
- 2012-2013 **EPSCoR Research Fellowship**
- Received RI EPSCoR (Experimental Program to Stimulate Competitive Research) graduate research fellowship for research using molecular tools to examine the evolutionary potential for phytoplankton to acclimate and adapt to climate change.
 - Developed and led outreach programs for the public and schools focusing on climate change and its connection to the adaptive potential of marine organisms, parasites and disease, marine trophic interactions, commercially important organisms, and societal impacts.
- 2008 **Lakes Project/GIS Mapping**
- As a senior capstone to Colby's Environmental Studies program, contributed to an interdisciplinary water quality study on the Long Pond South watershed in the Belgrade Lakes Region of Maine by conducting geographic information systems (GIS) analysis of land use changes in the Long Pond South watershed.
- Summer, 2007 **UREKA-Collections Based Biology Research**
- Conducted an independent paleobotany and atmospheric science study to explore the use of bio-proxies (stomatal density of ancient/fossil pine species) to better assess historical climate change and project its future effects.
 - Continued this project as honors thesis in environmental science at Colby College.

- Fall, 2006 **SFS, Sea Turtle and Marine Fisheries Research; Undergraduate Field Program**
- Contributed to a time series of sea turtle population data and community-based marine conservation, and conducted surveys examining community support for alternative solutions to fishing exploitation in Puerto San Carlos, Mexico.
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TEACHING/OUTREACH

- 2020 – *present* **Visiting Sawyer Professor, Maine Maritime Academy (MMA)**
- Responsible for developing curricula and teaching courses as part of a new Coastal and Marine Environmental Science major within the Corning School of Ocean Studies.
- 2017 – 2020 **Assistant Professor of Oceanography, Sea Education Association (SEA)**
- Directs field-and research-based interdisciplinary undergraduate semester programs involving ship-based oceanographic field techniques, lab techniques, science communication, and leadership.
- 2015 – 2017 **Chair of Faculty and Marine Science Faculty, Coastal Studies for Girls**
- Held a leadership role in directing marine science education and curriculum development at an experiential semester school for science and leadership for 10th grade girls
- 2015 – 2017 **Lecturer in Biology, Bates College**
- Developed and taught courses focused on marine ecology, biology, and oceanography
 - Mentored thesis students interested in marine and oceanographic sciences
- Spring 2015 **Lecturer in Biology, Bowdoin College**
- Lecturer for an upper-level undergraduate course in evolution, foundational course for Biology majors
- July, 2016 **Bates College/Mount Desert Island Biological Lab/INBRE Summer Course**
- Facilitated and co-taught lab and field-based summer course for Bates students entitled “Stress, Disease, and the Environment” hosted at Mount Desert Island Biological Lab
 - Supported student research which used molecular approaches to examine eelgrass decline on the coast of Maine
- 2011 – 2013 **GRRLTec, URI**
- Conducted an annual workshop for female high school students focusing on the diversity of marine microbes.
- 2012 **Biological Oceanography, Teaching Assistant, URI**
- Provided support for a graduate-level course in biological oceanography focusing on benthic, pelagic, fisheries, phytoplankton, and coastal ecology.
 - Directed laboratory analyses, field sampling, and student evaluation
- 2008 – 2011 **Narragansett Bay Classroom, URI**
- Developed and taught field programs in environmental science focusing on the ecology of Rhode Island’s coastal marine ecosystems, grades K-12.
- 2007 **Ecology TA, Colby College, ME**
- Prepared laboratory equipment and organized field experiments related to oceanography, limnology, and forest ecology.
- Summer, 2006 **Lloyd Center for the Environment, MA**

- Designed and administered weekly environmental education programs providing field-based instruction to students ages 4-16, planned community environmental awareness programs, and assisted in local coastal conservation projects.

Courses:

Maine Maritime Academy Corning School of Ocean Studies (expected courses AY2020-2021)

- Int. to Oceanography and Env. Science, OS101
- General Biology I lab, BI1010
- Land-Margin Ecosystems, OS225
- Coastal Resource Management, OS321

Sea Education Association (accredited through Boston University)

- Advanced topics in biological oceanography, NS 450
- Oceans and Global Change, CAS NS 326
- Practical Oceanographic Research, XAS, NS, 226
- Directed Oceanographic Research, XAS NS 324
- Marine Environmental History CAS NS 323
- Oceanography CAS NS 221

Bates College

- Marine Microbial Ecology; Biology 307
- Marine Ecology, Biology 313
- Marine Science, Biology/Geology 113

Bowdoin College

- Evolution, Biology 2316

Coastal Studies for Girls

- Coastal Marine Ecosystems

SELECTED PRESENTATIONS

- **Whittaker, KA**, Porter Hogland, Annette Govindarajan, Kristina Gjerde, herriet Harden-Davies, Amy NS Siuda, Paul Joyce. *Model education-research partnership program encourages students to bridge gaps among ocean science, policy, and conservation for remote ocean regions*. Ocean Sciences Meeting. February, 2020. San Diego, CA. Poster presentation.
- **Whittaker, KA**, Emily Hite, SEA Semester students of S288. *Sailing to Mars via Earth's Newest Landmass*. Seminar at the Pacific Center for Environment and Sustainable Development (PaCE-SD) University of South Pacific. October 2019, Suva, Fiji.
- **Whittaker, KA**, Jeff Schell, Deb Goodwin, Amy Siuda. *Molecular divergence of holopelagic Sargassum species using extensive field samples from the tropical and subtropical Atlantic*. Gulf and Caribbean Fisheries Institute Meeting, November 2019, San Andres, Colombia. Poster Presentation.
- **Whittaker, KA**. *Lightening Talk: Research-based education encourages student engagement in real-world ocean problems: a case-study involving students in harmful algal bloom research*. November 2016. New England Ocean Science Education Collaborative Meeting. Portland, ME. Oral Presentation.

- **Whittaker, KA**, Kate Kyros. *Risky business: Integrating science and leadership to cultivate intentionality, creativity, and trust*. 2015. National Coalition of Girls' Schools Conference. Los Angeles, California. Oral Presentation.
- **Whittaker, KA**. *Experiencing Place and Mapping Experience with ArcGIS*. 2015. AEE Symposium on Experiential Education in the Digital Age. Boston, MA. Oral Presentation and Workshop.
- **Whittaker, KA** Tatiana Rynearson. *Diatoms in space: Global population structure and environmental selection in the marine diatom *T. rotula**. 2015. Molecular Life of Diatoms Conference. Seattle, WA. Poster Presentation.
- **Whittaker, KA**. *Exploring the evolution, dispersal and selection of a marine diatom species*. Guest Lecture. 2015 Bowdoin College, Brunswick, ME. Oral Presentation.
- **Whittaker, K.A.** *Exploring global diversity, dispersal, and environmental selection in a marine diatom species*. 2014. Third World Conference on Marine Biodiversity. Qingdao, China. Oral Presentation.
- **Whittaker, K.A.**, Tatiana Rynearson. *Population succession of the marine diatom *Thalassiosira rotula*: Linking evolutionary potential and bloom formation*. 2014. Joint Aquatic Sciences Meeting, Portland, OR. Invited Oral Presentation.
- **Whittaker, K.A.**, Tatiana Rynearson. *International relations?: Exploring global population structure and dispersal in the marine diatom *Thalssiosira rotula**. 2014. Ocean Sciences Meeting, Honolulu, HI. Oral Presentation.
- **Whittaker, K.A.**, Dana Rignanese, Tatiana Rynearson. *Distant Cousins? Global-scale genetic connectivity among populations of the marine diatom *Thalassiosira rotula**. 2013. ASLO Meeting, New Orleans, LA. Poster Presentation.
- **Whittaker, K.A.**, Dana Rignanese, Tatiana Rynearson. *Intraspecific diversity, physiological variation, and differences in genome size among global isolates of the marine diatom *Thalassiosira rotula**. 2012. Gordon Conference on Marine Microbes. Tuscany, Italy. Poster Presentation.
- *Scales of variability at station ALOHA*. 2012. CMORE Summer Course Collective. Ocean Sciences Meeting SLC, Utah. Poster Presentation.
- Durham, B., J. Grote, **K. A. Whittaker**, S. Bender, H. Luo, S. Grim, J. Brown, et al. *Comparative genomics of *Rhodobacteraceae* sp. HIMB11 reveals metabolic specialization in a coastal, marine isolate*, 2012. CMORE Summer Course Collective. Ocean Sciences Meeting, SLC, Utah. Poster Presentation.
- **Whittaker, K.A.**, T. Rynearson. *Global-scale Molecular and Physiological Diversity In the Diatom *Thalassiosira rotula**, 2011. ASLO Meeting, San Juan, Puerto Rico. Oral Presentation
- **Whittaker, K.A.**, T. Rynearson. *Global biogeography of *Thalassiosira rotula**. 2010. Ocean Sciences Meeting, Portland, Oregon. Poster Presentation.

PUBLICATIONS

In Prep. **Whittaker, K.A.**, T.A. Rynearson. *Population succession of the marine diatom *Thalassiosira rotula*: Linking evolutionary potential and bloom formation*. International Society for Microbial Ecology Journal.

Hite, E.B., Garvin, J., Slayback, D., Burke, E.A., Callahan, G., Joyce, P. and **Whittaker, K.**, 2020. *Exploring the human-nature dynamics of Hunga Tonga Hunga Ha'apai, Earth's newest landmass*. Journal of Volcanology and Geothermal Research, p.106902. *SEA Semester student author

- Govindarajan, A.F., Cooney, L., **Whittaker, K.A.**, Bloch, D.*, Burdorf, R.*, Canning, S.*, Carter, C.*, Cellan, S.M.*, Erikson, F.*, Freyer, H.*, Huston, G.*, Hutchinson, S.*, McKeegan, K.*, Malpani, M.*, Merkle-Raymond, A.*, Oulette, K.*, Petersen-Rockney, R.*, Schultz, M.*, Siuda, A.N.S. 2019. *The distribution and mitochondrial genotype of the hydroid Aglaophenia latecarinata is correlated with its Sargassum substrate type in the Sargasso Sea*. Peer J. *SEA Semester student author
- Whittaker, K.A.**, Schell, J., Goodwin, D., Siuda, A.N.S. 2019. *Molecular divergence of holopelagic Sargassum species using extensive field samples from the tropical and subtropical Atlantic*. Extended Abstract. Gulf and Caribbean Fisheries Institute Book of Abstracts. 71st Annual.
- Whittaker, K.A.**, T.A. Ryneerson. 2017. *Evidence for environmental and ecological selection in a microbe with no geographic limits to gene flow*. Proceedings of the National Academy of Sciences. 114:10.
- Whittaker, K.A.**, 12-month Findings for the African coelacanth (*Latimeria chalumnae*) and Eastern Taiwan Strait population of the Indo-Pacific Humpback dolphin (*Sousa chinensis*). 2015. Federal Register. FR 17398 and FR 21182
- Whittaker, K.A.** and Young, C. *Endangered Species Act status review report for the Taiwanese Pink Dolphin (*Sousa Chinensis*)*. Report to National Marine Fisheries Service, Office of Protected Resources. March 2017. 42 pp.
- Whittaker, K.A.** *Endangered Species Act status review report for the coelacanth (*Latimeria chalumnae*)*. Report to National Marine Fisheries Service, Office of Protected Resources. October 2014. 47 pp
- Whittaker, K.A.**, 90-day finding for the common thresher shark (*Alopias vulpinus*), 2014. United States, National Oceanic and Atmospheric Administration. 80 FR 11379.
- Durham, B., Grote, J., **Whittaker, K.**, Bender, S., Luo, H., Grim, S., Brown, J., et al. 2014. *Draft genome sequence of marine alphaproteobacterial strain HIMB11, the first cultivated representative of a unique lineage within the Roseobacter clade possessing an unusually small genome*. Standards in Genomic Sciences. 9:3.
- Boyd P.W., T.A. Ryneerson, E.A., Armstrong, F-X. Fu, K. Hayashi, Z. Hu, D.A. Hutchins, R.M. Kudela, E. Litchman, M. R. Mulholland, U. Passow, R.F. Strzepek, **K.A. Whittaker**, E. Yu and M.K. Thomas. 2013. *Marine Phytoplankton Temperature versus Growth Responses from Polar to Tropical Waters – Outcome of a Scientific Community-Wide Study*. PloS One. 8:5.
- Whittaker, K.A.**, Rigannese, D.R., Olson, R.J., Ryneerson, T.A.. 2012. *Molecular subdivision of the marine diatom *Thalassiosira rotula* in relation to geographic distribution, genome size, and physiology*. BMC Evolutionary Biology. 12:209.

AWARDS/HONORS

- 2018 **Endurance Foundation**, Program Funding (\$9,000)
- 2019 **Virginia Wellington Cabot Foundation**, Marine Biodiversity and Conservation Symposium funding (\$15,000)
- 2019 **Jim Millinger Award for Excellence in Teaching**, Sea Education Association (\$1,000)
- 2018 **Virginia Wellington Cabot Foundation**, Marine Biodiversity and Conservation Symposium funding (\$15,000)
- 2016 **Maine Coastal Program, Education Funding** (\$2,000)
- Funded through the Coastal Maine Program to conduct a study of *Alexandrium fundyense* population dynamics along the coast of Maine, research combining marine science education, ecology, policy and human health
- 2015 **Molecular Life of Diatoms Early Career Award**
- Awarded for presentation with recognition and waived conference registration fee at international conference on diatoms in Seattle, WA.

- 2014 **World Conference on Marine Biodiversity, Young Scientist Presentation Award**
- Awarded for oral presentation at a 2014 international conference on marine biodiversity held in Qingdao, China.
- 2014 **NOAA Sea Grant Knauss Marine Policy Fellowship,**
- Highly competitive fellowship matches highly qualified graduate students with host offices in the legislative and executive branches of government located in the Washington, D.C. Metro area.
- 2013 **Marine Microbial Eukaryote Transcriptome Sequencing Project**
- Awarded funding from the National Center for Genome Resources (NCGR) and the Gordon and Betty Moore Foundation's (GBMF) to engage in a community transcriptome sequencing project
- 2013 **ASLO (Association for the Sciences of Limnology and Oceanography) Student Presentation Award**
- Awarded for the clarity/effectiveness of the presentation, quality of the experimental design, clarity of the conclusions, and its innovation/scientific insight.
- 2013 **NSF/EPSCoR (Experimental Program to Stimulate Competitive Research) Research Fellowship**
- Awarded full tuition and year-long stipend to study adaptive potential of a marine organism in regards to climate change.
- 2007 **UREKA (Undergraduate Research Experience and Knowledge Award)**
- Funding awarded to support a ten-week summer program in Dublin, with collaborations among University College Dublin, the National Botanic Gardens and the National Museum of Ireland (Natural History) collections in Dublin.
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AT-SEA FIELD EXPERIENCE

Fall, 2019	Sustainability in Polynesian Cultures and Ecosystems Program, South Pacific, American Samoa to New Zealand via Tonga and Fiji, <i>SSV Robert C. Seamans</i>
Spring 2018, 2019	Marine Biodiversity and Conservation Program, Sargasso Sea, <i>SSV Corwith Cramer</i>
Fall, 2017, 2018	The Global Ocean Program, New Zealand to Kermadec Islands, <i>SSV Robert C. Seamans</i>
Winter, 2016	Antarctica, Southern Ocean, <i>R/V Nathaniel B. Palmer</i>
Spring, 2013	Antarctica, Southern Ocean, <i>R/V Nathaniel B. Palmer</i>
Summer, 2012	Station ALOHA Hawaii, <i>R/V Kilo Moana</i>
Spring, 2012	Gulf of Alaska, <i>R/V Thomas T. Thompson</i>
Spring, 2009	Gulf of Mexico, <i>R/V Endeavor</i>

CERTIFICATIONS

Wilderness First Responder, Mental Health First aid, CPR/AED/ First Aid

PROFESSIONAL SERVICE AND ACTIVITIES

Societies

- New England Ocean Science Education Collaborative, Member and SEA Representative
- Gulf and Caribbean Fisheries Institute, Member
- Association for Limnology and Oceanography, Member

Committees of the Faculty

- Deputy Chair of Sea Education Association's Faculty Senate
- Faculty liaison to the Marine Department, Sea Education Association, Faculty Senate

Meetings/Workshops

- Marine Biodiversity and Conservation Symposium, 2018, 2019
- Organized Workshop on Distinct Population Segments under the Endangered Species Act, United States National Oceanic and Atmospheric Administration
- Attended and mentored students to present at the United Nations, 20th informal consultative process on oceans and the law of the sea (UN ICP 20) panel on "Traditions, tools and technologies for advancing ecosystem-based management for the global ocean."

SELECTED MEDIA

- [NASA Earth Expeditions](#) blog posts on Hunga Tonga Hunga Ha'apai mission, 2019.
 - [Students Team Up with NASA to Study New Island](#). WCAI Living Lab Radio Podcast. Sept 16, 2019.
 - [SEA & WHOI to Explore Ocean Twilight Zone](#). SEA Currents. News. January 28, 2019.
 - [Making Waves: Women in Science](#). Climate Central video about research in the Southern Ocean and Antarctica. June, 2018.
 - [Maine Calling appearance discussing Females in STEM fields](#). May 20, 2016. Maine Public Radio.
 - [Plight of the Pink Dolphin](#). Sailors for the Sea. March, 2015.
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