

# HARRIET ALEXANDER

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## EDUCATION

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**PhD, Biological Oceanography**, MIT-WHOI Joint Program, Cambridge / Woods Hole, MA                    2016  
Advisor: Dr. Sonya Dyhrman

**BA, Biological Sciences**, Wellesley College, Wellesley, MA                    2010  
Departmental Honors in Biological Sciences, Minor in Mathematics, *cum laude*

## PROFESSIONAL EXPERIENCE

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**Associate Scientist without tenure**, Biology Department,                    2024-present  
Woods Hole Oceanographic Institution, Woods Hole, MA

**Assistant Scientist**, Biology Department,                    2018-2024  
Woods Hole Oceanographic Institution, Woods Hole, MA

**Postdoctoral Fellow**, University of California, Davis, Davis, CA                    2016-2018  
Advisor: Dr. C. Titus Brown

**Postdoctoral Investigator**, Lamont-Doherty Earth Observatory, Palisades, NY                    2016  
Advisor: Dr. Sonya Dyhrman

## SELECTED AWARDS AND FELLOWSHIPS

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Simons Early Career Investigator in Marine Microbial Ecology and Evolution Award	2022
GigaScience Paper Prize ICG13	2018
Ocean Life Institute Fellowship	2014–2015
National Defense Science and Engineering Fellowship	2011-2014
National Science Foundation Graduate Research Fellowship	2011 ( <i>declined for NDSEG</i> )
MIT Presidential Fellowship	2010–2011
Lucy Allen Branch Prize in Natural History	2010
Jane Harris Schneider Prize in Sculpture	2010

## PEER-REVIEWED PUBLICATIONS

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Mentored students and postdocs are underlined. \* indicates equal contribution and authorship.

**Google Scholar: h-index = 25, i10-index = 33, total citations = 24,486**

- [41] Krinos AI, Shapiro SK, Li W, Haley ST, Dyhrman ST, Dutkiewicz S, Follows MJ, **Alexander H.** (2025). Intraspecific diversity in thermal performance determines phytoplankton ecological niche. *Ecology Letters* 28:e70055. doi:10.1111/ele.70055.
- [40] Perneel M, **Alexander H**, Hablützel PI, Maere S. (2025). A case for absolute gene expression estimates in microbiome studies using metatranscriptomics. *The ISME Journal* 19:wraf188. doi:10.1093/ismejo/wraf188.
- [39] Mars Brisbin M, Acord M, Davitt R, Bent S, Van Mooy BAS, Flaum E, Norlin A, Turner J, Krinos A, **Alexander H**, Saito M. (2025). Exploring the phaeosphere: Characterizing the microbiomes of phaeocystis antarctica colonies from the coastal southern ocean and laboratory culture. *Journal of Phycology* 61:1124–1139. doi:<https://doi.org/10.1111/jpy.70051>.

- [38] Levine NM, **Alexander H**, Bertrand EM, Coles VJ, Dutkiewicz S, Leles SG, Zakem EJ. (2025). Microbial ecology to ocean carbon cycling: From genomes to numerical models. *Annual Review of Earth and Planetary Sciences* 53:595–624. doi:10.1146/annurev-earth-040523-020630.
- [37] Cohen NR, Krinos AI, Kell RM, Chmiel RJ, Moran DM, McIlvin MR, Lopez PZ, Barth AJ, Stone JP, Alanis BA, Chan EW, Breier JA, Jakuba MV, Johnson R, **Alexander H**, Saito MA. (2024). Microeukaryote metabolism across the western north atlantic ocean revealed through autonomous underwater profiling. *Nature Communications* 15. doi:10.1038/s41467-024-51583-4.
- [36] Krinos AI, Mars Brisbin M, Hu SK, Cohen NR, Rynearson TA, Follows MJ, Schulz F, **Alexander H**. (2024). Missing microbial eukaryotes and misleading meta-omic conclusions. *Nature Communications* 15:9873. doi:10.1038/s41467-024-52212-w.
- [35] **Alexander H**. (2024). Molecular forecasting of toxic bloom events. *Proceedings of the National Academy of Sciences* 121:e2417139121. doi:10.1073/pnas.2417139121.
- [34] Irber L, et al. (2024). Sourmash v4: A multitool to quickly search, compare, and analyze genomic and metagenomic data sets. *Journal of Open Source Software* 9:6830. doi:10.21105/joss.06830.
- [33] Saito MA, **Alexander H**, Benway HM, Boyd PW, Gledhill M, Kujawinski EB, Levine NM, Maheigan M, Marchetti A, Obernosterer I, Santoro AE, Shi D, Suzuki K, Tagliabue A, Twining BS, Maldonado MT. (2024). The Dawn of the BioGeoSCAPES Program: Ocean metabolism and nutrient cycles on a changing planet. *Oceanography* 37:162–166.
- [32] **Alexander H**, Hu SK, Krinos AI, Pachiadaki M, Tully BJ, Neely CJ, Reiter T. (2023). Eukaryotic genomes from a global metagenomic data set illuminate trophic modes and biogeography of ocean plankton. *MBio* 14:e01676–23.
- [31] Krinos AI, Cohen NR, Follows MJ, **Alexander H**. (2023). Reverse engineering environmental metatranscriptomes clarifies best practices for eukaryotic assembly. *BMC bioinformatics* 24:1–36. doi:10.1186/s12859-022-05121-y.
- [30] Mars Brisbin M, Schofield A, McIlvin MR, Krinos AI, **Alexander H**, Saito MA. (2023). Vitamin B12 conveys a protective advantage to phycosphere-associated bacteria at high temperatures. *ISME communications* 3:88.
- [29] Mars Brisbin M, Mitarai S, Saito MA, **Alexander H**. (2022). Microbiomes of bloom-forming phaeocystis algae are stable and consistently recruited, with both symbiotic and opportunistic modes. *The ISME Journal* pp 1–10. doi:10.1038/s41396-022-01263-2.
- [28] Cohen NR, **Alexander H**, Krinos AI, Hu SK, Lampe RH. (2022). Marine microeukaryote metatranscriptomics: Sample processing and bioinformatic workflow recommendations for ecological applications. *Frontiers in Marine Science* 9. doi:10.3389/fmars.2022.867007.
- [27] \*Clayton S, \***Alexander H**, Graff JR, Poulton NJ, Thompson LR, Benway H, Boss E, Martiny A. (2022). Bio-go-ship: The time is right to establish global repeat sections of ocean biology. *Frontiers in Marine Science* 8. doi:10.3389/fmars.2021.767443.
- [26] \*McParland EL, \***Alexander H**, \*Johnson WM. (2021). The osmolyte ties that bind: genomic insights into synthesis and breakdown of organic osmolytes in marine microbes. *Frontiers in Marine Science* 8:732. doi:10.3389/fmars.2021.689306.
- [25] McParland EL, Lee MD, Webb EA, **Alexander H**, Levine NM. (2021). DMSP synthesis genes distinguish two types of DMSP producer phenotypes. *Environmental Microbiology* 23:1656–1669. doi:10.1111/1462-2920.15393.
- [24] Krinos AI, Hu SK, Cohen NR, **Alexander H**. (2021). Eukulele: Taxonomic annotation of the unsung eukaryotic microbes. *Journal of Open Source Software* 6:2817. doi:10.21105/joss.02817.

- [23] Fiore CL, **Alexander H**, Soule MCK, Kujawinski EB. (2021). A phosphate starvation response gene (*psr1-like*) is present and expressed in *micromonas pusilla* and other marine algae. *Aquatic Microbial Ecology* 86:29–46. doi:10.3354/ame01955.
- [22] Johnson WM, **Alexander H**, Bier RL, Miller DR, Muscarella ME, Pitz KJ, Smith H. (2020). Auxotrophic interactions: A stabilizing attribute of aquatic microbial communities? *FEMS Microbiology Ecology*. doi:10.1093/femsec/fiaa115.
- [21] Choi CJ, Jimenez V, Needham DM, Poirier C, Bachy C, **Alexander H**, Wilken S, Chavez FP, Sudek S, Giovannoni SJ, Worden AZ. (2020). Seasonal and geographical transitions in eukaryotic phytoplankton community structure in the atlantic and pacific oceans. *Front. Microbiol.* 11. doi:10.3389/fmicb.2020.542372.
- [20] **Alexander H**, Rouco M, Haley ST, Dyhrman ST. (2020). Transcriptional response of *Emiliania huxleyi* under changing nutrient environments in the North Pacific Subtropical Gyre. *Environmental Microbiology*. doi:doi:10.1111/1462-2920.14942.
- [19] Bolyen E, et al. (2019). Reproducible, interactive, scalable and extensible microbiome data science using QIIME 2. *Nature Biotechnology* 37:852–857. doi:10.1038/s41587-019-0209-9.
- [18] Johnson LK, **Alexander H**, Brown CT. (2019). Re-assembly, quality evaluation, and annotation of 678 microbial eukaryotic reference transcriptomes. *GigaScience*. doi:10.1093/gigascience/giy158.
- [17] Wurch LL, **Alexander H**, Frischkorn KR, Haley ST, Gobler CJ, Dyhrman ST. (2019). Transcriptional shifts highlight the role of nutrients in harmful brown tide dynamics. *Frontiers in Microbiology* 10:136. doi:10.3389/fmicb.2019.00136.
- [16] **Alexander H**, Johnson LK, Brown CT. (2019). Keeping it light: (Re)analyzing community-wide datasets without major infrastructure. *GigaScience*. doi:10.1093/gigascience/giy159.
- [15] Hu SK, Liu Z, **Alexander H**, Campbell V, Connell PE, Dyhrman ST, Heidelberg KB, Caron DA. (2018). Shifting metabolic priorities among key protistan taxa within and below the euphotic zone. *Environmental Microbiology*. doi:10.1111/1462-2920.14259.
- [14] Rouco M, Frischkorn KR, Haley ST, **Alexander H**, Dyhrman ST. (2018). Transcriptional patterns identify resource controls on the diazotroph *Trichodesmium* in the Atlantic and Pacific oceans. *The ISME Journal* 12:1486–1495. doi:10.1038/s41396-018-0087-z.
- [13] Moniruzzaman M, Wurch LL, **Alexander H**, Dyhrman ST, Gobler CJ, Wilhelm SW. (2017). Virus-host relationships of marine single-celled eukaryotes resolved from metatranscriptomics. *Nature Communications* 8:16054. doi:10.1038/ncomms16054.
- [12] Harke MJ, Juhl AR, Haley ST, **Alexander H**, Dyhrman ST. (2017). Conserved transcriptional responses to nutrient stress in bloom-forming algae. *Frontiers in Microbiology* 8. doi:10.3389/fmicb.2017.01279.
- [11] Haley ST, **Alexander H**, Juhl AR, Dyhrman ST. (2017). Transcriptional response of the harmful raphidophyte *Heterosigma akashiwo* to nitrate and phosphate stress. *Harmful Algae* 68:258–270. doi:10.1016/j.hal.2017.07.001.
- [10] Durden J, Luo J, **Alexander H**, Flanagan A, Grossmann L. (2017). Integrating "big data" into aquatic ecology: Challenges and opportunities. *Limnology and Oceanography Bulletin*. doi:10.1002/lob.10213.
- [9] Guy-Haim T, **Alexander H**, Bell TW, Bier RL, Bortolotti LE, Briseño-Avena C, Dong X, Flanagan AM, Grosse J, Grossmann L, Hasnain S, Hovel R, Johnston CA, Miller DR, Muscarella M, Noto AE, Reisinger AJ, Smith HJ, Stamieszkin K. (2017). What are the type, direction, and strength of species, community, and ecosystem responses to warming in aquatic mesocosm studies and their dependency on experimental characteristics? A systematic review protocol. *Environmental Evidence* 6:6. doi:10.1186/s13750-017-0084-0.

- [8] Kujawinski EB, Longnecker K, **Alexander H**, Dyhrman ST, Fiore CL, Haley ST, Johnson WM. (2017). Phosphorus availability regulates intracellular nucleotides in marine eukaryotic phytoplankton. *Limnology and Oceanography Letters* 2:119–129.
- [7] Caron DA, **Alexander H**, Allen AE, Archibald JM, Armbrust EV, Bachy C, Bell CJ, Bharti A, Dyhrman ST, Guida SM, Heidelberg KB, Kaye JZ, Metzner J, Smith SR, Worden AZ. (2016). Probing the evolution, ecology and physiology of marine protists using transcriptomics. *Nature Reviews Microbiology* 15:6–20. doi:10.1038/nrmicro.2016.160.
- [6] Rouco M, Haley ST, **Alexander H**, Wilson ST, Karl DM, Dyhrman ST. (2016). Variable depth distribution of *Trichodesmium* clades in the North Pacific Ocean. *Environmental Microbiology Reports*. doi:10.1111/1758-2229.12488.
- [5] **Alexander H**, Rouco M, Haley ST, Wilson ST, Karl DM, Dyhrman ST. (2015). Functional group-specific traits drive phytoplankton dynamics in the oligotrophic ocean. *Proceedings of the National Academy of Sciences* 112:E5972–E5979. doi:10.1073/pnas.1518165112.
- [4] **Alexander H**, Jenkins BD, Rynearson TA, Dyhrman ST. (2015). Metatranscriptome analyses indicate resource partitioning between diatoms in the field. *Proceedings of the National Academy of Sciences* 112:E2182–E2190. doi:10.1073/pnas.1421993112.
- [3] Fischer A, Moberg E, **Alexander H**, Brownlee E, Hunter-Cevera K, Pitz K, Rosengard S, Sosik H. (2014). Sixty Years of Sverdrup: A Retrospective of Progress in the Study of Phytoplankton Blooms. *Oceanography* 27:222–235. doi:10.5670/oceanog.2014.26.
- [2] **Alexander H**, Jenkins BD, Rynearson TA, Saito MA, Mercier ML, Dyhrman ST. (2012). Identifying reference genes with stable expression from high throughput sequence data. *Frontiers in Microbiology* 3:385. doi:10.3389/fmicb.2012.00385.
- [1] Dyhrman ST, Jenkins BD, Rynearson TA, Saito MA, Mercier ML, **Alexander H**, Whitney LP, Drzewianowski A, Bulygin VV, Bertrand EM, Wu Z, Benitez-Nelson C, Heithoff A. (2012). The transcriptome and proteome of the diatom *Thalassiosira pseudonana* reveal a diverse phosphorus stress response. *PLoS one* 7:e33768. doi:10.1371/journal.pone.0033768.

## INVITED PRESENTATIONS

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- [18] **Alexander H**. Ecology and biogeography of *Gephyrocapsa (Emiliania) huxleyi* through a pangenomic lens. University of South Florida College of Marine Science Seminar, Miami, FL. October 2025.
- [17] **Alexander H**, Cohen N, Hu S, Marchetti A. A community-wide intercomparison of metatranscriptomic methods for characterizing microbial eukaryote contributions to the biological carbon pump. Aquatic Sciences Meeting (ASLO), Charlotte, NC, USA. March 2025.
- [16] **Alexander H**. Ecology and biogeography of *Gephyrocapsa (Emiliania) huxleyi* through a pangenomic lens. University of Miami RSMAS Marine Biology Seminar, Miami, FL. March 2025.
- [15] **Alexander H**, Krinos AI, Hamilton R, Shapiro S, Haley ST, Dyhrman ST. Ecology and biogeography of *Gephyrocapsa (Emiliania) huxleyi* through a pangenomic lens. International Symposia on Microbial Ecology (ISME19), Cape Town, South Africa. August 2024.
- [14] **Alexander H**. Tracking phytoplankton nutrient stress across ocean basins. Ocean Carbon Biogeochemistry Summer Workshop, Woods Hole, MA. June 2024.
- [13] **Alexander H**. A eukaryotic heist: scalable and automated approaches for the study of eukaryotic (pan)genomes. University of Connecticut Ecology and Evolutionary Biology Seminar, Storrs, CT. April 2024.
- [12] **Alexander H**. A eukaryotic heist: scalable and automated approaches for the study of eukaryotic genomes. Rutgers Department of Marine and Coastal Sciences, New Brunswick, NJ. April 2023.

- [11] **Alexander H.** A eukaryotic heist: scalable and automated approaches for the discovery of eukaryotic genomes. Bioinformatics Virtual Coordination Network Conference, Virtual. June 2021.
- [10] **Alexander H.** A eukaryotic heist: scalable and automated approaches for the discovery of eukaryotic genomes. Marine and Environmental Biology Seminar, University of Southern California, Virtual. April 2021.
- [9] **Alexander H.** A eukaryotic heist: scalable and automated approaches for the discovery of eukaryotic genomes. University of Georgia MARS Seminar, Virtual. October 2020.
- [8] **Alexander H.** A eukaryotic heist: scalable and automated approaches for the discovery of eukaryotic genomes. Simons Foundation CBIOMES Meeting, Virtual. June 2020.
- [7] **Alexander H.** Bioinformatics in light of intercalibration. OCB NA Omics Standardization and Inter-calibration Workshop, Chapel Hill, NC. January 2020.
- [6] **Alexander H.** Computational approaches to the study of marine protists. Biology Seminar, Graduate School of Oceanography, University of Rhode Island, Narragansett, RI. May 2019.
- [5] **Alexander H.** Computational approaches to the study of marine protists. Parsons Microbial Systems Seminar, Massachusetts Institute of Technology, Cambridge, MA. April 2019.
- [4] **Alexander H.** The role of intra-specific diversity on the physiological ecology of phytoplankton. Marine Science Department, Old Dominion University, Norfolk, VA. March 2019.
- [3] **Alexander H.** Combining in situ and culture-based approaches to characterize the physiological ecology of blooming and sinking diatoms. The Molecular Life of Diatoms, Kobe, Japan. July 2017.
- [2] **Alexander H.** The role of intra-specific diversity on the physiological ecology of phytoplankton. Interdepartmental Graduate Program in Marine Science, University of California, Santa Barbara, Santa Barbara, CA. May 2017.
- [1] **Alexander H.** Strain variation and transcriptional response of the *Emiliania huxleyi* species complex under changing nutrient environments. ASLO, Honolulu, HI. February 2017.

## SELECTED ABSTRACTS

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- [35] **Alexander H.** Tracking phytoplankton nutrient stress across ocean basins. AtlantECO final meeting, Sao Miguel, Azores. 2025.
- [34] Perneel M, Lagaisse R, Mortelmans J, Gkritzalis T, Krinos Al, **Alexander H**, Maere S, Hablutel PI. Diatom metabolism in the southern North Sea: Insights from a three-year metatranscriptomic time series. Molecular Life of Diatoms 8, Ghent ,Belgium. 2025.
- [33] Manning M, Krinos Al, Shapiro S, Hamilton R, Mars Brisbin M, Johnson W, **Alexander H**. Strain-specific effects on *Gephyrocapsa huxleyi* bacterial communities under temperature and nitrogen co-stress. 2025 Aquatic Sciences Meeting, Charlotte,NC. 2025.
- [32] Hickman KJE, McGarrigle A, Shapiro S, Krinos Al, Palermo C, **Alexander H**. Diatom population health under parasitic infection and temperature stress. 2025 Aquatic Sciences Meeting, Charlotte,NC. 2025.
- [31] Johnson W, Parker J, **Alexander H**, McParland E. Tracking the cycling of organic osmolytes in the ocean. 2025 Aquatic Sciences Meeting, Charlotte,NC. 2025.
- [30] Krinos Al, Costa A, Shapiro S, **Alexander H**, Freilich M, Mars Brisbin M. Tracking coastal diatom carbon metabolic mechanisms and microbial networks with time-series -omics data. 2025 Aquatic Sciences Meeting, Charlotte,NC. 2025.

- [29] Hickman KJE, McGarrigle A, Shapiro S, Krinos AI, Palermo C, **Alexander H.** Opening the Black Box: A Zoosporic Pandemic in North Atlantic Diatoms. Mycological Society of America, Flagstaff, AZ. 2024.
- [28] Krinos AI, Mars Brisbin M, Shapiro SK, Costa A, Follows M, **Alexander H.** Metabolic drivers of summer coccolithophore abundance in Cape Cod Bay. International Society for Microbial Ecology Meeting (ISME19), Cape Town, South Africa. August 2024.
- [27] Mars Brisbin M, Krinos AI, Shapiro S, Lopez P, McIlvin MR, Costa A, Saito MA, **Alexander H.** Augmenting a multi-decade time series with multiple meta-omics to uncover molecular mechanisms behind changing phytoplankton bloom dynamics in Massachusetts Bay. 2024 Ocean Sciences Meeting. 2024.
- [26] Hu S, Anderson R, Krinos AI, **Alexander H.**, Pachiadaki M, Edgcomb VP, Serres M, Sylva S, German CR, Lang S, others. The elusive ecological roles of microeukaryotes at deep-sea hydrothermal vents. 2024 Ocean Sciences Meeting. 2024.
- [25] White P, Bhatia M, Spence J, Cavaco M, Waterman S, Rowland E, Jabre L, Mars Brisbin M, Krinos A, **Alexander H.**, others. Resolving the impact of glacier-derived nutrients on marine phytoplankton using both observational and experimental approaches. 2024 Ocean Sciences Meeting. 2024.
- [24] Krinos A, Leles SG, Shapiro S, Perian Q, Levine NM, Follows MJ, **Alexander H.** Transcriptome data enable physiological model customization and illuminate phytoplankton thermal response. 2024 Ocean Sciences Meeting. 2024.
- [23] Leles SG, Breithaupt L, Krinos AI, **Alexander H.**, Levine NM. Shifts in phytoplankton temperature optima defined by environmental stress and cell size constraints. 2024 Ocean Sciences Meeting. 2024.
- [22] Iwanicki T, Krinos A, Goetze E, **Alexander H.**, Steck M, Porter M (January 2024) *Diel and vertical patterns opsin expression from zooplankton metatranscriptomes at Station ALOHA* (Seattle, Washington).
- [21] Krinos AI, Shapiro SK, Follows M, **Alexander H.** Thermal acclimation experiments highlight intraspecific differences in the flexibility of *Emiliania huxleyi* to thermal stimuli. International Society of Evolutionary Protistologists (ISEP), Virtual. January 2023.
- [20] Krinos AI, Cohen NR, Follows M, **Alexander H.** eukrhythmic: leveraging the metatranscriptomic landscape to reproduciblity detect and describe marine protistan communities. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, Virtual. May 2021.
- [19] Krinos AI, Cohen NR, Hu S, Gast R, Follows M, Dyhrman S, **Alexander H.** Exploring the ecology of marine cryptophytes with metatranscriptomics. Gordon Research Conference on Marine Microbes, Les Diablerets, Switzerland. June 2022.
- [18] **Alexander H.**, Hu S. Eukaryotic genome discovery: Scalable and automated retrieval of eukaryotic metagenome assembled genomes (MAGs) from a global-scale dataset. Ocean Sciences, San Diego, CA. February 2020.
- [17] Blum L, Pachiadaki M, **Alexander H.** Microbial drivers of nitrogen metabolism: Searching Tara Oceans metagenomes. Ocean Sciences, San Diego, CA. February 2020.
- [16] **Alexander H.**, Phillips J, Thomas M, Chisholm C, Craft K, Galindo V, Neveu M, Laney S, Karenz D, Manahan D. Antarctic Biology Training II: Automatic image classification and colony morphology of *Phaeocystis antarctica*. Polar Marine Science GRC, Lucca, Italy. March 2019.
- [15] **Alexander H.**, Brown CT. Reference- and assembly-independent, scalable discovery of shared content between metagenomic datasets. Ocean Sciences, Portland, OR. February 2018.

- [14] **Alexander H**, Durkin C, Dyhrman ST. Combining *in situ* and culture-based 'omic and biogeochemical measures to identify the physiological ecology of a blooming diatom in the Amazon River Plume. Ocean Sciences, New Orleans, LA. February 2016.
- [13] Kujawinski E, Longnecker K, **Alexander H**, Dyhrman S, Jenkins B, Rynearson T. Multi-omics profiling of phytoplankton community metabolism: linking metatranscriptomics and metabolomics to elucidate phytoplankton physiology in a model coastal system. Ocean Sciences, New Orleans, LA. February 2016.
- [12] Rosengard SZ, **Alexander H**, Cramer C. SUBMERGE! Bringing the ocean closer to New York City. Ocean Sciences, New Orleans, LA. February 2016.
- [11] **Alexander H**, Dyhrman ST. Nutrient pulses uniquely drive physiological ecology of cosmopolitan phytoplankton strains. A New Age of Discovery for Aquatic Microeukaryotes, Heidelberg, Germany. January 2016.
- [10] **Alexander H**, Rouco M, Haley ST, Wilson ST, Karl DM, Dyhrman ST. Functional group-specific traits drive phytoplankton dynamics in the oligotrophic ocean. Trait-based Approaches to Ocean Life, Waterville, NH. October 2015.
- [9] **Alexander H**, Jenkins BD, Rynearson TA, Dyhrman ST. Metatranscriptome analyses indicate resource partitioning between diatoms in the field. The Molecular Life of Diatoms, Seattle, WA. July 2015.
- [8] **Alexander H**, Rouco M, Haley ST, Dyhrman ST. Eukaryotic metatranscriptome profiling identifies the unique response of phytoplankton functional groups to deep water upwelling at Station ALOHA. ASLO, Granada, Spain. February 2015.
- [7] **Alexander H**. Sixty years of Sverdrup. Wellesley College, Wellesley, MA. June 2014. *Invited talk*.
- [6] **Alexander H**, Jenkins BD, Rynearson TA, Dyhrman ST. Eukaryotic metatranscriptomics reveals niche differentiation between two diatoms in Narragansett Bay,. Marine Microbes Gordon Research Conference, Waltham, MA. June 2014.
- [5] **Alexander H**, Rouco M, Haley ST, Dyhrman ST. Eukaryotic metatranscriptomics illuminates physiological response of phytoplankton to nutrient pulses at Station ALOHA. Ocean Carbon and Biogeochemistry Summer Workshop, Woods Hole, MA. July 2013.
- [4] **Alexander H**, Jenkins B, Rynearson T, Saito M, Mercier M, Dyhrman S. Identifying reference genes with stable expression from high throughput sequence data. ASLO, New Orleans, LA. February 2013.
- [3] **Alexander H**, Dyhrman S. Assessing patterns in expression from transcriptome data. Town Hall: Marine Microbial Transcriptome Project, ASLO, New Orleans, LA. February 2013. *Invited talk*.
- [2] **Alexander H**, Monier A, McRose D, Wilcox H, Worden A. Prasinophyte phylogenetic characterization along a transect from Monterey Bay to oligotrophic waters. Rhulman Conference, Wellesley, MA. April 2010.
- [1] **Alexander H**, Monier A, McRose D, Wilcox H, Worden A. Prasino phytae phylogenetic characterization along a transect from Monterey Bay to oligotrophic waters and application to 454-TAG sequence analysis. Ocean Sciences, Portland, OR. February 2010.

## SUPERVISION AT WHOI

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### **MIT-WHOI Joint Program Graduate Students**

**Miah Manning**, June 2023-present.

**Jo Hickman**, NSF Graduate Fellow, June 2023-present.

**Arianna Krinos, PhD**, co-advised with Mick Follows, Computational Science Graduate Fellowship, 2019-2024.

### **WHOI Postdoctoral Scholars**

**Christine Palermo**, July 2023- January 2025, co-advised with Mike Brosnahan.

**Margaret Mars Brisbin**, November 2020-August 2023, co-advised with Mak Saito, WHOI Postdoctoral Scholar and Simons Foundation Postdoctoral Fellow in Marine Microbial Ecology.

### **Other Students**

**Cecilia Dapino**, Summer Student Fellow (SSF), Summer 2025

**Abigail McGarrigle**, Community College Intern (WHOI CC-Crew program), Summer 2024

**Michiel Perneel**, Guest Student, PhD Student at Flanders Marine Institute, 2024- present

**Alese Schofield**, Community College Intern (WHOI CC-CREW program), Summer 2022

**Patrick White**, Guest Student, MSc Student at University of Alberta, 2021-2023

**Celeste Nobrega**, Guest Student, Summer 2021

**Kevin Rice**, Guest Student, Summer 2021

**Laura Blum**, Summer Student Fellow (SSF), Summer 2019

### **Thesis Committees**

**Fadime Stemmerer**, MIT-WHOI Joint Program (JP), Thesis Committee member, 2025-present

**Emily Burdige**, MIT-WHOI Joint Program (JP), Thesis Committee member, 2025-present

**Mallory Kastner**, MIT-WHOI Joint Program (JP), Thesis Committee member, 2025-present

**Avery Fulford**, MIT-WHOI Joint Program (JP), Thesis Committee member, 2024-present

**Serena Sung-Clarke**, MIT-WHOI Joint Program (JP), Thesis Committee member, 2021-present

**Annika Gomez**, MIT Microbiology Program, Thesis Committee member, 2022-2024

**Max Jahns**, MIT-WHOI JP, Thesis Committee member, 2021-2025

**David Geller-McGrath**, MIT-WHOI JP, Thesis Committee member , 2019-2024

**Cynthia Becker**, MIT-WHOI JP, Thesis Committee member, 2018-2023

### **Technical Staff**

**Rayna Hamilton**, Research Assistant III, 2023-present

**Sara Shapiro**, Research Assistant II, 2021-present

## **EDUCATIONAL ACTIVITIES**

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**Instructor**, 7.470 Biological Oceanography, MIT-WHOI Joint Program *Spring 2025-present*  
Capstone course in Biological Oceanography in the MIT-WHOI Joint Program. Taught every year in the spring.

**Instructor**, 12.756 Environmental Bioinformatics, MIT-WHOI Joint Program *Fall 2019-present*  
Co-created and instructed 12-credit graduate course on environmental and non-model bioinformatic approaches with M. Pachiadaki and C. Tepolt. Taught in the fall in alternating years.

**Instructor**, Software Carpentry, Woods Hole Oceanographic Institution *June 2025*  
Organized and taught Software Carpentry course for WHOI SSFs and incoming JP students, teaching introductory UNIX shell scripting and Python programming.

**Instructor**, Marine Biological Laboratory (MBL) Physiology Course, Marine Biological Laboratory *June 2021*  
Organized and taught an introduction to bioinformatics for the MBL Physiology course with a focus on transcriptomics and phylogenetics.

**Instructor**, Software Carpentry, Woods Hole Oceanographic Institution *June 2021*  
Organized and taught Software Carpentry course for WHOI SSFs and incoming JP students, teaching introductory UNIX shell scripting and Python programming.

<b>Instructor</b> , Software Carpentry, Woods Hole Oceanographic Institution	<i>June 2020</i>
Organized and taught Software Carpentry course for WHOI SSFs and incoming JP students, teaching introductory UNIX shell scripting, Python programming, and Git versioning.	
<b>Lead Instructor</b> , Environmental Metagenomics Workshop, DIBSI	<i>July 2017</i>
Organized and taught workshop on environmental metagenomic analysis and interpretation.	
<b>Instructor</b> , Metagenomics Workshop, University of California, Santa Cruz	<i>April 2017</i>
Taught workshop on environmental metagenomic analysis and interpretation.	
<b>Instructor</b> , Metagenomics Workshop, Scripps Institute of Oceanography	<i>September 2016</i>
Taught workshop on environmental metagenomic analysis and interpretation.	
<b>Instructor</b> , Software Carpentry, Woods Hole Oceanographic Institution	<i>September 2015</i>
Organized and taught Software Carpentry course at WHOI, teaching introductory UNIX shell scripting, Python programming, and Git versioning.	
<b>Teaching Assistant</b> , Biological Oceanography, MIT-WHOI Joint Program	<i>Spring 2014</i>
Conducted recitation sections, wrote and graded tests, problem sets, and daily assignments, advised professors on student performance.	
<b>Writing Tutor</b> , Pforzheimer Learning and Teaching Center, Wellesley College	<i>2007-2010</i>
Peer tutor trained to assist in all aspects of the writing process—specialized in writing for the sciences and social sciences.	
<b>Math Tutor and Grader</b> , Mathematics Department, Wellesley College	<i>2009-2010</i>
Grader for multivariable calculus and number theory. Tutor and assistant for number theory.	

## PROFESSIONAL ACTIVITIES

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### *Woods Hole Oceanographic Institution*

<b>Co-Chair</b> , High Performance Computing Advisory Committee (HPC AC)	<i>2019-present</i>
<b>Member</b> , Biology Hiring Committee	<i>2023-present</i>
<b>Member</b> , Scientific Staff Executive Committee (SciSEC)	<i>2019-2022</i>
<b>Member</b> , Biology Chair Search Committee	<i>2019</i>
<b>Member</b> , HPC AC	<i>2018-present</i>

### *Outside WHOI*

<b>Co-organizer</b> , Meta-EukOmics OCB Working Group	<i>2024-present</i>
<b>Co-chair</b> , BioGeoSCAPES Webinar Planning Committee	<i>2022-present</i>
<b>AccelNet Organzier</b> , BioGeoSCAPES Program	<i>2022-present</i>
<b>Member</b> , Biological & Chemical Oceanography Data Management Office (BCO-DMO) Strategic Planning Committee	<i>2019-2025</i>
<b>Session Convener, ASLO Meeting</b> , Co-chair of session titled “Molecular Insights into Adaptive Microbial Physiology” at ASLO Meeting, Honolulu, HI.	<i>2017</i>
<b>Session Convener, SciPy</b> , Co-chair of mini-symposium on "Computational Reproducibility" at SciPy, Austin, TX.	<i>2016</i>

### *Professional Development and Workshop Participation*

<b>Participant</b> , International BioGeoSCAPES science planning workshop , Woods Hole, MA.	<i>2023</i>
<b>Participant</b> , UNOLS Chief Scientist Training Cruise, Honolulu HI.	<i>2019</i>
<b>Invited Participant</b> , BioGeoScapes Scoping Workshop, Woods Hole, MA.	<i>2018</i>
<b>Participant</b> , National Academies Keck Futures Initiative (NAKFI): Discovering the Deep Blue Sea, Irvine, CA.	<i>Fall 2018</i>
<b>Participant</b> , EcoDAS XII: Ecological Dissertations in the Aquatic Sciences, Honolulu, HI.	<i>2016</i>

<b>Invited Participant</b> , Plant Science Research Network Scenario Modeling Workshop, Chevy Chase, MD.	2016
<b>Participant</b> , Ocean Carbon & Biogeochemistry (OCB) Scoping Workshop: Trait-based approaches to ocean life, Waterville Valley, NH.	2015
<b>Participant</b> , OCB Scoping Workshop: Improving predictive biogeochemical models through single cell-based analyses of marine plankton, Boothbay, ME.	2014

**Reviewer** National Science Foundation (NSF), NSF Graduate Research Fellowship Program, National Defense Science and Engineering Graduate Fellowship Program, Moore Foundation, Nature Communications, ISME Journal, Environmental Microbiology, Limnology and Oceanography, Journal of Phycology, Giga-Science

## RESEARCH CRUISES

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<b>UNOLS Chief Scientist Training Cruise; KN19-10, R/V Kilo Moana</b>	14-23 June 2019
<b>Seasonal Trophic Roles of <i>Euphausia superba</i> (STRES); NBP14-10, R/V Palmer</b> Chief Scientist: Edward Durbin	December 2014
<b>Deep Dissolved Organic Matter (DeepDOM); KN210-04, R/V Knorr</b> Chief Scientists: Elizabeth Kujawinski Krista Longnecker	March-May 2013
<b>Hawaii Ocean Experiment (HOE-DYLAN 9); KM12-19, R/V Kilo Moana</b> Chief Scientist: Sam Wilson	August-September 2012
<b>Hawaii Ocean Experiment (HOE-DYLAN 7); KM12-17, R/V Kilo Moana</b> Chief Scientist: Sonya Dyhrman	August 2012

## OUTREACH

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<b>Skype a scientist</b> , Skyped directly with various elementary - high school classrooms to share about research and ocean science.	2018-present
<b>Submerge!</b> , New York City marine science festival. Designed and manned booth of hands-on activities focused on the biological pump (>4000 in attendance).	2014
<b>Women in Ocean Engineering</b> , Volunteered weekends to work with middle school age girls introducing them to engineering concepts in a marine environment.	2014
<b>Falmouth Public School Science Fair</b> , Judged middle and high school science fair.	2011-2013
<b>STEM for Girls at the New England Aquarium</b> , Mentored and volunteered for a program to encourage girls to pursue math and science.	2012

## SKILLS AND CERTIFICATIONS

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<b>Certifications</b> Software Carpentry Instructor Training, PADI SCUBA Open Water
<b>Computation</b> Python (language of choice), Matlab, R, shell script
<b>Languages</b> English, French (conversational)