Michael Maniscalco

973-534-4638 · m.maniscalco534@gmail.com

Summary

Ph.D. level bioinformatician, data manager, biological oceanographer, and microbial ecologist

- 10 years of computational, statistical, and bioinformatic work, including managing and analyzing large chemical and molecular datasets and connecting an array of disparate variables
- 12 years of research experience in microbial ecology
- Collaboration and organizational skills proven through interdisciplinary marine science research with scientists from several universities and institutions
- Excellent oral and written communication skills proven through publications and conference presentations

Education

University of California Santa Barbara (UCSB), Santa Barbara, CA

Ph.D. Marine Science September 2022

Primary advisors: Dr. Kimberlee Thamatrakoln and Dr. Mark Brzezinski

Rutgers University, New Brunswick, NJ

B.S. Biotechnology May 2011

Skills

Computational: python, R, Rmarkdown, plotly, Shiny, perl, jupyter, bash, snakemake, mySQL, sybase, MS Access, Darwin Core Standards, Ecological Metadata Language, next generation sequencing (NGS) processing, metatranscriptomic analyses, SLURM and torque job schedulers, differential gene expression analysis, statistical analysis, MS Excel, MS Powerpoint, MS Word, Jira and Click-Up project management softwares

Technical: Biological oceanography, ecology, genetics, phytoplankton taxonomy, confocal microscopy, flow cytometry, molecular techniques

Positions

Scientific Data Specialist SSAI/NASA Ocean Ecology Lab, Greenbelt, MD April 2023 – present

- Oversaw the timely submission of data from NASA funded Principal Investigators (PIs) and the timely review of data submissions by members of the Ocean Ecology Lab's data QC team.
- Utilized Jira as well as MS teams and in person meetings to track project statuses and communicate with the data QC team about any issues that need to be addressed
- Corresponded with NASA funded scientists about the datasets they chose to or were required to submit to our group to ensure SOPs were followed in data collection, preparation, and submission.
- Updated external facing data submission standards for various oceanographic and remote sensing data types.
- Maintained and created internal perl, python, and R based tools for data QA/QC and data management.
- Created and maintained python based tools for the scientific community to use to convert commonly used filetypes to SeaBASS metadata format
- Reviewed and contributed to code for the development of statistical analysis and visualization of remote sensing data via gitlab
- Converted perl-mySQL and python-mySQL tools to be compatible with a Sybase format SQL database
- Migrated perl based tools to python to modernize the codebase and improve usability.
- Regularly used Jira and gitlab to track, manage, and contribute to data management and programming projects

- Develop and implement approaches or software tools that improve delivery, analysis, of large volumes of structured and unstructured data using SQL, python, and perl

Senior Staff Scientist, Geosyntec Consultants, Santa Barbara, CA Fall 2022 - April 2023

- Executed QA/QC best practices and utilized a variety of data tools to clean, manage, analyze, and visualize datasets within the Information Management Action Group
- Utilized Click-Up project tracking to track work with other members of our group and identify areas work could be shared to level and most efficiently complete tasks
- Organized code produced by myself and others into R packages for internal use within the Geosyntec IMAG group
- Trained others in our subgroup on the use of gitlab version tracking to increase the findability and reproducibility of our code base
- Created, expanded, and followed standard operating procedure documentation to ensure work was reproducible and up to the standards of our group
- Worked with large structured datasets and developed programmatic workflows in R to supplement the use of Microsoft Access

Ecological Data Initiative Fellow, MDI Biological Lab, Bar Harbor, ME *Summer 2022*

- Processed and cleaned an ongoing multidecadal marine monitoring dataset and converted it to Darwin Core Standard format
- Collected extensive metadata using Ecological Metadata Language and deposited the associated dataset with EDI
- Increased the degree that the dataset was Findable, Accessible, Interoperable, and Reproducible by creating a website for the laboratory and RShiny apps for data collection, visualization, and download

Graduate Research Assistant, UCSB, Santa Barbara, CA *2014-2022*

- Assembled, managed, analyzed, and visualized complex datasets
- Perform weekly phytoplankton enumeration for harmful algal bloom monitoring for SCCOOS
- Presented research findings at five national and international conferences
- Collaborated with interdisciplinary teams across several universities as part of integrative field studies
- Investigated the transcriptomic response of natural diatom communities to environmental stressors including identifying molecular indicators for biogeochemical processes
- Developed, troubleshot, and implemented RNAseq assembly, annotation, and analysis pipelines to assess differential abundance of transcripts within marine eukaryotic microbial communities
- Performed phylogenetic analysis of viral and eukaryotic genes

Teaching Assistant, UCSB, Santa Barbara, CA 2018-2022

- Designed weekly lessons for over 80 students in marine ecology, environmental processes, marine microbiology, and introductory biology lab courses
- Assessed students writing and provided regular constructive feedback
- Met with students individually and in groups to review difficult concepts

Research Assistant/Laboratory Manager, Rider University, Ewing, NJ *2011-2014*

- Used standard microbial culturing methods, qPCR, and protein assays to investigate and characterize a suite of archaeal circadian genes
- Managed lab operations and developed standard operating procedure
- Created and supervised projects for several undergraduate mentees

Publications

Maniscalco M, Brzezinski MA, Thamatrakoln K. Diatom molecular strategies for acclimating to variable light in a dynamic coastal regime. In prep.

Maniscalco, M. A., Brzezinski M.A., Krause J.W., Thamatrakoln, K. 2023: "Decoupling silicon metabolism from carbon and nitrogen assimilation poises diatoms to exploit episodic nutrient pulses in a coastal upwelling system," *Frontiers in Marine Science*, doi:10.3389/FMARS.2023.1291294.

Maniscalco M, Brzezinski MA, Lampe RH, Cohen NR, McNair HM, Ellis KA, Brown M, Till CP, Twining BS, Bruland KW, Marchetti A, Thamatrakoln K. 2022. Diminished carbon and nitrate assimilation drives changes in Si stoichiometry in an iron-limited diatom assemblage. ISME Communications, 2: 57. doi: 10.1038/s43705-022-00136-1

Ladd TM, Catlett D, **Maniscalco M,** Kim SM, Kelly RL, John SG, Carlson CA, Iglesias-Rodríguez MD. 2023. Wildfire ash deposition fertilizes coastal marine ecosystems. *Proceedings of the Royal Society B*, doi:10.1098/RSPB.2023.1817

Kranzler CF, Brzezinski MA, Cohen NR, Lampe RH, **Maniscalco M,** Till CP, Mack J, Latham JR, Bruland KW, Twining BS, Marchetti A, Thamatrakoln K. Impaired viral infection and reduced mortality of diatoms in iron-limited oceanic regions. Nat. Geosci. 14: 231–237. doi:10.1038/s41561-021-00711-6

Krause JW, Brzezinski MA, Largier JL, McNair HM, **Maniscalco M.,** Bidle KD, Allen AE, and Thamatrakoln K. 2020. The interaction of physical and biological factors drives phytoplankton spatial distribution in the northern California Current. Limnol. Oceanogr. 65: 1974–1989. doi:10.1002/lno.11431

Kranzler, CF, Krause, JW, Brzezinski, MA, Edwards, BR, Biggs, WP, **Maniscalco, M,** McCrow, JP, Van Mooy, BAS, Bidle, KD, Allen, AE, Thamatrakoln, K. 2021. Silicon limitation facilitates virus infection and mortality of marine diatoms. Nat. Microbiol. 4: 1790–1797. doi:10.1038/s41564-019-0502-x

Maniscalco M, Nannen J, Sodi V, Silver G, Lowrey PL and Bidle KA. 2014. Light-dependent expression of four cryptic archaeal circadian gene homologs. *Front. Microbiol*. 5:79. doi: 10.3389/fmicb.2014.00079

Presentations

Maniscalco. M, McNair, H, Lampe, R.H., Cohen, N.R., Ellis, K., Marchetti, A., Twining, B.S., Till, C.P., Brown, M., Coale, T., Bruland. K.W., Brzezinski, M.A., and Thamatrakoln, K. 2020. Diatom community transcriptomic response to nitrate and silicon limitation. Oral Presentation. Ocean Science Meeting. San Diego, CA.

Maniscalco. M, McNair, H, Lampe, R.H., Cohen, N.R., Ellis, K., Marchetti, A., Twining, B.S., Till, C.P., Brown, M., Coale, T., Bruland. K.W., Brzezinski, M.A., and Thamatrakoln, K. 2018.
The stoichiometry of staying skinny: Increased Si:N uptake without changes in frustule silica content in an iron stressed diatom assemblage. Oral Presentation. Silicamics Meeting. University of Victoria, Victoria, BC, Canada.

Maniscalco. M, McNair, H, Lampe, R.H., Cohen, N.R., Ellis, K., Marchetti, A., Twining, B.S., Till, C.P., Brown, M., Coale, T., Bruland. K.W., Brzezinski, M.A., and Thamatrakoln, K. 2018. Molecular drivers behind increased Si:N uptake in an iron stressed diatom assemblage. Oral Presentation. Ocean Science Meeting. Portland, OR.

Maniscalco, M., Krause J.W., Allen, A.E., Brzezinski, M.A., Thamatrakoln. K. 2015. Building Bridges Between Molecular and Physiological Aspects of Diatom Silicification. Oral Presentation. Molecular Life of Diatoms. Seattle, WA.

Maniscalco, M., Minichino, D. and Bidle, K. 2014. Examining the Role of Four Cryptic Circadian-genes in the Stress Response of *Haloferax volcanii.* Poster presentation. American Society for Microbiology Meeting. Boston, MA.

Synergistic activities

Middle School Science Educator, UCSB-CSEP, Santa Barbara, CA 2014-present

- Facilitate and run hands-on activities with junior high school students and their families to stimulate science interest and conversation through the Family Ultimate Science Exploration (FUSE), Center for Science and Engineering Partnerships (CSEP), UC Santa Barbara, Santa Barbara, CA.

Center for Science & Engineering Partnerships Grad Assistant 2017-2018

- Coordinate and train volunteers to make sure they are prepared and comfortable teaching the lessons each week.

Mentoring Experience

Soren Ibsen, reference/mentor for junior high science fair project	2017
Daniel Shedlovskiy, undergraduate intern	2015-2016
Christopher Marrocco, undergraduate intern	2013-2014
Kaitlyn Uhrick, undergraduate intern	2013-2014
Danielle Minichino, undergraduate intern	2012-2014
Nicole Ritzer, undergraduate intern	2011-2013
Gillian Davis, undergraduate intern	2011-2012
Amanda Walker, undergraduate intern	2011-2012

University and Departmental Service

Diversity, Equity, Inclusion, and Wellness group	2019-present
UCSB Marine Science graduate program DEI working group	2019-present
Marine Science Graduate Program Chair's committee	2016-2021
Program Representative, EEMB Grad Student Advisory Council	2016-2018
Member, Grad Students for Diversity in Science	since 2016
Marine Science Seminar Coordinator	2016-2017

Honors and Awards

Fellowships

Nejat B. Ezal Fellow, University of California	Summer 2019
Eugene Cota-Robles Fellow, University of California	2014-2017
IGPMS/EEMB Block Grant	Summer 2014
IGPMS/EEMB Block Grant	Summer 2015