

# Michael Maniscalco

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## Summary

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Graduate level bioinformatician and microbial molecular ecologist

- 6 years of computational and bioinformatic work, including managing and analyzing large molecular datasets and connecting outputs to an array of disparate variables
- 12 years of research experience in microbial ecology
- Collaboration and organizational skills proven through interdisciplinary work with researchers at several universities and institutions
- Excellent oral and written communication skills proven through publications and conference presentations

## Education

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

**Ph.D. Candidate**, Marine Science

2014-present

*Rutgers University, New Brunswick, NJ*

**B.S. Biotechnology**

May 2011

## Skills

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*Computational:* bash, R, SQL, python, jupyter notebooks, conda, git, next generation sequencing (NGS) processing, denovo transcriptome assembly and annotation, metatranscriptomic analyses, differential gene expression analysis, statistical analysis, excel, powerpoint

*Technical:* confocal microscopy, RNA/DNA extraction, PCR, cloning, biolistic particle transformation, qPCR, electrophoresis gels, protein extraction, quantitative Western blotting, flow cytometry, phytoplankton taxonomy

## Positions

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*Graduate Research Assistant, UCSB, Santa Barbara, CA*

2014-2021

- Assembled, managed, analyzed, and visualized complex datasets
- Presented research findings at five national and international conferences
- Collaborated with interdisciplinary teams in partnerships 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*

2018-2019

- Designed weekly lessons for over 80 students
- Assessed students writing and provided regular constructive feedback
- Met with students individually and in groups to review difficult concepts
- Supervised and aided students working with live specimens in a laboratory setting

*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**

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**Maniscalco M**, Brzezinski MA, McNair HM, Krause JW, Thamtracoln K. Physiological interactions between nitrogen limitation and cooccurring silicon limitation within a Monterey Bay diatom bloom. In prep.

**Maniscalco M**, Brzezinski MA, Lampe RH, Cohen NR, McNair HM, Ellis KA, Brown M, Till CP, Twining BS, Bruland KW, Marchetti A, Thamtracoln K. Diminished carbon and nitrate assimilation drives changes in Si stoichiometry in an iron-limited diatom assemblage. In prep.

Ladd TM, Catlett D, **Maniscalco M**, Kim SM, Kelly RL, John SG, Carlson CA, Iglesias-Rodríguez MD. Wildfire ash deposition fertilizes coastal marine ecosystems. submitted

Kranzler CF, Brzezinski MA, Cohen NR, Lampe RH, **Maniscalco M**, Till CP, Mack J, Latham JR, Bruland KW, Twining BS, Marchetti A, Thamtracoln 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 Thamtracoln 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, Thamtracoln, 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**

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**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 Thamtracoln, 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 Thamtracoln, 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. Silicomics 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 Thamtracoln, 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., Thamtracoln. 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**

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*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**

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### *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