Curriculum Vitae
Daniel R. Utter

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Education

Ph.D. Candidate – Organismic and Evolutionary Biology, Harvard University
Advisor: Dr. Colleen Cavanaugh — Expected graduation: May 2021

B.S. University of South Carolina – Columbia, Marine Science — 2015

Honors, Awards, and Fellowships

Dean's Competitive Fellowship ($14,900)	2017
Harvard Catalyst Reactor Program (NIH UL1TR002541, $49,300)	2016
NSF Graduate Research Program Fellowship Fellow	2016
B.S. *summa cum laude*, University of South Carolina	2015
Outstanding Marine Science Major award, University of South Carolina	2015
Palmetto Fellows Scholarship recipient	2011 – 2015
University of South Carolina President's List	2012 – 2015
Phi Beta Kappa member	2015
National Society of Collegiate Scholars Fellow	2014
Goldwater Scholarship Honorable Mention	2014
Udall Foundation Scholarship Honorable Mention	2014
Magellan Scholar	2013
Appreciated Intern of the Republic of the Marshall Islands Environmental Protection Agency	2012

Research Interests

Microbial ecology and evolution, bioinformatics, microbiomes, biofilm ecology, symbiosis

Publications

Sirias D, **Utter DR**, Gibbs KA. (2020). A family of contact-dependent toxins contain a modular, species-identifying domain. bioRxiv.

Gomaa F, **Utter DR**, Powers C, Beaudoin DJ, Edgcomb VP, Filipsson HL, Hansel CM, Wankel SD, Zhang Y, Bernhard JM. (2020). Multiple integrated metabolic strategies allow two benthic foraminiferan protists to thrive in marine chemocline sediments. Submitted.

Utter DR, Borisy GG, Eren AM, Cavanaugh CM, Mark Welch JL. (2020). Metapangenomics of the oral microbiome provides insights into habitat adaptation and cultivar diversity. *Genome Biology*. In revision. bioRxiv.

Utter DR, He X, Cavanaugh CM, McLean JS, Bor B. (2020). The saccharibacterium TM7x elicits differential responses across its host range. *ISME J*. doi: 10.1038/s41396-020-00736-6.

Stellato G, **Utter DR**, Voorhis A, De Angelis M, Eren AM, Ercolini D. (2017). A few *Psudomonas* oligotypes dominate in the meat and dairy processing environment. *Frontiers in Microbiology.* 8:264. doi: 10.3389/fmicb.2017.00264

Utter DR, Mark Welch JM, Borisy GG. (2016). Individuality, stability, and variability of the plaque microbiome. *Frontiers in Microbiology*. 7:564. doi: 10.3389/fmicb.2016.00564

Mark Welch JM, **Utter DR**, Eren AM, Borisy GG. (2014). Dynamics of tongue microbial communities with single-nucleotide resolution using oligotyping. *Frontiers in Microbiology*. 5:568. doi: 10.3389/fmicb.2014.00568

Invited Talks

Forsyth Institute, 2020. Reverse ecology of the human oral microbiome.

Radcliffe Institute for Advanced Study - Workshop on TARA Oceans, 2018. Metagenome-assembled genomes and TARA Oceans.

Marine Biological Laboratory - Josephine Bay Paul Center, 2018. Insights from metagenome-assembled genomes of the human tongue microbiome.

Forsyth Institute - SJDL group meeting, 2018. Pangenome, metapangenome, and metagenome-assembled genome methods with Anvi'o.

Conference Presentations * presenter

Joan M. Bernhard*, Fatma Gomaa, **Daniel R. Utter**, Chris Powers, Ying Zhang. (2020). Kleptoplasts of the deep-sea benthic foraminifer *N. stella* are transcriptionally active. Ocean Sciences, San Diego. Poster.

Fatma Gomaa***, Daniel R. Utter**, Chris Powers, Ying Zhang, Joan M. Bernhard. (2020). Nitrogen metabolism in the aphotic kleptoplastidic foraminifer *N. stella*: results from metatranscriptomics. Ocean Sciences, San Diego. Oral presentation.

Daniel R. Utter*, Gary G. Borisy, Colleen M. Cavanaugh. (2018). Human oral pangenomes, metapangenomes, and metagenome-assembled genomes. Harvard Microbial Sciences Initiative Symposium, Boston. Poster.

Daniel R. Utter*, Gary G. Borisy, Colleen M. Cavanaugh. (2018). Your tongue harbors more diversity than you thought: Metagenome-assembled genomes and the tongue microbiome. MIT-Harvard Microbiome Symposium, Boston. Oral presentation & poster.

Daniel R. Utter*, Jessica L. Mark Welch, Gary G. Borisy. (2016). Individuality, stability, and variability of the plaque microbiome. American Society for Microbiology – Microbe, Boston. Oral presentation.

Oleg Dmytrenko*****, Frank J. Stewart, **Daniel R. Utter**, Colleen M. Cavanaugh. (2016). Calvin Cycle 2.0. American Society for Microbiology – Microbe, Boston. Oral presentation.

Daniel R. Utter*, Jessica L. Mark Welch, Gary G. Borisy. (2016). Plaque with single-nucleotide resolution: Individuality, stability, and variability. MIT – Harvard Microbiome Symposium on Health & Ventures in the Microbiome, Boston. Poster.

Jessica L. Mark Welch*, **Daniel R. Utter**, A. Murat Eren, Gary G. Borisy. (2014). Dynamics of oral microbial communities with single-nucleotide resolution using oligotyping. 5th American Society for Microbiology Conference on Beneficial Microbes, Washington DC. Poster.

Research Employment

Imaging and Microbial Diversity Lab, Forsyth Institute / Marine Biological Laboratory

Research Assistant 2014 – 2015

- Oligotyping and bioinformatics
- Combinatorial labeling and fluorescence *in situ* hybridization microscopy

PIs: Dr. Gary Borisy, Dr. Jessica Mark Welch

Estuarine Ecology Lab, University of South Carolina - Columbia

Head Laboratory Assistant, led team of 7 undergraduates 2014 – 2015

- Phytoplankton community analysis
- High performance liquid chromatography (HPLC)

PI: Dr. James Pinckney

Belle W. Baruch Institute Wet Laboratory, University of South Carolina – Columbia
Head Laboratory Assistant, led up to 8 undergraduate volunteers 2012 – 2014
Consultation for experimental design, maintenance of experimental aquaria
Supervisors: Teresa Donelan, Dr. James Morris

Teaching Experience

GSD 6241 - Ecologies, Techniques, Technologies (Prof. S. Handel). Teaching Fellow. Fall 2019
Taught an introductory ecology course for landscape architecture students

OEB 277 - Topics in Symbiosis (Prof. Colleen Cavanaugh). Guest lecturer. Spring 2018
Taught an introduction to bacterial molecular biology and sequencing techniques

OEB 24q - Biology of Symbiosis (Prof. Colleen Cavanaugh). Teaching Fellow. Fall 2018
Assisted with weekly laboratory experiences introducing students to symbiotic systems
Accompanied students on field trips to observe lichens, plant-rhizobia symbioses

MCB 121 - The Microbes (Prof. Karine Gibbs). Guest lecturer. Fall 2017
Lectured, designed, and led a group exercise in microbial bioinformatics

MCB 121 - The Microbes (Prof. Karine Gibbs). Teaching Fellow. Fall 2016
Introductory microbiology class for upper-level biology-focused undergraduates
Prepared and led weekly laboratory experiences and lecture supplements (section)
Designed and led a computational lab teaching basic bioinformatic skills

Mentoring Experience

Ecology, Evolution, and Environment REU program at OEB Summer 2019
The E3 program provides a research mentor and a peer mentor to each undergraduate student; I peer mentored a rising senior, focusing on professional and academic development

Summer Undergraduate Intern Summer 2018
Mentored a rising junior on a variety of summer projects involving bioinformatics, bacterial cultivation, and critical reviews of literature, including mentoring on how to read a scientific paper

Cambridge Rindge & Latin School Marine Biology intern program (high school) Spring 2016

Co-mentored a high school student (rising senior) with Dr. Fatma Gomaa working on an independent project using R to assess the ecological effects of hurricane disturbance on Great Barrier Reef diversity

Educational Outreach

LabXchange Workshop (Harvard + Amgen Foundation) 2018

Speaker. Presented oral microbiome research to high school teachers and helped brainstorm and construct multimedia materials for high school science education

USA Science and Engineering Festival 2016

Presenter. Represented Harvard's Microbial Sciences Initiative at the biannual USASEF event in Washington D.C., teaching children and families about beneficial microbes

Education Outreach (Students Engaged in Aquatic Sciences) 2015

Active Participant. Taught interactive lessons about marine science at local elementary/high schools

South Africa Shark Conservancy Outreach 2013

Co-organizer. Led a two-day program teaching children from elementary and middle schools in previously disadvantaged communities about marine ecology

Relevant Internships

Partnership in Education Program 2014

Project title: Dynamics of oral microbial communities
Josephine Bay Paul Center, Marine Biological Laboratory
Mentor: Dr. Jessica Mark Welch

Magellan Research Project 2013

Project title: The effects of color morphology on White Syndrome in Acroporid corals
Award: $2,500
Mentor: Dr. Pamela Morris
University of South Carolina - Columbia

Research Internship 2012

Project title: Anthropogenic impacts on coral health
Mentor: Dr. Dean Jacobson
College of the Marshall Islands

Skills and Certifications

Programming languages:

Proficient in shell (bash), R, Python, Markdown
Familiar with MATLAB, Java, Git, XHTML, CSS

Graphics programs:

Proficient in Inkscape and modo

Familiar with Adobe Photoshop, InDesign, Illustrator

Additional computer programs:

Proficient in Microsoft Office suite, Google Drive, Dropbox

Notable lab skills:

Amplicon and metagenomic/shotgun DNA library preparation and analysis

High performance liquid chromatography (HPLC)

Combinatorial labeling and spectral imaging fluorescence *in situ* hybridization microscopy (CLASI-FISH)

Design, construction, and maintenance of experimental marine aquaria

Certifications:

Federal Communications Commission General Class amateur radio operator

Professional Association of Dive Instructors (PADI) Rescue Diver and Emergency First Responder