

# Christian F. Edwardson

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## EDUCATION:

<b>Ph.D., Microbiology</b> University of Georgia, Athens, GA	2009 – 2015
<b>International Geobiology Course</b> University of Southern California/Colorado School of Mines	2012
<b>B.S., Microbiology &amp; Genetics/Cell Biology/Development</b> University of Minnesota – Twin Cities, Minneapolis, MN	2001 – 2005

## RESEARCH EXPERIENCE:

<b>Postdoctoral Research Associate</b> Aquarium Microbiome Project, Animal Health Department John G. Shedd Aquarium, Chicago, IL	Jun 2016 – Jul 2018
<ul style="list-style-type: none"><li>Analyzed multiple 16S rRNA datasets to understand the microbial community dynamics of animals and habitats in the Shedd Aquarium with a specific focus on the effect of ozone on microbial diversity, and long-term community dynamics in a cetacean habitat.</li><li>Developed and used 16S data analysis workflows in QIIME, QIIME2, DADA2 and phyloseq.</li><li>Advanced skills with ‘omics data analysis in R (RStudio, Bioconductor, ggplot2, vegan) and bioinformatics tools for metagenomics assembly, binning, and taxonomic/functional profiling.</li></ul>	

<b>Postdoctoral Research Associate</b> <b>Graduate Research Assistant</b> Department of Marine Sciences University of Georgia, Athens, GA Advisor: Dr. James T. Hollibaugh <i>Dissertation Title:</i> “Microbially mediated transformation of arsenic and sulfur compounds in Mono Lake, California, USA”	Jan 2016 – May 2016 2009 – 2015
<ul style="list-style-type: none"><li>Performed anaerobic enrichment culture growth experiments to understand the role of bacteria in thioarsenic compound transformation.</li><li>Used microbial community sequence analyses (16S rRNA, metagenomics, metatranscriptomics) to understand depth distribution of sulfur and arsenic cycling along a biogeochemical depth gradient in Mono Lake, CA.</li><li>Developed skills in molecular biology (nucleic acid extraction, PCR, cloning, ‘omics library prep) and bioinformatics (UNIX shell scripting, research computing cluster, basic Python and Perl software installation, use, and troubleshooting).</li></ul>	

<b>Microbiology Laboratory Analyst</b> Pace Analytical Life Sciences/P3 Scientific, Oakdale, MN	2005 – 2009
<ul style="list-style-type: none"><li>Performed FDA-regulated standardized classical microbiological methods with comprehensive documentation and reporting for a large variety of pharmaceutical and medical device clients and products.</li></ul>	

- Traveled to various pharmaceutical and medical device manufacturers to perform environmental monitoring of microbes in their facilities.
- Wrote and revised standard operating procedures to perform standardized microbiological methods and developed new methods for testing unique products.

## **PUBLICATIONS:**

Bolyen E, Rideout JR, Dillon MR, Bokulich NA, Abnet C, Al-Ghalith GA [and 102 others including **Edwardson, C.F.**]. QIIME 2: Reproducible, interactive, scalable, and extensible microbiome data science. 2018. PeerJ Preprints (submitted to Nature Biotechnology). doi: 10.7287/peerj.preprints.27295v2

Cardona, C., Lax, S., Larsen, P., Stephens, B. Hampton-Marcell J., **Edwardson, C.**, Henry, C., Van Bonn, B, Gilbert, J. (2018). Environmental sources of bacteria differentially influence host-associated microbial dynamics. *mSystems*  
doi: 10.1128/mSystems.00052-18

**Edwardson, C.F.**, Hollibaugh, J.T. (2018) Composition and Activity of Microbial Communities Along the Redox Gradient of an Alkaline, Hypersaline, Lake. *Frontiers in Microbiology*. doi:10.3389/fmicb.2018.00014

**Edwardson, C.F.**, Hollibaugh J.T. (2017). Metatranscriptomic analysis of prokaryotic communities active in sulfur and arsenic cycling in Mono Lake, California, USA. *ISME J.* doi: 10.1038/ismej.2017.80

**Edwardson, C.F.**, Planer-Friedrich, B., Hollibaugh, J.T. (2014). Transformation of monothioarsenate by haloalkaliphilic, anoxygenic photosynthetic purple sulfur bacteria. *FEMS Microbiology Ecology*. doi: 10.1111/1574-6941.12440

Huang Q., Briggs B.R., Dong H., Jiang H., Wu G., **Edwardson C.**, De Vlaminc I., Quake S (2014). Taxonomic and Functional Diversity Provides Insight into Microbial Pathways and Stress Responses in the Saline Qinghai Lake, China. *PLoS One*. doi: 10.1371/journal.pone.0111681

## **ORAL PRESENTATIONS:**

**Edwardson, C.F.** “Managing Aquarium Microbiomes.” Lincoln Park Zoo, Chicago, IL (invited). October 2017

**Edwardson, C.F.**, F. Oliaro, A. LaPointe, W. Van Bonn, A. Kent. “Long-term microbial community analysis of the Shedd Aquarium cetacean habitat.” 2017 Microbiome Center Research Symposium. University of Chicago, Chicago, IL. April 2017

**Edwardson, C.F.** “The Shedd Aquarium Microbiome Project.” Department of Biology Colloquium, Illinois Institute of Technology. January 2017.

**Edwardson, C.F.,** J.T Hollibaugh. “Metatranscriptomic Analysis of Bacterial Arsenic and Sulfur Cycling Along a Redox Gradient in Alkaline, Hypersaline, Mono Lake, CA.” 2<sup>nd</sup> Annual Southeastern Biogeochemistry Symposium, Atlanta, GA. March 2015.

**Edwardson, C.F.,** J.T Hollibaugh. “Metatranscriptomic Analysis of Bacterial Arsenic and Sulfur Cycling Along a Redox Gradient in Alkaline, Hypersaline, Mono Lake, CA.” ASLO 2015 Aquatic Sciences Meeting, Granada, Spain. February 2015.

**Edwardson C.** “The Role of Prokaryotes in Thioarsenic Transformation.” University of Georgia Microbiology Department Student Seminar. May 2012.

#### **POSTERS:**

**Edwardson, C.F.,** F. Oliaro, A. LaPointe, W. Van Bonn, A. Kent. “Drivers of Microbial Community Dynamics in a Managed Artificial Seawater System.” 2018 Ocean Sciences Meeting. Portland, OR. February 2018.

**Edwardson, C.F.,** B. Planer-Friedrich, J.T. Hollibaugh. “Microbial Transformation of Thioarsenic Compounds by Haloalkaliphilic Phototrophic Sulfur Oxidizing Bacteria.” 1<sup>st</sup> Annual Southeastern Biogeochemistry Symposium. Atlanta, GA. April 2014.

**Edwardson, C.,** and J.T. Hollibaugh. “Transformation of Thioarsenic Compounds by an *Ectothiorhodospira*-Dominated Phototrophic Enrichment Culture from Mono Lake, CA, USA.” 12th International Conference on the Biogeochemistry of Trace Elements (ICOBTE). Athens, GA. June 2013.

**Edwardson, C.,** and J.T. Hollibaugh. “Phylogenetic and Metatranscriptomic Insights into the Microbial Diversity of Mono Lake, CA.” ASLO 2013 Aquatic Sciences Meeting, New Orleans, LA. February 2013.

**Edwardson, C.,** L. Schneider, B. Planer-Friedrich, J.T. Hollibaugh, “Transformation of Thioarsenic Compounds by Bacteria from Mono Lake, CA.” UGA Graduate Students and Postdocs in Science 4<sup>th</sup> Annual Research Day, May 2012.

**Edwardson, C.,** and J.T. Hollibaugh. “Microbial Thioarsenic Compound Transformation in Mono Lake, CA.” Extremophiles: Key to Bioenergy? Symposium, University of Georgia, September 2011.

#### **AWARDS AND HONORS:**

Travel Award for ASLO Aquatic Sciences 2015, UGA OVPD and Marine Sciences Department (\$1700)	Nov 2014
Poster Award, ICOBTE 2013 (\$250)	June 2013
Travel Award for ASLO Aquatic Sciences 2013, UGA Grad School and Marine Science Department (\$750)	Feb 2013

## **TEACHING EXPERIENCE:**

### **Teaching Assistant - University of Georgia**

Biology Laboratory for Non-Majors (BIOL1103L)  
Introductory Microbiology Lecture TA (MIBO3500)  
Microbiology Laboratory for Majors (MIBO3510L)  
Applied Microbiology Laboratory (MIBO3000L)

Fall 2015  
Spring 2015  
Fall 2012, Fall 2014  
Spring 2012

## **PROFESSIONAL SERVICE/TRAINING:**

Peer Reviewer: FEMS Microbiology Ecology, Environmental  
Microbiology, ISME Journal, Frontiers in Microbiology  
UGA Microbiology Graduate Student Association – Treasurer  
Graduate Teaching & Career Development Course  
University of Georgia (GRSC7770)

2014 – Present  
2011 – 2012  
Fall 2009

## **MENTORING EXPERIENCE:**

ASLO Aquatic Sciences Meeting Mentor  
Georgia Junior Science & Humanities Symposium – Judge  
Georgia Science and Engineering Fair – Judge  
College of Biological Sciences Mentor Program -  
University of Minnesota

2015  
2011, 2013 – 2014  
2011, 2013  
2008 – 2009

## **PROFESSIONAL MEMBERSHIPS:**

Ecological Society of America  
Assn. for the Sciences of Limnology and Oceanography (ASLO)  
International Society for Microbial Ecology (ISME)  
American Association for the Advancement of Science  
American Society for Microbiology

2017 – Present  
2012 – Present  
2010, 2016 – Present  
2010 – 2015  
2006 – Present