Julia M. McGonigle, PhD

Bioinformatician at Bigelow Laboratory for Ocean Sciences
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EDUCATION

PhD Biology, University of Utah, 2020
B.S *Cum Laude* Botany with Botanical Research Option, Oregon State University, 2011

SKILLS

- *Programming:* Unix, Python (Pandas, NumPy, SciPy), R (tidyverse)
- *Modeling:* principal component analysis (PCA), k-means clustering
- *Data Visualization:* Matplotlib, R, Excel

RESEARCH EXPERIENCE

Bigelow Laboratory for Ocean Sciences 2020 - *current*
NASA Postdoctoral Fellow Advisor: Dr. Beth Orcutt
Currently using single-cell bioinformatic approaches to process large genomic datasets and investigate genomic features of active microbes inhabiting the Lost City hydrothermal vent field.

University of Utah 2014 - 2020
Graduate Research Assistant Advisor: Dr. William Brazelton
Completed first large-scale genomic study of microbes at the Bonneville Salt Flats and identified key metabolic processes in microbes inhabiting the Lost City hydrothermal vent field.
Graduate Dissertation: *Life in Endolithic Environments: Ecology of the Bonneville Salt Flats and Lost City Hydrothermal Vent Field*

INDUSTRY EXPERIENCE

Optimization Chemist, Branan Medical Corporation. Irvine, CA. 2012-2014
Optimized antibody/antigen combinations for large scale manufacturing of lateral flow assay type multi-panel drug screening devices in an FDA regulated environment.

QC Microbiology Technician, Gilead Sciences. San Dimas, CA. 2011-2012
Conducted weekly review of cleanroom testing data to ensure all results met FDA cleanroom standards. Performed microbial and small particulate testing of ISO 5 to 8 cleanrooms, including adhering to all SOPs and aseptic gowning requirements.

SCIENTIFIC PUBLICATIONS

McGonigle, J.M., Bernau, J.A., Bowen, B.B., Brazelton W.J., **2021**. Metabolic Potential of Microbial Communities in the Hypersaline Sediments of the Bonneville Salt Flats, *in review with Astrobiology.*

McGonigle, J.M., Lang, Susan Q., Brazelton, W.J., **2020**. Genomic Evidence for Formate Metabolism by Chloroflexi as the Key to Unlocking Deep Carbon in Lost City Microbial Ecosystems. *AEM* 86:8

McGonigle, J.M., Rapf, R. J., Motamedi, S., **2019.** The Astrobiology Graduate Conference: A 15 Year Retrospective. *ACS Earth and Space Chemistry* 3, 2675-2677

McGonigle, J.M., Bernau, J.A., Bowen, B.B., Brazelton W.J., **2019**. Robust Archaeal and Bacterial Communities Inhabit Shallow Subsurface Sediments of the Bonneville Salt Flats, *mSphere* 4:4 e00378-19

Lang, S. Q., Früh-Green, G. L., Bernasconi, S. M., Brazelton, W. J., Schrenk, M. O., **McGonigle**, **J. M., 2018**. Deeply-sourced Formate Fuels Sulfate Reducers but not Methanogens at Lost City Hydrothermal Field, *Scientific Reports* 8:755

McGonigle, J., Amsberry, K., Brickner, A., Brown, J., Currin, R., Groberg, M., Johnson, A., Meyers, S., Reuss‐Schmidt, K., Thorley, L., Wilson, C., Woolverton, R., and Meinke, R., **2012**. Cultivation and Propagation Studies for Large‐Flowered Wooly Meadowfoam—Year 2: Seed Bulking (OR‐EP‐2, Segment 21). Submitted by the Oregon Department of Agriculture (ODA), Plant Conservation Biology Program to U.S. Fish and Wildlife Service, Region One.

SERVICE AND PUBLIC ENGAGEMENT

Co-Organizer Astrobiology Graduate Student Conference 2017 - 2019

Conference organized by and for early career scientists, funded by NASA Astrobiology Institute and external sponsors

2019 - **Conference Chair:** managed and held budget of ~$130,000 and logistics for 75 participants, lead for all organizational committees

2017 - Co-lead for outreach event and Session Chair

Co-Organizer Proposal Writing Retreat Workshop 2017 - 2019

Intensive grant-writing workshop held the weekend prior to Astrobiology Graduate Student Conference

Organized participant logistics (~35 people) with budget of $9,900 (2017), $14,000 (2018), and $18,000 (2019) and assisted in running workshop

Invited Speaker: Aliens Among Us, Aliens Before Us, Science on Tap. SLC, UT. February 2020

Invited Author: McGonigle, J. Searching for Life Underneath the Lost City. UA Magazine August 2019

Interview by Elaine Clark, KUER 90.1 NPR Utah. Gunky, Snotty Extremophiles Could Point To Life On Moon Of Jupiter. August 19, 2019

Science Communication Fellowship, Natural History Museum of Utah. 2018

Scientist in the Spotlight, Salt Lake City, UT. December & April 2018

Presenter for Science Cafe, Salt Lake City, UT. April 2018

STEM Ambassador Program, University of Utah. SLC, UT. 2016 - 2017

Presenter for Fermentation 101 at Harmons Grocery Store. SLC, UT. August 2016 & April 2017

Presenter for "An Out of This World" dinner at The Leonardo Museum. SLC, UT. March 2017

SELECTED RECENT PRESENTATIONS (13 Total from 2010 - Present: 5 Oral, 8 Poster)

2020 "Formate metabolism by Chloroflexi is key in unlocking deep carbon for the Lost City chimney ecosystem." McGonigle, JM. *C-DEBI Networked Speaker Series*. Online. November 5 (***Oral***)

2019 "Metabolic Strategies of the Dense Biofilms Inhabiting the Lost City Hydrothermal Vent Field." McGonigle, J.M., and Brazelton, W.J. *Fourth Microbial Single Cell Genomics Workshop*, Boothbay, ME, September 23 (***Oral***)