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Melody R. Lindsay
Curriculum Vitae

Bigelow Laboratory for Ocean Sciences
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Research Experience:

- 2019 – current Postdoctoral Researcher, Bigelow Laboratory for Ocean Sciences
Advisors: Dr. Beth Orcutt; Dr. Dave Emerson
- 2013 – 2019 Graduate Research Assistant, Montana State University
NASA Earth and Space Science Fellow
Advisor: Dr. Eric S. Boyd
- 2011 – 2013 Undergraduate Researcher, Princeton University
Advisor: Dr. Tullis C. Onstott
- 2010 REU, NASA Astrobiology Institute at the University of Hawaii
Advisor: Dr. Jacqueline Keane
- 2009 – 2010 Undergraduate Researcher, Princeton University/Bermuda Institute of
Ocean Sciences
Advisor: Dr. Eileen Zerba

Education:

- 2013 – 2019 Ph.D., Microbiology, Montana State University, Bozeman, MT
Thesis: Geomicrobiology of Hydrogen in Yellowstone Hot Springs
- 2009 – 2013 A.B., Ecology and Evolutionary Biology; Certificate in Musical
Performance; Princeton University, Princeton, NJ
Thesis: The Microbes of Moria: Characterization of active microbial
members in the subsurface environment of the Witwatersrand Basin

Publications (In Review/Published):

15. **M.R. Lindsay**, D.R. Colman, M.J. Amenabar, K.E. Fristad, K.M. Fecteau, R.V. Debes, J.R. Spear, E.L. Shock, T.M. Hoehler, E.S. Boyd. Subsurface Source and Biological Fate of Hydrogen in Yellowstone Hot Springs. *In Review*.
14. **M.R. Lindsay** and E.S. Boyd. Microbialites of Great Salt Lake. *Accepted Book Chapter*.
13. D.R. Colman, **M.R. Lindsay**, M.J. Amenabar, E.S. Boyd. The Intersection of Geology, Geochemistry, and Microbiology in Continental Hydrothermal Systems. *In Review*.
12. D.R. Colman, **M.R. Lindsay**, M.J. Amenabar, M.C. Fernandes Martins, E.R. Roden, E.S. Boyd. A potential origin for sulfate reduction in moderately acidic sulfur-rich hydrothermal environments. *In Review*.
11. E.C. Dunham, E.M. Fones, **M.R. Lindsay**, C. Steuer, N. Fox, M. Willis, A. Walsh, D.R. Colman, B.K. Baxter, D. Mogk, D. Bowen, D. Lageson, E.S. Boyd. Influence of salinity on

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the potential for dolomite formation and biosignature detection in a saline, lacustrine environment. *In Review*.

10. K.M. Fecteau, E.S. Boyd, **M.R. Lindsay**, M.J. Amenabar, K.J. Robinson, R.V. Debes, and E.L. Shock. Phototrophy in Mildly Acidic Hot Springs: Where Eukaryotic and Bacterial Phototrophs Meet at the Limits of Photosynthesis. *In Review*.
9. D.R. Colman, **M.R. Lindsay**, E.S. Boyd. (2019). Mixing of end-member fluids supports hyperdiverse chemosynthetic hydrothermal communities. *Nature Communications*. doi:10.1038/s41467-019-08499-1.
8. **M.R. Lindsay**, R.E. Johnston, B.K. Baxter, E.S. Boyd. (2019). Effects of Salinity on Microbialite-Associated Production in Great Salt Lake, Utah. *Ecology*. 100(3):1-14. doi: 10.1002/ecy.2611.
7. **M.R. Lindsay**, M.J. Amenabar, K.M. Fecteau, R.V. Debes, M.C. Fernandes, K.E. Fristad, H. Xu, T.M. Hoehler, E.L. Shock, and E.S. Boyd. (2018). Subsurface Processes Influence Oxidant Availability and Chemoautotrophic Hydrogen Metabolism in Yellowstone Hot Springs. *Geobiology*. 16:674-692. doi:10.1111/gbi.12308.
6. S. Poudel, E. Dunham, **M.R. Lindsay**, M. Amenabar, E. Fones, D. Colman, E.S. Boyd. (2018). Origin and Evolution of Flavin-Based Electron Bifurcating Enzymes. *Frontiers of Microbiology*. doi: 10.3389/fmicb.2018.01762.
5. R.S. Hindshaw, **M.R. Lindsay**, and E.S. Boyd. (2017). Diversity and abundances of microbial eukaryotes in stream sediments from Svalbard. *Polar Biology*. doi:10.1007/s00300-017-2106-3.
4. M.C.Y. Lau, T.L. Kieft, K. Olukayode, B. Linage-Alvarez, E. van Heerden, **M.R. Lindsay**, C. Magnabosco, W. Wang, J.B. Wiggins, L. Guo, D.H. Perlman, S. Kyin, H.H. Shwe, R.L. Harris, Y. Oh, M.J. Yi, R. Purtschert, G.F. Slater, S. Ono, S. Wei, L. Li, B. Sherwood Lollar, T.C. Onstott. (2016). An oligotrophic deep-subsurface community dependent on syntrophy is dominated by sulfur-driven autotrophic denitrifiers. *Proceedings of the National Academy of Sciences*. 113(49): E7927-E7936.
3. **M.R. Lindsay**, C. Anderson, N. Fox, G. Scofield, J. Allen, E. Anderson, L. Bueter, S. Poudel, K. Sutherland, J. H. Munson-McGee, J. van Norstrand, J. Zhou, J.R. Spear, B.K. Baxter, D. Lageson, and E.S. Boyd. (2017). Microbialite response to an anthropogenic salinity gradient in Great Salt Lake, Utah. *Geobiology*. 15(1):131-145. Chosen for cover image.
2. R.S. Hindshaw, S.Q. Land, **M.R. Lindsay**, and E.S. Boyd. (2016). Origin and temporal variability of unusually low $\delta^{13}\text{C}$ -DOC values in two high Arctic catchments. *Journal of Geophysical Research: Biogeosciences*. 121: 1073-1085.

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1. R.S. Hindshaw, T.H.E. Hinton, E.S. Boyd, **M.R. Lindsay**, and E.T. Tipper. (2015). Influence of glaciation on mechanisms of mineral weathering in two high Arctic catchments. *Chemical Geology*, 420: 37-50.

Other Publications/Products:

M.R. Lindsay, R.E. Johnston, B.K. Baxter, E.S. Boyd. Effects of salinity on microbialite-associated production in Great Salt Lake, Utah: Photo Gallery. *Bulletin of the Ecological Society of America*. April 2019.

M.R. Lindsay. "Great Salt Lake: Productive on Many Levels". *Friends of Great Salt Lake Newsletter*. Summer 2017, volume 25. URL: <https://fogsl.org/news-and-archives/newsletter-archive>.

"Living Rock from the Great Salt Lake". Part of permanent exhibit at the Natural History Museum of Utah. July 2016.

Fellowships, Scholarships and Awards Received:

2016-2019	NASA Earth and Space Science Fellowship – Planetary Science Research
2018	Student Travel Grant – ACA Astrobiology Grand Tour 2018
2017-2018	Doyle W. Stephens Award – Friends of Great Salt Lake
2017	International Society for Subsurface Microbiology Travel Grant
2016-2017	Beverly Ferguson Graduate Student Award – MBI Department
2016	Full funding for the 2016 NASA/ESA International Summer School in Astrobiology
2015	SETI Institute Student Travel Grant (AbSciCon 2015)
2015	TBI Turner Foundation Student Award
2012-2013	Princeton University ODOC Senior Thesis Award
2012	American Geophysical Union Travel Grant
2012	Princeton University EEB Research Grant
2009	Davidson Fellow Laureate Scholarship Award

Research Grants:

Linking hydrogen metabolism with primary production in early Earth analogue mineral-supported ecosystems. NASA Earth and Planetary Sciences Graduate Fellowship: Planetary Sciences. 2016-2019. Co-PI/Graduate Student: Melody Lindsay, PI: Eric Boyd.

Linking Subsurface Geologic Processes and Microbial Diversification. JGI Community Science Program, DOE. 2018. Co-PI: Melody Lindsay, PI: Daniel Colman.

Selected Presentations and Abstracts:

M.R. Lindsay. Influence of salinity on the potential for dolomite formation in Great Salt Lake sediments. Lake Bonneville Geologic Conference, 2018.

M.R. Lindsay, R. Johnston, B.K. Baxter, E.S. Boyd. Effects of Changing Salinity on Microbialite-Associated Primary Producers and Secondary Consumers in Great Salt Lake. Invited talk at the Great Salt Lake Issues Forum 2018 meeting.

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M.R. Lindsay, K.E. Fristad, D.R. Colman, M.J. Amenabar, M.R. Urschel, K.M. Fecteau, R.V. Debes, J.R. Spear, E.L. Shock, T.M. Hoehler, E.S. Boyd. Subsurface Source and Biological Fate of Hydrogen in the Yellowstone Geothermal Complex. Oral presentation at the Gordon Research Seminar and poster presentation at the Conference in Geobiology, 2018.

M.R. Lindsay, K.E. Fristad, D.R. Colman, M.J. Amenabar, M.R. Urschel, K.M. Fecteau, R.V. Debes, J.R. Spear, E.L. Shock, T.M. Hoehler, E.S. Boyd. Hydrogen Sourced from Subsurface Processes Supports a Complex Hot Spring Ecosystem. Oral presentation at ISSM, 2017.

M.D Vanden Berg, **M.R. Lindsay**, E.S. Boyd, T.C. Chidsey Jr., D.E. Eby. The microbialites of Utah's Great Salt Lake: Geology vs. Biology. GSA Annual Meeting 2017.

M.R. Lindsay, K.E. Fristad, M.J. Amenabar, M.R. Urschel, K.M. Fecteau, R.V. Debes, J.R. Spear, T.M. Hoehler, E.L. Shock, E.S. Boyd. Subsurface Source and Biological Fate of Hydrogen in Hot Spring Ecosystems. Oral presentation at AbSciCon 2017 meeting.

D.R. Colman, **M.R. Lindsay**, E.R. Roden, E.S. Boyd. Transitioning Metagenomes into Interactomes in a Chemosynthetic Sulfur-Based Hot Spring Community. AbSciCon 2017.

M.R. Lindsay, B.K. Baxter, E.S. Boyd. Molecular Characterization of Microbialites in Great Salt Lake, Utah. Invited talk at the Great Salt Lake Issues Forum 2016 meeting.

M.R. Lindsay, M.R. Urschel, K.E. Fristad, K.M. Fecteau, E.L. Shock, T.M. Hoehler, E.S. Boyd. Geological Controls on Hydrogen Cycling in Yellowstone National Park Hot Spring Communities. Poster presentation at AbSciCon 2015 meeting.

Lau, M., **Lindsay, M.R.**, Kieft, T., Pullin, M., Hendrickson, S., Simkus, D., Slater, G., Sherwood Lollar, B., Li, L., Lacrampe-Couloume, G., van Heerden, E., Erasmus, M., Borgonie, G., Linage, B., Kuloyo, K., Mailloux, B., Heuer, V., Hinricks, K-U., Maphanga, S. & Onstott, T. Active Carbon Cycling in Deep Subsurface Fracture Environments: Insights from RNA, Lipid, and Isotopic Analyses. 23rd V.M. Goldschmidt Conference. August 2013.

M.R. Lindsay, M.C.Y. Lau, G. Tetteh, L. Snyder, T.L. Kieft, B. Sherwood Lollar, L. Li, S. Maphanga, E. van Heerden and T.C. Onstott (2012). Characterization of active members in C and N cycles in the subsurface environment of the Witwatersrand Basin. Poster presentation at AGU 2012 Fall Meeting.

Teaching Experience:

2018	Co-instructor for BIOM494: Senior Capstone class in Microbiology.
2017	Teaching assistant for BIOM494: Senior Capstone class in Microbiology.
2015	Head Teaching Assistant for BIOM360: General Microbiology. Department of Microbiology and Immunology, Montana State University – Overall Instructor Rating: 4.95/5.00.
2014	Co-Teaching Assistant for BIOM360: General Microbiology. Department of Microbiology and Immunology, Montana State University – Overall Instructor Rating: 4.88/5.00.

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2014 MAP (Montana Apprenticeship Program). Mentored Native American High School Students in a summer immersion program which aims to increase the number of Native American and other underrepresented high school students entering the STEM fields.

Students Mentored:

2018-2019	Maria Michelotti B.S. student at Montana State University
2017-2018	Rachel Johnston B.S. student at Montana State University
2017-2018	Evan Bilbrey B.S. student at Montana State University
2016-2018	Maria Clara Fernandes Martins B.S. student at Montana State University
2014-2016	C. Andrew Dyson B.S. student at Montana State University
2015	Kevin Glover B.S. student at Whitworth University
2015	Marjorie Shinn B.S. student at Montana State University
2014-2015	Cade Comstock B.S. student at Montana State University
2014	Zorah Maserati Masters student from Germany
2014	Joshua Thiel B.S. student at Westminster College
2014	Heather Rosler High School Student from Flathead Reservation
2013-2015	Jayne Feyhl-Buska Presidential Scholar at Montana State University