JULIE A. HUBER

Associate Scientist with Tenure
Marine Chemistry and Geochemistry
Woods Hole Oceanographic Institution

266 Woods Hole Road, MS 51
Woods Hole, MA 02543
jhuber@whoi.edu
508-289-2556

EDUCATION

2004	Ph.D., University of Washington, Biological Oceanography Certificate in Astrobiology, University of Washington
2002	M.S., University of Washington, Biological Oceanography
1998	B.S., Eckerd College, Marine Science (Biology)

PROFESSIONAL EXPERIENCE

2017-present	Associate Scientist with Tenure, Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution
2017-present	MBL Fellow
2014-2017	Associate Professor (MBL), Ecology & Evolutionary Biology, Brown University
2013-2017	Associate Scientist, Marine Biological Laboratory
2013-2016	Associate Director, Josephine Bay Paul Center, Marine Biological Laboratory
2013-present	Associate Director, Executive Committee Member, NSF Science and Technology Center for Dark Energy Biopshere Investigations (C-DEBI)
2008-2014	Assistant Professor (MBL), Ecology & Evolutionary Biology, Brown University
2007-2012	Assistant Scientist, Marine Biological Laboratory
2005-2006	NRC/NASA Postdoctoral Fellow, Marine Biological Laboratory

HONORS and AWARDS

2017	Kavli Fellow
2010	Neal Cornell Career Development Award, MBL
2008	NSF RIDGE 2000 Distinguished Lecturer
2007	L'Oréal USA Fellowship for Women In Science
2004	National Research Council Research Associateship Award, NASA Astrobiology
2003	Dean A. McManus Excellence in Teaching Award, University of Washington
2002	First Place, NASA Astrobiology Science Conference Student Poster Award
2002-2004	NSF IGERT Fellowship in Astrobiology, University of Washington
1999	Totem Award (Puget Sound Chapter of the Public Relations Society of America) and Communicator of Excellence Award (Washington Press Association) for *Life Deep Down: Scientists explore undersea volcanic vents* on ABCNews.com
1998-2001	National Science Foundation Graduate Research Fellowship
1998	Sigma Xi Research Society
1997-1998	Ford Foundation Scholar
1997	Omicron Delta Kappa Honors Society
1996-1998	NASA/Joint University Venture Scholar

PROFESSIONAL AFFILIATIONS

American Geophysical Union, Member
American Society of Microbiology, Member

RESEARCH INTERESTS

- Marine microbiology
- Marine biogeochemistry
- Subeafloor biosphere
- Deep-sea hydrothermal vents
- Microbial genomics
- Deep-sea instrumentation
- Astrobiology

PROFESSIONAL ACTIVITIES: EXTERNAL TO WHOI, EDITORIAL & ADVISORY

2018-	Member, Editorial Board for *ISME Journal*
2018	Invited Advisor, "Science Ideation" in support of OceanX, Dalio Ocean Initiative
2016- present	Member, International Scientific Advisory Board at the Max Plank Institute for Marine Microbiology, Bremen, Germany
2016-2018	Editor, *Environmental Microbiology and Environmental Microbiology Reports*
2015-present	Senior Editor, *mSystems*
2015	Science Advisory Council, 2015 Europa Lander study
2015	Editorial Board, *Environmental Microbiology and Environmental Microbiology Reports*
2015	Invited review panel member, NSF Postdoctoral Fellowship in Ocean Sciences
2014	Scientific Advisory Group to Schmidt Ocean Institute for N11K vehicle
2011-2013	Proposal review committee, Deep Carbon Observatory, Deep Life Community
2012	Invited review panel member, NSF Biological Oceanography
2010-2011	Member, The National Academies National Research Council committee on "Review of the Scientific Accomplishments and Assessment of the Potential for Future Transformative Discoveries with U.S. Supported Scientific Ocean Drilling"
2010-present	Invited reviewer, L'Oréal USA Fellowship for Women In Science Program
2009-2013	Associate Member, SCOR/InterRidge Working Group "Hydrothermal energy transfer and its impact on ocean carbon cycles"
2009-2012	Steering Committee, NSF *Deep Biosphere* Research Coordination Network
2009	Advisor, Alfred P. Sloan Foundation, Deep Carbon Observatory
2008, 2012	Invited review panel member, NSF Biological Oceanography
2007	Invited review panel member, NASA Exobiology
2004-present	Ad-hoc reviewer for NSF, IODP, NASA, NOAA, NURP, *Applied and Environmental Microbiology*, *Deep Sea Research*, *Environmental Microbiology*, *Estuarine Coastal and Shelf Science*, *FEMS Microbiology Ecology*, *Frontiers in Microbiology*, *Geobiology*, *Geochemistry Geophysics Geosystems*, *Geology*, *Journal of Geophysical Research*, *ISME Journal*, *mBio*, *Microbiology*, *Nature*, *Nature Reviews Microbiology*, *Proceedings of the National Academy of Sciences USA*, *Proceedings of the Royal Society B*, Scientific Reports, and *Science*

PROFESSIONAL ACTIVITIES: EXTERNAL MEETINGS & WORKSHOPS

2018 Invited participant, Workshop on "Subsurface Evolution," Flatiron Institute, New York, NY

2018 Invited participant, Workshop on "Deep Sea Mining Impacts on Microbial Ecosystem Services," Bigelow Laboratory for Ocean Sciences, E Boothbay, ME

2017 Lead PI and Organizer, USSSP Supported Workshop "Drilling into young oceanic crust for subseafloor observations at Axial Seamount," Palisades, NY

2017 Invited participant, 3rd US-Israel Kavli Frontiers in Science Symposia, Irvine, CA

2016 Invited participant, 14th Annual National Academies Keck Futures Initiative (NAKFI) conference, Discovering the Deep Blue Sea: Research, Innovation, Social Engagement, Irvine, CA

2016 Organizing Committee, 2nd Annual Ocean Worlds Meeting, Woods Hole, MA

2016 Organizing Committee, Symposium on Aquatic Microbial Ecology (SAME 15), Zagreb, Croatia

2016 Invited participant, 2nd Deep Submergence Science for the Next Decade (DESCEND-2) Workshop, Cambridge, MA

2015 Invited participant, NOVAE (Networked Observations and Visualizations of the Axial Environment) Workshop on Axial Seamount, Seattle, WA

2015 Invited participant, Deep Carbon Observatory Deep Life Community Meeting, Lisbon, Portugal

2014 Invited participant, NSF OCE and Earth Cube workshop on Ocean 'Omics and Cyberinfrastructure, Catalina Island, CA

2013 Invited participant, Deep Carbon Observatory Deep Life Meeting, Portland, OR

2013 Invited participant, Schmidt Ocean Institute Research Symposium, Honolulu, HI

2013 Invited participant, Deep Carbon Observatory International Science Meeting, Washington, DC

2012 Co-Organizer, OOI RSN Axial Seamount Science Workshop, Seattle, WA

2009 Invited participant, International Census of Marine Microbes (ICoMM) Annual Meeting, Woods Hole, MA

2009 Invited participant, American Academy of Microbiology "Rare Biosphere" Colloquium, San Francisco, CA

2008 Invited participant, Planning the "Dark Energy Biosphere Institute" Workshop, Catalina Island, CA

2008 Invited panelist, AAAS/American Junior Academy of Sciences

2006 Invited participant, Integrated Ocean Drilling Program (IODP) Exploring Subseafloor Life Workshop, Vancouver, CA

2006 Invited participant, International Census of Marine Microbes (ICoMM) First Annual Meeting, Noordwijkerhout, Netherlands

2005 Invited participant, NASA Astrobiology Institute Microbial Science Exploration Initiative Workshop, Chicago, IL

2004 Invited participant, Dark Energy: The Deep Oceanic Biosphere Workshop, Woods Hole, MA

PROFESSIONAL ACTIVITIES AT WHOI (2017- is WHOI, others previously at MBL)

2018-Present	Member, Ocean Worlds Catalyst Advisory Committee
2017-Present	Member, WHOI Women's Committee
2017	Panelist, Women in Science Panel, Rachel Carson Weekend
2017	Panelist, Postdoctoral Panel on Faculty Job Applications
2017	Speaker, WHOI Ocean Science Journalism Fellowship Program
2017	Panelist, Science and Storytelling, Woods Hole Film Festival
2015	Invited Speaker, University of Chicago and Affiliated Laboratories: Powerful Partners in Transformative Science
2015-2017	Member, MBL Directors Council
2014	Organizing Committee, MBL-Chicago-Argonne 2nd Retreat
2014	Member, MBL/Chicago Director Search Scientific Advisory Committee
2013-2017	Associate Director, MBL Josephine Bay Paul Center"
2011-2014	Member, MBL Institutional Committee
2009-2016	Member, MBL Corporation, now MBL Society
2008-2016	Guest Lecturer, MBL Logan Science Journalism Program
2008-2016	Co-Leader (with Zoe Cardon), MBL Micro-Eco Discussion Group
2008	Member, MBL Science Council Nominating Committee

PARTICIPATION IN EDUCATION PROGRAMS

2018	Invited Speaker, Geodynamics Seminar on Ocean Microbiomes at WHOI
2017-present	Member, Academic Advising Committee for MIT/WHOI Joint Program in Chemical Oceanography
2017	WHOI Undergraduate Summer Student Fellow Lecture Series Lecturer
2017	Keynote Speaker, Microbiome Clinician Course, MBL and University of Chicago
2015-present	Panelist, SUCCESS: Shaping and Understanding Career Choices in Education, Science and Self, with MBL
2015-present	Lead PI and Mentor, Community College Research Internship for Scientific Engagement (CC-RISE) with Cape Cod Community College
2015	Faculty, "Experimental Biology by the Sea," MBL and University of Chicago
2015	Instructor, "Alvin Boot Camp," WHOI and DESSC
2011	Course Designer, "Reverse Ecology," MBL and Brown University IGERT
2010-present	Lecturer, "Microbial Diversity Course," MBL Summer Course
2008-2017	Faculty, Semester in Environmental Sciences, "Microbial Ecology," MBL
2007, 2009	Lecturer, Southern Connecticut University ISIS teachers Program
2003	Teaching Assistant, "Oceanography 101," University of Washington
2001	Teaching Assistant, "Biological Oceanography," University of Washington
2000	Course Designer and Lecturer, University of Washington, Astrobiology
2000-2004	Guest Lecturer, University of Washington, Marine Microbiology, Principles and Applications of Molecular Methods, and Undergraduate Honors Seminar

SUPERVISION

Postdoctoral Researchers

Sarah Hu (Postdoctoral Fellow, NSF C-DEBI Fellow, 2018-)
Ashley Bulseco-McKim (Visiting Investigator, 2018-)
Lauren Seyler (Postdoctoral Investigator, 2018-)
Amy Smith (Postdoctoral Investigator, 2018-)
Elizabeth Trembath-Reichert (Postdoctoral Fellow, NASA NAI Fellow, 2017-)
Caroline Fortunato (Postdoctoral Researcher, 2012-2017)
Rika Anderson (Postdoctoral Fellow, NASA NAI Fellow, 2015-2016)
Benjamin Tully (C-DEBI Postdoctoral Researcher at USC, 2013-2015)
Julie Reveillaud (Postdoctoral Researcher, 2012-2014)
Chris Algar (Postdoctoral Researcher, 2012-2014)
Nuria Fernandez Gonzalez (Postdoctoral Researcher, 2010-2013)
Nancy Akerman (Postdoctoral Fellow, NASA NAI Fellow, 2010-2012)
Julie (Smith) Meyer (Postdoctoral Researcher and NSF C-DEBI Fellow 2009-2013)

Graduate Student Advisees

Angus Angermeyer (Brown-MBL Joint Program, Ecology and Evolutionary Biology, 2009-2017)
Alexander Merkel (Winogradsky Institute of Microbiology, Russian Academy of Sciences, NASA Planetary Biology Internship Fellow, Summer 2009)

Thesis Committee Member

Nathalie Forget (University of Victoria, Biology, 2013)
Yuko Hasegawa (Brown-MBL Joint Graduate Program, Molecular Biology, Cell Biology and Biochemistry, 2012)
Erica Lasek-Nesselquist (Brown-MBL Joint Graduate Program, Ecology and Evolutionary Biology, 2010)

Technical Staff

Gretta Serres (Research Associate III, 2015-present)
Leslie Murphy (Research Assistant III, 2014-2016)
Emily Reddington (Research Assistant II/III, 2011-2016)
Holly Cantin (Research Assistant I, 2009-2011)
Oufae Rafie (Research Assistant I, 2008-2009)

Undergraduate Students

Marc Fontanez-Ortiz (University of Puerto Rico, Summer 2018)
Patrick Carter (Cape Cod Community College, Summer 2018)
Meghan Perry (Cape Cod Community College, Summer 2018)
Ben Mckenzie (Cape Cod Community College, Summer 2018)
Scott Buresh (Cape Cod Community College, Summer 2018)
Tom Rizzitano (Cape Cod Community College, Summer 2017)
Renan Vianna (Cape Cod Community College, Summer 2017)
Emily Clark (Cape Cod Community College, Summer 2017)

Kyle Bryson (Cape Cod Community College, Summer 2016)
Joy Gomes (Cape Cod Community College, Summer 2016)
Thomas Scudder (Cape Cod Community College, Summer 2016)
Paula Pelayo (UCLA, Summer 2016)
Petra Byl (Univ. Chicago Metcalf Intern, Summer 2015/2016)
Cierra Armstrong (Cape Cod Community College, Summer 2015/2016)
Nick O'Sadcia (Cape Cod Community College, Summer 2015)
Sarah Nalven (Colby College, Summer 2012)
Charles Carpenter (Northwest Florida State College, Summer 2011)
Teresa Meza (Northwest Florida State College, Summer 2011)
Samantha Gourlie (Northwest Florida State College, Summer 2010)
Destinee Harder (Northwest Florida State College, Summer 2010)
~10 students mentored through SES Independent Projects

CRUISE AND FIELDWORK PARTICIPATION
R/V Nautilus, Lead Scientist, Shore-based, September 2018. Loihi Seamount.
R/V Falkor, Scientist. December 2016. Mariana Back Arc
Siders Pond. June 2015. Falmouth, MA
R/V Brown, Co-Chief Scientist. August 2014. Axial Seamount, Juan de Fuca Ridge
R/V Falkor, Chief Scientist. Sept-Oct 2013. Axial Seamount, Juan de Fuca Ridge
R/V Falkor, Scientist. July 2013. Mid-Cayman Rise, Caribbean Sea
R/V Atlantis, Scientist. January 2012. Mid-Cayman Rise, Caribbean Sea
R/V Cape Hatteras. Scientist. October 2009. Mid-Cayman Rise, Caribbean Sea
R/V Thompson, Scientist. May 2009. Lau Basin
R/V Atlantis, Scientist. August 2008. Axial Seamount & Endeavour, Juan de Fuca Ridge
Little Sippewissett Salt Marsh, Weekly Sampling, 2007. Falmouth, MA
R/V Melville, Scientist. October 2006. Loihi Seamount, FeMO
R/V Melville, Scientist. May 2006. Mariana Arc, Submarine Ring of Fire
R/V Thompson, Scientist. July 2003. Juan de Fuca Ridge & Flanks, LExEn Fluids
R/V Barnes, Teaching Assistant. Spring 2003. Puget Sound, Teaching Assistant, Oceans 101
R/V Atlantis, Scientist. August 2002. Juan de Fuca Ridge and Flanks, LExEn Fluids
R/V Thompson, Scientist. May 2002. Puget Sound, Instrument Testing
R/V Brown, Scientist. August 2001. Axial Seamount, NeMO
R/V Brown, Scientist. August 2000. Axial Seamount, NeMO
R/V Thompson, Scientist. July 1999. Axial Seamount, NeMO
R/V Brown, Scientist. August 1998. Axial Seamount, NeMO
Caribbean Marine Research Center, Researcher. 1996-97. Lee Stocking Island, Bahamas

PUBLICATIONS

Papers in Review, Revision, Press, and Published in Refereed Journals and Books: (*lab member; corresponding author)

[47] Vallino, J.J. and **J.A. Huber**. In Press. Using maximum entropy production to describe microbial biogeochemistry over time and space in a meromictic pond. *Frontiers in Environmental Science.* doi: 10.3389/fenvs.2018.00100

[46] Angermeyer, A.A.*, Crosby, S.C., and **J.A. Huber.** 2018. Salt marsh sediment bacterial communities maintain original population structure after transplantation across temperature gradients. *Peer J.* 6:e4735. DOI 10.7717/peerj.4735.

[45] Walter, S.S., Jaekel, U., Osterholz, H, Fisher, A., **Huber, J.A.**, Pearson, A. Dittmar, T, and P.R. Girguis. 2018. Decomposition of marine dissolved organic matter in cool oceanic crust. *Nature Geosciences.* 11:334–339.

[44] Louca, S., Polz, M.F., Mazel, F., Albright, M.B.N, **Huber, J.A.**, O'Connor, M.I., Ackermann, M., Hahn, A.S., Srivastava, D.S., Crowe, S.A., Doebeli, M., and L.W. Parfrey. 2018. Function and functional redundancy in microbial systems. *Nature Ecology and Evolution.* 2: 936–943.

[43] *Reveillaud, J., *Anderson, R., *Reves-Sohn, S., Cavanaugh, C., and **J.A. Huber**. 2018. Metagenomic investigation of vestimentiferan tubeworm endosymbionts from Mid-Cayman Rise reveals new insights into metabolism and diversity. *Microbiome.* 6:19. doi: 10.1186/s40168-018-0411-x

[42] Van Dover, C.L., Arnaud-Haond, S., Gianni, M., Helmreich, S. **Huber, J.A.**, Jaeckel, A.L., Metaxas, A., Pendleton, L.H., Petersen, S., Ramirez-Llodra, E., Steinberg, P.E., Tunnicliffe, V., and Yamamoto, Y. 2018. Scientific rationale and international obligations for protection of active hydrothermal vent ecosystems from deep-sea mining. *Marine Policy*. 90:20–28.

[41] *Fortunato, C.S., Larson, B.J., Butterfield, D.A., and **J.A. Huber**. 2018. Spatially distinct, temporally stable microbial populations mediate biogeochemical cycling at and below the seafloor in hydrothermal vent fluids. *Environmental Microbiology.* 20:769–784. doi:10.1111/1462-2920.14011.

[40] *Tully, B., Wheat, C.G., Glazer, B., and **J.A. Huber**. 2018. A dynamic microbial community with high functional redundancy inhabits the cold, oxic subseafloor aquifer. *ISME Journal.* 12:1-16. doi:10.1038/ismej.2017.187.

[39] *Anderson, R.E., *Reveillaud, J.C., *Reddington, E., Delmont, T., Eren, A.M., McDermott, J.M., Seewald, J.S., and **J.A. Huber**. 2017. Genomic variation in microbial populations inhabiting the marine subseafloor at deep-sea hydrothermal vents. *Nature Communications.* 8:1114. doi: 10.1038/s41467-017-01228-6

[38] Mackey, K.R.M, Hunter-Cevera, K., Britten, G.L., Murphy, L.G., Sogin, M.L, and **J.A. Huber**. 2017. Seasonal succession and spatial patterns of *Synechococcus* microdiversity in estuarine waters of a salt marsh revealed through 16S rRNA gene oligotyping. *Frontiers in Microbiology.* 8:1496. doi: 10.3389/fmicb.2017.01496.

[37] Sylvan, J., Wankel, S.D., LaRowe, D.E., Charoenpong, C.N., **Huber, J.A.**, Moyer, C.L, and K.J. Edwards. 2017. Evidence for microbial mediation of subseafloor nitrogen redox processes at Loihi Seamount, Hawaii. *Geochemical et Cosmochimica Acta.* 198: 131–150. doi: http://dx.doi.org/10.1016/j.gca.2016.10.029

[36] Fernandez-Gonzalez, N.*, **Huber, J.A.** and J.J. Vallino. 2016. Microbial communities are well adapted to disturbances in energy input. *mSystems.* 1(5) e00117-16; doi: 10.1128/mSystems.00117-16.

[35] Topçuoğlu, B.D., Stewart, L.C., Butterfield, D.A., **Huber, J.A.**, and J.F. Holden. 2016. Hydrogen limitation and syntrophic growth among natural assemblages of thermophilic methanogens at deep-sea hydrothermal vents. *Frontiers in Microbiology.* 7:1240. doi: 10.3389/fmicb.2016.01240

[34] *Meyer, J.L, Jaekel, U., *Tully, B. Glazer, B.T., Wheat, C.G., H-T, Lin., C-C, Hsieh, Cowen, J.P., Hulme, S.M., Girguis, P.R., and **J.A. Huber**. 2016. A distinct and active bacterial community in cold oxygenated fluids circulating beneath Mid-Atlantic seafloor. *Scientific Reports.* 6:22541. doi: 10.1038/srep22541

[33] *Fortunato, C.F. and **J.A. Huber**. 2016. Coupled RNA-SIP and metatranscriptomics of active chemolithoautotrophic communities at a deep-sea hydrothermal vent. *ISME Journal.* 10:1925-1938. doi:10.1038/ismej.2015.258

[32] *Reveillaud, J., *Reddington, E., McDermott, J., *Meyer, J.L., *Algar, C., Sylva, S., Seewald, J., German, C.G., and **J.A. Huber**. 2016. Subseafloor microbial communities in hydrogen-rich vent fluids from hydrothermal systems along the Mid-Cayman Rise. *Environmental Microbiology.* 8:1970–1987. doi: 10.1111/1462-2920.13173

[31] *Angermeyer, A.A., Crosby, S.C. and **J.A. Huber**. 2016. Decoupled distance-decay patterns between dsrA and 16S rRNA genes among salt marsh sulfate-reducing bacteria. *Environmental Microbiology*. 18:75-86.

[30] *Meyer, J.L. and **J.A. Huber**. 2014. Strain-level genomic variation in natural populations of *Lebetimonas* from an erupting deep-sea volcano. *ISME Journal*. 8:867–880.
[29] *Reveillaud, J., Maignien, L, Eren, M., Apprill, A., **Huber, J.A**., Sogin, M.L, and A. Vanreusel. 2014. Host-specificity among abundant and rare taxa in the sponge microbiome. *ISME Journal*. 8:1198-1209.

[28] Vallino, J.J., *Algar, C.K., *Fernandez Gonzalez, N., and **J.A. Huber**. 2014. Use of receding horizon optimal control to solve MaxEP-based biogeochemistry problems. *In* Dewar,

R.C., Lineweaver, C., Niven, R. and Regenauer-Lieb, K., (eds), 337-359. *Beyond the Second Law: Entropy Production and Non-Equilibrium Systems*. Springer, Berlin, Germany.

[27] Reed, D.C., *Algar, C.K, **Huber, J.A.** and G.J. Dick. 2014. Gene-centric approach to integrating environmental genomics and biogeochemical models. *Proceedings of the National Academy of Sciences USA*. 111:1879-84.

[26] Orcutt, B. N., LaRowe, D. E., Lloyd, K. G., Mills, H., Orsi, W., Reese, B. K., Sauvage, J., **Huber, J. A.**, and Amend, J. 2014. IODP Deep Biosphere Research Workshop report – a synthesis of recent investigations, and discussion of new research questions and drilling targets. *Scientific Drilling*. 17:61–66.

[25] *Merkel, A., **Huber, J.A.**, Chernyh, N., Bonch-Osmolovskaya, E. and A. Lebedinsky. 2013. Detection of putatively thermophilic anaerobic methanotrophs (ANMEs) in diffuse hydrothermal vent fluids. *Applied and Environmental Microbiology*. 79:915-923.

[24] Bennett, S.A., Coleman, M., **Huber, J.A.**, *Reddington, E., Kinsley, J.C., McIntyre, C., Seewald, J.S., and C.R. German. 2013. Trophic regions of a hydrothermal plume dispersing away from an ultramafic-hosted vent-system: Von Damm vent-site, Mid-Cayman Rise. *Geochemistry Geophysics Geosystems*. 14:317-327.

[23] Ver Eecke H.C., *Akerman, N.H., **Huber, J.A**., Butterfield, D.A., and J.F. Holden. 2013. Growth kinetics and energetics of a deep-sea hyperthermophilic methanogen under varying environmental conditions. *Environmental Microbiology Reports*. 5:665-671.

[22] *Meyer, J.L., *Akerman, N.H., Proskurowski, G. and **J.A. Huber**. 2013. Microbiological characterization of post-eruption "snowblower" vents at Axial Seamount, Juan de Fuca Ridge. *Frontiers in Microbiology*. 4:153. doi: 10.3389/fmicb.2013.00153

[21] *Akerman, N.H, Butterfield, D.A, and **J.A. Huber**. 2013. Phylogenetic diversity and functional gene patterns of sulfur-oxidizing subseafloor *Epsilonproteobacteria* in diffuse hydrothermal vent fluids. *Frontiers in Microbiology*. 4:185. doi: 10.3389/fmicb.2013.00185

[20] Ver Eecke, H.C., Butterfield, D.A., **Huber, J.A.**, Lilley, M.D., Olson, E.J., Roe, K.K., Evans, L.J., *Merkel, A.Y., *Cantin, H.V., and J.F. Holden. 2012. Hydrogen-limited growth of hyperthermophilic methanogens at deep-sea hydrothermal vents. *Proceedings of the National Academy of Sciences USA.* 109:13,674–13,679.

[19] Breier, J.A., Gomez-Ibanez, D., *Reddington, E., **Huber, J.A.**, and D. Emerson. 2012. A precision multi-sampler for deep-sea hydrothermal microbial mat studies. *Deep-Sea Research Part I: Oceanographic Research Papers.*70:83-90.

[18] Resing, J.A, Rubin, K.H., Embley, R.W., Lupton, J.E., Baker, E.T. Dziak, R.P., Baumberger, T., Lilley, M.D., **Huber, J.A.**, Shank, T.M., Butterfield, D.A., Clague, D.A., Keller, N.S., Merle, S.G., Buck, N.J., Michael, P.J., Soule, A. Caress, D.W., Walker, S.L. Davis,

R., Cowen, J.P., Reysenbach, A-L., and H. Thomas. 2011. Active submarine eruption of boninite in the northeastern Lau Basin. *Nature Geoscience*. 4:799-806.

[17] German, C.R., Bowen, A., Coleman, M.L., Honig, D.L., **Huber, J.A.**, Jakuba, M.V., Kinsey, J.C., Kurz, M.D., Leroy, S., McDermott, J.M, Mercier de Lépinay, B., Nakamura, K., Seewald, J.S., *Smith, J.L., Sylva, S.P., Van Dover, C.L., Whitcomb, L.L., and D.R. Yoerger. 2010. Diverse styles of submarine venting on the ultraslow spreading Mid-Cayman Rise. *Proceedings of the National Academy of Sciences USA.* 107:14,020-14,025.

[16] Schrenk M,O., **Huber, J.A.**, and K.J. Edwards. 2010. Microbial Provinces in the Subseafloor. *Annual Review of Marine Science*. 2:279-304.

[15] **Huber, J.A.**, *Cantin, H.V., Huse, S.M., Mark Welch, D.B., Sogin, M.L., and D.A. Butterfield. 2010. Isolated communities of *Epsilonproteobacteria* in hydrothermal vent fluids of the Mariana Arc seamounts. *FEMS Microbiology Ecology.* 73:538-549.

[14] **Huber, J.A.**, Morrison, H.G., Huse, S.M., Neal, P.R, Sogin, M.L., and D.B. Mark Welch. 2009. Effect of PCR amplicon size on assessments of clone library microbial diversity and community structure. *Environmental Microbiology.* 11:1292-1302.

[13] **Huber, J.A.** and J.F. Holden. 2008. Modeling the impact of diffuse vent microorganisms along mid-ocean ridges and flanks. *In* Lowell, R.P., J. S. Seewald, A. Metaxas, and M.R. Perfit (eds.), 215-231. *Magma to Microbe: Modeling Hydrothermal Processes at Oceanic Spreading Ridges*. American Geophysical Union Press, Washington, D.C.

[12] Huse, S.M., Dethlefsen, L., **Huber, J.A.**, Mark Welch, D.B., Relman, D.A., and M.L. Sogin. 2008. Exploring microbial diversity and taxonomy using SSU rRNA hypervariable tag sequencing. *PLoS Genetics* 4:e1000255.

[11] **Huber, J.A.**, Mark Welch, D.B., Morrison, H.G., Huse, S.M., Neal, P.R., Butterfield, D.A., and M.L. Sogin. 2007. Microbial population structures in the deep marine biosphere. *Science.* 318:97-100.

[10] Wells, L.E, Armstrong, J.C. and **J.A. Huber**. 2007. Disciplinary aspirations and educational opportunities. *In* W.T. Sullivan III and J.A. Baross (eds.), 547-557. *Planets and Life:The Emerging Science of Astrobiology*. Cambridge University Press, Cambridge, UK.

[9] Baross, J.A., Schrenk, M.O, and **J.A. Huber**. 2007. Limits of Carbon Life on Earth and Elsewhere. *In* W.T. Sullivan III and J.A. Baross (eds.), 275-291. *Planets and Life: The Emerging Science of Astrobiology*, Cambridge University Press, Cambridge, UK.

[8] Huse, S.M., **Huber, J.A.**, Morrison, H.G., Sogin, M.L., and D.B. Mark Welch. 2007. Accuracy and quality of massively-parallel DNA pyrosequencing. *Genome Biology*. 8: R143.

[7] **Huber, J.A.**, Butterfield, D.A, and J.A. Baross. 2006. Diversity and distribution of subseafloor *Thermococcales* populations in diffuse hydrothermal vents at an active deep-sea

volcano in the northeast Pacific Ocean. *Journal of Geophysical Research, Biogeosciences*. 111:G04016.

[6] **Huber, J.A.**, Butterfield, D.A., Johnson, H.P., and J.A. Baross. 2006. Microbial life in ridge flank crustal fluids. *Environmental Microbiology.* 88:88-99.

[5] Sogin, M.L., Morrison, H.G., **Huber, J.A.**, Mark Welch, D.B., Huse, S.M., Neal, P.R., Arrieta, J.M., and G.J. Herndl. 2006. Microbial diversity in the deep sea and the under-explored "rare biosphere." *Proceedings of the National Academy of Sciences USA.* 103:12,115-12,120.

[4] Mehta, M.P., **Huber, J.A.**, and J.A. Baross. 2005. Incidence of novel and potentially archaeal nitrogenase genes in the deep NE Pacific Ocean. *Environmental Microbiology*. 7:1525-1534.

[3] Butterfield, D.A., Lilley, M.D., **Huber, J.A**., Roe, K.K., Embley, R.W., Baross, J.A., and G.J. Massoth. 2004. Mixing, reaction, and microbial activity in sub-seafloor hydrothermal upflow zones: Evidence from diffuse flow outcrops across the 1998 Axial Volcano Sea-floor eruption area through time. *In* W.S.D. Wilcock, E.F. DeLong, D.S. Kelley, J.A.Baross, and S.C. Cary (eds.), 269-289. *The Subseafloor Biosphere at Mid-Ocean Ridges*. American Geophysical Union Press, Washington, D.C.

[2] **Huber, J.A.**, Butterfield, D.A., and J.A. Baross. 2003. Bacterial diversity in a subseafloor habitat following a deep-sea volcanic eruption. *FEMS Microbiolology Ecology*. 43:393-409.

[1] **Huber, J.A.**, Butterfield, D.A., and J.A. Baross. 2002. Temporal changes in archaeal diversity and chemistry in a mid-ocean ridge subseafloor habitat. *Applied and Environmental Microbiology*. 68:1585-1594.

Non-Refereed Papers: (*lab member; corresponding author)

[6a] **Huber, J.A.** 2015. Making methane down deep. *Science*. 349:376-377.

[5a] C.R.German, Tyler, P.A., McIntyre, C., Amon, D., Cheadle, M., Clarke, J., John, B., McDermott, J., Bennett, S., **Huber, J.A.**, Kinsey, J., Seewald, J. Van Dover, C., and K. Elliott. 2014. Exploration of the Mid-Cayman Rise. *Oceanography*. 25:52-53.

[4a] **Huber, J.A.** 2012. Microbial Oceanography. *iBio Magazine*. http://www.ibiomagazine.org/issues/september-2012-issue/julie-huber.html.

[3a] Chadwick, W.W., Butterfield, D.A., Embley, R.W., Tunnicliffe, V., **Huber, J.A.,** Nooner, S., and D. Clague. 2010. Spotlight: Axial Seamount. *Oceanography*. 23:38-39.

[2a] Bach, W., Edward, K.J, Hayes, J.M., **Huber, J.A.**, Sievert, S.M., and M.L. Sogin. 2006. Energy in the dark: Fuel for life in the deep ocean and beyond. *Eos, Transactions AGU*. 87:73-78.

[1a] Johnson, H.P. and LEXEN Scientific Party. 2003. Probing for life in the ocean crust with the LEXEN program. *Eos, Transactions AGU*. 84:109-112.

INVITED PRESENTATIONS: SEMINARS

2018 Microbes, Fluids, and Rocks: Life Beneath the Seafloor
Rhode Island College. Providence, RI.

2018 Microbes, Fluids, and Rocks: Life Beneath the Seafloor
United States Coast Guard Academy. New London, CT.

2018 Microbial life in the cold, oxic subseafloor
Chemical Oceanography, Geology, Geochemistry Geobiology (COG3) Seminar
Massachusetts Institute of Technology. Cambridge, MA

2018 Microbial populations below the seafloor at Axial Seamount
University of Rhode Island. Narragansett, RI.

2018 Microbial populations below the seafloor at Axial Seamount
Harbor Branch Oceanographic Institute. Fort Pierce, FL

2017 Life in the extreme: Seafloor fluid flow and chemosynthetic life on Earth and beyond
Foster Hewett Lecture Series. Lehigh University. Bethlehem, PA.

2016 Microbes, fluids, and rocks: Life beneath the seafloor
Cardiff University. Cardiff, Wales.

2016 Microbes, fluids, and rocks: Life beneath the seafloor
Woods Hole Oceanographic Institution. Woods Hole, MA.

2016 Microbes, fluids, and rocks: Life beneath the seafloor
University of Southern California. Los Angeles, CA.

2016 From Woods Hole to the deep sea: Life beneath the seafloor
Duke University Marine Lab, Duke University. Beaufort, NC.

2015 Microbes, fluids, and rocks: Life beneath the seafloor
University of Tennessee, Knoxville. Knoxville, TN

2014 Microbial ecology of deep-sea hydrothermal vents
University of Chicago. Chicago, IL

2014 Microbial ecology of subseafloor hydrothermal systems
University of Minnesota. St. Paul-Minneapolis, MN

2014 Microbial life in a cold, hydrologically active oceanic crust
Woods Hole Oceanographic Institution. Woods Hole, MA

2013 Pushing the limits: Microbial life at deep-sea hydrothermal vents
Bridgewater State University. Bridgewater, MA

2013 Microbial ecology of deep-sea hydrothermal vents
United States Military Academy. West Point, NY

2012 Microbial ecology of deep-sea hydrothermal vents
Yale University. New Haven, CT

2010 Exploding submarine volcanoes and microbial life in the deep sea
Stockholm University. Stockholm, Sweden.
University of Washington. Seattle, WA

2010 Microbial ecology of subseafloor communities at deep-sea hydrothermal vents
University of Massachusetts, Amherst. Amherst, MA

2008 Microbial life in the subseafloor biosphere
Massachusetts Institute of Technology. Cambridge, MA

2008 Microbial ecology of subseafloor communities at deep-sea hydrothermal vents
Woods Hole Oceanographic Institution. Woods Hole, MA

2008 RIDGE 2000 Distinguished Lecture Series
Pushing the limits: Microbial life at deep-sea hydrothermal vents
University of West Florida. Pensacola, FL
University of Missouri. Columbia, MO
Indiana University of Pittsburgh. Indiana, PA

2006 Microbial ecology of subseafloor communities at deep-sea hydrothermal vents
University of Connecticut. Storrs, CT

INVITED PRESENTATIONS: CONFERENCES and SYMPOSIA

2018 Microbes, Fluids, and Rocks: Life Beneath the Seafloor
Nebraska EPSCoR Research and Innovation Conference “Microbiomes from Different Habitats: Soil, Water and Gut”

2018 The roles of functional redundancy and subseafloor plumbing for maintaining microbial populations in fluids beneath the seafloor
Center for Computational Biology (Flatiron Institute) and C-DEBI Evolution Workshop. New York, NY

2018	Life Beneath the Seafloor Gordon Research Conference on Geobiology. Galveston, TX
2017	Microbial biogeochemistry of seafloor fluid flow on Earth and implications for biological potential on Enceladus American Geophysical Union Fall Meeting. San Francisco, CA
2017	Technology meets science: Exploring microbes in the oceans from the surface to seafloor American Society for Microbiology General Meeting. New Orleans, MA
2017	Secrets of the seafloor Third Israeli-American Kavli Frontiers of Science Symposium. Irvine, CA
2016	Life in the extreme: Seafloor fluid flow and chemosynthesis Ocean Worlds 2. Woods Hole, MA
2016	Life beneath the seafloor Microbial Sciences Initiative. Harvard University. Cambridge, MA.
2016	Microbes, fluids, and rocks: Life beneath the seafloor Society for Women in Marine Science Symposium. Woods Hole, MA
2015	Microbial life beneath the seafloor American Society for Microbiology General Meeting. New Orleans, LA
2015	Carbon cycling beneath the seafloor Gordon Research Conference on Applied and Environmental Microbiology Mount Holyoke, MA
2015	How geochemical landscapes shape subseafloor microbial communities at deep-sea hydrothermal vents. Gordon Research Conference on Chemical Oceanography. Holdren, NH
2015	Microbial and viral research at Axial Seamount NOVAE - Networked Observations and Visualizations of the Axial Environment Seattle, WA
2014	Pushing the limits: Microbial life at deep-sea hydrothermal vents Advancing STEM Education CASE Conference, K-12 Educators. Bridgewater, MA
2013	Subseafloor microbial life in venting fluids from the Mid Cayman Rise hydrothermal system Deep Carbon Observatory General Meeting. Washington, DC Deep Carbon Observatory Deep Life Meeting. Portland, OR

2012 Meet the marine intraterrestrials
Gordon Research Conference on Marine Microbes. Berga, Italy

2012 Subseafloor microbial life in venting fluids from the Mid Cayman Rise hydrothermal system
American Geophysical Union Fall Meeting. San Francisco, CA

2011 Biological communities at and beneath the seafloor at Axial Seamount
Axial RSN Science Workshop (NSF). Seattle, WA

2009 Microbial diversity of subseafloor communities at deep-sea hydrothermal vents
Bacterial Genetics and Ecology Conference (BAGECO-10). Uppsala, Sweden

2009 Rare microbial populations in the deep ocean
American Society of Microbiology General Meeting. Philadelphia, PA

2008 Using crustal fluids to peer into the subseafloor microbial habitat
American Geophysical Union Fall Meeting. San Francisco, CA

2007 Microbial diversity in the deep sea
Microbial Genomics. Hinxton Cambridge, UK

2006 Microbial diversity in the deep sea and the under-explored "rare biosphere"
14th Annual Meeting on Microbial Genomics. Lake Arrowhead, CA

2006 Microbial ecology of subseafloor communities at deep-sea hydrothermal seamounts
International Census of Marine Microbes (ICoMM) First Annual Meeting. Noordwijkerhout, Netherlands

CONTRIBUTED PRESENTATIONS: CONFERENCES (presenting author only)

2017 Spatially distinct, temporally stable chemolithoautotrophic microbial populations mediate biogeochemical cycling at and below the seafloor in venting fluids from Axial Seamount
6th International Symposium on Chemosynthesis-Based Ecosystems. Woods Hole, MA

2016 What's Up Down There? Microbial life in the subseafloor at Axial Seamount
National Academies Keck Futures Initiative (NAKFI) conference, Discovering the Deep Blue Sea: Research, Innovation, Social Engagement. Irvine, CA

2014 Investigating microbes, viruses, and carbon across thermal and chemical gradients in the subseafloor at Axial Seamount
Gordon Conference on Marine Microbes. Waltham, MA

2014	An active microbial community in fluids circulating through the cold oceanic crust beneath the Mid-Atlantic seafloor International Society of Subsurface Microbiology. Pacific Grove, CA
2014	Application of RNA Stable Isotope Probing (SIP) to link community activity with microorganisms responsible for autotrophy in the subseafloor at Axial Seamount American Geophysical Union Fall Meeting. San Francisco, CA
2013	Microbial anaerobic methane cycling in the subseafloor at the Von Damm hydrothermal vent field, Mid-Cayman Rise American Geophysical Union Fall Meeting. San Francisco, CA
2009	Molecular diversity and activity of methanogens in the subseafloor at deep-sea hydrothermal vents of the Pacific Ocean American Geophysical Union Fall Meeting. San Francisco, CA
2009	Microbial communities in erupting fluids from West Mata Volcano, Tonga Arc American Geophysical Union Fall Meeting. San Francisco, CA
2008	Using 454 tag sequencing to determine the diversity and distribution of subseafloor indicator organisms at deep-sea hydrothermal seamounts of the Pacific Ocean American Society of Microbiology General Meeting. Boston, MA
2008	Subseafloor archaeal communities at deep-sea hydrothermal seamounts Astrobiology Science Conference. Santa Clara, CA
2006	Deep sampling of bacterial diversity at diffuse flow hydrothermal vents on Axial Seamount, Juan de Fuca Ridge RIDGE Theoretical Institute: From Magma to Microbes. Mammoth Lakes, CA
2006	The International Census of Marine Microbes (ICoMM) and a strategy for exploring microbial diversity throughout the world's oceans Seamount Biogeosciences Network Workshop. La Jolla, CA
2006	Metagenomics of diffuse hydrothermal vents: Determining the distribution of anaerobic thermophilic life in subseafloor habitats Astrobiology Science Conference. Washington, DC
2006	Microbial ecosystems and their connection to hydrothermal flow RIDGE Theoretical Institute: From Magma to Microbes. Mammoth Lakes, CA
2005	Describing the anaerobic thermophilic subseafloor population: A metagenomic strategy Thermophiles 2005. Gold Coast, Australia

2005 Diversity and distribution of key subseafloor hypthermophilic archaea at an active deep-sea volcano
NASA Astrobiology Institute 2005 General Meeting. Boulder, CO

2005 Microbial life in ridge flank crustal fluids at Baby Bare Seamount, Juan de Fuca Ridge
American Geophysical Union Fall Meeting. San Francisco, CA

2003 Evidence for a subseafloor habitat in a 3.5 MA ridge-flank crustal fluids at Baby Bare Seamount, Eastern flank, Juan de Fuca Ridge
Geological Society of America. Seattle, WA

2003 Characterization of novel subseafloor isolates from a deep-sea volcano in the NE Pacific
NASA Astrobiology Institute General Meeting. Tempe, AZ

2002 Microbial diversity and geochemistry at an active deep-sea volcano in the NE Pacific: Implications for modeling the subsurface biosphere on Earth and other solar bodies
NATO Advanced Studies Institute Perspectives in Astrobiology. Crete, Greece

2002 Temporal changes in microbial diversity and geochemistry at an active deep-sea volcano: Implications for modeling the subsurface biosphere on earth and other solar bodies
Astrobiology Science Conference. Mountain View, CA

2002 Changes in subseafloor bacterial diversity following the 1998 volcanic eruption at Axial Volcano, Juan de Fuca Ridge
American Geophysical Union Fall Meeting. San Francisco, CA

2002 Temporal changes in microbial diversity and chemistry at a diffuse flow vent on Axial Volcano, Juan de Fuca Ridge
Ocean Sciences Meeting. Honolulu, HI

2000 Exploring microbial diversity in a diffuse flow vent at Axial Seamount, Juan de Fuca Ridge over a two year period
RIDGE Theoretical Institute: The Subsurface Biosphere at Mid-Ocean Ridges. Big Sky, MT