

## SEAN PATRICK JUNGLUTH

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### EDUCATION

#### **PH.D. UNIVERSITY OF HAWAII AT MĀNOA, FALL 2014**

Specializations: Biological Oceanography

Dissertation Title: Microbial ecology in the sediment-covered ocean basement fluids of the Juan de Fuca Ridge eastern flank

Advisor: Dr. Michael S. Rappé

Short-courses attended:

- NASA-Nordic Astrobiology Winter School, January 2014
- EU/US Training in Marine Bioinformatics, June 2013

#### **B.S. UNIVERSITY OF WISCONSIN AT MADISON, SPRING 2007**

Specializations: Bacteriology and Biology

Travel-study experiences:

- Kampala, Uganda, December-January 2006
- Brisbane, Australia, June-November 2005

### PROFESSIONAL EXPERIENCE

#### **February 2017 – present**

U.S. Department of Energy – Joint  
Genome Institute  
Walnut Creek, CA

#### **Computational Biology Postdoctoral Fellow**

- Conducted a large scale bioinformatic investigation focused on the identification and description of ~50,000 metagenome-assembled genomes. Achieved an expansion in the known bacterial and archaeal genomic diversity by nearly two fold.
- Responsibilities included metagenomic data analysis, publication of results, workshop and conference participation and networking, and promotion of institute tools and activities.

#### **November 2015 – October 2016**

Center for Dark Energy Biosphere  
Investigations  
Univ. of Southern California  
Los Angeles, CA

#### **Post-doctoral Research Associate**

- Coordinated genomic-based investigations of microbial life in the marine and terrestrial deep subsurface.
- Responsibilities included metagenomic data analysis, publication of results, proposal writing, workshop and conference participation and networking, and mentoring of graduate students.

#### **September 2014 – October 2015**

Oceanography Dept.  
Univ. of Hawaii at Manoa  
Honolulu, HI

#### **Post-doctoral Research Scholar**

- Implemented genomic-based investigations associated with highly successful dissertation research project focused on the use of molecular techniques to study microbial life within deep seafloor crustal fluids.

- Responsibilities included role of lead observer during submersible platform operations for deep-sea sample collection, application of molecular microbiology techniques, data analysis, publication of results, proposal writing, workshop and conference participation and networking, and co-supervision of laboratory technicians and student helpers.

### **July 2008- September 2014**

Oceanography Dept.  
Univ. of Hawaii at Manoa  
Honolulu, HI

### **Graduate Research Assistant and Fellow**

- Planned and coordinated a research project focusing on the use of molecular techniques to probe the nature of microbial life within deep seafloor crustal fluids.
- Responsibilities include co-leadership role of lead observer of submersible platform operations for deep-sea sample collection, application of molecular microbiology techniques, data analysis, publication of results, proposal writing, workshop and conference participation and networking, and mentoring and supervision of undergraduate students.
- Research conducted as a Consortium for Ocean Leadership Schlanger Ocean Drilling Fellow and a Center for Dark Energy Biosphere Investigations Graduate Fellow.

### **February 2012-January 2013**

Oceanography Dept.  
Univ. of Hawaii at Manoa  
Honolulu, HI

### **Graduate Research Assistant**

- Participated as a seagoing member of Hawaii Ocean Time-Series (HOT) team and helped conduct monthly sampling at long-term biogeochemical time-series location station ALOHA.
- Duties included cruise loading, equipment setup, deployment, and retrieval, biogeochemical sample collection, and basic analytical chemistry.

### **August 2007-April 2008**

Lucigen Corporation  
Middelton, WI

### **Research Scientist**

- Contributed with a team of scientists to research and develop a range of novel molecular tools including fluorescent proteins, cloning vectors, polymerases, and protein purification schemes.
- Trained entry-level staff in basic laboratory duties and procedures.

### **August 2004-May 2005**

Comparative Biosciences Dept.  
Univ. of Wisconsin at Madison  
Madison, WI

### **Undergraduate Research Assistant**

- Planned an independent research project focused on hibernation cycle-induced protein expression profiles within the DNA damage/apoptotic pathway of colonic tissue cells in the thirteen-lined ground squirrel, *Spermophilus tridecemlineatus*.

## **FELLOWSHIPS, HONORS & AWARDS**

Center for Dark Energy Biosphere Investigations (C-DEBI) Graduate Student Fellowship, 2012-2014  
(\$64,000)

Consortium for Ocean Leadership U.S. Science Support Program Schlanger Ocean Drilling Fellowship, 2010-2011 (\$28,000)

University of Wisconsin at Madison College of Agriculture and Life Sciences Dean's List (2004-2007, 3 of 6 Semesters)

University of Wisconsin at Whitewater College of Business and Economics Academic Honors (2003, 2 of 2 Semesters)

### **Travel-Related**

International Ocean Discovery Program (IODP) U.S. Science Support Program (USSSP) at the Consortium for Ocean Leadership Travel Award, "ECORD Training Course: The Virtual Drillship Experience", University of Bremen, Germany, 2015 (\$2500)

Deep Submergence Science Committee (DeSSC) Early Career/Student Program and Meeting Travel Award, 2013 (\$720)

Astrobiology Society Travel Award, 2013 (\$500)

Deep Submergence Science Committee (DeSSC) Early Career/Student Program and Meeting Travel Award, 2012 (\$500)

U.S. National Science Foundation Research Coordination Network, German Research Foundation (DFG), and German Integrated Ocean Drilling Program at the Federal Institute for Geosciences and Natural Resources (BGR) Travel Award, "Ocean Crust Processes and Consequences for Life" Workshop, University of Bremen, Germany, 2012 (\$1790)

U.S. National Science Foundation Research Coordination Network and Consortium for Ocean Leadership U.S. Science Support Program Travel Award, "Deep Biosphere Sediment Microbiology" Workshop, University of North Carolina at Chapel Hill, 2011 (\$952.98)

University of Hawaii at Manoa Graduate Student Organization Travel Award, "13<sup>th</sup> International Symposium for Microbial Ecology" Conference, Seattle, Washington, 2010 (\$460)

Consortium for Ocean Leadership U.S. Science Support Program Travel Award, "Subseafloor Ocean Biosphere and Borehole Observatory Science" Workshop, Kailua-Kona, Hawaii, 2009 (\$1065)

## **R E S E A R C H**

### **PUBLISHED REFEREED CONTRIBUTIONS & JOURNAL ARTICLES**

(15) Teehara KB, **Jungbluth SP**, Acosta TE, Hellebrand E, Misra AK, Onac PB, Pflitsch A, Smith SM, Rappé MS, Telus M, Schorghofer N. (2017) Cryogenic minerals in Hawaii lava tubes: A geochemical and microbiology exploration. In press at Geomicrobiology Journal.

(14) Bowers RM, Kyrpides NC, Stepanauskas R, Harmon-Smith M, Doud D, Reddy TBK, Schulz F, Jarett J, Rivers AR, Eloë-Fadrosch EA, Tringe SG, Ivanova NN, Copeland A, Clum A, Becraft ED, Malmstrom RR, Birren B, Podar M, Bork P, Weinstock GM, Garrity GM, Dodsworth JA, Yooseph S, Sutton G, Glöckner FO, Gilbert JA, Nelson WC, Hallam SJ, **Jungbluth SP**, Ettema TJG, Tighe S, Konstantinidis KT, Liu W-T, Baker BJ, Rattei T, Eisen JA, Hedlund B, McMahon KD, Fierer N, Knight R, Finn R, Cochrane G, Karsch-Mizrachi I, Tyson GW, Rinke C, The Genome Standards Consortium, Lapidus A, Meyer F, Yilmaz P, Parks DH, Eren AM, Schriml L, Banfield JF, Hugenholtz P, Woyke T. (2017) Minimum information about a single amplified

- genome (MISAG) and a metagenome-assembled genome (MIMAG) of bacteria and archaea. In press at Nature Biotechnology.
- (13) Momper L, **Jungbluth SP**, Lee M, Amend JP. (2017) Energy and carbon metabolisms in a deep terrestrial subsurface fluid microbial community. *The ISME Journal* 1-15.
  - (12) Marlow J, Borrelli C, **Jungbluth SP**, Hoffman C, Marlow H, Girguis P, AT-36 Team. (2017) Telepresence is a potentially transformative tool for field science. *Proceedings of the National Academy of Sciences USA* 114: 4841-4844.
  - (11) **Jungbluth SP**, Glavina del Rio T, Tringe SG, Stepanauskas R, Rappé MS. (2017) Genomic comparisons of a bacterial lineage that inhabits both marine and terrestrial deep subsurface systems. *PeerJ* 5:e3134.
  - (10) **Jungbluth SP**, Amend JP, Rappé MS. (2017) Metagenome sequencing and 98 microbial genomes from Juan de Fuca Ridge flank subsurface fluids. *Scientific Data* 4:170037.
  - (9) Nigro OD, **Jungbluth SP**, Lin H-T, Hsieh C-C, Miranda J, Schvarcz C, Rappé MS, Steward GF. (2017) Viruses in the oceanic basement. *mBio* 8: e02129-16.
  - (8) Robador A, LaRowe, DE, **Jungbluth SP**, Lin H-T, Rappé MS, Neelson KH, Amend JP. (2016) Nanocalorimetric characterization of microbial activity in deep subsurface oceanic crustal fluids. *Frontiers in Microbiology* 7: 454.
  - (7) **Jungbluth SP**, Bowers RM, Lin H-T, Cowen JP, Rappé MS. (2016) A novel microbial assemblage inhabits fluids within mid-ocean ridge flank subsurface basalt. *The ISME Journal* 10: 2033-2047.
  - (6) Robador A, **Jungbluth SP**, LaRowe DE, Bowers RM, Amend JP, Rappé MS, Cowen JP. (2015) Activity and phylogenetic diversity of sulfate-reducing microorganisms in low-temperature subsurface fluids within the upper oceanic crust. *Frontiers in Microbiology* 5: 748.
  - (5) Lin H-T, Cowen JP, Olson EJ, Lilley MD, **Jungbluth SP**, Wilson ST, Rappé MS. (2014) Dissolved hydrogen and methane in the oceanic basaltic biosphere. *Earth and Planetary Science Letters* 405: 62-73.
  - (4) **Jungbluth SP**, Lin H-T, Cowen JP, Glazer BT, Rappé MS. (2014) Phylogenetic diversity of microorganisms in subseafloor crustal fluids from boreholes 1025C and 1026B along the Juan de Fuca Ridge flank. *Frontiers in Microbiology* 5: 119.
  - (3) **Jungbluth SP**, Johnson LGH, Cowen JP, Rappé MS. (2013). Data report: microbial diversity in sediment near Grizzly Bare Seamount from Holes U1363B and U1363G. *Proceedings of the Integrated Ocean Drilling Program* 327: pp. 1-27.
  - (2) **Jungbluth SP**, Grote J, Lin H-T, Cowen JP, Rappé MS. (2013). Microbial diversity within basement fluids of the sediment-buried Juan de Fuca Ridge flank. *The ISME Journal* 7(1): 161-172.
  - (1) Fisher AT, Tsuji T, Petronotis K, Wheat CG, Becker K, Clark JF, Cowen J, Edwards K, Jannasch H, IODP Expedition 327 and **Atlantis Expedition AT18-07 Shipboard Parties** (2012). IODP Expedition 327 and *Atlantis Expedition AT18-07: Observatories and Experiments on the Eastern Flank of the Juan de Fuca Ridge*. *Scientific Drilling* 13: 4-11.

## IN PREP CONTRIBUTIONS

Anantharaman K, **Jungbluth SP**, Kantor RS, Lavy A, Warren LA, Rappé MS, Thomas BC, Banfield JF. Dramatic expansion of microbial groups that shape the global sulfur cycle.

McVeigh D, Skarke A, Dekas A, Borrelli C, Hong W-L, Marlow J, Pasulka A, **Jungbluth SP**, Barco R, Djurhuus A. Characterization of benthic biogeochemistry and ecology at three methane seep sites on the Northern US Atlantic Margin. In Revision for Deep-Sea Research Part II.

**Jungbluth SP\***, Boyd J\*, Chadwick G, Orphan V, Amend JP, Rappé MS, Tyson G. Methane cycling in a novel Archaeoglobi. (Co-first authors \*)

Carr S, **Jungbluth SP**, Rappé MS, Orcutt BN. Metabolic potential of Marine Benthic Group E in anoxic crustal fluids.

**Jungbluth SP\***, Paver S\*, Carreira C, Fong A, Maier M, Tolar B, Williams A. Toward predictive microbial ecology: how we do, don't, and should study aquatic microbial communities.

**Jungbluth SP**, sKirton E, Roux S, Neyfach S, Mukherjee S, Wu D, Woyke T, Northern TR, DeLong EF, Nielsen T, Ivanova NN, Kyrpides NC, Elie-Fadrosh EA. Large numbers of draft genomes triple the number of bacterial and archaeal lineages in the tree of life.

## BOOK CHAPTER

Biddle JF, **Jungbluth SP**, Lever MA, Rappé MS. (2014) Life in the ocean crust. In: Kallmeyer J (ed). Life in Extreme Environments: The Deep Biosphere. DeGruyter.

## DISSERTATION

**Jungbluth SP** (2014). Microbial ecology in the sediment-covered ocean basement of the Juan de Fuca Ridge, University of Hawaii at Manoa, Department of Oceanography PhD Dissertation. 332 pp.

## NON-REFEREED JOURNAL ARTICLE

Böttjer D<sup>§</sup>, **Jungbluth SP**<sup>§</sup>, Boiteau R, Burkhardt B, De Leo F, Bruno BC. (2014) Career choices in marine and environmental sciences: navigating a sea of options. *Oceanography* **27**(4): 37-43.

§ co-first authors

## NON-REFEREED TECHNICAL REPORTS

**Atlantis Expedition AT36 Shipboard Parties**. (2016) AT36 cruise report: Early career scientist deep submergence training.

Fisher AT, Becker K, Clark J, Cooper S, Hsieh C-C, **Jungbluth SP**, Orcutt B, Steward G, Wheat CG. (2014) Cruise report for R/V *Atlantis*/ROV *Jason-II* Expedition AT26-03: Hydrogeologic, geochemical and microbiological experiments in young ocean crust of the Northeastern Pacific Ocean using seafloor observatories.

## REFEREED COMPETITIVE GRANTS

2015: "Metagenomics of Viral and Microbial Communities Inhabiting Warm, Anoxic Fluids of the Sediment-Buried Deep Ocean Crust", supported by the Joint Genome Institute Community

Sequencing Program (Lead-PI Michael Rappé; Co-PIs Grieg Steward, Sean Jungbluth, Olivia Nigro).

2012: “Promoting Scientific Collaborations, Networking and Professional Development Among C-MORE’s Next-Generation”, supported by the Center for Microbial Oceanography: Research and Education (C-MORE) EDventures Program (Co-funded with C-MORE Professional Development Organizing Committee; \$22,486)

2011: “Metagenomics, Metatranscriptomics, and Single-Cell Genomics of Microbial Communities Inhabiting Juan de Fuca Ridge Flank Borehole Fluids”, supported by the Center for Dark Energy Biosphere Investigations (C-DEBI) Research Support Program (Co-funded with Michael Rappé; \$45,494)

### PRESENTATIONS, POSTERS, AND ABSTRACTS

- \*(62) July 2017: **Jungbluth SP**‡, Kirton E, Roux S, Wu D, Nielsen T, Ivanova NN, Kyrpides NC, Eloe-Fadrosch EA. Illuminating the phylogenetic breadth and metabolic potential of microbial life with thousands of archaeal metagenome-assembled genomes. *Archaea: Ecology, Metabolism & Molecular Biology – Gordon Research Conference, Waterville Valley, NH.* (Oral)
- (61) April 2017: **Jungbluth SP**‡, Momper L, Amend JP. Diversity and functional potential of microbial dark matter in marine and terrestrial deep subsurface aquifers. *NeLLi: From New Lineages to New Functions. Walnut Creek, CA.* (Poster)
- (60) April 2017: Carr S‡, **Jungbluth SP**, Rappé, MS, Orcutt BN. Metabolic potential of Marine Benthic Group E in anoxic crustal fluids. *Rocky Mountain GeoBiology Symposium, Golden, CO.* (Oral).
- (59) April 2017: Amend JP‡, Robador A, LaRowe D, **Jungbluth SP**. Activity and phylogentic diversity of microorganisms in subsurface fluids of the ocean upper ocean crust. *American Chemical Society Annual Meeting,, San Francisco, CA.* (Oral).
- (58) February 2017: Nigro OD‡, Rappé MS, **Jungbluth SP**, Steward GF. Archaeal viruses and host connections within the oceanic basement. *ASLO Aquatic Sciences Meeting, Honolulu, HI.* (Poster)
- (57) March 2016: Rappé MS‡, **Jungbluth SP**, Lin H-T, Nigro OD, Steward GF. The distribution, diversity, and function of microbial and viral communities inhabiting anoxic crustal fluids within deep seafloor basalt. *JGI Users Meeting, Walnut Creek, CA.* (Poster)
- (56) February 2016: **Jungbluth SP**‡, Glavina del Rio T, Tringe SG, Stepanauskas R, Rappé MS. Genomic characterization of a marine microorganism belonging to a Firmicutes lineage that is widespread in both terrestrial and oceanic subsurface environments. *C-DEBI Site Visit, Los Angeles, CA.* (Poster)
- (55) January 2016: **Jungbluth,SP**. Investigating novel microbial life in the deep igneous oceanic crust. *University of Southern California Department of Earth Sciences Paleoenvironmental Seminar, Los Angeles, CA.* (Oral)
- (54) December 2015: **Jungbluth SP**‡, Glavina del Rio T, Tringe S, Stepanauskas R, Rappé MS. Ecogenomic characterization of a marine microorganism belonging to a Firmicutes lineage that is widespread in both terrestrial and oceanic subsurface environments. *American Geophysical Union Annual Meeting, San Francisco, CA.* (Poster)
- (53) December 2015: Nigro O‡, **Jungbluth SP**, Lin H-T, Rappé MS, Steward G. Archaeal viruses contribute to the novel viral assemblage inhabiting oceanic, basalt-hosted deep subsurface crustal

- fluids. American Geophysical Union Annual Meeting, San Francisco, CA. (Oral)
- (52) November 2015: **Jungbluth SP**. Microbial life in the deep seafloor igneous basement: a frontier of exploration. University of Southern California Marine Environmental Biology Retreat, Catalina Island, CA. (Oral)
- (51) October 2015: Nigro O‡, **Jungbluth SP**, Lin H-T, Rappé MS, Steward GF. The unique viral assemblage of a basalt-hosted microbial community. C-DEBI Annual Meeting, Marina, CA. (Oral)
- (50) October 2015: **Jungbluth SP**‡, Glavina del Rio T, Tringe S, Stepanauskas R, Rappé MS. Characterization of a marine Firmicutes genome from a lineage that is widespread in both terrestrial and oceanic subsurface environments. C-DEBI Annual Meeting, Marina, CA. (Poster)
- (49) April 2015: Lin H-T‡, **Jungbluth SP**, Hsieh C-C, Rappé MS. The biogeochemistry and microbiology of deep, anoxic oceanic crustal fluids. International Symposium: Frontiers in Marine Geology – Deep Life, Deep Carbon, Kaohsiung, Taiwan. (Oral)
- (48) February 2015: Nigro OD‡, **Jungbluth SP**, Lin H-T, Hsieh C-C, Mueller J, Schvarcz C, Rappé MS, Steward G. A first look at a deep subsurface viral community from the basement fluids of the Juan de Fuca Ridge flank. American Society for Limnology and Oceanography Aquatic Sciences Meeting, Grenada, Spain. (Oral)
- (47) January 2015: Lin H-T‡, **Jungbluth SP**, Hsieh C-C, Omori E, Rappé MS. Biogeochemistry and microbiology of anoxic seafloor basalt-hosted fluids. C-DEBI Site Visit, Los Angeles, CA. (Poster)
- (46) January 2015: Nigro OD‡, **Jungbluth SP**, Lin H-T, Hsieh C-C, Mueller J, Schvarcz C, Rappé MS, Steward, G. Characterization of a deep subsurface viral community from the basement fluids of the Juan de Fuca Ridge flank. C-DEBI Site Visit, Los Angeles, CA. (Poster)
- (45) January 2015: Lloyd KG‡, Bird J, Steen AD, Buongiorno J, **Jungbluth SP**. Insights from the first deep subsurface single cell genomes and development of digestR, a new tool for metagenomic analysis. C-DEBI Site Visit, Los Angeles, CA. (Poster)
- (44) October 2014: Lin H-T‡, **Jungbluth SP**, Hsieh C-C, Rappé MS. The biogeochemistry and microbiology of deep, anoxic oceanic crustal fluids. C-DEBI Annual Meeting, Marina, CA. (Oral)
- (43) December 2014: Rappé MS‡, **Jungbluth SP**, Carr S, Lin H-T, Hsieh C-C, Nigro OD, Steward GF, Orcutt BN. Identifying the dominant metabolic strategies used by microorganisms within basalt-hosted, anoxic deep subsurface basement fluids via environmental genomics. American Geophysical Union Annual Meeting, San Francisco, CA. (Oral)
- (42) December 2014: **Jungbluth SP**‡, Lin H-T, Hsieh C-C, Rappé MS. High-resolution temporal analysis of deep seafloor microbial communities inhabiting basement fluids. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (41) December 2014: Carr S‡, **Jungbluth SP**, Lin H-T, Rappé MS, Orcutt BN. Investigating chemotactic potential within crustal fluid communities. American Geophysical Union Annual Meeting, San Francisco, CA. (Oral)
- \*(40) December 2014: Orcutt BN‡, Sylvan J, Rogers D, Lee R, Girguis P, Carr S, **Jungbluth SP**, Rappé MS. Carbon fixation in oceanic crust: does it happen, and is it important?. American Geophysical Union Annual Meeting, San Francisco, CA. (Oral)

- \*(39) October 2014: **Jungbluth SP**‡. Juan de Fuca Ridge flank basement fluid microbiology. C-DEBI Networked Speaker Series. Honolulu, HI [broadcast online]
- (38) October 2014: Rappé MS‡, **Jungbluth SP**, Lin H-T, Orcutt BN. Metabolic characteristics of microorganisms inhabiting basement basalt of the Juan de Fuca Ridge flank revealed by metagenomics. International Symposium on Subsurface Microbiology, Pacific Grove, CA. (Oral)
- (37) October 2014: Nigro OD‡, Mueller J, **Jungbluth SP**, Lin H-T, Hsieh C-C, Rappé M, Steward G. Characterization of a deep subsurface viral community within basement fluids of the Juan de Fuca Ridge flank. International Symposium on Subsurface Microbiology, Pacific Grove, CA. (Poster)
- \*(36) September 2014: **Jungbluth SP**‡. Microbial diversity in anoxic, seafloor basaltic fluids. NASA Astrobiology Institute Seminar, University of Hawaii, Honolulu, HI. (Oral)
- (35) September 2014: **Jungbluth SP**‡. Microbial diversity in anoxic, seafloor basaltic fluids. Department of Oceanography PhD Defense Talk, University of Hawaii, Honolulu, HI. (Oral)
- (34) June 2014: Orcutt BN‡, Carr S, **Jungbluth S**, Rappé MS, Wheat CG. Microbial functions in the Juan de Fuca Ridge flank crustal deep biosphere revealed through single cell genomics. Goldschmidt 2014, Sacramento, CA. (Oral)
- (33) April 2014: **Jungbluth SP**. Microbial diversity of deep seafloor crustal fluids. Conference of Biological Oceanography Graduate Students, University of Hawaii, Honolulu, HI. (Oral)
- (32) January 2014: Lin H-T‡, Cowen JP, Olson EJ, Lilley MD, **Jungbluth SP**, Rappé MS. Biogeochemistry of dissolved methane and hydrogen in basement fluids of the sediment-buried Juan de Fuca Ridge flank at Boreholes (CORKS) 1301A, 1362A and 1362B: methane isotopic compositions. C-DEBI Site Visit, Los Angeles, CA. (Poster)
- (31) January 2014: **Jungbluth SP**‡, Bowers R, Lin H-T, Hsieh C-C, Cowen JP, Rappé MS. Subsurface fluids from basement basalt of the Juan de Fuca Ridge possess microbial communities that are distinct from overlying sediments and surrounding seawater. C-DEBI Site Visit, Los Angeles, CA. (Poster)
- (30) January 2014: Hsieh C-C‡, Lin H-T, Cowen JP, Steward GF, Nigro OD, **Jungbluth SP**, Rappé MS. Basement fluid sampling for biogeochemistry and microbiology. C-DEBI Site Visit, Los Angeles, CA. (Poster)
- \*(29) January 2014: **Jungbluth SP**‡, Grote J, Lin H-T, Cowen JP, Rappé MS. Temporal microbial dynamics in seafloor crustal fluids. C-DEBI Site Visit, Los Angeles, CA. (Oral)
- (28) December 2013: **Jungbluth SP**‡, Bowers R, Lin H-T, Hsieh C-C, Cowen JP, Rappé MS. Subsurface fluids from basement basalt of the Juan de Fuca Ridge possess microbial communities that are distinct from overlying sediments and surrounding seawater. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (27) December 2013: **Jungbluth SP**‡, Boiteau R, Bottjet D, De Leo FC, Hawko N, Ilikchyan I, Bruno BC. Careers and networking: professional development for graduate students and post-docs. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (26) December 2013: Lin H-T‡, Cowen JP, Olson EJ, Lilley MD, **Jungbluth SP**, Rappé MS. Biogeochemistry of dissolved methane and hydrogen in basement fluids of the sediment-buried Juan de Fuca Ridge flank at Boreholes (CORKS) 1301A, 1362A and 1362B: methane isotopic compositions. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)



- \*(25) October 2013: **Jungbluth SP**‡. Molecular microbial diversity of Juan de Fuca Ridge borehole fluids. C-DEBI Annual Meeting, Marina, CA. (Oral)
- (24) October 2013: Hsieh C-C‡, Lin H-T, Cowen JP, Steward GF, Nigro OD, **Jungbluth SP**, Rappé MS. Basement fluid sampling for biogeochemistry and microbiology. C-DEBI Annual Meeting, Marina, CA. (Poster)
- \*(23) December 2012: **Jungbluth SP**‡, Bowers R, Lin H-T, Hsieh C-C, Cowen JP, Rappé MS. Microbial diversity within Juan de Fuca ridge basement fluids sampled from oceanic borehole observatories. American Geophysical Union Annual Meeting, San Francisco, CA. (Oral)
- (22) December 2012: Lin H-T‡, Cowen JP, Olson EJ, Lilley MD, **Jungbluth SP**, Rappé M, Bowers R. Biogeochemistry of dissolved methane and hydrogen within basement fluids of the sediment-buried Juan de Fuca Ridge flank at Borehole (CORKs) 1301A, 1362A and 1362B. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (21) December 2012: Bruno BC, Bottjer D, **Jungbluth S**‡, Burkhardt B, Hawko N, Boiteau R, Shilova I, DeLeo F. C-MORE Professional Development Training Program for graduate students and post-docs: The Professional Development Organizing Committee presents Career and Networking workshops. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (20) June 2012: Robador A‡, **Jungbluth SP**, LaRowe DE, Lin H-T, Rappé MS, Amend JP, Cowen JP. Microbial sulfate reduction in deep seafloor basaltic fluids. Dark Energy Biosphere Institute: Research Coordination Network Ocean Crust Processes and Consequences for Life Workshop, Bremen, Germany. (Poster)
- (19) June 2012: Cowen JP‡, Lin H-T, Hsieh C-C, Rappé MS, **Jungbluth S**, Amend J, Boettger J, Glazer B, Lilley M, Olson E. Versatile seafloor sampling systems yield routine/reliable access to pristine subsurface crustal fluids for diverse deep biosphere studies. Dark Energy Biosphere Institute: Research Coordination Network Ocean Crust Processes and Consequences for Life Workshop, Bremen, Germany. (Poster)
- (18) June 2012: **Jungbluth SP**‡, Cowen JP, Rappé MS. Phylogenetic diversity of microorganisms within basement crustal fluids of the Juan de Fuca Ridge flank: ODP boreholes 1025C and 1026B. Dark Energy Biosphere Institute: Research Coordination Network Ocean Crust Processes and Consequences for Life Workshop, Bremen, Germany. (Poster)
- (17) April 2012: Bottjer D‡, Boiteau R, Burkhardt B, De Leo F, Hawco N, **Jungbluth S**. C-MORE Professional Development Training Program – PDTP: promoting career enrichment and leadership among students and post-docs. C-MORE annual site visit, Honolulu, HI. (Poster)
- (16) April 2012: **Jungbluth SP**‡, Grote J, Lin H, Cowen JP, Rappé MS. Annual variation in microbial community structure within ridge flank crustal fluids. NASA Astrobiology Science Conference 2012, Atlanta, GA. (Oral)
- (15) March 2012: Cowen JP‡, Lin H-T, **Jungbluth SP**, Hsieh C-C, Rappé MS. 1362A and 1362B CORK Bio-Fluid Lines Hana Maika'i Loa. IODP Expedition 327 Post-Cruise Meeting, Honolulu, HI. (Oral)
- (14) March 2012: Rappé MS‡, **Jungbluth SP**, Johnson LGH, Cowen JP. Microbial community structure in sediment and rock samples from IODP Expedition 327. IODP Expedition 327 Post-Cruise Meeting, Honolulu, HI. (Oral)
- (13) March 2012: **Jungbluth SP**‡, Johnson LGH, Cowen JP, Rappé MS. Microbial community structure in

sediment and rock samples from IODP Expedition 327. IODP Expedition 327 Post-Cruise Meeting, Honolulu, HI. (Poster)

- (12) December 2011: Cowen JP‡, Lin H-T, **Jungbluth SP**, Hsieh C-C, Rappé M, et al. 1997 to present: quality and versatile access to the deep biosphere with coupled advanced CORKs and fluid pumping systems. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (11) August 2011: Cowen JP‡, Lin H-T, **Jungbluth SP**, Robador A, Matzinger M, Rappé M, Glazer B, Amend J, Boettger J. Ocean crustal biosphere: fluid sampling from IODP CORK observatories. Asia Oceania Geosciences 8<sup>th</sup> Annual General Meeting, Taipei, Taiwan. (Oral)
- \*(10) July 2011: **Jungbluth SP**‡. Molecular microbial ecology of sediment-buried ridge flank crustal fluids. U.S. Advisory Committee for Scientific Ocean Drilling Biannual Meeting, Washington, DC. (Oral)
- (9) March 2011: **Jungbluth SP**‡, Grote J, Lin H-T, Cowen JP, Rappé MS. Temporal variation in microbial community structure of sediment-buried basement fluids. Dark Energy Biosphere Institute: Research Coordination Network Sediment Microbiology Workshop, Chapel Hill, NC. (Poster)
- (8) December 2010: Lin H-T‡, Cowen JP, Amend JP, Albert DB, Glazer BT, Rappé MS, **Jungbluth SP**, Matzinger M. Organic chemistry of fluids from sediment-buried young basement: discrete sampling from ODP borehole 1301A & 1025C. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (7) December 2010: Cowen JP‡, Lin H-T, Rappé MS, **Jungbluth SP**, Glazer B, Matzinger M, Amend J, Boettger J. Window into sediment-buried basement biosphere: fluid sampling from CORK observatory seafloor platforms, Juan de Fuca Ridge flanks. American Geophysical Union Annual Meeting, San Francisco, CA. (Poster)
- (6) November 2010: Rappé MS‡, Hayakawa DH‡, Huggett M‡, **Jungbluth SP**‡. The laboratory for marine microbial ecology: small cells, global impact. Hawaii Institute of Marine Biology Seminar, Kaneohe, HI. (Oral)
- (5) August 2010: **Jungbluth SP**‡, Grote J, Lin H-T, Cowen JP, Rappé MS. Microorganisms inhabiting basement fluids of the sediment-buried Juan de Fuca Ridge flank. 13<sup>th</sup> International Symposium for Microbial Ecology, Seattle, WA. (Oral)
- (4) February 2010: Rappé M‡, **Jungbluth S**, Grote J, Lin H-T, Cowen JP. Microbial inhabitants of basalt-hosted fluids of the deep ocean crust. American Society for Limnology and Oceanography Annual Meeting, Portland, OR. (Oral)
- (3) February 2010: Cowen JP‡, Lin H-T, Rappé M, **Jungbluth S**, Glazer BT, Matzinger M. New developments in the collection of high integrity fluid samples from the deep seafloor basement (basaltic crust) aquifer for geochemical and microbial ecological studies. American Society for Limnology and Oceanography Annual Meeting, Portland, OR. (Poster)
- (2) June 2009: Cowen JP‡, Lin H-T, Glazer BT, Matzinger M, **Jungbluth SP**, Jones R, Olson E, Albert D, Amend J. The biogeochemistry and ecology of deep sediment-buried basement biosphere: Juan de Fuca Ridge Flanks. Goldschmidt Conference Abstract A249. (Oral)
- (1) December 2008: Cowen JP‡, Glazer BT, Rappé M, Lin H-T, Matsumoto R, Matzinger M, Mojica K, Nakata L, Ricardo A, **Jungbluth S**, Albert D, Amend J. (2008) The biogeochemistry and ecology of deep sediment-buried basement biosphere: Juan de Fuca Ridge Flanks. American Geophysical

Union Annual Meeting, San Francisco, CA. (Poster)

\* invited presentation; ‡ presenting author

## RELEVANT FIELD EXPERIENCE

- (18) Atlantic Continental Shelf, URI Inner Space Center shore-based participant, AT36 (August 3 – 8, 2016)
- (17) Atlantic Continental Shelf, *R/V Atlantis – DSV Alvin II* cruise participant, AT36 (July 28 – August 2, 2016)
- (16) **Juan de Fuca Ridge (JdFR) flank**, *R/V Atlantis – DSV Alvin II* cruise participant, AT26-18 (August 10 – August 24, 2014)
- (15) **JdFR flank**, *R/V Atlantis – ROV JASON-II* cruise participant, AT26-03 (July 13 – July 26, 2013)
- (14) **North Pacific Subtropical Gyre (NPSG)**, *R/V Kilo Moana* cruise participant, KM12-23 & HOT 247 (October 6-10, 2012)
- (13) **NPSG**, *R/V Kilo Moana* cruise participant, KM12-18 & HOT 245 (August 16-20, 2012)
- (12) **NPSG**, *R/V Kilo Moana* cruise participant, KM12-16 & HOT 244 (July 30 – August 3, 2012)
- (11) **NPSG**, *R/V Kilo Moana* cruise participant, KM12-13 & HOT 243 (June 25-29, 2012)
- (10) **NPSG**, *R/V Ka'Imikai-O-Kanaloa* cruise participant, KOK12-05 & HOT 242 (May 29 – June 2, 2012)
- (9) **NPSG**, *R/V Ka'Imikai-O-Kanaloa* cruise participant, KOK12-02 & HOT 241 (April 30 – May 4, 2012)
- (8) **NPSG**, *R/V Kilo Moana* cruise participant, KM12-05 & HOT 240 (March 23-27, 2012)
- (7) **NPSG**, *R/V Ka'Imikai-O-Kanaloa* cruise participant, KOK12-01 & HOT 239 (January 17-21, 2012)
- (6) **JdFR flank**, *R/V Atlantis – ROV JASON-II* cruise participant, AT18-07 (June 28 – July 14, 2011)
- (5) **JdFR flank**, *D/V JOIDES Resolution* shore-based participant, IODP Expedition 327
- (4) **JdFR flank**, *R/V Atlantis – ROV JASON-II* cruise participant, AT15-66 (June 13 – July 1, 2010)
- (3) **JdFR flank and ridge-axis**, *R/V Atlantis – DSV Alvin* cruise participant, AT15-51 (August 20 – September 6, 2009)
- (2) **Waianae Coast, Oahu, Hawaii**, *R/V Kilo Moana* cruise participant, KM09-06 (February 12 – February 15, 2009)
- (1) **JdFR flank**, *R/V Atlantis – DSV Alvin* cruise participant, AT15-35 (July 24 – August 14, 2008)

## **TEACHING**

### **TEACHING EXPERIENCE**

Fall 2008: University of Hawaii at Manoa Department of Oceanography Teaching Assistant for Introductory Oceanography Laboratory Class “Science of the Sea”

- Assisted lead instructors with “Science of the Sea” introductory oceanography lecture (OCN 201), conducted weekly office hours to enhance student understanding, and participated in student assessment.
- Administered a single component of the adjunct laboratory course “Science of the Sea Laboratory” (OCN 201L), involving weekly lab preparation, lecturing, student tutoring and assessment.

Fall 2006: University of Wisconsin at Madison Department of Bacteriology Undergraduate Teaching Assistant for Introductory Microbiology Laboratory Class “Prokaryotic Microbiology Laboratory”

- Assisted lead instructors with “Prokaryotic Microbiology Laboratory” course for microbiology majors (BACT 304).
- Responsibilities included preparing experiment materials, setting up student workspaces, assisting students with conduction of laboratory practical, and assessing student technique and knowledge base.

### **STUDENTS AND TECHNICIANS MENTORED OR ADVISED**

November 2015 – October 2016: Lily Momper, Guang-Sin Lu, Laura Zinke, USC Graduate Students

April 2015 – September 2015: Kimberly Teehera, UH-undergraduate, NASA Space Grant Fellowship

February 2014 – August 2015: Everett H Omori, BS, Rappé Laboratory Technician

August 2011 – May 2012: Lani Johnson, UH-undergraduate, C-MORE Scholars Program Trainee, Undergraduate Research Opportunities Program Scholar

## **SERVICE**

### **REFEREEING**

Environmental Microbiology; Frontiers in Microbiology; ISME Journal; National Science Foundation (Biological Oceanography); PLoS ONE

### **COMMUNITY OUTREACH**

2016: Lecturer, “Investigating Novel Microbial Life in the Deep Igneous Oceanic Crust”, Community College Instructors Workshop, University of Southern California sponsored by C-DEBI.

2015: Lecturer and Activity Lead, “Microbial Life Inside the Seafloor” and “BLAST Astrobiology Activity”, Education and Research: Testing Hypotheses (EARTH) Mini-Workshop, Kaimuki Middle School sponsored by Monterey Bay Aquarium Research Institute.

- 2014: Lecturer, “C-DEBI Research & Astrobiology” at “Astrobiology and Microbes Workshop for Science Teachers”, Microbial Oceanography Workshop for Science Teachers, Moloka’i High School Library sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2014: Lecturer, “History of the Alvin Submersible”, Microbial Oceanography Workshop for Science Teachers, Moloka’i High School Library sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2014: Lecturer, “Subsurface Seafloor Microbial Life” at “CDEBI/Astrobiology” Workshop and Camp, Mokupapapa, Hilo, Hawaii sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2014: Lecturer, “C-DEBI Research and Astrobiology” at “Astrobiology/Microbial Oceanography” Workshop, Sacred Hearts Academy, Lahaina, Maui sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2014: Lecturer, “Submersibles at the Ocean Floor for C-DEBI Research” at “Life in Our Oceans” Workshop, Manoa Public Library sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2014: Lecturer, “Diversity of Seafloor and Subseafloor Environments – C-DEBI Research & Relevance to Astrobiology”, Microbial Oceanography Workshop for Science Teachers, Moloka’i High School Library sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2015-2014, 2012, 2009-2010: Judge, Hawaii State Science and Engineering Fair
- 2013: Contributor, SOEST Graduate Student Blog
- 2013: Lecturer, “C-DEBI Microbial Oceanography (and relevance to Astrobiology)”, Astrobiology Laboratory Institute for Instructors (ALI’I) National Summer Teacher Workshop, University of Hawaii at Manoa sponsored by the UH-Manoa NASA Astrobiology Institute
- 2013: Lecturer, “Diversity of Seafloor and Subseafloor Environments”, Academy of the Pacific.
- 2013: Lecturer, “Diversity of Seafloor and Subseafloor Environments”, University of Hawaii at Manoa Marine Science Professional Development Workshop sponsored by the UH-Manoa Institute for Astronomy, C-MORE, and C-DEBI.
- 2011, 2013: Research Scientist Participant, Deep Earth Academy Ship-to-Shore Scientist Interviews & Activities
- 2012-2013: Reviewer, University of Hawaii at Manoa School of Ocean and Earth Science and Technology TGIF Mini-Grant Program Proposals
- 2011-2013: Member, C-MORE Professional Development Organizing Committee
- 2009-present: Tour Guide, Hawaii Institute of Marine Biology Community Education Program
- 2011: Exhibitor, C-MORE “Under Pressure” Module, UH-Manoa SOEST Open House
- 2006-2008: Divemaster, University of Wisconsin at Madison Hooper’s SCUBA club
- 2006-2007: Treasurer, University of Wisconsin at Madison Hooper’s SCUBA club

2004-2006: Public Relations Chair, University of Wisconsin at Madison Pre-Veterinary Club

## **PROFESSIONAL DEVELOPMENT**

### **LEADERSHIP**

Lead scientific (port) observer, HOV Alvin and Alvin-II Operations Onboard R/V *Atlantis* AT15-35, AT15-51, and AT26-18

- Executed submersible operations science plan during three deep-sea dives to 2,650 meters depth.
- Co-planned basement fluid sampling efforts.

Certificate in “Art of Leadership”, University of Hawaii Manoa Outreach College, April 2014

- Attended 40 hours of instructional training in leadership activities, including: collaborative principles, coaching and mentorship, emotions of leadership, giving and receiving constructive feedback, proactive listening, expressing thoughts and ideas, moving from conflict to collaboration, strategies for navigating change, influencing win-win outcomes, and giving recognition.

Co-lead watch, ROV *Jason II* Operation Onboard R/V *Atlantis* Cruise AT18-03, July 2013

- Executed deep submersible operations science plan under discretion of chief scientist.
- Planned and conducted basement fluid sampling efforts.

Certificates in Leadership, Mentorship, and Outreach, Center for Oceanography: Research and Education Professional Development Training Program, May 2013

- Awarded for completion of program modules, which included leadership of Professional Development Organizing Committee, outreach training and leadership of C-MORE outreach events, mentorship training and conduction of a successful mentorship experience.

Co-organizer and co-moderator, C-MORE Networking Workshop, February 2013

- Planned and coordinated a networking event with collaborators across the country to be held at the national ASLO 2013 Aquatic Sciences Meetings.
- Workshop roles included co-moderation and lead of one-hour section focused on ideas for continuing collaborations.

President, C-MORE Professional Development Organizing Committee, February – December, 2013

- Responsible for coordinating and leading monthly teleconference meetings involving participants spanning multiple C-MORE affiliated universities and research institutes.
- Administered and continued development of extent Professional Development Training Program.
- Organized roles and responsibilities of Professional Development Organizing Committee members.

Co-organizer and co-moderator, C-MORE “Career Choices in Oceanography and Related Fields” Workshop, November 2013

- Planned and coordinated an event featuring careers of varied oceanographic disciplines, including biotechnology, government, researcher, education, and environmental consultation.
- Workshop roles included co-moderation and facilitation of audience/speaker interactions.

## **PROFESSIONAL ORGANIZATION MEMBERSHIPS**

Astrobiology Society, International Society for Subsurface Microbiology (ISSM), International Society for Microbial Ecology (ISME), Association for the Study of Limnology and Oceanography (ASLO), The Oceanography Society (TOS), Marine Technology Society (MTS), American Geophysical Union (AGU), American Association for the Advancement of Science (AAAS), American Society for Microbiology (ASM)

## **CONFERENCES, WORKSHOPS & SHORT-COURSES ATTENDED**

### **NATIONAL & INTERNATIONAL**

- 2017: Archaea: Ecology, Metabolism & Molecular Biology – Gordon Research Conference, Waterville Valley, NH (Jul 23 – Jul 27)
- 2017: NeLLi 2017: From New Lineages of Life to New Functions – DOE Joint Genome Institute Meeting, Walnut Creek, CA (5-6 Apr)
- 2016: UNOLS Deep-Submergence Science Leadership Cruise, Woods Hole, MA and Narragansett, RI (26 Jul – 8 Aug)
- 2016: Origins and Movements of Subsurface Microorganisms Workshop sponsored by DCO and C-DEBI (9 – 10 May)
- 2016: Joint Genome Institute (JGI) Users’s Meeting, Walnut Creek, California (22 – 24 Mar)
- 2016: Center for Dark Energy Biosphere Investigations (C-DEBI) NSF Site Visit, Los Angeles, California (9 Feb)
- 2015: American Geophysical Union (AGU) Fall Meeting, San Francisco, California (14 Dec - 18 Dec)
- 2015: Center for Dark Energy Biosphere Investigations (C-DEBI) 5<sup>th</sup> Annual Meeting, Marina, California (4 Oct-6 Oct)
- 2015: EarthCube Oceanography and Geobiology Environmental ‘Omics (ECOGEO) Research Coordination Network meeting sponsored by National Science Foundation, Honolulu, HI (27 Aug – 28 Aug)
- 2015: Science and Technology Centers of Excellence Directors meeting sponsored by National Science Foundation, Honolulu, HI (26 Aug – 27 Aug)
- 2015: Marine Geoscience Leadership Symposium sponsored by Consortium for Ocean Leadership U.S. Science Support Program, Washington, DC (16 Mar - 20 Mar)
- 2015: “ECORD Training Course: The Virtual Drillship Experience” sponsored by European Consortium for Ocean Research Drilling (ECORD), GLOMAR, and MARUM, University of Bremen, Germany (9 Mar – 13 Mar)
- 2015: Microbial Genomics & Metagenomics (MGM) Workshop sponsored by Department of Energy Joint Genome Institute (DOE-JGI), Walnut Creek, California (9 Feb – 13 Feb)
- 2014: American Geophysical Union (AGU) Fall Meeting, San Francisco, California (15 Dec - 19 Dec)
- 2014: Ecological Dissertations in the Aquatic Sciences Symposium XI (Eco-DAS XI) sponsored by

- National Science Foundation (NSF), Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii School of Ocean Earth Science and Technology (SOEST), and the UH Department of Oceanography (19 Oct – 25 Oct)
- 2014: “Data Analysis for Genomics”, Harvard School of Public Health, edX.org online course (Online; 7 Apr – 1 Jun)
- 2014: Effective Communication and Team-Building Workshop: Workplace Problem-Solving sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), Honolulu, Hawaii, USA (23 Feb)
- 2014: Center for Dark Energy Biosphere Investigations (C-DEBI) NSF Site Visit, Los Angeles, California (14 Jan-15 Jan)
- 2014\*: University of Hawaii Astrobiology Institute National Aeronautics and Space Administration (NASA)-Nordic Winter School, Hawaii, USA (1 Jan-14 Jan)
- 2013: American Geophysical Union (AGU) Fall Meeting, San Francisco, California (9 Dec-13 Dec)
- 2013: Deep Submergence Science Committee (DeSSC) Early Career Scientist Program and Meeting sponsored by University-National Oceanographic Laboratory System (UNOLS) and National Science Foundation (NSF), San Francisco, California (7 Dec- 8 Dec)
- 2013: R Crash Course for Microbial Ecologists, Detroit, Michigan (4 Nov- 6 Nov)
- 2013: Center for Dark Energy Biosphere Investigations (C-DEBI) 3<sup>rd</sup> Annual Meeting, Marina, California (6 Oct-8 Oct)
- 2013: Family-Career-Life Balance on “Do Babies Matter” sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii at Manoa (2 Jul)
- 2013\*: EU-US Theoretical and Practical Course on Marine Bioinformatics “Marine Omics” Workshop, Newark, Delaware, (17 Jun-28 Jun)
- 2013: Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, New Orleans, Louisiana (17 Feb-22 Feb)
- 2013: Networking Workshop sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), New Orleans, Louisiana (17 Feb)
- 2012: American Geophysical Union (AGU) Fall Meeting, San Francisco, California (3 Dec-7 Dec)
- 2012: Deep Submergence Science Committee (DeSSC) Early Career Scientist Program and Meeting, sponsored by University-National Oceanographic Laboratory System (UNOLS) and National Science Foundation (NSF), San Francisco, California (1 Dec-2 Dec)
- 2012: Center for Dark Energy Biosphere Investigations (C-DEBI) 2<sup>nd</sup> Annual Meeting, Marina, California (22 Oct-23 Oct)
- 2012: Science Writing Workshop sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii at Manoa (2 Oct)
- 2012: “Ocean Crust Processes and Consequences for Life” sponsored by the Dark Energy Biosphere Institute (DEBI), University of Bremen, Germany (7 Jun-9 Jun)



- 2012: Astrobiology Science Conference (AbSciCon) sponsored by the National Aeronautics and Space Administration (NASA), Atlanta, Georgia (16 Apr-20 Apr)
- 2012: Integrated Ocean Drilling Program (IODP) Expedition 327 Post-cruise Meeting, Honolulu, Hawaii (12 Mar-13 Mar)
- 2011: “Enhanced Ocean Upwelling: Science, Engineering and Potential Applications” sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE) and EarthFree Institute, University of Hawaii at Manoa (29 Nov-30 Nov)
- 2011: Diversity Teleconference sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii at Manoa (27 Oct)
- 2011: OCEANS '11 sponsored by Marine Technology Society (MTS) & Institute of Electrical and Electronics Engineers (IEEE), Kailua-Kona, Hawaii (19 Sep-22 Sep)
- 2011: “AUV Technology and Application Basics” sponsored by the Marine Technology Society (MTS) & Institute of Electrical and Electronics Engineers (IEEE), Kailua-Kona, Hawaii (18 Sep)
- 2011: “Acoustic Seabed Classification with Multibeam and Sidescan Images” sponsored by the Marine Technology Society (MTS) & Institute of Electrical and Electronics Engineers (IEEE), Kailua-Kona, Hawaii (18 Sep)
- 2011: U.S. Advisory Committee for Scientific Ocean Drilling (USAC) Biannual Meeting sponsored by Consortium for Ocean Leadership U.S. Science Support Program, Washington, DC (18 Jul-20 Jul)
- 2011: “Paleobiology During the Genomics Era” sponsored by the NASA Astrobiology Institute (NAI), Hosted Online courtesy of the J. Craig Venter Institute (JCVI) (Online; 12 May-13 May)
- 2011: “Deep Biosphere Sediment Microbiology” sponsored by the Dark Energy Biosphere Institute (DEBI), University of North Carolina at Chapel Hill (7 Mar-9 Mar)
- 2011: Center for Microbial Oceanography: Research and Education (C-MORE) 4<sup>th</sup> Annual Meeting, University of Hawaii at Manoa (2 Mar-4 Mar)
- 2011: Proposal-Writing Workshop as part of the Center for Microbial Oceanography: Research and Education (C-MORE) Annual All-Hands Meeting, University of Hawaii at Manoa (4 Mar)
- 2010: “Molecular Paleontology and Resurrection: Rewinding the Tape of Life” sponsored by the NASA Astrobiology Institute (NAI), Hosted Online courtesy of Montana State University (Online; 8 Nov-9 Nov)
- 2010: 13<sup>th</sup> International Symposium for Microbial Ecology sponsored by the International Society for Microbial Ecology (ISME), Seattle, Washington (23 Aug-27 Aug)
- 2009: “Subseafloor Ocean Biosphere and Borehole Observatory Science” sponsored by the Dark Energy Biosphere Institute (DEBI), Kailua-Kona, Hawaii (18 Oct-20 Oct)
- 2009: Center for Microbial Oceanography: Research and Education (C-MORE) 2<sup>nd</sup> Annual Meeting, University of Hawaii at Manoa (16 Mar-18 Mar)

\* cross-listed in “Education” section

**LOCAL**

- 2016: Microbial Chemostat Short-Course and Practical, University of Southern California (Spring 2016)
- 2015: “Software Carpentry Workshop”, University of Hawaii at Manoa (19 Oct-20 Oct)
- 2013: “Using QIIME for Microbial Community Analysis” sponsored by Hawaii State IDeA Network for Biomedical Research Excellence (INBRE), Pacific Center for Emerging Infectious Diseases Research, Hawaii Office of Experimental Program to Stimulate Competitive Research (EPSCoR), University of Hawaii at Manoa (15 Mar)
- 2012: “Career Choices in Oceanography and Related Fields” sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii at Manoa (5 Nov)
- 2012: “Clustering in Bioinformatics and Medical Informatics” sponsored by Hawaii State IDeA Network for Biomedical Research Excellence (INBRE), Centers of Biomedical Research Excellence (COBRE), and Research Centers in Minority Institutions (RCMI) Program, University of Hawaii at Manoa (17 May)
- 2012: “Using Databases and Flat Files to Organize or Mine Large Datasets” sponsored by Hawaii State IDeA Network for Biomedical Research Excellence (INBRE), Centers of Biomedical Research Excellence (COBRE), and Research Centers in Minority Institutions (RCMI) Program, University of Hawaii at Manoa (9 Apr)
- 2012: “Science: Becoming the Messenger” sponsored by the National Science Foundation (NSF), Honolulu, Hawaii (23 Jan-24 Jan)
- 2011: “Introduction to Perl for Bioinformatics” sponsored by Hawaii State IDeA Network for Biomedical Research Excellence (INBRE), Centers of Biomedical Research Excellence (COBRE), Research Centers in Minority Institutions (RCMI) Multidisciplinary and Translational Research Infrastructure eXpansion (RMATRIX), University of Hawaii at Manoa (9 Dec-10 Dec)
- 2011: “The CIPRES Science Gateway” sponsored by Hawaii State IDeA Network for Biomedical Research Excellence (INBRE) and Centers of Biomedical Research Excellence (COBRE), University of Hawaii at Manoa (19 May)
- 2011: Proposal Development Workshop sponsored by the Hawaii Office of Experimental Program to Stimulate Competitive Research (EPSCoR), University of Hawaii at Manoa (6 Apr)
- 2010: “Introduction to Mac and Linux Command Line for Bioinformatics” sponsored by Hawaii State IDeA Network for Biomedical Research Excellence (INBRE) and Centers of Biomedical Research Excellence (COBRE), University of Hawaii at Manoa (8 Dec)
- 2010: “Science & the Media: Opportunities and Challenges in a Rapidly Changing World” sponsored by Communication Partnership for Science and the Sea (COMPASS) and the Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii at Manoa (24 Sep)
- 2009: “Workshop on the analysis of microbial sequence data using ARB” sponsored by the Center for Microbial Oceanography: Research and Education (C-MORE), University of Hawaii at Manoa (13 Aug-14 Aug)
- 2008: “Teaching All Students, Reaching All Learners: Innovative Ways to Address Disability & Diversity

in the Postsecondary Classroom”, University of Hawaii at Manoa Center on Disability Studies and Center for Teaching Excellence (Online; Dec)

### **COMPUTER SKILLS**

**General:** PC Repair and Peripheral Maintenance, Network Administration

**Software:** Adobe Photoshop, Adobe Illustrator, Adobe Dreamweaver and Flash

**Programming:** Shell, RStats, Python, Perl, Matlab, HTML/CSS

### **CURRENT CERTIFICATIONS**

SCUBA Divemaster, Rescue, Advanced Diver, and Enriched Air Nitrox, PADI

Emergency Responder CPR/First Aid – Adult, Primary/Secondary Care for Children with AED,  
Emergency First Response

On-line Course Completed, Boat U.S. Foundation for Boating Safety and Clean Water

### **REFERENCES**

Available upon request

**Updated August 6, 2017**