

## **Dr. Beth N. Orcutt**

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*Twitter:* @DeepMicrobe

### **Research Interests**

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My scientific passion is figuring out how microbial life survives in “extreme” environments in the deep sea and other aquatic environments and determining the roles that those microbes play in global chemical cycles. I primarily do this through deployment of observatory experiments in the environment to track the activity of microbes coupled with DNA sequencing to figure who the microbes are and how they do what they do.

*Keywords:* deep biosphere, geomicrobiology, microbial biogeochemistry, astrobiology, oceanic crust, marine sediment, cold seeps, microbe-mineral, observatories, deep-sea mining

*Society Memberships:* American Geophysical Union (AGU); Association for the Science of Limnology and Oceanography (ASLO); Deep Sea Biology Society (DSBS); Deep Ocean Stewardship Initiative (DOSI); Geological Society of America (GSA); The Oceanography Society (TOS)

### **Current Appointments**

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2012-present **Senior Research Scientist:** Bigelow Laboratory for Ocean Sciences, ME, USA

2012-present **Research Professor:** Colby College, ME, USA

2019-present **Research Fellow,** Hanse-Wissenschaftskolleg, Delmenhorst, Germany

2009-present **Adjunct Associate Professor:** Marine Biology and Biological Oceanography, Dept. of Biological Sciences, University of Southern California, CA, USA

### **Professional Experience**

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2009-2012 **Postdoctoral Research Associate:** Center for Geomicrobiology, Aarhus University, Aarhus, Denmark; lab of Prof. Dr. Bo Barker Jørgensen

2007-2009 **Postdoctoral Research Associate:** Department of Biological Sciences, University of Southern California, CA, USA; lab of Dr. Katrina J. Edwards

2004-2006 **Guest Scientist:** Organic Geochemistry Group, Research Center Ocean Margins, Bremen, Germany; lab of Prof. Dr. Kai-Uwe Hinrichs

2002-2006 **Guest Scientist:** Habitat Group, Max Planck Institute for Marine Microbiology, Bremen, Germany; lab of Prof. Dr. Antje Boetius

### **Education and Courses**

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2002-2007 **Ph.D. in Marine Sciences, University of Georgia, Athens, GA, USA.**  
*Dissertation advisor:* Dr. Samantha B. Joye; *Dissertation title:* “Anaerobic oxidation of methane in cold seeps and gas hydrates: Responsible microorganisms, rates of activity, and interactions with other processes.”

2003 **International Geobiology Course,** University of Southern California

1998-2002 **B.S. in Interdisciplinary Studies** (Marine Geochemistry emphasis with Geology minor), University of Georgia, Athens, GA, USA; Summa Cum Laude

## Honors and Awards

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- 2019 Asahiko Taira International Scientific Ocean Drilling Research Prize, *conferred jointly by the American Geophysical Union and Japan Geoscience Union*
- 2019 Kavli Frontiers of Science Fellow, *National Academy of Sciences*. Presentation: <https://vimeo.com/321547723>
- 2018 Geobiology and Geomicrobiology Division post-tenure award, *Geological Society of America*
- 2017 Charlie & Marie Fish Distinguished Lecturer, *University of Rhode Island*
- 2014-2015 Distinguished Lecturer for the U.S. Science Support Program for the Ocean Drilling Program

## Grants

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### *Current awards*

- 2019-2020 National Science Foundation (subaward from [OCE-1450528](#) to Columbia University); 4/1/2019 – 2/28/2020; \$65,040 subaward; **PI: Participation of Dr. Beth Orcutt as co-chief scientist on IODP Expedition 385T**
- 2019-2021 NASA ([Exobiology-80NSSC19K0466](#)); 2/13/2019-2/12/2021; \$299,453 total; **PI: Sorting out active vs. inactive microbes in subsurface oceanic crust Icy World analogs** (Co-I: Ramunas Stepanauskas)
- 2018-2022 National Science Foundation ([OIA-1826734](#)); 08/15/2018 – 7/31/2022; \$893,636 of total \$6M; **Co-PI: EPSCOR Track-2 FEC: Single Cell Genome-to-Phenome: Integrating genome and phenome analysis of individual microbial cells in complex microbiomes** (PI: Ramunas Stepanauskas, Co-PIs: Nicole Poulton, Kai Ziervogel, Duane Moser)
- 2018-2020 National Science Foundation ([OCE-1737017](#)); 1/1/2018 – 12/31/2020; \$455,041 total; **PI: Microbial activity in the deep crustal biosphere**
- 2014-2020 National Science Foundation (subaward from [OCE-0939564](#) to University of Southern California); 10/1/2015 – 9/30/2021; \$928,205 subaward as Senior Scientist; **Center for Dark Energy Biosphere Investigations (C-DEBI) Phase 2 renewal** (PI: Jan Amend, Co-PIs: Steve D'Hondt, Andrew Fisher, Julie Huber, Geoff Wheat)

### *Past awards*

- 2019 Sloan Foundation (subaward from [G-2017-14084](#) to Marine Biological Laboratory); 1/1/2019 – 11/30/2019; \$20,000 subaward; **Co-PI: Deep Life Community - the Deep Carbon Observatory 2018-2019** (PI: Mitch Sogin)
- 2017-2019 Sloan Foundation ([G-2017-9881](#)); 9/1/2017 – 11/30/2019; \$86,128 total; **PI: Creation and editing of *Deep Carbon: Past to Present* book for the Deep Carbon Observatory**
- 2015-2019 National Science Foundation (subaward from [OCE-1450528](#) from Columbia University); 9/1/2015 – 2/28/2019; \$212,756 subaward; **PI: Participation of Dr. Beth Orcutt as co-chief scientist on IODP Expedition 357**
- 2016-2019 National Science Foundation (subaward from [OCE-1450528](#) from Columbia University); 4/1/2016 – 2/28/2019; \$35,763 subaward; **Co-PI: Participation of Dr. Stephanie Carr on IODP Expedition 365** (PI: Stephanie Carr)
- 2015-2018 Gulf of Mexico Research Initiative (subaward from [GOMRI-SA1517](#) to University of Georgia); 1/1/2015 – 12/31/2018; \$406,628 subaward; **Co-PI: ECOGIG: Ecosystem Impacts of Oil and Gas Inputs to the Gulf of Mexico** (PI: Samantha Joye)

*Curriculum vitae – Beth N. Orcutt – as of January 2020*

- 2016-2018 National Science Foundation (subaward from [OCE-0939564](#) to University of Southern California); 12/1/2016 – 11/20/2018; \$230,000 subaward; **Co-PI: Postdoctoral Fellowship for Jacqueline Goordial: Investigations into the Diversity and Function of Active Microbial Subpopulations in Atlantis Massif oceanic crust** (PI: Jacqueline Goordial)
- 2015-2018 National Science Foundation ([OCE-1536539](#)); 10/1/2015 – 9/30/2018; \$56,325 total; **Co-PI: Collaborative Research: Completing North Pond Borehole Experiments to Elucidate the Hydrology of Young, Slow-Spread Crust** (PI: Geoff Wheat; Co-PI: Keir Becker)
- 2016-2017 NASA (subaward from [NNA13AA92A](#) from University of Southern California); 6/1/2016 – 12/31/2017; \$155,915 subaward; **Co-PI: Life Underground NASA Astrobiology Institute** (PI: Jan Amend)
- 2016-2017 Sloan Foundation (subaward from [G-2015-14084](#) from Marine Biological Laboratory); 1/1/2016 – 12/31/2017; \$34,720 subaward; **Co-PI: Deep Life Community - the Deep Carbon Observatory 2016-2018** (PI: Mitch Sogin)
- 2014-2017 National Science Foundation ([PLR-1416961](#)); 9/1/2014 – 8/30/2017; \$154,760 total; **PI: Collaborative Research: Year-round autonomous sampling of methane in Arctic Lakes** (Co-PI: Laura Lapham, Geoff Wheat)
- 2013-2017 National Science Foundation ([OCE-1335810](#)); 8/15/13-7/31/17; \$535,211 total to PI; **Co-PI: MRI: Acquisition of genome sequences for Bigelow Laboratory for Ocean Sciences** (PI: Ramunas Stepanauskas)
- 2013-2016 National Science Foundation ([DBI-1318385](#)); 9/15/13 – 8/31/16; \$111,649 total to PI; **Co-PI: FSML-Enhanced Cooperative Radiochemistry Research and Education at the Bigelow Laboratory for Ocean Sciences** (PI: William Balch)
- 2012-2015 National Science Foundation ([OCE-1233226](#)); 8/15/2012 – 7/31/2015; \$182,306 total; **PI: IODP Expedition 336 Objective Research: The deep biosphere of young and oxic oceanic crust** (Co-PI: Katrina Edwards, Heath Mills)
- 2012-2014 National Science Foundation (subaward from [OCE-0939564](#) to University of Southern California); 12/01/2012 – 12/31/2014; \$49,995 subaward; **PI: The Dorado Outcrop low-temperature ridge flank environment**
- 2012-2013 National Science Foundation (subaward from [OCE-0652315](#) to Consortium for Ocean Leadership); 11/01/2012 – 10/13/2013; \$8,828 subaward; **PI: The Adopt A Microbe Project**
- 2012-2013 National Science Foundation (subaward from [OCE-0939564](#) to University of Southern California); 4/01/2012 – 9/30/2013; \$49,919 subaward; **PI: Primary productivity in young, oxic oceanic crust: Rates of activity and autotrophic groups in subsurface and seafloor-exposed basalts from North Pond, Mid-Atlantic Ridge**

## Professional Service

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- 2019-present Steering Committee Member, Network for Life Detection ([NFoLD](#)), a NASA Astrobiology Research Coordination Network
- 2019-present Steering Committee Member, Network for Ocean Worlds ([NOW](#)), a NASA Astrobiology Research Coordination Network
- 2019-present Science Advisory Board member, Jebsen Centre for Deep-Sea Research, Bergen, Norway,
- 2018-present Steering Committee Member, Scientific Ocean Drilling post-2023 (SOD23+)
- 2018-present Member, IODP Science Evaluation Panel

## Curriculum vitae – Beth N. Orcutt – as of January 2020

2018-present	Member, Deep Ocean Stewardship Initiative (DOSI): Minerals Working Group and Decade of Deep-Ocean Science Working Group
2015-present	Senior Scientist, Center for Dark Energy Biosphere Investigations (C-DEBI) NSF Science and Technology Center
2018-2019	Steering Committee Member, Deep Carbon Observatory Deep Life Community
2016-2018	Member, Deep Carbon Observatory "Task Force 2020"
2012-2015	Member, U.S. Advisory Committee for Scientific Ocean Drilling (USAC)

- Session co-organizer for AGU Fall conferences (2016, 2014, 2012, 2011, 2008, 2007)
- Workshop co-organizer: 2018 Ocean Worlds 3 meeting, 2014 IODP-MI workshop on deep biosphere research
- Recent *ad hoc* reviews for journals: *Deep Sea Research*, *Environmental Microbiology*, *Frontiers in Microbiology*, *Geobiology*, *Geophysical Instruments*, ***ISME Journal***, *Limnology & Oceanography*, ***mBio***, ***Nature Geoscience***, ***Nature Microbiology***, *Organic Geochemistry*, *Philosophical Transactions of the Royal Society*, *PLOS One*, ***PNAS***, ***Science***, *Scientific Drilling*

## **Mentoring**

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### **Postdoctoral Scientists**

2019-present	Anne Booker
2019-present	Melody Lindsay
2016-2019	Jacqueline Goordial. <i>C-DEBI Postdoctoral Fellow 2016-2018, Now an LDEO Postdoctoral Fellow at Columbia University</i>
2016-2019	Rose Jones. <i>Now a postdoctoral scientist at University of Minnesota</i>
2015-2016	Jessica Labonté. <i>Now an Assistant Professor at Texas A&amp;M, Galveston</i>
2013-2017	Stephanie Carr, <i>C-DEBI Postdoctoral Fellow 2013-2015, NSF Postdoctoral Fellow 2015-2017, Now an Assistant Professor at Hartwick College</i>

### **Ph.D. students:**

2014-2016	Gustavo Ramirez, University of Southern California, Co-advisor and committee member, <i>Now a Postdoctoral Scientist at University of North Carolina</i>
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### **Masters students:**

2015-2018	Mitchell Bergstresser, Simon Fraser University, Co-advisor and committee member
2017	Siham De Goeyse, IGP France, Hosted internship
2015	Aurelien Lecouevre, Universite Occidental Britania, France, Hosted internship

### **Undergraduate students:**

2019	Katelyn Smith, Maine Maritime Academy, 2019 Summer intern (NASA funded)
2018	Patricia Montalvo, University of Puerto Rico, 2018 Summer NSF-REU intern
2017	Matthew Weiser, Occidental College, 2017 Summer NSF-REU intern
2016	Jin Mei McMahon, Colorado College, 2016 Summer NSF-REU intern
2016	Elenia Lin, Colby College, 2016 Colby-At-Bigelow fall semester intern
2015	Francisco Spaulding, University of Chicago, 2015 Summer NSF-REU intern
2014	Briana Adams, Texas A&M, Corpus Christi, 2014 Summer NSF-REU intern
2014	Allison Sharrar, University of Michigan, 2014 Summer NSF-REU intern

## **Teaching and Instruction**

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### **Formal Education & Instruction**

2005	<b>Teaching Assistant</b> for Biology of the Marine Environment, University of Georgia, Athens, GA, USA. Designed and presented lectures for the undergraduate laboratory
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*Curriculum vitae – Beth N. Orcutt – as of January 2020*

courses for non-science majors; oversaw laboratory exercises; designed, proctored, and graded laboratory reports, quizzes, and exams.

**Informal Education & Instruction**

- 2019 **Guest lecturer**, Boothbay Regional High School, March 28, 2019.
- 2019 **Guest lecturer**, University of Southern Maine, March 26, 2019
- 2017 **Lead of 6-week Adopt-A-Microbe ship-to-shore outreach project** in conjunction with the Girl Scouts of Maine. Featured daily blog posts and weekly interactive activities, followed by an in-person visits of Scouts to Bigelow Laboratory for hands-on science experiments. Based on “Adopt-A-Microbe” project developed in 2010/2011/2012 described in *Current: The Journal of Marine Education* (see publications). <https://sites.google.com/site/adoptamicrobe2017/>
- 2017 **Guest lecturer**, Professional development webinar on preparing proposals and budgets, jointly sponsored by C-DEBI and the Consortium for Ocean Leadership, June 15, 2017; <https://youtu.be/eb3fWiGp5EA>

**Recent Notable Public Outreach**

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- 2019 Interviewed on *Scientifically Speaking* on WMPG 90.9fm (Portland, ME), July 12, 2019; <https://www.wmpg.org/show/fri1300/#>
- 2018 Public lecture in Dallas, TX, for the *EarthX* Ocean Expo
- 2018 Public lecture in East Boothbay, ME, for the *Café Scientifique* program of the Bigelow Laboratory for Ocean Sciences, 180+ attendees, “Deep-Sea Mining: How Your Cell Phone is Driving the Quest for Seafloor Minerals”
- 2018 Featured in *Smithsonian Magazine* article about deep sea exploration and deep-sea mining, <https://www.smithsonianmag.com/science-nature/diving-deep-reveal-microbial-mysteries-lost-city-180970234/>
- 2018 Speaker, American Museum of Natural History *Milstein Science Series* on Ocean Technology, 500+ attendees. <https://www.amnh.org/calendar/milstein-science-series-ocean-technology>
- 2018 Speaker, Maine Science Festival *5 Minute Genius* program, 100+ people. <https://youtu.be/FAmR9dAhNqk>
- 2017 Featured in *Smithsonian Magazine* article about warming permafrost. <https://www.smithsonianmag.com/science-nature/climate-scientists-turn-to-unusual-partnerships-arctic-180965015/>
- 2017 Featured in *Life Below the Seafloor: A Deep Sea Search for Intraterrestrial Life* short video by Bigelow Laboratory for Ocean Sciences. <https://youtu.be/MQPXCgzORPw>
- 2017 Public lecture in East Boothbay, ME, for the *Café Scientifique* program of the Bigelow Laboratory for Ocean Sciences, 100+ attendees, “The Oil-You-Can-Eat Buffet: How Microscopic Life Eats Oil in the Ocean”
- 2016 Public lecture in East Boothbay, ME, for the *Café Scientifique* program of the Bigelow Laboratory for Ocean Sciences, 100+ attendees, “If a frozen lake burps methane into the atmosphere, and no one is around to see if, did it happen?”
- 2015 Featured in *Deep Sea Gold Rush* short video on Al Jazeera’s “TechKnow” program. <https://www.aljazeera.com/programmes/techknow/2015/12/deep-sea-gold-rush-151226120600259.html>
- 2014 Featured in *Meet a Scientist* short video by Ocean Leadership. <https://youtu.be/p7eYZ56sndM>
- 2013 Featured in *North Pond: Search for Intraterrestrials* documentary (96 minutes); Awards: Best Documentary Feature, 2014 Yosemite Film Festival; Honorable

Mention – Documentary Feature, 2014 Blue Ocean Film Festival;  
<https://vimeo.com/117447690>

## **Oceanographic Field Experience**

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*Hyperlinks to cruise reports and data – 30+ cruises & 610 days at sea (and counting)*

### **2019**

- [IODP Expedition 385T](#), D/V *JOIDES Resolution*, Costa Rica Rift flank, **co-chief scientist**
- [Cruise AT42-11](#), R/V *Atlantis* with ROV *Jason II*, Juan de Fuca Ridge flank, **chief scientist**

### **2017**

- [Cruise AT39-01](#), R/V *Atlantis* with ROV *Jason II*, Mid-Atlantic Ridge, **co-chief scientist**

### **2016**

- Cruise PS17-05, R/V *Point Sur*, Northern Gulf of Mexico
- Cruise PE16-18, R/V *Pelican*, Northern Gulf of Mexico

### **2015**

- [IODP Expedition 357](#), RRS *James Cook* with seabed drills *MeBo* and *RD2*, Atlantis Massif, **co-chief scientist**
- [Cruise PE15-20](#), R/V *Pelican*, Northern Gulf of Mexico, **chief scientist**

### **2014**

- Cruise AT26-24, R/V *Atlantis* with HOV *Alvin*, Dorado Outcrop
- Cruise AT26-18, R/V *Atlantis* with HOV *Alvin*, Juan de Fuca Ridge flank
- [Cruise PE14-14](#), R/V *Pelican*, Northern Gulf of Mexico, **chief scientist**

### **2013**

- Cruise AT26-09, R/V *Atlantis* with ROV *Jason II* and AUV *Sentry*, Dorado Outcrop
- [Cruise PE 14-09](#), R/V *Pelican*, Northern Gulf of Mexico, **chief scientist**
- Cruise AT26-03, R/V *Atlantis* with ROV *Jason II*, Juan de Fuca Ridge flank
- Cruise NA027, E/V *Nautilus* with ROV *Hercules*, Northern Gulf of Mexico
- Cruise PE 13-21, R/V *Pelican*, Northern Gulf of Mexico

### **2012**

- [Cruise Fk006b](#), R/V *Falkor* with ROV *Global Explorer*, Northern Gulf of Mexico, **co-chief scientist**
- Cruise MSM20-5, R/V *Maria S. Merian* (Germany) with ROV *Jason II*, Mid-Atlantic Ridge

### **2011**

- IODP Expedition 336, D/V *JOIDES Resolution*, Mid-Atlantic Ridge
- Cruise AT18-07, R/V *Atlantis* with ROV *Jason-II*, Juan de Fuca Ridge flank

### **2010 and prior**

- IODP Expedition 327, D/V *JOIDES Resolution*, Juan de Fuca Ridge flank (2010)
- Cruise KM09-23, R/V *Kilo Moana* with ROV *Jason*, Loihi Seamount (2009)
- Cruise AT15-51, R/V *Atlantis* with HOV *Alvin*, Juan de Fuca ridge and ridge flank (2009)
- Cruise TN-225, R/V *Thompson* with ROV *Jason*, Loihi Seamount (2008)
- Cruises AT15-34/35, R/V *Atlantis* with HOV *Alvin*, Juan de Fuca ridge and ridge flank (2008)
- Cruise AT15-23, R/V *Atlantis* with HOV *Alvin*, Juan de Fuca ridge flank (2007)
- Cruise JOH/04/0035, R/V *Seward Johnson I*, Western Gulf of Mexico (2004)
- Cruise SO-174, R/F *SONNE*, Northern and Southern Gulf of Mexico cold seeps (2003)
- Cruise HE-180, R/V *Heincke*, North Sea cold seeps (2002)
- Cruise LExEn2002, R/V *Seward Johnson II* with *Johnson SeaLink* submersible, Northern Gulf of Mexico cold seeps (2002)

- Cruise LExEn2001, R/V *Seward Johnson I* with *Johnson SeaLink* submersible, Northern Gulf of Mexico cold seeps (2001)

## **Continental Field Experience**

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- Mackenzie River delta Arctic lakes, Northwest Territories, Canada, 08/10/16-08/16/16
- Mackenzie River delta Arctic lakes, Northwest Territories, Canada, 03/17/16-03/23/16
- Mackenzie River delta Arctic lakes, Northwest Territories, Canada, 07/29/15–8/10/15
- Mono Lake, California, summers 1999, 2000

## **Scientific Journal Publications** (peer-reviewed)

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(h-index = 25) – ORCID ID: [0000-0002-6233-3578](https://orcid.org/0000-0002-6233-3578) – \* student advisee, § postdoctoral advisee.

**2020**

56. **Orcutt BN**, Bradley J, Brazelton WJ, Estes ER, Goordial JM§, Huber JA, Jones RM§, Mahmoudi N, Marlow JJ, Murdock S, Pachiadaki M. In Press. Impacts of deep-sea mining on microbial ecosystem services. *Limnology and Oceanography*. Pre-print: DOI: [10.1101/463992](https://doi.org/10.1101/463992).
55. Wheat CG, Becker K, Villinger H, **Orcutt BN**, Fournier T, Hartwell A, Paul C. In Press. Subseafloor cross-hole tracer experiment reveals hydrologic properties, heterogeneities, and reactions in slow spreading oceanic crust. *Geochemistry, Geophysics, Geosystems*.

**2019**

54. Ramírez G\*, Garber A, Lecoivre A, D'Angelo T, Wheat CG, **Orcutt BN**. 2019. Ecology of subseafloor crustal biofilms. *Frontiers in Microbiology* 10: 1983. DOI: [10.3389/fmicb.2019.01983](https://doi.org/10.3389/fmicb.2019.01983)
53. Villinger H, Müller P., Bach W., Becker K., **Orcutt BN**, Kaul, N, Wheat CG. 2019. Evidence for low temperature venting at North Pond, western flank of the Mid-Atlantic Ridge. *Geochemistry, Geophysics, Geosystems*. DOI: [10.1029/2018GC008113](https://doi.org/10.1029/2018GC008113)
52. D'Hondt S, Inagaki F, **Orcutt BN**, Hinrichs K-U. 2019. IODP advances in understanding of subseafloor life. *Oceanography* 32(1): 198-207. DOI: [10.5670/oceanog.2019.146](https://doi.org/10.5670/oceanog.2019.146)
51. Carr SA§, Jungbluth SP, Eloë-Fadrosch EA, Stepanauskas R, Woyke T, Rappé MS, **Orcutt BN**. 2019. Carboxydrotrophy potential of uncultivated Hydrothermarchaeota from the subseafloor crustal biosphere. *The ISME Journal*. DOI: [10.1038/s41396-019-0352-9](https://doi.org/10.1038/s41396-019-0352-9)

**2018**

50. Wheat CG, Hartwell AM, McManus J, Fisher AT, **Orcutt BN**, Schlicht LE, Niedenzu S, Bach W. 2018. Geology and fluid discharge at Dorado Outcrop, a low temperature hydrothermal system. *Geochemistry, Geophysics, Geosystems* 20. DOI: [10.1029/2018GC007933](https://doi.org/10.1029/2018GC007933).
49. Früh-Green GL, **Orcutt BN**. 2019. In search of life under the seafloor. *Eos*, 100, DOI: [10.1029/2019EO113213](https://doi.org/10.1029/2019EO113213)
48. Früh-Green GL, **Orcutt BN**, Rouméjon S, Lilley MD, Morono YM et al. 2018. Magmatism, serpentinization and life: Insights through drilling the Atlantis Massif (IODP Expedition 357). *Lithos*. DOI: [10.1016/j.lithos.2018.09.012](https://doi.org/10.1016/j.lithos.2018.09.012)
47. Jones RM§, Goordial JM§, **Orcutt BN**. 2018. Low energy subsurface environments as extraterrestrial analogs. *Frontiers in Microbiology* 9: 1605, DOI: [10.3389/fmicb.2018.01605](https://doi.org/10.3389/fmicb.2018.01605).

46. Zinke LA, Reese BK, McManus J, Wheat CG, **Orcutt BN**, Amend JP. 2018 Sediment microbial communities influenced by cool hydrothermal fluid migration. *Frontiers in Microbiology* 9: 1249, DOI: [10.3389/fmicb.2018.01249](https://doi.org/10.3389/fmicb.2018.01249)
45. Rouméjon S, Früh-Green GL, **Orcutt BN**. 2018. Alteration heterogeneities in peridotites exhumed on the southern wall of the Atlantis Massif (IODP Expedition 357). *Journal of Petrology* egy065, DOI: [10.1093/petrology/egy065](https://doi.org/10.1093/petrology/egy065)
44. Reese BK, Zinke LA, Sobol MS, LaRowe DE, **Orcutt BN**, Zhang X, Jaekel U, Wang F, Dittmar T, Defforey D, Tully B, Paytan A, Sylvan J, Amend JP, Edwards KJ, Girguis P. 2018. Nitrogen cycling potential of active bacteria within oligotrophic sediment of the Mid-Atlantic Ridge flank. *Geomicrobiology Journal* 35: 468-483, DOI: [10.1080/01490451.2017.1392649](https://doi.org/10.1080/01490451.2017.1392649)

**2017**

43. **Orcutt, BN**, Bergenthal M, Freudenthal T, Smith D, Lilley MD, Schnieders L, Green S, Früh-Green GL. 2017. Contamination tracer testing with seabed drills: IODP Expedition 357. *Scientific Drilling* 23: 39-46, DOI: [10.5194/sd-23-39-2017](https://doi.org/10.5194/sd-23-39-2017)
42. Wheat CW, Fisher AT, McManus J, Hulme SM, **BN Orcutt**. 2017. Cool seafloor hydrothermal springs reveal large global geochemical fluxes. *Earth and Planetary Science Letters* 476: 179-188. DOI: [10.1016/j.epsl.2017.07.049](https://doi.org/10.1016/j.epsl.2017.07.049)
41. Labontés JM, Lever MA, Edwards KJ, **Orcutt BN**. 2017. Influence of igneous basement on deep sediment microbial diversity on the eastern Juan de Fuca Ridge flank. *Frontiers in Microbiology* 8: 1434. DOI: [10.3389/fmicb.2017.01434](https://doi.org/10.3389/fmicb.2017.01434)
40. **Orcutt BN**, Sylvan JB, Santelli CM. 2017. Editorial: Recent Advances in Geomicrobiology of Ocean Crust. *Frontiers in Microbiology* 8: 1368. DOI: [10.3389/fmicb.2017.01368](https://doi.org/10.3389/fmicb.2017.01368)
39. **Orcutt BN**, Lapham LL, Delaney J, Sarode N, Marshall K, Whaley-Martin K, Slater G, Wheat CG, Girguis P, 2017. Microbial response to oil enrichment in Gulf of Mexico sediment measured using a novel long-term benthic lander system. *Elementa Science of the Anthropocene*. 5:18. DOI:[10.1525/elementa.129](https://doi.org/10.1525/elementa.129)

**2016**

38. Ramirez GA\*, CL Hoffman, MD Lee\*, RA Lesniewski, RA Barco, A Garber, BM Toner, CG Wheat, KJ Edwards, **BN Orcutt**, 2016. Marine microbial induced corrosion monitored at Santa Catalina Island, California. *Frontiers in Microbiology* 7: 1679. DOI: [10.3389/fmicb.2016.01679](https://doi.org/10.3389/fmicb.2016.01679)
37. Zhang X, J Fang, W Bach, KJ Edwards, **BN Orcutt**, F Wang. 2016. Nitrogen stimulates the growth of subsurface basalt-associated microorganisms at the western flank of the Mid-Atlantic Ridge. *Frontiers in Microbiology* 7: 633. DOI: [10.3389/fmicb.2016.00633](https://doi.org/10.3389/fmicb.2016.00633)
36. Baquiran JP\$, GA Ramirez\*, AG Haddad, BM Toner, S Hulme, CG Wheat, KJ Edwards, **B Orcutt**. 2016. Temperature and redox effect on mineral colonization in Juan de Fuca Ridge flank subsurface crustal fluids. *Frontiers in Microbiology* 7:396. DOI: [10.3389/fmicb.2016.00396](https://doi.org/10.3389/fmicb.2016.00396)

**2015**

35. Lee MD\*, NG Walworth, JB Sylvan, KJ Edwards, **BN Orcutt**. 2015. Microbial communities of seafloor basalts at Dorado Outcrop reflect level of alteration and highlight global lithic clades. *Frontiers in Microbiology* 6: 1470. DOI: [10.3389/fmicb.2015.01470](https://doi.org/10.3389/fmicb.2015.01470)

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