Jesse Wilson, Ph.D.

Environmental/Earth/Marine/Biological Scientist, Instructor, and Researcher
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BACKGROUND

- Over 7 years of experience as a Ph.D. level Environmental/Earth/Marine/Biological Scientist, Instructor, and Researcher
- 12 years of experience as a college level instructor (including curriculum design)
- 15 years of experience with research design, field sampling, and data/laboratory analysis/modeling to assess questions related to environmental science
- Experience organizing and leading environmental sampling all over the world (including the marine lakes of Palau, a month-long research cruise off the coast of Mexico, and high elevation lakes in Yosemite)
- Experience developing environmental/natural science courses and education programs for undergraduate students, K-12 programs, and community members

TEACHING EXPERIENCE

University of Oregon | Clark Honors College – *Instructor of Natural Sciences*

September 2024 – Present

- Teach a range of natural science courses and assist students in developing and defending their undergraduate theses
    - Teach students the fundamentals of a subject both inside and outside the classroom
    - Develop original curricula and employ innovative teaching strategies to engage students in learning (student-centered, discussion, and project-based learning)
    - Teach additional skills to help with career and thesis development (e.g., R, statistics, etc.)
    - Act as a mentor and give career advice
    - Serve on thesis committees
- Conduct service and outreach for the honors college including recruiting events and admissions
- Collaborate with other instructors and staff to ensure a successful learning experience

CSU San Marcos – *Lecturer*

January 2022 – May 2024

- Taught lectures for Earth Science, Evolution, and Microbiology, and labs for Ecology and Introductory Biology
- Developed curricula, innovative teaching strategies, and a plethora of approaches to engage students in learning (including inclusive language and flipped lectures: https://www.youtube.com/channel/UCNb1H-Lgbi0wgQNsMDPHxdQ)
- Assisted students in learning the fundamentals of the subject, provided feedback on their progress, and gave mentoring and career advice
- Collaborated with other instructors and staff to ensure a successful learning experience

UC San Diego – *Lecturer*

September 2021 – September 2024

- Taught Medical Microbiology and Microbiology (with lab)
- Assisted students in learning the fundamentals of the subject, provided feedback on their progress and gave mentoring and career advice
- Collaborated with other instructors and staff to ensure a successful learning experience

UC Merced – *Lecturer*

August 2017 – May 2018

- Taught lectures in Environmental Microbiology and General Microbiology and labs/discussions in Earth System Science, Ecosystems of California, and General Microbiology
- Developed curricula, innovative teaching strategies, and a plethora of approaches to engage students in learning (including flipped lectures: https://www.youtube.com/channel/UCNb1H-Lgbi0wgQNsMDPHxdQ)

- Assisted students in learning the fundamentals of the subject, provided feedback on their progress, and gave mentoring and career advice
- Collaborated with other instructors and staff to ensure a successful learning experience

UC Merced – *Teaching Assistant*

August 2013 – May 2017

- Taught labs and discussions for Earth System Science, Environmental Microbiology, Marine Science, Ecosystems of California, Conservation Biology, Biological Statistics, and Introductory Biology
- Developed lecture and laboratory materials/exercises, administered course content, assessed learning outcomes, and mentored students
- Collaborated with other instructors and staff to ensure a successful learning experience
- Led outreach efforts for K-12 schools and at community outreach events

UC Merced – *Course Content Developer*

January 2015 – May 2015

- Developed labs and online content for an introductory Earth System Science class that was transitioned from in-person to a hybrid model

RESEARCH

UC San Diego Scripps Institution of Oceanography, California – *Postdoctoral Researcher*

May 2018 – July 2021

- Assessed drivers and functional impacts of different microbial community types in nearshore Southern California
- Started and maintained an in-depth time-series off the coast of Southern California which included field work, maintaining and analyzing an array of data-loggers, and laboratory and data analysis
- Mentored and organized graduate and undergraduate workers to continue sampling efforts
- Published findings in peer reviewed journals and presented research findings at international conferences

UC Merced, California – *Graduate Student Researcher*

August 2010 – August 2017

- Conducted independent research in the field of environmental science – assessed oxygen cycling and linked it with different environmental and biological conditions in a range of environments around the world
- Organized and led research trips to Palau and served as a co-chief scientist for a research cruise off the coast of Mexico
- Prepared and presented research findings at academic conferences and published in peer reviewed journals
- Mentored undergraduate students in field, lab, and data analysis methods

Cook Inlet Aquaculture Association – *Fisheries Intern*

June 2009 – September 2009

- Enumerated and sampled salmon swimming upstream to spawn in Alaskan streams
- Conducted water quality testing, including temperature, pH, and dissolved oxygen levels
- Conducted education and outreach activities

US Army Corps of Engineers – *Wildlife Biology Intern*

May 2008 – August 2008

- Conducted field studies to measure and analyze the population density of a variety of wild animals (small mammals, birds, bats, and invasive plants) near dam sites throughout New England
- Assisted with the preparation of reports and presentations on wildlife management
- Participated in public outreach programs to educate the community about wildlife conservation and management

CSU Channel Islands – *Geology Lab Technician*

January 2006 – June 2007

- Designed and prepared labs
- Managed geology collections
- Cleaned and identified incoming donations

EDUCATION

University of California Merced – *PhD*

August 2010 – August 2017

- Environmental Systems
- Dissertation: Controls on Marine Community Respiration

University of Hawaii – *Center for Microbial Oceanography Research and Education Summer Course*

January 2009 – June 2010

- Microbial oceanography methodologies and 10-day research cruise practical

University of California Santa Barbara – *Graduate school preparation*

January 2009 – June 2010

- Earth Science, Oceanography, Physics, and Aquatic Ecology courses

California State University Channel Islands – *BS*

August 2004 – December 2007

- Environmental Science and Resource Management with a minor in Biology
- Capstone: A Quantitative Method for Selecting the Best Subspecies of Channel Islands Fox for a Mainland Captive Breeding Program

Santa Barbara City College – *AA*

September 2001 – May 2004

- Liberal Studies – Transfer Emphasis

EDUCATIONAL TRAINING

Online Learning Communities at CSU San Marcos

- Equity-Minded Pedagogy at CSU San Marcos (2024)
  - Recreated courses using data and student input
  - Learned about interviewing for empathy practices
  - Came up with data-driven goals to improve inequities and positively impact retention
- CSUSM Canvas Summer Teaching Institute (2022)
  - Gained additional knowledge and skills related to the Canvas Learning Management System
- WebAIM (Web Accessibility In Mind) Document Accessibility (both the 4-hour seminar and the USU Online Course—WebAIM Certificate) (2022)
  - Learned about making lectures and other teaching material accessible
  - Augmented current courses using the techniques taught

Assessment as Pedagogy and Planning Project at UC Merced (2016)

- Worked with the Center for Engaged Teaching and Learning at UC Merced
- Came up with an Undergraduate Learning Outcome Assessment Project in which I flipped an introductory marine science discussion (using student submitted questions and small group inquiry) in order to increase learner involvement, critical thinking, and improve student learning outcomes

Center for Engaged Teaching and Learning at UC Merced

- 2014-2015: Mastering the Classroom with 1st Generation College Students (Teaching Matters Certificate)
- 2015-2016: Developing Teaching Strategies (Teaching Matters Certificate)

AWARDS & HONORS

2014, 15, & 17	UC Merced Environmental Systems Summer Fellowship
2016	UC Merced, School of Engineering Outstanding Teaching Award
2011 & 12	UC Merced Graduate Division Summer Fellowship
2010-12	Eugene Cota-Robles Fellowship

2007	Graduated Summa cum Laude from CSUCI
2007	Environmental Science Program Honors at CSUCI
2007	Presenter at Southern California Conference on Undergraduate Research
2006-07	CSUCI Business and Technology Scholarship

PUBLICATIONS

2024 **Wilson**, J.M., S.S. Abboud, J.M. Beman. "Effects of experimental nutrient enrichment and eutrophication on microbial community structure and function in marine lakes." *Elementa*. https://online.ucpress.edu/elementa/article/12/1/00007/203890

2022 **Wilson**, J.M., N. Erazo, E. Connors, E.J. Chamberlain, S.M. Clements, M.L. Carter, J.E. Smith, J.S. Bowman. "Substantial microbial community shifts in response to an exceptional harmful algal bloom in coastal Southern California." *Elementa*. https://doi.org/10.1525/elementa.2021.00088.

2021 **Wilson**, J.M, E. Chamberlain, N. Erazo, M. Carter, J. Bowman. "Recurrent microbial community types driven by nearshore and seasonal processes in coastal Southern California." *Environmental microbiology.* https://doi.org/10.1111/1462-2920.15548.

2021 Beman. J.M., S.M. Vargas, J.M. **Wilson**, E. Perez-Coronel, J.S. Karolewski, S. Vazquez, A. Yu, A.E. Cairo, M.E. White, I. Koester, L.I. Aluwihare, S.D. Wankel. "Substantial oxygen consumption by aerobic nitrite oxidation in oceanic oxygen minimum zones." *Nature communications*. https://doi.org/10.1038/s41467-021-27381-7.

2021 Klempay, Benjamin, et al. "Microbial diversity and activity in Southern California salterns and bitterns: analogues for remnant ocean worlds." *Environmental microbiology.* https://doi.org/10.1111/1462-2920.15440.

2020 **Wilson**, J.M, M. Carter, J. Mühle, J. Bowman. "Using empirical dynamic modeling to assess relationships between atmospheric trace gases and eukaryotic phytoplankton populations in coastal Southern California." *Marine Chemistry*. https://doi.org/10.1016/j.marchem.2020.103896.

2020 Beman, J.M., S. Vargas, S. Vazquez, J.M. **Wilson**, A. Yu, A. Cairo, E. Perez-Coronel. "Biogeochemistry and hydrography shape microbial community assembly and activity in the eastern tropical North Pacific Ocean oxygen minimum zone." *Environmental Microbiology.* https://doi.org/10.1111/1462-2920.15215.

2019 **Wilson**, J.M, G. Ucharm, and J.M. Beman. "Climatic, physical, and biogeochemical changes drive rapid oxygen loss and recovery in a marine ecosystem." *Scientific Reports*. https://doi.org/10.1038/s41598-019-52430-z.

2018 **Wilson**, J.M., S.Y. Litvin, and J.M. Beman. "Microbial community networks associated with variations in community respiration rates during upwelling in nearshore Monterey Bay, California." *Environmental Microbiology Reports*. https://doi.org/10.1111/1758-2229.12635.

2017 **Wilson**, J.M., S.S. Abboud, and J.M. Beman. "Primary production, community respiration, and net community production along oxygen and nutrient gradients: environmental controls and biogeochemical feedbacks within and across marine lakes." *Frontiers in Marine Science*. https://doi.org/10.3389/fmars.2017.00012.

2016 Meyerhof, M.S., J.M. **Wilson**, M.N. Dawson, and J.M. Beman. "Microbial community diversity, structure and assembly across oxygen gradients in meromictic marine lakes, Palau." *Environmental Microbiology*. https://doi.org/10.1111/1462-2920.13416.

2014 **Wilson**, J.M., R. Severson, and J.M. Beman. "Ocean-scale patterns in community respiration rates along continuous transects across the Pacific Ocean." PLOS One. https://doi.org/10.1371/journal.pone.0099821.

2014 Durham B. et al. "Draft genome sequence of marine alphaproteobacterial strain HIMB11, the first cultivated representative of a unique lineage within the *Roseobacter* clade possessing an unusually small genome." *Standards in Genomic Sciences.* https://doi.org/10.4056/sigs.4998989.

2012 Beman, J.M., V.J. Bertics, T. Braunschweiler, and J.M. **Wilson**. "Quantification of ammonia oxidation rates and the distribution of ammonia-oxidizing Archaea and Bacteria in marine sediment depth profiles from Catalina Island, California." *Frontiers in Microbiology* https://doi.org/10.3389/fmicb.2012.00263.

PRESENTATIONS

2021 **Wilson**, J.M. "Time-series in marine systems." Center for Aerosol Impacts on Chemistry of the Environment Group Meeting. *Seminar*.

2020 **Wilson**, J.M. "Ecosystems" and "Ecology" lectures for CSU San Marcos General Education Science Course 103. Invited Lecturer. *Talk*.

2020 **Wilson**, J.M., E.J. Chamberlain, and J.S. Bowman. "Microbial responses to physical variations in coastal Southern California: Changes in community structure assessed via an 18 month twice-weekly time-series at the Scripps Ecological Observatory." 2020 Ocean Science Meeting. *Poster*.

2020 Chamberlain, E.J., J.M **Wilson**, H. Kim, S. Doney and J. Bowman. "Leveraging Microbial Community Structure Data to Inform Ecosystem Modeling, an Approach Based on Microbial Community Segmentation" 2020 Ocean Science Meeting. *Talk*.

2020 **Wilson**, J.M., E.J. Chamberlain, and J.S. Bowman. "18 months at the Scripps Ecological Observatory." Biological Oceanography Joint Lab Group Meeting. *Seminar.*

2019	**Wilson**, J.M., J. Mühle, M. Carter, and J. Bowman. “Relationships between key harmful algal taxa and volatile organic compounds (VOCs), as assessed by an 8-year time-series off the coast of Southern California.” American Society for Limnology and Oceanography. *Talk*.
2019	**Wilson**, J.M. and J. Bowman. “Microbial ecosystem insights from continuous Membrane Inlet Mass Spectrometry (MIMS) in the coastal ocean.” 2019 American Society for Limnology and Oceanography. *Talk*.
2019	Beman, J.M. and J.M. **Wilson**. “Finely-tuned and tightly-coupled microbial carbon and nitrogen cycling in the Eastern Tropical North Pacific oxygen deficient zone.” 2019 American Society for Limnology and Oceanography. *Talk*.
2018	Beman, J.M. and J.M **Wilson**. “Microbial community assembly, disassembly, and function along environmental gradients and in response to biogeochemical perturbation.” 2018 International Society for Microbial Ecology. *Poster.*
2018	**Wilson**, J.M., S.S. Abboud, and J.M. Beman. “Complex community interactions control carbon cycling along natural and experimental carbon and nutrient gradients in marine lakes.” 2018 Ocean Sciences Meeting. *Talk*.
2018	**Wilson** J.M. and J.M. Beman. “Small group inquiry as a way to foster critical thinking, further understanding of material, and improve test performance in an introductory marine science course.” 2018 Ocean Sciences Meeting. *Poster*.
2018	**Wilson**, J.M. “Aquatic ecology in California.” California Naturalist Course. Invited lecturer. *Talk*.
2017	**Wilson**, J.M. “Ocean processes.” Environmental Systems Graduate Course. Invited lecturer. *Talk*.
2017	**Wilson**, J.M. and J.M. Beman. “Small group inquiry as a way to foster critical thinking, further understanding of material, and improve test performance in an introductory marine science course.” 2017 Howard Hughes Medical Institute-UC STEM Faculty Learning Community: Transforming Teaching and Learning at the University of California—Clearing Institutional Barriers. *Poster*.
2011-16	**Wilson**, J.M. and J.M. Beman. Various topics in marine science. UC Merced Environmental Seminar Series. 2011, 2012, 2013, & 2016. *Talk*.
2016	**Wilson**, J.M. and J.M. Beman. “The dark side of the carbon cycle: simulating changing environmental conditions using natural gradients and mesocosms to study their effects on marine respiration.” 2016 University of California Carbon Slam. *Poster*.
2016	**Wilson**, J.M., S.Y. Litvin, and J.M. Beman. "Microbial community dynamics, community respiration, and net community production in Monterey Bay, a nearshore upwelling kelp forest environment." 2016 Ocean Sciences Meeting. *Talk*.
2016	Ul-Hasan, S., S. Flaherty, J. **Wilson**, S. Sindi, J. Beman, and M. Dawson. “Host-symbiont interactions on community and molecular levels, before and after ENSO events.” 2016 Integrative and Comparative Biology Annual Meeting. *Poster.*
2014	**Wilson**, J.M. and J.M. Beman. "Marine Lakes as Model Systems for Understanding Interactions Between Marine Microbial Community Composition and Function." 2014 Ocean Sciences Meeting. *Poster*.
2012	2011 C-MORE Summer Course Cruise Collective. “Scales of Variability at Station ALOHA.” 2012 Ocean Sciences Meeting. *Poster*.
2007	**Wilson**, J.M. “Quantitative Method for Selecting the Best Subspecies of Channel Island Fox for a Mainland Breeding Program.” 2007 Southern California Conference on Undergraduate Research. *Poster*.

REFERENCES

- Dr. J. Michael Beman (Graduate Advisor) | August 2010 – August 2017
    - mbeman@ucmerced.edu
    - Can speak to my research, teaching, mentoring, field work, and organizational abilities
- Dr. Jeff Bowman (Postdoc Advisor) | May 2018 – July 2021
    - jsbowman@ucsd.edu
    - Can speak to my research, field work, mentoring, and organizational abilities
- Dr. Elizabeth Ridder (Associate Professor and Co-Worker) | July 2022 – Present
    - eridder@csusm.edu
    - Can speak to my teaching abilities
- Dr. Mallory Rice (Assistant Professor and Co-Worker) | April 2022 – Present
    - mmrice@csusm.edu
    - Can speak to my teaching abilities
- Dr. Jason Sexton (Teaching Supervisor) | January 2016 – May 2016
    - jsexton2@ucmerced.edu
    - Can speak to my teaching, mentoring, and organizational abilities

- Sarah Abboud (Lecturer and Co-Worker) | August 2010 – Present
    - sabboud@csusm.edu or abboud.sarah@gmail.com
    - Can speak to my research, field work, teaching, and outreach activities

RESEARCH CRUISES

- R/V Oceanus to Eastern Tropical North Pacific 2018 (18 days)
- R/V Oceanus to Eastern Tropical North Pacific (Co-chief scientist) 2017 (28 days)
- R/V Mussel Point to area off continental shelf of Northern California 2013 (1 day)
- R/V Kilo Moana to Station ALOHA 2011 (10 days)