Jason Baer

Ph.D. Student

1721 Reed Ave
San Diego, CA 92109

Phone: (904) 528-8874
jbaer@sdsu.edu

EDUCATION

University of California San Diego / San Diego State University 2018–2023 (expected)
Joint Doctoral PhD Program in Cell and Molecular Biology

- GPA: 3.95/4.0
- Research focus and interests: marine microbial ecology, coral reef ecology, biogeochemical cycling, marine virology, coral restoration

Eckerd College 2017
Bachelor of Science: **Double major in Marine Science (Biology track) and Spanish Language**

- Graduation with High Honors
- GPA: 3.97/4.0

PUBLICATIONS

Rojas, MI; Giles, SS; Little, M; Baron, R; Livingston, I; Dagenais, T; **Baer, J**; Cobián-Güemes, A; White, B; Rohwer, F. *Swabbing the Urban Environment – A Characterization of environmental reservoirs for SARS-CoV-2*. Journal of Visualized Experiments (JoVE).

Baer, J; Woodley, CM; Pennington, P. 2017. *Effect of Anthropogenic Pollutants on ESA Coral Health*. NOAA National Ocean Service National Centers for Coastal Science. Charleston, SC

RESEARCH EXPERIENCE

San Diego State University San Diego, California
PhD Student Dec 2018 - Present

- Mentor: Dr. Forest Rohwer
- Graduate student lead for the Coral Arks project; responsible for constructing and deploying “mini-reefs” for use in conservation and restoration of degraded reef ecosystems. Current funding is from NSF, the U.S. Department of Defense, and the Gordon and Betty Moore Foundation, with projects being carried out in Puerto Rico, Madagascar, and Curacao.
- Assisted with writing, program planning, and budgeting for >$1 million in research proposals. Won $1.8m from the Department of Defense for the project *Coral Reef Arks: A Cost-Effective and High-Return Tool for Restoration and Conservation of Coral Reef Resources on DoD Submerged Lands*
- Assisted with writing and development of scientific papers, standard operating procedures (SOPs), and high-level organizational documents such as technology demonstration plans (DoD, ESTCP), manuals for the operation and use of novel technologies (DoD, ESTCP), maintenance and monitoring plans (NMFS), and biological consultations (NOAA).
- Previous research on microbial community dynamics within reef matrix habitats and their effects on nutrient and carbon cycling in reef ecosystems, particularly in the context of shifts in dissolved oxygen.

San Diego State University San Diego, California
PhD Student – Research Rotation Aug-Dec 2018

- Mentor: Dr. Marina Kalyuzhnaya

- Research project engineering a methanotroph to maintain a codependent partnership with a cyanobacteria, *Synechococcus*, and move towards a net-zero emission strategy that may help mitigate methane emissions.
- Presented findings at the Gordon Research Conference for Applied and Environmental Microbiology in South Hadley, Massachusetts (2019).

Interuniversity Institute for Marine Sciences Eilat, Israel
Research Intern May–Aug 2017

- Mentor: Dr. Baruch Rinkevich
- Research project on developing maintenance strategies for small coral colonies in the Eilat coral nursery, primarily through the use of grazers such as sea urchins.
- Utilized AAUS scientific diving to carry out regular nursery maintenance, *in situ* biodiversity assays, larval collection and monitoring populations of threatened Red Sea corals.
- Responsible for all laboratory techniques including confocal microscopy, fragmentation and PCR.

Mote Marine Lab Sarasota, FL
Research Intern Jan-May 2017

- Mentors: Dr. Cory Krediet and Dr. Emily Hall
- Research project aimed at analyzing the effects of ocean acidification conditions on *Aiptasia* through simulating several climate change predictions on anemones in the lab.

Eckerd College St. Petersburg, FL
Research Intern Sept 2016-May 2017

- Mentor: Dr. Cory Krediet
- Research project aimed at characterizing microbial communities associated with the tropical sea anemone *Aiptasia* and investigating its global genetic diversity.
- Responsible for all molecular and microbiological techniques including PCR, DNA extraction and purification, sequence analysis, broth and media preparation, plating and husbandry of the anemones.

NOAA Hollings Marine Lab Charleston, SC
Research Intern May 2016-Aug 2016

- Mentor: Dr. Cheryl M. Woodley
- Research project aimed at determining differences in response to the marine toxicant copper among various nursery-reared genotypes of the threatened coral *Acropora cervicornis* for use in improving restoration practices.
- Developed novel procedures for live-cell staining in corals, as well as productive new methods for quantitatively analyzing overall coral health in response to anthropogenic stressors.
- Identified thresholds of toxicity and intraspecific variation of an ESA-listed coral species in response to copper
- Findings led to a feature publication in a NOAA final report (2017) – Effect of Anthropogenic Pollutants on ESA Coral Health

EXPERIENCES AND SKILLS

Honors and Awards

- NSF Graduate Research Fellowship Program Honorable Mention 2018, 2020
- NOAA Hollings Scholarship Recipient 2015-2017
- Eckerd College Ford Scholarship Recipient 2015-2017
- Phi Beta Kappa Peter Pav Scholarship Recipient 2014
- Scientific Equipment and Furniture Association Scholarship Recipient 2016
- Eckerd College Nomination for Writing Excellence Award 2016

- Phi Beta Kappa National Honors Society
- Sigma Delta Pi Spanish National Honors Society
- Eckerd College Dean's List Every Semester 2013-2017

Conference and Invited Presentations

- Poster: "Coral Reef Arks: A Cost-Effective and High-Return Tool for Restoration and Conservation of Coral Reef Resources on DoD Submerged Lands" at the Environmental Security Technology Certification Program (ESTCP)/ Strategic Environmental Research Development Program (SERDP) virtual symposium (November 2020).
- Invited Speaker: "PassioInventa: Integrating the Human Experience to Communicate Science" on the podcast *When Science Speaks* hosted by Mark Bayer of Bayer Strategic Consulting (July 2020)
- Poster: "Coral Reef Arks: An Innovative Solution for Mitigation of Coral Reef Damage" at Ocean Sciences Meeting in San Diego, California (February 2020).
- Poster: "A Stable Partnership: Towards the Development of a Net Zero Emission Strategy through the Binary Methanotroph-Phototroph Culture" at the Gordon Research Conference for Applied and Environmental Microbiology in South Hadley, Massachusetts (July 2019).
- Presenter of an annual seminar to the MESA program at SDSU discussing potential careers in marine engineering (March 2019 – Present).
- General Chemistry I and II Teaching Assistant (March 2016 – May 2017) – Partnered with Dr. Polina Maciejczyk of the Eckerd College Chemistry Department and taught/facilitated General Chemistry I and II lectures and laboratories, including nuclear chemistry, equilibrium, and molecular geometry.
- Poster: research project on identifying genetic markers in *Aiptasia*, Eckerd College Student Research Symposium (April 2017).
- Talk: research project on *Investigating Genotype Vigor in* Acropora cervicornis, Eckerd College Student Research Symposium (April 2017).
- Poster: *Investigating Genotype Vigor in* Acropora cervicornis, Association for Sciences of Limnology and Oceanography meeting "Mountains to the Sea" in Honolulu, HI (February 2017).

Skills and Certifications

- Experimental design and project management
- American Academy of Underwater Sciences (AAUS) Scientific Diver
- Proficiency in R, Python and MatLab coding languages
- Proficient Spanish Speaker (Bilingual)
- PADI Divemaster

Student Mentorship

- ***Brice Brown and Daniel Morrow*** (September 2020 – Present) – High school seniors investigating *Aiptasia* anemone responses to environmentally-relevant anthropogenic stressors for their senior AP Research class.
- ***Jenna Aquino*** (August 2020 – Present) – Rohwer lab MSc student working on a project investigating the development of a protocol to isolate whole community DNA from microbes and viruses in water samples.
- ***Anneke van der Geer*** (June 2020 – Present) – Rohwer lab MSc student working on a project investigating oxygen fluctuations at small-to-large spatial scales on coral reefs.
- ***Baron Guo*** (May – August 2020) – High school student summer intern investigating microbial community shifts in a coral mesocosm system due to various perturbations. Completed project will be submitted to the 2021 Intel International Science and Engineering Fair.
- ***Rachel John*** (January 2020 – Present) – Rohwer lab undergraduate researcher working on a project investigating diurnal shifts in microbial and viral abundances in coral reef water.
- ***Katie Sklaver*** (January 2020 – May 2020) – Eckerd College undergraduate student who completed the PassioInventa Student internship for Scientific Communication.

Work Experience

- Graduate Research Assistant for SDSU's Marine Collector for Organismal Biology and Ecology Labs (Fall 2020 – Present)
- Graduate Teaching Assistant for Upper-Division Microbiology Laboratory at SDSU (August 2018 – May 2019)
- General Chemistry and Organic Chemistry Tutor at Eckerd College (August 2016 – May 2017).
- Chemistry Stockroom Senior Assistant at Eckerd College (August 2014 – May 2017). Included duties such as laboratory set up, solution and mixture preparation, chemical and equipment inventory, and instrument maintenance (NMR refill and lower laboratory instrument setup).
- SCUBA Instructor, Dive Guide and Divemaster at Waterbugs Dive Center in Chiclana de la Frontera, Spain (2013-2014).

Professional/Leadership Development

- Founder and contributing author of PassioInventa, an online scientific communication platform (March 2019–present).
- Student representative of the SDSU Coastal and Marine Institute Laboratory Diving Control Board (September 2020 – Present)
- Attendee/Organizer of the ComSciCon scientific communication workshop in San Diego, CA (July 2019-2020).
- President of the Scientific Outreach Club (SOC) at Eckerd College (2017).

Community Service and Outreach

- Marine Science Instructor at the Ocean Discovery Institute, San Diego, CA (October 2018- Present)
- Volunteer Diver at the Coral Restoration Foundation, Key Largo, FL (2014-2017)
- Dive for Debris Volunteer Diver, Tampa Bay, FL (2015-2017).

References

- Dr. Forest Rohwer – Professor at San Diego State University
    - frohwer@gmail.com
- Dr. Linda Wegley-Kelly – Assistant Research Professor at San Diego State University
    - lwegley@gmail.com
- Dr. Aaron Hartmann – Research Associate at Harvard University
    - aaron.hartmann@gmail.com
- Dr. Jessica Carilli – Research Scientist at the Naval Information Warfare Center (NIWC) Pacific
    - jcarilli@spawar.navy.mil
- Dr. Cory Krediet – Assistant Professor of Marine Science and Biology at Eckerd College
    - krediecj@eckerd.edu