

# Jacoby Baker

## Education

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- 2020** M.S. Marine Sciences – Moss Landing Marine Laboratories, CSU Monterey Bay
- 2016** B.S. Biological Sciences, Conc. Marine Biology – San Jose State University

## Professional Experience

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- January 2022 – Present** Research Technician – Monterey Bay Aquarium Research Institute (MBARI)  
Works with the Biological Oceanography Group studying spatial and temporal shifts in the marine ecosystem of Monterey Bay. Duties include collection and filtering of water samples, DNA extractions, PCR, bioinformatic workflows, and data analysis.
- November 2020 – December 2021** Research Assistant – Monterey Bay Aquarium Research Institute (MBARI)  
Works with the Biological Oceanography Group studying spatial and temporal shifts in the marine ecosystem of Monterey Bay. Duties include collection and filtering of water samples, DNA extractions, PCR, bioinformatic workflows, and data analysis.
- May 2017 – November 2020** Graduate Research Assistant – Marine Environmental Physiology Lab – CSU, Monterey Bay  
Conducted research on the molecular physiology of fishes, including RNA extractions, cDNA library preparations, quality control of samples, data management, statistical analysis, bioinformatics, and mentored undergraduate students in the lab.
- June 2017 – August 2018** Graduate Student Assistant – NSF Polar ICE Sci-I Project and CSU Monterey Bay Research Experience for Undergraduates (REU)  
Facilitated and coordinated teacher training workshops and student research symposiums, developed the Sci-I How-To Manual, managed and assessed the Sci-I project, and provided feedback and mentorship to students. Mentored REU students, organized and facilitated events, and advertised the program.
- September 2015 – April 2018** Early Life History Lab Assistant – NOAA National Marine Fisheries Services, Fisheries Ecology Division  
Trained and supervised interns, organized and led dissection teams, ran climate change related experiments investigating the effects of high pCO<sub>2</sub> and low dissolved oxygen on the physiology and behavior of juvenile and larval rockfishes.

## Additional Research Experience

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- March 2018** Marine Environmental Studies of the Gulf of California – Isla Natividad, BCS, Mexico  
Studied how MPAs influence the size and abundance of invertebrate fishery species.
- September 2015 – January 2017** Ichthyology Lab Intern – Moss Landing Marine Laboratories  
Assisted students on various projects including fish dissections, data collection on SCUBA, and fish collections with hook-and-line fishing techniques.
- August 2016** Research Assistant, Whale Shark Research – Bahia de los Angeles, Baja Mexico  
Collected data and collaborated with local authorities.

## Publications

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- 2021 Chavez, F.P., M. Min, K. Pitz, N. Truelove, **J. Baker**, D. LaScala-Grunewald, M. Blum, K. Walz, C. Nye, A. Djurhuus, R.J. Miller, K.D. Goodwin, F.E. Muller-Karger, H.A. Ruhl, and C.A. Scholin. 2021. Observing life in the sea using environmental DNA. *Oceanography* 34(2):102–119, <https://doi.org/10.5670/oceanog.2021.218>.
- 2019 Hunter-Thomson, K., **Baker, J.** Polar ICE Sci-I Project Development & Implementation Manual. Retrieved August 29, 2019, from <https://bookdown.org/kristin/sci-i-guide/>

## Manuscripts in Preparation

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**Baker, J.**, Saksa, K., Heard, Hamilton, S., Logan, C. (In preparation). Maternal environment drives larval gene expression patterns in gopher rockfish (*Sebastes carnatus*). *Mol. Ecol.*

## Oral Presentations

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- 2021 Guest Lecture – CSU, Monterey Bay, Adventures in Marine Science Course
- 2021 Society for Integrative and Comparative Biology – Remote meeting
- 2020 Guest Lecture – CSU, Monterey Bay, Adventures in Marine Science Course
- 2018 Western Society of Naturalists – Tacoma, WA \*
- \*Received best student presentation award in organismal/population biology
- 2018 Guest Lecture – CSU, Monterey Bay, Marine Experimental Physiology Course

## Posters Presented

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- 2017 Western Society of Naturalists – Pasadena, CA
- 2017 Society for Advancing Chicanos and Native Americans in Science – Salt Lake City, UT

## Teaching Experience

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- Sp. 2020 Marine Experimental Physiology, Dep. of Natural Sciences, CSUMB
- Fa. 2018 Marine Experimental Physiology, Dep. of Natural Sciences, CSUMB
- Sp. 2018 Marine Experimental Physiology, Dep. of Marine Science, CSUMB

## Events Facilitated

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- 2018 NSF Polar ICE Sci-I Project – Student Polar Research Symposiums  
Planned, coordinated, and facilitated three 4-hour research symposiums in Missouri, Ohio, and California where students of 6<sup>th</sup> – 9<sup>th</sup> grade presented their research from the Polar ICE Sci-I project.
- 2017 NSF Polar ICE Sci-I Project – Teacher Workshop

Facilitated a week-long workshop for 6<sup>th</sup> – 9<sup>th</sup> grade teachers. Provided instructional information on the scientific process, how to formulate and test hypotheses based on already collected data, and present results in a visual format.

## Professional Development

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**2018** National Center for Genome Analysis Support

NSF sponsored, two-day workshop on high performance computing usage and *de novo* transcriptome assembly.

**2017** Data Intensive Biology Summer Institute at UC Davis – Non-Model Organism RNAseq

This large data workshop provided an excellent foundation and workflow for the bioinformatics data management and analysis of non-model organism RNA sequencing.

**2017** American Academy of Underwater Sciences (AAUS) Dive Certification

Specialized training in SCUBA research

## Awards

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**2018** Best student presentation award in organismal/population biology – Western Society of Naturalists

## Funding

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**2019** Simpkins Family Marine Science Scholarship (\$1,000)

**2018** CSU Program for Education & Research in Biotechnology (\$750)

**2018** Dr. Earl H. Myers & Ethel M. Myers Oceanographic & Marine Biology Trust (\$1,000)

**2018** National Center for Genome Analysis Support (\$500)

## Outreach

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**2019** Marine Science Rotating Research Panel – UROC, CSUMB

Participated in a research panel to help inform undergraduate students of potential career paths.

**2017 - 2018** NSF Polar ICE Sci-I Project

Outreach to science teacher of 6<sup>th</sup>-9<sup>th</sup> grade to educate them on how to access polar data sets, formulate testable questions, create representative figures, and present their results so they can bring these skills to their classroom for their students.

**2017 – 2018** Regional Ocean Sciences Research Experience for Undergraduates (REU)

Brings undergraduates from across the nation to Monterey Bay, CA to work with a mentor in the ocean sciences. During the program the student worked on an independent project with the guidance of their mentor. At the end of the program the students produce written work and an oral presentation.

**2016 – 2019** Moss Landing Marine Laboratories – Open House

Invitation to the public to explore the MLML campus and learn about the research that students and faculty are conducting.

## **Skills**

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- Experience in fish husbandry and cultivating rotifer cultures for food
- Experience of computer systems controlling nitrogen and carbon dioxide gases to adjust and maintain treatment levels in experimental tanks
- Experience conducting behavioral and physiological trails on fishes
- Practiced in dissections and tissue collection of fishes
- Experienced in RNA isolation and cDNA library preparations
- Programming in Python
- Experience in bioinformatics
- AAUS Scuba Certified