

Jessica Kendall-Bar

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PhD Student and NSF Graduate Research Fellow

Ecology and Evolutionary Biology, University of California Santa Cruz

I. Educational Background

University of California, Santa Cruz (2017-present)

PhD Student: Ecology and Evolutionary Biology

University of California, Berkeley (2012-2016) GPA: 3.93

BA: Marine Science and Integrative Biology

Santa Monica High School, CA (2009-12)

Lycée Joffre in Montpellier, France (2009-2010)

II. Honors and Awards

- NSF Graduate Research Fellow (2017-2020)
- Frederic Fairfield Memorial Award at the World Marine Mammal Conference (2019)
- Sooy Graduate Research Fellow (2018)
- Norris Center for Natural History Art Residency (2018)
- Monterey Shootout Underwater Photography Competition Finalist (2017)
- Summer Undergraduate Research Fellowship (SURF) Rose Hills Independent Fellow (2016)
- University of California Berkeley Regents' and Chancellors' Research Fellowship (2016)
- Charles H. Ramsden Endowed Scholarship (2014, 2015, and 2016)
- National Oceanic and Atmospheric Administration Ernest F. Hollings Scholar (2014-2016)
- University of California Berkeley Regents' and Chancellors' Scholar (class of 2012-2016)
- AP Scholar (2012) and Honor Roll 4.0 GPA each semester at Santa Monica High School (2012)
- Félicitations (2009-2010) awarded honorable distinction each trimester while abroad in France

III. Research Experience

PhD Thesis Research on Comparative Neurophysiology of Marine Mammals (2017-present)

Advisors: Dan Costa (PhD) & Terrie Williams (PhD), Ecology and Evolutionary Biology, UC Santa Cruz
(costa@ucsc.edu & tmwillia@ucsc.edu)

- trained and participated in two years of elephant seal field seasons at Año Nuevo State Park: including assisting with translocations, lab-based studies, and ~100 elephant seal sedation procedures for instrument deployments and recoveries
- trained and mentored 7 undergraduate volunteers assisting with data collection for my dissertation during ~25 procedures at The Marine Mammal Center

- collected tissue samples (whiskers, fur, nasal) and morphological measurements on northern elephant seals for various analyses (body composition, stable isotopes, etc.)
- mentored undergraduate volunteers assisting with re-sights in the field through our ongoing elephant seal demographic monitoring project

Electrophysiological Sleep Study in Fur Seals in Russia (Summer 2016)

Advisor: Oleg Lyamin (PhD), Center for Sleep Research, UCLA School of Medicine (olyamin@ucla.edu)

- studied possible proxies of unihemispheric sleep by examining the correlation between eye state and electrical (EEG) activity during sleep in the water in two fur seals
- trained a wild fur seal to perform cognitive shape discrimination tasks

Related Presentations and Publications:

Presented in Graduate-Level Marine Science Seminar (Integrative Biology 230) (Sept 2016)

Refereed Conference Presentation at the Western Society for Naturalists Meeting (Nov 2016)

Refereed Conference Presentation (by Dr. Lyamin) at the 9th International Conference on the Marine Mammals of the Holarctic in Astrakhan, Russia (Nov 2016)

Chemical Oceanography Research Cruises studying Particulate Inorganic Carbon in the Pacific aboard the RV Oceanus, RV Point Sur, and RV New Horizon (August 2016, October 2012, and January 2013)

Advisor: James Bishop (PhD), Professor of Marine Science at UC Berkeley (jkbishop@berkeley.edu)

- deployed carbon-profiling robots, CTD sensors, plankton nets, sediment PIT traps, McCrane pumps, and adjusted sensors to resist pressure changes

Sleep Deprivation Research in Humans with UC Berkeley's Sleep and Neuroimaging Lab:

Undergraduate Research Apprenticeship Program (URAP) (2015-2016)

Advisor: Adam Krause (PhD Student) Sleep and Neuroimaging Lab at UC Berkeley

- collected physiological data from EEG, EKG, and MRI to analyze the effects of sleep deprivation on pain sensation

Pilot Whale Photo Identification Project through the NOAA Hollings Internship (summer 2015)

Advisor: Jay Barlow (PhD), Researcher at NOAA's Southwest Fisheries Science Center in La Jolla, CA (jay.barlow@noaa.gov)

- created a photo-identification catalog and located matches between seasonal sightings
- conducted biweekly marine mammal surveys in the field

Related presentations and publications:

Peer-reviewed publication in Aquatic Mammals (Aug 2016)

Refereed Conference Presentation at the Society for Integrative & Comparative Biology (Jan 2016)

Presented at the Hollings Scholarship Science and Education Symposium (Aug 2015)

Moray Eel Behavior Independent Field Project in Moorea, French Polynesia (Fall 2014)

Professor: Jonathon Stillman (PhD), Professor of Marine Biology at San Francisco State University (jstillman@berkeley.edu)

- categorized the diurnal behavior and conducted den fidelity studies of Giant Morays (*Gymnothorax javanicus*) and other tropical moray species

Related presentations and publications:

Presented at the course symposium for Biogeomorphology of Tropical Islands (IB 158LF) (Dec 2014)

Paper published in UC Berkeley's Integrative Biology archives (Dec 2014)

Arthropod Sexual Selection through Research Experience for Undergraduates (REU) (Summer 2014)

Advisor: Vikram Iyengar (PhD), Associate Professor of Biology at Villanova University

(vikram.iyengar@villanova.edu)

- assessed the relative roles of competition and choice in the mating systems of marine earwigs

Related presentations and publications:

Refereed Conference Presentation at the Society for Integrative & Comparative Biology (Jan 2015)

Presented at the REU Symposium at Friday Harbor Labs (Aug 2014)

Paper published in Friday Harbor Laboratories online archives (Aug 2014)

Cephalopod Behavior Research (URAP) (2013-2015)

Advisor: Roy Caldwell (PhD), Professor of Integrative Biology at UC Berkeley (rlcaldwell@berkeley.edu)

- studied the drilling and feeding behavior of the octopus *Abdopus aculeatus* and the greater blue-ringed octopus (*Hapalochlaena lunulata*)

Deep-Sea Wood Fall Experiment Research (2013-2014)

Advisor: Jenna Judge (PhD) Lindberg Lab at UC Berkeley

- collected and catalogued burrowing mollusks found inside wood and analyzed wood retrieval footage to catalogue macrofauna found near bundles of sunken wood

Madagascar Marine Protected Area Assessment (URAP) (Spring 2013)

Advisor: Merrill Baker (PhD), Assistant Professor of Environmental Studies at UC Berkeley

- translated French travel documents to analyze historical fishing practices
- organized data from interviews conducted with local fishermen

Alaska Summer Research Academy Internship (Summer 2011)

- learned to conduct a research project by examining the burrowing behavior of polychaetes
- learned various marine biology biodiversity survey techniques in Kasitsna Bay, AK

Teach and Test Ocean Water Quality Testing Program (2009-2012)

- tested *Enterococcus faecalis* bacteria levels in local ocean water using Quanti-Tray Analysis

IV. Teaching Experience

Teaching Assistant (TA) for Marine Mammals (BIOE 129L – Spring 2019)

Supervising professor: Dan Costa (PhD) (jkbishop@berkeley.edu) at UC Berkeley

- Designed and led lab sections including active and field-based learning techniques
- Presented short lectures on class material preceding lab activities

- Provided extensive writing feedback for the “Disciplinary Communication” course which emphasizes scientific writing and critical thinking skills

Exceptionally appointed Graduate Student Instructor (GSI) for Oceans (EPS C82 – Fall 2015/Fall 2016)

Supervising professor: Jim Bishop (PhD) (jkbishop@berkeley.edu) at UC Berkeley

- Redesigned course in 2013: created course website and restructured assignments and lectures
- Section Leader: presented hour-long lessons, one guest lecture for the 300 students in our class, held review sessions, and created exams and assignments (2015: 1 section- 30 students, 2016: 3 sections- 100 students total).

Undergraduate Student Instructor (UGSI) for Invertebrate Zoology (IB103LF – Spring 2016)

Supervising professor: Jenna Judge (PhD) (jennajudge@berkeley.edu) at UC Berkeley

- Assisted with lab sections (15 students each) by collecting invertebrates, presenting lessons, and assisting students with lab material
- Helped lead review sessions, lead class field trips, and create exams and assignments.

V. Publications and Presentations

Peer-Reviewed Publications:

Kendall-Bar, J.M., Mukhametov, L.M., Siegel, J.M., Lyamin, O.I. (2016). Eye state asymmetry during aquatic unihemispheric slow wave sleep in northern fur seals (*Callorhinus ursinus*). *PLoS ONE* 14(5): e0217025. DOI 10.1371/journal.pone.0217025

Kendall-Bar, J.M., Weller, D.W., Fearnbach, H., Shane, S., Schorr, G.S., Falcone, E.A., Calambokidis, J., Schulman-Janiger, A., & Barlow, J. (2016). Movement and Occurrence Patterns of Short-Finned Pilot Whales (*Globicephala macrorhynchus*) in the Eastern North Pacific. *Aquatic Mammals*, 42(3), 300-305, DOI 10.1578/AM.42.3.2016.300

Kendall-Bar, J.M., Iyengar, V.K. (2016). Sexual selection by the seashore: the roles of body size and weaponry in mate choice and competition in the maritime earwig (*Anisolabis maritima*). *Behavioral Ecology and Sociobiology*, 71(1), 1-9, DOI 10.1007/s00265-016-2233-9

Refereed conference presentations:

World Marine Mammal Conference in Barcelona, Spain (December 2019):

Kendall-Bar, J.M., McKnight, J.C., Pitman, J.K., Mulsow, J., Hückstädt, L.A., Field, C.L., Johnson, S.P., Vyssotski, A.L., Costa, D.P., and Williams, T.M. (2019) Sleeping beneath the surface: developing novel, non-invasive methods to investigate sleep in wild marine mammals. *World Marine Mammal Conference*: December 7-13th, 2019.

***Awarded the Frederic Fairfield Memorial Award** for innovative research by students who developed or applied pioneering techniques or research tools to study marine mammals.

ArtScientific Medical Systems Meeting in Amsterdam, the Netherlands (May 2019):

Kendall-Bar, J.M., McKnight, J.C., Pitman, J.K., Hückstädt, L.A., Field, C.L., Johnson, S.P., Costa, D.P., and Williams, T.M. (2019) Novel, non-invasive methods for neurophysiological monitoring

during rest behavior in phocid seals. *Artinis Medical Systems NIRS Symposium: ArtScientific* May 9–11th, 2019.

Western Society of Naturalists Meeting (November 2016):

Kendall-Bar, J.M., Mukhametov, L.M., Siegel, J.M., Lyamin, O.I. (2016). Sleeping with one eye open: Using eye state as a proxy for unihemispheric sleep in northern fur seals. *Western Society of Naturalists in Monterey, California* November 11th– November 13th, 2016.

9th International Conference on the “Marine Mammals of the Holarctic” in Astrakhan, Russia (November 2016) (presented by Oleg Lyamin):

Kendall-Bar, J.M., Mukhametov, L.M., Siegel, J.M., Lyamin, O.I. (2016). Association between eye state and unihemispheric sleep and waking in the fur seal while in water. *9th International Conference on “Marine Mammals of the Holarctic”, Astrakhan, Russia*, October 31st– November 5th, 2016.

Society for Integrative and Comparative Biology (January 2016):

Kendall-Bar, J. M., Weller, D., Fearnbach, H., Shane, S., Schorr, S., Falcone, E., Calambokidis, J., Schulman-Janiger, A., & Barlow, J. P. (2016). Using photo-identification data to investigate movement and occurrence patterns of short-finned pilot whales (*Globicephala macrorhynchus*) in the eastern north pacific. *Integrative & Comparative Biology*, 56, E109-E109.

Society for Integrative and Comparative Biology (January 2015):

Kendall-Bar, J. M., & Iyengar, V. K. (2015). Sexual selection by the seashore: Mate choice and competition in the maritime earwig. *Integrative & Comparative Biology*, 55, E283-E283.

Working papers:

Kendall-Bar, J. M., & Iyengar, V. K. (2014). Sexual selection by the seashore: mate choice and competition in the maritime earwig, *Anisolabis maritima*. Friday Harbor Laboratories- REU ResearchWorks Student Paper Archive:

<https://digital.lib.washington.edu/researchworks/handle/1773/27206>

Kendall-Bar, J.M. (2014). Behavior, den fidelity, and distribution of moray eels (Muraenidae) on Moorea in French Polynesia. Integrative Biology- Moorea Student Paper Archive:

http://ib.berkeley.edu/moorea/uploads/6/6/8/3/6683664/jessica_kendall-bar_final_paper.pdf

Guest lectures:

- Guest Lectures in Oceans C82 Course at UC Berkeley on “Metazoan Diversity” (annually in October 2019, 2018, 2017, 2016, and 2015)

Invited talks:

- PhD Proposal Seminar at UCSC– Department of Ecology & Evolutionary Biology (January 2020)
“Sleep at Sea: Developing Non-invasive Methods to Investigate Sleep in Wild Marine Mammals”
- Seminar at University of Michigan – Mechanical Engineering Department (January 2020)
“Sleep at Sea: Developing Non-invasive Methods to Investigate Sleep in Wild Marine Mammals”
- Public talk at the Santa Cruz Museum of Art & History (November 2019)

"The Science Behind the Story of *Looking for Marla*: Sex in Nature"

- **Seminar at The Marine Mammal Center** in Sausalito, CA (September 2019)
"Sleep at Sea: novel, non-invasive methods for neurophysiological monitoring in pinnipeds."
- **Seminar at the National Marine Mammal Foundation** in San Diego, CA (July 2019)
"Sleep at Sea: novel, non-invasive methods for neurophysiological monitoring in pinnipeds."
- **SF Exploratorium After Dark**: "Everything Matters: Tales from the Periodic Table" (March 2017)
Kendall-Bar, J.M. "How Poop Sinks: The Importance of Feces in the Open Ocean"
https://www.youtube.com/watch?v=KvHSb8X5F_o
- **Science and Education Symposium at NOAA Headquarters** in Washington, DC (August 2015):
Kendall-Bar, J. M., Weller, D., Fearnbach, H., Shane, S., Schorr, S., Falcone, E., Calambokidis, J., Schulman-Janiger, A., & Barlow, J. P. (2016). Using photo-identification data to investigate movement and occurrence patterns of short-finned pilot whales (*Globicephala macrorhynchus*) in the eastern north pacific.
- **SF Exploratorium Carbon Networks Workshop**- Communicating Carbon Science (April 2015):
Presented my [Ocean's Biological Carbon Pump Animation](#) on the Bay Observatory's 9-panel video wall for a workshop on communicating climate change.
- **UC Berkeley's Biogeomorphology of Tropical Islands Class (IB158LF) Symposium** (December 2014):
Kendall-Bar, J.M. (2014). Behavior, den fidelity, and distribution of moray eels (Muraenidae) on Moorea in French Polynesia.
- **Friday Harbor Labs Research Experience for Undergraduates (REU) Symposium** (August 2014):
Kendall-Bar, J. M., & Iyengar, V. K. (2014). Sexual selection by the seashore: mate choice and competition in the maritime earwig, *Anisolabis maritima*.

VI. Work Experience

Freelance Illustration (2015-present) Portfolio: <https://www.jessiekb.com/portfolio>

- **Illustrated Children's Books:**
Commissioned as an illustrator for the following marine biology children's books:
 - *Looking for Marla* (2018-present)
Authors: Paloma Medina & Audrey Ford
Illustrator: Jessica Kendall-Bar
Supported by: UCSC Norris Center Art & Science Residency (\$1,500), Science & Justice Research Center, and the Santa Cruz Arts Council, and Kickstarter Campaign (\$4,500)
Looking for Marla tells the biologically accurate tale of a clownfish in transition as they find their way through fatherhood, and into motherhood.
 - **Books shared at outreach events:** LGBTQ+ Story Time in the Park with Trans Families, Boys & Girls Club, & Santa Cruz Public Libraries (October 2019), Queer Trans Mixer (October 2019), Capitola Art & Wine (September 2019), SF Zine Fest (September 2019), LA Tiny Tech Zines (September 2019), Pajaro Valley Pride

(August 2019), Walnut Ave Family & Women's Center (July 2019), Norris Center Alumni Event (April 2019), & Ales for Whales Fundraiser (April 2019)

- *The Castor Oil Rig Tales* by Sue Partenheimer (2015-2019)

Authors: Paloma Medina & Audrey Ford

Illustrator: Jessica Kendall-Bar

Published by AzBukiVeri LLC Publishing in 2019; available on Amazon

The Castor Oil Rig Tales details the journey of dozens of marine creatures as they find sanctuary in an abandoned oil rig off the coast of Louisiana.

- Science Communication Strategist- Graduate Student Research (GSR) Assistantship (May 2019-present)

Developing visual science communication strategies for scientist Dr. Mike Beck to communicate the importance of coral reef restoration and the power of waves.

- Graphic art deliverables presented at:
 - 42nd US Coral Reef Task Force Meeting in Palau (August 2019)
 - A high-level dialogue event: *Resilient Atoll Nations in Productive Oceans* (September 2019) convened by the Asian Development Bank in the Maldives with ministers of key Pacific Islands (Fiji, Kiribati, Maldives, Marshall Islands)

- Commissioned fine art (surfboards, portraits, handplanes, guitars, etc.) (2017-present)

Fine art featured at the following Art Shows:

- Solo art show at Unitarian Universalist Church of Santa Monica Forbes Art Gallery (Jan 1-30 2020)
- Capitola Art & Wine Festival September 14-15, 2019
- Burning Man August 2019- Animation in "Morphoscope" at 7:30 & G with India Block Arts
- Life Beneath the Waves Fundraiser for Surfrider LA July 26th, 2019
- Ales for Whales Fundraiser for California Ocean Alliance April 2018 & 2019
- Solo art show Monterey Bay National Marine Sanctuary Exploration Center July 17, 2018
- Ocean Dream Fair April 28, 2018

Freelance Water Photography (2015-present)

- commissioned fine-art, commercial, and personal photography for Facebook, Jeux de Vagues (eco-friendly apparel), non-profits, & individuals

The Marine Mammal Center in Sausalito, California: Videotaping intern (Summer 2013)

- created videos of rescues, surgeries, feedings, necropsies, and releases at the hospital

Tutor (2009-2012)

- tutored high school students in subjects including AP Biology, AP French, and AP Calculus.

VII. Press Coverage

Santa Cruz Sentinel: "Looking for Marla' teaches inclusivity" (November 30, 2019)

- "Medina joined forces with a small squad of impressive colleagues including Audrey Ford, a UC Santa Cruz Marine Biology graduate and ocean conservation educator, and Jessica

Kendall-Bar, an artist and marine scientist doctorate National Science Foundation graduate research fellow at UCSC studying the neurobiology of marine mammals."

-Rachel Kippen of Our Ocean Backyard, Santa Cruz Sentinel

<https://www.santacruzsentinel.com/2019/11/30/looking-for-marla-teaches-inclusivity-rachel-kippen-our-ocean-backyard/>

UC Santa Cruz News Profile: "Dream job: Combining science and illustration" (July 16, 2019)

- "Ph.D. student Jessica Kendall-Bar is fascinated by how wild marine mammals sleep, and also passionate about using art to explain science."

-Peggy Townsend of UCSC News <https://news.ucsc.edu/2019/07/kendall-bar-jessica.html>

UC Santa Cruz News Public Affairs (November 7, 2019)

- "UCSC graduate students Paloma Medina and Jessica Kendall-Bar and alumna Audrey Ford collaborated on the illustrated tale of a clownfish in transition"

-Public Affairs of UC Santa Cruz <https://news.ucsc.edu/2019/11/book-launch.html>

KSQD Radio interview with Ventana Surfboards and Event Santa Cruz (August 30, 2019)

- "Jessie is one of our favorites. I always call her a polymath, which is someone who is an expert in 48 different things, so when I'm commenting about her and our collaboration..."

-David Dennis of Ventana Surfboards <https://www.eventsantacruz.com/the-ventana-hour/>

VIII. Volunteer Experience

Volunteer at the Año Nuevo State Reserve (July 2017-present)

- assisting with ongoing research efforts with the local northern elephant seal population

Scientific Diver for UC Santa Cruz (April 2018-present)

- assisting with ongoing subtidal research efforts and with captive dolphin research through the Marine Mammal Physiology Project

Art Donations for Non-Profit Conservation-Focused Organizations (Jan 2018-present)

- original artwork donations for auctions benefiting non-profit conservation organizations such as American Academy of Underwater Sciences (AAUS) and California Ocean Alliance (COA)

Reviewer for Aquatic Mammals Journal (October 2016-present)

- reviewed my first scientific article in November, 2016

Co-President of the Ocean Society of Berkeley (2012-2016)

- leader for a research-oriented club on campus which participates in outreach programs such as the Expanding Horizons program to engage young middle school girls in science lessons

Scientific Diver for Instructional Support, Department of Integrative Biology UC Berkeley (Spring 2016)

- collected marine invertebrates for the Invertebrate Zoology course (IB103LF)

President of SAMOHI's Heal the Bay Surfrider Club (2009-2012)

- weekly Ocean Water Quality Testing (See Teach and Test Program)
- participated in campaign leading to the Plastic Bag Ban in Santa Monica and Los Angeles
- organized Paddle Outs for a Bag Free LA with Heal the Bay and Surfrider Foundation

IX. Qualifications

Languages:

- Fluent in French (dual citizenship, year abroad in French high school, 5 in AP French)
- Proficient in Spanish (3 years of study)
- Basic conversational Russian (immersive research experience abroad)

Relevant Skills:

Diving (>100 dives in Friday Harbor, Monterey, Catalina, Channel Islands, San Diego, Florida, & Tahiti)

- Active AAUS Scientific Diver with UC Santa Cruz Scientific Diving Program
- AAUS Scientific Diver Certification through the UC Berkeley Scientific Diving Program
- NAUI Nitrox, Rescue, and Master Certifications
- PADI Advanced Certification (specialties: Buoyancy, Navigation, Deep Dive, and Fish ID)

Computer Skills:

- Scientific Computing: Spike2 (electric impulse analysis), MATLAB, JMP, ImageJ
- Video Editing/Graphics: Adobe Creative Suite, Final Cut Pro, Autodesk MAYA, ACDSee
- Productivity: Microsoft suite, familiarity with Microsoft, Mac, and Ubuntu operating systems

Art: Scientific illustrations, diagrams, and animations (<http://jessiekb.com/art/>)

Other Extracurricular Activities: Cal Scuba (2013-16), Volunteering with the Blue Water Foundation (2013-15), Sailing at Cal Adventures and UCLA, Junior Lifeguard (2003-09), Junior Varsity Swimming (2009-12), Orchestra (2003-12), High School Soccer (2009-12), Lead Singer of Jazz Band in Montpellier, Choir (2007-12).

Hobbies: Biking, Diving, Sailing, Hiking, Surfing, Drawing, Painting, Woodburning, Filmmaking