

# JESSICA KENDALL-BAR

*Schmidt AI in Science Postdoctoral Fellow*

*Scripps Institution of Oceanography - Center for Marine Biotechnology & Biomedicine*

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## I. EDUCATION

- 2022-present** **Postdoctoral Scholar - University of California, San Diego** (Scripps Institution of Oceanography)  
Lessons from the deep: Engineering tools that leverage the comparative physiology of extreme divers to advance conservation and translational medicine  
*Advisor: Dr. Paul J. Ponganis; Artificial Intelligence Co-Mentor: Dr. Ilkay Altintas*
- 2017-2022** **PhD - University of California, Santa Cruz** (Ecology & Evolutionary Biology)  
Sleeping while diving: tools to detect, analyze, and visualize sleep in wild seals  
*Advisors: Drs. Daniel P. Costa & Terrie M. Williams*
- 2012-2016** **BA - University of California, Berkeley** (Marine Science & Integrative Biology, Honors)  
Eye state asymmetry during unihemispheric slow wave sleep in northern fur seals  
*Advisors: Drs. Jim Bishop & Oleg I. Lyamin*

## II. PUBLICATIONS

### Peer reviewed publications

\*Mentored students

- [In Press]** **JM Kendall-Bar**, I Nealey, I Costello, C Lowrie, KH Nguyen\*, PJ Ponganis, MW Beck, I Altintas. [EcoViz: co-designed environmental data visualizations to communicate ecosystem impacts, inform management, and envision solutions. \*IEEE VIS\*.](#)
- [In Press]** RS Beltran, AM Kilpatrick, S Picardi, B Abrahms, G Barrile, W Oestreich, JA Smith, M Czapanskiy, A Favilla, R Reisinger, **JM Kendall-Bar**, A Payne, M Savoca, D Palance, S Andrzejczek, D Shen, T Adachi, D Costa, N Storm, C Hale, P Robinson. [Biologging for the future: how biologists can help solve fundamental questions, from individuals to ecosystems. \*Trends in Ecology & Evolution\*.](#) (Pre-print EcoEvoRxiv DOI: 10.32942/X2TK66)
- [In Press]** DP Costa, RR Holser, TR Keates, T Adachi, RS Beltran, CD Champagne, R Condit, DE Crocker, AB Favilla, MA Fowler, JP Gallo-Reynoso, C Goestch, KT Goetz, JL Hassrick, LA Hückstädt, **JM Kendall-Bar**, SS Kienle, CE Kuhn, JL Maresh, SA Maxwell, BI McDonald, EA McHuron, PA Morris, Y Naito, LJ Pallin, SH Peterson, PW Robinson, SE Simmons, A Takahashi, N Teuschel, MS Tift, Y Tremblay, S Villegas-Amtmann, K Yoda. Two decades of three-dimensional northern elephant seal movement data. *Nature Scientific Data*.
- [2024]** A Szabo, L Bejder, H Warick, M van Aswegen, AS Friedlaender, J Goldbogen, **JM Kendall-Bar**, EM Leunissen, M Angot, WT Gough. [Solitary humpback whales manufacture bubble-nets as tools to increase prey intake. \*Royal Society of Open Science\*. 11\(240328\).](#) DOI: 10.1098/rsos.240328
- [2024]** PP Ponganis, C Williams, **JM Kendall-Bar**. [Blood Oxygen Transport and Depletion in Diving Emperor Penguins. \*Journal of Experimental Biology\*. 227\(6\).](#) DOI: 10.1242/jeb.246832
- [2023]** **JM Kendall-Bar**. [Lessons from sleep in the deep: Records of seal sleep at sea reveal extreme sleep duration flexibility. \*Science\*. 382\(6672\).](#) DOI: 10.1126/science.adl4885
- [2023]** **JM Kendall-Bar**, TM Williams, R Mukherji\*, DA Lozano\*, JK Pitman, RR Holser, T Keates, RS Beltran, PW Robinson, DE Crocker, T Adachi, OI Lyamin, AL Vyssotski, & DP Costa. [Brain activity of diving seals reveals short sleep cycles at depth. \*Science\*. 380\(6642\).](#) DOI: 10.1126/science.adf0566
- [2022]** **JM Kendall-Bar**, R Mukherji\*, J Nichols\*, C Lopez\*, DA Lozano\*, JK Pitman, RR Holser, RS Beltran, M Schalles, CL Field, SP Johnson, AL Vyssotski, DP Costa & TM Williams. [Eavesdropping on the brain at sea: development of a surface-mounted system to detect weak electrophysiological signals from wild animals. \*Animal Biotelemetry\* 10\(16\).](#) DOI: 10.1186/s40317-022-00287-x

9. [2021] **JM Kendall-Bar**, NX Kendall-Bar, AG Forbes, G McDonald, PJ Ponganis, C Williams, M Horning, A Hindle, H Klinck, RS Beltran, AS Friedlaender, D Wiley, DP Costa, & TM Williams. Visualizing Life in the Deep: a creative pipeline for data-driven animations to facilitate marine mammal research, outreach, and conservation. *IEEE VIS*. DOI: 10.1109/VISAP52981.2021.00007
10. [2021] RS Beltran, **JM Kendall-Bar**, E Pirotta, T Adachi, Y Naito, A Takahashi, J Cremers, PW Robinson, DE Crocker, and DP Costa. Lightscares of Fear: How Mesopredators Balance Starvation and Predation in the Open Ocean. *Science Advances* 7(12). DOI: 10.1126/sciadv.abd9818
11. [2019] **JM Kendall-Bar**, AL Vyssotski, LM Mukhametov, JM Siegel, and OI Lyamin. Eye State Asymmetry during Aquatic Unihemispheric Slow Wave Sleep in Northern Fur Seals (*Callorhinus Ursinus*). *PLoS ONE* 14(5): 1–13. DOI: 10.1371/journal.pone.0217025
12. [2017] **JM Kendall-Bar** & VK Iyengar. 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). DOI: 10.1007/s00265-016-2233-9
13. [2016] **JM Kendall-Bar**, D Weller, H Fearnbach, S Shane, GS Schorr, EA Falcone, J Calambokidis, A Schulman-Janiger, and J Barlow. Movement and Occurrence Patterns of Short-Finned Pilot Whales (*Globicephala macrorhynchus*) in the Eastern North Pacific. *Aquatic Mammals* 42(300): 300-305. DOI: 10.1578/AM.42.3.2016.300

### Non-peer reviewed publications

14. [2022] **JM Kendall-Bar**. Sleeping while diving: Tools to detect, analyze, and visualize sleep in wild seals (Accession No. 29215006). [Doctoral dissertation, University of California, Santa Cruz]. ProQuest Dissertations Publishing.
15. [2024] \*MA Sorenson, \*MQ Song, \*T Basic, \*YW Rajput, \*TR Tarif, **JM Kendall-Bar**, I Altintas. Seal Sleep Capstone. In Data Science & Engineering Master of Advanced Study (DSE MAS) [Capstone Projects, University of California, San Diego Library Digital Collections]. DOI: 10.6075/J0R49QZ9

### Patents pending

16. [2023] **JM Kendall-Bar**, T Williams, P Guerrero, E Slattery, DP Costa. Method and system for the non-invasive recording of marine mammal sleep in the wild. US Patent App. 17/959, 146.

### In review

17. **JM Kendall-Bar**, AR Payne, MF Czapanskiy, N Fox, J Leivesley, M Alksne, B French, A Malivert, G O'Leary, A Biswas, I Nealey, RH Parkinson, C Lowrie, I Perez, E Miller, I Costello, T Sainburg, D Rissolo, L Severance, R Mukherji, F Montealegre, KH Nguyen, CC Tusell, W Oestreich, M Sorenson, S Gurvich, J Walker, AN Kellum, T Berger-Wolf, I Altintas, S Sandin, N Lecomte. How community, education, cyberinfrastructure, and visualization can help ecologists overcome barriers to AI-adoption.
18. AR Payne, CM Hale, **JM Kendall-Bar**, RS Beltran. Minimum reporting standards can promote animal welfare. EcoEvoRxiv DOI: 10.32942/X29K7X

## III. AWARDS & GRANTS

### 1. Fellowships

- |           |   |
|-----------|---|
| 2023-2024 | <b>Schmidt Artificial Intelligence in Science Postdoctoral Fellowship</b> |
| 2022-2023 | <b>Scripps Institutional Postdoctoral Fellowship</b>                      |
| 2017-2020 | <b>NSF Graduate Research Fellow</b>                                       |
| 2021-2022 | <b>Achievement Rewards for College Scientists Fellowship</b>              |
| 2021-2022 | <b>UC Santa Cruz President's Dissertation Year Fellowship</b>             |
| 2014-2016 | <b>NOAA Ernest F. Hollings Scholar</b>                                    |

- 2014-2016 Charles H. Ramsden Endowed Scholarship  
2012-2016 UC Berkeley Regents' & Chancellors' Scholar

## 2. Grants

### A. Funded projects:

- 2024-2025 Schmidt Sciences AI Collaboration Grant – EcoViz+AI Workshop 2024  
2023-2024 UC Santa Cruz Center for Coastal Climate Resilience Visualization Grant (Co-PI)  
2024-2025 UC Santa Cruz CCCR Visualization Supplemental Grant (Co-PI)

### B. Small grants (<\$50K)

- 2023-2024 UC San Diego Scripps Institution of Oceanography Climate Data Visualization  
2020-2022 National Geographic Early Career Grant

### C. Written with and awarded to the principal investigator listed:

- 2022-2023 Burroughs Wellcome Fund Data Visualization Grant (PI: E Check Hayden)  
2019-2020 ONR Defense University Research Instrumentation Program (PI: TM Williams)

## 3. Awards

- 2023 \$10,000 **AAAS SciLifeLab Essay Prize – Category Winner: Ecology and Environment**  
*Essay published in Science November 2023; awarded during Nobel Prize week in Stockholm, SE.*
- 2022 \$40,000 **National Academies & Eric & Wendy Schmidt Award- Excellence in Science Communication**  
*Top prize winner – graduate research scientist; awarded at National Academies in Washington, DC.*
- 2022 \$5,000 **Laurel Clark Sea to Space Physiology Research Grant- Women Divers Hall of Fame**
- 2022 \$1,500 **UC Santa Cruz Grad Slam 2<sup>nd</sup> Place**
- 2019 \$2,000 **Fairfield Memorial Award - World Marine Mammal Conference 2019**
- 2018 \$5,000 **Sooy Graduate Research Fellow**
- 2018 \$8,000 **Special Research Grant Committee on Research** (PI: DP Costa)
- 2018 \$2,500 **Norris Center for Natural History Art Residency**
- 2017 \$1,000 **Monterey Shootout Underwater Photography Finalist**
- 2016 \$5,000 **Summer Undergraduate Research Fellowship Rose Hills Fellow**
- 2016 \$1,000 **UC Berkeley Regents' and Chancellors' Research Fellowship**

## IV. TEACHING

### Course Design & Instruction

- 2023 **Instructor & Course Designer** Coursera (Available free online; host: UC Santa Cruz)  
*Coursera MOOC: Data-Driven Animation for Science Communication (>3,500 learners)*  
*Course Link: <https://coursera.org/learn/data-driven-animation>*
- 2023 **Instructor & Course Designer** UC Online (UC-wide; host: UC Santa Cruz)  
*SCIC110/210: Data-Driven Animation for Science Communication*
- 2022 **Instructor & Course Designer** CSU Monterey Bay (Science Illustration Program)  
*SCIP395-33\_SU22: Data-Driven Animation for Science Communication*
- 2022 **Instructor & Course Designer** Pixar University  
*Visualizing Life in the Deep: data-driven animation using animal-borne sensors at sea*
- 2021 **Instructor & Course Designer** UC Santa Cruz  
*Art 199/299: [Data Visualization Collective](#)*

2019	<b>Teaching Assistant</b> <i>BIOE 129L: Marine Mammals.</i>	<b>UC Santa Cruz</b> <i>Instructor: Dan Costa</i>
2014-16	<b>Teaching Assistant &amp; Course Designer</b> <i>Oceans C82</i>	<b>UC Berkeley</b> <i>Instructor: Jim Bishop</i>
2016	<b>Teaching Assistant &amp; Collector</b> <i>IB103LF: Invertebrate Zoology Instructor</i>	<b>UC Berkeley</b> <i>Instructor: Jenna Judge</i>

## **V. CONFERENCE PRESENTATIONS**

### **Refereed conference presentations:**

- 2024 **8<sup>th</sup> International Biologging Symposium (Tokyo, Japan)**  
*Immersive 3D biologging visualizations facilitate analysis, collaboration, and communication*
- 2023 **American Physiological Summit (Long Beach, CA - USA)**  
*Sleeping while diving: seals at sea drift in and out of sleep at depth (Abstract)*
- 2022 **Society for Marine Mammalogy (West Palm Beach, FL - USA)**  
*Sleeping while diving: the first recordings of marine mammal sleep in the wild*
- 2021 **IEEE Visualization Conference (New Orleans, LA - USA)**  
*Visualizing Life in the Deep: A Creative Pipeline for Data-Driven Animations to Facilitate Marine Mammal Research, Outreach, and Conservation*
- 2021 **7<sup>th</sup> International Biologging Symposium (Oahu, HI - USA)**  
*Sleeping while diving: the first recordings of marine mammal sleep in the wild.*  
*\*Award for presentation that provided the greatest leap forward in bio-logging & science communication.*
- 2020 **American Academy of Sleep Medicine – SLEEP 2020 (USA)**  
*Sleeping while Diving: Non-Invasive Sleep Recordings in Wild Marine Mammals.*
- 2019 **World Marine Mammal Conference (Barcelona, Spain)**  
*Sleeping beneath the surface: developing novel, non-invasive methods to investigate sleep in wild marine mammals. \*Awarded the Frederic Fairfield Memorial Award for innovative research by students pioneering techniques or research tools to study marine mammals - \$1,000.*
- 2019 **ArtScientific Medical Systems (Egmond aan Zee, Netherlands)**  
*Novel, non-invasive methods for neurophysiological monitoring during rest behavior in phocid seals.*
- 2016 **Western Society of Naturalists (Monterey, CA - USA)**  
*Novel, non-invasive methods for neurophysiological monitoring during rest behavior in phocid seals.*
- 2016 **9<sup>th</sup> International Conference on the Marine Mammals of the Holarctic (Moscow, Russia)**  
*Association between eye state and unihemispheric sleep and waking in the fur seal while in water.*
- 2016 **Society for Integrative and Comparative Biology (Portland, OR - USA)**  
*Using photo-identification data to investigate movement and occurrence patterns of short-finned pilot whales (*Globicephala macrorhynchus*) in the eastern north pacific.*
- 2015 **Society for Integrative and Comparative Biology (West Palm Beach, FL - USA)**  
*Sexual selection by the seashore: Mate choice and competition in the maritime earwig. Integrative & Comparative Biology.*

## VI. MENTORING

### DEI & Education Training Experience

- 2024 **Lead PI & Organizer for International EcoViz+AI Workshop** – Led and organized a conference to create educational materials that democratize AI in Ecology sponsored by Schmidt Sciences
- 2023 **EduCare & Schmidt Futures** – Training for Safeguarding Young People for International Schools
- 2023 **UC San Diego Teaching & Learning Commons: Assessment 101 & 102** – Education assessment for sustainable courses that close opportunity gaps and align with program learning outcomes
- 2023 **UC San Diego** – Training for Gender Recognition: Transgender, Nonbinary, and Intersex Awareness
- 2022 **Scripps Polar Center** – Sexual Assault and Harassment Polar Town Hall
- 2022 **UC Santa Cruz Pedagogy Course** – Course for Pedagogy Community for Collaboration and Creation
- 2021 **Building a Better Fieldwork Future** – Training for Combatting Sexual Harassment in Field Settings

### Mentees

- |         |                           |   |
|---------|---------------------------|---|
| 2023-   | <b>Kevin Nguyen</b>       | UCSD Computer Science – Advanced Visualization Intern   |
| 2023-   | <b>Lazurite Hagey</b>     | High School Animation and Advanced Visualization Intern |
| 2020-   | <b>Ritika Mukherji</b>    | Rhodes Scholar 2022                                     |
| 2023-24 | <b>Michael Sorenson</b>   | UCSD MAS Data Science & Engineering Mentee              |
| 2023-24 | <b>Tarik Basic</b>        | UCSD MAS Data Science & Engineering Mentee              |
| 2023-24 | <b>Melody Song</b>        | UCSD MAS Data Science & Engineering Mentee              |
| 2023-24 | <b>Tarek Tarif</b>        | UCSD MAS Data Science & Engineering Mentee              |
| 2023-24 | <b>Yousuf Rajput</b>      | UCSD MAS Data Science & Engineering Mentee              |
| 2019-23 | <b>Daniel Lozano</b>      | UCSC CAMINO Intern & RMI Scholar                        |
| 2020-23 | <b>Catherine Lopez</b>    | Scripps Institute Technician                            |
| 2020-22 | <b>Jordan Nichols</b>     | UCSC Neuroscience                                       |
| 2022    | <b>Cara Munro</b>         | UCSC Ecology & Evolutionary Biology                     |
| 2021    | <b>Christina To</b>       | UCSC Biology  |
| 2021    | <b>Avalon Conklin</b>     | UCSC Ecology & Evolutionary Biology                     |
| 2021    | <b>Jacqueline Toscano</b> | UCSC Ecology & Evolutionary Biology                     |
| 2021    | <b>Haoran (Sara) Li</b>   | High School Science Internship Program (SIP) Intern     |
| 2021    | <b>Jatin Das</b>          | High School Science Internship Program (SIP) Intern     |
| 2021    | <b>Radha Srinivasan</b>   | High School Science Internship Program (SIP) Intern     |

### Mentorship Programs

- 2023 **Schmidt & Rhodes Trust RISE Residential Summit Capstone Advisor; Oxford, UK**  
*100 international high school Rise Global Winner mentees*
- 2022 **Expanding Your Horizons; 6<sup>th</sup>-10<sup>th</sup> grade interactive science conference**  
*60 local high school students*
- 2021 **High School Science Internship Program (SIP); virtual summer internship**  
*3 high school SIP interns from across the U.S.*
- 2017-22 **UC Santa Cruz Ecology & Evolutionary Biology Peer-to-Peer Mentorship Program**  
*Peer-to-peer mentorship for UCSC grad students*

## XII. SERVICE & COMMUNITIES of PRACTICE

### University Service

- 2024- **Reviewer for UC San Diego AI in Science Postdoctoral Fellowship**
- 2018-19 **Member of Faculty Search Graduate Student Committee**
- 2017-22 **Mentor for UC Santa Cruz Peer-to-Peer Mentorship Program**

## **Grant Reviews**

- 2024- Reviewer for National Science Foundation
- 2024- Reviewer for University of Strasbourg
- 2022- Reviewer for National Geographic Society

## **Journal & Conference Reviews**

- 2024- Reviewer for Journal of Animal Biotelemetry
- 2024- eScience Program Committee – Generative AI and FAIR Principles in Science Communication
- 2024- Reviewer for Physiology & Behavior Journal
- 2023- Reviewer for International Bio-logging Society
- 2016- Reviewer for Aquatic Mammals Journal

## **Memberships**

- 2023- American Physiological Society
- 2021- IEEE - Institute of Electrical and Electronics Engineers
- 2021- International Biologging Society
- 2020- American Academy of Sleep Medicine
- 2019- Society for Marine Mammalogy
- 2016- Western Society of Naturalists
- 2015- Society for Integrative and Comparative Biology

## **Communities of Practice**

- 2024- Lead PI & Organizer for International EcoViz+AI Workshop sponsored by Schmidt Sciences
- 2024 BioBlend Workshop: AI for Multimodal Environmental Data sponsored by Schmidt Sciences
- 2024- Member of International Biologging Society's Data Standardization Working Group

## **VIII. RESEARCH EXPERIENCE**

- 2022-present **Postdoctoral Research on Comparative Physiology of Diving Animals**  
*Advisor: Paul Ponganis, UC San Diego; Artificial Intelligence Co-Mentor: Ilkay Altintas*
- 2017-2022 **PhD Thesis Research on Comparative Neurophysiology of Marine Mammals**  
*Advisors: Dan Costa & Terrie Williams, UC Santa Cruz*
- 2015-2016 **Electrophysiological sleep study of northern fur seals in Russia**  
*Advisor: Oleg Lyamin, UCLA Center for Sleep Research*
- 2015-2016 **Sleep deprivation research - Undergraduate Research Apprenticeship Program**  
*Advisor: Matthew Walker, Center for Human Sleep UC Berkeley*
- 2015-2016 **Pilot Whale Photo Identification Project NOAA Hollings Internship**  
*Advisor: Jay Barlow, NOAA Southwest Fisheries Science Center*
- 2016, '12, '13 **Chemical Oceanography Cruises aboard RV Oceanus, Point Sur, & New Horizon**  
*Advisor: Jim Bishop, UC Berkeley*
- 2014-2015 **Behavior and den fidelity in moray eels - Moorea, French Polynesia**  
*Advisor: Jonathon Stillman, UC Berkeley*
- 2014-2015 **Sexual selection in arthropods – Research Experience for Undergraduates (REU)**  
*Advisor: Vikram Iyengar, Villanova University / University of Washington*
- 2013-2015 **Cephalopod behavior - Undergraduate Research Apprenticeship Program (URAP)**  
*Advisor: Roy Caldwell, UC Berkeley*

- 2013-2014**    **Deep-sea wood falls** - Undergraduate Research Apprenticeship Program (URAP)  
*Advisor: Jenna Judge, UC Berkeley*
- 2013-2014**    **Madagascar Marine Protected Areas** - Undergraduate Research Apprenticeship Program (URAP)  
*Advisor: Mez Baker-Médard, UC Berkeley*
- 2009-2012**    **Teach and test ocean water quality testing program**  
*Advisor: Benjamin Kay, Santa Monica High School*

## **IX. GUEST LECTURES**

- 2023, 24**    **UC Santa Cruz: Queer Ecologies** – *Art & science: queering disciplines to foster innovation & inclusivity*
- 2023**        **UC San Diego: MAS Data Science and Engineering** – *Data science for multimodal ecological timeseries*
- 2023**        **UC San Diego: Perspectives on Ocean Sciences** – *Lessons from the deep: electrophysiology & visualization to examine biology amidst a changing climate*
- 2022**        **Colby College: Queer Feminist Engagements with Lab & Field Science** – *Art & Science for Inclusivity*
- 2021,23**    **UC Berkeley: Marine Mammals** – *Sleep, art, and science communication*
- 2021**        **UC Santa Cruz Science Communication Program** – *Art & Science Communication*
- 2021**        **California College of the Arts** - *Art & Science Communication*
- 2021**        **California Ocean Alliance** - *Art & Science Communication*
- 2021**        **Baylor University** - *Art & Science Communication*
- 2021**        **Moss Landing Marine Labs** - *Art & Science Communication*
- 2015-20**    **(5X) UC Berkeley Oceans C82** - *Marine animals: metazoan diversity*

## **X. SEMINARS & TALKS**

### **Invited research seminars**

- 2024**        **European Sleep Research Society** – Virtual seminar
- 2024**        **EnviroChats: University of Exeter** – Exeter, UK
- 2024**        **BioBlend: AI for Multimodal Biodiversity Monitoring, University of Michigan** – Ann Arbor, MI
- 2024**        **LIN Neuroscience Plenary Lecture, University of Illinois Chicago** – Chicago, IL
- 2024**        **Institutional Seminar, Scripps Institution of Oceanography** – San Diego, CA
- 2024**        **Stanford Department of Biology** – Stanford, CA
- 2024**        **University of California, Santa Barbara Bren School** – Santa Barbara, CA
- 2024**        **University of North Carolina Wilmington** – Wilmington, NC
- 2024**        **UC San Diego Departments of Bioengineering & Data Science** – San Diego, CA
- 2024**        **Stanford Department of Oceans** – Stanford, CA
- 2023**        **Royal Academy of Sciences** – Stockholm, Sweden
- 2023**        **SciLifeLab** – Solna, Sweden
- 2023**        **NASA Fatigue Countermeasures Lab** – Stanford, CA
- 2023**        **Department of Physiology, Anatomy and Genetics (DPAG)** – University of Oxford, UK
- 2023**        **Hawaii Institute of Marine Biology** – University of Hawaii Manoa, HI
- 2023**        **Polar Center** – Scripps Institution of Oceanography, CA
- 2023**        **Institute of Arctic Biology** – University of Alaska Fairbanks, AK
- 2022**        **Centre de Recherche en Neurosciences de Lyon** – Neuroscience Institute – Lyon, FRANCE
- 2022**        **Washington University** – Systems Neuroscience – St Louis, MO
- 2021**        **Sleep Ecophysiology Group** – La Trobe University, Melbourne, AUS
- 2021**        **Max Planck Institute** – Research Group Avian Sleep, DE
- 2021**        **Stanford University** – Goldbogen Lab – Monterey, CA
- 2021**        **Stanford University** – Heller Lab – Palo Alto, CA
- 2020**        **UC Santa Cruz** – Qualifying Defense – Santa Cruz, CA
- 2020**        **University of Michigan** – Mechanical Engineering Department; Ann Arbor, MI
- 2019**        **The Marine Mammal Center** – Sausalito, CA
- 2019**        **National Marine Mammal Foundation** - San Diego, CA
- 2015**        **NOAA Science and Education Symposium** – Washington, DC

- 2014 UC Berkeley Bio-Geomorphology of Tropical Islands – Berkeley, CA  
2014 Friday Harbor Laboratories – Friday Harbor, WA

## Panels, Public Talks & Workshops

Online Learning Portal: <https://www.jessiekb.com/artforsciomm>

- 2024 EcoViz+AI Workshop (UC San Diego)– *Workshop on Visualization and AI for Ecology*  
2024 International Biologging Society– *Data visualization workshop*  
2023 Smithsonian Movement of Life Quarterly Meeting– *Data visualization workshop*  
2023 Schmidt Artificial Intelligence Conference; Toronto, Canada– *Data visualization workshop*  
2023 RISE Residential Summit (Schmidt Futures/Rhodes Trust) Oxford, UK– *Data visualization workshop*  
2023 Schmidt Data Visualization Panelist – *Data visualization for science communication*  
2023 Salty Cinema Panelist – *Expanding our oceanic vision through art & science (250 attendees)*  
2023 UC Love Data Week – *UC-wide data visualization workshop (200 attendees)*  
2022 UC Santa Cruz - *Dissertation Public Seminar*  
2021 Seymour Marine Discovery Center: Labside Chat with Jessica Kendall-Bar  
2017-22 UC Santa Cruz - *Art & Science Communication*  
UC Santa Cruz - *Introduction to Animation in PowerPoint*  
UC Santa Cruz - *Introduction to Animation & 2D Data Visualization in Adobe After Effects*  
UC Santa Cruz - *Introduction to Animation & 3D Data Visualization in Autodesk Maya*  
2020 UC Santa Barbara - *Art & Science Communication*  
2020 San Francisco State University - *Art & Science Communication*  
2019 Santa Cruz Museum of Art & History - *Sex in Nature: the science behind the story of Looking for Marla*  
2015 San Francisco Exploratorium: “Everything Matters: Tales from the Periodic Table”  
How Poop Sinks: The Importance of Feces in the Open Ocean

## XI. PRESS

See other press coverage here: <https://www.jessiekb.com/in-the-press>

See >170 news stories related to 2023 Science paper here: <https://www.altmetric.com/details/146228395>

- 2023 UC Santa Cruz News UCSC doctoral graduate wins prestigious Science & SciLifeLab Prize  
2023 Science Magazine Protostar Jessica Kendall-Bar wins the Science & SciLifeLab Prize  
2023 Science & SciLifeLab Interview with SciLifeLab Winner Jessica Kendall-Bar  
2023 UC Santa Cruz News New open access course – data-driven animation for science communication  
2023 SDSC News SDSC Leaders Collaborate with Schmidt AI Fellow on Data Workflow  
2023 Scripps Oceanography Elephant seals drift off to sleep while diving far below the ocean surface  
2023 UC San Diego Today Study Reveals Sleeping Habits of Elephant Seals at Sea  
2023 The Atlantic Meet the World’s Most Hard-Core Nappers  
2023 The New York Times Elephant Seals Take Power Naps During Deep Ocean Dives  
2023 The Washington Post Scientists crack the mystery of elephant seals’ extreme sleep habits  
2023 CNN Elephant seals enter ‘sleep spiral’ during deep ocean dives  
2023 National Public Radio Think you're tired? Animal goes for months with only two hours of sleep  
2023 National Geographic 2 hours of sleep a day? How this animal can survive is a mystery.  
2023 BBC Northern elephant seals sleep in the deep to avoid predators  
2022 UC Santa Cruz News Two UCSC alumni win awards for excellence in science communication  
2022 National Academies National Academies Announce Inaugural Recipients of Eric and Wendy Schmidt Awards for Excellence in Science Communications  
2021 UC Santa Cruz News Data-driven animations of marine mammals combine biology, art, & computation  
2021 The Conversation Risk versus reward on the high seas  
2019 UC Santa Cruz News Dream job: Combining science and illustration  
2019 Santa Cruz Sentinel Looking for Marla’ teaches inclusivity  
2019 UC Santa Cruz News Launch party for children's book 'Looking for Marla' November 15 at MAH  
2021 Seymour Center Labside Chat with Jessica Kendall-Bar



- 2019 KSQD Radio Interview [Interview with Ventana Surfboards and Event Santa Cruz](#)  
2020 Salted Spirit Podcast [Interview: An enchanted tour of the kelp forest](#)  
2020 KSQD Santa Cruz [Interview with Santa Cruz Naturalist Podcast](#)

## XII. SCIENCE COMMUNICATION & DATA VISUALIZATION

- 2019- **Science Communication & Data-Driven Animations**  
Individual projects listed below under “Data-Driven Animations”.
- 2019-23 **Science Communication Strategist - Coastal Resilience Lab, UCSC**  
Graduate Student Research [GSR] Assistantship  
*Developed visual science communication strategies for scientist Michael Beck to communicate the protective benefits of natural infrastructure such as coral reefs and mangroves.*

### Illustrated Children’s Books

- 2019 **Looking for Marla:** <https://www.jessiekb.com/looking-for-marla>  
P Medina, **JM Kendall-Bar (illustrator)**, A Ford, and K Ross (translator).  
*Publisher: Self-Published, 2019. ISBN 0578523922, 9780578523927*  
*Looking for Marla tells the story of a clownfish in transition from fatherhood to motherhood as they explore the diverse approaches to underwater parenthood.*  
**Associated Grants:** UCSC Norris Center Art & Science Residency (\$1,500), Science & Justice Research Center, and the Santa Cruz Arts Council, and Kickstarter Campaign (\$4,500)  
**Outreach & Public Readings:** SF Exploratorium STARS Program (2021), What Makes Us Human (Exhibit 2020), LGBTQ+ Story Time in the Park with Trans Families, Boys & Girls Club, & Santa Cruz Public Libraries (2019), Queer Trans Mixer (2019), Capitola Art & Wine (2019), SF Zine Fest (2019), LA Tiny Tech Zines (2019), Pajaro Valley Pride (2019), Walnut Ave Family & Women’s Center (2019), Norris Center Alumni Event (2019), & Ales for Whales (2019)
- 2019 **The Castor Oil Rig Tales**  
S Partenheimer and **JM Kendall-Bar (illustrator)**.  
*Publisher: AzBukiVeri LLC, Publishing agency, 2019. ISBN 1732426562, 9781732426566.*  
*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.*

### Large-scale exhibit design

- 2021 **“Photos from the Field” at Seymour Marine Discovery Center**  
*Graphic design and contributed photography for large-scale 22 panel, 100-foot photo exhibit displayed at Seymour Marine Discovery Center.*
- 2021 **“From Data to Art: Data Visualization Virtual 3D Gallery”**  
*6-room virtual gallery displaying final projects for 10 students from the Data Visualization Collective in Winter 2021. Exhibit & gallery website designed by Instructor Jessica Kendall-Bar.*
- 2020 **“A year in the life of Phyllis, an adult female northern elephant seal”**  
*10ft by 6ft interpretive panel for display at Seymour Marine Discovery Center & Año Nuevo Visitor’s Center*

### Web Design for Decision Support Tools and Scientific Analysis

- 2020-25 **Coastal Resilience Explorer - Data Visualization Portal**  
Explorer URL: <https://coastalresilienceexplorer.org/>  
*User experience and user interface design (CSS & javascript).*  
*Web development and data management by Chris Lowrie.*

2019-21 **Coastal Resilience Lab Website**  
Website URL: <https://coastalresiliencelab.org>

## Data-driven animations

- 2023-25 **Advanced Scientific Visualizations of Coral Reef Flood Protection Benefits using Game Engines**  
Scientific visualization of coral reef flood protection benefits using Unreal Engine and Houdini  
*Scientific advisor: Michael Beck; Animation collaborator: Ian Costello*
- 2023-24 **Ocean Heat using Argo – Data-Driven Animation for COP28 (November 2023)**  
Scientific visualization of Argo data on global warming and ocean heat content  
*Scientific advisors: Sarah Purkey & Megan Scanderbeg, Scripps Institution of Oceanography*  
*Communication Collaborators: Lauren Wood, Rob Monroe, Chris Toombs- Scripps Communications*
- 2023-24 **Indigenous Knowledge Project: Other Ways of Knowing**  
Visualizations of interview responses to document diverse knowledge systems for the examination of localized dynamics of sea otters and abalone populations in Sitka Sound, Alaska  
*Scientific advisors: Taylor White & Pete Raimondi, UC Santa Cruz;*  
*Indigenous Artist Collaborators: Sienna Reid (Xoodzi); Funding: North Pacific Research Board*
- 2023-24 **Extreme diving physiology of emperor penguins in Antarctica**  
Visualizations of extreme physiology using inertial motion sensing and heart rate data  
*Scientific advisors: Paul Ponganis, UC San Diego; Funding: National Science Foundation*
- 2023 **Simulations of cooperative and solitary bubble-net formation in humpback whales**  
Simulations of bubble-netting in Autodesk Maya based on inertial motion sensing & video data  
*Scientific advisors: Andy Szabo & Lars Bejder*  
*Funding: Marine Mammal Research Program Hawaii (UH Manoa) & Alaska Whale Foundation*
- 2023 **Sleep at Sea: Simulation of spatiotemporal patterns during sleep in wild northern elephant seals**  
Associated publication: **JM Kendall-Bar**, TM Williams, R Mukherji\*, DA Lozano\*, JK Pitman, RR Holser, T Keates, RS Beltran, PW Robinson, DE Crocker, T Adachi, OI Lyamin, AL Vyssotski, & DP Costa. Brain activity of diving seals reveals short sleep cycles at depth. *Science*. 380(6642), adf0566.
- 2022 **Visualizing Life in the Deep: Video trailer to document a data-driven animation pipeline to promote research, conservation, and communication**  
Associated publication: **JM Kendall-Bar**, NX Kendall-Bar, AG Forbes, G McDonald, PJ Ponganis, C Williams, M Horning, A Hindle, H Klinck, RS Beltran, AS Friedlaender, D Wiley, DP Costa, & TM Williams. Visualizing Life in the Deep: a creative pipeline for data-driven animations to facilitate marine mammal research, outreach, and conservation. *IEEE VIS*. DOI: 10.1109/VISAP52981.2021.00007
- 2021-23 **Paradox of Fear: 3D Animation of Anthropogenic Disturbance to Narwhals.**  
3D visualizations of inertial motion sensing data and sonification of heart rate data.  
*Scientific advisor: Terrie Williams, UC Santa Cruz; Funding: Office of Naval Research*
- 2021 **Lightsapes of Fear: Skinny seals trade safety for sustenance.**  
Associated publication: Beltran, R. S., **Kendall-Bar, J. M.**, Pirootta, E., Adachi, T., Naito, Y., Takahashi, A., ... & Costa, D. P. (2021). Lightsapes of fear: How mesopredators balance starvation and predation in the open ocean. *Science advances*, 7(12), eabd9818.
- 2020- **Humpback Alliance: 3D Animation of Cooperative Benthic Foraging Behavior**  
3D visualizations of inertial motion sensing data and foraging behavior.  
*Scientific advisor: David Wiley, National Marine Sanctuary Foundation*
- 2021-22 **Sounds of Fear: 3D Animation of the Fear Response of Northern Elephant Seals**  
3D visualizations of inertial motion sensing data and sonification of heart rate data.  
*Scientific advisor: Gitte McDonald, Moss Landing Marine Laboratories*
- 2021 **UCSC News: Value of US Reefs for Flood Risk Reduction.**  
Animation by Jessica Kendall-Bar. *Scientific advisor: Michael Beck*

- 2020 **USGS: How Our Reefs Protect Us: Valuing the Benefits of U.S. Reefs.**  
Cinematography & graphics by Jessica Kendall-Bar. *Scientific advisors: Michael Beck & Curt Storlazzi.*
- 2020 **UCSC News: Introduction to the Coastal Resilience Lab & Approach.**  
Video Editing & Animation by Jessica Kendall-Bar. *Scientific advisor: Michael Beck*
- 2020 **Flood Protection Benefits of Mangroves**  
Animation by Jessica Kendall-Bar. *Scientific advisor: Michael Beck.*

## Maps and data visualizations

See more [maps and data visualizations](#).

- 2021 **Million Dollar Reefs of O’ahu**  
Map by Jessica Kendall-Bar & Chris Lowrie  
**Appeared in UCSC News Story, Honolulu Star Advertiser News Story**
- 2021 **Million Dollar Reefs of Florida**  
Map by Jessica Kendall-Bar & Chris Lowrie
- 2021 **Million Dollar Reefs of Puerto Rico**  
Map by Jessica Kendall-Bar & Chris Lowrie

## Infographics

- 2021 **Cascading effects in kelp forests:** Graphical abstract published in PNAS  
Smith et al. 2021. “Behavioral Responses across a Mosaic of Ecosystem States Restructure a Sea Otter–Urchin Trophic Cascade.” PNAS March 16, 2021 118 (11) e2012493118;  
<https://doi.org/10.1073/pnas.2012493118>
- 2020 **A year in the life of Phyllis, an adult female northern elephant seal**  
*10ft by 6ft interpretive panel for display at Seymour Marine Discovery Center & Año Nuevo Visitor's Center*
- 2019 **\*Wave Power Project: inspiring coral reef conservation through art**  
*4ft by 3ft poster for display at 42nd US Coral Reef Task Force Meeting in Palau, Santa Cruz Museum of Art & History: The Norris Center Science & Art Showcase, High-Level Dialogue Event: Resilient Atoll Nations*
- 2021 **\*Coral Reef Flood Protection Benefits Infographic** for Reguero et al. 2021  
<https://news.ucsc.edu/2021/04/coral-reefs.html>

## **Technical Reports – Graphic design & data visualization**

*Design and layout by Jessica Kendall-Bar; Maps by Jessica Kendall-Bar and Chris Lowrie.*

- 2021 **USGS Report: Rigorously valuing the role of U.S. coral reefs in coastal hazard risk reduction.**  
Rigorously valuing the role of U.S. coral reefs in coastal hazard risk reduction: U.S. Geological Survey Open-File Report 2019–1027, doi: 10.3133/ofr20191027
- 2021 **The Social and Economic Benefits of Coral Reef Restoration in Florida.**  
Rigorously valuing the coastal hazard risks reduction provided by potential coral reef restoration in Florida and Puerto Rico. U.S. Geological Survey Open-File Report 2021–1054
- 2021 **The Social and Economic Benefits of Coral Reef Restoration in Puerto Rico.**  
Rigorously valuing the coastal hazard risks reduction provided by potential coral reef restoration in Florida and Puerto Rico. U.S. Geological Survey Open-File Report 2021–1054
- 2021 **Hurricane Damage to Coral Reefs in 2017 Increases Future Flood Risk in Puerto Rico and Florida.**  
Rigorously valuing the impact of Hurricanes Irma and Maria on coastal hazard risks in Florida and Puerto Rico. U.S. Geological Survey Open-File Report 2021–1056

- 2021 **Future Flooding Impacts from Projected Coral Reef Degradation in Florida.** Design and layout by Rigorously valuing the impact of projected coral reef degradation on coastal hazard risk in Florida. U.S. Geological Survey Open-File Report 2021-1055

## XIII. FINE ART

### Freelance Animation

- 2020 **Kool & the Gang Pursuit of Happiness Music Video.**  
Animation & editing by Jessica Kendall-Bar. Producer: One Foot Productions & Momma Googa Show.
- 2020 **Apollo Sound Introductory Animation; Apollo Theater** Harlem, New York.  
Animation by Jessica Kendall-Bar. Producer: One Foot Productions.  
View the animation or the full benefit show on Apollo Theater's site.
- 2019 **Selkie Dreams Watercolor Animation.**  
Installation featured at Burning Man 2019 on 35mm film within manual kinoscope

### Gallery exhibits

*Exhibitions of fine art including woodburnings, surfboards, paintings, & animations.*

- 2023 **Seaweed Speakeasy.** Scripps Institution of Oceanography, UC San Diego.
- 2023 **Salty Cinema.** Scripps Institution of Oceanography, UC San Diego.
- 2020 **Forbes Art Gallery, Santa Monica, CA – Solo Show;** Unitarian Universalist Church of Santa Monica.
- 2019 **Capitola Art & Wine Festival, Santa Cruz, CA** - Art show with Ventana Surfboards
- 2019 **Burning Man, Black Rock City, NV** with India Block Arts - "Morphoscope" **Selkie Dream Animation**
- 2019 **The Rose Room, Venice Beach, CA** - *Life Beneath the Waves; Surfrider LA Fundraiser*
- 2018, '19 **Humble Sea, Santa Cruz, CA** - *Ales for Whales; CA Ocean Alliance Fundraiser*
- 2018 **Monterey Bay National Marine Sanctuary Exploration Center** - ***Solo Show; First Friday***
- 2018 **Ocean Dream Fair, Santa Cruz, CA** - *Art show with Ventana Surfboards*

## XIV. QUALIFICATIONS

### Skills & Languages

- **French** - fluent (dual citizenship, year abroad in French high school, 5 in AP French)
- **Spanish** - proficient (3 years of study)
- **Diving** (>200 dives: Friday Harbor, Monterey, Catalina, Channel Islands, San Diego, Florida, & Tahiti)
  - 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)
  - AIDA2 Freediving Certification
- **AIARE 1 Avalanche Safety Course**
- **Scientific Computing & Programming:** Python, Javascript, R, MATLAB
- **Video Editing/Graphics:** Adobe Creative Suite (especially After Effects, Premiere Pro, Illustrator, and Photoshop), Final Cut Pro, Autodesk Maya, Blender, Unreal Engine