

Umihiko Hoshijima

University of California, Santa Cruz
Ecology and Evolutionary Biology
Santa Cruz, CA 95064

Email: uhoshiji@ucsc.edu
Homepage: <http://www.umi.science>

Education

- 2013-2018 **Ph.D.**– Ecology, Evolution and Marine Biology
University of California Santa Barbara
- 2009-2013 **B.S. Biological Sciences** – University of California Santa Cruz
Honors in the Major; Minors in Chemistry, Electronic Music

Professional Experience

- 2018-present **Postdoctoral Researcher.** Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.
Advisor: Professor Kristy Kroeker
- 2013-2018 **Graduate Research.** Department of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara.
Advisor: Professor Gretchen Hofmann
- 2016-2018 **Graduate Research.** Santa Barbara Coastal Long-Term Ecological Research (SBC-LTER) project. PI: Dr. Dan Reed
- 2010-2013 **Lab and Field Technician.** National Marine Fisheries Service, NOAA, Santa Cruz, CA. Advisor: Dr. Sean Hayes
- 2012 **NSF - REU Internship.** Shannon Point Marine Center, Western Washington University, Washington
- 2007 **Lab Technician.** The Scripps Research Institute, San Diego, CA.

Grants in Support of Research

- 2015 **Santa Barbara Coastal LTER Supplemental Equipment Grant**
Physiological responses of kelp forest organisms to low pH and O₂.
(\$7,555)
- 2014 **California Sea Grant – Global Chance Ecophysiology of egg masses and juveniles of the kelp forest fish, *Scorpaenichthys marmoratus*.** Co-written with PI, G. Hofmann. (\$24,999)
- 2014 **UCSB Associated Students Coastal Fund – Sensor deployments in kelp forests measuring carbon dioxide and oxygen levels to assess the impacts of a changing ocean.** (\$1,414)

Fellowships and Awards

- 2014-2017 **National Science Foundation** Graduate Research Fellowship (GRFP)
- 2014 **Continuing Student Graduate Fellowship.** Department of Ecology, Evolution and Marine Biology, UC Santa Barbara. (\$6,000).

- 2013-2014 **Graduate Fellowship** Department of Ecology, Evolution and Marine Biology, UC Santa Barbara.
- 2012 **National Science Foundation** Research Experience for Undergraduates (NSF-REU) recipient. Shannon Point Marine Center, Western Washington University, Washington.

Peer-Reviewed Publications

Wong, J.M., Leach, T., Kozal, L., **Hoshijima, U.**, Hofmann, G.E. Transgenerational effects in an ecological context: Conditioning of adult sea urchins to upwelling conditions alters maternal provisioning and progeny phenotype (In press, *Journal of Experimental Marine Biology and Ecology*).

Umihiko Hoshijima and Gretchen E. Hofmann. Variability of Seawater Chemistry in a Kelp Forest Environment Is Linked to *in situ* Transgenerational Effects in the Purple Sea Urchin, *Strongylocentrotus purpuratus*. *Frontiers in Marine Science* (2019). doi: 10.3389/fmars.2019.00062

Kevin M. Johnson, Juliet M. Wong, **Umihiko Hoshijima**, Cailan S. Sugano, and Gretchen E. Hofmann. Seasonal transcriptomes of the Antarctic pteropod, *Limacina helicina antarctica*. *Marine Environmental Research* (2018). doi:10.1016/j.marenvres.2018.10.006

Umihiko Hoshijima, Juliet M. Wong, and Gretchen E. Hofmann. Additive effects of pCO₂ and temperature on the respiration rates of the Antarctic pteropod, *Limacina helicina antarctica*. *Conservation Physiology* (2017). doi:10.1093/conphys/cox064

Kevin M. Johnson, **Umihiko Hoshijima**, Cailan S. Sugano, Alice T. Nguyen, and Gretchen E. Hofmann. Shell dissolution observed in *Limacina helicina antarctica* from the Ross Sea, Antarctica: paired shell characteristics and in situ seawater chemistry. *Biogeosciences Discussions* (2016). doi:10.5194/bg-2016-467

Brent B. Hughes, Kamille K. Hammerstrom, Nora E. Grant, **Umihiko Hoshijima**, Ron Eby, Kerstin Wasson. Trophic cascades on the edge: fostering seagrass resilience via a novel pathway. *Oecologia* (2016). doi:10.1007/s00442-016-3652-z

Emily B. Rivest, Margaret O'Brien, Lydia Kapsenberg, Chris C. Gotschalk, Carol A. Blanchette, **Umihiko Hoshijima**, and Gretchen E. Hofmann. Beyond the Benthos and the Benthos: dataset management planning and design for time series of ocean carbonate chemistry associated with Durafet® - based pH sensors. *Ecological Informatics* (2016). doi:10.1016/j.ecoinf.2016.08.005

Manuscripts in Preparation and Review

Hoshijima, U. and Hofmann, G.E. A time series of year-round pH from the Ross Sea, Antarctica: inter and intra-annual trends. (In preparation).

Hoshijima, U., Dilly, G.F., Rivest, E.B., Kapsenberg, L., Nguyen, A.T., Johnson, K.M., Kroeker, K.J., Sanford, E., Rose, J.M., Blanchette, C.A., Chan, F., Chavez, F.P., Gaylord, B., Helmuth, B., Hill, T.M., McManus, M.A., Menge, B.A., Nielsen, K.J., Raimondi, P.T., Russell, A.D., Washburn, L., and Hofmann, G.E.. Exploring local adaptation to ocean acidification in *Mytilus californianus* during simulated upwelling events (in preparation).

Presentations of Research

Hoshijima, U. and Kroeker, K.K. Environmental history drives physiological responses to global change in marine invertebrates. Departmental Seminar, Ecology and Evolutionary Biology. University of California, Santa Cruz, March 15, 2019.

Hoshijima, U. and Kroeker, K.K. Metabolic responses of kelp forest grazers to current and near-future seasonal extremes of temperature and pH in Southeast Alaska. Western Society of Naturalists, November 2018.

Hoshijima, U. and Hofmann, G.E. Spatiotemporal variability of seawater chemistry and dissolved oxygen in a kelp forest environment and linkages to in situ transgenerational effects in the purple sea urchin, *Strongylocentrotus purpuratus* (poster). Gordon Research Conference, Global Change Biology; July 2018.

Hoshijima, U., Hofmann, G.E. Ocean acidification in Santa Barbara and Antarctica. **Keynote Speaker**. Next Generation Science Standards: Local Phenomena Summer Institute, June 20, 2017.

Hoshijima, U., Hofmann, G.E. Marine sensor networks informing biological experiments at Mohawk Reef (poster). Santa Barbara Coastal Long-term Research Symposium, November 2016.

Bachhuber, S.M., Wong, J.M., **Hoshijima, U.**, Johnson, K.M., Sugano, C.S., Hofman, G.E. Transgenerational impacts of pH and temperature on early stage purple sea urchins, *S. purpuratus* (poster). Western Society of Naturalists, November 2016.

Hoshijima, U. How Antarctic pteropods (swimming snails) will cope with future ocean change. Sunday Science Lecture Series, McMurdo Station, Antarctica. October 29, 2016.

Hofmann, G.E., Johnson, K.M., **Hoshijima, U.**, Wong, J.M. Antarctic Pteropods (*Limacina helicina antarctica*) as a Sentinel Organism for the Impact of Ocean Acidification. Oceans in a High CO₂ world, April 2016.

Hoshijima, U. and Hofmann, G.E. Metabolic Effects of CO₂ and Temperature Stress on *Limacina helicina antarctica*. Graduate Student Symposium, UC Santa Barbara. February 2, 2016.

Hofmann, G.E., K.M. Johnson, **Hoshijima, U.**, Wong, J.M., and Sugano, C. Pteropods, little marine snails, as an indicator of climate change. Sunday Science Lecture Series, McMurdo Station, Antarctica. November 22, 2015.

Hofmann, G.E., **Hoshijima, U.**, Bachhuber, S. The Value of Long-term Oceanographic Data Sets for Global Change Ecology (poster). Western Society of Naturalists, November 2015.

Hoshijima, U. and van Alstyne, K. NSF-REU final presentation, Shannon Point Marine Center, Anacortes, WA. August 2012.

Teaching

Workshops:

- **Co-Instructor:** Durafet Sensor Analysis Workshop. UC Santa Cruz, CA. November 2018.

- **Instructor (4 workshops)** – *Scientific Programming in R*. UC Santa Barbara, CA. April 2015, April 2016, April 2017, May 2018). Designed lesson plans for “Intro to R”, “Data Manipulation with reshape2, dplyr, and pipes”, and “Data visualization with ggplot2”.

University Courses:

- Teaching Assistant - *Global Change Biology* (EEMB 155). UC Santa Barbara (Summer 2015).
- Lab Teaching Assistant – *The Diversity of Life* (EEMB 3L). UC Santa Barbara (Spring 2014).

Workshops Attended

- *Climate Engagement Program* –Professor Kristy Kroeker, UC Santa Cruz, CA. September 11-14, 2017.
- *The Civic Scientist – how to become an effective public communicator*. Richard Hayes, *The Union of Concerned Scientists*. April 28, 2017.
- *Autonomous pH Sensors – Best Practices*. Scripps Institute of Oceanography, San Diego, CA. August 4-8, 2014.
- Scientific Programming Python Workshop, UC Santa Barbara, CA. January 30-31, 2014.

Field Research

- **Field Team Leader** – Sitka, Alaska (14 weeks in 2018). PI: Professor Kristy Kroeker
- **Field Team Leader, Antarctic Scientific Diver** – United States Antarctic Program (USAP); McMurdo Station, Antarctica (6 weeks in 2016). PI: Professor Gretchen Hofmann.
- **Research Assistant, Antarctic Scientific Diver** – USAP; McMurdo Station, Antarctica (11 weeks in 2015 and 2014). PI: Professor Gretchen Hofmann.
- Channel Islands Research Cruise for Acidification Studies (CIRCAS), Santa Barbara, CA; **NOAA R/V Shearwater** (2 days, 2016; 2 days, 2015; 5 days, 2014). PI: Professor Gretchen Hofmann.
- NOAA SWFSC Salmon Cruise, California Current; **F/V Frosti** (6 days, 2011). Chief Scientist: Dr. Sean Hayes.

Research Diving

- 300+ dives, 150+ hours logged
- Experience in low visibility, ice diving (McMurdo Station, Antarctica), drysuit diving.
- AAUS: Scientific diving authorization maintained at UC Santa Cruz (100ft) with drysuit authorization.
- UCSB Diving Control Board representative, 2017-2018
- NAUI: Advanced Open Water, Rescue Diver, Teaching Assistant, EANx, and Master Diver certifications.
- PADI: Open Water certification.
- First Aid, CPR, DAN O₂ Certifications maintained 2012-present.

Student Advising

2018	Sabrina Garcia (lab assistant/undergrad)
2018	Lauren Strobe (lab assistant/undergrad)
2018	Zofia Danielson (high school student)
2018	Muriel Reid (high school student)
2017-2018	Maddie Housh (lab assistant/technician)
2016-2017	Margarita McInnis (lab assistant/undergrad)
2013-2015	Silke Bacchuber (lab assistant/technician)
2013-2016	Cailan Sugano (lab assistant/technician)

Public Education and Outreach

- Guest Lecturer, *Science and Policy of Global Change* (ENSTU 309), California State University, Monterey Bay, March 25, 2019.
- Guest Lecturer, *Graduate Professional Development* (EEMB 510), UC Santa Barbara. April 24, 2018.
- *Live music and Antarctic Diving*. World Oceans Day Event, Santa Barbara, CA. June 3, 2017.
- *On Thin Ice: Exploring global change biology in the Antarctic with art and science*. Public lecture series, Sierra Nevada Aquatic Research Laboratory, March 2, 2017.
<https://youtu.be/CyRiDlleBaw?t=10m43s>
- *Diving Under Antarctic Ice: Researching seawater pH dynamics and marine biology in one of the last true marine wildernesses*. UC Santa Barbara SCUBA club, February 7, 2017.
- *Under the Ice*. INT91: Early start program for high school students. July 27, 2016.
- *Global Change Biology and Antarctic Diving*. Science “Pub Talk” Series hosted by the Santa Barbara Natural History Museum. July 11, 2016.
- *Antarctica: On Thin Ice*. World Oceans Day Event, Santa Barbara, CA. June 4, 2016.
- *To Antarctica and Back Again: Researching seawater pH dynamics and marine physiology in one of the last true marine wildernesses*. Paradise Dive Club Lectures Series, Santa Barbara, CA. May 31, 2016.
- Guest Lecturer, *Graduate Professional Development* (EEMB 510), UC Santa Barbara. April 15, 2016.
- Career Panelist. *Biology Mentoring and Engagement* (MCDB 13), UC Santa Barbara. April 12, 2016.
- Career Panelist. *Processes in Aquatics Systems* (EEMB 142B), UC Santa Barbara. February 12, 2016.
- Guest Lecturer. *Exciting Developments in Biology Research* (INT 94ES), UC Santa Barbara. January 29, 2016.
- *Global Change Biology and Antarctic Diving*. Marine Science course, La Jolla High School, CA. January 5, 2016.
- *Antarctic Research and Coldwater Diving*. Paradise Dive Club Lectures Series, Santa Barbara, CA. August 2015.
- Guest Lecturer, *Intro to Oceanography* (Earth 3), UC Santa Barbara. June 6, 2015.
- *Kelp Forests on Acid: Local Climate Change Mitigation in a Changing Ocean*. Grad Slam competition, UC Santa Barbara. April 2015. **Semifinalist**.
- *Global Change Biology: From California to Antarctica*. Marine Science course, La Jolla High School, CA. January 2015.

Academic Service

- *Reviewer*, Scientific Reports.
- *Co-Chair*, Gordon Research Seminar on Ocean Global Change Biology, 2018.
- *Skype a Scientist*: video conferencing with K-12 science classrooms (2017-present).
- *Chair, Cohort representative and Webmaster*. Graduate Student Advisory Committee (GSAC). UC Santa Barbara. 2013-Present, Chair (2016-17), Vice Chair (2015-16) and Webmaster (2017).
- Contributor and panelist for the NOAA Channel Islands Marine Sanctuary Condition Report, 2016.
- *Mentor for junior high school students and families*. Family Ultimate Science Exploration (FUSE), Center for Science and Engineering Partnerships, UC Santa Barbara. Leading science activities for junior high school students and families. 2016.
- *Mentor for undergraduate biology students*. Graduate Biology Mentorship Association (BIOME), UC Santa Barbara. Panelist at 5 events geared towards undergraduate exposure to different career paths. 2014-2016.

In the News

- *Counting critters in the kelp forest*. Rachel Cassandra, KCAW (public radio, Southeast Alaska). <https://www.kcaw.org/2018/08/01/counting-critters-in-the-kelp-forest/>
- *Shedding New Light on the Mysteries of Antarctica's Long, Dark Winter*. Sarah Laskow, **Atlas Obscura**. <https://www.atlasobscura.com/articles/when-is-winter-in-antarctica>
- *Sisters of the Blue* (Podcast/Radio Show). KCSB 91.9FM. July 12, 2017. <https://www.sistersoftheblue.com/radio/2017/11/9/17colo43nmt2fznnkkwdngthd5b0bm>
- *The Dissolving Sentinels of the Southern Ocean*. Michael Lucibella, **The Antarctic Sun** (NSF US Antarctic Program). <http://antarcticsun.usap.gov/science/contentHandler.cfm?id=4207>
- *Pteropods and B-134*. Shaun O'Boyle (NSF Antarctica Artists and Writers Program). <https://popantarctica.wordpress.com/2015/11/17/pteropods-b-134/>
- *Asians Doing Everything*. <http://asiansdoingeverything.tumblr.com/post/128280622030/name-umihiko-hoshijima-location-santa-barbara-ca>
- *UCSB Hofmann Lab Examines Effects of Ocean Acidification on Sculpin*. <https://thebottomline.as.ucsb.edu/2015/03/ucsb-hoffman-lab-examines-effects-of-ocean-acidification-on-rockfish>
- *Graduate Student Umi Hoshijima Takes on Bitter Cold and Lightning-quick Penguins*. UCSB GradPost. <http://gradpost.ucsb.edu/headlines/2014/12/1/graduate-student-umi-hoshijima-takes-on-bitter-cold-and-ligh.html>