Daniel Sergio Swezey

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RESEARCH INTERESTS

Conservation aquaculture, climate adaptation, evolutionary genetics, ocean acidification, biogeochemistry, marine ecology, marine conservation policy

EDUCATION

Ph.D Population Biology: **2015**
University of California, Davis (UCD)
Ocean Acidification on the California Coast: Responses of Marine Bryozoa to a High CO_2 future.
Committee: Eric Sanford (Chair), Jay Stachowicz, Brian Gaylord, and Rick Grosberg.

B.A. Biology (High Honors*)*: 2006
College of Creative Studies, University of California, Santa Barbara (UCSB)

RECENT POSITIONS AND APPOINTMENTS

2006 Mennon-Watson Fellow, UCSB
2007-2008, Research Assistant/Diver, Monterey Bay Aquarium Research Institute
2009-2010, NSF REACH IGERT Trainee, UCD
2010-2013, NSF Graduate Research Fellow, UCD
2014-2015, Graduate Student Researcher VII, Bodega Marine Laboratory
2015-Present, Lead Scientist, The Cultured Abalone Farm LLC. (TCAF)
2016-Present, Research Associate, Bodega Marine Laboratory

PEER-REVIEWED PUBLICATIONS

†Manuscript drafts in prep available upon request

Swezey, D. S., Bean, J. R., Ninokawa, A. T., Hill, T. M., Gaylord, B. and Sanford, E. (2017). Interactive effects of temperature, food and skeletal mineralogy mediate biological responses to ocean acidification in a widely distributed bryozoan. *Proceedings of the Royal Society B: Biological Sciences* 284.

Swezey, D. S., Bean, J. R., Hill, T. M., Gaylord, B., Ninokawa, A. T. and Sanford, E. (2017). Plastic responses of bryozoans to ocean acidification. *The Journal of Experimental Biology*. doi: 10.1242/jeb.163436

Wetzel, W., Lacher, I., **Swezey, D.S**, Moffitt, S., and Manning, D. (2012). Analysis reveals potential rangeland impacts if Williamson Act eliminated. *California Agriculture* **66(4),** 131-136. **Feature Article.** *Authorship order randomly selected, all authors contributed equally to this work.

Sanford, E. and **D.S. Swezey.** (2008). Response of predatory snails to a novel prey following the geographic range expansion of an intertidal barnacle. *Journal of Experimental Marine Biology and Ecology* 354: 220–230.

Swezey, D.S., Boles, S.E., Aquilino, K.M., Bush, D., Hill, T.M., Gaylord, B., Sanford, E., and Whitehead, A. (2018). Multiple factors influence survival of red abalone (*Haliotis rufescens)* under impending ocean acidification**.** (*Nature Climate Change) †*

Swezey, D. S., Bean, J. R., Hill, T. M., Ninokawa, A. T., Gaylord, B. and E. Sanford (2018). Bryozoans provide high-resolution stable isotope records of oceanographic conditions. (*Biogeosciences) †*

MAJOR RESEARCH FUNDING

Grants Awarded

2017 NOAA Saltonstall-Kennedy Grant Program (Marine Aquaculture) ($299,745) "Adapting Red Abalone Aquaculture for a Changing Ocean" Co-PI with Dr.'s Kristin Aquilino, Tessa Hill, Eric Sanford, Brian Gaylord and Andrew Whitehead. (UC Davis)

2016 NOAA Small Business Innovation Research (Improving Seed Production for Marine Shellfish Aquaculture in the United States) ($399,987) "Developing Resilience to Ocean Acidification in Red Abalone Aquaculture, Phase 2." Sole project PI. (TCAF)

2015 NOAA Small Business Innovation Research (Improving Seed Production for Marine Shellfish Aquaculture in the United States) ($94,647) "Developing Resilience to Ocean Acidification in Red Abalone Aquaculture, Phase 1." Sole project PI. (TCAF)

2014 California Sea Grant (Climate – Ocean Acidification) ($81,855) "Interactive Effects of Acidification and Hypoxia and Adaptive Potential in Red Abalone." Co-written with PIs Dr.'s Andrew Whitehead, Laura Rogers-Bennett and Eric Sanford. (UC Davis)

Submitted Proposals Currently in Review

2018 NOAA Ocean Acidification Program (Identification and Application of Acidification Thresholds in Coastal Ecosystems) ($1,050,000) "The Geography of Stress: Ecological & Social Thresholds of Vulnerability to Global Change in the California Current" Co-PI with Dr.'s Tessa Hill, Kristy Kroeker, Julie Ekstrom, Eric Sanford, Kristin Aquilino and Brian Gaylord. (UC Davis)

2018 CA Ocean Protection Council Proposition 84 Competitive Grants Program (Ocean Acidification and Hypoxia) ($250,000) "Assessing the combined effects of ocean acidification and warming on disease susceptibility and restoration success of the critically endangered white abalone." Co-PI with Dr.'s Kristin Aquilino, Jim Moore and Eric Sanford. (UC Davis)

TEACHING AND MENTORSHIP

Courses developed

PBG 298: *BML Video Project* (Graduate). Co-taught with Eric Sanford.
Organized and developed graduate student seminar on scientific film making, emphasizing interviewing technique, story boarding and the presentation of scientific information and techniques for reaching general audiences. Resulted in production of the "BML Video" by UC Davis graduate students highlighting research at BML, now used extensively in BML promotion.

Link: http://www.youtube.com/watch?v=DYI_gw72bk8

BIS 124: *Scientific Communication Through* Video (Undergraduate). Co-taught with Eric Sanford.
Similar to above, but with focused lectures and activities analyzing specific documentary film, and undergraduate communication modules and discussions aimed at expanding students awareness of techniques for story telling and science communication. Involved written assignments, oral presentations and resulted in the supervised production of student shorts focused on their summer research projects.

Link: http://www.youtube.com/watch?v=xitpC5TcgfU&list=PL_M9co7Ega5uj5IWs1N5bkhX1nwNDt4xr

Teaching Assistant for

EVE 114: Experimental Invertebrate Biology
BIS 124: Coastal Marine Research.

TA for courses focused on hands-on studies of the marine environment, covering the biology, ecology, and evolution of local marine invertebrates. Supervised field trips and hands-on labs with an emphasis on testing hypotheses in ecology and evolution. Guided student experiments and independent research projects covering all aspects of the research process including scientific observation, hypothesis testing, experimental design, data analysis and scientific communication.

Graduate Students Mentored: Sara Boles (UC Davis) (graduate student collaborator completing PhD research at UCD with Dr. Andrew Whitehead. Co-investigator pursuing molecular genetic responses of red abalone to ocean acidification, 2015-2018)

Undergraduates Mentored:
Tim Leung (UCD) (abalone aquaculture/ocean acidification project 2018)
Sebastian Garcia (UCD) (abalone aquaculture/ocean acidification project 2018)
Gabriella Ayad (UCD) (abalone aquaculture/ocean acidification project 2018)
Marcela Portales (UCD) (abalone aquaculture/ocean acidification project 2018)
Madison Heard (CSU Monterey Bay) (abalone aquaculture/ocean acidification project 2017-2018)
Haley Stott (UCD) (abalone aquaculture/ocean acidification project 2015-2017)
Amanda Broffman (UCD) (abalone aquaculture/ocean acidification project 2016)
Margaret Carroll (UCD) (bryozoan mineralogy and ocean acidification project 2012-2014)
Lian Rother (UCD) (bryozoan mineralogy and ocean acidification project 2013)
Jordan Lankford (Sonoma State) (bryozoan mineralogy and ocean acidification project 2013-2014)
Daniel Stone (Santa Rosa JC) (bryozoan mineralogy and ocean acidification project 2013-2014)
Joseph Yull (Santa Rosa JC) (bryozoan mineralogy and ocean acidification project 2014)
Duncan MacLeod (Eckerd College) (bryozoan mineralogy and ocean acidification project 2014)
Laura Heidenreich (SFSU) (bryozoan mineralogy and ocean acidification project 2013-2015)

FELLOWSHIPS & AWARDS

2015 Bodega Marine Laboratory Graduate Fellowship. ($7,500)
2014 Bodega Marine Laboratory Graduate Fellowship. ($7,500)
2014 Best Student Poster (Honorable Mention) Western Society of Naturalists, Tacoma, WA.
2011-2013 NSF Graduate Research Fellowship. ($120,000)
2010 NSF REACH IGERT International Travel Award. ($7,500)
2009-2010 NSF REACH IGERT Traineeship. ($80,000)
2007 NSF International Travel Award. ($2,500).
2006 Best Student Presentation (Honorable Mention) Benthic Ecology Conference, Quebec, CA.
2006 Menon-Watson Research Fellow, College of Creative Studies, UCSB. ($8,000)
2006 Schuyler Research Fellow, College of Creative Studies, UCSB. ($1,200)
2005 NSF REU, Bodega Marine Laboratory. ($2,500)

INVITED TALKS

2017 "Sustainable aquaculture in a changing climate" UC Davis Coastal Marine Sciences Institute.
2017 "Aquaculture in a high CO_2 world" Presentation to UC Davis Ocean and Coastal Law.
2016 "Ocean Acidification impacts to Red Abalone Aquaculture." San Diego State University.
2016 "Developing Resilience to Ocean Acidification in Red Abalone Aquaculture." National Oceanic and Atmospheric Administration, Silver Spring, Maryland.
2015 "Changing Waters: Potential Adaptation Strategies for Ocean Acidification." Sonoma County Climate Adaptation Forum, Sonoma State University.
2015 "Changing Waters: The Significance of Ocean Acidification." Presentation to UC Davis Ocean and Coastal Law.
2013 "Ocean Acidification and the Bodega Marine Laboratory." Presentation to the Kiwanis Club of Sonoma County.
2013 "Analysis reveals potential rangeland impacts if Williamson Act eliminated." Presentation to the Santa Barbara Board of Supervisors, Buellton CA.
2008 "Response of predatory snails to a novel prey following the geographic range expansion of an intertidal barnacle." Center for Marine Biodiversity and Conservation, Scripps Institute of Oceanography, La Jolla CA.
2007 "Fueling Restoration: *Arundo donax*" College of Creative Studies, UCSB.

CONTRIBUTED PRESENTATIONS AND POSTERS

2018 **Swezey, D.S.,** Boles, S.E., Aquilino K.M., Stott, H., Bush, D., Hill, T.M., Gaylord, B., Catton, C., Rogers-Bennett, L., Whitehead, A. and E. Sanford. "Developing Resilience to Ocean Acidification in Red Abalone Aquaculture." Presentation at the Meeting of the National Shellfisheries Association, Seattle, WA.

2017 Boles, S.E, **Swezey, D.S.,** Aquilino, K.M., Bush, D., Hill, T.M., Gaylord, B., Sanford, E., and A. Whitehead. "Ocean Acidification Differentially Affects Survival of Two Populations of Red Abalone." Presentation at the Western Society of Naturalists, Pasadena, CA.

2016 **Swezey, D.S.,** Boles, S.E., Aquilino, K.M., Bush, D., Hill, T.M, Gaylord, B., Sanford, E. and A. Whitehead. "Effects of Ocean Acidification on Larval and Post-Settlement Red Abalone." Presentation at the Western Society of Naturalists, Monterey, CA.

2016 **Swezey, D.S.**, Bean, J.R., Ninokawa, A., Hill, T.M., Gaylord, B. and E. Sanford. "Interactive Effects of Temperature, Food, and Skeletal Mineralogy Mediate Responses to Ocean Acidification in a Globally Distributed Bryozoan." Presentation at the 4th International Symposium on the Ocean in a High CO_2 World, Hobart, Australia.

2014 **Swezey, D.S.**, Bean, J.R., Ninokawa, A., and E. Sanford. "Bryozoan morphology and mineralogy in a high-CO_2 ocean: plastic responses and new oceanographic proxies." *Winner of Best Student Poster Award (Honorable Mention). Poster at the Western Society of Naturalists, Tacoma WA.

2014 **Swezey, D.S.**, Bean, J.R., Ninokawa, A., and E. Sanford. "Bryozoans as indicators of global change: predictable shifts in morphology and carbonate mineralogy in response to warming and ocean acidification." Poster at the Fall Meeting of the American Geophysical Union, San Francisco CA.

2014 **Swezey, D.S.**, Bean, J.R., Ninokawa, A., and E. Sanford. "Do bryozoans alter their skeletal structure and carbonate mineralogy in response to global change stressors?" Poster at the Geological Society of America, Vancouver British Colombia.

2013 **Swezey, D.S.**, Bean, J.R., Ninokawa, A., Hill, T.M., Gaylord, B. and E. Sanford. "Roles of Plasticity and Local Adaptation in Mediating Bryozoan Responses to Ocean Acidification." Presentation at the Western Society of Naturalists, Oxnard CA.

2010 Wetzel, W., Lacher, I., **Swezey, D.S**, Moffitt, S., and D Manning. "Consequences of Eliminating the Williamson Act for Ranching and Conservation in California." Presentation at the UC Davis IGERT Fall Symposium, Davis CA.

2007 **Swezey, D.S.**, Hamady, L., and E. Sanford. "Shifting ranges in past and present climate: the inability of northern whelks to drill the range extending barnacle *Tetraclita rubescens.*" Poster at the Meeting of the International Biogeography Society, Tenerife, Spanish Canary Islands.

2006 **Swezey, D.S.** and E. Sanford **"**Predisposed for Success: Predation Escape and Range Extension in *Tetraclita rubescen*s." *Winner of Best Student Talk Award (Honorable Mention) Presentation at the Benthic Ecology Conference, Quebec City.

OTHER PROFESSIONAL TRAINING/EXPERIENCE

2017-2018 **NOAA Commercialization Assistance Program.** Completed year-long mentoring and training program with NOAA private sector experts to transition SBIR-developed products to the marketplace. Organized and developed companies strategic action plan, business plan, and go-to-market strategy pertaining to ocean acidification resilience products developed for abalone aquaculture.

2017 **Expert Witness Training Academy Fellow,** Mitchell Hamline School of Law, St. Paul MN. Completed training in expert witness scientific legal testimony.

2009-2010 **NSF REACH (Responding to rapid environmental change) IGERT Trainee,** UCD. Coursework/training in scientific and social responses to rapid environmental change. Training in multi-stakeholder workshop organizing. Multidisciplinary group project and publication. Internship with the Nature Conservancy's Asia Pacific Program, synthesizing adaptation measures to ocean acidification.

2007-2008 **Research Assistant/Diver,** Haddock Lab, Monterey Bay Aquarium Research Institute. Deep sea ecology and bioluminescence research, DNA analysis, fluorescent protein characterization, blue water scientific diving, ROV operations.

2006 **Menon-Watson Research Fellow,** College of Creative Studies, UCSB. Research on control of invasive species, environmental economics, biofuel development.

2005 **Biological Aide,** Cachuma Operations and Maintenance Board of Santa Barbara. Nocturnal fisheries field biology, federally endangered steelhead trout conservation and management.

Reviewer For:

PLOS ONE
Journal of Experimental Marine Biology and Ecology
ICES Journal of Marine Science
Marine Pollution Bulletin
Estuarine, Coastal and Shelf Science

Professional associations and society memberships

National Shellfisheries Association
Monterey Bay Aquarium Seafood Watch Program as employee with TCAF
California Farm Bureau as employee with TCAF
Western Society of Naturalists
Ecological Society of America