

CHRISTINA M. RICHARDSON

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PROFESSIONAL PREPARATION

2016-2020 Ph.D. (June 2020), Earth Sciences, University of California at Santa Cruz
2014-2016 M.S., Geology and Geophysics, University of Hawai'i at Manoa
2010-2012 B.S., Marine Biology, University of California at Santa Cruz

APPOINTMENTS

2020-2022 Postdoctoral fellow, University of California at Santa Cruz
2016-present Graduate Research Assistant, University of California at Santa Cruz
2014-2016 Graduate Research Assistant, University of Hawai'i at Manoa
2012-2014 Junior Research Technician, United States Geological Survey
2011-2012 Undergraduate Researcher, University of California at Santa Cruz

PEER-REVIEWED PUBLICATIONS

(7) Richardson, C., Fackrell, J., Kendall, C., Kraus, T., Kendall, C., and A. Paytan. Nutrient and trace metal contributions from drained islands in the Sacramento-San Joaquin Delta, California. In review at San Francisco Estuary and Watershed Sciences.

(6) Richardson, C., Fackrell, J., Kendall, C., Kraus, T., Kendall, C., and A. Paytan. Lateral carbon exports from drained peatlands: an understudied carbon loss pathway in the Sacramento-San Joaquin Delta, California. *Journal of Geophysical Research: Biogeosciences*.
<https://doi.org/10.1029/2020JG005883>

(5) Richardson, C., Zimmer, M., Fackrell, J., and A. Paytan. Geologic controls on source water drive baseflow generation and carbon geochemistry: evidence of nonstationary baseflow sources across multiple subwatersheds. *Water Resources Research*.
<https://doi.org/10.1029/2019WR026577>

(4) Richardson, C., Dulai, H., Popp, B., Ruttenberg, K., and J. Fackrell. 2017. Submarine groundwater discharge drives biogeochemistry in two Hawaiian reefs. *Limnology and Oceanography*, <http://dx.doi.org/10.1002/lno.10654>

(3) Richardson, C., Dulaiova, H., and R. Whittier. 2015. Sources and spatial variability of groundwater-delivered nutrients in Maunalua Bay, Oahu, Hawai'i. *Journal of Hydrology: Regional Studies*, <http://dx.doi.org/10.1016/j.ejrh.2015.11.006>

(2) Nelson, C., Donahue, M., Dulaiova, H., Goldberg, S., La Valle, F., Lubarsky, K., Richardson, C., Silbiger, N., and F. Thomas. 2015. Fluorescent dissolved organic matter as a multivariate biogeochemical tracer of submarine groundwater discharge in coral reef ecosystems. *Marine Chemistry*, <http://dx.doi.org/10.1016/j.marchem.2015.06.026>

(1) Johnson, C., Swarzenski, P., Richardson, C., Smith, C., Kroeger, K., and P. Ganguli. 2013. Ground-truthing electrical resistivity methods in support of submarine groundwater discharge studies: Examples from Hawai'i, Washington, and California. *Journal of Environmental and Engineering Geophysics*, <http://dx.doi.org/10.2113/jeeq20.1.81>

HONORS, AWARDS, and GRANTS

- 2020 National Science Foundation RAPID Grant
- 2020 California Sea Grant Delta Science Postdoctoral Fellowship
- 2018 2nd Place, Student Poster Presentation, 2018 Bay-Delta Conference
- 2018 Student Research Grant, International Association of Geochemistry
- 2018 Student Research Grant, Geological Society of America
- 2018 Future Leaders in Coastal Science Award, University of California at Santa Cruz
- 2017 Robert L. Wiegel Scholarship for Coastal Studies, San Diego Foundation
- 2017 Early Career Award, National Geographic Society
- 2017 J. Casey Moore Award, University of California at Santa Cruz
- 2017 Myers Oceanographic and Marine Biology Trust Award
- 2017 Hydrogeology Division Specialized Award, Geological Society of America
- 2015 Harold T. Stearns Grant, University of Hawai'i at Manoa
- 2014 Graduate Research Fellowship Program, National Science Foundation
- 2011 Research Experience for Undergraduates, National Science Foundation

MENTORING ACTIVITIES

Undergraduate Research Mentor for Michael Redmond (UCSC), Carolyn Brady (UCSC), Kaylee Glenney (UCSC)

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

- 2017-present Association for the Sciences of Limnology and Oceanography
- 2016-present Geological Society of America
- 2013-present American Geophysical Union

PUBLIC SERVICE ACTIVITIES

- 2020 (Ongoing) Co-founder of Geosciences Education and Mentorship Support, GEMS; a free virtual mentorship platform for underserved students interested in attending graduate school or applying for fellowships
- 2020 Invited speaker on federal grant writing webinar with over 700 registered attendees through the American Geosciences Institute
- 2019 (+2013, 2018) Santa Cruz County Science Fair Judge, Santa Cruz, CA
- 2018 (+2016, 2017) Led hands-on STEM activities for K-12 students at Expanding Your Horizons, Salinas, CA
- 2016 (+2015) Designed and led water pollution outreach activities at Bishop Museum's free public "Science Alive!" event, Honolulu, HI
- 2015 Designed and led a two-day water pollution outreach activity for K-12 students at the University of Hawai'i's Biennial Science Open House, Honolulu, HI
- 2012 Led public water quality monitoring event, Snapshot Day, as an intern at the Coastal Watershed Council, Santa Cruz, CA

2010 Assisted in capture and transport of local marine mammals at the Marine Mammal Rescue Center, Moss Landing, CA

SELECT PRESENTATIONS AND CONFERENCE PROCEEDINGS (*mentee)

Richardson, C., Montalvo, M., Paytan, A., and M. Zimmer. The impact of headwater wildfire burns on the export of material to the coast. Invited Speaker. Japan Geosciences Union. June 2021.

Richardson, C., Young, M. Fackrell, J., and A. Paytan. Using stable isotopes to understand multi-scale changes in aquatic biogeochemistry in the SF Bay and Delta. AGU Fall Meeting. Dec. 2021.

Richardson, C., Zimmer, M., Fackrell, J., and A. Paytan. Geologic controls on source water drive baseflow generation and geochemistry across watershed scales. AGU Fall Meeting. Dec. 9-13, 2019.

Richardson, C., Fackrell, J., and A. Paytan. Sources and magnitude of lateral C losses from drained peatlands. ASLO 2019. Feb. 24-28, 2019.

Fackrell, J., Richardson, C., A. Paytan, C. Kendall, and T. Kraus. Stable isotope values of C, N, P, and S compounds in treated wastewater effluent from facilities of varying capacities and treatment practices. ASLO 2019. Feb. 24-28, 2019.

Serrano, A., Richardson, C., and A. Fisher. Leaching of redox sensitive elements from vadose zone sediments. UC Water Conference. Oct. 24-27, 2018.

*Brady, C., Richardson, C., Fackrell, J., and A. Paytan. Dissolved N species concentrations in agricultural drainage in the Sacramento-San Joaquin Delta. Biennial Bay-Delta Science Conference, Sept. 9-12, 2018.

*Glenney, K., Richardson, C., Fackrell, J., and A. Paytan. Variability in dissolved inorganic and organic C concentrations in agricultural drainage in the Sacramento-San Joaquin Delta. Biennial Bay-Delta Science Conference, Sept. 9-12, 2018.

Richardson, C., Fackrell, J., and A. Paytan. Characterization of redox sensitive elements in agricultural drainage in the Sacramento-San Joaquin Delta. Biennial Bay-Delta Science Conference, Sept. 9-12, 2018.

Richardson, C., Dulai, H., and R. Whittier. A multi-proxy approach for determining the sources and spatial variability of groundwater-delivered nutrients. AGU Fall Meeting (H11F-1414). Dec. 14-18, 2015.

Nelson, C., Donahue, M., Dulaiova, H., Goldberg, S., La Valle, F., Lubarsky, K., Miyano, J., Richardson, C., Silbiger, N., Thomas, F. Developing fDOM as an efficient method of tracking contaminated groundwater in coastal reef ecosystems. 2015 Pacific Islands Climate Science Symposium. Feb. 26 – 27, 2015.

Ganguli, P., Swarzenski, P., Dimova, N., Merckling, J., Kehrlin, N., Hohn, R., Richardson, C., Johnson, C., Fisher, A., Lamborg, C., and R. Flegal. The dynamics of mercury speciation and transport at a central California coastal lagoon. AGU Fall Meeting (OS51F-06). Dec. 15-19, 2014.

Richardson, C., Swarzenski, P., and C. Johnson. Quantifying groundwater exchange rates in a beach barrier lagoon using a radioisotopic tracer and geophysical methods. AGU Fall Meeting (H41F-1308). Dec. 9-13, 2013.

Lurz, I., Ganguli, P., Swarzenski, P., Richardson, C., Merckling, J., Johnson C., Hibdon, S., and R. Flegal. Assessing geochemical controls on mercury transformations and transport at a coastal lagoon site. SACNAS, Strengthening the Nation Through Diversity. Oct. 3-6, 2013.

Richardson, C., and P. Swarzenski. On the physics of groundwater exchange in a beach barrier lagoon system: Younger Lagoon, Santa Cruz, CA. NIWR Annual Conference: Sustaining Water Resources and Ecological Functions in Changing Environments. June 11-14, 2013.

NEWS AND OTHER MEDIA

2018 [National Geographic Explorer profile](#).

2018 State of Hawai'i, Department of Health, "[Report to the 29th Legislature Relating to Cesspools and Prioritization for Replacement](#)".

2016 University of Hawai'i Sea Grant, Ka Pili Kai, "[Wastewater's influence on coastal groundwater quality and the health of coral reefs in Maunalua Bay, O'ahu](#)".

2015 Honolulu Civil Beat and Environment Hawai'i, "[DOH, UH studies find growing evidence of cesspool impacts to coast, potable wells](#)".

2015 State of Hawai'i, Department of Health, Presentation on "[Proposed Amendments to Chapter 11-62 Wastewater Systems Rules](#)".

2014 National Science Foundation Graduate Research Fellowship Program, "[From source to sea: my pathway to graduate school](#)".

CERTIFICATIONS

- Emergency Medical Technician, National Registry of EMTs (#E3137569)
- Basic Life Support for Healthcare Professionals, AHA
- River Rescue Certification (Sierra Rescue International)
- Open Water Diver (Professional Association of Diving Instructors)