

Bonnie Ludka

CONTACT INFORMATION	9500 Gilman Drive, SIO-UCSD La Jolla, CA 92093, Mail Code: 0206	858-534-1626 bludka@ucsd.edu
EXPERIENCE	I work at the intersection of coastal science, engineering, policy, and environmental management.	
EDUCATION	Scripps Institution of Oceanography, UCSD, La Jolla, CA Ph.D., Physical Oceanography, 2016 <ul style="list-style-type: none">• Thesis Topic: <i>Wave-driven changes in beach sand levels</i>• Advisor: Robert Guza, Ph.D M.S., Oceanography, 2011 James Madison University, Harrisonburg, VA B.S., Physics, 2007, Cum Laude	
RESEARCH, COASTAL MANAGEMENT, & ENGINEERING APPOINTMENTS	Postdoctoral Scholar Scripps Institution of Oceanography, University of California, San Diego Advisor: Adrian Borsa, Ph.D Developing methods to extract coral reef bathymetry from satellites	2020-present
	Postdoctoral Scholar Scripps Institution of Oceanography, University of California, San Diego Advisors: Mark Merrifield, Ph.D & Robert Guza, Ph.D Researched beach nourishment and coastal flooding	2017-2020
	CA Sea Grant Fellow, Coastal Engineer/Nearshore Oceanographer California Coastal Commission Supervisor: Lesley Ewing, Ph.D, Sr. Coastal Engineer Assessed coastal impacts of beach sand mine, cliff retreat setbacks, and implications of new sea level rise assessment on conservation and development plans	2017
	Postdoctoral Scholar Delft University of Technology, Delft, Netherlands Advisor: Matthieu de Schipper, Ph.D International beach nourishment research exchange	2016
	Research Assistant Scripps Institution of Oceanography, University of California, San Diego Advisor: Robert Guza, Ph.D Researched wave-driven changes in beach sand levels	2010-2016
REFEREED JOURNAL PUBLICATIONS	Ludka, B.C. , A.P. Young, R.T. Guza, W.C. O'Reilly, M.A. Merrifield, Nourishing an erosion hotspot. <i>submitted to Coastal Engineering</i> de Schipper, M. A., B.C. Ludka , T.A. Schlacher, B. Raubenheimer, A.P. Luijendijk (2020) Beach nourishment has complex implications for the future of sandy shores. <i>Nature Reviews Earth & Environment</i> Fiedler J., A.P. Young, B.C. Ludka , W.C. O'Reilly, C. Henderson, M. Merrifield, R.T. Guza, Predicting site-specific storm wave runup. <i>Natural Hazards</i> 104 (1), 493-517 Montaño, J., G. Coco, J. Antolinez, T. Beuzen, K. Bryan, K., L. Cagigal, B. Castelle, M. Davidson, E. Goldstein, R. Ibaceta, D. Idier, D., B.C. Ludka , et al. (2020) Blind testing of shoreline evolution models. <i>Scientific Reports</i> 10, 2137	

Kalligeris, N., Smit, P., **Ludka, B.C.**, Guza, R.T., Gallien, T. W. (2020) Calibration and assessment of process-based numerical models for beach profile evolution in southern California. *Coastal Engineering* 103650. Open Access Earlier Version Pre-Print

Ludka, B.C., Guza, R. T. , O'Reilly, W. C., Merrifield, M. A., Flick, R.E., Bak, A.S., Hesser, T., Bucciarelli, R., Olfe, C., Woodward, B., Boyd, W., Smith, K., Okihiro, M., Grenzeback, R., Perry, L., Boyd, G., (2019) Sixteen years of bathymetry and waves at San Diego Beaches. *Scientific Data*, 6, 161.

Young, A.P., R.E. Flick, T.W. Gallien, S.N. Giddings, R.T. Guza, M. Harvey, L. Lenain, **Ludka, B. C.**, W.K. Melville, W.C. O'Reilly (2018) Southern California coastal response to the 2015-2016 El Niño. *Journal of Geophysical Research: Earth Surface*, 123(11), 3069-3083

Ludka, B.C., R.T. Guza, W.C. O'Reilly (2018) Nourishment evolution and impacts at four southern California beaches: a sand volume analysis. *Coastal Engineering*, 136, 96-105

Barnard, P.L., D. Hoover, D.M. Hubbard, A. Snyder, **B.C. Ludka**, et al. (2017) Extreme oceanographic forcing and coastal response due to the 2015-2016 El Niño. *Nature Communications*, 8, 14365

Ludka, B.C., T. Gallien, S. Crosby, R.T. Guza, (2016) Mid-El Niño erosion at nourished and unnourished southern California beaches. *Geophysical Research Letters*, 43(9), 4510-4516.

Ludka, B.C., R.T. Guza, W.C. O'Reilly, M.L. Yates, (2015) Field evidence of beach profile evolution toward equilibrium. *Journal of Geophysical Research: Oceans*, 120(11), 7574-7597.

Cessi, P., C.L. Wolfe, **B.C. Ludka** (2010) Eastern-boundary contribution to the residual and meridional overturning circulations. *Journal of Physical Oceanography*, 40(9), 2075-2090.

Hunter, D.A., B.G. Elmegreen, **B.C. Ludka**, (2010) Galex Ultraviolet Imaging of Dwarf Galaxies and Star Formation Rates. *The Astronomical Journal*, 139(2), 447-475.

REPORTS

Kalansky, J, D. Cayan, K. Barba, L. Walsh, K. Brouwer, D. Boudreau, T. Amabile, [...], **B.C. Ludka**, et al. California's Fourth Climate Change Assessment: San Diego Summary Report (2018) Governor's Office of Planning and Research & California Energy Commission & California Natural Resources Agency

FUNDING, FELLOWSHIPS & HONORS

CA Sea Grant Fellowship, CA Coastal Commission, Nearshore Oceanographer	2017
UC Ship Funds Award	2016
NSF Graduate Research Fellowship	2010-2013
The President's Volunteer Service Award	2008
Research Assistant Muon Lifetime Analysis Experiment, Paul Sherrer Insitut	2007
Astronomy NSF REU at Northern Arizona Univeristy & Lowell Observatory	2006
Nanotechnology NSF REU at Towson Univeristy	2005

TEACHING &
MENTORING
APPOINTMENTS

- Curriculum Design** Summer 2020-Summer 2021
Create Climate Champions, UCSD
Working with San Diego County school teachers (weekly meetings) to curate, adapt, create, and test K-12 climate curriculum, with an emphasis on environmental justice.
- Co-Mentor** Winter-Spring 2020
Eleanor Su: Climate Science and Policy master's student
Thesis: Beach width as a sea level rise adaptation trigger in Local Coastal Plans
Provided programming instruction, sample code, and advice on research directions.
- Co-Instructor** Summer 2016
Global Environmental Leadership and Sustainability Program
Academic Connections, UCSD Extension
Guided high school students with college-level independent literature reviews on an environmental issue of their choice, while exposing them to research and methods used at Scripps Institution of Oceanography (25 instruction hours). Afterwards students traveled to Washington D.C. to discuss their issue with their congressional representatives.
- Co-Instructor** Summer 2015
Wind, Waves, and Currents: The Physics of the Ocean World
Academic Connections, UCSD Extension
Designed and taught a 3-week curriculum (75 instruction hours) for an introductory college-level physical oceanography course for high school students.
- Co-Instructor** Summer 2015
Upward Bound, UCSD TRIO
Designed and taught 2 days of lecture, lab and field experiments for high school seniors focusing on nearshore processes.
- Informal Classroom Assistant** Fall 2012
Arroyo Paseo Charter High School
Provided one-on-one assistance for students in Melanie Harrington's Biology class (once per week) as part of graduate Community Based Science Class.
- Instructor** Summer 2008
AmeriCorps National Civilian Community Corps
Designed and taught creative 5th-6th grade math and science lessons as part of the Green River (Utah) Community Center's summer program (40 instruction hours).
- Tutor** Spring 2005
Physics of Light and Sound
Society of Physics Students, James Madison University

TEACHER
TRAINING

- Black Minds Matter** In Progress
CORA Learning (25 hours total - 16 completed)
Black Minds Matter is a public series that is designed to raise the national consciousness about issues facing Black students in education.
- Teaching and Learning Workshop** Fall 2013
Center for Teaching Development (13 hours)
Weekly workshop topics included: how people learn, alternatives to lecture, getting feedback from students, writing peer instruction questions, learning outcomes, and assessment.

SELECTED
PRESENTATIONS

- Ludka, B.C.**, Fiedler, J., Young, A., et al., Beach change, cliff erosion, and flooding. US CLIVAR Surface Currents in the Coupled Ocean-Atmosphere System Workshop, San Diego, CA, February 22-23, 2020 (Invited)
- Ludka, B. C.**, Merrifield, M., Young, A., Guza, R. T., O'Reilly, W.C., Ongoing beach nourishments in San Diego County, Ocean Sciences Meeting, San Diego, CA, February 16-21, 2020
- Ludka, B. C.**, Guza, R. T., O'Reilly, W.C., Nourishment evolution and impacts at four southern California beaches. SANDAG Shoreline Preservation Working Group Meeting, San Diego, CA, September 5, 2019 (Invited)

Ludka, B. C., Guza, R. T., O'Reilly, W.C., Field evidence of equilibrium beach profile change in southern California. *Shoeshop Meeting*, Auckland, New Zealand, June 7-9, 2018 (Invited)

Ludka, B. C., Guza, R. T., O'Reilly, W.C., Nourishment evolution and impacts at four southern California beaches. *Coastal Sediment Management Workgroup Meeting*, California Coastal Commission, San Francisco, May 23, 2018 (Invited)

Ludka, B. C., R.T. Guza, W.C. O'Reilly, Equilibrium beach profile change in southern California: a simple empirical model setting the stage for process-based USACE model testbed, *Field Research Facility*, Duck, NC, December 14-15, 2017 (Invited).

Fiedler, J.W., V.M. Tamsitt, S.C. Crosby, **B.C. Ludka**, *Experiential learning: High school student response to learning Oceanography at sea*. American Geophysical Union Meeting, San Francisco, December 13, 2016

Ludka, B. C., Guza, R. T., O'Reilly, W.C., Wave-driven beach change in Southern California. *Deltares Seminar*, Delft, Netherlands, November 23, 2016 (Invited)

Ludka, B. C., Guza, R. T., O'Reilly, W.C., Wave-driven beach change in Southern California. *Physical Oceanography Dissertation Symposium*, HI, October 10, 2016

Ludka, B. C., Guza, R. T., O'Reilly, W.C., Wave-driven beach change in Southern California. *Hydraulic Engineering Colloquium*, Delft University of Technology, Delft, Netherlands, September 22, 2016 (Invited)

Ludka, B. C., Guza, R. T., O'Reilly, W.C., Wave-driven beach change in Southern California. *Applied Ocean Physics and Engineering Seminar*, Woods Hole Oceanographic Institute, Woods Hole, MA, January 27, 2016 (Invited)

FIELD
EXPERIENCE

SCBPS Beach Surveys (Ongoing), San Diego County, CA
 SCARP, Torrey Pines State Beach and Del Mar, CA (Co-Chief Scientist)
 Climate Records from Corals and 100 Island Challenge, September 2017, Palmyra Atoll
 GOTOSEE, R/V Sproul, July 2016, Point Loma, California (Co-Chief Scientist)
 CSIDE, October 2015, Imperial Beach, CA
 MEGAPEX, September-October 2014, Netherlands
 Coastal Field Methods Course, August 2014, Woods Hole Oceanographic Institute
 EWAB, October 2013, Agate Beach, OR
 RIVET, May 2012, New River Inlet, NC
 Scientific Diver Training, Scripps Institution of Oceanography, June 2011

RECENT SERVICE
& OUTREACH

Convener - Nearshore Processes Session at AGU Meeting	2020
Mentor Judge - SACNAS Conference	2020
Advisor - SANDAG Shoreline Preservation Working Group	2018-present
Reviewer - GRL, JGR, JCR, Sea Grant, IPCC 6th Assessment	2018-present
Organizer - Rainbow Reception for LGBTQIA+ Community at OSM	2020
Moderator - San Diego Climate Summit	2019
Educator - Science Night at Ocean Beach Elementary School	2019
Scripps Delegate - UNFCCC Conference of Parties 24	2018

MEMBERSHIPS

Scripps Queer Engineers Scientists & Technical Professionals (QuEST) 2011-present
 Scripps Team for Inclusion & Diversity in Education and Science (TIDES) 2010-2016