

Curriculum Vitae



Personal Information:

Bell, Tom William
6715 Ellison Hall, UC Santa Barbara, Santa Barbara, CA 93106
(619) 857-1233
tbell@ucsb.edu
www.tomwbell.net

Education:

- Ph.D. Interdisciplinary Program in Marine Science, University of California, Santa Barbara, September 2016 *advisor* – Dr. David Siegel
- M.Sc. Biology (Ecology), San Diego State University, December 2011 *advisor* – Dr. Walter Oechel
- B.A. Integrative Biology, B.A. Legal Studies, University of California, Berkeley, December 2006

Professional Appointments:

- Assistant Project Scientist, University of California, Santa Barbara, 2017 – *present*
- Postdoctoral Scholar, University of California, Los Angeles, 2016 – 2018
- Postdoctoral Scholar, University of Alaska Southeast, 2016 – 2018

Research Grants or Fellowships:

Active:

- Advanced Research Projects Agency – Energy: Macroalgae Research Inspiring Novel Energy Resources, (2018 – 2020) “Scalable Aquaculture Monitoring System (SAMS).” Role: Co-PI, **Led the writing and formation of the proposal.** PI: D. Siegel. Co-PIs: T. Bell, K. Cavanaugh, R. Miller, N. Nelson, N. Nidzieko, D. Reed (\$2,004,000)
- Sea Grant California – (2019 – 2021) “Benefits Beyond Biomass: Biophysical feedbacks within Marine Protected Areas may promote ecosystem resilience in the face of global climate change.” Role: Co-PI. PI: A. Stier. Co-PIs: T. Bell, K. Nickols, N. Nidzieko (\$250,000)
- The Nature Conservancy – (2019 – 2020) “Kelp Canopy Monitoring with Google Earth Engine.” Role: Co-PI. PI: J. Caselle. Co-PIs: T. Bell (\$61,000)
- Coastal Conservancy – (2017 – 2020) “Determining habitat extent and population growth of sea otter recolonization in Northern California.” Role: Co-PI. PI: B. Hughes. Co-PIs: T. Bell, M. Castorani, T. Tinker (\$85,000)
- National Science Foundation Coastal SEES: Science, Engineering and Education for Sustainability, (2016 - 2020) “Apex predators, ecosystems and community sustainability (APECS) in coastal Alaska.” Role: Contributed to writing proposal for postdoctoral position. PIs: G. Eckert, H. Pearson, M. Stekoll, B. Vander Naald, S. Langdon (\$1,670,000)
- Point Reyes National Seashore - U.S. National Parks Service Grant, (2016 - 2019) “Rapid, large-scale eelgrass monitoring using high-resolution (sUAS – drone) remote sensing.” Role: Principal Investigator. PIs: T. Bell, M. Castorani (\$22,000)

Completed:

- UC Affiliates Graduate Dissertation Fellowship, (2015) “Giant kelp biomass and net primary productivity dynamics are associated with regional patterns of physiological condition.” Role: Principal Investigator. (\$3,000)
- Brython Davis Endowment Graduate Fellowship, (2015) “Scale dependence of bottom-up vs. demographic control on the dynamics of giant kelp forests” Role: Principal Investigator. (\$13,500)
- NASA Earth and Space Science Fellowship, (2012 - 2015) “Hyperspectral remote sensing of giant kelp in the Santa Barbara Channel.” Role: Principal Investigator. (\$90,000)
- Edna Bailey Sussman Internship, (2009) “Variation of Carbon Exchange over Multiple Temporal Scales in an Arid Shrub Ecosystem near La Paz, Baja California Sur, Mexico.” Role: Principal Investigator. (\$8,000)

Publications: (PDF copies available at tomwbell.net)

* equal author contribution, ^ authored by mentored student/technician

2020

- (29) ^Hamilton, S., **Bell, T.W.**, Watson, J., Grorud-Colvert, K., Menge, B. (accepted) Remote Sensing: Generation of Long-Term Kelp Forest Datasets for Evaluation of Impacts of Climatic Variation. *Ecology*.
- (28) ^Snyder, J.N., **Bell, T.W.**, Siegel, D.A., Nidzieko, N.J., Cavanaugh, K.C. (accepted), Sea surface temperature imagery elucidates spatiotemporal nutrient patterns and serves as a tool for offshore kelp aquaculture siting in the Southern California Bight. *Frontiers in Marine Science*.
- (27) **Bell, T.W.**, Okin, G., Cavanaugh, K.C., Hochberg, E.J. (2020), Impact of water characteristics on the discrimination of benthic cover in and around coral reefs from imaging spectrometer data. *Remote Sensing of Environment*. 239, 111631.

2019

- (26) Wyngaard, J., Barbieri, L., Thomer, A., Adams, J., Sullivan, D., Parr, C., Shrestha, S.R., Crosby, C., Klump, J., **Bell, T.W.** (2019), Emergent challenges for science sUAS data management: Fairness through community engagement and best practices development. *Remote Sensing*. 11, 1797.
- (25) Cavanaugh, K.C., Reed, D.C., **Bell, T.W.**, Castorani, M.C.N., Beas-Luna, R. (2019), Spatial variability in the resistance and resilience of giant kelp in southern and Baja California to a multiyear heatwave. *Frontiers in Marine Science*. 6:413.
- (24) ^Sainz, J., Di Lorenzo, E., **Bell, T.W.**, Gaines, S., Miller, R., Lenihan, H. (2019), Spatial planning of Marine Aquaculture under Climate Decadal Variability: A case study for Mussel Farms in California. *Frontiers in Marine Science*. 6:253.
- (23) **Bell, T.W.**, Allen, J.A., Cavanaugh, K.C., Siegel, D. A. (2019), Three decades of variability in California's giant kelp forests from the Landsat satellites. *Remote Sensing of Environment*.

2018

- (22) Lester, S.E., Stevens, J.M., Gentry, R.R., Kappel, C.V., **Bell, T.W.**, Costello, C.J., Gaines, S.D., Kiefer, D.A., Maue, C.C., Rensel, J.E., Simons, R.D., Washburn, L., White, C. (2018), Marine spatial planning makes room for offshore aquaculture in a crowded coastal zone. *Nature Communications*, 9:945, 1-13.
- (21) Friedlander, A.M., Ballesteros, E., **Bell, T.W.**, Giddens, J., Henning, B., Hüne, M., Muñoz, A., Salinas-de-León, P., Sala, E. (2018), Marine biodiversity at the end of the world: Cape Horn and Diego Ramírez islands. *PLOS ONE*, 13, e0189930.
- (20) **Bell, T.W.**, Reed, D.C., Siegel, D. A. (2018), Regional patterns of physiological condition determine giant kelp primary production dynamics. *Limnology and Oceanography*, 63, 472-483.
- (19) Lamy, T., Reed, D.C., Rassweiler, A.R., Siegel, D.A., Kui, L., **Bell, T.W.**, Simons, R., Miller, R.J. (2018) Scale-specific driver of kelp forest communities. *Oecologia*, 186, 217-233.

2017

- (18) Biederman, J.A., Scott, R.L., **Bell, T.W.**, Bowling, D., Dore, S., Garatuza-Payan, J., Kolb, T.E., Krishnan, P., Krofcheck, D., Litvak, M.E., Maurer, G.E., Meyers, T., Oechel, W.C., Papuga, S., Ponce-Campos, G.E., Rodriguez, J., Vargas, R., Watts, C., Yopez, E.A., Goulden, M.L. (2017) CO₂ exchange and evapotranspiration across dryland ecosystems of southwestern North America. *Global Change Biology*, 23, 4204-4221.
- (17) Kelly, P., **Bell, T. W.**, Reisinger, A., Spanbauer, T., Bortolotti, L., Bentrup, J., Briseño-Avena, C., Dong, X., Flanagan, A., Follett, E., Grosse, J., Guy-Haim, T., Holgerson, M., Hovel, R., Luo, J., Millette, N., Mine, A., Muscarella, M., Oliver, S., Smith, H. (2017) Ecological Dissertations in the Aquatic Sciences (Eco-DAS): An excellent networking and professional development opportunity for early career aquatic scientists. *Limnology and Oceanography Bulletin*, 26, 25-30.
- (16) Teck, S., Lorda, J., Shears, N.T., **Bell, T.W.**, Cornejo-Donoso, J., Caselle, J.E., Hamilton, S.L., Gaines, S.D. (2017) Disentangling the effects of fishing and environmental forcing on demographic variation in an exploited species. *Biological Conservation*, 209, 488-498.
- (15) Guy-Haim, T., Alexander, H., **Bell, T.W.**, Bier, R., Bortolotti, L., Briseño-Avena, C., Dong, X., Flanagan, A., Grosse, J., Grossmann, L., Hasnain, S., Hovel, R., Johnston, C., Miller, D., Muscarella, M., Noto, A., Reisinger, A.J., Smith, H., Spanbauer, T., Stamieszkin, K. (2017) How do experimental characteristics of aquatic mesocosms change the direction and magnitude of effect sizes in climate change research? A systematic review protocol. *Environmental Evidence*, 6, 1-6.

- (14) Wheeler, S.G., Anderson, T.W., **Bell, T.W.**, Morgan, S.G., Hobbs, J.A. (2017) Regional productivity predicts individual growth and recruitment of rockfishes in a northern California upwelling system. *Limnology and Oceanography*, 62, 754-767.
- (13) Cabral, R.B., Gaines, S.D., Johnson, B., **Bell, T.W.**, White, C. (2017), Redistribution of fishing and non-fishing effort after the implementation of marine protected areas: Identifying drivers for informing expectations in marine spatial planning. *Ecological Applications*, 27, 416-428.
- (12) Castorani, M.C.N., Reed, D.C., Raimondi, P.T., Alberto, F., **Bell, T.W.**, Cavanaugh, K.C., Siegel, D.A., Simons, R. (2017) Fluctuations in population fecundity drive variation in demographic connectivity and metapopulation dynamics. *Proceedings of the Royal Society B*, 284, 2016208.
- (11) Gentry, R.R., Lester, S.E., Kappel, C.V., Stevens, J., White, C., **Bell, T.W.**, Gaines, S.D. (2017) Offshore Aquaculture: Spatial Planning Principles for Sustainable Development. *Ecology and Evolution*, 7, 733-743.
- (10) Koweeck, D., Nickols, K.J., Leary, P., Litvin, S.Y., **Bell, T.W.**, Luthin, T., Mucciarone, D.A., Dunbar, R.B., Lummis, S. (2017) A year in the life of a central California kelp forest: physical and biological insights into carbon cycling. *Biogeosciences*, 14, 31-44.

2016

- (9) Reed, D.C., Washburn, L., Rassweiler, A., Miller, R., **Bell, T.W.**, Harrer, S. (2016) Extreme warming challenges sentinel status of kelp forests as indicators of climate change. *Nature Communications*, 7, 13757.
- (8) Biederman, J.A., Scott, R.L., Goulden, M.L., Vargas, R., Litvak, M.E., Kolb, T.E., Yopez, E.A., Oechel, W.C., Blanken, P.D., **Bell, T.W.**, Garatuza-Payan, J., Maurer, G.E., Dore, S., Burns, S.P. (2016) Contrasting effects of fast interannual and slow climatic precipitation variability on ecosystem carbon balance. *Global Change Biology*, 22, 1867-1879.
- (7) Young, M.A., Cavanaugh, K.C., **Bell, T.W.**, Raimondi, P.T., Edwards, C., Drake, P., Erikson, L., Storlazzi, C. (2016) Explaining and predicting spatial patterns of persistence of giant kelp, *Macrocystis pyrifera*, forests in central California. *Ecological Monographs*, 86(1), 45-60.
- (6) Morton, D.N., **Bell, T.W.**, Anderson, T.W. (2016) Spatial synchrony of amphipods in giant kelp forests. *Marine Biology*, 163(2), 1-11.

2015

- (5) Castorani, M.C.N., Reed, D.C., Alberto, F., **Bell, T.W.**, Simons, R. Cavanaugh, K.C., Siegel, D.A., Raimondi, P.T. (2015) Connectivity predicts local extinction and colonization in a marine metapopulation. *Ecology*, 96, 3142-3152.
- (4) **Bell, T.W.**, Cavanaugh, K.C., Reed, D.C., Siegel, D.A. (2015) Geographical variability in the controls of giant kelp biomass dynamics. *Journal of Biogeography*, 42, 2010-2021.
- (3) Johansson, M.L., Alberto, F., Reed, D.C., Raimondi, P.T., Coelho, N.C., Young, M.A., Drake, P.T., Edwards, C.A., Cavanaugh, K.C., Assis, J., Ladah, L.B., **Bell, T.W.**, Coyer, J.A., Siegel, D.A., Serrão, E.A. (2015) Seascape drivers of *Macrocystis pyrifera* population genetic structure in the eastern North Pacific. *Molecular Ecology*, 24, 4866-4885.
- (2) ***Bell, T.W.**, *Cavanaugh, K.C., Siegel, D.A. (2015) Remote monitoring of giant kelp biomass and photosynthetic condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HyspIRI) mission. *Remote Sensing of Environment*, 167, 218-228.

2012

- (1) **Bell, T.W.**, Menzer, O., Troyo-Diéquez, T., Oechel, W. (2012) Variation of Carbon Exchange over Multiple Temporal Scales in an Arid Shrub Ecosystem near La Paz, Baja California Sur, Mexico. *Global Change Biology*, 18, 2570-2582.

In review or revision:

- **Bell, T.W.**, Siegel, D.A. *in review*, Nutrient availability and senescence spatially structure the dynamics of an ecosystem engineer.
- **Bell, T.W.**, Cavanaugh, K., Miller, R., Nelson, N., Nidzieko, N., Reed, D., Federov, D., Kvilekval, K., Cavanaugh, K., Moran, C., Snyder, J., Griffith, M., Siegel, D.A. *in review at Frontiers in Marine Science*, The utility of satellites and autonomous remote sensing platforms for monitoring offshore aquaculture farms: A case study for canopy forming kelps.
- Friedlander, A.M., Ballesteros, E., **Bell, T.W.**, Caselle, J.E., Campagna, C., Hüne, M., Muñoz, A., Salinas-de-León, P., Sala, E., Dayton, P. *in revision (minor) at PLOS One*, Kelp forests at the uttermost part of the earth: 45 years later.

In prep:

- Tinker, M.T., Yee, J., Laidre, K., Hatfield, B., Harris, M., Tomoleoni, J., **Bell, T.W.**, Saarman, E., Carswell, L., Miles, K. *in prep for Journal of Wildlife Management*, Biotic and abiotic habitat features predict local and range-wide carrying capacity of a recovering marine carnivore.
- Castorani, M.C.N., **Bell, T.W.**, Walter, J.A., Reuman, D.C., Cavanaugh, K.C., Sheppard, L.W. *in prep for Ecology Letters*, Disturbance, resources, and climate interactively synchronize kelp forests across scales.
- **Bell, T.W.**, Dong, X., Flanagan, A., Hasnain, S., Johnston, C., Noto, A., Castorani, M.C.N., Cavanaugh, K.C., Siegel, D.A. *in prep for Ecology*, Differences in nutrient delivery structure multiple giant kelp ecotypes across space.
- **Bell, T.W.**, Tinker, M.T., Gill, V., Stekoll, M.S., Moll, A., Pearson, H. *in prep for Marine Ecology Progress Series*, Sea Otter Recolonization Associated with Regional Increase in Giant Kelp Canopy.
- Alnajjar, M.W., Woodson, C.B., Boch, C.A., Micheli, F., Hernandez, A., Vazquez-Vera, L., **Bell, T.W.**, Monismith, S.G. *in prep for Limnology and Oceanography*, Influence of kelp forest state on nearshore currents around a coastal island.

Technical Publications:

- Hohman, R., Hutto, S., Catton, C. and F. Koe. 2019. Sonoma-Mendocino Bull Kelp Recovery Plan. Plan for the Greater Farallones National Marine Sanctuary and the California Department of Fish and Wildlife. San Francisco, CA. 166 pp. **Role:** *Working group member*
- Turpie, K.R., Abelev, A., Babin, M., Bachmann, C., **Bell, T.W.**, Brando, V., Byrd, K., Dekker, A., Devred, E., Forget, M-H., Goodman, J., Guild, L., Hochberg, E., Hu, C., Young-Heon, J., Kelly, M., Klemas, V., Lee, Z., Moisan, T., Moses, W., Muller-Karger, F., Palacios, S., Philpot, B., Toro-Farmer, G., Yu, Q. (2015) Coastal and inland aquatic data products for the Hyperspectral Infrared Imager (HyspIRI), NASA.
- Turpie, K.R., Ackelson, S., **Bell, T.W.**, Dierssen, H., Goodman, J., Green, R., Guild, L., Hochberg, E., Klemas, V.V., Lavender, S., Lee, C., Minnet, P., Muller-Karger, F., Ortiz, J., Palacios, S., Thompson, D.R., Zimmerman, R. (2015) Global observations of coastal and inland aquatic habitats, NASA.
- Turpie, K.R., Allen, D.W., Ackelson, S., **Bell, T.W.**, Cavanaugh, K., Dierssen, H., Fisher, J.B., Goodman, J., Guild, L., Hochberg, E., Klemas, V.V., Lavender, S., Lee, C., Muller-Karger, F., Ortiz, J., Palacios, S., Thompson, D.R., Zimmerman, R. (2015) New need to understand changing coastal and inland aquatic ecosystem services, Decadal survey for earth science and applications from space, NASA.

Datasets:

- **Bell, T.W.**, Cavanaugh, K. C. and D.A. Siegel. (2017) SBC LTER: Time series of quarterly NetCDF files of kelp biomass in the canopy from Landsat 5, 7 and 8, 1984 - 2016 (ongoing). Santa Barbara Coastal LTER.
- Castorani, M.C.N., Reed, D.C., Raimondi, P.T., Alberto, F., **Bell, T.W.**, Cavanaugh, K.C., Siegel, D.A. Kelp metapopulations: Semi-annual time series of giant kelp patch area, biomass, and fecundity in southern California, 1996-2006. Santa Barbara Coastal LTER.

Mentoring:

Total: 21 Undergraduates, 2 High School Students, 9 Graduate Students, 1 Technician

Active Advising Activities (information on previous activities available upon request)

- Spatiotemporal Patterns of Giant Kelp NPP – Nathalie Eegholm (*Committee Member*, UCSB)
- Mosquito Ditching in Saltmarshes – Karen Aeroni (*Committee Member*, Northeastern University)
- Spatial Patterns of Seawater Nutrients in Southern California – Jordan Snyder (UCSB)
- Mussel Aquaculture DEB Modeling – Jade Sainz, Phoebe Racine (UCSB)
- Remote Sensing of Bull Kelp – Sara Hamilton (Oregon State University)

Teaching Experience:

- Teaching Associate (**Instructor of Record**) – Biogeography: The Study of Plant and Animal Distributions (Geography 167), UCSB, Santa Barbara, CA, June – July 2016
- Teaching Associate (**Instructor of Record**) – Marine Resources of the CA Current (Geography 158), UCSB, Santa Barbara, CA, September – December 2015
- Teaching Associate (**Instructor of Record**) – Intermediate Remote Sensing Techniques (Geography 115C), UCSB, Santa Barbara, CA, April – June 2015
- Teaching Assistant – Marine Resources of the CA Current (Geography 158), UCSB, Santa Barbara, CA, January - March 2012
- Laboratory Instructor – Human Anatomy, SDSU, San Diego, CA, August 2008 – May 2011
- Invited Guest Lectures (*many* at UCSB – *details upon request*)

Honors, Awards and Societies:

- UCSB GSA Travel Award 2016
- ERI Travel Award 2013, 2014, 2015
- IRA Travel Scholarship 2009, 2010, 2011
- SDSU Farris/EPEF Travel Award 2009, 2010, 2011
- SDSU Graduate Travel Award 2009, 2010, 2011
- Jordan D. Covin Memorial Scholarship 2010
- Mabel Myers Memorial Scholarship 2009
- Western Society of Naturalists 2009 – 2018
- American Geophysical Union 2014 – 2018
- Association for the Sciences of Limnology and Oceanography 2014 – 2018
- European Geosciences Union 2011

Professional Service:

- Special Issue of *Remote Sensing* – Advances in Spectral Remote Sensing of Coastal and Inland Aquatic Habitats – Role: *Lead Guest Editor*
- Using Drones for High Spatial and Temporal Resolution Long Term Observations Workshop – Role: *Workshop Lead*, Long Term Ecological Research All Scientists Meeting, Asilomar, CA, October 2018
- R Workshop, Role: *Instructor*, Software Carpentry R Language Workshop, UCSB, Spring 2015
- Faculty Search Committee, *Graduate Student Rep*, Physical Oceanography, UCSB, Spring 2015
- Faculty Search Committee, *Graduate Student Rep*, Marine Carbon Cycle Modeling, UCSB, Spring 2014
- HysplRI/Surface Biology & Geology Coastal and Inland Executive Committee, 2014 - *present*
- HysplRI Mission Aquatic Studies Group, 2012 - 2018
- WSN Student Committee, 2014 – 2015
- EEMB Graduate Student Advisory Committee, 2012 – 2015
- W.E.B. Du Bois Event Graduate Representative, 2012 – 2014
- *Reviewer for*: US NSF Grant Proposals – Biological Oceanography, US NOAA Grant Proposals – Species Recovery Grants to Tribes, PLOS ONE, Remote Sensing of Environment, Soil Science of America, Marine Ecology Progress Series, Frontiers in Marine Science, Optics Express, Agricultural and Forest Meteorology, Applied Optics, Applied Sciences, Psychological Research, Sustainability, Remote Sensing, Aquatic Conservation: Marine and Freshwater Systems, Algal Research, J. Experimental Marine Biology and Ecology, J. Marine Science and Engineering, Applied Geography

Workshop Attendance:

- Regional UAV Workshop, Moss Landing, CA, December 2019
- Entering Mentoring Workshop, LTER All Scientists Meeting, Asilomar, CA, October 2018
- Ecological Dissertations in the Aquatic Sciences XII, University of Hawaii, Manoa, October 2016
- Pacific Anomalies Workshop II, University of Washington, Seattle, WA, January 2016
- Pacific Anomalies Workshop I, Scripps Institute of Oceanography, La Jolla, CA, May 2015
- Data Management Workshop, LTER Main Office, U. New Mexico, Albuquerque, NM, August 2012
- CICESE/SDSU Science Meeting, CICESE, Ensenada, Baja California, Mexico, March 2008, 2009

Professional Presentations as lead author (= invited; ^^ = session chair):**

- June 2020: Society Industrial & Applied Mathematics: Mathematics of Planet Earth, Garden Grove, CA**
Patterns and Dynamics in Spatially Explicit Ecological Systems
- February 2020: Ocean Sciences Meeting, San Diego, CA^^
Nutrient availability and programmed senescence spatially structure the dynamics of an ecosystem engineer
- November 2019: Western Society of Naturalists, Ensenada, Baja California, Mexico**
KelpWatch: A Publicly Available Tool for Visualization and Analysis
- October 2019: Eastern Pacific Ocean Conference, Fallen Leaf Lake, CA
Disentangling Potential Global Change Trends from low Frequency Climate Oscillations in Marine Environments
- April 2019: World Aquaculture Society Annual Meeting, New Orleans, LA**
SAMS: Scalable Aquaculture Monitoring System
- March 2019: Society for Restoration Ecology Annual Meeting, Santa Barbara, CA**
Effects and Recovery from the Montecito Debris Flow on the Carpinteria Salt Marsh
- January 2019: Dept. Biology Seminar, East Carolina University, Greenville, NC**
Multiscale approaches reconcile competing mechanisms of ecosystem dynamics
- November 2018: Western Society of Naturalists, Tacoma, WA
Separating Potential Global Change Trends from Low Frequency Climate Oscillations in Northeast Pacific Kelp Forests
- October 2018: Duck Unlimited Canada, Winnipeg, Manitoba, Canada**
Spatiotemporal Trends in Vegetation and Water over Diverse Scales through Remote Sensing
- October 2018: LTER All Scientists Meeting, Asilomar, CA – (poster)
Separating Potential Global Change Trends from Low Frequency Climate Oscillations in Northeast Pacific Kelp Forests
- June 2018: Association for the Sciences of Limnology and Oceanography Summer Meeting, Victoria, British Columbia, Canada^^
Separating Potential Global Change Trends from Low Frequency Climate Oscillations in Northeast Pacific Kelp Forests
- April 2018: Dept. Environmental Sciences Seminar, University of Virginia, Charlottesville, VA**
Insights into the dynamics of giant kelp forests across large spatiotemporal scales
- March 2018: Ecology, Evolution & Marine Biology Seminar, UC Santa Barbara, Santa Barbara, CA**
Insights into the dynamics of giant kelp forests across large spatiotemporal scales
- February 2018: Ocean Sciences Meeting, Portland OR – (poster)
Using Simulated Hyperspectral Data to Identify the Practical Limits of Discrimination of Coral Reef Benthic Composition
- February 2018: University of Alaska Fisheries Seminar Series, Juneau, AK**
Insights into the dynamics of giant kelp forests across large spatiotemporal scales
- November 2017: Western Society of Naturalists, Pasadena, CA^^
Sea Otter Recolonization Associated with Regional Increase in Giant Kelp Canopy
- October 2017: HypSPIRI Science Workshop, Cal Tech, Pasadena, CA
Using HypSPIRI to Identify Benthic Composition and Bleaching in Shallow Coral Reef Ecosystems
- September 2017: Bodega Bay Marine Laboratory Seminar Series, Bodega Bay, CA**
UAV Eelgrass Surveys Over Drakes Estero, Point Reyes National Seashore, w/ Max Castorani
- August 2017: Ecological Society of America, Portland, OR** – (flash talk)
Hyperspectral remote sensing: Unlocking process in a marine foundation species
- August 2017: Ecological Society of America, Portland, OR
Scale dependence of bottom-up versus demographic controls on the dynamics of giant kelp forests
- May 2017: NASA Biodiversity and Ecological Forecasting Meeting, Washington D.C.
Using HypSPIRI to Identify Benthic Composition and Bleaching in Shallow Coral Reef Ecosystems
- November 2016: Western Society of Naturalists, Monterey, CA
Scale dependence of bottom-up vs. demographic controls on the dynamics of giant kelp forests
- February 2016: Ocean Sciences Meeting, New Orleans, LA
Assessment of Giant Kelp Physiological State Using Airborne Hyperspectral Imagery

- January 2016: Pacific Anomalies Workshop II, Seattle, WA – *(poster)*
Decreases in Standing Biomass and Physiological State of Giant Kelp Canopy During the 2014-2015 Warming Event in the Santa Barbara Channel
- November 2015: Western Society of Naturalists, Sacramento, CA
Long-term Monitoring of Giant Kelp Biomass Dynamics Exposes Nonlinear Relationships with Environmental Drivers
- October 2015: SBC LTER Midterm Review, UCSB, Santa Barbara, CA
Regional dynamics of giant kelp using remote sensing
- October 2015: HypsIRI Science Workshop, Cal Tech, Pasadena, CA
Potential of the HypsIRI mission for monitoring the physiological condition of giant kelp forests
- June 2015: International Ocean Colour Meeting, San Francisco, CA – *(poster)*
Remote monitoring of giant kelp biomass and physiological condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HypsIRI) mission
- December 2014: American Geophysical Union, San Francisco, CA – *(poster)*
Remote monitoring of giant kelp biomass and photosynthetic condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HypsIRI) mission
- November 2014: Western Society of Naturalists, Tacoma, WA
Temporal and spatial variability in the photosynthetic condition of giant kelp
- November 2014: Western Society of Naturalists, Tacoma, WA – *(poster)*
Remote monitoring of giant kelp biomass and photosynthetic condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HypsIRI) mission
- November 2014: SBC LTER All Scientists Meeting, UCSB, Santa Barbara, CA
Temporal and spatial variability in the photosynthetic condition of giant kelp
- October 2014: HypsIRI Science Workshop, Cal Tech, Pasadena, CA
Remote monitoring of giant kelp biomass and photosynthetic condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HypsIRI) mission
- November 2013: Western Society of Naturalists, Oxnard, CA
Primary drivers of giant kelp biomass in California
- November 2013: SBC LTER All Scientists Meeting, UCSB, Santa Barbara, CA
Primary drivers of giant kelp biomass in California
- May 2013: HypsIRI Science Symposium, Goddard Space Flight Center, Greenbelt, MD
Hyperspectral Remote Sensing of Giant Kelp in the Santa Barbara Channel
- March 2013: LTER Student Symposium, Scripps Institute of Oceanography, La Jolla, CA
Hyperspectral Remote Sensing of Giant Kelp in the Santa Barbara Channel
- November 2012: Western Society of Naturalists, Seaside, CA
Seasonal biomass patterns of giant kelp across its dominant range in the NE Pacific
- September 2012: LTER All Scientists Meeting, Estes Park, CO – *(poster)*
Regional variability of giant kelp canopy biomass dynamics in the NE Pacific
- March 2012: Oxford Interdisciplinary Desert Conference, Oxford, England
Variation of Carbon Exchange over Multiple Temporal Scales in an Arid Shrub Ecosystem
- September 2011: MEDECOS XII, UCLA, Los Angeles, CA
Spatial and Temporal Differences of Leaf Litter Transport in an Arid Shrub Ecosystem
- April 2011: European Geosciences Union, Vienna, Austria
Vertical and Lateral Carbon Flux in Leaf Litter in an arid ecosystem near La Paz, Mexico
- November 2009: Western Society of Naturalists, Seaside, CA
Comparative Carbon Flux in Marine and Terrestrial Subtropical Ecosystems in Magdalena Bay, MX

Technical Skills:

- AAUS Scientific Diver (>100 scientific dives)
- FAA UAS (Drone) Pilot (*Active Since December 2016, >200 flights w/ color camera, multispectral, hyperspectral, & thermal sensors*)
- Matlab (*Very Advanced*)
- R (*Advanced*)
- ENVI (*Advanced*)
- Python (*Intermediate*)
- Javascript (*Intermediate*)
- Arduino - Microcontrollers (*Intermediate*)

Outreach:

- Lead Scientist for KelpWatch with The Nature Conservancy
A publicly available visualization and data tool for canopy forming kelps in the NE Pacific
- Scientist for FloatingForests.org
Global giant kelp forest mapping by citizen scientists

Press:

- *Cultivating Marine Biomass*, UCSB Current
September 19, 2017
<http://www.news.ucsb.edu/2017/018267/cultivating-marine-biomass>
- *Kelp Helping Kelp*, UCSB Current
January 25, 2017
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