

Jennifer E. Smith, Ph.D., Marine Ecologist

CONTACT INFORMATION

Associate Professor
Scripps Institution of Oceanography
Center for Marine Biodiversity & Conservation
University of California, San Diego
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RESEARCH INTERESTS

My research focuses on understanding how benthic marine communities are structured and how they function under different natural and anthropogenic disturbance regimes.

EDUCATION

*Ph.D. University of Hawai'i, Manoa, Honolulu, HI, December 2003
Department of Botany & Ecology, Evolution and Conservation Biology
Dissertation Title: Algal Blooms on Coral Reefs: Assessing the impacts of nutrients, herbivores and invasive species on community structure.
B.S. Humboldt State University, Arcata, CA, May 1997
Dual degree in Zoology & Biology*

APPOINTMENTS

JULY 2014-PRESENT ASSOCIATE PROFESSOR
Scripps Institution of Oceanography, Ocean Bioscience, Center for Marine Biodiversity and Conservation, University of California, San Diego

JULY 2008- 2014 ASSISTANT PROFESSOR
Scripps Institution of Oceanography, Ocean Bioscience, Center for Marine Biodiversity and Conservation, University of California, San Diego

2005-2008 POSTDOCTORAL SCHOLAR
National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara. Investigating the relative importance of herbivores and nutrients on coral reef community structure

2005 RESEARCHER
*Scripps Institution of Oceanography, University of California, San Diego.
Benthic marine ecologist on the Line Islands Research Expedition.*

2004-2005 FACULTY RESEARCHER
Department of Botany, University of Hawai'i. Investigating the causes and consequences of macroalgal blooms on Maui.

PUBLICATIONS

- 74.** Kaplanis, N. J. Harris, **J.E. Smith** (In Press) Distribution patterns of the non-native seaweeds *Sargassum horneri* (Turner) C. Agardh and *Undaria pinnatifida* (Harvey) Suringar on the San Diego and Pacific coast of North America). *Aquatic Invasions*
- 73.** **Smith, J.E.**, S.A. Sandin, P.S. Vroom, I. Williams, E. Sala, D. Obura, R. Brainard, A. Carter, S. Grillo, C. Edwards, L. Lewis, J. Harris (In Press) Baselines and evidence of human impact on coral reefs across the central Pacific. *PRSB*
- 72.** Vargas-Ángel B, Richards CL, Vroom PS, Price NN, Schils T, Young CW, **Smith, JE**, Johnson, MD, Branaird, R. (2015) Baseline Assessment of Net Calcium Carbonate Accretion Rates on U.S. Pacific Reefs. *PLoS ONE* 10(12): e0142196. doi:10.1371/journal.pone.0142196
- 71.** Haas AF, Guibert M, Foerschner A, Co T, Calhoun S, George E, Hatay M,

- Dinsdale E, Sandin SA, Smith JE, Vermeij MJA, Felts B, Dustan P, Salamon P, Rohwer F. (2015) Can we measure beauty? Computational evaluation of coral reef aesthetics. *PeerJ* 3:e1390
70. Takeshita, Y., C. A. Frieder, T. R. Martz, J. R. Ballard, R. A. Feely, S. Kram, S. Nam, M. O. Navarro, N. N. Price, and **J. E. Smith** (2015) Including high frequency variability in coastal ocean acidification projections. *Biogeosciences*
69. Kram SL, Price NN, Donham Em, Johnson MD, Kelly ELA, Hamilton SL and Smith JE (2015) Variable responses of temperate calcified and fleshy macroalgae to ocean acidification and warming. *ICES Journal of Marine Science. Special Issue on Ocean Acidification*
68. DeMartini, E.E. and **J.E. Smith** (2015) Effects of fishing on the fishes and habitat of coral reefs. In *Ecology of Fishes on Coral Reefs*. Cambridge University Press. Pp 135-144.
67. Harris, J.L., L.S. Lewis, and **J.E. Smith** (2015) Quantifying scales of spatial variability in algal turf assemblages on coral reefs. *Marine Ecology Progress Series*. doi:10.3354/meps11344
66. Beijbom, O., P.J. Edmunds, C. Roelfsema, **J.E. Smith**, D.I. Kline, B. Neal, M. Dunlap, V. Moriarty, T. Fan, C. Tan, S. Chan, T. Treibitz, A. Gamst, B.G. Mitchell, D.Kriegman (2015) Towards automated annotation of benthic survey images: variability of human experts and operational modes of automation. *PLoS One*
65. Bracken, M. E. S., Hillebrand, H., Borer, E. T., Seabloom, E. W., Cebrian, J., Cleland, E. E., Elser, J. J., Gruner, D. S., Harpole, W. S., Ngai, J. and **Smith, J. E.** (2015) Signatures of nutrient limitation and co-limitation: responses of autotroph internal nutrient concentrations to nitrogen and phosphorus additions. *Oikos*. doi: 10.1111/oik.01215
64. Lim YW, Cuevas DA, Silva GGZ, Aguinaldo K, Dinsdale E, **Smith JE et al.** (2014) Sequencing at sea: Challenges and experiences in Ion Torrent PGM sequencing during the 2013 Southern Line Islands Research Expedition. *PeerJ PrePrints* 2:e433v1 <http://dx.doi.org/10.7287/peerj.preprints.433v1>
63. Kelly L.W., Williams G.J., Barott K.L., Carlson C.A., Dinsdale E.A., Edwards R.A., Haas A.F., Haynes M., Lim Y.W., McDole T., **Smith, JE**, et al. (2014) Local genomic adaptation of coral reef-associated microbiomes to gradients of natural variability and anthropogenic stressors. *Proceedings of the National Academy of Sciences* **111**(28), 10227-10232. (doi:10.1073/pnas.1403319111).
62. Johnson, M.J., N.N. Price and **J.E. Smith** (2014) Contrasting effects of ocean acidification on tropical fleshy and calcareous algae. *PeerJ*
61. Hamilton S.L., **Smith J.E.**, Price N.N., and Sandin S.A. (2014) Quantifying patterns of fish herbivory on an uninhabited predator-dominated central Pacific coral reef, Palmyra Atoll (USA). *Marine Ecology Progress Series*
60. Haas A.F., **Smith J.E.**, Thompson M., Deheyn D.D. (2014) Effects of reduced dissolved oxygen concentrations on physiology and fluorescence of hermatypic corals and benthic algae. *PeerJ* 2:e235 <http://dx.doi.org/10.7717/peerj.235>
59. Williams G.J., Price N.N., Aeby G.S., Conklin E.J., Davy S.K., Gove J.M., Knapp I.S., **Smith J.E.**, and Work T.M. (2014) Ocean warming and acidification have complex interacting effects on the dynamics of a marine fungal disease. *PRSB* 281: 20133069; <http://dx.doi.org/10.1098/rspb.2013.3069>
58. Edwards, C.B., A. Green, A. Friedlander, M. Newman, E. Sala, S.A. Sandin, H. Sweatman, I. Williams, **J.E. Smith** (2014) Global assessment of the status of coral reef herbivorous fishes: Evidence for fishing effects. *PRSB* 281 (1774), 20131835
57. Haas AF, Gregg AK, **Smith JE**, Abieri ML, Hatay M et al. (2013) Visualization of oxygen distribution patterns caused by coral and algae. *PeerJ* 1:e106 <http://dx.doi.org/10.7717/peerj.106>

56. Haas AF, Nelson CE, Rohwer F, Wegley-Kelly L, Quistad SD, Leichter, J, Carlson, C, **Smith JE** (2013) Influence of coral and algal exudates on microbially mediated reef metabolism. *PeerJ* 1:e108
<http://dx.doi.org/10.7717/peerj.108>
55. Williams, G, **J.E. Smith**, E. Conklin, J. Gove, S.A. Sandin, E. Sala (2013) Benthic communities at two remote Pacific coral reefs: effects of reef habitat, depth, and horizontal wave energy gradients on spatial patterns. *PeerJ* 1:e81
<http://dx.doi.org/10.7717/peerj.81>
54. **Smith, J.E.**, N.N Price, A. Haas (2013) Coupled changes in dissolved oxygen and pH associated with metabolism of benthic reef organisms. *Marine Biology* 160: 2437-2447, doi: 10.1007/s00227-013-2239-z
53. Borer, E.T, M.E S. Bracken, E.W. Seabloom, **J.E. Smith**, J. Cebrian, E.E. Cleland, J.J. Elser, W. Fagan, D.S. Gruner, W.S. Harpole, H. Hillebrand, A.J. Kerkhoff, J.T. Ngai (2013) Global biogeography of autotroph chemistry: is insolation a driving force? *Oikos*
52. Nelson, C.E., S.J. Goldberg, L. Wegely-Kelly, A.F. Haas, **J.E. Smith**, F.L. Rohwer, C.A. Carlson (2013) Coral and macroalgal exudates vary in neutral sugar composition and differentially enrich reef bacterioplankton lineages. *ISME* 7: 962-979
51. Mcleod, E., K.R.N. Anthony, A. Andersson, R. Beeden, Y. Golbuu, J. Kleypas, K. Kroeker, D. Manzello, R. Salm, H. Schuttenberg, **J.E. Smith** (2012) Preparing to manage coral reefs for ocean acidification: Lessons from coral bleaching. *Frontiers in Ecology and the Environment* 11: 20–27. doi: <http://dx.doi.org/10.1890/110240>
50. Vermeij, M.A., R.A. van der Heijden, J.G. Olthuis, K.L. Marhaver, P.M. Visser, **J.E. Smith** (2012) Survival and dispersal of turf algae and macroalgae consumed by herbivorous coral reef fishes. *Oecologia* 171(2):417-25. doi: 10.1007/s00442-012-2436-3
49. Price, N.N., T. Martz, R.E. Brainard, **J.E. Smith** (2012) Diel variability in seawater pH relates to calcification and benthic community structure on coral reefs. *PLoS ONE* 7(8): e43843. doi:10.1371/journal.pone.0043843
48. Barott, K. G.J. Williams, M.A. Vermeij, J. Harris, J.E. Smith, F.L. Rohwer, S.A. Sandin (2012) Natural history of competition between corals and algae across a gradient of human activity in the Line Islands of the Central Pacific. *MEPS* 460: 1-12
47. Choi H., S.J. Mascuch, F.A. Villa, T. Byrum, M.E. Teasdale, **J.E. Smith**, L.B. Preskitt, D.C. Rowley, L. Gerwick, W.H. Gerwick (2012) Honaucins A-C, potent inhibitors of eukaryotic inflammation and bacterial quorum sensing: synthetic derivatives and structure-activity relationships. *Biology and Chemistry* 19(5): 589-598
46. Dailer, M L., **J.E. Smith** and C.M Smith (2012) Responses of bloom forming and non-bloom forming macroalgae to nutrient enrichment in Hawaii, USA. *Harmful Algae* 17: 111-125
45. Barott, K., B.R. Brito, M. Youle, K. Marhaver, M. Vermeij, **J.E. Smith**, F.L. Rohwer (2012) Microbial to reef scale interactions between the reef-building coral *Montastraea annularis* and benthic algae. *Proceedings of the Royal Society, Biology* doi:10.1098/rspb.2011.2155
44. Kelly, L. W., K. L. Barott, E. Dinsdale, A. M. Friedlander, B. Nosrat, D. Obura, E. Sala, S. A. Sandin, **J. E. Smith**, M. J. A. Vermeij, G. J. Williams, D. Willner, and F. Rohwer. (2012) Black reefs: iron-induced phase shifts on coral reefs. *ISME Journal* 6:638-649.
43. Freeman, L., A.J. Miller, R.D. Norris and **J.E. Smith** (2012) Classification of remote Pacific coral reefs by physical oceanographic environment. *JGR* 117: C02007

42. Hofmann, G.E., **J.E. Smith**, K.S. Johnson, U. Send, L.A. Levin, F. Micheli, A. Paytan, N.N. Price, B. Peterson, Y. Takeshita, P.G. Matson, E. Derse Crook, K.J. Kroeker, E.B. Rivest, C.A. Tanner, P.C. Yu, T.R. Martz (2011) High frequency dynamics of ocean pH: A multi-ecosystem comparison. *PLoS ONE* doi: 10.1371/journal.pone.0028983
41. Haas, A., F.L. Rohwer, C. Carlson, C. Nelson, L. Wegley, J. Leichter and **J.E. Smith** (2011) Effects of coral reef benthic primary producers on dissolved organic carbon and microbial activity. *PLoS ONE* doi: 10.1371/journal.pone.0027973
40. Price, N.P., S.L. Hamilton, J. Tootle and **J.E. Smith** (2011) Species specific consequences of ocean acidification for the calcareous tropical green algae *Halimeda*. *MEPS* 440: 67–78
39. Harpole, W.S., J. Ngai, E. Cleland, E. Seabloom, E. Borer, M. Bracken, J. Elser, D. Gruner, H. Hillebrand, J. Shurin, **J.E. Smith** (2011) Nutrient co-limitation of plant communities. *Ecology Letters* 14: 852-862
38. Barott, K.L., B. Rodriguez-Brito, J. Janouškovec, K. Marhaver, **J.E. Smith**, P. Keeling, F.L. Rohwer (2011) Microbial diversity associated with four functional groups of benthic reef algae and the reef-building coral *Montastraea annularis*. *Environmental Microbiology* 13: 1192-1204
37. Knapp, I.S., L.S. Godwin, **J.E. Smith**, J.J. Bell (2011) Records of non-indigenous marine species at Palmyra Atoll in the US Line Islands. *Marine Biodiversity Records*. doi:10.1017/S1755267211000078; Vol. 4; e3
36. **Smith, J.E.** (2011) Invasive Introduced Algae. *Encyclopedia of Invasive Species*. Edited by Simberloff and Rejmanek. University of California Press.
35. Barott, K.L., Caselle, J.E., Dinsdale, E.A., Friedlander, A.M., Maragos, J.E., Obura, D., Rohwer, F.L., Sandin, S.A., **Smith, J.E.** & Zgliczynski, B., (2010) The lagoon at Caroline/Millennium atoll, Republic of Kiribati: natural history of a nearly pristine ecosystem. *PLoS ONE*, 5(6), e10950.
34. Carilli, J., J. Godfrey, R. Norris, S.A. Sandin, **J.E. Smith** (2010) Periodic endolithic algal blooms in *Montastraea faveolata* corals represent periods of low-level stress. *Bulletin of Marine Science* 86: 709-718
33. McCauley, D.J., F. Micheli, H. Young, D.P. Tittensor, D.R. Brumbaugh, E. Madin, K.E. Holmes, R. Dunbar, **J.E. Smith**, H.K. Lotze, and B. Worm (2010) Acute effects of removing large fish from a near-pristine coral reef. *Marine Biology* 157(12):2739-2750
32. **Smith, J.E.**, C.L. Hunter and C.M. Smith (2010) The effects of top-down and bottom-up factors on benthic coral reef community structure. *Oecologia* 163(2): 497-507
31. Dailer, M.L., Knox, R.S., **Smith, J.E.**, Napier, M., Smith, C. M. (2010) Using delta-15N values in algal tissue to map locations and potential sources of anthropogenic nutrient inputs on the island of Maui, Hawai'i. *Marine Pollution Bulletin* 60: 655-671
30. Salomon, A.K., S.K. Gaichas, N.T. Shears, **J.E. Smith**, E.M.P. Madin, S.D. Gaines (2010) Cascading Consequences of Fishing: Navigating Towards Resilient Marine Ecosystems. *Conservation Biology* 24: 382-394
29. Choi, H., N. Engene, **J.E. Smith**, L.B. Preskitt, and W.H. Gerwick (2010) Crossbyanols A-D, Toxic Brominated Polyphenyl Ethers from the Hawaiian Bloom-Forming Cyanobacterium *Leptolyngbya crossbyana*. *Journal of Natural Products* 73:517-522
28. Barott, K., **J.E. Smith**, E. Dinsdale, M. Hatay, S. Sandin, and F.L. Rohwer (2009) Hyperspectral and physiological analyses of coral-algal interactions. *PLoS ONE* 4(11): e8043. doi:10.1371/journal.pone.0008043
27. Braun, C., P.S. Vroom and **J.E. Smith** (2009) Examination of algal diversity and benthic community structure at Palmyra Atoll, U.S. Line Islands. *Proceedings of*

the 11th Coral Reef Symposium

26. Hillebrand, H., D.S. Gruner, M.E. Bracken, E.E. Cleland, J.J. Elser, W.S. Harpole, J.T. Ngai, E.W. Seabloom, J.B. Shurin, **J.E. Smith** (2009) Herbivore metabolism and stoichiometry each constrain herbivory at different organizational scales across ecosystems. *Ecology Letters* 12: 516-527
25. **Smith, J.E.**, Kuwabara, J. Coney, J. Flanagan, K., Beets, J., Brown, D. Stanton, F., Takabayashi, M. duPlessis, S. Griesemer, B.K., Barnes, S., Turner, J. (2008) An unusual cyanobacterial bloom in Hawaii. *Coral Reefs* 27: 851
24. Vermeij, M.J.A., **J.E. Smith**, S.A. Sandin, C.M. Smith (2009) Survival and settlement success of coral planulae: synergistic and independent effects of macroalgae and microbes. *Oecologia* 159(2):325-336
23. **Smith, J.E.**, H. Spalding, R. Okano & C. M. Smith (2009) Seaweed communities of Molokai. In *An Atlas of Molokai's Marine Ecosystems*. USGS publication.
22. Gruner, D.S., **J.E. Smith**, E.W. Seabloom, S.A. Sandin, J.T. Ngai, H. Hillebrand, W.S. Harpole, J.J. Elser, E.E. Cleland, M.E.S. Bracken, E.T. Borer & B.M. Bolker (2008) A cross-system synthesis of consumer and nutrient resource control on producer biomass. *Ecology Letters* 11: 740-755.
21. Sandin, S.A., **J.E. Smith**, E.E. DeMartini, E.A. Dinsdale, S.D. Donner, A.M. Friedlander, T. Konotchick, M. Malay, J.E. Maragos, D. Obura, O. Pantos, G. Paulay, M. Richie, F.L. Rohwer, R.E. Schroeder, S. Walsh, J.B.C. Jackson, N. Knowlton, E. Sala (2008) Changes in coral reef communities across a gradient of human disturbance. *PLoS ONE*
20. **Smith, J.E.**, E.J. Conklin, C.L. Hunter, C.M. Smith (2008) Response to "Fighting alien algae in Kane'ohe Bay". *Science* 319: 157-158.
19. Elser, J.J., M.E. Bracken, E.E. Cleland, D.S. Gruner, W.S. Harpole, Hillebrand, H., J.T. Ngai, E.W. Seabloom, J.B. Shurin, **J.E. Smith** (2007) A global analysis of nitrogen and phosphorus limitation of primary producers in freshwater, marine, and terrestrial ecosystems. *Ecology Letters* 10: 1135-1142.
18. Williams, S.L. and **J.E. Smith** (2007) A global review of the distribution, taxonomy & ecological impacts of introduced seaweeds. *Annual Review of Ecology Evolution and Systematics* 38: 327-359.
17. Diaz-Pulido G., McCook L.J., Larkum A.W.D., Lotze H.K., Raven J.A., Schaffelke B., **Smith J.E.**, Steneck R.S. (2007) Vulnerability of macroalgae of the Great Barrier Reef to climate change. Marshall PA, Johnson J (Ed) *Climate change and the Great Barrier Reef*. Great Barrier Reef Marine Park Authority, Townsville, pp 153-192.
16. Hillebrand, H., D.S. Gruner, M.E. Bracken, E.E. Cleland, J.J. Elser, W.S. Harpole, J.T. Ngai, E.W. Seabloom, J.B. Shurin, **J.E. Smith** (2007) Plant community structure and ecosystem productivity regulate the intrinsic control of plant diversity across major ecosystem types. *Proceedings of the National Academy of Sciences* 104: 10904-10905.
15. **Smith, J.E.**, M. Shaw, R.A. Edwards, D. Obura, D., O. Pantos, E. Sala, S. A. Sandin, S. Smriga, M. Hatay, F.L. Rohwer (2006) Indirect effects of algae on coral: algae-mediated, microbe-induced coral mortality. *Ecology Letters* 9: 835-845.
14. Schaffelke, B., **J.E. Smith** & C.L. Hewitt (2006) Introduced macroalgae- a growing concern. *Proceedings of the International Seaweed Symposium. Journal of Applied Phycology* 18: 529-541.
13. Zuccarello, G.C., A.T. Critchley, **J.E. Smith** & J.A. West (2006) Systematics and genetic variation in commercial *Kappaphycus* and *Euclima* (Solieriaceae, Rhodophyta). *Proceedings of the International Seaweed Symposium. Journal of Applied Phycology* 18: 643-651.
12. Zemke-White, W.L. and **J.E. Smith** (2006) Environmental impacts of seaweed farming in the tropics. In: Editors A.T. Critchley, M. Ohno and D.B. Largo,

World Seaweed Resources: An authoritative reference system.

11. Vroom P, L. Walters, K. Beach, J. Coyer, **J.E. Smith**, M. Abgrall, D. Byron, K. DeAngelis, B. Konar, J. Liss, R. Okano, C. Roberts, L. Herren, M. Woo, C.M. Smith et al. (2005) Hurricane-induced propagation and rapid regrowth of the weedy brown alga *Dictyota* in the Florida Keys. *Florida Scientist* 68(3):161-174.
10. **Smith, J.E.**, J.W. Runcie and C.M. Smith (2005) Bloom dynamics and physiological ecology of the invasive green alga *Cladophora sericea* on West Maui. *Marine Ecology Progress Series* 302: 77-91.
9. Conklin, E.J. and **J.E. Smith** (2005) Increases in abundance and development of management options for the invasive red alga *Kappaphycus* in Kane'ohe Bay, Hawai'i. *Biological Invasions* 7: 1029-1039.
8. Friedlander, A. , G. Aeby, E. Brown, A. Clark, S. Coles, S. Dollar, D. Gulko, C. Hunter, P. Jokiel, **J.E. Smith**, B. Walsh, I. Williams and W. Wiltse (2005) The Status of the Coral Reef Ecosystems of the Main Hawaiian Islands. In *The Status of the Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2004*.
7. **Smith, J.E.**, C. Smith, P. Vroom, K. Beach, S. Miller (2004) Nutrient dynamics of the green alga *Halimeda tuna* on Conch Reef, Florida Keys: possible influence of internal tides on nutrient status and physiology. *Limnology and Oceanography*. 49(6): 1923-1936.
6. **Smith, J.E.**, R. Most, T. Sauvage, C. Hunter, C. Squair and E. Conklin (2004) Ecology of the invasive red alga *Gracilaria salicornia* in Waikiki and possible mitigation strategies. *Pacific Science* 58(2) 325-343.
5. Vroom, P.S., C.M. Smith, J.A. Coyer, L.J. Walters, C.L. Hunter, K.S. Beach, **J.E. Smith** (2003) Field biology of *Halimeda tuna* (Bryopsidales, Chlorophyta) across a depth gradient: comparative growth, survivorship, recruitment, and reproduction. *Hydrobiologia* 501(1): 149-166.
4. Runcie, J.W. and **J.E. Smith** (2003) Introduction to special issue: Nutrient dynamics in coastal ecosystems-linking physical and biological processes. *Journal of Marine Systems* 42(3-4): 81-82.
3. **Smith, J.E.**, C.L. Hunter and C.M. Smith (2002) Distribution and reproductive characteristics of nonindigenous and invasive marine algae in the Hawaiian Islands. *Pacific Science* 56(3): 299-315.
2. Vroom, P. S., **J.E. Smith** and C.M. Smith (2001) Observations of reproduction in *Rhipidosiphon javensis* (Halimedineae, Bryopsidales) in Hawai'i. *Phycologia* 40(1): 97-100.
1. **Smith, J.E.**, C.L. Hunter and C.M. Smith (2001) The effects of herbivory and nutrient enrichment on benthic community structure and development on a Hawaiian Reef. *Coral Reefs* 19: 332-342.

THESES & REPORTS

- Smith, J.E. (2006) Algal blooms on Maui. A final report to the City and County of Maui and the Environmental Protection Agency. 75 pp.*
- Smith, J.E. (2003) Factors influencing the formation of algal blooms on tropical reefs with an emphasis on nutrients, herbivores and invasive species. Doctoral Dissertation, University of Hawai'i, Manoa, 425 pp.*
- Coles, S.L., R.C. DeFelice, **J.E. Smith**, D. Muir & L.G. Eldredge (1998) Determination of baseline conditions for introduced marine species in near shore waters of Kaho'olawe, Hawai'i. Bishop Museum Technical Report No. 14.*

GRANTS

2013-2016 PRINCIPAL INVESTIGATOR

National Science Foundation: Ocean Acidification: Collaborative Research: Quantifying the potential for biogeochemical feedbacks to create 'refugia' from ocean

acidification on tropical coral reefs
\$750,000

2012-2015 PRINCIPAL INVESTIGATOR

California Sea Grant: Response of calcified and fleshy macroalgae to warming and ocean acidification: from single species to community interactions
\$150,000

2010-2014 PRINCIPAL INVESTIGATOR

The Gordon and Betty Moore Foundation: Understanding the effects of Ocean Acidification on near pristine coral reefs in the central Pacific, Palmyra Atoll
\$765,000

2010-2012 Co-PI, PI'S: DR. STUART SANDIN AND RUSSELL BRAINARD

Comparative Analysis of Ecosystem Organization (CAMEO) Jointly Funded by the National Science Foundation (NSF) and NOAA
\$400,000

2010-2013 PRINCIPAL INVESTIGATOR

Department of Education: Consortium for Higher Education for Marine Sciences from Brazil to San Diego
\$78,000

2010-2013 PRINCIPAL INVESTIGATOR

The Moore Family Foundation: Understanding reef productivity across a gradient of natural and anthropogenic disturbances in the Line Islands
\$180,000

2009-2011 PRINCIPAL INVESTIGATOR, Co-PI DR. JIM LEICHTER

National Science Foundation. Biological Oceanography. Collaborative Research: ETBC: The coupling between DOM, algae, and microbes on coral reef platforms
\$710,000

2009-2013 PRINCIPAL INVESTIGATOR

Various private donors including the WWW Foundation, the Ellen Browning Scripps Foundation, the Scripps Family Foundation and the Nature Conservancy to study remote reefs of the central Pacific
\$300,000

2005-2008 POSTDOCTORAL RESEARCH FELLOWSHIP

National Center for Ecological Analysis and Synthesis, UCSB funded by NSF
\$45,000/yr

**AWARDS
& HONORS**

2008-2012 HENRY L. & GRACE DOHERTY CAREER DEVELOPMENT AWARD \$100,000

Early career development award to foster a successful research program

2006 BEST PAPER FOR JUNIOR SCIENTISTS \$150

International Society for Reef Studies (ISRS) Conference, Bremen, Germany

2005-2008 POSTDOCTORAL FELLOWSHIP ~\$45,000/yr

National Center for Ecological Analysis and Synthesis, funded by NSF

2004 INVITED PARTICIPANT OF THE DIALOG SYMPOSIUM

Doctoral Initiatives for the Advancement of Limnology and Oceanography Graduates, Dauphin Island Sea Laboratory, AL, Organized by ASLO & AGU

2003 BEST PAPER IN CONSERVATION & ECOLOGY \$200

Mia Tegner Award, Western Society of Naturalists, Long Beach, CA

2003 COASTAL AMERICA PARTNERSHIP AWARD, NOAA

For development and implementation of a community-based management program for the control and removal of invasive algae from Hawai'i's reefs

2003 BEST PAPER AWARD \$1,000

Harold C. Bold Award, Phycological Society of America, OR

2002 ARCS AWARD \$5,000

Achievement Rewards for College Scientists for outstanding predoctoral research

2000 BEST PAPER AWARD \$1,000

Albert L. Tester Symposium, University of Hawai'i

1996-1997 SCHOLARSHIP \$600

Howard Hughes Medical Institute (HHMI)

1995-1997 PRESIDENTIAL SCHOLAR

Humboldt State University, Arcata, CA

**TEACHING
EXPERIENCE**

2009-PRESENT SCRIPPS INSTITUTION OF OCEANOGRAPHY, UNIVERSITY OF CALIFORNIA, SAN DIEGO

SIO 138 The Coral Reef Environment (4 units)

SIO 278 Current Topics in Coral Reef Ecology (2 units)

SIO 278 Current Topics in Marine Conservation Biology (2 units)

SIO 183/283 Phycology: Biology & Ecology of Marine Plants (6 units)

SIO 136 Marine Biology Field Methods (6 units)

Guest Lectures in: Benthic Ecology, Biological Oceanography, Marine Organisms, Marine Biology

1998-2008 FACULTY MEMBER, LECTURER, UNIVERSITY OF HAWAI'I, HILO.

Participated as a faculty member, lecturer and scientific SCUBA diver in a team-taught intensive coral reef ecology field course (Quantitative Underwater Ecological Surveying Techniques); taught general coral reef ecology, phycology, experimental design, statistics; supervised and advised students in the classroom and in a remote field setting.

1997-1998 GRADUATE TEACHING ASSISTANT, UNIVERSITY OF HAWAI'I, MANOA

Biology 101: Introductory Biology, Botany 101: Introductory Botany, Botany 362: Plant Taxonomy and Systematics

**INVITED
SCHOLARLY
TALKS**

2015 *The Royal Geographic Society, London, UK, Special Symposium-- Turning the tide: Coastal communities and conservation*

2015 *University of Amsterdam, Netherlands Invited Seminar*

2014 *Jeffrey B. Graham Perspectives on Ocean Sciences Lecture Series, Birch Aquarium, SIO*

2013 *University of California, Santa Barbara*

2013 *Florida International University*

2012 *Georgia Tech: Teasley Symposium organized by Mark Hay*

2012 *Moss Landing Marine Labs*

2010 *San Diego State University, Biology*

2010 *University of California, Los Angeles, Ecology, Evolution and Behavior*

2010 *National Invasive Species Awareness Week, Washington DC*

2009 *University of California, San Diego, Ecology, Behavior and Evolution*

2008 *Scripps Institution of Oceanography, UCSD, Marine Ecology Seminar*

2007 *Ecological Society of America, San Jose, CA*

- 2007 *Society for Conservation Biology, Special Session on the Effects of Predator Removal on Ecosystem Structure and Function, South Africa*
- 2007 *Biological Sciences Seminar Series, Humboldt State University*
- 2007 *Scripps Institute of Oceanography, Marine Biology Seminar Series*
- 2006 *Coral Reef Discussion Group, San Diego State University*
- 2006 *Ecology, Evolution and Marine Biology Seminar, UC Santa Barbara*
- 2006 *John and Mary Louise Riley Seminar Series, Bodega Marine Lab, UC Davis*
- 2005 *National Center for Ecological Analysis and Synthesis, UC Santa Barbara*
- 2004 *Seminar Series, Department of Botany, University of Hawai'i*
- 2004 *Plenary Lecture co-authored with Britta Scheffelfke and Chad Hewitt, Invasive Seaweeds, International Seaweed Symposium, Bergen, Norway*
- 2004 *World Aquaculture Society, Honolulu, HI,*
- 2003 *Keynote Address for the University of Hawai'i Marine Option Program Graduation*
- 2003 *Hawai'i Aquatics Conference*
- 2002 *Coordinating Group on Alien Pest Species: Hawai'i State Capitol Auditorium, Honolulu, HI*
- 2002 *United States Aquatic Nuisance Species Task Force Meeting, Honolulu, HI*
- 2001 *Hawai'i Department of Land and Natural Resources, Honolulu, HI*

CONTRIBUTED PAPERS AT SCIENTIFIC MEETINGS

- 2014 *Ocean Sciences (Price, Johnson, Brainard, Takehashi, Furby)*
- 2013 *WSN (Gleason, Kram, Price, Harris, Lewis)*
- 2012 *International Coral Reef Symposium, Cairns, Australia (11 papers presented from my lab)*
- 2012 *Western Society of Naturalists, Monterey CA (8 papers presented by my lab)*
- 2009 *International Marine Conservation Congress, Washington DC*
- 2008 *International Coral Reef Symposium, FL*
- 2006 *Western Society of Naturalists, Tacoma, WA*
- 2006 *International Society for Reef Studies, Bremen, Germany*
- 2006 *American Society of Limnology & Oceanography Ocean Sciences Meeting, Honolulu, HI*
- 2005 *Western Society of Naturalists, Monterey, CA*
- 2004 *Western Society of Naturalists, Sonoma, CA*
- 2004 *DIALOG (Dissertation Initiatives for the Advancement of Limnology and Oceanography), Dauphin Island Sea Lab, AL*
- 2004 *13th International Aquatic Invasive Species Conference, Ireland*
- 2004 *10th International Coral Reef Symposium, Okinawa*
- 2003 *Western Society of Naturalists, Long Beach, CA*
- 2003 *Annual Meeting of the Phycological Society of America, Oregon*
- 2003 *3rd International Marine Bioinvasions Conference, Scripps Institution of Oceanography, La Jolla, CA*
- 2002 *American Society of Limnology & Oceanography Ocean Sciences Meeting, Honolulu, HI*
- 2001 *7th International Phycological Congress, Thessaloniki, Greece*
- 2001 *25th Annual Albert L. Tester Symposium. University of Hawai'i*
- 2001 *9th International Coral Reef Symposium, Bali, Indonesia*
- 1999 *International Conference on Scientific Aspects of Coral Reef Assessment, Monitoring, and Restoration: Ft. Lauderdale, FL*

SERVICE

2015-2017 ELECTED MEMBER, BOARD OF DIRECTORS
American Academy of Underwater Sciences, Chair Scholarships Committee

2010-PRESENT ASSOCIATE EDITOR

Proceedings of the Royal Society, Biology

2008-2010 BOARD MEMBER

Society for Conservation Biology, Marine Section and co-organizer of the 1st International Marine Conservation Congress

2005-2008 NCEAS WORKING GROUP MEMBER

Trophic Structure Across Systems. Principal Investigators: Dan Gruner, Helmut Hildebrand and Jon Shurin

2005-PRESENT MEMBER OF THE ICUN WORLD CONSERVATION UNION INVASIVE SPECIES SPECIALIST GROUP

2000-20013 PUBLIC EDUCATION & OUTREACH

Led seminars and workshops for numerous venues including the Birch Aquarium, Scripps REU program, Sailor's for the Sea, the Pacific Voyagers, Hawai'i State Capitol & Legislature, Waikiki Aquarium, Northwestern Hawaiian Islands Education Center, Hawai'i Department of Land and Natural Resources, Hawai'i Environmental Protection Agency, the Coordinating Group on Alien Pests, Department of Agriculture, Hanauma Bay Educational Center, National Marine Sanctuary

PEER REVIEW

AD-HOC GRANT REVIEW:

Environmental Protection Agency, Great Barrier Reef Marine Park Authority, National Oceanic and Atmospheric Administration, National Science Foundation, National Undersea Research Center

REVIEWED SCIENTIFIC PUBLICATIONS FOR:

Proceedings of the National Academy of Sciences, PLoS ONE, Ecology Letters, Ecology, Trends in Ecology and Evolution, Limnology and Oceanography, Microbial Ecology, Aquatic Ecology, Marine Ecology, Journal of Phycology, Bulletin of Marine Science, Estuarine and Coastal Shelf Science, Coral Reefs, Hydrobiologia, Journal of Experimental Marine Biology and Ecology, Marine Biology, Marine Ecology Progress Series, Marine Pollution Bulletin, Aquatic Botany, Botanica Marina, Cryptogamie Algologie

STUDENT ADVISING

PRIMARY ADVISOR:

Postdoctoral Scholars: Nichole Price, Andreas Haas, Emily Kelly

PhD Students: Emily Kelly, Jill Harris, Levi Lewis, Maggie Johnson, Abigail Canon, Michael Fox, Amada Carter

Masters Students: Amanda Carter, Clinton Edwards, Susan Kram, Samantha Clements, Molly Gleason, Dan Conelly, Laurence Romeo, Gideon Butler, Nicole Pederson

Undergraduates: Mentored over 80 undergraduate volunteers and summer interns since 2008.

REFERENCES

Dr. Celia Smith, Phone: (808) 956-6947 or (808) 227-1186, Email: celia@hawaii.edu, Professor, University of Hawai'i, Manoa, Department of Botany, 3190 Maile Way, Honolulu, HI 96822

*Dr. Susan L. Williams, Phone: (707) 875-2211, Email: slwilliams@ucdavis.edu
Director, Bodega Marine Laboratory, University of California at Davis, P.O. Box 247, Bodega Bay, CA 94923-0247*

*Dr. Forest Rohwer, Phone: (619) 594-1336, Email: forest@sunstroke.sdsu.edu,
Associate Professor, San Diego State University, Department of Biology, 5500
Campanile Drive, San Diego, CA 92182-4614*

*Dr. Lawrence McCook, Email: Laurence.McCook@gbrmpa.gov.au
Senior Manager, Great Barrier Reef Marine Park Authority Research and
Monitoring Coordination, 2-68 Flinders Street, P.O. Box 1379, Townsville,
Queensland 4810, Australia*

**OTHER RELEVANT
EXPERIENCE** 2014-2015

Litigation Consultant, Waste Management Hawaii and Waste Management, Inc.,
Waimanalo Gulch Sanitary Landfill, HI.
*Served as expert witness for Waste Management of Hawaii, Inc.
(Defendants) regarding health of coral reefs around a discharge point in
criminal matter alleging violations of the Clean Water Act. Provided
expertise on the potential and realized environmental impacts of a flood
involving the sanitary landfill on the island of Oahu and the potential
impacts to the offshore coral reefs.
Result: Settlement was reached in favor of the Defendants and all felony
counts were dropped.*

2013-2015

Litigation Consultant: Earthjustice, Honolulu, HI
-Served as an expert witness for several non-profit organizations including
Surfrider Foundation (Plaintiffs) who sued the city and county of Maui in
violations of the Clean Water Act in relation to municipal sewage
discharge via underground injection wells on west Maui. I provided
expertise on the potential and realized impacts of wastewater on the coral
reef communities at Kahekili Beach that were in contact with injected
wastewater that was emerging through the reef.
-Result: Ongoing; Settlement discussion initiated by defendants