

HUNTER STANTON LENIHAN
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e-mail: Lenihan@bren.ucsb.edu

Bren School of Environmental Science and Management
University of California, Santa Barbara
Santa Barbara, CA 93106-5131

Tele: (805) 893-8629
Fax: (805) 893-7612
Cell phone: (805) 570-0843

PROFESSIONAL PREPARATION

B.S. University of California, Berkeley, 1986; Conservation of Natural Resources
M.S. Moss Landing Marine Laboratories, CA, 1989-1992; Marine Science
Ph.D. University of North Carolina at Chapel Hill, 1992-1996; Marine Science
Post-doc National Research Council Postdoctoral Associateship, National Marine Fisheries Service, Beaufort, NC, 1997-1998; Fisheries Ecology
Post-doc University of North Carolina, Institute of Marine Sciences, Morehead City, NC, 1998-2000: Ecotoxicology

APPOINTMENTS

Professor, University of California, Santa Barbara, 2010-Present
Associate Professor, University of California, Santa Barbara, 2006-2009
Assistant Professor, University of California, Santa Barbara, 2002-2006
Fisheries Biologist, National Marine Fisheries Service, Groundfish Management Program, Northwest Fisheries Science Center, Newport, OR 2000-2001

GRANTS-CURRENT

Center for the Environmental Implications of Nanotechnology. National Science Foundation. 2009-2013. \$24 million.
How abiotic processes, biotic processes, and their interaction sustain habitat characteristics and functions in river channels and their floodplains: an investigation of how a reach of the Merced River responds to restoration. CALFED. 2008-2012. \$1.2 million.

PUBLICATIONS (17/8)

Ben-Horin, T., H.S. Lenihan, and K.D. Lafferty. *In press*. Variable intertidal temperature explains why disease endangers black abalone. **Ecology**.
Keller, A.A., K. Garner, R.J. Miller, and H.S. Lenihan. *In press*. Toxicity of nano Zero Valent Iron to freshwater and marine organisms. **Plos One**.
Montes, M. A. Keller, H.S. Lenihan, and S. Hanna. *In press*. Uptake, accumulation, and bioprocessing of metal oxide nanoparticles by mussels. **Journal of Hazardous Materials**.
Kay, M.C., H.S. Lenihan, M.J. Kotchen, and C.J. Miller. *In press*. Controlling for habitat confirms robust marine reserve effects and gradients of abundance near borders for California spiny lobster. **Marine Ecology Progress Series**.
Kay, M.C., H.S. Lenihan, C. Miller, J.R. Wilson. 2012. Collaborative assessment of CA spiny lobster (*Panularis interruptus*) population and fishery responses to marine reserves. **Ecological Applications** 22: 322-335.
Miller, R.J., S. Bennett, A.A. Keller, S. Pease, and H.S. Lenihan. 2012. TiO₂ nanoparticles are phototoxic to marine phytoplankton. **PloS One** 7: 1-7 (e30321).
Lenihan, H.S., S.J. Holbrook, R.J. Schmitt, and A.J. Brooks. 2011. Influence of corallivory, competition, and habitat structure on coral community shifts. **Ecology** 92: 1959-1971.
Miller, R.J., H.S. Lenihan, E. Muller, N. Tseng, and A.A. Keller. 2011. Impacts of metal oxide nanoparticles on marine phytoplankton. **Environmental Science and Technology** 44: 7329-7334.
Zeug, S.C., L.K. Albertson, H.S. Lenihan, J. Hosie, and B.J. Cardinale. 2011. Predictors of Chinook salmon extirpation in California's Central Valley. **Fisheries Management and Ecology** 18: 61-71.
Kayal, M., H.S. Lenihan, C. Pau, L. Penin, and M. Adjerdoud. 2011. Associational refuges among corals mediate impacts of a crown-of-thorns starfish *Acanthaster planci* outbreak. **Coral reefs** 30: 827-837.

- Albertson, L.K., B.J. Cardinale, S.C. Zeug, H.S. Lenihan, L. Harrison, and T. Dunne. 2011. Impacts of channel reconstruction on invertebrate assemblages in a restored river. **Restoration Ecology** 19: 627-638
- Beck, M.W., R. Brumbaugh, L. Airoidi, A. Carranza, L. Coen, C. Crawford, O. Defeo, G.J. Edgar, B. Hancock, M.C. Kay, H.S. Lenihan, M. Luckenbach, C. Toropova, and G. Zhang. 2011. Shellfish reefs at risk globally and recommendations for ecosystem revitalization. **Bioscience** 60: 107-116.
- Thomas, C.R., S. George, A.M. Horst, Z. Ji, R.J. Miller, J.R. Peralta-Videa, S. Pokhrel, L. Mädler, J.L. Gardea-Torresday, P.A. Holden, A.A. Keller, H.S. Lenihan, A.E. Nel, and J.I. Zink. 2011. Nanomaterials in the environment: from materials to high-throughput screening to organisms. **ACS Nano** 5: 13-20.
- Kay, M.C., H.S. Lenihan, and J.R. Wilson. 2011. Managing the cost of vessel insurance as a barrier to cooperative fisheries research in California. **California Fish and Game Scientific Journal** 96: 33-49.
- Lenihan, H.S. and P.J. Edmunds. 2010. Response of juvenile branching corals to damage from corallivores in varying water flow and temperature. **Marine Ecology Progress Series** 409: 51-63.
- Edmunds, P.J. and H.S. Lenihan. 2010. The effect of sub-lethal damage to juvenile colonies of massive *Porites* under contrasting regimes of temperature and water flow. **Marine Biology** 157: 887-897.
- Keller, A., H. Wang, D. Zhou, H.S. Lenihan, G. Cherr, B.J. Cardinale, R.J. Miller, and Z. Ji. 2010. Stability and aggregation of metal oxide nanoparticles in natural aqueous matrices. **Environmental Science and Technology** 44: 1962-1967.
- Wilson, J.R., J. Prince, and H.S. Lenihan. 2010. Setting Harvest Guidelines for Sedentary Nearshore Species Using Marine Protected Areas as a Reference. **Marine and Coastal Fisheries: Dynamics, Management and Ecosystem Science** 2: 14-27.
- Godwin, H.A., K. Chopra, K.A. Bradley, Y. Cohen, B.H. Harthorn, E.M.V. Hoek, P. Holden, A.A. Keller, H.S. Lenihan, R. Nisbet, and A.E. Nel. 2009. The University of California Center for the Environmental Implications of Nanotechnology. **Environmental Science and Technology** 43: 6453-6457.
- Powers, S.P., C.H. Peterson, J.H. Grabowski, and H.S. Lenihan. 2009. The success of constructed oyster reefs in no-harvest sanctuaries: implications for restoration. **Marine Ecology Progress Series** 389: 158-170.
- Mullineaux, L.S., F. Micheli, C.H. Peterson, H.S. Lenihan, and N. Markus. 2009. Historical effects on succession: imprint of past conditions on the structure of a deep-sea hydrothermal vent community. **Oecologia** 161: 387-400.
- Lenihan, H.S., M. Adjeroud, M. Kotchen, J. Hench, and T. Nakamura. 2008. Reef structure regulates small-scale spatial variation in coral bleaching. **Marine Ecology Progress Series** 370: 127-141.
- Lenihan, H.S., S. Mills, L.S. Mullineaux, C.H. Peterson, C.R. Fisher, and F. Micheli. 2008. Biotic interactions at hydrothermal vents: recruitment inhibition by the mussel *Bathymodiolus thermophilus*. **Deep Sea Research** 55: 1707-1717.
- Beck, M.W., R.D. Brumbaugh, A. Carranza, L.D. Coen, O. Defeo, H.S. Lenihan, M.W. Luckenbach, C. Toropova, and J.S. Vincent. 2008. Shellfish at risk: A global assessment of distribution, condition, and threats to habitat-forming bivalves. **Journal of Shellfish Research** 27: 989-990.
- Kay M.C., H.S. Lenihan, C.J. Miller, and K. Barsky. 2008. Numbers, body size, and movement lobster. *In*: Airame S, Ugoretz J (eds) Channel Islands Marine Protected Areas: First 5 Years of Monitoring. California Dept. Fish & Game, Santa Barbara, pp. 8-9.
- Selkoe, K.A., C.V. Kappel, B.S. Halpern, F. Micheli, C. D'Agrosa, J.F. Bruno, K.S. Casey, C. Ebert, H.E. Fox, R. Fujita, D. Heinemann, H.S. Lenihan, E.P. Madin, M.T. Perry, E.R. Selig, M. Spalding, R. Steneck, S. Walbridge, R. Watson. 2008. Response to technical comment on 'A global map of human impact on marine ecosystems' **Science** 321: 1446-1447.
- Halpern, B.S., K.A. Selkoe, C.V. Kappel, F. Micheli, C. D'Agrosa, J.F. Bruno, K.S. Casey, C. Ebert, H.E. Fox, R. Fujita, D. Heinemann, H.S. Lenihan, E.P. Madin, M.T. Perry, E.R. Selig, M. Spalding, R. Steneck, S. Walbridge, R. Watson. 2008. Response to letter on 'A global map of human impact on marine ecosystems' **Science** 321: 1433-1444.
- Halpern, B., H.S. Lenihan, et al. 2008. Assessing and mapping the cumulative global impact of human activities on marine ecosystems. **Science** 319: 948-952.

- Penin, L., M. Adjeroud, M. Schrimm, and H.S. Lenihan. 2007. High spatial variability in coral bleaching around Moorea (French Polynesia): patterns across locations and water depths. **Comptes Rendus Biologies** 330: 171-181.
- Lotze, H.K., H.S. Lenihan, B.J. Bourque, R. Bradbury, R. Cooke, M.C. Kay, S. Kidwell, M.X. Kirby, C.H. Peterson, and J.B.C. Jackson. 2006. Depletion, degradation, and recovery of estuaries and coastal seas. **Science** 312: 1806-1809.
- Griffiths, J., M.N. Dethier, A. Newsom, J.E. Byers, J.J. Myers, F. Oyarzun, and H.S. Lenihan. 2006. Infaunal Responses to Recreational Clam Digging. **Marine Biology** 149: 1489-1497.
- Bishop, M.M., C.H. Peterson, H.C. Summerson, H.S. Lenihan, and J.H. Grabowski. 2006. Deposition and long-shore transport of dredge spoils to nourish beaches: impacts on benthic infauna of an ebb-tidal delta. **Journal of Coastal Research** 22: 530-546.
- Ruesink, J., H.S. Lenihan, A. Trimble, K. Heiman, F. Micheli, J.E. Byers, and M.C. Kay. 2005. Introduction of non-native oysters: ecosystem effects and restoration implications. **Annual Review of Ecology, Evolution, and Systematics** 36: 643-689.
- Sancho, G., C.R. Fisher, S., F. Mills, Micheli, G.A. Johnson, H.S. Lenihan, C.H. Peterson, and L.S. Mullineaux, L.S. 2005. Selective predation by the zoarcid fish *Thermarces cerberus* at hydrothermal vents. **Deep Sea Research** 52: 837-844.
- Conlan, K.E., S.L. Kim, H.S. Lenihan, and J.S. Oliver. 2004. Benthic changes during 10 years of organic enrichment by McMurdo Station, Antarctica. **Marine Pollution Bulletin** 49: 43-60.
- Lenihan, H.S. and C.H. Peterson. 2004. Conserving oyster reef habitat by switching from dredging and tonging to diver hand-harvesting. **Fishery Bulletin** 102: 298-305.
- Lenihan, H.S., C.H. Peterson, S.L. Kim, K.E. Conlan, R. Fairey, C. McDonald, J.H. Grabowski, and J.S. Oliver. 2003. How variation in marine benthic community composition allows discrimination of multiple stressors. **Marine Ecology Progress Series** 206: 63-73.
- Conlan, K.E., S.L. Kim, H.S. Lenihan, and J.S. Oliver. 2003. Benthic community changes at McMurdo Station, a response to sewage abatement? In A. H.L. Huiskes, W.W.C. Gieskes, J. Rozema, R. M. L. Schorno, S. M. van der Vies & W. J. Wolff (editors) **Antarctic Biology in a Global Context**. Leiden, The Netherlands: Backhuys Publishers.
- Micheli, F., C.H. Peterson, L.S. Mullineaux, C.R. Fisher, S.W. Mills, G. Sancho, G.A. Johnson, and H.S. Lenihan. 2002. Species interactions at deep-sea hydrothermal vents: the role of predation in structuring communities in an extreme environment. **Ecological Monographs** 73: 365-382.
- Peterson, C.H., J.B.C. Jackson, M.X. Kirby, H.S. Lenihan, R. Borque, R. Bradbury, R. Cooke, and S. Kidwell. 2001. Factors in the decline of coastal ecosystems- Response. **Science** 293: 1590-1591.
- Lenihan, H.S., C.H. Peterson, J.E. Byers, J.H. Grabowski, G.W. Thayer, and D.R. Colby. 2001. Cascading of habitat degradation: oyster reefs invaded by refugee fishes escaping stress. **Ecological Applications** 11: 748-764.
- Jackson, J.B.C., M.X. Kirby, W.H. Berger, K.A. Bjorndal, L.W. Botsford, B.J. Bourque, R. Bradbury, R. Cooke, J.A. Estes, T.P. Hughes, S. Kidwell, C.B. Lange, H.S. Lenihan, J.M. Pandolfi, C.H. Peterson, R.S. Steneck, M.J. Tegner, and R. Warner. 2001. Historical overfishing and the collapse of marine ecosystems. **Science** 293: 629-638.
- Lenihan, H.S. and F. Micheli. 2001. Soft sediment communities. In M. Bertness, M.E. Hay, and S.D. Gaines (editors), **Marine Community Ecology**. Sinauer Associates
- Peterson, C.H., H.C. Summerson, E. Thompson, H.S. Lenihan, J.H. Grabowski, L. Manning, F. Micheli, and G. Johnson. 2000. Synthesis of linkages between benthic and fish communities as a key to protecting essential fish habitat. **Bulletin of Marine Science** 66: 759-774.
- Lenihan, H.S., and F. Micheli. 2000. Biological effects of shellfish harvesting on oyster reefs: resolving a fishery conflict using ecological experimentation. **Fishery Bulletin** 98: 86-95.
- Lenihan, H.S. 1999. Physical-biological coupling on oyster reefs: how habitat form influences individual performance. **Ecological Monographs** 69: 251-275.
- Lenihan, H.S., F. Micheli, S.W. Shelton, and C.H. Peterson. 1999. How multiple environmental stresses influence parasitic infection of oysters. **Limnology and Oceanography** 44: 910-924.
- Lenihan, H.S. and C.H. Peterson. 1998. How habitat degradation through fishery disturbance enhances effects of hypoxia on oyster reefs. **Ecological Applications** 8: 128-140.
- Conlan, K.E., H.S. Lenihan, R.G. Kvitek, and J.S. Oliver. 1998. Iceberg scour disturbance to benthic communities in the Canadian High Arctic. **Marine Ecology Progress Series**. 160: 1-16.

- Lenihan, H.S., C.H. Peterson, and J.M. Allen. 1995. Does flow also have a direct effect on growth of active suspension feeders: an experimental test with oysters. **Limnology and Oceanography** 41: 1359-1366.
- Lenihan, H.S., K.A. Kiest, K.E. Conlan, P.N. Slattery, B.H. Konar, and J.S. Oliver. 1995. Patterns of survival and behavior of marine invertebrates exposed to contaminated sediments from McMurdo Station, Antarctica. **Journal of Experimental Marine Biology and Ecology** 192: 233-255.
- Lenihan, H.S. and J.S. Oliver. 1995. Natural and anthropogenic disturbances to marine benthic communities in Antarctica. **Ecological Applications** 5: 311-326.
- Lenihan, H.S. 1992. Benthic marine pollution around McMurdo Station, Antarctica: a summary of findings. **Marine Pollution Bulletin** 25: 318-323.
- Lenihan, H.S., J.S. Oliver, J.M. Oakden, and M. Stephenson. 1990. Intense and localized benthic marine pollution around McMurdo Station, Antarctica. **Marine Pollution Bulletin** 21: 422-430.
- Lenihan, H.S., J.S. Oliver, and M. Stephenson. 1990. Changes in hard-bottom communities related to boat-mooring and Tributyltin (TBT) in San Diego Bay: a natural experiment. **Marine Ecology Progress Series** 60: 147-159.

PAPERS IN REVIEW AT JOURNALS (“WORKING PAPERS”)

- Ben-Horin, T., L.R. Johnson, H.S. Lenihan, and S.J. Ryan. *In review*. The senescence paradigm and apparent mortality of wild mosquitoes (*Anopheles gambia*). **Journal of the Royal Society Interface**.
- Needles, L. S. Lester, R. Ambrose, S.D. Gaines, K.D. Lafferty, H.S. Lenihan, et al. *In review*. Managing bays and estuaries for multiple uses. **Estuaries and Coasts**.
- Wilson, J.R., M.C. Kay, and H.S. Lenihan. *In review*. Identifying spatial management options for nearshore rockfish (*Sebastes rastrelliger*) through collaborative fisheries research. **PloS One**.
- Holden, P., R. Nisbet, H.S. Lenihan, et al. *In review*. Ecological nanotoxicology: nanomaterial hazard considerations at the subcellular, population, community, and ecosystems levels. **Accounts of Chemical Research**.
- Wilson, J.R., M.C. Kay, and H.S. Lenihan. *In review*. Marine reserves allow refined spatial management of a nearshore fishery. **Ecological Applications**.
- Guenther, C., H.S. Lenihan, L. Grant, D. Lopez-Carr, and D.R. Reed. *In review*. Trophic cascades in kelp forests caused by lobster fishing are not ubiquitous. **PloS One**.
- Yau, A., H.S. Lenihan, and B. Kendall. *In review*. Using integral projection models to estimate the effects of fishing on giant clam population dynamics. **Ecological Applications**.
- Lenihan, H.S. and J.L. Hench. *In preparation*. Context dependent top-down control of coral population dynamics. Target: **Ecology**.
- Adeleye, A., A.A. Keller, R.J. Miller, and H.S. Lenihan. *In preparation*. Persistence of commercial nanosclae zero-valent iron (nZVI) and its by products. **Journal of Hazardous Materials**.
- Muller, E., R. Nisbet, S.K. Hanna, and H.S. Lenihan. *In preparation*. Impact of zinc oxide nanoparticles on the energy budgets *Mytilus galloprovincialis*. **Ecotoxicology**.
- Hanna, S.K., H.S. Lenihan, E. Muller, and R. Nisbet. *In preparation*. Impact of zinc oxide nanoparticles on the physio-ecology of *Mytilus galloprovincialis*. **Ecotoxicology**.

FELLOWSHIPS AND HONORS

- Association of Pacific Rim Universities Fellow, UCSB, 2004
- US National Research Council Post-doctoral Associate, 1996-1997
- ARCS Foundation Achievement Award for College Scientist. 1991
- Research grant from the David Packard Foundation, 1991
- Dr. Earl and Ethel Meyers Oceanography and Marine Biology Trust Scholarship, 1990

PROFESSIONAL MEMBERSHIPS

- Ecological Society of America
- International Coral Reef Society
- Western Society of Naturalists
- American Society of Limnologists and Oceanographers

TEACHING EXPERIENCE

- Aquaculture and ecosystems, University of California, Santa Barbara, 2012
- Fisheries Management, University of California, Santa Barbara, 2007-2011

Applied Marine Ecology, University of California, Santa Barbara, 2001-2012
 Coastal Marine Ecosystem Processes, University of California, Santa Barbara, 2005-2012
 Restoration Ecology, University of California, Santa Barbara, 2004-2008
 Ecological Impacts of War, University of California, Santa Barbara, 2004
 Ecology of Marine Reserves, University of Washington, Friday Harbor Laboratories Apprenticeship Program, Fall 2003
 Coastal Marine Toxicology, UC Toxics Field/lab course, University California, Bodega Bay Laboratories, Fall 2003-2004
 Lectured in Conservation Planning, Ecology, etc., University of California, Santa Barbara, 2003
 Ocean Ecology, University of North Carolina at Chapel Hill, Institute of Marine Sciences, 2000

PHD STUDENTS GRADUATED (2006-2011)

Heather Coleman^{*}, Debra McArdle^{**}, Matthew Kay^{**}, Carla Guenther[^], Jono Wilson[#], and Annie Yau[#].
Dissertation topics: ^{}Ecotoxicology, ^{**}Marine conservation, [^]Socio-Ecological System Science, [#]Fisheries ecology and management*

SCIENTIFIC REVIEWING

EDITOR- MARINE ECOLOGY PROGRESS SERIES
 CAMEO Panel, NOAA-NSF, 2011
 Biological Oceanography Panel, National Science Foundation, 2008
 NSF Biological Oceanography Proposal Reviewer
 NSF Office of Polar Programs Reviewer
 NSF Coupled Natural-Human Systems Reviewer
 Australian Research Council Proposal Reviewer
 CA Ocean Protection Council Reviewer
 Sea Grant Program Reviewer for CA, MD, AK, MA, VA, FL, and NC
 Reviews for multiple scientific journals: ASC Nano, Biology Letters, Bulletin of Marine Sciences, Bulletin of the CA Academy of Sciences, Canadian Journal of Fisheries and Aquatic Sciences, Coral Reefs, Fisheries Research, Ecological Applications, Ecology, Ecology Letters, EcoSphere, ESA Frontiers, Environmental Science and Technology, Estuarine Coastal and Shelf Sciences, Fisheries Bulletin, Fisheries Research, Journal of Experimental Marine Biology and Ecology, Journal of Hazardous Materials, Limnology and Oceanography, Marine Biology, Marine Ecology Progress Series, Marine Environmental Research, Nanotechnology, Oecologia, PlosOne, Proceedings of the National Academy of Sciences.

SELECTED INVITED PRESENTATIONS

Duke University Marine Laboratory, Beaufort, NC, 2011
 Department of Geography, UC Santa Barbara, 2011
 CA World Oceans, San Francisco, CA, 2010
 Channel Islands National Park, Ventura, CA, 2010
 Channel Islands National Marine Sanctuary, Santa Barbara, CA, 2010
 Engineering Department, UCLA, 2010
 Institute of Marine Sciences, UNC, Chapel Hill, NC 2010
 NSF Mini-Symposium on Social-Ecological Science within the LTER Program, Washington, DC, 2010
 CA Department of Fish and Game Commission, Marine Resources Subcommittee, Santa Barbara, CA, 2009
 Marine Science Institute, UC Santa Barbara, CA, 2008
 Bodega Marine Laboratory, UC Davis, CA, 2007
 California World Oceans Conference, Long Beach, CA, 2006
 West Coast Native Oyster Restoration Conference, San Francisco, CA, 2006
 CEA-CREST, Cal State University- Los Angeles, CA, 2006
 Environmental Fluids Mechanics Laboratory, Stanford University, 2006
 Ecology and Evolutionary Biology, University of California, Santa Cruz, 2005
 UCSB Bren School Dean's Council Breakfast Club, University Club, Santa Barbara, CA, 2004
 Bernumwood Seminar Series, Montecito, CA, 2003
 UCSB Bren School Dean's Council Meeting, University of California, Santa Barbara, CA, 2003
 Coral Reef Fish Conservation Conference, Moorea, French Polynesia, 2002

Netherlands Journal of Sea Research 125 yr. Anniversary, Amsterdam, 2001
Scientific Committee on Antarctic Research, Amsterdam, 2001
Biological Sciences, University of New Hampshire, Departmental Seminar, 2001
School of Biology, Department, Georgia Tech University, Departmental Seminar, 2001
Ancona Marine Laboratory. Departmental Seminar, Ancona, Italy, 1999
International Shellfish Restoration Conference, Cork, Ireland, 1999
British Ecological Society, Sussex, England, 1999
National Science Foundation, McMurdo Station Seminar Series, Antarctica, 1998
Earth and Atmospheric Sciences, University of California, Santa Cruz, CA. Departmental Seminar, 1998
Curriculum in Marine Sciences, University of North Carolina at Chapel Hill, NC. Depart. Seminar, 1997
Ecology, Evolution, and Marine Biology, UCSB, Depart. Seminar, 1997
International Shellfish Restoration Conference, Hilton Head Island, S.C., 1995 and 1998
North Carolina Marine Fisheries Commission, Raleigh, N.C., 1993
International Marina Conference, Kingston, R.I., 1989