

# TAL BEN-HORIN

University of Rhode Island  
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## EDUCATION

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UNIVERSITY OF CALIFORNIA SANTA BARBARA, *Santa Barbara, California* 2007 – 2013  
Ph.D. in Environmental Science and Management  
Dissertation title: “Withering syndrome and the management of southern California abalone fisheries”  
Advisor: Dr. Hunter S. Lenihan

UNIVERSITY OF CALIFORNIA SANTA BARBARA, *Santa Barbara, California* 2004 – 2007  
Master of Environmental Science and Management  
Thesis title: “Assessment of recreational lobster fisheries in the Santa Barbara Channel”  
Advisor: Dr. Hunter S. Lenihan

UNIVERSITY OF VERMONT, *Burlington, Vermont* 1997 – 2001  
Bachelor of Science in Environmental Studies

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## PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, University of Rhode Island, Department of Fisheries and Veterinary Sciences 2015 – present

Postdoctoral Associate, Rutgers University, Department of Marine and Coastal Sciences 2013 – present

Graduate Research Assistant, University of California Santa Barbara 2007 – 2012

Graduate Trainee, California Sea Grant College Program, National Oceanic and Atmospheric Administration 2008 – 2009

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## FELLOWSHIPS AND GRANTS

*National Oceanic and Atmospheric Administration New Jersey Sea Grant.* 2015 – 2016  
Project title: “Minimizing risks of *Vibrio* bacteria” (PI: D. Bushek; Co-PIs: K.S. Reece, C. Audemard, T. Ben-Horin, L.M. Calvo)

*National Science Foundation Ecology and Evolution of Infectious Diseases.* 2015 – 2016  
Project title: “Engaging community college interns in marine infectious disease research” (PIs: E.E. Hofmann, E. Powell, D. Dickerson)

*US Department of Agriculture Sustainable Agriculture Research and Education Program.* Project title: “Minimizing risks of *Vibrio* bacteria in farm-raised oysters grown in intertidal environments of the Delaware Bay” (PIs: L.M. Calvo, T. Ben-Horin, D. Bushek) 2014 – 2015

*National Science Foundation Ecology and Evolution of Infectious Diseases.* 2013 – 2016  
Project title: “Developing a theoretical basic for modeling disease processes in marine invertebrates” (PI: E.E. Hofmann; Co-PIs: E. Powell, D. Haidvogel, D. Bushek, J. Klink)

<i>Department of Marine and Coastal Sciences, Rutgers University.</i> Postdoctoral Fellowship	2013 – 2015
<i>National Oceanic and Atmospheric Administration.</i> Project title: “Restoration and conservation of green abalone ( <i>Haliotis fulgens</i> ) in southern California: developing methods for culture and genetic and disease risk management” (PI: D. Witting)	2012 – 2013
<i>National Science Foundation Research Coordination Network Fellowship.</i> Research exchange in ecological immunology. Project title: “Developing methods to quantify stress and immune responses in abalone ( <i>Haliotis</i> spp.)”	2011
<i>Michael J. Connell Trust Michael J. Connell Memorial Fellowship.</i> Project title: “Withering syndrome and the management of southern California abalone fisheries”	2011
<i>Henry Luce Foundation Environmental Science to Solutions Fellowship.</i> Project tile: “Global change and malaria transmission: a meta-analysis”	2009 – 2010
<i>University of California Natural Reserve System Mildred Mathias Fellowship.</i> Project title: “Evaluating the role of intertidal environmental conditions in the epizootiology withering syndrome in black abalone”	2009 – 2010
<i>University of California Environmental Quality Initiative.</i> Graduate Research Fellowship	2008 – 2009
<i>National Oceanic and Atmospheric Administration Proactive Species Conservation Grant Program.</i> Project title: “Developing a captive breeding and restocking program for endangered white abalone” (PI: H.S. Lenihan)	2007 – 2009
<i>National Oceanic and Atmospheric Administration California Sea Grant College Program.</i> Project title: “Assessing withering syndrome resistance in California black abalone: implications for conservation and restoration” (PIs: C.S. Freidman, K.D. Lafferty, H.S. Lenihan, G. VanBlaricom)	2006 – 2009

## TEACHING

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Aquaculture (Rutgers University) <i>Laboratory instructor</i> with D. Bushek and X. Guo – Upper division undergraduate	2014
Applied Ecology for Environmental Management (UC Santa Barbara) <i>Teaching associate (Instructor-of-record)</i> – Upper division undergraduate	2009 – 2011
Conservation Planning and Priority Setting (UC Santa Barbara) <i>Teaching assistant</i> with F. Davis – Graduate	2010
History of Life (UC Santa Barbara) <i>Teaching assistant</i> with S. Awramik – Undergraduate	2010
Earth System Science (UC Santa Barbara) <i>Teaching assistant</i> with T. Dunne and J. Dozier – Graduate (nominated twice for the UC Santa Barbara Outstanding Teaching Award)	2009 – 2010
Biogeochemistry (UC Santa Barbara) <i>Teaching assistant</i> with P. Holden and J. Melack – Graduate	2008

## INVITED PRESENTATIONS AND SYMPOSIA

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- “The emergence and persistence of Dermo disease in mid-Atlantic estuaries” *Institute of Marine and Coastal Sciences Seminar Series, Rutgers University, New Brunswick, NJ* 2014
- “Can an abalone in the bag save two on the reef? Withering syndrome and the management of southern California abalone fisheries” *National Shellfisheries Association, Seattle, WA* 2012
- “Withering syndrome and the future of southern California abalone fisheries” *Bren School of Environmental Science & Management Community Colloquium, Santa Barbara, CA* 2012
- “Climate and the ecology of infectious diseases: applications in malaria control and fisheries management” *Adaptive Peaks Seminar Series, SUNY College of Environmental Science and Forestry, Syracuse, NY* 2011
- “Microclimate variation and disease-induced extinctions in black abalone” *Spatial Ecology Lab Weekly Lab Chat, Brisbane, Queensland, Australia* 2011
- “Population connectivity of California spiny lobster, *Panulirus interruptus*, in island systems of Mexico and California” *California Islands Symposium, Oxnard, CA* 2008

## CONTRIBUTED PRESENTATIONS (\* INDICATES STUDENT ADVISEE)

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- “Disease transmission by free-drifting infectious particles in sessile filter feeders: a theoretical and model analysis” *Ocean Sciences Meeting, New Orleans, LA* 2016
- “The performance of oyster families exposed to Dermo disease is contingent on the source of pathogen exposure” *Milford Aquaculture Seminar, Milford, CT* 2016
- “The overfiltration of marine diseases: experimental evidence and notes from the field” *Annual Meeting of the National Shellfisheries Association, Monterey, CA* 2015
- “Dilution of the oyster parasite *Perkinsus marinus* by commensal tunicates” *Annual Meeting of the National Shellfisheries Association, Monterey, CA\** 2015
- “Viability of *Perkinsus marinus* in seawater” *Northeast Aquaculture Conference and Exposition, Portland, ME\** 2015
- “The community ecology of oyster reefs and Dermo disease” *16<sup>th</sup> International Conference on Shellfish Restoration, Charleston, SC* 2014
- “Food webs and food-borne disease: enjoying oysters safely in the summer months” *Cape May Seafood Festival, Cape May, NJ* 2014
- “The emergence and persistence of Dermo disease in mid-Atlantic estuaries” *Ecology and Evolution of Infectious Diseases – 12<sup>th</sup> Annual Conference, Ft. Collins, CO* 2014

“Pathogen consumption inhibits disease spread in dense oyster populations” <i>Annual Meeting of the National Shellfisheries Association, Jacksonville, FL</i>	2014
“Development of a theoretical basis for modeling disease processes in marine invertebrates” <i>22<sup>nd</sup> Biennial Meeting of the Coastal and Estuarine Research Foundation, San Diego, CA</i>	2013
“Restoration and conservation of green abalone in southern California: developing methods for culture, genetic and disease risk management” <i>California Islands Symposium, Ventura, CA</i>	2012
“Can an abalone in the bag save two on the reef? Withering syndrome and the management of southern California abalone fisheries” <i>International Abalone Symposium, Hobart, Tasmania, Australia</i>	2012
“The senescence paradigm and apparent mortality of wild <i>Anopheles gambiae</i> ” <i>Third International Symposium on Infectious Disease Dynamics, Boston, MA</i>	2011
“Geographic variation in population and life-history characteristics of a temperature, sex-changing fish suggests that small-scale management may be more effective in increasing fishery yields” <i>International Temperate Reef Symposium, Plymouth, UK</i>	2011
“Temperature variability and the decline of black abalone” <i>International Marine Conservation Congress (IMCC), Victoria, British Columbia, Canada</i>	2011
“Temperature variability drives the incidence of withering syndrome” <i>Western Society of Naturalists, San Diego, CA</i>	2010
“Mapping disease risk in black abalone: a mechanistic evaluation of critical habitat” <i>Cheadle Center for Biodiversity and Ecological Restoration Seminar Series, Santa Barbara, CA</i>	2009
“Management without borders: population genetics of the California spiny lobster, <i>Panulirus interruptus</i> ” <i>International Marine Conservation Congress (IMCC), Arlington, VA</i>	2009
“Alternative size limits for sheephead?” <i>California Department of Fish and Game Sheephead Biology and Management Symposium, Santa Barbara, CA</i>	2009
“One size limit does not fit all” <i>Mote International Symposium in Fisheries Ecology, Sarasota, FL</i>	2008
“Dynamics of population declines of black abalone in the California Channel Islands: implications for the persistence of remaining populations” <i>Society for Conservation Biology, Chattanooga, TN</i>	2008
“Population connectivity of California spiny lobster, <i>Panulirus interruptus</i> , across the United-States-Mexico border” <i>Western Society of Naturalists, Ventura, CA</i>	2008

## SERVICE AND AFFILIATIONS

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Member of the National Oceanic and Atmospheric Administration Black Abalone Recovery Team (organized under the U.S. Endangered Species Act)

Member of the *American Association of Underwater Scientists, Ecological Society of America, National Shellfisheries Association, Society for Conservation Biology*

Manuscript reviewer for *Aquaculture Environment Interactions, Conservation Biology, EcoHealth, Ecology, Ecology and Evolution, Environmental Modeling and Software, Journal of Invertebrate Pathology, Marine Ecology Progress Series, Molecular Ecology, Molecular Phylogenetics and Evolution, PLoS One*

## PUBLICATIONS (\* INDICATES STUDENT ADVISEE)

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Ben-Horin, T. and D. Bushek. *In review*. Cooperative proliferation of the oyster parasite *Perkinsus marinus*. *Ecosphere*.

Teck\*, S., J. Lorda, T. Ben-Horin, R.E. Toseland, S.T. Rathbone, N.T. Shears and S.D. Gaines. *In review*. Spatial and temporal dynamics in the quality of a fished resource. *Marine Ecology Progress Series*.

Bidegain, G., E.N. Powell, J.M. Klinck, T. Ben-Horin and E.E. Hofmann. *In press*. Microparasitic disease dynamics in benthic suspension feeders: infective dose, non-focal hosts, and particle diffusion. *Journal of Theoretical Biology*.

Ben-Horin, T., K.D. Lafferty, G. Bidegain and H.S. Lenihan. *In press*. Fishing diseased abalone to promote yield and conservation. *Philosophical Transactions of the Royal Society B – Biological Sciences*.

Bidegain, G., E.N. Powell, J.M. Klinck, T. Ben-Horin, and E.E. Hofmann. *In press*. Marine infectious disease dynamics and outbreak thresholds: pandemic infection and the potential role of filter feeders. *Ecosphere*.

Ryan, S.J., A. McNally, L.R. Johnson, E.A. Mordecai, T. Ben-Horin, K.P. Paaijmans and K.D. Lafferty. 2015. Mapping physiological suitability limits for malaria in Africa under climate change. *Vector-Borne and Zoonotic Diseases*. **15**: 718-725.

Ben-Horin, T., G. Bidegain, L. Huey\*, D. Narvaez, and D. Bushek. 2015. Parasite transmission through suspension feeding. *Journal of Invertebrate Pathology*. **131**: 155-176.

Ryan, S.J., T. Ben-Horin and L.R. Johnson. 2015. Malaria control and senescence: the importance of accounting for the pace and shape of ageing in wild mosquitoes. *Ecosphere*. **6**: 170.

Johnson, L.R., T. Ben-Horin, K.D. Lafferty, A. McNally, E.A. Mordecai, K.P. Paaijmans, S. Pawar and S.J. Ryan. 2015. Understanding uncertainty in temperature effects on vector-borne disease: a Bayesian approach. *Ecology*. **96**: 203-213.

Lafferty, K.D. and T. Ben-Horin. 2013. Abalone farm discharges the withering syndrome pathogen into the wild. *Frontiers in Microbiology*. **4**: 373.

Iacchei, M., T. Ben-Horin, K.A. Selkoe, C.E. Bird, F.J. Garcia-Rodrigues, and R.J. Toonen. 2013. Combined analyses of kinship and  $F_{ST}$  suggest potential drivers of chaotic genetic patchiness in high gene flow populations. *Molecular Ecology*. **22**: 3476-3494.

Ben-Horin, T., H.S. Lenihan, and K.D. Lafferty. 2013. Variable intertidal temperature explains why disease endangers black abalone. *Ecology* **94**: 161-168.

- Mordecai, E.A., K.P. Paaijmans, L.R. Johnson, C. Balzer, T. Ben-Horin, E. de Moor, A. McNally, S. Pawar, T. Smith, and K.D. Lafferty. 2013. Optimal temperature for malaria transmission is dramatically lower than previously predicted. *Ecology Letters* **16**: 22-30.
- Hamilton, S.L., J.R. Wilson, T. Ben-Horin, and J.E. Caselle. 2011. Utilizing spatial variation in demography and life histories to optimize fisheries yield and conservation of a temperate sex-changing reef fish. *PLoS ONE* **6**: e24580.
- Selkoe, K.A., J.R. Watson, C. White, T. Ben-Horin, M. Iacchei, S. Mitari, D.A. Siegel, S.D. Gaines, and R.J. Toonen. 2010. Taking the chaos out of genetic patchiness: seascape genetics reveals ecological and oceanographic drivers of genetic patterns in three temperate reef species. *Molecular Ecology* **19**: 3708-3726.
- Ben-Horin, T., M. Iacchei, K.A. Selkoe, T. Mai, R.J. Toonen. 2009. Characterization of eight polymorphic microsatellite loci for the California spiny lobster, *Panulirus interruptus*, and cross-species amplification in other achelate lobsters. *Conservation Genetics Resources* **1**: 193-197.