

## CURRICULUM VITAE BRIAN HELMUTH

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### CONTACT

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### EDUCATION

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Ph.D. 1997 University of Washington; Zoology (Thomas Daniel, PhD supervisor)  
M.S. 1991 Northeastern University; Biology (Marine Biology; Kenneth Sebens, MS supervisor)  
B.S. 1989 Cornell University; Biology (Ecology and Evolution; C. Drew Harvell, research supervisor)

### PROFESSIONAL EXPERIENCE

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Director, Environment and Sustainability Program effective July 1, 2011  
Special Advisor on Sustainability, Office of the Vice President for Research, January 2011-present  
Professor, University of South Carolina, Columbia, May 2009-present.  
Associate Professor, University of South Carolina, Columbia, July 2004-May 2009.  
Assistant Professor, University of South Carolina, Columbia, June 1999-July 2004.  
Instructor, Three Seas East-West Marine Biology Program, Panama, 2011-  
Instructor, Three Seas East-West Marine Biology Program, Moorea, French Polynesia 2005-2010  
Instructor, Three Seas East-West Marine Biology Program, Jamaica 2003, 2004.  
Post Doctoral Researcher, Stanford University, Hopkins Marine Station, Pacific Grove, California (Mark Denny, supervisor) 1997-1999

### AWARDS, HONORS, AND FELLOWSHIPS

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*Google Science Communications Fellow (Climate Change)*, 2011  
*Ray Lankester Fellow, Marine Biological Laboratory, Plymouth England*, 2007  
*Explorers Club, Fellow National*, 2007  
*Aldo Leopold Leadership Fellow*, 2005  
*Marine Educator of the Year*, South Carolina Marine Educators Association, March 2003.

### GRANTS IN SUPPORT OF RESEARCH

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Google. Class Action: Visualizing local environmental change using new media; Jan 2012-Jan 2013; \$25,000. (With Nicole Heller).  
NSF CDI-TYPE I:Biologically Relevant Sensor Networks for Climate Change Studies in Intertidal Ecosystems (co-PI with Wenyan Xu) 8/11-8/14. \$447,666. Location: University of South Carolina.

National Aeronautics and Space Administration, “Physiological impacts of climate change using remote sensing: An integrative approach to predicting patterns of species abundance and distribution and thresholds of ecosystem collapse”; 5/1/11-4/28/15; \$1,900,000; (co-PI with D.S. Wethey [PI], T.J. Hilbish, S. Woodin, and V. Lakshmi)

USC Office of the Provost, Institute for STEM Enrichment, “Sensor development for the study of global climate change in intertidal ecosystems: an international workshop at USC. Helmuth (PI) with Jijun Tang and Wenyan Xu. 3/1/11-2/28/12; \$21,290.

NSF: Environmental signal analysis: monitoring the impacts of climate change on rocky intertidal ecosystems across a cascade of scales. (co-PI with J. Tang); 9/1/09-8/31/12 \$737,620;

NSF: Planning visit: ecological forecasting of intertidal ecosystems in Chile 3/1/09-2/28/10. \$18,645.

National Aeronautics and Space Administration, “Viewing the world through nonhuman eyes: exploring the links between remote sensing, climate change and coastal ecosystems.” 4/07-3/10. \$44,775.

National Aeronautics and Space Administration, “Ecological forecasting and hindcasting of biodiversity responses to climate change: from MODIS to mussels.” Helmuth (PI) with D.S. Wethey, T.J. Hilbish and V. Lakshmi (USC Geology). 3/07-3/10. \$1,416,738.

NOAA Ecofore: Ecological forecasting: responses of ecosystem foundation species in the coastal zone to climate change (co-PI with D.S. Wethey [PI], T.J. Hilbish, S. Woodin, V. Lakshmi, and H. Power); 11/01/04-10/31/09, \$2,478,118.

National Aeronautics and Space Administration, “Climate change and intertidal biogeography: coupling remote sensing data to thermal physiology across a cascade of scales.” (Helmuth [PI] with D.S. Wethey, T.J. Hilbish and V. Lakshmi) 3/04-3/07; \$1,050,000.

National Science Foundation, “Climate change and patterns of body temperature in intertidal ecosystems” 09/03 - 08/06; \$234,000.

National Science Foundation, “Biophysical and behavioral agents of natural selection in a hybrid zone”, (co-PI with T.J. Hilbish [PI] and D.S. Wethey), 3/02 – 2/04, \$220,209.

National Geographic Society, “Latitudinal patterns in thermal stress: linking physiology, ecology and climate change (co-PI with Gretchen Hofmann), 2/02- 10/03. \$20,050. (\$11,000 to Helmuth)

National Science Foundation. “Physical Ecology of the Rocky Intertidal: predicting patterns in invertebrate body temperatures” 4/00- 3/03, \$287,000.

National Undersea Research Center, “Decoupling the effects of mass transfer, water motion and temperature on reef health.” (co-PI with DS Wethey [PI] and C Finelli) 1/02 – 12/03, \$49,953.

South Carolina BRIN/EpScOR program, “Characterizing the thermal ecology of fiddler crabs” (Helmuth [PI] with R. Brodie and M. Crowe) 7/02-7/03. \$25,000.

National Science Foundation, “Symposium: Physiological ecology of rocky intertidal organisms: from molecules to ecosystems.” 11/ 01 – 11/02. \$6000.

National Science Foundation. BIOCOMPLEXITY--INCUBATION ACTIVITY: Linking ecology, physiology and climate change: Influence of environmental stress on community structure in the rocky intertidal. (co-PI with G. Hofmann [PI], B. Menge and A. Kinzig) 7/00–6/01. \$61,896.

Smithsonian Institution, Caribbean Coral Reef Ecosystems program. “Uncovering the roles of environment and physiology in the alternating competitive dominance of two coral species’ (Helmuth [PI] with K.P. Sebens, E. Carrington and J. Leichter) 1/01 – 12/02.

Smithsonian Institution. Quantifying the role of “physical factors” in the life history of the coral *Agaricia tenuifolia* (Helmuth [PI] with I. Macintyre and B. Timmerman). May 1998.

Smithsonian Institution. The interplay of host morphology and symbiont microhabitat: consequences of aggregation structure of the coral *Agaricia tenuifolia* (Helmuth [PI] with I. Macintyre and B. Timmerman). March 1997.

Smithsonian Institution. Consequences of aggregation structure, habitat complexity and colony morphology to mass flux in scleractinian corals (co-PI with I. Macintyre). March 1996.

Smithsonian Institution. Effects of water movement on the distribution and morphology of reef corals (co-PI with K.P. Sebens [PI]). March 1994, March 1995.

## PEER-REVIEWED PUBLICATIONS (h index 22, \* indicates student authors)

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### 2011

55. Kearney, M., A. Matzelle and B. Helmuth. 2012. Biomechanics meets the ecological niche: the importance of temporal data resolution. **J. Exp. Biol.**, in press.
54. Iacarella\*, J. and B. Helmuth 2011. Body temperature and desiccation constrain the activity of *Littoraria irrorata* within the *Spartina alterniflora* canopy. **Journal of Thermal Biology**, 37:15-22.
53. Wetthey, D.S., L.D. Brin\*, B. Helmuth, K.A.S. Mislán\*. 2011. Predicting intertidal organism temperatures with modified land surface models. **Ecological Modeling**, 222:3568-3576.
52. Iacarella\*, J. and B. Helmuth. Experiencing the salt marsh environment through the foot of *Littoraria irrorata*: behavioral responses to thermal and desiccation stresses. **J. Exp. Mar. Biol. Ecol.**, 409:143-153.
51. Monaco\*, C. and B. Helmuth. 2011. Tipping points, thresholds, and the forgotten role of physiology in climate change research. **Adv. Marine Biol.** 60: 123-162.
50. Sará, G., M. Kearney, and B. Helmuth Combining heat-transfer and energy budget models to predict thermal stress in Mediterranean intertidal mussels. **Chemistry and Ecology**, 27(2): 135-145.
49. Helmuth, B., L. Yamane, S. Lalwani, A. Matzelle, A. Tockstein\*, N. Gao\* 2011 Hidden signals of climate change in intertidal ecosystems: what (not) to expect when you are expecting. **J. Exp. Mar. Biol. Ecol.**, 400: 191-199. (invited article in special 400<sup>th</sup> volume on theme of Global Environmental Change)
48. Zardi G.I., K.R. Nicastro, C.D. McQuaid, L. Hancke and B. Helmuth 2011 The combination of selection and dispersal helps explain genetic structure in intertidal mussels. **Oecologia**, 165:947-958.

### 2010

47. Kearney, M., S.J. Simpson, D. Raubenheimer and B. Helmuth 2010 Modelling the ecological niche from functional traits. **Phil. Trans. Royal Society B**, 365:3469-3483.
46. Fuller, A., T. Dawson, B. Helmuth, R.S. Hetem, D. Mitchell and S. K. Maloney. 2010 Physiological mechanisms of dealing with climate change. **Physiological and Biochemical Zoology** 83(5): 713-720.
45. Schneider K. R., L.E. VanThiel\*, and B. Helmuth 2010 Interactive effects of food availability and aerial body temperature on the survival of two intertidal *Mytilus* species **Journal of Thermal Biology** 35: 161-166.
44. Helmuth B., L. Yamane, K.J. Mach\*, S. Chhotray\*, P. Levin and S. Woodin. 2010 All climate change in local: understanding and predicting the effects of a changing planet on marine ecosystems. **Stanford Journal of Law Science and Policy**, 2:18-35.
43. Helmuth, B., B. Broitman, L. Yamane, S.E. Gilman, K. Mach\*, K.A.S. Mislán\* and M.W. Denny. 2010. Organismal climatology: analyzing variability at scales relevant to physiological stress. **Journal of Experimental Biology**, 213:995-1003.

## 2009

42. **Helmuth, B. 2009.** From cells to coastlines: how can we use physiology to forecast the impacts of climate change? **Journal of Experimental Biology**, 212: 753-760.
41. Pincebourde, S., E. Sanford and **B. Helmuth. 2009.** An intertidal seastar adjusts thermal inertia to avoid extreme body temperatures. **American Naturalist** 174 (6): 890-897.
40. Mislán\*, K.A.S., Wethey, D.S. and **B. Helmuth 2009.** When to worry about the weather: role of tidal cycle in determining patterns of risk in intertidal ecosystems. **Global Change Biology** 15:3056-3065.
39. Szathmary\*, P.L., **B. Helmuth**, and D. S. Wethey. **2009.** Climate change in the rocky intertidal zone: predicting and measuring the body temperature of a keystone predator. **Mar. Ecol. Prog. Ser.** 374:43-56.
38. Broitman, B.R., L. Szathmary, K.A.S. Mislán\*, C.A. Blanchette and **B. Helmuth 2009.** Predator-prey interactions under climate change: the importance of habitat vs. body temperature. **Oikos** 118:219-224.

## 2008

37. Broitman, B.R., N. Mieszkowska, **B. Helmuth**, and C.A. Blanchette. 2008. Climate and recruitment of rocky shore intertidal invertebrates in the Eastern North Atlantic. **Ecology** 89:S81-S90.
36. Pincebourde, S., E. Sanford and **B. Helmuth. 2008.** Body temperature during low tide alters the feeding performance of a top intertidal predator. **Limnol. Oceanogr.** 53(4): 1562-1573.

## 2007

35. Jost\*, J. and **B. Helmuth. 2007.** Morphological and ecological determinants of body temperature of the Atlantic ribbed mussel, *Geukensia demissa*, and their effects on mussel mortality. **Biol. Bull.** 213:141-151
34. Finelli, C.M., B.S. Helmuth, N.D. Pentcheff and D.S. Wethey. 2007. Intracolony variability in photosynthesis by corals is affected by water flow: a role for oxygen transport? **Mar. Ecol. Prog. Ser.**, 349:103-110.
33. Schneider\*, KR and **B. Helmuth 2007.** Spatial variability in habitat temperature drives patterns of selection between and invasive and native mussel species. **Mar. Ecol. Prog. Ser.** 339: 157-167.
32. Blanchette, C.A., S.D. Gaines and **B. Helmuth. 2007.** Environmental determinants and biogeographic patterns of abundance, size and growth of the intertidal dominant, *Mytilus californianus*, around Point Conception, California. **J. Exp. Mar. Biol. Ecol.**, 340(2): 126-148.

## 2006

31. Gilman, S., C.D.G. Harley, D. Strickland\*, O. Vanderstraeten, M. O'Donnell, and **B. Helmuth. 2006.** Evaluation of "Effective Shore Level" as a method of characterizing intertidal wave exposure regimes. **Limnol. Oceanogr. Methods**, 4:448-457.
30. **Helmuth, B.**, B.R. Broitman, C.A. Blanchette, S. Gilman, P. Halpin, C.D.G. Harley, M.J. O'Donnell, G.E. Hofmann, B. Menge, and D. Strickland. **2006.** Mosaic patterns of thermal stress in the rocky intertidal zone: implications for climate change. **Ecol. Monogr.**, 76(4):461-479.

29. Gilman, S.E., D.S. Wethey and **B. Helmuth** 2006. Variation in the sensitivity of organismal body temperature to climate change over local and geographic scales. **Proc. Natl. Acad. Sci**, 103 (25): 9560-9565.
28. Leichter, J.J., **B. Helmuth**, and A. Fischer. 2006. Variation beneath the surface: quantifying complex thermal environments on coral reefs in the Caribbean, Bahamas, and Florida **J. Mar. Res.**, 64(4): 563-588.
27. Rotjan, R.D., J.L. Dimond, D.J. Thornhill, J.J. Leichter, **B. Helmuth**, D.W. Kemp and S.M. Lewis. 2006. Chronic fish grazing impedes coral recovery after bleaching. **Coral Reefs**, 25(3): 361-368.
26. Finelli, C.M., **B.S.T. Helmuth**, N.D. Pentcheff, and D.S. Wethey. 2006. Water flow influences oxygen transport and photosynthetic efficiency in corals. **Coral Reefs** 25(1):47-57.

#### 2005

25. Castillo\*, K.D. and **B.S.T. Helmuth**. 2005. Influence of thermal history on response of *Montastraea annularis* to short-term temperature exposure. **Marine Biology**, 148(2): 261-270.
24. Schneider\*, K. R., D. S. Wethey, **B. Helmuth**, and T. J. Hilbish. 2005. Implications of movement behavior on mussel dislodgement: exogenous selection in a *Mytilus* spp. hybrid zone. **Mar. Biol.** 146: 333-343.

#### 2004

23. Fitzhenry\*, T., P.M. Halpin and **B. Helmuth**. 2004. Testing the effects of wave exposure, site, and behavior on intertidal mussel body temperatures: Applications and limits of temperature logger design. **Mar. Biol.** 145(2):339-349.
22. Denny, M.W. **B. Helmuth**, G.L. Leonard, C,D,G, Harley, L.Hunt and E. Nelson. 2004. Quantifying scale in ecology: lessons from a wave-swept shore. **Ecol. Monogr.**, 74(3):513-532.

#### 2003

21. Harley, C.D.G. and **B.S.T. Helmuth**. 2003. Local and regional scale effects of wave exposure, thermal stress, and absolute vs. effective shore level on patterns of intertidal zonation. **Limnol. Oceanogr.**, 48: 1498-1508
20. **Helmuth, B.** and M.W. Denny. 2003. Predicting wave exposure in the rocky intertidal zone: do bigger waves always lead to larger forces? **Limnol. Oceanogr.**, 48: 1338-1345.
19. Denny, M.W., L.P. Miller, M.D. Stokes, L.J.H. Hunt, and **B.S.T. Helmuth**. 2003. Extreme water velocities: Topographical amplification of wave-induced flow in the surf zone of rocky shores. **Limnol. Oceanogr.** 48: 1-8.
18. Sebens, K.P., **B. Helmuth**, E. Carrington and B. Agius. 2003. Effects of water flow on growth and energetics of the scleractinian coral *Agaricia tenuifolia*, in Belize. **Coral Reefs** 22(1): 35-47.

#### 2002

17. **Helmuth, B.**, C.D.G. Harley, P. Halpin, M. O'Donnell, G.E. Hofmann and C. Blanchette. 2002. Climate change and latitudinal patterns of intertidal thermal stress. **Science** 298:1015-1017.
16. **Helmuth B.** 2002. How do we measure the environment? Linking intertidal thermal physiology and ecology through biophysics. **Int. Comp. Biol.**, 42(4): 837-845.
15. Tomanek, L. and **B. Helmuth**. 2002. Physiological ecology of rocky intertidal organisms: a synergy of concepts. **Int. Comp. Biol.**, 42(4): 771-775.

#### 2001

14. **Helmuth B.** and GE Hofmann. 2001. Microhabitats, thermal heterogeneity and physiological gradients of stress in the rocky intertidal zone. **Biol. Bull.**, 201:374-384.

**Prior to 2000:**

13. **Helmuth B.** 1999. Thermal biology of rocky intertidal mussels: quantifying body temperatures using climatological data. **Ecology** 80(1): 15-34.
12. Denny M.W., B. Gaylord, **B. Helmuth** and T.L. Daniel. 1998. The menace of momentum: dynamic forces on flexible organisms. **Limnol. Oceanogr.** 43:955-968.
11. **Helmuth B.S.T.** 1998. Intertidal mussel microclimates: Predicting the body temperature of a sessile invertebrate. **Ecol. Monogr.**, 68 (1):29-52.
10. Sebens K.P., S.P. Grace, **B. Helmuth**, E.A. Maney, Jr. and J.S. Miles 1998. Water flow and prey capture by three scleractinian corals, *Madracis mirabilis*, *Montastrea cavernosa* and *Porites porites* in a field enclosure. **Mar. Biol.** 131:347-360.
9. Daniel TL, **BS Helmuth**, WB Saunders, and PD Ward. 1997. Septal complexity in ammonoid cephalopods increased mechanical risk and limited depth. **Paleobiology**, 23:470-481.
8. **Helmuth B.S.T.**, K.P. Sebens and T.L. Daniel. 1997. Morphological variation in coral aggregations: branch spacing and mass flux to coral tissues. **J. Exp. Mar. Biol. Ecol.**, 209: 233-259.
7. **Helmuth B.S.T.**, E.F. Stockwell and D.R. Brumbaugh. 1997. Morphological and environmental determinants of mass flux to corals, **Proc. 8th Int. Coral Reef Symp., Panama**, 2:1103-1108.
6. **Helmuth B.S.T.**, B.E.H. Timmerman, and K.P. Sebens. 1997. Interplay of host morphology and symbiont microhabitat in coral aggregations. **Mar. Biol.**, 130:1-10.
5. Sebens K.P., J. Witting, and **B. Helmuth**, 1997. Effects of water flow and branch spacing on particle capture by the reef coral *Madracis mirabilis* (Duchassaing and Michelotti). **J. Exp. Mar. Biol. Ecol.**, 211:1-28.
4. Holberton R.L., **B. Helmuth** and J.C. Wingfield. 1996. The corticosterone stress response in Gentoo and King penguins during the non-fasting period. **Condor** 98: 850-854.
3. Padilla D.K., C.D. Harvell, J. Marks and **B. Helmuth**. 1996. Inducible aggression and intraspecific competition for space in a marine bryozoan, *Membranipora membranacea*. **Limnol. Oceanogr.**, 41(3): 505-512.
2. **Helmuth B.**, R.R. Veit and R. Holberton. 1994. Long-distance dispersal of a subantarctic brooding bivalve (*Gaimardia trapesina*) by kelp rafting. **Mar. Biol.** 120: 421-426.
1. **Helmuth B.** and K.P. Sebens. 1993. The influence of colony morphology and orientation to flow on particle capture by the scleractinian coral *Agaricia agaricites* (Linnaeus). **J. Exp. Mar. Biol. Ecol.** 165: 251-278.

**BOOK CHAPTERS AND NON-REVIEWED ARTICLES** (\* indicates student authors)

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- Lima, F.P. N. P. Burnett\*, **B. Helmuth**, K. Aveni-Deforge, N. Kish\* and D. S. Wethey 2011. Monitoring the intertidal environment with bio-mimetic devices. Chapter 18 in *Advances in Biomimetics* ISBN 978-953-7619-X-X. INTECH publishing.
- Mislan\*, K.A.S. and **B. Helmuth**. 2008. "Microclimate" In Encyclopedia of Ecology, Edited by S.E. Jørgensen and B. Fath. *General Ecology*. Vol. 3 of *Encyclopedia of Ecology*, Elsevier, Oxford. pp. 2389-2393.
- Helmuth, B.** 2007. Forecasting the impacts of climate change on coastal ecosystems: how do we integrate science and policy? **Southeast Environmental Law Journal** 16(1):207-219.

- Helmuth, B. 2007.** Intertidal life as experienced through a powerful lens (Review of M.Koehl, “Wave-swept shore: the rigors of life on a rocky coast.” **Ecology** 88(1):264-265.
- Jost\*, J. and **B. Helmuth 2007.** “Measurement of Temperature” In, *Encyclopedia of Tidepools and Rocky Shores*, edited by M.W. Denny and S.D. Gaines, University of California Press, pp. 580-583.
- Schneider\*, K.R. and **B. Helmuth 2007.** “Patterns of Heat and Temperature” In, *Encyclopedia of Tidepools and Rocky Shores*, edited by M.W. Denny and S.D. Gaines, University of California Press, pp. 263-266.
- Szathmary\*, P.L. and **B. Helmuth 2007.** “Temperature Change” In, *Encyclopedia of Tidepools and Rocky Shores*, edited by M.W. Denny and S.D. Gaines, University of California Press, pp. 578-580.
- Helmuth, B.** N. Mieszkowska, P. Moore and S.J. Hawkins. **2006.** Living on the edge of two changing worlds: forecasting the responses of rocky intertidal ecosystems to climate change. **Ann. Rev. Ecol. Evol. Syst.** 37: 373-404.
- Helmuth, B.,** J.G. Kingsolver and E. Carrington, **2005.** Biophysics, physiological ecology, and climate change: Does mechanism matter? **Ann. Rev. Physiol.**, 67: 177-201.
- Kaandorp J., J. Kubler et al. **2001.** The algorithmic beauty of seaweeds, sponges and corals. Springer, New York.
- Timmerman, B. and **B. Helmuth. 1998.** Marine Life. Chapter 9 in L. Beletsky, *The Ecotravellers' Wildlife Guide to Belize and Northern Guatemala*. Academic Press.
- Helmuth B.,** R.R. Veit and R. Holberton. **1994.** Dispersal of benthic invertebrates in the Scotia Arc by kelp rafting. **Antarctic J. U.S.**, 29(5): 145-147.

## MANUSCRIPTS IN REVIEW

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- Chhotray\*, S., **B. Helmuth**, C. Piñon Carlarne, and J. Ellis. An assessment of the perceptions, level of involvement, and attitudes of user-groups towards marine protected areas in the Carolinas. **Journal of Coastal Research**, in review.

## INVITED PRESENTATIONS AND SYMPOSIA

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72. Northeastern University, Jan 2012.
71. GreenGov, White House Council on Environmental Quality, Washington DC, Nov. 2011
70. Caring for Creation Conference, Lake Junaluska, NC, April 2011.
69. University of North Carolina Chapel Hill, Department of Biology, February 2011
68. Presidential Awards for Excellence in Math and Science Teaching (keynote), National Science Foundation, Washington, D.C., Dec. 2010
67. Caring for Creation Conference, Lake Junaluska, NC, April 2010.
66. American Association of Anatomists, (Symposium, Biological Consequences of Climate Change), April 2010.
65. Duke Marine Laboratory, Beaufort, NC. October 2009.
64. Journal of Experimental Biology, “Survival in a changing world” Awaji Island, Japan, August 2009.
63. Third International Symposium of Integrative Zoology, Chinese Academy of Sciences. (symposium keynote) July 2009.
62. Climate Change and Marine Systems: Managing for Resiliency. Stanford Law School, April 2009.
61. INTERMED: The impact of climate change on Mediterranean intertidal communities: losses in coastal ecosystem integrity and services” (Keynote); Palermo, Italy. March 2009

60. University of North Carolina, Wilmington, Department of Biology and Marine Biology. October, 2008
59. Coker College, Hartsville, SC. Centennial Celebration lecture. September, 2008.
58. Fourth International Conference in Africa for Comparative Physiology and Biochemistry. Symposium: Physiological mechanisms in coping with climate change. Masai Mara National Reserve, Kenya. July 2008
57. Fourth International Conference in Africa for Comparative Physiology and Biochemistry. Symposium: Physiological responses to temperature: Linking ecology with evolution. Masai Mara National Reserve, Kenya. July 2008.
56. Society of Experimental Biology, Symposium "Climate change: from genes to ecosystems" Marseilles, France. July 2008.
55. Environmental Educators Association of South Carolina, Keynote Address, June 2008.
54. Florida State University, Coastal and Marine Laboratory, Elise B. Newell Seminar Series, March 2008
53. Auburn University, Department of Biological Sciences, January 2008.
52. University of Central Florida, Florida Seagrass Elise B. Newell Seminar Series, January 2008.
51. Clemson University, Department of Biological Sciences, January 2008.
50. CSIRO Symposium (plenary speaker), "In Hot Water: preparing for climate change in Australia's coastal and marine ecosystems." State Library of Queensland, Brisbane, Nov. 2007.
49. Estuarine Research Foundation, Providence, R.I. Nov. 2007 (Symposium, "Evaluating climate records to understand causes and effects of climate variability in coastal systems.")
48. University of South Carolina School of Law, "Balancing private and public rights in the coastal zone in the era of climate change" Columbia, SC September 2007
47. American Academy for the Advancement of Science, Invited Speaker, San Francisco, February 2007.
46. Swire Institute of Marine Science, University of Hong Kong, International Conference on Ecophysiology of Marine Organisms, January 2007.
45. Department of Natural Resources, Charleston, SC. October, 2006.
44. University of Georgia, Athens. Institute of Ecology. Athens, GA. September, 2006
43. Joint Workshop on NASA Biodiversity, Terrestrial Ecology, and Related Applied Sciences (Keynote address); Adelphi, MD, August 2006.
42. American Society of Limnology and Oceanography June 2006. (Symposium, "Forecasting Biogeographic Responses to Climate Change in Coastal Ecosystems")
41. University of California Los Angeles, April 2006.
40. University of New England, Maine, April 2006.
39. Institut de Recherche sur la Biologie de l'Insecte, Université de Tours, France, December 2005
38. California State University, Northridge, Department of Biology, November 2005
37. Texas A&M University, Department of Oceanography, October 2005.
36. NASA Biodiversity and Ecological Forecasting meeting, Washington D.C., August 2005
35. BIOINC conference, Instituto de Estudos do Mar Almirante Paulo Moreira, Cabo Frio, Brazil (Keynote Address), July 2005.
34. Centre for Research on the Ecological Impacts of Coastal Cities, University of Sydney, Australia, February 2005.
33. Bowdoin College, Department of Biology, Maine, November 2004.
32. Bamfield Marine Station, British Columbia, Canada. Oct. 2004.
31. Canadian Society of Zoologists, Wolfville, NS, Canada, May 2004 (Intertidal Physiological Ecology Symposium)
30. Benthic Ecology Meetings, Mobile, AL, March 2004 (Symposium: Three Seas East West Marine Biology 20<sup>th</sup> Anniversary)



29. University of Rhode Island, Department of Biology, Nov. 2003
28. Bamfield Marine Station, British Columbia, Canada. Oct. 2003.
27. University of Delaware, College of Marine Studies, Lewes, DE. Oct. 2003
26. Brown University, Department of Ecology and Evolutionary Biology, Oct. 2003
25. Ecological Society of America, Savannah, GA, Aug. 2003 (Symposium: “Body size, biophysics and biological stoichiometry: from individual function to ecosystem structure”)
24. University of California, Berkeley, Department of Integrative Biology. Feb. 2003.
23. International Temperate Reef Symposium, Christchurch, New Zealand, Jan. 2003. (Symposium: “Climate change and temperate reef ecosystems: integrating space and time”).
22. Western Society of Naturalists, Monterey, CA, Nov. 2002. (Symposium: “Marine Ecological Patterns at the Large Scale”).
21. Bamfield Marine Station, British Columbia, Canada. Nov. 2002.
20. College of Charleston, Department of Biology, Charleston, SC, Sept. 2002.
19. Western Society of Malacologists, Monterey, CA, July 2002. (Symposium: “Ecology of mollusks”).
18. University of Washington, Friday Harbor Laboratories, May 2002.
17. South Carolina Marine Educators Association, Hunting Island, SC, March 2002. Keynote address.
16. University of North Carolina, Chapel Hill, Department of Marine Sciences. Jan. 2002.
15. Society for Integrative and Comparative Biology, Anaheim, CA, Jan. 2002. (Co-organizer of Symposium: Physiological Ecology of Rocky Intertidal Organisms: from Molecules to Ecosystems)
14. National Science Foundation, Biocomplexity P.I. Workshop. Oct. 2001.
13. American Society of Limnology and Oceanography, Albuquerque, NM. Feb. 2001. (Co-organizer of Symposium: “From Molecules to Ecosystems: a Hierarchy of Mussel Biology”)
12. Bodega Bay Marine Laboratory, Bodega, CA, June 2001.
11. Oregon State University, Corvallis, Department of Zoology, May 2000.
10. University of South Carolina, Aiken, Department of Biology and Geology, March 2000.
9. American Society of Limnology and Oceanography, DIALOG III symposium, Bermuda, October 1999.
8. National Center for Ecological Analysis and Synthesis, “Modeling sessile growth” working group. Santa Barbara, CA, Aug. 1999.
7. University of South Carolina, Columbia, Department of Biology, March 1998.
6. University of California, Santa Cruz, Department of Biology, Feb. 1998.
5. University of California, Davis, Division of Biological Sciences, Section of Evolution and Ecology. Jan. 1998.
4. Western Society of Naturalists annual meeting, December 1997. (Symposium: “Biomechanics and ecology: is the marriage working?”)
3. Stanford University, Hopkins Marine Station, Pacific Grove, CA. Oct. 1997.
2. University of Washington, Seattle, School of Fisheries. June 1997.
1. Eighth International Coral Reef Symposium, Panamá City, Panamá, June 1996. (Symposium: “Flow and coral reefs: from micro- to meso-scale effects”).

## **ADVISORY POSITIONS AND SYNERGISTIC ACTIVITIES**

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Association of Climate Change Officers, Adaptation Working Committee, 2011-present  
 Department of Biological Sciences Executive Committee 2009-present; USC College of Arts and Sciences  
 Academic Planning Committee 2010-present; School of Earth and Ocean Sciences Advisory Committee  
 2009-2011

Co-organizer of symposia for Society for Integrative and Comparative Biology (2002),  
American Society of Limnology and Oceanography (2001, 2006) and American Association of  
Anatomists (2010)

Developed lesson plans and educational outreach website based on research and database to allow user  
access to over 10 years of intertidal temperature measurements:

<http://www.biol.sc.edu/~helmuthlab> and <http://climate.biol.sc.edu>

Board member, South Carolina Marine Educators Association, 2001-2003

Member CERSAP review team for SAP 4.3 (interagency panel on climate change) 2007-08.

Contributing Editor, *Marine Ecology Progress Series*

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Mark W. Denny (Post Doctoral Research Advisor, Stanford University)

### Students and Post Docs Advised:

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Karl Castillo (Ph.D. awarded 2008, USC Marine Science Program)  
Maxine Henry (M.S. Awarded 2005, USC Marine Science Program)  
Jennifer Jost (Ph.D. awarded 2007, USC Biological Sciences)  
Kimberly Schneider (Ph.D. awarded Fall 2006; USC Biological Sciences)  
Lauren Szathmary (M.S. awarded 2006, USC Biological Sciences)  
Lauren Yamane (M.S. awarded 2008, USC Marine Science Program)  
Allison Smith (Ph.D. awarded 2010, USC Biological Sciences)  
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Nicholas Colvard (Ph.D student, USC Biological Sciences; 2010-present)

#### *Postdoctoral students:*

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Sylvain Pincebourde (Post Doctoral Research Associate, 2006-2007)