

CURRICULUM VITAE

BRIAN HELMUTH

CONTACT INFORMATION

Marine Science Center, Northeastern University, 430 Nahant Road, Nahant, MA 01908
b.helmuth@northeastern.edu, 617.373.2059 <http://helmuthlab.cos.northeastern.edu>

EXPERTISE

My research centers on forecasting the likely impacts of global climate change on coastal marine socio-ecological systems, and on the creation and testing of products and indicators that are scientifically accurate, understandable, impactful, and useful by a diverse array of stakeholders. Much of my work centers on the facilitation of international diplomacy through science. I am lead science advisor for Fabien Cousteau's Proteus underwater saturation diving habitat, intended as the International Space Station of the ocean floor.

Education

Post Doctoral Researcher, Stanford University, Hopkins Marine Station, Pacific Grove, California (Mark Denny, supervisor) 1997- 1999.

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)

Employment history

Professor, Department of Marine and Environmental Sciences and School of Public Policy and Urban Affairs, (joint appointment), Northeastern University, Boston, MA Jan 2013-Present

Affiliated faculty, Department of Civil and Environmental Engineering, Northeastern University, Boston, MA 2016 -present

Director, Masters program in Environmental Science and Policy, Northeastern University, Boston, MA July 2018-May 2020.

Director, Sustainability Science and Policy Initiative, Northeastern University, Boston, MA Jan 2013-Dec 2015.

Director, Environment and Sustainability Program, University of South Carolina, Columbia, SC 2011-2012.

Special Advisor on Sustainability, Office of the Vice President for Research, University of South Carolina, Columbia, SC 2011-2012.

Professor, University of South Carolina, Columbia, SC May 2009-Dec 2012.

Associate Professor, University of South Carolina, Columbia, SC July 2004-May 2009.
Assistant Professor, University of South Carolina, Columbia, SC June 1999-July 2004.
Instructor, Three Seas Marine Biology Program, Panama, 2003-2018

Awards, Honors, and Fellowships

Full member, Sigma Xi, 2022
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.

Peer-reviewed Publications * indicates student authors, (Google scholar: 14,012 citations, h index 65, i10 index 111; Web of Science: 9,259 citations, h index 53, WOS Researcher ID AAD-2664-2019; ORCID 0000-0003-0180-3414).

2024

121. Foulk*, A, T. Gouhier, F. Choi, J.L. Torossian, A. Matzelle, D. Sittenfeld, and **B. Helmuth**. 2024. Physiologically informed organismal climatologies reveal unexpected spatiotemporal trends in temperature. *Conservation Physiology* 12(1):coae025. <https://doi.org/10.1093/conphys/coae025>

2023

120. McElwee, P.D., S.L. Carter, K.J.W. Hyde, J.M. West, K. Akamani, A.L. Babson, G. Bowser, J.B. Bradford, J.K. Costanza, T.M. Crimmins, S.C. Goslee, S.K. Hamilton, **B. Helmuth**, S. Hoagland, F.-A.E. Hoover, M.E. Hunsicker, R. Kashuba, S.A. Moore, R.C. Muñoz, G. Shrestha, M. Uriarte, and J.L. Wilkening, 2023. Ch. 8. Ecosystems, ecosystem services, and biodiversity. In: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. <https://doi.org/10.7930/NCA5.2023.CH8>
119. May, C.L., A.R. Crimmins, S.R. Cooley, E. Fleishman, E.E. Grossman, **B. Helmuth**, R.A. MacKenzie, D.R. Ramirez Lopez, and E. Wasley, 2023. Focus on blue carbon. In: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. <https://doi.org/10.7930/NCA5.2023.F5>
118. Harper, Meagan, Trina Rytwinski, Irena F. Creed, **Brian Helmuth**, John P. Smol, Joseph R. Bennett, Dalal Hanna, Leonardo A. Saravia, Juan Rocha, Charlotte Carrier-Belleau, Aubrey Foulk*, Ana Hernandez Martinez De La Riva, Courtney Robichaud, Lauren Sallan, Angeli Sahdra and Steven J. Cooke. 2023. A multi-realm perspective on applying tipping points to environmental decision-making. *Environmental Reviews* doi: 10.1139/er-2023-0042.

117. Fieseler, Clare M., Nadia Al-Mudaffar Fawzi, **Brian Helmuth**, Alexandra Leitão, Mehsin Al Ains, Mohammad Al Mukaimi, Mohammad Al-Saidi, Fahad Al Senafi, Ivonne Bejarano, Radhouan Ben-Hamadou, Josh D’Addario, Ahmad Mujthaba Dheen Mohamed, Bruno W. Giraldez, Lyle Glowka, Maggie D. Johnson, Brett P. Lyons, Daniel Mateos-Molina, Christopher D. Marshall, Sayeed Mohammed, Pedro Range, Mohammad Reza Shokri, John M. K. Wong and Nicholas D. Pyenson. **2023**. Expanding ocean protection and peace: a window for science diplomacy in the Gulf. *Royal Society Open Science* 10: 230392. doi: 10.1098/rsos.230392
116. Kim*, Joan, Nicole Betz, **Brian Helmuth** and John D. Coley. **2023**. Conceptualizing human-nature relationships: Implications of human exceptionalist thinking for sustainability and conservation. *Topics in Cognitive Science*, 15: 357-387. doi: 10.1111/tops.12653
115. Perovich, Laura J., Catherine Titcomb*, Tad Hirsch, **Brian Helmuth** and Casper Hartevelt. **2023**. Sustainable HCI under water: Opportunities for research with oceans, coastal communities, and marine systems. *CHI ’23, April 23-28, Hamburg, Germany*. <https://doi.org/10.1145/3544548.3581291>
114. Varade*, Marissa L., Francis Choi, **Brian Helmuth** and Steven Scyphers. **2023**. Catching versus counting: comparing the pro-environmental attitudes, behaviors and climate concerns of recreational fishers and citizen scientists. *Sustainability* 15(1), 307. doi: 10.3390/su15010307.
113. Mancuso, Francesco Paolo, Chiara Giommi, Maria Cristina Mangano, Laura Airoidi, **Brian Helmuth** and Gianluca Sarà. **2023**. Evenness, biodiversity, and ecosystem function of intertidal communities along the Italian coast: experimental short-term response to ambient and extreme air temperatures. *Science of the Total Environment*, 858, 160037. Doi: 10.1016/j.scitotenv.2022.160037

2022

112. Salois*, S., T. Gouhier, **B. Helmuth**, F. Choi, R. Seabra and F.P. Lima. **2022**. Coastal upwelling generates cryptic temperature refugia. *Scientific Reports*, 12: 19313. Doi: 10.1038/s41598-022-23717-5
111. Sittenfeld*, D., M. Farooque, **B. Helmuth**, S.Benson, E. Hostetler, F. Choi, N. Weller, C. Nickerson, K. Todd, and D. Cavalier. **2022**. Citizen Science, civics, and resilient communities: Informing community resilience policies through local knowledge, community values, and community-generated data. *Citizen Science: Theory and Practice*, 7(1): 33, pp. 1-18. doi: 10.5334/cstp.516
110. Dong, Yun-Wei, Jorge García Molinos, Eric R. Larson, Qiang Lin, Xuan Liu, Gianluca Sarà, Qing-Hua Cai, Zhixin Zhang, **Brian Helmuth** and Amanda Bates. **2022**. Biological traits, geographic distributions, and species conservation in aquatic ecosystems. *Diversity and Distributions* 28: 1516-1523. doi: 10.1111/ddi.13600
109. Al-Mudaffar Fawzi, Nadia, Clare M. Fieseler, **Brian Helmuth**, Alexandra Leitão, Mehsin Al-Ainsi, Mohammad Al Mukaimi, Mohammad Al-Saidi, Fahad Al Senafi, Ivonne Bejarano, Radhouan Ben-Hamadou, Josh D’Addario, Ahmad Mujthaba Dheen Mohamed, Bruno W. Giraldez, Lyle Glowka, Maggie D. Johnson, Brett P. Lyons, Daniel Mateos-Molina, Christopher D. Marshall, Sayeed Mohammed, Pedro Range, Mohammad Reza Shokri, John M. K. Wong, Nicholas D. Pyenson. **2022**. Diplomacy for the world’s hottest sea. *Science* 376: 1389-1390. doi: 10.1126/science.add2508. (Journal IF: 47.73).

108. Mangano, M.C., M. Berlino, L. Corbari, G. Milisenda, M. Lucchese, S. Terz, M. Bosch-Belmar, M.S. Azaza, J.M.F. Babarro, R. Bakiu, B.R. Broitman, A.H. Buschmann, R. Christofolletti, Y. Dong, B. Glamuzina, O. Luthman, P. Makridis, A.J.A. Nogueira, M. G. Palomo, R. Dineshram, P. Sanchez-Jerez, H. Sevgili, M. Troell, K.Y. AbouelFadl, M. N. Azra, P. Britz, E. Carrington, I. Celic, F. Choi, C. Qin, M.A. Dionisio, T. Dobroslavic, P. Galli, D. Giannetto, J.H. Grabowski, **B. Helmuth**, M.J.H. Leбата-Ramos, P.T. Lim, Y. Liu, S.M. Llorens, S. Mirto, M. Pécarevic, C. Pita, N. Ragg, E. Ravagnan, D. Saidi, K. Schultz*, M. Shaltout, S.H. Tan, V. Thiyagarajan, G. Sará. **2022**. The aquaculture supply chain in the time of covid-19 pandemic: Vulnerability, resilience, solutions and priorities at the global scale. *Environmental Science and Policy* 127: 98-110 doi: 10.1016/j.envsci.2021.10.014. (Journal IF: 5.58).

2021

107. Hassan Ali, Malik, Nadia Al-Mudaffar Fawzi, Hanaa Hussein Mohammed, **Brian Helmuth**, and Amanda M. Dwyer*. **2021**. Winners and losers: post conflict biodiversity in the stressed ecosystem of Khor Al-Zubair, Iraq. *Pakistan Journal of Marine Sciences* 30(2): 76-95.
106. Coley, John D., Nicole Betz, **Brian Helmuth**, Keith Ellenbogen, Steven Scyphers and Daniel Adams. **2021**. Beliefs about human-nature relationships and implications for investment and stewardship surrounding land-water systems. *Land*, 10(12): 1293. (Journal IF: 3.90). doi: 10.3390/land10121293
105. Montes, E., J.S. Lefcheck, E. Guerra-Castro, E. Klein, M.T. Kavanaugh, A. C.de Azevedo Mazzuco, G. Bigatti, C.A.M.M. Cordeiro, N. Simoes, E.C. Macaya, N. Moity, E. Londoño-Cruz, **B. Helmuth**, F. Choi, E.H. Soto, P. Miloslavich and F.E. Muller-Karger. **2021**. Optimizing large-scale biodiversity sampling effort: Toward an unbalanced survey design. *Oceanography*. doi: 10.5670/oceanog.2021.216 (Journal IF: 2.34).
104. Bravo, G., N. Moity, E. Londoño-Cruz, F. Muller-Karger, G. Bigatti, E. Klein, F. Choi, L. Parmalee*, **B. Helmuth**, and E. Montes. **2021**. Robots versus humans: Automated annotation accurately quantifies essential ocean variables of rocky intertidal functional groups and habitat state. *Frontiers in Marine Science* 8: 691313. doi: 10.3389/fmars.2021.691313. (Journal IF: 4.44).
103. Cryan*, A., F. Choi, D. Adams and **B. Helmuth**. **2021**. Heat budget model facilitates exploration of thermal ecology on urban shoreline infrastructure. *Ecological Engineering* 171: 106371. (Journal IF: 4.04).
102. Muller-Karger, F., M. Kavanaugh, K. Iken, E. Montes, F. Chavez, H. Ruhl, R. Miller, J. Runge, J. Grebmeier, L. Cooper, **B. Helmuth**, E. Escobar-Briones, N. Hammerschlag, M. Estes, J. Pearlman, E. Hestir, E. Duffy, K.J. Sarri, C. Hudson, J. Landrum, G. Canonico, L. Jewett, J. Newton, B. Kirkpatrick, C. Anderson, A. Bates, I. Sousa-Pinto, M. Nakaoka, and J. Soares. **2021**. Marine Life 2030: Forecasting changes to ocean biodiversity to inform decision making: A critical role for the Marine Biodiversity Observation Network (MBON). *Marine Technology Society Journal* 55(3): 84-85. doi: 10.4031/MTSJ.55.3.28.
101. Caviglia-Harris, J., K. E. Hodges, **B. Helmuth**, E. M. Bennett, K. Galvin, M. Krebs, K. Lips, M. Lowman, L. A. Schulte Moore and E.A.G. Schuur. **2021**. The six dimensions of collective leadership that advance sustainability objectives: rethinking what it means to be an academic leader. *Ecology and Society*, 26(3): 9. doi: 10.5751/ES-12396-260309. (Journal IF: 4.40).

100. Minuti*, J.J., C.A. Corra*, **B.S. Helmuth**, and B.D. Russell. 2021. Increased thermal sensitivity of a tropical marine gastropod under combined CO₂ and temperature stress. *Frontiers in Marine Science*, 8:643377. doi: 10.3389/fmars.2021.643377. (Journal IF: 4.44).
99. Liao, M., G. Li, J. Wang, D. Marshall, T. Hui, S. Ma, Y. Zhang, **B. Helmuth**, and Y. Dong. 2021. Physiological determinants of biogeography: the importance of metabolic depression to heat tolerance. *Global Change Biology*, 27: 2561-2579. (Journal IF: 8.56).
98. Sarà, G., M.C. Mangano, M. Berlino, L. Corbari, M. Lucchese, G. Millsenda, S. Terzo, M.S. Azaza, J.M.F. Babarro, R. Bakiu, B. Broitman, A.H. Buschmann, R. Christofolletti, A. Deidun, Y. Dong, J. Galdies, B. Glamuzina, O. Luthman, P. Makridis, A.J.A. Nogueira, M.G. Palomo, R. Dineshran, G. Rilov, P. Sanchez-Jerez, H. Sevgili, M. Troell, K.Y. AbouelFadl, M. Azra, P. Britz, C. Brugere, E. Carrington, I. Celic, F. Choi, Q. Chuanxin, T. Dobroslavic, P. Galli, D. Giannetto, J.H. Grabowski, M.J.H. Leбата-Ramos, P.T. Lim, Y. Liu, S.M. Llorens, G. Maricchiolo, S. Mirto, M. Pecarevic, N. Ragg, E. Ravagnan, D. Saidi, K. Schultz*, M. Shaltout, C. Solidoro, S.H. Tan, R.V. Thiagarajan, and **B. Helmuth**. 2021. The synergistic impacts of anthropogenic stressors and COVID-19 on aquaculture: a current global perspective. *Reviews in Fisheries Science and Aquaculture*, doi: 10.1080/23308249.2021.1876633 (Journal IF: 3.95)

2020

97. **Helmuth, B.**, J.J. Leichter, R.D. Rotjan, K.D. Castillo, C. Fieseler, M.S. Jones and F. Choi. 2020. High resolution spatiotemporal patterns of seawater temperatures across the Belize Mesoamerican Barrier Reef. *Nature Scientific Data*, 7:396. doi: 10.1038/s41597-020-00733-6. (Journal IF: 4.80)
96. Mangano, M.C., N. Mieszkowska, **B. Helmuth**, T. Domingos, T. Sousa, G. Baiaomonte, G. Bazan, A. Cuttitta, F. Fiorentino, A. Giacoletti, M. Johnson, G.D. Lucido, M. Marcelli, R. Martellucci, S. Mirto, B. Patti, F. Pranovi, G.A. Williams and G. Sarà. 2020. Moving towards a strategy for addressing climate displacement of marine resources: a proof-of-concept. *Frontiers in Marine Science* 7:408. doi: 10.3389/fmars.2020.00408 (Cited 4 times, Journal IF: 3.07)
95. Torossian*, J.L., K.E. Hosek*, S.C. Donelan*, G.C. Trussell, **B.S. Helmuth** and M.L. Zippay. 2020. Physiological and biochemical responses to acute environmental stress and predation risk in the blue mussel, *Mytilus edulis*. *Journal of Sea Research* 159: 101891. (Cited 2 times, Journal IF: 1.85)
94. Wang, W., J. Wang, F.M.P. Choi, P. Ding, X. Li, G. Han, M. Ding, M. Guo, X. Huang, W. Duan, Z. Cheng, Z. Chen, S.J. Hawkins, Y. Jiang, **B. Helmuth**, and Y. Dong. 2020. Global warming and artificial shorelines reshape seashore biogeography. *Global Ecology and Biogeography*, 29: 220-231; doi: 10.1111/geb.13019. (Cited 2 times, Journal IF: 5.99)

2019

93. Duwan*, E., F. Choi and **B. Helmuth**. 2019. Assessing the use of virtual reality technology in teaching marine ecological concepts. *Journal of STEM Outreach*, 2: 1-11. doi: 10.15695/jstem/v2i1.14
92. Canonico, G., P.L. Buttigieg, E. Montes, C. A. Stepien, D. Wright, A. Benson, **B. Helmuth**, M. J. Costello, F. E. Muller-Karger, I. S. Pinto, H. Saeedi, J. A. Newton, W. Appeltans, N. Bednaršek, L. Bodrossy, B. D. Best, A. Brandt, K. Goodwin, K. Iken, A. Marques, P. Miloslavich, M. Ostrowski, W. Turner, E. Achterberg, T. Barry, O. Defeo, G. Bigatti, L. Henry, B. R. Sanchez, P. D. Muñoz, M. Mar Sacau Cuadrado, T. Morato, M. Roberts, A. G. Garcia-Alegre, B. J. Murton. 2019. Global

observational needs and resources for marine biodiversity *Frontiers in Marine Science* 6: doi: 10.3389/fmars.2019.00367 (Cited 12 times, Journal IF: 3.07)

91. Choi, F., T. C. Gouhier, F. Lima, G. Rilov, R. Seabra, and **B. Helmuth**. 2019. Mapping Physiology: Biophysical mechanisms define scales of climate change impacts. *Conservation Physiology* 7, doi:10.1093/conphys/coz028. (Cited 2 times, Journal IF: 3.15)
90. Rilov, G. A.D. Mazaris, V. Stelzenmüller, **B. Helmuth**, M. Wahl, T. Guy-Haim, N. Mieszkowska, J.B. Ledoux, and S. Katsanevakis. 2019. Adaptive marine conservation planning in the face of climate change: What can we learn from physiological, ecological and genetic studies? *Global Ecology and Conservation* 17: e00566. doi: 10.1016/j.gecco.2019.e00566 (Cited 23 times, Journal IF: 3.00)

2018

89. Judge*, R., F. Choi and **B. Helmuth**. 2018. Recent advances in data logging for intertidal ecology. *Frontiers in Ecology and Evolution*, doi: 10.3389/fevo.2018.00213. (Cited 7 times, Journal IF: 2.08)
88. Zhou, X., X. Ji, B. Wang, Y. Cheng, Z. Ma, F. Choi, **B. Helmuth** and W. Xu. 2018. Pido: Predictive delay optimization for intertidal wireless sensor networks. *Sensors*, 18, 1464. Doi: 10.3390/s18051464 (Cited 7 times, Journal IF: 2.5)
87. Connell, S.D., Z.A. Doubleday, N.R. Foster, S.B. Hamlyn, C.D.G. Harley, **B. Helmuth**, B.P. Kelaher, I. Nagelkerken, K.L. Rodgers, G. Sarà and B.D. Russell. 2018. The duality of disturbance: ocean acidification as both a resource and a stressor drives a shift in ecosystem state. *Ecology*, 99(5):1005-1010. (Cited 26 times, Journal IF: 4.6)

2017

86. Harley, C.D.G., S.D. Connell, Z.A. Doubleday, B. Kalaher, B.D. Russell, G. Sarà and **B. Helmuth**. 2017. Conceptualizing ecosystem tipping points within a physiological framework. *Ecology and Evolution* DOI: 10.1002/ece3.3164. (Cited 23 times, Journal IF: 2.5)
85. Dong, Y., X. Li, F.M.P. Choi, G.A. Williams, G.N. Somero and **B. Helmuth**. 2017. Untangling the roles of microclimate and physiological polymorphism in governing vulnerability of intertidal snails to heat stress. *Proc. Royal Society London B*, 284, 20162367. (Cited 29 times, Journal IF: 5.7)
84. Connell, S.D., Z.A. Doubleday, S.B. Hamlyn, N.R. Foster, C.D.G. Harley, **B. Helmuth**, B.P. Kelaher, I. Nagelkerken, G. Sarà and B.D. Russell. 2017 How ocean acidification can benefit calcifiers. *Current Biology*, 27(3), 95-96. (Cited 47 times. Journal IF: 8.9)
83. Colvard*, N. and **B. Helmuth**. 2017. Nutrients influence the thermal ecophysiology of an intertidal macroalga: Multiple stressors or multiple drivers? *Ecological Applications*, 27(2), 669-681. doi: 10.1002/eap.1475 (Cited 7 times, Journal IF: 4.3)

2016

82. **Helmuth, B.**, T.C. Gouhier, S. Scyphers and J. Mocarski. 2016. Trust, tribalism and tweets: has political polarization made science a “wedge issue?” *Climate Change Responses* 3(1) doi.org/10.1186/s40665-016-0018-z (Cited 9 times)
81. **Helmuth, B.**, F. Choi, A. Matzelle*, J.L. Torossian*, S. Morello, K.A.S. Mislan, L. Yamane, D. Strickland, P.L. Szathmary, S. Gilman, A. Tockstein, T.J. Hilbush, M.T. Burrows, A.M. Power, E. Gosling, N. Mieszkowska, C.D.G. Harley, M. Nishizaki, E. Carrington, B. Menge, L. Petes, M. Foley, A. Johnson, M. Poole, M.M. Noble, E.L. Richmond, M. Robart, J. Robinson, J. Sapp, J. Sones, B.R. Broitman, M.W. Denny, K. Mach, L.P. Miller, M. O'Donnell, P. Ross, G.E. Hofmann, M. Zippay, C. Blanchette, J.A. Macfarlan, E. Carpizo-Ituarte, B. Ruttenberg, C.E. Peña Mejía, C. McQuaid, J. Lathlean, C. Monaco, K.R. Nicastro, and G. Zardi. 2016. Long-term, high frequency *in situ*

measurements of intertidal mussel bed temperatures using biomimetic sensors. *Scientific Data*, 3:160087. (Cited 42 times, Journal IF: 4.8)

80. Monaco*, C.J., D.S. Wetthey and **B. Helmuth**. 2016. Thermal sensitivity and the role of behavior in driving an intertidal predator-prey interaction. *Ecological Monographs*, 86(4): 429-447. (Cited 12 times, Journal IF: 8.8)
79. Sinclair, B.J., K.E. Marshall, M.A. Sewell, D.L. Levesque, C.S. Willett, S. Slotsbo, Y. Dong, C.D.G. Harley, D.J. Marshall, **B.S. Helmuth** and R.B. Huey. 2016. Can we predict ectotherm responses to climate change using thermal performance curves and body temperatures? *Ecology Letters*, doi:10.1111/ele.12686. (Cited 527 times, Journal IF: 10.7)
78. Kish*, N., **B. Helmuth** and D.S. Wetthey. 2016. Physiologically-grounded metrics of model skill: a case study estimating heat stress in intertidal populations. *Conservation Physiology*, 4, doi: 10.1093/conphys/cow038. (Cited 12 times, Journal IF: 2.3)
77. Montalto, V., **B. Helmuth**, P.M. Ruti, A. Dell'Aquila, A. Rinaldi, and G. Sarà. 2016. A mechanistic approach reveals nonlinear effects of climate warming on mussels throughout the Mediterranean Sea. *Climatic Change*, 139: 293. doi 10.1007/s10584-016-1780-4. (Cited 15 times, Journal IF: 3.3)
76. Williams, G.A., **B. Helmuth**, B.D. Russell, Y. Dong, V. Thiagarajan, and L. Seuront. 2016. Meeting the climate change challenge: Pressing issues in southern China and SE Asian coastal ecosystems, *Regional Studies in Marine Science*, 8(3):373-381. (Cited 25 times, Journal IF: 0.9)
75. Kroeker, K. J., E. Sanford, J. M. Rose, C. A. Blanchette, F. Chan, F. P. Chavez, B. Gaylord, **B. Helmuth**, T. M. Hill, G. E. Hofmann, M. A. McManus, B. A. Menge, K. J. Nielsen, P. T. Raimondi, A. D. Russell, and L. Washburn. 2016. Interacting environmental mosaics drive geographic variation in mussel performance and species interactions. *Ecology Letters*, 19:771-779. (Cited 87 times, Journal IF: 10.7)

2015

73. Monaco, C.J., D.S. Wetthey, S. Gullette and **B. Helmuth**. 2015. Shore level size gradients and thermal refuge use in the predatory sea star *Pisaster ochraceus*: the role of environmental stressors. *Mar. Ecol. Prog. Ser.*, 539: 191-205. (Cited 11 times, Journal IF: 2.5)
72. Marshall, D.J., E.L Rezende, N. Baharuddin, F. Choi and **B. Helmuth**. 2015. Thermal tolerance and climate warming sensitivity in tropical snails. *Ecology and Evolution*, doi: 10.1002/ece3.1785. (Cited 38 times, Journal IF: 2.3)
71. Matzelle*, A.J., G. Sarà, V. Montalto*, M. Zippay, G.C. Trussell, and **B. Helmuth**. 2015. A bioenergetics framework for integrating the effects of multiple stressors: opening a “blackbox” in climate change research. *American Malacological Bulletin*, 33:1-11 (Cited 18 times, Journal IF 1.1)

2014

70. **Helmuth, B.** B.D. Russell, S.D. Connell, Y. Dong, C.D.G. Harley, F.P. Lima, G. Sarà, G.A. Williams and N. Mieszkowska. 2014. Beyond long-term averages: making biological sense of a rapidly changing world. *Climate Change Responses*, 1: 10-20. (Cited 97 times)
69. Monaco*, C. J., D.S. Wetthey and **B. Helmuth**. 2014 A dynamic energy budget (DEB) model for the keystone predator *Pisaster ochraceus*. *PLoS ONE*, 9(8): 1-19. (Cited 30 times, Journal IF 3.7)
68. Petes, L.E., J.F. Howard, **B. S. Helmuth** and E. K. Fly. 2014. Science integration into US Climate and ocean policy. *Nature Climate Change* 4(8): 671-677. (Cited 19 times, Journal IF 14.5)
67. Colvard*, N., E. Carrington and **B. Helmuth** 2014. Temperature-dependent photosynthesis in the intertidal alga *Fucus gardneri* and sensitivity to ongoing climate change. *J. Exp. Mar. Biol. Ecol.*, 458: 6-12. (Cited 22 times, Journal IF: 2.5)

66. Montalto*, V., G. Sará, P.M. Ruti, A. Dell'Aquila, and **B. Helmuth**. 2014. Testing the effects of temporal data resolution on predictions of the effects of climate change on bivalves. *Ecological Modelling*, 278: 1-8. (Cited 22 times, Journal IF: 2.4)
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64. Mislan*, K.A.S., **B. Helmuth** and D.S. Wethey. 2014. Geographical variation in climatic sensitivity of intertidal mussel zonation. *Global Ecology and Biogeography*, DOI: 10.1111/geb.12160 (Cited 38 times, Journal IF: 7.2)
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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. (Cited 76 times, Journal IF: 3.0)
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. *Journal of Experimental Marine Biology and Ecology* 209: 233-259. (Cited 85 times, Journal IF: 1.9)
7. **Helmuth B.S.T.**, E.F. Stockwell and D.R. Brumbaugh. **1997.** Morphological and environmental determinants of mass flux to corals, *Proceedings of the 8th International Coral Reef Symposium, Panama* 2:1103-1108.
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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). *Journal of Experimental Marine Biology and Ecology* 211:1-28. (Cited 168 times, Journal IF: 1.9)
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. (Cited 50 times, Journal IF: 1.3)
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*. *Limnology and Oceanography* 41(3): 505-512. (Cited 16 times, Journal IF: 3.4)

2. **Helmuth B.**, R.R. Veit and R. Holberton. 1994. Long-distance dispersal of a subantarctic brooding bivalve (*Gaimardia trapesina*) by kelp rafting. *Marine Biology* 120: 421-426. (Cited 271 times, Journal IF: 2.0)
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NON-PEER Reviewed Articles (* indicates student authors)

- Helmuth, B.**, F. Choi, R. Boenish, F. Zhao, Z. Ma, Y. Jia, D. Rader and J. Young. 2021. Integrated and climate-resilient management of biodiversity in the Yangtze River Delta. *Environmental Defense Fund*.
- Bates, A.E., **B. Helmuth**, M.T. Burrows, M.I. Duncan, J. Garrabou, T. Guy-Haim, F. Lima, A.M. Queiros, R. Seabra, R. Marsh, J. Belmaker, N. Bensoussan, Y. Dong, A.D. Mazaris, D. Smale, M. Wahl and G. Rilov. 2018. Biologists ignore ocean weather at their peril. *Nature* 560: 299-301. (Cited 56 times)
- Torossian*, J., R. Kordas and **B. Helmuth**. 2016. Cross-scale approaches to forecasting biogeographic responses to climate change. *Advances in Ecological Research*, 55:371-433. (Cited 14 times)
- Howard, J., E. Babij, R. Griffis, **B. Helmuth**, A. Himes-Cornell, P. Niemier, M. Orbach, L. Petes. et al. 2013 Oceans and Marine Resources in a Changing Climate. *Oceanography and Marine Biology Annual Review* 51:71-192. (Cited 41 times).
- Monaco*, C. and B. Helmuth. 2011. Tipping points, thresholds, and the forgotten role of physiology in climate change research. *Advances in Marine Biology* 60: 123-162. (Cited 76 times, Journal IF: 2.1)
- Denny M. and **B. Helmuth**. 2009. Confronting the Physiological Bottleneck: a challenge from ecomechanics. *Integrative and Comparative Biology* 49(3): 197-201. (Cited 74 times, Journal IF: 3.0)
- 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, "Waveswept shore: the rigors of life on a rocky coast." *Ecology* 88(1):264-265.
- 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. *Annual Review of Ecology Evolution and Systematics* 37: 373-404. (Cited 701 times, Journal IF: 10.4)
- Helmuth, B.**, J.G. Kingsolver and E. Carrington, 2005. Biophysics, physiological ecology, and climate change: Does mechanism matter? *Annual Review of Physiology*, 67: 177-201. (Cited 517 times, Journal IF: 19.5)
- Helmuth B.**, R.R. Veit and R. Holberton. 1994. Dispersal of benthic invertebrates in the Scotia Arc by kelp rafting. *Antarctic Journal of the U.S.*, 29(5): 145-147.

Books and Book Chapters (* indicates student authors)

- Helmuth, B.** 2021. Weathering the impacts of climate change: methods for measuring the environment at scales relevant to conservation physiology. In **Conservation Physiology: Applications for wildlife conservation and management**, edited by C.L. Madliger, C.F. Franklin, O.P. Love and S.J. Cooke. Oxford University Press.

- Cryan*, A., **B. Helmuth** and S. Scyphers. 2019. Ecological Design for Urban Coastal Resilience. In **Handbook on the Resilience of Socio-technical Systems**, edited by M. Ruth and S.G. Reisemann, Edward Elgar Publishing.
- Geller, G.N., P.N. Halpin, **B. Helmuth**, E.L. Hestir, A. Skidmore, M.J. Abrams, N. Aguirre, M. Blair, E. Botha, M. Colloff, T. Dawson, J. Franklin, N. Horning, C. James, W. Magnusson, M.J. Santos, S.R. Schill and K. Williams. 2017. Remote sensing for Biodiversity. Ch. 8 in **The GEO Handbook on Biodiversity Observation Networks**, edited by M. Walters and R.J. Scholes. Springer, pp. 187-210.
- Blanchette, C.A., M.W. Denny, J.M. Engle, **B. Helmuth**, L.P. Miller, K.J. Nielsen and J. Smith. 2016. Intertidal, Chapter 18 (pp. 337-357) in H.A. Mooney and E. Zavaleta, eds, *Ecosystems of California*, University of California Press.
- Weissburg, M., **B. Helmuth** and J. Witman. 2013. Physical drivers of marine communities. Ch. 2 in **Marine Community Ecology and Conservation**, edited by M. Bertness, J. Bruno, B. Silliman and J. Stachowicz. Sinauer, pp. 11-36.
- Griffis, R., J. Howard, J., E. Babij, **B. Helmuth**, A. Himes-Cornell, P. Niemier, M. Orbach, L. Petes et. al. 2013. *Oceans and Marine Resources in a Changing Climate: A technical input to the 2013 National Climate Assessment*. Island Press.
- 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. (Cited 23 times).
- Mislan*, K.A.S. and **B. Helmuth**. 2008. "Microclimate" In **Encyclopedia of Ecology**, Edited by S.E. Jørgensen and B. Fath. Elsevier, Oxford. pp. 2389-2393.
- 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.
- 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.

Manuscripts in review

Invited Presentations

International

International Workshop of Environmental Justice & Sustainability (keynote speaker). Benin, **Nigeria**, October 2023.

Diving Talks, Lisbon, **Portugal**, October, 2023.

Sustainable Blue Economy Investment Forum. Cascais, **Portugal**, October 2023.

Blue Crab Mediterranean Workshop (keynote speaker). Palermo, **Italy**, December 2022.

Society of Experimental Biology, Annual Meeting, Antwerp, **Belgium** (virtual due to COVID 19), July 2021.

International Conference on Fishery Innovation and Sciences, Shanghai, **China**, September, 2019

Marine Biodiversity Observation Network Pole to Pole, Puerto Morelos, Quintana Roo, **Mexico**, April, 2019.

Sixth International Symposium on DEB theory for metabolic organization (keynote), Brest, **France**, April, 2019.

Kuwait University, Department of Marine Science. Kuwait City, **Kuwait**, March, 2019.

Climate Change and Fisheries International Workshop (Environmental Defense Fund with Chinese Academy of Fisheries Science), Qingdao, **China**, November 2018.

Marine Biodiversity Observation Network Pole to Pole, Centro de Biologia Marinha, São Sebastião, **Brazil**, August 2018.

Society for Experimental Biology, Florence, **Italy**, July 2018.

American Society of Limnology and Oceanography, Victoria **Canada**, June 2018.

Xiamen University, Lingfeng Forum, Xiamen University, **China**, April 2018

MARCONS, Israel Oceanographic and Limnological Research, Haifa, **Israel**. March 2018.

US Department of State Visiting Scholar lecture series, University of Basrah, **Iraq**. January 2018.

Dongshan Marine Station, Xiamen University, **China**, May 2017.

United Nations General Assembly, High level meeting on climate change and sustainability. March 2017.

Batsheva de Rothschild Seminar: Environmental Science and Policy- Challenges in the South Eastern Mediterranean, Mt. Carmel, **Israel**, November 2015 (Invited keynote)

Aquatic Biodiversity and Ecosystems, Liverpool **U.K.**, September 2015 (Invited plenary)

Second XMAS Conference, Xiamen, **China**, January 2015

ICUBE Workshop: Gastropod thermal biology and climate change in the tropics, **Brunei**, December 2014

EUROMED conference, Naples, **Italy**, November, 2014

HETEROCLIM: The response of organisms to climate change in heterogeneous environments, Loches, **France**, June 2014

North Pacific Marine Science Organization (Invited speaker, Science Board Symposium); Nanaimo, British Columbia **Canada**, October 2013

Marine Ecocivilization Conference (Invited speaker), Wenzhou **China**, September 2013

World Congress of Malacology (Invited symposium speaker), Azores, **Portugal**, July 2013

University of **Hong Kong**, January 2013.

Iraq Ministry of Education, Dec. 2012

University of Basrah, Basra, **Iraq**. Nov. 2012

International Union of Biological Sciences (IUBS), Suzhou, **China**, July 2012

Xiamen University, **China**, June 2012

Society of Experimental Biology, “Survival in a changing world” Awaji Island, **Japan**, August 2009. Third International Symposium of Integrative Zoology, Chinese Academy of Sciences. Beijing, **China** (symposium keynote) July 2009.

INTERMED: The impact of climate change on Mediterranean intertidal communities: losses in coastal ecosystem integrity and services” (Keynote); Palermo, **Italy**. March 2009

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

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.

Society of Experimental Biology, Symposium "Climate change: from genes to ecosystems" Marseilles, **France**. July 2008.

CSIRO Symposium (plenary speaker), "In Hot Water: preparing for climate change in Australia's coastal and marine ecosystems." State Library of Queensland, Brisbane, **Australia** November 2007. Swire Institute of Marine Science, University of Hong Kong, International Conference on Ecophysiology of Marine Organisms, **Hong Kong**, January 2007.

Institut de Recherche sur la Biologie de l'Insecte, Université de Tours, France, December 2005. BIOINC conference, Instituto de Estudos do Mar Almirante Paulo Moreira, Cabo Frio, **Brazil** (Keynote Address), July 2005.

Centre for Research on the Ecological Impacts of Coastal Cities, University of Sydney, **Australia**, February 2005.

Bamfield Marine Station, British Columbia, **Canada**. October 2004.

Canadian Society of Zoologists, Wolfville, NS, **Canada** (Intertidal Physiological Ecology Symposium), May 2004.

Bamfield Marine Station, British Columbia, **Canada**. October 2003.

International Temperate Reef Symposium, Christchurch, **New Zealand** (Symposium: "Climate change and temperate reef ecosystems: integrating space and time"). January 2003.

Bamfield Marine Station, British Columbia, **Canada**. November 2002.

American Society of Limnology and Oceanography, DIALOG III symposium, **Bermuda** October 1999.

Eighth International Coral Reef Symposium, Panamá City, **Panamá**, (Symposium: "Flow and coral reefs: from micro- to meso-scale effects") June 1996.

National

Overseas Security Advisory Council (OSAC) Middle East and North Africa (MENA) Regional Committee Conference, Boston, MA, May 2022

American Academy for the Advancement of Science annual meeting, Washington, D.C., February 2019.

Leopold Leadership Program. Environmental Leadership Teach-In. Minneapolis, MN. June, 2018.

MultiAgency Rocky Intertidal Network (MARINE), Humboldt, CA. February, 2017. (Invited keynote).

Fourth International Sclerochronology Conference, Portland, Maine, June 2016 (Invited keynote)

Ocean Global Change Biology Gordon Research Conference, Waterville Valley, NH, July 2014

USGCRP, National Climate Assessment, Washington, D.C. March 2013.

American Society of Limnology and Oceanography, "Tick Talk: Communicating climate change," New Orleans, LA, Feb. 2013.

Western Society of Naturalists, Presidential Symposium. Seaside, CA Nov 2012

GreenGov, White House Council on Environmental Quality, Washington DC, November 2011

American Association of Anatomists, (Symposium, Biological Consequences of Climate Change), April 2010.

Presidential Awards for Excellence in Math and Science Teaching (keynote), National Science Foundation, Washington, D.C., December 2010

Climate Change and Marine Systems: Managing for Resiliency. Stanford Law School, April 2009.

Estuarine Research Foundation, Providence, R.I. November 2007 (Symposium, "Evaluating climate records to understand causes and effects of climate variability in coastal systems."

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

American Academy for the Advancement of Science, Invited Speaker, San Francisco, February 2007. Joint Workshop on NASA Biodiversity, Terrestrial Ecology, and Related Applied Sciences (Keynote address); Adelphi, MD, August 2006.

American Society of Limnology and Oceanography (Symposium, “Forecasting Biogeographic Responses to Climate Change in Coastal Ecosystems”), June 2006.

NASA Biodiversity and Ecological Forecasting meeting, Washington D.C., August 2005.

Benthic Ecology Meetings, Mobile, AL (Symposium: Three Seas East West Marine Biology 20th Anniversary) March 2004.

Western Society of Malacologists, Monterey, CA (Symposium: “Ecology of mollusks”). July 2002.

Society for Integrative and Comparative Biology, Anaheim, CA, (Co-organizer of Symposium: Physiological Ecology of Rocky Intertidal Organisms: from Molecules to Ecosystems) January 2002.

National Science Foundation, Biocomplexity P.I. Workshop. October 2001.

American Society of Limnology and Oceanography, Albuquerque, NM. (Co-organizer of Symposium: “From Molecules to Ecosystems: a Hierarchy of Mussel Biology”) February 2001.

Bodega Bay Marine Laboratory, Bodega, CA, June 2001.

Western Society of Naturalists annual meeting, (Symposium: “Biomechanics and ecology: is the marriage working?”) December 1997.

Regional/Local

Boston University, March 2022

Sonoma State University, Feb. 2021

University of Rhode Island, Department of Biological and Environmental Sciences, Sept. 2020.

Southern New England Chapter American Fisheries Society, Cambridge, MA Jan. 2020.

Packard Foundation China Fisheries Policy Alliance, University of Maine, Orono, October 2019.

18th Annual Symposium on Sustainability and the Environment, Bridgewater State University (keynote), November 2019.

University of Rhode Island, Graduate School of Oceanography, Narragansett, RI, October 2019.

Maine Maritime Academy, Castine, ME, September 2019.

University of Maine, Orono, ME, September 2019.

University of California, Davis, CA, April 2019.

University of California, Davis, Bodega Marine Laboratory, Bodega Bay, CA, April 2019.

University of Miami, Miami, FL, March 2019.

Boston Sea Rovers. March 2019.

University of Maryland Eastern Shore, Princess Anne, MD, May 2018.

Oregon Institute of Marine Biology, Coos Bay, OR. April 2017.

University of New England, Biddeford, ME. April 2017.

New England Aquarium, Lowell Institute Public Lecture Series. April 2017.

Boston Sea Rovers. March 2017.

University of Massachusetts, Boston. School for the Environment. January 2017.

State University of New York, Stony Brook, Department of Ecology and Evolution and School of Marine and Atmospheric Sciences, Oct. 2016.

Clark University, Department of Biology, Sept. 2016.

Bentley University School of Business, Innovation for a Sustainable Sea conference, April 2015

Salem State University Darwin Festival, April 2015
 University of Massachusetts Dartmouth, November 2014
 Woods Hole Oceanographic Institution, Department of Biology, Woods Hole, MA December 2013
 Harvard University, Department of Organismic and Evolutionary Biology, Cambridge MA, Oct 2013
 Tufts University, Department of Biology, Worcester, MA Oct 2013
 College of the Holy Cross, Worcester, MA Biology Department April 2013
 State University of New York, Stony Brook, Ecology and Evolution Department. April 2013 Explorers Club, New York, NY March 2012.
 Northeastern University, Jan 2012.
 Caring for Creation Conference, Lake Junaluska, NC, April 2011.
 University of North Carolina Chapel Hill, Department of Biology, February 2011 Caring for Creation Conference, Lake Junaluska, NC, April 2010.
 Duke Marine Laboratory, Beaufort, NC. October 2009.
 University of North Carolina, Wilmington, Department of Biology and Marine Biology. October 2008
 Coker College, Hartsville, SC. Centennial Celebration lecture. September, 2008.
 Environmental Educators Association of South Carolina, Keynote Address, June 2008.
 Florida State University, Coastal and Marine Laboratory, Elise B. Newell Seminar Series, March 2008
 Auburn University, Department of Biological Sciences, January 2008.
 University of Central Florida, Florida Seagrant Elise B. Newell Seminar Series, January 2008.
 Clemson University, Department of Biological Sciences, January 2008.
 Department of Natural Resources, Charleston, SC. October, 2006.
 University of Georgia, Athens. Institute of Ecology. Athens, GA. September, 2006 University of California Los Angeles, April 2006.
 University of New England, Maine, April 2006.
 California State University, Northridge, Department of Biology, November 2005
 Texas A&M University, Department of Oceanography, October 2005. Bowdoin College, Department of Biology, Maine, November 2004.
 University of Rhode Island, Department of Biology, November 2003
 University of Delaware, College of Marine Studies, Lewes, DE. October 2003
 Brown University, Department of Ecology and Evolutionary Biology, October 2003
 Ecological Society of America, Savannah, GA (Symposium: "Body size, biophysics and biological stoichiometry: from individual function to ecosystem structure"), August 2003 University of California, Berkeley, Department of Integrative Biology. Feb. 2003.
 Western Society of Naturalists, Monterey, CA, Nov. 2002. (Symposium: "Marine Ecological Patterns at the Large Scale").
 College of Charleston, Department of Biology, Charleston, SC, Sept. 2002.
 University of Washington, Friday Harbor Laboratories, May 2002.
 South Carolina Marine Educators Association, Hunting Island, SC, March 2002. Keynote address.
 University of North Carolina, Chapel Hill, Department of Marine Sciences. January 2002.
 Oregon State University, Corvallis, Department of Zoology, May 2000.
 University of South Carolina, Aiken, Department of Biology and Geology, March 2000.
 National Center for Ecological Analysis and Synthesis, "Modeling sessile growth" working group. Santa Barbara, CA, Aug. 1999.
 University of South Carolina, Columbia, Department of Biology, March 1998.
 University of California, Santa Cruz, Department of Biology, Feb. 1998.
 University of California, Davis, Division of Biological Sciences, Section of Evolution and Ecology. January 1998.

Stanford University, Hopkins Marine Station, Pacific Grove, CA. October 1997.
University of Washington, Seattle, School of Fisheries. June 1997.

Grants in Support of Research

External Grants:

- NSF- DRL: Cognitive foundations of environmental science education: Exploring impacts of human exceptionalism on marine Social-Ecological Systems thinking (with J. Coley [PI] and Catie Nielson). 5/24-5-29. \$1,499,994. (DRL 2400411)
- NOAA Ocean Exploration (with D. Distel [PI] and M. Patterson). Bioprospecting for industrial enzymes and drug lead compounds in an ancient submarine forest. 9/19-10/23. \$647,000. (NA19OAR0110303).
- NSF- OCE-BSF: A novel time-structured framework to account for the cryptic effects of temperature fluctuations on population dynamics (co-PI with T. Gouhier [PI]). 7/21-7/24. \$979,901. (OCE 2048894)
- Environmental Defense Fund. A climate road map for Sustainable Fisheries in China. 11/19-10/20. \$25,000.
- NSF - CBET: Tide gate modulation of wetland function: measurements, models, and decision support for best practices. (co-PI with Mark Patterson [PI] and Loretta Fernandez. 8/17-9/20. \$315,314 (CBET1702618)
- NSF- OCE-BSF: The effects of fine-scale temperature and desiccation variability on the distribution of marine species. Helmuth (PI) with T. Gouhier, G. Rilov and S. Filin. 9/16-8/19. \$646,147. (OCE1635989).
- NSF: Using an energetics framework to forecast the interactive effects of abiotic and biotic stressors on intertidal mussels. Helmuth (PI) with G. Trussell and M. Zippay; 2/16-1/19. \$399,508 (IBN 1557868).
- NOAA Environmental Literacy: Citizen science, civics and resilient communities: Increasing Resilience through Citizen-Created Data, Local Knowledge and Community Values (D. Sittenfeld, PI). 10/1/18-9/30/21. \$54,930.
- USAID/National Academy of Sciences. Conservation, restoration and current status of aquatic biodiversity in Southern Iraq (Helmuth, PI with D. Distel). 1/1/18-12/31/20. \$49,850.
- NOAA: Science center public forums: Community Engagement for environmental literacy, improved resilience, and decision making. 10/15-9/18. \$39,000; Subcontract to Museum of Science, Boston (NA15SEC0080005).
- 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. (GEO1124657)
- 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). (NNX11AP77G)

NSF: Environmental signal analysis: monitoring the impacts of climate change on rocky intertidal ecosystems across a cascade of scales. (co-PI with J. Tang); 9/1/09-8/31/14 \$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. Wetthey, T.J. Hilbish and V. Lakshmi (USC Geology). 3/07-3/10. \$1,416,738. (NNX07AF20G)

NOAA Ecofore: Ecological forecasting: responses of ecosystem foundation species in the coastal zone to climate change (co-PI with D.S. Wetthey [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. Wetthey, T.J. Hilbish and V. Lakshmi) 3/04-3/07; \$1,050,000. (NNG04GE43G).

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. Wetthey), 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 Wetthey [PI] and C Finelli) 1/02 – 12/03, \$49,953.

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

National Science Foundation. BIOCOPLEXITY--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.

Internal Grants:

Northeastern University Office of the Provost, "Cognitive Construals of Urban Waterways: Enhancing environmental awareness to promote resilience" (with Dan Adams (co-PI), John Coley (co-PI)). 7/1/19-9/30/20; \$ 49,899

Northeastern University Office of the Provost, "Autonomous sensors and smart analytics for wetlands in urban areas" (with Mark Patterson (PI)). 7/1/14-6/30/15; \$50,000
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.
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.
USC FEI program. Cluster Hire in Ecological Forecasting (with J. Tang, D. Wetthey, M. Fletcher and G. Carbone). \$233,000.

Teaching and advising

Courses Taught:

Urban Coastal Sustainability, Spring 2015 (9 students), Fall 2016 (23 students), Fall 2017 (12 students), Fall 2020 (22 students), Fall 2022 (24 students), Fall 2023 (25 students)
Humans and Nature: The Psychology of Socio-Ecological Systems (with Prof. John Coley), Spring 2022 (18 students)
Environmental Science and Policy, Fall 2018 (10 students)
Introduction to Environmental Science; Spring 2014 (114 students), Spring 2016 (105 students), Spring 2017 (73 students), Spring 2018 (96 students), Spring 2020 (98 students), Spring 2022 (80 students), Spring 2023 (85 students), Spring 2024 (75 students)
Honors Biology 102: spring semesters 2001, 2002, 2003, 2004 (approximately 30 students/ semester)
Ecology and Evolution Laboratory (Fall 2004, 400 students)
Introduction to Physiological Ecology; fall semesters 2001, 2003, 2004, 2005, 2006 (approximately 20 students/semester)
Biology 102 (Introductory Biology): spring semesters of 2005, 2006, 2007, 2008, 2009, 2010, 2012 (approximately 275 students per semester)
Conservation Biology, fall semesters 2003, 2004, 2007 (approximately 10 students/semester)
Comparative Physiology; fall semesters 2009, 2010 (100 students per semester)

Graduate Students and Post Docs Advised:

Degrees awarded:

Karl Castillo (Ph.D. awarded 2008, USC Marine Science Program) Thesis title: "Effects of Elevated Seawater Temperature on the Scleractinian coral *Montastrea annularis* from the Inner and Outer Reefs of Southern Belize"
Maxine Henry (M.S. Awarded 2005, USC Marine Science Program). Thesis title: "Modeling environmental effects on body temperature of an intertidal saltmarsh snail (*Ilyanassa obsoleta* Say)"
Jennifer Jost (Ph.D. awarded 2007, USC Biological Sciences). Thesis title: "The morphological determinants of body temperature in the ribbed mussel, *Geukensia demissa* and their effects on mortality and growth rate."
Kimberly Schneider (Ph.D. awarded Fall 2006; USC Biological Sciences). Thesis title: "The role of abiotic factors in intertidal selection: A comparison between an invader and its sibling species."
Lauren Szathmary (M.S. awarded 2006, USC Biological Sciences). Thesis title: "Predicting direct and indirect effects of climate change on a predator-prey pair in the rocky intertidal ecosystem"

Lauren Yamane (M.S. awarded 2008, USC Marine Science Program). Thesis title: “Contrasting responses of an intertidal predator to aerial and aquatic body temperatures”

K. Allison Smith (Ph.D. awarded 2010, USC Biological Sciences). Thesis title: “Measuring and forecasting environmental conditions from the perspective of rocky intertidal organisms”

Shilpi Chhotray (MS awarded 2010, USC MEERM Program). Thesis title: “An assessment of the perceptions, level of involvement, and needs of user-groups for Marine Protected Areas in the Carolinas”

Josephine Iacarella (MS awarded 2011, USC Marine Science Program). Thesis title: “Behavioral and physiological responses of the salt marsh snail, *Littoraria irrorata*, to thermal and desiccation stresses”

Nicole Kish (MS awarded 2013, USC Marine Science Program) Thesis title: “Modeling approaches, physiological responses, and climate change: how good is “good enough?”

Cristian Monaco (Ph.D. awarded 2014, USC Biological Sciences)

Shadow Gulledge (M.S. awarded 2014, USC Master of Earth and Environmental Resources)

Nicholas Colvard (Ph.D awarded 2016, Northeastern University, Department of Marine and Environmental Sciences)

Kelsey Tuminelli (M.S. awarded 2016, Northeastern University, Three Seas Marine Biology Program)

Charlee Corra (M.S. awarded 2016, Northeastern University; Three Seas Marine Biology Program)

Emily Duwan (M.S. Awarded 2017. Northeastern University; Three Seas Marine Biology Program)

Lauren Giglio (M.S. Awarded 2018. Northeastern University; Three Seas Marine Biology Program)

Kirinne Slaughter (M.S. Awarded 2018. Northeastern University; Three Seas Marine Biology Program)

Marissa Varade (M.S. Awarded 2018, Northeastern University; Three Seas Marine Biology Program)

Allison Matzelle (Ph.D. Awarded 2018, Northeastern University; Department of Marine and Environmental Sciences)

Mark Losavio (M.S. Awarded 2019, Northeastern University; Three Seas Marine Biology Program)

Ashley Cryan (M.S. Awarded 2019, Northeastern University; Department of Marine and Environmental Sciences)

Jessica Torossian (Ph.D. Awarded 2020, Northeastern University; Department of Marine and Environmental Sciences)

Joshua Noor Ly (M.S. Awarded 2022, Northeastern University, Environmental Science and Policy)

Sophia Ly (M.S. Awarded 2022, Northeastern University, Environmental Science and Policy)

David Sittenfeld (PhD awarded 2023, Northeastern University; School of Public Policy and Urban Affairs)

Current students:

Aubrey Foulk (PhD student, Northeastern University; 2018-present)

Angela Jones (PhD student, Northeastern University; 2021-present)

Lee-Gray Boze (PhD student, Northeastern University; 2022-present)

Tasha O’Hara (PhD student, Northeastern University; 2022-present)

Postdoctoral students;

Sarah Gilman (Post Doctoral Research Associate, 2003-2005)

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

Mackenzie Zippay (Post Doctoral Research Associate, 2011-2014)

Undergraduate students:

Juno Mollor (2023) Using serious gaming to teach marine science

Grace Meredith (2022) Comparative legislation of aquaculture operations

Jade Lin (2020) Thermal Physiology of *Fundulus majalis* from a tide-gated area in the Rumney Marsh, Revere, MA

Lark Parmalee (2020) Going beyond common biodiversity indices when comparing photo quadrat to *in situ* methods in the rocky intertidal of the Northeast.

Benjamin Gould (2019) Communicating Science in Nahant, MA

Luke Briccetti (2019) Monitoring the physiology of *Mytilus edulis* after heat wave events

Lindsey Forg (2019) Physiology of intertidal algae

Zoe Hockenberry (2018) Physiology of marsh invertebrates

Bradley Phelps (2018) Behavioral responses of sessile prey

Mia DeSanctis (2018) Physiology of tidepool organisms

Sahana Simonetti (2017-2019) Global fisheries education

David Stein (2017) Global fisheries education

Isabel Backman (2017) Local adaptation in intertidal gastropods

Richard Judge (2017) Intertidal logger sensor design

Lindsay Peter (2015) Thermal physiology of mussels

Anthony Lamattina (2015) Thermal ecology of Gulf of Maine Invertebrates

Megan Reilly (2015) Stories of climate change by residents of coastal communities

Tara Fitzhenry (2000-2001) Senior Thesis: Thermal biology of intertidal mussels (*resulted in first-authored publication by student in journal *Marine Biology*)

Nichole Moore (2000-2001) Ecology and genetics of zooxanthellae in corals

Christie Stephans (2001) Feeding biology of soft corals

Justin Tisdale (2002) Population genetics of marine mussels

Denise Strickland (2002-2003) Senior Honors thesis: Development of lesson plans examining marine ecology of intertidal ecosystems

Lisa Wickliffe (2002-2003) Physiological ecology of intertidal invertebrates

Lauren Szathmary (2002- 2004) SC Honors College Thesis: Development of a mathematical model of heat exchange for intertidal seastars

Katrina Nylund 2003 Species range boundaries of intertidal mussels

Nouran Ragaban 2004 Population genetics and biogeography of *Mytilus*

Crystal Welch (In service Teacher) Development of lesson plans examining population ecology and genetics

Jake Adams 2004-2005 Effects of water flow on coral physiology

Anna Marie Laura (2005) SC Honors College Thesis: Development of lesson plans examining effects of climate change on polar bears

Lindsay Watson (2005) SC Honors College Thesis: Development of lesson plans examining mechanisms of heat exchange in mammals

Lauren Van Thiel (2006-2007) Microclimatic effects on species invasions in rocky intertidal ecosystems (resulted in publication in *Journal of Thermal Biology*)

Alyson Tockstein (2008-2010). Intertidal thermal biology

Nicholas Burnett (2009-2012). Ecophysiology of intertidal invertebrates (resulted in book chapter)

Maggie Brillhart (2009) Development of lesson plans for middle school teachers

Rachel Harris (2010) Biomimetic sensors for intertidal seastars

Corey Scott (2011) Marsh crab thermal biology

Shadow Fockler (2011-2012) Effects of wave energy farms on intertidal organisms

Rachel Price (2012): Educational outreach using Gigapan technology

Catherine Bowler (2012): Educational outreach using Gigapan technology

PROFESSIONAL DEVELOPMENT AND SYNERGISTIC ACTIVITIES

Service to the Discipline/Profession

Member CERSAP review team for SAP 4.3 (interagency panel on climate change) 2007-08.
Contributing Editor, *Marine Ecology Progress Series* 2007-2015
Subject editor, *Coral Reefs*, 2013-2015
Section lead, National Climate Assessment Technical Input Document (Oceans Chapter); 2012-2013
Member, GEO-BON working group 5, 2012-present
Member, Marine Biodiversity Observation Network (MBON), 2016-present
National Sea Grant Advisory Board, 2015-2023 (Vice Chair 2017-2019; Chair 2020-2022)
Member, International Advisory Board Dongshan Marine Station, Xiamen University, China
Author, 5th U.S. National Climate Assessment (Chapter 8 *Ecosystems* and cross-cutting *Blue Carbon*)
Author, 1st U.S. National Nature Assessment (Chapter 2, *Status, Trends and Projections*)
Chief scientist, Fabien Cousteau's *Proteus* underwater saturation diving habitat

Service to the Community/Public

Association of Climate Change Officers, Co-chair, Adaptation Working Group, 2011-2012
Board member, South Carolina Marine Educators Association, 2001-2003
Science Committee, *The Explorers Club*

Professional Development

Google Science Communications Fellow (Climate Change), 2011
Aldo Leopold Leadership Fellow, 2005