

## (ANNE) RANDALL HUGHES

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### Education

**Ph.D.** Ecology (Marine Ecology), University of California-Davis, 2006

**B.A.** Biology / Public Policy Analysis, University of North Carolina-Chapel Hill, 1997

### Positions Held

2008-present Florida State University Coastal & Marine Laboratory Assistant Scholar Scientist  
2006-2008 University of California-Davis Postdoctoral Researcher  
2003-2006 National Science Foundation Graduate Research Fellow  
2001-2003 Environmental Protection Agency STAR Fellow  
2000-2001 University of California-Davis Graduate Fellow  
1997-2000 Research Technician, Dr. C.H. Peterson, Institute of Marine Sciences, University of North Carolina-Chapel Hill.  
1996-1997 Undergraduate Honors Thesis, Department of Public Policy Analysis, University of North Carolina-Chapel Hill

### Publications

**Hughes, A.R.** and J.J. Stachowicz. 2009. Ecological impacts of genotypic diversity in the clonal seagrass *Zostera marina*. *Ecology* 90: 1412-1419.

**Hughes, A.R.**, S.L. Williams, C.M. Duarte, K.L. Heck, Jr., and M. Waycott. 2009. Associations of concern: declining seagrasses and threatened dependent species. *Frontiers in Ecology and the Environment* 7: 242-246.

**Hughes, A.R.**, J.J. Stachowicz, and S.L. Williams. 2009. Morphological and physiological variation among seagrass (*Zostera marina*) genotypes. *Oecologia* 159: 725-733.

Grabowski, J.H., **A.R. Hughes**, and D.L. Kimbro. 2008. Habitat complexity influences cascading effects of multiple predators. *Ecology* 12: 3413-3422.

Heck, K.L. Jr., T. Carruthers, C. Duarte, **A.R. Hughes**, G. Kendrick, J.J. Orth, and S.L. Williams. 2008. Trophic transfers from seagrass meadows subsidize diverse marine and terrestrial consumers. *Ecosystems* 11: 1198-1210.

**Hughes, A.R.**, B. Inouye, M.T.J. Johnson, N. Underwood, and M. Vellend. 2008. Ecological consequences of genetic diversity. *Ecology Letters* 11: 609-623.

Olyarnik, S.V., M.E. S. Bracken, J.E. Byrnes, **A.R. Hughes**, K.M. Hultgren, and J.J. Stachowicz. 2008. Ecological factors affecting community invasibility. In G.S. Rilov and J.A.

Crooks, editors. Marine bioinvasions: Ecology, conservation and management perspectives. Springer-Verlag.

- Hughes, A.R.**, J.E. Byrnes, D.L. Kimbro, and J.J. Stachowicz. 2007. Bi-directional feedbacks between biodiversity and disturbance. *Ecology Letters* 10: 849-864.
- Vellend, M., L.J. Harmon, J.L. Lockwood, M.M. Mayfield, **A.R. Hughes**, J.P. Wares, and D.F. Sax. 2007. Effects of exotic species on evolutionary diversification. *Trends in Ecology and Evolution* 22: 481-488.
- Byrnes, J.E., J.J. Stachowicz, K.M. Hultgren, **A.R. Hughes**, S.V. Olyarnik, and C.S. Thornber. 2006. Predator diversity strengthens trophic cascades in kelp forests by modifying herbivore behavior. *Ecology Letters* 9: 61-71.
- Harley, C.D.G., **A.R. Hughes**, K.M. Hultgren, B.G. Miner, C.J.B. Sorte, C.S. Thornber, L.F. Rodriguez, L. Tomanek, and S.L. Williams. 2006. The impacts of climate change in coastal marine systems. *Ecology Letters* 9: 228-241.
- Hughes, A.R.** and J.H. Grabowski. 2006. Habitat context influences predator interference interactions and the strength of resource partitioning. *Oecologia* 149: 256-264.
- Orth, R.J., T.J.B. Carruthers, W.C. Dennison, C.M. Duarte, J.W. Fourqurean, K.L. Heck Jr., **A.R. Hughes**, G.A. Kendrick, W.J. Kenworthy, S. Olyarnik, F.T. Short, M. Waycott, and S.L. Williams. 2006. A global crisis for seagrass ecosystems. *Bioscience* 56: 987-996.
- Reusch, T.B.H. and **A.R. Hughes**. 2006. The emerging role of genetic diversity for ecosystem functioning: estuarine macrophytes as models. *Estuaries and Coasts* 29: 159-164.
- Grabowski, J.H., **A.R. Hughes**, D.L. Kimbro, and M.A. Dolan. 2005. How habitat setting influences restored oyster reef communities. *Ecology* 86: 1926-1935.
- Vellend, M., **Hughes, A.R.**, Grosberg, R.K. and Holt, R.D. 2005. Introduction: insights into evolution. In Sax, D.F., J.J. Stachowicz and S.D. Gaines, eds. Species invasions: insights into ecology, evolution, and biogeography (Sinauer Associates, Sunderland, MA). pp 135-137.
- Wares, J.P., **A.R. Hughes**, and R.K. Grosberg. 2005. Species introductions and invasions: insights into the mechanisms that drive evolutionary change. In Sax, D.F., J.J. Stachowicz, and S.D. Gaines, eds. Species invasions: insights into ecology, evolution, and biogeography (Sinauer Associates, Sunderland, MA). pp 229-257.
- Hughes, A.R.** and J.J. Stachowicz. 2004. Genetic diversity enhances the resistance of a seagrass ecosystem to disturbance. *Proceedings of the National Academy of Sciences* 101: 8998-9002.
- Hughes, A.R.**, K.J. Bando, L.F. Rodriguez, and S.L. Williams. 2004. Relative effects of grazers and nutrients on seagrasses: a meta-analysis approach. *Marine Ecology Progress Series* 282: 87-99.

### **Research Grants**

**Florida State University Office of Research**, 2009-2010, Clonal variation in salt marsh cordgrass (*Spartina alterniflora*): Effects on and responses to associated species. Funded \$11887.

**National Science Foundation Biological Oceanography**, 2006-2009, Patterns and mechanisms relating seagrass genotypic diversity and ecosystem response to biotic and abiotic stress. Funded \$244,403. Co-PI: J. Stachowicz.

**Bodega Marine Laboratories Research and Travel Grant**, 2001-2008, Implications of genetic structure in eelgrass (*Zostera marina*) populations for ecological processes. Funded \$3450.

**California Marine Council**, 2001-2003, Implications of genetic structure in eelgrass (*Zostera marina*) populations for ecological processes and restoration. Funded \$6717.

**Center for Population Biology Research Award**, 2001-2004, Effects of genetic diversity on eelgrass (*Zostera marina*) communities: from individual interactions to ecosystem processes. Funded \$2325.

**Center for Population Biology Travel Award**, 2003, The influence of genetic diversity on ecosystem function in eelgrass. Funded \$740.

**Jastro Shields Research Award**, 2001-2004, The influence of genetic diversity on ecosystem function in eelgrass. Funded \$8000.

**Tomales Bay Biodiversity Grant**, 2004-2005, Ecological implications of genetic diversity in eelgrass (*Zostera marina*). Funded \$2500.

### **Teaching Experience**

2004-2005 Teaching Assistant, Marine Ecology (upper division course), Division of Biological Sciences, University of California- Davis (Fall quarter)  
2003-2004 Teaching Assistant, Biological Sciences 1B (lower division core course), Division of Biological Sciences, University of California-Davis (Fall quarter)  
2002-2003 Teaching Assistant, Ecology (upper division core course), Division of Biological Sciences, University of California-Davis (Winter quarter)  
1998-2000 Lead Science Teacher, Charlotte Country Day Middle School, Charlotte, NC  
1997-1998 Program Instructor, RARE Center for Tropical Conservation, Baja California Sur, Mexico.

### **Synthetic activities**

2006 Co-organizer, Ecological Consequences of Genetic Diversity symposium, Ecological Society of America Meeting  
2005-2007 Global Trajectories of Seagrasses working group, National Center for Ecological Analysis and Synthesis  
2004-2006 Insights from Exotics working group, National Center for Ecological Analysis and Synthesis

### **Awards and Honors**

2003-2006 National Science Foundation Graduate Research fellowship  
2003-2004 Best Student Paper Award, Western Society of Naturalists  
2001-2003 Environmental Protection Agency Science to Achieve Results fellowship  
1996-1997 Highest Distinction in Biology and Public Policy Analysis, University of North Carolina-Chapel Hill  
Highest Honors in Public Policy Analysis, University of North Carolina-Chapel Hill  
Outstanding Student in Public Policy Analysis, University of North Carolina-Chapel Hill

### **Academic Service**

#### *Manuscripts reviewed for*

American Naturalist  
Conservation Genetics  
Ecology  
Ecology Letters  
Frontiers in Ecology and the Environment  
Journal of Ecology  
Journal of Experimental Marine Biology and Ecology  
Marine Biology  
Marine Ecology  
Marine Ecology Progress Series  
Marine and Freshwater Research  
Molecular Ecology  
Oecologia  
Oikos

#### *Proposals reviewed for*

National Science Foundation

#### *Committee Service*

Student representative, Marine Ecology Committee, Ecology Graduate Student Association, University of California-Davis, 2003-2005  
Workshop organizer, Center for Population Biology, University of California-Davis, 2003  
Student representative, Awards Committee, Ecology Graduate Student Association, University of California- Davis, 2002-2003  
Student representative, Admissions Committee, Ecology Graduate Student Association, University of California-Davis, 2001-2002

#### *Memberships in Professional Organizations*

Ecological Society of America  
Western Society of Naturalists  
Phi Beta Kappa

## **Mentoring**

### *High School*

Kathleen Doo (NSF Young Science Program)  
Maral Parsian (NSF Young Science Program)

### *Undergraduate*

#### FSU

Nicholas Coria (intern)  
Justis Freeley (intern)  
Liz Hibner (intern)

#### UC Davis

Jessica Abbott (research technician)  
Nicholas Bosch (research technician)  
Margaret Campbell (intern)  
Theresa DiMarco (research technician)  
Allison Fish (research technician)  
Tracy Hazen (research technician)  
Emily Jones (intern)  
Jason Moore (research technician)  
Emily Morris (intern)  
Marie Nydam (research technician)  
Vinh Pham (intern)  
Kim Wong (intern)  
Megan Young (intern)

## **Abstracts and Presentations (\* = invited presentation)**

**\*Hughes, A.R.** 2009. Effects of seagrass (*Zostera marina*) genetic diversity on ecological resilience. Ecological Integration Symposium, College Station, Texas, March 6-7.

**Hughes, A.R.** and J.J. Stachowicz. 2007. Genetic diversity and disturbance interact to influence seagrass ecosystem function. Benthic Ecology, Atlanta, Georgia, March 21-24.

**\*Hughes, A.R.** and **J.J. Stachowicz.** 2006. Genetic diversity in marine plant populations and their response to disturbance. Ecological Society of America, Memphis, Tennessee, August 7-11.

**Hughes, A.R.** and J.J. Stachowicz. 2005. Causes and consequences of genetic diversity in eelgrass (*Zostera marina*). Western Society of Naturalists, Seaside, California, November 17-20.

**Hughes, A.R.** and J.H. Grabowski. 2005. Context dependency of multiple predator interactions: crabs and whelks in a North Carolina estuary. Benthic Ecology, Williamsburg, Virginia, April 6-10.

**Hughes, A.R.** and J.H. Grabowski. 2004. A tale of two habitats: emergent effects of stone crabs and knobbed whelks on bivalves. Western Society of Naturalists, Rohnert Park, California, November 11-14.

- \*Hughes, A.R.** and J.J. Stachowicz. 2004. Genetic diversity enhances the resistance of a seagrass ecosystem to disturbance. Ecological Society of America, Portland, Oregon, August 2-6.
- Hughes, A.R.,** K.J. Bando, L.F. Rodriguez, and S.L. Williams. 2004. Relative effects of grazers and nutrients on seagrasses: a meta-analysis approach. Benthic Ecology, Mobile, Alabama, March 26-28.
- Hughes, A.R.** 2004. Implications of genetic diversity in eelgrass (*Zostera marina*) for ecological function. Gulf of the Farallones National Marine Sanctuary, San Francisco, California, February 11.
- Hughes, A.R.** and J.J. Stachowicz. 2003. The influence of genetic diversity on ecosystem function in eelgrass. Western Society of Naturalists, Long Beach, California, November 7-10.
- Hughes, A.R.,** J.J. Stachowicz, and E. Grosholz. 2003. The influence of genetic diversity on ecosystem function in eelgrass. Benthic Ecology, Groton, Connecticut, March 28-30.