

John J. Stachowicz

Contact Information

Department of Evolution and Ecology (and Center for Population Biology)
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Education

Ph.D. University of North Carolina, Marine Sciences (Marine Ecology), 1998
A.B. Dartmouth College, Environmental and Evolutionary Biology, 1993

Major research interests

Population and community ecology of marine plants and invertebrates. Community ecology of mutualism and facilitation; Relationship between biodiversity and ecosystem functioning; Biological Invasions; Chemical ecology, especially the ecology and evolution of chemically-mediated plant-herbivore and predator-prey interactions.

Positions Held

2009- Director, Center for Population Biology, University of California, Davis
2008- Professor, Department of Evolution and Ecology, UC Davis
2005-2008 Associate Professor, Section of Evolution and Ecology, UC Davis
2000-2005 Assistant Professor, Section of Evolution and Ecology, UC Davis
1998-2000 Postdoctoral Fellow, University of Connecticut, Dept. of Marine Sciences
1997 Instructor in Biological Oceanography, Curriculum in Marine Sciences, UNC-CH
1994-7 National Science Foundation Graduate Fellow
1993-4, 7-8 University of North Carolina Graduate School Fellow
1992 Research Assistant, LTER program, Harvard Forest
1991-2 Presidential Scholar Research Assistant, Dartmouth College Geography Department
1991 Research Assistant, Connecticut Department of Fisheries

Awards and Honors

2011 College of Biological Sciences Teaching Award, UC Davis
2008 Aldo Leopold Leadership Fellow
2007-2011 Chancellor's Fellow, UC Davis
2004 Mercer Award, outstanding ecology paper, Ecological Society of America
1997-1998 UNC-CH Graduate School Dissertation Fellowship
1994-1997 National Science Foundation Graduate Fellowship
1993-1994 Walter S. Barr Fellowship
1993-1994 UNC-CH Graduate School Fellowship
1993 Elected to Sigma Xi, The Scientific Research Society
1993 Elected to Phi Beta Kappa
1993 Eggleston Memorial Botany Award
1992-3 Presidential Scholar Research Grant
1989-1993 Elks Student Leadership Scholarship

Publications

Books

Sax, D.F., **J.J. Stachowicz**, and S.D. Gaines (editors). 2005. Species invasions: insights into ecology, evolution and biogeography. Sinauer Press, Sunderland MA. 495pp.

Refereed papers

Tomas-Nash F., J.M. Abbott, M. Balk, C. Steinberg, S.L. Williams, and **J.J. Stachowicz**. 2011. Plant genotype and nitrogen loading influence seagrass productivity, biochemistry, and plant-herbivore interactions. *Ecology*. In Press

Sorte, C.J.B and **J.J. Stachowicz** 2011. Patterns and processes of compositional change in a California epibenthic community. *Marine Ecology Progress Series*. In Press

Hultgren, K. and J.J. Stachowicz. 2011. Camouflage in decorator crabs: Integrating ecological, behavioural and evolutionary approaches. Pages 214-229 in M. Stevens and S. Merlita (eds). *Animal Camouflage*. Cambridge University Press.

Edwards, K.F. and **J.J. Stachowicz**. 2011. Spatially stochastic settlement and the coexistence of benthic marine animals. *Ecology* 92:1094-1103.

Clair, D.C., K.F. Edwards, and **J.J. Stachowicz**. 2011. Positive and negative effects of a dominant competitor on the settlement, growth, and survival of competing species in an epibenthic community. *J. Exp. Marine Biology and Ecology* 399:130-134.

Hughes, A.R. and **J.J. Stachowicz**. 2011. Seagrass genotypic diversity increases disturbance response via complementarity and dominance. *Journal of Ecology* 99:445-453.

Hughes, A.R., R.J. Best, and J.J. Stachowicz. 2010. Genotypic diversity and grazer identity interactively influence seagrass and grazer biomass. *Marine Ecology Progress Series* 403: 43-51.

Edwards, K.F. and J.J. Stachowicz. 2010. Multivariate tradeoffs, succession, and phenological differentiation in a guild of colonial invertebrates. *Ecology* 91: 3146–3152.

Edwards, K.F., K.M. Aquilino, R.J. Best, K.L. Sellheim, and **J.J. Stachowicz**. 2010. Prey diversity is associated with weaker consumer effects in a meta-analysis of benthic marine experiments. *Ecology Letters* 13:194-201

Hultgren, K.M. and **J.J. Stachowicz**. 2010. Size related habitat shifts facilitated by positive preference induction in a marine kelp crab. *Behavioral Ecology* 21: 329-336.

- Sellheim, K.L., **J.J. Stachowicz** and R.C. Coates. 2010. Effects of a non-native habitat-forming species on mobile and sessile epifaunal communities. *Marine Ecology Progress Series* 398:69-80.
- Larson, A.A., **J.J. Stachowicz** and B.T. Hentschel. 2009. The effect of a tube-building phoronid on associated infaunal species diversity, composition and community structure. *Journal of Experimental Marine Biology and Ecology* 381:126-135
- Byrnes, J.E. and **J.J. Stachowicz**. 2009. The Consequences of Consumer Diversity Loss: Different Answers From Different Experimental Designs. *Ecology* 90:2879-2888.
- Byrnes, J.E. and **J.J. Stachowicz**. 2009. Short and Long Term Consequences of Increases in Exotic Species Richness on Water Filtration by Marine Invertebrates. *Ecology Letters* 12:830-841.
- Palumbi, S.R., P.A. Sandifer, J.D. Allan, M.W. Beck, D.G. Fautin, M.J. Fogarty, B.S. Halpern, L.S. Incze, Jo-Ann Leong, E. Norse, **J.J. Stachowicz**, and D.H. Wall. 2009. Managing for ocean biodiversity to sustain marine ecosystem services. *Frontiers in Ecology and the Environment* 4: 204-211.
- Hughes, A.R., **J.J. Stachowicz**, and S.L. Williams. 2009. Morphological and physiological variation among seagrass (*Zostera marina*) genotypes. *Oecologia* 159:725–733.
- Hughes, A.R. and **J.J. Stachowicz**. 2009. Ecological impacts of genotypic diversity in the clonal seagrass, *Zostera marina*. *Ecology* 90: 1412-1419.
- Hultgren, K. and **J.J. Stachowicz**. 2009. Evolution of decoration in majoid crabs: a comparative phylogenetic analysis of the role of body size and alternative defensive strategies. *American Naturalist* 173:566-578.
- Larson, A.A and **J.J. Stachowicz**. 2009. Chemical defense of a soft-sediment dwelling phoronid against local epibenthic predators. *Marine Ecology Progress Series* 374: 101–111.
- Aquilino, K.M., M.E.S. Bracken, M. Faubel, and **J.J. Stachowicz**. 2009. Local-scale autochthonous nutrient inputs in an upwelling ecosystem facilitate seaweed growth on wave-exposed rocky shores. *Limnology and Oceanography* 59:304-317
- Stachowicz, J.J.**, R.J. Best, M.E.S. Bracken, and M. H. Graham. 2008. Complementarity in marine biodiversity manipulations: reconciling divergent evidence from field and mesocosm experiments. *Proceedings of the National Academy of Sciences USA* 105:18842-18847.
- Olyarnik SV, Bracken MES, Byrnes JE, Hughes AR, Hultgren KM, **Stachowicz JJ** (2008) Ecological factors affecting community invasibility. Pages 215-238 in: Rilov

G, Crooks JA (eds) Biological invasions of marine ecosystems: ecological, management, and geographic perspectives. Springer, Heidelberg, Germany

Stachowicz, J.J., M. Graham, M.E.S. Bracken, A.I. Szoboszlai. 2008. Diversity enhances cover and stability of seaweed assemblages: the importance of environmental heterogeneity and experimental duration. *Ecology* 89:3008-3019.

Hultgren, K. and **J.J. Stachowicz**. 2008. Molecular phylogeny of the brachyuran crab superfamily Majoidea indicates close congruence with larval morphology-based trees. *Molecular Phylogenetics and Evolution*. 48:986-996.

Thornber C.S., E. Jones, and **J.J. Stachowicz**. 2008. Differences in herbivore feeding preferences across a vertical rocky intertidal gradient. *Marine Ecology Progress Series*. 363:51-62.

Hultgren, K. and **J.J. Stachowicz**. 2008. Alternative camouflage strategies mediate predation risk among closely related co-occurring kelp crabs. *Oecologia*. 155:519-528.

Sax D.F., **J.J. Stachowicz**, J.H. Brown, J.F. Bruno, M.N. Dawson, S.D. Gaines, R.K. Grosberg, A.Hastings, R.D. Holt, M.M. Mayfield, M.I. O'Connor, and W. R. Rice. 2007. Ecological and evolutionary insights from species invasions. *Trends in Ecology and Evolution* 22:465-471

Stachowicz, J.J., J.F. Bruno, and J.E. Duffy. 2007. Consequences of biodiversity for marine communities and ecosystems. **Annual Review of Ecology, Evolution and Systematic** 38: 739-766.

Fridley, J. D., **J. J. Stachowicz**, S. Naeem, D. F. Sax, E. W. Seabloom, M. D. Smith, T. J. Stohlgren, D. Tilman, and B. V. Holle. 2007. The invasion paradox: Reconciling Pattern and Process in Species Invasions. *Ecology* 88:3-17.

Hughes, A.E., J.E. Byrnes, D. L. Kimbro, and **J.J. Stachowicz**. 2007. Reciprocal relationships and potential feedbacks between biodiversity and disturbance. *Ecology Letters* 10:849-864.

Byrnes, J.E., Reynolds, P.L. and **Stachowicz, J.J.** 2007. Invasions and extinctions reshape coastal food webs. *PloS One* 2(3):e295

Bracken, M.E.S., C.A. Gonzalez-Dorantes, and **J.J. Stachowicz**. 2007. Whole community mutualism: Associated invertebrates facilitate a dominant habitat-forming seaweed. **Ecology** 88:2211-2219.

Nydam, M.L. and **Stachowicz, J.J.** 2007. Predator effects on fouling community development. *Marine Ecology Progress Series* 337:93-101.

- Bracken MES, **Stachowicz JJ**. 2007. Top-down modification of bottom-up processes: selective grazing reduces macroalgal nitrogen uptake. **Marine Ecology Progress Series** 330:75-82.
- Worm, B. E.B. Barbier, N. Beaumont, J.E. Duffy, C. Folke, B.S. Halpern, J.B.C. Jackson, H.K. Lotze, F. Micheli, S.R. Palumbi, E. Sala, K.A. Selkoe, **J.J. Stachowicz**, and R. Watson. 2007. Response to comments on "Impacts of biodiversity loss on ocean ecosystem services". **Science** 317:1283-1284.
- Worm, B. E.B. Barbier, N. Beaumont, J.E. Duffy, C. Folke, B.S. Halpern, J.B.C. Jackson, H.K. Lotze, F. Micheli, S.R. Palumbi, E. Sala, K.A. Selkoe, **J.J. Stachowicz**, and R. Watson. 2006. Impacts of biodiversity loss on ocean ecosystem services. **Science** 314:787-791.
- Bracken, M.E.S. and **J.J. Stachowicz**. 2006. Seaweed diversity enhances nitrogen uptake via complementary use of nitrate and ammonium. **Ecology** 87:2397-2403
- Thornber, C.S., **J.J. Stachowicz**, and S.D. Gaines. 2006. Grazing on different phases of an isomorphic alga: interactive effects of life history phase and reproductive status on susceptibility to herbivory. **Ecology** 87:2255-2263
- Stachowicz, J.J.** and J.E. Byrnes. 2006. Species diversity, invasion success and ecosystem functioning: disentangling the influence of resource competition, facilitation and extrinsic factors. **Marine Ecology Progress Series** 311: 251-262
- Duffy, J.E. and **J.J. Stachowicz**. 2006. Why biodiversity is important to oceanography: potential roles of genetic, species, and trophic diversity in pelagic ecosystem processes. **Marine Ecology Progress Series** 311: 179-189
- Byrnes, J.E., **J.J. Stachowicz**, K. Hultgren, A.R. Hughes, S.V. Olyarnik and C.S. Thornber. 2006. Predator diversity enhances kelp forest trophic cascades by modifying herbivore behavior. **Ecology Letters** 9:61-71
- Stachowicz, J.J.** and D. Tilman. 2005. What species invasions tell us about the relationship between community saturation, species diversity and ecosystem functioning. Pages 41-64 In: D. Sax, J. Stachowicz and S. Gaines (eds) *Species invasions: insights into ecology, evolution and Biogeography*. Sinauer, Sunderland MA.
- Stachowicz, J.J.** and R.B. Whitlatch. 2005. Multiple mutualists provide complementary benefits that enhance their seaweed host. **Ecology** 86:2418-2427
- 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.
- Thornber, C.S., B.P. Kinlan, M.H. Graham and **J. J. Stachowicz**. 2004. Population ecology of the invasive kelp *Undaria pinnatifida* in California: environmental and biological controls on demography. **Marine Ecology Progress Series** 268:69-80.

- Bruno, J.F., **J.J. Stachowicz** and M.D. Bertness. 2003. Incorporating facilitation into ecological theory. *Trends in Ecology and Evolution* 18:119-125.
- Stachowicz, J.J.**, J. R. Terwin, R. B. Whitlatch and R.W. Osman. 2002. Linking climate change and biological invasions: ocean warming facilitates non-indigenous species invasion. *Proceedings of the National Academy of Sciences USA* 99:15497-15500.
- Stachowicz, J.J.**, H. Fried, R.B. Whitlatch and R.W. Osman. 2002. Biodiversity, invasion resistance and marine ecosystem function: reconciling pattern and process. *Ecology* 83:2575-2590.
- Stachowicz, J.J.** 2001. Mutualisms, positive interactions, and the structure of ecological communities. *BioScience* 51:235-246.
- Stachowicz, J.J.** 2001. Chemical Ecology of Mobile Marine Invertebrates: predators and prey, allies and competitors. Pages 153-190 in B. Baker and K McClintock, editors, Marine Chemical Ecology, CRC Press.
- Stachowicz, J.J.** and M.E. Hay. 2000. Geographic variation in camouflaging behavior by the decorator crab *Libinia dubia*. *American Naturalist* 156:59-71.
- Stachowicz, J.J.** and N. Lindquist. 2000. Hydroid defenses against predators: the importance of secondary metabolites vs. nematocysts. *Oecologia* 124:280-288.
- Stachowicz, J.J.**, R.B. Whitlatch, and R.W. Osman. 1999. Species diversity and invasion resistance in a marine ecosystem. *Science* 286:1577-1579.
- Stachowicz, J.J.** and M.E. Hay. 1999. Reduced mobility is associated with compensatory feeding and increased diet breadth of marine crabs. *Marine Ecology Progress Series* 188:169-178.
- Stachowicz, J.J.** and M.E. Hay. 1999. Mutualism and coral persistence in algal-dominated habitats: the role of herbivore resistance to algal chemical defense. *Ecology* 80: 2085-2101.
- Stachowicz, J.J.** and M.E. Hay. 1999. Reducing predation through chemically-mediated camouflage: indirect effects of plant defenses on herbivores. *Ecology* 80:495-509.
- Hay, M.E., **J.J. Stachowicz**, E. Cruz-Rivera, S. Bullard, M. Deal, and N. Lindquist. 1998. Bioassays with marine and freshwater macro-organisms. Pages 39-141, in: J.G. Millar and K.F. Haynes (eds) Methods in Chemical Ecology. Chapman and Hall, New York.
- Stachowicz, J.J.** and N. Lindquist. 1997. Chemical defense among hydroids on pelagic

Sargassum: predator deterrence and absorption of solar UV radiation by secondary metabolites. *Marine Ecology Progress Series* 155:115-126.

Stachowicz, J.J. and M.E. Hay. 1996. Facultative mutualism between an herbivorous crab and a coralline alga: advantages of eating noxious seaweeds. *Oecologia* 105:377-387.

Stachowicz, J.J. and T.D. Allison 1995. Vegetation, browsing, and site factors as determinants of Canada yew (*Taxus canadensis*) distribution in central New Hampshire. *Rhodora* 97:357-374.

Grants awarded

NSF (Biological Oceanography) (1 March 2009 – 28 Feb 2013). Long-term and interactive effects of seaweed diversity and herbivory on intertidal community structure and functioning (\$522,631)

NSF (Biological Oceanography) (1 September 2006 – 31 Aug 2009) Patterns and mechanisms relating seagrass genotypic diversity and ecosystem response to biotic and abiotic stress (\$233,595)

NSF (Biological Oceanography) (1 March 2004 – 29 Feb 2008) Biodiversity and ecosystem functioning of intertidal seaweed communities (\$266,489)

NSF (Biological Oceanography) (1 Jan 2001 - 31 Dec. 2004) Anti-predator defenses of marine hydroids: alternative strategies, biogeographic patterns, and ecological implications (\$219,902).

NSF (Long-Term Research in Environmental Biology) (1 Oct. 2000 - 30 Sept. 2005) Long-term studies on the recruitment dynamics of shallow water epifaunal communities (\$240,531)

National Center for Ecological Analysis and Synthesis (1 March 2004 – 28 Feb 2006) Insights from exotic species into ecology, evolution and biogeography (\$56,700 for 3 meetings)

National Sea Grant: (1 October 1999 - 30 September 2002) Species and community attributes affecting invasion success by exotic species (\$163,141)

California Sea Grant (1-July 2001 - 30-June 2002) Reproductive biology of *Undaria pinnatifida*, a seaweed recently introduced to southern California: assessing the potential for establishment and spread (\$9,916)

Invited Presentations

2011: Bodega Marine Lab
University of British Columbia

- 2010: Texas A&M University, Corpus Christi
Sonoma State University
Chico State University
Moss Landing Marine Laboratory
Brown University
United Nations International Conference on Biodiversity, Frankfurt Germany
University of Oldenburg, Germany
PICES Annual Meeting, Portland, OR
- 2009: University of North Carolina
University of New South Wales (Sydney, Australia)
- 2007: Rice University
University of California, Santa Barbara
- 2006: Ecological Society of America Annual Meeting Symposium on “When does genetic diversity matter for ecology?”
- 2005: Georgia Institute of Technology
Cornell University
University of California, Berkeley
Ecological Society of America Annual Meeting: Symposium on the “invasion paradox”
- 2004: American Society of Limnologists and Oceanography Annual Meeting
Symposium on Biodiversity and Ecosystem Functioning in the Sea
Ecological Society of America Annual Meeting: Symposium on Insights from Exotic Species
University of Washington, Friday Harbor Laboratories Centennial Celebration
- 2003: Scripps Institute of Oceanography
University of California, Santa Barbara, Dept. Ecology, Evolution & Marine Biol.
Humboldt State University, Department of Biology
Moss Landing Marine Laboratories
- 2002: University of California Los Angeles, Dept of Organismal, Biology, Ecology and Evolution
San Diego State University, Department of Biology
California State University, Northridge, Department of Biology
Center for Marine Biodiversity Conservation
- 2001: Phycological Society of America
International Society of Chemical Ecology
Western Society of Naturalists
- 2000: Society for Integrative and Comparative Biology meeting, Atlanta.

Center for Population Biology, UC-Davis
Bodega Marine Lab, Bodega Bay CA

1999: Stanford University, Hopkins Marine Station
Eastern Connecticut State University, Department of Biology

1998: University of Connecticut, Department of Marine Sciences
Brown University, Department of Ecology and Evolutionary Biology
University of California at Davis, Section of Evolution and Ecology

Manuscripts reviewed for

Science	Ecology / Ecological Monographs
Marine Ecology Progress Series	Chemoecology
Marine Biology	Oecologia
Journal of Exp. Marine Biology and Ecology	Molecular Ecology
Aquatic Microbial Ecology	Estuaries
Bulletin of Marine Sciences	PloS Biology
Proceedings of the National Academy of Sciences	American Naturalist
Estuarine, Coastal and Shelf Science	Ecology Letters
Ethology	Journal of Avian Biology
Aquatic Conservation	Marine and Freshwater Research
Pacific Science	Nature
Proceedings of the Royal Society	Integrative and Comparative Biology
PLoS ONE	Global Ecology and Biogeography
Helgolander Marine Research	Journal of Biogeography

Editor for Ecology, Ecological Monographs, Biology Letters

Proposals reviewed for:

National Science Foundation: Biological Oceanography, Population Biology, Ecology, International Programs, Antarctic Biology and Medicine, Antarctic Organisms and Ecosystems.

National Sea Grant College Program

NOAA – National Undersea Research Center

NOAA Coastal Oceans Program

National Environmental Research Council (UK)

Memberships in professional societies:

Ecological Society of America

Western Society of Naturalists

Phi Beta Kappa

American Society of Naturalists

Teaching Experience

University of California Davis

BIS 2B: Introductory Biology: Ecology and Evolution (currently taught)

EVE 101 Introduction to Ecology

EVE 115 Marine Ecology (currently taught)
EVE 112 Invertebrate Zoology
ECL 214 Marine Ecology (graduate)
PBG 200B Population Biology (graduate) (currently taught)

University of North Carolina at Chapel Hill
MASC 104 Biological Oceanography

Graduate Students Advised (all Ph.D, unless noted)

Graduates: Randall Hughes (2006, now at Florida State), Amy Larson (joint doctoral program with San Diego State, 2007, now at Portland State (OR)), Suzanne Olyarnik (2008, now with UC Natural Reserve System), Kristin Hultgren (2007, now at Bard College), Jarrett Byrnes (2008, now at University of California Santa Barbara), Kirsten Sellheim (M.A. 2010, now with Cramer Fish Sciences, Inc.), Kyle Edwards (2010, now at Michigan State University).

Current Students: Kristin Aquilino, Rebecca Best, Jessica Abbott, Olivia Rhoades

Postdoctorals supervised

Matt Bracken (currently faculty at Northeastern University)
Carol Thornber (currently faculty at University of Rhode Island)
Randall Hughes, (currently faculty at Florida State University)
Fiona Tomas Nash (postdoc at Institudos Estudacos Avancos, Barcelona, Spain)
Jonthan Pruitt (current, starting faculty position at University of Pittsburgh, Fall 2011)
Marc Rius (current, Marie Curie Postdoctoral Fellow)

Major administrative experience

Director, Center for Population Biology
Chair, committee on educational policy, UCD College of Letters and Sciences
Chair, UC Davis Diving control board
Master Advisor, Biological Sciences major and marine biology area of emphasis
Member, Biological Sciences Curriculum Review Committee
Chair, Marine Ecology Area of Emphasis, Ecology Graduate Group
Member, Bodega Marine Lab Strategic Planning Committee