

## Curriculum vitae

### Jarrett Edward Byrnes

Postdoctoral Fellow

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### Education:

2002-2008, UC Davis, Population Biology

Degree: Masters of Science, 2003; Ph.D., 2008

Dissertation: Patterns and Consequences of Changing Biodiversity in Coastal Marine Food Webs

Advisor: John J. Stachowicz

1997-2001 Brown University, Bachelor of Science in Biology

Thesis title: Potential impact of the invasive acoel, *Convoluta convoluta*, in the Gulf of Maine

### Research Interests:

Ecological Feedbacks, Biodiversity and Ecosystem Functioning, Food Web Structure, Species Invasions, Positive Interactions, Ecology of Fouling Communities, Bayesian Statistics, Structural Equation Modeling, Ascidian Taxonomy, Kelp Forest Ecology, Using Technology to Communicate Science to the Public

### Publications:

#### *Refereed Papers*

**Byrnes, J.E.** and Stachowicz, J.J. In Press. Short and Long Term Consequences of Increases in Exotic Species Richness on Water Filtration by Marine Invertebrates. Ecology Letters.

Yang, L.J., Edwards, K.E., **Byrnes, J.E.**, Baston, J.L., Wright, A.N., and Spence, K.O. In Press. A meta-analysis of resource pulse-consumer interactions. Ecological Monographs.

**Byrnes, J.E.** and Stachowicz, J.J. In Press. The Consequences of Consumer Diversity Loss: Different Answer from Different Designs. Ecology.

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

**Byrnes, J.E.**, Reynolds, P.L., Stachowicz, J.J. 2007. Invasions and Extinctions Reshape Coastal Marine Food Webs. *PLoS One*. 2. e295.

Bullard S. G., Lambert G, Carman M.R., **Byrnes J.**, Whitlatch R.B., Ruiz G., Miller R.J., Harris L., Valentine P.C., Collie J.S., Pederson J., McNaught D.C., Cohen A.N., Asch R.G., Dijkstra J., Heinonen K. 2007. The invasive colonial ascidian *Didemnum* sp.: current distribution, basic biology, and potential threat to marine communities of the northeast and west coasts of North America. *Journal of Experimental Marine Biology and Ecology*. 342. 99-108.

Stachowicz, J.J. and **Byrnes, J.E.** 2006. Species diversity, invasion success and ecosystem functioning: combining experimental and observational approaches to assess the roles of resource competition, facilitation and extrinsic factors. *Marine Ecology Progress Series*. 311. 251-262.

**Byrnes, J.E.**, Stachowicz, J.J., Hultgren, K.M., Hughes, A.R., Olyarnik, S.V., Thornber, C. 2006. Predator Diversity Enhances Trophic Cascades in Kelp Forests by Modifying Herbivore Behavior. *Ecology Letters*. 9. 61-71.

**Byrnes, J.E.** and Witman, J.D. 2003. Impact assessment of an invasive flatworm, *Convoluta convoluta*, in the southern Gulf of Maine. *Journal of Experimental Marine Biology and Ecology*. 293. 173-191

#### *Book Chapters*

Olyarnik, S.V., Bracken, M.E., **Byrnes, J.E.**, Hughes, A.R., Hultgren, K.M., Stachowicz, J.J. In Review. Ecological factors affecting community invasibility. In *Marine Bioinvasions: Ecological, Management, and Geographic Perspectives*. Gil Rilov and Jeff Crooks, eds. 2009. Springer-Verlag.

#### *In Review*

**Byrnes, J.E.**, Bowles, C.M., Bracken, M.E.S., Ferner, M.C., Grace, J.B., Gruner, D.S., Hays, C.G., Kushner, D. J., Nickols, K.J., Ram, K., Sorte, C.J.B., Williams, S.L. Top-down and bottom-Up Forces Jointly Control Kelp Forest Communities in the California Channel Islands. Target Journal: Public Library of Science Biology.

#### *Films*

*Fear and Fishing in Lake Davis*. Documentary film produced in collaboration with 5 other UC Davis students over two years detailing the invasion of Northern Pike in

California and the politics of invasive species eradication efforts. Lead Editor. Flag in the Ground Productions. 2005.

### *Other Writings*

I'm a chordata! Urochordata! <http://www.imachordata.com/>. My science blog discussing ecology, marine biology, and the culture of science in the modern age.

Embracing Blogs and Other Tools of the Information Age.

<http://www.esa.org/esablog/?p=21>. An article for Ecotone, the Ecological Society of America blog, on how Ecologists can utilize new technologies to enhance the scientific discourse. 2007.

### **Grants and Awards:**

Bodega Marine Lab Graduate Student Fellowship. Winter-Spring 2007.

Achievement Rewards for College Scientists (ARCS) Fellow. Spring, Fall 2006.

NSF Integrative Graduate Education and Research Traineeship Long Term Fellowship in Biological Invasions. 2002-2004, Fall 2007 (stipend and tuition for 2 years).

UC Davis Center for Population Biology Research Fellowship. 2003-2004.

Susan Colver Rosenberger Prize in Biology. 2001.

NSF Research Experience for Undergraduates. 2000.

Brown Undergraduate Teaching and Research Assistantship. 2000.

### **Teaching:**

Course Organizer: Applied Bayesian Analysis of Hierarchical Models. Spring 2007.

Course Organizer: Kelp Forest Ecology and Structural Equation Modeling. Winter 2007.

Programming in R for Populations Genetics. One week session of Population Biology Graduate Group Core Course. Fall 2007.

An Introduction to Statistics in R. 2 Day workshop. Bodega Marine Laboratory and UC Davis. 2006.

Teaching Assistant: Introduction to Ecology (EVE101). UC Davis. 2005.

Teaching Assistant: Underwater Research. Shoals Marine Laboratory. 2001.

Teaching Assistant: Principles of Ecology (BI042). Brown University. 2000.

**Software:**

The sem.additions library – Methods for the simple model manipulation, multimodel inference, and correcting for non-normality in the analysis of structural equation in R. <http://r-forge.r-project.org/projects/sem-additions/>

**Outreach and Internships:**

2004-2005. Intern, Gulf of the Farallones National Marine Sanctuary and Cordell Bank National Marine Sanctuary. Created species list of all non-native species either present in sanctuary waters, or likely to invade in the near future.

**Professional Service:**

Western Society of Naturalists Student Committee. 2005-2007. Organized 2005 symposium on Cross Ecosystem interactions. Organized symposium “The Natural History of the Channel Islands” in 2007. Created and maintained online meeting registration and submission system.

Reviewer. *Ecology*, *Ecology Letters*, *Journal of Animal Ecology*, *Oecologia*, *Botanica Marina*, *Hydrobiologia*.

**Work History:**

2001-2002. Research Assistant. Northeastern University Marine Science Center. Worked with Robert Miller.

2001. Research Assistant. Bodega Marine Laboratory. Worked with Ronnie Estelle.

1999-2001. Research Assistant. Brown University. Worked with Dr. Jon Witman.

**Invited Presentations:**

2008. Consequences of Declining Predator Diversity in the Ocean: A Tale of Two Systems. Brown University Conservation Biology Seminar Series.

2008. Using Structural Equation Modeling for Marine Ecological Data. Subtidal Ecology Class. Dr. Michael Graham. Moss Landing Marine Laboratory.

2007. The Consequences of Changing Biodiversity in Marine Ecosystems. California State University, Stanislaus.

2007. North American Benthological Society Meetings. Combining Long Term Surveys with Structural Equation Modeling to Examine Kelp Forest Food Webs. Invited for the symposium “Cascades, Chains, and Webs: Alternative Approaches to Understanding Complex Systems”.

2007. Identifying the Ascidians Identification of San Diego. Scripps Institute of Oceanography.

2005. Ecological Society of America Annual Meeting. Predator Diversity Enhances Trophic Cascade Strength through Changes in Herbivore Behavior. Invited for the symposium “Incorporating trophic diversity into the biodiversity-ecosystem functioning debate: Lessons from aquatic ecosystems”.

### **Contributed Presentations:**

**Byrnes, J.E.** and Edwards, K.E. Predator diversity influences short and long-term filtration in a marine fouling community. Western Society of Naturalists. 2008.

**Byrnes, J.E.** and Stachowicz, J.J. The consequences of increased non-native filter Feeder diversity in fouling communities. Benthic Ecology Meetings, 2008.

**Byrnes, J.E.** and Stachowicz, J.J. The consequences of accelerating trophic skew in marine fouling communities. Western Society of Naturalists, 2007.

**Byrnes, J.E.**, Christy M. Bowles, Matthew E. S. Bracken, Matthew Ferner, Daniel S. Gruner, Cynthia Hays, Kerry K. Nickols, Karthik A. Ram, Cascade J. B. Sorte, Susan L. Williams, David Kushner and James B. Grace. Combining Long Term Surveys with Structural Equation Modeling to Examine Kelp Forest Food Webs. Benthic Ecology Meetings. 2007. Ecological Society of America Meeting 2007.

**Byrnes, J.E.** Biodiversity, invasions, and extinctions: an examination of consumer-prey relationships in fouling communities. Western Society of Naturalists, 2005.

**Byrnes, J.E.** and Stachowicz, J.J. Diversity in fouling communities and resistance to invasive ascidians: the role of settlement complementarity and species interactions. International Invasive Sea Squirt Conference, 2005.

**Byrnes, J.E.**, Stachowicz, J.J., Hultgren, K.M., Hughes, A.R., Olyarnik, S.V., Thornber, C. Predator Diversity Enhances Trophic Cascade Strength through Changes in Herbivore Behavior. Benthic Ecology Meetings, 2005. Western Society of Naturalists, 2004.

**Byrnes, J.E.**, and Witman, J.D. The potential impact of an invasive acoel, *Convoluta convoluta*, in the Gulf of Maine. Benthic Ecology Meeting, 2001. Poster, Second International Marine Bioinvasions Conference, 2001.

### **Professional Organizations:**

Western Society of Naturalists  
Ecological Society of America  
Sigma Xi  
American Academy of Underwater Scientists  
National Postdoctoral Association

(updated May 11, 2009)