

Dr. Kristin M. Hultgren

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EDUCATION

University of California, Davis, 2001-2007. Ph.D. in Ecology.

Brown University, 1995-1999. B.A. in Biology. Honors and magna cum laude.

TEACHING EXPERIENCE

Assistant Professor, Biology Department, Seattle University, 2012-present.

- Invertebrate Zoology (Biol 2350): invertebrate taxonomy, anatomy, and ecology. F12, F14.
- General Biology II and Lab (Biol 1620/1621): foundation class in ecology and evolution. W13-15.
- Marine Biology (Biol 275): marine biology concepts and research. S13.
- Symbiosis (UCOR 1820): non-majors core course exploring biology through theme of symbiosis. F13.
- Evolution (Biol 3500): evolutionary concepts, applications, and research. W14-15.

Visiting Assistant Professor, Bard College, 2011-2012.

- Symbiosis (Bio 149): non-majors core course exploring biology through theme of symbiosis. F11.
- Biostatistics (Bio 144): statistical concepts and application, with lab. S12.
- Invertebrate Zoology & Phylogenetics (Bio 309): Invertebrate taxonomy, systematics, and phylogeny. S12.

Adjunct Professor, Vassar College, 2010-2011.

- Introductory biology (Bio 106): foundation course in introductory biology and scientific method. S10.
- Animal Structure & Diversity (Bio 226): invertebrate and vertebrate taxonomy and diversity, S11.

Instructor, Bodega Summer Field Program, University of California, Davis, 2007

- Marine Field Ecology (ESP 124): a course focusing on coastal ecology, oceanography, and zoology.
- Coastal Marine Research (BIS 124): undergraduate research, with E. Sanford.
- Marine Environmental Issues (EVE 111): discussion course on current environmental issues, with E. Sanford.

POSTDOCTORAL EXPERIENCE AND ACADEMIC APPOINTMENTS

Research Collaborator, Smithsonian Institution, 2011-present (with Nancy Knowlton and Emmett Duffy)

Marine Science Network Postdoctoral Fellow, Smithsonian Institution, 2007-2010. Principal

Collaborator: Dr. Emmett Duffy (Virginia Institute of Marine Sciences). Project: Phylogenetic community ecology of sponge-dwelling shrimp (genus *Synalpheus*).

Postdoctoral Fellow, Smithsonian Institution, 2010-2011. Advised by Dr. Nancy Knowlton. Project: The evolution of symbiosis in the mega diverse family Alpheidae (snapping shrimps).

PUBLICATIONS (* indicates undergraduate co-author)

Hultgren, K.M., and H. Mittelstaedt*. Color change in a marine isopod is adaptive in reducing predation. (*in press*, *Current Zoology*).

Hultgren, K.M., D.R. Rubenstein, and J.E. Duffy. Sociality in snapping shrimp. In: Abbot, P., and Rubenstein, D.R., *Comparative Social Evolution*. Cambridge University Press, Cambridge. (*in press*)

Hultgren, K.M., and A. Brandt*. 2015. Taxonomy and phylogenetics of the *Synalpheus paraneptunus* species complex (Decapoda: Alpheidae), with a description of two new species. *Journal of Crustacean Biology* 35, 547-558.

Hultgren, K.M., C. Hurt, and A. Anker. 2014. Phylogenetic relationships within the snapping shrimp genus *Synalpheus*. *Molecular Phylogenetics and Evolution* 77: 116-125.

Hultgren, K.M. 2014. Variable effects of shrimp symbionts on their sponge hosts. *Marine Biology* 161: 1217-1227.

Duffy, J.E., Macdonald, K.S., **Hultgren, K.M.,** Chak, T.C.S., and D.R. Rubenstein. 2013. Regional decline and local extinction of Caribbean social shrimp. *PLoS ONE* 8(2): e54637.

Thompson, A.R., T.C. Adam, **K.M. Hultgren,** and C.E. Thacker. 2013. Ecology and evolution affect network structure in an intimate marine mutualism. *The American Naturalist* 182: E58-E72.

Anker, A., P. Pachelle, S. De Grave, and **K.M. Hultgren.** 2012. Taxonomic and biological notes on some Atlantic species of the snapping shrimp genus *Synalpheus* Spence Bate, 1888 (Decapoda, Alpheidae). *Zootaxa* 3598: 1-96.

Hultgren, K.M., and J.E. Duffy. 2012. Phylogenetic community ecology and the role of social dominance in sponge-dwelling shrimp. *Ecology Letters* 15: 704-713.

- McGrew, M*, and **K.M. Hultgren**. 2011. Bopyrid parasite infestation affects activity levels and morphology of the eusocial snapping shrimp *Synalpheus elizabethae*. *Marine Ecology-Progress Series* 431: 195-204.
- Hultgren, K.M.**, Macdonald, K.S., and J.E. Duffy. 2011. Sponge-dwelling snapping shrimps (Alpheidae: *Synalpheus*) of Barbados, with a description of a new eusocial species. *Zootaxa* 2834: 1–16.
- Hultgren, K.M.**, and J.E. Duffy. 2011. Multi-locus tree of sponge-dwelling snapping shrimps (Caridea: Alpheidae, *Synalpheus*) supports morphology-based species concepts. *Journal of Crustacean Biology* 31: 352-360.
- Hultgren, K.M.**, and J.J. Stachowicz. 2011. Camouflage in decorator crabs: integrating ecological, behavioral and evolutionary approaches. In: M. Stevens and S. Merilaita (eds) *Animal Camouflage: Mechanisms and Function*. Cambridge University Press, Cambridge.
- Hultgren, K.M.**, and J.E. Duffy. 2010. Sponge host characteristics shape the community structure of their shrimp associates. *Marine Ecology-Progress Series* 407: 1-12. (Feature Article)
- Hultgren, K.M.**, Macdonald, K.S., and J.E. Duffy. 2010. Sponge-dwelling snapping shrimps of Curaçao, with descriptions of three new species. *Zootaxa* 2372: 221-262.
- 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.
- Hultgren, K.M.**, 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. *The American Naturalist* 173: 566-578.
- Macdonald, K.S., **Hultgren, K.M.**, and J.E. Duffy. 2009. The sponge-dwelling snapping shrimps (Crustacea: Decapoda: Alpheidae: *Synalpheus*) of Discovery Bay, Jamaica, with descriptions of four new species. *Zootaxa* 2199: 1-57.
- Hultgren, K.M.**, F. Palero, F.P.L. Marques, and G. Guerao. 2009. Assessing the contribution of molecular and larval morphological characters in a combined phylogenetic analysis of the superfamily Majoidea. In: J. Martin, D. L. Felder, and K. A. Crandall (eds) *Decapod Crustacean Phylogenetics (Crustacean Issues)*. CRC Press, Boca Raton.
- Olyarnik S.V., Bracken M.E.S., Byrnes J.E., Hughes A.R., **Hultgren KM**, and J.J. Stachowicz. 2009. Ecological factors affecting community invasibility. In: Rilov G, Crooks JA (eds) *Biological invasions of marine ecosystems: ecological, management, and geographic perspectives*. Springer, Heidelberg, Germany.
- Hultgren, K.M.**, and J. J. Stachowicz. 2008a. Alternative camouflage strategies mediate predation risk among closely related co-occurring kelp crabs. *Oecologia* 55: 519-528.
- Hultgren, K.M.**, and J.J. Stachowicz. 2008b. Molecular phylogeny of the brachyuran crab superfamily Majoidea indicates close congruence with trees based on larval morphology. *Molecular Phylogenetics and Evolution* 48: 986-996.
- Hultgren, K.M.**, Thanh P. D., and M. Sato. 2006. Geographic variation in decoration selectivity of *Micippa platipes* and *Tiarinia cornigera* in Japan. *Marine Ecology Progress Series* 326: 235-244.
- Byrnes J.E., Stachowicz J.J., **Hultgren K.M.**, Hughes A.R., Olyarnik S.V., 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., Hughes A. R., **Hultgren K.M.**, Miner B.G., Sorte C. J. B., Thornber C.S., Rodriguez L. F., Tomanek L., and S. L. Williams. 2006. The impacts of climate change in coastal marine systems. *Ecology Letters* 9:228-241.

RESEARCH GRANTS AND FELLOWSHIPS

Awarded

- M. J. Murdock Charitable Trust- Natural Sciences Grant, 2015, 75,000.** Evolutionary Origins and Ecological Consequences of Genome Size Variation in Crustaceans.
- SU College of Science & Engineering Summer Program, 2013, \$4300.** Camouflage Abilities of Marine Isopods (w/Hannah Mittelstaedt)
- M. J. Murdock Charitable Trust-Research Start-up Grant for New Science Faculty, 2012-15, \$30,000.** Co-PIs: G. Yasuda, K.M. Hultgren
- Scholarly Studies Grant/Wolcott Grant, Smithsonian Institution, 2010-11, \$34,600.** Evolution of Symbiosis in the Alpheidae. Co-PIs: N. Knowlton, K. M. Hultgren.
- Encyclopedia of Life Fellowship, 2009-10, \$20,000.** Alpheidae species pages.
- National Geographic Research and Exploration Grant, 2007-2009, \$19,955.** Historical ecology and evolution of Caribbean sponge-dwelling snapping shrimp (*Synalpheus*). Co-PIs: J.E. Duffy, K.M. Hultgren.
- Smithsonian Marine Science Network Postdoctoral Fellowship, 2007-09, \$98,000.**
- National Science Foundation Graduate Research Fellowship, 2002-05.**

University of California-Davis Zolk Fellowship, 2002-03.
National Science Foundation East Asia and Pacific Summer Institute, 2002.
U.S. Fulbright Fellowship to Jamaica, 1999-2000.

SERVICE

Seattle University College of Science and Engineering, Ad-hoc fellowship Committee (NSF-GRP), **2014**
Seattle University College of Science and Engineering, Curriculum Committee, **2014**
Seattle University College of Science and Engineering, Annual Faculty Performance Review Committee, **2014-15**
Seattle University Department of Biology, Faculty Search Committees (2), **2012-13**
Co-wrote new laboratory exercises for Biol 1621, **2014**
Organized Seattle University Invertebrate Collections, **2012-2014**

Professional Service:

Curator (alpheid snapping shrimps), Encyclopedia of Life (www.eol.org), **2009-2011**
Associate Member, Faculty of 1000.
Reviewer for *Animal Behavior*, *The American Naturalist*, *Behavioral Ecology*, *Biological Journal of the Linnean Society*,
Biology Letters, *Cahiers de Biologie Marine*, *Ecology*, *Functional Ecology*, *Marine Biology*, *Marine Ecology Progress Series*, *Oecologica*, *Oikos*, *Systematics and Biodiversity*, *PLoS 1*, and *Zootaxa*.

RESEARCH MENTORING

***indicates undergraduate**

Seattle University

Color change and Camouflage of Marine Isopods. **2013-14**, w/H. Mittelstaedt*
Trophic Cascades and Coral Reefs. **2014**, w/A. Lin*
Shrimp Taxonomy and Illustration. **2014**, w/ A. Brandt*
Evolution of Symbiotic Pea Crab Shape in Relation to Invertebrate Host Phyla. **2013**, w/C. Cho* (winner of best presentation prize for Biol 488)
Phylogenetics of *Synalpheus* Shrimp. **2013-14**, w/S. McCann*, A. Kabuburu*, H. Callahan*, L. McCrink*
Cryptic Species identification in *Synalpheus* snapping shrimp. **2014**, w/Biol 350* Evolution Class
Effects of Bopyrid Isopod Parasites on Shrimp Respiration. **2013**, w/S. McCann*, A. Bugaj*

Other Institutions

Species composition and reproductive strategies of commensal *Synalpheus* shrimp (Decapoda: Alpheidae) occupying the sponges *Spherospongia vesparium*, and *Spongia* sp. of the Florida Reef Tract. **2012-2013**.
Master's Committee Member for Brittnee Barris, Nova Southeastern University
New species identification in *Synalpheus* shrimp. **2012**, Bard College Biol 309* class
Effects of Bopyrid Isopod Infestation on Snapping Shrimp. **2009-2013**, Vassar College, w/M. McGrew*
Body size variation in *Synalpheus* snapping shrimp, **2008**, Smithsonian Internship Program, w. M. McGrew*

RESEARCH PRESENTATIONS (* indicates undergraduate collaborator)

National/International Professional Meetings

Hultgren, K., N. Jeffery, D.R. Rubenstein, T.S. Chak, and J.E. Duffy. 2014. Genome size variation and social behavior in sponge-dwelling snapping shrimp. Western Society of Naturalists Meeting, Tacoma, WA.
Hultgren, K.M., and H. Callahan*. 2014. Cryptic species identification of sponge-dwelling snapping shrimp. Western Society of Naturalists Meeting, Tacoma, WA.
Mittelstaedt, H.*, and K.M. Hultgren. 2014. Variation in color change abilities in a guild of marine isopods (Idotea). Western Society of Naturalists Meeting, Tacoma, WA.
Barris, B., J.D. Thomas, K. Hultgren, and P. Blackwelder. 2013. Population structures and reproductive strategies of Florida Keys *Synalpheus* sp.; the implications of ecological influences on social evolution. Benthic Ecology Meeting, Atlanta, GA.
Thompson, A.R., T. Adam, K. Hultgren, and C. Thacker. 2012. Ecology and evolutionary history affect network structure of a tropical shrimp-goby mutualism. Western Society of Naturalists meeting, Monterey, CA.
Hultgren, K.M., and J.E. Duffy. Phylogenetic community ecology of symbiotic snapping shrimp. 2011. Crustacean Society Meeting, Honolulu, HI.
Hultgren, K.M., and J.E. Duffy. 2010. Positive effects of shrimp occupancy on sponge growth and mortality. Benthic Ecology Meeting, Wilmington, NC.
Hultgren, K.M., and J.E. Duffy. 2009. Phylogenetically conserved niches and the biodiversity of symbiotic shrimp. Benthic Ecology Meeting, Corpus Christi, TX.

- Hultgren, K.M., F. Palero, G. Guerao, and F. Marques. 2008. Phylogeny of the brachyuran crab superfamily Majoidea: a comparison of molecular and morphological characters. Decapod Systematics Symposium, Society for Integrative and Comparative Biology, San Antonio, TX.
- Hultgren, K.M. 2007. Evolution of camouflage strategies in the decorator crabs (Majoidea). Benthic Ecology Meeting, Atlanta, GA.
- Hultgren, K.M., and J.J. Stachowicz. 2006. Decoration and color change as alternate strategies of camouflage in the Epialtidae family. Ecological Society of America Meeting, Memphis, TN.
- Hultgren, K.M., and J.J. Stachowicz. 2006. Evolution of camouflage behaviors in the Decorator crabs (Majoidea). Society for the Study of Evolution Annual Meeting, Stonybrook, NY.
- Hultgren, K.M., and J.J. Stachowicz. 2005. Camouflage in the kelp forest: decoration and color change in the Epialtidae. Western Society of Naturalists Meeting, Monterey, CA.
- Hultgren, K.M., and J. J. Stachowicz. 2005. Alternate strategies of camouflage in related species of *Pugettia*. Benthic Ecology Meeting, Williamsburg, VA.
- Hultgren, K.M., and J. J. Stachowicz. 2004. Color change and decoration as alternate camouflage strategies in the *Pugettia* genus. Western Society of Naturalists Meeting, Rohnert Park, CA.
- Hultgren, K.M. 2000. Effect of patch size on infaunal invertebrate diversity in seagrass beds. Western Society of Naturalists Meeting, Portland, OR.

National Undergraduate Research Conferences

- Mittelstaedt, H.*, and Hultgren, K. 2013. Camouflage Strategies of Marine Isopods (poster). Murdock College Science Research Conference, Vancouver, WA.
- Mittelstaedt, H.*, and Hultgren, K. 2014. Camouflage and Color Change Abilities of Marine Isopods. West Coast Biological Sciences Undergraduate Research Conference, Azusa, CA.

Invited Seminars/workshops

- Hultgren, K. 2014. Size, Sociality, and Symbiosis in the Sea. University of Puget Sound, WA.
- Women Evolving Biological Sciences National Symposium. 2013. Selected participant. Durham, NC.
- Hultgren, K. 2013. Crustaceans, Color Change, and Camouflage on the Coast. Rosario Beach Marine Laboratory, Walla Walla University, WA
- Hultgren, K.M. 2011. The importance of body size in crustacean ecology and evolution. Brown University.
- Hultgren, K.M. 2009. Phylogenetic community ecology and biodiversity of sponge-dwelling snapping shrimps. Smithsonian Environmental Research Center, MD.
- Hultgren, K.M. 2008. Using phylogenies to explore crustacean evolutionary ecology. University of Louisiana, Lafayette, LA.