BIOSPHERE
The Weekly Bulletin of Biology

Biology Colloquium: Friday, 31 January 2014, 2:00 pm in CR 5125

**“Three's a crowd:**
**testing models for the evolutionary transition from tristyly to distyly”**

Stephen Weller, Ph.D.
UC Irvine

## Dawn Vaughn: New Marine Biologist

Dr. **Dawn Vaughn** joined the faculty last fall as an Assistant Professor. This spring, she is teaching Marine Biology while conducting research on the free-swimming larvae of marine invertebrates.

Vaughn joins us from the University of Washington’s Friday Harbor Laboratories (FHL) on San Juan Island, Washington. There she was a postdoctoral researcher studying the differential effects of increased temperature on the behavior, growth, and survival of the males and females of a marine snail. One of her major findings was that females were more likely to expose themselves to elevated temperatures than males, which resulted in decreased growth and ultimately decreased fitness of females. Vaughn’s work with the snails on San Juan Island is providing some of the first evidence of sex-specific responses to elevated temperatures along the rocky shore with important implications for species persistence in our increasingly warm world.

Prior to her postdoc, Vaughn earned her Ph.D. in 2009, also from the University of Washington. Her research focused on how marine organisms recognize and respond to potential predators during their free-swimming larval stage.

Before graduate school, Vaughn was a research apprentice at FHL. She says that she was particularly inspired by the many ways that prey organisms confound their predators through induced changes in defensive behavior and morphology.

“For as long as I can remember I have had a preoccupation and irrational fear of large predators like great white sharks and salt-water crocodiles. It seemed to me that their prey had little chance against such formidable predators. While this still rings true, my first research experiences at FHL showed me that some prey anticipate and survive attacks by quickly altering their form, in some

cases growing spines or developing thicker, more protective shells in a matter of days. I was amazed."

As a graduate student, Vaughn tested whether microscopic larvae, like their corresponding adults, are able to adapt their defensive morphologies to better match their current risk of predation. Her research indicates that evolutionarily distinct marine larvae can effectively alter their form in response to fluctuations in risk. Vaughn's research has shown that larval snails can grow shells with smaller openings in response to larval crabs and that fish predators induce larval sand dollars to clone themselves. In both cases, the response of larval prey decreases their vulnerability to predators. For the larval snails, the smaller shell opening makes it more difficult for larval crabs to get at the snail's soft parts. As for the larval sand dollars, the production and release of small buds in response to predatory fish results in both an increase in the number of larvae as well as larvae of smaller size. The small size of the larval clones decreased their vulnerable to visual predators like fish, which preferentially target and consume full-sized, uncloned larvae.

More recently, Vaughn has begun to investigate how responding to changes in the environment during one life stage impacts performance (growth, fitness, survival) during subsequent developmental stages, and even across generations. Vaughn is interested in recruiting talented undergraduates and graduate students into her Larval Ecology Lab here at CSUN to work on these studies and encourages interested students to contact her directly.

As an undergraduate, Vaughn studied anthropology at UC Santa Barbara. Her husband is also an anthropologist. They have two daughters, ages 5 and 7, and a Husky. When she is not studying marine organisms and their larvae, Vaughn enjoys cooking, mountain biking, and traveling.

## New Publication

Dr. **Steeve Comeau**, Dr. **Peter Edmunds**, **Nate Spindel**, and Dr. **Robert Carpenter** are authors of "Fast coral reef calcifiers are more sensitive to ocean acidification," published in *Limnology and Oceanography.*

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