

Using Behavioral Differences to Understand Monogamy

Valley Native studies Snapping Shrimp in REU program hosted by the College of Charleston

Stephanie Carrera, a rising senior at Swarthmore College, is spending her summer researching the reasons why animals are monogamous and what keeps monogamy going. In order to figure out what general principles maintain monogamy, she looks at the movement behavior of the snapping shrimp in response to habitat arrangement, predators, and a paint brush.

“I take cheap little paintbrushes to poke the shrimp and time how long it takes for them to snap at me with their fascinating claws. The faster they snap, the more aggressive the animals are.” Stephanie’s mentor, Dr. Melissa Hughes, has already found that females are the most aggressive of the sexes. Along with being aggressive, snapping shrimp are also often found in monogamous pairs. The running theory behind monogamy in shrimp is that females use aggression to space themselves out, making it difficult for males to risk finding more than one mate. Stephanie’s research asks what changes about aggression and space use when the *habitats* the shrimp live in changes.

“In the wild, one population will have many different burrow arrangements.” The shrimp live in burrows under rocks and oyster shells, Stephanie further explains. “Rocks closer together probably mean that there are closer burrows under them, and probably a lower risk for males to move between them.” By changing how her shrimps’ burrows are arranged in the lab, Stephanie manipulates the ‘risk’ of moving. To further change the ‘risk,’ Stephanie is also putting predators in half her trials. “We’re doing things that we think will change how boldly these animals behave. If we can find a difference between the sexes and their movement, we can make a better story about how each sex is contributing to maintaining monogamy.”

Melissa Hughes had been working on shrimp since her dissertation. After a break from shrimp right after grad school, where she worked with birds, she returned to shrimp thinking that they were actually fascinating animals. “People underestimate animals they don’t think are clever. If you tell me dolphins are really interesting, no one’s surprised. But shrimp have a rich behavioral repertoire, too. These shrimp are a lesson in not underestimating supposedly simple organisms.”

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Video on College of Charleston REU

<https://www.youtube.com/watch?v=cqP4pXKuBds>

BBC Article of Melissa Hughes’ Research

<http://www.bbc.co.uk/nature/28203680>



Snapping shrimp and test arena