Werth Center for Coastal and Marine Studies
17th Annual Seminar Series

Dr. Catherine Matassa

Assistant Professor
University of Connecticut
catherine.matassa@uconn.edu
https://matassa.lab.uconn.edu

1:00-2:00pm
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Please join via: https://us02web.zoom.us/j/87620967574

"The ecology of fear: how 'scared' prey shape the cascading effects of top predators"

Predators can drive trophic cascades by consuming their prey but also by causing prey to engage in anti-predator behaviors such as reduced feeding rates or habitat shifts. However, the energetic costs of anti-predator behaviors require that prey carefully balance the need to avoid both predation and starvation. While a growing body of theory predicts optimal prey foraging behavior, more empirical work is necessary to identify the mechanisms that link anti-predator behaviors to their population-, community-, and ecosystem-level consequences. My research on benthic marine communities demonstrates that the cascading effects of 'fear' on prey behavior can be more pronounced and more dynamic than the numerical effects of predators on prey density. This contrast arises because predation risk influences not only the intensity of prey foraging, but also when, where, and how prey gather and utilize energy from lower trophic levels. Emerging from the ecology of fear is a "middle-out" perspective: the cascading effects of predators and the flow of energy and nutrients to higher trophic levels ultimately depend on the organisms that connect the tops and bottoms of food chains. Because most species are in the middle of food chains (and must therefore balance foraging/predation risk trade-offs), understanding how fear and other environmental stressors interact will be necessary to effectively predict and manage the impacts of climate change and trophic downgrading on marine ecosystems.

Made possible by the Werth Center for Coastal & Marine Studies

Any questions, please contact Dr. Sean Grace (graces2@southernct.edu), Dr. Vince Breslin (breslinv1@southernct.edu) or Dr. Emma Cross (crosse2@southernct.edu)