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Woods Hole Oceanographic Institution  
**Biology Department Seminar**



Thursday, March 9, 2017  
Redfield Auditorium – 12:00 Noon

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**The Sound of Fury? Drivers of snapping  
shrimp sound production and their  
domination of marine acoustic environments**

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Soundscapes, the mixture of sounds that form the ambient acoustic environment, are increasingly recognized as a key influence on marine ecological pattern and process. Snapping shrimp (Alpheidae) are a diverse family of cryptic sound-producing crustaceans whose “snaps” dominate shallow-water marine soundscapes worldwide. Despite their outsized bio-acoustic contribution and influence on marine ecosystems, as well as their interference with human acoustic endeavour in the sea, relatively little is known about snapping shrimp sound production patterns or their behavioural ecology. Our recent efforts to sample habitat soundscapes at high spatiotemporal resolution have revealed complex dynamics in snapping shrimp sound production and suggest that snapping behaviors are not nearly as simplistic as previously accepted. Snap rates generally exhibit strong diel rhythms, but can vary over short spatial scales (e.g., opposite crepuscular patterns between adjacent sites) and shift substantially over time (e.g., daytime versus nighttime dominance during different seasons). Our current lab experiments using *Alpheus* spp. show that snapping likely serves multiple communicative functions and high individual variability as well as complex group dynamics that contribute to soundscape variation observed in field recordings. Snap rate variability relates to abiotic variables such as temperature, light, and time of day, and biotic factors such as sex, size, and behavioural context. The nature of these relationships, underlying causal mechanisms, and impact on natural soundscapes under changing environmental conditions are just beginning to be explored.