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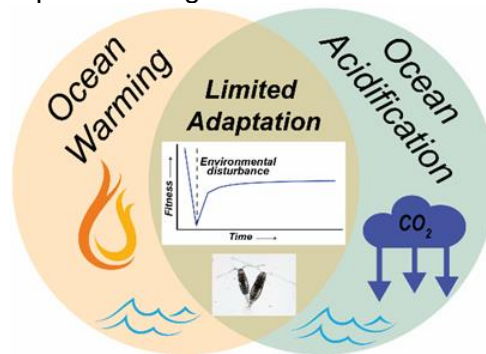
Department of Marine Sciences  
Presents a Seminar by

**Hans Dam**

UConn Marine Sciences

## Zooplankton evolutionary rescue in response to ocean warming and acidification

The ongoing process of ocean warming and acidification (OWA) poses challenges for the persistence of marine populations. Evolutionary rescue is a mechanism by which a population—that would have gone extinct in the absence of evolution—persists due to natural selection acting on heritable variation. Yet, our ability to predict evolutionary rescue in animal populations in the ocean in response to global change is hampered by lack of factorial, multigenerational studies. Using results from experimental evolution, I will show evidence of evolutionary rescue in a copepod population in response to OWA. Rescue was rapid, but limited. After an initial ~50% decline in population fitness upon exposure to OWA, fitness recovered within a few generations indicating rapid adaptation. The key trait accounting for adaptation was egg hatching success. However, fitness declined in later generations indicating limited adaptation. I will show that rescue was constrained by adaptation costs. I will also show the genomic signatures of OWA adaptation, which are consistent with the phenotypic data, are complex and predominantly driven by adaptation to warming. The results from this study can inform evolutionary rescue of marine populations in response to global change, illustrate the need for multigenerational studies that measure multiple fitness-related traits, and how studies that integrate phenotypic and genomic data can provide insight into the mechanisms of adaptation.



**Host:** Evan Ward

**Time & Date:** 11:00 am, Friday, February 3, 2023

**Place:** Lowell Weicker Building, Seminar Room 103 (or WebEx)

**Please visit this page to request seminar information:**

<https://marinesciences.uconn.edu/seminar/seminarform/>

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