

# UConn

## UNIVERSITY OF CONNECTICUT

Department of Marine Sciences  
Presents a Seminar by

**Hilary Palevsky**  
**Boston College**

**Interconnected biological and physical controls on ocean carbon uptake: The influence of winter ventilation on the ocean's biological carbon pump**

Photosynthetic fixation of organic carbon and export of a fraction of that organic carbon from the surface to the deep ocean – the biological pump – plays a key role in enabling the ocean to absorb carbon dioxide from the atmosphere. However, in regions that experience deep winter mixing, much of the organic carbon exported from the seasonally-stratified surface ocean can be subsequently respired within the thermocline and ventilated back to the atmosphere during winter rather than being sequestered on annual or longer time scales. In this talk, I will describe observational evidence of winter ventilation of seasonally-exported carbon, both from ship-of-opportunity geochemical tracer sampling in the North Pacific and from Ocean Observatories Initiative time-series measurements of dissolved oxygen in the subpolar North Atlantic. I will also present analysis of global earth system model output (CCSM-BEC) showing estimated global rates and spatial patterns of ocean carbon export flux are sensitive to the choice of whether to account for winter ventilation, both in preindustrial and future emissions scenario simulations. I will discuss the implications of these findings for future studies of marine carbon cycling, and our understanding of how changes to the ocean carbon cycle and global climate system will unfold over the 21<sup>st</sup> century.

**Host:** Samantha Siedlecki

**Time & Date:** 11:00 am, Friday, November 15, 2019

**Place:** Marine Sciences Building, Seminar Room 103

If you are an individual with a disability and need accommodations, please contact 860-405-9152, 860-405-9087, or [marinesciencesseminars@uconn.edu](mailto:marinesciencesseminars@uconn.edu).

For cancelations and additional seminar information, please see <https://marinesciences.uconn.edu/seminar/seminar1198/>.