



**UNIVERSITY OF CONNECTICUT**

**Department of Marine Sciences  
Presents a Seminar By**

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**What can oxygen and noble gases teach us  
about the ocean carbon pumps?**

The ocean is a major sink of anthropogenic CO<sub>2</sub> emissions. In order to predict future atmospheric CO<sub>2</sub> levels and global climate, we must improve quantification of the ocean carbon pumps, which sequester CO<sub>2</sub> from the atmosphere on timescales from years to millennia. In this talk, I will present field data from Monterey Bay, CA and other regions, and use it to describe how in situ measurements of dissolved gases can be used to quantify the biological and solubility pumps. In particular, O<sub>2</sub> concentration and isotopic composition can be used to quantify gross and net productivity. A persistent challenge in quantifying biological productivity from O<sub>2</sub> measurements is the need to accurately parameterize the physical processes that also alter O<sub>2</sub> concentration and isotopic composition (e.g., bubble-mediated gas exchange, diffusive gas exchange, and mixing). Measurements of multiple inert gases, such as the noble gases, are used to develop parameterizations for these physical processes. These parameterizations are then applied to bioactive gases such as O<sub>2</sub> and CO<sub>2</sub>, thereby improving estimates of the biological and solubility pumps. The advantages and disadvantages of in situ gas tracer methods for estimating productivity in comparison to traditional, incubation-based methods will also be discussed.

**Host:** Julie Granger

**Time & Date:** 11:00 am, Friday, March 4, 2016

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

Please see this [page](#) for cancelations and additional seminar information, email [marinesciences@uconn.edu](mailto:marinesciences@uconn.edu), or call 860-405-9152 or 860-405-9151