
Woods Hole Oceanographic Institution
Biology Department Seminar



Thursday, June 15, 2017
Redfield Auditorium – 12:00 Noon

**Ecology and evolution of *Prochlorococcus*
viewed through the lens of marine
nitrogen cycling**

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Nitrogen availability often limits marine phytoplankton growth and most species of phytoplankton can use a wide variety of nitrogen containing compounds to satisfy their nitrogen demands. Only a fraction of *Prochlorococcus* cells, however, can assimilate oxidized nitrogen sources such as nitrite and nitrate, the latter being among the more plentiful. In contrast to their very close relative *Synechococcus*, which co-occurs in the water column, most *Prochlorococcus* are missing key genes in their assimilation pathways. This is quite surprising, given that *Prochlorococcus* is the dominant primary producer in the oligotrophic subtropical gyres where nitrogen availability can be severely limiting. Why would this trait be retained in some lineages of *Prochlorococcus* and lost in others? What are the selective pressures that shape this diversity? More broadly, how do relationships between intra-specific diversity and key environmental forces shape microbial populations, and in turn, the biogeochemistry of the oceans? These are the questions that motivate my research.