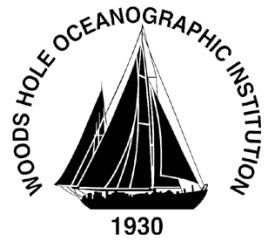

Woods Hole Oceanographic Institution
Biology Department Seminar



Thursday, April 6, 2017
Redfield Auditorium – 12:00 Noon

**Microbiology of the anoxic pelagic ocean:
emerging insights from contemporary
oxygen minimum zones**

Dr. Frank Stewart

Georgia Institute of Technology

Marine oxygen minimum zones (OMZs) support complex microbial assemblages with major roles in ocean biogeochemistry. The integration of genomic analyses with coupled biogeochemical measurements is enhancing our understanding of OMZ microorganisms, revealing a richness of metabolic processes structured along the vertical redox gradient and previously unrecognized linkages between pelagic elemental cycles. Recent work by our lab has identified novel clades of OMZ bacteria mediating anaerobic methane and sulfide oxidation coupled to denitrification, as well as previously unrecognized adaptations to anaerobic metabolism by the world's most abundant bacterium. This talk highlights these and other OMZ processes in relationship to key environmental drivers, including water column chemistry and the microscale partitioning of communities between particle-associated and free-living microniches. Coupled omic-biogeochemistry studies are necessary for understanding how oxygen concentration constrains pelagic microbial diversity and activity, and consequently for predicting how ocean de-oxygenation may affect elemental cycles and ecosystem structure under global climate change.