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Woods Hole Oceanographic Institution  
**Biology Department Seminar**



Thursday, January 22, 2015  
Redfield Auditorium – 12:00 Noon

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**Preparing for the Sea: Physiological  
Adaptations for Ocean Entry in Anadromous  
Fish**

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All anadromous species must make the transition from freshwater to seawater at least once in their lifetime. Salmon undergo morphological, physiological and behavioral changes that are preparatory and adaptive for seawater entry and are collectively known as the parr-smolt transformation. Smolt development is regulated by environmental factors such as photoperiod and temperature and mediated by the neuroendocrine system. The development of salinity tolerance is the most well-studied developmental change that occurs during smolting, and I will review the physiological and endocrine changes that control salinity tolerance. Since all anadromous species appear unable to survive in seawater early in ontogeny, there are developmental increases in salinity tolerance in all anadromous species. The diversity of physiological strategies for seawater entry in other anadromous species such as lamprey, shad and striped bass will be presented along with hypotheses for the selective pressures that have resulted in these strategies.