
Woods Hole Oceanographic Institution
Biology Department Seminar



Tuesday, May 10, 2016
Redfield Auditorium – 12:00 Noon

**Rapid adaptation in the sea: transcriptomic
insights from a marine invader**

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Rapid adaptation is a key component of species' persistence in the face of accelerating environmental change. However, this phenomenon is poorly understood in the marine realm, where long-distance dispersal and high gene flow are predicted to limit adaptive potential. By integrating cardiac physiology and transcriptome sequencing, the globally invasive European green crab (*Carcinus maenas*) was used as a natural experiment to test the nature and speed of adaptation to temperature in the sea. The data suggested local adaptation to temperature in the species' native range, and a rapid recapitulation of this pattern in the invasive range in under 200 years. A suite of putatively-selected genomic regions – including a likely supergene – were significantly associated with environmental temperature and thermal tolerance. Overall, these results strongly indicate local adaptation in the species' native range, and suggests a role for ongoing, rapid adaptation in the success of this high-dispersal marine invader.