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**Extant adaptation defines species sensitivity to global change drivers in populations of the common periwinkle
*Littorina littorea***

**Tuesday May 2nd, 15:15, Lecture Hall,
Lovén Centre - Tjärnö**



Marine organisms will be facing important environmental challenges in the decades to come. Species' capacity to adjust and adapt to environmental changes will be therefore of paramount importance in defining their ability to cope and persist under future environmental conditions. Whilst evidence on the sensitivities to ocean warming and acidification already exist for many marine species of ecological and economic importance, this information is normally based on single population studies. How populations of the same species living under different environmental regimes will actually respond to global change drivers is much less known, particularly for ocean acidification. In order to provide more reliable predictions on the fate of marine species, and ultimately on marine biodiversity, it may be necessary to define the sensitivity of populations found along an environmental gradient. In order to verify this idea, the phylogeographic structure, as well as the metabolic and life history responses under control and ocean acidification conditions of six populations of the common periwinkle *Littorina littorea* living along the Western European coastline were determined. Integrating physiological, life history and evolution information, we showed that both local and regional adaptation plays an important role in defining populations sensitivity to ocean acidification. Thus, information from multiple populations can help improving our ability to predict the future fate of marine species.