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Department of Marine Sciences
Presents a Seminar By

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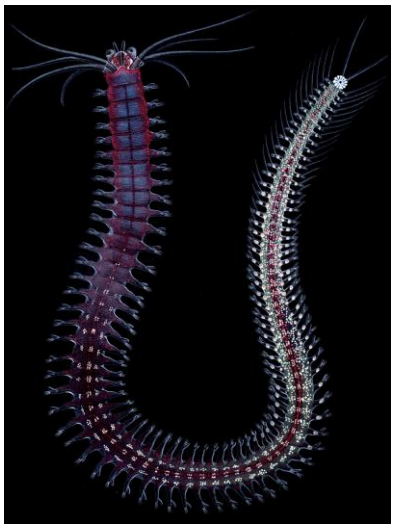
Acclimation, adaptation and sensitivity to global change in marine invertebrates



The rate and magnitude at which global warming is occurring is posing a serious threat to biodiversity and ecosystem functioning. In addition to warming, other global change drivers are posing a major threat to biodiversity, such as ocean acidification. If we are to produce more accurate predictions on the effects of global changes on biodiversity, it is imperative we acquire a firm understanding of the mechanisms through which different species will be able to cope with multiple environmental changes. Furthermore, even within a same species, responses can differ during different phases of development (i.e. embryos, larvae, sexually mature adults) and across successive generations. However, most studies to date on marine global change biology have focused on species' short-term phenotypic plastic responses, often to single stressors, within a single life stage and a single generation. In order to overcome the current paucity of relevant information, and reach a better understanding of the dynamics of biodiversity in a changing ocean, it is necessary to firmly move our research focus to the investigation of trans-generational phenotypic plasticity and the scope for further adaptation to emerging global and local drivers. Phenotypic plasticity and evolutionary adaptation are two non-mutually exclusive mechanisms that may prevent species extinction to future global changes. Trans-generational phenotypic plasticity has been shown to be a highly effective mechanism that can buffer populations against ocean warming and acidification, giving them time to adapt. However, both plastic and adaptive responses may lead to increase costs for maintenance, repair and homeostasis, which can cause changes in organismal metabolism, energetics and ultimately population dynamics, as a result of functional and evolutionary trade-offs between homeostatic functions and fitness. These uncertainties in species' responses to the global change must be urgently addressed, if we are to provide increasingly stronger predictions on the fate of global biodiversity.

Host: Hans Dam
Time & Date: 11:00 am, Friday, April 8, 2016
Place: Marine Sciences Building, Seminar Room 103

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email marinesciencesseminars@uconn.edu, or call 860-405-9152 or 860-405-9151