

On December 9, 2013, PED Seminar Series Presents

A new frontier: Eusociality in corals.

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Stony corals (family Scleractinia, phylum Cnidaria) are morphologically one of the least complex metazoan groups and have no central nervous system, yet its members can form extensive colonies in which individuals: 1) become functionally specialized in reproduction, defence, and building colony architecture, 2) share metabolic resources, 3) 'warn' each other of predators and 4) cooperate to create the optimal environment for the colony as a whole (i.e. co-ordinating pulsing of tissues by individuals to remove sediment from the colony).

While eusociality has been studied extensively in phylum Athropoda (i.e. ants, bees, wasps) and in phylum Mammalia (i.e. the naked mole rat) it has not yet been considered within the phylum Cnidaria. This is strange considering the enormous evolutionary success of family Scleractinia, which has remained largely unchanged since its early Mesozoic origins and creates the largest geological structures (reefs) of any organism on earth. It remains to be explored what this ancient and ecologically important group of organisms can add to our current understanding about the evolutionary origins of eusociality and its underlying mechanism.

The purpose of this talk is to give researchers interested in eusociality, but unfamiliar with corals, an insight into the fascinating life-history traits of corals, focusing on corals as eusocial colonies of cooperative and specialized clones. A brief overview of coral data availability will be given with the aim of fostering future collaborations in this exciting and largely unexplored area of research.