Succession: ecological processes structuring vent communities over time

*Timothy M. Shank**

Mechanisms that drive changes in community structure over time can have significant effects on the ecology and evolution of resident species. At hydrothermal vents, patterns of temporal change in biological communities are often coincident with changes in the chemistry or flux of hydrothermal fluids. Observations of these successional patterns have raised fundamental questions about rates of disturbance, larval recruitment, abiotic and biotic controls on colonization, physiological limits, local extinction and recolonization, as well as the consequences of these processes on the genetic structure of the species populations. An increasing variety of methodologies have been used to document and to investigate the mechanisms that are responsible for succession of vent communities, such as repeat sampling, autonomous sensor deployments, and manipulative field experiments. A review will be presented to summarize/synthesize patterns and processes at the East Pacific Rise, the Juan de Fuca Ridge, the Mid-Atlantic Ridge, and the Galapagos Rift. Future directions, including co-located time-series studies of fluid flux and chemistry, microbial community structure, and metazoan colonization at the East Pacific Rise, before and after the 2005(6) eruption(s), and the Galápagos Rift will also be presented. Discussion of the potential linkages between ecological and evolutionary time scales will be included to better inform our understanding of biogeographic strcuture along mid-ocean ridges.

**Presenting Author, 234 Redfield, MS#33, Woods Hole Oceanographic Institution, Woods Hole, MA 02543, tshank@whoi.edu*