

Early temporal microbial succession of marine chemolithoautotrophic communities on iron-sulfides.

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Iron-sulfides are some of the most abundant minerals on Earth. In marine sediments, active cycling of iron (Fe) and sulfur (S) leads to the formation of various FeS minerals including pyrite (FeS₂). Similarly, in deep-sea environments, iron-sulfides are common in the form of seafloor massive sulfide deposits. An analysis of early microbial colonization on iron-sulfides was undertaken in western and eastern coastal regions of the United States to gain perspectives on the utilization of iron-sulfides as potential electron donors by chemolithoautotrophic microbes with goals of understanding the interplay between neutrophilic, autotrophic, iron-oxidizing bacteria (FeOB), sulfur-oxidizing bacteria (SOB), heterotrophs and mixotrophs. Results indicate that diverse communities of chemolithoautotrophs colonize iron-sulfides within a matter of days. We will discuss the microbial ecology associated with these minerals and the community succession that took place over a six-month period with a focus on FeOB (e.g., Zetaproteobacteria) and SOB (e.g., *Thiomicrospira* spp.). Novel marine autotrophic Fe/S chemolithoautotrophs isolated from pyrrhotite (Fe_{1-x}S; x=0-0.17) will be presented.