DISTRIBUTIONS AND DIVERSITY OF AEROBIC ANOXYGENIC PHOTOTROPHIC BACTERIA ALONG ONSHORE OFFSHORE TRANSECTS NEAR PACIFIC ISLANDS

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By
Anna E. Ritchie

Thesis Committee:

Zackary Johnson, Chairperson
Susan Brown
Matthew Church

Abstract

Aerobic anoxygenic phototrophic bacteria (AAP's) population abundances are not well characterized, in spite of their potential importance for the microbial loop and primary production. AAPs have a photoheterotrophic metabolism, thus both inorganic and organic nutrients, as well as physical variables likely drive their ecological distributions. To explore AAP abundances and the environmental variables that may be regulating them, we quantified AAP abundance by counting the *pufM* biomarker along onshore/offshore transects near 5 distinct islands in the Pacific Ocean (Oahu, Molokai, Futuna, Aniwa, and Lord Howe) with steep environmental gradients. Abundance patterns are further explored by investigating the genetic diversity of the AAP community using *pufM* clone libraries and QPCR dissociation curves. Overall we report small but sometimes significant AAP populations that increase near shore and are comprised of distinct genetic clades.