Dust In The Wind: Marine *Vibrio* Bacteria Response To Aeolian Nutrients

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Vibrio bacteria are natural inhabitants of marine waters around the world and are important players in nutrient cycling in the world's oceans. Some *Vibrio* species are also the causative agents of human infection and illness like cholera and wound infection and are found in the diseased states of coral, shellfish and finned fish. The incidence of human *Vibrio* infections in the U.S. has been on the rise over the past 15 years, especially by species such as *Vibrio alginolyticus*. A *Vibrio's* success as a pathogen is dependent upon its ability to acquire iron in the iron-limited environment of its hosts. These same iron acquisition mechanisms are utilized in the marine environment where iron has low solubility in neutral to alkaline seawater and is quickly oxidized, limiting its bioavailability to many organisms. A major source of iron to the surface waters of the world's oceans is aeolian dust delivered through long-range atmospheric transport from arid continental regions. Deposition of African dust in surface waters of the Gulf of Mexico and western tropical Atlantic has been shown to elicit a primary production growth response. While much of the work on the ecological effects of dust deposition have centered on its potential stimulation of phytoplankton activity, we investigate how the growth of heterotrophic marine bacteria like *Vibrio*, may also be stimulated by iron from dust deposition. Our focus in this study was to investigate how dust from the African country of Morocco can alleviate iron-stress in microcosms of *Vibrio alginolyticus* that are commonly found in coastal waters of the U.S. We also show that African dust can stimulate growth of natural communities of *Vibrios* in the Florida, Keys. The ability to monitor atmospheric dust input of iron could prove to be important in predicting marine production and disease potential of this important microbe.