

Characterizing the Phytoplankton Community of the South China Sea

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The South China Sea (SCS) is a semi-enclosed tropical basin that receives nutrients from two main sources: coastal upwelling and river runoff from the surrounding countries. The southwest (SW) summer monsoon that occurs between March and September drives upwelling off the coast of Vietnam, a rarity compared to most upwelling systems that are driven by eastern boundary current systems. The upwelling in the SCS and the intensity of the SW monsoon are sensitive to climate variability and are affected by phenomenon such as El Niño Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD). The size and location of the Mekong River plume also varies from year to year due to the variation in rainfall and wind strength of the monsoon. The riverine input is also influenced by anthropogenic activity such as agriculture, damming, and land-use changes. Different nutrients are supplied from these two main sources and in different quantities, and affect the structure of the phytoplankton community. Phytoplankton comprise the base of the food web, supporting the growth of higher organisms and ultimately support fisheries. We need to understand how the supply of different nutrients alters the phytoplankton community of the SCS. We sampled 22 stations along the coast of Vietnam aboard the R/V Falkor of the Schmidt Ocean Institute during the pre-monsoon season. High performance liquid chromatography (HPLC) and flow cytometric techniques will be used to characterize the phytoplankton community.