



Seasonal Variation of Phytoplankton Populations and Dissolved Organic Carbon (DOC) in the Coastal Waters of Oman.

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The Sultanate of Oman has an extensive coastline of 3615km, which includes the Gulf of Oman in the North and the Arabian Sea in the South. The oceanography of the coastal waters of Oman appears to be quite variable, complex, and poorly known. Biological characteristics of the ecosystem of the Gulf of Oman are mostly driven by the monsoonal winds (North East (NE) during winter and South West (SW) during summer). With the exception of few isolated studies, there have been no concerted efforts to examine the diversity and spatial-temporal variations of phytoplankton communities and their influence on the changes of DOC in the Gulf of Oman. To better understand the spatial and temporal variability of phytoplankton communities and their contributions to DOC, a one-year study (February 2004-December 2004) was conducted at two stations Fahal (F) and Offshore (OFF) in the coastal waters of the Gulf of Oman. The sampling strategy allowed us to follow spatial and temporal changes in phytoplankton community structure covering seasons that included the NE and SW monsoons. Hydrographic data, nutrients, chlorophyll *a*, DOC and phytoplankton samples were collected twice a month over the study period.

Phytoplankton communities exhibited seasonal pattern characterized by three major groups: diatoms, dinoflagellates and cyanobacteria that appeared to be driven by the changes in hydrographic and chemical parameters. Highest phytoplankton abundance at station (F) (5.3×10^5 cells/L) was observed in August while the highest abundance at station (OFF) (5.8×10^4 cells/L) was observed in February. Phytoplankton assemblages were dominated by diatoms and dinoflagellates throughout the year at both stations. Diatoms maxima were observed in winter and autumn while dinoflagellates

maxima observed in summer. Cyanobacteria were noticed in summer when nitrate concentrations became $<1\mu\text{M}$. DOC concentration showed a seasonal trend characterized with low concentration during winter and major peaks coinciding with high phytoplankton abundance. The diversity and spatial-temporal variations of phytoplankton communities' succession, their contribution to changes in DOC concentrations and their link with environmental parameters will be presented.