

Temporal and spatial distribution of nutrients and HABs at coastal water of Kota Beelud, Sabah.

ABSTRACT

A study was carried out to determine the temporal and spatial distribution of nutrients and Harmful Algal Blooming species (HABs) to establish the relationship between nutrient concentrations and HABs density in the coastal water of Kota Belud, Sabah, Malaysia. Eight stations were set up in four transects (each transect had two stations; one 500 meters seawards from shoreline, and another five kilometers seawards from shoreline) along the Kota Belud coastal area. Phytoplankton samples, water samples and in situ environmental parameters were collected during dry and wet seasons. Altogether nine HABs species were identified from the study area, where six species (*Pyrodinium bahamense*, *Prorocentrum micans*, *Neoceratium furca*, *Prorocentrum sigmoides*, *Dinophysis caudate*, and *Neoceratium fursus*) belonged to Dinophyceae and three species (*Thalassionema nitzschoioides*, *Chatoceros affinis*, *Rhizosolenia* sp.) belonged to Bacillariophyceae. Among nine species, *Chatoceros affinis* was the most abundance composed of 80.6% of total species recorder from all stations during study period. Among the toxic producing Dinoflagellate, *Pyrodinium bahamense* bloom ($>10^3$ cells/l) was observed during study period. Strong linear relationship ($r^2 = 0.80$) was observed between the cell density and concentration of nitrate nitrogen. Relationship between cell density and phosphate phosphorus was poor ($r^2 = 0.51$). The study showed that increasing in nutrient concentrations resulted in the increasing of HABs density. Nitrate was seen to be more important than phosphate in Kota Belud water as limiting factor of the growth of HABs.