

Effects of environmental conditions and nutrients on the occurrence and distribution of potential harmful phytoplankton in mesotrophic water

Abstract

Marudu Bay, north coast of Sabah is characterized with mesotrophic water body and typical environmental parameters throughout the year. The current study was undertaken to evaluate the effect of environmental parameters and nutrients in mesotrophic water on the occurrence and distribution of potentially harmful phytoplankton species. The samplings were conducted over a period of thirteen months, covering southwest monsoon (SWM), inter-monsoon (IM), and northeast monsoon (NEM), at ten stations throughout the bay. Physical parameters (temperature, salinity, pH, dissolved oxygen, current speed and secchi depth), biological parameters (cell densities of phytoplankton) and chemical parameters (phosphate, nitrate, silicate and ammonia) were examined. The results indicated at least eight potentially harmful phytoplankton species (*Dinophysis caudata*, *D. miles*, *Ceratium furca*, *C. fursus*, *Prorocentrum micans*, *P. sigmoides*, *P. triestinum* and *Pseudo-nitzschia* sp.) were detected in north coast of Sabah. However, the potentially harmful phytoplankton species contributed only about 1.3% of the total phytoplankton community. Under nutrient deprivation conditions, the potentially harmful phytoplankton species distribution was mainly influenced by the ability to utilize other nitrogen sources, cell mobility and toleration to low nutrients environments.