

Assessment of selected chemical and microbial parameters in groundwater of Pulau Tiga, Sabah, Malaysia

Abstract

Ambient groundwater samples collected from five wells in Pulau Tiga have been studied for selected physico-chemical and biological parameters to understand general water quality of the island. This preliminary study on groundwater of Pulau Tiga was undertaken to provide guidance and baseline data for future references. Two field works were undertaken in August and November 2007 to collect the groundwater samples. Groundwater samples were collected from five representative wells at the low lying area of Pulau Tiga in order to study the in-situ parameters such as DO (dissolved oxygen), EC (electrical conductivity), TDS (total dissolved solids), pH, salinity and temperature. In general, groundwater in Pulau Tiga is moderate in conductivity (330 $\mu\text{S}/\text{cm}$ - 1005 $\mu\text{S}/\text{cm}$), and serves as a vital freshwater source to both tourists and local inhabitants. However, bacteriological analysis showed that the groundwater quality was poor, with fecal coliform counts exceeding the WHO permissible limits for drinking water. Through this study, human factor was to be blame for the fecal contamination coliform where the polluted ground water might be originated from sanitation facilities located too close to the wells. The occurrence of total and fecal coliform bacteria in counts suggests poor sanitary handling and warns of the potential presence of disease-causing organisms.