

# DETERMINATION OF SURFACE WATER QUALITY PARAMETERS INFLUENCING PHYTOPLANKTON AT BUNG BINH THIEN, AN GIANG PROVINCE

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## Summary

The study was to identify water environment factors influencing phytoplankton composition in Bung Binh Thien (BBT) - a fresh waterbody, An Phu district, An Giang province in the dry season in 2019. Water samples were collected at 11 locations including 10 locations inside (ĐT1-ĐT10) and one location outside BBT (ĐT11). The water quality parameters of pH, temperature, depth, dissolved solids (TDS), conductivity (EC), dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), nitrate ( $\text{NO}_3^-$ -N), ammonium ( $\text{NH}_4^+$ -N), total nitrogen (TN), dissolved phosphorus ( $\text{PO}_4^{3-}$ -P), total phosphorus (TP), sulfate ( $\text{SO}_4^{2-}$ ), chloride ( $\text{Cl}^-$ ), and coliform were analyzed. Phytoplankton samples were collected at the same sites and time with those of water samples. Water quality was assessed against the National Technical Regulation on Surface Water Quality (QCVN 08-MT: 2015/BTNMT), water quality index (WQI) and the Shannon-Weiner biodiversity index ( $H'$ ). BIO-ENVI was used to identify water environmental factors that affect the composition of phytoplankton. The results showed that BOD, COD, TSS, and Coliform were higher than the permissible levels in QCVN 08-MT: 2015/BTNMT. The values of  $H'$  (1.1-2.5) indicated that water was slight to moderate pollution while WQI (57-88) revealed that water status from clean to slight pollution. The results of BIO-ENVI analysis showed that phytoplankton composition well correlated with depth, DO, TSS, TDS, EC,  $\text{NH}_4^+$ -N, TP in which TP is crucial for phytoplankton diversity. Thus, the assessment of water quality should not be based solely on phytoplankton composition but rather on the combination of physicochemical characteristics and phytoplankton. It is necessary to monitor the quality of surface water and phytoplankton in the rainy season to more accurately assess the variations in Bung Binh Thien.

**Keywords:** *Bung Binh Thien, Water Quality Index (WQI), Shannon-Weiner diversity index ( $H'$ ), surface water environmental pollution, phytoplankton.*