Using Canonical Correlation Analysis to Interpret the Interrelationship Between Factor of Water Quality and Primary Production

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Abstract

This work we use canonical correlation analysis to interpret the interrelationship between factors of water quality parameters (T, Alk, Cl, EC, TN, TP, UV-254, pH, HPC, DO) and primary production parameters (Algae, Chlorophyl-a). In these two sets of constructed canonical variables, the water quality parameters could account for 39.25 % for the total variance of primary production but almost results from the first sets of canonical variables and its correlation coefficient reaches to 0.84. The main factors that controlling chlorophyll-a are HPC, Alk, T, TN, and pH. And the second sets of canonical variables shows that the main factors that controlling algae count number are TP, UV-254, EC, TN, pH, T, Alk and HPC. These methodologies and results enable to understand the interrelationship between factors of water quality and primary production and can provide useful information concerning resources conservation and environment management.

Keywords: canonical correlation analysis, Tapeng Lagoon, water quality, primary production factors.

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