Physical and Chemical Characterization of Lake Lanao (Mindanao, Philippines)

ABSTRACT

Lake Lanao is the second largest lake in the Philippines, wholly located within the province of Lanao del Sur. It is of great biological, ecological, economic and social importance. The first extensive limnological study of Lake Lanao was done by Frey in 1967-68, which was continued by Lewis with his more in-depth field work performed in 1970-71. Since these first studies, various changes have occurred such as that affecting the natural variation in the outflow of Lake Lanao. Some unusual phenomena, such as the occurrence of a fish kill, diagnosed as epizootic ulcerative syndrome, occurred in 1997 and an unusual greening occurred in September 2006. These unusual occurrences point out the need for a regular periodic monitoring of the lake. This study sought to measure the current status of various physical and chemical characteristics of Lake Lanao. An offshore station (alternating between Tugaya, Taraka, and Masiu) was chosen to represent the lake for doing the field measurements. The Secchi disk depth was taken while water samples were collected at different depths and/or integrated for the measurement of conductivity, dissolved oxygen, pH, and temperature. The same set of water samples were collected, kept in ice in a cooler, and brought to MSU-Naawan for laboratory analyses for nutrients (nitrate-N, ammonia-N, total phosphorus), alkalinity, and chlorophyll-a. Dissolved oxygen values showed no lack of oxygen for use of the lake organisms. The values for Secchi depth, nitrate- plus ammonia-nitrogen, total phosphorus, and chlorophyll-a indicated Lake Lanao to be oligotrophic-mesotrophic. In terms of its current physical and chemical parameters, Lake Lanao generally exhibits good water quality and insignificant organic pollution.

Keywords: Lake Lanao, physical limnology, chemical limnology, water quality, trophic state