

Abstract

Water Quality and Monitoring Of Some Pollution Indicators in Lake Manzala, Egypt

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Lake Manzala is one of the most important fishing sources in Egypt. It faces many environmental challenges that affect its quality. Due to excessive discharge of wastewater, the quality of water and fish production deteriorated. This study was carried out in nine different sites in the eastern and southern parts of Lake Manzala in two Governorates; Port Said (six sites) and Dakahliya (three sites) in North Delta, Egypt. Water samples were collected seasonally in 19 May 2017, 19 August 2017, 12 November 2017, and in 7 January 2018 (spring, summer, autumn, and winter). Samples were collected by a boat from the lake. Temperature, latitude, longitude, and pH were determined in the field. Global Position System (Garmin GPS) detected the Latitude and longitude for sampling sites within Lake Manzala for each site. Statistical analysis of the results were performed and was expressed by mean SE. The aim of this study is to monitor some quality indicators for lake water. The results showed a significant changes in water characteristics including: temperature (14.3°C - 35.5°C), pH (7.68 - 9), turbidity (0.4 mg/l – 321 mg/l), total hardness (176.41 mg/l - 3140 mg/l), total solids (1548.8 mg/l - 19379.2 mg/l), chlorides (468.65 mg/l - 11621.28 mg/l), sodium (321.06 mg/l - 7585.21 mg/l), total nitrogen (0.148 mg/l - 10.09 mg/l), total phosphorus (0.15 mg/l - 0.96 mg/l), Dissolved oxygen(0.7 mg O₂/l -12.4 mg O₂/l), biological oxygen demanded(6.8 mg O₂/l – 9.6 mg O₂/l), Chemical oxygen demanded(24.1 mg O₂/l - 240 mg O₂/l), Iron(0.271ppm) and Manganese(0.117 ppm). Results, also, showed a high density of faecal coliform count and total viable bacterial count. The results show deterioration in the quality of the lake water, so the state should pay attention to this problem because it negatively affects the production of lake fish in addition to other negative consequences.

Keywords: Lake Manzala, Nine sites, Seasonally, Quality indicators, Statistical analysis

