

# Water Quality of the Weija Reservoir after 28 Years of Impoundment

K. A. Asante\*, T. Quarcoopome and F. Y. K. Amevenku  
CSIR-Water Research Institute, P. O. Box AH 38, Achimota, Ghana  
\*Corresponding author; E-mail: kaasante@chemist.com

## Abstract

The water quality of the Weija Reservoir was assessed and the various sources of contaminants were identified in order to provide scientific basis for finding appropriate remedies to the contamination problems that may confront the Reservoir. Monthly water samples were taken from three sampling stations in the Weija Reservoir and analysed for physico-chemical parameters in the laboratory. The mean pH values of the sampling sites were within the recommended range of 6.5–8.5 for potability and sustenance of aquatic life. The ionic dominance pattern observed was  $\text{Na} > \text{Ca} > \text{Mg} > \text{K}$  and  $\text{HCO}_3 > \text{Cl} > \text{SO}_4$ , indicating partial cationic characteristics of sea water and anionic characteristics intermediate between fresh water and sea water. Dissolved oxygen (DO) levels were 102.5%, 81.5% and 82.7% saturation for Weija Intake, Machigani and Galilea, respectively. Thus, the oxygen conditions in the Weija Reservoir were sufficient to support fish and other aquatic life. Maximum BOD level was 8.1 mg/l at Weija Intake. Compared with previous studies on the Weija Reservoir, results of the study show a slight increase in nitrate, ammonia, sulphate and phosphate levels. Generally, the levels of nitrate, sulphate, phosphate, trace elements (e.g. manganese and iron) and BOD were moderately high. Anthropogenic activities, such as stone quarrying, dumping of domestic wastes, as well as run-offs from agricultural activities and the occurrence of algae, are some of the sources of contamination identified in the study. Tougher legislation, stricter enforcement of existing regulations, matching of non-technical and technological remedial measures and education are among the recommendations made for the protection of the Weija Reservoir.