SUMMARY

The analysis physico-chemical parameters, heavy metals, bioaccumulation of heavy metals in fish, phytoplankton and zooplankton in the dam water were conducted in the present study. Percentage composition and the seasonal variations in the bioaccumulation of heavy metals in different tissues were recorded for a period of one year *i.e.* from July 2011 to June 2012 at the three selected Stations - I, Stations - II and Stations - III. The findings of the present research were summarized below.

- There was no rainfall at the study area during the April month. Maximum rainfall was recorded in the month of November monsoon season. In general, rainfall gradually increased from the post monsoon season *viz.* post monsoon, summer, pre-monsoon and monsoon. Bulk rainfall was recorded during the monsoon season.

- The temperature values were maximum during summer and minimum during monsoon.

- The pH range of the dam water was slightly alkaline. The pH values were maximum during summer and minimum during monsoon. The pH range showed that the water of all the sampling sites of the lake was alkaline in nature high in summer. High values of pH during summer might be low water levels and concentration of nutrients in water. The decrease pH values were due to dilution caused by the rain water during monsoon.
The alkalinity in the Station - I registered minimum value during summer season and the maximum during monsoon season. The Station - II registered minimum values of Total alkalinity during summer season and the maximum was noticed during monsoon season. The Station - III registered minimum values of total alkalinity during summer season and the maximum were registered during the monsoon season.

Low hardness value was recorded 165 mg/L at station I and high hardness value recorded 218.33 mg/L at station III respectively. The total hardness of water was found high in summer season and the low values were recorded in the monsoon season.

Average calcium content was ranged from minimum of 39.07 mg/L to 53.85 mg/L in pre - monsoon and summer season. Among the three stations, the lowest values were recorded at Station - I and maximum values were recorded at Station - II respectively.

The average concentration of magnesium was ranged from 13.7 mg/L to 16.26 mg/L respectively. Among the three stations, the maximum magnesium content was recorded at Station - I (16.26 mg/L) while low concentration values were recorded at Station - II (17.26 mg/L), respectively.

Average annual chloride content was ranged from minimum of 255 mg/L to maximum 270 mg/L. Seasonal variations of chloride content comparatively high during summer season and low content were noticed in post monsoon season.
Phosphate content were ranged from a minimum of 0.30 mg/L to a maximum of 0.90 mg/L in Station - I and Station - II. There was a slight fluctuation during study period.

Nitrate content was ranged between 2.55 mg/L to 3.1 mg/L through out the study period. On the other hand, seasonal variations was taken into consideration, higher values were recorded during summer and lower values of nitrate recorded during monsoon season.

The sulphate concentration was maximum in the monsoon season and minimum during the post monsoon season.

Cadmium and chromium were highly observed in the summer season and lead was observed in the pre – monsoon season.

Bioaccumulation of heavy metals in the fish tissues were investigated in the present study. Significantly, higher concentrations of metals were recorded in the liver and gills while least in the muscles of Catla catla.

A total number of 106 species of phytoplankton and 100 species of zooplankton were recorded in three different stations (Station - I, Station – II and Station – III) during the study period.