SUMMARY

1. The present treatise is based on comprehensive study of the ecology of Lower Anaicut reservoir of Tanjore District. Five stations were selected and the study was conducted from July 2002 to July 2003.

2. This reservoir is used for aquaculture and irrigation.

3. Investigations on physico-chemical and biological characteristics of water, sediment characteristics, plankton, flora and faunal diversity were carried out.

4. Mathematical relationships of water and sediments parameters were compared using CURVEFIT EXPERT and the non linear relationship were established among different water quality parameters and sediment characteristics.

5. Air temperature and water temperature were hand in hand throughout the study period. Air temperature has significant relationship with water temperature, conductivity, dissolved oxygen, total solids, total dissolved solids, total suspended solids, nitrates, silicates, biological oxygen demand, iron, gross primary productivity, net primary productivity, community respiration and chlorophyll c. The physiographical and temporal variations of reservoir were reflected in air and water temperature.

6. The pH was found to be an important factor influencing the biological interactions in the reservoir ecosytems and all the reactions both in the water and the sediments of the habitats were studied.
7. As the conductivity was a factor related to the present study points to its significant relationship with pH, transparency, total solids, total dissolved solids, total suspended solids, acidity, chlorides, silicates, hardness, calcium, magnesium, chlorophyll a and chlorophyll c.

8. The solids are in the present water either as suspended matter or dissolved solids which mainly composed of carbonates, bicarbonates, chlorides, sulphate, phosphates, silicates, calcium and magnesium.

9. During April 03 – June 03 the transparency was inversely proportional to the rate of plankton abundance. Water was turbid because of the presence of plankton finely divided substances of organic origin and silts.

10. Nutrients observed in the reservoir of the present study were within the suitable range for supporting a productive ecosystem.

11. The analysis of multiple regression reveals that the productivity of the reservoir had significant relationship with almost all the parameters evaluated during the present investigation.

12. The total number of phytoplankton was higher during Apr 03 to June 03 in the reservoir. The abundance of the phytoplankton in the reservoir has been discussed in relation to seasonal variation.

13. Chlorophyceae was dominant in all the stations

14. The population dynamics of phytoplankton and zooplankton was dependent on the water quality and nutrient enrichment in the water.
Floral diversity, ichthyofauna and other fauna of fishery importance of Lower Anaicut reservoir were surveyed and documented.

The strategies for maximizing gross primary productivity and the suitability of the reservoir for aquaculture has been discussed, and intensive air breathing fish culture is suggested as alternate strategy for increasing fish production and sustainable management of the reservoir.