Reservoir Modeling using Geo-spatial technology for fisheries management: A case study.

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Abstract:

Reservoirs are prominent features of the hydrology of river systems where water is impounded and stored for public water supply, flood control, irrigation, recreation, hydropower generation and fisheries. Natural processes like erosion in the catchment area and the consequent deposition of silt in various parts of reservoir gradually reduce the capacity of the reservoir. Dead as well as live storages are affected by it leading to changes in the bathymetric characteristics of the reservoir area. It is also challenging that the most of the bathymetric area and its morphological characteristics are unknown to us particularly to fishers who are keen in identifying and selecting appropriate fishing methods for sustainable capture fisheries. Information on the bathymetric characteristics would also help to identify suitable areas for profitable fish culture activities. In this context it is essential to characterize the bathymetric area to facilitate the capture and culture activities for sustainable management of fisheries in reservoir eco-system.

This paper presents a case study of the hydrographic survey being carried out in Malampuzha reservoir of Palakkad district of Kerala state. The survey includes collection of 3-D data of latitude, longitude and elevation of the bathymetric area of the reservoir using echo sounder and GPS and generation of TIN data model for 3-D visualization of the reservoir in GIS platform. This information could be a policy support for sustainable management of fisheries in the reservoir. The main software being used for GIS mapping and modeling for the spatial study is Arc GIS 9.0