

POLLUTION STRESS ASSESSMENT OF OXBOW LAKE IN KERALA

SUBIN K. JOSE, R.V. RAJAN & THUSHARA MANOHARAN

Geology and Environmental Science, Christ College, Irinjalakuda, Thrissur, Kerala, India

ABSTRACT

An oxbow lake is a U-shaped body of water that forms when a wide meander from the main stem of a river is cut off, creating a free-standing body of water. Oxbow lakes are shallow open waters. They are small bodies of standing or gently flowing water that represent a transitional stage between lakes and marshes. "Kanichan thura" at Vynthala is considered to be the only one naturally formed "Ox-bow" lake in Kerala. Now the pollution load of this lake is high due to anthropogenic activities. Physical and chemical properties of water are the most important factors responsible in shaping the biotic communities. A shift in the desired level of physio chemical properties affect the productivity chain adversely and as a result the entire aquatic productivity equilibrium is disturbed. The present study identifies the water and sediment pollution level by analysing the different water and sediment quality parameters. The different water parameters analysed are pH, TDS, conductivity, alkalinity, acidity, BOD, COD etc. During the present study realized that the oxbow lake at Kanichamthura is a precious natural resource. It holds The ox-bow lakes are very potent biologically and thus are capable to generate better economic environment, provided certain management practices are employed. At the present, as the lakes are poorly managed. The lake is under threat. It needs urgent care and protection as it is a part of our natural heritage and should remain as specimen for the generations to come.

KEYWORDS: Oxbow Lake, Pollution, Kanichamthura, Natural Resource

INTRODUCTION

The origin of ox-bow lake is a complex phenomenon and in this process many natural and human forces are involved. The genesis of the formation of lake basins has been identified as constructive, destructive or obstructive by geomorphologists and they have attributed seven main reasons for their origin, such as (i) Tectonic activities (ii) land slides (iii) glacial activity (iv) drifting activity (v) volcanic activity (vi) solution activity and (vii) fluvial activity. Thus nomenclature for such lakes has originated from United States and is derived from resemblance in shape to the wooden U-shaped collar placed around the neck of a draft-ox and attached to the yoke (Hutchinson 1957) Oxbow-lakes belong to semi-natural wetlands (Zsofia Molnar.2013), which are rare in South India as well. Oxbow lakes are shallow open waters. They are small bodies of standing or gently flowing water that represent a transitional stage between lakes and marshes. They vary greatly in physical and chemical composition. Its surface is free of vegetation except for aquatic macrophytes. Unlike lakes, the water temperature in shallow open waters is uniform, without any stratification. Shallow open waters are usually connected to sources of groundwater and receive additional inputs from runoff, precipitation and other water bodies. Their depth is usually less than 2 metres. Shallow open waters are characteristic of intermittently flooded, permanently flooded or seasonally stable water regimes. They may dry out due to water losses from seepage or evaporation (Foote Lee *et al.* 1996). Wetlands are one of the most threatened habitats of the world. Wetlands in India, as elsewhere are increasingly facing several anthropogenic pressures. Thus, the rapidly expanding human population, large scale changes in