Since the beginning of the last century, the Lake Baringo ecosystem has undergone several ecological changes. Most of the changes are a result of human activities within the catchment basin and changes in climatic conditions. Currently, the most significant limnological feature of the lake is its extreme turbidity with an average secchi disc reading of 9.5 cm. The lake water is brownish and muddy because of considerable siltation resulting from high rates of soil erosion caused by overgrazing by livestock and deforestation of the surrounding hills. Due to increased siltation, the bed of the lake in the open waters is virtually devoid of invertebrate life. Primary production in the open waters is very low as the only phytoplankton present are positively buoyant species such as *Microcystis aeruginosa, Melosira granulata and Anabaena carcinalis*. The depth of the lake has a significant effect on the transparency of the water ($P<0.001$), where transparency decrease with depth. Under normal conditions, Lake Baringo has low alkalinity, but with less rain, the lake has become more saline with an average conductivity of 660 μS cm^{-1} while the pH varies between 8.9 and 10.5. Five species of fish have been reported to occur in Lake Baringo: *Oreochromis niloticus* (Trewavas, 1983), *Protopterus aethiopicus* (Heckel, 1851), *Glarias gariepinnus* (Butchell, 1852), *Barbus intermedius* (Ruppell, 1836) and *Labeo cylindricus* (Peters, 1852). Presently, the species composition is dominated by *Oreochromis* (80.04%), *Glarias* (9.8%), and *Protopterus* (7.95%). *Barbus* rarely appear in the fisherman's catches while *Labeo* has almost disappeared from the lake since the damming of the inflowing rivers which interfered with its breeding habits. Moreover statistical analysis has shown a significant relationship between fish yield and lake level changes ($P<0.001$).