

**Assessment and distribution of heavy metal toxicity in chrysichthys
Nigrodigitatus and the water quality of an impacted river in southern Nigeria**

ABSTRACT

This study was carried out to determine the amounts of heavy metals in Silver Catfish and water samples collected from the Ogbogoro section of the new Calabar River in Nigeria. Measure key water quality parameters, such as pH, temperature, salinity, conductivity, total suspended solids, and Total dissolved solids. Dissolved oxygen levels were assessed using the Winkler method, turbidity was determined using a Secchi disc. Metals in fish tissue were analysed using a spectrophotometer, including copper, zinc, cadmium, chromium, nickel, lead, iron, and cobalt. These findings suggest that fish have increased levels of Pb, Cd, and Cr, posing possible ecological and human health hazards. Water quality measures such as pH, dissolved oxygen, and conductivity were also found to vary. To address these findings, it is recommended to establish regular monitoring programs, enforce strict environmental regulations, and implement mitigation measures to reduce heavy-metal inputs. This research contributes to the understanding of heavy metal contamination in Southern Nigeria and provides recommendations for policymakers, resource managers, and local communities to protect and sustainably regulate river ecosystems. Continuous monitoring and study are required to understand the longterm trends and possible effects of heavy-metal pollution caused by heavy metals.