

ASSESSMENT OF PHYSICOCHEMICAL PARAMETERS AND HEAVY METAL LEVELS IN WATER, SEDIMENTS AND SELECTED FISH SPECIES FROM UPPER BENUE RIVER, ADAMAWA STATE, NIGERIA

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Statement of the problem: Upper Benue River receives a wide variety of waste from almost every significant human activity. These include mostly the dumping of domestic wastes, sewage and agricultural wastes. Extensive agricultural activities involving the usage of various forms of fertilizer contribute largely to contamination through run-off. Sediments have also been recognized as the ultimate sink for heavy metals that gives vital information such as the sources, distribution and degree of pollution. The ability to release back the sediment bound contaminants into the water column and consequently into the food chain within an aquatic environment pose a serious health and environmental hazard. In order to effectively control and manage water pollution, it is imperative to have its clear assessment.

Findings: Assessment of physiochemical parameters and heavy metal levels in water, sediments and selected fish species was conducted for the period of 18 months (May'2014 to Oct'2015). Data were collected and analyzed appropriately using standard procedures from four different sites monthly, in triplicate. Ranges of water parameters observed were within permissible limits recommended by the various environmental protection agencies and WHO. Copper, nickel and lead were found to be above permissible limits in water. This is the same for cadmium, chromium and lead in sediments. Lead was found to be above permissible limits in fish organs *A. occidentalis*, *C. gariepinus* and *O. niloticus* exhibited negative allometric growth ($b < 3$) with significant correlation ($P < 0.05$) between length and weight in *A. occidentalis* while *C. gariepinus* and *O. niloticus* did not correlate significantly ($P > 0.05$) in the study area. The mean condition factor values indicated that not all the fish species were in good condition during the period of investigation. From this study, Upper Benue River is said to be moderately polluted with heavy metals contamination.

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