

## IMPACT OF CRUDE OIL SPILLAGE ON WATER AND AFRICAN CATFISH (*CLARIAS GARIEPINUS*) IN UZERE, ISOKO SOUTH LGA OF DELTA STATE NIGERIA

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### ABSTRACT

Study on the impact of crude oil spillage on water and African catfish (*Clarias gariepinus*), in Uzere (test site) and Ekrejeta (control site) communities of Delta State, Nigeria was carried out. Five water samples and 5 fish samples were collected from different locations within the test sites. Physicochemical parameters, heavy metal content, polycyclic aromatic hydrocarbons (PAHs) and total hydrocarbon contents (THC) of water and heavy metal content and PAHs in fish, were determined using standard analytical methods. Parameters determined include chloride, pH, conductivity, dissolved oxygen (DO), total suspended solids (TSS), turbidity, biochemical oxygen demand (BOD), nitrate, sulphate, PAHs and THC as well as the concentration of some heavy metals (Cd, Cr, Ni, Pb, Zn, Fe). Concentrations of heavy metals were determined using Atomic absorption spectrophotometry. Mean pH obtained were  $6.00 \pm 0.03$  and  $7.77 \pm 0.03$ , Conductivity  $73.00 \pm 1.16 \mu\text{s}/\text{cm}$  and  $57.00 \pm 1.16 \mu\text{s}/\text{cm}$ , DO  $2.62 \pm 0.01 \text{mg}/\text{l}$  and  $6.20 \pm 0.01 \text{mg}/\text{l}$ , TSS  $31.00 \pm 0.58 \text{mg}/\text{l}$  and  $6.40 \pm 0.01 \text{mg}/\text{l}$ , Turbidity  $48.63 \pm 0.52 \text{NTU}$  and  $3.42 \pm 0.08 \text{NTU}$ , BOD  $4.12 \pm 0.07 \text{mg}/\text{l}$  and  $0.97 \pm 0.03 \text{mg}/\text{l}$ , Chloride  $3.13 \pm 0.09 \text{mg}/\text{l}$  and  $1.87 \pm 0.09 \text{mg}/\text{l}$ , Nitrate  $7.53 \pm 0.15 \text{mg}/\text{l}$  and  $1.00 \pm 0.00 \text{mg}/\text{l}$ , Sulphate  $8.37 \pm 0.09 \text{mg}/\text{l}$  and  $1.00 \pm 0.00 \text{mg}/\text{l}$ , THC  $75.00 \pm 62.50 \text{mg}/\text{l}$  and  $0.01 \pm 0.00 \text{mg}/\text{l}$  for water samples collected from Uzere and Ekrejeta respectively. Similarly, both water samples contained a detectable amount of metal elements however, the levels of iron  $2.86 \pm 0.10 \text{mg}/\text{l}$  and cadmium  $0.10 \pm 0.00 \text{mg}/\text{l}$  were higher in oil polluted water when compared to that from the controlled site. The concentration of PAHs for test and control samples for water are  $41.60 \pm 0.43 \text{mg}/\text{l}$  and  $0.00 \pm 0.00 \text{mg}/\text{l}$  respectively. Concentration of heavy metals were iron  $52.56 \pm 0.02 \text{mg}/\text{kg}$  and  $39.45 \pm 0.03 \text{mg}/\text{kg}$ , zinc  $23.63 \pm 0.01 \text{mg}/\text{kg}$  and  $15.28 \pm 0.01 \text{mg}/\text{kg}$  for fishes collected from test and control site respectively. Findings suggest that the water from the study site is heavily impacted crude oil spillage.

**Keywords:** Crude oil spillage, *Clarias gariepinus*, physicochemical parameters, water, control site.