Petroleum pollution was simulated by adding different concentrations of crude oil into four artificial ponds. The least concentration used was 1.25ml/L while the highest was 5.0ml/L. The fourth one serves as a control. Different metals were determined in five different fish species (mean weight= 180B± 0.5g) by atomic absorption technique. The results revealed that the metals Fe, Zn, Cd, Ni and V were found to range from 45.65-764.51, 0.50-19.57, 1.05-22.12, 1.42-38.42 and 0.50-5.43 respectively with Fe, Zn and Cd having the highest concentrations. Bioaccumulation factor was higher in the gills than the tissue. The implication of these metals in an aquatic environment were examined in addition to their to their associated health hazards. The variation in the parameter determined were found to be statistically significant (p<0.01) as determined by one-way analysis of variance.

Keywords: Fish species, gills, tissue, metals, petroleum