

Effects of Topographical Modification on the Composition and Abundance of Macrofauna in Southern Lagos Lagoon (Ikoyi)

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Abstract

The seasonal variation of macrobenthos at Ikoyi was investigated between February 1985 and January 1990. Mean values of surface water temperature, salinity, and percentage mud in sediment and total organic matter were 27.89 °C, 12.22 ‰, 20.36 %, and 5.41 %, respectively. There were no deviations from normal values in a tropical estuarine open lagoon system. Mollusca, Arthropoda, Annelida, Chordata, Nemertina and Chaetognatha were collected. The gastropod mollusc, *Pachymelania aurita*, ranked highest on all but two sampling dates, where *Tympanotonus fuscatus* and *Aloidis trigona* ranked first. Changes in salinity and sediment type were main factors contributing to reduction of species, dominance diversity and change in community structure, which were attributed to habitat modification caused by dredging and sand filling.

Introduction

Lagos lagoon is the largest brackish water body of the southern lagoon system in Nigeria. (Webb, 1958). Although various aspects of the physical properties (Hill & Webb, 1958; Olaniyan, 1969), such as plankton (Olaniyan, 1969; Nwankwo, 1990), epiphytes (Nwankwo & Akinsoji, 1992), finfish (Fagade, 1971, 1979; Fagade & Olaniyan, 1972, 1973, 1974), shell fish (Yoloye, 1974; Yoloye & Adegoke, 1977; Oyekan, 1979; Oyekan & Bolufawi, 1986; Ajao & Fagade, 1990a, 1990b, 1990c, 1990d, 1990e; Brown & Oyekan, 1998), and other fauna (Hill, 1967) have been studied with inputs on pollution (Ekundayo, 1977; Akpata & Ekundayo, 1978; Akpata *et al.*, 1993; Otitolaju, 2002, 2003), as well as mining (Awosika & Dublin-Green, 1994), a census of the present status of the macrobenthic community is necessary due to increased pollution, population explosion

and anthropogenic activities in and around the lagoon.

Longhurst (1958) observed bottom sediments and fauna in the West African continental shelf. Fauna classified by communities belonged to various taxa. Earlier, Smith (1871) described shells from West Africa, hitherto unidentified. Later, Webb (1958) studied the life cycle of *Branchiostoma nigeriense* in the Lagos lagoon. After this there was a dearth of information on benthos in the Lagos lagoon, until Sandison (1966) and Sandison & Hill (1966) observed effects of salinity on macrobenthic fauna in and around the Lagos harbour and adjacent creeks. Yoloye & Adegoke (1977) named a new species of *Neritina* from the Lagos lagoon. The next extensive survey on macrobenthic fauna was not carried out until the next decade when Oyekan (1987) described the benthic macrofaunal communities of the