

# The hydrochemistry and biota of a thermal coolant water stressed tropical lagoon.

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### Abstract :

The effect of coolant or waste heat discharge on the water characteristics, phytoplankton, zooplankton and benthic macro invertebrate at the Egbin area of the Lagos lagoon were investigated from February to July, 2000 at three (3) stations. The water quality reflected the influences of coolant water introduction, net tidal seawater inflow in the dry season and freshwater incursions effects in the raining season. Whereas the phytoplankton recorded 83 species, the zooplankton recorded 23 species and the benthos five species. Comparatively higher cyanobacteria diversity for the phytoplankton, water temperatures, transparency coupled with reduced dissolved oxygen levels were recorded at station 1 throughout the study and possibly reflect the effects of coolant water introduction. Notable phytoplankton species recorded were *Aulacoseira granulata*, *A. granulata* var. *angstissima*, *Gonatozygon* and *Spirogyra aficanum* that marked the wet season. Similarly, *Acatia clausii*, *Paracalanus parvus* and *Cylops* sp were frequently occurring for the zooplankton and the benthos was notably represented by *Pachymelania aurita*, *Tympanotonus fuscatus* and *Aloidis trigona*. Furthermore, whereas the phytoplankton was dominated by diatoms, copepods and gastropods dominated the zooplankton and benthos of the study area respectively. The effects of elevated temperature reduced as stations were increasing distant from the waste heat deposition site. Additionally, sand mining in the region may also have negatively affected the distribution of benthic fauna. [Nature and Science 2010;8(1):18-32]. (ISSN: 1545-0740).

### Key Word :

Coolant water, phytoplankton, zooplankton, benthos, macro invertebrate fauna, lagoon, thermal station