

## BIO ACCUMULATION OF TRACE METALS IN THE NEGOMBO LAGOON

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Negombo Lagoon is one of the coastal water body in the Western coast receiving anthropogenic pollutants including trace metals and hydrocarbons

in addition to sewage. Analysis of water for trace contaminants in a coastal body receiving land drainage is a delicate and time consuming task requiring specialized techniques. Hence the present investigation attempt to evolve the analysis of contaminants in the soft tissues of fishes, as an alternative approach since these fishes, are known to contain high levels of elements and may concentrate contaminants proportionate to environmental levels.

Measurements of metals such as Manganese, Iron, Zinc, Copper and Lead have been made during 1993 in water, sediments and soft tissues of commercial fishes procured from Negombo Lagoon. Analysis of the level of biological accumulation, simple and multiple intermetallic correlations between the contaminants in the tissues of fishes and the biologically available fraction of metals in the sediment may lead to the understanding of toxicological effects and the processes of biomagnification in the food webs which is rather sparse in the Negombo Lagoon.

The present results showed that the bio-accumulation of Iron was the highest in various species of fishes range of 40-83.4  $\mu\text{g/g}$  drywet. The maximum Iron concentration of 143.1  $\mu\text{g/g}$  was observed in Crabs. The average Zinc level was found to be 11.8-70.6  $\mu\text{g/g}$ . In the case of Lead, Manganese and Copper the average levels ranged from 1.95-10.9  $\mu\text{g/g}$ . Of all the metals analysed, Iron was observed in high concentration in the sediments (14-36  $\text{mg/g}$ ) as well as in surrounding water (0.0015-0.0035  $\mu\text{g/g}$ ). The concentration factor ( $K_d$ ) for Iron between sediment-water was seems to be highest ( $8 \times 10^5$ ) and the highest  $K_d$  between soft tissues and water was observed for Zinc ( $2 \times 10^4$ ). The present levels of the five elements in biotic and abiotic matrices were found to be below those that are known to affect adversely the life and quality of estuarine communities.

The study also revealed that there was less considerable deviation in levels of trace metals among the fish species. The regression analysis showed that no two species were identical in terms of trace metal interrelation and the observed correlation co-efficient might be attributed to the biology of the species. Heteroginity was observed for iron among the fishes and Copper was found to be less consistent in sediments.