CONTRIBUTION TO THE BIOLOGY AND THE FISHERY OF GREY MULLET, Mugil cephalus L., IN THE NEGOMBO LAGOON WITH NOTES ON HYDROGRAPHY.

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ABSTRACT

The biology and fishery of grey mullet, Mugil cephalus L., in relation to the physico-chemical parameters in the Negombo Lagoon, (west coast of Sri Lanka) were studied from December 1976 to August 1978. The seasonal and diurnal variations of physico-chemical factors temperature, salinity, dissolved oxygen content and hydrogen ion concentration (p^H) were also investigated. Seasonal variations in surface and bottom temperatures closely followed a similar pattern in all locations in the Negombo lagoon with peak values in April, the lowest values being recorded in February. The lagoon is almost completely converted into freshwater twice a year. There is no marked relationship between dissolved oxygen content and salinity. Hydrogen ion concentration is closely related to the salinity which in turns affected by the rain fall.

Percentages of the grey mullet in the catches tends to increase with increasing salinity. Spatial distribution of grey mullet in the Negombo lagoon appears to be salinity dependent. Larger individuals were found in deeper areas. Length-weight relationship as well as the "condition factor" of males was generally higher than that of females during the period of peak "condition". Overall female to male ratio was 0.95 : 1.0 . The seasonal variation in the sex ratio is believed to be caused by the differential timing of the spawning migration of the two sexes. The main spawning season is between September and December and it is hypothesized that the breeding season is

geared to utilized the favourable time of the year,for fry growth. Spawning has not been recorded in this lagoon and the inability of this species to spawn under the estuarine conditions is confirmed by examination of ripe specimens caught by the closure of the sea mouth. Grey mullet(Mugil cephalus.,) are serial spawners ,and fecundity varied from 0.45 to 4.8 million in fish ranging in length from 320 to 560 mm.,in the Negombo lagoon.

Grey mullet tends to be abundant in the Negombo lagoon when the rain ends and also at the begining of the dry season when the salinity increases. Mugil cephalus L., penetrating furthest up the Negombo lagoon. Gear used in the mullet fishery in the Negombo lagoon is inefficient and unselective,the yeild of grey mullet being about 2.0 kg/ha/yr.