

## **Effect of water quality on fish mortality of brackish water cages at Munnakkaraya area in Negombo Lagoon**

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Negombo Lagoon is considered as a highly bio sensitive ecosystem which has numerous interactions with fishery practices and aquaculture. In recent years, aquaculture practices using brackish water floating cages were emerging. The study was conducted to investigate reasons behind the mass mortality of fish in Negombo Lagoon. Fin fish samples and water samples were collected from ten sites in Munnakkaraya area where Sea bass cages were located. Number of dead fish was recorded with respect to the cultured species. Abnormalities of internal organs in collected fish samples were investigated. Dissolved oxygen (DO), pH, salinity, Biochemical Oxygen Demand (BoD) and turbidity were measured using portable meters. Total 3,889 number of Sea bass (*Latus calcarifer*) with 7,466.5 kg, 3,110 of Grouper (*Epinephelus analogous*) with 6,420 kg and 1,594 of Red snapper (*Lutjanus argentimaculatus*) with 5,659 kg of fin fish mortality were recorded. Red patches on gills and lesions with hemorrhages were visible in different parts of collected fish samples. Negative discoloration in liver, no enlargement of spleen and kidney were observed through dissection. According to the water quality analysis, pH ( $8.25\pm1.04$ ), DO ( $8.05\pm1.23$  mg/l), BOD ( $8.23\pm2.43$  mg/l) and turbidity (20 NTU) were favorable except salinity ( $0\pm0.02$  ppt). Sudden salinity depletion led towards unfavorable environmental conditions for cultured fish. The study revealed that the reasons for massive fish kill was due to the combination effect of crowding stress, suffocation and sudden depletion of water salinity in the area where brackish water cages were located. Furthermore, heavy rainfall which may contribute towards higher freshwater input towards Negombo Lagoon caused the sudden depletion of salinity. Further studies needed for monitor the impact of climatic changes towards lagoon water quality and recommended to revise culture cycles of selected fish in cage culture.

**Keywords:** cage culture, fish kill, water quality

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