TOLERANCE AND BEHAVIOURAL RESPONSES OF LOCALLY AVAILABLE SHRIMP AND PRAWN SPECIES IN THE BATTICALOA LAGOON TO DIFFERENT SALINITY CONDITION

BY

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ABSTRACT

Lagoons are an important part of the cultural landscape to Eastern Sri Lanka. The lagoon is seen by the District Administration, mainly as a source of fish and other species of economic value. Thirty one species of Penaeid shrimps have been discovered in Sri Lankan waters. They are distributed in lagoons and seas. The key, to the distribution of the shrimps lies in salinity tolerance of the individual species .

In this project, salinity tolerance of *Penaeus indicus, Penaeus monodon, Metapenaeus ensis* and *Macrobrachium* spp and also the behaviour of these species were studied under various salinity conditions of 0 ppt, 5 ppt, 10 ppt, 20 ppt, 30 ppt, 40 ppt and 50 ppt.

This study lasted for five days. The following forms daytime behaviours were observed. Activity, escape behaviour, grooming behaviour, antennule flicking and eye flicking. Data on food intake and mortality was also noted.

The salinity tolerance of *P.monodon, P.indicus* and *M.ensis* was in the range of 5 ppt to 40 ppt and in *Macrobrachium* spp. was in the range of 0 ppt to 30 ppt.

The behaviours differed among the individual species. The high activity, escape behaviour and eye flicking were shown by *P.monodon. P.monodon*; food intake ratio was also high. High grooming behaviour and antennule flicking were shown by *Macrobrachium* spp. *M.ensis* were mostly inactive buried in sand.

The optimum food intake ratio and escape behaviours were observed at salinities 10 ppt and 20 ppt in *P.monodon, P.indicus* and *M.ensis* and in *Macrobrachium* spp., at salinities 0 ppt and 5 ppt. The optimum activity, antennule flicking and grooming behaviours were observed at salinities 0 ppt and 5 ppt in *Macrobrachium* spp., while in *P.indicus* the optimum activity, grooming behaviours and antennule flicking were observed at salinities 10 ppt and 20 ppt. The behaviours over days were high on the first day and decreased on the following days.

Thus some aspects of behaviour is related to salinity levels and could be used as indicators of optimal salinity in prawn farming practice.

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