

# Studies on the Fish Ponds at Pitipana, Negombo

## I. Seasonal and Diurnal Variation of Some Hydrobiological Factors

By

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### Introduction

At the lowest reckoning water is the medium in which fish live and from which they derive their oxygen. Hence the quantity and quality of water must very much effect the prospects of fish culture (Hickling, 1971). A study of physico-chemical properties of water and its basic productivity, along with the eco-physiology of the fish species concerned is an essential prerequisite for any rational system of culture.

Sri Lanka is blessed with approximately 22,000 ha of brackish marshy land along the coast line, suitable mostly for fish culture (Ling, 1973). In addition Sri Lanka has a multitude of inland waterways, reservoirs, etc. However, fish culture is still in its stages of infancy. There is a lack of basic knowledge on the biology of cultivable species, the quality and productivity of waters available for fish culture and a multitude of socio-economic problems, which are some of the main constraints for development of fish culture in Sri Lanka (Raphael, 1976).

The present paper is a part of a detailed investigation on the biology of grey mullet, *Mugil cephalus* L., and the feasibility of its culture in the brackish waters of Sri Lanka (also see, De Silva and Perera, 1976 ; De Silva and Wijeyaratne, 1977 ; Perera and De Silva, 1977 ; Perera and De Silva, 1978). In this paper results of investigations on the water quality of five experimental ponds at the Pitipana Brackishwater Fisheries Station, Negombo, carried out over a period of one year, December 1976 to November 1977, together with studies on the primary productivity are presented.

### Materials and Methods

The lay-out of the experimental ponds is shown in Fig. 1. The ponds used in the study are numbered 10 to 14, and they are earthen rearing ponds, with a bottom layer of mud, 30-40 cm thick. The water levels in the ponds were found to fluctuate through the year from 0.5-0.8 m. The sluice gate of P 13 was blocked after stocking with young mullet fry, for purposes of a comparative study, and along with the preparation of the ponds for stocking will be dealt with in a later publication.

The parameters studied were temperature, salinity, pH, and dissolved oxygen; every determination being carried out twice daily, between 0800-0900 hr. and 1400-1500 hr. on all working days of the week, as far as possible. However, due to unavoidable circumstances in July 1977 readings

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