

TRAWL FISHERY IN THE PORTUGAL BAY AREA OF  
THE PUTTALAM ESTUARY AND THE POPULATION  
DYNAMICS AND SOME ASPECTS OF BIOLOGY OF  
*Leiognathus brevisrostris* (Valenciennes, 1835)

P.A.A.T. JAYAWARDANE

466071

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## ABSTRACT

The results of a study on trawl fishery in the Portugal Bay area of the Puttalam Estuary and the population dynamics and some aspects of biology of *Leiognathus brevirostris* (Vlenciennes, 1835) carried out during the period May 1991 to July 1993 are presented.

Trawl fishery in the Portugal Bay area of the Puttalam Estuary is carried out by 11 t trawlers and 3.5 t wooden boats. There were 17, 11 t trawlers and around 35, 3.5 t wooden boats. The two types of crafts seem to use two different size trawl nets although the mesh size of the trawl nets is the same in the cod end which is 20 mm stretched mesh.

The estimated annual productivity of the trawler fishery in the Portugal Bay area was 568 MT. In addition the contribution of the *Leiognathus brevirostris* to the total production of the trawler fishery was 13%.

Although this is a year round fishery, a seasonality was observed with a peak period from September to March.

Maximum sustainable yield (MSY) and the maximum sustainable economic yield (MSE) estimated using the Thompson and Bell analysis were 287 MT/year and 280 MT/year respectively.

The relative yield per recruit analysis with different length at first capture values indicates that the maximum yield can be obtained at a value of 6.0 cm. However, it is understood that the trawler fishery in the Portugal Bay area targeting prawns is a multi species one. Therefore, regulation of effort including mesh regulation has to be practiced more carefully, since such an exercise may adversely affect the other species taken by the fishery especially the prawns.

Statistical analysis indicates that the overall sex ratio is significantly different from 1:1 almost throughout the study period except in November, 1992 and January 1993. During the rest of the period it seems that females predominate over the males.

There is a significant difference from 1:1 sex ratio for the size range studied. The predominance of females above the total length 8.89 cm suggests either a possibility of greater natural mortality rate in males after attaining a total length of 8.89 cm or they may have a behavioral pattern of separating from the females after attaining an age corresponding to this size.

The study indicates the possibility of two recruitment and spawning pulses separated by five and four months respectively. The fecundity as the number of eggs that are to be shed was estimated to vary between 12,337 and 18,333 for the fish the size range 9.5 cm to 11.5 cm.