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ON THE LOCATION OF A POSSIBLE SPAWNING AREA
FOR THE PENAEID PRAWN, *METAPENAEUS MONOCEROS*
FABRICIUS, OFF COCHIN

BY

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We have very little information on the exact areas where many of the penæid prawns of our coast mature and breed except for the smaller species, *Metapenaeus dobsoni* and *Parapeneopsis stylifera* (Menon, 1951 and 1953). Although Panikkar and Menon (1955) have stated that older prawns pass into comparatively deeper waters, we have no knowledge on the actual breeding areas of such larger penæids as *Metapenaeus monoceros*, *M. affinis* or *Penaeus indicus* which actively support the commercial fishery. In the case of *Metapenaeus monoceros* as in other species, the indigenous fishery is limited to the inshore area and this is supported mostly by immature and smaller specimens. The mechanised boats operate between 15 and 30 metres and their catches consist of prawns of a comparatively larger size group. But the proportion of mature individuals in these catches has been low in the months in which they are landed in fairly good numbers, namely November and December, so that it was necessary to seek elsewhere the place of sojourn of the spawning populations as a knowledge of the spawning behaviour and breeding areas of prawns is quite essential to understand the several factors that influence the fluctuations in the fishery.

Spawning survey cruises off the Cape Comorin-Mangalore coast were carried out during the monsoon and post-monsoon season with the added facility available for work on board the research vessel "VARUNA" and trial trawling for prawn beds were regularly carried out along with other biological and oceanographic investigations. During the fourth monsoon cruise of 1963 (Cruise No. 98-V-35) the experimental trawling operation carried out on 13th August at and around the sand shelves in the 50-60-metre area (N. 9° 51'-E. 75° 52') off Cochin (Fig. 1), an half hour trawl using a shrimp trawl yielded an exclusive catch of 25 kilograms of large-sized *Metapenaeus monoceros*. The catch was quite striking in that the entire haul consisted of very large individuals, mostly females, in advanced stages of maturity. The bottom at this ground showed an admixture of sand and silt. The water temperature at 0 and 50 metres was 27.67° C. and 22.20° C. while the salinity values at these depths were 34.30‰ and 34.99‰ respectively. The low bottom temperature of the area also appears to be highly significant.

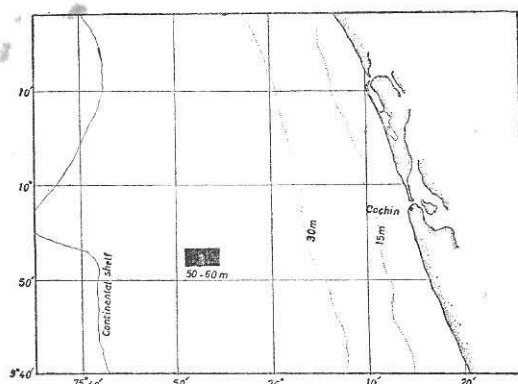


FIG. 1. Map showing the relative position of the spawning ground. ●—Location of spawning area.

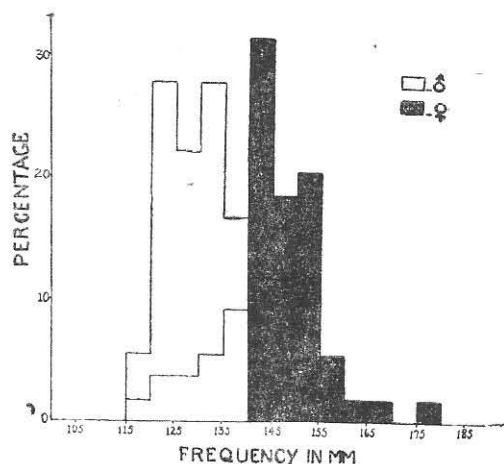


FIG. 2. Length frequency distribution of the prawns caught from the ground.

As could be seen from the histogram (Fig. 2) the mode in females is in the 141-155 mm. group and the size ranged from 120 mm. to 176 mm. The females contributed to 75% of the catch and were fully mature. The mode in the case of males is 120-135 mm. group.

The earlier studies carried out on this species (George, 1959) have shown that breeders are absent in the backwaters as well as in the area of operation of the indigenous crafts, although post-larval and juvenile stages are available. Hence the present observation on the occurrence of almost exclusively of large-sized fully mature prawns indicates that the area from which these

were obtained could be a spawning ground for the species.

This newly discovered concentration of large-sized prawns in the 50-60-metre area may offer new commercial grounds for larger prawns as could be found out by further trial operations and their exploitation may pose problems of conservation. So long as the spawning stocks are not within the limits of the commercial trawl fishery any depletionary tendency due to pressure of fishing in these quick-growing species of prawns seems unlikely. But when commercial fishing operation is to be carried out on the spawning stock it has to be done quite judiciously as undue removal of potential spawners may adversely affect the natural fluctuations in the fishery and the rate of recruitment of fry and early larvæ into the backwaters and lakes. This is particularly important

because of the well-established backwater fishery of juvenile prawns which cannot be allowed to be affected adversely.

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