



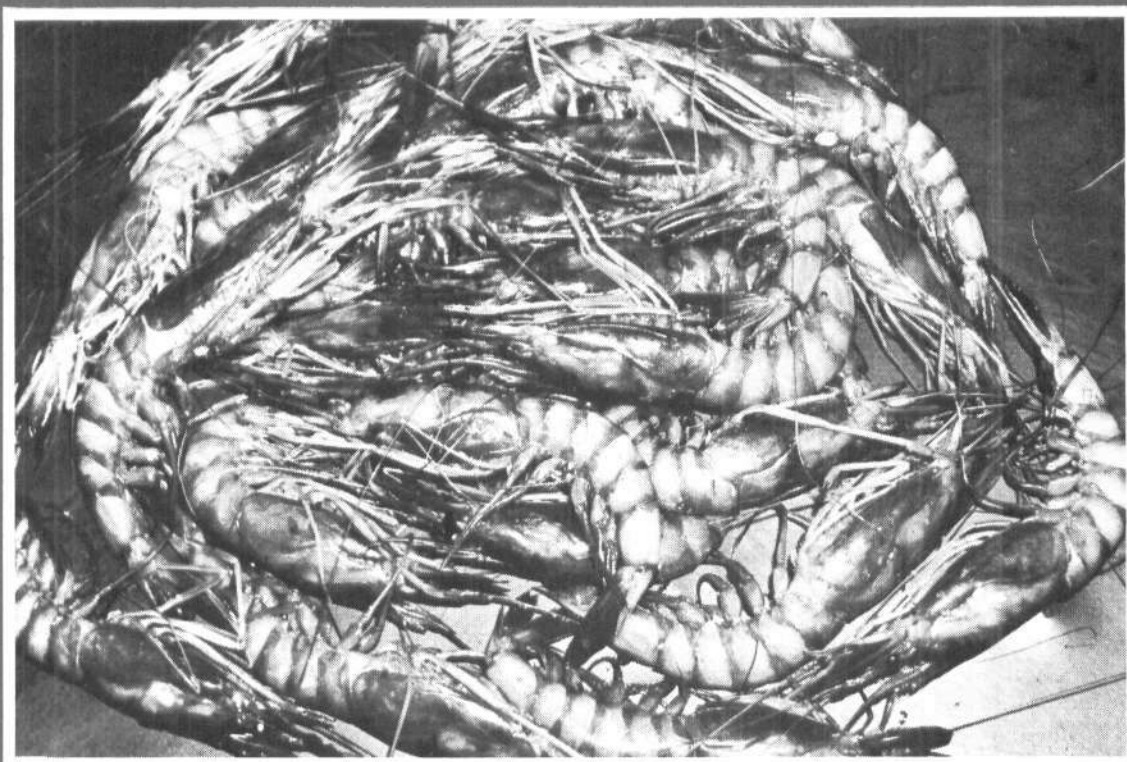
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THE SPINY LOBSTER RESOURCES IN THE TRAWLING GROUNDS OFF TUTICORIN

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There are six species of spiny lobsters of commercial importance in Indian waters, out of which only three species namely *Panulirus polyphagus*, *P. ornatus* and *P. homarus* contribute significantly to

the commercial fishery along certain parts of the Indian coasts. Among these three, only the latter two species support the lobster fishery along the southeast coast of Tamil Nadu. Although various gear

are employed for exploiting this resource only two viz. trawl net and bottom-set gill net are widely used along the southeast coast of Tamil Nadu. Bottom set gill nets are used for fishing lobsters and crabs and these are operated in shallow waters at a depth range of about 5 to 10 m by fishermen living in the coastal villages. On the other hand, trawl nets which are used for the exploitation of demersal fishery resources particularly shrimps, are operated in relatively deeper waters in depth ranging from 20 to 60 m. The mechanised trawlers having their base at Tuticorin Fisheries Harbour carry out trawling operations in the Gulf of Mannar, off Manapad in the south and off Erwadi in the north of Tuticorin mainly for fishing prawns. During such operations occasionally good quantities of lobsters are also caught from the same ground. The lobsters thus collected by the trawlers are landed at Tuticorin Fisheries Harbour. The present note reports on the estimated catch and percentage composition of *P. ornatus* and *P. homarus*, based on the data collected from the lobsters landed at Tuticorin Fisheries Harbour during the two year period 1991-'93.

Estimated catch

The estimated annual landings of spiny lobsters by mechanised trawlers at Tuticorin Fisheries Harbour during 1991-'92 and 1992-'93 were 32.5 and 42.6 t respectively. The estimated monthly landing fluctuated from 1,254 kg in March to 10,696 kg in October during 1991-'92 and from 126 kg in September to 23,670 kg in May during

1992-'93 (Table 1). During 1991 - '92 the maximum landing of 10,696 kg which formed 33% of the total lobster landings was recorded in October whereas during the subsequent year the maximum of 23,670 kg, which formed 55.6% of the total was recorded in May. The landing was moderate exceeding 3 t in July, December, January and February during 1991- '92 and in June, July and February during 1992 - '93. The average catch rates observed for the two year period were 1.4 and 1.9 kg respectively. The monthly catch rate ranged from 0.6 kg in August to 4.4 kg in October during 1991 - '92 and from 0.1 kg in September to 6.6 kg in May during 1992 - '93.

Species composition

Only two species of spiny lobsters namely, *P. ornatus* and *P. homarus* constituted the lobster resources in the trawling grounds off Tuticorin. It can be seen from Table 2 that *P. ornatus* dominated the fishery throughout the period of observation constituting on an average 83.0 and 89.9% of the total quantity of lobsters landed during the two year period. The contribution of *P. homarus* to the commercial fishery was insignificant. The composition of *P. homarus* exceeded 20% only during a few months i.e September, October and February during 1991-'92 and only in September during 1992-'93. During the rest of the months *P. ornatus* predominated the landings with its monthly landing ranging from 1,194 to 8,022 kg in 1991-'92 and from 98 kg to 20,520 kg in 1992-'93.

TABLE 1. Estimated catch (kg), effort (units) and catch rate (kg/unit) of lobsters landed by mechanised trawlers at Tuticorin Fisheries Harbour during 1991-'93

| Months | 1991-'92 | | | 1992-'93 | | |
|-----------|--------------|--------|------------|--------------|--------|------------|
| | Effort | Catch | Catch rate | Effort | Catch | Catch rate |
| April | 1,344 | -- | -- | 675 | 837 | 1.2 |
| May | 1,808 | -- | -- | 3,600 | 23,670 | 6.6 |
| June | 1,884 | -- | -- | 4,225 | 3,367 | 0.8 |
| July | 3,367 | 5,980 | 1.8 | 5,850 | 4,680 | 0.8 |
| August | 2,736 | 1,503 | 0.6 | 4,140 | 1,380 | 0.4 |
| September | 1,792 | 1,784 | 1.0 | 2,114 | 126 | 0.1 |
| October | 2,450 | 10,696 | 4.4 | -- | -- | -- |
| November | -No fishing- | | | -No fishing- | | |
| December | 2,560 | 3,920 | 1.5 | -- | -- | -- |
| January | 1,595 | 3,157 | 2.0 | -- | -- | -- |
| February | 2,580 | 4,164 | 1.6 | 2,040 | 8,496 | 4.2 |
| March | 795 | 1,254 | 1.6 | -- | -- | -- |
| Total | 22,911 | 32,458 | 1.4 | 22,644 | 42,556 | 1.9 |

Size distribution

A random analysis of the lobsters landed by the trawlers showed that in *P. ornatus* the size ranged between 113 and 233 mm in male with maximum numbers in the size range of 111 - 140 mm (40.0 %). In female the size ranged from 128 to 452 mm with maximum numbers in the range of 181 - 190 mm (40.9 %). In *P. homarus* the size ranged from 89 to 209 mm in male with nearly 85% of the catch in the range of 101-140 mm. In the female of that species the size ranged from 107 to 194 mm with 46.2% of the catch in the size range of 101 - 130 mm (Table 3). An analysis of the sex ratio of the lobsters landed by the trawlers showed that in *P. ornatus* females were predominant constituting 59.5% whereas in *P. homarus* males dominated the catches forming 66.7 %.

General remarks

The spiny lobster resources in the trawling grounds off Tuticorin is comprised of mainly *P. ornatus* which accounts for nearly 90% of the total lobster catches landed at Tuticorin Fisheries Harbour. Large sized lobsters were normally encountered only in this species. The landing of *P. homarus* which formed just one tenth of the total

quantity of the lobsters landed by the trawlers comprised of mostly under-sized lobsters. Most of the lobsters, landed in live condition were auctioned in the fisheries harbour itself. After the purchase they were taken by the merchants to their respective companies where the lobsters were either maintained in live condition in small cement tanks or the tail was separated and processed. The lobsters in live condition were mostly exported to Singapore. During the two year period of observation the price of the lobsters ranged between Rs. 200 and Rs. 600 per kg depending upon the size of the lobsters.

TABLE 3. Size ranges and dominant size groups in *P. ornatus* and *P. homarus* landed by mechanised trawlers at Tuticorin Fisheries Harbour

| Parameters | <i>P. ornatus</i> | | <i>P. homarus</i> | |
|------------------------------------|-------------------|---------|-------------------|---------|
| | Male | Female | Male | Female |
| Minimum size | 113 | 128 | 89 | 107 |
| Maximum size | 233 | 452 | 209 | 194 |
| Dominant size groups | 111-140 | 181-190 | 101-140 | 101-130 |
| Proportion of dominant size groups | 40.0 | 40.9 | 84.6 | 46.2 |

TABLE 2. Composition of *P. ornatus* and *P. homarus* in the lobster catches landed by mechanised trawlers at Tuticorin Fisheries Harbour during 1991-'93

| Months | 1991-'92 | | | | 1992-'93 | | | |
|-----------|-------------------|-------|-------------------|------|-------------------|-------|-------------------|------|
| | <i>P. ornatus</i> | | <i>P. homarus</i> | | <i>P. ornatus</i> | | <i>P. homarus</i> | |
| | (kg) | (%) | (kg) | (%) | (kg) | (%) | (kg) | (%) |
| April | -- | -- | -- | -- | 738 | 88.2 | 99 | 11.8 |
| May | -- | -- | -- | -- | 20,520 | 86.7 | 3,150 | 13.3 |
| June | -- | -- | -- | -- | 2,717 | 80.7 | 650 | 19.3 |
| July | 5,720 | 95.7 | 260 | 4.3 | 4,680 | 100.0 | -- | -- |
| August | 1,458 | 97.0 | 45 | 3.0 | 1,140 | 82.6 | 240 | 17.4 |
| September | 1,416 | 79.4 | 368 | 20.6 | 98 | 77.8 | 28 | 22.2 |
| October | 8,022 | 75.0 | 2,674 | 25.0 | -- | -- | -- | -- |
| November | -No fishing- | | | | -No fishing- | | | |
| December | 3,304 | 84.3 | 616 | 15.7 | -- | -- | -- | -- |
| January | 3,157 | 100.0 | -- | -- | -- | -- | -- | -- |
| February | 2,664 | 64.0 | 1,500 | 36.0 | 8,376 | 98.6 | 120 | 1.4 |
| March | 1,194 | 95.2 | 60 | 4.8 | -- | -- | -- | -- |
| Annual | 26,935 | 83.0 | 5,523 | 17.0 | 38,269 | 89.9 | 4,287 | 10.1 |