



CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

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R & D SERIES FOR MARINE FISHERY RESOURCES MANAGEMENT

8. THE THREADFIN-BREAM RESOURCES

The threadfin-breams of the family Nemipteridae form one of the major demersal fishery resources of India and are exploited by small commercial trawlers along both coasts in depths extending upto 70 m. The present catches form about 2% of total landings from the seas around India. Kerala State accounts for the maximum catch (35%), followed by Maharashtra (21%), Gujarat (5%) and other maritime States. The exploratory surveys beyond the present fishing grounds have revealed that threadfin-breams are more abundant in the depth range 75-125 m, the catch of these fishes contributing to about 75% of the total catch from this depth range. The present exploitation, thus, is marginal, since the areas where there are larger concentrations of these fishes are now unfished.

Production

The characteristics of the exploited resources of threadfin-breams have been investigated from selected centres of the Central Marine Fisheries Research Institute, along the coasts of Andhra Pradesh, Tamil Nadu, Kerala, Maharashtra and Gujarat. In Andhra Pradesh (at Waltair and Kakinada) an estimated annual average of 1,700 tonnes of these fishes is landed; at Waltair these fishes form about 14% of total trawl catches while they form about 6% at Kakinada. The peak period of their abundance in this region is December-March. Further along the coast at Madras, an annual average of 740 tonnes of nemipterids is landed, which

forms about 15% of total trawl catches; the peak period of abundance here is June-September. At Cochin, on the southwest coast of India, an estimated annual average of 3,200 tonnes of nemipterids is landed by private trawlers. In this region, the trawlers have been operating in relatively deeper waters during monsoon months in recent years and very heavy landings of threadfin-breems are obtained during July-September, the catches of these three months accounting for over 80% of nemipterids landed in the year. At Bombay, an estimated annual average of 3,000 tonnes of threadfin-bream is landed and the catches are heavy during February-May. At Veraval, along the Gujarat Coast, an estimated annual average of 2,700 tonnes of threadfin-breems are landed; there are two peaks in abundance; one in March and the other in October.

Five or six species contribute to the fishery along the east coast, whereas only two or three species contribute to the fishery along the west coast. However, *N. japonicus* is the most dominant species, along both the coasts, followed by *N. mesoprion*; these two species together contributing 70-100% of the nemipterid landings at the different trawl landing centres.

Marketing of threadfin-breems is simple and direct, as the fishes are in good demand in the fresh condition. After landing, the catches are sold to retailers who sell them fresh locally or pack them in ice in boxes or baskets and take them to interior markets.

Stock assessment

Since *Nemipterus japonicus* is the most dominant species along the Indian Coast, detailed data on population characteristics of this species were collected and stock assessment made.

At Waltair, the exploitation rate is estimated as 0.70 and the total annual stock at 359 tonnes against an average annual yield of 251 tonnes. Under the current age at first capture and fishing mortality rate, the yield has already shown a decline. Increased yields in the present fishing grounds can, however, be obtained by decreasing the fishing effort and increasing the cod-end mesh size of trawl nets.

At Kakinada, the exploitation rate is estimated as 0.54 and the total annual stock of the species at 719 tonnes against an average annual yield of 388 tonnes. The present fishing effort is just enough to get maximum sustainable yield and further increase in the same with the present gear in use may result in reduced yield. The yield can be increased, without adversely affecting the stock, by increasing the age at first capture.

In the trawling grounds off Madras, the exploitation rate is estimated as 0.15 and the total annual stock at 2,300 tonnes against an average annual yield of 336 tonnes. There is, hence, scope to get increased yield from this area, without adversely affecting the stock, by increasing the effort.

In the sea off Cochin, the rate of exploitation is 0.64 and the total annual stock is 3,095 tonnes against the annual average yield of 1981 tonnes. Maximum yield is obtained with the present gear and fishing pressure and any increase in the effort without increasing the mesh size of the trawl net is likely to result in a fall in yield from the present fishing ground.

At Bombay, the exploitation rate is 0.76 and the total annual stock is 2,674 tonnes against an average annual yield of 2,032 tonnes. The yield under the present fishing effort and with the present gear in use, has already shown a decline and further increase in effort may result in a further decline in the yield, thus affecting the stock in the area adversely. To get sustained yield of this species from the present fishing grounds there is need to increase the cod-end mesh size of trawl nets.

At Veraval, the exploitation rate is estimated as 0.59 and the total annual stock at 3,159 tonnes against the average annual yield of 1,864 tonnes. The present fishing pressure is yielding the maximum sustainable yield.

Management of the resource

The studies on stock assessment have clearly shown that, in most of the places where trawling operations are going on, the present rate of exploitation of *N. japonicus* is either just enough to get maximum sustainable yield or has exceeded that which gives MSY. Hence there is need to be cautious while attempting to increase the effort in the present trawling grounds. It has also been observed that the present cod-end mesh size, as indicated by the present length at capture, is small and that there is need to increase the cod-end mesh size to get sustained yield of this resource from the present trawling grounds. This will also help in averting the possibility of recruitment overfishing in future when fishing pressure increases considerably.

In addition to the above, the following alternatives can also be considered to get increased and yet sustained yield of threadfin-breams.

Along the southwest coast of India, increased yield of threadfin-breams can be obtained from the relatively deeper waters beyond

the present trawling grounds, by deploying the maximum effort during monsoon (June-September) months. Needless to say, care has to be taken that such a development-heavy landings within a restricted season - is accompanied by facilities for suitable storage and disposal.

Since trawling in inshore waters is biased in favour of catching prawns, there is not only uneven distribution of effort in the fishing grounds, but there is concentration of effort in relatively shallower regions also. The exploratory surveys have shown concentrations of threadfin-breems in 75-125 m depth zone particularly along the west coast of India. Hence any proposal to deploy more trawlers has to be viewed from this stand point that the increased effort is deployed only in relatively deeper waters (75-125 m) to get increased yield of threadfin-breems. Of course this has to be accompanied by the development of proper marketing facilities so that reasonable monetary returns are ensured for the catch.

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The conclusions/recommendations made in this series are subject to revision with addition of further information on the resource.

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