



CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

ERNAKULAM, COCHIN-682 031, INDIA

R & D SERIES FOR MARINE FISHERY RESOURCES MANAGEMENT

5. THE RIBBONFISH RESOURCES

The ribbonfishes are an important group of food fishes in India and their annual average production during 1971-'82 was estimated at 55,300 tonnes which formed 4.3% of the total marine fish landings and occupied 7th position. The studies indicate that various species of ribbonfishes constitute substantial fishery in the States of Andhra Pradesh, Tamil Nadu, Kerala and Maharashtra showing considerable variations in the species composition, seasonal abundance and production trends.

Occurrence and distribution

Trichiurus lepturus which has a wide distribution in the Indo-Pacific and Atlantic, occurs almost all along the Indian Coast and is the dominant species in Indian waters. Four or more species of ribbonfishes may be found along the Indian Coasts of West Bengal, Andhra Pradesh, Tamil Nadu, Kerala, Maharashtra and Gujarat.

Resource estimate

The ribbonfish landings are known to show considerable annual fluctuations. During the period 1950 to 1982, the lowest catch of 16,452 tonnes was recorded in 1963 while a record catch of 77,785 tonnes was obtained in 1978. The contribution of ribbonfish in the marine fish production varied from about 2.0% in 1960 to

9.7% in 1953. The ribbonfishes are particularly abundant along the coasts of Kerala, Tamil Nadu, Maharashtra and Andhra Pradesh where they accounted for 29.1%, 23.0%, 17.7% and 15.3% respectively of the annual ribbonfish catch during 1971-82. Thus, these four States occupy a very important position for ribbonfish production and on an average account for 85.1 % of ribbonfish landings in the country.

Although not considered as a quality fish, they are consumed by many people and being abundant and cheap, they are especially preferred by common man. Large fish are generally preferred for fresh consumption while the smaller ones are sun dried. Being thin and ribbon-like, they are best suited for sun drying which is also economic. During the peak months of abundance they are salt cured. Apart from local consumption both in the fresh and cured states, considerable quantities of cured products are exported to countries like Sri Lanka and Malaysia. The ribbon fishes are also used as an effective bait for catching quality fishes like seer, tuna, carangids, eels and catfishes in Maharashtra, Tamil Nadu and Andhra Pradesh.

Stock assessment

Trichiurus lepturus constitutes the most important stock among the ribbonfish resources. Along the east coast, the population dynamics of this species was investigated from the Andhra Coast during 1967-71. The estimates of the total mortality (Z), natural mortality (M) and fishing mortality (F) coefficients of the exploited population were in the order of 1.2, 0.9 and 0.3 respectively. The age at capture (tc) in the present fishery is 0.5 years. The exploitation rate was low at 0.17.

However, at the present level of M and F there is only a marginal increase in the yield per recruit values at different ages of exploitation; consequently it is not productive to increase the age at exploitation without increasing the rate of fishing. A maximum of 37 gm per recruit can be obtained if F is increased to 1, concurrent with an increase in age at exploitation to one year.

The average annual production of ribbonfishes from Andhra Pradesh and Tamil Nadu were estimated at 21,200 tonnes during 1971-82. The average annual stock and average standing stock of *T. lepturus* for the region were estimated as 85,000 tonnes and 48,000 tonnes respectively, indicating that these resources are under-exploited and the catches can easily be doubled without any adverse effects on the stocks.

The studies based on the resource surveys conducted during 1972-75 on the southwest coast showed that, in the region between

Ratnagiri and the Gulf of Mannar, the average standing stock of the ribbonfishes was 67,200 tonnes which is four times higher than the landings in this region. The average potentials off the coasts of southern Maharashtra, Karnataka, Kerala and southern Tamil Nadu are 11.8, 13.4, 3.3 and 1.3 times higher than the average landings in the respective regions indicating greater scope for the increased exploitation of this resource. The period of greatest abundance along Maharashtra is during the second and third quarter. Off the coast of Kerala greatest abundance was from May to September. In the western part of the Gulf of Mannar the highest estimate was obtained during the third quarter of the year.

Recommendations

Towards their proper management and utilization the following recommendations may be relevant: (1) The production of *T. lepturus* can be safely doubled without any adverse affect on the stock. (2) As this species attains first maturity at 41-43 cm, it is necessary to increase the age at first capture to at least one year ($L_c = 43$ cm) to safeguard against recruitment overfishing at higher levels of fishing effort. (3) As the traditional fishery exploits mainly younger fish available in the inshore fishing grounds; whereas the fully grown larger fish available in deeper waters (more than 50 m depth) are out of reach to the present fishery, larger vessels are needed to exploit them. (4) In view of the known diurnal behaviour, bottom trawling during day and pelagic trawling or purse seining during night with larger vessels is advocated. (5) Intensification of the fishing pressure during the monsoon is recommended since higher standing stock was found at that time on the shelf along the south west coast and to extend the fishing operation to deeper waters. Due to rough weather conditions during monsoon only larger vessels can take advantage of the situation. (6) Increased exploitation of the ribbonfish resources calls for proper utilization of the catches involving handling, processing, storage and distribution of fresh or iced fish on landing and to ensure remunerative price to the primary producer.

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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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