

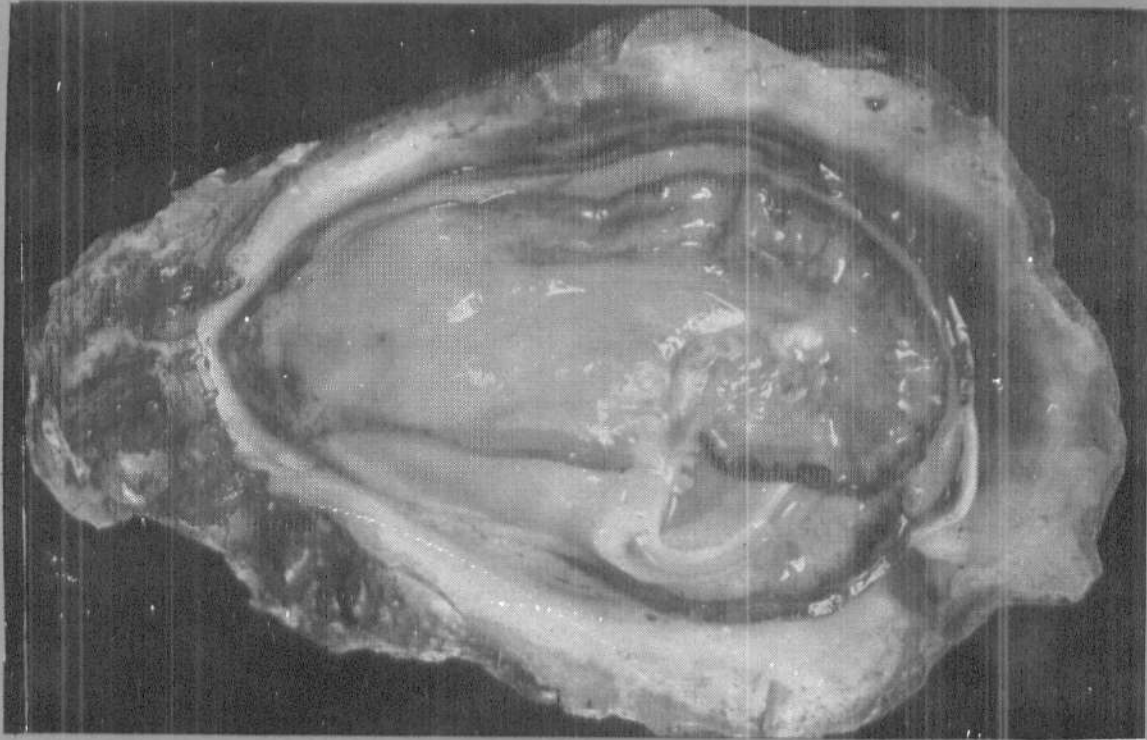


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भारतीय कृषि अनुसंधान परिषद्  
INDIAN COUNCIL OF AGRICULTURAL RESEARCH

## 845 SOME INFORMATION ON THE BALISTIDS OF THE SOUTHWEST COAST OF INDIA

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### Introduction

Though balistids, popularly called trigger fishes, contribute only a negligible share to the Indian fisheries, two species, *Odonus niger* and *Sufflamen fraenatus* (= *Sufflamen capistratus*) (Fig. 1), have till recently been contributing to the

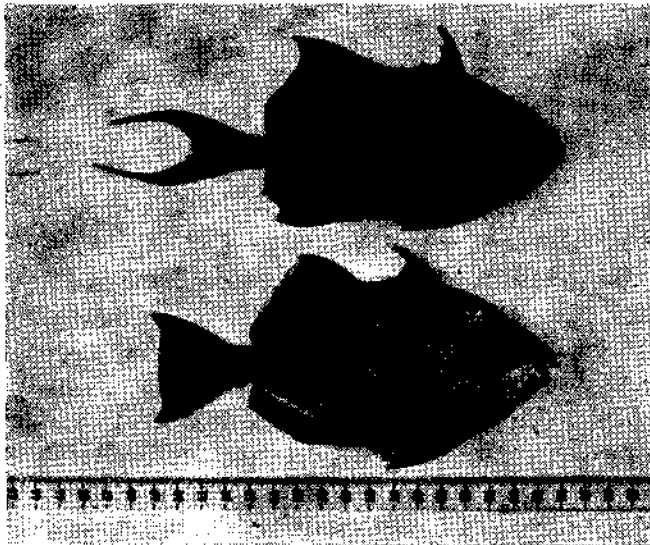


Fig. 1. *Odonus niger* (upper) and *Sufflamen fraenatus* (lower).  
Scale in cm.

important seasonal (usually November-March) subsidiary fisheries along the contiguous coasts of Thiruvananthapuram (= Trivandrum) (Kerala) and Kanyakumari (Tamil Nadu) districts. Their occurrence during the other months is insignificant. *Kachal*, a simple net of great ingenuity,

described by Bennet (*J. Bombay Nat. Hist. Soc.*, 64(2) : 337-380, 1967), is the type of gear mainly employed for catching balistids. This gear (Fig. 2) is nothing but a netted bag used effectively and extensively for about a century now to fish this resource at depths of 25-45 m. Another gear, though less common in use, is the hooks and line (hook size nos. 18 & 19) with synthetic baits. Balistids are also encountered in other gear as bycatch. The landings by different gear are constituted either by one or both the species. *O. niger* (locally known as *kaakka klaathi* or *karuppu klaathi*) is generally the dominant species, though *S. fraenatus* (*vella klaathi*) is also caught in good quantities during some years. *Abalistes stellatus* is another species of balistid found in stray numbers in these coasts but it does not form a fishery. The fishing season for balistids in general coincides with the lean period for other varieties of fish from these coasts. Although the fishery fluctuated in different years, a large section of the fishermen was dependent on this fishery during that part of the year. But as cuttlefish, which also has almost the same fishing season here as balistids, began to gain export demand since early eighties, the fishermen began to neglect balistids and preferred the new foreign exchange earner and quite often contended with even meagre catch. During later years the export demand for some varieties of finfishes like lethrinids, serranids and carangids sustained the fish-



Fig. 2. *Kachal*, the tackle for balistids.

ermen's interest in the export-oriented catches. Mechanisation of crafts, which started here in 1982, came as a boon to them since fishing could be made at distant grounds for such fishes. Since then the occasional catches of balistids noticed have mostly been inadvertent.

### Fishery

The trend of the balistid landings of the past and the present along these coasts can be understood from a representative centre, viz, Vizhinjam, an important fishing centre in the Thiruvanthapuram district. Relative importance of the fishery of balistids in Vizhinjam area for the period from 1966 to 1972 has been reported by George *et al.* (*Bull. Dept. Fish. Kerala*, 1(1), 1976). They have observed that 56.4 % (411 t) of the total fish landings at Vizhinjam during January

– May 1972 was constituted by balistids, exclusively *S. capistratus*. Their landings at Vizhinjam for 30 seasons from 1965-'66 to 1994-'95 are depicted in Fig. 3. The annual average percent-

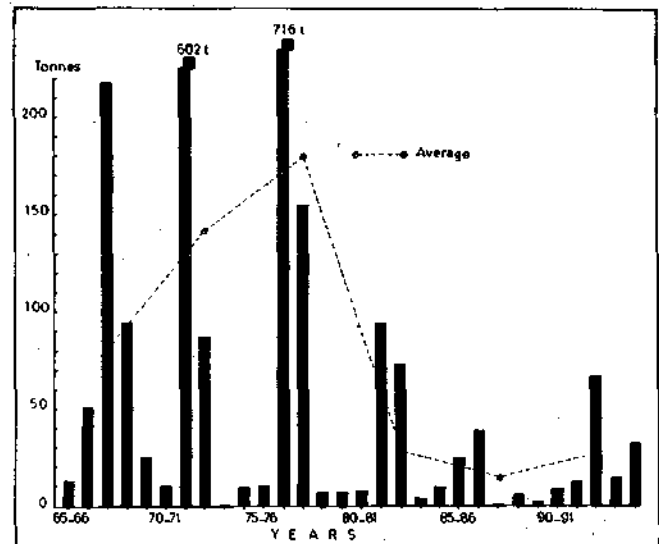


Fig. 3. Balistid landings at Vizhinjam from 1965-'66 to 1994-'95 with the average for every five years.

age contribution of balistids here has not been attractive (below 3 %) in the total fish landings, though in 1972 and 1977 their share rose up to 10.7 % (602 t) and 19.6 % (716 t) respectively. But, monthly landings of the two species during certain years have been of considerable importance, often more than 40 % in the total fish landings. The maximum catch recorded for a month was 457 t (40.8 % of the total fish landings) in March 1972 and the highest share this group contributed was 64 % (219 t) in February 1977).

During peak landings the *kachal* recorded upto 150 kg per trip. The highest monthly average catch per trip was 70 kg (March 1972) while during normal season it was around 30 kg.

From Fig. 3 it is seen that landings of balistids have greatly decreased during the last 15 years. In February and March 1993 there was a revival of *kachal* operation, bringing in 48.6 t. But during the subsequent years this fishery was neglected. Another interesting result that emer-

ged during the present study is the occurrence of peak landings of this group at an interval of 4 to 5 years.

While the artisanal fishermen have lacked enthusiasm in fishing for balistids, the trawl fishermen of nearby centres within and outside the districts continue to land balistids in large quantities either as bycatch or intended to market in Tamil Nadu for fishmeal plants. Joel and Ebenezer (*Mar. Fish. Infor. Serv. T & E Ser.*, 141: 10-17, 1996) have recorded an annual average catch of 865 t (14.7 % of the total trawl landings) of the two species of balistids for the 5-year period 1990-94 at Colachel (Kanyakumari district) where on an average, trawl fishing was carried out only for 4 months in a year. Here the maximum daily average catch per unit went upto 961 kg. The balistids landed here were from the area between Kanayakumari in the south and Vizhinjam in the north at depths of 25-70 m. Of the two species, *S. fraenatus* was slightly dominant. Balasubramoniam *et al.* (*Mar. Fish. Infor. Serv., T & E Ser.*, 137 : 18-19, 1995) have reported unusual landings of 306.5 t of balistids by trawlers at Tuticorin (southeast coast, Tamil Nadu) during July 1993 with the catch rate of 446 kg per unit. The species caught there were *Balistes niger* (Shaw) (most dominant, 89.5 %), *Odonus niger* (Rupell) and *Balistes capistratus* (Shaw) (= *Sufflamen fraenatus*). At Neendakara (southwest coast) of Kollam (=Quilon) district in Kerala (adjacent to Thiruvananthapuram district northwards) there have been heavy landings of *O. niger* and *S. fraenatus* during September 1992 to May 1993. During this period an estimated total of 6,543 t, with the average monthly catch at 727 t, was recorded (based on the fishery survey data collected for Fishery Resources Assessment Division of the Central Marine Fisheries Research Institute, Kochi, by the third author). The daily catch of balistids per unit reached a maximum of 585 kg. *S. fraenatus* formed 60 % of the catch and *O. niger*, the rest. The catches were realised from grounds 40-45 km southwest off Neendakara at 40-70 m depth.

At Tuticorin and Neendakara trawl operations made during night hours were favourable

for balistid fishery whereas at Colachel all catches came from day fishing. From the catches at Colachel and Neendakara it appears that *S. fraenatus* is becoming dominant at present. The balistid catches at the above three centres are largely made use of by fishmeal plants in northern Tamil Nadu.

#### Other observations

Large concentration of the balistids along the Kerala coast was reported by Venkataraman and George (*J. mar. biol. Ass. India*, 6(2) : 321-323, 1964), and habitat and distribution of this group off Tuticorin coast by Mahadevan and Nair (*J. mar. biol. Ass. India*, 7(2) : 476-477, 1967). Pillai (Ph.D. Thesis submitted to the University of Kerala, 1963) has found that the liver of *O. niger* yields 42 % oil containing several fatty acids with a potential of 300 IU/g of vitamin A and rich pro-vitamin D. George *et al.* 1976 have recorded 40.8 % of oil in the liver of *S. capistratus*.

While *O. niger* is known to reach a length of 600 mm and *S. fraenatus*, 500 mm, the length range recorded in this region over the past three decades were 70-227 mm for the former and 65-216 mm for the latter. In these sizes they have been found to be immature or of indeterminate sex. The specimens of these species examined in the trawl catches mentioned earlier have also been within this length range. The operators of deep sea trawlers informed the present authors that in early eighties they used to come across large-sized balistids 'up to 1.5 feet' (457 mm) among their catches, but thrown overboard as trash fish.

Presence of smaller size groups comprising immature or indeterminate individuals in the fishery may suggest that these species are highly migratory in habit, spending only a part of its life in the nearshore waters, and the rest of the life cycle, including maturing, spawning, larval and post-larval stages, in deeper waters.

The species that come under the order Tetradontiformes which includes balistids, are generally viewed as poisonous and hence inedible in the

other parts of the world. But the two species are consumed in fresh and salt-dried condition in this region for many decades without any bad effect.

During early seventies the balistids were sold along these coasts at Rs. 8.00 to 10.00 per hundred numbers (about 10 kg). But those landed today, especially when other fishes are scarce, are sold at rates up to Rs.15.00 per kg for fresh fish and Rs. 20.00 and above for the salt-dried. The concept that it is a poor man's fish is slowly disappearing. When price of other esteemed varieties of fish goes up, naturally many would go in for this relatively low-priced fish.

#### **Remarks**

The balistid landings at Neendakara, Colachel and Tuticorin prove that this resource of the southern coasts is still intact. Fishermen may be satisfied with the catch of a few numbers of cuttlefish or a much-relished tablefish instead of a couple of basketful of balistids. But the real victim is the common man who has to forgo his share of fish for consumption during such seasons because of scarcity and high price of other fish.

During early eighties fishermen of these coasts adopted mechanisation by fitting their traditional crafts (catamaran and canoe) with out-board motors. This made them capable of covering distant grounds hitherto unexploited and bringing better-priced catches like perches, tunas and cuttlefish. As the number of such motorised boats increased year by year, operation of traditional crafts in the inshore waters gradually came down. This resulted in the decline of balistid landings. The vitamin contents and oil quality of the species of this group should be evaluated and if their utility can be enhanced, then this neglected resource, which is available in bulk quantities during slack fishery season in this area, may not go unexploited. Also it would be a blessing for the less privileged fishermen, since *kachal*, the main tackle for the capture of balistids of the inshore water, can be fabricated cheaply and easily without much technical knowledge.

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