# CATCHES OF MECHANISED BOATS AT MADRAS IN 1971-72

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## ABSTRACT

Fish catches by the mechanised vessels operated at Madras were estimated for the years 1971-72. The fishery, species composition and seasonal fluctuation in these two years are reported. The probable causes for the fluctuations are discussed.

## INTRODUCTION

The fish catches in India steadily increased due largely to the introduction of mechanised fishing since the first five year plan. In addition to trawl nets, bottom-set gill nets for catching bigger fishes like sharks are also used by these mechanised boat by setting them on the bottom at a depth of 15 to 50 metres. Not much work, so far, was done on the fishery from Madras region, particularly on the inshore catches. The present work is an attempt to shed more light on this aspect.

## COLLECTION AND METHODS OF ESTIMATION OF CATCH

Weekly observations were made at the local fish landing centres at Madras where the mechanised boats land their catches, to collect data for the period from January 1971-December 1972. As the observation was of 6 h duration in a day, 2 days catches are taken for 1 day's total landings. Thus 8 days' observations are computed for 4 days' total catch in a month. The average catch per day is then raised to the total landings for the whole month. Similarly the total number of boats landed in a month has also been calculated from the average of a single day. Catch statistics were collected separately from trawl and bottom-set gill nets. The catch per boat has been computed separately for both the gears from the total landings and fishing trips in a month. Each calender year has been divided into 4 quarters for comparison of the catches.

## FISHERY

The fishery is composed of many species and for studyig their relative importance they have been grouped under 10 heads as: Elasmobranches, Clupeids, Nemipterids, Sciaenids, Lizard fishes, Carangids, Leiognathids, Seer

fishes, Prawns and others. The mechanised fishing was observed to be concentrated only at 2 landings centres viz. Royapuram and Kasimedu. Three types of mechanised vessels were in operation, viz. (a) Pablo boat — 28' long and powered with 20-25 H.P., engine, (2) Illugosen boat — 30' long with an engine power varying from 37-50 H.P., (3) Stern trawling boat — 32' in length having an engine of 46-50 H.P. Nearly 95 mechanised boats had their base at Madras. They operated both bottom trawls, and gill nets. During prawn seasons, trawlers from other areas also fished in this region.

During the year 1971 the total catch was estimated at 2203 tonnes. The trawlers landed 1756 tonnes of fishes with a catch rate of 115.3 kg/boat, while 447 tonnes with a catch rate of 115.3 kg/boat by the gill nets. In 1972, the fishing trips by trawlers were more and the landings were 1773 t with a reduced catch rate of 67.9 kg/boat. But the fishing trips of gillnet-operating boats were less with a total catch of 162 tonnes and 86.8 kg/boat (Table 1).

## Species-wise Catches

Species or group-wise catches were worked out and presented in Figures 1 & 2.

The gill nets were operated only to capture elasmobranchs, carangids, seer fishes and other large sized miscellaneous groups. Whereas the trawl nets were operated to exploit the maximum available resource of ground fishes particularly prawns. The other groups like clupeids, nemipterids, sciaenids, lizardfishes and leiognathids were landed only by the trawl nets.

*Elamsmobranchs*

Although the sharks and rays are not esteemed well some of them like *Aetobatis narinari* and *Aetomylus michofii* have high demand. Because of the peculiar smell, these rays are consumed not fresh but in salt cured condition. The fins in dried state are exported to South-eastern Asian countries.

Their contributions were 317 tonnes and 167 tonnes with an average catch rate of 3.8 kg and 2.8 kg/boat per day by the trawl nets and 68.5 kg and 50.3 kg/boat per day by the gill nets respectively during 1971 and 1972.

The species which formed the fishery are the tiger shark *Galeocerido cuvieri*, the great hammer head *Sphyrna mokkran, S. blochii*, the grey sharks *Carcharhinus limbatus; C. sorrah, C. melanopterus* and the sharp nosed shark *Scoliodon laticaudus*. Of these, the tiger sharks ranging in size from 2.5 to 3.5 m are usually caught. Others varied between 1 and 2 m in length except *Scoliodon*, the maximum size of which was only 45 cm.

The sting ray *Dasyatis uarnak, D. bleekeri, D. sephen, D. imbricatus*, devil ray *Mobula diabola*, butterfly ray *Gymnura poecilura* and *Rhynchobatus djiddensis, Rhinobatus* spp. and *Aetobatis narinari* were also caught commonly.

TABLE 1. *Particulars of fishing trips of mechanised boats at Madras during* 1971 *and* 1972 (*catch/boat in parenthesis in kg*) (ND = No data).

| | *Gear* | *Jan.* | *Feb* | *Mar* | *Apr* | *May* | *Jun* | *Jul* | *Aug* | *Sep* | *Octo* | *Nov.* | *Dec.* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1971 | Trawl net | 1053 | 1132 | 710 | 882 | 1002 | 773 | 1580 | 1964 | 2298 | 1619 | 2214 | ND |
| | | (161.0) | (182.0) | (230.0) | (135.3) | (61.0) | (88.7) | (116.9) | (106.1) | (74.5) | (64.5) | (135.1) | |
| | Gillnet | 405 | 324 | 220 | 398 | 300 | 277 | 435 | 470 | 462 | 365 | 126 | ND |
| | | (195.0) | (146.0) | (156.0) | (178.4) | (51.0) | (86.0) | (150.0) | (104.0) | (46.0) | (64.0) | (127.0) | |
| 1972 | Trawl net | 3920 | 4016 | 1922 | 2199 | ND | ND | ND | 2586 | 3314 | 806 | 2052 | 5301 |
| | | (72.6) | (95.9) | (62.9) | (34.0) | | | | (60.8) | (90.5) | (86.2) | (62.9) | (45.8) |
| | Gill net | 389 | 218 | ND | 21 | ND | ND | ND | 638 | 316 | ND | 288 | ND |
| | | (78.0) | (45.0) | | (44.0) | | | | (97.0) | (108.0) | | (87.3) | |

Elashmobranches contributed about 11.7% of total catch at Madras during these two years.

*Clupeids*

Fairly good fishery of this group exists. This group comprises many species under several genera. The common ones are the rain-bow sardine *Dussumieria hasselti*, the anchovies *Stolephorus* spp., *Thryssa malabaricus*, *T. mystax*, the white sardine *Kowala coval*, *Pellona* sp., *Ilisha elongata*, *I. filigera*, *Hilsa ilisha*, *Ophisthopterus tardoore* and *Raconda russelliana*.

The estimated catches amounted to 299 tonnes and 12 tonnes with catch rate of 19.6 kg and 0.5 kg/boat in 1971 and 1972 respectively. During

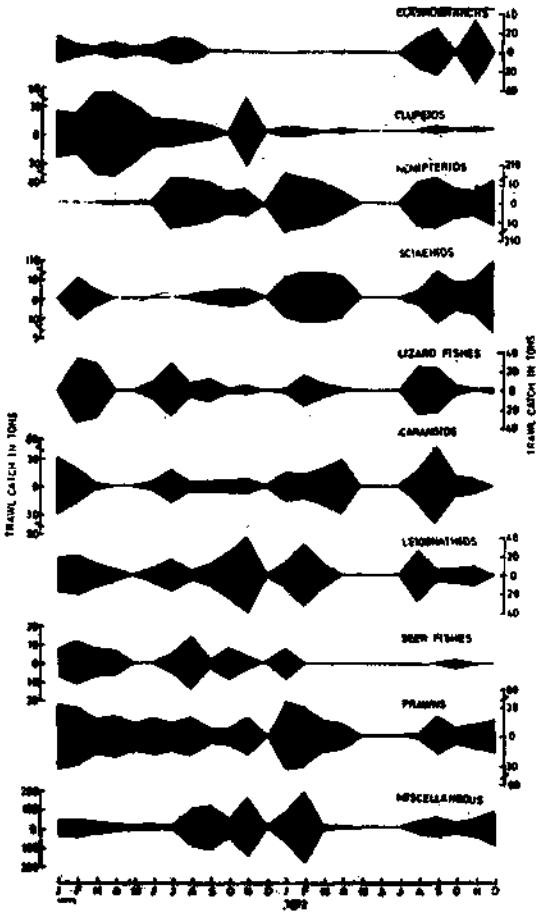


FIG. 1. Species-wise catches by trawl nets at Madras during January 1971--December1972

these two years, these groups other than oilsardine formed 7.5% in the total mechanised boat fishery at Madras. Some of them are marketed in dried condition.

*Nemipterids*

This fishery is mainly composed of *Nemipterus japonicus* and frequently *N. bleekeri* are also met with and together they contributed 145 tonnes and 356 tonnes with 9.5 kg and 13.6kg/boat per day respectively during 1971 and 1972. Though they occurred throughout the year, the landings were good in the 1st, 3rd and 4th quarters of the year. Their contribution was 12.1% in the total landings in Madras. They are relished both in fresh and dried state.

*Sciaenids*

Sciaenids on average formed 7.6% of annual catches and their contribution was 37 tonnes and 279 tonnes respectively for 1971 and 1972 with an average annual catch rate of 2.5 kg and 10.7 kg/boat. They formed 0.4% in all India sciaenid catch.

The common species were Johnius belengerii, *J. dussumieri, Otolithes ruber, O. argentius; O. maculatus, Pseudosciaena diacanthus* and *Otolithoides brunneus*. Although fishing for sciaenids is done throughout the year considerably good catches were recorded during the 1st and 4th quarters. The larger sciaenids like *P. diacanthus* grow to more than a metre in length while lesser ones measure 20-30 cm. This group though caught in fairly good quantities, some of them are not good table fishes. Some like the species *P. diacanthus* are esteemed well

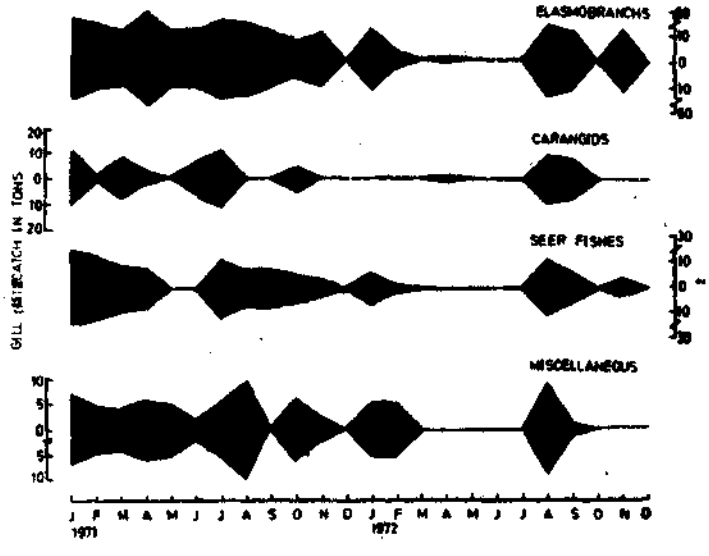


FIG. 2. Species-wise catches by gillnets at Madras during January 1971-December 1972.

and fetch a very high price. They are eaten fresh well as sundried. As a by-product of the sciaenid fishery, the air-bladder of *P. diacanthus* and *O. bruneus* are collected and sundried for export to Singapore and other South-east Asian countries for making isinglass.

*Lizard fishes*

This fishery is supported mainly by *Saurida tumbil* and occasionally other species like *Trachinocephalus myops* makes its appearance in the fishery. This group caught although throughout the year, is predominant in the catches during the 1st quarter and 3rd quarter with a catch rate of 40.0 kg/boat in 1971. They contributed about 120 tonnes and 78 tonnes in these two years forming 4.8% annually in the average catch in Madras and 2.3% in the all India lizard fish catches.

*Carangids*

The fishery is formed by a mixture of the trevallies, king fishes and horse mackerels. The following are the most common fishes in the fishery: *Megalaspis cordyla, Decapterus russellii, Selar kalla, Carangoides malabaricus, Rachycentron* sp. and *Chorinemus tol*. The estimated catch was 140 tonnes in 1971 and 181 tonnes in 1972 and their percentage was estimated as, 7.8% for the entire period at Madras and 0.6% in all India catches. These are eaten fresh and only a little quantity is sum-dried.

*Leiognathids*

This group comprises of a large number of species under 3 genera. Some of the common species in the fishery are *Secutor insidiator, S. ruconius, Leiognathus splendens, L. equulus, L. dussumieri, L. bindus, Leiognathus* sp., and *Gazza minuta*. They occur all the year round with a significant peak during January to March and good catches during September to November. The contribution of this group was estimated as 6.4% in the mechanised catches for the entire period and 0.4% in the total silver-belly catches in India. 1971 registered a catch of 159 tonnes with 10.5 kg/boat while it was 104 tonnes with 4.0 kg/boat in 1972. There is a demand only for certain species in the market, of which *G. minuta* and *L. equulus* are important. They are eaten in fresh as well as in sun dried conditions.

*Seer fishes*

The fishery of this group is composed of two species *Scomberomorus guttatus* and *S. commerson* forming 4.6% of the mechanised boat catches in Madras and 0.5% in the all India seer fish catches. These fishes contributed 154 tonnes and 39 tonnes and the catch per boat was 4.2 kg and 0.4 kg by the trawlers and 23.3 kg and 15.7 kg by the gill nets during 1971 and 1972 respectively. They are caught in gill nets usually beyond the 20 m depth.

*Prawns*

Pranws are caught throughout the year with peak season during the 1st quarter. During the peak season boats from other regions are also brought over to tap the maximum available resource. The commonly caught species are *Penaeus indicus, P. monodon, Metapenaeus monoceros, M. dobsoni, M. affinis, Parapenaeopsis hardwickii* and *Solenocera indica* contributing 206 tonnes in 1971 with a catch rate of 13.5 kg/boat and 167 tonnes with 6.4 kg/boat during 1972.

*Miscellaneous*

This group of mixed varieties of fishes composed of *Pomadasys, Apogon, Drepane punctata,* eels, flat fishes, ribbon fishes, *Pentaprion* sp., *Gerres* spp,. half-beaks, *Stromateus* spp., *Chirocentrus dorab* in additions to the crabs (*Portunus* spp.), squid (*Loligo* sp.), and the cuttle fishes (*Sepia* spp.) contribute 28.5% in the total mechanised boat landings of this area. The air-bladder of *Polynemus indicus* and the eel *Talabononoides cinereus* in dried conditon are also exported as that of *P. diacanthus.*

## Remarks

Silas et al (1976) remarked that in the east and west coasts of India generally there was a decline in the fish landings for the years 1971 and 1972. The same trend was also observed at Madras. The reason may be due to the search for prawns only during the prawn seasons in the limited grounds. The mechanised boat catches of Madras formed 7.7% and 7.5% in the whole mechanised boat catches of Tamil Nadu in the year 1971 and 1972 respectively, (Silas et al 1976). It is evident from the estimated catch particulars that there exists a rich ground for the demersal fishes in general and for the sharks and rays in particular. With the application of modern techniques the catch per boat may further be augmented in this area. This place is also a potential ground for sciaenids, and nemipterids for good exploitation on commercial basis with the introduction of bigger trawlers. The mechanised vessels at Madras regularly operate the gill-nets for catching larger and quality fishes like *Scomberomorus* spp. sharks, carangids etc. Diversification of fishing, location and exploitation of new fishing grounds will no doubt augment the catch in Madras area.

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