

## SPECIES COMPOSITION OF TRAWLER LANDINGS AT SASSOON DOCK, BOMBAY, DURING 1971

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### ABSTRACT

The estimated monthly catch at Sassoon Dock during January to December in 1971 fluctuated between 189.8 to 2076.2 tonnes, with an average of 995.6 tonnes, and formed 49.9% of the total catch. Best catches were during October and November. The Sciaenids and penaeid prawns together contributed 53.83% of the total catch. The Sciaenids dominated the catch from January to July and penaeid prawns, from September to December. In the quarterly catch-composition, sciaenids occupied first place in third and fourth quarters. Penaeid prawns and Sciaenids constituted 31% and 23% of the annual catch followed by *Coilia dussumleri* 9%, *Palaemon tenuipes* 9%, Elasmobranch 6%, *Harpodon nehereus* 3%, *Polynemus* spp. 2%, *Lactarius lactarius* 2%, *Upeneus* spp. 2% and *Nemipterus* spp. 2%.

### INTRODUCTION

Trawl fisheries rank foremost among the major fisheries of this region. The results of analysis of the commercial catches landed by the trawlers at Sassoon dock, Bombay, are given with a view to presenting details of the catch composition.

### MATERIAL AND METHODS

As a part of the survey programme of Fisheries Resources Assessment Division 10 to 12 observations per month, each of 6 h duration, were made at Sassoon Dock. Twenty-five percent of the trawlers were examined in detail to determine the species composition. The stratified random sampling method by Fisheries Resources Assessment Division of C.M.F.R.I. was used for the estimation of total landing.

Majority of the boats were 12.19 M trawlers fitted with 100 H.P. They operated within 45 m depth throughout the year except in monsoon months, when a limited number of boats were in operation (Table 1). The catch was generally sorted into major categories before auctioning, like prawns, *Sciaenids*, *Coilia*, *Nemipterus*, catfish, shark, etc. facilitating the estimation of composition. The rest of the catch, as most of which are uneconomic, are grouped as miscellaneous.

## TRENDS OF FISHERIES

A total of 1212 boats were examined for the estimation of the catch, catch composition and their weight. Table 1 gives total number of trawlers operated and catch per unit.

TABLE 1. *Monthwise estimated trawler catch of Sassoon dock for the year 1971.*

	Total No. of trawl units landed during the period of observation	Total No. Trawl units observed	Trawl catch/unit in kg	Total trawler catch (in tonnes)
Jan	303	89	435.86	792.400
Feb	236	70	406.77	671.988
Mar	293	142	493.48	867.538
Apr	237	85	495.03	879.669
May	187	50	1031.93	1447.808
Jun	73	7	433.53	189.888
Jul	231	36	269.53	311.316
Aug	231	68	390.60	451.153
Sept	365	76	649.67	1185.665
Oct	520	202	794.30	2065.193
Nov	553	257	750.90	2076.260
Dec	327	130	616.82	1008.514
Total				11947.392

It is seen from the table that the estimated total catch for the year 1971 amounted to 23928.6 tonnes of which 11947.3 tonnes (49.9%) were contributed by the trawlers, 9954 tonnes (41.6%) by Dol (Bag) nets, 1483.5 tonnes (6.2%) by gill nets and 543.5 (2.3%) by hook and lines. There was a marked monthly ascending trend of trawl catch from January to May, and after a sharp fall in June the catch again showed rising trend to November, the maximum rise being in November (Fig. 1).

The monthly landing of trawler catch in Sassoon Dock fluctuated between 189.8 t (June) to 2076.2 t (November) with an average of 995.6 t. Better catches were obtained in May and October-November. The penaeid prawns and sciaenids are the major components of the trawler catch. Penaeid prawn fluctuated from 8.35 t (June) to 52.12 t (November) and Sciaenids 12.05 t (August) to 38.72 (April). It is interesting to note that prawn fishery were dominant in the catch from August to December (23.20 to 52.12%). The monthly percentage composition of Sciaenids and penaeid prawn are given in the Fig. 2.

In the first quarter of 1971 the first place in the catches was occupied by Sciaenid spp., locally called Dhoma (Fig. 3). Penaeid prawns were second in importance (16.22%), mostly composed of *P. hardwickii* and *M. affinis*. Among the clupeids *Coilia dussumieri* dominated (16.08%) and occupied the third place. The other clupeids were fourth in importance (4.23%) which included

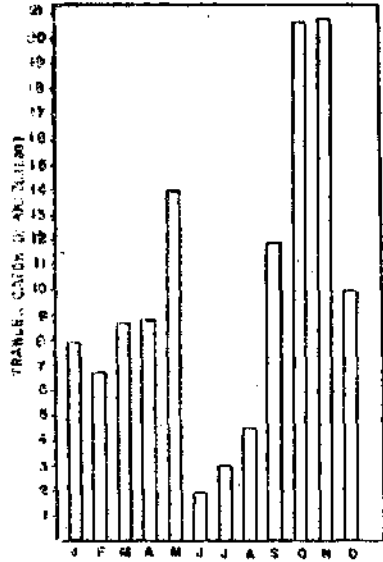


FIG. 1. Monthly fluctuation of fish caught in Trawlery, 1971

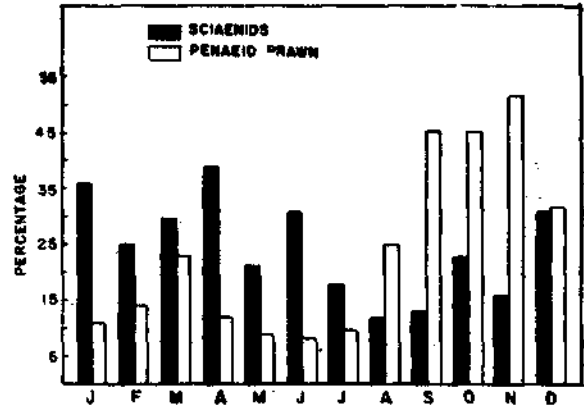


FIG. 2. Percentage composition of sciaenids and penaeid prawn in Trawler catch 1971.

*Dussumieria acuta*, *Chirocentrus* spp., *Thrissiocles* spp., and small quantity of sardines. The elasmobranchs constituted 7.07% of the total catch. *Lactarius lactarius* formed 5.06% of the total catch and occupied 6th place. *Polydora* spp. formed a significant part of the total catch (4.61%). Eels, *Nemipterus*, *Cynoglossus* and Cephalopods were caught in sizeable quantities which formed 2.96%, 2.92%, 2.72% and 2.19% of the total catch, respectively. The rest of the fishes were captured in much smaller quantities forming 0.16 to 0.72% of the total catch and together 5.72%. The catch per unit during the quarter ranged from 406.77 to 493.48 kg with an average of 445.37 kg/unit.

In the second quarter of 1971, the first place was occupied again by Sciaenids but their contribution to the total catch decreased to 28.15% (Fig. 3). The non-penaeid prawn *Palaemon tenuipes* (21.81) which was totally absent in first quarter was second in importance in the total catch. Penaeid prawn was third in importance whose contribution, however, decreased from 16.22% to 9.74% and abundant species was *Solenocera indica*. The fourth place was occupied by *C. dussumieri* whose catch decreased from 16.08 to 7.84%. Fifth place was occupied by elasmobranchs (6.17%), the sixth by *polydora* spp. (3.88%)

and seventh by *Nemipterus* spp. (3.77%). *Harpodon nehereus* which was absent in the first quarter was eighth (2.05%) in the order of abundance. Other clupeids, *Cynoglossus*, *Saurida tumbil*, *Eels*, *L. lactarius* and *Trichiurus* spp. formed 1.67, 1.55, 1.36, 1.28, 1.16 and 1.03% of the total catch, respectively. The rest of the fishes were caught in small quantities, together forming 4.16%

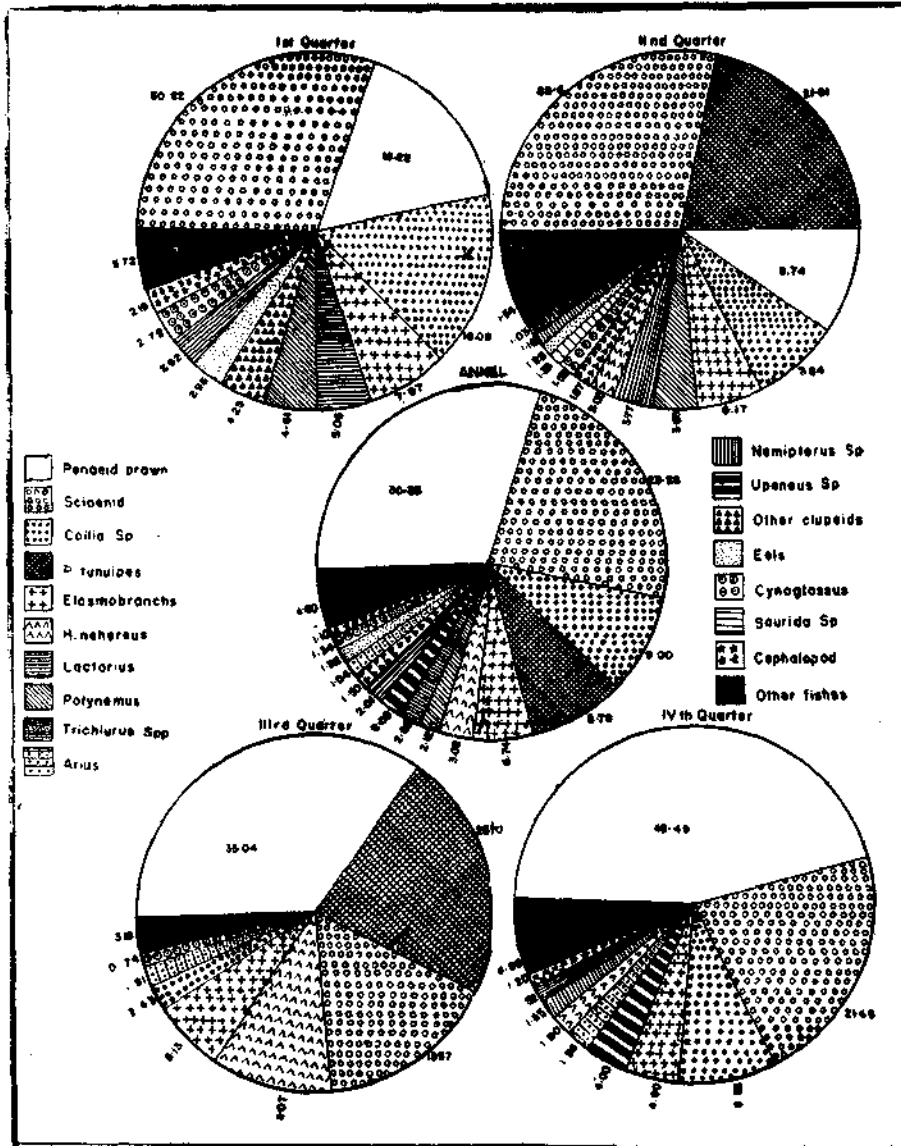


FIG. 3. Annual and quarterly percentage composition of fish caught in Trawler catch, sassoon dock, Bombay during 1971.

of the total catch. Miscellaneous fishes constituted 4.38%. Thus, the second quarter was characterised by decreasing catch of sciaenids and penaeid prawns and *C. dussumieri* and significant occurrence of especially *P. tenuipes* and small quantity of *H. nehereus*. The catch per unit during this quarter ranged from 433.53 to 992.32 kg with an average of 640.30 kg/unit.

In the third quarter of 1971 nearly one third of the total catch was comprised by penaeid prawns (35.04%) consisting of *P. styliifera*, *P. hardwickii*, *Solenocera indica* and *M. affinis*, which increased fourfold as compared with second quarter. The second place was again occupied by *P. tenuipes* (25.70%). The sciaenids were third in importance (13.37%). The fourth place was occupied by *H. nehereus* (11.07%). It occurred fairly in good quantities during monsoon months within harbour limits when the surface salinity was considerably low (Bapat 1970). Elasmobranchs and *C. dussumieri* formed 6.13 and 2.43% respectively. Catfishes, Tachysurids, were caught in some quantities (1.91%). The other fishes including the miscellaneous formed 3.16% of the total catch. Thus the third quarter was characterised by increased catch of penaeid prawn. The catch per unit ranged from 269.53 kg to 649.67 kg during the quarter with an average of 436.60 kg.

TABLE 2. Quarterwise percentage composition and list of important species caught in the trawlers in 1971.

Species	Jan-March 1st Quarter	Apr-June 2nd Quarter	Jul-Aug. 3rd Quarter	Oct-Dec. 4th Quarter	Annual Average
Penaeid prawn	16.22	9.74	35.04	45.49	30.55
Sciaenids	30.22	28.15	13.37	21.48	23.28
<i>C. dussumieri</i>	16.08	7.84	2.43	8.85	9.00
<i>P. tenuipes</i>	—	21.81	25.70	—	8.78
Elasmobranch	7.07	6.17	6.13	4.80	5.74
<i>H. nehereus</i>	0.14	2.05	11.07	1.90	3.08
<i>Polynemus</i> spp.	4.61	3.88	0.08	0.92	2.12
<i>L. lactarius</i>	5.06	1.16	0.02	1.85	2.05
<i>Upeneus</i> spp.	0.47	0.69	0.45	4.00	2.03
<i>Nemipterus</i> spp.	2.92	3.77	0.08	1.52	2.01
Other clupeids	4.23	1.67	0.48	0.56	1.50
<i>Cynoglossus</i> spp.	2.72	1.55	0.74	0.85	1.34
<i>Arius</i> spp.	0.52	0.86	1.91	1.96	1.44
Eeel	2.96	1.28	0.52	1.03	1.38
Miscellaneous	2.04	4.38	0.15	0.84	1.70
Cephalopod	2.19	0.72	0.03	1.20	1.10
<i>Saurida tumbil</i>	0.58	1.36	0.04	0.73	0.72
<i>Trichiurus</i> spp.	0.72	1.03	0.60	0.97	0.88
<i>Stromateus</i> spp.	0.42	0.70	0.25	0.14	0.33
<i>Caranx</i> spp.	0.27	0.45	—	0.41	0.32
Lobster	0.40	0.63	0.09	0.22	0.32
<i>P. hasta</i>	0.16	0.10	0.12	0.28	0.20
<i>Hippolyssmata ensirostris</i>	—	0.01	0.70	—	0.13

In the fourth quarter of 1971, first place was occupied again by penaeid prawns the catch of which increased from 35.04 of the previous quarter to 45.49% mainly due to peak season of *P. stylifera* and *P. hardwickii*. Sciaenids had the second place (21.48%). *C. dussumieri* (8.85%) and Elasmobranch (4.85%) occupied third and fourth places. *Upeneus* spp. constituted quite a significant part of the total catch (4.00%). *Arius* spp., *H. nehereus*, *L. lactarius* and *Nemiptereus* spp. formed 1.96, 1.9, 1.85 and 1.52% respectively. The share of cephalopods was 1.2%. The rest of the fishes including miscellaneous were caught in small quantities forming 6.95% of the total catch. Thus the last quarter was characterized by the increased landings of penaeid prawn, sciaenids, *C. dussumieri*, *Upeneus* spp. *Nemipterus* spp. *Arius* and Cephalopods as compared with third quarter, *P. tenuipes* was absent in the landings and the catch of *H. nehereus* decreased considerably. The catch per unit of this quarter ranged from 616.82 to 794.30 kg with an average of 720.67 kg/unit.

#### ANNUAL CATCH COMPOSITION

The estimated total catch of the trawlers for the year amounted to 11947.3 t. Penaeid prawns took the first place and the annual catch was 3649.5 t (30.55%), and the catch was represented by *Metapenaeus affinis*, *Parapenaeopsis stylifera*, *P. hardwickii*, *P. sculptilis*, *Solenocera indica* and *M. brevicornis*. In the trawler catch of South Kanara coast the penaeid prawns ranked first place (Ramamurty 1972). November showed the highest monthly prawn catch (52.12%) followed by October (45.44%) September 45.43% and December (32.03%). Sciaenids were next in importance with a catch of 2780.1 tonnes (23.28%) and were comprised by several species of small sciaenids like *Jhoniuss* sp., *Otolithus* spp. and large ones like *Pseudosciaena diacanthus* (0.81%) and *Otolithoides brunneus* (0.47%). Best catches of Sciaenids were observed in October 469.6 t and April 340.6 t. *C. dussumieri* was third in importance (1075.7 t-9%) and occurred throughout the year, best catches being from October to April with peak in November (20.98 t). *P. tenuipes* occupied the fourth place (8.78%) and it was noticed in the catch from April to September with maximum in May (437.4 t). The common forms of elasmobranch landed were *scoliodon* sp., rays, skates, *Rhinobatos* and hammer-headed shark and they were treated under the head Elasmobranch which occupied the fifth place in the trawler catch (5.74%). The major peak season was from October to November and the minor peak season was during April-May. *H. nehereus* ranked sixth (368 tonnes, 3.08%) and best catches were observed during monsoon months. *Polynemus* spp. occupied seventh place (253.7 t, 2.12%) and consisted of three species of which *P. heptadactylus* occupied a prominent place. It may be mentioned here that *Polynemus* spp. formed 3% in the off shore trawler catch (Kagwade 1972) and their peak season was in March-May. *L. lactarius* came eighth in the order of abundance (2.05%) and occurred maximum in October. Ninth place was occupied by *Upeneus* spp. (2.03%) and best catches were

observed during October-November months. *Nemipterus* spp. occupied the tenth place (2.01%). Other clupeids (1.05%), *Arius* (1.44%), Eel (1.38%), *Cynoglossus* spp. (1.34%), Cephalopods (1.10%) occupied eleventh to fifteenth places respectively in the trawler catch. The cephalopods was represented mostly by *Sepia aculeata* and *Loligo duvauceli*.

Under the heading 'other fishes' (548.3 t, 4.6%) juveniles of *Trichiurus* spp. *Saurida tumbil*, *Stromateus* spp. *Caranx* spp. Lobster, *Cybbium* spp. *Pomadasys hasta*, *psettodes*, *Lutianus* spp., *Hippolysmata* (non-penaeid prawn). *Megalopsis cordyla* and *Apogon* spp. *Stromateus* spp. *Otolithoides brunneus*, *Pseudosciaena diacanthus*, and Eel are considered to be quality fishes based on greater demand in the market and consumer preference.

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