



MARINE FISHERIES INFORMATION SERVICE



No. 80
FEBRUARY 1988

Technical and Extension Series

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
COCHIN, INDIA

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

MARINE FISH CALENDAR

2. VISAKHAPATNAM

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Introduction

This fish calendar has been prepared to furnish information on the important families (*e.g.* Clupeidae, Scombridae, Sciaenidae, *etc.*), groups (*e.g.* sardines, mackerel, croakers, *etc.*) and species of fishes that are met with in the commercial fish landings of both the artisanal and mechanised sectors, together with such other details as would help those who wish to acquire some knowledge of the general features of the fish and fisheries of the Visakhapatnam area. Details furnished for each group include the vernacular name, popular English name and gearwise annual average landings together with percentage composition in the total landings by the same gear. For the dominant species of a group caught in each gear, their relative composition, local names wherever available, length range, dominant size, depth of capture, size at first maturity and spawning seasons are also given.

Data collected by the Research Centre during recent years (1981-'86) have been used for this purpose. The data of corresponding months of the period have been pooled. Seasonal trends depicted by kite-diagrams, and species composition by bar-diagrams are presented separately for each group of fish landed by the major gears: shrimp trawl, gill net, and all other indigenous gears put together (*e.g.* shore seine, boat seine, hooks and line, *etc.*). Catch per hour of trawling (CPH or C/E) for shrimp trawl, and catch per net per day (C/U) for indigenous gears have been used as indices of abundance for furnishing the monthly trends of fish catches. Figures have been provided for important species of fishes to facilitate their recognition.

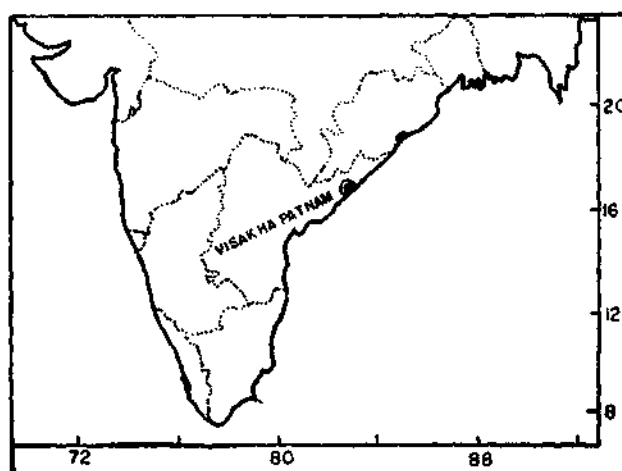
Forty-two species of fishes belonging to nineteen groups and sixteen families have been included in this

*Consolidated by N. Gopinatha Menon and K. Balachandran, CMFRI, Cochin.

fish calendar, besides sharks, skates and rays which have been presented under a single category - group Elasmobranchs.

A composite picture of the fish and fisheries of the Visakhapatnam area is also given here to enable the reader to make a proper appraisal of the fishery of the groups/species of fishes presented in the calendar and for their effective exploitation and utilization.

The fisheries canvas of Visakhapatnam is a mosaic of artisanal fishing carried out within 8-10 km from shore by a variety of indigenous gears from country crafts, and of mechanized fishing by shrimp trawls carried out in deeper waters by 200 odd small mechanized boats and by about 30 mini and 100 large trawlers. The range of operation of the small mechanised boats extends upto 50 km north-south and 15 km off the coast of Visakhapatnam making fishing trips lasting for 1-3 days each, while the mini and large trawlers fish mostly in the Gopalpur-Sandheads area making longer voyages lasting for 10-30 days. The country



crafts and the small mechanised boats land almost all of their catches whereas the mini and large trawlers land mostly shrimp, discarding the fish at sea. With this multi-faceted fishing activity, supported by a modern fisheries harbour with adequate infrastructure built around it, Visakhapatnam has emerged as the capital of deep sea fishing industry of the country.

Lawson's Bay is the major artisanal fish landing centre of Visakhapatnam. Of late, another area close to the Visakhapatnam fishing harbour is developing into an important artisanal fish landing centre because of the fast developing marketing facilities in its vicinity. The annual average fish landings at these two centres are around 680 and 500 t respectively. Year-round fishing activity is noticeable at these two centres. Fishing effort by the artisanal sector in general is intense during February–April followed by June–July. It is quite low during November–January. Catch rates are better during April–June and December–February. However, bulk of the annual fish catch is obtained during February–August.

Hooks and lines and bottom-set gill nets (silk vala) are the main gears employed by the fishermen operating from the three adjacent fishing villages of the Lawson's Bay landing centre, namely, Jalaripeta, Vasavanipalem and Moolapalem, while gill nets and boat seines are the major gears used by the fishermen operating from the other landing centre Kotha Jalaripeta near fisheries harbour. The average catch per unit (C/U) for the different gears are: hooks and line 10 kg, bottom-set gill net 20 kg, gill net 40 kg and boat seine 50 kg. While shore-seine is operated during October–May, the rest of the gears are operated round the year. However, intensity of their operations is as follows: hooks & lines from December to August, bottom-set gill nets from May to September, gill nets from November to July and boat seines from August to February.

The important groups of fishes met with in the artisanal fish landings are: seer fishes 18%, tunas and bill fishes 13%, mackerel 13%, sardines 11%, cat fishes 9%, jacks 7%, whitebait anchovy 5%, sharks 5%, ribbon fishes 4%, rainbow sardine 2%, silver bellies 2% and bulls eye 1%. The important groups caught in the different gears and their species composition are given in the fish calendar.

Mechanised fishing by small boats is also carried out throughout the year. All the boats go for daily day-fishing trips during March–October. During November–February, about 75-80% of these boats goes

for either daily night or stay fishing. In the latter two cases the boats leave in the evening and fish that night, or stay at sea and fish on the following day and night, and return to the base in the morning. During all these trips three hauls each of two hours duration are made during the day, and of three hours duration at night. Thus during the course of a single trip a boat expends about six hours of actual fishing effort in daily day-fishing, nine hours during daily night-fishing, and about 24 hours during stay-fishing.

Over the five year period (1981-'85) monthly trawling effort ranged between 14,117 hrs and 28,622 hrs with the average at 22,886 hrs, monthly fish landings ranged between 361 and 814 t with the average at 525 t and the catch rate ranged between 17 kg/hr and 29 kg/hr with the average at 23 kg/hr. With reference to these average figures, fishing effort was better during July–January, total fish catches during July–October and catch rates during July–September and February–May. Thus both total catches as well as catch rates were better during July–September and this is considered as the best period for the trawl fishery off Visakhapatnam.

Eight groups of fishes form the bulk (68%) of trawler landings. They are threadfin breams 13.5%, prawns 13%, lizard fishes 9.7%, croakers 7.7%, ribbon fishes 7.4%, silver bellies 5.9%, crabs 5.5% and goat fishes 4.9%. Six other groups account for about 17% of the annual catches. They are jacks 3.3%, bulls eye 3.4%, squids and cuttle fishes 3.1%, whitebait and thryssa anchovies 3.0%. The rest of the catch comprises of a variety of small sized fishes.

CARANGIDAE

| | | |
|---|---|---|
| Popular English Name | : | Jacks/Trevallies/Scads/ Horse mackerels |
| Vernacular Name (Telugu) | : | 'Paralu' |
| Annual average catch | : | 304 t |
| Gearwise annual average catch | : | Trawl net : 249 t Drift gill net : 25 t Shore seine and hooks & line : 30 t |
| Fishing methods and their contribution in the gears | : | Drift gill net : 14% Shore seine and hooks & line : 7% Trawl net : 4% |

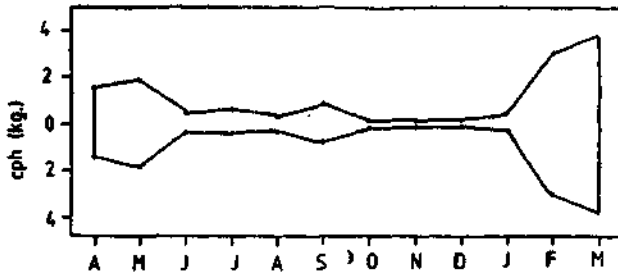


Fig. 1. Seasonal abundance of jacks (gear: shrimp trawl).

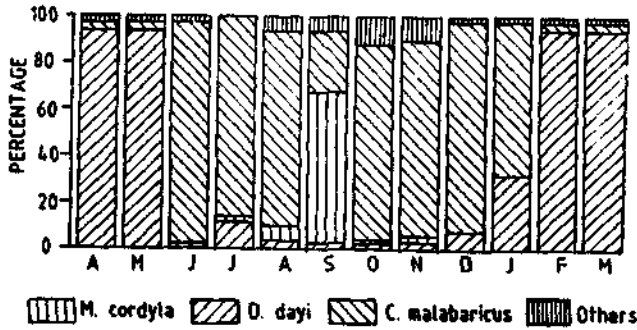


Fig. 2. Monthly species composition of jacks landed by shrimp trawls.

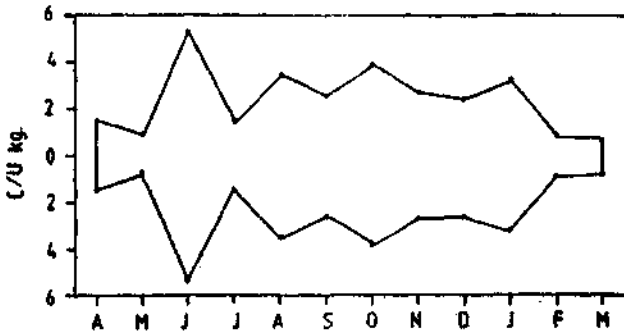


Fig. 3. Seasonal abundance of jacks (gear: gill nets).

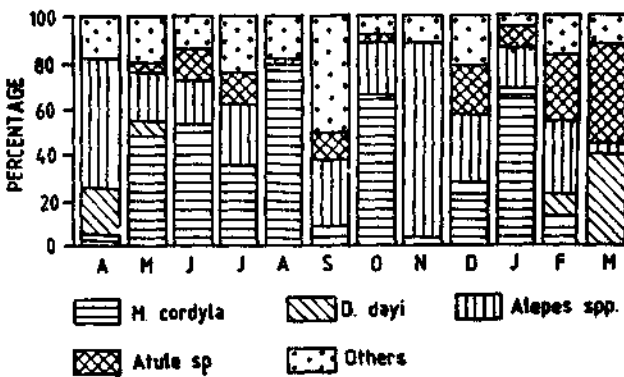


Fig. 4. Monthly species composition of jacks landed by gill nets.



Fig. 5. Seasonal abundance of jacks (gear: other indigenous gears).

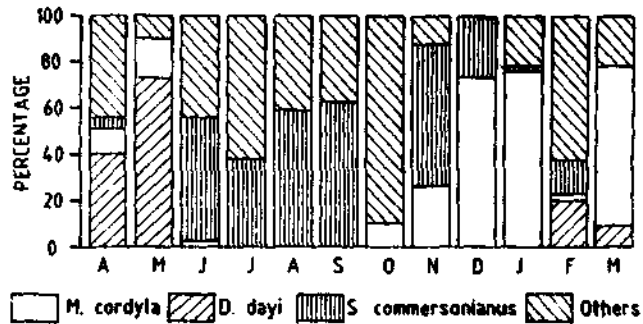


Fig. 6. Monthly abundance of jacks landed by indigenous gears.



Fig. 7. *Megalaspis cordyla*.

| | |
|--------------------------------------|-----------------------------|
| Scientific Name | : <i>Megalaspis cordyla</i> |
| Vernacular Name | : 'Bokkodugu' |
| Gear | : Drift net |
| Percentage in the catch of the group | : Drift net : 44 |
| Peak period of occurrence | : July-January |
| Depth of occurrence | : 20-40 m |
| Length range in commercial fishery | : 175-440 mm |
| Size at first maturity | : 240 mm |
| Spawning season | : March-April |



Fig. 8. *Decapterus dayi*.

Scientific Name : *Decapterus dayi*
 Vernacular Name : 'Pillodugu'
 Gear : Shore seine/Hooks & line/Trawl net
 Percentage in the catch of the group : Shore seine and hooks & line : 27
 Trawl net : 72
 Peak period of occurrence : January-May
 Depth of occurrence : 1-60 m
 Length range in commercial fishery : 30-234 mm
 Size at first maturity : 120-130 mm
 Spawning season : February - March



Fig. 9. *Carangoides malabaricus*.

Scientific Name : *Carangoides malabaricus*
 Vernacular Name : 'Thalampara'
 Gear : Trawl net
 Percentage in the catch of the group : Trawl net : 20
 Peak period of occurrence : June-January
 Depth of occurrence : 10-60 m
 Length range in commercial fishery : 110-270 mm
 Size at first maturity : 150 mm
 Spawning season : March

CLUPEIDAE

Popular English Name : Sardines
 Vernacular Name (Telugu) : 'Kavvallu'
 Annual average catch : 283 t
 Gearwise annual average catch : Gill net : 146 t
 Boat seine : 137 t
 Fishing methods and their contribution in the gears : Gill net : 90%
 Boat seine : 47%



Fig. 10. Seasonal abundance of sardines (gear: gill net).

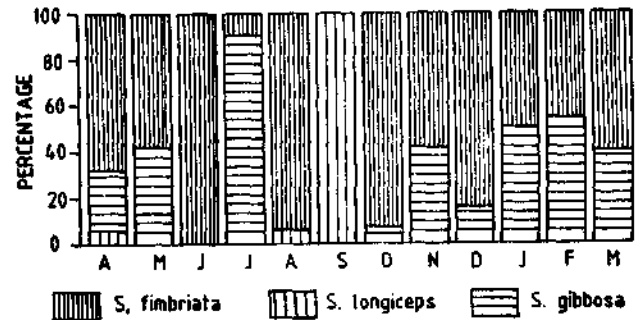


Fig. 11. Monthly species composition of sardines landed by gill nets.

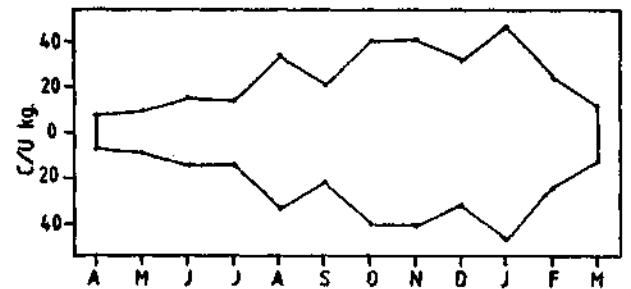


Fig. 12. Seasonal abundance of sardines (gear: other indigenous gears).

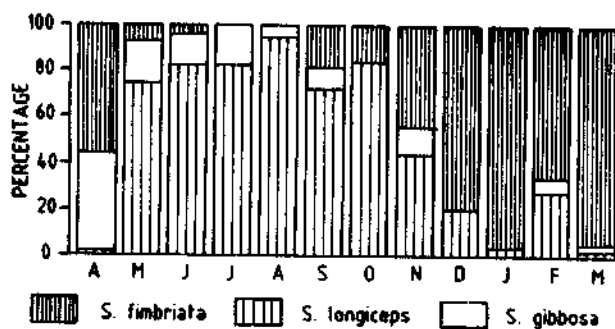


Fig. 13. Monthly species composition of sardines landed by other indigenous gears.

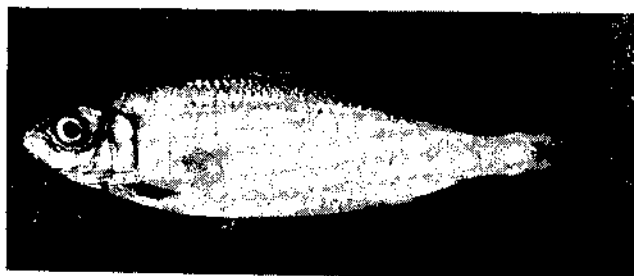


Fig. 14. *Sardinella fimbriata*.

Percentage in the catch of the group : Gill net : 33
Boat seine : 46
Peak period of occurrence : November - March
Depth of occurrence : 10 - 20 m
Length range in commercial fishery : 35 - 180 mm
Size at first maturity : 120 mm
Spawning season : January - May

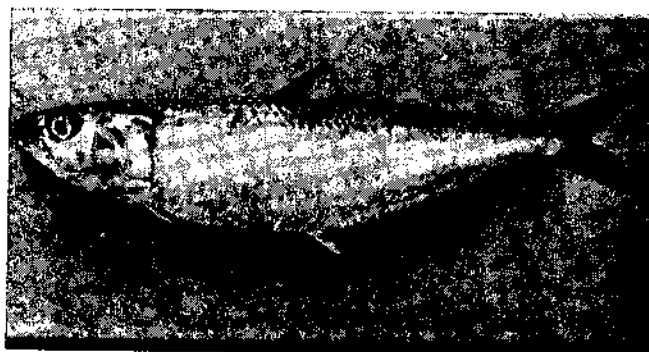


Fig. 16. *Sardinella longiceps*.

Scientific Name : *Sardinella fimbriata*
Vernacular Name : 'Balla kavvallu'
Gear : Gill net/Boat seine
Percentage in the catch of the group : Gill net : 66
Boat seine : 46
Peak period of occurrence : October - March
Depth of occurrence : 10 - 20 m
Length range in commercial fishery : 40 - 195 mm
Size at first maturity : —
Spawning season : July - August

Scientific Name : *Sardinella longiceps*
Vernacular Name : 'Noone kavvallu'
Gear : Gill net/Boat seine
Percentage in the catch of the group : Boat seine : 48
Gill net : 1
Peak period of occurrence : August - November
Depth of occurrence : 10 - 20 m
Length range in commercial fishery : 40 - 205 mm
Size at first maturity : 150 mm
Spawning season : June - September

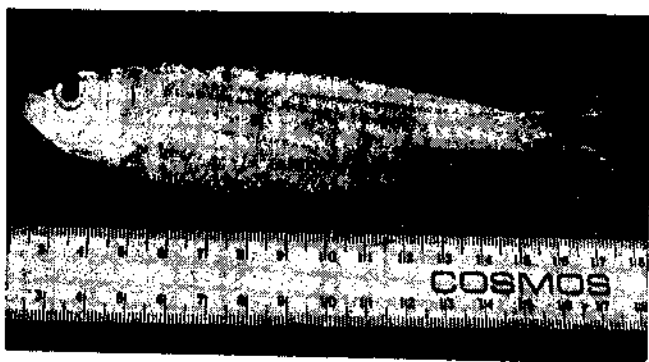


Fig. 15. *Sardinella gibbosa*.

Scientific Name : *Sardinella gibbosa*
Vernacular Name : 'Soodimooti kavvallu'
Gear : Gill net/Boat seine

ELASMOBRANCHS

Popular English Name : Sharks and Skates
Vernacular Name (Telugu) : 'Sorralu'/'Adalam'/'Yalam'
Annual average catch : 55.7 t
Gearwise annual average catch : Hooks & line : 34.9 t
Trawl net : 20.8 t
Fishing methods and their contribution in the gears : Hooks & line : 10.4%
Trawl net : 0.3%

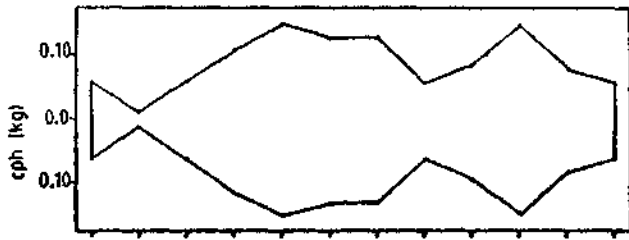


Fig. 17. Seasonal abundance of elasmobranchs (sharks & skates) in trawl nets.

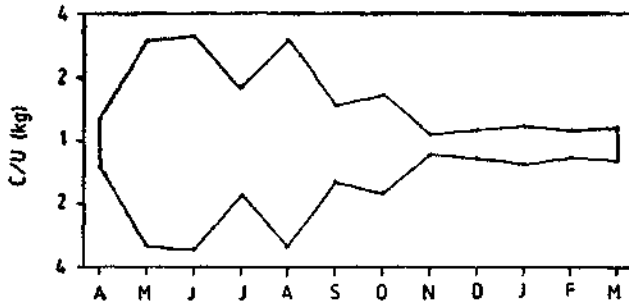


Fig. 18. Seasonal abundance of elasmobranchs (sharks & skates) in hooks and line.

ELASMOBRANCHS

Popular English Name : Rays
 Vernacular Name (Telugu) : 'Tekulu'
 Annual average catch : 60.8 t
 Gearwise annual average catch : Trawl net : 60.8 t
 Fishing methods and their contribution in the gears : Trawl net : 1%

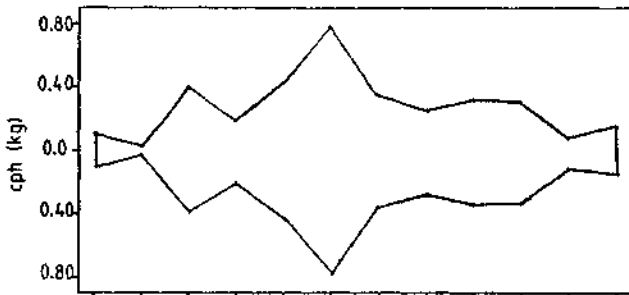


Fig. 19. Seasonal abundance of elasmobranchs (rays) in trawl nets.

ENGRAULIDAE

Popular English Name : Anchovies/Whitebait
 Vernacular Name (Telugu) : 'Nethallu'
 Annual average catch : 176 t

Gearwise annual average catch : Trawl net : 132 t
 Shore seine : 40 t
 Boat seine : 4 t
 Fishing methods and their contribution in the gears : Shore seine : 60%
 Boat seine : 3%
 Trawl net : 1.9%



Fig. 20. Seasonal abundance of whitebait anchovy (gear: shrimp trawls).

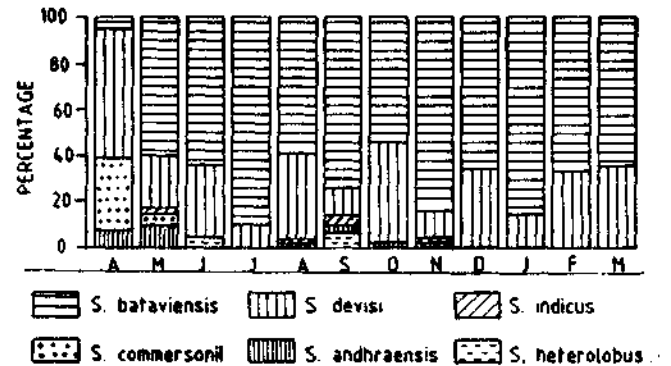


Fig. 21. Monthly species composition of whitebait anchovy landed by shrimp trawls.

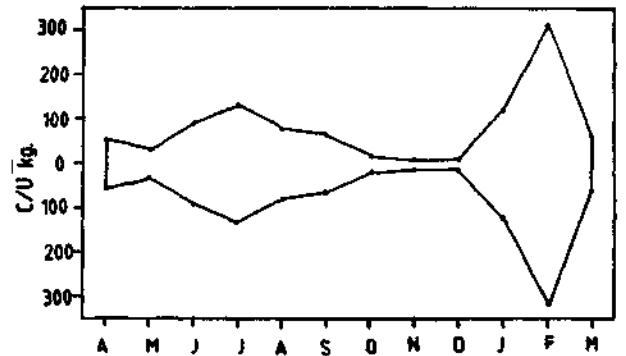


Fig. 22. Seasonal abundance of whitebait anchovy (gear: other indigenous gears).

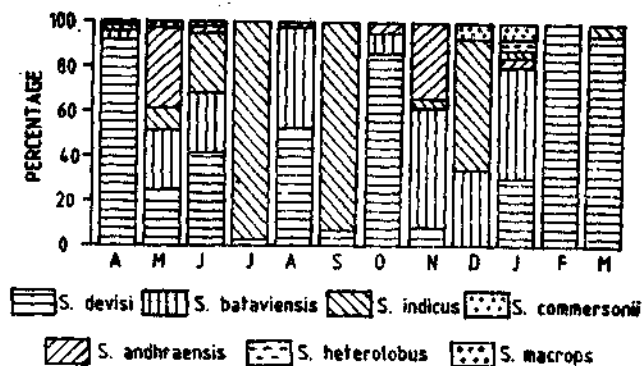


Fig. 23. Monthly species composition of whitebait anchovy landed by other indigenous gears.

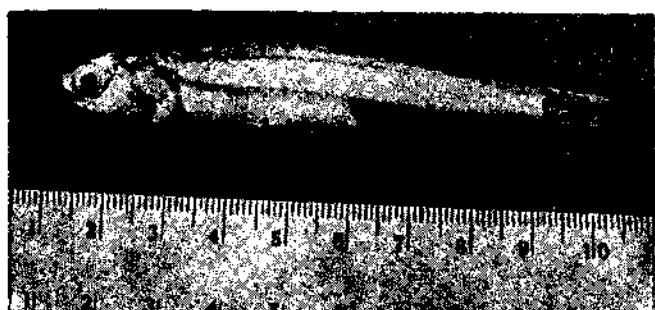


Fig. 24. *Stolephorus devisi*.

Scientific Name : *Stolephorus devisi*
 Vernacular Name : 'Namala nethallu'
 Gear : Trawl net/Shore seine/
 Boat seine

Percentage in the catch of the group : Trawl net : 26
 Shore seine : 95
 Boat seine : 39

Peak period of occurrence : August - May
 Depth of occurrence : 10 - 20 and 40-60 m

Length range in commercial fishery : 30 - 95 mm

Size at first maturity : 60 - 64 mm

Spawning season : February - March,
 June - August and
 October - December

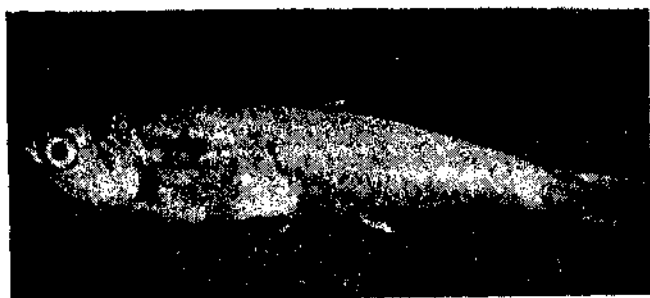


Fig. 25. *Stolephorus bataviensis*.

Scientific Name : *Stolephorus bataviensis*
 Vernacular Name : 'Balla nethallu'
 Gear : Trawl net/Shore seine/
 Boat seine

Percentage in the catch of the group : Trawl net : 70
 Shore seine : 3
 Boat seine : 6

Peak period of occurrence : September - January

Depth of occurrence : 10-20 and 40 - 60 m

Length range in commercial fishery : 35 - 133 mm

Size at first maturity : 80 - 84 mm

Spawning season : February - March,
 June - July and Dec.

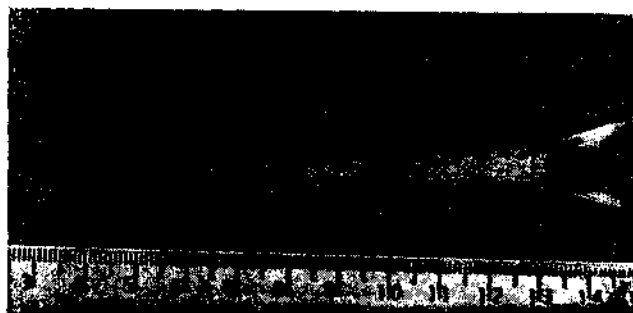


Fig. 26. *Stolephorus indicus*.

Scientific Name : *Stolephorus indicus*
 Vernacular Name : 'Nethallu'
 Gear : Boat seine

Percentage in the catch of the group : Boat seine : 22

Peak period of occurrence : April - September

Depth of occurrence : 10 - 20 m

Length range in commercial fishery : 45 - 160 mm

Size at first maturity : —

Spawning season : —

ENGRAULIDAE

Popular English Name : *Thryssa anchovy*
 Vernacular Name (Telugu) : 'Poravallu'
 Annual average catch : 71 t
 Gearwise annual average catch : Trawl net : 71 t
 Fishing methods and their contribution in the gears : Trawl net : 1%

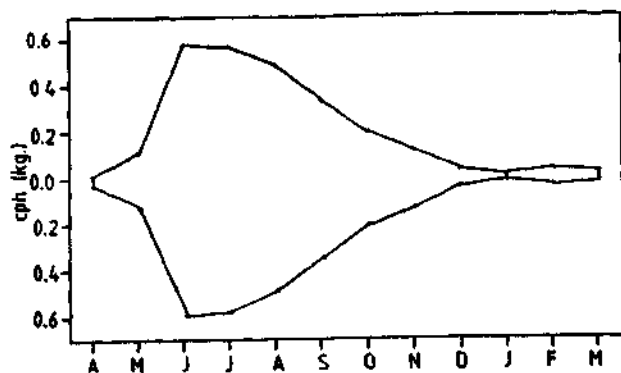


Fig. 27. Seasonal abundance of thryssa anchovy (gear: shrimp trawls).

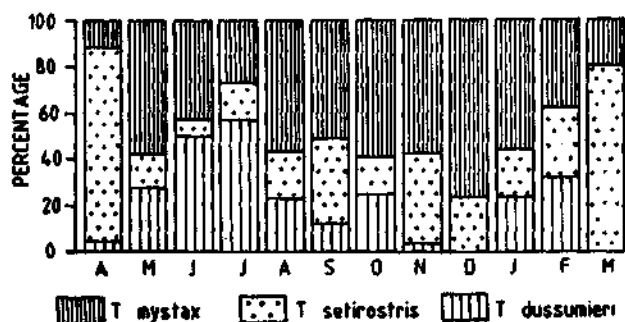


Fig. 28. Monthly species composition of thryssa anchovy landed by shrimp trawls.

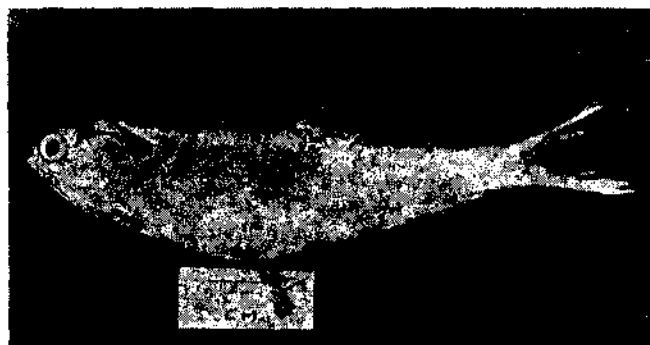


Fig. 29. *Thryssa mystax*.

Scientific Name : *Thryssa mystax*
 Vernacular Name : 'Palli porava'/
 'Nedum porava'
 Gear : Trawl net
 Percentage in the catch of the group : Trawl net : 46
 Peak period of occurrence : June - October
 Depth of occurrence : 40 - 60 m
 Length range in commercial fishery : 65 - 220 mm
 Size at first maturity : —
 Spawning season : —

Scientific Name : *Thryssa dussumieri*
 Vernacular Name : 'Potta porava'
 Gear : Trawl net
 Percentage in the catch of the group : Trawl net : 33
 Peak period of occurrence : June - August
 Depth of occurrence : 40 - 60 m
 Length range in commercial fishery : 70 - 150 mm
 Size at first maturity : —
 Spawning season : —



Fig. 30. *Thryssa setirostris*.

Scientific Name : *Thryssa setirostris*
 Vernacular Name : 'Geddam porava'/'Yeeka porava'
 Gear : Trawl net
 Percentage in the catch of the group : Trawl net : 21
 Peak period of occurrence : July - September
 Depth of occurrence : 40 - 60 m
 Length range in commercial fishery : 80 - 195 mm
 Size at first maturity : —
 Spawning season : —

ISTIOPHORIDAE

Popular English Name : Sail fish
 Vernacular Name (Telugu) : 'Kommu konemu'
 Annual average catch : 22.8 t
 Gearwise annual average catch : Hooks & line : 22.8 t
 Fishing methods and their contribution in the gears : Hooks & line : 7%

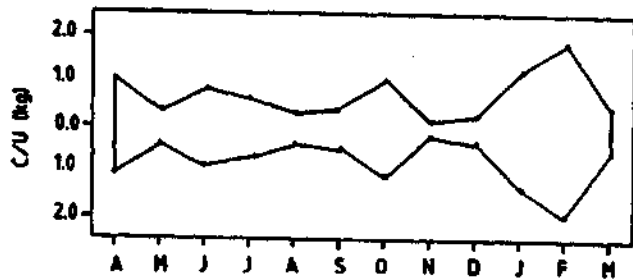


Fig. 31. Seasonal abundance of sail fishes (gear: indigenous gears).

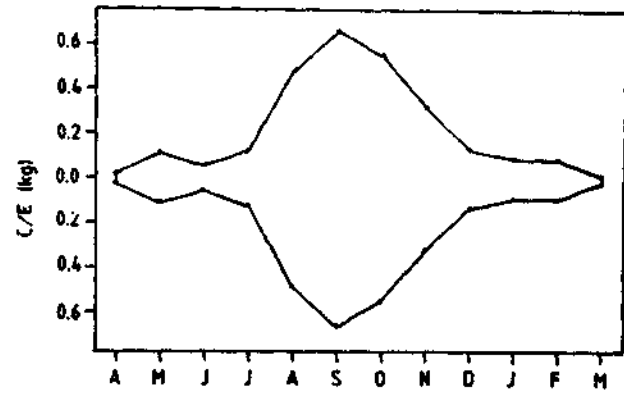


Fig. 33. Seasonal abundance of white fish (gear: indigenous gears).



Fig. 32. *Istiophorus platypterus*.



Fig. 34. *Lactarius lactarius*.

Scientific Name : *Istiophorus platypterus*
 Vernacular Name : 'Kommu konemu'
 Gear : Hooks & line
 Percentage in the catch of the group : Hooks & line : 100
 Peak period of occurrence : January - April
 Depth of occurrence : 30 - 60 m
 Length range in commercial fishery : 1,500 - 1,700 mm
 Size at first maturity : —
 Spawning season : —

LACTARIIDAE

Popular English Name : Big jawed jumper/
 White fish
 Vernacular Name (Telugu) : 'Sudumulu'
 Annual average catch : 74.5 t
 Gearwise annual average catch : Trawl net : 74.5 t
 Fishing methods and their contribution in the gears : Trawl net : 1%

Scientific Name : *Lactarius lactarius*
 Vernacular Name : 'Sudumulu'
 Percentage in the catch of the group : Trawl net : 100
 Peak period of occurrence : July - December
 Depth of occurrence : 10 - 60 m
 Length range in commercial fishery : 45 - 250 mm
 Size at first maturity : 150 mm
 Spawning season : March - April

LEIOGNATHIDAE

Popular English Name : Silver bellies
 Vernacular Name (Telugu) : 'Karalu'
 Annual average catch : 450 t
 Gearwise annual average catch : Trawl net : 450 t
 Fishing methods and their contribution in the gears : Trawl net : 5.7%

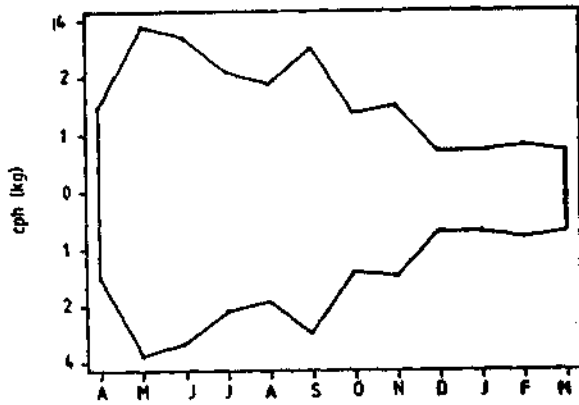


Fig. 35. Seasonal abundance of silver bellies (gear: shrimp trawls).

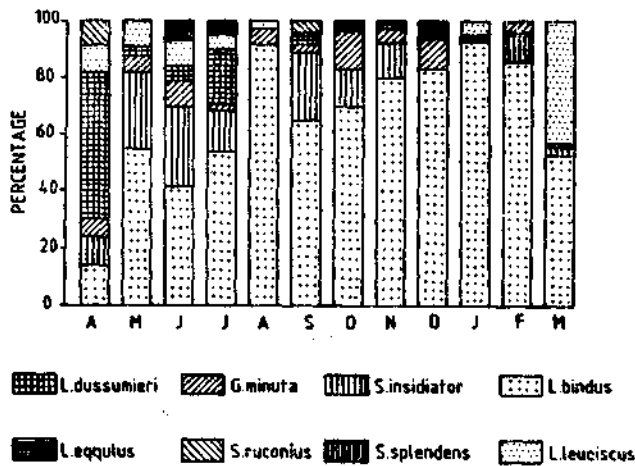


Fig. 36. Monthly species composition of silver bellies landed by shrimp trawls.



Fig. 37. *Leiognathus bindus*.

Scientific Name : *Leiognathus bindus*
 Vernacular Name : 'Karalu'
 Gear : Trawl net
 Percentage in the catch of the group : 69
 Peak period of occurrence : May - September
 Depth of occurrence : 10 - 50 m

Length range in commercial fishery : 20 - 129 mm
 Size at first maturity : 80 mm
 Spawning season : December - February

MULLIDAE

Popular English Name : Goat fishes
 Vernacular Name (Telugu) : 'Gulivindalu'
 Annual average catch : 441 t
 Gearwise annual average catch : Trawl net : 441 t
 Fishing methods and their contribution in the gear : Trawl net : 7%

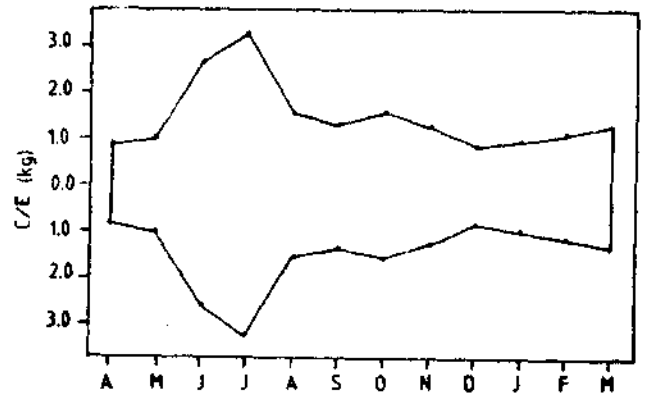


Fig. 38. Seasonal abundance of goat fishes (gear: shrimp trawls)

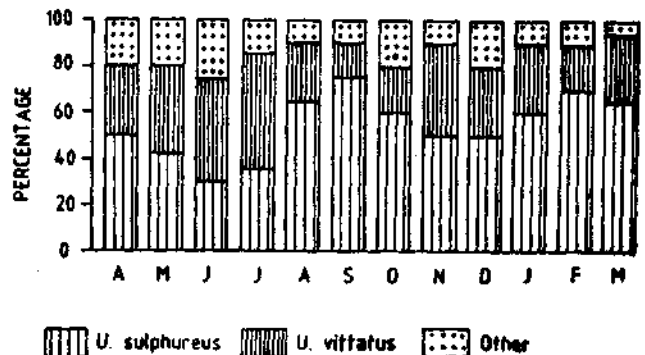


Fig. 39. Monthly species composition of goat fishes landed by shrimp trawls.



Fig. 40. *Upeneus sulphureus*.

Scientific Name : *Upeneus sulphureus*
 Vernacular Name : 'Pasupu gulivindu'
 Gear : Trawl net
 Percentage in the catch of the group : 52
 Peak period of occurrence : August - March
 Depth of occurrence : 10 - 60 m
 Length range in commercial fishery : 65 - 235 mm
 Size at first maturity : 130 mm
 Spawning season : February - March

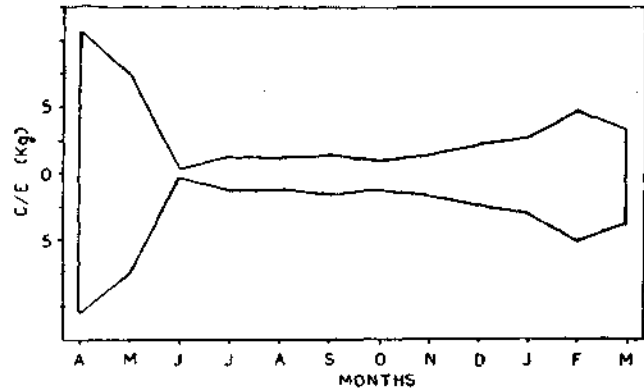


Fig. 42. Seasonal abundance of threadfin breams (gear: shrimp trawls).

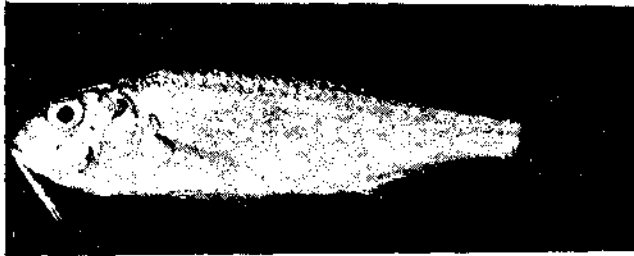


Fig. 41. *Upeneus vittatus*.

Scientific Name : *Upeneus vittatus*
 Vernacular Name : 'Chara gulivindu'
 Gear : Trawl net
 Percentage in the catch of the group : 33
 Peak period of occurrence : April - July
 Depth of occurrence : 10 - 60 m
 Length range in commercial fishery : 100 - 180 mm
 Size at first maturity : 125 mm
 Spawning season : February - March

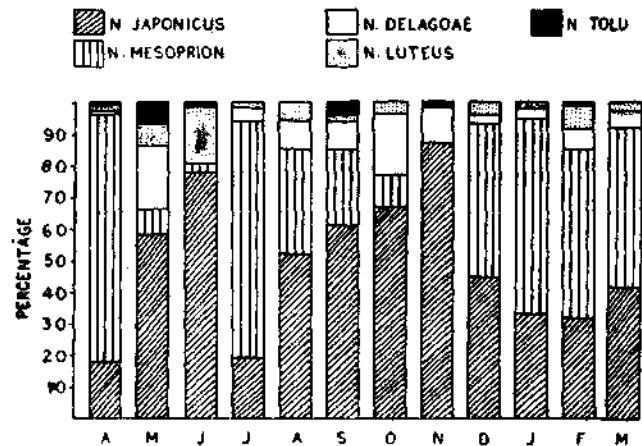


Fig. 43. Monthly species composition of threadfin breams landed by shrimp trawls.

NEMIPTERIDAE

Popular English Name : *Threadfin breams*
 Vernacular Name (Telugu) : 'Gulivindalu'
 Annual average catch : 830 t
 Gearwise annual average catch : Trawl net : 830 t
 Fishing methods and their contribution in the gear : Trawl net : 13.1%

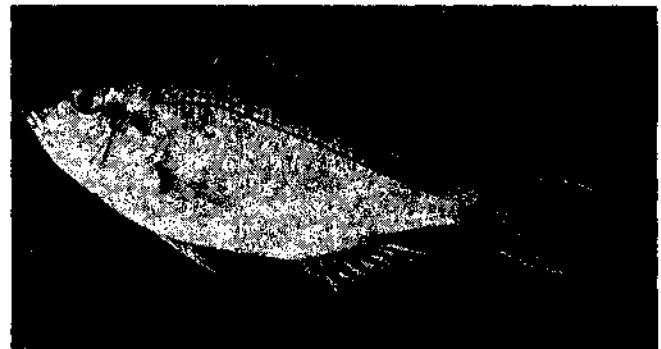


Fig. 44. *Nemipterus japonicus*.

Scientific Name : *Nemipterus japonicus*
 Vernacular Name : 'Bandi gulivindalu'
 Gear : Trawl net
 Percentage in the catch of the group : 38
 Peak period of occurrence : August - January and May - June

Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 50 - 280 mm
 Size at first maturity : 148 mm
 Spawning season : December - February and June - July

Length range in commercial fishery : 100 - 200 mm
 Size at first maturity : —
 Spawning season : —

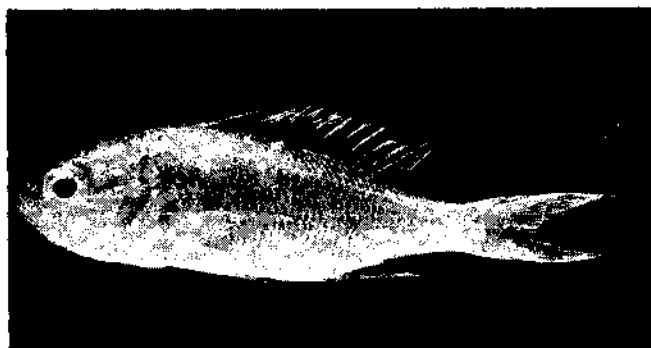


Fig. 45. *Nemipterus mesoprion*.

Scientific Name : *Nemipterus mesoprion*
 Vernacular Name : 'Bandi gulivindalu'
 Gear : Trawl net

Percentage in the catch of the group : 51.8
 Peak period of occurrence : December - April and July - August

Depth of occurrence : 30 - 70 m

Length range in commercial fishery : 80 - 210 mm

Size at first maturity : 147 mm

Spawning season : January - April

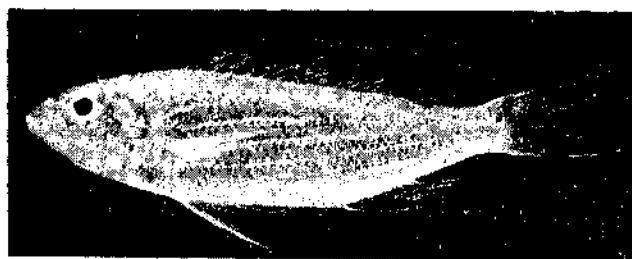


Fig. 46. *Nemipterus delagoae*.

Scientific Name : *Nemipterus delagoae*
 Vernacular Name : 'Gulivindalu'
 Gear : Trawl net

Percentage in the catch of the group : 6
 Peak period of occurrence : May - June and October - November

Depth of occurrence : 30 - 70 m

NOMEIDAE

Popular English Name : Drift fish
 Vernacular Name (Telugu) : 'Methapara'
 Annual average catch : 123 t
 Gearwise annual average catch : Trawl net : 123 t
 Fishing methods and their contribution in the gears: Trawl net : 2%



Fig. 47. Seasonal abundance of Indian drift fishes (gear: shrimp trawls).

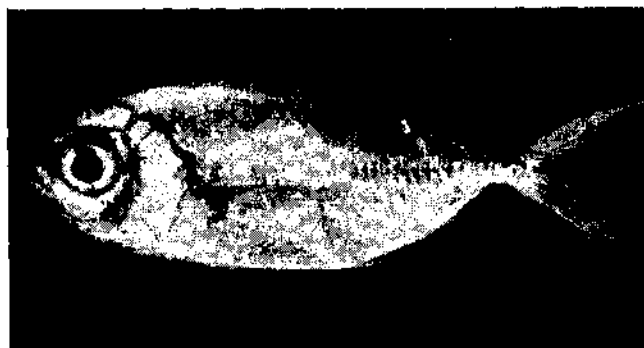


Fig. 48. *Psenes indicus*.

Scientific Name : *Psenes indicus*
 Vernacular Name : 'Methapara'
 Gear : Trawl net

Percentage in the catch of the group : 100
 Peak period of occurrence : February - July
 Depth of occurrence : 10 - 60 m

Length range in commercial fishery : 60 - 275 mm

Size at first maturity : 160 mm

Spawning season : February - June

POLYNEMIDAE

Popular English Name : Threadfins
 Vernacular Name (Telugu) : 'Magalu'
 Annual average catch : 53 t
 Gearwise annual average catch : Trawl net : 53 t
 Fishing methods and their contribution in the gears : Trawl net : 1%

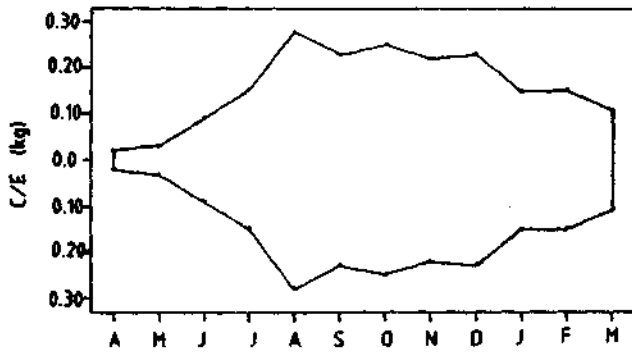


Fig. 49. Seasonal abundance of black spot threadfins (gear: shrimp trawls).

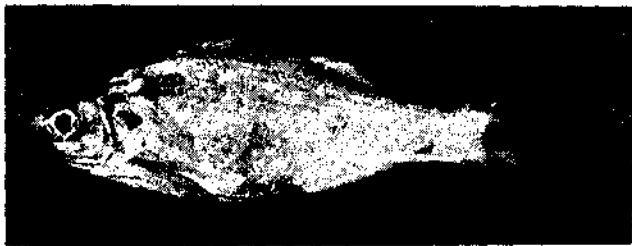


Fig. 50. *Polynemus sextarius*.

Scientific Name : *Polynemus sextarius*
 Vernacular Name : 'Maga'
 Gear : Trawl net
 Percentage in the catch of the group : 100
 Peak period of occurrence : August - December
 Depth of occurrence : 10 - 60 m
 Length range in commercial fishery : 100 - 210 mm
 Size at first maturity : 170 mm
 Spawning season : January - May

PRIACANTHIDAE

Popular English Name : Bulls eye/Big eye
 Vernacular Name (Telugu) : 'Bochulu'
 Annual average catch : 219 t
 Gearwise annual average catch : Trawl net : 219 t

Fishing methods and their contribution in the gears : Trawl net : 3.4%

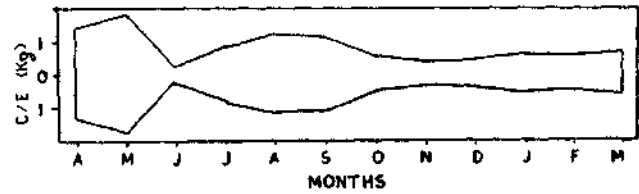


Fig. 51. Seasonal abundance of bulls eye (gear: shrimp trawl).

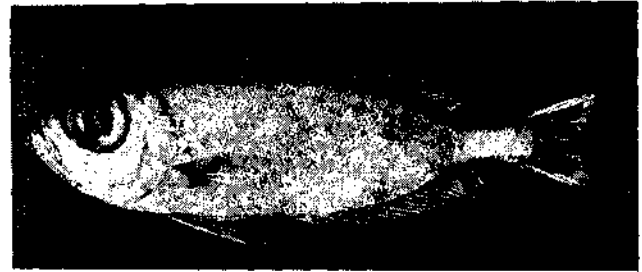


Fig. 52. *Priacanthus macrocanthus*.

Scientific Name : *Priacanthus macrocanthus*
 Vernacular Name : 'Bochulu'
 Gear : Trawl net
 Percentage in the catch of the group : 90
 Peak period of occurrence : August - March
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 100 - 230 mm
 Size at first maturity : 170 mm
 Spawning season : November - May

SCIAENIDAE

Popular English Name : Croakers/Jew fish
 Vernacular Name (Telugu) : 'Gorasalu'
 Annual average catch : 502 t
 Gearwise annual average catch : Trawl net : 503 t
 Fishing methods and their contribution in the gears : Trawl net : 7.9%

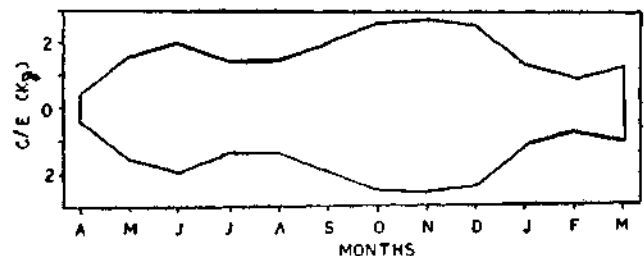


Fig. 53. Seasonal abundance of croakers (gear: shrimp trawls).

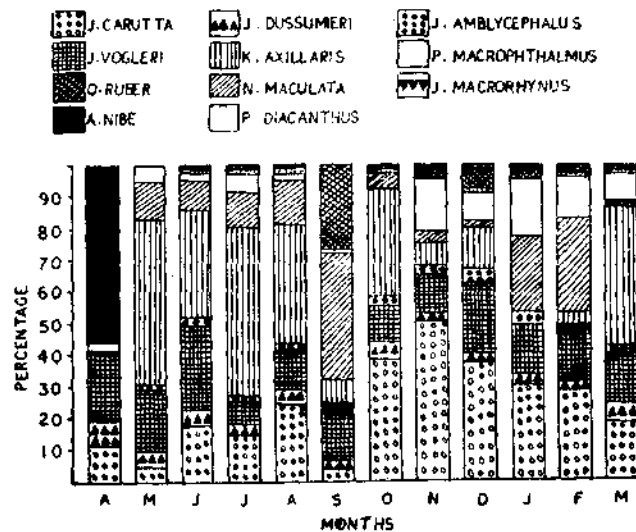


Fig. 54. Monthly species composition of croakers landed by shrimp trawls.

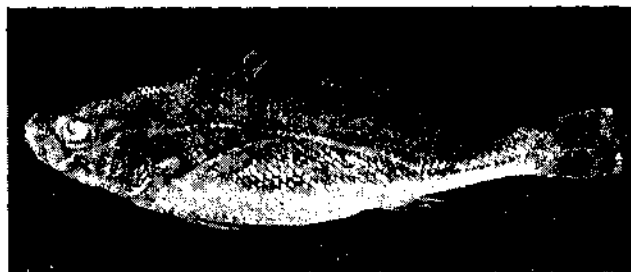


Fig. 55. *Johnius carutta*.

Scientific Name : *Johnius carutta*
 Vernacular Name : 'Nalla gorasa'
 Gear : Trawl net
 Percentage in the catch of the group : 26
 Peak period of occurrence : October - February
 Depth of occurrence : 20 - 70 m
 Length range in commercial fishery : 40 - 240 mm
 Size at first maturity : 170 mm
 Spawning season : January - March



Fig. 56. *Kathala axillaris*.

Scientific Name : *Kathala axillaris*
 Vernacular Name : 'Gorasa'
 Gear : Trawl net
 Percentage in the catch of the group : 25.3
 Peak period of occurrence : July - August and October
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 50 - 150 mm
 Size at first maturity : 155 mm
 Spawning season : —



Fig. 57. *Nibea maculata*.

Scientific Name : *Nibea maculata*
 Vernacular Name : 'Macha gorasa'
 Gear : Trawl net
 Percentage in the catch of the group : 12.6
 Peak period of occurrence : May - September and January - February
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 70 - 240 mm
 Size at first maturity : 160 mm
 Spawning season : —

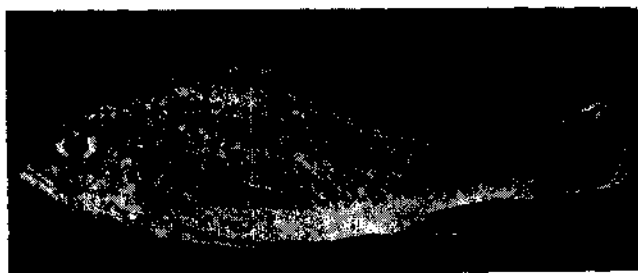


Fig. 58. *Pennahia macrophthalmus*.

Scientific Name : *Pennahia macrophthalmus*
 Vernacular Name : 'Gorasalu'
 Gear : Trawl net
 Percentage in the catch of the group : 5.7
 Peak period of occurrence : November - February
 Depth of occurrence : 20 - 70 m
 Length range in commercial fishery : 100 - 240 mm
 Size at first maturity : 172 mm
 Spawning season : December - March

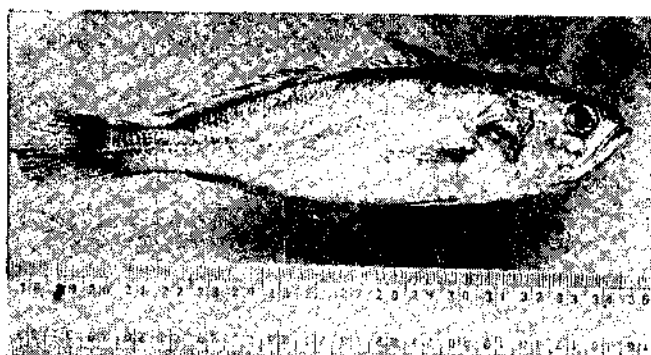


Fig. 59. *Otolithes ruber*.

Scientific Name : *Otolithes ruber*
 Vernacular Name : 'Villi gorasa'
 Gear : Trawl net
 Percentage in the catch of the group : 5.6
 Peak period of occurrence : September
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 150 - 300 mm
 Size at first maturity : —
 Spawning season : —



Fig. 60. *Johnieops vogleri*.

Scientific Name : *Johnieops vogleri*
 Vernacular Name : 'Gorasa'
 Gear : Trawl net
 Percentage in the catch of the group : 16
 Peak period of occurrence : March - June and Dec.
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 100 - 235 mm
 Size at first maturity : 152 mm
 Spawning season : February - April



Fig. 61. *Johnieops dussumieri*.

Scientific Name : *Johnieops dussumieri*
 Vernacular Name : 'Gorasa'
 Gear : Trawl net
 Percentage in the catch of the group : 4.3
 Peak period of occurrence : February
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 100 - 180 mm
 Size at first maturity : —
 Spawning season : —



Fig. 62. *Protonibea diacanthus*.

Scientific Name : *Protonibea diacanthus*
 Vernacular Name : 'Ghol'
 Gear : Trawl net
 Percentage in the catch of the group : 1
 Peak period of occurrence : September
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 150 - 750 mm
 Size at first maturity : —
 Spawning season : —

SCOMBRIDAE

TUNAS

Popular English Name : Tuna
 Vernacular Name (Telugu) : 'Soora'
 Annual average catch : 47.7 t
 Gearwise annual average catch : Hooks & line : 47.7 t
 Fishing methods and their contribution in the gears : Hooks & line : 15.1%

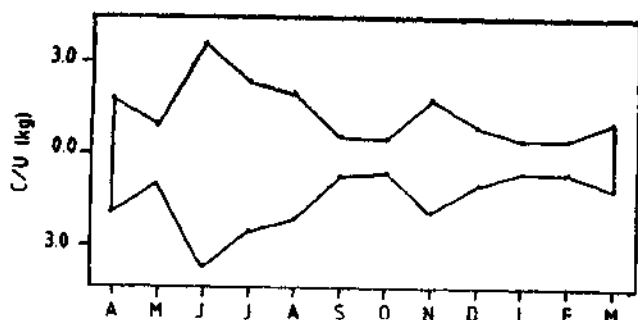


Fig. 63. Seasonal abundance of tunas (gear : indigenous gears).

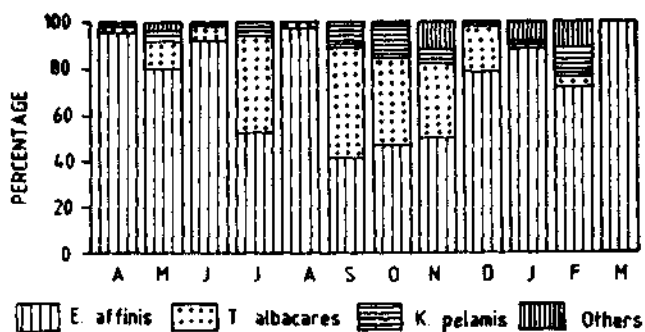


Fig. 64. Monthly species composition of tunas landed by indigenous gears.

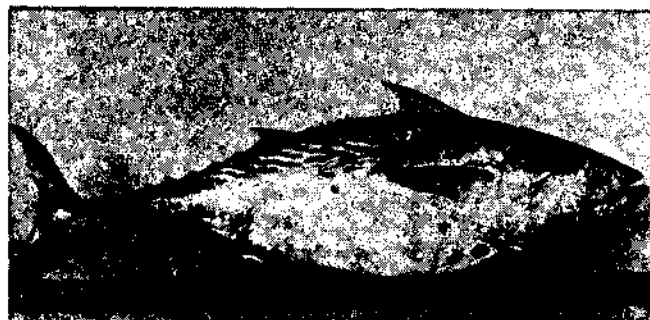


Fig. 65. *Euthynnus affinis*.

Scientific Name : *Euthynnus affinis*
 Vernacular Name : 'Pala soora'
 Gear : Hooks & line
 Percentage in the catch of the group : 79.9
 Peak period of occurrence : June - August
 Depth of occurrence : 30 - 60 m
 Length range in commercial fishery : 45 - 55 mm
 Size at first maturity : —
 Spawning season : —

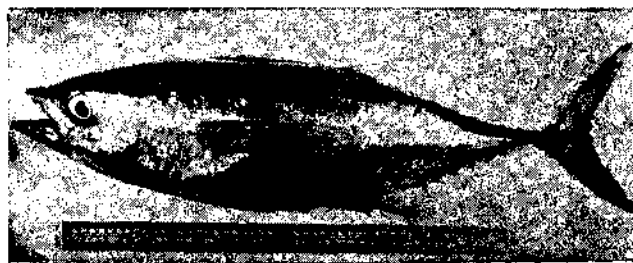


Fig. 66. *Thunnus albacares*.

Scientific Name : *Thunnus albacares*
 Vernacular Name : 'Racca soora'
 Gear : Hooks & line

Percentage in the catch of the group : 15.2
 Peak period of occurrence : June - July and November
 Depth of occurrence : 30 - 60 m
 Length range in commercial fishery : 55 - 70 mm
 Size at first maturity : —
 Spawning season : —

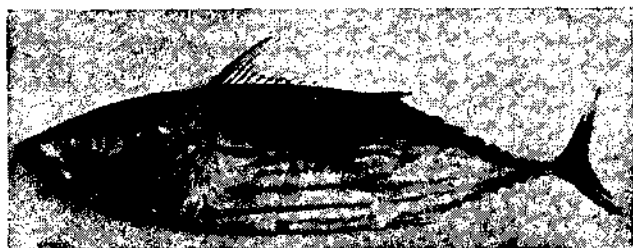


Fig. 67. *Katsuwonus pelamis*.

Scientific Name : *Katsuwonus pelamis*
 Vernacular Name : 'Namala soora'
 Gear : Hooks & line
 Percentage in the catch of the group : 2.2
 Peak period of occurrence : October - November
 Depth of occurrence : 30 - 60 m
 Length range in commercial fishery : 50 - 70 mm
 Size at first maturity : —
 Spawning season : —

SEER FISHES

Popular English Name : Seer fishes
 Vernacular Name (Telugu) : 'Vanjaram'/'Konemu'
 Annual average catch : 120 t
 Gearwise annual average catch : Hooks & line : 105 t
 Bottom set gill net : 15 t
 Fishing methods and their contribution in the gears : Hooks & line : 33%
 Bottom set gill net : 9%

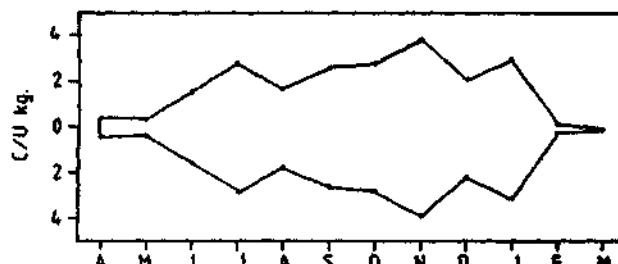


Fig. 68. Seasonal abundance of seer fishes (gear: gill nets).

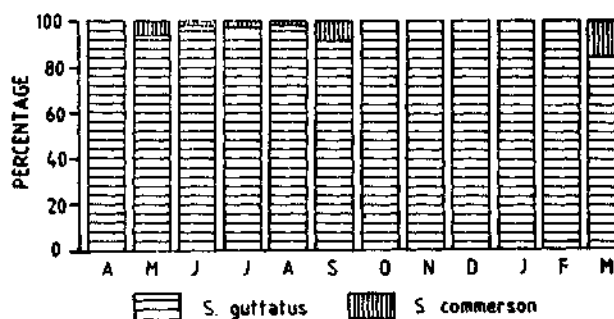


Fig. 69. Monthly abundance of seer fishes landed by gill nets.

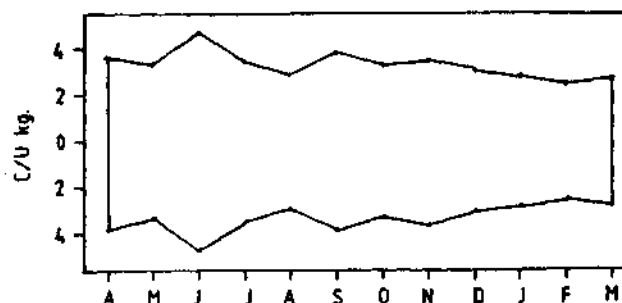


Fig. 70. Seasonal abundance of seer fishes (gear: indigenous gears).

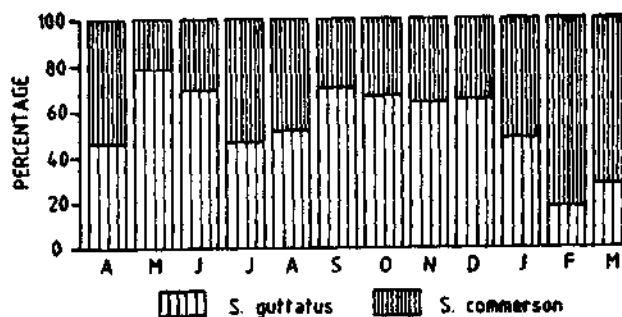


Fig. 71. Monthly abundance of seer fishes landed by indigenous gears.

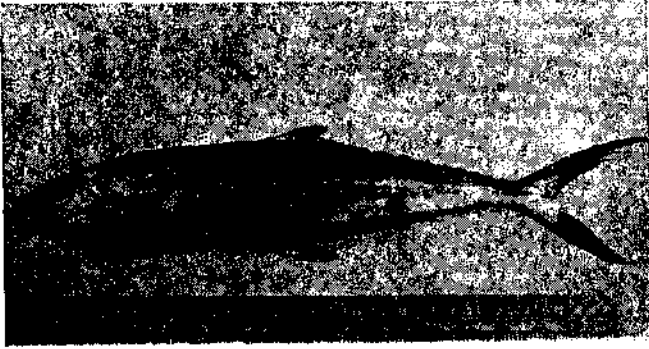


Fig. 72. *Scomberomorus guttatus*.

Scientific Name : *Scomberomorus guttatus*
 Vernacular Name : 'Vanjaram'
 Gear : Hooks & line/
 Bottom set gill net
 Percentage in the catch of
 the group : Hooks & line : 55
 Bottom set gill net : 98
 Peak period of occurrence : May - July / September-
 October and January
 Depth of occurrence : 20 - 100 m
 Length range in
 commercial fishery : 300 - 800 mm
 Size at first maturity : 300 mm
 Spawning season : February - March and
 July

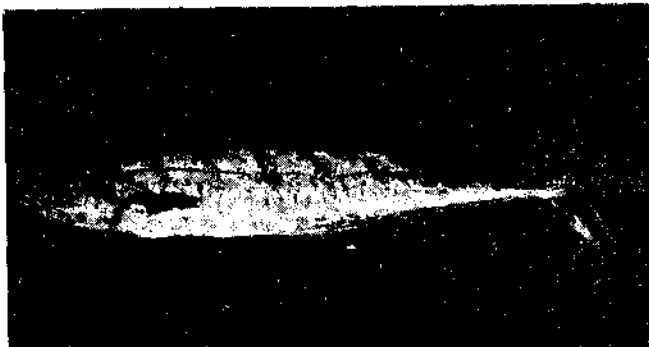


Fig. 73. *Scomberomorus commerson*.

Scientific Name : *Scomberomorus commerson*
 Vernacular Name : 'Konemu'
 Gear : Hooks & line/Bottom
 set gill net
 Percentage in the catch of
 the group : Hooks & line : 45
 Bottom set
 gill net : 2
 Peak period of occurrence : February - April and
 July

Depth of occurrence : 50 - 100 m
 Length range in
 commercial fishery : 400 - 1000 mm
 Size at first maturity : —
 Spawning season : —

MACKEREL

Popular English Name : Indian Mackerel
 Vernacular Name (Telugu) : 'Kanagurta'
 Annual average catch : 134 t
 Gearwise annual
 average catch : Drift gill net : 94 t
 Trawl net : 32 t
 Shore seine &
 boat seine : 8 t

Fishing methods and their :
 contribution in the gear : Drift gill net : 67%
 Shore seine &
 boat seine : 3%
 Trawl net : 0.5%



Fig. 74. Seasonal abundance of mackerel in gill nets.

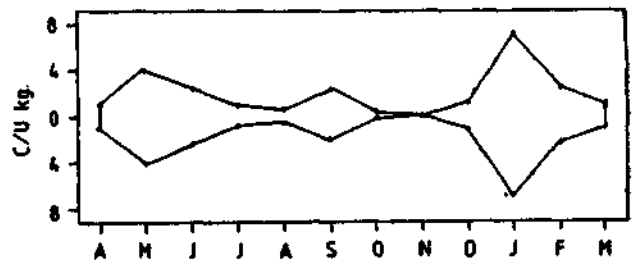


Fig. 75. Seasonal abundance of mackerel in indigenous gears.

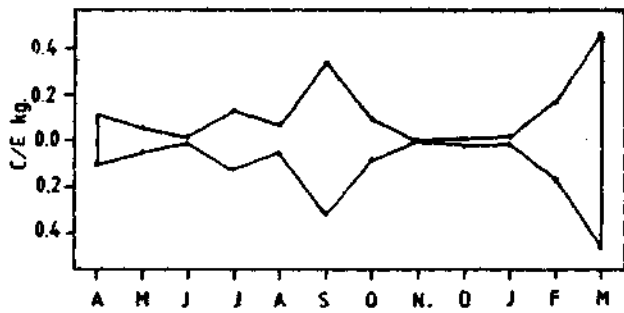


Fig. 76. Seasonal abundance of mackerel in trawl nets.

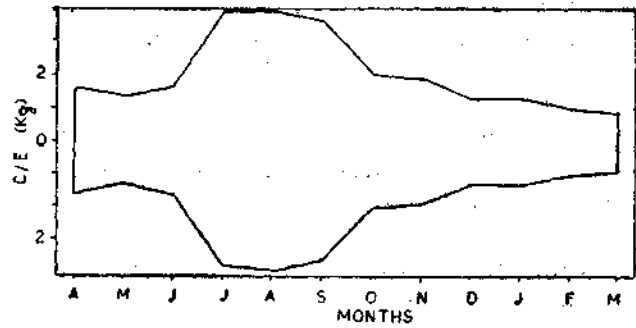


Fig. 78. Seasonal abundance of lizard fishes (gear: shrimp trawl)

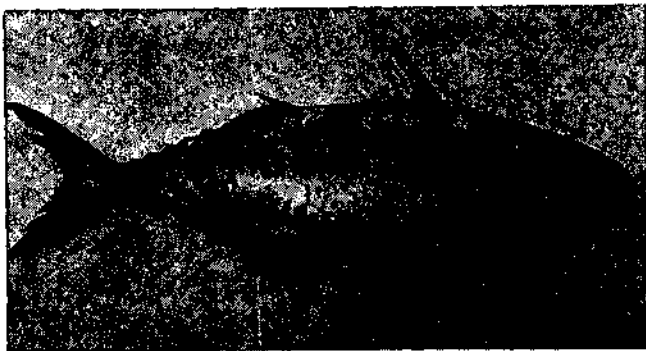


Fig. 77. *Rastrelliger kanagurta*.

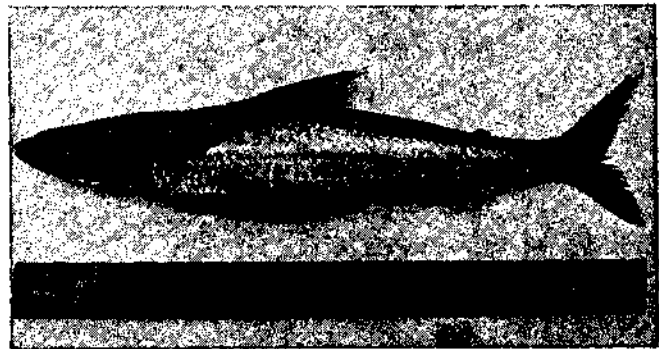


Fig. 79. *Saurida tumbil*.

Scientific Name : *Rastrelliger kanagurta*
 Vernacular Name : 'Kanagurta'
 Gear : Drift gill net/Trawl net/
 Boat seine/Shore seine

Percentage composition in
 the gear : Drift gill net : 98
 Shore seine &
 boat seine : 100
 Trawl net : 100

Peak period of occurrence : January - May
 Depth of occurrence : 1 - 60 m
 Length range in
 commercial fishery : 40 - 270 mm
 Size at first maturity : 185 mm
 Spawning season : October - April

SYNODONTIDAE

Popular English Name : Lizard fishes
 Vernacular Name (Telugu) : 'Bademattalu'
 Annual average catch : 625 t
 Gearwise annual
 average catch : Trawl net : 625 t
 Fishing methods and their
 contribution in the gears : Trawl net : 9.8%

Scientific Name : *Saurida tumbil*
 Vernacular Name : 'Bademattalu'
 Gear : Trawl net
 Percentage in the catch
 of the group : Trawl net : 60
 Peak period of occurrence : July - September
 Depth of occurrence : 30 - 70 m
 Length range in
 commercial fishery : 40 - 320 mm
 Size at first maturity : —
 Spawning season : October - March

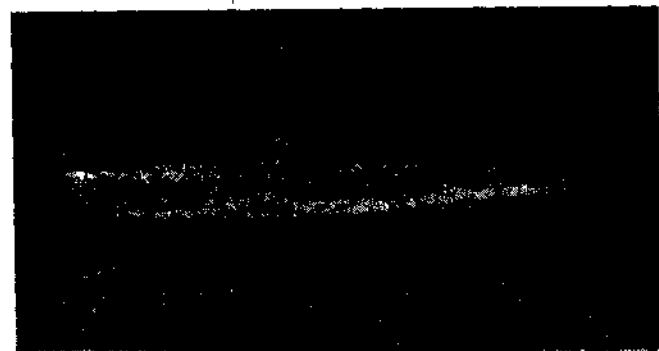


Fig. 80. *Saurida unidosquamis*.

Scientific Name : *Saurida undosquamis*
 Vernacular Name : 'Bademattalu'
 Gear : Trawl net
 Percentage in the catch of the group : Trawl net : 35
 Peak period of occurrence : July - September
 Depth of occurrence : 30 - 70 m
 Length range in commercial fishery : 50 - 210 mm
 Size at first maturity : —
 Spawning season : —

TACHYSURIDAE

Popular English Name : Cat fish
 Vernacular Name (Telugu) : 'Jellalu'
 Annual average catch : 179.1 t
 Gearwise annual average catch : Trawl net : 124.4 t
 Hooks & line : 54.7 t
 Fishing methods and their contribution in the gears : Hooks & line : 15.5%
 Trawl net : 1.7%

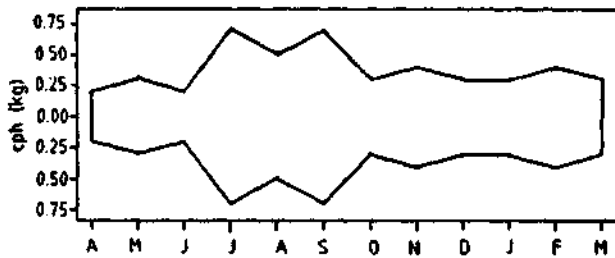


Fig. 81. Seasonal abundance of cat fish (gear: shrimp trawl)

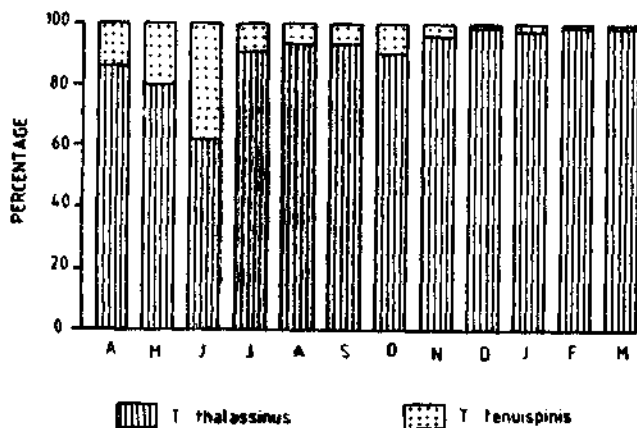


Fig. 82. Monthly species composition of cat fish landed by shrimp trawls.

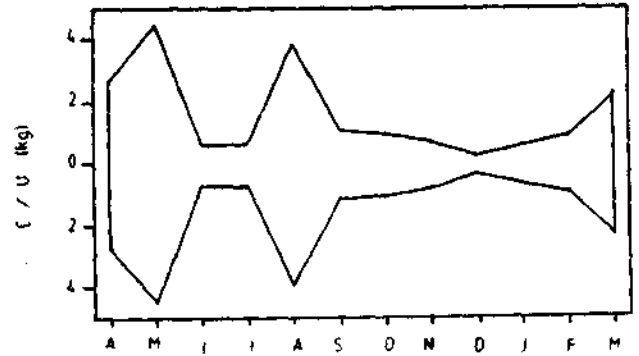


Fig. 83. Seasonal abundance of cat fish (gear: other indigenous gears).

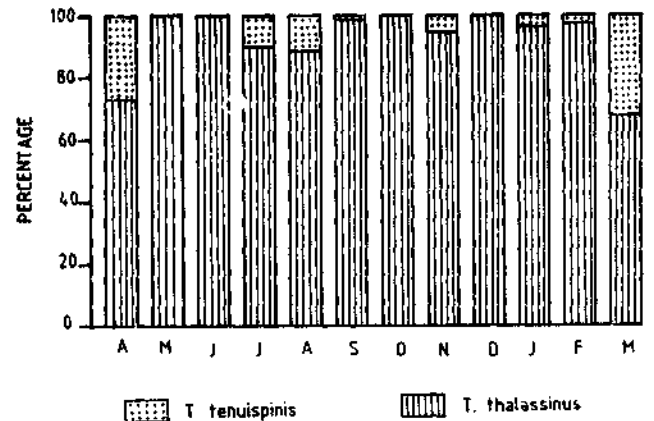


Fig. 84. Monthly species composition of cat fish landed by other indigenous gears.



Fig. 85. *Tachysurus thalassinus*.

Scientific Name : *Tachysurus thalassinus*
 Vernacular Name : 'Thella jalla'
 Gear : Trawl net/Hooks & line
 Percentage in the catch of the group : Trawl net : 1.7
 Hooks & line : 15.6
 Peak period of occurrence : March - December
 Depth of occurrence : 10 - 80 m
 Length range in commercial fishery : 80 - 660 mm
 Size at first maturity : 360 mm
 Spawning season : May - July

TRICHIURIDAE

Popular English Name : Ribbon fishes
 Vernacular Name (Telugu) : 'Savallu'
 Annual average catch : 574.4 t
 Gearwise annual average catch : Trawl net : 574.4 t
 Fishing methods and their contribution in the gears : Trawl net : 8%

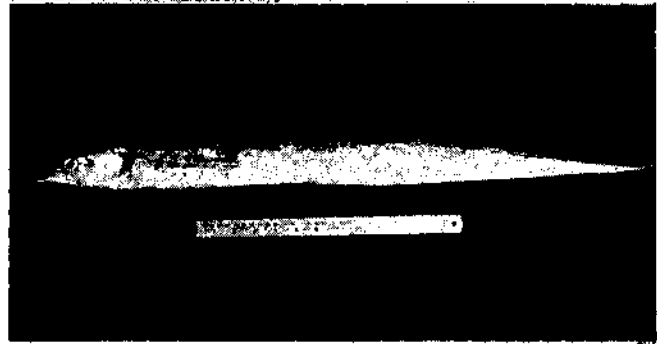


Fig. 88. *Trichiurus lepturus*.

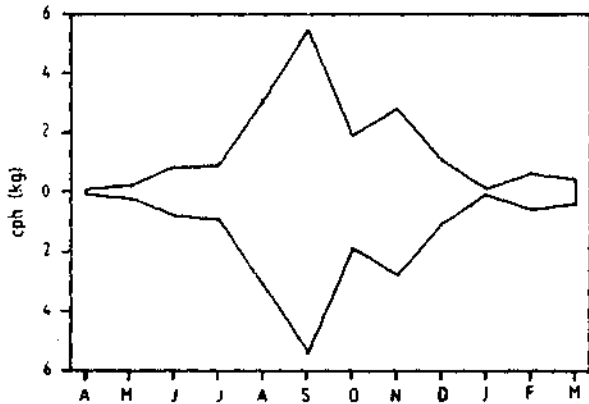


Fig. 86. Seasonal abundance of ribbon fishes (gear: shrimp trawls).

Scientific Name : *Trichiurus lepturus*
 Vernacular Name : 'Savallu'
 Gear : Trawl net
 Percentage in the catch of the group : 96.4
 Peak period of occurrence : July - November
 Depth of occurrence : 10 - 80 m
 Length range in commercial fishery : 150 - 1000 mm
 Size at first maturity : 525 mm
 Spawning season : February - June

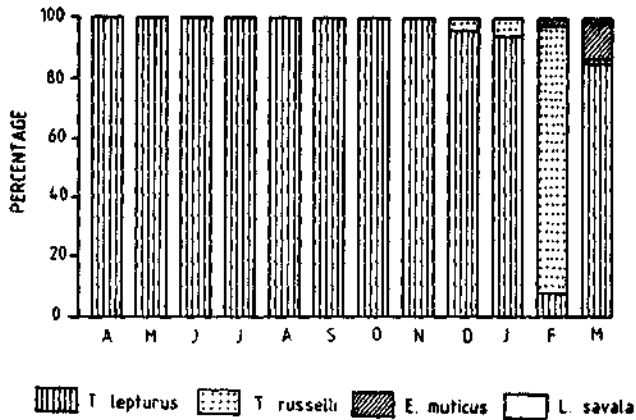


Fig. 87. Monthly species composition of ribbon fishes landed by shrimp trawls.

