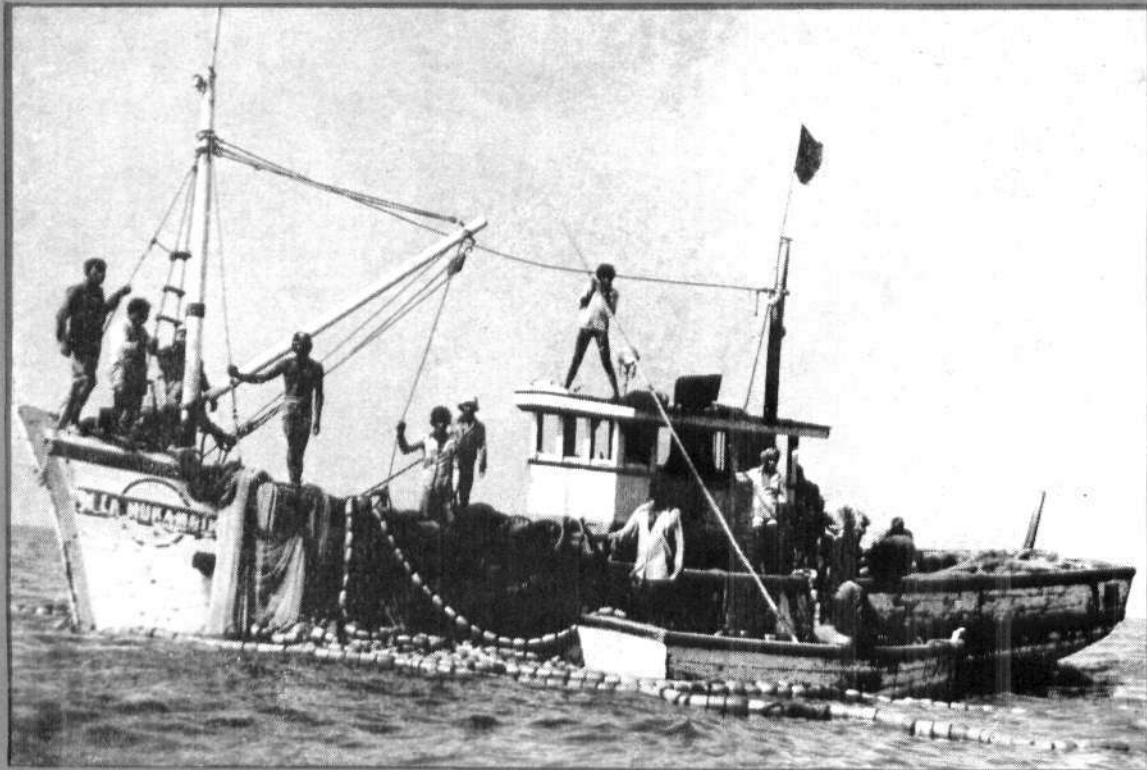




# MARINE FISHERIES INFORMATION SERVICE



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CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

COCHIN, INDIA

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

# MARINE FISH CALENDAR

## 1. MANGALORE\*

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### Introduction

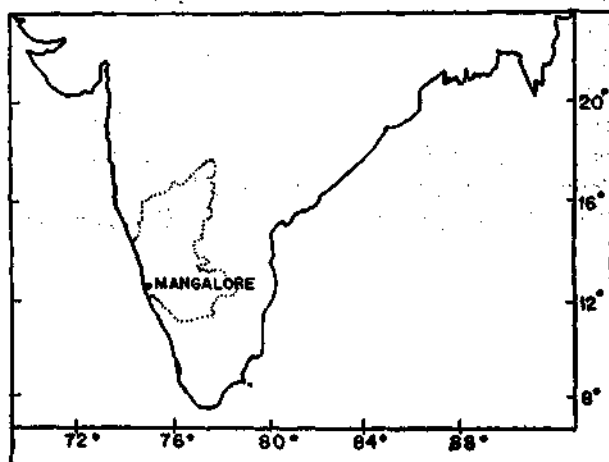
Mangalore, one of the major fish landing centres of Karnataka, produces annually 43,559 t of fish forming about 33% of the state's marine fish landings. Prior to early seventies the principal gears employed in the fishery were shrimp trawls and indigenous gears viz., 'Rampani', small shore seines, cast nets and gill nets. In the late seventies, the fishing pattern underwent a major change with the introduction of purse seine, augmenting fleet strength of shrimp trawls and mechanisation of gill net crafts. Of the present average annual production (1981-'85) at Mangalore, the purse seiners account for the bulk of the catch, with 33,850 t which forms 78% of the total all fish catch followed by shrimp trawlers with 9,302 t (21%) and gill netters 407 t (1%).

Fishing operations are carried out within 50 m depth between Kaup in the north (45 km) and Kasaragod in the south (40 km). During the peak season (Sep.-Jan.) fishing by purse seines for major pelagics is conducted around 10-20 m depth with extension upto 35 m depth in other months. The area within 15 km from the shore, forms the trawling ground for demersal fishes and crustaceans. The area between 15 and 45 m depth provides the fishing ground for drift gill netters for larger pelagics.

The fishing season commences in September (at the end of the southwest monsoon) and extends upto the end of May (the beginning of southwest monsoon). The peak period of production by purse seiners is from September-December when about 76% of the annual catch by this gear is obtained. The average monthly catch for the above period is 6,462 t. The peak month is October contributing 8,760 t which is equal to 26%

of the annual catch. The catch slides down from December and the average monthly catch during the lean season (January-May) is 1,588 t. For trawlers, best season is during January-April which produces 72% of the annual trawl catch with a monthly average catch of 2,413 t. Maximum production takes place in March forming 30% (2,862 t) of the annual catch. Decline in production starts from May touching the lowest in September-November and an upward trend is seen from December onwards. Drift gill netters have productive period in September-January with an average monthly catch of 76 t. About 93% of the annual drift net catch is realised during this period. The highest landings are in October and November with an estimated catch of 123 and 125 t respectively. The landings decline from February to May; the monthly average catch during this lean season being 7 t. The period from June to August is a closed season when no fishing is done.

By and large, the fish landings in the Mangalore region are dominated by pelagics forming 75%. Demersal varieties contribute 25%. The predominant species/



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

groups among the pelagic component are oil sardine (forming 44.3% of the total marine fish catch), mackerel (10.5%), anchovies (8.4%), carangids (4.0%), tuna (2.3%), lesser sardines (2.0%), cat fishes (5.3%), threadfin breams (2.3%), soles (2.0%), lizard fishes (1.0%) and silver bellies (1.0%) in the demersal component.

For the preparation of this 'Fish Calendar', fish landing data of purse seiners and drift gill netters collected by this Research Centre from 1981 to '85 and trawls from 1986 to '87 have been utilised for gear-wise species composition and seasonal abundance studies. However, in the case of trawls, the annual fish landing data for the Mangalore Centre for the periods 1983-'84 and 1984-'85 have been considered for annual average catch studies of individual species/group.

It should, however, be stressed here that the account on fish calendar outlined here is not exhaustive, and it needs to be updated as and when more information are available especially with regard to demersal fisheries.

#### CARANGIDAE

Popular English Name	: Trevallies/Horse mackerels/Scads
Vernacular Name (Kannada)	: 'Bathi'/'Thakatte'/'Kodande'/'Tidema'/'Melagu meenu'/'Palai meenu'
Annual average catch	: 1,745.3 t.
Gear wise annual average catch	: Purse seine : 1,210.48 t Trawl net : 529.48 t Drift gill net : 5.32 t
Fishing methods and their contribution in total catch	: Purse seine : 3.6% Trawl net : 5.7% Drift gill net : 1.3%

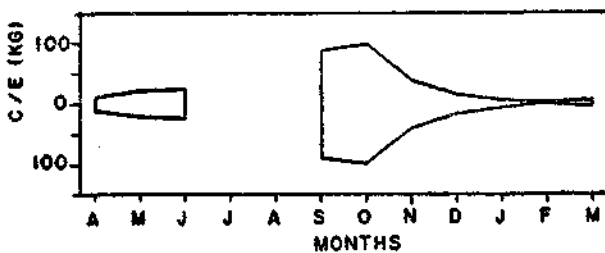


Fig. 1. Seasonal abundance of carangids in the purse seining grounds off Mangalore.

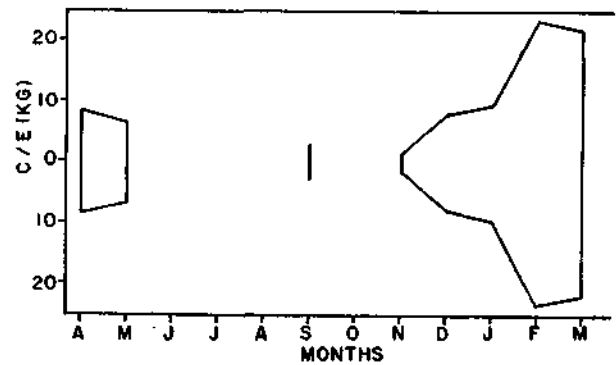


Fig. 2. Seasonal abundance of carangids in the trawling grounds off Mangalore.

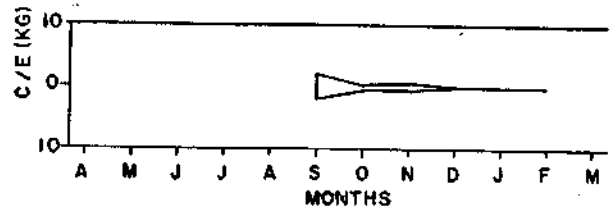


Fig. 3. Seasonal abundance of carangids in the drift gill netting grounds off Mangalore.

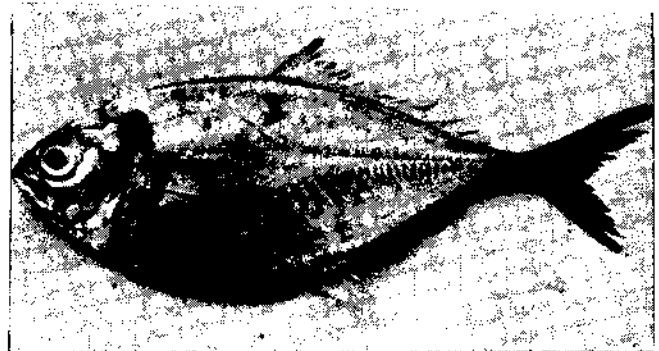


Fig. 4. *Caranx kalla*.

Scientific Name	: <i>Caranx kalla</i>
Vernacular Name	: 'Bathi'
Gear	: Purse seine/Trawl net/Drift gill net
Peak period of occurrence	: Sep.-Nov./Jan. -Mar.
Depth of occurrence	: 4-50 m
Length range in commercial fishery	: 90-165 mm
Size at first maturity	: 124 mm
Spawning season	: Dec.-Jan./May-Jun.

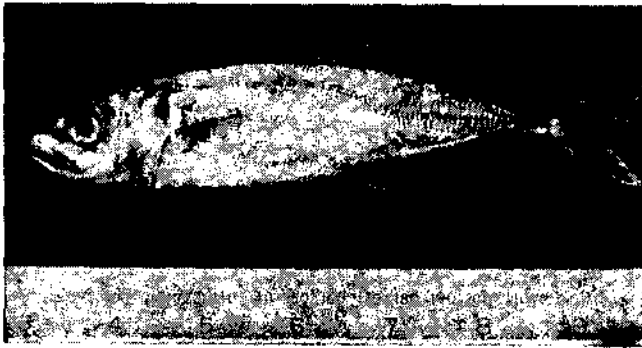


Fig. 5. *Decapterus kurroides*.

Scientific Name : *Decapterus kurroides*  
 Vernacular Name : 'Tidema'  
 Gear : Purse seine/Trawl net  
 Peak period of occurrence : Sep.-Nov./Jan.-Mar.  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

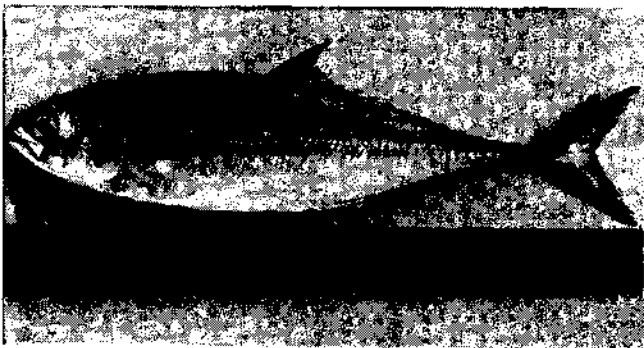


Fig. 6. *Megalaspis cordyla*.

Scientific Name : *Megalaspis cordyla*  
 Vernacular Name : 'Kodande'  
 Gear : Purse seine/Drift gill net  
 Peak period of occurrence : September-November  
 Depth of occurrence : 15-45 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

Scientific Name : *Atule mate*  
 Vernacular Name : 'Thakatte'  
 Gear : Trawl net  
 Peak period of occurrence : January-March  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —



Fig. 7. *Atule mate*.

Size at first maturity : —  
 Spawning season : —

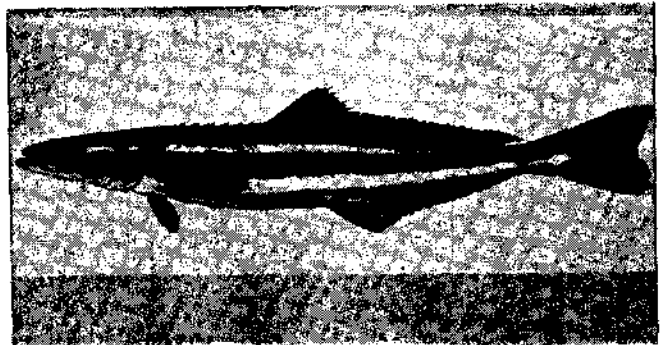


Fig. 8. *Elacate niger*.

Scientific Name : *Elacate niger*  
 Vernacular Name : 'Melagu meenu'  
 Gear : Drift gill net  
 Peak period of occurrence : October-November  
 Depth of occurrence : 18-45 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

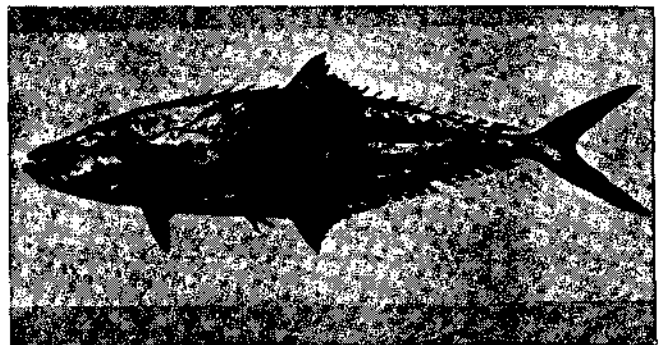


Fig. 9. *Chorinemus lysan*.

Scientific Name : *Chorinemus lysan*  
 Vernacular Name : 'Palai meenu'  
 Gear : Drift gill net  
 Peak period of occurrence : October–November  
 Depth of occurrence : 18–45 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

Depth of occurrence : 15–35 m  
 Length range in commercial fishery : 420–600 mm  
 Size at first maturity : 610 mm  
 Spawning season : —

CARCHARHINIDAE AND SPHYRNIDAE

Popular English Name : Sharks and Hammer-head sharks  
 Vernacular Name : 'Thate'/'Kebi thate' (Kannada)  
 Annual average catch : 119.5 t  
 Gear wise annual average catch : Purse seine : 1.88 t  
 Trawl net : 48.79 t  
 Drift gill net : 68.84 t  
 Fishing methods and their contribution in total catch : Drift gill net : 16.9%  
 Trawl net : 0.5%  
 Purse seine : 0.1%

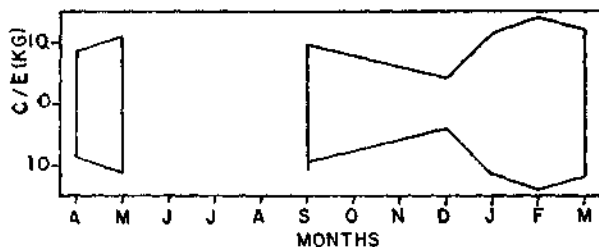


Fig. 10. Seasonal abundance of sharks in the drift gill netting grounds off Mangalore.

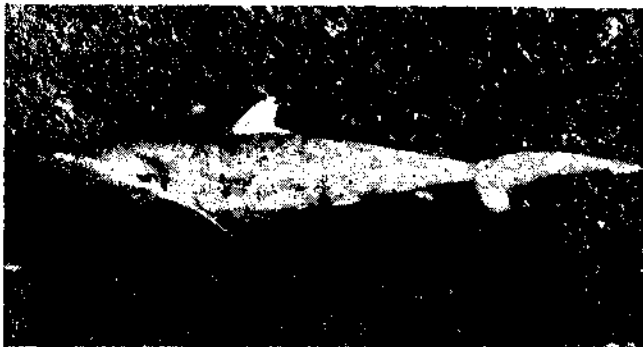


Fig. 11. *Carcharhinus limbatus*.

Scientific Name : *Carcharhinus limbatus*  
 Vernacular Name : 'Kappukedi'/'Thate'  
 Gear : Purse seine/Drift gill net  
 Peak period of occurrence : September–February

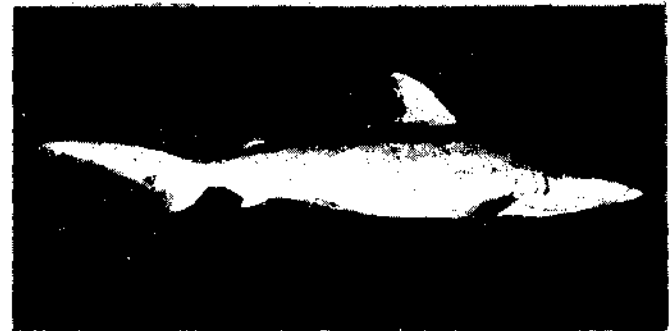


Fig. 12. *Scoliodon laticaudus*.

Scientific Name : *Scoliodon laticaudus*  
 Vernacular Name : 'Thate'  
 Gear : Trawl net/Drift gill net  
 Peak period of occurrence : October–March  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : 260–320 mm  
 Size at first maturity : 310 mm  
 Spawning season : Mar. and Sep.–Dec.

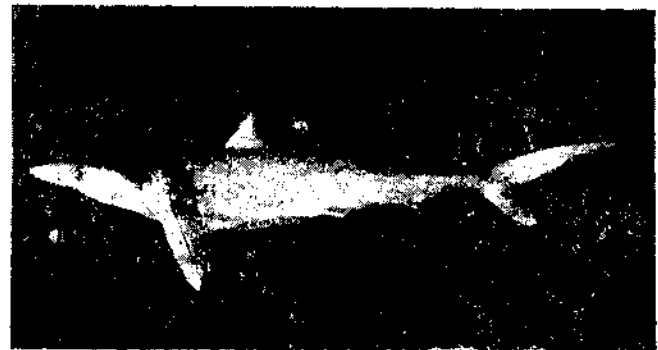


Fig. 13. *Rhizoprionodon oligolinx*.

Scientific Name : *Rhizoprionodon oligolinx*  
 Vernacular Name : 'Thate'  
 Gear : Drift gill net/Trawl net  
 Peak period of occurrence : October–March  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : 240–450 mm  
 Size at first maturity : —  
 Spawning season : —

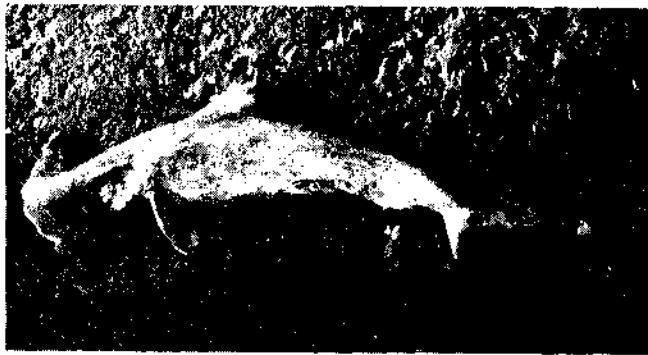


Fig. 14. *Sphyrna lewini*.

Scientific Name : *Sphyrna lewini*  
 Vernacular Name : 'Kebi thate'  
 Gear : Drift gill net  
 Peak period of occurrence : October-February  
 Depth of occurrence : 18-35 m  
 Length range in  
 commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

CHIROCENTRIDAE

Popular English Name : Wolf herrings  
 Vernacular Name : 'Karli'  
 (Kannada)  
 Annual average catch : 14.8 t  
 Gear wise annual  
 average catch : Trawl net : 5.80 t  
 Drift gill net : 6.02 t  
 Fishing methods and their  
 contribution in total catch : Drift gill net : 1.5%  
 Trawl net : 0.1%

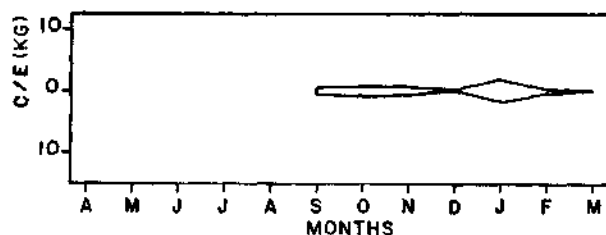


Fig. 15. Seasonal abundance of Wolf-herrings in the drift gill netting grounds off Mangalore.

Scientific Name : *Chirocentrus nudus*  
 Vernacular Name : 'Karli'  
 Gear : Drift net/Trawl net  
 Peak period of occurrence : Jan.-Feb. and Oct.-Nov.  
 Depth of occurrence : 4-50 m

Length range in  
 commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

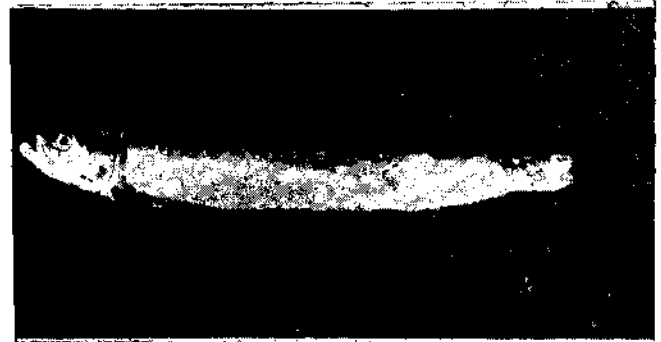


Fig. 16. *Chirocentrus nudus*.

CLUPEIDAE

Popular English Name : Sardines/Shads  
 Vernacular Name : 'Buthai'/'Erabai'/  
 (Kannada) 'Seriande'/'Swadi'  
 Annual average catch : 20,385.0 t  
 Gear wise annual  
 average catch : Purse seine : 20,337.64 t  
 Trawl net : 47.36 t  
 Fishing methods and their  
 contribution in total catch : Purse seine : 60.1%  
 Trawl net : 0.5%

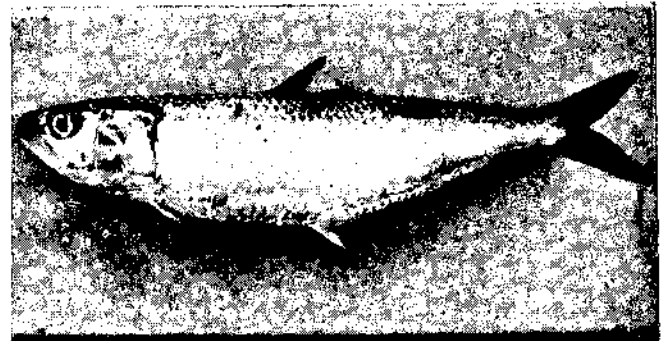


Fig. 17. *Sardinella longiceps*.

Scientific Name : *Sardinella longiceps*  
 Vernacular Name : 'Buthai'  
 Gear : Purse seine  
 Peak period of occurrence : September-February  
 Depth of occurrence : 20-35 m  
 Length range in  
 commercial fishery : 100-160 mm  
 Size at first maturity : 150 mm  
 Spawning season : June-August

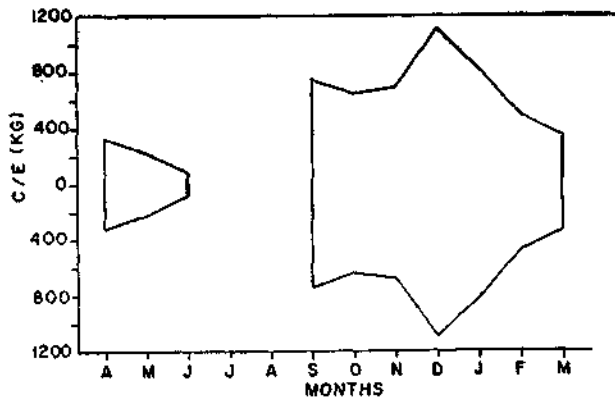


Fig. 18. Seasonal abundance of oil sardine in the purse seining grounds off Mangalore.

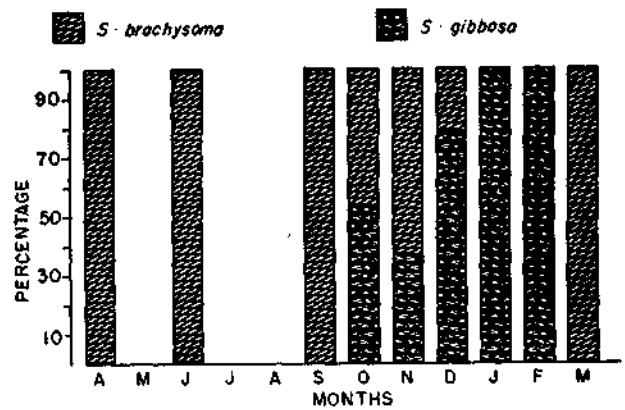


Fig. 21. Month-wise species composition of lesser sardines landed by purse seiners.



Fig. 19. *Sardinella gibbosa*.



Fig. 22. *Dussumieria acuta*.

Scientific Name : *Sardinella gibbosa*  
 Vernacular Name : 'Erabai'  
 Gear : Purse seine  
 Peak period of occurrence : October–March  
 Depth of occurrence : 20–35 m  
 Length range in commercial fishery : 145–170 mm  
 Size at first maturity : 150 mm  
 Spawning season : October–March

Scientific Name : *Dussumieria acuta*  
 Vernacular Name : 'Seriande'  
 Gear : Purse seine  
 Peak period of occurrence : September–December  
 Depth of occurrence : 20–35 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

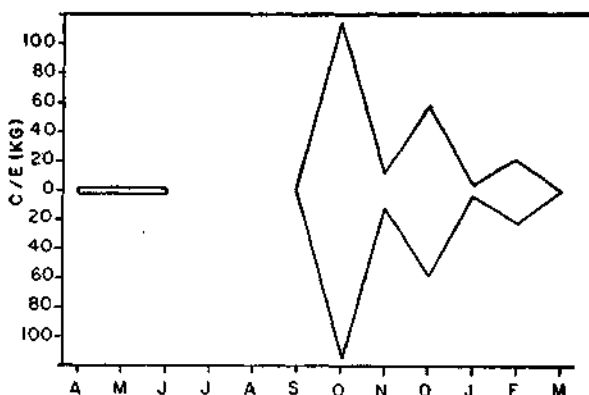


Fig. 20. Seasonal abundance of lesser sardines in the purse seining grounds off Mangalore.

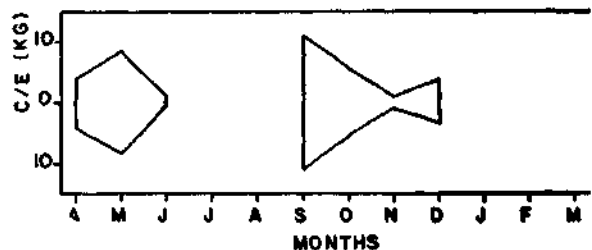


Fig. 23. Seasonal abundance of rainbow sardines in the purse seining grounds off Mangalore.

Scientific Name : *Hisha melastoma*  
 Vernacular Name : 'Swadi maikannu'  
 Gear : Trawl net  
 Peak period of occurrence : February–March

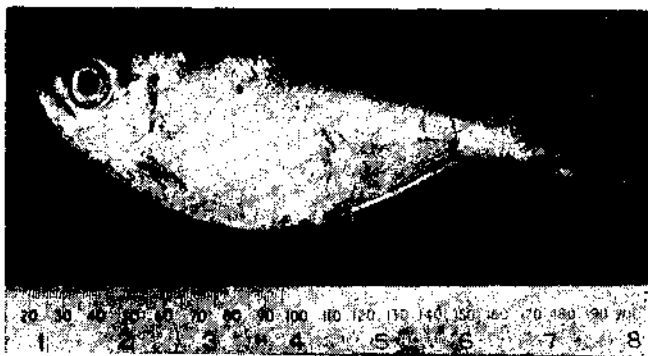


Fig. 24. *Hlisha melastoma*.

Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —



Fig. 25. *Anodontostoma chacunda*.

Scientific Name : *Anodontostoma chacunda*  
 Vernacular Name : 'Kurandodi swadi'  
 Gear : Trawl net  
 Peak period of occurrence : February-March  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 145-179 mm  
 Size at first maturity : —  
 Spawning season : November-March

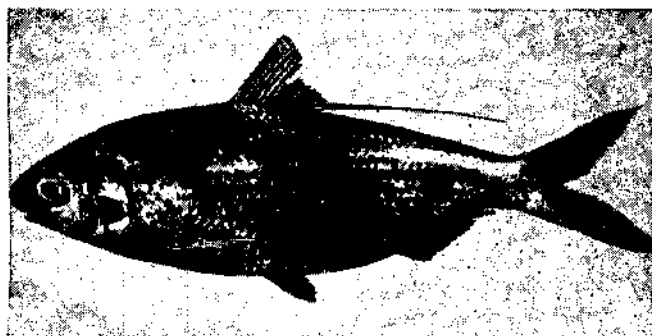


Fig. 26. *Nematalosa nasus*.

Scientific Name : *Nematalosa nasus*  
 Vernacular Name : 'Hole swadi'  
 Gear : Trawl net  
 Peak period of occurrence : February-March  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 103-320 mm  
 Size at first maturity : —  
 Spawning season : October-November

#### CYNOGLOSSIDAE

Popular English Name : Tongue soles  
 Vernacular Name : 'Nangu' (Kannada)  
 Annual average catch : 839 t  
 Gear wise annual average catch : Purse seine : 8.20 t  
 Trawl net : 830.84 t  
 Fishing methods and their contribution in total catch : Trawl net : 8.9%  
 Purse seine : 0.1%

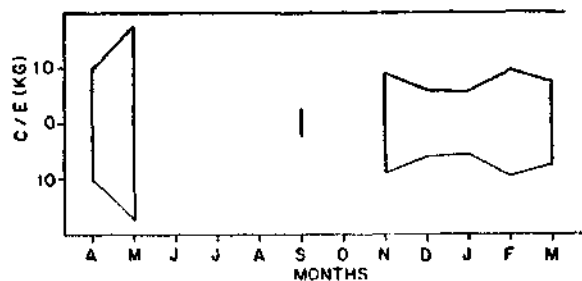


Fig. 27. Seasonal abundance of tongue soles in the trawling grounds off Mangalore.



Fig. 28. *Cynoglossus bilineatus*.

Scientific Name : *Cynoglossus bilineatus*  
 Vernacular Name : 'Nangu'  
 Gear : Purse seine  
 Peak period of occurrence : September



Depth of occurrence : 15-35 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —



Fig. 29. *Cynoglossus macrostomus*.

Scientific Name : *Cynoglossus macrostomus*  
 Vernacular Name : 'Nangu'  
 Gear : Trawl net/Purse seine  
 Peak period of occurrence : August-September  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 100-130 mm  
 Size at first maturity : 110 mm  
 Spawning season : October-January

ENGRAULIDAE

Popular English Name : Anchovies  
 Vernacular Name : 'Kollatharu'/'Manangu' (Kannada)  
 Annual average catch : 3,792.7 t  
 Gear wise annual average catch :  
 Purse seine : 3,661.96 t  
 Trawl net : 130.87 t  
 Fishing methods and their contribution in total catch :  
 Purse seine : 10.8%  
 Trawl net : 1.4%

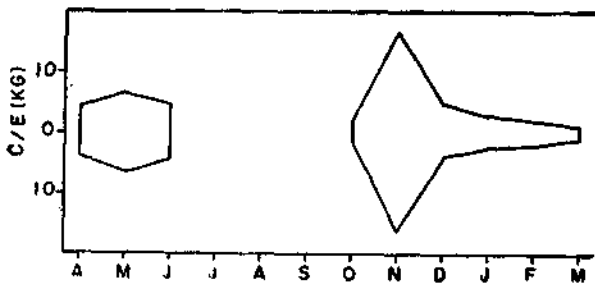


Fig. 30. Seasonal abundance of anchovies in the trawling grounds off Mangalore.

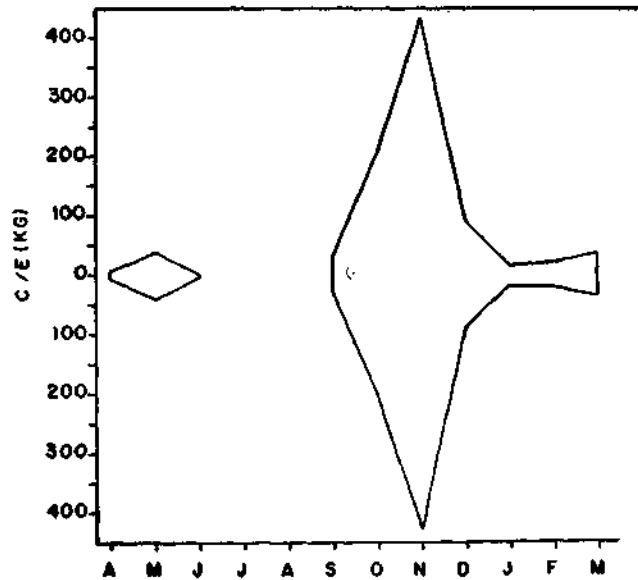


Fig. 31. Seasonal abundance of anchovies in the purse seining grounds off Mangalore.

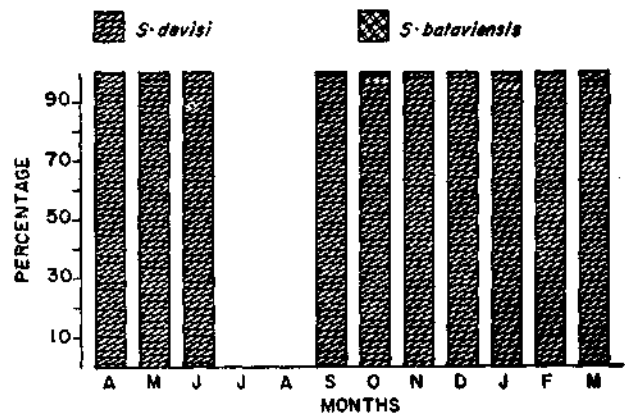


Fig. 32. Month-wise species composition of anchovies landed by purse seiners.

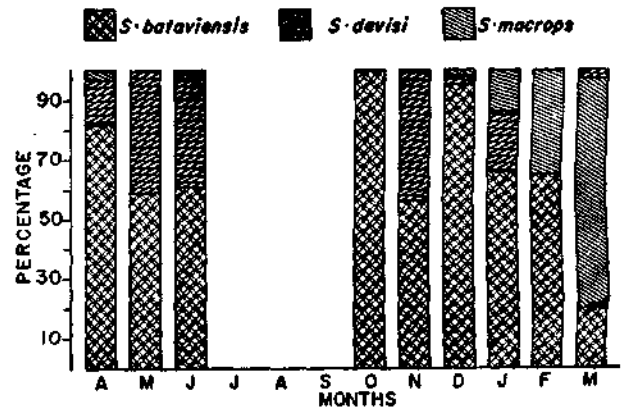


Fig. 33. Month-wise species composition of anchovies landed by shrimp trawlers.

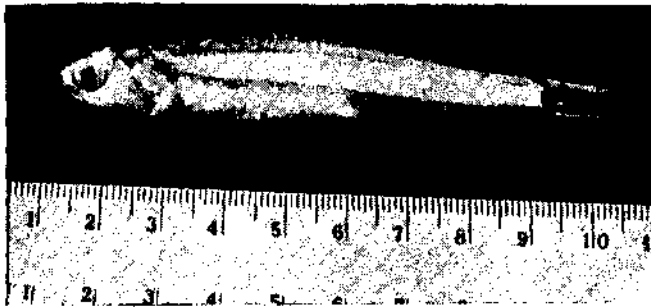


Fig. 34. *Stolephorus devisi*.

Scientific Name : *Stolephorus devisi*  
 Vernacular Name : 'Kollatharu'  
 Gear : Purse seine/Trawl net  
 Peak period of occurrence : Oct. -Dec. and Apr.-May  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 70-94 mm  
 Size at first maturity : 75 mm  
 Spawning season : Apr.-May and Oct.-Dec.



Fig. 35. *Stolephorus bataviensis*.

Scientific Name : *Stolephorus bataviensis*  
 Vernacular Name : 'Kollatharu'  
 Gear : Purse seine/Trawl net  
 Peak period of occurrence : November-December  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 79-95 mm  
 Size at first maturity : 85 mm  
 Spawning season : Apr.-May and Oct. -Dec.

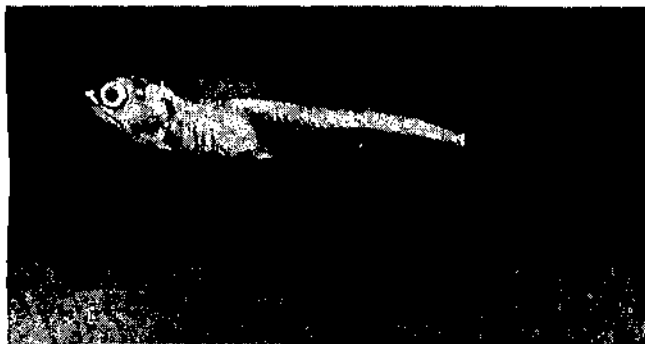


Fig. 36. *Stolephorus macrops*.

Scientific Name : *Stolephorus macrops*  
 Vernacular Name : 'Kollatharu'  
 Gear : Purse seine/Trawl net  
 Peak period of occurrence : Feb.-Mar. and Nov.  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 65-74 mm  
 Size at first maturity : 70 mm  
 Spawning season : —

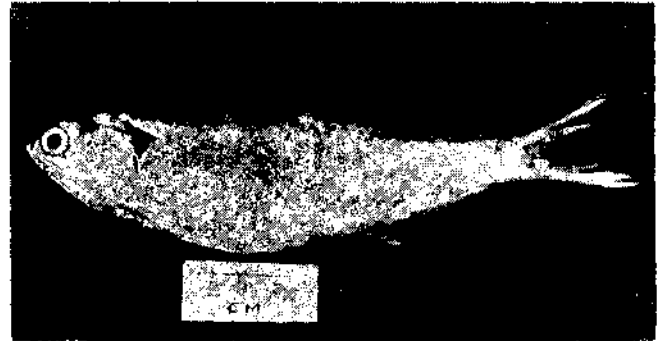


Fig. 37. *Thyssa mystax*.

Scientific Name : *Thyssa mystax*  
 Vernacular Name : 'Manangu'  
 Gear : Purse seine/Trawl net  
 Peak period of occurrence : Sept.-Oct. and Jan. Mar.  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —  
 Size at first maturity : 140 mm  
 Spawning season : Jan.-Mar. and Jun.-Jul.

LACTARIIDAE

Popular English Name : Big-jawed jumper  
 Vernacular Name : 'Ade meenu' (Kannada)  
 Annual average catch : 157.8 t  
 Gear wise annual average catch : Trawl net : 157.8 t  
 Fishing methods and their contribution in total catch : Trawl net : 1.7%

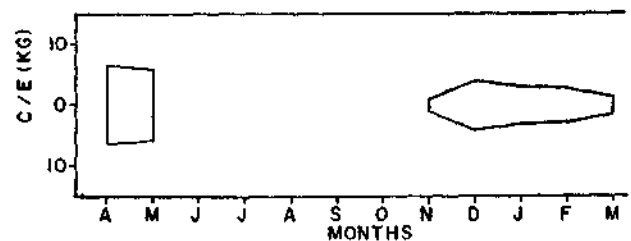


Fig. 38. Seasonal abundance of big-jawed jumper in the trawling grounds off Mangalore.

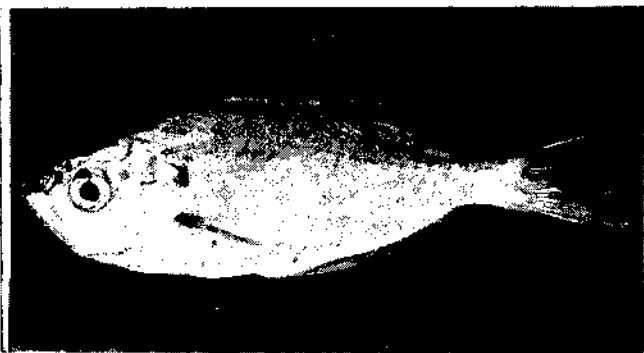


Fig. 39. *Lactarius lactarius*.

Scientific Name : *Lactarius lactarius*  
 Vernacular Name : 'Ade meenu'  
 Gear : Trawl net  
 Peak period of occurrence : January-May  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —  
 Size at first maturity : 167 mm  
 Spawning season : February-April

LEIOGNATHIDAE

Popular English Name : Silver bellies  
 Vernacular Name : 'Kurchi'  
 (Kannada)  
 Annual average catch : 442.8 t  
 Gear wise annual average catch : Purse seine : 322.82 t  
 Trawl net : 120.01 t  
 Fishing methods and their contribution in total catch : Purse seine : 1.0%  
 Trawl net : 1.3%

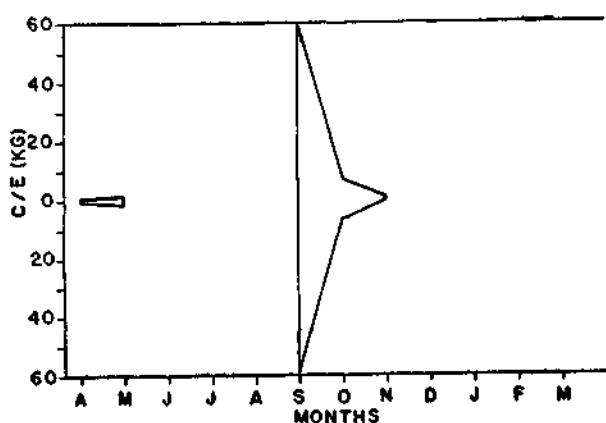


Fig. 40. Seasonal abundance of silver bellies in the purse seining grounds off Mangalore.

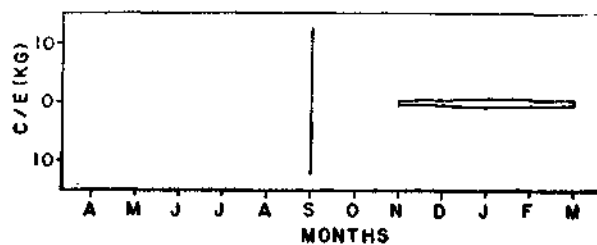


Fig. 41. Seasonal abundance of silver bellies in the trawling grounds off Mangalore.



Fig. 42. *Secutor insidiator*.

Scientific Name : *Secutor insidiator*  
 Vernacular Name : 'Kurchi'  
 Gear : Purse seine  
 Peak period of occurrence : September  
 Depth of occurrence : 15-35 m  
 Length range in commercial fishery : —  
 Size at first maturity : 81 mm  
 Spawning season : Jul.-Nov. and Mar. -Apr.

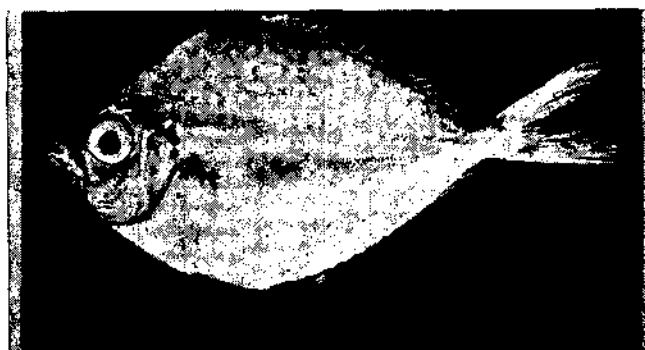


Fig. 43. *Leiognathus bindus*.

Scientific Name : *Leiognathus bindus*  
 Vernacular Name : 'Kurchi'  
 Gear : Purse seine  
 Peak period of occurrence : September  
 Depth of occurrence : 15-35 m  
 Length range in commercial fishery : —

Size at first maturity : 85 mm  
 Spawning season : December-February

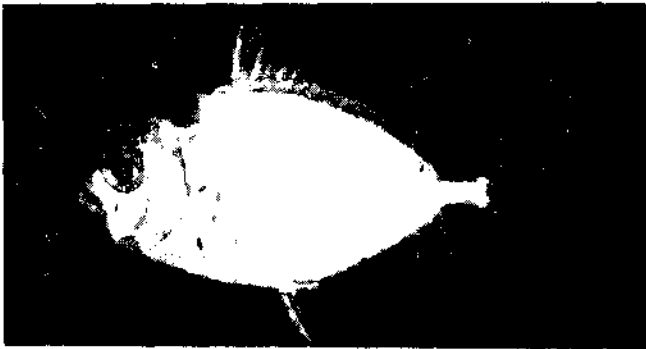


Fig. 44. *Leiohnathus brevirostris*.

Scientific Name : *Leiohnathus brevirostris*  
 Vernacular Name : 'Kurchi'  
 Gear : Purse seine  
 Peak period of occurrence : September  
 Depth of occurrence : 15-35 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —



Fig. 45. *Leiohnathus splendens*.

Scientific Name : *Leiohnathus splendens*  
 Vernacular Name : 'Kurchi'  
 Gear : Purse seine  
 Peak period of occurrence : September  
 Depth of occurrence : 15-35 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —



Fig. 46. *Leiohnathus equulus*.

Scientific Name : *Leiohnathus equulus*  
 Vernacular Name : 'Kurchi'  
 Gear : Trawl net  
 Peak period of occurrence : Sep. and Jan.-Feb.  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

MULLIDAE

Popular English Name : Goat fishes  
 Vernacular Name : 'Purli'  
 (Kannada)  
 Annual average catch : 23.7 t  
 Gear wise annual average catch : Trawl net : 23.72 t  
 Fishing methods and their contribution in total catch : Trawl net : 0.3%

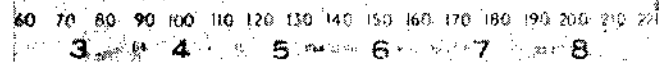


Fig. 47. *Upeneus taeniopterus*.

Scientific Name : *Upeneus taeniopterus*  
 Vernacular Name : 'Purli'  
 Gear : Trawl net  
 Peak period of occurrence : February-March  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —

Size at first maturity : —  
 Spawning season : —

NEMIPTERIDAE

Popular English Name : Threadfin breams  
 Vernacular Name : 'Madumagalu meenu'  
 (Kannada)  
 Annual average catch : 999.1 t  
 Gear wise annual  
 average catch : Trawl net: 999.1 t  
 Fishing methods and their  
 contribution in total catch : Trawl net: 10.7%

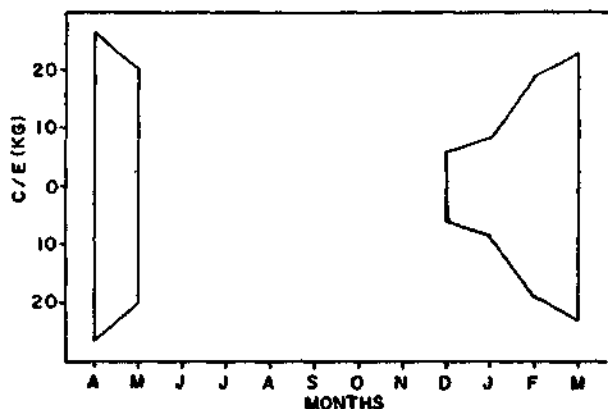


Fig. 48. Seasonal abundance of threadfin breams in the trawling grounds off Mangalore.



Fig. 49. *Nemipterus japonicus*.

Scientific Name : *Nemipterus japonicus*  
 Vernacular Name : 'Madumagalu meenu'  
 Gear : Trawl net  
 Peak period of occurrence : January-May  
 Depth of occurrence : 4-50 m  
 Length range in  
 commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

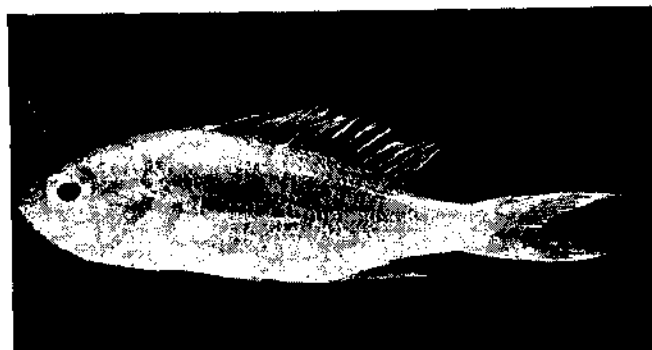


Fig. 50. *Nemipterus mesoprion*.

Scientific Name : *Nemipterus mesoprion*  
 Vernacular Name : 'Madumagalu meenu'  
 Gear : Trawl net  
 Peak period of occurrence : January-May  
 Depth of occurrence : 4-50 m  
 Length range in  
 commercial fishery : —  
 Size at first maturity : 100 mm  
 Spawning season : December-April

NOMEIDAE

Popular English Name : Drift fishes  
 Vernacular Name : 'Pupper mangi'  
 (Kannada)  
 Annual average catch : 40.3 t  
 Gear wise annual  
 average catch : Trawl net : 40.31 t  
 Fishing methods and their  
 contribution in total catch : Trawl net : 0.4%



Fig. 51. *Psenes indicus*.

Scientific Name : *Psenes indicus*  
 Vernacular Name : 'Pupper mangi'  
 Gear : Trawl net  
 Peak period of occurrence : January-March  
 Depth of occurrence : 4-50 m  
 Length range in  
 commercial fishery : —

Size at first maturity : 135 mm  
 Spawning season : —

**PLATYCEPHALIDAE**

Popular English Name : Spiny flat heads  
 Vernacular Name : 'Balchett'  
 (Kannada)  
 Annual average catch : 181.9 t  
 Gear wise annual average catch : Trawl net : 181.86 t  
 Fishing methods and their contribution in total catch : Trawl net : 2.0%

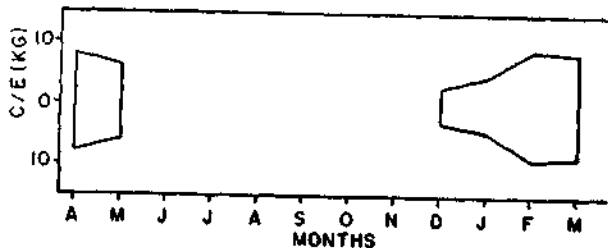


Fig. 52. Seasonal abundance of spiny flatheads in the trawling grounds off Mangalore.



Fig. 53. *Platycephalus scaber*.

Scientific Name : *Platycephalus scaber*  
 Vernacular Name : 'Balchett'  
 Gear : Trawl net  
 Peak period of occurrence : January–March  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

**PRIACANTHIDAE**

Popular English Name : Big eye/Bulls eye  
 Vernacular Name : 'Disco meenu'  
 (Kannada)  
 Annual average catch : 93.3 t

Gear wise annual average catch : Trawl net : 93.23  
 Drift gill net : 0.03 t  
 Fishing methods and their contribution in total catch : Trawl net : 1.0%  
 Drift gill net : 0.1%

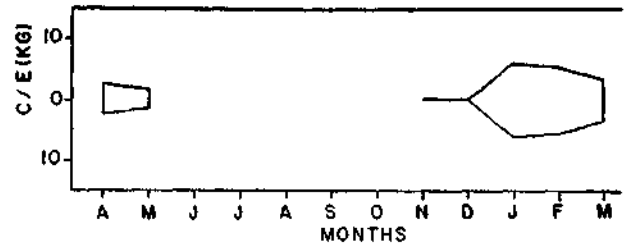


Fig. 54. Seasonal abundance of big eye in the trawling grounds off Mangalore.

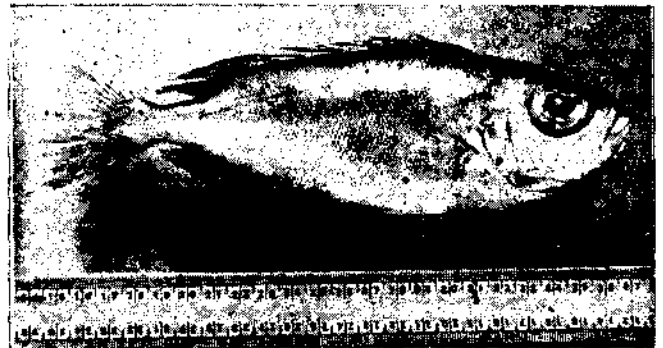


Fig. 55. *Priacanthus hamrur*.

Scientific Name : *Priacanthus hamrur*  
 Vernacular Name : 'Disco meenu'  
 Gear : Trawl net/Drift gill net  
 Peak period of occurrence : Jan.–Apr. and Nov.  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

**SCIAENIDAE**

Popular English Name : Croackers  
 Vernacular Name : 'Kalluru'/'Koran'  
 (Kannada)  
 Annual average catch : 399.8 t  
 Gear wise annual average catch : Trawl net : 341.16 t  
 Purse seine : 58.02 t  
 Drift gill net : 0.67 t  
 Fishing methods and their contribution in total catch : Trawl net : 3.7%  
 Purse seine : 0.2%  
 Drift gill net : 0.2%

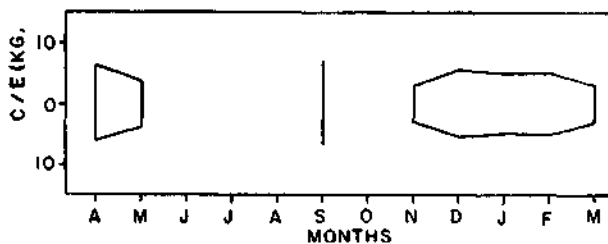


Fig. 56. Seasonal abundance of sciaenids (croackers) in the trawling grounds off Mangalore.



Fig. 57. *Johnieops osseus*.

Scientific Name : *Johnieops osseus*  
 Vernacular Name : 'Kalluru'  
 Gear : Trawl net/Purse seine  
 Peak period of occurrence : Oct. and Dec.-Apr.  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 130-150 mm  
 Size at first maturity : 120 mm  
 Spawning season : Throughout the year

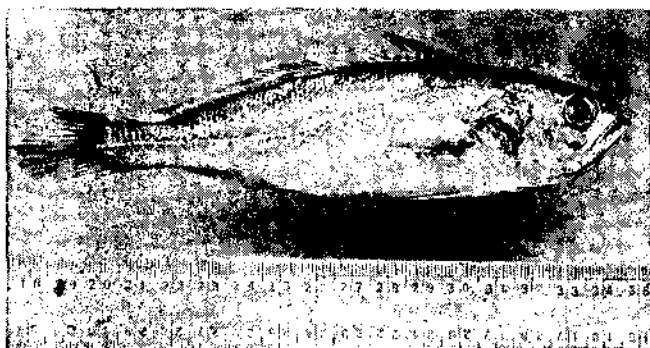


Fig. 58. *Otolithes ruber*.

Scientific Name : *Otolithes ruber*  
 Vernacular Name : 'Kalluru'  
 Gear : Trawl net  
 Peak period of occurrence : December-April

Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 110-200 mm  
 Size at first maturity : 140 mm  
 Spawning season : October-January

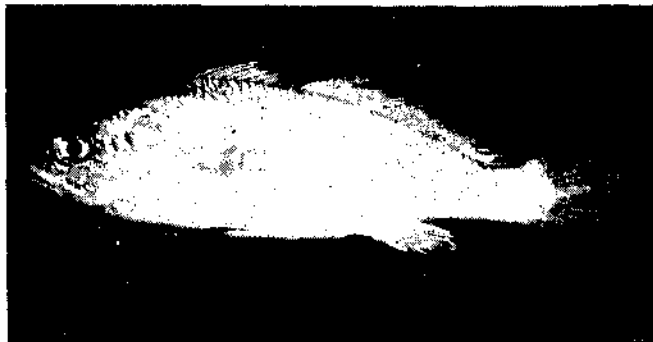


Fig. 59. *Otolithes cuvieri*.

Scientific Name : *Otolithes cuvieri*  
 Vernacular Name : 'Kalluru'  
 Gear : Trawl net  
 Peak period of occurrence : December-April  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 150-250 mm  
 Size at first maturity : —  
 Spawning season : —

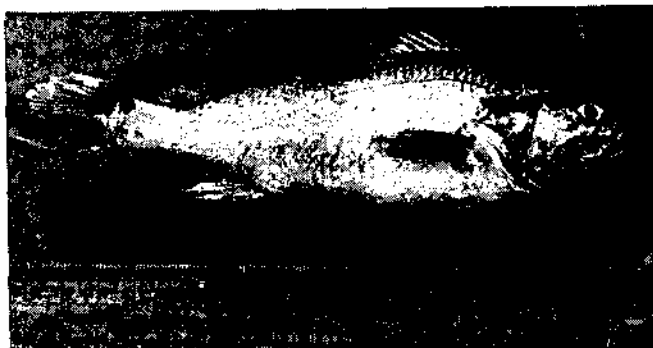


Fig. 60. *Johnieops dussumieri*.

Scientific Name : *Johnieops dussumieri*  
 Vernacular Name : 'Kalluru'  
 Gear : Trawl net  
 Peak period of occurrence : December-April  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 130-150 mm  
 Size at first maturity : —  
 Spawning season : —



Fig. 61. *Protonibea diacanthus*.

Scientific Name : *Protonibea diacanthus*  
 Vernacular Name : 'Koran'  
 Gear : Drift gill net  
 Peak period of occurrence : February  
 Depth of occurrence : 18-45 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

SCOMBRIDAE

Popular English Name : Mackerel/Tunas/Seer fishes  
 Vernacular Name : 'Banguda'/'Kedar'/'Anjal' (Kannada)  
 Annual average catch : 5,773.3 t  
 Gear wise annual average catch :  
     Purse seine : 5,532.64 t  
     Drift gill net : 240.97 t  
     Trawl net : 3.70 t  
 Fishing methods and their contribution in total catch :  
     Drift gill net : 59.1 %  
     Purse seine : 16.3 %  
     Trawl net : 0.1 %

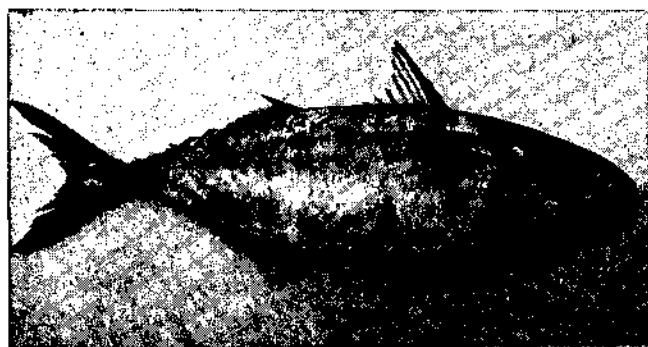


Fig. 62. *Rastrelliger kanagurta*.

Scientific Name : *Rastrelliger kanagurta*  
 Vernacular Name : 'Banguda'  
 Gear : Purse seine/Drift gill net/  
     Trawl net  
 Peak period of occurrence : Sep.-Nov. and Mar.

Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 165-439 mm  
 Size at first maturity : 217 mm  
 Spawning season : June-August

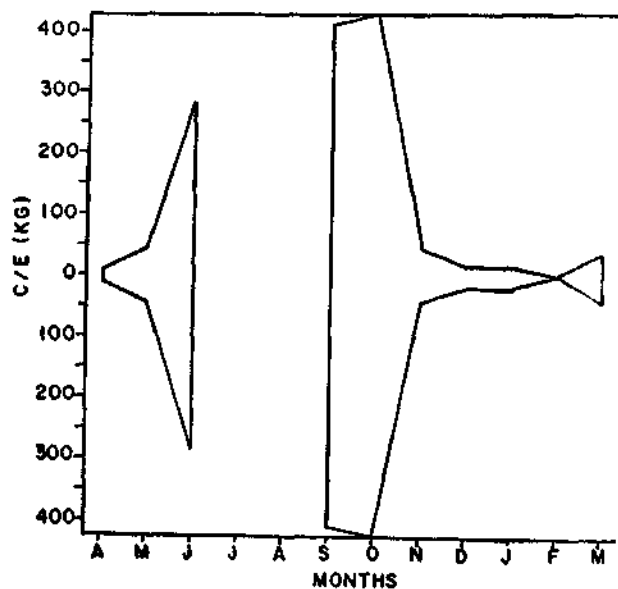


Fig. 63. Seasonal abundance of mackerel in the purse seining grounds off Mangalore.

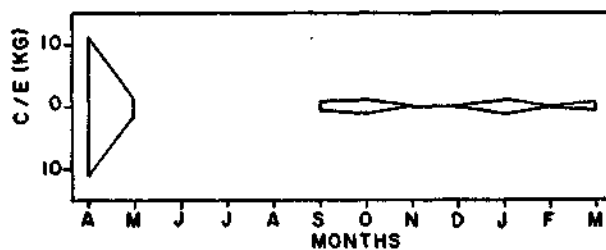


Fig. 64. Seasonal abundance of mackerel in the drift gill netting grounds off Mangalore.

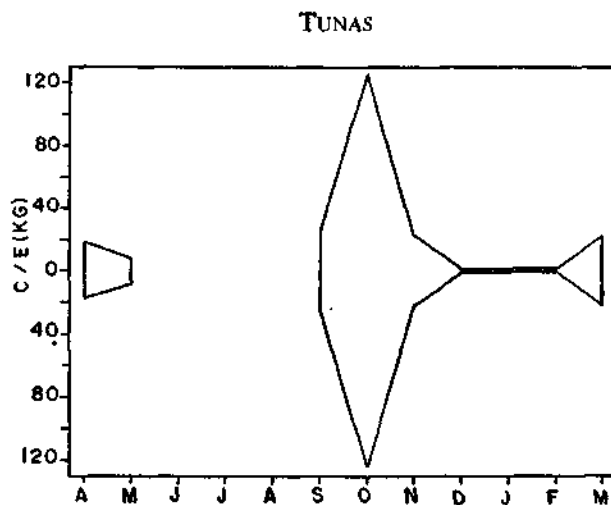


Fig. 65. Seasonal abundance of tunas in the purse seining grounds off Mangalore.



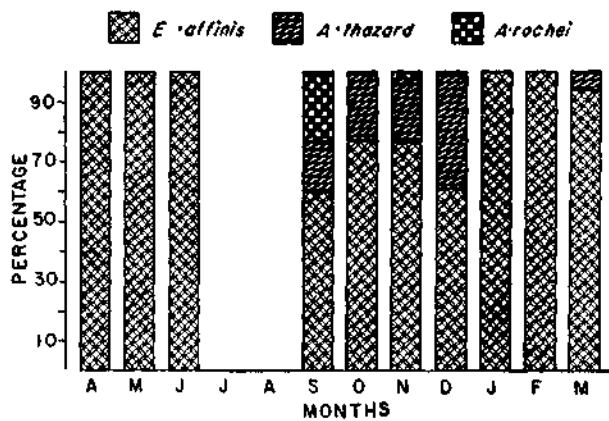


Fig. 66. Month-wise species composition of tunas landed by purse seiners.

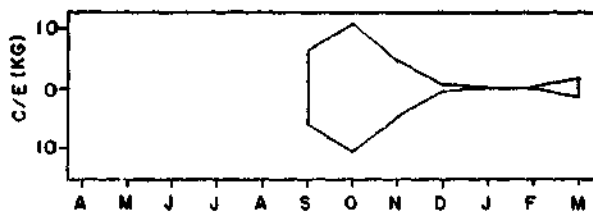


Fig. 67. Seasonal abundance of tunas and bill fishes in the drift gill netting grounds off Mangalore.

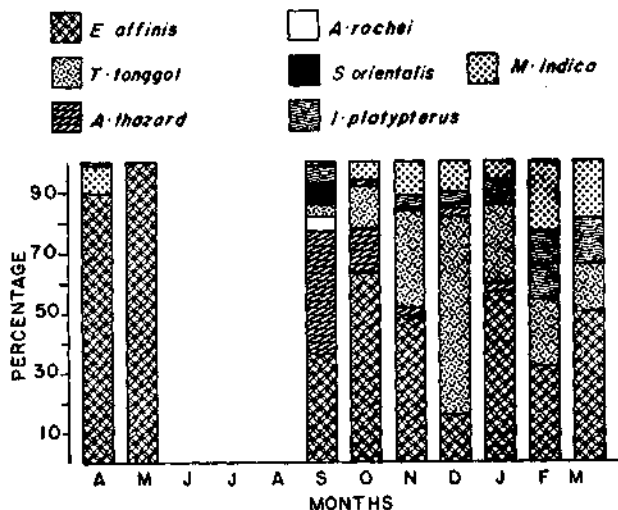


Fig. 68. Month-wise species composition of tunas and bill fishes landed by drift gill netters.



Fig. 69. *Euthynnus affinis*.

Scientific Name : *Euthynnus affinis*  
 Vernacular Name : 'Peepa kedar'  
 Gear : Purse seine/Drift gill net  
 Peak period of occurrence : September–November  
 Depth of occurrence : 15–45 m  
 Length range in commercial fishery : 340–499 mm  
 Size at first maturity : 430 mm  
 Spawning season : September–October

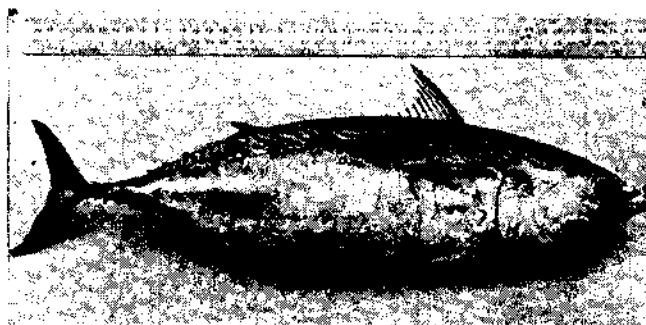


Fig. 70. *Auxis thazard*.

Scientific Name : *Auxis thazard*  
 Vernacular Name : 'Baremeenu'/'Kedar'  
 Gear : Purse seine/Drift gill net  
 Peak period of occurrence : September–December  
 Depth of occurrence : 15–45 m  
 Length range in commercial fishery : 260–439 mm  
 Size at first maturity : 305 mm  
 Spawning season : October–November

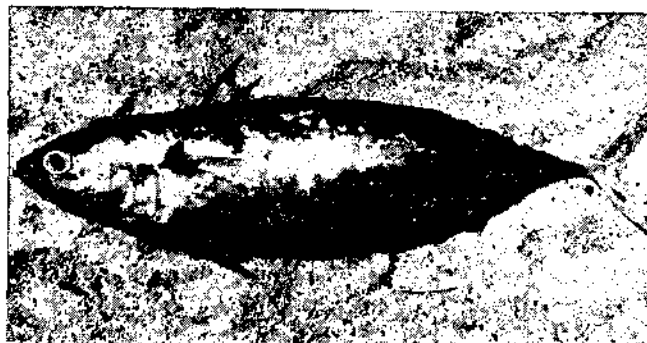


Fig. 71. *Auxis rochei*.

Scientific Name : *Auxis rochei*  
 Vernacular Name : 'Sheerad kedar'  
 Gear : Drift gill net  
 Peak period of occurrence : September–December  
 Depth of occurrence : 15–35 m  
 Length range in commercial fishery : 200–300 mm  
 Size at first maturity : 238 mm  
 Spawning season : September

SEER FISHES

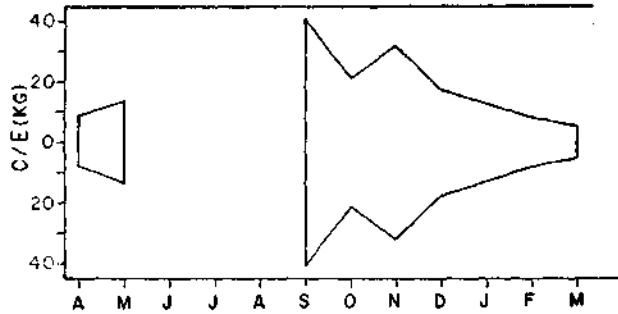


Fig. 72. Seasonal abundance of seer fishes in the drift gill netting grounds off Mangalore.

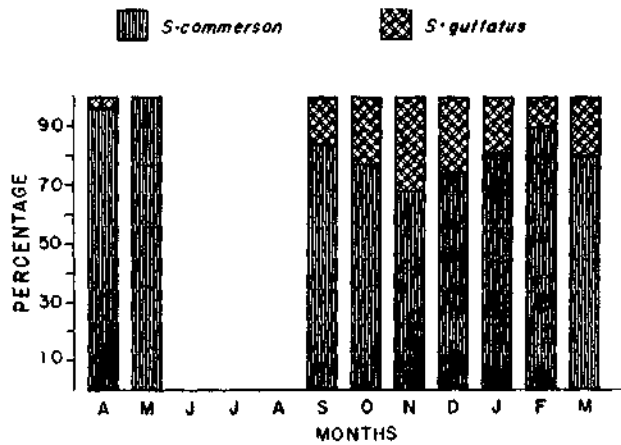


Fig. 73. Month-wise species composition of seer fishes landed by drift gill netters.



Fig. 74. *Scomberomorus commerson*.

Scientific Name : *Scomberomorus commerson*  
 Vernacular Name : 'Anjal'  
 Gear : Drift gill net/Trawl net  
 Peak period of occurrence : Sep.-Dec. and Mar.  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : 460-900 mm  
 Size at first maturity : 740 mm  
 Spawning season : January-September

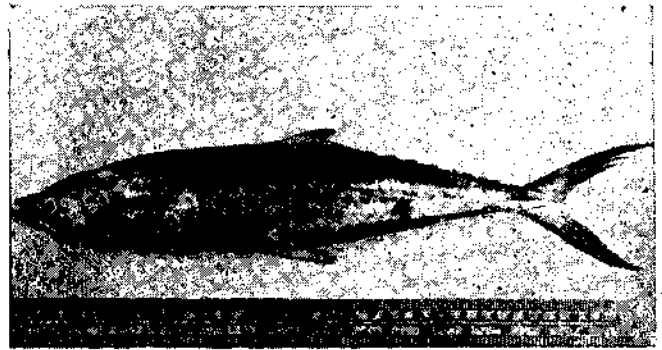


Fig. 75. *Scomberomorus guttatus*.

Scientific Name : *Scomberomorus guttatus*  
 Vernacular Name : 'Anjal'  
 Gear : Drift gill net  
 Peak period of occurrence : October-December  
 Depth of occurrence : 18-45 m  
 Length range in commercial fishery : 360-460 mm  
 Size at first maturity : 365 mm  
 Spawning season : April-July

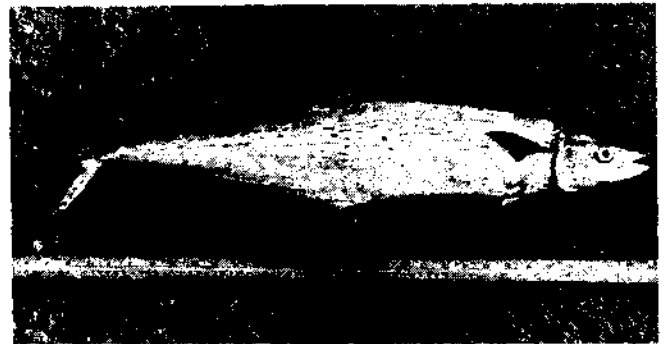


Fig. 76. *Scomberomorus lineolatus*.

Scientific Name : *Scomberomorus lineolatus*  
 Vernacular Name : 'Anjal'  
 Gear : Drift gill net  
 Peak period of occurrence : November-January  
 Depth of occurrence : 18-45 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

SPHYRAENIDAE

Popular English Name : Barracudas  
 Vernacular Name : 'Surula kandai' (Kannada)  
 Annual average catch : 17.2 t  
 Gear wise annual average catch : Trawl net : 15.97 t  
 Drift gill net : 1.25 t

Fishing methods and their contribution in total catch :  
 Drift gill net : 0.3%  
 Trawl net : 0.2%

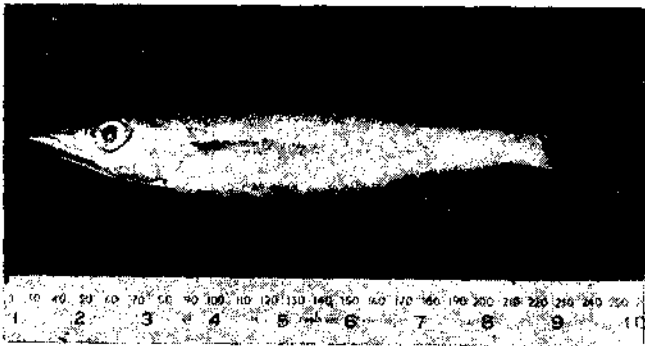


Fig. 77. *Sphyraena obtusata*.

Scientific Name : *Sphyraena obtusata*  
 Vernacular Name : 'Surula kandai'  
 Gear : Trawl net  
 Peak period of occurrence : March  
 Depth of occurrence : 4-50 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

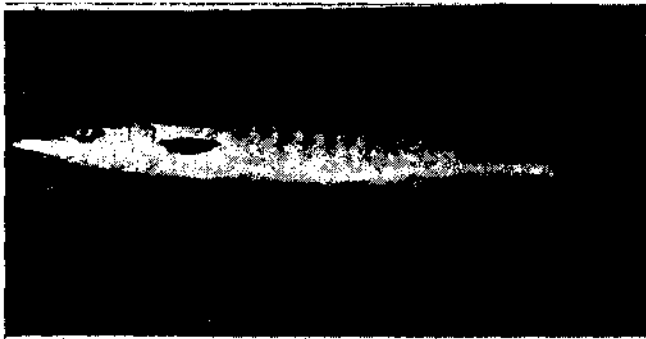


Fig. 78. *Sphyraena barracuda*.

Scientific Name : *Sphyraena barracuda*  
 Vernacular Name : 'Surula kandai'  
 Gear : Drift gill net  
 Peak period of occurrence : November  
 Depth of occurrence : 18-45 m  
 Length range in commercial fishery : —  
 Size at first maturity : —  
 Spawning season : —

STROMATEIDAE

Popular English Name : Pomfrets  
 Vernacular Name : 'Manji'  
 (Kannada)

Annual average catch : 113.7 t  
 Gear wise annual average catch :  
 Trawl net : 43.93 t  
 Purse seine : 38.28 t  
 Drift gill net : 31.51 t

Fishing methods and their contribution in total catch :  
 Drift gill net : 7.7%  
 Trawl net : 0.5%  
 Purse seine : 0.1%

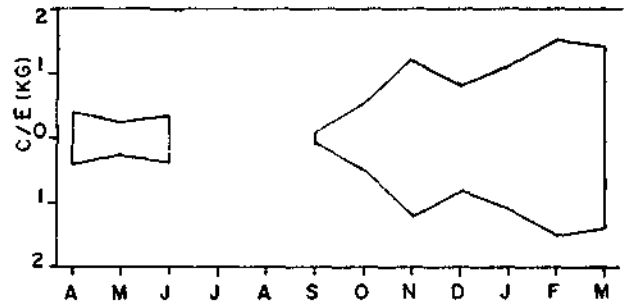


Fig. 79. Seasonal abundance of pomfrets in the trawling grounds off Mangalore.

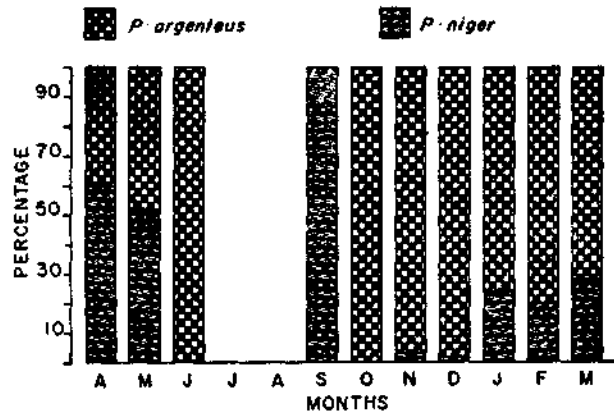


Fig. 80. Month-wise species composition of pomfrets landed by shrimp trawlers.

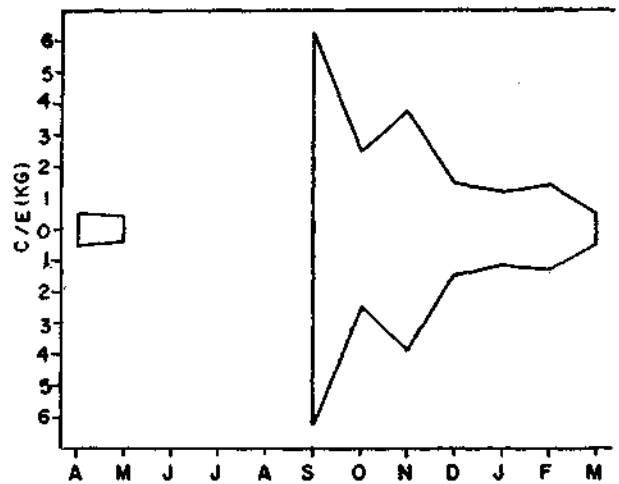


Fig. 81. Seasonal abundance of pomfrets in the drift gill netting grounds off Mangalore.

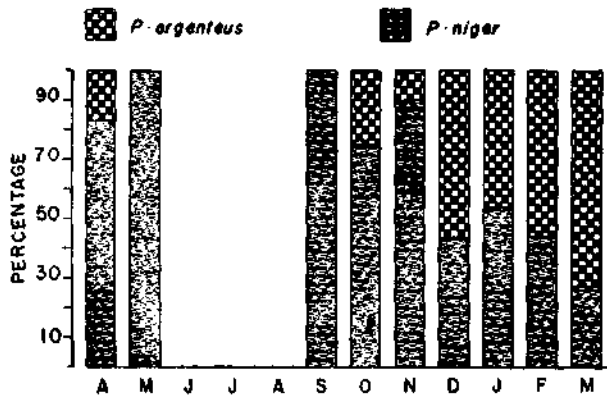


Fig. 82. Month-wise species composition of pomfrets landed by drift gill netters.

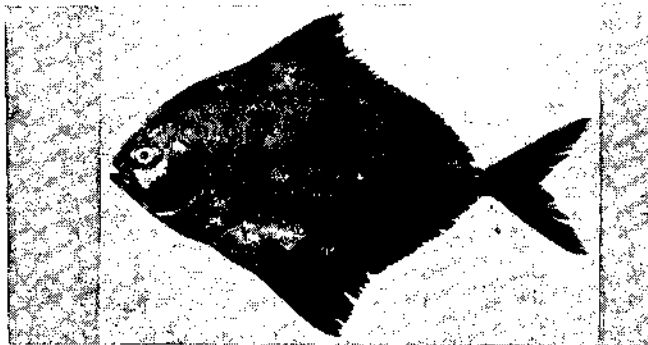


Fig. 83. *Parastromateus niger*.

Scientific Name : *Parastromateus niger*  
 Vernacular Name : 'Kappu manji'  
 Gear : Drift gill net/Trawl net/  
 Purse seine  
 Peak period of occurrence : September–April  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : 140–320 mm  
 Size at first maturity : 290 mm  
 Spawning season : October–December

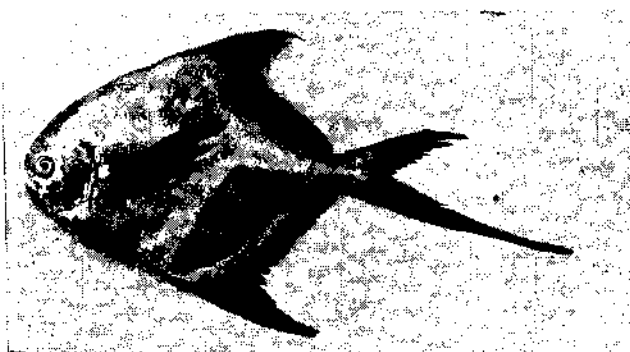


Fig. 84. *Pampus argenteus*.

Scientific Name : *Pampus argenteus*  
 Vernacular Name : 'Boldhu manji'

Gear : Drift gill net/Trawl net  
 Peak period of occurrence : October–April  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : 50–240 mm  
 Size at first maturity : 180 mm  
 Spawning season : April–June

#### SYNODONTIDAE

Popular English Name : Lizard fishes  
 Vernacular Name : 'Arane meenu'  
 (Kannada)  
 Annual average catch : 443.5 t  
 Gear wise annual average catch : Trawl net : 443.48 t  
 Fishing methods and their contribution in total catch : Trawl net : 4.8%

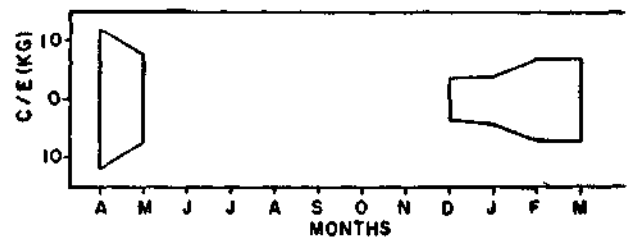


Fig. 85. Seasonal abundance of lizard fishes in the trawling grounds off Mangalore.

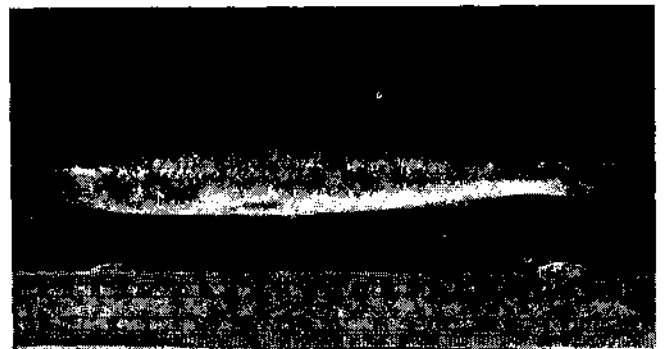


Fig. 86. *Saurida undosquamis*.

Scientific Name : *Saurida undosquamis*  
 Vernacular Name : 'Arane meenu'  
 Gear : Trawl net  
 Peak period of occurrence : January–May  
 Depth of occurrence : 4–50 m  
 Length range in commercial fishery : —  
 Size at first maturity : 240 mm  
 Spawning season : October–March



Fig. 87. *Saurida tumbil*.

Scientific Name : *Saurida tumbil*  
 Vernacular Name : 'Arane meenu'  
 Gear : Trawl net  
 Peak period of occurrence : January-May  
 Depth of occurrence : 4-50 m  
 Length range in  
     commercial fishery : 113-404 mm  
 Size at first maturity : 260 mm  
 Spawning season : October-January

TACHYSURIDAE

Popular English Name : Cat fishes  
 Vernacular Name : 'Thede'/'Shede'  
 (Kannada)  
 Annual average catch : 2,325.3 t  
 Gear wise annual  
     average catch : Purse seine : 2,072.08 t  
                           Trawl net : 209.80 t  
                           Drift gill net : 43.40 t  
 Fishing methods and their  
 contribution in total catch: Drift gill net : 10.7%  
                                   Purse seine : 6.1%  
                                   Trawl net : 2.3%

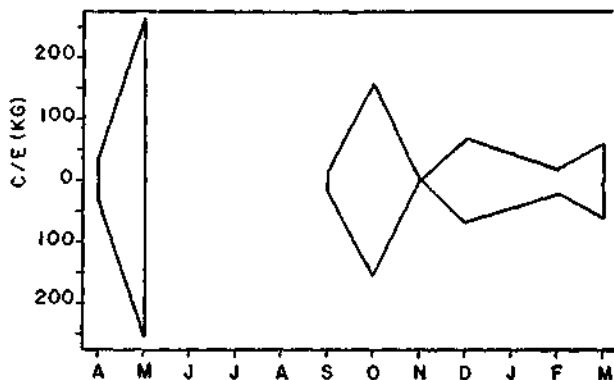


Fig. 88. Seasonal abundance of cat fishes in the purse seining grounds off Mangalore.

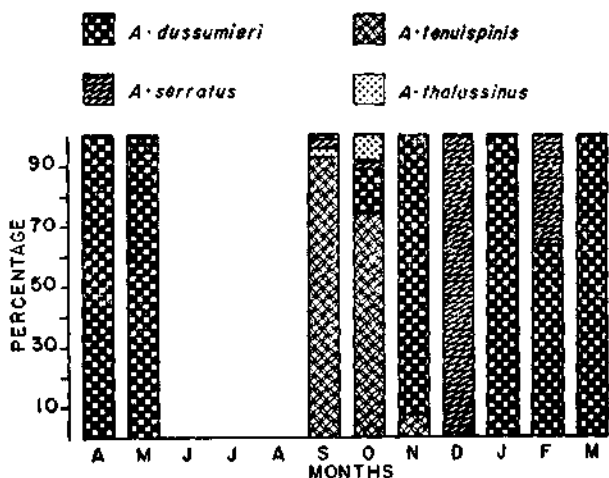


Fig. 89. Month-wise species composition of cat fishes landed by purse seiners.

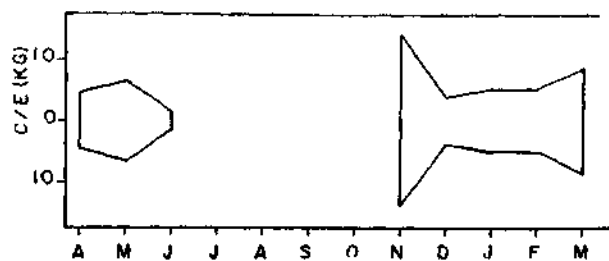


Fig. 90. Seasonal abundance of cat fishes in the trawling grounds off Mangalore.

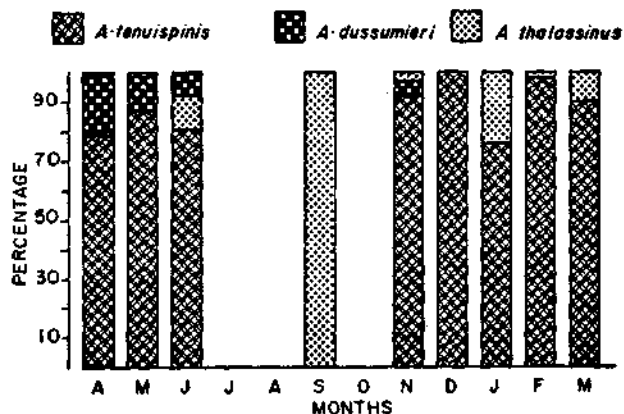


Fig. 91. Month-wise species composition of cat fishes landed by shrimp trawlers.

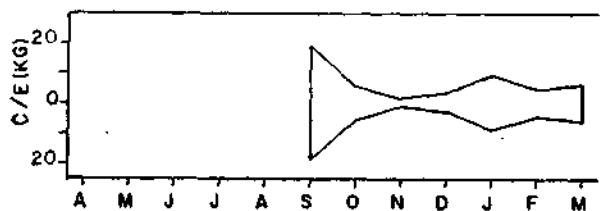


Fig. 92. Seasonal abundance of cat fishes in the drift gill netting grounds off Mangalore.

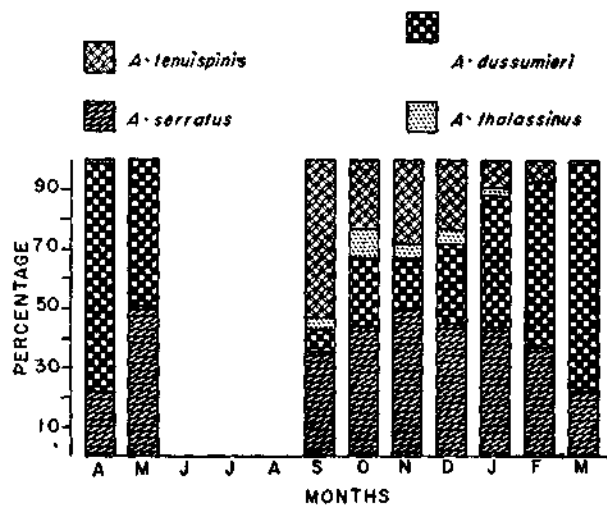


Fig. 93. Month-wise species composition of cat fishes landed by drift gill netters.



Fig. 94. *Tachysurus dussumieri*.

Scientific Name : *Tachysurus dussumieri*  
 Vernacular Name : 'Thede' / 'Shede'  
 Gear : Purse seine/Drift gill net  
 Peak period of occurrence : October-May  
 Depth of occurrence : 15-45 m  
 Length range in commercial fishery : 580-779 mm  
 Size at first maturity : 545 mm  
 Spawning season : February-March



Fig. 95. *Tachysurus tenuispinis*.

Scientific Name : *Tachysurus tenuispinis*  
 Vernacular Name : 'Thede'/'Shede'  
 Gear : Purse seine/Trawl net/ Drift gill net  
 Peak period of occurrence : September-May  
 Depth of occurrence : 10-45 m  
 Length range in commercial fishery : 160-459 mm  
 Size at first maturity : 275 mm  
 Spawning season : Sept.-Oct. and Dec.

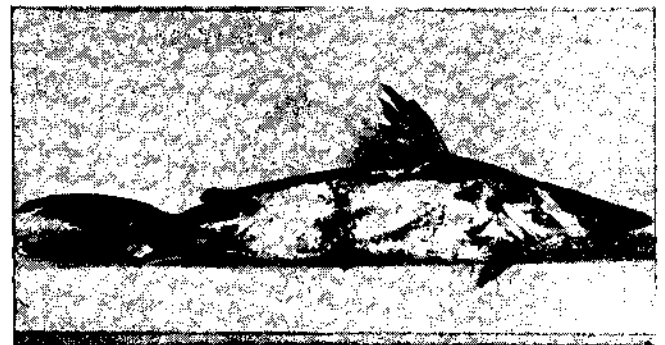


Fig. 96. *Tachysurus serratus*.

Scientific Name : *Tachysurus serratus*  
 Vernacular Name : 'Thede'/'Shede'  
 Gear : Drift gill net  
 Peak period of occurrence : September-January  
 Depth of occurrence : 18-45 m  
 Length range in commercial fishery : 800-1,050 mm  
 Size at first maturity : —  
 Spawning season : —

#### TRICHIURIDAE

Popular English Name : Ribbon fishes  
 Vernacular Name : 'Pambol'  
 (Kannada)  
 Annual average catch : 444.8 t  
 Gear wise annual average catch : Trawl net : 444.22 t  
 Drift gill net : 0.54 t  
 Fishing method and their contribution in total catch : Trawl net : 4.8%  
 Drift gill net : 0.1%

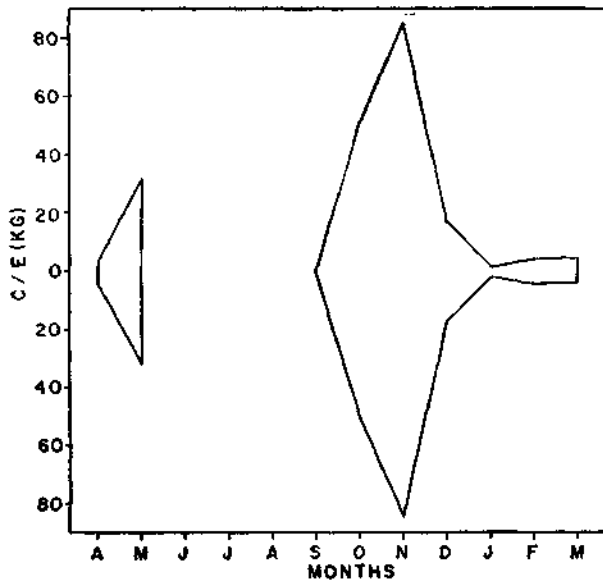


Fig. 97. Seasonal abundance of ribbon fishes in the trawling grounds off Mangalore.

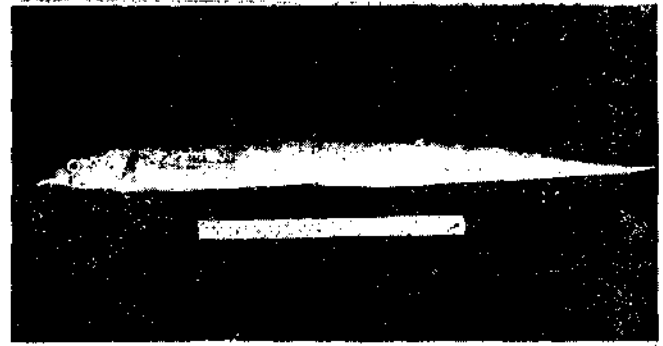


Fig. 98. *Trichiurus lepturus*.

Scientific Name	: <i>Trichiurus lepturus</i>
Vernacular Name	: 'Pambol'
Gear	: Trawl net/Drift gill net
Peak period of occurrence	: Oct.-Dec. and May
Depth of occurrence	: 4-50 m
Length range in commercial fishery	: —
Size at first maturity	: 431 mm (S.L)
Spawning season	: Throughout the year

