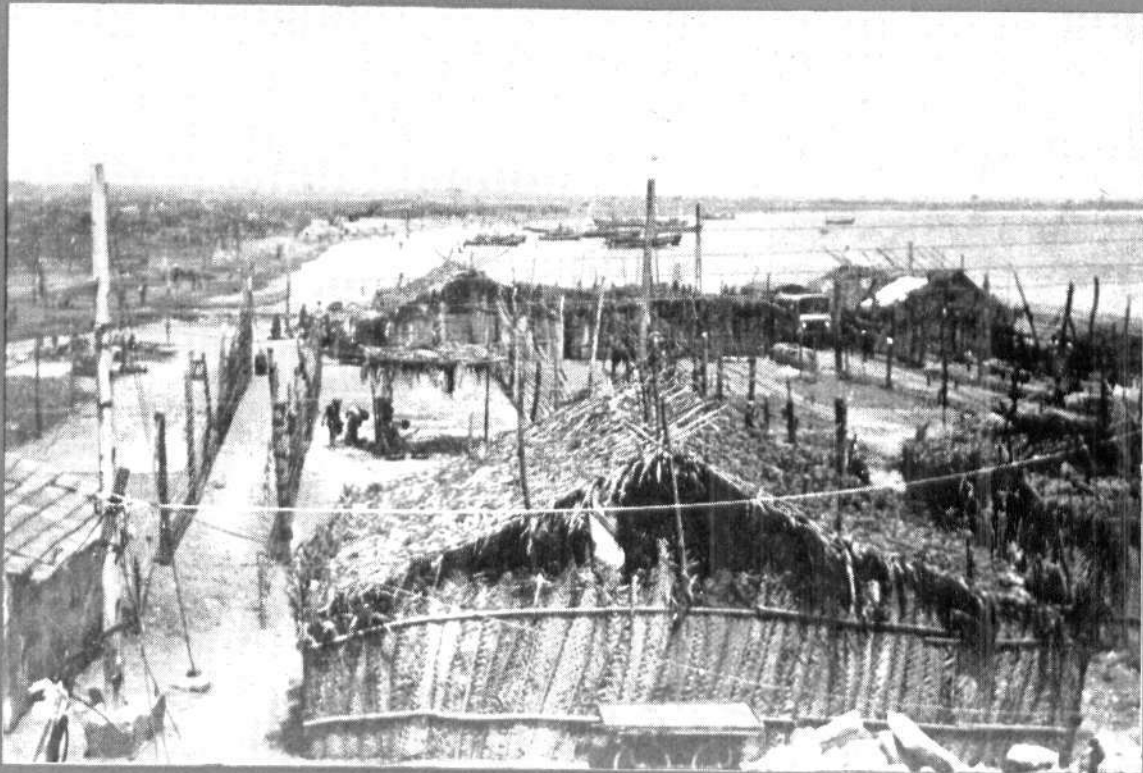




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TRENDS IN THE YIELD OF EXPLOITED SCIAENID FISHERY RESOURCES ALONG THE INDIAN COASTS*

Introduction

The fishes of the family Sciaenidae collectively called sciaenids and popularly known as croakers or jew fishes constitute one of the commercially important ground fishes contributing to a sizeable share in the marine fish landings of India. Thirty species of the family Sciaenidae under 14 genera have been reported from the Indian seas. Though some species like the 'ghol' *Protonibea diacanthus*, *Otolithoides biauritus* etc. attain 100-120 cm in length, majority of them are in the length range of 20-35 cm or even less.

The initial attempts to discuss briefly about the catch trends of sciaenids along the Indian coasts during the periods, 1950-'62 and 1956-'65 were made by Nair and Banerji (1966) and Rao (1975) respectively. Subsequent accounts by Bensam (1973), Dharmaraja and Philipose (1975) and Rao (1976) pertained mainly to the east coast of India.

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In the present account a descriptive analysis is made on the recent trends in the yield of exploited sciaenid fishery resources along the coasts of India during the period, 1966-'84. The all-India statewide catch trends in the order of abundance during the period, 1966-'82 are summarised below.

All-India sciaenid landings

The total all-India sciaenid landings fluctuated from 26,580 tonnes in 1967 to 1,14,533 tonnes in 1975 with an average of 72,202 tonnes (Table 1). The percentage of sciaenid catch to total catch also varied from 2.98 in 1967 to 8.07 in 1975 (Fig. 1A).

Statewise landings of sciaenids

Gujarat

This state ranked first in the sciaenid landings among the maritime states of India with an estimated average

catch of 22,342 tonnes during the 19 year period from 1966 to 1984, the state's average catch being about 31% of the total all-India average catch. The maximum catch of 45,781 tonnes was recorded in 1975. Though a lesser catch trend was noticed during 1967-'72 period, the subsequent years witnessed higher catches (Table 1). The percentage contribution of sciaenids in relation to total landings in the state indicated a maximum of about 33% in 1973 (Fig. 1B). The increased catch obtained during 1973-'84 period enabled the state to achieve the first place in the sciaenid landings of the country.

The census conducted by CMFRI in 1980 (*Mar. Fish. Infor. Serv., T & E Ser., No. 30, 1981*) indicates that there are 1,209 trawlers, 1,547 gill-netters and 650 'dol' netters in Gujarat which land appreciable quantities of sciaenids.

Maharashtra

With an estimated average catch of 15,098 tonnes during the period and contributing to about 7% of the state's fish production, Maharashtra occupies second

place in the sciaenid landings (21%). The production trends indicate higher catches during 1973-'84 period with a maximum of 21,366 tonnes recorded in 1979 (Table 1).

The percentage contribution of sciaenids to the total catch fluctuated between 5% in 1972 and 9% in 1974 (Fig. 1C). Along the Bombay-Sourashtra coast sciaenids constitute 25.38% in the commercial catches. This indicates the role of mechanised trawlers in enhancing the landings of sciaenids. According to a recent study 87% of the marine fish catch in this state is landed by mechanised boats which bring substantial quantities of sciaenids.

Kerala

Kerala occupies the fifth place (9.9%) among the maritime states in the catch of sciaenids at all-India level with an estimated average landing of 7,146 tonnes (Table 1). The landings during the period 1966-'84 showed a highly fluctuating trend with a maximum of 16,811 tonnes in 1975 and a minimum of

Table 1. Statewise landings of sciaenids in India during 1966-'84 (in tonnes)

| Year | West Bengal & Orissa | Andhra Pradesh | Tamilnadu | Pondicherry | Kerala | Karnataka | Goa | Maharashtra | Gujarat | Total |
|-------------------|----------------------|----------------|---------------|-------------|--------------|--------------|--------------|---------------|---------------|---------------|
| 1966 | 440 | 3,144 | 5,679 | 810 | 4,921 | 1,508 | 131 | 7,856 | 11,543 | 36,032 |
| 1967 | 496 | 3,232 | 8,414 | 498 | 4,310 | 492 | 146 | 7,581 | 1,411 | 26,580 |
| 1968 | 1,795 | 2,557 | 9,836 | 709 | 3,630 | 821 | 320 | 7,141 | 1,496 | 28,305 |
| 1969 | 1,274 | 6,874 | 8,586 | 895 | 3,195 | 1,187 | 86 | 10,733 | 2,211 | 35,041 |
| 1970 | 2,617 | 4,091 | 10,045 | 481 | 5,792 | 1,885 | 97 | 12,906 | 3,989 | 41,903 |
| 1971 | 2,727 | 5,954 | 5,495 | 391 | 4,145 | 1,313 | 106 | 13,339 | 3,443 | 36,903 |
| 1972 | 2,479 | 7,277 | 6,221 | 546 | 6,137 | 2,114 | 280 | 11,299 | 3,806 | 40,159 |
| 1973 | 1,323 | 7,576 | 10,607 | 626 | 11,723 | 1,013 | 171 | 14,319 | 40,324 | 87,682 |
| 1974 | 1,671 | 12,358 | 9,943 | 250 | 9,220 | 3,208 | 883 | 17,453 | 24,275 | 79,261 |
| 1975 | 4,474 | 11,682 | 10,096 | 212 | 16,811 | 1,853 | 3,048 | 20,576 | 45,781 | 1,14,533 |
| 1976 | 4,399 | 10,891 | 10,562 | 434 | 6,955 | 3,216 | 2,640 | 19,781 | 28,698 | 87,576 |
| 1977 | 1,131 | 10,182 | 13,756 | 258 | 11,965 | 2,762 | 2,779 | 17,086 | 39,968 | 99,887 |
| 1978 | 6,970 | 5,597 | 14,239 | 374 | 13,045 | 1,728 | 3,256 | 17,202 | 33,968 | 96,379 |
| 1979 | 6,266 | 8,825 | 18,948 | 306 | 5,237 | 2,348 | 1,492 | 21,366 | 28,230 | 93,018 |
| 1980 | 3,222 | 9,496 | 19,547 | 320 | 6,164 | 3,500 | 1,530 | 13,956 | 31,625 | 89,360 |
| 1981 | 2,403 | 7,046 | 13,140 | 330 | 3,145 | 2,295 | 1,610 | 17,475 | 35,242 | 82,686 |
| 1982 | 4,785 | 8,779 | 22,029 | 561 | 3,581 | 2,326 | 2,298 | 15,926 | 26,962 | 87,247 |
| 1983 | 14,123 | 11,554 | 13,143 | 454 | 6,112 | 4,067 | 2,697 | 18,278 | 29,647 | 1,00,075 |
| 1984 | 19,885 | 8,047 | 12,707 | 741 | 9,686 | 2,005 | 1,677 | 22,588 | 31,887 | 1,09,223 |
| Average | 4,341 | 7,640 | 11,736 | 484 | 7,146 | 2,086 | 1,329 | 15,098 | 22,342 | 72,202 |
| Percentage | 6.01 | 10.58 | 16.26 | 0.67 | 9.90 | 2.89 | 1.84 | 20.91 | 30.94 | |

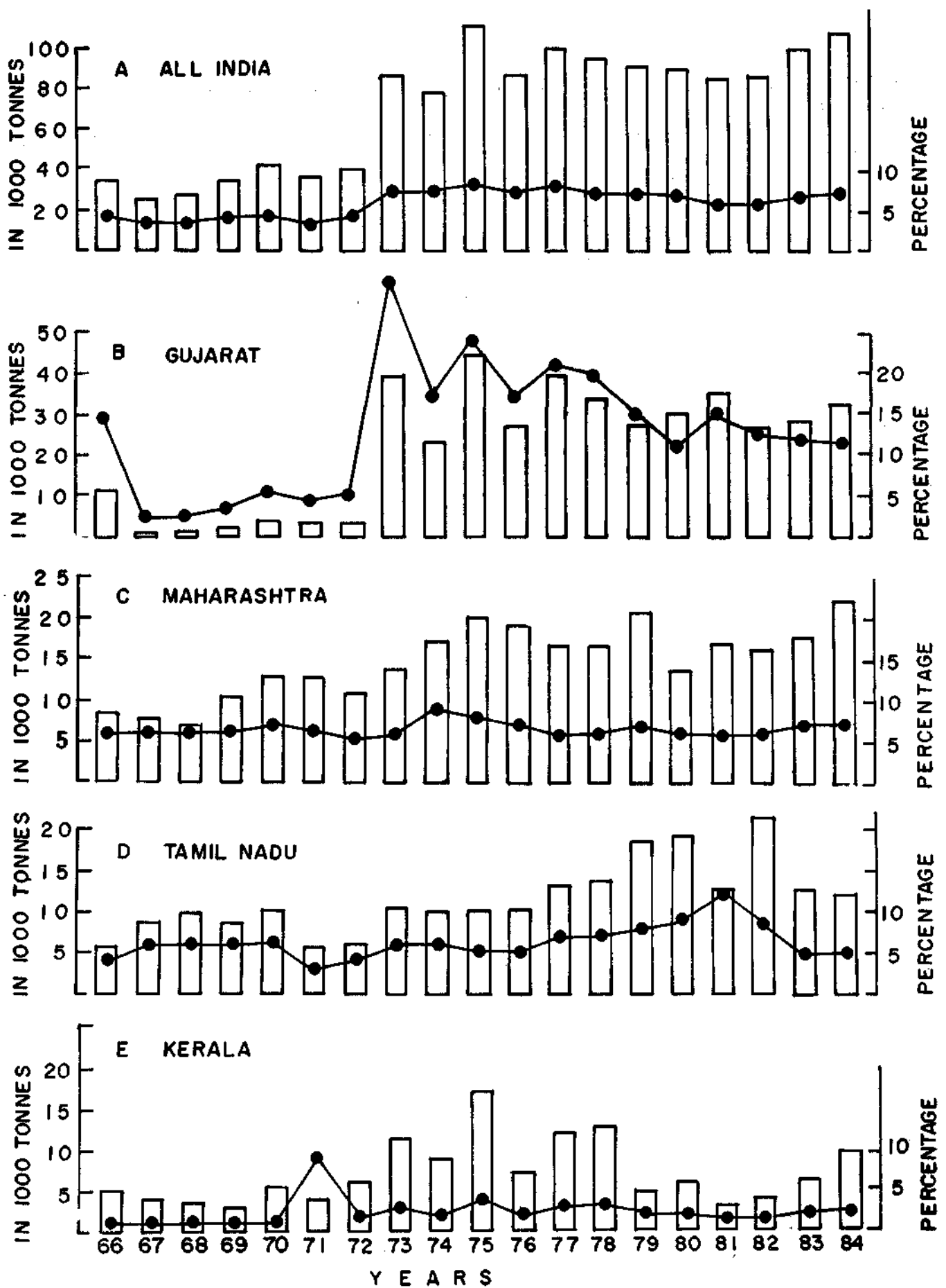


Fig. 1. Landings of sciaenids in the states of Gujarat, Maharashtra, Tamilnadu, Kerala and all-India and the percentage contribution to total landings during the period, 1966-'84.

3,145 tonnes in 1981, the corresponding percentages being 4 and 1 respectively (Fig. 1E).

Tamilnadu

This state ranks third in the landings of sciaenids at all-India level and first along the east coast of India with an average of 11,736 tonnes contributing to 16.26% of the all-India average catch (Table 1). The maximum landings were seen in 1982 (22,029 tonnes) and the minimum (5,495 tonnes) in 1971, the corresponding percentages to the total catch being about 9 and 3 respectively (Fig. 1D). The landings of sciaenids showed an increasing trend from 1975 to 1980 while a fluctuating trend was seen during other years.

Andhra Pradesh

With an average catch of 7,640 tonnes, this state ranks fourth (10.58%) in the landings of sciaenids, the minimum and maximum landings being 2,557 tonnes in 1968 and 12,358 tonnes in 1974 respectively (Table 1 and Fig. 2A). The percentage of sciaenid catch to the total catch in the state varied from 3 in 1968 to 10 in 1977 and 1978. The study has shown that while the catch from the mechanised boats along the Andhra coast increased in 1983 it registered a decrease in 1984.

West Bengal and Orissa

These two states jointly recorded an average catch of 4,341 tonnes of sciaenids during the period (Table 1) accounting for sixth place (6.01%). A maximum landing of 19,885 tonnes was recorded in 1984 showing an all time record. The landings during 1966-'84 showed a highly fluctuating trend, the last two years recording significantly higher catches. The percentage of the catch of sciaenids to the total catch in these states varied from 3 in 1967 to 23 in 1984 (Fig. 2B).

Karnataka

This state could claim only seventh place (2.89%) in the landings of sciaenids among the maritime states of India and fourth along the west coast with an average catch of 2,086 tonnes (Table 1). The landings experienced considerable fluctuations year to year during the period 1966-'84. Except in 1974, 1976 and 1980 the catch was less than 3,000 tonnes (Fig. 2C). It is also noticed that excepting two years (1968 and 1974) the percentage contribution of sciaenids to the total catch in the state never exceeded 3% level.

Goa

An estimated average catch of 1,329 tonnes of sciaenids was noticed during the period, 1966-'84 the minimum and maximum landings being in 1969 and 1978 respectively (Table 1). Although the percentage contribution to the total catch was less than 1% prior to 1973, increased landings were noticed in the subsequent years (Fig. 2B). This increase in the catch can be attributed to the corresponding increase in the number of operations of mechanised boats in this Union Territory (*Mar. Fish. Infor. Serv., T. & E Ser., No. 3, 1978 and No. 30, 1981*).

Pondicherry

The catch particulars available for this Union Territory indicate an average landing of 484 tonnes during the period, 1966-'84. The fluctuating catch trend varied from 212 tonnes in 1975 to 895 tonnes in 1969 (Table 1). The percentage contribution to the state's total catch which was of the order of 8 in 1968 and 1969 sharply declined to 3 in 1974-'75 and 1979-'80 periods.

Discussion

The sciaenids form an important group of fishes in the marine fish landings in India. Earlier investigations by Nair and Banerji (1966) and Rao (1973) indicated 5.45% and 3.64% of the sciaenid landings to total fish landings during 1950-'62 and 1956-'63 periods respectively. The present study reveals an average catch of about 72,200 tonnes during the period, 1966-'84 forming 6% of the all-India total marine fish catch. Catch trends during the period reveal highest catch in 1975 with 1.15 lakh tonnes. In general, the sciaenid landings indicated maximum yield from 1973 onwards which can be attributed mainly to the operations of more number of mechanised boats along the Indian coasts. Since then, the mechanised boats have gradually increased and at present an estimated number of 19,000 mechanised boats are in operation along the Indian coasts (*Mar. Fish. Infor. Serv., T & E Ser., No. 30, 1981*). Although trawling is almost exclusively carried out for prawns on account of their export value, sciaenids are also caught along with other demersal fishes. The percentage contribution of sciaenids to the total catch from 1973 did not show variation although 1975 recorded a maximum of 8%.

West (1973) estimated that out of 117×10^8 tons of demersal fish potential in the shelf area off north east

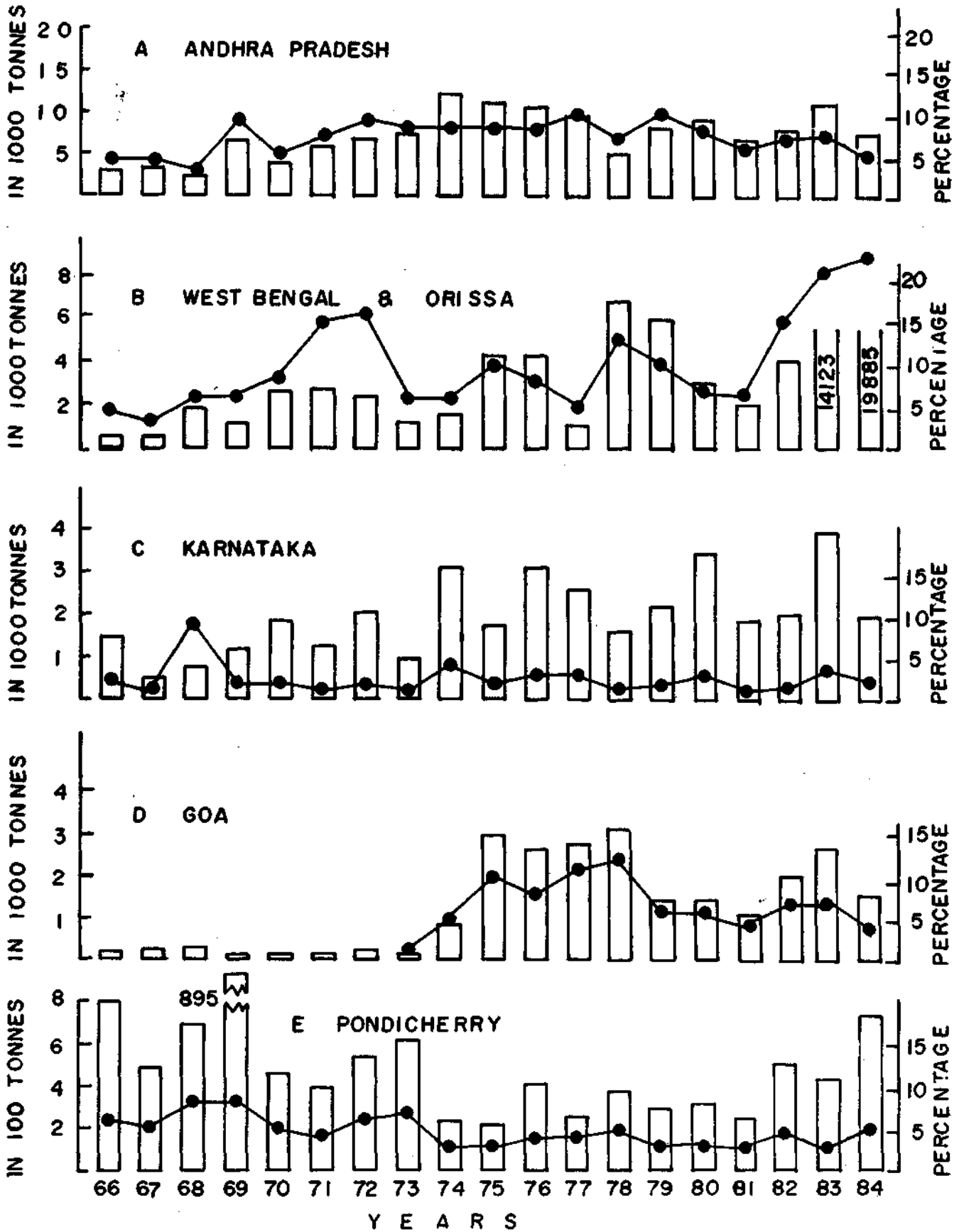


Fig. 2. Landings of sciaenids in the states of Andhra Pradesh, West Bengal & Orissa, Karnataka and union territories of Goa and Pondicherry and the percentage contribution to total landings during the period, 1966-'84.

coast of India, 16.7×10^3 tons were constituted by sciaenids thereby indicating the potential stock of this fishery along this coast. Comparatively better grounds for sciaenids have been recorded towards the north, while exploitable areas are present in the southern zone also mainly at $17^{\circ}40' N$ and in zone north of $19^{\circ}40' N$.

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REFERENCES

- BENSAM, P. 1973. Sciaenid fishery resources in the Gulf of Mannar and Palk Bay. *Proc. Symp. Living resources of the seas around India*: 461-469.
- DHARMARAJA, S. K. AND VARGHESE PHILIPSE, 1975. Trends in the yields of major exploited fisheries of the east coast of India. *Indian J. Fish.* 22 (1 & 2): 187-197.
- NAIR, R. V. AND S. K. BANERJI, 1966. A survey of statistics of marine fish catch in India. *Indian J. Fish.* 12 (1): 135-154.
- RAO, K. VIRABHADRA, 1975. Distribution pattern of the major exploited marine fisheries resources of India. *Proc. Symp. Living resources of the seas around India*: 18-101
- RAO, K. VIRABHADRA, P. T. MEENAKSHISUNDARAM AND K. DURAIRAJ, 1976. Relative abundance of trawl fishes in the Bombay-Sourashtra waters. *J. mar. biol. Ass. India*, 8: 205-212.
- WEST, W.Q.B. 1973. Fishery resources of the upper Bay of Bengal. *IOFC/DEV/73/28*, 44 pp. *FAO, Rome*.

