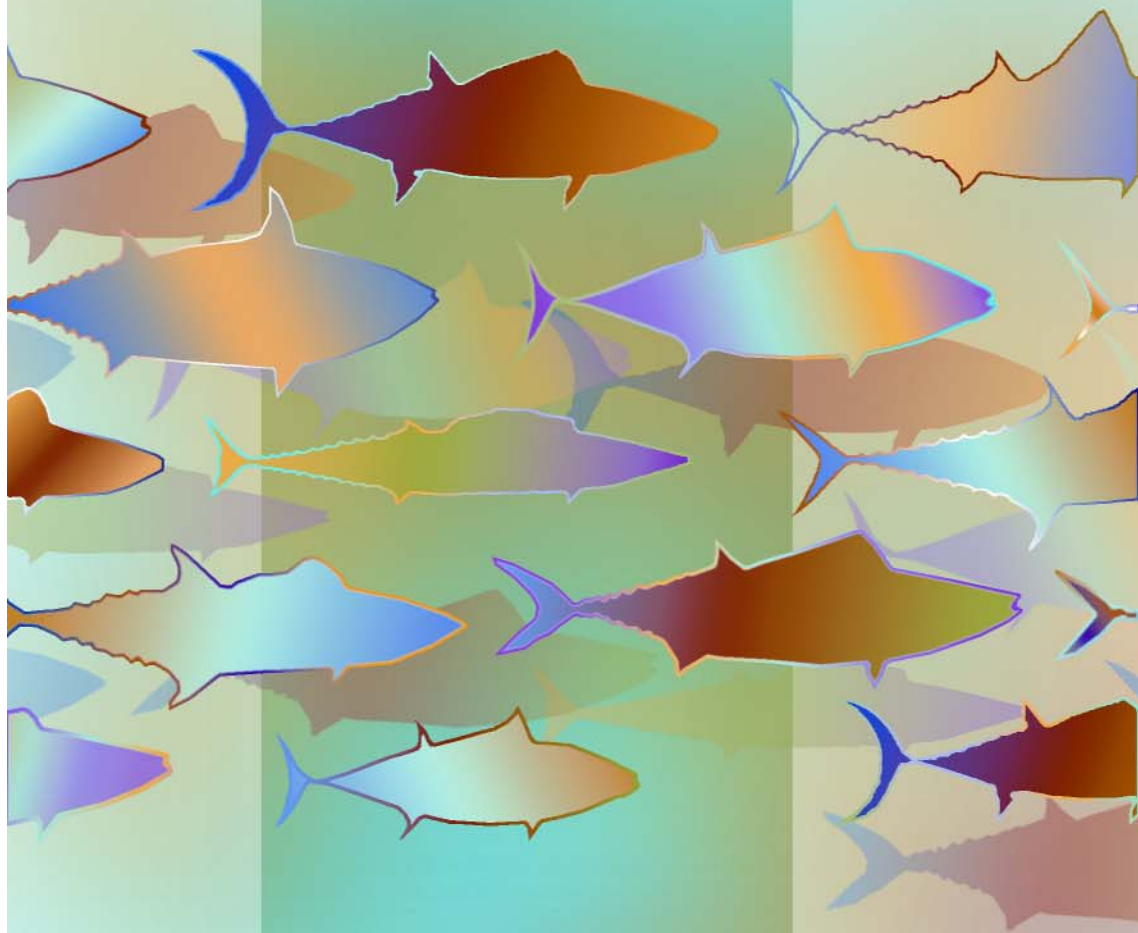


Status of Exploited  
Marine Fishery  
Resources of India



**STATUS OF EXPLOITED  
MARINE FISHERY  
RESOURCES OF INDIA**

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## Seerfishes

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### 1. Introduction

Seerfishes/Spanish-mackerels (known as Mackerel and Gura in West Bengal; Mingiram, Koni and Konemu in Orissa; Konemu and Vanjaram in Andhra Pradesh; Nettaiyan seela, Vanchiram, Kattayan seela and Nona seela in Tamil Nadu; Neimeen, Varimeen and Ayakkura in Kerala; Dandi, Isona, Anjal, Surmai in Karnataka; Isona in Goa; Surmai, Towar and Anjari in Maharashtra; Surmi and Chopri in Gujarat and Digumas and Ayakkura in Lakshadweep) are one of the commercially important marine pelagic finfish resources of India of high commercial value. The seerfish catch of 50,376 t in 2000 which was just 1.85% of the marine fish production was valued at 4.03 billion rupees and was higher than the cost price of India's major group of finfish catches like mackerel and oil sardine. Owing to their high unit value and economic returns, they support artisanal fisheries and is a major source of income for gill net and hook and line fishermen of the country. In recent years, they are also caught in appreciable quantities by trawl from the deeper waters, enhancing the financial returns to the boat owners. Since seerfishes grow to a large size and their meat quality is of high grade, they are in great demand all over the country fetching Rs.80-150/kg, prices higher than that of chicken and mutton.

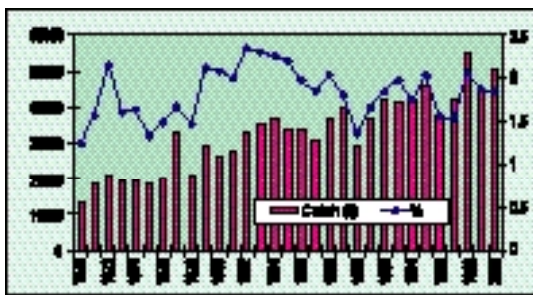


Fig. 1. Annual production and percentage composition of seerfish in total marine fish catch in India

## 2. Production trends

The all-India annual seerfish catch showed an increasing trend during the past five decades (1950-59 to 1990-99) with fluctuations ranging from a mere 4,505 t in 1953 to an all time peak of 54,876 t in 1998 (Fig.1). The average annual production was 7,278 t, 10,499 t, 20,300 t, 33,297 t and 41,575 t contributing 1.15%, 1.28%, 1.62%, 2.07% and 1.75% to the total marine fish catch of the country during 1950s, 1960s, 1970s, 1980s and 1990s respectively. The rate of increase through successive decades has decreased indicating the attainment of optimum production. During 1950s, the east coast accounted for more seerfish (60%) than the west coast. Gradually it changed to 50:50 during 1970s, 37:63 during 1980s and to 36:64 during 1990-99. Though the production increased along both coasts over the years, the improvement along the west coast was more remarkable.

During 1990-99, with an average annual catch of 14,954 t along the east coast, Tamil Nadu topped in production, contributing 5,673 t (38%), followed by Andhra Pradesh 5,295 t (35%), Orissa 2,348 t (16%), West Bengal 904 t (6%), Andamans 564 t (4%) and Pondicherry 170 t (1%).

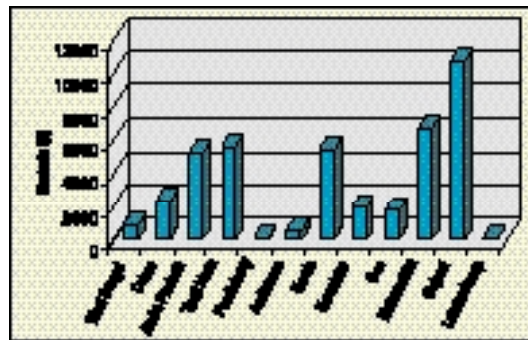


Fig. 2. State-wise average annual seerfish production during 1990-99.

Out of 26,794 t along the west coast, Gujarat contributed 10,806 t (40%), followed by Maharashtra 6,717 t (25%), Kerala 5,455 t (20%), Karnataka 1,984 t (7%), Goa 1,761 t (6%) and Lakshadweep 71 t (0.3%) (Fig.2). The annual average catch increased in all states during the last three decades (1970s, 1980s and 1990s) except in Kerala and Karnataka where the production showed a declining trend during 1990-99.

### Fishing season and species composition

There is a low seasonal catch trend along the east coast as compared to west coast. The annual catch ratios in the first, second, third and fourth quarters are 28%, 15%, 25% and 32% respectively for the east coast and 24%, 10%, 12% and 50% for the west coast during 1961-99. During 1995-99 the production was highest during I quarter in Andhra Pradesh, III quarter in West Bengal, Tamil Nadu and Pondicherry and IV quarter in Orissa. Along the west coast the IV quarter was more productive in Kerala, Karnataka and Maharashtra, III and IV quarters in Goa and IV and I in Gujarat (Fig.3).

Out of four species viz., the king seer (*Scomberomorus commerson*) (Fig.4), the spotted seer (*S.guttatus*), the streaked seer (*S.lineolatus*) and the wahoo (*Acanthocybium solandri*), the fishery is sustained by the first two species. During 1982-94 the all-India seerfish catch was constituted by the king seer (55.3%), spotted

seer (43.9%), streaked seer (0.6%) and wahoo (0.2%). However, during 1995-1999 the contribution of king seer increased to 62.8% whereas, that of spotted seer decreased to 36.6% (Fig. 5). The king seer was dominant along the mid-eastern (Orissa, Andhra Pradesh), southeastern (Tamil Nadu), south-western (Kerala) and mid-western (Karnataka, Goa) coasts. The spotted seer is more abundant than the king seer along northeast coast (West Bengal) and northwest coast (Maharashtra, Gujarat).

#### Mode of exploitation

Gill net is the dominant gear. The gear contributed to 65% of the total seerfish catch of the country during 1989-94 and 1995-99 periods (Fig.6). With the advent of multiday trawling in the deeper waters, the contribution of seerfish by trawlers is showing an increasing trend, from 11.5% during 1989-94 to 17.4% during 1995-99. While the contribution by hook and line has come down to 4% from 6.9% and that of the other gears like boat seines, shore seines and purse seines has increased to 16.4% from 13.9% during 1989-94.

#### Size composition

The length range of king seer in the combined catch of all gears and on all-India basis was 13-131 cm during 1992-95 and 11-141 cm during 1996-2000 with mean size at 47.9 cm and 40.6 cm respectively. The fishery of spotted seer was composed of fish in the size range of 9-79 cm during 1992-95 and 9-71 cm during 1996-00 with mean size more or less at 39 cm in both periods.

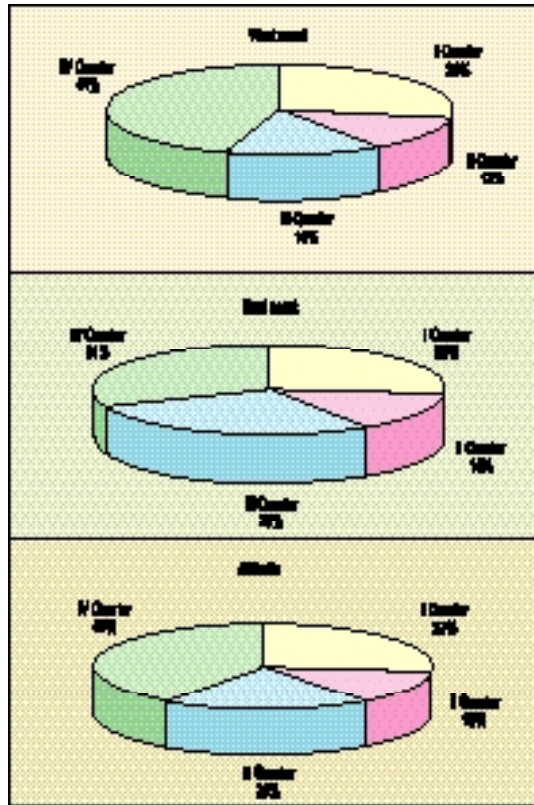


Fig.3. Quarterly seerfish production (%) during 1995-99

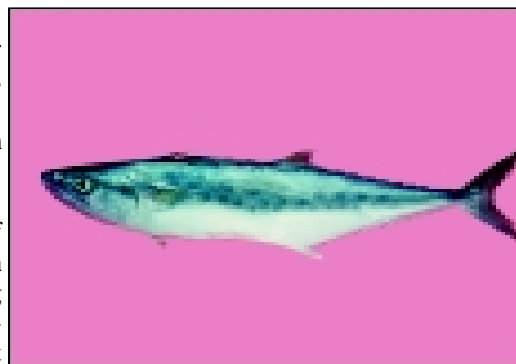


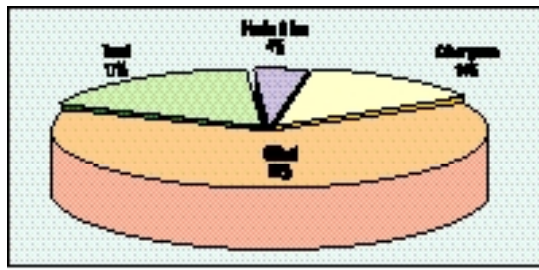
Fig. 4. *Scomberomorus commerson*

Contribution of juveniles of king seer and spotted seer to the fishery was negligible. In the case of king seer, juveniles (<17 cm), youngfish (< 35 cm) and virgin immature fish (< 71 cm) formed 2.2%, 46.5% and 89.6% of the total estimated numbers of fish caught by all gears on a national basis. For spotted seer, juveniles (< 9 cm), youngfish (<18 cm) and virgin immature fish (<35 cm) accounted for 0.02%, 1.7% and 33.6% respectively.

For king seer, the ratios of juveniles, youngfish and virgin immature fish is 0: 2: 66 in gill net, 3:62:99 in trawl net, 0:0:34 in hook and line and 1:70:100 in the small meshed gill net podivalai (along the Tuticorin coast). Compared to king seer, the proportion of the juveniles, young ones and virgin immature specimens for spotted seer was minimum at 0.01:0.5: 23 in gill net catch and 0.03: 3: 50 in trawls.

### 3. Biology

All the three species, the king seer, spotted seer and streaked seer have a protracted spawning season extending from January-August with a peak in April-May in the Indian waters. The king seer has only one recruitment period on both coasts, extending from November to March with a peak during December-January along the west coast and from March to July with a peak during April-May along east coast. In the case of spotted seer, the recruitment period is a prolonged one, extending from August to May with a peak during November-March along west coast and from October to June with a peak during February-May along east coast.



**Fig. 8. Gearwise contribution of seerfishes during 1988-89**

All the three species are piscivorous and occasionally feed on prawns, squids and cuttlefishes. They prefer sardines and whitebaits. Juveniles prefer whitebaits. The other common food items are carangids, tardoore, mackerel, silverbellies, croakers, wolf-herrings, whitefish, ribbonfish, etc.

The king seer grows very rapidly during I year of its life reaching an average size of 93 cm and attains 122 cm, 131 cm, 135 cm and 136 cm at the end of II, III, IV and V year. The length at ages I-IV for spotted seer is 51 cm, 65 cm, 69 cm and 74 cm respectively. The total life span in the fishery is 5 + years for king seer and 4+ years for spotted seer.

### Marketing and trade

Seerfishes are the most sought after table fish on par with pomfrets and are in great demand all over the country. They are relished mostly in fresh and to some extent in cured form (salt dried). They earn higher price in the metropolitan cities far away from production centres or cities where the supply is lower than the demand. While smaller fishes are easily handled and sold in the local markets, larger fishes are transported in ice to bigger cities where the price and demands are higher. A sizeable portion of the catch is filleted and frozen for the export market.

### 4. Stock assessment and management

The estimated total annual stock and the present annual yield of the king seer for 1995-99 were estimated at 14,072 t and 10,695 t respectively for east coast and 21,919 t and 15,869 t for west coast totaling to 35,991 t and 26,564 t for the country as a whole. For the spotted seer, the annual stock and yield were estimated at 6,235 t and 4,551 t for the east coast and 15,229 t and 11,269 t for the west coast respectively giving a total of 21,464 t and 15,820 t for the country. The king seer is exposed to higher fishing pressure along both coasts of India by all gears except by gill net in Gujarat. However, the increase in the catch may not be applicable for an increase by 20% in effort input of gill net. The spotted seer is exposed to higher fishing pressure by trawl at Mangalore and Kakinada and by gill nets at Chennai and Kakinada. The stock size of king seer is considerably reduced over a period of time due to continuous increase in exploitation by different gears and that of spotted seer is also reduced but not as critical as the king seer.

Gill nets and multi-day trawls at present heavily exploit seerfish stocks and there is need to reduce the effort of these gears. Since the capital investment of these units is on the higher side, it is natural that the fishermen target quality finfishes and shellfishes for easy and quick returns. Therefore, they would be quite unmindful to scale down the effort in the near future unless harsh measures are imposed. The other alternative is to increase the minimum size at first capture by increasing the mesh size. Presently, the gill nets of 65-170 mm exploit king seer and spotted seer below the optimum size and minimum size at first maturity. Therefore, the mesh size of gill net should be increased to a minimum of 130 mm.

The gill nets of smaller mesh types like 'podivalai' (70-100 mm) along the Tuticorin coast and the trawlers along both the coasts land exclusively small sized king seer resulting in recruitment over fishing, which is detrimental to the recoupment of the stock and therefore should be discouraged.

The hook and line and large meshed gill nets target mostly larger sized seerfishes and other pelagics like tunas, barracudas and sharks and these gears may be encouraged for sustainable harvest in the inshore fishing grounds. Further, the operation of these gears may be extended to deeper waters also in order to increase the production from the untapped portion of stock available in offshore waters.

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