

# THE MACKEREL FISHERY IN INDIA

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The Indian mackerel, which forms a highly fluctuating seasonal fishery in the country is one of our most important migratory, shoaling pelagic fishes. During the 10-year period from 1965 to 1974, the annual catch of this fish was estimated to be 78,750 tonnes forming 9% of the country's marine fish production. The landings in the period, however, fluctuated between 21,700 tonnes in 1968 and 2,04,575 tonnes in 1971, and the percentage of the mackerel in the marine fish catches varied between 2 in 1968 and 18 in 1971.

On an average about 71,595 tonnes forming 91% of the mackerel landings in India are caught along the west coast, between Kanyakumari in the south and Ratnagiri in the north. The fishery, nevertheless, is concentrated mainly between Quilon (in Kerala) and Ratnagiri (in Maharashtra). Even in this region, the largest catches appear north of Ponnani (in Kerala), and only moderate catches to its south.

Kerala, Karnataka, Goa and Maharashtra are the maritime states in this intensive

mackerel fishing zone. The length of this mackerel fishing zone is 1,098 km, of which Kerala has a coast of 464 km (from Quilon to the north), Karnataka 270 km, Goa 110 km and Maharashtra 254 km (upto Ratnagiri from south).

As Kerala is the longest in the zone, the width of its already exploited coastal belt is also the largest. In the region between Ponnani and Cannanore, it extends upto 20 km offshore, whereas it is only 10 km at other places. Hence the average width of the exploited area in Kerala is 15 km. Boat seines and gill nets capable of being operated in the open sea upto 20 km from shore are used for fishing in this coast from non-mechanized country crafts.

Along the Karnataka coast the width of the exploited area is less. The nets in vogue here are the big shore seine *Rampani* and the gill nets. The operation of the *Rampani* is confined to only a narrow coastal belt of 3 km. However, the gill nets are operated upto 7 km and the average exploited width therefore becomes 5 km.

*Rampani* being the only popular gear used for the fishing along the coasts of Goa and Maharashtra, the coastal belt under exploitation there, is limited to only 3 km.

Over the 10-year period of 1965-74, the average annual catch of the mackerel was the highest, i. e. 28,133 tonnes, in Kerala. This was followed by Karnataka 24,706 tonnes, Goa 13,316 tonnes and Maharashtra 5,440 tonnes. In the country's total mackerel production 36% thus comes from Kerala, 31% from Karnataka, 17% from Goa and 7% from Maharashtra.

On the contrary, the percentage of the mackerel in the states' marine fish landings brings to light an entirely different picture. Though Kerala tops the states in the country in the production of the mackerel, in its marine fish landings mackerel forms only 8%. In Karnataka it is, however, 30%. Goa has a share as high as 59% and is evidently very important in the state's economy. In Maharashtra where it forms only 3% of the total fish landings, the mackerel fishery is rather poor.

But an interesting trend becomes apparent when the mackerel landings are viewed from a different angle. Dividing the landings of a state by the respective area under exploitation, the catch per square kilometre is calculated and it is given in Table 1. The catch per square kilometre is as low as 4.04 tonnes in Kerala and as high as 40.35 tonnes in Goa. The ratio of the total production of the mackerel in Kerala, Karnataka, Goa and the Maharashtra is roughly 1 : 1/2 : 1/5. But

when the catch per square kilometre is considered, the ratio changes to 1 : 4 1/2 : 10 : 1 1/2. Kerala thus slumps to the bottom and Goa is elevated to the top. Goa not only has the mackerel as its most important fishery, but also produces it more than all other states, per unit area.

TABLE I  
Fishing area and the catch per square kilometre in the mackerel fishing zone of the west coast of India

	Mackerel fishing zone of the west coast.			Average landings during 1969-74 (tonnes)	Catch per square kilometre, (tonnes)
	Length (km)	Average width (km)	Area (km <sup>2</sup> )		
Kerala (north of Quilon)	464	15	6960	28133	4.04
Karnataka	270	5	1350	24706	18.30
Goa	110	3	330	13316	40.35
Maharashtra (upto Ratnagiri)	254	3	762	5440	7.14

The mackerel in the country as already stated forms only a seasonal fishery. But in Kerala, the season extends long from August to April. The effort to catch the mackerel here, however, is not confined to the season alone, but continued throughout the year. Moreover, the ever alert fishermen of Kerala do night fishing also. Because of the large total production of the mackerel and the incessant effort to exploit them upto 20 km offshore, it would appear that the mackerel resource is being exploited intensively along the Kerala coast. On the contrary, we are not adequately exploiting

the resource in Karnataka, Goa and Maharashtra <sup>and that</sup> where the production there can be increased by expanding the existing fishing zone to offshore.

By widening the fishing belt to 15 km as in Kerala, the area no doubt can be trebled in Karnataka and increased to 5 times in Goa and Maharashtra. But can there be a parallel increase in the catch also? If so at the present rate of exploitation per square kilometre, the catch may increase to 74,120 tonnes in Karnataka, 66,580 tonnes in Goa and 27,200 tonnes in Maharashtra. The total catch for the zone including Kerala, theoretically increases 2.75 times to 1,96,030 tonnes from the present 71,595 tonnes. The ratio of the landings then changes from the present 1:1/2:1/5 to 1:2 1/2:2 1/2:1. Such a proportion has never occurred in the history of the country's mackerel fishery. The actual landings in the 4 states in 1971 totalled 1,99,120 tonnes. Though it has exceeded the theoretical value of 1,96,030 tonnes, the ratio of production was 1:2/3:1/3:1/20; respectively in Kerala, Karnataka, Goa and Maharashtra. The probability of increasing the production to the level described above, therefore is far from real.

On the other hand, if the same quantity of fish landed at present is going to be caught from the enhanced fishing area, the catch per square kilometre falls from 18.30 tonnes to 6.10 tonnes in Karnataka, 40.35 tonnes to 8.05 tonnes in Goa and 7.14 tonnes to 1.43 tonnes in Maharashtra. These values are not too high compared to the production rate of 4.04 tonnes for Kerala, where the resource is apparently being

exploited intensively. But there is another aspect that demands attention. Unlike in Kerala, the mackerel season to its north at present is short and stretches between October and March. This brevity of the season is probably because of the limitations of the *Rampani* which can cover a width of only 3 km from shore, and only operate economically when this area has dense shoals. In the season the fishing activity is in fact intense. But in the off season, i. e. between April and September, it is practically nil. Extending the fishing activities may be tried throughout the year to increase the production in Karnataka, Goa and Maharashtra also; in which case instead of *Rampani* gears that can be taken out into the open sea will have to be employed.

But is there enough fish in the sea that can withstand the increased fishing pressure, and promise the maximum sustainable yield in the coming years? Based on the studies on the mackerel fishery, scientists have estimated the potential yield of the mackerel along the west coast to be around 73,000 tonnes a year. In fact the mean annual exploitation here is already 71,595 tonnes. This does not give enough scope for a wide increase in the fishing effort. However, it has to be emphasised that this estimate is framed on the catch statistics at present available from the 15 km belt of Kerala, 5 km belt of Karnataka and 3 km belt of Goa and Maharashtra. Therefore, the estimate of the potential catch may have to be revised upwards when the fishing in the Karnataka, Goa and Maharashtra coast is extended to the 15 km belt. Scientists feel

that there is hope for the betterment of the present landings by scientifically and efficiently expanding the effort. The acoustic and aerial surveys on the resources of the mackerel along the coast support the view in favour of the possibility of an overall increase in the catch.

During the season the mackerel is found mostly within 15 km from the shore. In the off season, they may be seen in grounds around 50 km from shore. Aided by the modern technology and sophisticated fishing appliances, they can be exploited offshore. However, it will be prudent to expand the fishing zone stage by stage so that the effect on the stock can be closely watched from year to year, and problems such as over-fishing and depletion avoided.

Though the mackerel fishery is of minor importance in the east coast suitable attempts can be made there also to increase the production. In this context, the mackerel fishery of Andamans needs special attention. The fishery in Andamans at present is poor. The annual catch during the 10 year period of 1965-74 varied between 12 tonnes in 1968 and 100 tonnes in 1973, the average being 33 tonnes. But the Andaman mackerel are bigger in size than those that are caught along the coasts of the mainland and will be of more commercial importance. It will therefore be worthwhile to increase the production there by enhancing the fishery in time and space, employing new gears and techniques of fishing.