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CATCH RATES AND CATCH COMPOSITION OF FISH IN THE WEDGE BANK IN COMMERCIAL FISHING

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ABSTRACT

The paper embodies some of the un-published results of commercial fishing in the Wedge Bank located south of Cape Comorin between a Long of 77° and 78°. 10'. The area is approximately 4000 Sq. miles exposed to full force of both the SW and NE monsoons. The continental shelf off Cape Comorin has a gentle slope up to 100 Metres beyond which the depth sharply increases. Bottom is of coarse yellow sand overlying flat rock up to 60 m contour. Beyond this the bottom is firm clear sand with stretches of flat rock. There are rough patches of pinnacle rocks. Commercial large fishes consist mainly of rock fishes (47.8 to 65%) and carangids (2.4 to 11.9 %). Catch per hour of comparable trawlers of 450 to 650 HP has been estimated after adjusted effort.

Year	Catch effort in Hours	CPUE Kg/Hr.
1966-66	3652	243.6
1966-67	5791	173.1
1967-68	2834	136.3
1968-69	3412	190.9
1969-70	1924	154.0

Average seasonal catch was 183 Kg/Hr in Nov-April and 282.9 Kg/Hr in May to Oct.

In more recent operations by paired trawlers of 1100 HP 36 M OAL chartered from abroad the catch rate in 1983 has been 247.28 Kg/Hr in operation of 358 hours. Squids and cuttle fish catch varied between 26 to 79% in August and September. Details have been presented in the paper.

INTRODUCTION

The area of the sea south of Cape Comorin has been generally known as the 'Wedge Bank'. The area has been defined by the Fishery Survey of India (F. S. I) as that part of the sea bed between 76°. 30'E to 78°.00 E Long, and 07°.00,N to 8°. 20' N Lat. The area is about 4000 Sq. miles. The general map of the Bank with contour lines may be seen in Fig. 1.

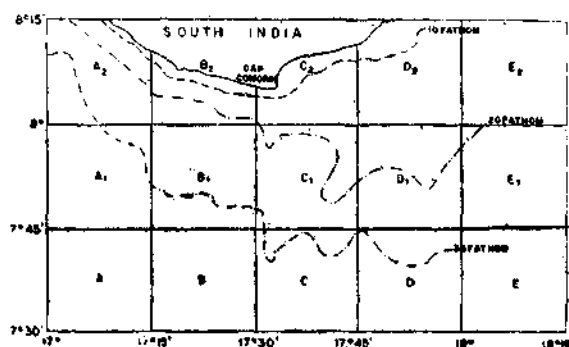


Fig. 1 Depth contours of Wedge Bank

Operations of different vessels in the Bank have been evaluated in this paper.

Trawlers operated in the Bank

Commercial fishing was first commenced in 1928. 'Tongkol' (125' OAL, 99 NPH) operated in 1928 and 1929 and 'Bul Bul' a vessel of the same type from 1928 to 1935. The total annual catch during this period varied from 106 to 597 tonnes. The catch per day's absence from port varied between 1128 and 2512 kg/hr. The number of days fished per year was between 96 and 262.

These vessels did not give an economic return and after a break of 10 years, fishing was resumed as below.

'Reglan Castle'	::	126' OAL 87 NHP
		1945-1951
'Aringa'	::	147 Do 450 BHP
		1947-1948

'Brancoglen' :: 149 Do 91 NHP
1951 to 1963
'Maple Leaf' :: 143 Do 84 NHP
1953 to 1970

'Gandara', 'Pesalai', 'Beruwala' 'Megamuwa' 'My Liddy' were of the same type and HP with OAL of 33 to 36 m OAL. These operated from 1965 onwards. Records have been available to the author up to part of 1970.

Many of the vessels were under foreign skippers and operated the standard Granton Trawl. In operations in the field it was found that the net was too heavy and with replacement with the lighter 'Engel' trawl catches improved between 25 to 50%. Chartered vessels of 1100 HP operated for a short period in 1983 using paired trawls.

Nature of Fishing grounds

Not all of the bank is trawlable as parts of the ground are rocky. Some of this can be trawled with rollers or bobbins in the ground rope. The bottom is coarse yellow sand overlying flat rock to the 60 m contour. Beyond this and up to the edge of the continental shelf the bottom is made of firm, clear sand with stretches of flat rock. There are a few rough patches of pinnacle rocks in both shallow and deep water and also very limited areas of bottom of mud. Some areas had profuse growth of sea fans (gorgonids) and sponges which interfered with trawling and sorting of catches. Over the years, due to continuous trawling operations these more or less disappeared from the fishing areas.

Hydrography and weather

The Bank is exposed to the full force both of NW and SW Monsoons. Foreign skippers consider that weather conditions are more favourable to fishing in the bank than in European waters. Except for 2 or 3 months, the rest of the period has a ground swell. During Monsoons the wind speed is 3 to 6 Beaufort scale with a current of 0.5 to 0.1 knot per hour.

Catch per hour in kg. by different vessels

Table 1 gives the details of catches, hours fishes and CPUE (kg/hr). In the season Nov-

TABLE - 1.

Effort, catch and CPUE of Ceylonese commercial vessels in Wadge Bank

Vessel	Catch (Tonnes)	Hours (Effort)	CPUE (Kg/hr)	Years & season NOV-APR
B & M	3942	11093	281.4	1957-63
M	332	1706	194.6	1963-65
Vessels	3172	24595	128.9	1965-1970
G	141	1017	138.6	1964-65
Total	7587	38411	197.5	
MAY-OCT				
B & M	3411	10013	340.6	1957-63
M	795	2837	280.2	1963-65
Vessels	5008	25779	194.2	1965-70
G	249	1141	218.2	1964-65
Av. per year	4827	—	309.0	
Total			39770	
Legend	B . . Brancoglen M . . Maple Leaf G . . Gandara Combined . . same type vessels			

April the CPUE has varied between 138.6 and 281.4 kg/hr the general average being 197.5 kg/hr. But in the season May to October the variation is between 194.2 and 340.6 kg/hr the average being 309 kg/hr. It is known that both rock fishes and carangids migrate to the bank during May-Oct. Catch rates were taken of selective vessels for 1965-1970. The results are given below.

Year	CPUE Kg/Hr.	Effort (Hrs)
1965-66	243.6	3662
1966-67	173.1	5791
1967-68	136.3	2834
1968-69	190.9	3412
1969-70	164.0	1924

Average seasonal catch was 183 kg/hr in November to April and 282.9 kg/hr in May to Oct. Chartered vessels sampled the Wadge Bank in Aug/Sept 1983 for 358 hours between the depths of 40 and 80 m. The catch rate was 247.29 kg/hr.

Commercial grouping of fishes

The following grouping is made in analysing the commercial catches.

Rock fish or Mullets (Large) Lethrinus nebulosus (Forsk.) *L. mahsenoides* (Val) *Lethrinella miniata* (Schneider) *Spilotichthys pictus* (Thunberg), *Epinephelus undulosus* (Quoy and Gaimard), *Pristipomoides typus* (Bleeker), *Lutianus sanguineus* (Cuvier), *L. utjanus* sp. etc.

Carangids

Gnathanodon speciosus (Forsk.), *Caranx chrysophrys* (Bloch) *C. malabaricus* (Bloch & Schneider), *Caranx carangus* (Bloch) etc. Catfish *Tachysurus thalassinus* (Ruppel), *Carcharhinus sorrah* (Cuvier), *C. maclovi* (Muller & Henle) etc.

Information available on the bionomics of the commercial species orientated to capture is sketchy although most of the fish taken in the coastal waters of Ceylon have been found to have ripe gonads. Most of the species are common to the coastal belt of the Indian peninsula.

Variation in the catch composition

The annual variation from year to year in the percentage composition of the catch of the groups is not much except in case of carangids. Finer analysis according to species is not available. Table below shows the annual variation in percentage of groups.

Groups	1966	1967	1968	1969
Rockfish	52.6	53.3	47.8	65.4
Carangids	11.9	6.4	7.9	2.4
Sharks & Skates	9.3	7.5	5.3	4.5
Catfishes	11.6	21.5	21.4	12.8
Others	14.6	11.4	17.6	14.9

Percentage composition in Chartered Vessel catch.

Table below shows the variations in the percentage composition of the catch in day and night fishing by chartered vessels.

Group	Day	Night
Snapper	10.96	12.25
Squid	29.80	2.88
Cuttle fish	28.12	54.04
Seer	.02	Nil
Carangids	.75	Nil
Perches	4.40	3.61
Misc. Big	3.95	4.32
Misc.	22.00	22.90

Survey by FSI

Valuable knowledge has been gained by the operations of Matsya Neerikshani, a modern trawler which has conducted sample fishing in all depths of the Bank. Average catch rate has been 130 kg/hr between depth of 40 and 80m. The commercial projection is 260 kg/hr.

DISCUSSION

Wadge Bank is considered to be a good fishing ground with a sizable percentage of quality fish, but the fishing by Sri Lanka and some other countries has not been very viable commercially. The Chartered Vessels after sampling Wadge Bank all veered to Kori Great Bank which has given better fishing. It appears that the lean season i. e. April to Nov. does not give an economic earning. Use of vessels with less HP and lighter nets giving the same catch rates of the vessels operated by Ceylon is likely to prove profitable. It may also be possible to introduce smaller vessels for specially squid jigging. Research support is not adequate to strengthen the economics of commercial fishing. This is particularly necessary in studying the oceanographical causes of migration and improvement and diversification of craft and gear. There seems to be a sizable resource of mid-water fish.

CONCLUSION

The Wadge Bank is a rich Fishing ground from May to October. It requires vessels to withstand wind speed up to Beaufort 5°. The resources indicate the need for diversified fishing like pelagic trawling, squid jigging and line fishing in the rocky area. There is need for research on craft and gear and oceanographic studies on causes of migration and areas from which the fishes particularly the larger carangids migrate. Any fall in the economic catch rate has to be watched before a large number of vessels are introduced. Bobbin trawling might change the environment which has to be carefully watched as causes of migration are not known.

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