

ON THE RESULTS OF BOTTOM-DRIFT-LONG-LINES OPERATED OFF VERAVAL WITH PARTICULAR REFERENCE TO SELECTIVE ACTION OF BAITS AND HOOKS USED

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Hitherto comprehensive data on the various types of baits used for capture of predatory fish and selective action of different hooks for bottom-drift-long lines is conspicuous by its absence. In the present studies attempts were made to evaluate the effectiveness of three types of baits and four sizes of hooks. Significant results obtained during the course of these investigations are presented in this communication.

INTRODUCTION

The drift-long-line fishing for predatory fishes is known all along the Indian Coast from very early times is a fact and needs no special emphasis. Surprisingly enough, no systematic work seems to have been carried out for assessing the effectiveness of certain types of baits and hooks in vogue, except as a passing reference by Ayyangar (1922), Hornell (1916, 1938, 1950), Sorley (1932), Devanesen and Chidambaram (1951), Gopinath (1954), Chacko *et. al.* (1955), (1956), Gokhale (1957), John *et. al.* (1959) and Kaikini (1960). Balasubramanyan (1964, 1964^a) during his survey of line fishing along Madras coast has described the types of baits commonly employed by the fishermen and their efficiency in capture of certain varieties of fish. During the present studies the authors attempted to evolve

a suitable bottom-drift longline gear for capture of predatory fish like elasmobranchs, eels, cat fishes, perches and sciaenids placing special emphasis on evolving an effective bait as well as correct size of hook to be used for the varieties mentioned.

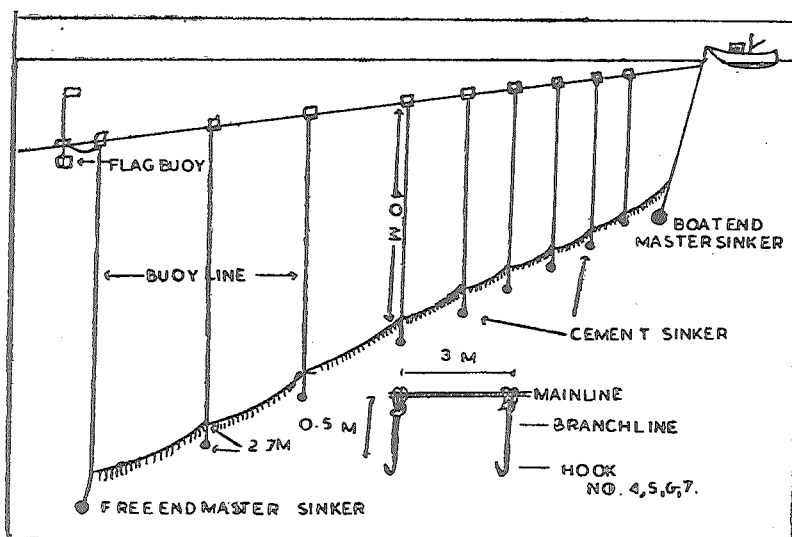
MATERIALS AND METHODS

Fishing trials were conducted during the year 1964-1965 in Veraval waters at depths ranging from 13 to 36 metres. The grounds fished were same as described by Deshpande and Kartha (1964).

Investigational fishing vessel 'Fishtech IV' described by Deshpande and Kartha (*op. cit.* p. 185) was employed for conducting fishing operations.

The design and constructional details of the gear and accessories used during

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Text Fig. 1: Showing constructional and operational details of bottom-drift-long line.

the course of present studies are illustrated in Text Figure I.

Three types of baits viz. prawn, cuttle fish and 'dhoma' (*Otolithus Sp.*) were selected and used as whole fish.

The lines were operated as bottom-drift long lines. The shooting as well as hauling-in operations of the entire gear was carried out following the method described by Deshpande *et.al.* (1970). On completion of shooting operation the boat along with the longline gear was allowed to drift with the current for 3 to 4 hours (Text Figure 1).

Particulars such as the fish caught, bait and hook to which it was hooked were recorded during the course of hauling-in operations.

RESULTS AND DISCUSSION

A total of 5700 hooks were operated during the course of entire experimentation and landed a total catch of 2997 kg. Particulars of the varieties of fish caught along with their number and weight on scrutiny are presented in Table No. I.

Eight varieties of fish were caught

during the entire period of experimentation. Percentage composition of the catch landed reveals that elasmobranchs constituted 78.5% of the total catch followed by cat fishes and eels with 7.4% and 7.3% respectively. The remaining catch of 6.8% account for perches, chorinemus and sciaenids. The average catch per hundred hooks during the course of present trials when calculated works out to 52.6 kg.

Catch efficiency of different baits.

To study the comparative efficiency of three baits viz. prawn, cuttle fish and small sciaenids a total of 2190 hooks of No. 5 specification were operated during the course of actual fishing operations. The results on analysis are tabulated in Table No. II.

The catch per hundred hooks baited with prawn, cuttle fish and 'Dhoma' when worked out comes to 65 kg., 115.7 kg. and 141.6 kg. respectively. Taking into consideration the total catch landed by each bait it can be deduced that 'Dhoma' as a bait appears to be most effective of the three, with cuttle fish ranking second in performance. Hooks baited with prawns proved to be less effective. The catch data

TABLE I SHOWING THE VARIETIES OF FISH CAUGHT ALONG WITH THEIR NUMBER, WEIGHT AND PERCENTAGE IN THE TOTAL CATCH

S. No.	Variety	No.	Weight (kg.)	%
1	Sharks	172	439	14.7
2	Skates	57	899	30.0
3	Rays	163	1013	33.8
4	Eels	58	218	7.3
5	Cat fishes	83	222.75	7.4
6	Perches	28	74.50	2.5
7	Chorinemus	8	58.00	1.9
8	Sciaenids	52	72.75	2.4
	Total	621	2997.00	100.00

TABLE II SHOWING THE CATCH LANDED BY BOTTOM-DRIFT-LONG-LINE WITH THREE BAITS

Bait used		Prawn		Cuttle-fish		Sciaenid	
S. No.	Name of the fish	No.	Wt. (kg.)	No.	Wt. (kg.)	No.	Wt. (kg.)
1	Sharks	24	61	26	122.5	98	245
2	Skates	9	130	21	346	14	212
3	Rays	21	126	24	170	43	281
4	Eels	9	36.5	5	16.5	38	150
5	Cat fishes	15	46	43	114.5	17	52
6	Perches	3	8	13	32.5	5	13.5
7	<i>Chorinemus</i>	5	35	1	6	2	17
8	Sciaenids	14	12	5	2	20	21
	Total	100	454.5	138	810	237	991.5

when subjected to further analysis, on qualitative basis, revealed that skates, cat fishes and perches were landed more by hooks baited with cuttle fish where as 'Dhoma' proved to be effective for capture of sharks, rays, eels and big sciaenids. *Chorinemus* sp. seems to have shown a definite preference for prawns.

Selectivity of hook

The remaining operations with bottom

-drift long-lines were conducted to assess selective action of hook on the catch. Four sizes of Mustad, round bent, sea hook ranging from No. 4 to 7, were employed and care was taken to use the same type of bait on all the sizes of hooks during each operation. The information gathered during the course of field trials on analysis is shown in Table No. III.

It would be evident from Table-III that

TABLE III SHOWING EFFECTIVENESS OF DIFFERENT HOOKS

Size of hook		No. 4		No. 5		No. 6		No. 7	
S. No.	Fish caught	No.	Wt. (kg.)	No.	Wt. (kg)	No.	Wt. (kg.)	No.	Wt. (kg.)
1	Sharks	1	0.25	10	6.25	8	2.75	5	1.25
2	Skates	1	15.00	7	108.00	1	19.00	4	69.00
3	Rays	19	169.00	20	129.00	22	92.00	14	46.00
4	Eels	—	—	1	1.00	3	8.00	2	6.00
5	Cat fishes	—	—	1	4.00	7	6.25	—	—
6	Perches	—	—	3	7.00	3	7.50	1	6.00
7	Sciaenids	—	—	5	23.00	4	12.75	4	2.00
Total		21	184.25	47	278.25	48	148.25	30	130.25

hook No.5, landed the maximum catch. The average catch per hundred hooks in respect of hook No.4, 5, 6 and 7 when calculated come to 20.5 kg., 30.9kg., 16.47kg. and 14.47kg. respectively, thereby showing hook No.5 as the most effective. Further, qualitative analysis of the catch data revealed that Elasmobranchs were invariably caught in all sizes of hooks. Table - III also indicates that No. 5 hook was most effective for capture of skates whereas rays were caught more by No. 4 hooks. Sharks caught by all the four sizes of hooks were small in size and formed a negligible percentage of the total catch. Eels and cat fishes were caught more by No.6 hook while the quantity of perches landed by hook No. 5 and No.6 was more or less the same. Catch of big sciaenids ('Ghol') shows that its landing was more by hook No. 5 only.

SUMMARY

The Communication deals with the results obtained during field operations with bottom-drift longlines operated in Veraval waters during the years 1964-65 and at depths ranging from 13 to 36 metres. A total of 5700 Mustad, round bent, sea

hook No.4, 5, 6 and 7 were operated and landed 2997 kg. of fish. Taking catch per hundred hooks as a unit for comparison it was observed that 'Dhoma' among the three baits and hook No. 5 among 4 types of hooks used were most effective for capture of predatory fishes. Certain preferences for bait and hook were also noticed. Eight varieties of fishes were caught during the entire period of experimentation. Percentage composition of the total catch landed revealed that elasmobranchs constituted 78.5% of the total followed by cat fishes and eels with 7.4% and 7.3% respectively. The remaining catch of 6.8% comprised of perches, chorinemus and sciaenids.

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