

EXPERIMENTAL TRAWLING IN THE AREA BETWEEN MANGALORE AND SURATKAL

BY A. K. NAGABHUSHANAM, M. D. K. KUTHALINGAM AND S. RAMAMURTHY

(Central Marine Fisheries Research Institute)

Experimental fishing operations were conducted between Latitudes 12° 50' N & 13° 0' N, and Longitudes 74° 40' E & 74° 50' E (Figure 1). Though commercial exploitation by mechanized boats has been in progress in this area no information regarding the yield in relation to depth and the composition of the catches, is available. The present study was undertaken to throw light on these aspects of the fishery.

Monthly collections were made by the departmental boat M.V. *SEA SEARCH* (10 h.p.) during the period January to May 1964; this period represents the major part of the local fishing season by the mechanized boats, fishing being suspended after May due to heavy seas. Two grounds, of a depth-range of 10-12 metres and 18-24 metres respectively, were trawled by the vessel (15' shrimp trawl, with a cod end mesh of 25 mm. was used throughout), each haul being of 1-hour duration. The nature of the sea-bed of these grounds was respectively found to be sandy-mud and mud/clay (See Fig. 1); the deeper ground was characterised by possessing a bottom-fauna including the sea-urchin *Temnopleura torematicus* (Klein), gastropods (chiefly *Turritella attenuata* Reeve) and umbrella-crabs (*Dorippe* spp.) — these organisms coming up in appreciable numbers in each haul. The weight of prawns, crabs, bony fish, and elasmobranchs taken in each haul were taken separately to assess catch-composition. For biological analysis, random samples were taken. Standard lengths for fishes, and total length for the prawns were recorded; the sex and gonadial stages were also noted.

It is evident from Table I that the catch per hour of the total landings was appreciably greater in the 10-12 metre ground except during February. The maximum yield was noticed during April and May in the shallower ground. The catch per hour of the various categories in the catches is given in Table II.

The small prawns included mostly *Metapenaeus dobsoni* Miers and *Parapenaeopsis stylifera* Milne-Edwards; while large prawns included *Metapenaeus affinis* (M.-Edw.), *M. monoceros* Fabr. and *Penaeus monodon* (Fabr.). Prawn concentrations were mainly found in the shallower ground.

The species composition of the catch in relation to depth, together with the length-range, sex-ratio, and stages of maturity of each prominent species, is

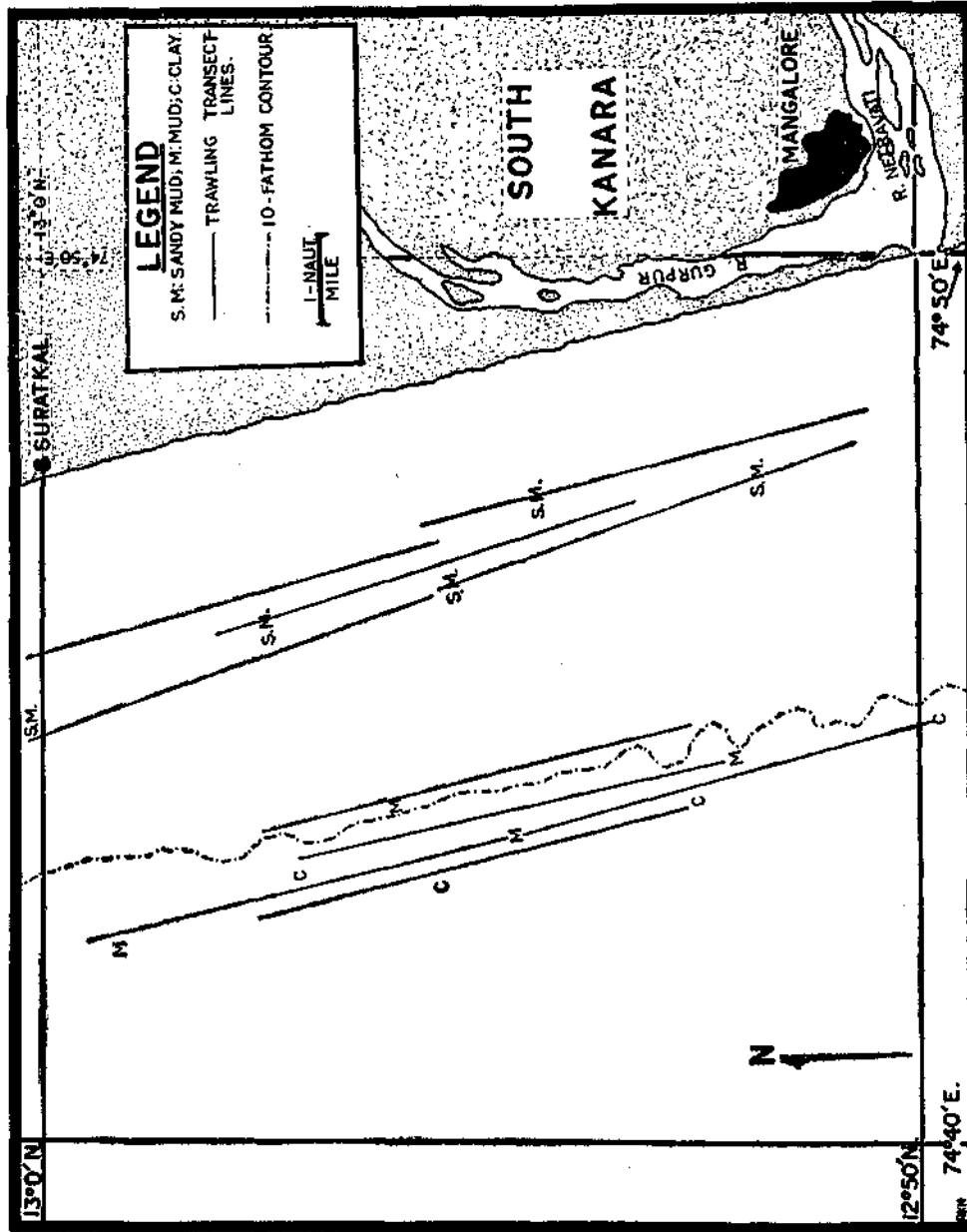


FIG. 1.—Showing the offshore fishing grounds between Mangalore and Suratkal.

presented in Table III. It was generally observed that most of the fishes rarely exceeded 150 mm. in length. It was also noted that fishes like *Pampus argenteus* (Euphr.), *Nemipterus japonicus* (Bloch), *Grammoplites scaber* (L.), and *Lactarius lactarius* (Schneider) were encountered only in the deeper ground.

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TABLE I

To show the yield, monthwise, in each depth-range. The figures are total catch per hour (in kgs.)

Month	10—12 metres	18—24 metres
January	25	3
February	62	98
March	57	50
April	136	15
May	140	20

TABLE II

The catch composition in each depth-range. The figures are catch per hour (in kgs.) of the main categories in the catches, monthwise.

Month	Prawns		CRABS*	Miscellaneous	
	Small	Large		Elasmo- branches	Bony fishes
I. Depth-range: 10—12 metres :					
January	17.5	1.5	1.0	..	5.0
February	51.0	1.5	..	1.5	8.0
March	31.0	6.0	4.0	3.0	13.0
April	60.0	27.0	..	..	49.0
May	75.5	32.0	..	..	32.5
II. Depth-range: 18—24 metres:					
January . . . . .	..	1.5	..	..	1.5
February	56.0	2.5	2.5	..	37.0
March	30.0	2.0	3.0	..	15.0
April . . . . .	..	..	..	..	15.0
May . . . . .	..	..	..	..	20.0

*Crabs included chiefly *Neptunus* spp., *Charybdis* spp., and *Calappa* spp.

TABLE III

To show the month-wise species-distribution (of the more prominent species) in the catches ; with notes on their biological characteristics, in each depth-range. The sex-ratios are percentages.

Depth range Species	10—12 metres					18—24 metres				
	Length-range (mm)		Sex-ratio		Maturity	Length-range (mm)		Sex-ratio		Maturity
	♂	♀	♂	♀		♂	♀	♂	♀	
<i>January</i>										
<i>Metapenaeus affinis</i>	120-140	124-151	72	28	40% mature	120-134	128-150	20	80	20% mature
<i>Parapenaeopsis styliifera</i>	66-82	56-92	56	44	100% im- mature.	88-96	92-110	20	80	6% mature
<i>Metapenaeus dobsoni</i>	..	99	..	100	..	..	..	..	..	..
<i>Cynoglossus semifasciatus</i>	127-153	120-133	60	40	Stage I	75-137	123-155	50	50	Stages II-III
<i>Opistopterus tardoore</i>	90-140	120-155	50	50	Stage II	144	145-148	33	67	Stages III-IV
<i>Johnius dussumieri</i>	..	..	..	..	..	132-156	148-180	40	60	Stage IV
<i>Grammoplites scaber</i>	..	..	..	..	..	141-182	142-159	30	70	Stages I-IV
<i>Pampus argenteus</i>	..	..	..	..	..	110-180	90-150	30	70	Immature
<i>February</i>										
<i>M. affinis</i>	102-138	88-156	28	72	60% mature	..	..	..	..	..
<i>M. dobsoni</i>	63-67	69-91	50	50	Immature	..	..	..	..	..

<i>M. monoceros</i>	.	.	..	..	..	..	..	142-145	135-166	20	80	Immature
<i>P. stylifera</i>	.	.	62-84	61-95	50	50	10% mature	60-84	51-90	40	60	„
<i>Scoliodon palasorrah</i>	.	.	226	117-234	20	80	Stage I	..	..	..	..	..
<i>J. dussumieri</i>	.	.	85-129	94-146	80	20	Stage I-III	..	..	..	..	..
<i>O. tardoore</i>	.	.	85-153	110-162	60	40	Stage III-IV	..	..	..	..	..
<i>Otolithus ruber</i>	.	.	92-164	88-142	50	50	Stage I-II	..	..	..	..	..
<i>C. semifasciatus</i>	.	.	..	..	..	..	..	126-138	129-132	80	20	Stage I
<i>G. scaber</i>	.	.	..	..	..	..	..	125-212	121	90	10	„
<i>Nemipterus japonicus</i>	.	.	..	..	..	..	..	88-153	134-145	75	25	„
<i>Lactarius lactarius</i>	.	.	..	..	..	..	..	128-130	120-128	50	50	„
<i>P. argenteus</i>	.	.	..	..	..	..	..	100-180	95-160	50	50	Immature
<i>March</i>												
<i>M. affinis</i>	.	.	73-126	78-114	50	50	Immature	106-110	..	100	..	Mature
<i>P. stylifera</i>	.	.	59-96	56-98	67	33	33% mature	71-81	67-97	40	60	13% mature
<i>S. palasorrah</i>	.	.	180-250	180-225	40	60	Stage II	..	..	..	..	..
<i>O. tardoore</i>	.	.	82-135	132-183	45	55	Stage II-V	95-180	103-169	40	60	Stage III-IV
<i>J. dussumieri</i>	.	.	90-104	128-148	55	45	Stage III	..	..	..	..	..
<i>C. semifasciatus</i>	.	.	..	..	..	..	..	125-130	..	100	..	Stage I

TABLE III—Contd.

Depth range Species	10—12 metres					18—24 metres				
	Length-range (mm)		Sex-ratio		Maturity	Length-range (mm)		Sex-ratio		Maturity
	♂	♀	♂	♀		♂	♀	♂	♀	
<i>Secutor insidiator</i>	..	..	..	..	..	96-100	90-110	37	63	Stage I
<i>P. argenteus</i>	..	..	..	..	..	120-190	100-155	40	60	Immature
<i>April</i>										
<i>M. affinis</i>	78-139	87-142	70	30	Immature	..	..	..	..	..
<i>P. stylifera</i>	51-95	72-98	67	33	33% mature	65-81	85-99	55	45	16% mature
<i>M. dobsoni</i>	70-103	64-111	80	20	Immature	..	..	..	..	..
<i>O. tardoore</i>	97-110	138	90	10	Stage III	109-135	..	100	..	Stage I-II
<i>J. dussumieri</i>	100-106	118	75	25	Stage II	107-157	107-118	60	40	Stage II
<i>L. lactarius</i>	..	..	..	..	..	143-157	150-168	80	20	Stage II
<i>P. argenteus</i>	..	..	..	..	..	115-170	100-190	40	60	Immature
<i>May</i>										
<i>M. affinis</i>	122-141	110-152	33	67	25% mature	..	..	..	..	..
<i>P. stylifera</i>	67-96	66-101	40	60	40% mature	..	..	..	..	..
<i>O. tardoore</i>	97-117	..	Not sexed		..	56-141	..	Not sexed		..
<i>J. dussumieri</i>	51-114	..	..	..	..	95-130	..	..	..	..
<i>G. scaber</i>	..	..	..	..	..	122-127	..	..	..	..
<i>L. lactarius</i>	..	..	..	..	..	128-140	153-163	66	34	Stage II
<i>P. argenteus</i>	..	..	..	..	..	125-190	100-180	50	50	Immature