OBSERVATIONS ON THE CATCHES OF THE MECHANISED BOATS AT NEENDAKARA

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Abstract

The catch data of the mechanised boats for the period from August 1969 to July 1971 revealed that the area off Neendakara is a potential trawling ground for prawns and other ground fish, with an estimated annual total catch of 12,079 tonnes. Observations also indicate the area off Neendakara to be a potential fishing ground for quality fishes such as seer fishes and tunas which are caught in surface gill nets. Trawl catch formed the main bulk of the landings constituting 92.8% and gill-net catch formed the rest. Details of the catch rates by trawl and gill nets, and of biological aspects such as size range, maturity, sex ratio and food and feeding habits of the important species of fish in the trawl catches are also presented in a chart.

Introduction

Tholasilingam et al (1973) have reviewed the work on exploratory trawl fishing along the Kerala coast. Though machanised boats landed annually an average of 12,079 tonnes of fish from the 18-72m depth off Neendakara, detailed investigations have not yet been undertaken on the demersal fishery resources of this region. Information on this aspect will be of much value, particularly because, major develpmental schemes are now contemplated aimed at a substantial increase in fish production. The present account deals with the aspects such as species composition, catch rate, seasonal fluctuations, marketing and disposal and income from the fishery. Details of length range, sex ratio maturity stages and food and feeding habits of the important species of fish of the trawl landings are also included for a better understanding of the fishery resources.

Material and methods

The catch data and biological material for this account were collected twice a week from the otter trawl and gill-net catches of the mechanised boats at Neendakara which is about 50 miles north of Trivandrum. The fishing operations were carried out daily at depths of 18-72m off Neendakara. On each day of observation 10-20% of the boats operated were sampled for estimation of

landings and catch composition. They were then raised for each month. The catch per unit of effort (catch rate) in this account relates to catch per boat per day. Random samples of 20 to 40 specimens each of all common species available in the trawl landings of all observation days were analysed to study the size composition, sex ratio, maturity stages and food and feeding intensity of these species.

The intesity of feeding was classified as empty, little, ¼ full, ½ full ¾ full, full and gorged. The specifications of the crafts and gears used are given below:

Trawlnet

Range in size of boat	9.1-10.9 Metres (30'-36')
Range in H. P. of boat	24-75
Range in size of head rope	14.3-18 Metres
Range in size of otter board	100 x 50 cm 137.5-62.5 cm (40" x 20" - 55" x 25")
Range in length of throat	2.4-3 Metres (14'-25')
Range in length of belly proper	4.3-7.6 Metres (14'-25')
Range in cod end length	5.5-7.9 Metres (18'126')
Cod end mesh size	3 cm (1¼")
Throat mesh size	3.2 cm (1¼")
Belly proper mesh size	5 cm (2")

Gillnet

Size of boat	8.54 Metres (28')
Range in H. P. of boat	8-16
Range in size of piece	15x10.9 Metres (50'-36')
Range in number of piece	5-15
Range in mesh size	5-10 cm (2"-4")

RESULTS

An estimated total of 24158 tonnes of fish were landed by the mechanised boats at Needakara during the period from August 1969 to July 1971 the average per year being about 12079 tonnes. Of this, trawl catch contributed 92.8% and gill-net catch the rest. The c.p.u.e. for trawl net worked out to 217.44 kg and that for gill net to 113.52 kg of the total catch, fish formed 68.6% and prawns the rest. Details of the trawl and gill net catches are presented below:

Trawl fishery

The estimated trawl landings for the period amounted to 22419 tonnes and the estimated average being 11209 tonnes. The trawling grounds off Neenda-

kara are reported generally to be sandy and muddy. The seasonal fluctuations and the c.p.u.e. together with the average landings of different categories are presented in Table 1.

Prawns dominated the catch contributing 38.32%. Of this *Parapenaeopsis stylifera, Metapenaeus affinis, M. dobsoni* and *Penaeus indicus* formed 57.3% 18.8%, 13.9% and 10.0% respectively. Prawns were available in the catch throughout the year, the best season being July to September with catch rates of 85.17 kg 96.43 kg and 115.39 kg respectively. During this period 75.08% of the total annual prawn catch was recorded. The prawn catch showed a considerable decline during January to March with catch rates of 6.39 kg 4.52 kg and 6.81 kg respectively.

Nemipterids, constituted mainly by *Nemipterus japonicus,* formed 13.44% of the trawl catch. The best season for this fishery extended from July to October with monthly catch rates of 17.2 kg., 26.92 kg, 46.50 kg and 14.24 kg respectively. During this period 82.01% of the nemipterid catch was recorded. The catches were very poor during January and December.

Sciaenids formed 9.21% of the total catch and the important species were *Johnius dussumieri* (41.2%), *J. carutta* (10.4%), *Otolithus ruber* (22.3%), *O. argenteus* (9.2%), *Johnius maculatus* (5.8%). *J. argentatus* (4.5%) and *Johnius diacanthus* (3.3%). However, stray catches of *Johnius soldado Sciaena macropterus* and *Johnius coiber* together formed 3.3%. The best fishing seasons for sciaenids were May-June and September-October with the catch rates of 19.11 kg 13.87 kg 16.08 kg and 13.47 kg respectively and 72.78% of the sciaenid catch was recorded during these months. The catches were very poor during January and July-August.

The Synodontids forming 8.55% of the trawl catch were supported by *Saurida tumbil* (97.8%) and *Synodus indicus* (2.2%). September and October were the best months during which period 71.32% of the catch was recorded with catch rates of 29.34 kg and 20.93 kg respectively. June and December showed very poor catches.

Cynoglossids represented mainly by *Cynoglossus macrolepidotus* amounted to 4.85% of the total trawl landings. 30.15% of the catch was recorded during September with a catch rate of 11.43 kg November, December and January showed very poor catch rates.

Tachysurids formed 4.11% of the trawl catches and were represented by *Netuma thalassinus* (69.2%), *Ariodes dussumieri* (8.80%) and *Psaeudarius jella* (2.0%). July, September and October with catch rates, 6.52 kg 7.62 kg and 9.70 kg respectively were found to be the best months for this fishery December was the poorest month.

TABLE 1. *Average catch and catch|unit of effort (in Parantheses) in kg and catch composition of trawl net.*

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Prawns	15437	14320	47143	141523	288113	104945	1019452	551122	1655707	319769	85181	54172	4296881
	(6.39)	(4.52)	(6.81)	(12.42)	(19.64)	(20.49)	(85.17)	(96.43)	(115.99)	(25.48)	(9.58)	(9.55)	(41.67)
Nemipterids	—	12053	87046	44107	503580	24765	205943	170991	667349	191305	43446	5906	1956491
		(3.80)	(12.58)	(13.87)	(3.65)	(4.83)	(17.20)	(26.92)	(46.50)	(15.24)	(4.88)	(0.98)	(14.61)
Sciaenids	3125	18606	43207	73184	280353	71030	15390	37628	230826	169101	66326	23624	1032299
	(1.29)	(5.87)	(6.24)	(6.24)	(19.11)	(13.87)	(1.28)	(1.58)	(16.08)	(13.47)	(7.46)	(3.93)	(10.00)
Synodontids	6385	10523	37574	43752	59045	3500	63225	17450	421073	262714	29131	4379	957851
	(2.64)	(3.32)	(5.43)	(3.84)	(4.03)	(0.68)	(5.28)	(3.5)	(29.34)	(20.93)	(3.27)	(0.78)	(9.29)
Cynoglossids	4287	6681	40421	55960	68324	19435	80055	16345	164102	62567	14896	7087	544160
	(1.77)	(2.11)	(5.84)	(4.91)	(4.65)	(4.57)	(4.68)	(2.86)	(11.43)	(4.98)	(1.67)	(1.18)	(5.27)
Tachysurids	5470	9710	26330	33150	24934	—	78075	16670	109419	121794	27702	7974	461228
	(2.26)	(3.6)	(3.80)	(2.90)	(3.30)	—	(6.52)	(2.91)	(7.62)	(9.70)	(3.12)	(1.33)	(4.47)
Mullids	2485	49419	38770	12168	220714	14620	—	—	675	78760	20094	692	438397
	(1.02)	(15.61)	(5.60)	(1.06)	(15.05)	(2.85)	—	—	(0.04)	(6.22)	(2.26)	(0.11)	(4.25)
Leiognathids	24714	26430	37078	99309	62509	2860	—	—	—	2016	20027	19549	299892
	(10.24)	(8.35)	(5.35)	(8.72)	(4.26)	(1.61)	—	—	—	(0.16)	(2.25)	(3.26)	(2.91)
Platycephalids	11944	10751	20645	44243	71799	3800	—	4871	—	—	8264	7669	183986
	(4.95)	(3.39)	(2.98)	(3.88)	(4.89)	(0.74)	—	(0.85)	—	—	(0.93)	(1.28)	(2.78)
Trichiurids	16032	11424	14053	46788	61981	3760	—	—	—	—	—	—	154038
	(6.64)	(3.60)	(8.03)	(4.10)	(4.22)	(0.73)	—	—	—	—	—	—	(1.49)
Carangids	4197	11578	10358	12145	17160	4680	7087	14506	5109	35689	21438	3975	147922
	(1.73)	(3.65)	(1.49)	(1.06)	(1.25)	(0.91)	(0.59)	(3.41)	(0.35)	(2.24)	(2.41)	(0.66)	(1.48)
Elasmobranchs	10007	5964	19929	49500	56940	9515	18247	7100	38358	77078	20265	19218	332148
	(4.15)	(1.88)	(2.88)	(4.34)	(3.88)	(1.85)	(2.52)	(1.24)	(2.67)	(6.14)	(2.28)	(3.21)	(3.22)
Miscellaneous	8239	20548	4952	98640	139531	23425	46598	18857	52078	160566	165930	63613	847987
	(0.57)	(6.49)	(7.21)	(8.16)	(9.51)	(45.77)	(38.92)	(3.35)	(3.62)	(12.70)	(18.67)	(10.64)	(8.22)
	112322	208006	472506	754469	1854983	295745	153072	855540	3344723	1481359	522700	217753	11654183

Mullids consistituted by *Upeneus sulphureus* (78.1%) *Pseudupeneus cinnabarinus* (12.8%) and *Parupeneus indicus* (9.1%) formed 3.9% of the trawl catches. February and May were the best months with catch rates of 15.61 kg and 15.05 kg respectively. This fishery was very poor or absent during July to August.

Leiognathids represented by *Scutor insidiator* (86.6%), *Leiognathus splendens* (10.2%) and *Secutor ruconius* (3.2%) formed 2.68% of the trawl landings. January, February and April were found to be the best months for this fishery with catch rates of 10.24 kg 8.35 kg and 8.72 kg respectively. During July to September silver bellies were totally absent in the trawl landings.

Platycephalids formed only 1.64% of the trawl catches and were represented by *Grammoplites scaber*. The best months for this fishery were January and May with catch rates of 4.95 kg and 4.89 kg respectively. The fishery was poor during June, August and November.

The Trichiurids which formed 1.37% of the trawl landings were suppored by *Trichiurus savala* (73.9%) and *T. haumela* (21.1%). The best months for ribbon fish fishery were recorded during January and March with catch rates of 16.64 kg and 8.3 kg respectively. They were absent during July to December.

Carangids formed only 1.36%, of the trawl catch and were constituted by *Selar kalla* (73.2%), *Caranx sexfasciatus* (13.2%) *Carangoides malabaricus* (3.6%) and *Megalaspis cordyla* (6.7%). However, *stray* catches of *Chorinemus lysan* and *C. santi-petri* formed the remaining part of the carangid catch. February and August were the best months for carangids with a catch rate of 3.65 kg and 3.41 kg respectively.

Elasmobranchs formed 2.96% of the trawl catch. Out of this sharks formed 23.5% and rays the rest. Of the shark landings *Scolidon sorrakowah* (83.2%) formed the bulk and *S. palasorrah* (12.5%) and *Galeocerda cuvieri* and *Stegostoma fasciatum* the rest. The rays were represented by *Rhynchobatus sp.* (54.0%), *Rhinoptera javanica* (38.7%), *Aetobatus paripari*, *Gymnura micrura* and *Pristis suspidatus* which together formed 7.3%. October was the best month for Sharks and rays landings.

Miscellaneous fishes formed 7.60% of the trawl landings. Out of 20 species of fishes recorded under this category the more common species were *Rastrelliger kanagurta*, *Pampus argenteus*, *Opisthopterus tardoore Euthynnus affinis*, *Pristipomoides typus*, *Psettodus erumei*, *Sardinella* spp. and *Polynemus* spp.

Gill net fishery

The total landings of the gill nets amounted to 1739 tonnes during the period of observation; its annual average being 869.5 tonns. The seasonal fluctuations of the catch and c.p.u.e. and presented in Table 2.

TABLE 2. *Average catch and catch| unit of effort (in Paranthesis) in kg and catch composition of gill net fishing*

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Elamobranchs	9445	6790	6395	21010	15220	4825	20318	——	76433	153485	30656	11706	356283
	(7.19)	(7.17)	(7.9)	(18.47)	(12.11)	(8.93)	(40.15)	——	(30.15)	(59.58)	(15.71)	(6.83)	(23.23)
Tachysurids	9300	11222	10813	19145	15886	4505	3409	——	47422	28846	22126	12696	185370
	(7.08)	(11.85)	(12.00)	(16.83)	(12.48)	(8.34)	(7.73)	——	(19.02)	(11.21)	(11.34)	(2.42)	(12.09)
Scomberomorids	9290	8709	24737	577	1560	——	——	——	34064	23618	30012	7630	117933
	(7.08)	(9.19)	(2.24)	(0.50)	(1.24)	——	——	——	(13.66)	(9.16)	(15.38)	(4.45)	(7.69)
Tunnies	3090	4748	9720	15323	16708	1885	——	——	8505	6788	11060	8469	86296
	(2.35)	(5.01)	(10.8)	(18.47)	(13.30)	(3.49)	——	——	(3.41)	(2.63)	(5.66)	(4.94)	(5.62)
Stromatids	2474	660	708	1140	6299	975	1974	——	1082	8237	2924	5460	31913
	(1.88)	(1.29)	(0.78)	(1.00)	(5.01)	(1.80)	(3.90)	——	(0.43)	(3.19)	(1.50)	(3.19)	(2.08)
Rachycentrids	7044	1234	1122	——	——	——	——	——	8170	2350	910	4397	24227
	(42.71)	(1.30)	(1.24)			——	——	——	(3.27)	(0.90)	(0.46)	(2.43)	(1.58)
Carangids	2296	300	1701	2385	3068	1855	405	——	5567	5055	896	1039	24367
	(1.75)	(0.32)	(1.88)	(2.10)	(2.44)	(3.43)	(0.80)	——	(4.23)	(5.96)	(0.45)	(0.60)	(1.60)
Sciaenids	2542	1612	784	1453	——	——	——	——	467	——	——	2971	9828
	(2.93)	(4.70)	(0.87)	(1.27)	——	——	——	——	(0.18)	——	——	(1.73)	(0.64)
Miscellaeneous	1388	8859	4649	3375	5746	2305	1738	——	6686	2733	1410	4449	35038
	(1.05)	(4.07)	(2.93)	(2.96)	(4.57)	(4.27)	(3.93)	——	(2.68)	(1.06)	(0.72)	(0.67)	(2.15)
	45869	39133	38365	64408	64487	16350	27844	——	188396	231112	99994	55517	871475

The major landings of gill net were represented by sharks rays and skates which formed 40.95%. In this category sharks formed 86.4%, rays 10.6% and skates 3.6% *Scolidon sorrakowah* (76.5%), *S. palasorrah* (21.9%), *Galeocerda cuvieri* and *Stegostoma fasciatum* (together 1.6%) represented the shark landings. Rays and skates were represented by *Pastinachus sephen* (62.4%). *Rhynchobatus djiddensis* (22.3%), *Rhinoptera javanica* (8.4%) and *Gymnura micrura* and *Narcine timlei* together (3.2%). July and October were found to be the best months for elasmobranch landings with a catch rate of 40.15 kg and 59.58 kg respectively.

Tachysurids formed 21.31% and they were represented by *Netuma thalassinus* (67.8%), *Ariodes dussumieri* (30.3%) and *Pseudarius jella* (1.9%). The best season for the catfish catch was noted during April and September witth catch rates of 16.83 kg and 19.02 kg respectively.

Scomberomorids represented by *Indocybium guttatum* (52.7%) and *Cybium commersoni* (47.3%) formed 13.55% of the gill net catches. September and November were the best months with the catch rates of 13.66 kg and 15.38 kg respectively.

Tunnies which formed 9.92% of the gill net catches consisted of *Euthynnus affinis* (69.7%) *Auxis thazard* (19.6%) *Auxis thynnoides* (5.8%) and *Sarda orientalis* and *Kishinoella tonggol* together (4.3%). March to May was observed to be the best months for tunnies with catch rate of 10.78 kg, 18.47 kg and 13.30 kg respectively.

Rachycentrids represented by *Rachycentron canadus* formed 2.79% of the total gill net catches January was found to be the best month with the catch rate of 42.71 kg.

Carangids formed 2.83% of the gill net landings and were represented by *Selar kalla* (23.8%), *Carangoides malabaricus* (17.0%), *Megalaspis cordyla* (28.6%) *Decapterus russelli* (17.5%) and *Selar mate. Caranx ignobilis. Zonichthys nigrofasciata, Trachinaths* sp., *Chorinemus lysan* and *Selaroides* leptolepis (together 13.1%). September and October were the best months for the fishery with the catch rate of 4.23 kg and 5.96 kg respectively.

Sciaenids formed 1.13% and were represented by *Johnius maculatus* (46.6%) *Johnius argentatus* (23.5%), *Otolithus ruber* (10.0%), *Johnius dussumieri* (5.7%) and *Johnius coibor* (5.2%). January and February were the best months for this fishery with the catch rate of 2.93 kg and 4.70 kg respectively.

Out of the 19 species of fish recorded under miscellaneous catch, the most important species were *Rastrelliger kanagurta. Chirocentrus dorab. Lethrinus* sp., *Dussumieria acuta, Sillago sihama* and *Cynoglossua macrolepidotus*

Biological Analyses

The size range, sex ratio, maturity stages, and food and feeding habits of the important species represented in all the months in the trawl landings during the period from February 70 to July 71 are given in Table 3. Such details could not be gathered for the gill net catches due to lack of facilities at that time and the cost involved. Most of the species analysed were either mature or maturing. A few samples of mackerel analysed were in stage II and III. However, *Secutor insidiator, Ophisthopterus tardoors* and *Johnius dussumieri* showed advanced stage of maturity. It was generally observed that males dominated in the trawl landings. Analyses of stomach contents showed that prawns formed invariably an item of the diet for most of the species recorded. This provides further proof that the area off Neendakara is a good fishing ground for prawns.

Marketing, Disposal and Income from the Fishery

The catches brought by the trawlers were auctioned at Sakthikulangara and at Neendakara. The prawns are mainly purchased by the private fishing companies and are beheaded, shelled and gutted and cleaned before they are stored in ice. Part of the prawn catch is boiled, sun dried and beaten to release the edible portion from the carapace for export.

The fish catches are purchased by the local fish marchants, and they are iced and sent to different places.

Table 4 represents the monthwise income from the prawn and fish landings for a period of one year from August 70 to July 71. A total estimated income of Rs. 6,3372701 was realised of which Rs. 48674270 was obtained from prawns and the rest from fish. During the month when heavy prawn landings were recorded, the price per kg ranged from Rs. 7.50 to 30.00 whereas during the period in which poor landings of prawns were recorded, the price per kg ranged from Rs. 15|- to Rs. 40|-.

GENERAL REMARKS

As is seen from the fishing operations using otter trawl net and gill net the c.p.u.e. for trawling is always higher than that for gill netting. From the information collected it is seen that the overall fish production and the c.p.u.e. of trawling were always higher in the shallower region between 18-36 metre whereas in the case of gill net they are higher in the deeper areas. Prawns (38% of the catch) formed the most important group in the trawl catches and elasmobranchs (41%) in the gill net landings.

Rao and Dorairaj (1973) reported the potentialities of the prawn fishing grounds off Cochin. George (1961) reported rich prawn fishery resources to be present in the inshore regions between Cochin and Alleppey. Mohamed and Suseelan (1973) pointed out the fishing potentialities for the deep sea prawns

TABLE 3. *Biological data on different species of trawl catches.*

Species	No. of fishes examined	Size range (mm)	Sex ratio in % Female	Male	Range of maturity stage Female	Male	Range of feeding intensity Female	Male	Percentage composition of food items
Secutor insidiator	101	9-117	46	54	I-VI	I-IV	Empty-½ full	Empty-½ full	Prawns 6.4, semidigested matter 93.6
Leiognathus splendens	121	90-110	50	50	I-III	I-III	Empty-½ full	Empty-½ full	Semidigested matter 90.8 prawns 5.2, zoea larva 4.0
Secutor rucenius	94	63-105	50	50	I-III	I-III	½ full-½full	½ full-½ full	Semidigested matter 97.3 prawns 2.0 *Acetes indicus* 0.7
Grammoplites scaber	154	190-286	40	60	I-II	I-II	½ full-½ full	Empty-Gorged	Fish 50.4 (*Leiognathus* and *stolepherus*) and miscellneous matter 3.3
Saurida tumbil	164	149-310	75	25	II-III	II	½ full-Georged	Empty-½ full	Fish 100 (*stolephorus* sp. 70.3 *Leiognathus* sp. 29.7)
Polynemus sextarius	84	100-220	28	72	I-II	I-II	Empty-½ full	Empty-½ full	Prawns 75.6 semidigested matter 24.4
Opisthopterus tardoore	164	135-160	48	52	I-IV	I-II	Empty-½ full	Empty-½ full	Prawns 53.5, fish 13.3 (*stolephorus* sp.), and semidigested matter 33.2
Johnius dussumieri	121	93-205	36	64	I-VI	I-VI	Empty-½ full	Empty-½ full	Prawns 97.5, miscellaneous matter 2.5
Johnius carutta	98	98-189	50.5	49.5	I-VI	I-IV	Empty-½ full	Empty-½ full	Fish 70.0 (*stolepherus* sp. *Leiognathus* sp.) *Spilla* sp. 25.0 and semidigested matter 5.0
iapenicus Nemipterus	285	118-212	35	65	I-III	I-II	Empty-¾ full	½ full-¾ full	*Sqilla* sp. 13.7, Fish 17.6 (*stolephorus* sp.) Prawns 17.5 and semidigested matter 51.2
Selar kalla	28	110-137	45.7	54.3	I-III	I-III	Empty-¾ full	Empty-¾ full	Semi-digested matter 100.
Netuma thalassinus	128	——	49	51	I	I	Empty-¾ full	Empty-¾ full	Prawns 43.3 other erustacens 3.3 and semidigested matter 53.4
Cynoglossus macrolepidotus	168	106-167	62.4	37.6	I-III	I-III	Empty-½ full	Empty-½ full	Semi-digested matter 100.
Trichiurus savala	75	218-676	45.7	54.3	I-IV	I-IV	Empty-¾ full	Empty-¾ full	Fish 80.0 (*Leiognathus* sp. and *Sardinella* sp.) prawn 15.3 and miscellanes matter 4.7
Thrissocles mystax	148	140-193	51.3	48.7	II-III	II-III	Empty-½ full	Empty-½ full	Prawns 28.4 fish remain 16.6 and semidigsted matter 55.0
Lactarius lactarius	149	90-126	46	54	I-II	I-II	Empty-½ full	Empty-½ full	Semidigested matted 96.8 prawns 3.2
Upeneus sulphureus	48	112-139	66.7	33.3	II	II-II	½ full-½ full	½ full-½ full	Prawns 40.8, fish 59.2 (*Stolephorus* sp.)
Otolithus ruber	121	129-360	48	52	I-II	I-III	Empty-½ full	Empty-½ full	Fish 35.2 (*stolephorus* sp. and *Sardinella* sp.) prawns 52.3 and Misceallaneous matter 2.5

TABLE 4. *Price Index for the period August '70-July '71.*

Month	Average price per kg* Prawns Rs. Ps.	Fish Rs. Ps.	Estimate Total income from the fishery Prawns Rs. Ps.	Fish Rs. Ps
August '70	7.00	1.50	7715708.00	928258.50
September '70	7.15	1.62	25223156.75	3643569.54
October '70	8.25	1.50	4729395.00	2598571.50
November '70	8.65	1.00	876392.05	455970.00
December '70	9.83	1.50	701016.62	332457.00
January 71'	10.00	2.00	218970.00	419020.00
February '71	10.33	2.05	215122.25	760578.70
March '71	11.00	2.50	395637.00	1415217.50
April '71	12.00	1.92	1130376.00	1059601.92
May '71	9.00	1.80	1662336.00	1714143.60
June '71	8.00	1.75	1149200.00	407995.00
July '71	7.00	1.62	4656960.00	963041.88
Total			48,674,270.61	14,698,431.14

concentrated between depth of 300 and 425 metres of the region between Alleppey and Quilon. But the prawn fishery of 60-240m region off Neendakara has not been reported so far by the earlier workers. The present observations however, indicates potentialities of these grounds for prawns, as well as the species composition.

Rao (1973) remarked that the area between Alleppey and Quilon is unsuitable for commercial trawling due to lack of quality fishes. But the present analysis of the trawling data and the price index revealed that by virtue of the existence of rich prawn fishing firounds off Neendakara, trawling as a method of commercial exploitation is encouraging. The usefulness of nemipterids and sciaenids in the manufacture of fish protein concentrate, bacteriological peptone and other speciality products such as flakes, crisps and powder etc. has been pointed out by Govindan (1973). Kamasastri and Prabhu (1961) reported that prawn shell and heads could be used in the manufacture of glucosamine hydro-chloride, a valuable pharmaceutical compound. Kaimal and Rao (1965) suggested that prawn waste is used in the isolation of cholersterol. In view of the abundant availability of these resources off Neendakara, considerable importance should be given for trawling in the area. The present observations also indicate area off Neendakara to be a potential fishing ground for quality fishes such as seerfifish and tunas. These are normaly caught in the surface gill net.

In view of the narrowness and limited area available for trawling on the continental shelf off Neendakara, employment of surface gill net would be of considerable commercial value. It is seen from the present observation that the period April-May and July to December are the best season for trawl and gill net operations. Lack of centralised jetty and inadequate transport facilities for disposal of the catch during periods of peak catches seem to be some of the handicap of the fishing industry in this area at present.

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