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Gillnet and hook & line fishing off Mangalore

Fishing using gillnets and hooks and line have been in vogue along Mangalore coast since a long time. These fishing practices are very popular and found to be lucrative along coastal Karnataka. Fishing using gillnets and hooks and line has so far been operated only

from canoes fitted with outboard engines (OBM). The fishermen fish for a day or night or at the most for 2-3 days. However, of late, mechanized crafts (inboard mechanized) operating gillnets as well as hooks and line land their catch at Mangalore Fisheries Harbour. The crafts used are large and comparable to the size of trawlers and purseseiners of Mangalore and have an endurance to stay out at sea for more than a month. As this kind of fishing activity is new to this area, the catch as well as gear details were studied and a brief account is given.

The crew strength of 13 to 14 members per unit are from Tamil Nadu. They operate all along the west coast of India (Gujarat-Kerala including the Lakshadweep Islands). Though operations are wide spread, far away from the coast and at different depths, fishing activities are mostly confined to near surface waters (upto 15 m from the surface) targeting large oceanic surface moving fishes like sharks, tunas, seerfish *etc*. The crafts are able to store food, water, fuel and ice for a month. The crafts are equipped with compass and GPS to locate the identified fishing grounds. They commence operation off Kerala and move towards Lakshadweep and proceed northwards as per the availability of fishes. There are no fixed or defined landing centres for these crafts. When the fish hold becomes full or whenever there is a need for food or fuel they proceed to the nearest convenient fish landing centre. Unloading of fish catch, fuelling, icing and purchase of ration required for the following trip is done at the same harbour.

Craft and gear:

The crafts are plank built with an overall length of 14.4 to 15.6 m. The shape varies from those of regular mechanized crafts of this coast. They are more rounded in the front and have bigger deck space fitted with 125 hp engines. Provisions have been made to operate gillnet as well as hooks and line from the crafts. There is no separate storage space for the gears. Gillnet is kept on one side of the deck and hooks are suspended on a wire rope along the sides of the craft.

Gillnets operated from these crafts are much bigger than those operated from regular outboard motorized unit. The net made of several panels has a total length of 800 m and is generally made of 20 to 23 panels with a mesh size of 110 to 140 mm. Each panel has a length of 36 m. The entire net may be made of panels of similar mesh size or different mesh sizes. Nylon twine (no.1) is used for the manufacture of the net. Floats 1100 to 1200 nos. are used to keep the net afloat. Lead weights are attached to the foot rope. The cost of construction of each gillnet is

Table). Catch (kg) and effort (unit) of multi-day-glllnet / hook & line line on observation days at Mangalore Fisheries Harbour during 20.11.2004 to 03.10.2005

Species/Ob.days	20.11	30.11	24.11	4.12	7.12	14.12	*1.02	15.02	22.02	26.02	3.03	15.03	21.03	26.04	3.05	7.05	31.05	4.06	29.08	3.09	9.09	16.09	3.10	Total	%	Rs./kg.	Total vol.
Shark	1850	2700	1200	700	1200	0	3500	2500	3500	1400	1300	3000	1200	5500	2500	2500	4500	5200	6380	4000	3250		100	57980	28.89	110	6377800
S.commerson	0	0	0	0	0	0	0	0	0										18500	14500	400	1800		35200	17.54	90	3168000
A. solandri	210	10																						220	0.11	70	15400
T. albacares	580	1600			200		2800	500	700	3500	700	2500	400		70	1500	600		305	600			2000	18555	9.25	20	371100
K. pelamis	200	550			800		1300	500	1600		600		600			2500			140	270			3000	12060	6.01	20	241200
E. affinis	125	3100	40		20														950	400	200	200	800	5835	2.91	20	116700
A. thazard		1500			30	20																200	300	2050	1.02	15	30750
T. tonggol		0						50																50	0.02	20	1000
S. orientalis																				450		10		460	0.23	15	6900
I. Platvpteivs	300	900	30		1300		10000	2000		900	700	1600	700		300	1800	1600	400	450	1670		100	30	24780	12.35	20	495600
M. indica							5500	1500		750	800	350												8900	4.43	20	178000
Tachysurus spp.																			135		200	300		635	0.32	40	25400
F. niger																				15				15	0.01	70	1050
R. kanagurta																				60				60	0.03	30	1800
Sphyraena spp.	135					600									100	250	350		140			20	200	1795	0.89	20	35900
Epinephelus spp.	630			200			1050	100		170					150		300			315			400	3315	1.65	30	99450
C. *ignobilis*						400	350			80					100	150							150	1230	0.61	20	24600

Mcordyla																					300			300	0.15	20	6000
Coryphaena spp.				40							1200					150			4900	820	200	100		7410	3.69	15	111150
Lutjanus spp.															500								1700	2200	1.10	60	132000
Pnstipomoides sp.				100	800		650	50							150									1750	0.87	50	87500
Rachycentron sp.										150				10000							150			10300	5.13	80	824000
Scomberoides spp.		10		70	400		270	200	400				200				400			63			400	2413	1.20	15	36195
E. *bipinnulata*												700											700	1400	0.70	30	42000
Himantura spp.	95							250															300	645	0.32	30	19350
Strongylura spp.				50																				50	0.02	25	1250
Lethrinus spp.											70													70	0.03	55	3850
Pomadasys spp.						1000																		1000	0.50	55	55000
Chirocentrus dorab																			4					4	0.00	20	80
Total	**4125**	**10370**	**1270**	**1160**	**4750**	**2020**	**25420**	**7650**	**6200**	**6950**	**5370**	**8150**	**3100**	**15500**	**3870**	**8850**	**7750**	**5600**	**31904**	**23163**	**4700**	**2730**	**10080**	**200682**	**100.00**		**12457795**
Effort (unit)	2	2	1	1	1	1	5	2	1	3	2	2	1	15	1	1	1	2	5	7	2	1	4				
No. offishingdays.	20	25	15	15	15	10	25	25	15	15	25	15	15	1	20	20	20	15	10	12	10	12	10				

* Multi-day-gillnet started from 01.02.2005 after Tsunami Multi-day-gillnet landings resumed from 29 .08.05 after south-west monsoon

Number of observation days: 23

Total value for catch on observation days: Rs. 1,24,57,795/-.

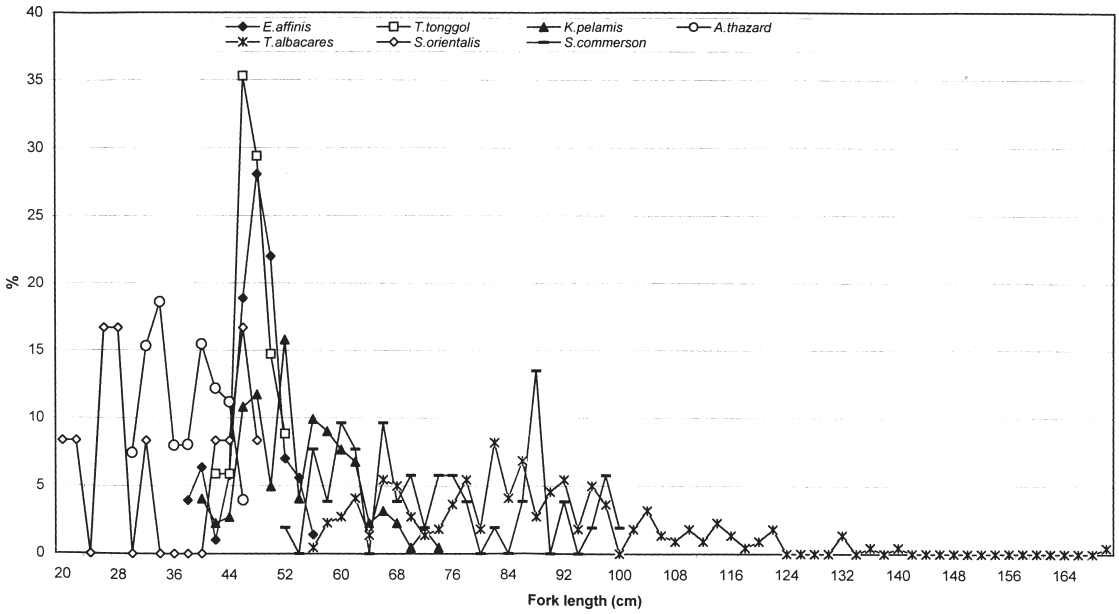

Fig. 1. Length-range of tunas and seerfish landed by mechanized gillnet

approximately Rs. 3 lakhs.

Unbarbed steel hooks are used in the operation of hook and line from these crafts. The hook no. generally used is 10 or 12. Around 1,000 hooks are operated at a time in a single row. The hooks are suspended from branch lines of 2 m length. A distance of 20 m is maintained between adjacent hooks and floats are placed after every two hooks (80 ft). Only large sized seerfish, sharks, tunas, billfish, perches, *etc*. are hooked by this gear. The fish caught by both the gears are stored together in the spacious fishhold containing ice.

Mode of operation:

Mechanized crafts operate only in offshore waters where the depth is more than 60 m. Gillnet is operated at night preferably during dark nights or after the moon has set. The net is released into the water and kept adrift at a depth of 5-7 m. The craft is allowed to drift with the current till the operation of the net is completed. Operating time ranges from 3 to 5 hours depending on the availability of the fish in the area. Generally only one operation is carried out in one night.

Hooks and line are operated during the day. Series of baited hooks attached to the main line through the branch lines are sent down into water to a depth of 35-40m. The craft is again allowed to drift with the current when the hooks are operated.

Table 2. Length-range and mode (in cm) of seerflsh and tunas landed by outboard motorized drift-gill net and mechanized drift-gillnet

Species	Outboard motorized DGN		Mechanized DGN	
	Length range	Major Mode	Length range	Major Mode
S.commerson	30-106	60	52-100	88
T.tonggol	30-50	42	42-52	46
T.albacares	58-84	70	58-170	82
S.orientalis	28-48	40	20-48	46
A.thazard	20-46	32	30-40	34
K.pelamis			40-74	48
E.affmis	20-68	36	38-56	48

Catch composition:

The catch mainly consisted of sharks, seerfish, billfishes, tunas, perches, lances, *etc*. It is difficult to estimate monthly or annual catch per boat based on the landings observed at Mangalore as landings take place at different places as per the convenience of the crew. However, the catch by the unit per trip was monitored as and when it landed at Mangalore. The number of units landed on each observation day and the number of days on operation per trip is also given in Table 1. Around 60 such mechanized units are operating along this coast and land their catch at this Fishing Harbour whenever they are off Mangalore. Generally 2-4 units land at the fishing harbour at a time. They unload their catch and then load their craft with ration, ice, potable water and set sail after a break of 3-4 days. As the catch consists mostly of big sized fishes, unloading of the catch takes nearly a day or two. The fishes are iced and transported to Kerala for better price.

Sharks were represented by several genera of which *Charcharhinus* dominated followed by *Scoliodon, Rhizoprionodon, Pristis* and *Alopias.* Seerfish was represented mainly by *Scomberomorus commerson* followed by *Acanthocybium solandri*. Tunas were represented by six species. *Thunnus albacares* was the dominant species followed by *Katsuwonus pelamis, Euthynnus affinis, Auxis thazard, Sarda orientalis* and *Thunnus tonggol*. Bill fishes were represented by two species of *Istiophorus platypterus* and *Makaira indica.* The length composition of *Scomberomorus commerson*

and tunas landed by the mechanized gillnetters at Mangalore Harbour is given in Fig.1. Seerfish and tunas are the major component in the regular drift-gillnets operated from outboard motorized canoes from Manglore harbour. However, the mechanized gillnet units landed larger sized fishes and tunas were represented by several species. Table 2 gives the length-range and mode of seerfish and tunas landed by the regular coastal drift gillnets as well as the oceanic gillnets operated from mechanized crafts. Perches were represented by several groups, serranids, lutjanids and lethrinids.

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