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GEARS AND CRAFT OF KARWAR - AN OVERVIEW

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INTRODUCTION

Karwar (14° 48' 30" N and 74° 07' 42" E) is one of the important fish landing centres on the central west coast of India, being a part of the 144 kms. coastal stretch of Uttar Kannada of Karnataka State (Fig.1). The coastline is economically important for food fishes like mackerel, sardines, prawns etc. The capture fisheries of the region are mainly supported by large number of pelagic and demersal fish which are exploited by different types of gears and crafts. A knowledge on fishing

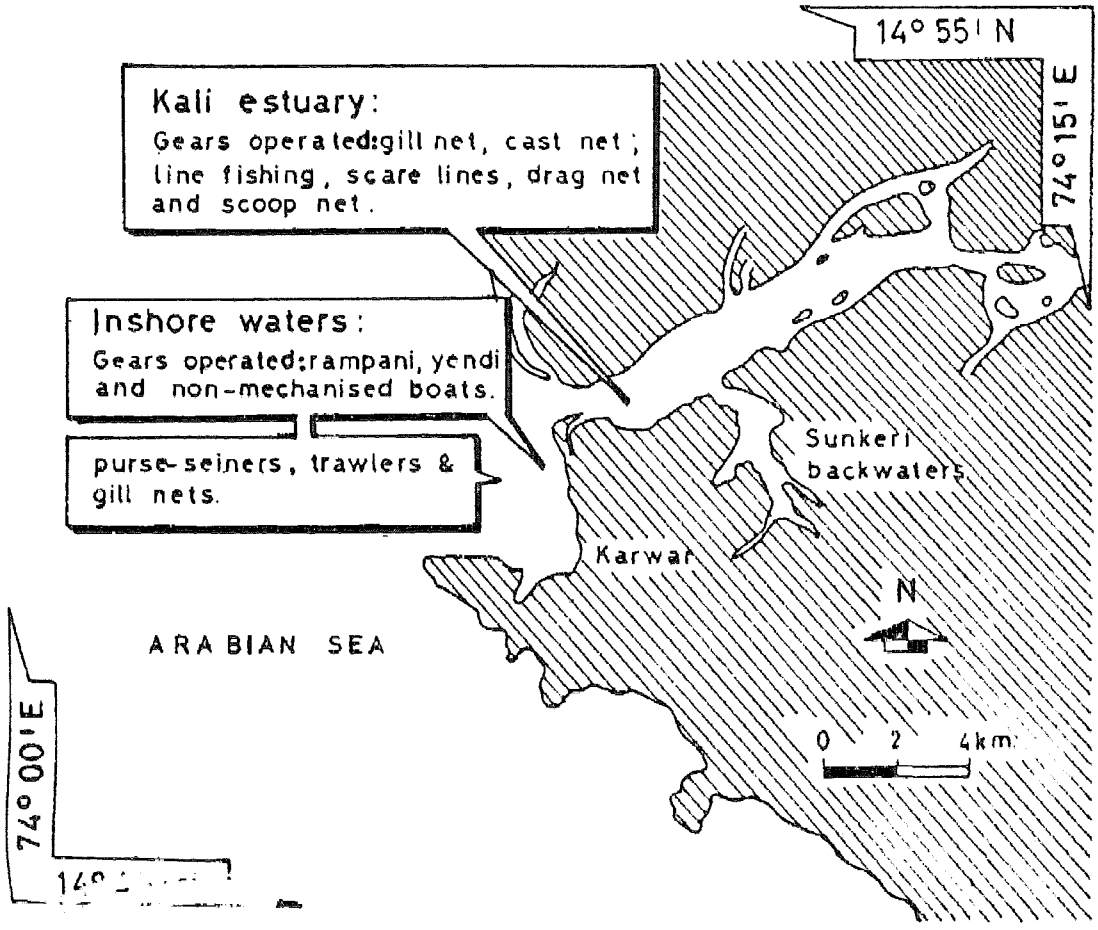

Fig. 1 Map showing the fishing areas with operation of different types of gears.

gear, crafts and fishing methods is very essential for scientific and judicious exploitation and management of any capture fishery. different types of gears and crafts are used to catch the pelagic and demersal fishes in inshore and estuary of Karwar but the major share is contributed by conventional or traditional methods (Neelakantan, 1981) till the advent of the mechanisation.

There is hardly any published material about the different fishing methods of Karwar waters except for few studies by Sorley (1948), Pradhan (1956), George and Nayak (1961) and Neelakantan (1981). Sea fishing in Karwar waters were mainly carried out by employing the traditional methods till the advent of the mechanisation. A couple of decades ago, the fishing was mainly confined to nearshore waters for distances that could be safely covered by conventional crafts. For the first time, mechanisation was introduced in Karwar with the arrival of trawlers during 1961 - '62 followed by the purse-seiners during 1975-'76 (Shetty, *et al* , 988). Along with this, some of the country boats were also mechanised by installing outboard engines. Thus the fishing industry gained an instant momentum which not only increased the total catch but also the extent of area exploited while on the other side, the mechanisation also helped in the replacement of hard labour of fishermen and greatly reduced their exposure to risks at sea.

The fishing season in Karwar commences from September and lasts till May. The main types of crafts that are used during this period are, rampani boats, yendi boats, out-rigger boats, plank-built and dug-out canoes while the important gears are ampani, yendi, shore-seines, gill nets, boat seines, drift nets and hook & lines. The mechanised fishing includes trawling and purse-seining. The type of gears used by traditional fishermen depend on local conditions, seasons and distance covered from he shore.

TYPES OF GEARS

(A) Non-mechanised

Rampani :It is a conventional type of gear used by the fishermen of both Uttara Kannada and Dakshina Kannada districts f Karnataka State. It is believed to have been introduced by a Portugese Priest, Rev. Fr. Rampon. It is a version of shore-seine consisting about 400-600 pieces laced together and each piece measures about 10-12 metres long with varying breadth while the mesh size decreases from the outer end towards the

centre. Basically this gear consists of three parts, a central portion called "Chikkana bale" joined on either sides by wing like nets. Generally the length of the wings constitutes 85-95% of the total length of the net. The length of this gear can be extended or reduced by adding or removing few pieces as and when required. At the central position of the net, a large float is affixed, a head line (cork line) of the net is fixed with numerous wooden pieces as floats while the foot-line weighed with stones act as sinker.

Sardines and mackerels are the main fishes caught by the rampani operations. The advantage of this net is that the catch can be kept impounded for few days and can be taken whenever there is good demand.

Yendi or Kairampani :It is a shore-seine and is a smaller version of rampani net and can be operated in all seasons at a depth of 5 m. and is ideal for small shoals of mackerel and sardines near the shore. Its length ranging from 400-500 metres with a depth of 7-8 metres is made up of 50-60 pieces. Its operation is similar to that of the rampani net. Mackerel, sardines and sciaenids constitutes the bulk of the catch.

Boat seines :

(a) *Bangada bale :* This net is exclusively used to catch the mackerel and is locally called as "Bangada". The mesh size of the net ranges between 3 - 3.5 cms. and is uniform throughout its entire length. This net can be operated in semi-circular fashion when the shoal is detected and it extends from surface to bottom except when operated in deeper waters.

(b) *Mari bale* :This net is locally called as "Ghol bale" and is operated in the inshore water upto a depth of 14 metres. Usually the important fishes caught in this gear includes sciaenids, catfishes and some times pomfrets and rays.

(c) *Chikka bale :* Is similar to that of the mari bale in construction and operation except for the small size and can be operated upto a depth of 6 metres. The catch comprises of miscellaneous varieties of fishes.

(d) *Gill nets :* These are passive gears and are generally classified as surface, mid water and bottom gill nets and are generally operated in night hours. The nets are allowed to drift along with the wind, tide or current or the nets are set at a particular position by anchoring which are likewise referrec

to as drift gill nets and set gill nets respectively. The nets are of different dimensions depending on the type of fishes to be caught. Locally these nets are called as "Pattae bale" with 2 inch mesh size and generally it is used for catching mackerels.

Cast nets : This gear is operated from the shore, platforms or from a boat both in inshore and estuarine waters and are locally called as "Beesu bale". Two types are operated in this region, one stringless with peripheral pockets and the other stringed without peripheral pockets while the latter is more common in and around Karwar. Mesh size of the gear varies depending on the type of fish to be caught. Generally, this gear used to catch adult prawns, mullets, lady fishes, silver bellies etc.

Drag nets : This is made up of small piece of nylon net (3 x 8 feet) with varying dimensions mainly used to catch prawn seeds in the backwaters during low tides. The length is double the width. This gear is operated by two persons holding at both the ends and dragging it above the bed for about 8-10 minutes.

Scoop nets : It is a piece of nylon net attached loosely to a rectangular wooden or metal frame and is used to catch prawns in shallow waters.

Scare lines : These are not the gears as such but are used as accessories in other fishing methods, like castnets and bag net operations. Here the coconut leaves are tied in single line at regular intervals and are used to scare the fish shoals to move towards the area of operation of cast net and bag net. Mullets are mainly caught by this method.

Hook & line : In this method, a different numbered hooks with baits are tied to the line to catch different varieties of fish. Single man can operate this line either from the shore or from the dug-out canoe. Different types of baits are used depending on the type of fish to be caught. For catching the *Sillago sihama*, *Gerres filamentoses*, polychaetes, wheat flour, clam, mussel and chicken intestine are used as baits. Even algal bait is used for catching *Teuthis vermiculata* and *Etroplus suratensis*.

Pole & line : This is another version of line fishing where hook and line tied to the piece of bamboo pole with a line being a length of 1-1.1/2 metre so that fishes at the distance can be caught without using the canoe.

Bag nets : Specially designed gears are also used for collection of clams apart from the hand picking method. It consists of a semi-circular frame attached by horizontal bar with spines and beind this is a conical bag net is fixed. This bag net is dragged or scooped over the bottom of the bed to collect the clams. Other than this device, a rake is also made use for collection of clams.

(B) Mechanised

Trawling and purse-seining are the backbone of the mechanised fishing with other boats installed with out-board engines being used for gill net fishing.

Otter trawling : This gear is a bag like in structure as it is purely made of synthetic materials (netting) which is dragged along the sea-bed on or near the bottom to catch demersal & benthic fishes and shell fishes. This gear can be operated in depth ranging between 8-10 fathoms and its operation is similar to any of its kind elsewhere.

Purse-seining : This was introduced in Uttara Kannada district during 1975-'76 and are in operation since 1977 and dominates other gears in total fish landings. The principle behind the operation of this gear is to catch pelagic fishes by encircling them with a long webbing of netting and whose mesh size ranges between 13-14 mm (upper portion), 45 mm (margin of the net) and 9 mm (at bunt portion) respectively. The operation of this gear is restricted to the depth of 15-30 fathoms.

Preservation of the gears (non-synthetic) : Fruit of Panachikka (*Diospyros* sp.) is exclusively used for long line gear and this preservative is applied once in a week. The method of preparation and treatment is as mentioned by Kurian and Gopalan (1961).

The extracts from the bark of Mathi (*Terminalis tomentosa W & A)* is applied toseine nets, cast nets, drift nets etc. Method of preparation and treatment has been described by Kurian and Gopalan (1961). For patta bale, the tanin preservative is applied on the lower and upper margin of the net and a rise boiled water (Ganji) is applied to the middle region at certain places (George, 1981). Hemp webbing of drift net and ray tangle net are treated with lime before mounting in order to make it soft and pliable. For this purpose, the new webbing is boiled in water with alternate layers of lime for about 1-3 hours. The webbing after this treat-

ment is washed and dried.

The more effective chemicals tried were coal-tar, copper sulphate, ammonia, kerosene, standard green cuprinol, B.C. green cuprinol, Brown cuprinol. The tannins and chemicals were tried in various combinations also, According to Nair and Vanaja (1962) the protective effects of chemicals preservatives containing copper are almost similar irrespective of the difference in vegetable gear materials. More investigation are still needed to find out the preservatives for twines that would suit the Indian conditions.

TYPES OF CRAFTS

Dug-out canoes : These are smaller types of boats and are used in estuary, backwaters and rivers. These are cut out of a single log and are usually termed "dug-out canoes" (local name-'Dhoni'). The size of the craft varies from 1.5-4 metres in length. Slightly bigger craft will have size of 7.3 x 0.9 x 0.6 metres manned by 6-8 men used as a scout boat for sighting the fish shoals in the sea.

Pandi : This is a bigger boat, having a size of 13.6 x 3.04 x 0.6 metres with a crew of 16 to 20 men for carrying the net. The craft is propelled with oars. This craft is used during rampani and yendi operations. Nets are kept in 'V'-layers and rowed perpendicular to the shore. Generally, this craft is attached with a balancer i.e., out-rigger for safety purposes.

Machwa : The size of this craft is about 9-14 metres in engtth and is mainly used for the transportation of cargo. In recent years, these crafts are restricted themselves to some parts of West coast of India. Pandi and Machwa both are plank built crafts and in recent years these have been installed by inboard engines to enhance their speed and being used for fishing purposes also.

Trawler : Trawlers are first introduced in Karwar during 1963 under the Indo-Norweigian Project and generally the otter trawlers operate at depths ranges between 8-10 fathoms. The length of the trawler ranges between 9.1 to 12.7 metres with engine capacity of 45 to 65 H.P.

Purse-seiner : Since 1977, these crafts are being used for catching the pelagic fishes like mackerel, sardines etc. The length measures 12.1 to 14.6 metres and at times bigger vessels

are also seen, measuring 27.3 to 30.3 metres. Another small boat called scout boat is also employed in the operation of this gear.

Protection of wooden structures of crafts : Generally the crafts like, dug-out canoes, plank-built pandi, machwas whose wooden structures are protected from the ravages of fungi and marine borers by applying the cashew-nut oil, fish oil after exposure to the sunlight. Bigger vessels like, trawlers & purse seiners can be protected by coating the synthetic enamel over their wooden structures. The only method of protection for these wooden structures is the treatment with chemical preservatives.

Fishing season commences from September and would last till May in Karwar. During this period, a varieties of fishing gears are employed in catching different types of fishes being restricted themselves to the certain period of the season (Fig.2). Only non-mechanised crafts will be engaged in fishing throughout the year irrespective of the seasons. Figure 2, represents the operations of different types of gears and the varieties of fish caught in Karwar waters.

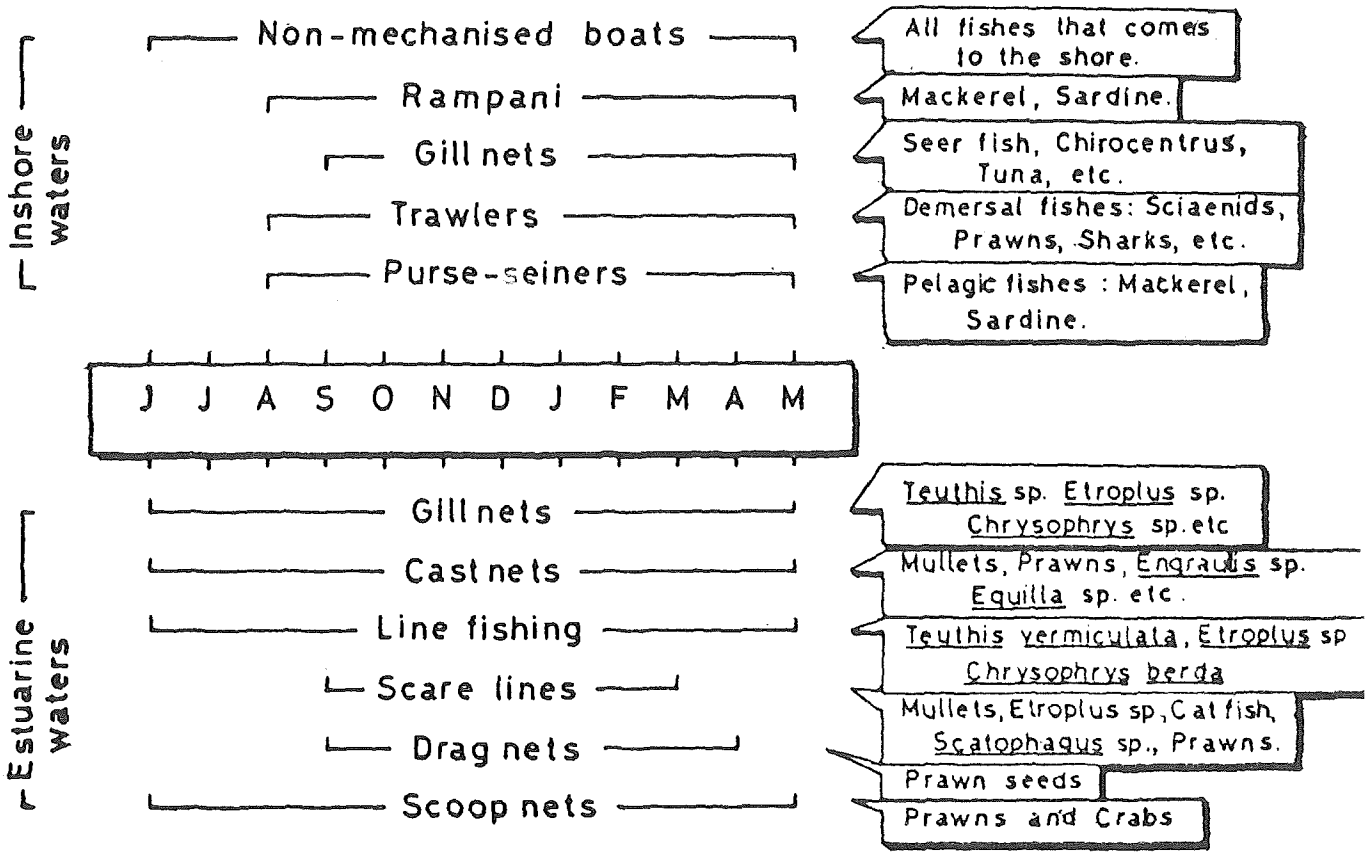

Fig. 2 Types of fishing gears employed in catching different types of fishes in inshore and estuarine waters of karwar.

CONCLUSION

The major share to the total landings of fish in Karwar coast is brought mainly by mechanised crafts. There is ten fold differences in the landings between mechanised and non-mechanised crafts inspite of year round operations of the latter ones with their total catch falling far below that of mechanised crafts (Shetty *et al.*,1988). This is not surprising in view of the fact that Karnataka State mechanised boats per kilometer of the coast line is highest in the country and the catch of non-mechanised sector is staggering over thousand tonnes per year.

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