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Fishing craft and gears in Kallepalli and Kalingapatnam estuaries, of Nagavali and Vamsadhara rivers Srikakulam districts of Andhra Pradesh, India

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Abstract

The present study deals with the different fishing craft and gears implemented for fishery purpose in Kallepalli and Kalingapatnam estuaries. The study of fishing craft and gears of these estuaries were conducted for a period of two years from June 2012 to May 2014. The investigation revealed that the fisherman use one craft i.e. the wooden boat in both estuaries. and six type of gears i.e. Gill net, Cast net, Drag net, Push net, Three layers net and Mara vala are used in both estuaries. Fixed stake gillnet is used in Kalingapatnam estuary of Vamsadhara river only. The investigation is documented for the first time in the Kallepalli and Kalingapatnam estuaries.

Keywords: Kallepalli, Kalingapatnam, craft, gear, Eastuaries

1. Introduction

Fishing implements are used to catch fish in the water bodies and different kinds of crafts are used in commercial, artisanal and recreational fishing. Fishing tackle refers to the physical equipment that is used when fishing. Every water body has its unique pattern of craft and gear. Fishing gear can be described as any kind of equipment used in harvesting, cropping, or capturing fish from any water body [2]. The use of indigenous fishing gears, which are eco-friendly as well as sustainable, need to be encouraged instead of modern gears [3]. Different types of materials are used to make these fishing gears include netting, twine, plastic structural and fasteners, clips and swivels, ropes, steel wire ropes, combination wire ropes, purse rings, polyester, polyethylene, nylon, cotton, polypropylene, mixed fibers, floats and sinkers, bamboo, wood etc. [1].

2. Materials and Methods of study

Kallepalli estuary is situated between 83°-18'-26" E and 18° -33' -33" N in Srikakulam district (Fig.1a) and Kalingapatnam estuary at 84° - 11'-67" E 17° -89'-39" N in Srikakulam district (Fig.1b) of Andhra Pradesh. During the field work the information regarding the various fishing craft and gears and their working procedure were collected by personal interviews and questionnaires from local fishermen community and by personal observation during the fishing operations.



Fig 1a

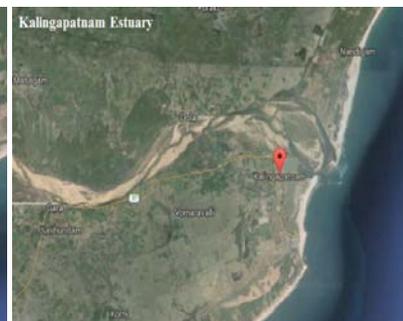


Fig 1b

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3. Results and Discussion

Different types of gears are used in Kallepalli and Kalingapatnam estuaries of Nagavali and Vamsadhara rivers. Only Wooden boat is used in both estuaries. Gill net, Cast net, Drag net, Push net, three layers net and Mara vala are used in both estuaries. Fixed stake gillnet is used in Kalingapatnam estuary of Vamsadhara river only.

3.1 Crafts

3.1.1 Wooden boat

It is the most common fishing craft used in Kallepalli estuary (SII) of Nagavali river and Kalingapatnam estuary (SIV) of Vamsadhara river. Only non-mechanised boats were observed to be used in fishing. Length of fishing boats varied in a range of 15 to 20 feet, with 2-3 feet width. Making cost of this boat is Rs15000- 20000, which has 6 to 10 years durability.



Fig 2; Boat (Teppa)

3.2 Gears

3.2.1 Gill net

These nets are used at the both estuaries. Gill nets are panels of netting held vertically in the water column by a series of floats attached to their upper edge (the float line or cork line) and weights attached to their lower edge (the foot rope or lead line). The net is set by fastening to anchor as passive gear and the catching ability relies on the movement or migration of fish through the area where the nets are set and the operculum of fish get entangled into the meshes of nets, when the fishes try to pass through it. Sometimes the net is tied against the current and allowed to remain at night. To operate the net 2 - 5 persons are needed for about 1.5 - 2.5 hours. Depending upon mesh size, the size of the fish caught for this was normally 200 g to 10 kg and occasionally caught up to 15-20 Kg or even more size fishes. Making cost of this net is Rs 3000 - 10000, which has 3 to 4 years durability. This net is locally named as disco vala in both sites.



Fig 3: Gill net

3.2.2 Cast net

It was the most commonly observed gear being operated at both sites. The obvious reason was that it can be operated single handed. It is a spherical net having the shape of a large umbrella. A strong rope is attached to the top of the net and a number of lead weights are fixed all along the circumference. The fishermen throw the net fully spread over the water, keeping the long rope in his left hand. This has to be done skillfully so that the net falls on the surface of the water fully expanded. The net sinks to the bottom and the circumference closes due to the weights attached to it. All kinds of small sized fish are entangled in the net, which is then pulled out by means of the rope. Different mesh size ranging from 1cm to 10 cm was observed in cast nets. Making cost of this net is Rs 2000- 5000, which has 3 to 4 years durability. This net is locally named as avisuruvala



Fig 4: Cast net

3.2.3 Drag net

Drag nets are generally used for dragging shallow waters. The net is rectangular in shape, 45-50 m long and 1.5-2 m in breadth. A number of small bamboo sticks are attached in a linear manner of the net. The top of the net is attached with a thick nylon rope. The net is taken to the deep portion of the river and dragged towards the shore. Fishes blocked on the way by the net tend to go downwards and are eventually trapped. 6-9 persons are needed to operate the net, which required 1.5-2 hours for a single operation. When river water has a depth of 1 to 3 m. frequent drag net operations were observed in both sites. Making cost of this net is Rs1000-2000, which has 2 to 4 years durability. This net is locally named as karravala or konti vala.



Fig 5: Drag net

3.2.3 Push net

It is observed in both estuaries. It is made of a triangular bamboo or iron frame fitted with a mosquito netting cloth (1mm mesh). Fishermen operate it first by pushing the net and then scooping from the water to catch the small fish. Single fishermen can operate two nets at the same time. Triangular

shape of this net gives balance and erects the net perfectly. Making cost of this net is Rs. 1000-1500, which has 2 to 4 years durability. This net is locally named as ethidium vala.



Fig 6: Push net

3.2.4 Three layer net

It is observed in both estuaries. These nets have three layers of different sizes 3 to 15 cm. These nets are rectangular nets which are provided with head and foot ropes, these ropes are provided respectively with sinkers and floats. To operate the net 3 - 5 persons are needed for about 1-2 hours. This net can trap all sizes of fishes in the same time. Making cost of this net is Rs 20000-50000, which has 3 to 4 years durability. This net is locally named as muduporala vala.



Fig 7: Three layer net

3.2.5 Mara vala

It is a kind of large shore- seine and locally called Mara vala of varying dimensions and sizes are operated by a group of fishermen (7-9 persons) with the help of boats in both estuaries. The two ends of the net are drawn together and the ground rope is hauled up from the centre of the water body to catch the fish. This gear can be operated by day and by night. Making cost of this net is Rs 20000-40000, which has 3 to 4 years durability.



Fig 8; Mara vala

3.2.6 Fixed stake net

It is used in Kalingapatnam estuary of Vamsadhara river for catching fish in shallow inter tidal zones. It consists of a sheet of network stretched on stake fixed into the ground. These gillnets are stretched between two or more stakes driven into the bottom within the inter-tidal area, along the coast. These nets are usually hauled by hand. Based on tidal differences the fishermen visit the place and set the net at the time of low tide. The net is spread with nearly of 2 km radius and are set into the dug up sand and then covered with sand. At high tide fishermen come with stakes and lift the net with their foot thumb and haul it vertically, which is the hung on stakes driven into the ground. During the low tide they collect the fishes, leaving the gears set in the same place for several days. Making cost of this net is Rs 1,00,000-2,00,000, which has 5 to 6 years durability. This net is locally named as kattu vala.



Fig 9: Fixed stake net

4. Conclusion

The main basic idea of responsible fishing is to increase economic returns to the fishermen without affecting the long-term sustainability of the fishery resources and with minimum impact on the ecosystem. The Societies of these sites management should be aware of the use of modern equipment of fishing. In Kalingapatnam estuary illicit poaching of fish species was being done by outsiders as reported orally by the fishermen which should be totally banned in these sites. Proper training of modern fishing methods should be provided to the fishermen community by societies and authorities for economical commercial yield of fish production.

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