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FISHING METHODS WITHOUT GEAR OF RATNAGIRI, MAHARASHTRA

Mayuri Dongare, Ashish Mohite and Makarand Sharangdhar

Department of Fisheries Engineering, College of Fisheries, Shirgaon, Ratnagiri – 415 629, India.
e-mail : ashishmohite@yahoo.com

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ABSTRACT : The present study encompasses the fishing methods without gear practiced in Ratnagiri, Maharashtra. Fishing by gathering, with the help of hand and feet, is a community fishing method practiced along the fishing villages of Ratnagiri namely Mirya, Sakhartar, Kasarveli and Karla. Hand picking with the help of long knife like implement locally known as '*Koyati*' having length and width varying from 13.5 to 45 cm and 2.5 to 5.5 cm, respectively is commonly used for collection of oysters attached to the rocks during the low tide. Fishing with the help of feet without any use of specialized fishing implement was carried out mostly by group of fisher woman along the muddy shores during the low tide for catching bivalves. Fishing by male divers was carried out by diving in to the creek water by carrying one long bamboo pole and a bivalve storage bag tied to the waist, at a depth of 1.82 to 3.04 m for harvesting bivalves like green mussels with the help of wooden non mechanized fishing craft locally known as *Hodi* along the banks of the creek of Karla and Bhatye fishing villages of Ratnagiri, Maharashtra.

Key words : Fishing methods without gear, hank picking, fishing with feet, male divers.

INTRODUCTION

The design and efficiency of traditional fishing implements draw strength from a practical knowledge accrued over several generations of human enterprise and they remain valid and effective even today. Thus, the present generation has still a lot to learn from this treasure of traditional knowledge (Remesan, 2009). The west coast of India is rich in tradition related to fisheries for two reasons. Firstly, the traditional fishing communities and the like, have a rich legacy of traditional knowledge and secondly, there exists a very wide continental shelf on the west coast enabling better harvesting of fish (Sharma *et al*, 2012).

Fishing without gear but only by means of the hand was the very beginning of the fishing activities of humans. Gathering by hand can be considered the simplest form of fishing, surviving the centuries and modern developments. Hand picking along the beach in sea water and fresh water, in shallow water or by diving in deeper ones, is not only known all over the world today but also since prehistoric times. Mussels as well as snails and sea urchins, are the main objects harvested by hand picking. Moreover, various species of crustaceans, and even barnacles and fish, left behind in little caverns, are secured when the water recedes. Mussels and snails are preferred, especially in low tide areas because they move slowly. Mussels are dug from the bottom, while snails are removed from the stones to which they adhere or are gathered from the ground. (Gabriel *et al*, 2005).

Saxena (1966) worked on traditional fishing gears of Ganga river system. Dutta & Bhattacharjya (2008) worked in Tisa river of Arunachal Pradesh. Gurumayum & Choudhury (2009) studied on fishing methods in the rivers of northeast India. Mohan Rajan (1993) explained fish trapping devices and methods of southern India in his study. Devi *et al* (2013) have reported various fishing gears on central valley region of Manipur, India. Manna *et al* (2011) recorded the fishery related indigenous technological knowledge in terms of fishing crafts and gear used in river. As many as 6 different types of crafts and 10 different gears were encountered during the survey of the river Krishna.

Thomas and Kurup (2004) studied the Bush park fishing/ Padal fishing which was an indigenous fishing method widely employed in the Ashtamudi estuary of Kerala. Datta and Bhattacharyaja (2009) introduced and described indigenous fishing methods of river Kalong-kapili, an important south bank tributary of Brahmputra river. Dutta and Dutta (2013) carried out study with an objective to bring out detailed information about the method of fishing without gear. In this practice, fishes were caught in the lower reaches by obstructing water flow of the stream. Fishes in their attempt to overcome this obstruction ultimately got trapped. Gangan *et al* (2013) discussed on indigenous knowledge in the management of bivalve fishery of south Konkan coast of Maharashtra. They described the indigenous knowledge gained by the people in a given community over a period of time by experience, experimentation and handling on

Photo 1 : Implements and Supplements used for hand picking.

the knowledge shared by old people in the community. The method of bivalve fishing is easy and suitable to collect the variety of clams, mussels and oysters from a particular habitat.

The present study is an attempt to document the variations observed with respect to the design, material or implements used, mode of operation, etc in the traditional fishing methods without gear, of Ratnagiri, Maharashtra.

MATERIALS AND METHODS

Ratnagiri (16°58'57" N latitude and 73°18'43" E longitude) an important fishing centre was selected as the sampling area for the present study comprising of sampling stations namely Sakhartar, Kasarveli, Mirya, Karla and Bhatye. Structured interview schedule comprising of two major sections was formulated to collect data required for the present study. The first section dealt with the particulars of the traditional gear owners and second for the detail specifications of the respective traditional gears operated. The information included in the first section was recorded according to Sreekrishna and Shenoy (2001) whereas, information in the second section was collected according to George *et al* (1983) and Akerman (1986). The technical specifications of the traditional gears and mode of operation were recorded. Collected data was statistically analyzed as required (Snedecor and Cochran, 1967).

RESULTS

Fishing by gathering

Fishing by gathering without involving any specially designed gear is an age old practice of fishing along the coast of Ratnagiri (Photo 1). This type of fishing was observed at the fishing villages of Mirya, Sakhartar, Kasarveli and Karla. In includes hand picking, and fishing with the help of feet.

Hand picking with the help long knife like implement locally known as '*Koyati*' was generally used for collection of oysters attached to the rocks exposed during the low tide. '*Koyati*' was made up of iron having length varying from 13.5 to 45 cm with mean of 26.88 ± 3.42 cm and width ranged from 2.5 to 5.5 cm with an average of 3.95 ± 0.36 cm. For proper holding, 7 to 12 cm long and 3 to 4 cm diameter round handle made up of strong wood was provided at the base end. Other end was made slightly curved to facilitate easy cutting and removing the oysters from rock. Fishing activity was carried out throughout the season by mostly fisher woman at low tide when the rocky areas get partially or fully exposed. Fishing by hand picking usually started in the early morning hours for 3 to 5 hours with the help of *Koyati.* Collected oysters were stored in polythene bag or bamboo wood strips basket (*Topli*). Meat was separated from collected shells using small knife and was stored in hot water. Oyster meat was sold at the rate of Rs. 15/- for 15 to 20 pieces.

Fishing with the help of feet, without use of any specialized fishing implement was observed from the landing centres namely Karla, Bhatye and Sakhartar (Photo 2). The fishing activity was carried out mostly by fisher woman along the muddy shores during low tide for catching bivalves by use of their feet. In this fishing technique the fisherwoman invade into the waist height water which was around 2 to 3 feet and searched the sticky muddy ground with their feet to find the buried bivalves. When a bivalve was found it was held firmly by the feet till it was grasped with the hand. After collecting by hand, the bivalves were stored in the basket (*Topli*) made of bamboo wood strips after washing in the tidal water. The searching and collection operation was continuously carried out in the nearby area till sufficient catch, normally of a basket full of bivalves, was achieved. It was noted that complete operation used to normally take 4 to 5 hours. After collection of catch the collected bivalves were send to the local market where they were segregated into small parts locally known as *Vata* which contained 25 to 30 bivalves or sometimes a traditional measuring utensil was used, locally called as *Sher* and one *sher* contained around 50 to 80 bivalves of 15 to 20 cm size. One *Vata* was sold at the rate of Rs. 15/- to 20/- and one *Sher* was sold around Rs. 50/- to 60/-. Fisher woman normally earned Rs. 150/- to 250/- per day by selling bivalves in the local fish market.

Male divers

It was observed that, fishing was carried out by diving in to the creek water by carrying one long bamboo stick and storage bag tied to the waist. This technique of fishing was observed from fish landing centers namely Karla and Bhatye for harvesting bivalves (Photo 3). Bamboo pole of 4 to 8 m length and diameter of 3 to 8.6 cm was used by male divers. One round iron rod having dimensions 0.5 to 1.18 m long and 2.5 to 3.1 cm diameter was tied to the bottom end of the pole with the help of PA or PE twisted multifilament twine of 210D×6×3 to 210×12×3. It was observed that, fisherman used a conical bag locally called as *Zole / Zaabli* which was of varying capacity (1 to 2 kg) made up of nylon multifilament twisted netting twine of 210D×8×3 to 210×12×3 to store bivalves in fresh condition till they were sold in local market. The male divers used underwater goggles and hand gloves for the fishing operation which was carried out at 1.82 to 3.04 m depth with the help of non mechanized fishing

Photo 2 : Collection of bivalves and mussels : fishing with the help of feet.

Photo 3 : Collection of bivalves, gear accessories, rigging and operation by male divers.

craft locally known as *Hodi* having 5 to 7 m length, 3 to 4.5 m width and 1 to 2.5 m depth. *Hodi* was generally propelled manually with the help of oars for reaching the fishing ground. Fishing operation normally started in early morning hours in which, one or two male divers reach the fishing ground, with the help of *Hodi*. After reaching the fishing ground one diver remained in the *Hodi* and other diver after wearing the diving equipments dives in to the water along with the bamboo stick and storage bag tied to the waist. Bamboo stick is used to disturb the muddy or sandy bottom to expose the buried bivalves. The bivalves are then collected by hand and kept in storage bag which was tied to the waist. After every 1 or 2 min male diver comes to the surface of water for taking breath and again makes a dive. The diving process is repeated for 3 to 4 hours by both the divers turn by turn till they get sufficient catch. After returning back to the landing center, the bivalve storage bag is kept submerged in the coastal water with one end tied to some hard objects like rock or some with the part of jetty with a rope. Bivalves can be stored for one to three days. The bag is agitated with hand daily to facilitate water circulation.

DISCUSSION

In Ratnagiri hand picking was done with the help long knife locally known as '*Koyati*'. for collection of oysters attached to the rock during the low tide. Similar observations were reported by Gangan *et al* (2013) on south Konkan coast. For hand picking of clams, *koyati* and other implements like *aakli, mhangare/aakya*, *Indi* or *Konda* were popularly used. Remesan (2009) observed that hand picking was practiced in shallow waters in several places for catching fish and shell fish in the backwater, canals and mangrove areas of Kerala. Dutta and Bhattacharjya (2009) reported the hand picking method in marginal areas of the river of Assam for catching small catfishes using raw meat of domestic duck as an attractant. On the other hand, Prasad *et al* (2013) found the new technique of hand picking in Faizabad district of eastern Uttar Pradesh where, fishes were caught from small water pools by first lowering the water level using manual draining or by using water pumps. Then water was disturbed so that it became turbid and muddy, which resulted in blocking the gills of fishes thus suffocating them, unable to see and respire properly; resulting in the fishes coming to the water surface and where easily caught by hand.

On the south Konkan coast of Maharashtra, Gangan *et al* (2013) observed that, *Aakli* which was used to collect the clams was made up of circular metal frame having diameter 2 to 4 ft with a 3 to 6 ft long conical net attached to it. *Mhangare* or *Aakya* was triangular metal frame of 1 to 2 ft in size with 5 to 6 ft long net attached to it. *Indi* or *Konda* was bag like conical net of 5 to 6 ft attached to semi circular frame.

Fishing with the help of feet was carried out mostly by fisher woman along the muddy shore during the time of low tide for catching bivlaves. The study on such type of fishing technique has never been documented before in India.

In Ratnagiri, it was observed that, male divers carried out fishing by diving in to the creek water, carrying one long bamboo pole and a storage bag tied to their waist for collection of bivalves. Similar technique of fishing was reported by Gangan *et al* (2013) in south Konkan coast where, mussels were collected by skin diving with the help of *Taasni* and *Paarai.* Detailed specifications of implements used for fishing has not been reported by the author, but in Ratnagiri instead of *Taasni* and *Paarai*, bamboo pole having a length of 4 to 8 m length and 3 to 8.6 cm diameter was used to which a iron rod was tied at the bottom end of the pole with the help of PA twisted multifilament twine. In backwaters of Kerala female divers engaged in picking of clams carry sand bags. While picking they keep the bags on their head, which help them to dive fast and remain under water for sufficient period (Remesan, 2009). On the other hand in Ratnagiri, male divers used *Zole/Zaabli*, which was a conical bag of varying capacity of 1 to 2 kg and made up of nylon multifilament twisted netting twine of 210×8×3 to 210×12×3 tied to the waist to store bivalves in fresh condition.

CONCLUSION

The documented information on the technical specifications and operation of fishing methods without gear would serve as a base line information for the technological modifications these methods may undergo in the coming years.

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