

FISHERY OF SURAJBARI PRAWN (*Metapenaeus kutchensis*) IN GUJARAT

Pravin, P., Remesan, M.P., Ravishankar, C.N., Asok Kumar K., Badonia, R. and Solanki, K.K.
Research centre of CIFT, Matsya Bhavan, Bhidia, Veraval, Gujarat 362 269

Surajbari fishery is a unique phenomenon in Gujarat, where landings of *Metapenaeus kutchensis* is abundant during monsoon period from August to October. The importance of the fishery is that, this provides the raw material to the entire processing industry at the beginning of the fishing season. This fishery has been reported during the Winter months also on a small scale (Pillai and Gopalakrishnan, 1984). The average annual landing in Surajbari is about 6000 metric tonnes. The name of the fishery is derived from the Surajbari fishing village, which is situated in the Little Rann of Kutch, having an approximate area of 3000 sq. km. The fishing area is bounded on the north by the Kutch district and in the south by Rajkot and Surendranagar districts (Fig. 1) Apart from the Surajbari fishing village, which is the largest and most important landing centre, other fishing villages which contribute to this fishery are Lakhiaser, Nangavadi, Kajarada, Kharadia, Vinaser, Navalakhi and Sossaria (Rao, 1983; Pillai and Gopalakrishnan, 1984). The fishermen from the neighboring village camp at the site during fishing season. About 8000-10000 fishermen flock in the little rann of Kutch to harvest the abundant stock of prawn. Heavy landings during the monsoon is probably due to high influx of fresh water from the major rivers like Matchu, Banas, Saraswathi etc., which empties into the little rann of Kutch.

HARVESTING

Fishing craft

Traditional fishing crafts like the "Machwa" and "Maliya" are employed for fishing and transportation. Machwa is a plank built craft of the carvel type having an OAL ranging from 6 to 8 meters. They use mast with a large sail. Few of them are motorised with inboard engines of 8 to 10 HP. These crafts are used for stake net fishing and also for gill net fishing in the Gulf of Kutch.

Maliya crafts are also plank built, locally known as "Odie". These boats are flat bottomed with

a low draft. This facilitates them to move freely in shallow waters and also for easy beaching. The OAL ranges from 5 to 6 meters. They have a short mast and square sail maneuver with the help of the rudder. They are used for stake net fishing and is manned by 3 to 4 men.

Fishing gear

Different types of gears are operated by the fishermen of Surajbari village. The stake nets, cast nets and gill nets are used in the Rann of Kutch. Apart from this, they operate deep sea gill nets in the Gulf of Kutch.

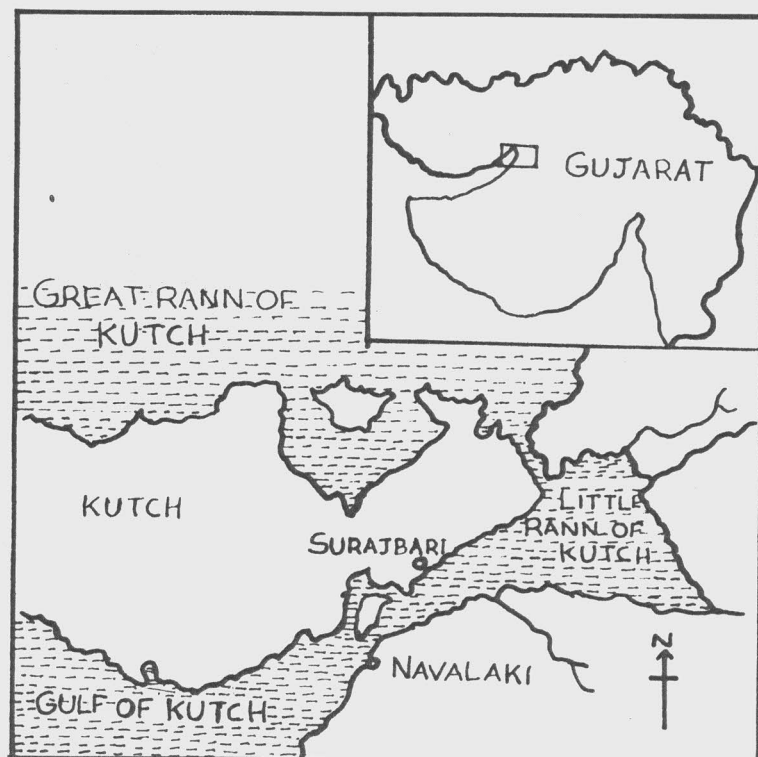


Fig. 1. Location of Surajbari

Stake nets

They are locally known as "Gunja". Gunja nets operated in Kutch backwaters have been described by Pillai and Gopalakrishnan (1984). The nets are fabricated manually by altering the mesh size with uniform tapering to form a conical bag with a small cod end. The twine used is HDPE of 0.75 to 1.00 mm dia. HDPE ropes ranging from 3 to 10 mm dia are used for hanging the fore parts of the net. The mesh size range from 40 to 50 mm in the fore part which decreases gradually to 10 mm in the cod end. The net is operated at the depth of 2 to 10 meters during low and high tides against the flow of water. A battery of nets ranging from 5 to 8 numbers are operated from each boat. Each net is tied to stakes at 4 different points, so as to keep the mouth of the net open. The stakes are fixed by pushing it inside the mud for 3 to 3.5 feet deep. The distance between two adjacent stakes ranges from 4 to 6 meters.

Fishing is carried out in the morning and evening, with 2 to 4 persons on board. Periodically the cod end of the net is hauled up and the catch is collected. The catch varies from 5 to 15 Kg per haul and mainly comprises of prawn, mud skipper, mullets etc.

Hand operated Gunja

Smaller sized Gunja net is used as a drag net in very shallow waters and is operated by two fishermen, where there is less tidal

force. The fore part of the net is tied to two semi circular flexible pole at four different points to have a fixed mouth opening. The fore part of the net is mounted to 3 mm dia HDPE rope and twine size used is less than 0.75 mm dia. The fishermen hold the semicircular poles and drag them in water to capture the prawns. Fishing operation is carried out throughout the day.

Winged Gunja

This net is also known as "Kathar". Two rectangular pieces, each of 10 to 12 m in length, are attached to either sides of the mouth of the gunja nets. These wings are fixed to 8 to 12 stakes on each side having a distance of 1 to 1.5 m between them. A stake is fixed at the center of the mouth to keep it open. The mesh size and twine size are same as that of Gunja nets.

Gillnets

Surface drift gillnets

They are locally known as "Patti". It is a rectangular piece of netting having a length of 30 to 40 m. and a depth of 1 to 2 m., made up of nylon monofilament of 0.26 to 0.32 mm dia. with mesh size ranging from 30 to 50 mm. Small floats of size 4 x 1 x 0.5 cms of thermocole, rubber etc. are used at a distance of 4 to 5 cm in the head rope. The net is mounted to 1.5 mm dia HDPE twine. No foot rope and sinkers are used. This net is operated by a single fisherman in the shallow waters.

Deep sea drift gill nets

Locally known as "Rachh", the net consists of many units and has a total length ranging from 100 and 150 meters and depth of 5 to 5.5 meters. Mesh size from 220 to 240 mm. and the twine size used is 2.5 mm dia HDPE. Flats disc shaped PVC floats of 35 mm dia are fixed on the head rope at a distance of 30 cm. Molded cement disc shaped sinkers, each weighing 500 g. are attached at equidistance as in the case of floats. The head rope and foot rope used are 10 to 12 mm dia HDPE. The nets are operated from a boat with 4 to 5 fishermen and is used for catching larger fishes like shark jewfish billfish tuna etc. in the gulf to Kutch mostly during the off season.

Cash nets

Cast net, locally known as "Jari" is made of Nylon multifilament twine having a stretched mesh size ranging from 25 to 45 mm. The depth of the net is 2.6 mts having 90 meshes attached to the ring at the top which increases to 600 to 1000 meshes at the lower end of the gear. The net is fabricated by hand and small lead sinkers are attached at the bottom edge of the net. This net is operated by a fisherman in a boat to catch mainly mullets, cat fish etc.

Handling, processing and marketing

As such there are no facilities for sorting, storage and auctioning the catch at the site. An

auction hall which has been constructed by the State Fisheries Department five years back is in ruins. The fishermen do not have the practice of taking ice on board. The catch is brought to the shore in aluminium containers and gunny bags. The catch mainly comprises of prawns (*Metepenaeus kutchensis*) and fishes like mullets, cat fish, mud skippers etc. Landings of *Macrobrachium* spp. has also been reported by Ramamoorthy (1967) and Deshmukh (1975). On landing the prawns are sorted from the fishes since only prawns are having a commercial market. Surajbari prawns (*M. kutchensis*) have characteristic bright orange colour with a size range of 40 to 70 mm and weight ranging from 4 to 8 gms. They are sold on the basis of their size or count. The auctioning is done in units of boxes made of tin, each weighing 10 to 12 kg. The price may vary considerably based on the quantity landed and the size. On an average the price per kilogram varies between Rs.10.00 and 20.00. But there has been instance in the past when the prices have gone down to even Rs. 2.00 per kg, due to heavy landing.

The catch is sold to commission agent as well as to the fish processing industry. The processing plants at Veraval, Porbander and Mangrol have their agents camping at the landing centres. On procurement, the material is iced and transported to the factories, either in insulated trucks or in open lorries. A delay of 2 to 3 hrs

occurs from the time of harvesting till the material is iced.

Generally the prawns are processed and packed as quick frozen PUD blocks, each weighing 2 kgs. Majority of processed prawns fall under 80/120 counts/lb followed by 200 to 300 and 300 to 500. The yield of PUD from the raw material varies between 36 to 42%. Sometimes the material is also processed as cooked and peeled and packed in consumer packs. The frozen products are generally exported to Japan and E.C. countries.

At the beginning of the season, there is hardly any demand for the prawns due to smaller size and less quantity. At that time the fishermen themselves process the prawns. Usually they dry the prawns in the sun after boiling in 10% salt solution. The dried material after peeling, are sold in local market at the rate of Rs.50.00 to 75.00 per Kg. It was observed that the dried material was having a high moisture content and bacterial load, hence the shelf life is very low. However, there was no incidence of pathogenic bacteria in dried prawns.

Surajbari prawn fishery has been playing a significant role in boosting the economy of fishing industry of Gujarat, by virtue of quantity and quality. Unfortunately, the villagers and fishermen always complain about the gross neglect they face from authorities, in the sustained development of the area. Besides lack of

infrastructural facilities such as landing quay, community fish storage facility, repair and maintenance facility for engine and gear, non availability of good quality water and ice also pose a threat to the quality of the prawns landed. If these facilities are provided the quality of the catch reaching the processing factories can be enhanced to a great extent. Added to this the quantum to catch of Surajbari prawns is showing a declining trend for the past two years. According to the fishermen this was due to the indiscriminate proliferation of salt pans in the upper area of Rann of Kutch, which has not only reduced the fresh water influx to the fishing area, but also has increased siltation. These problems have to be checked effectively by the authorities so that the Gujarat continues to reap the benefits, the nature has blessed upon her.

Acknowledgments

The authors wish to express their profound thanks to the Director, CIFT, for permission to publish this paper.

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