

RESEARCH PAPER

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Harvest and post harvest of mud crab (*Scylla serrata*) along Saurashtra coast of Gujarat

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SUMMARY :

Mud crab is known as “Dhebaro” among coastal communities in Saurashtra region of Gujarat. *Scylla* populations are abundantly found in mangrove areas hence, they are also called mangrove crabs. In Gujarat, mud crabs are found in large quantity along Jamnagar district and in small quantity along Devbhumi Dwarka, Porbandar, Gir Somnath, Diu and Amreli coast of Saurashtra. Collecting gears commonly used in Saurashtra are stake net, scoop net type trap, gill net, cast net, hook and line and iron rod. Although mud crabs are caught throughout the year, the peak season is from July to September. About 1.5 kg *Scylla serrata* was captured in Okha coastal area in November 2010. Mud crabs collected from the natural habitat are brought to the landing sites for both domestic and export markets. The price of mud crabs in Saurashtra coast differs depending on the area. In domestic market, the price of mud crab below one kg ranges from Rs. 110 to Rs. 300 per kg. Frozen mud crab meat and live mud crabs are exported to Singapore. *S. serrata* is more in demand in domestic market and also commands a better price compared to other species of mud crab.

KEY WORDS : Mud crab, Marketing, Saurashtra coast, Gujarat

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Gujarat state is bestowed with 1600 km with higher tidal amplitude than other parts of West coast. These natural phenomena had created vast stretches of marshy and saline lands all along the coast. Saurashtra coastal belt is replete with fisheries activity related to marine fish capture (Solanki *et al.*, 2011). Among the 990 species of marine crabs, 34 species

are growing to larger size and hence, they fetch a higher price. A total of 3,500 tonnes (2,500 tonnes from brackishwater and 1000 tonnes from marine region) of mud crabs are caught annually from India (Kulasekarapandian and Panigrahi, 2005). Most of the commercially important crabs belonged to the family Portunidae and they can be recognized by the presence

Table A : Availability of mud crab along Saurashtra coast			
Marketing of mud crab	District of Saurashtra coast	Different area	
Major market Mud crabs are found in large quantity in mangrove dominated muddy area.	Jamnagar	Bedi	
		Salaya	
		Jamanagar	
		Satana	
		Vadinar	
Minor market	Devbhumi Dwarka	Okha	
		Harshad-miyani	
Small quantity of mud crab availability at muddy area.	Porbandar	Navibandar	
		Gir Somnath	Veraval
	Sutrapada		
	Dhamrej		
	Vanakbara		
	Diu (U.T.)	Amreli	Jaffrabad
			Simar
	Bhavnagar		Mahuva

of flattened last pair of legs, which help them in swimming in the columnar waters. The mud crab, *Scylla serrata* is locally known as “Dhebaro/ Karachelo” in Gujarati, “Khadapi chimbori” in Marathi, “Patcha nandu” in Malayalam and “Chilka kankada” in Oriya. *Scylla serrata* is identified by all the fishers from the colour of upper surface of body which is usually dark brown to black (Nirmale *et al.*, 2012). *Scylla* populations are abundantly found in mangrove areas hence, they are also called mangrove crabs. Mud crab (*Scylla serrata*) a big portunid crab is a highly-prized natural resource that lives on soft muddy bottoms association with mangrove-lined estuaries. Mangroves are densely available in almost whole Gulf of Kutch and fewer in Narmada and Tapi estuaries area, these areas are potential in mud crab fishery. The local fisherman of this area depends upon the mud related fishery. Fishing of mud crab is done in the area at subsistence level by the fishermen with the help of a long thick- wire or by employing bait net.

The body of *Scylla* spp. is broad, transverse and somewhat convex at its carapace with even surface. The carapace is formed with fused tergites and serrated anteriorly with six teeth and anterolaterally with nine teeth in each side. The species bears each one pair of antennae, antennules and stalked eyes in the anterior side (Paital and Cainy, 2012). Mud crabs prefer brackish water habitat, they migrate from salinity to estuarine water bodies during their post larval or juvenile stage (Srinivasagam *et al.*, 2000).

EXPERIMENTAL METHODS

Mud crabs were harvested from muddy area of coastal belt. In Saurashtra region, crab culture and fattening activities are not available. Usually, small fisherman engaged with catching of crab. Mud crabs are found in large quantity along Jamnagar district in mangrove dominated muddy area and in small quantity along Devbhumi Dwarka, Porbandar, Gir Somnath, Diu (U.T.) and Amreli coastal areas of Saurashtra, Gujarat (Table A and Fig. A).

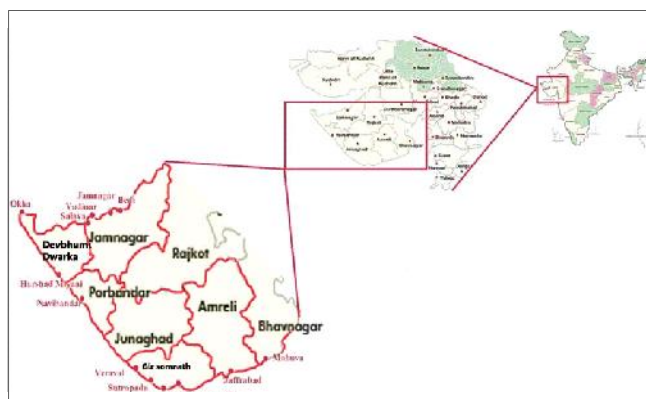


Fig. A : Availability of *Scylla serrata* along the Saurashtra coastal belt of Gujarat, India

EXPERIMENTAL FINDINGS AND ANALYSIS

The results obtained from the present investigation as well as relevant discussion have been summarized

Table 1 and Fig. 1 to 8.



Fig. 1 : Live 1.5 kg mud crab (male) at Okha



Fig. 2 : Live mud crab in water

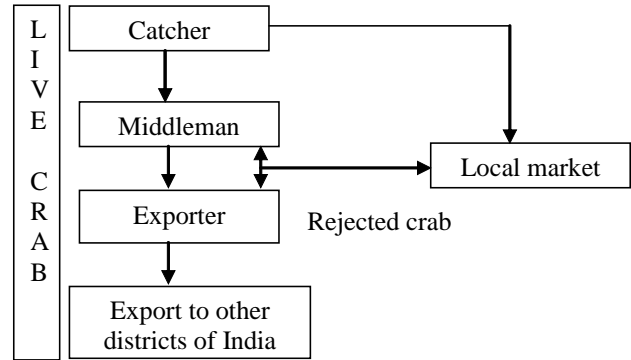


Fig. 3: Trading channel in mud crab



Fig. 4 : Claw tied with thread



Fig. 5 : Crabs in bag for transport

Table 1 : Grading system of mud crab by weight in market

Grades	Grades	Avg. prices	Transportation
100-200 g	< 500 g	Rs. 110-145 per kg	Live mud crabs through air (flight) and land (train) to Chennai and then Calcutta and Andhra Pradesh
200-300 g			
300-400 g			
400-500 g			
500-600 g			
600-700 g	>500 g	Rs. 150-300 per kg	
700-800 g			
800-900 g			
900-1000 g			



Fig. 6 : Local market

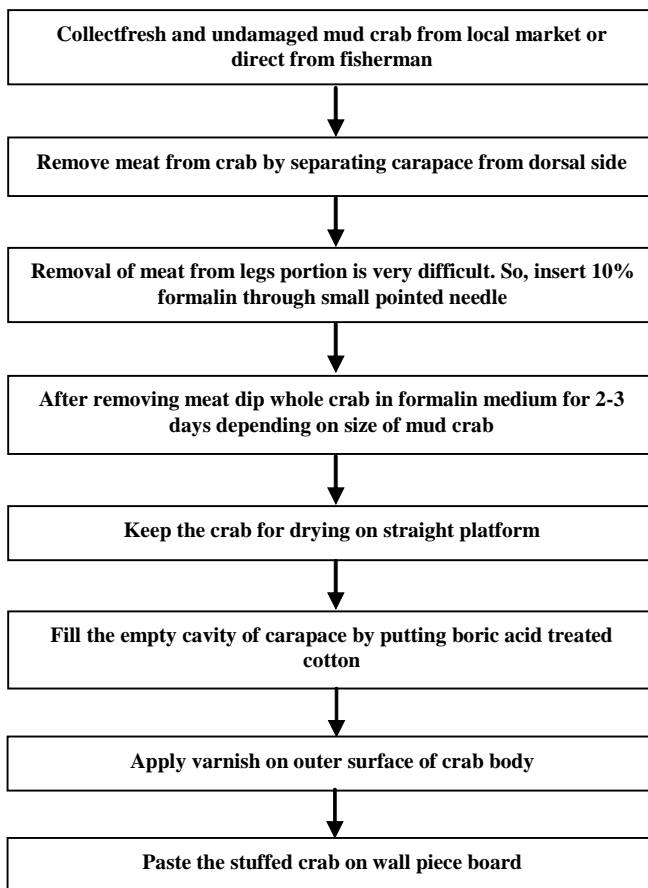


Fig. 7 : Process of Stuff mud crab for decorative wall piece

Capturing the *Scylla serrata*:

Collecting gears commonly used in Saurashtra are stake net, Scoop net type trap, gill net, cast net, hook and

line and iron rod. Although mud crabs are caught throughout the year, the peak season is from July to September. The usual size of mud crab along Saurashtra coast is below 1 kg. About 1.510 kg live male crab *Scylla serrata* was recorded by Fisheries Research Station, Junagadh Agricultural University, Okha which was caught by fisherman through scoop net type trap from Okha in 26th November 2010 (Fig. 1).

Marketing of mud crab in domestic market:

Mud crabs collected from the natural habitat are brought to the landing sites for both domestic and export markets. The price of mud crabs in Saurashtra coast differs depending on the area. Direct sale by fishermen in the local market or in consumer markets is the general mode of marketing and sometimes a member of the fisherman's family sells the freshly captured crabs at nearby markets. The price of mud crab varies seasonally, depending on fluctuating landings and seasonal demand. Domestic markets mostly depend on availability of other fishes. Chelate legs of mud crab tied with thread to prevent biting to consumer and worker. *S. serrata* is higher demand in domestic market and also commands a better price compared to other species of mud crab.

Trading of live mud crab in other market:

The basket packed crab are transported from remote fishing villages to the major cities either by road or by rail and sold through middlemen to retailers (Trivedi and Patel, 1975). Live mud crabs are transported in perforated thermocole box or PVC container cover with wet gunny bag. The trading channel of the mud crab business was found to be consisted with the harvesters, middlemen and exporters. The trading channel involved a series of intermediaries from harvesters to consumers. Jamnagar district export as a major market to other districts in India from Saurashtra coast of Gujarat.

In Gujarat, majority of live mud crabs supply to Chennai, Calcutta, Andhra Pradesh and Mumbai in India. Transportation of live mud crabs through air (flight) and land (train). Buyer allowed 5 per cent mortality to supplier in each consignment (Minimum 100 kg). Average price of mud crab upto 500g (Rs. 110-145 per kg) and 500 up g (Rs. 150-190 per kg), which export to main market Chennai and then Calcutta and Andhra Pradesh. Frozen mud crab meat and live mud crabs are exported to Singapore from Chennai and Calcutta. Small size/

discoloration/dead mud crabs market to Mumbai by train for domestic consumption.

Marketing of Mud crab as a decorative wall piece:

Fisheries Research Station under Junagadh Agricultural University at Okha had prepared decorative wall pieces of dried crab. Among all crabs mud crab has been high demand because of attractive look in decorative wall piece. Fisheries Research Station (Okha) provides stuffed crab training to fisherman and marketing of attractive stuffed crab. The method used is given in the flow chart (Fig. 8).



Fig. 8 : Stuffed mud crab

Culture of mud crab in cement ponds:

Male and female *Scylla serrate* juveniles crabs were stocked separately in cement ponds (14 x 8 x 0.8 m; 90 m³) and reared for 90 days (Kotiya *et al.*, 2015). The study was conducted at the Fisheries research station, J.A.U., Okha, Gujarat. The crabs were fed trash fish and *Trochus* spp. Based on the pond condition in this study, results indicate that it is not commercially viable to grow juveniles to market size in a cement pond. Short-

term culture like one month may be more feasible.

Conclusion:

In Saurashtra region, Jamnagar district contain large quantity of mud crab, *Scylla serrata* in mangrove coastal belt. Other area of coastal belt contains small quantity of mud crab. Marketing of mud crab in domestic market depend on the availability of other fishes. In Gujarat, mostly live mud crabs supplied to Chennai, Calcutta and Andhra Pradesh and from Chennai to Singapore. The mud crabs are also used to make decorative wall pieces. Improvement of marketing channel and policy of mud crab increase business and culture of mud crab in Saurashtra coast.

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