

UTILISATION OF ESTUARINE CRAB RESOURCES FOR AQUACULTURE IN KRISHNA DISTRICT

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ABSTRACT

The mud crab *Scylla serrata* is a species of economic importance, especially in the export market. Many people in the coastal areas of Krishna district (Gilakaladindi, Nagayalanka, Zinkapalem, and Nachugunta) in Andhra Pradesh, India depend on the capture fishery of these crabs, basing on the demand; these species are also used for aquaculture in these areas. The culture ponds are distributed throughout almost all Krishna district, covering an area of over 10000 acres nearby Machilipatnam; with the largest area being in Gilakaladindi (4000acres), followed by Nagayalanka (1000), Zinkapalem (800) and Nachugunta (500). Juveniles or crablets are actively harvested throughout Krishna district for use as seed for crab farms. Zinkapalem has the highest average daily catch of 5.5 kg of juvenile crabs, followed by Gilakaladindi (3kg), Nagayalanka (1.5kg) and Nachugunta (1.25). The daily production of crabs from these four areas is 2-4 tons from Gilakaladindi, 1-3 tons from Nagayalanka, 0.5-1 ton each from Zinkapalem and Nachugunta.

KEYWORDS: Aquaculture, Crabs, Fishery & Krishna District

1. INTRODUCTION

There's limited comprehension of wild mud crab tools and the way to handle them in several nations, especially in which fisheries management resources and enforcement capacities are restricted. The increase of mud crab aquaculture is very likely to lead to modifications to the environmental, socioeconomic and livelihoods now connected with mud crab fisheries. *S.serrata* is a mud crab which can attain a body weight of 2 kg and carapace width exceeding 250mm; these are available from southeast Africa to Southeast Asia, where they are fish for meat and seed for aquaculture. The incidence of wild seeds of mud crab was reported in a variety of regions where they strain continuously at fixed intervals. The large saline storage ponds created in salt pan regions have been found appropriate for crab cultivation (Marichamy and Rajapackiam, 1998). Rao et al. (1973) estimated that the possible sources of crabs from estuaries and backwaters and discovered that southern coasts are wealthier than people of northern India.

India delivers vast nearshore water sources aside in the 1.7 million ha. of brackish water from the adjacent coastal zone. In the last few decades, there has been a rise in the usage of water sources for various farming activities such as crab culture in cages and polyculture of milkfish (*Chanoschanos*) and plants in ponds. Ponds are used for several varieties of civilization and made in line with the size and number of seeds offered from the grabbing center. Farmers gain much from those sources as it provides earnings for small fish farmer (Keenan, 1999). Collection, packaging, and transportation processes are enhanced to acquire elevated survival of seeds. But, brackishwater websites are more favorable for crab cultivation because the loss of energy as a result of regular molting is reduced in these surroundings. Mud crabs emerged as a new aquaculture species due to their high price and the ready access to wild-caught "seed" crabs. Different advertising possibilities offered as well as also the biological quirks of crabs make them an alternative potential for farming. Notably,

mud crabs, have a thick calcified exoskeleton and strong, powerful claws. The largest crab will acquire most of the fights, so it's not surprising that mud crabs are one of the fastest growing crustaceans on Earth. Mud crabs encourage moderate to adverse conditions That Are an advantage for nations with limited infrastructure such as fish processing and supply.

All mud crab species possess great taste and create high costs in local and global markets, and are fished by artisanal and industrial fishers throughout the area. The exceptional ability of mud crabs to remain alive from water for 4-5 days empowers cost-effective transportation from distant coastal regions to domestic and global markets (Keenan, 2003). Crab culture and fattening are still in the experimental stage in South Asia (Saha MR and Ahammad SU, 1999). Many people from Gilakaladindi, Nagayalanka, Zinkapalem, and Nachugunta of Krishna district are depending on the capture fishery of the estuaries. The mud crab (*S.serrata*) is a promising Aquaculture species because of the rapid expansion and decent market approval and Cost. But a mud crab aquaculture surgery requires Substantial funding Input for those stages of breeding and fattening.

2. MATERIALS AND METHODS

2.2. Data Collection Method

The survey was carried out on the distribution of mud crabs along Krishna River in Krishna district, 4 stations Gilakaladindi, Nagayalanka, Zinkapalem, and Nachugunta which were located estuarine in the Krishna mangrove forest reserve in Andhra Pradesh, India. Catches and marketing(catchers, depot owners, and exporters) data were collected by interviewing different fishermen and stakeholders involved in mud crab business through questionnaire covering following key issues:

- Number of mud crab catches;
- Production of mud crab;
- Marketing.

2.3. Gear used to Fish for Juveniles

For juvenile and bigger crabs, the equipment used comprise baited traps, lift nets or lines together with handheld pins, spade nets, gillnets and fish corrals. For crab creatures and quite little juvenile crabs, that are yet to settle, fine-meshed push baits or haul nets were used, little meshed internet is mounted onto a V-shaped bamboo framework and pushed across muddy substrates to accumulate juveniles, whilst for larger crabs many different cubes are used with fish baits to draw the crabs.

3. RESULTS AND DISCUSSIONS

In most regions across Southeast Asia, juvenile mud crabs are gathered in the wild and moderate-sized stocked in ponds to fattening. If the ponds are full of appropriate densities mud crabs can develop from juvenile to mature size in 4-6 weeks and juvenile crabs or crablets are actively harvested during Krishna district to be used as a seed from crab farms. Juvenile crab's information was gathered from 4 places from Krishna district. Information's from those regions are gathered on a daily basis. There are no official figures on the selection of juvenile crabs. In Vietnam juvenile crabs are gathered from canals and coastal waters utilizing a base seine net (Johnston and Keenan, 1999). The techniques for a group of juvenile crabs were reviewed in the conference on mud crab commerce and civilization (Angell, 1992). It has been estimated that juvenile crabs can be found 20–60 mm carapace width (Shelley, C. 2008). In Krishna district crabs having over 50-100 g in

body weight are also used for aquaculture. Fig 1 shows the database and analyzed fishery trends. These figures represent an estimate of the production of mud crab; Zinkapalem (5.5) shows highest daily average catch in kg of juvenile crabs followed by Gilakaladindi (3.0) Nagayalanka(1.5) and Nachugunta (1.25). These results indicate that collection of seed-crab in Zinkapalem was high and comparatively low in Nachugunta. Even though seed resource is more in Zinkapalem, they are getting supply from different areas. The reason behind such higher production was the proximity to the Krishna mangrove swamps and numerous crossed river canals in this area.

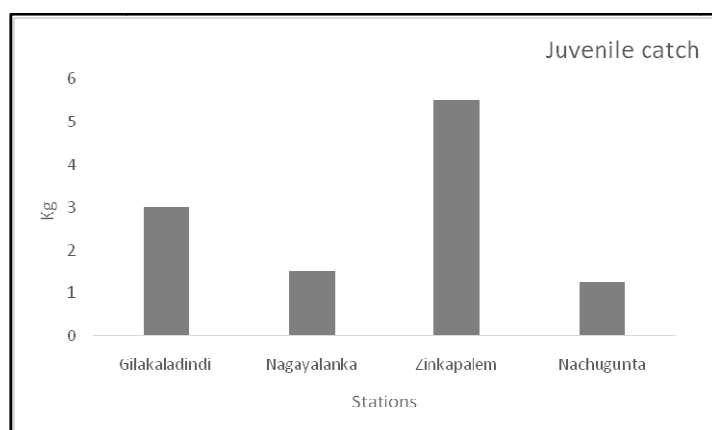


Figure 1: Juvenile Crabs Catch in Sampling Locations (Krishna District)

In India, aquaculture production has moved from being an exceptionally traditional action to a self-study sector (Ayyappan, 2000). The comparatively large cost and portability reside and prepared marketing of *Scylla* spp. Additional to this fact that originally hadn't suffered from significant pathogens like white spot syndrome virus (Lavilla-pitago, de la Pena, Catedral, 2007), in addition, it entails that the cultivation of crab has been for several decades an appealing option in places where viral epidemic averted penaeid shrimp farming (Paterson, B.D. and Mann, D.L. 2011). Substantial efforts have been created throughout the past couple of decades to create powerful technology for mud crab aquaculture (Brick, 1974; Angell, 1992; Heasman and Fielder, 1983; Keenan and Blackshaw, 1999a; Anon., 2001, 2005; Shelley et al., 2008, Wang et al., 2005). By virtue of its geographical situation in the Krishna district endowed with good crab culture. It has extensive potential aquaculture area (crab culture ponds).

Mud crabs are "farmed" in a number of ways. Primarily, soft vacant post-molt crabs are harvested in the fishery, independently comprised and fed with trash fish to "fatten" them for the economy. In one of Nature's ironies, the contrary clinic, soft-shell crab production, is becoming favored. It consists of grabbing hard-shell crabs, feeding them separately until they molt and twice their weight then promoting them while they're tender. Contest for a limited source of crazy turtles has seen these live-holding practices evolve a longer-term attention. Marketing the harvest as hard-shell remains the most frequent but regional advances in processing and transport infrastructure means that creation of the soft-shell merchandise for export is growing more and more common.

People of the coastal region follow the traditional fattening process to grow crab. Simple small ponds are used in coastal areas for crab fattening (Chandra K.J. et al 2012). These culture ponds are distributed throughout almost all the areas of Krishna district. These ponds cover an area nearby Machilipatnam of over 10000 acres, with the largest areas being in the Gilakaladindi (4000 acres), followed by Nagayalanka (1000), Zinkapalem (800) and Nachugunta (500). Over the past 15 years, aquaculture crab production has increased. Crabs in Gilakaladindi and its surroundings may be put into

fattening pens, ponds and fed until they are ready for market. Finally, hard-shell crabs of a marketable size are collected and sold most commonly alive. A medium and large crab of more than 14 cm carapace width and weighing more than 400 g were collected exclusively for export in India (Raj, M. M. 1992).

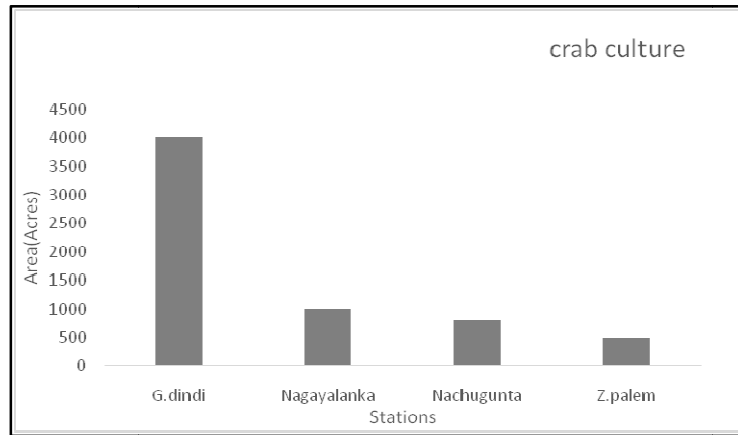


Figure 2: Area Covered Under Crab Aquaculture in Sampling Locations Along Krishna District

A mix of over-fishing and habitat reduction has resulted in decreased landing speeds and smaller imply catch size (Le Vay, 2001). Mud crab populations are usually related to mangroves and might work as a helpful index for mangrove habitat illness. The large quantities of juvenile crabs along mangroves imply these habitats could function as sites acceptable for the set of juvenile crabs for aquaculture. Nonetheless, these regions also have to be handled and protected to encourage the recruiting into the crazy crab populations. The significance of the fisheries industry in India is attested from the very fact that it employs over five million individuals (Anon, 2000), leads to nutritional and food security, and increases the socioeconomic status of poor fishing areas. There is a selection of nursery methods used to develop mud crabs in distinct stages. A number of ponds, tanks, and baits within ponds are successfully utilized.

Market analyses showed that the common market size of crabs in Gilakaladindi and Nagayalanka ranges between 300-700 g and are thus larger than in other stations where the average size is 500 g. The present investigation showed daily average export of 20 t in Krishna district. Export mud crab from Gilakaladindi, Nagayalanka, Zinkapalem, and Nachugunta were 5-10 t, 5-8 t, 30-50 kg and 5-10 kg respectively.

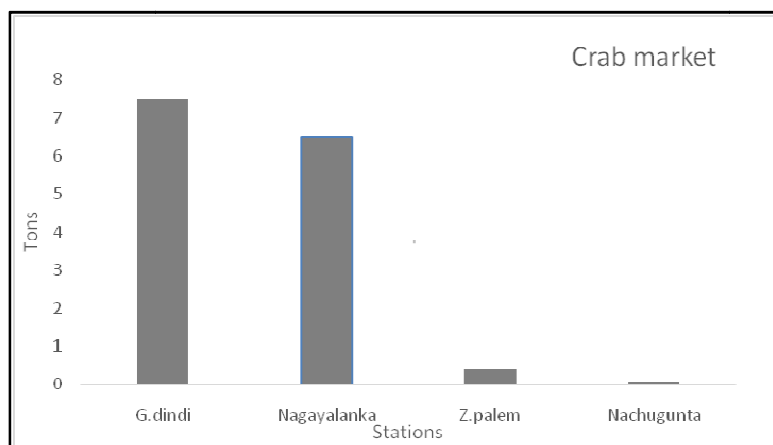


Figure 3: The Daily Average Export in Sampling Locations Along the Krishna District

4. MARKETING SUPPLY CHAIN IN CRAB CULTURE TRADING

The capture based crab culture of the mud crab business involved fishermen, crablets, crab culture, local companies, agents and exporters. In general, it was found to be similar at all stations in Krishna district. The major type of crab culture and marketing channel (Figure 4) were observed. The various events in mud crab marketing were expressed in the flowchart. Juvenile crabs were collected from fishermen in 4 locations for aquaculture, few rejected crabs were brought in to hardening and fattening, selected crabs were transferred for trading into the local market. Culture time of approximately 4 to 6 months needed to grow commercial size crabs was collected from culture ponds transferred for trading. The post molt water crab was used for again into the hardening and fattening. Machilipatnam was the biggest point for live mud crab export from Krishna district about 40-50 t of live mud crabs being exported to Chennai every week.

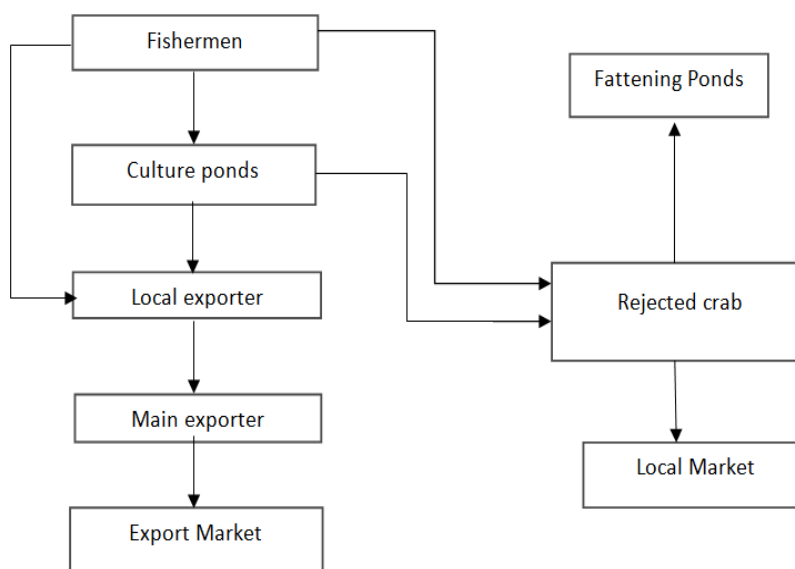


Figure 4: Mud Crab Supply Chain of India

5. CONCLUSIONS

The mud crab production or farming completely depends on the natural sources (catches) in Krishna district. Juveniles (crablets) of varying sizes are collected from estuaries and grow-up in farms; larger crabs are harvested for direct sale or for fattening.

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