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# THE MUD CRAB, *SCYLLA SERRATA*: A SPECIES FOR CULTURE AND EXPORT

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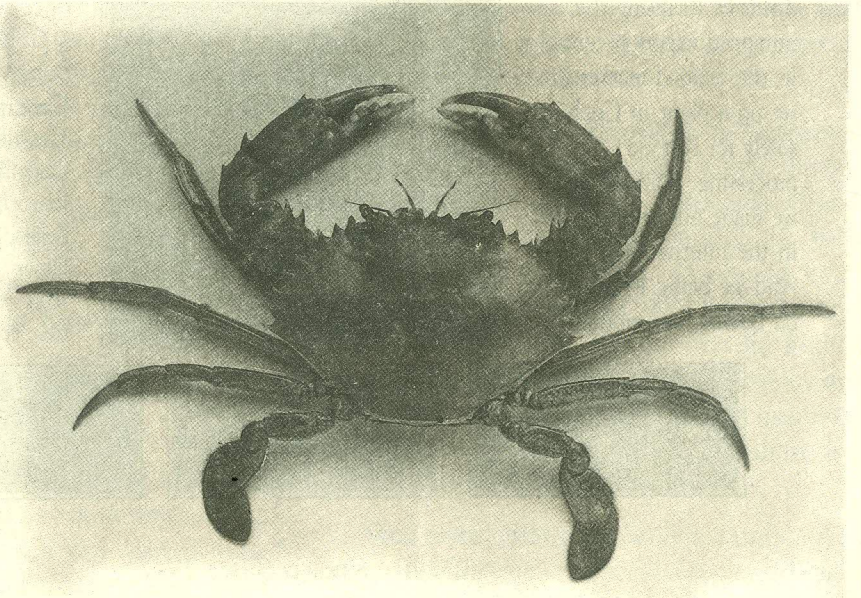
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## INTRODUCTION

The mud crab *Scylla serrata* (Forsk.) is a large, edible brackishwater crab and considered as one of the commercially important crabs of India. It is widely distributed in the Indo-Pacific region. Currently, culture trials are in vogue to produce this species, in the western parts of the world also. Owing to its faster growth and large size (upto about 200 mm carapace width) the mud crab is becoming more and more popular. It supports good fishery in and around India; the total catch has been estimated to be about 10,000 t/yr. from the countries bordering the Bay of Bengal. The annual catch of this species in Chilka lake, a major brackishwater system, alone ranges from 23 to 141 t.

## LIFE CYCLE

There are two phases in its life-cycle, viz., marine and brackishwater. Sexually mature female crabs, after mating in brackishwater, migrate to sea for spawning. The fertilized eggs, which are kept under the ventral side of the crabs, are released into sea water, as they develop into larvae. The newly hatched larvae pass through many stages of zoea and migrate back to estuaries, mangroves and backwaters,



to scale

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where they settle as postlarvae or megalopa. They stay and grow in these brackishwaters till they attain marketable size (about 200 g) and sexual maturity. Since the major part of their life cycle is spent in brackishwaters, the mud crab has great potential for culture, in such environments.

### CULTURE

The mud crab has been an incidental product of culture operations meant to raise milk fish, prawns etc., in the Southeast Asian region in the past few decades. Its culture in Kwung Tung Province of China has been reported from as early as 1891. However, much emphasis for its production through monoculture is being given only in the past two decades.

The culture of mud crabs in various countries, generally falls under two major categories, viz., (i) fattening and (ii) grow out. Fattening involves keeping the crabs of lesser weight (commonly known as "water crabs") in captivity and grow them by feeding well for a shorter duration of about one month. In grow out method, relatively small sized crabs, caught from wild are grown for a longer period (of about 1 year) till they attain marketable size. During the rearing period, the crabs are fed with trash fish and/or any other animal matter, like slaughter-house waste. Although the chopped trash fish or fish offal serve as a cheap source of good feed for mud crabs, research efforts are in progress to formulate compound artificial feeds to enhance the growth.

In southern Vietnam a special type of culture method called as "moulting crab culture" is practiced, which was started only 5 years back. In this method, farmers catch the

juvenile crabs (< 100 g size) and stock them in back yard ponds or rice fields. Then they are artificially induced to moult by removing the four pairs of walking legs. They moult in 14-20 days, (the normal intermoult period is 45 days or more) and the freshly moulted crabs are immediately transferred to net hapas, from where, the soft-shelled crabs are packed alive in moist weed/paper and transferred to traders for subsequent freezing and export. The cost of soft crabs is higher by five to ten times than the normal hard-shelled crabs owing to their suitability for quick freezing, simple packing and higher dress-out yield. The net income earned from this type of culture ranges from 50-70 USD/month from a pond of 300-500 m<sup>2</sup>.

Fattening method is also followed in Vietnam using thin wild crabs (of < 100 g size) by stocking them in earthen ponds fenced with nipa palm or bamboo (to prevent escape) or in floating bamboo cages in ponds or backwaters. It takes only 15-20 days to fatten them and then sold for a cost more than three times that of thin crabs. A pond of 200 M<sup>3</sup> fetches about 100-150 USD/month.

Another type of culture done in Vietnam is trapping the mature female crabs during breeding season (October - December) and growing them for a short period, till they become gravid with fully developed eggs occupying about 70% of their body cavity. Since the eggs of *S. serrata* are the highly priced export item, these gravid females are sold for a good price. The net profit has been estimated to be about 200 USD/month from a pond of 300M<sup>2</sup> in this method.

Mud crabs culture (mostly the fattening) is also being done on commercial scale, in ponds



or cages, at Philippines, Malaysia, Thailand and Indonesia. Countries like Sri Lanka, Bangladesh and Australia are in the process of developing and expanding mud crab culture from experimental stage to commercial levels. In India also, mud crab culture is on experimental status at present. Both laboratory and field studies have been made to find out the economic feasibility of culture and hatchery production of seeds in our country. Based on the results of the above studies, it has been inferred that the aspects, such as, proper pond design and construction, artificial feeds, polyculture with compatible fishes, suitable harvesting methods and techniques for live transport are to be developed further for a full-fledged successful commercial level culture of crabs.

#### CONSTRAINTS AND REMEDIES

High mortality due to cannibalism is one of the major problems reported in mud crab culture, because of the aggressive nature of the crabs. This can be overcome by providing extra shelter structures at the bottom (and also at the surface) of the pond, as it is done in the case of freshwater prawn *Macrobrachium rosenbergii*. Another problem widely cited is the non-availability of required quantity of seeds. So far, the juvenile crabs collected from natural waters have been serving this purpose. Wild crab seeds are available throughout the year with peaks of abundance mostly during post-monsoon periods, as observed at Pichavaram mangrove (Chandrasekaran and Natarajan, 1987). However, in long term perspective, collection of these wild seeds

may affect the natural populations of the crab. In countries like Australia, wild crab seed collection is illegal as per fishery management regulation laws, and therefore, hatchery produced seeds would be mandatory for mud crab culture expansion.

#### EXPORT

The mud crab is having good demand in countries like Taiwan, Hongkong, Guam, Japan, USA, Germany, Brunie and Korea. However, the major importers are Malaysia and Singapore. India has been exporting mud crab (obtained from capture fishery) in live, frozen and canned forms for the past two decades to various countries. The export value of live mud crab meat was Rs. 24.5/kg as per 1990-91 data of MPEDA and the price is increasing steadily. The export of crab from India leaped from 36 t during 1987-88 to 651 t in 1990-91. This tremendous increase in export indirectly mean increasing exploitation of the natural stock giving possible danger signal for the existing natural crab populations. Therefore, it would be quite appropriate to increase the crab production and earn foreign exchange through culture operations rather than increasing the efforts to exploit the natural stocks.

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