

Southeast Asian Fisheries Development Center

Aquaculture Department

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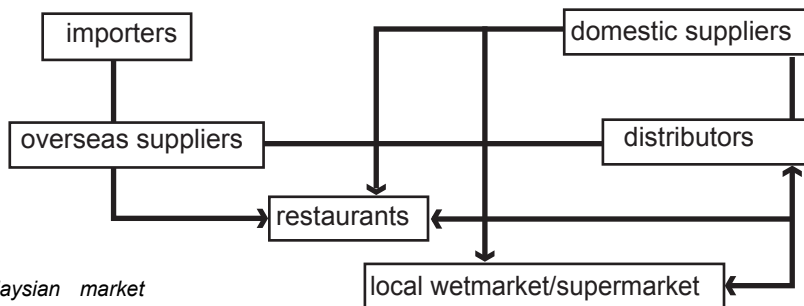
Mudcrab culture in Thailand

Aquaculture Department, Southeast Asian Fisheries Development Center

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The Malaysian market channel for live mud crab.

Crab fattening in cages

In Pulau Ketam on the western shoreline of Peninsular Malaysia, the following were observed. Crabs were cultured in cages located amidst calm mangrove estuaries. The species reared was the mudcrab (*Scylla serrata*). Cages were no further than 10 m from mangrove shorelines, ten partly submerged cages placed alongside one another. They were suspended by nylon ropes from a floating platform. Shade for the cages was provided by thatched palm leaves overhead. One person took care of the operation.

Cages were 340-cm long, 190-cm wide, and 90-cm deep. The cages were fixed on an anchored floating platform, with approximately 25 cm of the cage above water level. Cage material consisted of inflexible plastic netting of mesh size 1.25 cm.

Small to medium size and even large 'thin' crabs (7.5-12.5 cm carapace width) with low market value were purchased from fishermen, trapped from the wild, or imported from neighboring countries and stocked into cages at 0.1/ m². With higher stocking rates, the crabs tended to crowd together. As often as possible, crabs were regularly sorted and restocked by size.

Mortalities seem to occur among air-flown imported juveniles upon arrival and initial stocking. If adequate shelter was provided with pipes and inverted pots, mortalities at molting did not occur. Injuries sustained during fights, such as loss of limbs were evident. Obviously, optimal stocking and size segregation helped reduce mortalities caused by cannibalism.

Feed consisted of chopped trash fish, molluscs, crustaceans, and small dried fish -all 'by-catch'. Feed was placed on clay plates on the floor of cages. Cages were not cleaned as the crabs picked them clean. Occasionally, horse-shoe crabs were thrown in and were made a meal of.

Crabs were marketed live at 0.5-1.0 kg size. Claws were immobilized with rubber bands, and the crabs transported in wet burlap bags.

Mudcrabs may also be cultured in coastal earthen ponds. Being euryhaline, they are tolerant of wide changes in salinity. Fattening is preferred to culture from crab larvae, since mortalities are high in the latter case and the technology is not well established.

Source: INFOFISH International 4/90.



Mudcrab culture in Thailand

In Thailand, mudcrab farming is carried out on a small scale compared to shrimp, fish, and bivalve farming. Due to the decline in natural populations of *Scylla serrata* and many small undersized crabs being caught, there has been considerable interest by fishermen to grow and fatten crabs. There are some 100 crab farms in Thailand.

Crab farms

Crab farms are generally small-scale, never more than 1 rai (1600 m²) in area, using earth ponds and bamboo fences. However, some may be located in the estuary in the form of a rigid pen structure in the water, or by an estuary with a sluice gate for the water to enter. In Krabi Province, fishermen are known to raise crabs individually, feeding crabs in cages or traps in the mangrove areas, but not many crabs would be fattened at any onetime. Either small crabs are fattened to medium-sized crabs, or medium-sized crabs are fattened to large crabs in the hope of producing some mature female crabs. Culture period is always short for these burrowing, cannibalistic animals to reduce the number of molts during the period, as newly molted crabs are very soft and extremely vulnerable to cannibalism by other crabs.

Today, the Kanjanadit district of Surat Thani Province is the main area for crab farms, followed by Nakon Si Thammarat and Chanthaburi. Rayong, Krabi, Satun, and Pattani Provinces all have crab farms. Total annual production of cultured mudcrab in Thailand is estimated at around 13 t. Samut Songkram province had many crab farms before shrimp farming boomed and farmers turned to shrimp.

Limitations

A major limitation to the expansion of crab farming is that there are no hatcheries producing juvenile *Scylla* in Thailand; crab farmers are dependent on natural stocks. Research is being done by some government fisheries stations. And *Scylla* can be bred but the larval stages are highly cannibalistic and therefore difficult to rear on a large scale.

Comparing crab culture techniques

| Country | Stocking size (carapace width) | Grow-out | Stocking density | Feeding rate | Market size | Survival |
|-------------|--------------------------------|---|--------------------|--------------------------|------------------------------|----------|
| Taiwan | 7-12 cm | 3-4 months (summer); 5-6 months (winter) | 3/m ² | 5% body wt | 220 g (12-cm carapace width) | |
| Taiwan | 1.5-3.0 cm | 5-6 months | 1/m ² | 5% body wt | 220 g (12-cm carapace width) | 50% |
| | 7-12 cm | 20-50 days polyculture with seaweed & milkfish | 1/m ² | 5% body wt | 220 g (12-cm carapace width) | 70% |
| Thailand | 100 g | 1-2 months | 2/m ² | 8% body wt | 200-300 g | 50-70% |
| Philippines | 2-3 cm | 3-6 months; 4-8 months polyculture with prawns, milkfish | 1/10m ² | No strict feeding regime | 8-9 cm; 200-500 g | 40-70% |

Source: INFOFISH International 2/91.

Mud crabs support a year-round local fishery in coastal mangrove areas, being found throughout the tropics in mangrove regions, estuaries, and coastal waters, living both intertidally and subtidally. Young crabs are found throughout the year; medium-sized crabs appear more abundant in the rainy season. They are caught entirely by artisanal fishermen and over the past ten years, there has been a noticeable decline in its population and now the catch consists of many undersized crabs.

Nowadays, with the destruction of mangrove areas and the declining population of *Scylla* there has been renewed interest among fishermen to grow small crabs and if a pond is well managed, crab fattening can frequently generate income. Stocking rates of ponds

depend on the supply and availability of young crabs; if no crabs are available, then none can be fattened. Mud crabs are easy to sell and transport live. An added feature is that they can be air- or sea-freighted, being a popular delicacy in the Indo-Pacific region.

Until hatchery techniques have been fully researched to rear large numbers of small *Scylla*, crab farming will remain small-scale. Research into other areas such as feeding, molting, and biology is the key to its large scale culture. Meanwhile, small-scale crab farming will continue in Thailand as long as there are natural stocks of young *Scylla* available.

Source: M. Harvey. 1990. *Mud crab culture in Thailand*. INFOFISH International 6/90.

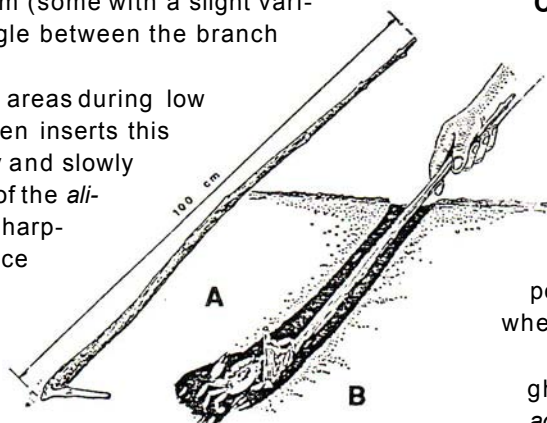
Catching crabs, crabs, crabs

Six kinds of crabbing devices in the Philippines are illustrated and described:

Crab nook

The crab hook, locally known as *panukot*, is made of the branch of mangrove tree with a hook. The branch measures 100-cm long and the hook (twig) 8 cm (some with a slight variation), and the angle between the branch and twig is 40°.

At mangrove areas during low tide, local fishermen inserts this crab hook carefully and slowly to the hole or nest of the *alimango*. When the sharp-ended tip of the device touched the crab usually at the end of the hole, the crab may instantaneously grasp the hook by one of its huge pincers



Crab hook: side view (A); method of operation (B).

due probably to its aggressive nature, and this response will be immediately detected by the skillful man. Then he slowly starts to withdraw the hook. He sometimes quickly blocks the hole with a sharp digging blade when the crab is about to appear at the mouth to prevent its escape towards the inner portion of the hole.

Crab circular net

The crab circular net, locally known as *takiao*, consists of cotton or abaca fiber nettings (2.5 cm mesh size) and a piece of bamboo ring. The gear has enough netting material to form a pocket in which a crab is entangled when it comes out.

The device is used to catch ghost crabs known as *biokoy*, *agokoy*, or *torokoy* dwelling in sandy beaches. The fisherman covers the hole of the crab in the evening with the net, inserting its pocket into the hole. When this