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**Aquaculture Department**

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# Mudcrab culture

Aquaculture Department, Southeast Asian Fisheries Development Center

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A man with a mustache, wearing a white headband and a white shirt with a red and white striped collar, is looking down at a basket of mud crabs. The crabs are dark brown and appear to be cooked or prepared. The background is a bright, outdoor setting with green foliage and a body of water.

# mud crab culture





# MUDCRAB CULTURE

Studies conducted at SEAFDEC Aquaculture Department, some in collaboration with the Australian Centre for International Agricultural Research, have generated mudcrab culture technologies which are now available for adoption by fish farmers. Through these studies major constraints in the management of mudcrab farming were addressed. It is now possible to increase stocking density with improved survival and growth, thus increasing yield.

**F**ish farmers can now grow mudcrab *Scylla serrata* (giant crab), *Scylla tranquebarica* (lawodnon), or *Scylla olivaceous* (native crab). These species are of commercial value and can be sourced from the natural habitat, or given time, from the hatchery.



**M**udcrabs can be reared in ponds or in pens installed in tidal flats with existing mangroves either in monoculture or in polyculture with compatible fish species. The pond should be enclosed with bamboo mattings (banata) or green nylon net, the lower end of which is buried 60 cm from the surface of the pond bottom. The inner top end should be fitted with 30 cm wide thick plastic sheet (gauge #18) to prevent crab stocks from escaping.



**S**ite for a successful mudcrab culture should have a clayey soil and enough layers of clean mud. It should have an optimum water temperature of 23-32°C; salinity, 15-30 ppt; DO, a minimum of 4 ppm; pH, 8-8.5; and a water depth of 80-100 cm or more. On top of these, the site should have sufficient supply of fresh unprocessed feed, available storage facilities for feed, and available source of stocking materials. It should also be free from pollution and secure from poachers.

**S**EAFDEC AQD has developed a rearing system designed for aqua-mangrove integrated culture that preserves the vital role of mangroves as nursery grounds for finfishes and crustaceans. The design allows flooding of the culture area at high tide. Structures are installed to prevent siltation of canals and maintain the required depth for the culture of species. The pen enclosure is installed in much the same way as in pond. The pen bottom is designed such that 20-30% of total area is allocated to peripheral and central canals



1 m wide and 0.5 m deep dug in between mangroves being careful not to damage main roots nor to cut mangroves.

**C**ondition ponds/pens before stocking mudcrabs. Plant *Gracilaria* or other macrophytes to serve as shelter for crabs. Stock crabs when luxurious growth of macrophytes is observed.



**T**o insure high survival of crab juveniles for grow-out culture while in transport, provide transport containers with fronds of mangroves. Remove chilepeds of crabs weighing less than 30 g. Do not remove chilepeds of crabs weighing more than 30 g but tie them firmly to prevent antagonistic behavior during transport. Frequently pour seawater into containers while in transport to keep crabs moist.



**S**tock marketable size lean crabs for fattening culture at 2.0 crabs per sq m. Stock together male and female but remove movable part of the claw and apply Povidone-iodine (Betadine) to the injured part to prevent infection. Acclimate before releasing them in ponds/pens.

**S**tock crab juveniles (7-11 g or 16-20 g) at 1.5 per sq m for pond grow-out culture and 2.0 per sq m for pen (mangroves). Stock males separately from females. Stock monospecies, more or less monosize crabs. Acclimate to pond/pen water temperature and salinity before releasing them.





**F**eed crabs with frozen or fresh trash fish or a mixed diet of 75% brown mussel meat and 25% trash fish. Feed grow-out culture crabs at 10% of the crab biomass per day when carapace length is less than 6 cm and 5% when carapace length is 6 cm or more. Feed fattening culture crabs at 10% of the crab biomass per day throughout the culture period. Feed crabs in the grow-out or fattening culture twice per day: 60% of the daily ration at 5:00 PM and 40% at 7:00 PM.



**S**elect and remove marketable size and fat crabs several times over the grow-out culture period: 150 g or more female and 200 g or more for male pulang alimango; 350 g or more for female and 400 g or more for male giant crabs.

**H**arvest fat crabs from fattening culture 20 days after stocking. Not all crabs fatten at the same time but expect to harvest about 50% fat crabs of your total stock. Replace harvested fat crabs with lean ones but remove the movable claw, disinfect, and acclimate them before releasing them in ponds/pens. Harvest and replace every 10 days thereafter; this time you can harvest fat crabs of about 30% of your total stock. You can maintain this cycle for five months.

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For more information, contact:

**SEAFDEC AQUACULTURE DEPARTMENT**

**Tigbauan, Iloilo, Philippines**

**Tel: 63 (33) 335 1009, 336 2965, 336 2937**

**Fax: 63 (33) 335 1008, 336 2891**

**Email: [aqdchief@aqd.seafdec.org.ph](mailto:aqdchief@aqd.seafdec.org.ph)**

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## Mudcrab Grow-out Culture Technology

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### 1. Mudcrab Monoculture in Ponds (Area: 1 ha).

| INVESTMENT (P):      | GIANT CRAB | NATIVE CRAB |
|----------------------|------------|-------------|
| Development Cost     | 27,445     | 27,445      |
| Operating Capital    | 305,037    | 120,603     |
| Total Investment     | 362,482    | 148,048     |
| Net Income After Tax | 1,260,153  | 857,794     |

### 2. Mudcrab in Polyculture with Milkfish in Ponds (Area: 1 ha).

| INVESTMENT (P):      | GIANT CRAB | NATIVE CRAB |
|----------------------|------------|-------------|
| Development Cost     | 27,445     | 27,445      |
| Operating Capital    | 291,351    | 143,806     |
| Total Investment     | 318,796    | 171,251     |
| Net Income After Tax | 1,195,549  | 606,534     |

### 3. Monoculture of Mudcrab in Tidal Flats with Existing Mangroves (Area: 200 sq m).

| INVESTMENT (P):      | GIANT CRAB | NATIVE CRAB |
|----------------------|------------|-------------|
| Development Cost     | 5,275      | 5,275       |
| Operating Capital    | 8,764      | 4,888       |
| Total Investment     | 14,039     | 10,163      |
| Net Income After Tax | 32,974     | 21,198      |

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## Mudcrab Fattening Culture

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### 1. Mudcrab Fattening Monoculture in Pond (Area: 200 sq m).

| INVESTMENT (P):      | GIANT CRAB | NATIVE CRAB |
|----------------------|------------|-------------|
| Development Cost     | 5,275      | 5,275       |
| Operating Capital    | 55,591     | 33,481      |
| Total Investment     | 70,866     | 38,756      |
| Net Income After Tax | 153,229    | 76,082      |

### 2. Mudcrab Fattening Culture in Mangroves (Area: 200 sq m).

| INVESTMENT (P):      | GIANT CRAB | NATIVE CRAB |
|----------------------|------------|-------------|
| Development Cost     | 5,275      | 5,275       |
| Operating Capital    | 65,486     | 33,165      |
| Total Investment     | 70,761     | 38,651      |
| Net Income After Tax | 153,334    | 76,187      |

### 3. Mudcrab Fattening in Cages (Dimension: 2 m x 0.7 m x 0.25 m).

| INVESTMENT (P):      | GIANT CRAB | NATIVE CRAB |
|----------------------|------------|-------------|
| Development Cost     | 612        | 612         |
| Operating Capital    | 2,719      | 1,163       |
| Total Investment     | 3,331      | 1,775       |
| Net Income After Tax | 11,605     | 6,203       |

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