



Project “Integrated planning and practices for mangrove management associated with agriculture and aquaculture in Myanmar - 2017P1-MYR”

MUD CRAB FATTENING

Technical guideline & training

Myanmar 2018

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1 Introduction

This paper aims at for local people who live in coastal areas with high salinity to culture mud crabs that have been sold widely as Myanmar's export from small production scale to large commercial production.

We can capture easily small and medium mud crabs on the sea because they are high hatching rate and hatch the whole year although it may be different amounts depending on the season. It may not have many difficulties for culturing them because we can conduct with the easy way and feed them any meat. We encourage the local people to culture mud crabs from small production scale to large commercial production depending on their finances.

2 Mud Crab's Habitats

Mud crabs live the high salinity areas such as coastal areas, mangrove forests, and the places from estuary to fresh water areas. They are found in Asia and Indo – Pacific regions, and in Myanmar, mud crab practice done in Rakhine, Thaninthari coastal and Mon state.

They are mating on estuary and hatch on the bottom of the sea. An adult mud crab spawns 2 million eggs one time. The larvae incubate into the mangrove forests along with the rise tide through estuary of the sea.

Mud Crab's Life Cycle (diagram)

They live in the mangrove forests from larvae to adult stage because the mangrove forests are responsible / covered providing enough foods, protecting the dangers from other predators and serving shades. The adult mud crabs used to live by digging holes between the roots of the mangrove trees that are covered with tide on the rise tide days.

They eat the small aquatic creatures and dead animals. The male and female come into the mouth of the sea only mating time and the females continues into the sea for spawning.

3 Body Structure of Mud Crab

The body is green – brown color and oval shape. In addition, there are a pair of swimming legs, three pair of walking legs and a pair of movable fingers beside the body. It has a pair of eyes and two antennae in front and saw – shape beside of the

back. In front of the abdomen, it has a mouth with teeth for grinding and reproduction organ and anus in back.

Table (3)

Calculation on the expenditure and income of Mud crabs; fattening on floating cage culture

No	List	Amount	Price	Expenditure	Remark
	<u>Expenditures</u>				
1	Cage Wage	1	3,800	3,800	For 6 months
2	Bamboo (45 ft)	2	2,500	5,000	For 1 year
3	Pole (35 ft)	4	1,000	4,000	For 1 year
4	Crab lets (Pyw)	200	100	20,000	For work
5	Food for Mud Crab	20 Viss	200	4,000	For work
	Total Expenditure			36,800	
	<u>Income</u>	200	180	36,000	
	Money from selling above 3 inch				
	Total Income			36,000	
	<u>Net Profit</u>				
	Money from selling Mud Crabs (Sold out)			36,000	
	Cash (Foundation)				
	Revolving Fund			24,000	
	Profit by culturing one time			11,700	

The female mud crabs are smaller than the male mud crabs. The way in order to classify easily which one is male or female is the flat which is situated under the chest with strips: the male's flat is long cylindrical shape and the female's flat is circle shape.

4 Production and Marketing of Mud Crabs

According to the FAO's report, since 1990 Southeast Asia and other countries have conducted capturing the mud crabs from the sea and systematic

culturing in order to complete the market demand as eating the mud crabs gradually increase globally.

5 Mud Crab Productivity in Myanmar

In Myanmar, although mud crab productivity was for local eating before 1995, later it became as a prominent export in China-Myanmar trade and until.

5.1 Capturing from Sea

In early 1996, crabs had been exported to market by capturing from the sea. Later –

- Waiting for the unstable market
- Need to maintain temporarily for transportation
- Favoring only the female mud crabs
- Losing the crabs below the marketable limit

We found that the crab-traders got a little benefit because of the above reasons.

Table (2)

Calculation on the expenditure and income of Mud crab fattening on cage culture

No	List	Amount	Price	Expenditure	Remark
	<u>Expenditures</u>				
1	Bamboo screen / 1.5 in Plastic Pipe (6 ft height)	450 ft	28.3 per ft	1,275	Can use 4 times
2	Pole (9 ft)	25	60	1,500	Within 1 year
3	Blue Plastic Net	6 ft	50	300	Within 6 months
4	4 inch PVC Pipe	45 ft	100	4,500	For 2 years
5	Crabs Spawning Price (Chit Pyaut)	225	150	33,750	For Work
6	Crab lets (Pyw)	225	100	22,500	For Work
7	Food for Crabs	90 viss	200	18,000	For Work
	Total				
	<u>Income</u>				
	Income from the Female Crabs	200	300	60,000	
	Income from the male Crabs above 3 inch	200	180	36000	
	Total			96,000	

	<u>Net Profit</u>				
	Income from selling crabs			96,000	
	Capital			74,250	
	Revolving Fund			5,200	
	Profit by culturing one time			16,550	

Expenditure on Culturing with Ponds

No	List	Amount	Price	Expenditure	Remark
	<u>Expenditures</u>				
1	Wage for Pond	2,376 cubic feet	350/54 cu.ft	15,400	For 3 years
2	Bamboo Colander (6 ft height)	450 ft	28/3ft	1,275	Can use 4 times
3	Pole (9 ft)	25	60	1,500	For 1 year
4	Blue Plastic Net	6 ft	50	300	For 6 months
5	4 inch PVC Pipe	45 ft	100	4,500	For 2 years
6	Crabs Spawning Price (Chit Pyaut)	225	150	33,750	For work
7	Crablets (Pyw)	225	100	22,500	For work
8	Food for Crabs	90 Viss	200	18,000	For work
	Total				

	<u>Income</u>				
	Income from the Female Crabs	200	300	60,000	
	Income from the male Crabs above 3 in	200	180	36,000	
	Total			96,000	
	<u>Net Profit</u>				
	Income from selling crabs			96,000	
	Capital			74,250	
	Revolving Fund			5,200	
	Profit by culturing one time			16,550	

In 1996, according to the Rural Development Program, Ayeyarwaddy delta, there were trainings such as culturing the mud crabs with pond & culturing the mud crabs with floating cages, demonstrations, supporting micro loans to the local people who lived the villages within the project areas. Then the techniques were widely used among the villages along the Ayeyarwaddy coast and the villagers could promote the mud crabs productivity.

According to the rough estimation, it is known that there are from 400 to 800 crabs-boxes carrying through the Bogalay Custom Office daily so the numbers of crabs are about between 25,000 and 50,000.

It is known that it is culturing with not only ponds but also floating cages in Taung Goat Township, Rakhine. Unfortunately, it cannot describe the productivity and selling conditions because of lack of information.

Making record number of crabs, size and weight before putting in the pond.

- ❖ **Juvenile crab size** - Body size under (4.2) inches by horizontally
 - Body size under (3.5) inches of crabs
- ❖ Set up stage of Juvenile crab - Stock 5-8 crabs per square meter
- ❖ Feeding food - Feed crabs low cost fish, trash fish and shrimps. Provide 5 % feed daily of total body weight. For example, if there are 100 kg crabs in the pond then feed 5kg food daily.

- ❖ Water exchange - High tide height
- ❖ Fattening period - (10-20) day per time
- Salinity - (10-25) ppt

The cages are maintained with putting posts and bamboos to withstand the flow rate of the stream and rivers.

The pond width depends on the finance, amount of people and site availability. For small scale, it can conduct from (30 feet × 30 feet), and (1 – 2) acres and above for large scale. If it will wrap to the cage (1/2) inches plastic net, attach in length with (1.5) feet thick plastic on the net at (6) feet height, and put 2mm string on the bottom and along the top.

Put firmly at least (9) feet poles around the area of the compound. Then dig the small channel at least 6 inches depth along the bottom of the compound, and inject the (9) inches long small pegs to the bottom of the net and then stamp the ground. Pull the top of net to be straight and tie to the pole. It also needs to tie at the middle of the poles to the net firm.

Dig the holes (1 × 1) feet depth and 2 feet round about one hole in 10 feet distance for crabs to live within the compound in low tide time. Addition, make a path to feed and inspect the crabs as shown in diagram.

6 Culturing by putting crab lets and Capturing

The capturing technique is similar as culturing with ponds. It can catch the culturing mud crabs with crab traps. And it needs to put again the mud crabs from outside as the number of crab's loss.

It can know the profit and success by deciding selling income and weight after finishing one time.

7 Seizure with other ways

The other nets that the local fishermen use are –

- 1) Kyar Net
- 2) Bawin Net
- 3) Myaw Net
- 4) Tar Net

8 Culturing

As mentioned above, the mud crabs hatch the whole year and the hatching rate is high so the fishermen can catch easily the crabs at the stage of crablets and the marketable stage. In addition, it is very suitable to expand culturing in Rakine and Taninthayi Coastal Region and Ayeyarwady Delta because of the following reasons

—

- Being good demand
- Be difficulties to capture only from the sea in long term
- Creating opportunities to the local people by culturing the mud crabs from private to economy

The followings are the techniques that are being conducting in Myanmar.

8.1 Mud Crabs Fattening Techniques

8.2 Culturing with pond

Figure

This way is to get income by putting the male and female mud crabs that are wanted to culture with ponds within the short lengthfor the local people. Ponds can be dig not only own compound but also low land areas. The height of the pond frame must be 3 feet greater than the highesttide of the whole year.The height of the pond is 3 feet to hold water the whole time in the pond and put the soil platform to live crabs in the middle. Then hit with the hard things to the floor to harden. Burry the bamboo screens 1 foot in the ground within the ponds and the height is 5 feet not to allow crabs to go outside. In order to be less expenditure, connect to the pond with the nearest stream or river by digging channel to exchange water. List the expenditure and revolving funds.

The culturing summary is follow.

Record the number and weight of the female and male mud crabs before putting into the pond.

- Crab lets Size – cross length of the body (4.2) inches and vertical below (3.5) inches
- Rate of putting Crab lets – around 1 foot wide (5 crabs to 8 crabs)
- Feeding – disposed fishes and various kind of meat
- Feeding rate – 5% of total weight of all crabs daily (morning & evening)
- Exchange water – every high tide day
- Duration – 1 time in (10 – 20) days
- Salinity –(10 – 25) PSU (it is equivalent to per thousand or to g/kg)

It can know the profit and success by noticing about the selling income and crabs' weight after taking one time.

8.2.1 Calculating the expenditure and benefit

It can learn the calculation of cost and benefit of a pond which has 30 feet length and 26.4 feet width with the attachment table (1).

8.3 Culturing with fence

Figure

8.3.1 Technique

This is a way to get income within the mangrove forests without destroying mangrove trees. There are few physical and chemical problems of water like pond water as it is natural way in mangrove forests.

8.3.2 Site Selection

The site is -

- 1) The low places like streams and mudflats with good water system and good shade
- 2) Safety places
- 3) Places where it can buy / collect easily crab lets