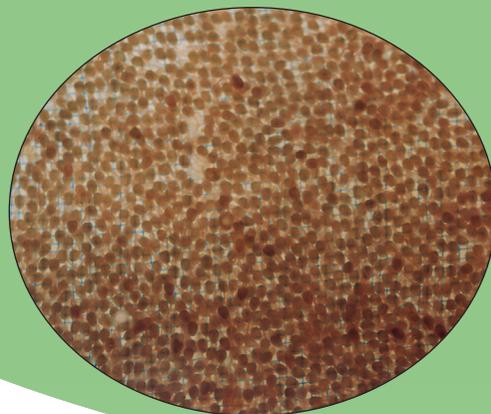


Seed production of **ASIAN CATFISH**



Asian catfish
Clarias macrocephalus



catfish larvae



catfish fingerlings



Southeast Asian Fisheries Development Center
AQUACULTURE DEPARTMENT

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CATFISH is locally known as *bito* to Tagalogs, *paltat* to Ilocanos, *pantat* to Cebuanos and Ilonggos, and *ito* to Pampangeños. It is one of the most important freshwater food fishes not only in the Philippines, but in the whole of Southeast Asia. Catfish culture requires less area, can tolerate poor water quality, as well as high density stocking. In addition, disease occurrence in catfish has not been a significant problem so far.

TECHNOLOGY PROFILE

Catfish broodstock can be obtained from lakes, rivers and other freshwater bodies. It can be stocked in earthen ponds or in concrete tanks with mud at the bottom. Catfish mature in about 6-8 months. Breeding season varies but usually starts in May.

Spawning the catfish

1. Get desired number of broodstock (at least 20 males and 50 females), and place in separate holding containers.
2. Determine the total body weight (BW) of female catfish to be spawned artificially and prepare hormones to be used. Pituitary glands, human chorionic gonadotropin (HCG), luteinizing hormone-releasing hormone analogue (LHRHa) + pimoside (PIM), Ovaprim, or Ovatide may be used. Injection dosages as administered to female broodstock are as follows:
 - 1 homogenized pituitary gland/100 g BW
 - 4 I.U. human chorionic gonadotropin (HCG)/g BW
 - 0.05 µg luteinizing hormone-releasing hormone analogue (LHRHa) + 1 µg pimoside (PIM)/g BW
 - 0.5 µL Ovaprim/g BW
 - 0.2-0.5 µL Ovatide/g BW
3. Anesthetize the female catfish by placing them into a pail with 10 liters of tap water mixed with 5 mL anesthesia (2-phenoxyethanol). Pat dry the fish and inject hormone to dorsal musculature.
4. Anesthetize males, pat dry, and cut up the middle part to take out the pair of testes- seminal vesicles.



macerating testis- seminal vesicles in a Petri dish



Place this in a Petri dish, rinse with 0.9% NaCl, blot-dry, transfer to a clean dish, macerate, and add 0.9% NaCl to obtain milt solution.

5. Press the abdomen to strip eggs into a clean, dry bowl or basin. Pour the milt solution into the bowl or basin and mix for 30 to 60 seconds using a feather. Add 5 mL tap water, mix further to ensure fertilization and transfer fertilized eggs to a scoop net. Wash with running tap water to remove excess milt. Spread the eggs on a net tray inside a flow-through hatching trough or basin. Maintain water level of about 10 cm inside the trough or basin.
6. Observe if most larvae have hatched 24-30 hours after fertilization and incubation. Feed larvae with natural food organisms like *Moina*.

Raising the larvae

1. Transfer 4-6 day-old larvae in bigger tanks with 10-15 cm water level. Aerate mildly, place shelters at the bottom, and feed larvae with newly hatched *Artemia* nauplii at 10 individuals/mL twice a day. Change about 30% of the water in the larval rearing tanks daily.
2. Feed 7-10 day-old larvae with *Moina* or *Daphnia* at 5-10 individuals/mL for another 4 days; otherwise, continue feeding *Artemia* nauplii. Start feeding the larvae with catfish feeds in the morning of day 10 and give natural food organisms in the afternoon. Change 50% of water daily from hereon.
3. Continue giving catfish feeds until larvae can be transferred to nursery system on day 15



Moina



Daphnia



Artemia

Financial indicators

Technical assumptions	Broodstock	Hatchery	Nursery
Target production/year		1,200,000 fry	0.3 M fingerlings
Project duration (years)	5	5	5
Days of culture/crop		15	60
No. of runs/year	12 months	10	5
No. of tank, pond or cage	4 ponds	12 tanks	12 cages
Size of tank, pond or cage	100 m ² pond	1 ton tank	100 m ² pond or 2 x 2 x 1.5 m ² cage
Age of fish (days)	180	4	15
Number of fish/run	20 males, 50 females	120,000	120,000
Feeding rate (% body weight)	3	50	20,15,10
Cost of diet (PhP/kg)	30	30	30
Stocking density	0.5 (F)-2.4 (M)/m ²	100/liter	100
Survival rate (%)	0 - males, 90 - females	25	50

Costs-and-returns	Broodstock & Hatchery	Nursery	
		Pond	Lake
Revenue from sale of fry/fish (PhP)	480,000	120,000	120,000
Total variable cost (PhP)	8,560	68,976	68,515
Total fixed cost (PhP)	15,204	18,223	15,670
Income per year (PhP)	239,667	164,004	249,424
Return-on-investment (%)	159	37	71
Payback period (years)	0.59	0.29	0.24
Break-even price (PhP)	0.2	1.45	1.17
Break-even production (pcs)	600,832	43,600	35,058

