

1999

Seed production of the native catfish *Clarias macrocephalus* [Brochure]

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Seed production
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Clarias
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(Gunther)



AQUACULTURE DEPARTMENT
Southeast Asian Fisheries Development Center
October 1999

The freshwater catfish *Clarias macrocephalus* is native to the Philippines but is fast becoming scarce in many natural habitats.

It is a favorite food fish due to its tender and delicious meat. Recently, farming of *C. macrocephalus* has gained interest among catfish growers. Like other catfish species, it is resistant to diseases, can be stocked at high densities, and tolerates low water quality.

The catfishes *C. macrocephalus* and *C. batrachus* are almost similar in size and appearance, but differ by the shape of the occipital process in the head portion. The occipital process is blunt or rounded in *C. macrocephalus* and pointed in *C. batrachus*. *C. macrocephalus* also has small white spots along the sides of the body.

Broodstock development and management

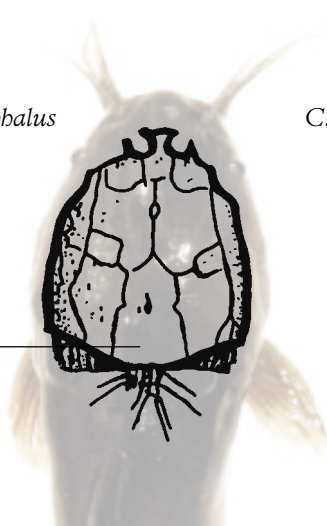
Catfish broodstock can be obtained from lakes, rivers, tributaries and other freshwater bodies, and caught by hand or indigenous fish traps. *C. macrocephalus* was reported to abound in the Bicol region, Palawan, and some areas in Mindanao.

Sexes are separate in catfish. Males have elongated urogenital papillae around the anus, whereas females have a simple round opening.



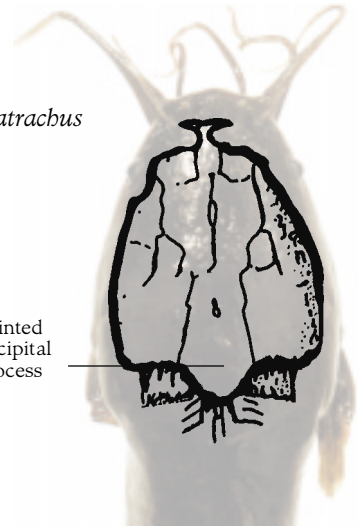
C. macrocephalus

blunt
occipital
process



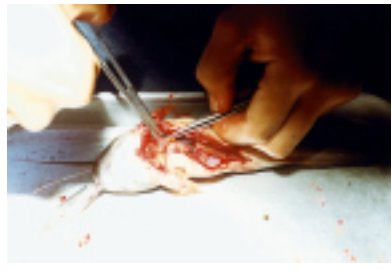
C. batrachus

pointed
occipital
process



Catfish are carnivores, but can feed on small bottom-dwelling animals, rice bran, kitchen refuse, fish meal, or formulated feeds. Broodstock fed a SEAFDEC-formulated diet with 43% protein had similar reproductive and larval quality as those fed 'trash fish.'

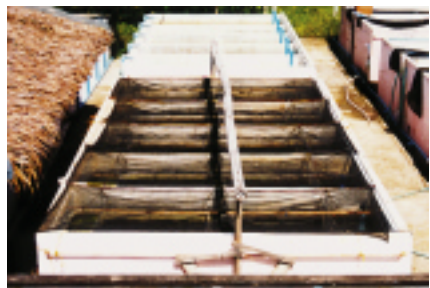
Catfish mature at about 6-8 months of age. Larger mature females produce more eggs than smaller females. About 20-90 eggs/g body weight (BW) can be stripped from a gravid female after hormone injection.



Breeding

Captive *C. macrocephalus* contain eggs and sperm the whole year but do not spawn by themselves. Artificial propagation of *C. macrocephalus* involves inducing the gravid females to spawn by injection of different hormones, and manually stripping the eggs after several hours. Before females are stripped of eggs, male catfish are sacrificed. The male reproductive tract is then dissected and macerated to obtain the milt to fertilize the eggs.

Success in induced spawning depends largely on knowledge of (i) the optimum dose of hormones to be used, and (ii) latency period, the time between injection of hormones and stripping of eggs. Induced spawning of *C. macrocephalus* can be done in any of the following ways:



Inject females with	strip after
1 pituitary gland (homogenized)/100 g BW	13 - 14 h
2 I.U. of human chorionic gonadotropin (HCG)/g BW	13 - 18 h
0.05 µg luteinizing hormone-releasing hormone analogue (LHRHa) + 1 µg pimozide (PIM)/g BW	16 - 20 h
0.5 µl Ovaprim/g BW	16 - 20 h
0.2 - 0.5 µl Ovatide/g BW	16 - 20 h

Ovaprim is available from Syndel Pharmaceuticals (Canada), and Ovatide from Hemmo Pharma (India).

Hatchery

Four to five days after hatching, catfish larvae are stocked at 30 per liter in bigger tanks. They are fed natural food organisms such as newly hatched brine shrimp *Artemia* for three days, and the water flea *Moina* for another four days. Thereafter, larvae can be weaned to formulated diets with 44% protein and particle size 150-200 μm . The diet is given twice daily to two- to four-week old catfish fry at a feeding rate of 20% BW and to older fry at 5-10% BW.

Nursery

The nursery tank or pond is fertilized ten days before stocking of catfish fry. Fifteen-day old fry may be stocked at 200-800/m² in tanks and up to 1200/m² in ponds. More fingerlings can be obtained when the fry are grown in net cages suspended in either tanks or ponds. Fingerlings are harvested after 28 days, ready for stocking in grow-out ponds.



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