

Hatchery and Pond Culture of *Macrobrachium rosenbergii* in Northern Mindanao

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The history of *M. rosenbergii* hatchery operations in Northern Mindanao can be traced from minor activities in different locations by several institutions. Earlier attempts to produce freshwater prawn postlarvae in hatcheries by Mindanao State University (MSU) faculty/researchers were conducted in the MSU-Marawi College of Fisheries (COF) and in commercial hatchery facilities for the tiger shrimp at MSU-Naawan.

Early efforts to produce freshwater prawn seedstock were done by an MSU-Marawi COF faculty member and his staff in the 1970s. Breeders were collected from Kapay, 30 m from the oceanic waters of Iligan Bay. However the group failed to rear larvae successfully to the postlarval stage. In Naawan, several larval rearing trials were conducted in the late 1970s and early 1980s as part of a project that included a study on the biology and ecology of the species in known prawn spawning grounds in Tambulig and Siay, Zamboanga del Sur. Live berried females from the two study sites were transported to Naawan and held in tanks until hatchlings were obtained. Larvae were reared in brackish and greenwater medium and fed *Brachionus*, *Artemia* and strained fish flesh. Unfortunately, not one larval rearing trial was successful.

Hatchery trials were also conducted in 1994 at the Multi-species Hatchery of the Dipolog School of Fisheries in Zamboanga del Norte. Few postlarvae were produced within one year and eventually the school discontinued the activity.

Present Status of Hatchery and Pond Culture

In 2004, eggs from some *M. rosenbergii* breeders from the Misamis Occidental Aquamarine Park (MOAP) in Sinacaban, Misamis Occidental were hatched at the Naawan Hatchery. Records have it that the original breeders came as postlarvae from BFAR-NFFTC, Nueva Ecija and grown to maturity in MOAP earthen ponds. The eggs/newly hatched larvae from MOAP were then successfully reared to postlarvae (~40,000 pcs) at the Naawan Hatchery using brackishwater medium with *Tetraselmis* and fed *Artemia* as well as fish flesh apart from the marine Polychaete (*Pereneries* sp.) and earthworm. From thence, the production of prawn fry at the MSU-Naawan Hatchery has become a continuous activity.

Presently, there are four hatchery facilities in Northern Mindanao that have continuing hatchery activities (Table 1). The founder stock used in these hatcheries came from BFAR-NFFTC in Nueva Ecija.

Table 1. List of existing *Macrobrachium* hatcheries in Northern Mindanao

Name of Hatchery	Agency	Location	Distance from Nearest Seawater Source
MSU-Naawan Multispecies Hatchery	Mindanao University at Naawan	Naawan, Misamis Oriental	Few meters
Kisolan BFAR Freshwater Fish Hatchery	BFAR X	Kisolon Freshwater Fish Hatchery and Training Center, Bukidnon	About 60 km
Misamis Occidental Aquamarine Park (MOAP) Hatchery	Misamis Occidental Provincial Government	MOAP, Sinacaban, Misamis Occidental	Few meters
LGU Prosperidad Hatchery	Agusan del Sur Provincial Government	Prosperidad, Agusan del Sur	About 80 km



Attempts to rear larvae from wild-sourced broodstock started in July 2004. Broodstock from Panguil bay were transported to MSU-Naawan. The results of the postlarval production from the hatchery-spawned Panguil Bay wild stocks shall be known by September 2004. Aside from Panguil Bay, other sources of wild stocks could be the Illana Bay, Mandulog River in Iligan City, Kapay in Marawi City, Macajalar Bay and Cagayan River in Cagayan de Oro City, Odiongan River in Gingoog City and Tagoloan, Misamis Oriental.

There are many sources of prawn breeders from the wild for the three other existing hatcheries in Northern Mindanao. Wild stocks can be obtained from Plaridel, Misamis Occidental, Katipunan River in Dipolog, Zamboanga del Norte, Pulangi River, Rio Grande de Mindanao and major river tributaries of Davao Gulf such as Tagum-Libuganon, Davao, Tuganay, Padada-Guihing and Lasang Rivers. In the CARAGA region, known sites of freshwater prawn broodstock are the rivers in Surigao del Norte, Surigao del Sur, and Agusan River.

Culture of *M. rosenbergii* is in the early stages of development and the culture system is confined only to small-size earthen ponds (200-500 m²). Historically, the first and only attempt to culture giant freshwater prawn in ponds in 1980s in Northern Mindanao was conducted by MSU-Naawan. The few hundred seedstock obtained from the Tambulig wild population were 7-10 cm long prawn juveniles. Fed chicken pellets, the prawns attained marketable size (30-60g) in five months and some females were berried upon harvest. At present, the BFAR-NFFTC postlarvae were distributed for stocking in BFAR Kisolon, Bukidnon and MOAP, Sinacaban ponds. These were fed fish pellets. Apart from fish pellets, other types of feed (spoiled duck egg or the locally known “balut”, rotten fish, and farmed earthworm) were tried.

Potentials for Development

The demand for prawn fry has steadily increased after its first production at MSU-Naawan. The potential for expansion of hatchery production on the other hand, is too early to determine. But judging from the current plight of the tiger shrimp industry the potential could be greater than expected. The culture of giant freshwater prawn in fishponds is a new aquaculture development in Northern Mindanao. It was partly popularized recently by the rice-prawn culture (*Palay-Ulangan*) program of the Philippine Government. This program aimed to utilize the vast tracts of ricefields in Northern Mindanao as sites for raising freshwater prawns. To date however, other freshwater resources such as springs, natural and man-made dams, finfish ponds that are readily convertible to prawn ponds are being eyed for prawn aquaculture.

Suggestions for Future R&D Activities

Many farmers express their concern over the need for R&D in prawn aquaculture. The concerns are:

- 1) improved head : body ratio (larger edible portion)
- 2) reduction of the size of the male prawn's claws
- 3) production of all-male fry
- 4) development of late-maturing female prawns

The contention of many aqua-entrepreneurs is that an improvement along these characteristics would make the freshwater prawn more attractive as an aquaculture species for Northern Mindanao. This is clearly suggestive of researches that are within the scope of aqua-biotechnology.