
Mobile hatchery: a new tool for fisheries extension

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ABSTRACT

In 2002, staff from the Aquaculture of Indigenous Mekong Fish Species sub-component, Thailand (AIMS-Thailand) developed a mobile hatchery for use in remote rural areas. The performance of the hatchery in the field exceeded expectations. It proved more flexible than anticipated and the percentages of eggs produced, fertilized, and hatched, were comparable with results achieved in a standard hatchery. The hatchery allows artificial wild fish breeding in locations where transportation of these fish from the main hatchery is impossible. Demonstrations of the hatchery have taken place in Nakhonphanom, Udonthani, Mukdahan and Nam Houm (Lao PDR).

A hatching hapa measuring 2x2x0.5 m with flow-through water supply can be used to hatch 3.4×10^6 eggs of *Barbodes gonionotus* (93% fertilization rate and 86% hatching rate), 1.5×10^6 eggs of *Labeo rohita* (74% fertilization rate and 95% hatching rate) or 1×10^6 eggs of *Cirrhinus microlepis* (60% fertilization rate and 30% hatching rate). Funnel-type incubators with 15 L volume can be used to hatch 1.0×10^5 eggs of *Probarbus jullieni* (60% fertilization rate and 40% hatching rate). Demonstrations of the mobile hatchery attracted a lot of interest from local people and helped to raise awareness of issues concerning fish conservation.

KEY WORDS: Thailand, fisheries, mobile hatchery

INTRODUCTION

In many remote rural areas, long distances and poor quality roads hinder access to the fish hatcheries that provide stocks of threatened wild species. In 2002, staff from the Aquaculture of Indigenous Mekong Fish Species sub-component, in Thailand (AIMS-Thailand), designed and built a mobile fish hatchery to help overcome this problem. The mobile hatchery allows aquaculture in the those rural areas where transportation to the main hatchery is difficult if not impossible.

METHODS

The mobile hatchery is assembled from the following materials (see Figures 1 to 7):

Water pump (Figure 1)	Brood stock fish
Electric or engine motor (Figures 2 and 3)	Hormone and distilled water
Material for set machines	Hatching hapas (Figure 4 and 4b)
Machines	Blower (Figure 5)
Pipe and valve	Funnel-type incubator (Figure 6)
Air stone	Water supply in hatchery

Demonstrations of the mobile hatchery took place in Nakhonphanom, Udonthani, Mukdahan and Nam Houm (Lao PDR). When disassembled the hatchery fits on to a pickup truck and it is easy to transport and

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Figure 1. Water pump



Figure 2. Electric motor



Figure 3. Diesel motor



Figure 4a. Hatching hapa

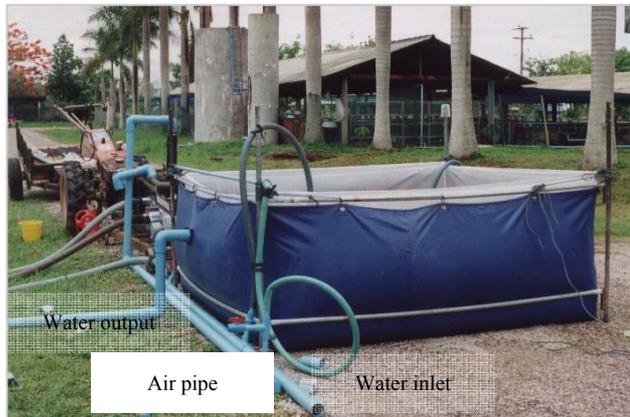


Figure 4b. Hatching hapa



Figure 5. Air Blower



Figure 6. Funnel-type incubator

simple to fabricate. It comes in three parts:

- The first part is a 2x2x0.8 metre hapa used as either a spawning tank or an incubator (Figure 4b). This hapa can hold 4.0×10^6 semi-buoyant eggs. Another type of incubator, a funnel-type incubator can also be connected to the system (Figure 6). The 15 litre funnel type incubator can hold 1.0×10^5 adhesive-demersal eggs.
- The second part, a pump (Figure 1), supplies water to the system.
- The third part is an air blower (Figure 5).

The water pump and air blower run by the 7.5 HP diesel engine (Figure 3) or the 5 HP electric motor (Figure 2). The mobile hatchery was prepared and assembled at a number of rural locations. The performance of the hatchery in terms of egg production, fertilisation, and hatching rates was recorded to compare its performance with that of a standard hatchery. The level of interest and participation by local inhabitants was also monitored.

RESULTS

The results of breeding in the mobile hatchery (Table 1) compare favourably with those of standard hatcheries and the hatchery has proved to be more flexible than was originally expected.

Table 1. *Parameters and performance of the mobile hatchery*

Species	No. of females	Body weight (kg)	No. of males	Body weight (g)	Eggs produced ($\times 10^6$)	Fertilization rate (%)	Hatching rate (%)	remark
Hatching hapas size 2x2x0.8 meter (1 unit)								
<i>Barbodes gonionotus</i>	14	0.7	21	0.7	3.4	93	86	After injected hormone rearing broodstock for natural spawning.
<i>Labeo rohita</i>	10	1.0	15	1.0	1.5	74	95	After injected hormone rearing broodstock for natural spawning.
<i>Cirrhinus microlepis</i>	4	3.0 - 4.0	10	2.0 - 3.0	1.0	60	30	Artificial breeding and used dry method.
Funnel- type incubator size 15 liter (8 unit)								
<i>Probarbus jullieni</i>	4	20.0 - 50.0	4	20.0 - 50.0	0.8	60	40	Artificial breeding and used dry method.

Levels of local interest and participation were high. Breeding demonstrations and fish-release activities were held in conjunction with MRRF, Mukdahan Inland Fisheries Station, and Yasothon Inland Fisheries Research and Development Centre. Approximately 100 people participated in Udonthani and about 30 at Mukdahan.

DISCUSSION

The results show that the fertilization rate and hatching rate of fish using the mobile hatchery is similar to those obtained in a standard hatchery (Sutanurak and Plodaun, 1992). The mobile hatchery is

particularly suitable for work in the field where there is no access to a regular hatchery, or to breed wild fish in the field when transportation of the fish to the main hatchery is impossible. It is a new and useful tool for fisheries extension and fisheries development in Thailand.

REFERENCE

Sutanurak, S and Plodauon, Y (1992) *A comparison of synthetic hormone (LHRHa) with pituitary gland in artificial fish breeding*. Roiet Inland Fisheries Station, Department of Fisheries, Thailand. 36 pp