

INTRODUCTION

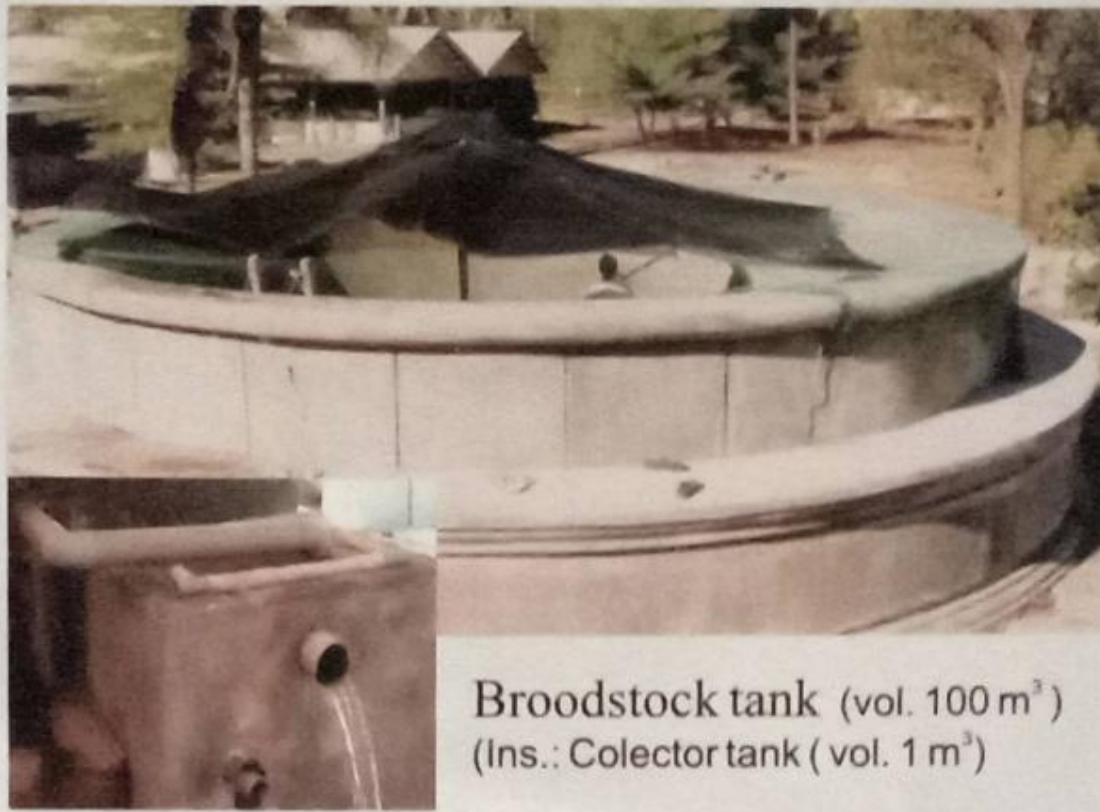
The orange-spotted grouper (*Epinephelus coioides*) is one of important economic fish that living in coral waters. In Indonesia, it thrives in all territorial waters from Sumatera up to Irian Jaya. The culture of orange-spotted grouper in floating net cage (FNC) is common in Nias archipelago, North Sumatera, Aceh, Riau Archipelago, and Lampung. Some advantages of orange-spotted grouper culture are it growing fast, living in limited place, well adapted to salinity change and feed with artificial diet easily. These benefits resulted in increasing demand for seeds along with increasing effort in fishpond culture and FNC. Meanwhile, natural seeds cannot meet the demand.

Hatchery technology is an effort to supply seeds in which to control in exact time, size as well as sustainable guaranteed quality. Culture of orange-spotted grouper is suggested to grow along with sustainable supplying seed supply.

PROSPECT

Successful breeding of orange-spotted grouper is an important step to supply seeds continuously to support sustainable mariculture. In addition, it creates employment and increasing income cash flow.

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Broodstock tank (vol. 100 m³)
(Ins.: Colector tank (vol. 1 m³))

GONADAL MATURATION AND SPAWNING

- Broodstock tank for gonadal maturation and spawning has working volume of 100 m³ (inset: egg collector tank with volume 1 m³).
- Orange-spotted grouper brooder has weight of more than 3 kg for female and more than 10 kg for male. Brooder is kept in tank with density of 40-50 fish/100 m³.
- Brooders are fed with fresh trash fish, squids and moist pellet with protein content of 40 - 45 %, and fat 10 - 15 %. Gonadal maturation and spawning can be induces with hormonal LHRH implantation dose of 50 mg / kg fish weight, and gave at 3-5 times implantations.
- Spawning usually occurs around midnight from 11.00 pm until 02.00 am during new moon for 5 - 10 days.



Sampling of broodstock



Hormonal implantation



BREEDING TECHNOLOGY OF ORANGE-SPOTTED GROUPEP (*Epinephelus coioides*)



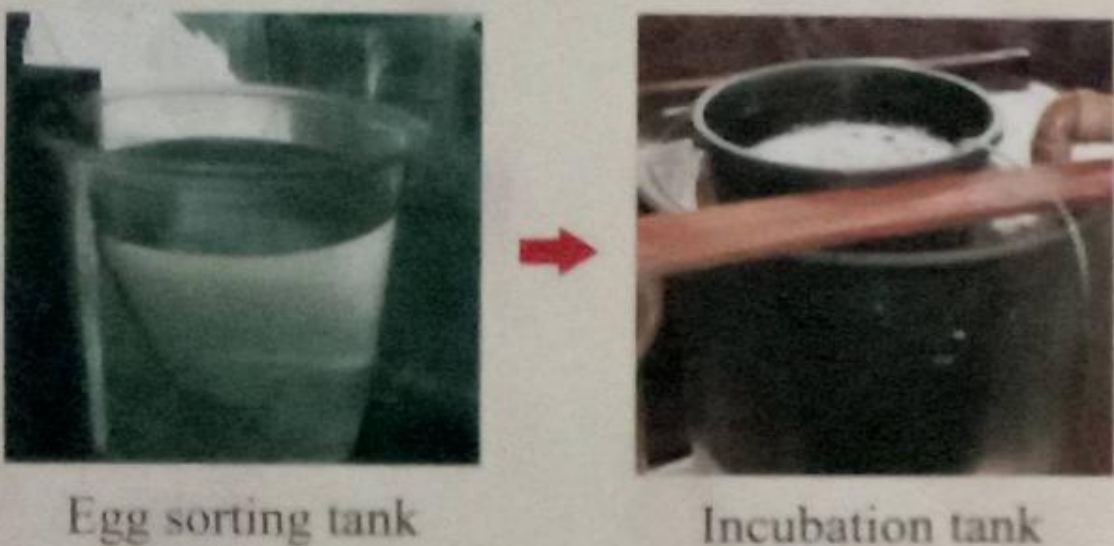
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AGENCY FOR MARINE AND FISHERIES RESEARCH
RESEARCH INSTITUTE FOR MARICULTURE
GONDOL, BALI

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EGG INCUBATION

Fertilized eggs have diameter of 0.85 - 0.9 mm, floating and transparent. From egg collector tank, eggs are moved to incubation tank (fiberglass or aquarium) with working volume of 200 liters at density of 10,000 eggs/l and temperature 27 - 30°C. Eggs will have hatched about 18 - 20 hours after fertilization.

Newly hatched larvae possess transparent color, total length 0.8 - 0.9 mm, oil globule and egg yolk diameter each 0.2 mm and 0.8 - 1.0 mm respectively Picture.



Egg sorting tank

Incubation tank



4 cells



Blastula



Embryo



Gastrula

Embryonic development

LARVAL REARING TECHNIQUE

After the yolk sac is totally absorbed (2-3 days after hatching), larvae start for feeding. Natural feeds such as *Nannochloropsis* sp and rotifers are given at density of $3-5 \times 10^7$ cells/ml and 3-5 ind./ml. Larva on 10-20 days old are fed with rotifers which increasing density up to 10-15 ind./ml. Start on 20 day-old until harvest day, they are fed with *Artemia* nauplii (0.5 ind./ml) and artificial micro diet suited to mouth size of the larva of 0.1-0.6/0.8 mm.

Survival rate of larvae until juvenile stage (45 days after hatching) is around 10-15 % with total length of juvenile 12-19 mm.



Artemia nauplii



Type of pellet



Larval rearing tank (2.5 x 2.5 x 1 m)



Larvae development (day 0-50)

Larval rearing management

<i>Nannochloropsis</i>	0-20%	30-50%	>100%
Rotifer	0-20%	30-50%	>100%
<i>Artemia nauplii</i>	0-20%	30-50%	>100%
Feed	0-20%	30-50%	>100%
Water changing	0-20%	30-50%	>100%
Age of larvae (day)	2 5 10 15 20 30 40 50		

Culture phytoplankton



Nannochloropsis



Rotifer

For further information
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