

# Breeding and seed production of silver pompano (*Trachinotus blochii*, Lacepede) at the Mariculture Development Center of Batam

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The Indonesian marine finfish aquaculture sector has a new potential species, silver pompano (*Trachinotus blochii*, Lacepede). Silver pompano is a pelagic and active species that is easy to domesticate and culture in tropical marine waters.

The Silver pompano belongs to the Carangidae (trevally and jacks) and lives in the coral reef areas of less than 7 meters depth (Paton, et.al., 1989). According to Borut Forlan (2004), Silver pompano live in the open sea and are found in the Atlantic, Indian and Pacific oceans. Juvenile silver pompano are commonly found in sandy areas or near sandy-clay estuary water. At the juvenile stage they tend to group together, becoming solitary as adults (Bianchi, G., 1985). Sand molluscs and other invertebrates are the main natural food of this fish (Bianchi, G., 1985).

Silver pompano was introduced from Taiwan, China because it is the most popular species cultured in Taiwan, but it is also found in Indonesian waters. It takes 3 years for the fish to mature as broodstock (Anonymous, 2007). As the fish grow fast and fetch a good market price it has a good potential for aquaculture in the Asia-Pacific.

At present the Mariculture Development Centre of Batam has been successful in breeding and producing the seed of silver pompano so that the fingerlings can be produced locally for grow out and reduce reliance on importated fingerlings from overseas sources.

The price of silver pompano is around Rp. 60.000/kg or about US\$ 6/kg, almost the same as the price for grouper. However, the silver pompano is easier to farm, faster growing so shortening the grow out period, has a high survival rate, is more disease resistant and can be stocked in floating cages at around 3 cm size.

## Broodstock management

Broodstocks management, larval rearing, nursery and post harvest are key areas for the success of seed production. Broodstock are recruited from cultured stock at the floating net cages. The fish that are selected for broodstock should be at around 1 kg body weight, have no abnormalities and the body should be proportionally balanced. Broodstock are fed trash fish, pellets, vitamins and multivitamins mixed at about 3-5% of the total body weight. Water quality management is vital in order to succeed in production. The water exchange is about 400% in 24 hours, and water quality parameters are maintained at pH 7.4-7.8, DO 4-6 ppm, water temperature 29-31°C and salinity at 30-32 ppt.

## Spawning technique

The capacity of the broodstock spawning tank is 10 m<sup>3</sup> and 10 fishes at 1:1 male to female ratio are kept in the spawning tank. Male broodstock are smaller than the females. The spawning patten of silver pompano does not



Silver pompano (*Trachinotus blochii*, Lacepede).

follow monthly lunar cycles. Spawning is stimulated by hormonal treatment and no natural spawning takes place at present. The HCG is administered by injection to mature broodstock at 250 IU/Kg dosage and fibrogen at 50 IU/Kg dosage. The injection has to be done twice across a two day period. The eggs are usually released on the third day with 60-70% fecundity and are about 800-850 microns in size.

## Larval rearing

The capacity of the larvae rearing tanks is 6 m<sup>3</sup>. The stocking density is maintained at 200,000 eggs/tank or 20 eggs/liter. The hatching rate of silver pompano eggs is about 65-75%.

A flow-through system is used for larval rearing maintained at three liters/minute increasing to ten liters/minute at the end of the larval rearing period. Phytoplankton *Nannochloropsis* sp is given during the first 14 days at 200 liters in the morning and afternoon. Tank bottom cleaning by siphoning

Table 1. Feeding programs for silver pompano broodstock.

Day	Feed Compositions	Remarks
Monday	Squids + pellets mixed + Biovit aquatic	Pellet mixed (yellow eggs + pellets + squid oil)
Tuesday	Trashfish + pellets mixed + Biovit aquatic	
Wednesday	Trashfish + pellets mixed + Biovit aquatic	
Thursday	Squids + pellets mixed + Biovit aquatic + vitamin C	
Friday	Trashfish + pellets mixed + Biovit aquatic	
Saturday	Trashfish + pellets mixed + Biovit aquatic + vitamin E	
Sunday	-	Day off

should commence at day ten in order to maintain the water quality, and it should be done every two days.

The larvae are fed with live feed (the rotifer *Brachionus plicatilis* and *Artemia*) and artificial feed. Rotifers are given from day three to day fourteen 5-15 individuals/ml and given three times a day (morning, afternoon and evening). At day ten pellets are given in addition to rotifer and the pellet is around 250-300 micron in size. *Artemia* are given at day fourteen at 0.25 individual/ml. At day fifteen rotifers should be stopped and the quantity of pellets increased every 1-2 hours. At day eighteen the quantity of *Artemia* also should be increased to 0.5 individual/ml and should be stopped at day 22.

The harvesting of larvae is conducted at day 21 using a 500 microns scope net. After harvesting to the larvae are graded and survival rate (SR) estimated. Normally the survival rate is around 20-25%.

## Nursery

The stocking density of seed in the nursery is maintained at 20 individuals/liter. In the nursery unit water exchange is maintained at 200%. Siphoning should be done twice a day in the morning and evening to clean wastes from the bottom of the tank.

Pellet feeds are used at nursery stage and the size of the pellets is depending on the mouth size of the fish. The total consumption of pellets could reach 1 kg/day especially on day 30. Grading should be done depending on the growth rate but should be at least every 3 to 4 days.

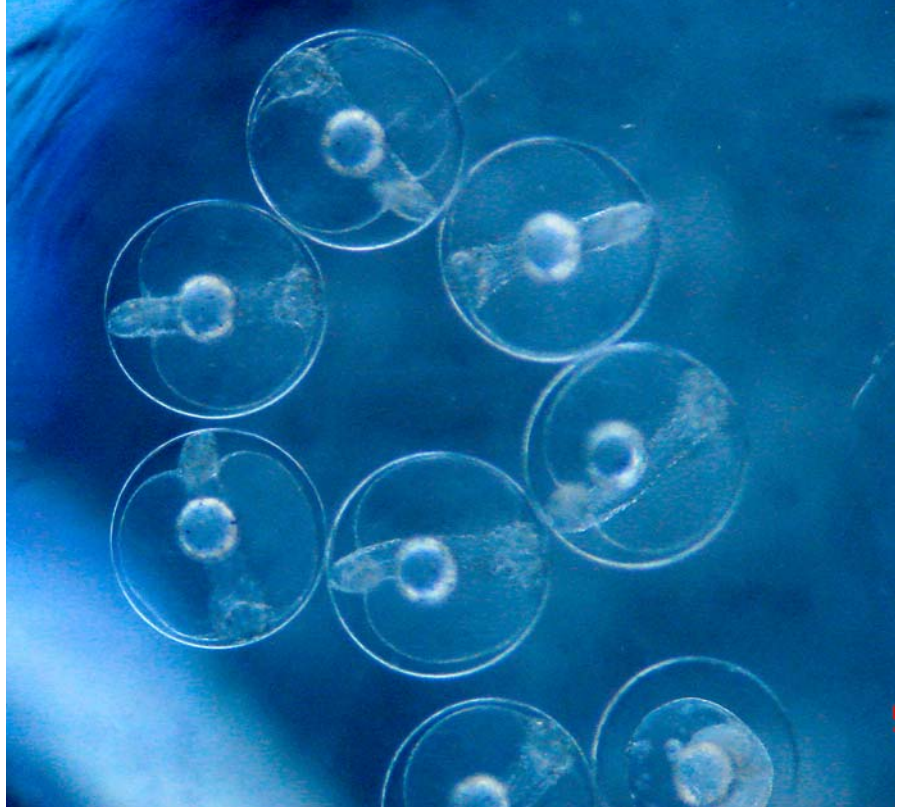
Silver pompano is a suitable candidate for marine finfish aquaculture in Indonesia because it is more tolerate to water quality problems, easy to adopt to pellet feeds and grow fast. The growth rate of the larvae can reach 1 mm/day.

The table and graphic show the growth of silver pompano fingerlings. At day 35 the larvae reached 3.4 cm in length and were ready to be sold or to be cultured in floating cages.

At the end of rearing period the seeds density was 0.5 individuals/liter which is about 21% survival rate. So from stocking of 200,000 eggs 42,000 fingerlings are harvested at the end of

the hatchery/nursery cycle. However, similar to other marine finfish species such as grouper and golden trevally, deformities are also a problem, for silver pompano a 5% deformity rate is common.

Before distributing to the farmers feeding should be stopped for one day so that the fingerlings are fasted and metabolic rate can be reduced during the transportation to minimize losses. The temperature of the water



*Fertilised eggs.*



*Above/below: Larval development.*

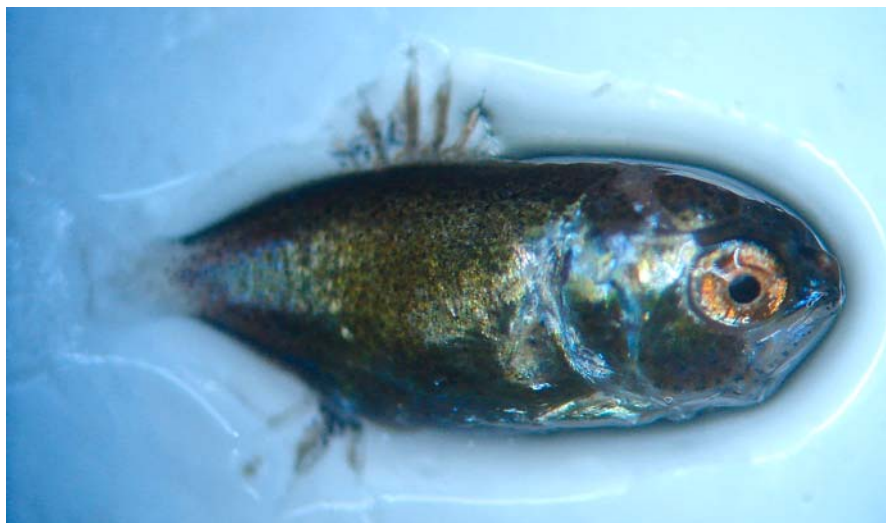


for packing should be maintained at 25°C-27°C and the ratio of water and oxygen is 1:3 at 200 fingerlings/bag.

## Production constraints of silver pompano

Although silver pompano is a good candidate for aquaculture in Indonesia it is not without problems. At seed production stage, stocking density plays an important role. As silver pompano is a very active and fast swimming species

so stocking density should be carefully considered so that it allows plenty of space for the fingerlings to move around to reduce stress. The same applies to transportation of fingerlings, they should be packed at lower densities otherwise mortality rate is high. When the water quality is not maintained at an optimum level, disease may occur. So water quality management is vital for success of fingerling production and to minimize disease problems.

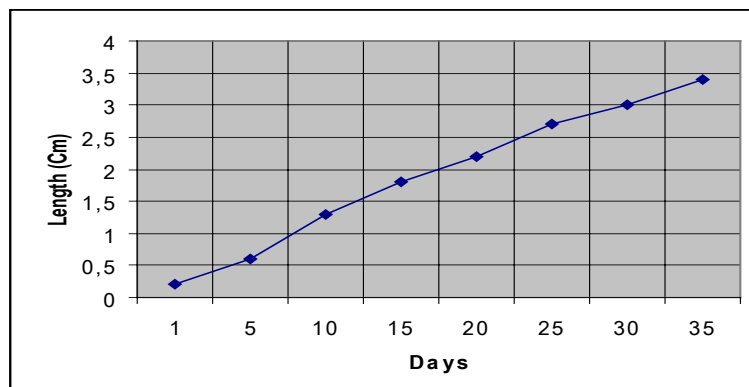


Early juvenile.

Table 2. Development of seed.

Days	Length average (cm)	Growth (cm)
1	0.2	0
5	0.6	0.4
10	1.3	0.7
15	1.8	0.5
20	2.2	0.4
25	2.7	0.5
30	3.0	0.3
35	3.4	0.4

Data on the growth of silver pompano.



## Conclusion

Silver pompano is not a new commodity in Indonesia, it is a well known wild caught species in fishing communities. It is a suitable marine finfish aquaculture species because of its fast growth rate, easy weaning to pellet feeds and wide tolerance of water quality. Silver pompano fetch a relatively high market price in Indonesia with good market demand. It has a good quality flesh that is suitable for various cuisines and is accepted by consumers in Indonesia and in the region. Now that the technology for seed production is available it is anticipated that the grow out industry will take off in the near future, at least in Indonesia.

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