Metamorphosed larvae

The size of the metamorphosed fry ranges from 16 to 17 mm. Juveniles of Indian pompano are harvested after 25-30 days of larval rearing and are shifted for nursery rearing. The average survival during larval rearing is around 21 %. Longer duration of light (1000 lux) is provided from 2nd to 8th day of larval rearing, afterwards natural light period is followed. Feeding and water management during larval rearing is depicted below.

Pond based nursery rearing system

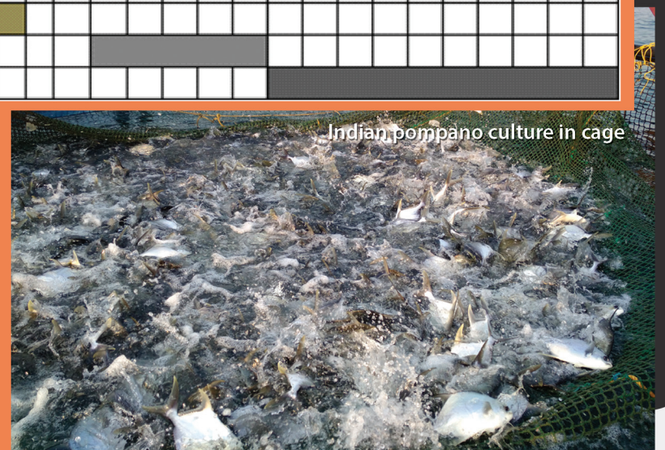
Grow out culture

Advanced Indian pompano fingerlings (15-20 g) are stocked in cage @ 30 nos/m^3 and are fed with floating pellet having 40-45% protein content. The fishes grow from 15-20 g to 120-130 g (126±3.17 g) after three months and after 10 months of rearing, fish attains an average size of 969.9±67.5 g. Food Convertion Ratio is 1:1.7 to 1:1.9. The cost of production is ₹ 190/kg and the farmgate price realized is ₹ 300/kg.

Days after hatching	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Feed management																										
Microalgae (10^5/ml)																										
Copepod Nauplii (2 nos/ml)																										
Rotifers (<100 µm) (10-15 nos/ml)																										
Rotifers (15-25 nos/ml)																										
Artemia (1-2 nos/ml)																										
Artificial diet																										
Water management																										
Siphoning																										
Water exchange																										
~ 10 %/day																										
~ 20 %/day																										
~ 50 %/ day																										
~ 100 %/day																										

Nursery rearing

The nursery rearing of Indian pompano is standardized with different feed and culture conditions. Pellet feed with 45% protein and 10% lipid is ideal during nursery rearing. Fishes are fed @ 10% of the biomass for 3-4 times daily. Nursery rearing is carried out in different systems such as RAS, hapa fixed in pond, hapa fixed in sea cages and cement tank. The stocking density is maintained at 300-1000 nos per m^3 depending upon the culture system. Indian pompano grows to a size of 20-25 g in 2 months culture period, after which grow out culture commences.



Indian pompano culture in cage

Consultancy Services offered by CMFRI:

- Layout and hatchery designing for finfish
- Training on live feeds
- Training on broodstock development and larval rearing of finfish
- Technical services for nursery rearing and grow-out culture in ponds & cages

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SEED PRODUCTION & CULTURE OF INDIAN POMPANO

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Introduction

In India, the resources available for mariculture/coastal aquaculture is vast and it includes 8129 km of coastline, 2.2 million km^2 of Exclusive Economic Zone (EEZ) with 0.5 million km^2 of continental shelf area, 1.2 million ha of coastal salt affected land and 3.9 million ha of estuarine area. In spite of having huge mariculture resources, India is still at the initial stage in mariculture. The coastal aquaculture scenario continues to be dominated by shrimp farming with single species. Presently, shrimp culture in India is in doldrums, due to the frequent failures of the crop. Adopting crop rotation or diversification using finfishes, to some extent would solve the issue of diseases in shrimp industry. One of the vital prerequisites for crop rotation or diversification is the availability of seed production technology for selected high value finfish. Indian pompano is a suitable species for crop rotation, since the shrimp pond could be used as such for the culture of the species without further modifications.

Therefore, a necessity was felt to develop seed production technology of high value marine finfishes; and accordingly, breeding and seed production technology of Indian pompano, *Trachinotus mookalee* was initiated and perfected at Visakhapatnam Regional Centre of ICAR-Central Marine Fisheries Research Institute, Visakhapatnam, Andhra Pradesh.

Indian pompano is distributed in western Indian Ocean from the Gulf of Oman eastward to Sri Lanka. Its range also extends to Singapore, Gulf of Thailand and Hong Kong. In India it has been reported both from the east and west coasts. It is considered as one of the potential candidate species for aquaculture because of its several culture characters like fast and uniform growth rate, attractive appearance, hardy nature with tolerance to wide range of water salinities (5-35 g/l), acceptability to formulated feed, firm white as well as tasty meat and high market demand. It can be cultured in both ponds and cages.

Broodstock development and spawning

Broodstock development, breeding and larval rearing of Indian pompano has been successfully achieved at Visakhapatnam R. C. of ICAR-CMFRI, Andhra Pradesh, India for the first time.


Re-circulatory Aquaculture System

Adult fishes (> 2 kg) collected from commercial catches are stocked @ 1 kg/m^3 in a circular tank of 125 m^3 capacity fitted with a Re-circulating Aquaculture System (RAS). The tank is connected with different components of RAS such as rapid sand filter to remove suspended solids, protein skimmer to eliminate dissolved solids and biological filter to reduce biochemical waste. The whole tank water is getting re-circulated 300% per day, and the water is added at the rate of 3% to top up the loss happening due to protein skimmer and backwashes of rapid sand filter.

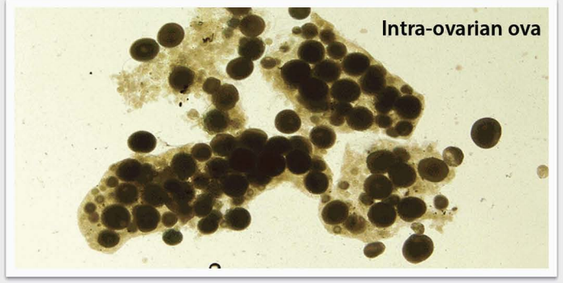

Indian pompano brooder

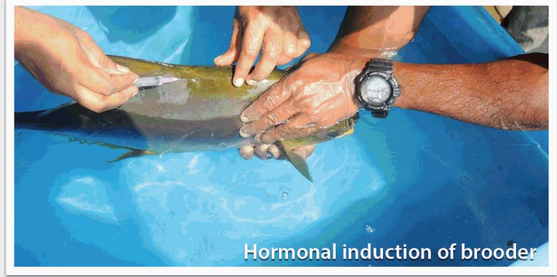
The fishes are fed on fresh squid and clam meat fortified with squid oil, vitamin – mineral pre-mix in a day till satiation. They are cannulated and sexed. Passive integrated transponder (PIT) tagging is used for identification of individual brooder. The brooders mature within 4 months with ova size of 450 - 550 µm. Spawning is obtained either naturally or by inducing with hormone. Once the intra-ovarion ova reaches a size of 500 µm diameter, the male and female are induced with hCG at a dose of 350 IU/kg body weight. The spawning occurs within 36-38 h after injection. The number of eggs spawned by Indian pompano ranges from 0.6 to 1.5 lakhs.


Tagging of brooder

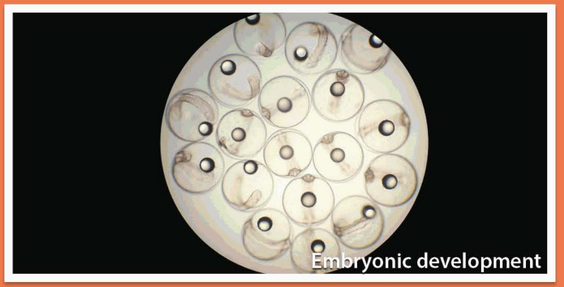
The spawned eggs from broodstock tank are collected by passing the surface water through an egg-collecting chamber fitted with a hapa of 500 µm. Collected eggs are treated with 20 ppm iodine solution for 10 minutes with strong aeration. Treated eggs are stocked in 100 l aquarium tanks @ 200 nos per liter. Bottom settled eggs are removed after 2 h of stocking. The eggs hatch out 20-22 h after fertilization at 28-30 °C and 30-32 ppt salinity with mild aeration. Newly hatched out larvae are free floating on the water surface.


Cannulation of Indian pompano


Intra-ovarian ova


Hormonal induction of brooder


Fertilized eggs of Indian pompano


Embryonic development

The overall fertilization and hatching rate is 69 ± 1.55% and 87.67 ± 0.81%, respectively. Subsequent spawning of Indian pompano is achieved at an interval of 35-40 days in RAS.

Larviculture

The newly hatched larvae measures 2.1-2.2 mm in total length. The mouth opening is formed 42-46 h post hatch. The newly hatched larvae are collected from the water surface of hatching tank and stocked in larval rearing tanks @ 10 nos/l. Water depth of the larval rearing tank is maintained at a minimum of 80 cm. Green water is used for larval rearing.


Hatched out larvae

Rotifers and copepod nauplii are added from 2nd day post-hatch (DPH) onwards @ 10-20 nos/ml. *Artemia* nauplii are used in larval rearing tank from 9th DPH. Weaning of larvae with inert diet is started from 15th day. Metamorphosis of the larvae starts from 17th day and is completed by 22nd day.


Larva on 6th DPH