

quality of harvested fish. Harvested fishes can be packed in plastic trays or thermocole boxes by adding layers of ice in equal quantities at the bottom and top of the fish. It is suggested to harvest the fish in the morning to maintain the freshness. The cultured fish can be harvested during the demand, and most preferably during the off season. The most potential states for marketing the fish are Kerala, West Bengal, and selected pockets in Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra. Some of the selected buyers are Maxwell exporters, Kochi, Kerala; MATSY-AFED, Kerala; West Bengal Fisheries Development Corporation, Kolkata.



#### Economics

The total operational expenditure and profit for culture of the fish in 1 acre water spread area is given in the table 3. Coastal farming of Indian pompano with the stocking of 5000 nos/acre for one year period will support the farmer with net profit of approximately Rs 2.25 lakhs with price realization of Rs 325/kg fish.

| Sl. No | Particulars   | Cost (Rs)    |
|--------|---|--------------|
| 1      | Pond preparation & water treatment  | 40,000.00    |
| 2      | Seed cost - 5000 nos @ Rs 10/seed   | 50,000.00    |
| 3      | Seed transportation @ Rs 4/seed   | 20,000.00    |
| 4      | Nursery rearing (Hapa & Accessories)  | 25,000.00    |
| 5      | Feed @ FCR 1:1.75, with survival 90% (Approx. 8 tonnes of feed @ Rs 110/kg) | 880,000.00   |
| 6      | Labour cost @Rs 12,000/labour/month   | 1,20,000.00  |
| 7      | Electricity   | 50,000.00    |
| 8      | Miscellaneous expenditure   | 50,000.00    |
| 9      | Total operational expenditure (Sl no: 1-8)                                  | 12,35,000.00 |
| 10     | Production: 4500 kg @ 90% survival with selling price @ Rs 325/kg           | 1,462,500.00 |
| 11     | Net profit : (8-9)  | 2,27,500.00  |

#### Best Management Practices for grow out culture of Indian Pompano

- Fish fingerlings of >30 g should be stocked to obtain maximum survival.
- Pond should be fertilized at every fortnight to maintain water quality and water colour.
- Dissolved oxygen content should be always > 4 ppm.
- Creation of feeding zone in pond will help to reduce feed wastage by acclimatizing fish feeding in specified place.
- Water exchange of 25% should be done in every month to maintain water quality. This practice may help in reducing use of probiotics and water conditioners.
- Recommended to use 2-3 paddle wheel aerators/ acre for a minimum of 10 hrs in a day.
- An Optimum stocking density of 5000 nos/acre is suggested for good economic returns.

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## Coastal Farming of Indian pompano



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## Introduction

Indian pompano (*Trachinotus mookalee*) is a marine fish, considered to be one of the good candidate species for coastal aquaculture and suitable species for species diversification. The fish is having important characters like ease of breeding in controlled condition, quick adaptability to different culture conditions, and better acceptance to artificial feed, pleasant appearance, good meat quality and high consumer preference. All these characters together contribute to become the fish as one of the new candidate species for commercial aquaculture operation. The fish can be cultured comfortably in sea cage as well as in coastal pond systems. Breeding and seed production technology for the species was standardized by ICAR-CMFRI, Visakhapatnam Regional centre, and subsequently the coastal farming technology was developed. The coastal farming technology was demonstrated and disseminated in different places of Andhra Pradesh under Blue Revolution Scheme with funding support from National Fisheries Development Board (NFDB), Government of India. Coastal farming of the species can be performed either in new or existing ponds. Various steps involved in the culture method are pond preparation, water treatment, nursery rearing, grow-out culture and harvesting.

## Pond preparation

Pond should be prepared with an average water depth of 1.5 m in the entire pond area. When old pond is used, then the top layer of the soil containing accumulated waste has to be removed and ploughing has to be done. The average water pH of 7.5-8.5 would be ideal for pompano farming. The level of lime application during pond preparation depends on the pH of the soil. Hence, the dosage has to be calculated accordingly.

## Water treatment

Water filling from direct canal or reservoir can be followed. While filling water, filter bags with less than 100 µm mesh should be used to filter the water in order to avoid the entry of weed fishes into the pond. All animalcules in the pond should be killed by chlorination of the pond at 10 ppm. After four days, the chlorinated water can be applied with urea (2.5 ppm) and Triple Super Phosphate (TSP) (3 ppm) to condition the pond water quality.

Pond fertilization can be done with either organic or inorganic fertilizers to stimulate the plankton bloom. The plankton bloom in the pond is used for conditioning and maintains the water quality. The fish can tolerate water salinity ranges from 5 to 40 ppt. However, the salinity ranges of 15-35 ppt are optimum for achieving the better growth.

## Seed transportation

Seed transportation is one of the major activities, which requires more attention. Seed health would be affected, if the seeds are transported in stressed condition, and ultimately will lead to disease by microorganisms. Therefore, the seed should be transferred in stress free conditions. Seeds of Indian pompano can be transported either in dissolved oxygen filled polythene bags or sintex tank supported by dissolved oxygen. The mode of transportation is depending on the seed size, and duration. Based on the experience, optimum fish size, stocking density and mode of transportation is given in table 1.

| Fish Size (g) | Duration (hr) | Stocking (nos/lit) | Mode of transportation |
|---------------|---------------|--------------------|------------------------|
| > 0.25        | 24-36         | 100                | Polytene bag           |
| 1.0 to 1.5    | 15-30         | -40                | Polytene bag           |
| 2.5 to 5.0    | 12-24         | 8-10               | Sintex tank            |
| 5 to 15       | 12-20         | 5-6                | -do-                   |
| 25 to 50      | 12-20         | 2-2.5              | -do-                   |

## Nursery rearing

Immediately after transportation, the advanced fry/fingerlings should be stocked in hapa. Ideal hapa size for stocking of the advanced fry is 2 x 2 x 1.5 to 4 x 4 x 1.5 m with 4 to 5 mm mesh size. The mesh size can be increased in time interval depending on the growth of stocked fry. The installed hapa should be stitched with mosquito mesh of one feet width at water interface for avoiding feed wastage through hapa mesh. Nylon net is preferred material for hapa in nursery rearing since it is softer than HDPE net. The ideal stocking density is 200 to 250 nos/m<sup>3</sup>. The fish accepts artificial feeds, and the diet with high nutrient content (Crude Protein 45% and Crude Fat 10%) is suggested for the nursery rearing. Feeding frequency of 4-5 times/day at 8-10% of body weight is

recommended during the initial phase. The commonly available supplier for nursery feeds are Skretting (Norway), Lucky star (Singapore), Uni-President Enterprises Corporation (Taiwan), Growel Feeds Pvt Ltd (India). The stocked advanced fry (2-3 g) should be culture for 60 to 75 days till it reaches 30-40 g, which is an ideal size for stocking in grow-out pond.

The expected survival for the fish during hapa based nursery rearing is around 90-95%, provided the dissolved oxygen level should be always more than 4 ppm.



## Grow-out culture

After reaching an optimum size, the nursery reared fingerlings should be released in to the open pond. The optimum stocking density recommended for open pond is 1 to 1.25 numbers/m<sup>3</sup>, i.e., average of 5000 nos/acre. The fish is more sensitive for dissolved oxygen, thus aerators should be installed in the four sides of open pond. The water quality in grow out culture should be maintained well by applying fertilizer periodically. Artificial pelleted feed with high nutrient content (40% CP & 10% CF) is recommended for the fish in grow out systems. While applying feed, broadcasting feed in the feeding zone is suggested to avoid feed wastage by drifting along with wind action. Feeding zone can be created by fencing the particular area in the pond with the help of PVC pipes or small mesh. For better feed digestion and assimilation, a minimum time gap of 3 hrs should be given between two feeds, thus the feeding frequency should be decided accordingly. In grow out culture, fish growth should be monitored fortnightly and feeding rate is adjusted based on the

weight gain after every sampling. Based on several demonstrations, if the fish fingerlings of 10 to 20 g stocked at 1 to 1.25 nos/m<sup>3</sup>, then it takes nearly 12 months to reach the size of 1000 g, whereas if it stocked at 100 g size, it takes 6 to 7 months to reach the same size.



Generally, the fish culture duration is longer and thus the slurry from pond bottom should be periodically removed to avoid gas formation in the bottom and to maintain good water quality throughout the culture period. The monthly growth, feed and feeding for the Indian pompano in grow-out culture is given in table 2.

| DOC     | Size (g) | Feed Size (mm) | Feeding Rate (%) | Feeding Frequency (times/day) |
|---------|----------|----------------|------------------|-------------------------------|
| 0-30    | 10-50    | 1.2 & 1.8      | 8                | 4-5                           |
| 30-120  | 50-100   | 1.8 & 3.0      | 6-5              | 4-5                           |
| 120-180 | 100-300  | 3.0 & 4.0      | 5-4              | 4                             |
| 180-210 | 300-500  | 4.0 & 6.0      | 4-3              | 4                             |
| 210-300 | 500-750  | 6.0 & 7.0      | 3-2.5            | 4-3                           |
| 300-360 | 750-1100 | 7.0 & 10.0     | 2                | 3                             |

## Fish harvest and marketing

Indian pompano is a pelagic fish, and thus the harvesting could be easily performed by using drag net. Immediately after harvest, washing in clean water and chill killing is suggested to maintain the freshness and