

# MABE PEARLS



A Simple Way  
to  
Value Added Pearls



Technology Offer from CMFRI  
Developed through NATP

# Mabe Pearls

## Mabe Pearls

The Central Marine Fisheries Research Institute (CMFRI), Cochin, the premier fisheries research institute of the country, developed the technology for cultured marine pearl production during the early 1980s. Now, scientists of the institute have succeeded in perfecting a simple technique for value added marine pearls, called **mabe (mah-BAY) pearls**. A mabe pearl is a dome shaped or image pearl produced by placing a hemisphere or miniature image against the side of the oyster shell interior. The result is an exquisite pearly nacre coated miniature image of anything dear to humans, like Ganesha, Saraswathy, Lakshmi, Ashoka, Crescent and Holy Cross etc. These miniature images can be made into pendants, eardrops and rings. A fine quality mabe pearl of 10 mm size can easily fetch more than US\$ 100 in international markets and an average of Rs. 1000 in local markets.

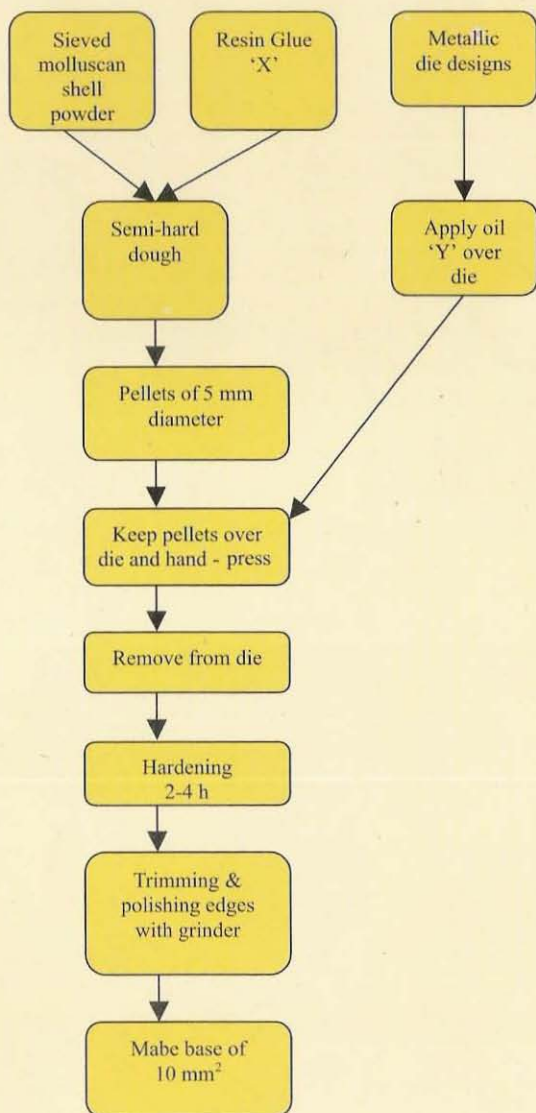
The main advantage of Indian marine mabes over the ones produced in freshwater mussels is the very short gestation period (2 months as compared to 18 months) apart from the superior quality of the nacre of Indian marine pearl oysters, *Pinctada fucata*. The technology developed is very simple and can be easily carried out by farmers, unlike the technology for free round pearl production, where skilled hands and large capital are required.

## THE TECHNIQUE

### 1) Preparation of Base Images

A base image of 10 mm<sup>2</sup> is required to make a mabe pearl. Specially fabricated metallic dies are used to get the required designs. The raw ingredient used in the process is molluscan shell powder which is

sieved and mixed with resin glue to form uniform semi-hard dough. This dough is hand-mixed into pellets and kept in the die over which a formulated mineral oil mixture is already applied.



With the help of a specially designed hand press, the dough is pressed into the die to make a fine impression of the image on the dough. The dough is slipped out of the die with a sharp knife and

trimmed to the appropriate dimension and shape and kept for hardening. This process takes about 2-4 h after which the mould is further trimmed and shaped with the help of a carborundum grinder. Base images are stored in a cool and dry place until use.

## 2) Implantation of Images

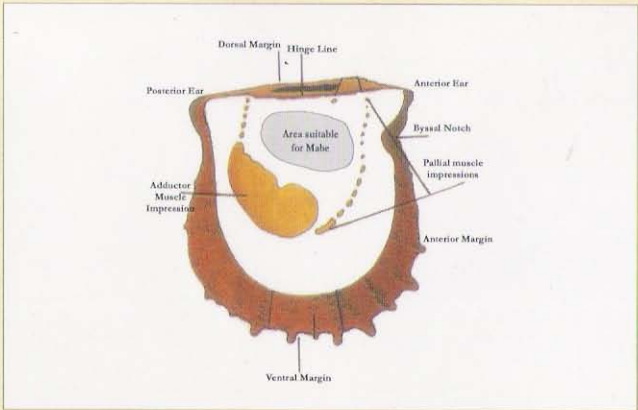
Oysters above 45 mm length are suitable for insertion of base images and they are placed in a shallow pan with their hinge down. Oysters which open their valves are pegged with wooden splits, and using an oyster speculum, the shell gape is gently widened. The oyster is held with the cupped left valve in the palm of the hand. The base image is picked with a fine angled forceps and inserted face-up through the anterior end near the byssal notch, where the gap is the widest. The pallial muscles offer slight resistance, and the image is slid through under the mantle so as to lie in the deep sinus close to the dorsal hinge (see figure). The image is therefore bound by the hinge, pallial muscles and the adductor muscles and therefore cannot be easily dislodged. The oyster is immediately placed in fresh seawater with hinge down and ventral margin facing up.

Individual oysters are then placed in specially made wood-framed velon screen (large mesh) pouches made into strips, again taking care to see that the ventral margin is at the top. Up to 10 oysters can be placed individually in pouches in one cage. The cage is then suspended from the raft with suitable weight to keep it upright.

## 3) Harvest & Processing

Along the south-west coast of India observations indicate that within 15-20





days, the nacre coating is initiated on the base image.

Fusing of the image to the shell is complete by day 20. By the end of 60 days it is possible to get complete and adequate nacre coating on the image so as to produce

a fine mabe. Rejection and mortality is high (100%) when the image size exceeds 10 mm<sup>2</sup>. Longer period of incubation results in the masking of finer details of the image.



Mabe images are cut-out from the shell using a sharp knife and



then carefully trimmed of all blemishes and made into appropriate shape before being set into jewellery. The reverse side is usually finished with appropriate shape mother-of-pearl to present a

uniform and fine appearance at the back also.

#### 4) Economics

The profit analysis shown below is indicative for setting up a 5x5 m raft in the open sea, stocked with 2000 adult oysters and getting 50% yield of mabes through 4 crops in a year.

Capital cost (including rafts and cages)	Rs. 40,000 Rs. 20,000 (depreciated value)
Recurring cost (including cost of pearl oyster, base images, implements & labour charges)	Rs. 1,76,000
Total Expenditure	Rs. 1,96,000
Income from raw mabes (1000 nos)	Rs. 3,02,000
Profit before value addition	Rs. 1,06,000
Cost of value addition into rings, pendants, drops, mementos etc in silver @ Rs. 500 per piece	Rs. 5,00,000
Income from sale of value added mabe (1000 nos)	Rs. 9,56,000
Profit after value addition	Rs. 2,60,000

*Technology developed by*

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