

Philippines and Burma also joined in such partnerships. In Hong Kong, Palau, Celebes and some other South-West Pacific islands, limited-scale production has been taken up. In the majority of joint ventures, Japan exports technical knowledge and does marketing, whereas the host country contributes primarily to the creation and maintenance of farms. Past studies have identified the Japanese approaches and pointed out the possible potential of India in the cultured pearl (Nagai, 2013).

3 History of Pearl Farming in India

In the Gulf of Kutch and Gulf of Mannar, India has a history of pearl fishing of natural pearls. But there are ups and downs in oyster production in these regions, and between productive fisheries, there are some seasons when the oysters are barren. Since 1900 the Gulf of Mannar has had only 12 seasons of fishing, the seven-year grand series of 1955 to 1961. India has ceased pearl fishing in Gulf of Mannar (after 1961) and in Gulf of Kutch (1966-1967). Oysters were collected in the pearl banks of Tuticorin by means of diving and using SCUBA, and then transported to the farm where they were cleansed and measured. They were outlawed in rafts and placed in sandwich-like frame nets with repeat laboratory tests on purity and growth checks. Even though the oysters were fairly healthy, barnacle infestation became an issue of serious concern and resulted in certain mortality. The vigorous of shell margin indicates that the sea of Veppalodai is an appropriate location where oysters can grow. The Kallar River contributed to freshwater inflow during the northeast monsoon which reduced the salinity marginally but did not have any adverse effects. Light penetration was poor, in the 4-meter-deep farm field (approximately 1.5 meters) and total water clarity was poor (Alagarwami, 1974).

4 Major Species and Regions

The main species of pearl production that is cultivated in freshwater systems are the Indian pond mussel (*Lamellidens marginalis*). Its adaptability to the conditions of the Indian environment and the possibility to grow high-quality pearls under conditions characterized as controlled habitats (pond, tank, integrated multi-trophic aquaculture systems, etc.) contribute to its popularity (Saurabh et al., 2022). There are approximately 3,270 molluscan species that inhabit India, 1 100 of which are bivalves. These include 625 species of marine bivalves of which 88 are endemics. Approximately, 52 mussel species have been reported in freshwater ecosystems and these are found in both stagnant and low-moving water bodies. Large-scale pearl production in India, despite such diversity, is temperately reliant upon three freshwater mussel species that belong to the Unionidae family -*Lamellidens marginalis*, *Lamellidens corrianus*, and *Parreysia*.

CIFA (Central Institute of Freshwater Aquaculture), Bhubaneswar, has been a leader in establishing and distributing freshwater pearl culture technologies in India (Saurabh et al., 2022). Marine pearl farming is instead based on the Indian pearl oyster (*Pinctada fucata*), especially in coastal states (such as Tamil Nadu, Kerala, and Andhra Pradesh). In India, freshwater pearl mussels and marine pearl-producing oysters are very prolific. *Pinctada margeretifera* in Andaman and Nicobar Islands and *Pinctada fucata* in the Gulf of Mannar, Palk Bay, and the Gulf of Kutch are pearl-producing oysters (Sharma, 2005).

5 Classification of Pearls

5.1 Natural pearls

In a case of swallowing a foreign particle by a pearl oyster without any human intervention the natural pearl is formed. The natural pearls consist of nacre crystallized into pearls of greater thickness. It is unevenly shaped and comparatively smaller. The reason for its uneven shape is edge formation of covering crystals of aragonite (Birunagi et al., 2024).

5.2 Cultivated pearls

It is alike naturally occurring pearls but, the nucleus is surgically implanted into the mussel instead of natural swallowing of any foreign particle. This culturing technique of making natural pearls can yield the required size, shape, colour and lustre of the pearl. They can be spherical, semi-spherical or designer pearls depending on the size and shape of the nucleus (Alexander and Kumar Verma, 2023).