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**News: Pearl Farming**

- The Ministry of Fisheries, Animal Husbandry and Dairying in collaboration with the State Governments, Research Institutes, and other concerned agencies has taken several initiatives to promote natural pearl farming in India.

**Pearl Farming**

- Pearl Farming is the process of cultivating pearls within freshwater or saltwater oysters in a controlled environment.
- It involves the process of cultivating pearls by inserting an irritant (nucleus) into the body of a mollusk, which then secretes layers of nacre around it. Over time, these layers form a pearl.
- Nacre (the mother of pearl) is an organic-inorganic composite system, produced by some mollusks as an inner shell layer. The material is strong, resilient, and iridescent, and this is what the pearls are composed of.
- This scientific and commercial practice leverages the natural biological process of mollusks to produce high-quality pearls in controlled conditions.
- Mollusks are soft-bodied invertebrates that inhabit marine, freshwater, brackish waters, or land environments such as snails, octopi, oysters.

**Procedure:** Farming practice of the freshwater pearl culture operation involves six major steps sequentially

- Collection of mussels
- Pre-operative conditioning (keeping mussels in crowded condition in captivity).
- Implantation (Inserting nuclei or graft tissues into mussels).
- Post-operative care (antibiotic treatment)
- Pond culture (12-18 months).
- Harvesting of pearls.

### **Pearl Production**

- **Global** – China leads global pearl production, focusing on freshwater pearls, followed by Japan, Australia, Indonesia, and the Philippines.
- **India** – Pearl culture practices are present in Gujarat, Maharashtra, Bihar, Odisha, Kerala, Rajasthan, Jharkhand, Goa, and Tripura.
- In 2022, India was the 19<sup>th</sup> largest exporter of pearls in the world, exporting USD 3.79 million worth of pearls.

## Challenges in Pearl Farming in India

- **Limited** freshwater pearl farmers and **absence of an organized sector**.
- **Lack of standardized protocols** for broodstock management, breeding, and water quality tailored to diverse agro-climatic zones.
- **Scattered availability of mussel broodstock** (reproductively mature adults that breed and produce more individuals) and inadequate research support.
- **Poor extension networks to disseminate existing technologies**.