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Project report on

# PRAWN CULTURE AND PEARL CULTURE

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**CERTIFICATE**

*This is to certify that **RIYA**, a student of class BSc final year medical has successfully completed the research on the project prawn culture and pearl culture under the guidance of Mrs Rekha saini (subject teacher) during the year 2021 – 22.*

*Name of examiner  Signature of examiner*

*Name of zoology teacher :Rekha saini*

*Signature of teacher*

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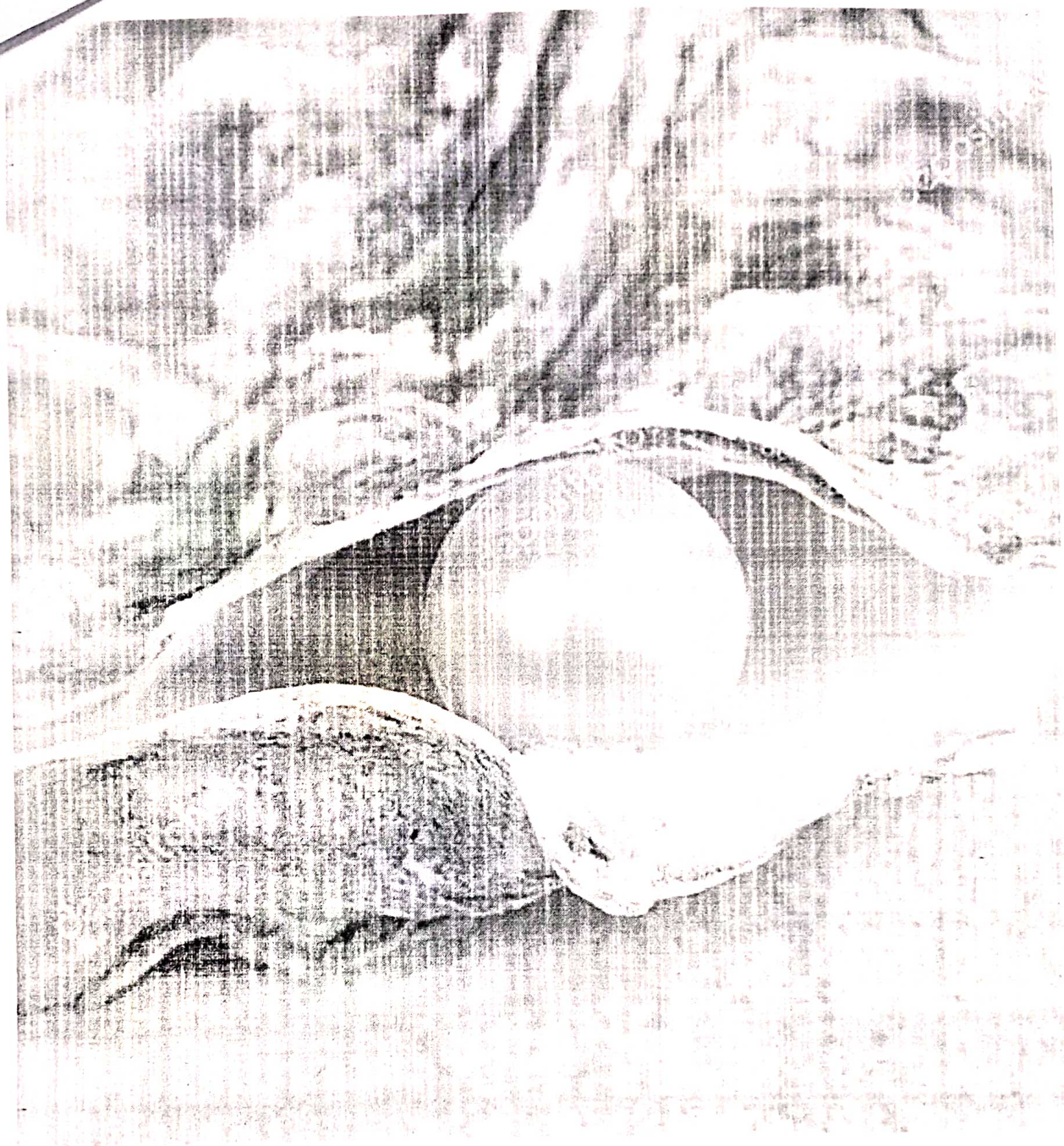


*Prawn culture*

*Types of prawn*

According to quality, topography and nature of water.

1. **Shallow water prawn fishery :** located on west coast exceeding 10 meters in depth. During monsoon month of June - August near Malabar Coast fishermen are capable of to catch prawn with cast nets.

2. **Estuaries and saline lake prawn fishery :** along the southern half of Kerala coast Hill streams in Malabar, Chilika lakes, estuaries of Gangas and Brahmaputra river on the coast are important fishing area.

3. **Fresh water prawn fishery :** from the rivers, lakes and from brackish water lakes when the salinity is low and prawn migrates into them temporarily for breeding.

4. **Marine prawn fishery :** along the Indian coast belong three genre from family peneaedae. Marine prawns are formed of warm Shallow Seas and Swarm both in their larval and adult stages in muddy water such as those found in deltic regions.

*Species of prawns*

From culture point of view following species are important:

- P. *indicus* – found along both the coasts throughout coastal water and its estuaries maximum length 20 CM.
- P.*mondon* – largest sea prone found in Indian water of East and West Coast. maximum length 30 cm.
- M.*affinis* – found in paddy field of West Bengal in low lying areas.
- M.*dobson*—found in brackish water in Kerala coast. life span is found to be three years.

- M.*monocero*—found throughout entire coastline.
- P.*sculptitis*—found in both costs but in Mumbai and West Bengal in Hoogly river and also found in Chilka Lake.
- P.*stylifera*—found on West Coast and Kerala state life Span is 2 years.
- P. *Fluminicola*— prefers fresh and brackish water .
- P.*tenuipes*—found commonly own West Coast and caught from Mumbai coast.

Culture of freshwater and Marine prawn fishery is by means of using different catching gears,nets and boats after fishing Preservation and processing can be done different methods like peeling, deveining and cooking. after freezing fresh prawns are taken and exported to various parts of the world.

***Crabs and lobsters***

Class crustaceans includes crab and lobsters which mainly live in sea. many occur in freshwater also and some are Terrestrial and parasitic forms. true crabs make up 20% of all crustacean caught and formed worldwide.however, mud crab has become a highly priced commodity at present. the Mud crab, also known as green crab or man groove crab coming under the genus scylla is widely used for agriculture in India and the Indo Western specific region two distinct species of mud crab namely s. Tranquebarica and s. Serrata occurs in the Indo Pacific region. S. tranquebarica grows to a largest size adult weighing about 1.5 kg to 2.5 kg this species move freely and in rarely found in burrows the upper surface of the carapace is light to dark green two sharp spines are seen on the outer margin of the Corpus of chelipeds. The polygonal markings seen on all walking and swimming legs help to identify the species easily. In the case of s.serreta, the carapace is greenish brown to ferrugenous brown and the polygonal markings are seen only on the distal part of the swimming legs. This species prefers to live in burrows and holes. Adults grow to a weight of about 0.5 kg to 1 kg the outer border of the carpus of chelipeds bears one spine the other spine being absent or Blunt.

The Palinurus, spiny or rock lobster is Marine India and Europe. It emits a crackling sound by rubbing antennal pad against a sterna keel on the head .

Palinurus has a large body armed with spines. Roastrum is reduced to a small spine. Antenna are very long and fuse proximally.

***Cancer ( The rock crab)***

Cancer lives buried in rocks and mud on the coast of New England,Pacific Coast and California. Crab is carnivorous, capturing pray by massive chelipeds. It run very fast over loose send moving sideways for better traction. The female carry eggs on abdominal appendages. C. irroratus has a broad,oval,carapace with 9 shallow smooth edge teeth along each side of the front region of the carapace. It's eyes are round and located on thick short stalks. This species is typically yellow Brown with purple or Crimson sports own its back shading to a pale yellow towards its abdomen. The shell of both claws and carapace are relatively smooth in comparison to other crab species such as the jonah crab. This is species can grow to a maximum carapace with of 14 cm and weight approximately 0.25 ***kg.***

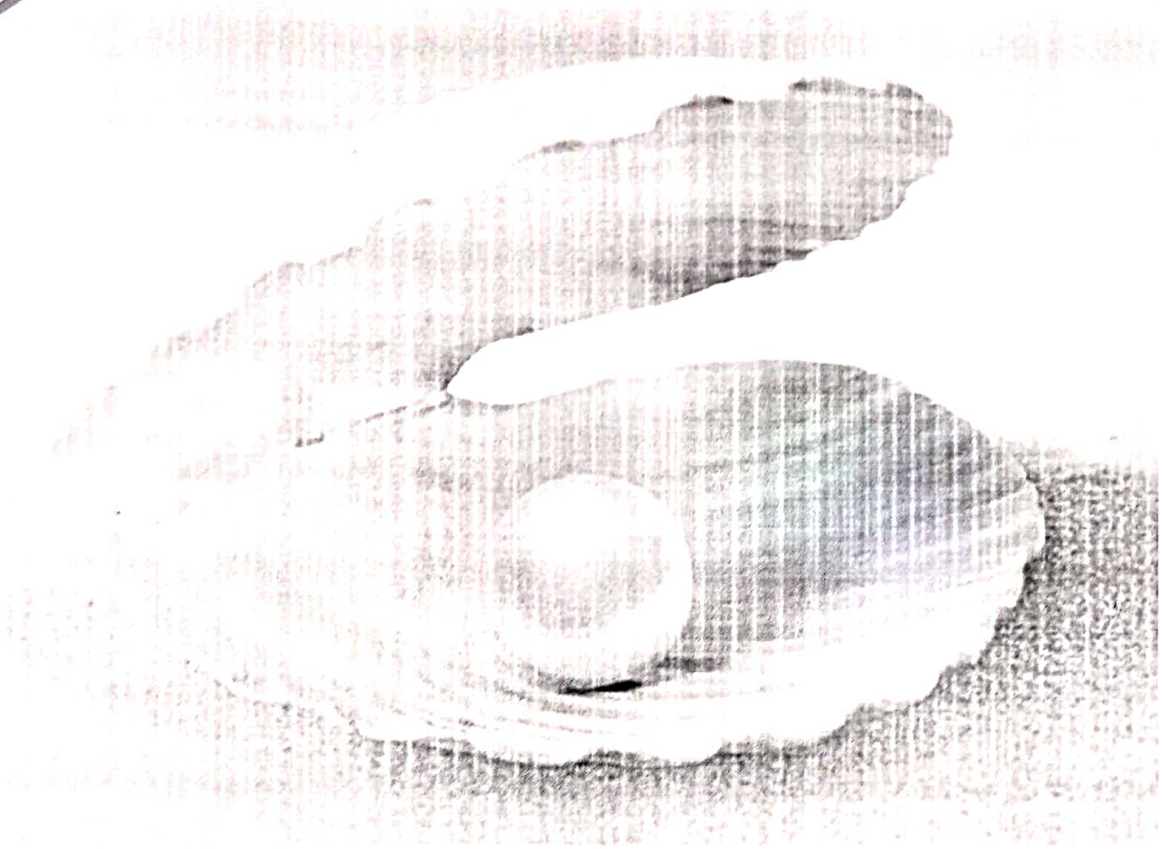
The Rock crab typically reaches sexual maturity between 1 and 2 years._The size of the rock crab at time of maturity varies is according to location. In coastal areas around the Atlantic provinces, female Rock crab are considered sexually mature at a carapace with 5.5 and 6 CM, wild males are sexually mature at 7 cm. Meeting occurs when females are in a soft shell condition. Eggs are generally extruded during mid to late autumn and continue until the following spring or early summer. The X are usually bright Orange red, turning darker red to brown prior to hatching.

Mollusca are predominantly marine. Many occur in freshwater and some on land. Their mineral shell increases the chance of preservation in rocks, resulting in Fossil formation. They are used for food for shell and pearl industry. Pearl is white highly shining globular concretion found within shell of an ooyster.

Bivalvia i. e. a sea mussel mitilus inhabits Shallow costal water between tide marks all over the world. It leads a sedentary life being fixed to a substratum by a bunch of threads called byssus. It fields on protozoans and diatoms by filter mechanism like fresh water mussel.

***Ostrea-The edible oyster***

[illegible] is a bivalve molars that has an oval or pear shaped cell with a rough scaly surface. The irregular shell has a distinct hooked beak pattern with delicate foliation. The two half of the cell are different shapes sub circular to circular and inequivalve. Left shell is deeply concave and fixed to the substratum the right being flat with refer edges and sitting inside the left acting as a lid. Inner surface of both valves are smooth and usually clearly white or blue is grey often with darker blue areas. Valves are held together at their narrow ants by an elastic ligament. No teeth are reported on the hinge. A large central muscles serves to close the valve against the pull of the ligament. The shell is of white yellowish or cream in colour with light brown or Blue Eyes concentric bands on the right valve. The hard rough grey shell contains a meat that can very in colour from creamy being too pale grey in flavour from salty to Bland, and in texture from tender to firm. Ostrea found from The Coast of Norway to waters near Morocco through the Mediterranean sea and into the Black Sea.



- Pearl formation

Oysters and clams produce pearls. It is a foreign body such as sand green or a small parasite finds its way and is introduced artificially between the shell and mantle. A layer of Pearl material is secreted around it by mantle to prevent irritation. More layers of nacre or gradually led around this to produce a pearl. The Pearl produced by these bivalves are however inferior. The Pearl oyster *pinctada margaritifera* of gulf of California and *p. Vulgaris* of Gulf of Kutch produce superior quality pearls. It takes about 7 years to form a pearl of commercial value. Pearl fishery is now a regular industry.

Pearl oyster live attached to rock by byssal threads. The shell valves are unequal. The Hing line is straight and produced into an auricle at each end. The margin of the valves gives off finger like projection, which made disappear in old specimen. The sex is are separate perhaps alternate in same individual in successive seasons.

Some examples of Pearl producing oyster are :

- Akoya pearl oysters (pinctada fucata)
- Black lip pearl shell (pinctada margaritifera)
- Freshwater mussel (hydriopsis schlegeli)
- Large winged pearl shell (pteria penguin)
- Abalone (notohaliotis discus)
- Golden lip Pearl shell or white lip Pearl shell (pinctada maxima)

- Physical characteristics of pearls:

1. Size of the pearl is from microscopic to many centimetres in diameter.
2. Luster of typical pearly is termed "Orient" a variety of colors depending upon the type of mollusc and the composition of water
    - Pearl having body colour: white yellow (cream), black
    - Other color "float": pink/green/blue
3. Hardness of Pearl is 2.5 to 4.5
4. Specific gravity is 2.70

Pearl composition is 86% calcium carbonate 2 to 4% water 10% conchiolin. Together the conchiolin and Calcium Carbonate are referred to as nacre.

6. Nacre consists of a series of alternating layers of conchiolin and crystals of calcium carbonate. The calcium carbonate is in the Crystal form known as aragonite. The typical irridescence of the pearl is due to the series of nacre layers. This is referred to as Orient.
7. They must have outer nacre layer to be considered a true Pearl. Thus only pearls form molluscs with a nacreous mother of Pearl lining are true pearls.

❖ **National pearls**

1. Only the mantle lobe can secret nacre. When a peace of Mantle lobe is introduced by some accident into the tissue of the oyster the oyster forms are bag known as a pearl sec. it is this sec that secrets the nacre around the make the pearl.
2. Concentric layers of calcium carbonate are deposited around the irritant. This may be a piece of mantle lobe or some other material. Does pearls are calcareous concretions.
3. Some natural pearls have quite unusual shapes. These are often called baroque pearls.
4. Both saltwater and freshwater pearls consist of the same material and can form in baroque shapes. It is very difficult to know whether a given Pearl was sold water or fresh water in origin.
5. Most common fresh water Pearl on the market is the Chinese fresh water baroque.

❖ **Blister pearls**

The blister pearls are formed on the inside of the mother of Pearl shell.

❖ **Cultured pearls**

1. Oysters and muscles are induced to make Pearl this process of culture is termed as cultured pearls. The 90% of the pearls sold are cultured
2. If you break a pearl open it consist of a weed covered by a thin layer of nacre.
3. The mollusc treats the bead as an irritate and the mantle tissue begins to deposit a necreous coating over it .
4. The culturing process involves inserting a small piece of mantle lobe and Bead made from mother of Pearl shell into the tissue of a pearl producing mollusc.

❖ **Mabe pearls**

Mabe pearls are cultured blister pearls. These are produced by inserting a half beard against the shell of the molluscs after a layer of nacre has been deposited over the bead the whole formation is cut out and the nucleus Dome cemented on to a mother of Pearl bed.

❖ **Biwa pearls**

Biwa pearls are produced at lake biwa Japan using fresh water clams. They are irregular in shape but have good colour and luster instead of a Bead a small square of mother of Pearl is inserted into the clam. These Paul's required 3 year to produce good results.

❖ **Uses of pearls**

1. The majority are strung as necklaces.
2. Some are used in rings.
3. Rejects are used in medicines as a source of calcium.

❖ **Damage to the pearls**

1. Conchiolin is prone to drying. If this occurs The Pearl becomes dull the surface cracks and finally peels.
2. Pearls are damaged by excess humidity dryness acid perspiration cosmetics hair sprays and other chemicals.

❖ **Preservation of pearls**

1. Pearls can also be dyed. Pearls are sometimes bleached to lighten their colour.
2. Conch purse because they lack nacres, these are not considered real pearls. They are often Orange or pink in colour. They form as conclusions in conch shells.