

Vizhinjam Marine Aquarium

Haven for Marine Ornamentals

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There has been a huge growth of public aquaria since the opening of the first public aquarium display in the Fish House at the London Zoo in 1826, and particularly in the past 20 years (Hall and Douglas 2003). Globally public aquaria draw the

attention of 600 million visitors annually, which is approximately 10% of world's population. The oceans have always fascinated the people with their dark unknown depths and wonderful coral reef ecosystems inhabited by the most

brilliantly coloured animals. These magnificent ecosystems with their beautiful inhabitants are displayed for visitors at the Marine Aquarium of Central Marine Fisheries Research Institute (CMFRI) at Vizhinjam, Thiruvananthapuram. This aquarium has been educating and entertaining children, students, researchers and foreign tourists for over a decade. It is located about 15 km from Thiruvananthapuram and 2 km South of the famous International Tourist Centre at Kovalam. No trip to Kovalam is complete without a visit to this Aquarium. This aquarium supports and sustains an incredibly diversified array of inhabiting organisms especially marine ornamentals in myriad forms, shapes and characteristics and it has been the forerunner of marine aquaria in the country with its awesome collection of marine fishes that are ornamental in appearance, invertebrates and seaweeds. It was opened to public in 1996. Since then it has been a breathtaking experience for thousands of visitors. Like many aquaria in the world, this aquarium has helped in studying the biology of hundreds of indigenous marine animals and has become the cradle of marine ornamental fish breeding in India.

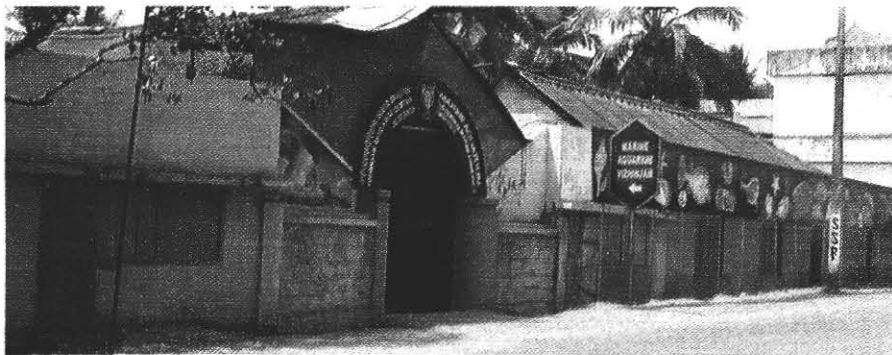


Fig 1: Vizhinjam Marine Aquarium



Fig 2: Kovalam beach



Fig 3: Students queuing up to visit the Marine Aquarium



Fig 4: A reef tank located in the premises of the Aquarium

This research and development (R&D) aquarium was started for educational and research purpose. Currently it has 35 glass aquaria and two concrete tanks containing marine organisms and it is supported by a hatchery for the breeding of ornamental fishes and other animals and also a live feed production unit. The aquarium is open to public on all days from 9 am to 5.30 pm.

It has attracted over a million visitors especially school children and generated a revenue of over Rs. one crore for CMFRI/ICAR. The Vizhinjam aquarium was an entry in many aqua-shows and it won prizes for best Marine stall in all the shows it participated.



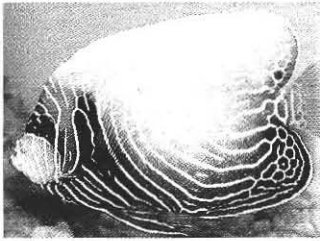


Fig 5: Emperor Angelfish

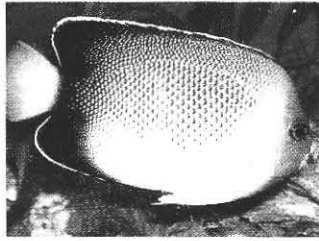


Fig 6: Indian yellow-tail angelfish



Fig 7: Koran angelfish



Fig 8: Blue-ringed Angelfish

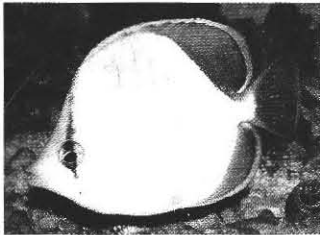


Fig 9: Yellow head butterflyfish

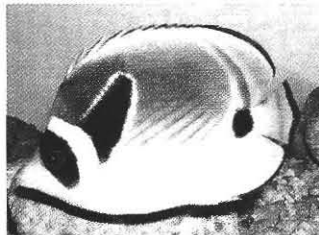


Fig 10: Raccoon butterfly fish

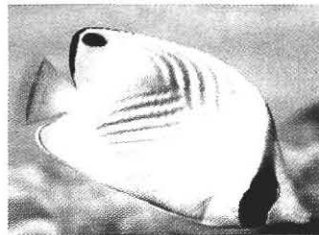


Fig 11: Threadfin butterfly fish



Fig 12: Melon butterfly fish



Fig 13: Horned bannerfish

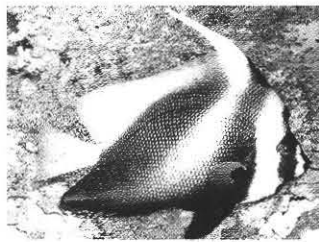


Fig 14: Singular bannerfish

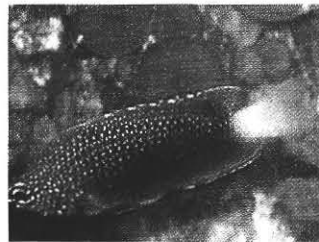


Fig 15: Blue damsel

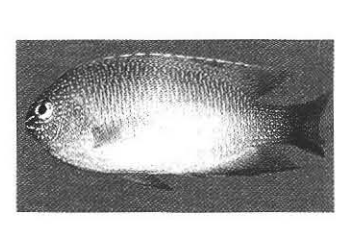


Fig 16: Sapphire damsel

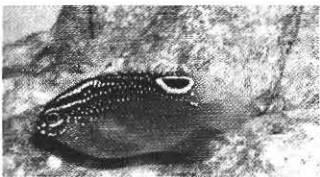


Fig 17: One spot demoiselle

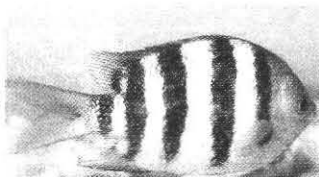


Fig 18: Sergeant major



Fig 19: Seba clown in Carpet anemone



Fig 20: Percula clown ("Nemo") in tentacle anemone

One of the main attractions of the aquarium is the reef tank containing live corals and other animals associated with coral reefs. The set up of the aquarium is the result of an attempt to recreate marine life like that of the natural coral reef, often a spectacularly coloured and mixed reef that is a blend of hard, horny and soft corals from different parts of India. Unlike the normal marine aquaria, which are built to house various types of fish, the main attraction in reef tanks is the varieties of corals and other invertebrates.

Main Attractions in an Aquarium

Several attractive fishes are displayed in a marine aquarium: Some of these are:

Marine angelfishes: With their vibrant colours and deep, laterally compressed bodies, marine angelfishes

are some of the more conspicuous residents of a marine aquarium. They are distinguished from butterfly fishes by the presence of strong preopercular spines. This feature also explains the family name Pomacanthidae; from the Greek *poma* meaning "cover" and *akantha* meaning "thorn". Common angels of the aquarium include, koran angelfish *Pomacanthus semicirculatus* which has Arabic like inscriptions on its tail, emperor angelfish *P. imperator*, blue-ring angelfish *P. annularis*, Indian yellow-tail angelfish *Apolemichthys xanthurus*, and coral beauty angel *Centropyge bispinosa*.

Butterfly fishes: (Family Chaetodontidae) with their amazing array of colours and patterns are among the most varied fishes displayed in an aquarium, the majority of which live on or close to coral reefs. Most species measure

from 5-9.5" (13-24 cm) in length and have deep, flattened bodies that are frequently adorned by extended fins.

The common ones in an aquarium include red tail butterfly *Chaetodon collare*, sunburst butterfly *C. kleinii*, Indian vagabond butterfly fish *C. decussatus*, yellow head butterflyfish *C. xanthocephalus*, threadfin butterfly fish *C. auriga*, gardner's butterfly fish *C. gardiner*, Raccoon butterfly fish *C. lunula*, speckled butterfly fish *C. citrinellus*, lined butterfly fish *C. lineolatus*, Vagabond butterfly fish *C. vagabundus*, black-back butterfly fish *C. melannotus*, eight banded butterflyfish *C. octofasciatus* and blue blotch butterfly fish *C. plebeius*, Melon butterflyfish *C. trifasciatus*. Bannerfishes are also included in this group. Their common name in German is "Wimplefish" meaning "Pennantfish" or "banner fish". A wimple is



Fig 21: Seahorse

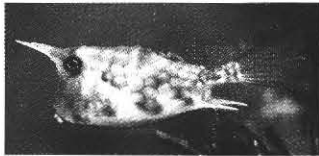


Fig 25: Cowfish



Fig 29: Gold stripe wrasse

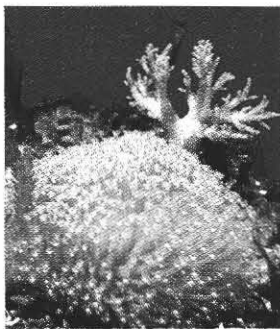


Fig 33: Live coral

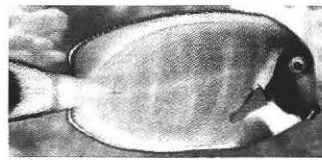


Fig 22: Powder blue tang

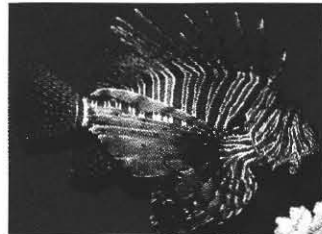


Fig 26: Red lionfish

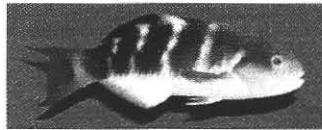


Fig 30: Jansen's wrasse



Fig 34: Gorgonid

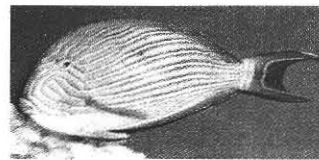


Fig 23: Clown surgeon

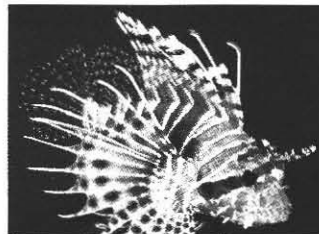


Fig 27: Zebra turkey lionfish



Fig 31: Moon wrasse



Fig 35: feather worm

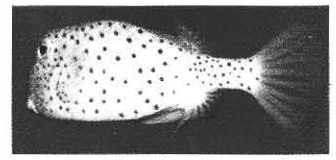


Fig 24: Boxfish

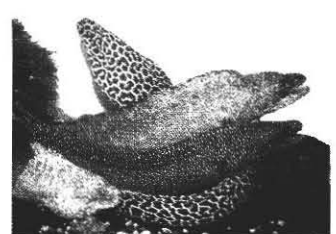


Fig 28: Moray eels

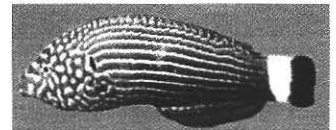


Fig 32: Lined wrasse

a type of hat with feathers of which the heightened dorsal is reminiscent. Banner fishes placed in a marine aquarium include *Heniochus acuminatus*, *H.monoceros*, *H. pleurotaenia*, *H. singularis*, and *H. varius*.

Damsels, clown fishes and sergeant majors

These belong to the family Pomacentridae and two members of this family, namely *Amphiprion* and *Premnas* are commonly called clown fishes.

So far as damselfishes are concerned, these are extremely hardy, colourful and lively. Colourful ones in the aquarium include electric blue coloured *Pomacentrus caeruleus* (Blue damsel), *P. pavo* (Sapphire damsel), *Crysiptera unimaculata* (One spot demoiselle).

Clown fishes are brightly coloured, hardy, resistant to disease, easy to breed and very territorial. They are of orange, yellow, maroon and of many other vibrant

colours. The *Finding Nemo*, a movie about the agony of a captured clownfish, caused manifold increase in the demand for this in home-aquaria. The most common clown fish and the one that looks most like Nemo, the world famous cartoon character, is the percula clown fish which is bright orange in colour with white stripes. Most damselfishes are extremely hardy, colourful and lively.

Clown fishes usually live in association with the sea anemones. Anemones are carnivorous animals that look like underwater flowers and some species have finger like tentacles. They have poisonous glands or stinging cells which help them in defence and preying. A layer of mucus on the clownfish's skin makes it immune to the fish-eating anemone's lethal sting; when alarmed they immediately take shelter among the tentacles of the anemone. In exchange for safety from predators and food scraps, the clownfish drives off intruders and preen its host, removing parasites. The peculiar colour

banding pattern and swimming movement has earned them the name of 'clownfishes'. Surprisingly, all clownfish are born male. They have the ability to change their sex, but will do so only to become the dominant females of a group.

The Sergeant Major or Pintanos are colourful damselfishes. They earn their name from its brightly striped sides, which are reminiscent of the insignia of a military Sergeant Major. *Abudefduf saxatilis*, *A. sordidus* and *A. bengalensis* are available in the Marine Aquarium.

Seahorses have elongated head and snout, flexed at right angles to the body, which resembles a horse. They feed on minute organisms and protected by thin bony plates that are derivatives of the scales found in fishes. The seahorse swims weakly in an upright position by means of rapid, humming birdlike beats of its fins; at rest it curls its thin, prehensile tail around seaweed. One peculiarity of this fish is that the female forces the eggs into a pouch on the underside of the male, where they are fertilised and the male carries the young ones in the pouch and delivers the babies when they are ready to be released into the sea.

Electric rays have a rounded pectoral disc. A pair of kidney-shaped electric organs is found at the base of the pectoral fins. They are used for defence and for feeding. They can produce electric shock of up to 220 V by which they may electrocute a large fish. They are sluggish



and slow moving, propelling themselves along with their tails, rather than using their disc-shaped bodies, as other rays do. They feed on invertebrates and small fishes. They lie in wait for prey below the sand or other substrate, using their electricity to stun and capture it.

Surgeon fishes and Tangs: They belong to the family Acanthuridae ("thorn tail"). Many of the species are brightly coloured and are popular for keeping in aquaria. The distinctive characteristics of the family are the spines, one or more on either side of the tail, which are dangerously sharp, like the ones used by surgeons and hence the name. The small mouths have a single row of teeth used for grazing on algae.

A very popular fish with hobbyist, but one that is not easy to care for, is the Powder Blue Tang *Acanthurus leucosternon*. This gorgeous fish is sky blue overall, with a yellow dorsal fin, a white anal fin, a black head and a white band behind the head. It is perhaps the most beautiful member of this genus. Other fishes of this group include lined surgeon fish *Acanthurus lineatus*, convict surgeon fish *A. triostegus*, elongate surgeon fish *A. mata* and chocolate surgeon fish *A. pyroferus*.

Box fish and Cow fish (Family: Ostraciidae)

Boxfishes *Ostracion cubicus* are comical little fishes that really do look like a box. They have a stiff cube shaped body that is covered with a hard bony armour. This provides excellent protection for these slow swimming fishes. Some types of Boxfish have "horns" on their head. For this reason, they are also known as Cowfish (*Lactaria cornutus*).

Lionfishes are the venomous marine fishes belonging to the genera *Pterois*, *Parapterois*, *Brachypterois*, *Ebosia* or *Dendrochirus*, of the family Scorpaenidae. They are notable for their extremely long and separated spines, and have a generally striped appearance. Species available in the aquarium of Vizhinjam include red lion fish *Pterois volitans*, broad barbed fire fish *P. antennata*, zebra turkey fish *Dendrochirus zebra*, black foot fire fish *Parapterois heterura* and Humpback scorpionfish *Scorpaenopsis gibbosa*.

The venom of the lionfish, delivered via an array of up to 18 needle-like dorsal fins, is purely defensive. A sting from a lionfish is extremely painful to humans and can cause nausea and breathing difficulties, but it is rarely fatal.

Eels are snake like fishes that prefer to hide in the artificial cave present in a tank at Vizhinjam, seemingly glaring out and opening and closing its jaws in apparently frightening visitors.

If scared, or fighting over food, they may snap and bite anything. There are over 100 species of moray eels. Those in the aquarium include *Gymnothorax flavimarginatus* (Yellow edged moray), *G. javanicus* (Giant moray), and *Echidna nebulosa* (Snowflake moray).

Wrasses are very beautiful and real funny fishes in the marine aquarium. The wrasses belong to the family, Labridae, many of which are brightly coloured. Wrasses come in a wide assortment of colours, shapes and sizes. Some of the beautiful members of this family in the aquarium are *Thalassoma janseni* (Jansen's wrasse), *T. lunare* (Moon wrasse), *Halichoeres zeylonicus* (Gold stripe wrasse), *H. melanochir* (Yellowtailed wrasse), *Anampses liniatus* (Lined wrasse)

There are other attractive fishes in the Vizhinjam aquarium which include, moorish idol (Xanclidae), batfishes (Ephhidae), trigger and file fishes (Ballistidae) rabbit fishes (Siganidae) squirrels (Holocentridae), porcupine fishes (Diodontidae), puffer fishes (Triodontidae) marine eels (Anguillidae), cardinal fishes (Apogonidae), groupers (Serranidae), snappers (Lutjanidae), razor fish, wrasses, hog fish, (Labridae) and parrot fishes (Scaridae), pipe fish (Syngnathidae), sucker fish (Echeididae), sweet lips (Haemulidae) and soap fishes (Serranidae).

Invertebrates

Marine invertebrates kept in the aquarium at Vizhinjam include hundreds of animals such as crabs and prawns, besides doctor shrimp and tiger shrimp, star fishes of many sizes and shapes, sea lilies, sea urchins and feather worms, apart from an assortment of soft corals, gorgonids, sponges, and associated fauna in the reef tank.

CMFRI will continue its endeavour to share its research activities and experiences with the visitors, in respect of its activities that include interactive exhibits, educational sessions, impact training to interested entrepreneurs and researchers and as part of the marine aquarium research programmes.

Acknowledgements

We extend our gratitude to Dr. G. Syda Rao, Director, CMFRI, Dr. G. Gopakumar, Head, Mariculture Division and Dr. Rani Mary George, Scientist In Charge, VRC of CMFRI for their constant encouragement and support. ☺☺☺

Coast Guard apprehends 23 Lankans for illegal fishing

The Indian Coast Guard (ICG) on 12 March 2010 apprehended Four Sri Lankan fishing boats for carrying out illegal fishing in the Indian waters off Machilipatnam Coast of A.P.

The boats were caught by the Coast Guard personnel during their routine patrolling in ship Vajra in the Indian Exclusive Economic Zone (EEZ). A total of 23 crew members were taken into custody from the apprehended boats.

According to the ICG officials of Visakhapatnam, the boats did not have valid licences or permits and their fishing gears were not as per the prescribed norms. The ICG personnel also found 1,650 kg of fish onboard the four boats. Later, the boats and the crew members were handed over to the Harbour police in Visakhapatnam.

In another operation, the ICG officials said a coast Guard aircraft during aerial surveillance on March 9,2010 sighted a few Sri Lankan boats just two miles off

Nachugunta (mouth of Krishna river) near Nagayalanka of Krishna district.

A message was immediately relayed to the Collector and Superintendent of Police of Krishna district of A.P.

As the boats were in shallow water, the Coast Guard ship could not approach them. But, timely information by the Coast Guard and close monitoring of the situation and prompt action by the district administration led to apprehension of three Sri Lankan boats along with 17 fishermen. ☺☺☺