



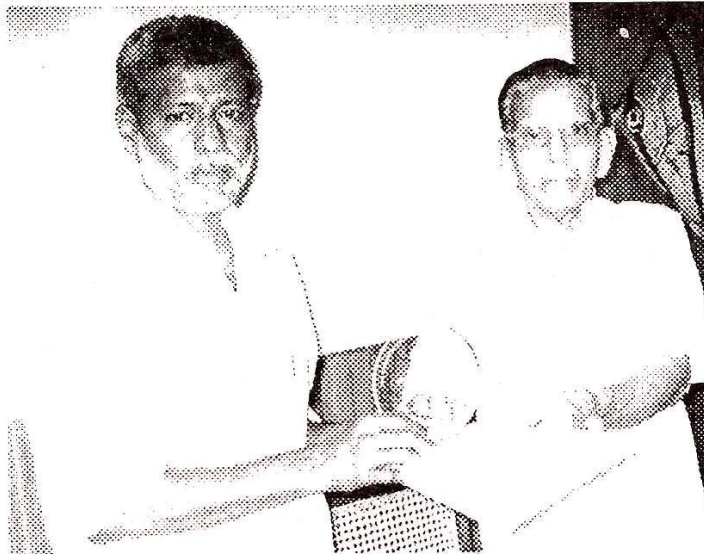
FISH & FISHERIES

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AN ORNAMENTAL FISH CULTURIST FROM KOLATHUR, CHENNAI BAGS THE FISHERIES TECHNOCRATS FORUM'S AWARD FOR 2006



K. Chidambaram Memorial Annual Award of the Fisheries Technocrats Forum for the year 2006 was ear-marked for the small-scale ornamental fish production. Mr. J. Ashok, Kolathur, Chennai (left in the above picture) was selected for the award for his commendable work

in ornamental fish production. The presentation of the award took place at the Library Hall of the Directorate of Fisheries, Chennai on 8-4-2006. Dr. V. Gopalakrishnan, Chairman (right in the picture) distributed the award. The award included a memento and a certificate.

MARINE ORNAMENTAL FISH CULTURE

Marine ornamental fishes are beautiful creatures with delightful features to observe and relax. Maintaining ornamental fish in glass aquarium tanks at homes is a historic hobby, for the known benefits of happiness and release of

tension. Most hobbyists keep only freshwater ornamental fishes in aquaria since it is simple and easy. Keeping marine ornamental fishes is difficult and that is why it is not popular now among us. But, marine ornamental fishes are

more attractive and most beautiful due to their shapes, designs and colour pattern. The cost of marine ornamental fish is also at least ten folds higher than that of fresh water and 100 times costlier than food fishes.

India, which has a long coast line of 8129 km is endowed with numerous marine ornamental fishes, more distributed in the areas of coral reefs. We have around 400 species of ornamental fishes, belonging to 175 genera coming under 50 reef families. Clowns, Damselfishes, Wrasses, Parrots, Gobies, Triggers, Cardinals, Puffers, Porcupines, Angels, Butterflies, Lions and Seahorses are fascinating groups with various biological attractions. Though the estimated standing stock of Indian marine ornamental fishes is highly encouraging, utilization of these valuable resources is not satisfactory. In fact, US \$ 30 million worth of marine ornamental fishes can be rationally collected annually and exported apart from local use.

The major countries exporting marine ornamental fishes in the world are Singapore, Indonesia, Maldives, Sri Lanka, Thailand, Taiwan, and Hong Kong. The global trade of marine ornamental fishes is around US \$ 4.5

billion in which, the contribution of tropical countries is around 70% and Singapore's share alone is around 35%. Sri Lanka is exporting greater than India. India's contribution is not reflected in the global trade, which must be given a very serious thought.

Among the global trade of marine ornamental fishes, 99% of the fishes were collected from the sea. On the contrary, 90% of the freshwater ornamental fishes were bred and cultured ones. Dedicated research is required in the breeding and mass production of marine ornamental fishes. The Central Marine Fisheries Research Institute (CMFRI), State (Coastal) Fisheries Departments and the Fisheries Colleges and Research Institutes located in coastal states may concentrate on this priority issue. Exclusive research facilities should be created by the CMFRI and time-bound projects need to be implemented for mass hatchery production. The findings also must be passed on by extension (training) at different levels so that marine ornamental fish breeding and mass production can also be a vital area for alternate livelihood of the entrepreneurs of coastal areas.

Dr. V. Sundararaj & Dr. P. Nammalwar

FISH LEATHER

Marine Biotechnology has different frontiers. Interdisciplinary approach towards utilization of marine bio-resource is one of the several frontiers of Marine Biotechnology demanding innovative research. Fish leather is an example of such a new dimension in marine biotechnology. Fish skin like other animal skins can be tanned to make leather. Fish leather is one of the most valued exotic leathers. This is called shagreen. Presently skins of Salmon, Trout, Shark, Ray and Nile perch are utilized to make leather in different parts of the world. The process is similar in steps to that of cow and goat skin tanning.

Thailand is the leader in Ray fish leather and fish leather goods production followed by Indonesia, Korea, and Taiwan etc. Uganda and Tanzania produce leather from the skin of Nile Perch and Mexico has developed expertise in tanning shark skin. Shagreen is particularly referred to Ray fish leather. Unit value of shagreen is three times higher than that

of best quality cow leather. Shagreen has some unique properties. This is scratch proof, cut proof and fire proof. The keratin pebbles present on the dorsal surface gives this skin the unique properties. Shagreen is first made by Japanese in sixteenth century. They used this material to make sword handles. During World War I, Japanese made armour with Ray fish leather. The French used shagreen for luxury furniture. The art of making shagreen was later forgotten and revived again in twentieth century by Thai people. Today a variety of leather goods like wallets, ladies handbags, boots, briefcases etc. are made out of this leather in Thailand and Korea. In Europe and USA, the ray skin is used in luxury furniture, art décor, interior decoration and in antique restoration.

Millennium Exports, a company in Chennai, was the first to develop Ray fish leather in India. The author of this article is instrumental in the development of the tanning process for Millennium Exports. Indian marine bio-wealth

is very rich and diverse. A variety of fishes are available, whose skins can be tanned to make good quality leather. Central Institute of Leather Technology, Chennai too has some beginning in this direction. It is hoped that fish leather industry will grow in India and our country will

make a mark on the exotic leather map of the world.

Dr. Kaleemur Rahman

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DEMAND FOR CAVIAR

Caviar – eggs from sturgeon fetches the fish farmers US \$ 200 an ounce. Hence, Beluga sturgeon farming has become an industry. In 18th century, it is not so valuable in US since sturgeon was available in plenty. However, over-fishing destroyed the industry. Farmers are now reviving the industry by culturing local species. U.S. aquaculture is producing 4.5 tonnes of caviar annually from white sturgeon, but it fetches only US \$ 30 an ounce and still industry is worth US \$ 5 million a year. Director of aquaculture of University of Hawaii is hoping to culture Beluga to market caviar within a decade. Similarly, a leading caviar merchant company is farming beluga in its 690 hectare fish farm just outside Pierson, Florida, USA. This

farming activity has picked up due to recent ruling of US Fish and Wild Life service permitting aquaculture facilities to raise and sell beluga meat and eggs. The company trucked 5 numbers of 22kg beluga from Russia to Germany and from there by flight to USA. After raising large number of brooders from these 5 numbers, the company hopes to harvests to tonnes of caviar annually. however, it is not an industry without controversy. .

Environmentalists are vary of aquaculture in general because of pollution from fish wastes and genetic threat to native species. They fear that beluga farming will only feed caviar demand and further endanger stocks in the Caspian Sea, a source of 90% of world's supply.

P. Mohanakrishnan

THE DEAD CORAL REEFS - IS THAT AN ECOSYSTEM ?

The Convention on Biological Diversity (CBD) ratified by more than 175 countries defines an "ecosystem" as a "dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit".

The coral reefs in the world oceans including those in India have drawn the attention of the scientific community by their fascinating growth forms as well as their interesting ecological perspectives. In India, the coral reef distribution is restricted to Andaman and Nicobar islands, Gulf of Mannar Marine Biosphere Reserve (GoMMBR), Lakshadweep islands and Gulf of Katchchh. Among these, interesting ecological studies have been carried out in GoMMBR.

Coral reefs act as a barrier to the island as well as to those nearby areas in the mainland. The GoMMBR comprises of 21 islands, of which, 19 are visibly seen, while the rest two are completely submerged due to large scale mining of corals.

Most of the ecological studies have been concentrated on the coral reefs and their associates. The coral reef has given a status of an ecosystem and the corals are accepted to be the

prime habitat of the ecosystem. Both the live and dead corals are having a specific role in the ecosystem. Comparatively, the dead corals have more number of associated living organisms than the live corals, thus the biodiversity to be greater in the dead corals.

The live coral has restricted group of organisms. The associated organisms and their number are positively correlated with the extent of mucus secretion. The coral mucus considered as their specific protection to avoid the association of foreign substances on them. In this aspect, the live coral is not suitable support for many organisms to be associated. However, the dead coral acts as a suitable substratum for many organisms to grow or to associate, thus the biodiversity on the dead coral is being more.

According to the definition of the ecosystem, all the living and non-living interacting within the dead corals as a functional unit. Hence, based on these facts, it may be relevant to consider the dead corals as a separate ecosystem. In a single colony of dead corals, more than 15 groups of organisms were recorded. The major groups are crabs, shrimps, lobsters, stomatopods, polychaete worms, sponges, bivalves, gastropods, sea cucumbers,

brittle stars, algae and seaweeds. Their inter-specific ecology and their spatial preference are interesting. The space between the branches of dead corals comfort the associated cryptic fauna biologically for better shelter, growth and reproduction. Studies have been carried on the

ecology of the live coral associated organisms. Similarly, basic studies ought to be encouraged in the systematic and ecology of the dead coral associated organisms, which will throw more light on the significance and dynamic role of the dead corals..

A. GOKUL

COASTAL RESOURCES OF TAMIL NADU

Coastal environment plays a vital role in nation's economy by virtue of the resources, productive habitats and rich biodiversity. India has a coastline of 8,129 kms. The coastline of Tamil Nadu has a length of about 1076 kms constituting 13% of the total coastal length of India and stretches along the Bay of Bengal, Indian Ocean and Arabian Sea.

The Tamil Nadu coast is straight and narrow without much indentations except at Vedaranyam. Fringing and patch reefs are present near Rameswaram and Gulf of Mannar, Pitchavaram, Vedaranyam and Point Calimere have well developed mangrove forests. In Tamil Nadu, 46 rivers drain into Bay of Bengal and Gulf of Mannar, forming several estuaries. The other land forms of the Tamil Nadu coast are rock outcrops of Kanyakumari, coast. Deposition is observed at Point Calimere, Nagapattinam, South Chennai, etc., while erosion is reported at Ovari Paravarnattam, Mammallapuram and North Chennai near Ennore. Rich deposits of heavy minerals are available in Muttam-Manavalakuruchi area of Kanyakumari coast.

Mangroves are spread over 35 sq. km in coastal areas of Chidambaram, Cuddalore, Nagapattinam, Ramanathapuram and Thanjavur (Muthupet). In Cuddalore, mangroves are found in Pitchavaram and located 225 km south of Chennai. Pitchavaram mangroves are bathed in the Vellar-Coleroon estuarine complex and spread to an area of 1,100 ha. The Pitchavaram area consists of 51 islets (small and large), which are traversed by numerous creeks, gullies, channels and canals. Pitchavaram mangroves possess 13 species of true mangrove plants.

Tamil Nadu is endowed with one of the largest and richest fisheries in India. The State has 1.9 lakh sq. km of EEZ, besides 21 coral islands in the Gulf of Mannar, with rich habitats of corals, coastal lagoons (Lake Pulicat and

Muthupet swamp) and estuaries. These natural habitats harbour a variety of finfish, shellfish and aquatic plants. The unique topography of Tamil Nadu with the Gulf of Mannar and Kanyakumari in the south, and Lake Pulicat, which is the second largest lagoon in the country, in the north, has supported a large number of species of commercial importance. They include spiny lobsters, crabs, penaeid shrimps, sharks, rays, coral fishes, sea bass, groupers, sea breams, mullets, gastropods (abalones, chanks) bivalves (clams, cockles, pearl oysters), etc. Nearly one-third of the seaweed resources of the Indian Ocean are found along the coast of Tamil Nadu, particularly in the Gulf of Mannar.

The coastline has mixture of land uses. It has urban areas, ports, industries and several rural settlements involved in agricultural and fisheries. Apart from the Chennai Corporation, the coastal area consists of urban area such as 4 Municipalities and 20 special Panchayats/Townships. The coast also has 43 rural settlements within the coastal area including 30 village panchayats and 13 villages. Coastal fisheries is a major activity and there are number of fishing harbours. Agriculture and plantations of casuarina and *Prosopis* are quite common along the coast. There are two major ports along the coast viz., Chennai and Thoothukudi, two medium ports at Cuddalore and Nagapattinam and six minor ports at Rameswaram Pamban, Kilakarai, Valinokkam, Colachel and Kanyakumari. While Ports and industries add economic dimension to the coast, the Gulf of Mannar Biosphere Reserve, Point Calimere Wildlife Sanctuary, Mangrove Forests at Pitchavaram and Muthupet and coral reefs at Tuticorin add aesthetic and environmental dimension to the coast.

K. P. RAGHURAM