FISH & FISHERIES

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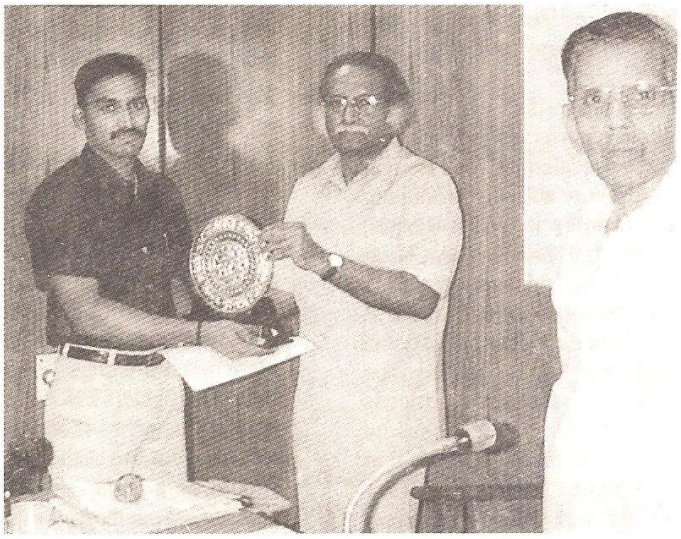
PRESENTATION OF K. CHIDAMBARAM MEMORIAL ANNUAL AWARD-2004



Dr. V. Egambaram (Left) receiving the award from Dr. Jayapaul Azariah (Middle). Dr. V. Gopalakrishnan, Chairman (Right) looks on.

The presentation of K. Chidambaram Memorial Annual Award of the Fisheries Technocrats Forum for the year 2004 took place at the Library Hall of the Directorate of Fisheries, Chennai on 8-5-2004. The chief guest was Dr. Jayapaul Azariah, Rtd. Professor and Head of Department of Zoology, University of Madras. In his welcome address, Dr. V. Gopalakrishnan, Chairman of the Forum out-lined the purpose of award to encourage and recognize the meticulous service rendered by personnel in different discipline of fisheries. This year was ear-marked for best student who could have made good contribution in the subject related to fisheries. He announced that the best student award went to Dr. E. Ekambaram, who did his Doctoral work at Loyala College, Chennai on effect of pollution and chromosomal studies on penaeid shrimps of Ennore estuary and inshore seas of Chennai and narrated the pioneering findings of Dr. Ekambaram.

After presenting the award which included a citation and a memento to Dr. E. Ekambaram, Dr. Jayapaul Azariah appreciated the winner's new line of approach for research, which will go in long way to solve some of important problems facing capture and culture fisheries. Further, Dr. Azariah stated that the utilization of sea and its environ for the benefit of growing population of India and elsewhere has gone up tremendously and hence, the future studies should be aimed to tackle some of the basic and vital problems faced in the food production from the sea. After receiving Award, Dr. E. Ekambaram thanked the Chairman and members of the Forum for selecting him for the award. He narrated the problems he faced while doing his Ph.D. work and recalled the valuable guidance received from his doctoral guide Dr. D. Sudarsanam.

Dr. G. Jegatheesan, Vice-Chairman proposed a vote of thanks. He thanked Dr. Jayapaul Azariah, Rtd. Professor for kind enough to distribute the award, the award winner for accepting it, and the members of the Forum for attending and making the function successful.

CULTURE OF AFRICAN CATFISH *CLARIUS GARIEPINUS* IN INDIA

The African catfish *Clarius gariepinus*, also known as *C. lazera*, has been introduced into freshwater ponds in some Indian states. The fish grows very fast in ponds and is an omnivore. Sexual maturity of the fish has been observed in 10 months. The fish is known to tolerate different conditions in all types of freshwaters. During early 1990s the fish was being cultured extensively in Bangladesh and the fish farmers were reported to have obtained good returns. However, the species entered natural waters and was reported to have adversely affected natural fish populations. Hence, the Government of India had banned the import of the fish into India. However, many fish farmers especially in the villages along the border of Bangladesh, apparently got the seed of the fish without permission and started culturing them in ponds.

A recent survey conducted by the Central Inland Fisheries Research Institute is reported to indicate that culture of the fish is very much prevalent in West Bengal and a good number of hatcheries are actively producing and supplying the seed for farmers in WEst Bengal, Assam, Nagaland, Andhra Pradesh, Bihar, Haryana, Uttar Pradesh, Punjab and Delhi. Local production rate is reported to be up to 70 tonnes/ha/4 months. Live fish are taken by trucks to Assam, Nagaland, Delhi, Haryana and Punjab. The cost of fish production is reported to be about Rs. 23 per kg, while the whole sale selling price is Rs. 40 per kg. This means nearly Rs. 12/- lakhs per ha net profit in 4 months. Another interesting news is that the annual turn over for some farmers is more than Rs. 1 crore. It is gratifying to note that 'Mass awareness campaigns' have been taken up to make the public understand the adverse effects that could be caused to ecological conditions and natural fish populations.

This was taken up as the topic for special discussion during the monthly meeting of the Fisheries Technocrats Forum, Chennai held on February 14, 2004. The following issues were identified on the basis of detailed deliberations.

1. This is an another instance of non-implementation of government laws due to various reasons. Hence, there is an urgent need for the authorities concerned to take suitable stringent actions and implement the laws enacted to protect the indigenous fish germ plasm of the country.
2. Other similar cases of unlawful introduction of undesirable fish and fish seed into the country also need careful consideration.
3. The indigenous catfish *Clarius batrachus* ("Magur") is popular, has medicinal values and is priced at more Rs. 170 per kg. It is feared in some circles that culture of African catfish will seriously affect the culture of "Magur"
4. The important issue for consideration is that African catfish is being cultured actively in many states, the economic condition of the concerned farmers has improved appreciably and the fish has already entered many natural waters. The species has been caught in far away rivers in Kerala also. So, many members of the Fisheries Technocrats Forum opined that intensive culture of the species in controlled systems should be a good option. The farmers should be educated about the importance of not allowing escape of the cultured African catfish and seed into neighbouring canals, rivers etc.

CAPTIVE BREEDING AND LARVAL REARING OF THE SAND LOBSTER *THENUS ORIENTALIS* BY CMFRI

The members of the Fisheries Technocrats Forum, Chennai noted with great interest and appreciation of the recently reported breakthrough in captive broodstock of the lobster *Thenus orientalis*, achieved by the team of scientist and technical personnel led by Mr. Joe K. Kizhakudan of Madras Research Centre of Central marine Fisheries Research Institute. This species of lobster lives on muddy or sandy bottoms in oceanic waters up to 60 metres depth and buries itself during the day and is active at night. It has several local names like bay lobster, bug, shovelnose lobster, slipper lobster, squat lobster, mud bug, flathead lobster etc. Reports from Marine Products Export Development Authority, Cochin indicate that the species is prevalent in West and Southeast coasts of India throughout the year, particularly during December and January. The species has good export value, the current annual quantity exported from India being 130 tonnes. In Australia, the species is found throughout Queensland coastal waters, northern New South Wales and off the northern coast. Recreational fisheries rules in Queensland indicate that this is a regulated species. A trypsin, which is a glycoprotein, has been isolated from the digestive gland of the sand lobster. The species has a short larval phase and this of significance in further researches.

On behalf of the members of the Fisheries Technocrats Forum, Dr. V. Gopalakrishnan, Chairman presented to Dr. Joe K. Kizhakudan individual letters of appreciation to all members of his team during the Thirteenth Annual General Body Meeting of the Forum held on 8-5-2004.

ANTI-DUMPING OF SHRIMPS

A recent news paper report indicates that export of shrimps from India is now very meagre because of the anti-dumping petition filed by the Southern Shrimp Alliance, which is a group of shrimp fishermen from eight states in the United States of America. The petition has been submitted to the U.S. Department of Commerce and U.S. International Trade Commission stating that anti-dumping duties between 20 and 250 % be imposed on imports from 6 countries, namely, Brazil, China, Ecuador, India, Thailand and Vietnam. Some reports state that such action could increase the price of shrimps over 260 %. The rate of duties asked for shrimps from India is 80-110 %.

Members of the Fisheries Technocrats Forum discussed in detail the various issues related to the petition. At the outset itself, it was pointed out that the discussions will be mostly confirmed to technical issues and not legal and political concerns.

In the U.S.A., shrimp fishing is a capital intensive and in India cost of cultured shrimp is comparatively very low. Current prices in Chennai are approximately: 100 counts Rs. 100 per kg, farm gate prices for export 20-30 counts Rs 250-300 per kg and 30-40 counts Rs. 200-250 per kg. It is clear that with increased aquaculture activities, the production of shrimps has increased considerably, with greatly decreased cost of production. In the U.S.A., 20-30 counts shrimps used to cost about $ 5 per lb.

The Global Aquaculture Alliance is expected to support the case of cultured shrimps. The petition indicates that some of the six countries involved are exporting shrimps and shrimp products at prices lower than local market rates. Some others are alleged to be exporting the items at prices lower than cost. Some countries, including India, are wrongly to be dumping products at different prices to different countries.

According to Marine Export Products Development Authority reports, shrimp is a critical component in Indian seafood exports and is 67 % in value of the $ 1,425 million exports and 29 % of the total exports of 4,67,297 tonnes. A total of 61,703 tonnes of seafood are exported to USA from India, valued at $ 125 million. These figures are estimated for 2003 and form about 8.36 % of the shrimp market in the USA. These exports have shown a steady increase during the past few years and India became the fourth largest shrimp exporter. And more than 65 % of these are from privately owned shrimp farms.

Certain source indicates that the large volume of *Penaeus vannamei* exported by China and South East Asian countries is the root cause for anti-dumping petition. Between 2002 and 2003, shrimp prices in the USA are reported to have dropped by about 50 %.

Other related problems discussed included shrimp species preference in the USA, possible introduction of *Penaeus vannamei* in India and diversion of shrimp produced for export to local markets, especially West Bengal where the demand and price for shrimp are relatively higher. Many members of the Fisheries Technocrats Forum agreed that a system of 'rotation of crops' might be adopted in coastal aquaculture systems, which will prevent dumping. It was also suggested that greater attention should be given to the culture and production of scampi (freshwater prawn – *Macrobrachium rosenbergii*) in the country.

The meeting noted that the US International Trade Commission has made a preliminary finding in February 2004 and the next determination will be in on 17th October 2004. The Seafood producers and exporters are fighting the case and further developments will be watched anxiously.

SEMINAR ON SIR ARTHUR COTTON'S VISION ON RIVER WATER MANAGEMENT - FOR FOOD SECURITY

The Sastriya Vignana Samithi (SVS) and Society for Promotion of Integrated Coastal and Arid Areas Management (SPICAAM), Kakinada, Andhra Pradesh organized 1-day Seminar on "Sir Arthur Cotton's Vision on River Water Management – For Food Security" at Kakinada on 15-5-2004. One of the life members of the Fisheries Technocrats Forum, Dr. T. Rajyalaksmi, President, SPICAAM has invited Mr. K.N. Krishnamurthi and M. Kathirvel, members of the Forum to present a paper on the possible effects of linking of national rivers on estuarine fisheries of India. The paper presented in the Seminar dealt with the present status of estuarine fisheries with special reference to capture and culture fisheries. The presentation included the possible positive and negative effects of linking of national rivers on estuarine fisheries which are given below.

***Positive effects*:**

A) Severe flooding will be controlled by diverting the excess water from the major rivers to minor rivers, thereby, increasing the chances of greater recruitment of marine fish/shrimp/crab/mollusc into estuaries along

the west and north-east coasts and the resultant higher fish production.

B) Bar mouth of estuaries in south-east coast will remain open throughout the year, resulting year-round recruitment, greater fish production and higher income for estuarine fishermen.

C) Increased production can be expected in the traditional fish/shrimp culture fields due to greater recruitment of larval/postlarval stages of fish/shrimp.

D) The production of those species of fish/shrimp/crab which tolerate wide range of salinities (0-35 ppt) will be increased many-fold.

E) More areas will be brought under selective stocking of shrimps.

F) Bird sanctuaries in the estuaries (for example, Lake Pulicat Bird sanctuary) will get copious water, thereby, assuring the regular and seasonal visit of birds from other continents

Negative effects:

A) Diversion of water may flood some of the Protected areas and National parks.

B) Many dams/bunds/barrage may be constructed in the upper reaches of estuaries either for diversion of freshwater for irrigation or to prevent intrusion of saline water, which may affect the ecology and distributional pattern of marine fish/shrimp/mollusc within the estuary.

C) Due to the continuous flow of water into the sea, the salinity near the bar mouth will also be reduced drastically which may affect the fishery of those fish/shrimp/crab/mollusc occupy near the mouth area and restrict their entry into the estuaries.

D) Seasonal salt production will be affected due to inundation of the saltpan areas in estuaries.

E) Some of the low-lying paddy fields adjoining the estuaries will be inundated, which may likely to make them unsuitable for cultivation.

PREDATION ON SNAKES BY BRACHYURAN CRABS

Earlier it was reported that the mud or mangrove crab *Scylla serrata* preyed on sea snakes as one of the food items. Out of 114 stomach contents of *Scylla serrata* from Phuket Island in Thailand, 4 contained the remains of sea snakes. This was only report on brachyuran crab feeding on snakes. Now a report has come from the Caribbean Island of Tobogo pertaining to the predation on snakes by a freshwater crab *Eudaniela garmani*. *Eudalniela garmani*, known as "manicou" crab is an amphibious freshwater land crab, attains a maximum size of 110 mm in carapace width and 250 grams in weight and inhabits in the areas around mountain streams. The "manicou" crab is a predator of both aquatic and terrestrial animals. The aquatic preys include other crabs, shrimps and prawns, while the terrestrial diets consist of insects, amphibians and reptiles (snakes). The "manicou" crabs hunt the prey mostly during the night. The recent field observations indicated that six species of snakes were preyed by "manicou" crabs measuring 42 to 96 mm in carapace length. Six species of snakes are: a) slug-eating snake *Sibon nebulata nebulata* with a length of 200 mm, b) brown snake *Pseudobva neuwiedii* (540 mm), c) macheti snake *Chironius carinatus*, d) three-lined snake *Atractus trilineatus*, e) doctor snake *Liophis melanotus nesos* (380 mm) and f) vine snake *Oxybelis aeneus* (620 mm).

It was reported that a "manicou" crab does not pursue a snake, but adopts a "sit and wait" posture till a snake comes within its striking distance. It took 2 hours to consume a snake measuring 200 mm in length by a single "manicou" crab.

M. KATHIRVEL

RECENT PUBLICATIONS FROM THE FISHERIES TECHNOCRATS FORUM, CHENNAI

The Fisheries Technocrats forum, Chennai has brought out the following three technical bulletins:

1. A bibliography of fishery and biology of Lake Pulicat.
2. A bibliography of Indian Sea cucumber.
3. A bibliography of Indian lobsters.

The free copy of the above mentioned publication can be obtained in an electronic form from the following e-mail address.

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