

AQUACULTURE SCENE

Aqua Aquaria India 2011 to be held at Chennai from 6-8, February 2011

India's contribution to world's aquaculture production is significant and the country now ranks second in world aquaculture production, next to China. During the year 2009-10 the exports of marine products from the country stood at over 678436 MT, with a value of US\$ 2132.84 million. Shrimp continued to be the mainstay of seafood exports, contributing more than 41.40% in terms of value. The MPEDA has been instrumental in promoting coastal aquaculture in India. With saturation in the sea catch, aquaculture is the need of the hour for the fisheries sector. MPEDA has a number of projects under RGCA for development of aquaculture and a number of schemes under MPEDA for providing assistance to farmers. The aquaculture event plays a big role in motivating the farmers to perform better. It also provides forum for dissemination of the latest technologies to the farmers.

The export of ornamental fish is minuscule from India (with a contribution of less than 0.3% in the international trade). However, there is a huge potential. Most of India's ornamental fish production is used for

domestic sales. With the series of development plans initiated by MPEDA with the Commerce Ministry funding as well as funding from NFDB, MPEDA is hoping to improve the export performance of ornamental fish.

In order to motivate people to do better aquaculture and aquariculture (culture of ornamental fishes) practices and to educate the entrepreneurs in the latest trends and developments taking place in the world over in these sectors and to invite interested overseas entrepreneurs to invest in India, MPEDA is regularly organizing INDAQUA, an aquaculture event every alternate year and INDAQUARIA, an ornamental fish show every year. As both the events have to be organized this year, both are being organized together under a common name "AQUA AQUARIA INDIA" from 6th to 8th February 2011 at Chennai Trade Centre, Chennai.

The event this year is being redefined to be of a truly international scale and quality. It is proposed to give the show a different hue and focus from the earlier editions. The show shall project the recent developments in the aquaculture sector as well as in

the International market scenario. Black Tiger shrimp is the theme of the event since the strength of Indian seafood trade is Black Tiger Shrimp. Green Certification is the theme in the Ornamental fish sector. The three day event is intended to attract a large number of delegates and exhibitors to ensure the reach of the objectives.

The event is envisioned to effectively showcase the infinite promise and potential of the Indian Aquaculture & Ornamental Fish industries under one roof. The three day event comprises of an exhibition which will showcase aquaculture and aquariculture activities and related accessories and technical sessions by international experts in the subject matters. It is expected that 200 exhibitors and more than 1000 delegates from India and abroad will participate in the event. The Exhibition will be an opportunity to showcase the Fisheries and Aquaculture developments in India thereby bringing greater trade benefits to Indian industry.

Details of some of the prominent speakers and their subjects for talks during the technical sessions are given below:

SUBJECTS	IDENTIFIED SPEAKERS
SPF L. Vannamei shrimp brood-stock development and bio-security principles for sustainable production	Mr. Steve Arce, USA
Breeding and farming practice of L. Vannamei in India	Dr. Mohan Das, India
Status challenges and perspectives of the shrimp industry	Dr. Darryl E. Jory, USA
Androgenic glands and monosex culture: Early sex reversal projects and recent discoveries of the insulin like AG Hormone and molecular sex markers	Dr. Amir Sagi, Israel
Mud crab culture in mangroves - The Philippine experience	Dr. Emilia Qunitio, Philippines
Potential for cluster organic shrimp farming in India	Dr. Jens Kahle, Germany
Aquaculture feed production	Dr. Vijaya Anand, India

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SUBJECTS	IDENTIFIED SPEAKERS
Green Certification of Ornamental Fishes -an initiative in India	Dr. A. Ramachandran, CUSAT, Kochi
An update on the Global Ornamental Fish Trade regulations & import requirements of major markets	Dr. Alex Ploeg, OFI
EU market for Ornamental Fish - Demand, trends and quality requirements	Mr. Joseph Itzkovich, Israel
Collection and breeding of marine crustaceans and sea anemones	Dr. Nuno Simoes, Mexico
Bio-security and health management in ornamental Aquatic Industry	Mr. Shane Willis, Australia
Ornamental fish health in transit - latest and best packing methods for shippers	Dr. Alex Ploeg, OFI
Re-circulating system for ornamental fish production	Dr. Krishnakumar, Chennai

During the event a Souvenir is proposed to be brought out comprising articles on finfish breeding and farming, monosex scampi production, marketing of cultured tiger shrimp, experiences in mud crab farming in Philippines and production of finfish feed for cage culture, rules and regulations for registration of coastal aqua farms in the country and breeding and farming of L. Vannamei.

MPEDA solicit the co-operation and active participation of the aquaculture and aquariculture sector in India in this mega event thereby taking the industry in to further strides. Those who are engaged in the field of aquaculture/aquariculture/export industry like farmers/exporters/feed manufacturers/distributors/accessory manufacturers/suppliers etc., can

participate in the show either as an exhibitor or as a delegate. Stall and

delegate registration details are as given below.

STALL REGISTRATION DETAILS

Type of Stalls	Minimum area of Stalls*	Rate per sq.m		Total amount	
₹	\$	₹	\$	\$	\$
Aquaculture Section	9 sq.m	2000	75	18000	675
Aquarium Section	6 sq.m	-do-	-do-	12000	450

* Larger area can be booked by choosing the multiples of the basic unit which will be charged accordingly.

DELEGATE REGISTRATION DETAILS

	Rate
Farmer Delegate*	₹ 1000
Other Indian Delegates	₹ 2000
Overseas Delegate	\$ 50

*The farmer delegate registration is made only on recommendation by the Assistant/Deputy Director, MPEDA Field Offices or by State Fisheries Dept. Officials not below the rank of Inspector of Fisheries or by the CEO/Officials of NaCSA/NETFISH/RGCA.

For more details contact:

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Glimpses into Earlier Events:**Indaqua 2009 held at Bhubaneswar**

IND AQUA 2009 was organized at the Chanakya hall of Hotel Swosti Plaza, Bhubaneswar from 21-23 January 2009. Shri Naveen Patnaik, Hon'ble Chief Minister, Government of Orissa inaugurated the function by lighting the traditional lamp. Shri Jairam Ramesh, Hon'ble Minister of State for Commerce & Industry, Govt. of India presided over the function. Shri G. Mohan Kumar IAS, Chairman MPEDA offered introductory remarks and welcomed the gathering. Shri Golak Bihari Naik, Hon'ble Minister for Fisheries, ARD, Textiles & Handlooms, Government of Orissa, Shri Nurjamal Sarkar, Hon'ble Minister for Irrigation, Soil Conservation and Fisheries, Govt. of Assam, Dr. (Prof) Prasanna Kumar Patasani, MP, Shri Tatagatha Sathpathy, MP, Dr. P. Krishnaiah, Chief Executive Officer, NFDB, Hyderabad and Shri A.J. Tharakan, Vice Chairman, MPEDA felicitated the occasion.

A Souvenir was brought out in commemoration of INDAQUA 2009 which was released by Shri Naveen Patnaik, Hon'ble Chief Minister of Orissa.

Farmers honoured: The farmers of Kuttanad Organic Scampi farming group, Alappuzha, the first to obtain the certificate of registration from the Naturland, an association for organic aquaculture for conducting organic scampi farming in India was honoured in the function.

Export Awards distributed: MPEDA Export Awards for outstanding export performance in marine products was instituted during 1990. The awards were given to top manufacturer exporters of marine products under various categories.

Exhibitors: There were 44 Exhibitors comprising of aqua farmers, entrepreneurs, farmers associations, aqua clubs and societies, aquaculture producers, technicians and technocrats from the hatcheries, farms, feed mills, processing plants, quality control laboratories and input suppliers, agents and service sectors exhibiting aquaculture accessories, ancillary equipments, machinery products, inputs, ingredients and additives.

Technical Sessions: The technical sessions conducted on 21st and 22nd

January 2009 at Hotel Swosti Plaza was attended by 388 delegates of which 296 were farmers. The first Technical session was chaired by Shri G. Mohan Kumar IAS, Chairman MPEDA and Shri V. Venkatesan, former Director, MPEDA was the Panelist for the session. In the second technical session Shri B. Vishnu Bhat, Director, MPEDA was on the Chair with Dr. M C Nandeesh as the Panelist. The third session in the afternoon of 22nd January 2009, was chaired by Shri Kuruvilla Thomas, Director (M) and Dr. C. Vasudevappa, Senior Executive Director, NFDB.

An interactive translation of the presentations were provided in vernacular languages such as Oriya, Bengali, Telegu and Hindi to the delegates. The translated version of the presentation in the said languages also was arranged and distributed. The farmers/entrepreneur delegates used the facility well as it was noted by active discussion held after each presentation. The cultural programme conducted in the after noon of 21st and 22nd January added colour to the show.

Indaquaria 2010 held at Chennai

MPEDA in association with Ornamental Fish International (OFI) has organised INDAQUARIA-2010 from 8th to 10th January 2010 at YMCA-Vepery, Chennai, Tamil Nadu. Most of the ornamental fish breeders/farmers, exporters, researchers, students and aquarium hobbyists in India participated in the technical sessions as well as the exhibition. Experts and importers from Israel,

Italy, The Netherlands, Belgium and Indonesia attended the event.

Prof. K.V. Thomas, Hon'ble Minister of State for Agriculture, Consumer Affairs, Food and Public Distribution inaugurated the event on 8th January 2010. Shri K.S. Sripathi IAS, Chief Secretary, Govt. of Tamil Nadu presided over the function and Shri K.P.P. Samy, Hon'ble Minister for Fisheries, Govt. of Tamil Nadu

delivered the key note address. Ms. Leena Nair IAS Chairman, MPEDA welcomed the gathering. Shri Muthukumaraswamy IAS, Secretary, Dept. of Animal Husbandry, Dairying and Fisheries, Govt. of Tamil Nadu, Dr. Alex Ploeg, OFI, The Netherlands, and Dr. A.G. Ponniah, Director, CIBA, Chennai felicitated the function. Shri Kuruvilla Thomas IAS, Director (Marketing), MPEDA

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proposed vote of thanks. During the inaugural function, the 4 OFI books reprinted in India by MPEDA were released by Shri K.S. Sripathi, Chief Secretary, Govt. of Tamil Nadu by handing over the copies to Shri K.P.P. Samy, Hon'ble Minister for Fisheries, Tamil Nadu. The exhibition of ornamental fishes and accessories was also inaugurated by Prof. K.V. Thomas, Hon'ble Minister of State for Agriculture, Consumer affairs, Food and Public Distribution.

The INDAQARIA 2010 was a three-day event comprising of technical sessions conducted by international ornamental fish experts, business sessions with reputed overseas importers and experts, buyer-seller meet and exhibition of fresh water and marine ornamental fishes

as well as the aquarium related accessories. More than 400 delegates from Kerala, Karnataka, Tamil Nadu, West Bengal, Maharashtra, Goa, Andhra Pradesh etc., participated in the technical sessions and there was an overseas delegate from Srilanka. 50 stalls were put up for exhibition by entrepreneurs from all segments of the ornamental fish sector as well as by Central and State Government institutions such as Central Institute of Fisheries Education (ICAR), Tamil Nadu Fisheries Development Corporation (TNFDC) etc. Simultaneous translations of the technical sessions in to 5 languages (Tamil, Kannada, Bengali, Hindi and Malayalam) were also arranged for Indaquaria 2010. Competitions were conducted in 3 categories, viz., a) Best

Stall b) Best Aquarium c) Best Fish and the prizes were distributed to the winners during the inaugural function by Prof. K.V. Thomas.

The event provided an exciting platform for evolving joint ventures and business tie-ups amongst those who are involved in this business. 11 experts including 8 from abroad and 3 from India presented papers on various technical aspects such as collection, breeding and management of ornamental fishes, ornamental fish culture practices, global trends, issues and prospects in marketing of ornamental fish etc. MPEDA had also arranged a meeting of the ornamental fish farmers and traders who had come from all over India for Indaquaria 2010 to form a national level federation for the ornamental fish traders.



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Export oriented aquaculture – Bracing for Bigger Strides

Shri M. Viswakumar, Asst. Director (Aq.), MPEDA, Kochi

By the turn of the new Millennium, the global seafood trade was worth about US \$ 50 billion and it was the second largest commodity after petroleum in the international trade. The closing decades of the 20th century witnessed the contribution of aquatic food products to annual protein supply gradually increasing to 16.6%, indicating a steady increase of aquatic food in human diet. According the latest FAO statistics the seafood export trade has exceeded US \$ 100 billion, registering a growth of about 100% in less than 10 years time, which augurs well for the global fishery and aquaculture. With increasing health consciousness and about the positive effects of fish on human health the demand for aquatic foods is expected to increase many folds in the decades to come. There are several forecasts of demand for aquatic foods, one or two decades down the line. According to one forecast, the world demand for fish and fishery products would be 183 million tonnes by 2030. As the global capture fishery production is stagnating at around 90 million tonnes, aquaculture sector is looked upon as the only alternative source to bridge the widening gap in demand and supply in the 21st Century.

Aquaculture continues to be the fastest growing animal food-producing sector with an average annual growth rate of about 7 per cent per annum, the growth of which outpaces the population growth. World Aquaculture is heavily dominated by the Asia-Pacific Region, which accounts for 89 % of production in terms of quantity and 77 % in terms of value. The Asia-Pacific region accounts for 98 % of carp, 95 % Oyster production and 88 % of

shrimps and prawns. Over the last decade some Asian countries have been making stupendous progress in their fisheries exports (Fig.1). Chinese exports have more than doubled in comparison to its exports of about US \$ 4 Billion during the year 2000 and reached over US \$ 10billion in 2008. Thai fisheries exports, which was hovering at about US \$ 4 billion since the mid nineties till 2004 is also showing signs of exponential growth since 2005. Vietnam is the other Asian

country exhibiting exponential trend in growth of seafood exports, fast catching up with Thailand, with its exports doubling in six years time and stands at US \$ 4.5 in 2008.

Growth in aquaculture production has played a very significant role in achieving these exponential growths of exports of these countries.

Fisheries production of India

With a production of 7.58 Million tons of fish, India has become the

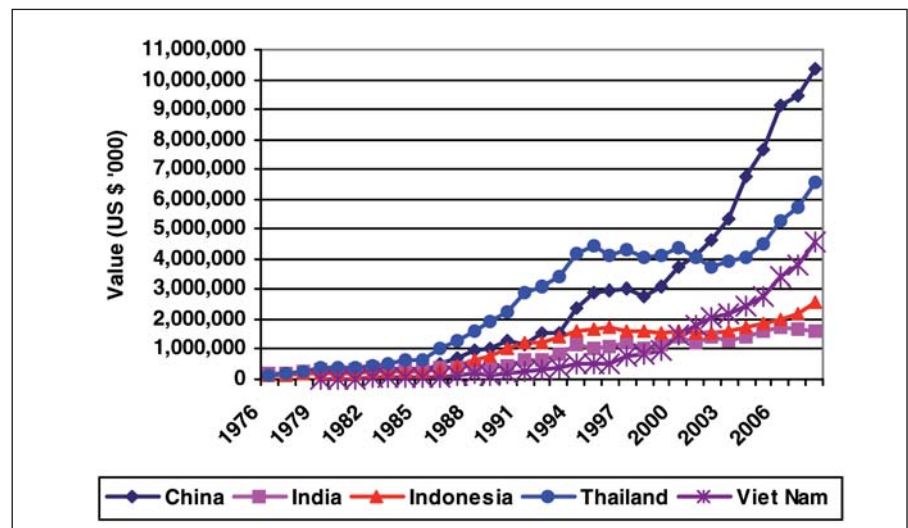


Fig. 1. Fish exports of selected Asian countries

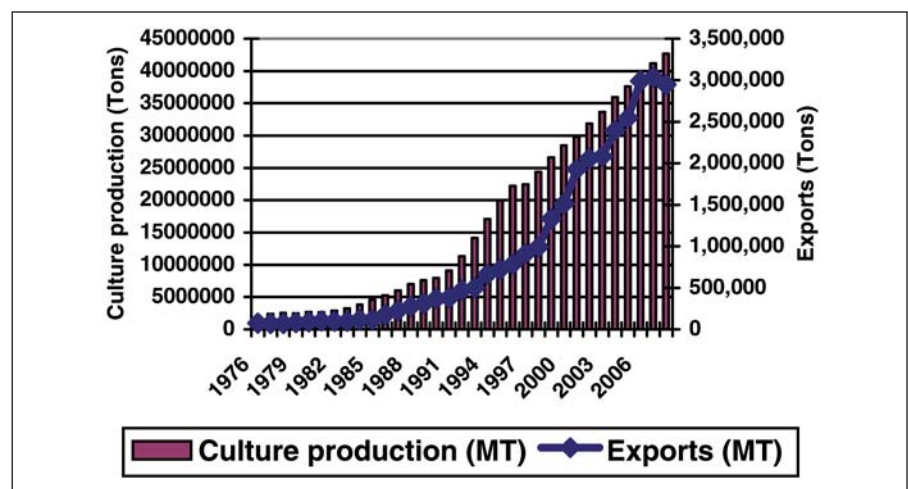


Fig. 2. Aquaculture production and fisheries exports of China

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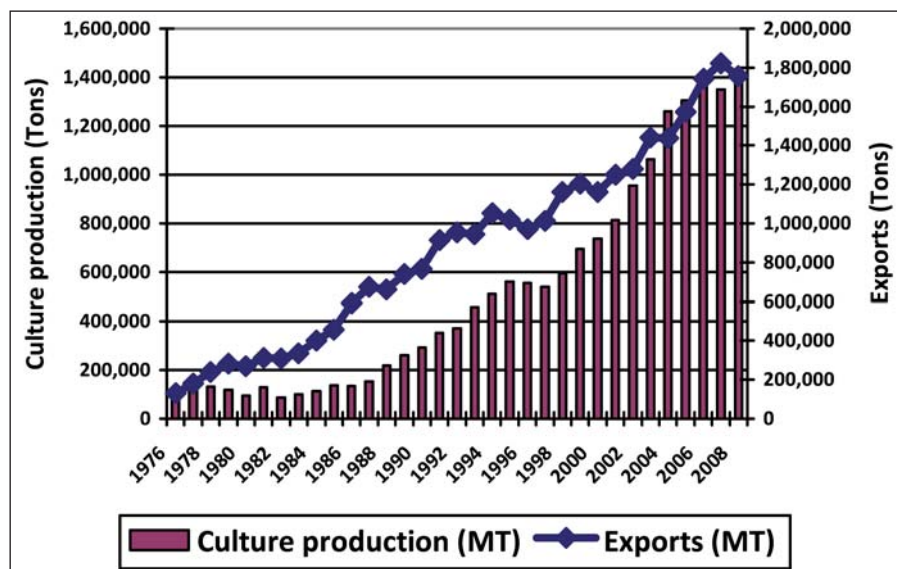


Fig. 3. Aquaculture production and fisheries exports of Thailand

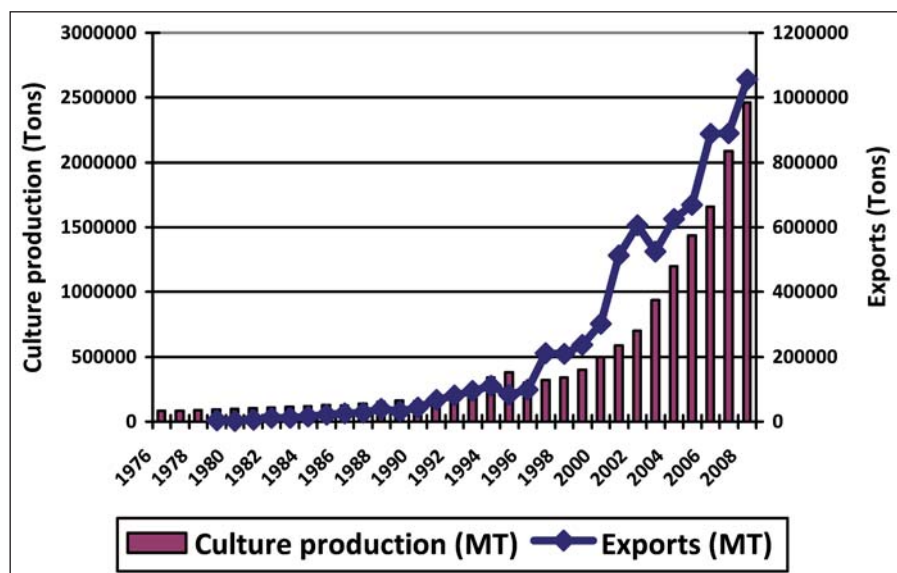


Fig. 4. Aquaculture production and fisheries exports of Vietnam

second largest producer of fish in 2008. Blessed with vast potential for development of aquaculture, India continues to be a “Sleeping Giant” of aquaculture. In order to boost fish production, more efforts are needed

to optimize the yields from the capture fishery as well as augment production from culture fisheries in a sustainable manner. Although the available resources in the deep-sea zone are under-exploited, the production from

Progress of India’s Fisheries Production since 1970

Particulars	1970	1980	1990	2000	2008
Total	1.759	2.445	3.795	5.689	7.583
Capture	1.637	2.08	2.783	3.594	4.105
Culture	0.121	0.365	1.012	2.095	3.478
	(6.88%)	(14.93%)	(26.67%)	(36.83%)	(45.86%)

Note: Figures in brackets show % share of culture production in total fish production

the traditional fishing area is rather stagnating, despite increased fishing efforts. Therefore, aquaculture is being looked upon as the best alternative to augment fish production, as this could also reduce over exploitation of natural resources and serve to protect the natural biodiversity. Table given below shows the increasing contribution of aquaculture in the total fisheries production of India since 1970.

Export-oriented aquaculture during the first decade of the 21st Century

Fisheries exports from the country, in terms of quantity showed wide variations despite the total aquaculture production exhibiting consistent increase over the last three decades (Fig. 5). This is a clear indication that our exports still depends mainly on capture fisheries. Coastal aquaculture, dominated by Tiger shrimp culture, continues to be the mainstay of export-oriented aquaculture in India. While the closing decade of the 20th century was marked with the stupendous rise of tiger shrimp culture during its first half and stabilization of production during the latter half of it, the first decade of the 21st Century brought difficulties of other kinds to the shrimp farming community.

The increased production of shrimp propelled by the spread of *Litopenaus vannameii* culture in the Asian region resulted in glut in the global shrimp markets, resulting price decline since 2001. The imposition of anti-dumping duties by the US administration on the supplies from the selected Asian countries, including India, was another significant event that influenced the farm gate prices. Farmers, already experiencing increasing cost of production due to factors such as increasing feed cost, propelled by the increasing fishmeal prices in the international markets, and due to the additional inputs used

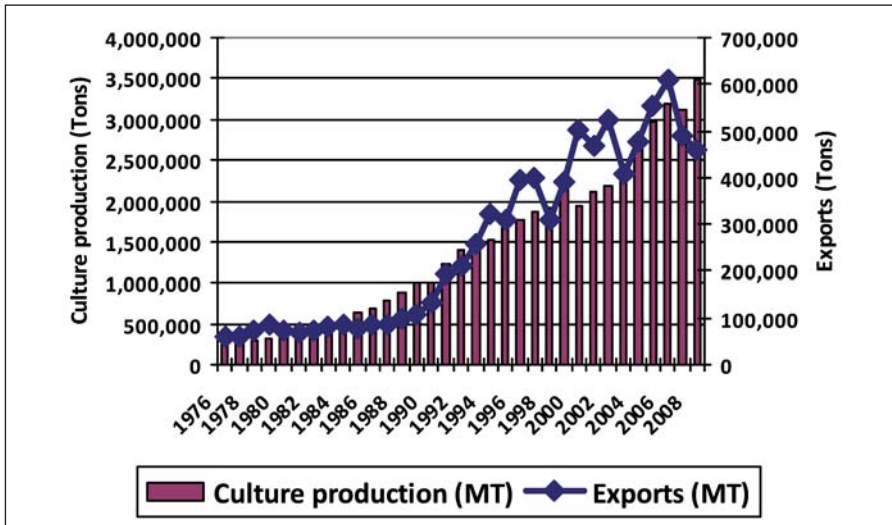


Fig.5 . Aquaculture production and fisheries exports of India

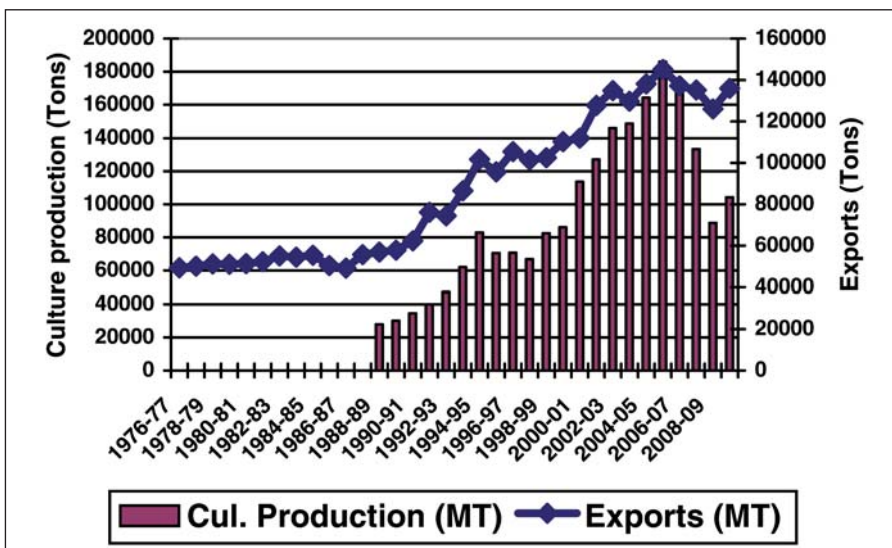


Fig.6 . Aquaculture production of shrimp and shrimp exports of India

by the farmers supposedly for prevention and control of disease problems, have started feeling the aggravation in the pinch from the reduction in the farm gate prices. Under the circumstances farmers depending on the external finances for their crops have become most vulnerable to credit traps, particularly because they are not getting the needed support from the Nationalized banks and Insurance sector. Optimization of the use of resources and adoption of measures for reducing the cost of production has become the survival necessities for the shrimp farming community. Fig. 6 shows the

relationship between cultured shrimp production and shrimp exports of the country. The correlation between the cultured shrimp production and shrimp exports clearly shows the dependence of the latter on aquaculture.

Challenges and Opportunities

Quality control and Traceability:

Increased aquaculture production and the consequent increase in share of aquacultured products in fishery trade have also coincided with increasing requirements on quality and food safety by consumers and regulators. Thousands of tonnes of imported fish

and seafood products are being detained, rejected or destroyed each year at the national borders of many importing regions resulting in huge losses to exporters concerned. One of the most serious difficulties for fishery exports today is that they face standards and regimes of safety and quality requirements that vary from market to market. The consumers and the importing country governments are demanding quality and food safety and each of the demands are passed on back to the producer, through the different stages of the supply chain. Therefore, in order to get market access for the food products, it is imperative to take all necessary steps to ensure quality and food safety.

Many countries are having special quality assurance programmes in response to perceived risks, potential for getting premium price and consumer demands. Absence of any such quality assurance programmes will work increasingly as barriers to access to various export markets. India has also taken several steps to ensure quality assurance at all levels of the supply chains right from production to exports.

Government of India issued Notification No.792 (E) dated 17th August 2001 clearly specifying the limits for various antibiotics, pesticides and heavy metal residues in seafood products. Government of India issued another Notification dated 10th July 2002 banning the use of antibiotics and other pharmacologically active substances in the culture in hatchery for producing the juveniles or larvae or nauplii, in any unit manufacturing feed, in any unit, pre-processing or processing shrimp, prawns or any other variety of fish and fishery products. MPEDA has been implementing annual National Residue Control Plan (NRCP) for testing and monitoring samples sourced from farms and hatcheries for the presence of antibiotic and pesticide residues.

The requirement of traceability as an integral part of HACCP and the food safety system of the buyers has also put strain on the export of cultured products. While India has welcomed the introduction of traceability and has taken steps to introduce the system in its processing plants, the enormous problems faced by the traceability system on account of the structure of India's aquaculture sector has often not been given the attention it deserves. Traceability, which can be readily implemented in integrated production and processing units faces serious challenges when applied to thousands of small and marginal farms, which often sell their products to intermediaries and rural markets. In order to ensure traceability the Government of India has issued a notification (No. SO. 2714 E dated 28.10.2009) under section 17 of the Export (Quality Control & Inspection Act 1963) making it mandatory for processing establishments to procure farm produce for exports only from registered farms. All shrimp farms located in the Coastal area are required to be registered with the Coastal Aquaculture Authority and all other farms are to be registered with the agencies designated by the respective state governments.

Pre-harvest testing: MPEDA has established 16 ELISA screening labs in various maritime states and handed over to approved agencies for carrying out pre-harvest testing of shrimps/scampi meant for export. Pre-harvest testing of shrimps and scampi samples is mandatory requirement for export of aquaculture produce. The samples of shrimp/prawns (@ 1 sample per pond) should be tested in the designated ELISA lab 15 days prior to the probable date of harvest. The processing establishments can receive the harvested shrimp only if it is accompanied with the test report. This testing means an additional cost to the farmers. However, ensuring that the harvested shrimp/prawn is residue

free is so important for improving the image of the culture produce of the country that a small additional expenditure can be considered as an investment for sustaining the demand for Indian cultured shrimp. If a sample is tested positive in the ELISA screening, the reference sample will be subjected to confirmatory test in the EIC approved lab/MPEDA Quality Control Lab using LC MS MS. If found positive in the confirmatory test also, the same will be brought to the notice of the concerned authorities for taking appropriate action against the farmer under the relevant provisions. The measures taken by the Marine Products Export Development Authority in improving the quality of products for exports has started paying dividends in the form of improved acceptability of products. However, this needs to be strengthened further to improve the image of Indian seafood products. Implementation of the Logo scheme for quality marking of Indian products will further our efforts in improving the market access of the products.

Development of database on aqua farms: The primary requirement to achieve traceability at the farm level is a comprehensive database using information technology. A Geographical Information System (GIS) with the use of Satellite Imagery is being attempted by MPEDA in association with the Remote Sensing Agencies of various maritime states with the technical support of the National Remote Sensing Centre (NRSC). The GIS database of the shrimp and scampi farms of all these states is nearing completion. This database will provide the preliminary requirement for ensuring a traceability system in the country.

Measures for ensuring sustainability: The twin challenges of ensuring environmental sustainability and social acceptability of the production systems as demanded by the consumer demands have also to

be contended with. Consumers and buyers have started asking questions about the sustainability of the process by which seafood is produced in aquaculture systems. The impact of trade on environment has always been a matter of concern. Under its influence, retailers and supermarkets have sought to differentiate the cultured products by giving eco-labels to the products. Sustainability is sought to be attained through market force. The challenge of environmental sustainability, the problem of antibiotic residue and the need to reduce cost of production for sheer survival has led to some innovative thinking in India, which has culminated in the introduction of the system of Participatory Farming. The experiment which began with the epidemiological survey conducted as a part of the MPEDA-NACA programme in the year 2000, led to the development of Better Management Practices for shrimp farms and the Code of Practices for sustainable shrimp culture based on the FAO Code of Conduct for Sustainable Aquaculture Practices. MPEDA has set up a separate extension arm in the form of society, The National Centre for Sustainable Aquaculture (NaCSA), for encouraging farmers to come together as Aqua farmers societies, their institutionalization through registration with the state agencies for Registration of Societies etc. and encouraging them to adopt the Code of Practices for sustainable aquaculture through an incentive scheme implemented by MPEDA for setting up common infrastructure facilities. From a small beginning, with just 5 farmers in a village of Andhra Pradesh in the year 2002 (covering 7 ha in one state) it has grown to 11993 farmers in 533 societies (covering 11903 ha) in 2009-10 in six coastal states. The cluster farming approach through organization of farmers into aqua farmers welfare societies entail

various benefits such as:

- a. Farmers organization get legal status
- b. Improved technical awareness and enhanced financial sustainability through achieving economies of scales
- c. Improved information exchange and sharing of experience.
- d. Elimination of middlemen/agents at all levels.
- e. Societies-ideal model for small scale farmers to meet the market requirements
- f. Increasing stakeholder participation, interaction and involvement
- g. Revival of livelihood.
- h. Increased awareness and social responsibility.

Organic farming: Promotion of organic farming has also been taken up in the country, particularly for shrimp and scampi. For this, agreement have been executed with SIPPO, a Swedish agency and farms meeting the standards are getting "Naturland" certification for producing organic shrimp and Scampi. India has the distinction of producing the Organic Scampi for the first time in the world in the year 2008. Since then a few farms in Andhra Pradesh and Kerala have been producing Organic scampi for export purpose. In the year 2008-09 about 50 ha have been developed under organic farming with a production of 16 MT of scampi which was produced and exported from the country. The immediate target is to achieve a production and export of 1200 MT by 2012.

Diversification: Diversification of cultured species and aquaculture systems is envisaged as the major thrust for achieving the targets envisioned in MPEDA's vision document for the seafood export sector. In order to diversify aquaculture product base for exports, aquaculture of a few more candidate species of export demand have been

given attention. Among the indigenous species, the Crab (*Scylla* sp.), Seabass (*Lates calcarifer*), Groupers and Cobia are given attention. Among these, the hatchery technology and farming of the first two species have been standardized and demonstration programmes are being carried out in different maritime states for popularizing the culture of the species. The demonstration programmes conducted by MPEDA and other agencies has generated very good awareness about the feasibility of commercial aquaculture of these species in the country. Diversification to soft shell crab production is another opportunity available to entrepreneurs as the hatchery technology available in the country offers scope for producing required quantity of seeds. As for the other two species R & D programmes are underway for standardization of the hatchery and farming technology in various projects undertaken through the Rajiv Gandhi Centre for Aquaculture (RGCA).

Litopenaeus vannamei, Hybrid Tilapia and *Pangassius* sp. are the other exotic species that are being introduced in the aquaculture spectrum of the country. Culture of *L. vannamei*, has caught the imagination of shrimp farmers struggling to survive the various crises posed by decreasing margins, disease problems and increasing marketing issues. The estimated production of *L. vannamei* during 2009-10 was about 10, 370 MT. The estimated production of the species during the April-November 2010 period of the financial year 2010-11 was about 14000 MT. The interest in *L.vannamei* is likely to affect tiger shrimp culture in the country as the former is believed to have more farmer-friendly features such as tolerant to wider range of salinity conditions, faster growth and can grow with low protein diets. Being an exotic species, culture is permitted only in farms with bio-security facilities and effluent

treatment system is mandatory as per the CAA regulations. It would be in the interest of long-term sustainability of shrimp culture in the country, if the farmers carry out *L. vannamei* culture without giving a go-bye to the native species. From the Thai experience some experts are of the opinion that, switching over to *L.vannamei* from that of *P. monodon* is easy, but return to the native species from *L. vannamei* culture would be next to impossibility.

Culture system diversification is another area to be explored along with the species diversification in order to achieve the increased production with sustainability. Adoption of biofloc technology of farming is one area that can be beneficially utilized. Use of biofloc technology is reported to be becoming common in aquaculture of shrimps and finfishes. The production rate achievable in these systems is reported to be about 20 MT/ha and 200-300 MT/ha for finfishes like Tilapia.

India has the resources and the required manpower that are essential for development of export-oriented aquaculture. The first decade of the 21st century has presented a bag of experiences to the seafood sector, seafood exports achieving the highest ever level both in terms of volumes and value while the export-oriented aquaculture production sector was beset with several adversities. However, the year 2010-11 has shown all signs of a recovery of aquaculture production for export. Diversification efforts both in species and production systems will pave way for further augmenting aquaculture production. Proper quality assurance, suitable market propaganda and developing new brands or acquiring already existing brands for developing brand image for Indian products are also opportunities for Indian exporters to utilize for taking our seafood exports to new heights.

New frontiers in indian aquaculture through organic production methods

Shri P.N. Vinod, Asst. Director (Aq), MPEDA, Kochi

Seafood from India is relished worldwide, for its supreme quality. The country exports fish and shellfish to the major markets of Europe, USA, Japan, China etc. The export of marine products from India crossed over two billion US dollars during 2009-10. Shrimp is the major value earner for the country, with a share of about 41% of the export turn-over. Aquaculture has become the main source of shrimp / scampi for export from the country. However, the production sector is yet to benefit fully, due to the limited scale of value addition of the seafood products. It is the need of the hour to augment value addition of this sector to derive the advantages of the increasing consumer demands. Production of seafood through organic methods is one such initiation, which addresses the sustainability aspects, as well.

With the concern over health and environment, the demand for organic products is increasing in the global market. It is estimated that the global demand for organic food products is about 50 billion US dollars. Hence, organic fish products have a huge demand in the Western Markets. Consumer demand for organic products is concentrated in North America and Europe; these two regions comprise 97 percent of global revenues. Regions like Asia, Latin



Organic Aqua Culture Farm

America and Australia are important producers and exporters of organic foods. The global market has been expanding by over five billion US Dollars a year. Fish is considered as a safe and healthy food and double safety is ensured by the organic fish products. Organic aquaculture essentially protect the health of consumers by reducing the over all exposure to harmful chemicals and antibiotics. It is an accepted method of production in a sustainable and eco-friendly manner.



Organic Scampi

Principles of Organic Aquaculture

An organic label indicates to the consumer that a product was produced using certain standard production methods. In fact, organic is a process claim rather than a product claim. Therefore, the production method and management are very important in organic farming. Even if a product is produced under organic practices, consumer's confidence is gained only when it is guaranteed by a reputed third party certification, supported by necessary documentation. This is achieved through the services of the certification bodies. These certifying bodies have formulated their organic standards, for production, processing and making organic produce. Upon

satisfying the compliance of these standards, the certifying bodies issue certificates and permit their logo on the products.

This logo signifies the ultimate guarantee and confidence for organic consumers. Organic certification ensures the following,

- Careful selection of sites for organic aquaculture farms.
- Protection of adjacent ecosystems.
- Active avoidance of conflicts with other users of the aquatic resources (e.g. fisherman)
- Prohibition of chemicals.
- Natural remedies and treatments in the case of disease.
- Feedstuff from organic agriculture.
- Fishmeal and fish oil in feed derived from by-products of fish processed for human consumption (no dedicated "feed fishery")
- Prohibition of genetically modified organisms (GMOs), neither in feedstuff, nor in the stock itself.
- Processing according to organic standards.

There are different types of



Organic Feed

ORGANIC LOGOES



Eu Organic



certification, which are as follows:

- a. A group of farmers sets up an ICS (Internal Control System) and also organizes joint buying and marketing for their certified produce. The group owns a single certificate.
- b. A processor and/or exporter contracts small farmers to produce certified shrimps for the company. The Processor or Exporter is the ICS operator and organizes all internal control procedures. The company owns the certificates.
- c. If an individual big farmer follows the standards of the certifying agency or comply with the standards and inspection report, the certificate is issued in the name of the individual (Single certification)

An Internal Control System (ICS) is a documented quality assurance system that allows an external certification body to delegate the

annual inspection of individual group members to an identified body/unit within the certified operator.

It indicates that a grower group basically controls all farmers for compliance with organic production rules according to defined procedures. The organic certification body then mainly evaluates whether the Internal Control System is working well and efficiently. The evaluation is done by checking the ICS documentation system and staff qualifications and re-inspecting some farmers. The details of such a quality assurance system are described in detail in a prepared manual named as ICS Manual.

The basic steps for preparing the ICS Manual are as follows:-

- a. To find qualified personnel and ensure that they receive the necessary training in organic production and ICS development.
- b. To identify farmers.
- c. Start developing adapted and

suitable ICS forms and procedures. It is very important that the procedures are actually implemented and understood by all staff.

- d. To help selecting a very minimum ICS requirement that should already be implemented before the first inspection.
- e. Either before or during the first inspection, the organic certification body must screen and assess the ICS document and if required some comments or conditions may be suggested.
- f. Gradually improve the ICS document, which include procedures, forms etc., and its implementation by the ICS staff.

It is very important that ICS policies and procedures are made aware to all involved, including the farmers. Therefore the internal ICS Manual is always made up to date and all relevant parts are made available to all. Each registered organic farmer is inspected by the Internal Control at least once a year by qualified internal inspectors.

Each internal inspector should undergo training at least once a year by a competent person. An ICS operator must have an internal standard which is applicable to the local situation and which can be easily understood by all.

India Organic Aquaculture Project (IOAP)

Considering the growing market for organic products, the Marine Product Export Development Authority (MPEDA) has identified organic aquaculture as one of the potential thrust areas for development. In order to implement the programme, MPEDA initiated the *India Organic Aquaculture Project (IOAP)* during 2007, with the support of the Swiss Import Promotion Programme (SIPPO), Switzerland.. Under the IOAP, the farmers are adopting standards prescribed by M/

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s. Naturland, Germany. The proposed locations for organic farming are pre-evaluated by M/s Naturland for the site suitability. Organic certification of the farms is subsequently carried out, after the mandatory inspections by the local inspection agency, viz, M/s Indocert, Aluva. The IOAP project was successful in developing certified stake holders such as (1) certified organic shrimp/scampi hatchery (2) certified organic feed mill (3) certified organic shrimp / scampi farm and (4) certified organic seafood processors. During the first phase of IOAP, the certified hatchery for production of organic scampi and shrimp seeds (Rosen Fisheries, Marathakara and Queens Hatchery Kodungallor respectively), organic feed mill for the production of organic feed (The Water base Ltd Chennai), organic processor (M/s. Baby Marine, Cochin and M/s. Jagadeesh Marine, Bhimavaram) have been established. It is a proud achievement of the IOAP that the organic scampi farmers from Kuttanad (Kerala) were the first producers of organic scampi in the World (2008). This was followed by the successful demonstration of organic scampi farming by the farming clusters in

West Godavari District of Andhra Pradesh. The National Centre for Sustainable Aquaculture (NaCSA), an extension arm promoted by MPEDA coordinated the project in Andhra Pradesh in association with MPEDA Field Centers.

Organic Black Tiger production was also initiated in India, by the IOAP. The European Union (EU) has made it mandatory for organic aquaculture products imported in to its member countries to follow the EU Standards from July, 2009. Therefore, framing country standards would be a more viable option, to equate the same with EU standards. In this connection, the National Standards for Organic Aquaculture are being finalized by National Programme for Organic Products (NPOP) under Government of India in consultation with various organizations, including MPEDA.

Organic Culture Practices

The species initially selected for organic aquaculture under the IOAP are:

1. *Macrobrachium rosenbergii* (Scampi) in fresh water area and

2. *Penaeus monodon* (Black Tiger Shrimp) in brackish water area

The culture practice remains mostly similar to conventional method. However, the following aspects are to be taken into consideration:

- i) Pollution free locations for farms
- ii) Seed and feed from certified organic supplier
- iii) Moderate stocking densities.
- iv) Follow prescribed organic standards for farming.
- v) No usage of chemicals, hormones or antibiotics.
- vi) Adopt sustainable and eco-friendly practices.
- vii) Ensure bio-security.
- viii) Proper records and documentation.

Financial Assistance under IOAP

MPEDA grants subsidy assistance of Rs.25, 000/ha. or 50% of the total cost of certification and organic feed which ever is less to organic farmers under IOAP. One beneficiary can avail subsidy for a maximum area of 6 ha, subject to the financial ceiling of Rs.1.5 lakh per beneficiary. In the case of clusters or groups, the upper limit will be Rs.7.5 lakh for 30 ha. or more.

UNCTAD Workshop on 'Antibiotic issues, B.M.Ps and Diversification in Aquaculture'

Introduction

As part of assuring export of quality products from our country, United Nations Conference on Trade and Development (UNCTAD) with its office in New Delhi has proposed to organise Awareness Campaigns against the abuse of Antibiotics in aquaculture in India through MPEDA. Considering the present status and issues in Aquaculture, MPEDA, Regional Centre (Aquaculture), Kochi has conducted a Workshop on "Antibiotic Issues, BMPs and Diversification in



Smt. K.K. Ponnamma, Regional Executive, ADAK, inaugurating the programme.



A view of the audience.

Aquaculture. The Workshop was conducted for two days from 29-11-2010 to 30-11-2010, for the benefit of 32 farmers in Kerala State.

Inaugural Session

MPEDA officials welcomed the guests and participants and explained in brief the significance of the workshop giving thrust to Antibiotic Issues, BMPs and Aquaculture Diversification.

Smt. Ponnamma K. K, Regional Executive, ADAK inaugurated the workshop and stressed the need for adopting Better Management Practices in aquaculture farms and hatcheries. She reminded that such kind of workshops and Farmers/Hatchery Operators' Meets will surely bring awareness among the farming community for sustainability of this sector in India.

Shri Raman V. N., District Manager, Matsyafed, Thrissur in his address, briefed about the negative

impact of use of antibiotics in both hatchery and farming sector and asked the farmers and all others in this sector to unite and contribute their part through adoption of BMPs.

Shri. Kunjambadi, a leading shrimp farmer and President of Malabar Shrimp Farmers Federation, Kannur, also spoke on the occasion. Shri K.Sivarajan, Assistant Director (AE) proposed vote of thanks and technical session followed the inaugural function.

Technical Session

In the technical session MPEDA officials spoke on recent Developments in Aquaculture covering topics such as potential areas, prospects, market trends and scope for development of aquaculture. Classes were also taken on group farming and formation of Aqua Societies.

The Quality Control subject was taught by MPEDA officials by specifying the consequences of the

use of antibiotics and the diagnostic and analytic procedures for the detection of antibiotic residues in cultured products

RGCA officials took a class on 'Diversification of Aquaculture' which covered cage, open water and pond culture methods of Seabass and Crab culture.

On 30-11-2010, Dr. K. G. Padmakumar, Associate Director of Research, Kerala Agricultural University, Kumarakom, Kottayam took class on 'Captive Breeding & farming of Pearl Spot in Open water Cages' by covering habitats, breeding and rearing of Pearl Spot.

In the afternoon MPEDA officials took classes on 'Organic Aquaculture' covering the need, scope and procedures for certification of organic aquaculture, and society formation. Later, Code of Practices for Shrimp and Scampi hatcheries was briefed to eliminate the risk of disease occurrence in hatchery seeds. Importance of GIS Mapping and its applications in aquaculture traceability were also discussed.

Shri Syamlal, President, Hatchery Operators' Association and Mrs. Beena, Queens Hatchery also took awareness classes on practical issues in hatchery operations and the seed production techniques in hatcheries.

Group discussion was carried out after the technical session. Various queries, opinions and recommendations were made by the participants of the workshop.

Valedictory Session

Shri. R. Rajagopalan, Lead District Manager, Canara Bank, Thrissur, was the Chief Guest for the valedictory function. In his address, he briefed about the role of financial institutions for providing financial support to agriculture and aquaculture sectors. He also congratulated MPEDA for active involvement in this sector promoting aquaculture through its schemes and services.



Valedictory function : Shri. R. Rajagopalan, Lead District Manager, Canara Bank, Thrissur speaking on the occasion. Sitting (L-R) Shri K.V. Raghu, Deputy Director (Aq.), MPEDA, Shri A. Kunjambady, President, Malabar Shrimp Farmers' Federation, Smt. Elsamma Ithack, Assistant Director (Aq.) and Shri K. Sivarajan, Assistant Director (AE), MPEDA.

Awareness campaign on BMP's in Aquaculture organised

In order to make the farmers aware about the sustainability, better management practices and non-use of antibiotics in aquaculture MPEDA, SRC (Aqua), Kolkata has organized a one-day Awareness campaign at Contai, Purba Medinipur, on 11.11.2010. 30 farmers attended the programme.

Dr. Utpal Kumar Sar, Deputy Director of Fisheries, Paschim Midnapore, Sri Rabindra Nath Dutta, ADF (Brackish Water), and officials of NaCSA participated in the programme.

Officials of MPEDA gave a brief account on the present status of shrimp culture in the country and MPEDA's promotional activities for the development of aquaculture. The dangers involved in over-stocking of non-tested hatchery and wild seeds that cause disease were explained. The farmers were advised to make use of the three ELISA Labs installed at different places in West Bengal for analysis of antibiotics in cultured shrimp and scampi. The procedures for obtaining CAA registration and West Bengal Fish Producers' licence were also explained.

Sri Rabindra Nath Dutta, ADF (Brackish Water), Contai advised the

farmers for low stocking of hatchery tested quality seeds and use only known brand of feed.

Dr. Utpal Kumar Sar, Deputy Director of Fisheries delivered lecture on the topic entitled: "Deleterious effects of Antibiotics in aquaculture" and discussed the effects of antibiotics in human health through fish food and cautioned the farmers on the risk factors in the export market of seafood on this account. He said that it is mandatory that the farmers have to test their product samples at the ELISA labs set up in different parts of the country for the presence of antibiotic residues.

Other topics discussed in the

campaign were Code of practices for shrimp hatchery, MPEDA's financial assistance for establishment of new shrimp hatchery, sustainable scampi and shrimp farming through better management practices and importance of site selection, selection of disease free seeds, environmental parameters and diversified aquaculture such as mud crab farming and seabass culture.

NaCSA officials delivered lecture on the "Role of NaCSA towards Sustainable Aquaculture" and requested the farmers to form aqua society. The meeting was concluded with group discussion, evaluation and vote of thanks.



A view of the audience

Farmers' meet on "Eco-friendly & Sustainable Aquaculture" conducted

MPEDA, SRC (Aqua), Kolkata has organized a one-day farmer's meet on "Eco Friendly & Sustainable Aquaculture" at Nandakumar Panchayet Samity meeting Hall, Purba Medinipur, on 09.11.2010. The Farmer's Meet was attended by 103 farmers from the Nandakumar, Norghat, Khejuri, Nandigram,

Tamluk, Bhagabanpur & other near by villages.

Sri Sukumar Dey, Sabhapati, Nandakumar Panchayat Samiti, Sri Buddhadev Bhowmik, Karmadhakshya, Motso-O-Pranibikash Sampad, Purba Medinipur Zilla Parisad, Sri Jaineswar Pradhan, LDM, Purba Medinipur, Sri Utpal Sar, Deputy

Director of Fisheries, Sri Sripati Maity, ADF (FFDA), Tamluk; Sri Rabindra Nath Dutta, ADF (BW), Contai and Sri Biswadev Kar, Secretary, M/s Tamralipta Aquaculture Proprietors' Society participated in the programme.

Welcoming the gathering, Deputy Director (Aqua) of MPEDA, SRC,

**A view of the farmers**

farmers on the risk factors in the export market of seafood due to detection of antibiotics.

Officials from NETFISH specified the problem of Muddy-Mouldy smell in shrimp culture and suggested removal of the black soil from the pond bottom as early as possible after the harvest and fill the ponds quickly to avoid the development of benthic blue green algae, filamentous algae and aquatic weeds which are likely to spoil the pond bottom and induce muddy smell.

Officials of NaCSA requested the farmers to form aqua society & avail MPEDA scheme for aqua society which will help the farmer for proper crop planning, building up contacts and mutual trust among various service providers.

MPEDA officials taught the subjects on crab culture and seabass cage culture in detail. Marine food fishes like groupers, snappers, siganida, pompano, cobia and ornamental fishes have great potential for domestic and export trade. Among the species for diversification, Sea bass (*Lates calcarifer*) has been established as a promising finfish species for aquaculture production on commercial scale because of its fast growth and wide tolerance of salinity. The meeting came to an end with the vote of thanks proposed by Shri Sibasish Mohanty, JTO, SRC, Kolkata, MPEDA.

Kolkata gave a brief account on the present status of shrimp culture in the country and MPEDA's promotional activities for the development of aquaculture. The farmers were advised to make use of the ELISA Lab installed at Contai for antibiotic analysis in cultured shrimp and scampi.

Sri Jajneswar Pradhan advised the farmers to minimize the risk through insurance cover as the shrimp aquaculture is highly risk oriented.

Sri Buddhadev Bhowmik requested MPEDA for setting up one more ELISA Lab in Purba Midnapur District.

Sri Sriapati Maity stressed the need for adopting improved traditional and modified extensive culture practices following good pond management practices involving least water exchange and construct pond at least 50 mtrs. away from agricultural land and not to drain farm water in to agricultural field. As responsible farmers, they should obey rules applicable for aquaculture, apply for licence from Coastal Aquaculture Authority and follow the guidelines of the Dist. Administration. Sri Rabindra Nath Dutta stressed the same. Sri Utpal Sar cautioned the

Inaugural-Harvest Function of Mud Crab Culture Demonstration Programme

The Regional Centre (Aquaculture), Kochi has conducted the inaugural-harvest of the Mud crabs cultured in the demonstration farm of Shri. A.M. Nizar, Kovilakathumkadavu, Pallippuram (Vypin Island), Ernakulam District on 19.11.2010. The programme was attended by 50

farmers and officials. MPEDA Regional Centre, Kochi welcomed the gathering and emphasised the need for diversification in aquaculture and particularly the importance of mud crab culture in Kerala region.

The harvest was inaugurated by Dr. Josileen Jose, Sr.Scientist, Crustacean Fisheries Division, CMFRI, Kochi.

During the function, Dr. Al. Muthuraman, Deputy Director (Aq.), MPEDA, H.O, Kochi delivered the key-note address.

Dr. Asokakumaran Unnithan, Sr. Scientist, CMFRI, Kochi, Smt. K.K.Ponnamma, Regional Executive, ADAK, Ernakulam, Shri. Lajid, Extension Officer, Office of DD

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The inauguration of harvest by Dr. Josileen Jose, Sr. Scientist, CMFRI, Kochi

Fisheries Ernakulam, Smt. Ganga, Ward Member, Pallippuram Grama Panchayat and Shri.K.B Sajeev, State President, OYKSG, Nayarambalam have felicitated the function and given necessary guidelines to the farmers.

Shri. A.M. Nizar, the farmer shared his experiences in the crab culture during the demo. farming with the gathering. The farmers raised

various doubts regarding crab culture and the officials present during the function clarified them. This is the first attempt in Kerala by MPEDA on Mud Crab culture by stocking the crab seeds in culture ponds.

The details of the demonstration are:

1)The demonstration culture started on 19-3-2010.

2) The crab seeds for stocking were brought from RGCA in Tamil Nadu and 2077 crablets were stocked in scientifically prepared 0.4 ha. pond.

3) Proper fencing was given with HDPE net and Silpaulin sheet to prevent the escape of crabs from the pond.

4) The water quality parameters were maintained in the optimum level to enhance the production.

5) Chopped trash fish and wastes (Squid, Cuttle fish, etc.) from the processing plants were given as feed for the crabs.

6) Regular monitoring of the water quality parameters, feeding & growth assessments were carried out and concerned details were recorded during the culture period.

7) The crab attained 500-650gm. size within a culture period of 8 months. The estimated standing crop was around 133 kgs.

The demonstration culture was a great success and it is hoped that in future more farmers will come forward to take up mud crab culture in the State.



Shri A.M. Nizar, farmer, along with other farmers and officials holding the harvested crabs

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Awareness campaigns against use of antibiotics in West Bengal

1) Programme at Itinda-Panitor Gram Panchayat, North 24 Paragnas Dist. , (W.B.)

MPEDA, SRC (Aq), Kolkata organised a campaign at Itinda-Panitor Panchayat, North 24 Paragnas Dist. on 25.11.2010 which was attended by 46 farmers of the nearby areas. Shri Rajjak Baidya, Sabhapati, Itinda-Panitor Gram Panchayat & Sattarnri Adak, Member of ATMA group participated in the campaign.

Mr. Manirul Gazi, leading farmer of Panitor village of Gopalpur No.2 Panchayat thanked MPEDA on behalf of the farmers of the area for organizing the event and gave a brief account on the present status of shrimp culture in Gopalpur village & presented some major issues faced by the farmers, mainly white spot diseases and non-availability of quality shrimp seeds.

Issues such as concern of the buyers on food safety, human rights and environment protection were

discussed in detail in the meeting. The farmers were also cautioned that if they were not maintaining international quality standards of the shrimp and also if they do not obtain license either from State Fisheries Dept. or CAA, they would not be able to sell their shrimp for export after 31st December 2010. It was suggested to form Aqua Society in each farming cluster to follow community farming for each water source so that they could deal effectively against horizontal transmission of shrimp disease. The farmers were also advised to take up scientific farming with low stocking of hatchery produced PCR tested seeds and disease management by using suitable probiotics instead of antibiotics.

MPEDA officials discussed about the scenario of Organic aquaculture and how it is developing rapidly and is now practised in more than 120 countries in the world. Organic Aquaculture is a process of developing a sustainable aqua system with organic Quality Control. Topics such as MPEDA schemes for IOAP, organizations associated with certification and also formation of society were discussed.



A view of the audience

2) Campaign at Minakhan Gram Panchayat, North 24 Paragnas Dist.

SRC (Aq), Kolkata has conducted yet another campaign against use of antibiotics in aquaculture at Minakhan Village, North 24 Paragnas Dist. on 7-12-2010. Shri Majed Ali Gaven, Pradhan, Minakhan Gram Panchayat welcomed the gathering. 44 farmers from Minakhan and nearby panchayats viz., Malancha, Uchildah, Bamanpukur etc., attended the programme.



Shri D.K. Biswas, Dy. Director (Aq) addressing the gathering.

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Welcoming the participants, Shri Majed Ali Gayen presented a brief account on the present status of culture in Minakhan area. MPEDA officials requested the farmers to adopt better farm management practices without the use of antibiotics

and banned chemicals.

The officials of MPEDA also conveyed the recent trends in aquaculture and spoke about the concern of buyers on food safety and non-use of banned drugs.

Leaflets on Antibiotics and

guidelines on use of “Antibiotics in Aquaculture” and schemes of MPEDA in Bangla vernacular were distributed to the farmers. The meeting ended with vote of thanks proposed by Sourabh Kumar Dubey, Field Supervisor of MPEDA.

Training Programme on ‘Eco-friendly and Sustainable Shrimp Farming’ conducted

MPEDA, SRC, Karwar organized a 5-day Training Programme on “Eco-Friendly & Sustainable Shrimp Farming” at Haldipur village in Honavar taluk from 22-26, Oct. 2010 for the benefit of shrimp farmers. Twenty candidates participated in the training programme.

The main objective of the training programme was to train the beneficiaries on Eco-friendly shrimp farming and to motivate the trainees to take up shrimp farming by adopting Better Management Practices (BMPs). Literature on BMP, use of antibiotics in aquaculture, farm management and diversification in aquaculture in vernacular were distributed to the participants.

The training programme was inaugurated on 22-11-2010 at 10.00 AM by Shri. Damodar G. Naik, President, Gram Panchayat, Haladipur, Honavar. He in his

inaugural speech appreciated MPEDA for conducting such short term village level training programme for the benefit of shrimp farmers. He also mentioned that “Haldipur village is gifted with vast brackishwater areas & there is scope for employment opportunities in shrimp farming”. He appealed the trainees to make use of the opportunity and assured that all possible assistance from panchayat will be provided to the farming.

SRC, Karwar officials advised the farmers to go for farming of species other than shrimp, considering the vast potential in Haldipur area. He discussed the scope of crab farming/fattening and fin fish farming. They also discussed various promotional schemes of MPEDA.

The function was presided over by Shri. K.H.Gouda, President, Sharavati Shigadi Krishikar Sangh, Haldipur, Honavar and a very successful farmer

doing farming in a systematic way for the last decade. He in his presidential address explained different steps to be adopted in pond preparation and the importance of pond preparation. He thanked MPEDA for organising this training programme in Haldipur.

Shri. Nagaraj Sannabhadthi, Feed dealer delivered a lecture on “Feed management in shrimp farming.” NaCSA officials explained about Society formation in shrimp aquaculture.

Participants were trained on the various aspects of shrimp farming such as site selection, pond construction, pond preparation, seed stocking, water quality management, feed management, disease management, harvest and post harvest techniques, seabass culture techniques and other topics related to aquaculture by MPEDA officials and resource persons.

As part of training programme, a field trip was arranged for the trainees on 26-11-2010. Trainees were taken to Mr. K.H.Gouda’s shrimp farm at Haldipur. Techniques involved in shrimp farming, farm management, feed management, water management etc. were explained to the trainees during field trip.

On 26.11.2010 evening a valedictory function was conducted. Sri. Damodar G.Naik was the Chief Guest who distributed certificates to the trainees. Sri. K.H.Gouda was also present. The programme concluded with vote of thanks.



Sri.K.H.Gouda, President, Sharavati Shigadi Krishikar Sangh, Haldipur addressing the gathering. Sitting (L-R) Sri.Naresh T, AAE,SRC,(Aqua), Karwar, Sri. Damodar G.Naik, President, Gram Panchayat, Haldipur, Dr. G.Gopakumar, AD, SRC(Aqua), Karwar, and Sri.G.M.Salaskar, FS, SRC, (Aqua), Karwar.

Report on UNCTAD awareness campaign on abuse of antibiotics in aquaculture

A campaign on abuse of antibiotic in aquaculture funded by United Nations Conference on Trade and Development (UNCTAD), was organised by MPEDA, SRC(Aq), Karwar on 29-30, November 2010, at Kumta, Uttara Kannada District to create awareness among aqua farmers against the use of antibiotics in aquaculture and to educate the shrimp farmers on Eco-Friendly and Sustainable Shrimp Farming without using any antibiotics. Thirty-five farmers participated for the two-day programme.

They also discussed about the procedures adopted by MPEDA to monitor the use of antibiotics in aquaculture.

Shri. V.K. Dhulked, C.E.O., BFDA, Karwar inaugurated the function by lighting the lamp. In his inaugural speech he warned that a few farmers were misusing the antibiotics in aquaculture for their own benefits without knowing the adverse effects. He explained the two main consequences of use of antibiotics in aquaculture i.e., presence of high residue levels of antibiotics or their metabolites in shrimp/fish tissue and second one is development of antibiotic resistant strains of microbial pathogens in the environment.

Shri. B. Suresh, Assistant Drug

Controller, Karwar delivered lecture on the Acts and regulations of use and selling of antibiotics/Drugs. He listed out the few chemicals/antibiotics used in aquaculture. Also explained about "Prevention of Food additive Acts". He also informed that the food items with residues of antibiotics, if consumed, may cause direct health problems. For example cause of aplastic anaemia is associated with chloromphenicol. Similarly nitrofurans (metabolites) can cause cancer and genetic disorders.

Dr. V. N. Nayak, Chairman, Department of Marine Biology, Karnataka University addressed the farmers about basic needs for regulations. He explained the farmers that the presence of antibiotics in aquaculture products is a major hindrance for meeting the stringent export quality standards of EU and other countries. Detection of antibiotics or antibiotic residues is a serious concern not only to the particular brand of export or to the exporter but it also adversely affects the image of the Nation. He also explained the side effects of antibiotics in human body.

In second day's session, Sri. K. H. Gouda, President Sharavati Shigadi Krishikar Sangha, Haladipur, Honavar, shared his experience with farmers

and also asked them to maintain records of their farms activity. He revealed the secret behind his success, which is nothing but "Better Management Practice".

Officials of SRC, Karwar elucidated to aqua farmers who use chemicals in their field has to regulate the usage and if at all necessary use only approved permitted chemicals with proper product labels regarding the chemical composition, dosage, withdrawal period and other constraints including environmental and human safety precautions. It was stressed that the farmers should maintain proper record of the chemicals used in the farm diary regarding date, dosage and type of chemical used. Pre harvest test of the aquaculture product has to be conducted and make sure the product sold to the processor is free from any antibiotics or pharmacologically active substances.

SRC, Karwar officials explained the adverse effects on use of antibiotics in aquaculture, especially on the export of marine products and also explained about domestication of Tiger prawn and technology development programme of RGCA. The programme concluded with a brief discussion between officials and the participants.

Farmers' meet conducted on 'Eco-friendly & Sustainable Shrimp Farming'

MPEDA, SRC (Aqua), Karwar conducted a farmers' meet on "ECO FRIENDLY & SUSTAINABLE SHRIMP FARMING" at Kundapur on 19-11-

2010 in association with NaCSA, Kakinada. MPEDA, Karwar officials welcomed the Guests and the participants.

CEO, BFDA, Udupi inaugurated

the function. In his inaugural address he explained the farmers, about new schemes of state fisheries department and necessity of Coastal Aquaculture Authority registration. He requested

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Dr. G. Gopakumar, Asst. Director (Aq) addressing the farmers.

the farmers to register their names with Coastal Aquaculture Authority of India. He also mentioned that

Aquaculture in India has augmented great momentum in the late eighties and early 90's. In world Aquaculture

Detection of antibiotics or antibiotic residues is a serious concern not only to the particular brand of export or to the exporter but it also adversely affects the image of the Nation.

map India occupies a commendable position. The outbreak of disease and frequent crop losses paused the augmentation process. With the occurrence of diseases new techniques were tried to recover the problems. In that process chemical, antibiotics etc., were irrationally used either as prophylactic or as therapeutic. In the last decade, there has been widespread concern over the presence of antibiotic in aquaculture products. This is a major hindrance for meeting the



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stringent export quality standards of EU and other countries. Detection of antibiotics or antibiotic residues is a serious concern not only to the particular brand of export or to the exporter but it also adversely affects the image of the Nation.

CEO of NaCSA, Kakinada shared experiences of his visit to *L. vannamei* farms. It requires lot of changes in farm design, water depth, etc. He also explained the sensitiveness of *vannamei* to WSSV disease and problems of culturing *L. vannamei* in tiger shrimp farms. He also advised the farmers not to use any banned antibiotics directly or indirectly. He advised the farmers not to use the formulation of herbicides/sanitizers

containing Pendinethalin as the presence of above chemical in shrimp is not acceptable in importing countries. He also explained various subsidy schemes available from MPEDA for the benefit of shrimp farmers and explained about society formation, scheme for registration of Aquaculture societies for adoption of code of practices for sustainable shrimp farming.

Shri. Santosh Kumar, President, Mookambika Aqua Farms Welfare Society, Byndoor, expressed his views towards the government's schemes and also discussed problems of farmers regarding electricity subsidy/ discounts etc. He thanked MPEDA for organising this farmer's meet in

Kundapur.

Dr. G. Gopakumar, Assistant Director (Aq) explained about Better Management Practice in aquaculture and the adverse effect on use of antibiotics in aquaculture, with special reference to export of marine products. He also advised farmers to go for farming species other than shrimp and discussed the scope of crab farming /fattening and fin fish farming. He also explained the various schemes of MPEDA and discussed with the farmers about their problems.

60 farmers participated in the meet. The programme concluded with vote of thanks by Shri. Govind Salaskar, Field Supervisor, MPEDA, SRC (Aqua), Karwar.

PRICE LIST OF MPEDA PUBLICATIONS / PERIODICALS

PERIODICALS		Annual Subscription (Rs.)
1.	PRIME WEEKLY (PRICE INDICATOR FOR MARINE PRODUCTS)	350.00
2.	MPEDA NEWSLETTER	300.00
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3.	CHART ON COMMERCIAL FISHES OF INDIA	75.00
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MARKETING NEWS

Participation of MPEDA in the 15th Annual China Fisheries & Seafood Exposition - Aquaculture China – 2010

The Marine Products Export Development Authority (MPEDA) participated in the 15th Annual China Fisheries & Seafood Exposition - Aquaculture China, 2010, held during 2-4th November, 2010 at Dalian, China. This is the largest seafood exposition in Asia, organized by the Sea Fare Expositions, Inc U.S.A, in association with the Ministry of Agriculture China. The venue of the exposition was Dalian World Expo Center Dalian Xinghai Square, Dalian China. MPEDA was represented in the Expo by Mr. C.R.Rajan, Dy. Director, Regional Office, Chennai, and Mr. P.N.Vinod, Assistant Director (AQ), HO, Cochin. Apart from MPEDA, M/s. Sonia Fisheries, Mumbai and M/s Aqua Sea Foods (India) Pvt. Ltd, Cochin also participated in the exposition to showcase their products.

The show was featured by approximately 750 exhibiting companies from 35 countries. The countries such as UK, USA, Peru, Equador, Chile, Korea, Canada, Iceland, Malaysia, Norway, Papua New Guinea, Spain, Taiwan and Vietnam, opened their National Pavilions to attract investment in to their countries, as well as to market their products. The range of products displayed included, right from the production base to the procured products. The latest machinery and equipments used in aquaculture projects as well as the processing industry were also displayed, attracting a large number of visitors. The organizers indicated that about 19,750 visitors from 79 countries turned up to this largest seafood display in Asia,

during the three-day event.

The show was inaugurated at 10.00 AM on 2nd November, 2010 by Mr. Zhang Yanxi, the Hon. Vice Minister of Agriculture, Peoples' Republic of China. At the opening ceremony, Mr Peter Redmayne, President, Seafare Expositions, USA delivered the presidential speech. He stated that the International Seafood Trade of China is currently worth more than US\$ 17 billion. It is likely that China will overtake the United States to become the largest seafood trading nation. The rapidly increasing demand for seafood in China attracted a large number of

The show was featured by approximately 750 exhibiting companies from 35 countries.

business houses in to Dalian this year. The sea food consumption pattern in China has undergone changes in recent years, from live seafood to frozen fish which appears to be more reliable, less expensive and very convenient. The growing domestic market of China is the largest in the world, which is attracting attention of the trade partners, across the globe. The Chinese market is becoming stronger, as the country is becoming more prosperous to afford the domestic and imported seafood. It was note-worthy to cite that the Chinese aquaculture producers are rapidly upgrading their technology to produce species such as abalone shell, shrimp, seabass, turbot, scallops, snapper, tilapia, sea bream, crab, turtles, clams, catfish, flounder, trout, mussels, salmon and so many other species.



A view of MPEDA Stall



Mr. C.R.Rajan, Dy. Director (L) and Mr. P.N. Vinod, Asst. Director in discussion with a visitor in the MPEDA Stall.

The Chinese Government appears to have adopted a 'zero growth' policy on its marine fishing industry, in an effort to conserve its natural resources. In order to meet china's growing demand for high value seafood, the Chinese Government has given top national priority for aquaculture industry and its further development.

The MPEDA Stall

MPEDA had taken a stall of 18 m² in the exposition. The stalls of MPEDA and the Indian Companies were located in the main hall, in which all other overseas exhibitors had put up the stalls. Indian stalls had good business, as large crowds were seen to gather information on Indian Seafood products.

The MPEDA Stall exhibited a variety of seafoods, varying from frozen fish, cuttle fish, squid, crabs, shrimps to value added products such as surimi products, canned tuna, canned crabs, canned sardines, fish pickles, Indian seafood curries, fish biriyani etc. The pamphlet of MPEDA, prepared in Chinese language also was in great demand. The charts on commercial sea fishes of India as well as other publications

of MPEDA were also well received. Different video films on the country's seafood products and aquaculture resources were also screened in the MPEDA Stall. There were considerable interactions with the visitors on the variety of seafood available from India. The demands of the Chinese buyers mostly focused on Ribbon fish, cuttle fish, squids, octopus, crabs, lobster and shrimps. About 146 trade enquiries were received during the show. Over all, the Chinese buyers expressed great satisfaction on the quality of Indian Seafood Products. It is suggested that more number of free publications and literature to be provided in the stall for distribution to the visitors.

The 16th Annual China Fisheries & Sea Food Expo- Aquaculture China will be held at Qingdao International Convention Centre during 1-3, November, 2011. As China Fisheries & Seafood Expo is being organized every year, it is the best opportunity for India to introduce more Indian exporters to enter into the international trade. Moreover, Chinese importers seem to be very keen of importing Indian Seafood products.

US Govt selects two firms for anti-dumping fifth review

The US Department of Commerce (DoC) has selected two Indian seafood export companies, Falcon Marine and Apex Exports as mandatory respondents for the fifth administrative review (AR) of the anti-dumping duty on import of shrimp from India.

This is the first time that Apex Exports is selected as mandatory respondent while Falcon was included in all the ARs so far. The DoC had issued notice for the fifth AR in this April according to a petition filed by the two US shrimp producers, the Southern Shrimp Alliance (SSA) and Louisiana Shrimpers Association (LSA). They had requested to review the exports of 203 Indian companies, but DoC selected two Indian companies for detailed examination.

The anti-dumping duty on frozen shrimp imports to the US was imposed provisionally with effect from August 4, 2004 and the levy was confirmed through the Anti-dumping Duty Order dated February 1, 2005.

According to the order in 2005, the average duty imposed on Indian companies was 10.17 per cent and in the first AR it was reduced to 7.22 per cent. This was further reduced to 1.69 per cent in the second AR and to 0.79 per cent in the third review. But to the dismay of Indian exporters, the duty was hiked to 2.67 per cent in the next round. The Indian seafood export sector was actually hoping for zero duty. The Indian seafood exporters, led by the Seafood Exporters Association of India, presented their case promptly, but the US authorities hiked the duty. So the 5th AR is crucial for the sector.

- Business Std.

MPEDA's participation in Krishi Utsav 2010

MPEDA participated in Krishi Utsav 2010 organised by Confederation of Indian Industry from 7th to 8th September 2010 at Sri Ganganagar, Rajasthan. The show was mainly focused on the Agricultural products and activities related to agriculture. As MPEDA is expanding the Ornamental Fish Development schemes to Rajasthan also, it was decided to participate in this show to give more publicity/ awareness to our schemes among farmers and public. Accordingly, MPEDA put up a stall and deputed Dr. Anikuttan K.K, AD (OFD) and Dr. Sunesh Thampy, Programme Manager (OFD) to organize the same.

The Krishi Utsav -2010 was declared open to the public on 7th September 2010 and the inaugural function was attended by Sri. Bahrat Singh, Hon'ble minister for Rural Development and Panchayat Raj, Govt.of Rajasthan, Sri. Murari Lal

Meena, Hon'ble Minister for Technical Education and Agriculture, Govt.of Rajasthan and Sri. Gurmeet Singh Kunnar, Hon'ble Minister for Agriculture marketing, Govt.of Rajasthan. Various distinguished dignitaries from the State and Central Governments were also present for the function. The KRISHI UTSAV exhibition was arranged in three pavilions named A, B & C and a separate hall was arranged for conducting the seminars. Around 72 organisations participated and there were stalls put up by various Central & State government organisations, departments, Institutes, Universities etc to showcase their activities and achievements. Department of Fisheries, Rajasthan put up a stall to showcase their activities. There were many private companies, displaying the products like different varieties of seeds, manures, pesticides, farm equipments etc. The seminar



Students (Top) and farmers (Bottom) interacting with Dr. Anikuttan.K.K, AD (OFD) at MPEDA Stall.



Sri. Abdul Quadir, Deputy Director, Dept.of Fisheries, Government of Rajasthan (L) interacts with Dr. Anikuttan.K.K, Asst. Director (OFD) at the MPEDA Stall.

witnessed the presentations by more than 40 speakers.

MPEDA put up a stall of size 9 sq.m and could showcase the various developmental initiatives with more thrust on ornamental fish sector. Various publications, brochures, posters etc related to Ornamental fish sector were displayed in the stall including four OFI book series and the books on ornamental fish diseases in English & Hindi. The OFD scheme brochure translated to Hindi was distributed to entrepreneurs / farmers during their visit to the stall besides attending to their queries and explaining the various activities of MPEDA. Nearly 60 people had expressed their interest in our schemes.

Shrimp Market Report - November 2010

The general economic recovery led to brisk shrimp trading in the first half of 2010. Generally demand exceeded supply, and prices moved up sharply. Shrimp importers and traders in the main markets were unable to build up inventories, as the product moved quickly, reports Globefish, a unit of the FAO Fisheries Department responsible for information on international fish trade.

Shrimp prices recovered strongly

All main markets reported increased imports in the first quarter of 2010. The weakening of the EUR impacted the world shrimp market in the second quarter, and more shrimp was aimed at the US and the Japanese market instead. The Gulf of Mexico oil spill resulted in very low US shrimp production, leading to more demand for imported shrimp. The news on lower supplies from Viet Nam, Indonesia and Bangladesh also made prices move upwards. Prices are likely to increase to some extent in the coming months to stabilize at a high level during the last part of the year.

Supply situation continues tight

Some major cultured shrimp producers reported declining production in 2010, following the negative trend experienced in 2009. Viet Nam reported lower shrimp production in 2010. Strong offer prices from packers in the Mekong Delta indicate persistently reduced supply of black tiger shrimp in that country. Vannamei farms in central provinces and black tiger shrimp farms in southern provinces were hit by the extremely hot weather (38° C), which has affected growth rates and caused disease problems.

Bangladesh will probably produce less shrimp in 2010 than in 2009, as



supply shortage for black tiger shrimp is reported. Farms in several areas are affected by mass mortality of shrimp linked with inadequate pond preparation prior to pond stocking.

Indonesia's vannamei farming sector is yet to recover fully from the disease crisis experienced in 2009; hence supplies remain low from this source. Supplies of black tiger shrimp are also lower than expected keeping raw material prices high in the place of origin.

Thailand seems to be the only main player with a good production outlook. This country will thus be able to expand its dominant position in the US market and become the main supplier also to the Japanese market.

Japanese demand for shrimp is strong

The inventory situation in Japan was very tight for large sized shrimp in the second quarter of the year. The strong yen also supported the market.

This year, supermarkets in Japan were the major buyers of head-on black tiger shrimp during Spring sales. Demand was basically focused on two sizes: 30 and 35 pieces/kg. Japanese consumers preferred to eat at home rather than expensive dining out, thus

restaurant demand was very limited.

Imports during January-March 2010 increased by 1.7 per cent compared with the corresponding period of last year. With a 68 per cent market share, Thailand, Viet Nam, Indonesia and China were the top shrimp suppliers to the Japanese market. Compared with the same period in last year, overall supply from Thailand also increased significantly to 17 600 tonnes (+31.5 per cent) followed by Viet Nam at 9 900 tonnes (+7.4 per cent). Imports from Indonesia and China fell.

US shrimp prices soar due to oil spill

The Gulf of Mexico oil spill problem is overshadowing the US shrimp market. In normal years, US domestic shrimp production is relatively limited with regard to total US shrimp consumption, contributing about 10 per cent of total supply. The area affected by the oil spill represents some 6 per cent of total US shrimp consumption. However, domestic US shrimp production normally influences the price level in summer months, the main production period for US shrimp from the Gulf of Mexico. As a result of the oil spill,

important fishing areas for shrimp have been closed, which means longer fishing trips for shrimp trawlers to reach areas where shrimp catching is permitted. Production will probably decline sharply. As a result, traders are very cautious with existing inventories.

In addition to lower domestic production, imports are also lower than in 2009. As a result of limited supply, prices are going up very quickly. US shrimp imports declined by 4 per cent in the first quarter of 2010, mainly owing to limited production in the main supplying countries, as mentioned above. Thus Thailand managed to expand its exports to the US market by 7 per cent, now representing 35 per cent of total US shrimp imports. In contrast, Indonesian shrimp exports declined by 30 per cent as a result of the disease problems experienced in this country.

Growth in all European markets

All EU markets reported strong trade in the first half of 2010, with imports increasing in all main markets. The economic crisis seems to be declining and all indicators show an improved shrimp trade, both for supermarkets and restaurant sales.

Spain continues to be the main importer of shrimp in the EU. Despite the economic crisis last year, imports were strong and continued to increase during the first half of 2010 by 10 per cent. Main suppliers to the Spanish market continued to be China and Argentina, while Thailand is increasing supply to this market. Prices offered by Spanish traders are generally competitive, making this country a good market for all shrimp producers world-wide. It is surprising, however, that coldwater shrimp is not playing any important role in this market.

UK shrimp imports grew by five per cent in 2009, with the cooked and peeled sector (C&P) being mainly responsible for the increase. In the

first quarter of 2010, generally an off season for shrimp trade, UK shrimp imports grew further by a significant 10 per cent. In the C&P tropical sector suppliers increased their presence while the traditional coldwater shrimp suppliers lost ground.

The German shrimp market grew substantially in 2009. Total imports reached a record high of 56, 700 tonnes in 2009, 8,400 tonnes more than in 2008. The increase in shrimp imports by Germany is not surprising as the big supermarket chains are all now offering shrimp products, and the discount chains have also recently included shrimp in their product



range. The upward trend continued in the first quarter of 2010, when imports increased by 17 per cent. Thailand followed by Viet Nam and Bangladesh are the major suppliers to the German Market.

French shrimp imports were stable during the past seven years at between 101 000 to 108 000 tonnes. Frozen shrimp are by far the main form of imports and in this category, frozen warmwater shrimp are most popular. The supply comes from Latin America, India (strong growth in 2009) and Madagascar. The French market pays a premium for high quality shrimp, for example Madagascan shrimp is priced at EUR 8.28/kg, while the Indian shrimp price is around EUR 4.69/kg. Overall, the unit value of shrimp imports by France declined from EUR 5.09/kg in 2008 to EUR 4.84/kg in 2009. During the present year, however, prices have started to move up quite

substantially.

Further price increases likely

In June, the appreciation of the yen helped Japanese importers to conclude some solid deals even at higher prices. Price increases in the international market, however, are not positive for Japanese traders as they are afraid to pass on the higher price to end consumers. Under the tight supply situation, Japanese importers are not in a position to dictate market prices either. Therefore, depending on the strength of the yen, sporadic import deals are expected to replenish stocks, at least for summer holiday sales.

The US shrimp market, which for such a long time had been driven by buyers' interest, has now become a "sellers' market". Larger sizes of shrimp are in very short supply, with prices reaching the highest levels in two years. Importers and sellers of domestic shrimp, holding larger sizes, are expecting a further rise in price.

Countries of the EUR zone will have problems to stay competitive in the world market, in view of the declining value of the EUR with regard to the USD and the YEN. The impact might be strongest in the Spanish market, where the economic crisis is declining, but unemployment levels are extremely high now, and shrimp consumption is likely to be impacted. In addition, fewer tourists going to the Spanish resorts will result in lower demand for shrimp products.

On the other hand, the outlook for the UK shrimp market is quite positive this year. Higher prices are likely, and have materialized already during the opening months of 2010. The EUR crisis led to a stronger GBP, which should attract some additional supply, at least from Asian production. The promotion of coldwater shrimp products, tailored to meet customer demand, should encourage continued momentum in this important market.

- Source: the fishsite

FOCUS AREA

Green Certification of Ornamental Fishes

Dr. Anikuttan K.K., Asst. Director (OFD), MPEDA, Kochi

Concerns for mother nature is increasingly becoming evident in the recent past, thanks to the hue and cry of pro environmental groups. Perhaps sustainability of any trade, in the long run can be assured only if it is carried out without harming the nature. The trade in ornamental fish has evolved over the years into an ever expanding industry. The various segments of the ornamental fish sector include collection from the wild, holding centres, breeding and rearing farms, export centres, retailers, hobbyists etc. In order to ensure the sustainability of the trade, social and environmental concerns have to be addressed. We have to create awareness among local communities and stakeholders to desist from unlawful and illegal practices of catching ornamental fishes from the wild. The trade should also encourage protection of the habitat with an eco-friendly approach. Unregulated/illegal introduction of exotic species and control or elimination of invasive alien species are other important issues to be addressed with due importance. Unlike other sectors, the ornamental fish sector is comparatively unorganised especially in developing countries like India. Policy interventions seems imperative to take care of the social and environmental concerns of the trade. An efficient certification system implemented in a systematic manner can cater to these requirements and the MAC (Marine Aquarium Council) certification for marine ornamental fish sector is an

example for this. It was in this context that the Marine Products Export Development Authority (MPEDA) organized an “International Workshop on Green Certification of Ornamental Fish” in association with UNCTAD (United Nations

international organizations were sought and incorporated. Thus the “Guidelines for Green Certification of Freshwater Ornamental Fishes” brought out by MPEDA would be a milestone in the ornamental fish sector considering the fact that till date

we do not have any proper guidelines or code of practices for the freshwater ornamental fishes similar to marine ornamental fishes developed by MAC. The success of any product in the market is its consumer acceptance and assuring certain standards to it by a certification system adds value to the product and enhances its consumer preference. In this context the concept of Green Certification assumes importance as it takes care of the environmental concerns as well as ensures a value chain system linking all segments of the sector



Green Certification Logo

Conference on Trade and Development) and Project PIABA, Brazil at Cochin, India from 14 to 18 October 2008. It stressed the need for developing a value chain approach from collection/culture to export of ornamental freshwater fishes.

As per the recommendation of the Workshop, a national level “Task Force” was constituted under the auspices of MPEDA to develop the guidelines, regulations and code of practices for Green Certification of freshwater ornamental fishes. The Task Force, after serious brainstorming sessions and deliberations prepared the guidelines on which comments /suggestions from various national and

from collector / producer to the consumer. The following aspects such as collection from the wild, handling, transport, holding, breeding and culture facilities, conditioning for export, infrastructure and maintenance of records etc have been dealt in detail in the guidelines. It also gives the implementation procedures and standards for assessment of the facilities with the proforma for score cards for each segment of the chain of activities. A Green Certification logo is also given which certifies that product and process conforms to the stipulated standards of Green Certification.

NETFISH participated in International Beach Cleaning Day celebration

NETFISH in association with its member NGO, Jan Shikshan Sanathan, Sindhudurg and College of Fisheries, Ratnagiri organized the International beach cleaning day celebration at Ratnagiri harbour on 20th September, 2010 with a view to create awareness among fisher folk regarding conservation of marine resources, to provide a platform to the fisher folk who are interested to contribute to maintain cleanliness of beaches and conservation of marine resources, to maintain hygienic conditions at the harbour premises and to develop systematic linkages between institutions of excellence in the field of extension.

The programme was started at 2.00pm with the inaugural speech by Dr. Kulkarni, Associate Professor, College of Fisheries, Ratnagiri. He explained the importance of maintaining hygienic conditions in harbour premises and to keep beaches clean.

A rally was started after the inaugural speech in which 35 students from College of Fisheries Ratnagiri

participated. Slogans were prepared like “Keep beaches clean”, “save marine environment”, “maintain hygiene at harbour premises”, “maintain hygiene and sanitation”, “fetch good price for fish”, “use insulated fish boxes”, “don’t transport fish openly” “do not throw fish waste in open space” etc. by students and were raised in the rally.

Dr. Kulkarni has directed students to communicate with different stake holders like fishermen, net makers, retailers and try to find out what are the difficulties in maintaining hygienic conditions in the harbor. According to stakeholder groups lack of proper infrastructure facilities was the main reason for the unhygienic condition of the harbour.

Students advised them not to use dirty harbor water to clean fishing vessels as this water contains pathogenic bacteria load which will make fish unfit for consumption. Fishermen agreed with the students and promised to stop this unhygienic practice. Retailers throw the fish waste

in the harbour premises. Students convinced the fisherwomen to keep the fish in insulated fish boxes rather than keeping it openly without ice so that flies will not be attracted to fish. This will maintain the freshness of fish and fetch good price. State Coordinator explained them the subsidy scheme of MPEDA for insulated fish boxes to solve this problem. Fisherwomen agreed with the students and showed interest to purchase insulated fish boxes to make positive changes in their daily routine activities.

After conducting this mass communication program all participants gathered at White Sea beach nearby Ratnagiri harbour for the beach cleaning programme between 4 to 6pm. Participants have collected the non-biodegradable material like plastic wastes, polythene bags; thermacol pieces, mineral water bottles etc. and disposed off all these materials.

Vote of thanks was proposed by State Coordinator, NETFISH-MPEDA.



A scene from the rally at Ratnagiri harbour.

NETFISH Participation in "AGRI- FISH-MELA" at Karwar

The Agriculture, Horticulture and Fisheries Departments in Karnataka; the Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar; and the National Fisheries Development Board, Hyderabad, jointly organised an agricultural festival, flower exhibition and fish mela in Karwar during 9 - 11, October 2010.

This exhibition and mela was organized with a view to creating awareness among the farmers and fishermen of Uttara Kannada district on various agricultural and veterinary subjects. Farmers and fishers also got an opportunity to interact with the experts in the fields of agriculture, horticulture and fisheries during the mela. The main attractions of the fish-mela were exhibition and sale of fish and fishery products, value added fish

products, ready to eat fish, aquarium fish and accessories, scientific information, opportunities in the fisheries sector, exhibition of fish related industries, and cultural programmes. All scientific institutions related to fishery, industries and aquaculturists in Karnataka participated and displayed their activities and products during the mela.

In an effort to spread awareness about the importance of fish and fisheries in the region, NETFISH-MPEDA Karnataka region exhibited a stall in the mela. Activities of MPEDA and NETFISH in the region were explained in details to all the participants of the programme. Details of MPEDA schemes, publications (free and priced), Brochures and leaf lets of NETFISH-MPEDA, posters etc. were displayed

and distributed to the participants. Posters regarding NETFISH training programmes conducted by member NGOs in different parts of Karnataka were also displayed. An AQUARIUM was set up in the stall and the schemes for ornamental fish were explained to public during the MELA. Fishing vessel registration campaign was also done in the stall. Eminent Professors / scientists and senior fishery officials visited the NETFISH stall.

NETFISH street plays on "SUSTAINABLE FISHING AND CONSERVATION" were performed every day evening for the participants. Many people appreciated the programme and praised the efforts of NETFISH in disseminating the messages to the fisher folk. NETFISH documentaries were displayed through out the programme in LCD screen.

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QUALITY FRONT

US Food Safety Modernization Act- Focusing prevention

Abhilash EC, QC Lab, MPEDA, Cochin

United States (US) consumers enjoy the benefit of imported foods from more than 150 countries. Center for Disease Control and Prevention (CDC) recently reported that one in six people in the United States suffers from food-borne illness each year. In continuation of that US Food and Drug Administration (US FDA) noticed that the disease outbreaks due to food infection are frequently reported in US in the past few years. As a result of this, US FDA initiated to make continuous improvements in food safety and formulated the Food Safety Modernization Act. After several scrutinies by experts, finally President Barrack Obama signed the Food Safety Modernization Act into law in January 2011. For the first time, US FDA has a legislative mandate to require comprehensive, prevention-based controls across the food supply. Safer food and more accountability from food companies are the goals of the FDA Food Safety Modernization Act (FSMA).

Food safety bill has given thrust to the maximum safety of American consumer and the major parts of the law are as follows:

- Improving Capacity to Prevent Food Safety Problems or prevention-based controls across the food supply.
- Improving competence to detect and Respond to Food Safety Problems. The legislation recognizes that inspection is an important means of holding industry accountable for its responsibility to produce safe food; thus, the law specifies how often US FDA should inspect food producers.
- Improving the Safety of Imported food through US FDA accrediting

the qualified third party auditors to certify that foreign food facilities are complying with U.S. food safety standards.

- US FDA will have mandatory recall authority for all food products.
- The law includes miscellaneous Provisions such as guidance to take into account advances in technology and monitor the distribution of safe food, packing provisions etc.



The US Food Safety Modernization Act bill would increase the quality of food that is imported into United States of America. The export chain to US would be managed better than earlier when the new bill is implemented. The bill definitely changes the current status of food safety aspects by increasing the number of inspections at food facilities; require hazard analysis and preventive control requirements. The bill gives importance to documentation and identification food born outbreak and that can make better changes in the present food safety monitoring system. Another important thing is this law will direct re-inspection according to disease out breaks. Therefore US FDA can identify the food companies as well as sources of outbreaks more tactfully than earlier. Further more, the new bill will give the US FDA power to

decrease the time between inspections, (currently a facility might be inspected once a decade) and mandate yearly inspections of high-risk companies. Apart from that, when implementing the bill, which calls for the strengthening of existing collaboration among all food safety agencies whether they are Federal, state, local, territorial, tribal, or foreign.

The background of the new bill was on the basis of frequent contamination reports in cheese, fruits, sprouts, and poultry. But seafood export to US will also be endangered to some extent. According to new bill regulations, it is suggested to update the fish and fishery product hazards and control guidance to take into account advances in technology. Therefore the current checking set up for microbes, antibiotics, pesticides etc. by US FDA will be enhanced (2 percent to 20 percent) by adopting advanced technologies. In terms of the new stiffer import regulations, if a product – for example, seafood – is rejected by a port, it would be stamped “Refused Entry by the United States Government” and the Federal Government would then notify all other ports of the refused product and shipment number.

Of course the Food Safety Modernization Act will reinforce the current safety regulations and projected public health benefits. This bill would give US FDA more authority to recall tainted products, increase inspections of food processors and require producers to follow stricter standards for keeping food safe in the wake of outbreaks of contaminated products. In fact, the law will help US FDA to focus on prevention instead of getting infected and help to remove contaminated food from the market.

Aquatic Vaccines and Diagnostic Tools

Disease is still regarded as a major constraint to aquaculture production globally, says Sandra Adams from the Aquatic Vaccine Unit, Institute of Aquaculture, University of Stirling, which is why more research is required. Research in the Aquatic Vaccine Unit focuses on fish disease control through the development of novel rapid diagnostic tests (both molecular and antibody based) and vaccines for both fresh water and marine cultured fish

crucial part in this and the team led by Professor Sandra Adams have made a significant contribution in these areas over the last twenty years. Numerous vaccines, antibodies and kits have been/are being commercialised from research projects performed at Stirling. The Aquatic Vaccine Unit is also an active partner in the Scottish Fish Immunology Centre with partners in Aberdeen (Aberdeen University and Marine Scotland immunology laboratories),

between Aberdeen and Stirling Universities. Other vaccines developed at Stirling in the late 1980's and 1990's include Enteric Red Mouth (ERM) Vibriosis and Pasteurella vaccines, with many others in the pipeline over recent years.

Vaccination has been extremely successful in reducing the disease risk in fish, however, biological, scientific and technical restrictions still prevent the production of commercial vaccines for most economically significant fish diseases. Knowledge of the sequence of pathogen genomes, gene function and derived products now allows innovative approaches for vaccine development using genetic, immunology and chemistry/physiology-based technologies.

In Sterling novel vaccine antigen identification methods are being devised using combinations of various techniques such as genomics, proteomics, knockout technologies and epitope mapping. In other words fish vaccine development has become much more sophisticated in recent years.

In order to develop an effective vaccine the protective antigens need to be identified and their protective response confirmed in the host species. Research in the Aquatic Vaccine Unit has been focusing on improving methods to identify which serotypes to include in traditional whole cell vaccines, as well as developing new methods to identify potential vaccine antigens. Four examples are presented here where vaccine antigens have been successfully identified at Stirling using different technologies: Rainbow Trout Fry Syndrome (RTFS), Cod vibriosis, *Aeromonas hydrophila* in carp and Betanodavirus in sea bass. Such methods can be used for the development of many other vaccines.



Vaccination has been extremely successful in reducing the disease risk in fish, however, biological, scientific and technical restrictions still prevent the production of commercial vaccines for most economically significant fish diseases.

species. In addition, basic research focuses on the elucidation of host pathogen interactions and the immune system of fish.

Control of disease in aquaculture production is complex and relies heavily on a combination of pathogen detection, disease diagnosis, treatment, prevention and general health management. Rapid disease diagnosis and vaccination play a

promoting the training of immunologists.

Fish Vaccines

Vaccination has made a huge impact in reducing the risk of salmon furunculosis in Scotland and Norway. Vaccines developed in the Aquatic Vaccine Unit are part of this success with a furunculosis vaccine being developed in a joint programme

FORTES vaccine development - a traditional whole cell approach

FORTES vaccine development inclusion of all serotypic variants is important. Thus, a new serotyping system was developed for *Flavobacterium psychrophilum* so that representative isolates could be selected from each serotype. The *F. psychrophilum* vaccine developed by Dr Alison Morgan, Dr. Kim Thompson and Dr. Sandra Adams is currently on field trial with a view to commercialisation.

Farmers have found it difficult to treat *A. hydrophila* infections in fish due to the resistance of this pathogen to a number of antibiotics. Thus, researchers have been trying to develop a vaccine but this has proven difficult, mainly because of the differences in the antigenic (bacterial components) expression between strains of *A. hydrophila*. A new approach using immunoproteomics was used to develop a recombinant vaccine that would protect against a wide range of *A. hydrophila* strains.

Salmon vaccines from the past are based on inactivated (whole cell) cultures of the pathogenic organism grown in vitro. Some of the vaccines gave good protection, however, many pathogens have been shown to 'switch off' important protective antigens when cultured in vitro and so many of these vaccines failed. In such cases alternative methods of culture (e.g. the inclusion of iron chelating agents) were required so that expression of the important 'protective' antigens were induced (e.g. in the development of a furunculosis vaccine).

This was accomplished by Dr. Saravanne Poobalane, Dr. Kim Thompson and Dr. Sandra Adams who implanted live *A. hydrophila* into fish (enclosed in sealed chambers), i.e. IVET. Application of sera from fish (that had been infected with *A. hydrophila* and then recovered) in Western blot analysis on one and two-

dimensional gel electrophoresis (immunoproteomics) pinpointed potential vaccine candidates and a recombinant vaccine against *A. hydrophila* was produced and shown to be protective in carp (*Cyprinus carpio*). This vaccine will be taken forward to commercialisation. Recombinant and DNA vaccine technologies are powerful tools for vaccine development as these enable the isolation of potential protective antigens from suppressive ones.

A variety of methods are available to detect pathogens in both fish and in the aquatic environment. These include traditional diagnostic methods and a diverse range of immunological and molecular methods. A variety of novel rapid diagnostic methods have been developed for use in aquaculture over the last 20 years in the Aquatic Vaccine Unit.

Betanodavirus vaccine development identifying vaccine antigens by epitope mapping

Epitope mapping is a useful technology for the identification of protective antigens, particularly for viruses. The Pepscan procedure was used by Dr. Janina Costa and group to identify betanodavirus B-cell epitopes recognized by neutralizing mouse monoclonal antibodies (MAbs) and serum samples obtained from European sea bass, *Dicentrarchus*

labrax, naturally infected with betanodavirus. Pepscan was performed with a panel of thirty-four synthetic peptides that mimicked the entire betanodavirus capsid protein. Sea bass serum samples reacted strongly with three regions of the capsid protein and one of these regions was also recognized by neutralizers and therefore could potentially be used towards the development of nodavirus vaccines.

Rapid Diagnostic Tools

Rapid, accurate diagnosis of disease is essential for effective outbreak control. Once the causative agent has been identified appropriate advice can be given to neighbouring farmers/ trading partners. Prompt action in the early stages of any disease problem can have an enormous impact on the scale of the outbreaks. Rapid diagnostic methods therefore provide powerful tools during emergency management.

The Aquatic Vaccine Unit was instrumental in developing a wide range of monoclonal antibodies (mAbs) for this purpose and a spin-out company, Aquatic Diagnostics Ltd (www.aquaticdiagnostics.com) was set up in 2001 by Dr. Kim Thompson and Dr. Sandra Adams following a SMART Biotechnology award to market these reagents worldwide.

The Fishsite, November 2010

New Address of MPEDA, TPO, Tokyo

THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY
(Ministry of Commerce & Industry)
Government of India
Trade Promotion Office
7 F, Wave Ginza, 8-15-2, Ginza,
Chuo-Ku, Tokyo 104-0061
Tel: 03-3545-3247, 03-3545-3774
Fax: 03-3541-8616
E-mail: mpeda@twics.co.jp
mpeda@sunny.ocn.ne.jp
Website: www.mpeda.com

MPEDA revises seafood workers insurance scheme

The Marine Products Export Development Authority (MPEDA) is operating an insurance scheme to safeguard the welfare of the workers employed in seafood processing and pre-processing industry since 2005 based on the direction of the Govt. of India. The scheme is operated in association with M/s. United India Insurance Co. Ltd., Kochi. M/s. United India Insurance Co. Ltd., Kochi has accepted to revise the benefits of the scheme based on a proposal by MPEDA.

Under the revised scheme, the accidental death benefits have been increased to Rs. 1 lakh and the cover has been extended to disabilities caused by accident under certain conditions. The medical benefits also have been revised to Rs.20000/- for the workers and their dependents. Besides, benefits upto Rs.10000/- could be availed to loss/damage of

property/dwellings and a coverage upto Rs.2000/- for emergency medical evacuation. The annual premium of the scheme remains the same i.e., Rs.200/-, of which 25% each is being contributed by the MPEDA and the insured worker, while the remaining 50% is contributed by the employer. The revised benefits will be effective for policies taken on or after 1st January 2011. The MoU on the same was signed at MPEDA Head Quarters on 30th December 2010 by Shri J Ramesh, Secretary, MPEDA and Shri KB Suresh, Regional Manager, M/s. United India Insurance Co. Ltd., Kochi, Kerala. The upper age limit for coverage also stands revised to 60 years.

About 40000 workers between 18 to 60 years of age, employed in MPEDA registered seafood pre-processing/processing establishments across the country will get the benefits of the scheme.



Shri K.B. Suresh, Regional Manager, United India Insurance Co.Ltd.,Kochi (3rd from left) handing over the document on revised GIS to Shri J. Ramesh, Secretary, MPEDA.

Tuna exports from India sliding

KOCHI: The country's tuna processing and export sector is facing an uncertain future with the catch witnessing a decline in the last two seasons. Exporters are, however, hopeful that the tide might change in their favour in the coming months.

Though the tuna season starts in August, the landings so far this year have been negligible. "Due to the uncertain catch situation, fishermen are reluctant to go for fishing," said George Korah, chief project manager of Moon Fisheries, a company that specialises in tuna processing and exports. Tuna catch from the country's exclusive economic zone (EEZ) has seen a decline of close to 32% last year and stood at 21,000 tonne. The catch has been generally poor this year though there are reports of a slight improvement in landings in the past few weeks from the Vizag coast. "We are hopeful that things might improve from mid-December," said Mr Korah.

The processing companies have built up huge capacities to produce sashimi grade tuna, which is in good demand in Japan, Europe and the US. However, the calculations of major players in the sector have been upset due to the declining catch.

"We are facing a fluctuating catch situation as far as tuna is concerned," Leena Nair, Chairman of MPEDA, told ET earlier. Meanwhile, a Fisheries Resource Revalidation Committee, appointed by the Ministry of Agriculture, has completed its sittings and would submit its report soon. The committee has observed that the Indian EEZ might be having more of the surface swimming variety of tuna.

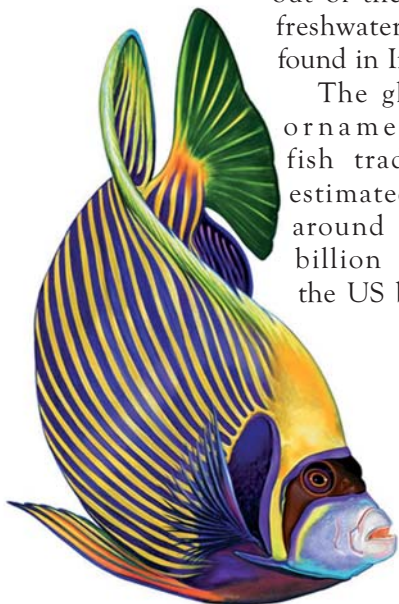
Source: Economic Times

Global demand for ornamental fish rises

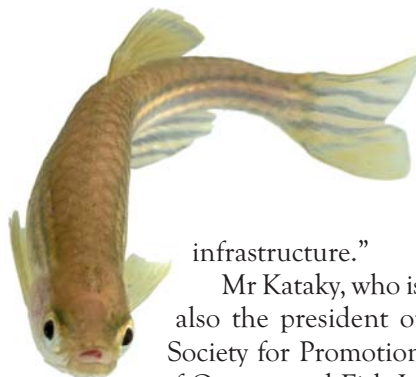
THE West has restarted the practice of spending money on ornamental fish as the developed economies are slowly recovering from global slowdown. This, in turn, has given a fillip to the ornamental fish industry in the Northeast, which contributes 85% of ornamental fish exports from India.

The diversified Indian aquatic environment harbours about 2,118 species of fish of which at least 600 have the potential as ornamental fish. Of these, the Northeastern region is home to 300 native ornamental fish out of the 806 freshwater fish found in India.

The global ornamental fish trade is estimated at around \$9 billion with the US being



the major importer, followed by the EU and Japan. The Asian countries export more than 50% of the aquarium fishes globally. Singapore is the epicentre of Asian trade and is the largest exporter of ornamental fish in the world. Chinmoy Katak, who runs a firm dealing with ornamental fish, told ET: “The returns from the business is really good and the importers are ready to pay for quality ornamental fish. However, we have to depend on Kolkata for exports as Guwahati does not have export



infrastructure.”

Mr Katak, who is also the president of Society for Promotion of Ornamental Fish In North East Region India, added: “We are trying to organise this business. We have sought government help for setting up



bedding unit. There is also a problem of getting loan from bank. We are talking to the bankers in this regard. Once this business becomes organised, allied activities like aquarium making will also mushroom.”

Apart from the financial assistance from the rural, co-operative and



national banks, Marine Products Export Development Authority (MPEDA) also provides up to 10% assistance to FOB value of the ornamental fishes exported to overseas.

Source: Economic Times

‘Inland fish culture a solution to farmers woes’

It is imperative for farmers to take up alternative jobs, along with farming to increase their income, said Karnataka Veterinary, Animal and Fisheries Sciences University (KVAFSU) Administrative Board Member Monappa Karkera inaugurating the ‘Small tank and pond fish culture’ workshop at Fisheries College on Monday.

Advising farmers to focus on pisciculture, piggery, apiary, poultry farming etc, Karkera said that these jobs help farmers to become financially stable.

“In Dakshina Kannada many focus on sea fishing and very less interest is taken in Inland fishing. If farmers put a bit of effort it can help in a big way, especially during rainy season when sea fishing is prohibited, said Fisheries Department Assistant Director Parshwanath.

There are many natural resources like small ponds and lakes available to people in Dakshina Kannada district. “If people think of putting these natural resource to best of its use, then they can make huge profits,” said Fisheries College Dean K M Shankar. Assistant Director Information Department Rohini K spoke.

The two day training will include sessions on topics such as, ‘small tank and pond fishing- an introduction’, ‘Inland Fishing and selection of fish’, ‘preparation of ponds and tanks for Inland fishing’, ‘mixed fish culture’, ‘preparation of food and its use for fish culture’, ‘quality of water in fish breeding’, ‘comprehensive fish culture’ and ‘marketing fish cultured by farmers’. More than 45 people from different parts of Karnataka took part in the workshop.

Source: Deccan Herald (Bangalore)

Progress made on protecting sharks, say groups

An international conservation conference in Paris made progress on November 27 on protecting sharks but didn't do anything to save the Atlantic bluefin tuna, which has been severely overfished to feed the market for sushi in Japan, environmental groups said.

Delegates from 48 nations spent 11 days in Paris haggling over fishing quotas for the Atlantic and Mediterranean, poring over scientific data and pitting the demands of environmentalists against those of the fishing industry.

Conservation groups said delegates took steps in the right direction with moves to protect oceanic whitetip sharks and many hammerheads in the Atlantic, though they had hoped for more. Sharks were once an accidental catch for fishermen but have been increasingly targeted because of the growing market in Asia for their fins, an expensive delicacy used in soup.

WWF, Greenpeace, Oceana and the Pew Environment Group all strongly criticised the 2011 bluefin quotas set by the International

Commission for the Conservation of Atlantic Tunas, or ICCAT, which manages tuna in the Atlantic and Mediterranean as well as species that have traditionally been accidental catches for tuna fishermen.

Fishing quota

The commission agreed to cut the bluefin fishing quota in the eastern Atlantic and Mediterranean from 13,500 to 12,900 metric tons annually, about a four per cent reduction. It also agreed on measures to try to improve enforcement of quotas on bluefin, prized for its tender red meat.

Japan buys nearly 80 per cent of the annual Atlantic bluefin catch. Top-grade sushi with fatty bluefin can go for as much as ¥2,000 (\$24) a piece in high-end Tokyo restaurants.

While the focus of the Paris meeting was tuna, sharks have become a growing concern. Environmentalists say there are disastrously inadequate rules on shark capture.

Although there are elaborate international fishing regulations and quotas for other types of fish, sharks have long been an afterthought, even though some species have declined by 99 per cent, Oceana said.

The international commission banned fishermen from catching and retaining oceanic whitetip sharks. It voted to limit the catch of several types of hammerhead sharks and to require countries to keep data on shortfin mako sharks.

Delegates also decided that Atlantic fishermen will now be required to carry special gear to remove hooks from sea turtles.

– AP/The Hindu

Vietnam joins world's top 10 seafood exporters

HANOI – Viet Nam's seafood products were shipped to over 160 countries worldwide this year, helping the country become one of the world's top 10 seafood exporters, said Deputy Minister of Agriculture and Rural Development Vu Van Tam.

However, the development of the seafood processing industry had not gone exactly according to plan, resulting in a number of practical difficulties such as an imbalance of supply and demand and an unstable market. The industry needed to carry out research to assess the market and make predictions for the future in a move to ensure sustainable development, he said.

The fishing industry aimed to increase production by 8-10 per cent per year and to export 6.5-7 million tonnes of seafood worth US\$8.9 billion by 2020, following a development strategy approved recently by the Prime Minister. Under the plan, which would require an estimated VND57.4 trillion (\$2.9 billion), the industry would be industrialised and developed to increase output, improve quality, and enhance its competitiveness.

Top priority would be given to developing the cultivation of freshwater fish, molluscs, sea fish, shrimp and crab sectors in the Hong (Red) River Delta and improving the tra fish and shrimp sectors in the East Sea and the country's southern region so that the products were congruent with Global GAP standards.

Plants would also be built in central Viet Nam to produce feed that would be sold domestically and throughout ASEAN.

Viet Nam expects to earn \$4.5 billion from seafood exports this year. The country earned \$3.98 billion from seafood exports during the first 10 months of the year, up 14.46 per cent compared to 2009. – VNS



VISIBLE CAMPAIGN: Tuna balloons on display in Paris.

Earth running out of room to expand fisheries: Study

A University of British Columbia study has suggested that the Earth has run out of room to expand fisheries.

In collaboration with the National Geographic Society, the study is the first to measure the spatial expansion of global fisheries.

It has revealed that fisheries expanded at a rate of one million sq. kilometres per year from the 1950s to the end of the 1970s. The rate of expansion more than tripled in the 1980s and early 1990s - to roughly the size of Brazil's Amazon rain forest every year.

Between 1950 and 2005, the spatial expansion of fisheries started from the coastal waters off the North Atlantic and Northwest Pacific, reached into the high seas and southward into the Southern Hemisphere at a rate of almost one-degree latitude per year.

It was accompanied by a nearly five-fold increase in catch, from 19 million tonnes in 1950, to a peak of 90 million tonnes in the late 1980s, and dropping to 87 million tonnes in 2005, according to the study.

"The decline of spatial expansion since the mid-1990s is not a reflection of successful conservation efforts but rather an indication that we've simply run out of room to expand fisheries," said Wilf Swartz, lead author of the study.

Meanwhile, less than 0.1 per cent of the world's oceans are designated as marine reserves that

are closed to fishing.

"If people in Japan, Europe, and North America find themselves wondering how the markets are still filled with seafood, it's in part because spatial expansion and trade makes up for overfishing and 'fishing down the food chain' in local waters," said Swartz.

"While many people still view fisheries as a romantic, localized activity pursued by rugged individuals, the reality is that for decades now, numerous fisheries are corporate operations that take a mostly no-fish-left-behind approach to our oceans until there's nowhere left to go," said Daniel Pauly, co-author and principal investigator of the Sea Around Us Project at UBC Fisheries Centre.

The researchers used a newly created measurement for the ecological footprint of fisheries that allows them to determine the combined impact of all marine fisheries and their rate of expansion. Known as SeafoodPrint, it quantifies the amount of "primary production" - the microscopic organisms and plants at the bottom of the marine food chain - required to produce any given amount of fish.

"The era of great expansion has come to an end, and maintaining the current supply of wild fish sustainably is not possible," said Enric Sala, co-author of the study.

The study was published in the online journal PLoS ONE.

- ANI/sifi.com

FAO urged to work on worldwide illegal fishing

In a bid to shed new light on the shadowy world of illegal, unreported and unregulated (IUU) fishing, an FAO Technical Consultation has agreed to identify a structure and strategy for the development and implementation of the Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels, FAO said. The recommendations will be presented to the January 2011 meeting of FAO's Committee on Fisheries for approval.

IUU fishing remains one of the greatest threats to sustainable fisheries and the millions of people whose livelihoods depend on them. While no exact figures are known, it is widely accepted that the scale of illegal fishing is huge - one recent study estimated that it could be worth an estimated \$10-23 billion annually.

Lack of information a major challenge

One of the greatest obstacles faced by fisheries authorities and regional fisheries management organisations as they seek to detect and eradicate IUU fishing, is lack of access to even basic information on fishing vessel identification, ownership, control and activity.

This provides easy passage for the criminals backing IUU fishing because their vessels can move about at will, change flag and identity, and vary the owner and operator details so that legitimate authorities find it virtually impossible to track them.

The recommendations that have been developed are designed to create

a Global Record that will remove this lack of transparency and strongly complement existing tools and measures available to combat IUU fishing by providing a single web-based portal through which information such as vessel identification, capability, capacity, history, ownership and activity can be easily accessed.

A stepwise approach

FAO member countries suggest the Global Record should be established as soon as possible incorporating flexibility and a phased implementation approach so that all states can develop their capacity to participate. The needs of developing countries were specifically recognised and FAO is requested to work closely with them and to improve capacity where needed and coordinate their full participation.

Market demands

Many large-scale seafood retailers are asking that their providers certify that their products have come from responsibly-managed fisheries.

In January 2010 new EU regulations came into effect requiring fish exporters to show that their products were harvested legally as a condition of entry to the European market. The Global Record will provide a useful reference point in that certification process and provide end-users with an ability to check the identity of the vessel.

The idea of a Global Record of fishing vessels first emerged in the late 1990s and fisheries management experts have promoted the concept ever since. In 2005, fisheries ministers from around the world met at FAO and collectively called for such a comprehensive Global Record to be established.

Source: fnbnews.com

Omega-3 in seafood protects eyes

Researchers at Wilmer Eye Institute, Johns Hopkins School of Medicine, wanted to know how the risk of age-related macular degeneration (AMD) would be affected in a population of older people who regularly ate fish and seafood.

High concentrations of omega-3s have been found in the eye's retina and evidence is mounting that the nutrient may be essential to eye health.

In the advanced AMD group, the macular area of the retina exhibited either neovascularization (abnormal blood vessel growth and bleeding) or

consumption impacted advanced AMD risk, but no significant relationship was found – probably because the levels of zinc obtained from seafood/fish were low compared to supplement levels, West said.

Another study at University of Miami Miller School of Medicine has shown that a test that measures the functionality of the eye's retinal nerve cells may be a key to early detection of glaucoma.

The research, led by Mitra Sehi and David Greenfield was based on the knowledge that retinal ganglion cells (RGCs) become dysfunctional as glaucoma progresses

and that such changes can be measured using the pattern electroretinogram optimized for glaucoma screening (PERGLA).

PERGLA measures the electrical activity of a patient's retina as he or she views an alternating pattern of black and white lines. PERGLA results showed that RGC dysfunction was

reversed and IOP was reduced in all patients following surgery. The patients' central visual field tests improved, as well.

Sehi says these results should be interpreted cautiously until confirmed by larger studies. She calls for longitudinal studies to clarify the relationship between reduced IOP and increased RGC response and to further investigate PERGLA assessment of RGC dysfunction as a biomarker for glaucoma.

The study appears in December's *Ophthalmology* journal.

Source: *Times of India*



A new study has revealed that omega-3 fatty acids in fish and other seafood have eye-protective effects.

a condition called geographic atrophy. Both conditions can result in blindness or severe vision loss.

"Our study corroborates earlier findings that eating omega-3-rich fish and shellfish may protect against advanced AMD," said Sheila K. West. "While participants in all groups, including controls, averaged at least one serving of fish or shellfish per week, those who had advanced AMD were significantly less likely to consume high omega-3 fish and seafood," she said.

The study also looked at whether dietary zinc from crab and oyster

US imposes anti-dumping taxes on Vietnamese shrimp

The US Department of Commerce (DOC) has announced that it will continue to levy anti-dumping taxes on frozen warm-water shrimps imported from Vietnam.

According to the DOC's 'sunset' review at the end of November, Vietnamese businesses will pay taxes ranging from 4.3 or 5.24 percent to as much as 25.76 percent.



The reason for the DOC's move is that the removal of anti-dumping taxes on Vietnamese frozen shrimp may lead to a recurrence of dumping.

The World Trade Organization (WTO) stipulates that after every five years of anti-dumping taxes, the authorities of the importing country must conduct a sunset review in order to check if the abolishment of anti-dumping taxes on imports could impact or cause losses to domestic manufacturing industries.

According to the WTO's regulations, if no impact is found or if the losses are insignificant, then the anti-dumping taxes must be abolished.

With this decision from the DOC, Vietnam will need another five years to be able to have these anti-dumping taxes removed while it continues to sue the US through the WTO.

Source: *English.vovnews.vn*

CIFT conducted winter school in microbial biotechnology

The Winter School on "Current Trends in Microbial Biotechnology: Genomics, Diversity and Gene Mining" commenced from 9th November, 2010 for a period of 21 days at Central Institute of Fisheries Technology, Cochin. The Winter School is sponsored by ICAR, New Delhi.

About 30 participants from various Central Institutes, State Agricultural Universities and other colleges from different parts of the country participated in the Winter School. The purpose of the programme was to provide theoretical and hands on practical training on various aspects of microbial biotechnology to the teachers, researchers and other professionals associated with microbiology and biotechnology in fisheries, animal, agricultural and basic sciences. Dr. Toms C. Joseph, Scientist (SG), Microbiology, Fermentation and Biotechnology Division was the Course Director of the Winter School.

The Winter School will give participants the opportunity to learn and experience the various facets of microbial biotechnology. The frontier molecular topics such as recombinant DNA technology, real-time PCR,

bacterial fingerprinting methods, next generation sequencing, DNA microarray technology, suppression subtractive hybridization, application of bioinformatics and bio-computation potential, genetic aspects of bacterial virulence, bio-prospecting of marine microbes for novel genes and gene products etc. were covered. Molecular approaches in bacterial taxonomy, food-borne bacterial and viral pathogens, bioactive compounds from marine sponges, anaerobic bacteria, understanding the structure and functions of genomics etc. were dealt in detail. Other related topics like mass spectrometry for metabolites, IPR issues in microorganisms and laboratory accreditation were addressed during the Winter School. Apart from theory and practical classes, there were field trips to Kinfra Biotechnology Park and Genome Lab at Cochin Special Economic Zone, Kakkanad.

The Winter School was inaugurated by Dr. A.G. Ponniah, Director, CIBA, Chennai on 9th November. The meeting was presided over by Dr. T.K. Srinivasa Gopal, Director, CIFT. In his inaugural address, Dr. Ponniah, stressed the need for the focus on the application



Dr. A.G. Ponniah releasing the manual of the winter school. Others seen in the picture are (left to right) Dr. Rakesh Kumar, Dr. V.I. Bishore, Dr. Paul Kunnath, Dr. T.K. Srinivasa Gopal, Dr. K.V. Lalitha and Dr. Toms C. Joseph.

of biotechnology to mankind. The huge investments in the biotechnology sector should reflect in the deliverables to the stake holders. In his presidential address, Dr. Srinivasa Gopal, briefed about the research works being carried out at CIFT in microbial biotechnology and the multiple applications in the fields like food preservation and food safety.

Dr. Toms C. Joseph, Scientist, MFB Division of CIFT and the

Course Director introduced the Winter School to the participants and audience. Dr. Paul T. Kunnath, Deputy Director, State Laboratory for Livestock, Marine and Agri-products, Govt. of Kerala and Dr. V.I. Bishore, Director, *ubio* Biotechnology Systems Pvt. Ltd., offered felicitations on the occasion. Earlier Dr. K.V. Lalitha, Head, MFB Division welcomed the gathering. Dr. Rakesh Kumar, Scientist proposed vote of thanks.

The Winter School concluded on 29th November, 2010 with a valedictory function presided over by Dr. T.K. Srinivasa Gopal, Director, CIFT, Cochin. Dr. J.K. Jena, Director, NBFGR, Lucknow was the Chief Guest who also gave away the certificates to the participants. Dr. Toms C. Joseph, Course Director of the winter School presented a brief report. The participants also expressed their feedback about the programme.

SOFTI Award 2009 presented to Dr. S. Ayyappan

Dr. S Ayyappan, eminent scientist, policy maker and academician, Secretary to the Department of Agriculture Research and Education (DARE), Government of India and Director General of the Indian Council of Agricultural Research (ICAR), New Delhi. received the SOFTI Award 2009. Prof. V.N. Rajasekharan Pillai, Vice Chancellor, Indira Gandhi National Open University, New Delhi and Chairman, Distance Education Council, India handed over the biennial award consisting of a citation, a medallion and a cash component of Rs. 25,000/- to Dr. Ayyappan for his outstanding contribution to the field of fisheries in a simple function held at Central Institute of Fisheries Technology, Cochin on 26th November, 2010.

Presently Dr. Ayyappan heads the

ICAR which has numerous agriculture related Institutes, Deemed Universities, Central Research Institutes, National Bureaus, National Research Centres, Directorates, Project Directorates, Krishi Vigyan Kendras and State Agricultural Universities under its wing, across the country. Dr. S. Ayyappan is the first fisheries scientist to adorn this coveted position and 9th recipient of the SOFTI Award. Dr. S. Ayyappan is a well accomplished fisheries scientist and his contributions to freshwater aquaculture, fisheries education and research and fisheries development in India are well recognised. He has around 250 research publications to his credit in national and international journals. He is the recipient of several honours and awards of national and international importance in the country. He has

served and represented the country on the boards of international institutions/organizations such as Network for Aquaculture Centres in Asia-Pacific (NACA), Bangkok, Thailand and World Fish Centre, Penang, Malaysia. He is a Fellow of several National Scientific Academies including National Academy of Agricultural Sciences.

The award ceremony meeting held at CIFT was presided over by Dr. M.K. Mukundan, President, SOFTI. Prof. Rajasekharan Pillai in his address opined that for a country like India with a large coastal belt and large population of coastal community, two aspects, ie. nutrition and basic education is the need of the hour. He also reiterated that there is a need for enhancing the livelihood options of the people. The technologies emanating from research institutions should be made available to the common man. He also mentioned that complementarity of agricultural production and fisheries has to be sustained for a better livelihood option. Felicitations were offered by Mr. A.J. Tharakan, Chairman, Amalgam Foods, Cochin, Dr. B. Meenakumari, Deputy Director General (Fisheries), ICAR, New Delhi and Dr. G. Syda Rao, Director, CMFRI, Cochin. Earlier Dr. T.K. Srinivasa Gopal, Director, CIFT welcomed the gathering. Dr. T.V. Sankar, Secretary, SOFTI proposed the vote of thanks.



Dr. S. Ayyappan receiving the SOFTI Award 2009 from Prof. V.N. Rajasekharan Pillai. Others seen in the picture are (from left to right) Dr. T.K. Srinivasa Gopal, Mr. A.J. Tharakan, Dr. B. Meenakumari, Dr. M.K. Mukundan and Dr. G. Syda Rao.

Pawar asks Maharashtra to take steps to boost fish production

Agriculture Minister Sharad Pawar on Sunday lamented that Maharashtra has registered negative growth in the aquaculture sector and asked the State government to undertake policy initiatives to rectify the situation.

“The national growth rate in fish production was 6 per cent. West Bengal, Gujarat, Andhra Pradesh, Kerala and Tamil Nadu had surged ahead of Maharashtra, which posted negative growth,” he said at the inauguration of the three-day National Fish Festival at the Bandra-Kurla Complex here. These States had submitted several proposals to the Hyderabad-based National Fisheries Development Board (NFDB) to avail the benefits announced by the Centre for fish cultivation, but that was not enough, Mr. Pawar said. “Merely writing letters was not enough, one has to submit detailed project reports,” he said.

The Maharashtra government should take up repair and construction of fishing jetties and also modernise the Sassoon Dock fish

market in Mumbai, the former CM said. He asked the State to provide land for the aquaculture business and wanted the Maharashtra government to address the housing problems of fishermen along the coast. Fish exports from India rake in an annual revenue of around Rs. 9,000 crore for the country, out of which Rs. 2,000 crore comes from Maharashtra and Gujarat.

Industry Minister Narayan Rane, who hails from coastal Konkan, said, “Even though Maharashtra’s share in fish exports was more than Rs. 1,600 crore, it is necessary to evaluate if the

fishing community had actually benefited. The Konkan region had no facilities for marketing, processing of fish and even cold storage.” According to Mr. Rane, Malaysia had 400 centres of ornamental fish-keeping and breeding, an area which is not given much importance in India, even though it has a vast coastline.

Mr. Rane criticised environmental activists for opposing infrastructure development in the Konkan region on grounds that the environment would be harmed. “How can we harm the environment when we also have to live in there? Development is also important,” he said.

Chief Minister Prithviraj Chavan said, “The concerns of the fisher-folk community regarding security post the 26/11 terror attacks are being looked into. The process of providing identity cards to fishermen is underway.” He expressed confidence that initiatives like the National Fish Festival would boost the prospects of the fishing community and usher in a ‘Blue Revolution’ in the country.

- PTI/The Hindu

The concerns of the fisher-folk community regarding security post the 26/11 terror attacks are being looked into. The process of providing identity cards to fishermen is underway.



(From right) Union Agriculture Minister Sharad Pawar, Maharashtra Chief Minister Prithviraj Chavan and Deputy CM Ajit Pawar during inauguration of a fish festival in Mumbai on Sunday.

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SM MARINE FISHING CO.,
No.206, BonGuan,
Woo Shin Neng Zang, 523-37,
Nambumin-Dong,
Seogu,
Busan, Korea
Tel: (051) 247-6613 ~ 4
Fax: (051) 247-6615
H.P.: 016-505-1071
*Red Shrimp
Crab
Squid*

Mr. Jongwan Chung,
President
PAN ASIA
E-mail: chung@panasia.at
Skype: panasiawien
Homepage: www.panasia.at
HD:+43(0) 664 534 5811
Tel: +43 (0) 2162 200 40
Fax: +43 (0) 2162 200 4010
*Seafood Mix
Mackerel
Swimming Crab
Ribbon fish, Cuttle fish
Yellow crocker
Horse mackerel*

Mr. Byung-Yul, Han
President,
SAMWON TRADING CO. LTD.
495-11 gOOpYONG-Dong,
Saha-Gu, Busan City, Korea
Tel: + 82-51-265-6626
Fax: +82-51-265-6696
H.P: (010) 8508-6035E-mail:
hby6035@hanmail.net
*Squid Rings
Baby Octopus
Shrimp-PD/PUD*

Mr.SUNG-YUN, KIM
EUNSEONG FISHERY CO. LTD.
3 902, Songdobeachtel,
263-3, Amnam-dong,
Seogu, Busan, Korea
Tel: +82-70-8637-1188
Fax: +82-51-231-3119
Mobile: +82-10-2067-8383
E-mail: tjdrhd3699@naver.com
Baby Octopus

Mr. H J SON
K-ONE TRADING CO. LTD.,
Room No.403, Hwashin - B/D,
1195-2,
Choryang-Dong, Dong-Gu,
Busan, Korea
E-mail: kone4340@yahoo.co.kr
Tel: 82-51-462-4340
Fax: 82-51-462-4310
Mobile: 010-2056-4811
*Cuttle fish
Squid
Baby Octopus, Crab & Cut crab*

Mr. SOO-HYUN, OH
Director,
S & S Int'l Co., Ltd.,
207, HEE CHANG MOOL
SAN523-29
NAMBUMIN-DONG, SEO-GU,
BUSAN, KOREA
Tel: (051) 254-3971(Rep.)
(051) 254-3972
Fax: (051) 254-3973
Mobile: (010) 7443-2467
E-mail: oh7793@hanmail.net
C F
*Baby Octopus, Squid, Venamaie
BT - HO*

Mr. Young-Sun-Kim
President
Hai Young MF Company Limited,
819 Suseo Tower,
725 Suseo-Dong Kangnam-Ku
Seoul Korea
Tel: +82-2-3413-3460-3
Fax: +82-2-3413-3464
Mob:82-11-315-9109
E-mail: yskim3@hanafos.com
Baby Octopus

Mr. ZENO HONG
Director - AR
BKK Australia Pty. Ltd.
ABN 13069228 995
4/120 Warren Road,
Smithfield 2164 NSW
Australia
Tel: (02) 9632 0072
Fax: (02) 9632 0885
E-mail: zenohjk@gmail.com
All Seafoods

Mr. Kang Chae Man,
CEO
EIYOH KOREA CO. LTD.,
282-5 Daechi-Ri,
Chilseo-Myeon, Haman-Gun,
Gyeongsangnam-Do, Korea,
Tel: 82-55-586-7061
Fax: 82-55-586-7065
H.P: 82-10-3681-9801
E-mail: kang@eiyoh.co.kr
*Baby Octopus
20/30
30/50*

Mr. Gyu-Soom, Lim
Manager,
HAE SHIN Corporate Combinations
and Fisheries
42, Shingi-ri, Haengan-myeon,
Buan-gun, Jeollabuk-do,
579-832, Korea
Tel: 82-63-581-1144
Fax: 82-63-581-8870
Mobile: 82-1-6633-1144
E-mail: HL4GTS@hanmail.net
All items

Mr. Aamir Ali Shah,
CE O
Seo Young International Co.,
R/M No.802,
Wonyang Plaza, 620-29
Amnam-Dong, Seo-Gu,
Busan,
Korea
Tel: 82-51-261-7706
Fax: 82-51-261-7090
H.P: 82-10-9344-6395
E-mail: aamrissai@hotmail.com
Ribbon fish

Mr. Lee. Ho Hyeong
 President,
 ASIA TUNA CO. LTD.,
 RM907, WonYang Plaza # 620-29
 Amnam-Dong, Seo-ku,
 Busan, Korea
 Tel: +82-51-257-1190
 Fax: +82-51-257-1192
 Mobile: +82-10-2076-0417
 E-mail: tuna9401@naver.com

*Sashimi Grade Tuna
 Sea Food items from West Bengal.
 Frozen tuna belly and fr. seer fish belly
 (should be frozen at -35°C, -45°C, -60°C)
 and transported through Mersk or
 Mariana for getting the above
 temperature. Will also accept material
 shipped through air.*

Mr. OH, KWANG-JU
 C E O

G.L.Trading Co. Ltd.,
 G.L.International Co. Ltd.,
 Room 206, DAE SUNG B/D,
 # 88-6, 4-KA,
 JUNGANG-DONG,
 JUNG-GU, BUSAN,
 Korea
 Tel: +82-51-462-1010
 Fax: +82-51-462-2100
 H.P: +82-10-5298-6889
 E-mail: poseidonoh@naver.com
 poseidonoh@gmail.com
Frozen shrimp, Squid, grouper, tuna

Mr. MAURIZIO MOBILIA

Buyer Manager,
 MOBILPECA
 55011 ALTOPASCIO (LU)
 Lia della Sibolla, 45
 Cod. Fisc./Part.IVA: 01029190475
 E-mail: info@mobilpesca.it
 www.mobilpesca.it
*Frozen Ribbon Fish,
 Silver Pomfret,
 Octopus
 Cuttlefish*

Mr. JUNG CHAN-HO

Section Chief
 DONG JU TRADE CO.
 20,21,3-3 SHINCHUNJI MARKET,
 3, NAMPO-DONG6 (YUK)-GN,

JUNG-GU,
 BUSAN, KOREA
 Ph: (051) 231-2270
 Fax: (051)464-1359
 H.P: 010-3495-4886,
 E-mail: wjd5274886@naver.com
*Frozen Black Tiger Headon
 5 containers now*

Mr. HARRY

President
 HIGH-ONE
 Dong-young B/D 601
 712, Amnam - Dong,
 Seo-Gu,
 Busan, Korea
 Tel: +82-51-253-0350
 Fax: +82-51-248-3800
 Mob: +82-11-835-0350
 E-mail: high-one@hanmail.net
Ribbon Fish

Mr. BYUNG TAE, CHU

President
 HYE E GANG CO. LTD.,
 Room 109 3th,
 International Fish Market Whole
 Sales Section,
 761, Amnami-Dong,
 Seo-Gu,
 Busan, Korea
 Tel: (82-51) 241-1361-2
 Fax: (82-51)241-1363
 Mobile: (82-10)-3556-6381
 E-mail: happy904015@yahoo.co.kr
Frozen Ribbon fish cut into pieces

Mr. Alex Kim

ACE FISHERIES CO. LTD.,
 RM # 709 Wonyany Plaza B/D
 620-29 Amnan - dong Seo - Gu
 Busan, Korea
 Zip Cod 602-833
 Mob: +82-10-9332-5928
 E-mail: acefish@acefish.net
Frozen Ribbon fish & cut crab

Mr. B S MIN

E-mail: bysmin@kornet.net
 Fax: (043) 213-1191
 Mobile: 010-2990-8085
Eel, prawn, shrimp, crab

Mr. JOTARO TAMBA

President,
 CORAL SEA CO. LTD.,
 6-32, 2-CHOME, MINAMISUITA,
 SUITA-CITY,
 OSAKA 564-0043 JAPAN
 Tel: +81-6-6383-5611
 Fax: +81-6-6383-6826
 Mob: +81-90-3674-9514
 E-mail: jt@coralsea.co.jp
 http://www.coralsea.co.jp/
Various seafood items

Mr. JIN-HYOUNG, LEE

President,
 DAT Dining Asia Trading,
 1819, Ocean Tower 760-3,
 U Dong,
 HaeunDaegu,
 Pusan Korea,
 Tel: 82-51-740-5691-2
 Fax: 82-51-740-5693
 Mob: 82-10-4240-1910
 E-mail: dat2008@hanmail.net
Frozen ribbon fish and Black promfret

Mr. Jack J. T. Lim

Mob: 010-2962-0172
 E-mail: jack6807@empal.com
 # 313-17, Hasangok-Dong,
 Hanam-City, Gyeonggi-Do,
 Korea
 Tel: 031-796-9655
 Fax: 031-796-9657
Frozen cuttle fish and cut crab

Mr. Kwon Tae Woo,

President,
 HAEMOO SEAFOOD CO. LTD.,
 # 330-3, Maesan-Ri,
 Mohyeon-Myeon, Cheoin-Gu,
 Yongin-Si, Gyeonggi-Do,
 R.O.Korea
 # zip 449-853
 Tel: 82-31-338-4300
 Fax: 82-31-338-2303
 Mob: 82-11-990-3444
 E-mail: taewoo3444@hanmail.net
*Frozen cultured shrimp including black
 tiger
 10 container per month
 Value added breaded shrimp*

TRADE ENQUIRY

Mr. Jane Chen,
GREAT HUNG ENTERPRISE CO.
LTD.,
Nan-Tzu Office:
No.41, Yueh-Yang St. Nan-Tzu Dist.,
Kaohsiung, 811, Taiwan
Tel: 886-7-3528805
Fax: 886-7-3524564
E-mail: topjia@great-garden.com.tw
Skype No.a3528804
<http://www.great-garden.com.tw>
*Frozen silver pomfret
and Lobster*

Mr. LI JUN TAO
Clivia Industry (HK) Limited,
Shidao Town Weihai City, Shandong
Province, China
Tel: +86-13906305003/13361181680
E-mail: highocean@hotmail.com
Fax: +86-0631-7339158
Shrimp

Mr. KRISS (KWAN-SOON) LEE
President,
BEST JOIN CORPORATION
1905 Jeil Office Bldg, 99-3 Garak-
Dong
Songpa-Gu, Seoul, 138160 Korea
Tel: 82-2-2043-1611
Fax: 82-2-2043-1610
E-mail: lee@bjseafood.com
Home P.: <http://www.bjseafood.com>
*PD Shrimp
91-110 to 500/up broken*

Mr. Richard Kim,
Managing Director,
TOKEN Pty. Ltd.
New South Wales
2/71A Milperra Road,
Revesby NSW 2212
Australia
Tel: (61 2) 9773 1007
Facsimile: (61 2) 9792 1004
Email: Richard@ausinko.com
All items

Mr. TAKASHI NARUSE
HAMAMATSU UOICHI CO. LTD.,
239-1 SHINGALCHO MINAMI-KU
HAMAMATSU-CITY SHIZUOKA
JAPAN 435-0023

Phone: +81 53 426 0614
Fax: +81 53 427 7269
*Shrimp - headless
Baby Octopus
Karikkadi*

Mr. Hahn Seung Hyoung
General Manager,
GNONE CO. LTD
72-1, NungWon-Ri, MoHyun-Myun,
Chuln-Gu,
YongIn-Si, GyongGi-Do, KOREA,
449-852
E-mail: flow1123@gmail.com
*All products
Butter fly cut shrimp
Cuttle Fish
Squid*

Mr. Chang sun, park
Planning Manager,
SEO WON MARINE PRODUCTS
INDUSTRY CO.,
1F 171-2, DongDaeSin-Dong 1ga, Seo-
Gu, Pusan, Korea
Tel: 82-51-231-9901 ~ 2
Fax: 82-51-231-9903
H.P: 82-11-864-0089
E-mail: seowon153@naver.com
Fresh Tuna

Mr. Seok-Mo, Jeong
Managing Director,
SI WON MOOLSAN CO. LTD.,
671-5, Amnam - Dong, SEO-KU,
BUSAN, KOREA
Tel: 82-51-253-3682 ~ 4
Fax: 82-51-253-3689
H.P: 82-10-9247-5814
E-mail: jsm6401@hanmail.net
*Squid, Octopus, shrimp(BT, white, flower),
cuttle fish, crab*

Mr. CHAN YONG, AHN
Vice Chairman
JI MYUNG CO. LTD.,
19-9 2F, Geoyeo-dong, Songpa-gu,
Seoul, Korea
Tel: +82.2.2043.0753
Fax: +82.2.2043.0754
E-mail: cyahn50@hanmail.net
www.jimyung.kr
Baby cuttle fish, shrimp, Baby Octopus

Mr. Jong
Y M SEAFOOD CO. LTD.,
Tel: (051) 256-4800
Fax: (051)256-4810
H.P: 010-4903-3528
E-mail: yongmacorp@yahoo.co.kr
Ribbon fish

Mr. An, Yound-IL
Manager - Super Market
SHINSEGAE CO. LTD.
333-16,Seongsu-2ga,
Seongdong-gu, Seoul, Korea
Tel: 82.2.380.5162
Fax:82.2.380.5159
Mobile: 82.17.337.1301
*Squid, Baby Octopus
Per month one container*

Mr. Sang Ho, Lee
President,
GRAND OCEAN TRADING
Rm 404, 4F, #658-1,
Nambumin-Dong,
Seo-gu, Busan, 602-803,
Korea
Tel: 82-51-247-0235
Fax: 82-51-797-8808
Mobile: 82-10-2639-0235
E-mail: love772@paran.com
Cuttle fish, Octopus, Squid, ribbon fish

Mr. Park, Hee Seok,
Manager
LOTTE MART
7-18 Sincheon-Dong,
Songpa-Gu,
Seoul, 138-727 Korea
T +82-2-2145-8753
F: +82-2-2145-8589
M +82-11-751-2921
E phs1151@lottemart.com
*Lobsters, Shrimp, Crab, Squid, Cuttle Fish,
Octopus*

Mr. Cindy, Kim
S.S Company,Ltd (Korea)
Tel: +82-31-793-8070
Fax: +82-31-793-8079
Cellphone: +82-10-5613-9360
e-mail : ss0093@hotmail.com
Shrimp and seabass and grouper etc.