MPEDA Newsletter

DECEMBER 2011

INDIA INTERNATIONAL SEA FOOD SHOW 2012

29th FEBRUARY - 2nd MARCH, 2012
CHENNAI TRADE CENTRE, CHENNAI
www.indianseafoodexpo.com

Celebrating 40 Years of Indian Seafood
MPEDA & SEAI

Jointly organized by

THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY & THE SEAFOOD EXPORTERS ASSOCIATION OF INDIA

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MPEDA NEWSLETTER

Vol. XX No. 12 December 2011

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MARKETING NEWS

India International Seafood Show – 2012: Registration in full swing

The Marine Products Export Development Authority (MPEDA) in association with the Seafood Exporters Association of India (SEAI) is organizing the 18th India International Seafood Show (IISS) at Chennai Trade Centre, Chennai, Tamil Nadu from 29th February to 2nd March 2012.

The India International Seafood Show-2012 comes at a time when the Marine Products Export Development Authority (MPEDA), the nodal agency of Government of India for marine product exports and the Seafood Exporters Association of India (SEAI), which represents all the seafood exporters of India, celebrate their 40th year of service to the sector. MPEDA and SEAI are the joint organizers of IISS-2012.

India International Seafood Show, one of the largest seafood fairs in Asia is a biennial event which provides a common forum for the seafood processors, exporters, importers, processing machinery/equipment manufacturers, suppliers of inputs, other allied industries, investors, bankers, technicians, and technocrats from processing plants and quality control departments, policy makers from State and Central Government, Fishery Institutions, Research Organisations, trade promotion bodies, and shipping lines to interact.

As a part of this event, there will be an exhibition in which more than 200 stalls spread over 4400 sq. m. space shall be at the disposal for displaying vide variety of products, machineries, inputs etc.

More than 1000 delegates are expected to be a part of this event. Technical sessions being arranged in conjunction with the Show has been finalized. There is an overwhelming response to participate in the Show as exhibitors and delegates from China, Japan and other South East Asian countries besides exhibitors from Middleeast and Europe. There are a number of sponsorship opportunies also for the Show as detailed in the Show website, *www.indianseafoodexpo. com.*

The 'Project Launcher Area' in the Exhibition Hall is also available for 30-minute and one-hour time slots for companies to make marketing presentations and demonstrations on their products and services. The call for advertisements in Show Catalogue and Show Souvenir also evoked a generous response.

Stall /Delegate registration fee

Stall (3m x 3m)		Delegate		Registered Members of MPEDA or SEAI	
Indian Rs.	Overseas $	Indian Rs.	Overseas $	Stall Rs.	Delegates Rs.
75000	1750	10000	250	50000	6000

ADVERTISEMENT TARIFF - SOUVENIR / FAIR CATALOGUE

Page (all in colour)	Domestic (Rs.)	Overseas (US $)
Back Cover	50000	1200
Front inside cover	40000	1000
Back inside cover	40000	1000
Divider page	35000	850
Regular inside page	10000	250

Glimpse into past events

The first India International Seafood Show was held in 1973 at Mumbai. Later the shows were also organized in various cities like Kochi, Chennai, Bangalore, Delhi, Visakhapatnam, Goa, Kolkata, Bhubaneswar etc., which had attracted large number of seafood trading people enabling them to find out suitable means for strengthening the seafood trade for mutual benefits.

The17th edition of IISS at Chennai in 2010 had a revamped get-up witnessing a multi-fold increase in participation in terms of stalls, delegates and visitors.

It is also a practice to distribute awards to top seafood exporters of the country in various cataegories and also to honour important buyers and veterens of Indian seafood industry. The shows also have technical sessions that benefit the sector with knowledge updates on processing, marketing and associated activities.

The organizing team has geared up for the event in all possible ways. The IISS-2012 has also got wide media coverage, attracting more exhibitors and delegates to it. Dear readers, you are encouraged to be a part of this mega event were the stakeholders associated with the sector will be flocking into establish business contacts that can lead to sustainable personal bonding resulting in prosperity of the partners.

Shrimp Market - December 2011

The shrimp market is on the rise despite the difficult global economic situation

During the first half of 2011 the global shrimp market remained positive despite lower supply and strong prices worldwide. In Japan, demand for processed shrimp has been higher after the earthquake and tsunami, while demand for raw frozen shrimp dipped. Processed shrimp imports were also higher in other markets such as the EU and USA, confirming the positive trend for value added-shrimp.

In Thailand, the seasonal harvest of vannamei has been delayed as result of the severe floods, while in Viet Nam's Mekong delta black tiger production was almost wiped out by disease leading to a shortage of raw material and pushing prices up.

India also increased vannamei aquaculture significantly in the southern areas, with a consequent decline in black tiger shrimp production. The wild caught Karikadi and poovalaan shrimp season was disappointing and packers faced difficulties in meeting agreed commitments.

In Japan, the post-tsunami shrimp market started to recover in June and the trend persisted into July and August. Sales of processed and semi processed shrimp increased but raw shell-on shrimp sales declined. Imports of raw frozen shrimp fell during the period January-July 2011 but increased by 8% for processed shrimp.

The Asian shrimp producing countries are facing a number of different challenges. After the severe flooding in Thailand and the typhoon that hit Viet Nam, as well as the disappointing landings of small wild shrimp from India, the shrimp supply chain will be affected in the near future. Given this scenario, prices are expected to remain firm. The Thai shrimp industry revised down this year's export growth forecast to 5% (from an earlier estimation of 8%).

China's exports increased this year by nearly 20% during the January-June period compared with the same period in 2010. Imports of all types of shrimp increased to 178 704 tonnes against 149 760 tonnes in 2010.

In the USA, domestic producers are having difficulties in selling their products as imported supplies of shell-on shrimp improved as well as

increased availability of shrimp production from Ecuador. In the period January to July, overall US imports increased by 2.1% compared with the same period of 2010.

Thailand continued to be the main supplier followed by Ecuador and Indonesia. Total domestic landings from January-August increased by 65.7% compared with the same period of 2010, but were still below the high of 2009. Economic conditions are limiting further improvement in demand.

In Mexico, farmers decided to harvest early because of concerns over white spot disease. This could cause a decline in the availability of popular larger sizes.

In Europe, trading activities slowed down in the second quarter of the year, while demand remained strong in other major markets such as the USA. Despite the crisis in the Eurozone, shrimp imports into the EU increased during the first half of 2011 and totalled 386 000 tonnes. Import volumes of raw frozen shrimp increased also by 10% during this period, with Ecuador, India, Greenland, Argentina and China being the main suppliers of this category. Demand from major EU countries remained strong with the exception of France where a decrease of 7.5% was seen. Imports by Spain, UK, Italy and Germany grew by 33.5%, 31.6%, 7.8% and 4.6% respectively during the January to June period.

Retailers are procuring products for the December/January sales, increasing the seasonal demand for shrimp. The market is still price sensitive, which will favour sales of vannamei and other shrimp species that are in the lower priced categories.

Source : Globefish.org

ADVERTISE IN THE SPECIAL JANUARY ISSUE OF MPEDA NEWSLETTER TO BE RELEASED ON THE OCCASION OF IISS-2012

MPEDA in association with SEAI is organizing 18th India International Seafood Show (IISS 2012) during 29th Feb – 2nd March, 2012 at Chennai Trade Centre, Chennai. The event will showcase the infinite promise and potential of the Indian Export Industry. The 3-day event comprises an Exhibition showcasing various machinery/ equipments/products in the seafood processing/packaging industry as well as a Technical Session, being handled by International Experts specialised in subject matters. More than 200 exhibitors and over 1000 national / international delegates are attending the event.

A special January 2012 issue of MPEDA Newsletter is being brought out on this occasion and copies of the same shall be widely circulated among the participants of IISS 2012. Seafood exporters/manufacturers of machinery and equipments/ packaging industry/input suppliers etc. can avail this opportunity to release advertisements in the inside pages of the MPEDA News letter to popularize their products to a vide range of stakeholders.

A special rate exclusively for advertising in this issue is given below:

Inside full page (Colour) : Rs. 3,000/-

Inside half page (Colour) : Rs. 1,500/-

- The matter for advertisement shall be provided by the advertiser in TIF or PDF format in CMYK mode
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FOCUS AREA

Fishery related activities in the major fishing harbours of Kerala

Joice V Thomas, Deepu A V and Afsal V V, NETFISH, MPEDA

Introduction:

Fishing harbours play an important role in the quality chain of seafood production as it is the major area where fish is handled after landing on shore and mostly without much care as seen in seafood factories and processing centers. There are 10 major fishing harbours in Kerala, another 8 are being constructed and 13 new proposals have been sanctioned by the government of Kerala. Though these harbours are reportedly coming under the Department of fisheries, Harbour Engineering Department (HED) controls most of them and they carry out major engineering works. The crafts and gears used to capture fish *viz* trawlers, gill netters and purse seiners are more or less similar in these fishing harbours, however the fishery related activities are found to be different from harbour to harbour. This article is an attempt to give an insight into various fisheries related activities in 5 major harbours of Kerala.

Fishing harbours

The major fishing harbours such as Beypore and Puthiyappa in northern Kerala, Munambam and Thoppumpady in the central Kerala and Sakthikulangara in the southern Kerala were selected for the study. Fishery related activities pertaining to each harbour were examined and compared. The number and types of fishing vessels operating from the selected harbours are given in Table 1.

Table 1: Details of fishing vessels operating from the selected fishing harbours

S. No	Name of the harbour	District	No of vessels	Size of the vessels (OAL in feet)
1	Beypore	Kozhikode	Trawler- 50 Trawler- 150 Traditional-70	60 30-35 <60
2	Puthiyappa	Kozhikode	Trawler-40 Trawler-200 Purse seine-100 Gill net-60 Traditional -50	60 30-35 60-80 28-33 <60
3	Thoppumpady	Ernakulam	Trawler- 350 Gill- 300 Purse seine -80 Traditional-150	<35 <35 <60
4	Munambum	Ernakulam	Trawler-400 Gill net -300 Gillnet small Traditional-100	<45 <35 >20 <60
5	Sakthikulangara	Kollam	Trawler- 1170 nos	<35

It is noticed that a series of activities are taking place in fishing harbours after the landing of fish such as the auction of the catch, packing & loading, transportation, preparation of the fishing vessels for the next voyage, etc. Even though quite a large number of people are involved in these activities for their livelihood, it is quite unfortunate to see that these activities were poorly documented by agencies concerned.

Activities in a harbour

Normally in fishing harbours, materials after landing will be sold by auction. For auctioning, the materials will be displaced in crates if the quantity is less but will be displaced on the raised platforms or on floor in heaps in the case of large quantity. There are certain set of people called "Auctioneers" who lead the auction by calling the rate of the fish as per the demand of buyers. There is no weighing of the material before auction but by approximation the auctioneer will start with a rate and the buyer agents can increase the rate by bidding until the highest bidder takes the material. In major fishing harbours like Thoppumpady and Munambam, there are sub auctioneers appointed by major auctioneers to do auction during peak hours and in major season. After

auction, the material will be weighed and packed in crates with ice by workers, the major work force in the harbour, and loaded into the trucks for transporting to the various destinations like peeling sheds, seafood factories, markets, etc. The wage of auctioneer will be given by the boat owner and the workers will be taking their share from the agent who procured the material in auction.

Table 2: Time of auction & wage structure in different harbours

S. No	Harbour	Time of auction				Wage structure
		Trawlers	Gill netters	Traditional vessels	Purse seiners	
	Beypore	Round the clock	Round the clock	Round the clock	Round the clock	4-5% of the amount of catch
	Puthiyappa	7-10 am &12.30pm - 3pm	4.30am-7 am	Round the clock	7-10am12.30-3pm	4% of the amount of catch
	Thoppumpady	5.30am-8.30am	3.30 am-5am	Round the clock	5.30-9am	4-6% of the amount of catch
	Munambam	5.30 am -4pm	5.30 am-10am	Round the clock	Nil	1-2% of the total amount of catch
	Sakthikulangara	5.00am -9am	Nil	Nil	Nil	Rs.1/kg

Auctioneers

The number of auctioneers varies from harbour to harbour and normally their number fall within the range of 20 to 100 based on the size and business of the harbour. In all harbours, these auctioneers have unions but without any link with political parties. The auction time of each harbour is fixed in advance by the auctioneers in due consultation with workers and boat owners based on the time of landing and also considering the space available in the auction hall, etc. In big harbours the auction starts at early morning and lasts till evening. The time of auction fixed in the major five harbours in Kerala are given in Table 2. Materials will be displaced in the auction hall for understanding its quantity and quality. Auction will be conducted at the specified time by the concerned auctioneer. The wage of the auctioneer is given on commission basis except in Sakthikulangara harbour where one rupee for every kilograms of material is given to the auctioneer and in other harbours about 1-4% of the total revenue is provided based on the material and demand. As mentioned elsewhere above, in major harbours like Thoppumpady and Munambum there will be sub auctioneers who carry out the auction for major auctioneers and the wages of them will be given by the major auctioneer. Generally, sub auctioneers will be given 0.5-3 % of the total revenue by major auctioneers. In addition to the sub auctioneers, there will be helpers for major auctioneer who will also assist the major auctioneer in selling the materials landed in less quantity and their wages will also be given by the major auctioneer.

Buying agents

Buying agents are the people who collect the materials in auction and transport it to the processing and pre-processing units. They are known as

Auction of Cuttle fish at Munambam harbour

factory agents and normally there is no union for them. There will be around 10-20 agents in each harbours. These agents are working on an understanding with the factory and they will collect commission to the material they supply to the factories. With regard to the commission of the agents, there is no fixed rate for material; normally the commission ranged from 0.5 to 2.5 rupees per kilograms of materials supplied to factories (Table 3). Agents procure the materials from harbour as per the requirement of the factories and even collect from other agents too considering the demand of the factory. On certain occasions, agents may arrange the material from other sub agents and in this case the commission will be shared by them without any intimation to the factory.

Table 3: Wage structure of Buyer agents in different harbours

Beypore	Rs.0.5-2/kg
Puthiyappa	Rs.0.5-2/kg
Thoppumpady	Rs.0.6-1.5/kg
Munambam	Rs.0.5-2/kg
Sakthikulangara	Rs.2/kg for prawn and Rs. 1/kg for fish

Loading and unloading workers

The loading and unloading workers are the major work force in harbours who controls the movement of material both inside and outside the harbours. They have unions associated with all major political parties in Kerala. Among these five harbours loading charge including packing and loading into the vehicles is same except in Thoppumpady where an additional charge of Rs. 27 is taken for packing (Table 4). In Thoppumpady and Munambam harbours, workers take high wages when compared to other three harbours where about 22-23 rupees per box is charged for packing & loading. High value items like shrimps and cuttle fish are treated separately in Munambam and Thoppumpady harbours for which the charge is taken according to weight and about 1-1.5 rupees per kilogram is charged in these harbours. In Thoppumpady when fish is loaded directly into the trucks an amount of Rs. 6000- 8000 is charged per truck especially in the case of fish which are taken for 'Surumi' preparation ;mainly small sardines and threadfin breams are taken in this manner. In Munambam, threadfin breams (*Nemipterus* species) are taken for Surumi preparation with loading charge of Rs. 0.87/kg. In Beypore, Munambam and Thoppumpady harbour workers unload the materials from fishing vessels to the auction hall also. The charge for this is included in the loading and packing in the case of the first two harbours whereas in Thoppumpady, it is charged an additional 2-3 % of the total value of the material towards unloading charge. In Puthiyappa and Sakthikulangara fishermen themselves take the material to the auction hall. In Munambum

Table 4: Wage structure of loading and unloading workers of different harbours

Harbour	No. of workers and unions	Packing & Loading	Unloading	Packing
Beypore	120-BMS, CITU and STU	Rs.12-15/box Box loading	Nil	Nil
Puthiyappa	60 –BMS union	Rs.10-15/box	Nil	Nil
Thoppumpady	350-CITU	Rs. 23/box for fish Rs. 1.45/kg for shrimps/ Cuttle fish and Squid Rs. 6000-8000 for fish loading in full track	2% for trawlers 2.5 % for gillnetters 3% Purse seine	Rs. 27 / box for fish
Munambam	250- CITU& BMS	Rs.22/box for fish Rs. 0.87 / kg for *Nemipterus* species Rs. 1.05/kg for shrimps/ cuttle fish	Rs. 15/ box for unloading fish from trucks	
Sakthikulangara	50-AITUC	Rs. 3-5/box		Nil

when trucks are coming from other harbours with material during the low landing days by merchants, workers charge Rs.15/box for unloading the materials from trucks and this practice is not seen in other four harbours. Unloading of ice in Sakthikulangara harbour is also charged with Rs. 3 per block of ice and in other harbours ice is supplied by ice supply team with specific rate. This clearly indicates that each harbour has separate and unique systems in practice and has different wage structure too.

A scene from Munambam fishing harbour

Ice supply team

There are certain groups of people in fishing harbours who are engaged in ice supply in the crushed form. Normally there is no union for this group except in Thoppumpady where they have separate union associated with one of the political parties in the state. In other harbours, they act as a separate group of people engaged in the regular supply of ice by bringing ice to the harbour from the nearby ice factories, crush it and supply to the boats as well as to the auction hall. Among these five fishing harbours Beypore and Thoppumpady harbours have ice crushers with conveyer attached, by which they can crush and supply ice directly to the fish hold for which they charge Rs 4 in Thoppumpady and Rs. 7 in Beypore (Table 5). Whereas in other harbours they supply crushed ice in boxes. The rate of ice varies from season to season and normally it ranges from 50-60 per block and an amount of Rs. 4-7 is taken for crushing. A separate charge of 1.5-3 rupees is taken for unloading the ice from vehicles.

Table 5: Details of ice suppliers and charges in different harbours

S.No	Harbour	No of persons	Ice supply & Charge
1	Beypore	20	Rs.57 /block Rs.7 for crushing Rs.3 /block for unloading from trucks
2	Puthiyappa	20	Rs. 60 /block Rs.3 /block for unloading from tucks Rs.8-10 for crushing.
3	Thoppumpady	45	Rs. 50/block Rs. 4 for crushing Rs.1.5-2.5/block for unloading of ice from vehicles
4	Munambam	30	Rs 55 /block
5	Sakthikulangara	3-5	45-50/block Rs.2 for crushing, Rs.3/block for ice

Ice supplies to the fishing boats

Water supply

In all harbours except Sakthikulangara, water is supplied by a separate set of people and there are no unions for this group except in Thoppumpady as noticed in the case of ice supply team. In Sakthikulangars water is supplied by the diesel pump on free of cost when the vessels fill the fuel from the pump. In Munambam and Thoppumpady, the charge is collected when the vessels return from voyage and 1-6 % of the amount of catch is taken as the cost of water supplied. Normally about 500-1000 litres of water is taken in fishing vessels and it varies depending on the size of the fishing vessels and

the day of fishing planned (Table 6). In Thoppumpady, the water supply charge is separate for different category vessels where 6 % of the total catch is taken from the purse seiners and 3 % is collected from the bottom trawlers and gill netters. The water supply team will arrange the potable water from different sources and brings in tankers for supplying to the fishing vessels. In Beypore and Puthiyappa fishing harbours, the rate is fixed for per litre of water supplied whereas in Beypore only Rs.500 is charged for 5000 litres and in Puthiyappa an amount of Rs.300 is taken for 1000 liters.

Table 6: Details of freshwater supply in different harbours

S.No	Harbour	No of persons	Cost of Water & supply system
1	Beypore	3	Rs.300 for 5000 litre
2	Puthiyappa	4	Tanker supply Rs.300 for 1000 litres
3	Thoppumpady	300	6% of the catch in purse seine 3 % of the catch for trawlers and gill netters
4	Munambam	75	1% of the catch
5	Sakthikulangara	Nil	Will be given by diesel pump on free of coast when taking oil from the pump

Other groups: In addition to the above mentioned groups of workers engaged in various activities in harbours there are certain other groups of workers like boats watchmen, who are engaged by boat owners association to monitor the boats moored at the harbour with Rs.50 per boat as wage and weighing balance operators who are engaged in the weighing of material with a wage of Rs. 0.5 per kg of material weighed. There may be some other groups of workers also who are entrusted with minor activities/works in the harbours but are not widely noticed and gets little attention.

Conclusion: A series of fishery related activities are taking place in the various fishing harbours of the state. The activities and modus operandi of people who are engaged in these practices are also quite different from harbour to harbour. These systems in harbours are not enforced or controlled by any authorities but are self evolved through ages.

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NETFISH provides trolleys at Puthiyappa fishing harbour

Availability of the basic infrastructure facilities at fish landing sites along with proper awareness can contribute towards increased supply of quality fish products for export and domestic consumption. NETFISH has been organizing wide awareness campaigns during the last three years at Puthiyappa Harbour to upgrade the hygienic standards at the harbour and also to ensure sustainable fishing. As a part of these campaigns and to encourage and ensure hygienic handling of fishes at harbours, NETFISH has provided ten big trolleys for the loading workers of Puthiyappa harbour in a function organized on 30th November 2011 at Puthiyappa harbour.

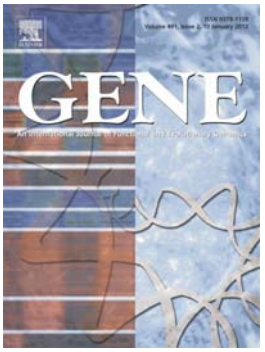
Handing Over the Trolleys to Workers

These trolleys are capable to carry 12 to 14 crates at a time and will be highly useful for the transport of fish from boats to auction hall, ice from vehicles to boats, auctioned fish to vehicles, etc. By using the trolleys it will be easy for the workers to transport the crates rather than dragging it along the floor or holding it by hand. The dragging of crates filled with fish or ice on floor has reported the quality degradation of the fish, damaging the floor tiles or concrete as well as crates and baskets, etc. The use of trolleys will help to eliminate all these harmful impacts to a great extent. Workers and fishermen were also made aware of the advantage of using these trolleys.

Trolleys distributed at Puthiyappa Harbour

The trolleys were distributed by Councilor, Shri V K Mohandas and NETFISH State Coordinator, Smt. Aliamma Kuriachan to Shri Balakrishnan, Secretary of Harbour Vikasanasamithi and Shri Ramachandran, President of BMS Union.

RGCA work published in Internationally Accredited Journal - GENE



An original research work by RGCA team has been published in **GENE**, a high-impact International Journal for Functional and Evolutionary Genomics by ELSEVIER. The paper is entitled "Population genetic structure of *Penaeus monodon*, in relation to monsoon current patterns in Southwest, East and Andaman coastal waters of India" authored by Anup Mandal, Divya Rao, Deepa Karuppaiah, Achamveetil Gopalakrishnan, Jayagopal Pozhoth, Yohannan Chellamma Thampi Sam Raj and Roger W Doyle (Ref: Gene Vol. 491(2); 2012, p. 149–157). This is reportedly the first paper from India related to aquaculture / fisheries in this journal that has an average impact factor of 2.610 (Thompon Reuters, 2011) in the last five years.

Abstract: The black tiger shrimp (*Penaeus monodon*), a commercially important penaeid species, is widely distributed across the Indo-Pacific region. Genetic diversity in *P. monodon* collected from eight geographical regions in Southwest, East and Andaman coastal waters of India (N=418) was investigated using 10 polymorphic microsatellite loci. Average observed heterozygosity at sampled loci were high, ranging from 0.643 (Coromandel Coast) to 0.753 (South Andaman). Pairwise FST (ranged from 0.005 to 0.078) and RST (ranged from 0.005 to 0.171) estimates revealed surprisingly strong and statistically significant genetic structure among tiger shrimp populations. A synthetic map generated by multidimensional scaling shows an apparent cline in allele frequencies paralleling the roughly circular flow of surface currents in the Bay of Bengal. Significant heterozygote deficiencies were noted in most population samples at most loci. Andaman Island sites showed the highest diversity. Recognition of high genetic diversity and distinct population structuring of *P. monodon* in Indian seas has important implications for future domestication of this species in India, for two reasons: identification of the best wild founding stocks for aquaculture and, subsequently, the potential impacts of release of domesticates to the wild, either accidentally or deliberately (i.e. for stock enhancement).

Workshop on Shrimp Pathology organized by Rajiv Gandhi Centre for Aquaculture at Sirkali, Tamil Nadu

A Workshop on Shrimp Pathology was organized by Rajiv Gandhi Centre for Aquaculture (RGCA), the Research and Development arm of Marine Products Export Development Authority (MPEDA), under Ministry of Commerce & Industry, Govt. of India at its Technology Transfer and Training Complex at Sirkali, Nagapattinam District, Tamil Nadu between 14th and 19th November 2011. This workshop was organized by RGCA in collaboration with The University of Arizona, USA.

The workshop got underway after a brief inaugural function on the 14th November. Ms. Leena Nair IAS, Chairman MPEDA & President

Ms. Leena Nair IAS, Chairman, MPEDA & President, RGCA inaugurates the Shrimp Pathology Workshop

RGCA inaugurated the workshop. The programme was presided over by Dr. T Balasubramaniyan, Dean of the Centre for Advance Studies in Marine Biology, Annamalai University, Parangipettai and a member of the Scientific Advisory Committee of RGCA. Ms. Asia Mariam, District Revenue Officer, Nagapattinam, Dr. Carlos Pantoja and Dr. Linda Nunan from the Aquaculture Pathology Laboratory, University of Arizona and Shri Y C Thampi Sam Raj, Project Director RGCA were the other prominent speakers at the function.

Shri Thampi Sam Raj, Project Director, RGCA delivering the welcome address

In her inaugural address, Chairman MPEDA, observed that the country had moved forward from the "start up era" where wild seeds were used for shrimp farming to the "hatchery era" where brood stock collected from the wild for seed production and had now entered the "breeding era" where it was no longer dependent fully on the wild to meet the future Shrimp broodstock requirements, as that would be met by the Specific Pathogen Free (SPF) domesticated brood stocks being developed in the country itself.

The Chairman also observed that Shrimp culture has been at crossroads in India since the year 1995 due to frequent occurrence of disease that caused heavy losses to the farmers and decline in the annual exports of processed Shrimp from India. Shrimp aquaculture industry in the country was particularly lacking clarity on disease identification, diagnosis and control methods. Farmers, Hatchery operators and other Aquaculture professionals had seldom looked beyond "White Spot disease" towards other existing and emerging diseases that also cause widespread losses. It was time to look at other major shrimp diseases, prevalent across the world, and learn their diagnostic, prevention and control methods to overcome and to be vigilant to prevent occurrence of new diseases in the country. Chairman added that it was in this context that RGCA decided to get the services of the best scientists in the world in the field and organize a workshop on Shrimp Pathology for the benefit of Aquaculture professionals in the country and the industry as a whole.

Participants in the Seminar

RGCA organized this workshop in collaboration with world renowned Aquaculture Pathology Lab (APL) popularly known as Dr. Lightner's Lab of University of Arizona, USA. The workshop was conducted in two modules namely 'Basic Shrimp Pathology' for two days from 14th to 15th Nov, 2011 and an 'Advanced Shrimp Pathology' workshop as a continuation of the basic course upto 19th Nov, 2011.

A total of 63 candidates took part in the Basic module and 22 participants among them continued to complete the Advanced module. Participants from all over the country representing the ICAR institutes, state/central Govt departments, Private Labs, Hatchery operators, Universities etc. attended the Workshop. The work shop comprised both theory and practical sessions on Shrimp pathology that were conducted by Dr. Carlos R. Pantoja and Dr. Linda Nunan, from Dr. Lightner's Lab, Arizona.

Dr. C Carlos started the course by providing introduction to gross

Dr. Carlos Pantoja, Faculty Member of the University of Arizona, delivering the felicitation

anatomy and normal histology of penaeid shrimp, followed by lectures on major types of disease affecting shrimp, disease diagnostic and detection methods and the equipments used for these purposes. The Gross signs and pathology of major shrimp diseases including the OIE (World Organization of Animal Health) listed diseases were covered in detail.

The faculty also explained the efficiency of PCR based diagnosis of shrimp pathogens, particularly WSSV and IHHNV (Infectious Hypodermal & Hematopoietic Necrosis) which were most widely seen in India. Dr. Carlos also explained the prevalence of an integrated form of the IHHNV in penaeid shrimp genome which was non infectious and the specific PCR tests to differentiate between infectious and non-infectious one. The faculties reviewed the use of gene probes and ISH (In Situ Hybridization) technique for detection of pathogens.

The participants got information on target tissues for major pathogens and the importance of correct sample and sampling methods for both PCR and histological analyses.

The expert pathologists also described the use of faecal samples for detection of certain pathogens such as NHP-B (Necrotizing Hepatopancreatic–bacteria) and HPV (Hepatopancreatic Parvo Virus). The review on molecular diagnosis started with the basic properties of nucleic acids, their classification and functions. The faculty discussed in detail about the use of PCR, RT-PCR and Nested PCR for detection of viruses and bacteria and use of histopathological techniques for disease diagnosis.

The practical laboratory sessions on PCR were conducted by Dr Linda. The participants were provided opportunity to carrying out the detection of WSSV as an example for DNA virus and detection of TSV as an example for RNA virus from the positive shrimp tissue. The participants also got hands on experience in extraction of total DNA and RNA using extraction kits and their quantitative measurements using spectrophotometer.

Dr. Carlos taught the participants the pathology of major shrimp diseases and its diagnosis by histological methods. Each participant individually got trained on how to observe histological sections, how to locate organ showing signs of diseases. The OIE listed Pathogens such as Taura syndrome (TSV), White Spot disease (WSSV/WSV), Yellow Head disease (YHV/GAV), Infectious Hypodermal & Hematopoietic Necrosis (IHHNV), Infectious Myonecrosis (IMNV) and White Tail disease (MrNV) (listed May 2007) and delisted, NHP-B - (Bacterial disease of shrimp), BP(Baculovirus Penaei) – MBV (Monodon Baculovirus) were taught in detail.

Information provided by the faculty on SPF shrimp brought clarity

Views of workshop

Participants with the faculty members from University of Arizona, USA

about SPF shrimp and high health shrimp in the mind of the participants. Lecture on Biosecurity in Shrimp farm/hatchery were very relevant and enlightening to the participants.

The workshop ended with an evaluation test for the participants conducted by Dr. Carlos. All the participants were praised by the experts from USA for obtaining excellent scores. On the whole, the workshop was highly interactive with the participants posing several queries and discussing many thought provoking ideas.

During the valedictory function of the workshop, participants representing PCR lab, Hatcheries, ICAR institutes as well as Universities expressed their total satisfaction on the way the workshop had been organized. They extended their thanks on behalf of the aquaculture Industry for giving such an exposure on Shrimp Pathology at the right time and appreciated the efforts of Rajiv Gandhi Centre for Aquaculture for organizing such a workshop in India for the benefit of the aquaculture people.

Dr. Carlos R. Pantoja and Dr. Linda Nunan also expressed their satisfaction after evaluating the participants and the way the participants tried to learn new things all through the workshop. The work shop concluded with distribution of certificates to the participants.

MPEDA funds seminar on Organic Aquaculture in India International Food and Agri Expo 2011

The Foundation for Organic Agriculture & Rural Development organized a seminar on "Organic Aquaculture" on 27th November 2011 with the financial and technical support of MPEDA in connection with the India International Food and Agri Expo 2011 and India Organic Fair conducted at Gokulam convention centre, Kaloor, Cochin from 26-28th November 2011. The Expo and Trade fair were organized by the Foundation in association with the National Bank for Agriculture and Rural Development (NABARD).

Shri Thampi Sam Raj, Joint Director (Trg.), MPEDA inaugurates the Seminar in the presence of Dr. A S Upadhyaya, Jt. Director and Shri P N Vinod, Asst. Director(L)

The organic aquaculture is a new initiative in the country promoted in view of the increasing demand for organic seafood in the global market. It is also considered as a sustainable and eco-friendly activity. Hence, MPEDA has been promoting organic aquaculture in India through its India Organic Aquaculture Project (IOAP). The major objective of the Seminar was to lay down a platform for active interaction between the technical experts and the stakeholders on organic aquaculture and for conveying developmental and promotional schemes available from MPEDA for development of organic aquaculture, the current activities of IOAP etc.

A view of the Seminar

The programme started at 10:30 am with the welcome speech of Mr. Sreekumar M S, Chief Executive Officer, Foundation for Organic Agriculture & Rural Development. Mr. Y C Thampi Sam Raj, Joint Director (Training), Marine Product Export Development Authority, inaugurated the seminar. In his inaugural address, Mr. Thampi Sam Raj detailed the opportunities that can be offered by Indian Aquaculture sector and the importance of Organic Aquaculture. He also explained that the standards brought out for organic farming should be adhered strictly to achieve the basic objective of organic farming. He assured the supply of good domesticated brood stocks from RGCA hatchery to comply with the production protocol of brood stocks with the organic standards. He also appreciated the efforts of organic farmers and other stakeholders who are a part of IOAP.

Dr. A S Upadhyaya, Joint Director, MPEDA, in his key note address pointed out the major benefits of organic aquaculture in relation with the environment.

The technical sessions had presentations by Mr. Ashish Jasuja, Business Development Manger, WAB Trading International, Mr. P N Vinod, Assistant Director, MPEDA and Mr. S. Syamkumar, Inspection and Certification officer, INDOCERT. Mr. Joseph Korah, a leading and successful aquaculture farmer from the Kuttanad Organic Scampi Farming Group was the speaker from the farmer's side, who explained about his tryst with organic farming and his experience both in organic and non-organic aquaculture systems.

A total 75 participants attended the seminar. After the technical session, there was an interactive session that facilitated open discussion on various queries and suggestions. The seminar was concluded with the vote of thanks by Mr.Jithin Thomas, Programme Manager, Foundation for Organic Agriculture and Rural Development.

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One-day farmer's meet on "Organic Shrimp Farming" at Matia, North 24 Paragnas

With the growing 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 was about 50 billion US dollars during 2008. 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 overall exposure to harmful chemicals and antibiotics. It is an accepted method of production in a sustainable and eco-friendly manner. In response to this MPEDA has identified organic aquaculture as one of the potential thrust areas for development. In order to implement this programme, MPEDA initiated the "*India Organic Aquaculture Project*" (IOAP) during 2007 and operates the programme in the coastal states of the country.

Shri A K Sarkar, International Manager, ICS WAB Trading International speaks during the meet. Others from (L-R) Shri P N Vinod, Asst. Director-IOAP, MPEDA, Shri B K Mondal, Dy. Director of Fisheries, Govt. of West Bengal and Dr. A D Deo, Sr. Scientist, CIBA.

In West Bengal, traditional shrimp aquaculture production increased from 12,500 Metric tones during the year1990-91 to 40,500 metric tones in 2009-10 due to technological advancements in farming practices. The traditional shrimp farming techniques in West Bengal, based on tidal influence, is practised in the low lying coastal areas of North & South 24 Paragnas districts. The wild seeds of different fish and shrimp species enter the farm along with the tidal waters. The farmers stock natural or hatchery produced seed of *Penaeus monodon* for better yield, into traditional farms, locally known as bheries. After 3 months, seeds are allowed to escape to main bheri by cutting the earthen bund of the nursery pond at 2 – 3 different places. Stocking and harvesting is periodic, according to the lunar phase.

A view of the audience

In North 24 - Paragnas nearly 51 farmers with farming area of 820 Ha. have been identified for starting

organic shrimp culture under the guidance of MPEDA and with the support of M/s WAB International. During the current year, about 40 MT of organic shrimp has been already procured by M/s WAB from the organic shrimp farmers of North 24 Paragnas and exported 12 MT to Europe during 2011-12. In order to create wider awareness among the farmers in the region and to bring more farmers under organic shrimp culture, a One-day Farmer's Meet was proposed at Matia, North 24 Parganas on "Organic Shrimp Farming".

The Meet was attended by 100 shrimp farmers of North & South 24 Paragnas. Apart from farmers, Shri B K Mondal, Deputy Director of Fisheries, Brackishwater (HQ), Govt. of West Bengal, Shri A K Sarkar, International Manager, ICS, M/s WAB International, Dr A D Deo, Senior Scientist, CIBA, Kakdwip, Shri Abhijit Mukharjii, representative from M/s IFB, Shri P N Vinod, Asst. Director (IOAP), MPEDA, HO, Shri B K Das, Asst. Director, MPEDA, RO, Kolkata, Shri P Mallick, farmer representative, Shri A Ray, State Coordinator, NETFISH and Shri J Sengupta, Field Manager, NaCSA, attended the meet.

A group discussion was held in the afternoon session of the meet. The clarifications sought by the farmers on the scheme of MPEDA for organic shrimp farming, were clarified by Shri P N Vinod, AD (IOAP), MPEDA, HO.

During the meeting leaflets about MPEDA's revised financial schemes for organic shrimp farming, status of shrimp farming in west Bengal, list of banned antibiotics in shrimp etc. were distributed to the participants.

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
	PUBLICATIONS	**Price Per copy (Postage extra)**
3.	Chart on Commercial Fishes of India	75.00
4.	Chart on Ornamental Fishes of India	75.00
5.	MPEDA Act, Rules & Regulations	25.00
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17.	Directory of Exporters of Marine Products	75.00
18.	Directory of Exporters of Marine Products CD	30.00

QUALITY FRONT

Japanese Study Team visits India

The Fishing Boat & System Engineering Association (Ministry of Agricuture, Forestry & Fisheries), Tokyo, Japan has deputed a team to India to undertake a study on capacity building and quality control system management including implementation of HACCP system in Indian Seafood Industry, relevent EU Regulations for promoting export of marine products to the European Union etc. The team visited India during October 2011.

The team had their opening meeting at MPEDA-Head Office which was attended by senior MPEDA officials led by Mr. N Ramesh ITS, Director (Marketing). As desired by the study team, Shri K Sasidharan Nair, Assistant Director (QC) made a presentation on the relevant European Commission Regulations governing export of marine products to the European Union.

The Japanese team also made presentations on LED Squid Fishing and the Techniques on Fuel Efficiency in Fishing Boats and the Seafood Traceability System followed in Japan.

Japanese team being welcomed by Mr. N Ramesh ITS, Director (Marketing), MPEDA Seated (L-R): Mr. Toshiyuki Okano, Mr. Kazuo Yamauchi, Mr. Hayashi E, Mr. Norio Nagashima (Team Leader) and Mr. Kensou Tanaka

During the study tour, the team visited MPEDA Residue monitoring lab, Export Inspection Agency, Kochi and Munambam Fishing Harbour apart from a couple of seafood processing establishments at Kochi & Mumbai.

Reciprocal address by Mr. Norio Nagashima, Leaader, Japanese team

The team visits MPEDA Laboratory at Kochi

HACCP (Basic) Training Programme organised by MPEDA at Bhubaneswar

A training programme on HACCP (Basic) was organized by MPEDA, Sub-Regional Office, Bhubaneswar from 29-11-2011 to 02-12-2011.

Shri G Mohanty, Regional President, Seafood Exporter's Association of India (Orissa Region) has inaugurated the workshop. In his inaugural address, Shri Mohanty emphasized the significance of implementation of HACCP in the seafood industry, particularly in the wake of the stringent regulatory requirements imposed by the importing countries. Expressing his concern over the present trend of return of seafood consignments from the country, that too in the context of the global melt-down, he alerted all the Quality Assurance Managers and Technologists present for the training programme to be more cautious and to adopt adequate quality control measures to avert such unpleasant situations. He also advised the trainees to take maximum advantage of this programme and clear their doubts. He also appreciated the efforts of MPEDA in the quality front and lauded for imparting such valuable training to benefit the seafood industry.

Shri G Mohanty, Regional President, SEAI, Odisha Region inaugurates the Training Programme

In his special address to the participants Shri K S Nair, Asst. Director (QC) stressed the need of implementing food safety programmes. Recalling the recent audit performed by the Inspection Mission of the European Commission in the seafood processing establishments in India, he called upon the participants to equip themselves to effectively implement HACCP system in their processing plants, whereby they would be able to boldly face the International audit teams.

Shri S S Shaji conducting the work session during the Training Programme

Earlier, Shri S K Patra, Assistant Director, MPEDA, SRO, Bhubaneswar welcomed the gathering. He appraised the importance of quality assurance in the seafood industry and urged all participants to take maximum advantage of such training programmes to ensure food safety.

The inaugural function concluded by a vote of thanks by Shri J Maheta Mukesh, JTO (QC), MPEDA, SRO, Bhubaneswar.

The faculty members, Shri K Sasidharan Nair, Asst. Director (QC), MPEDA, Kochi, Shri S S Shaji, Asst. Director (QC), MPEDA, Regional Office, Kochi and Shri V Vinod,

Technical Officer (QC), MPEDA, Kochi handled various sessions during the four day training programme. The course which is divided into three distinct segments covered Fundamentals of HACCP, Relationship of HACCP and FDA's Seafood Regulation and Work sessions to develop a seafood HACCP plan.

Additionally, the topics like National & EU Regulations, Special emphasis on SSOP, Traceability etc. were also covered in the training programme for the benefit of the technologists.

The programme was concluded on 2nd December, 2011 with a valedictory function, which was chaired by the Asst. Director, MPEDA, Bhubaneswar.

5th Meeting of ISO/TC - 234 on 'Fisheries & Aquaculture Technical Committee' held at Boulogne Sur Mer, France

The 5th Plenary Meeting, Working Group Meeting and Advisory Group Meeting were held at Boulogne sur Mer, France from 22nd – 24th November 2011, which was followed by a visit of delegates to the Fishing Port & Auction Centre at Boulogne sur Mer and a few near by seafood processing establishments.

The ISO/TC- 234 has chosen India to lead the work in "Traceability for Shellfish including Crustaceans and Molluscs". The Government of India has nominated Dr. S Girija, Director - NIFPHATT, Cochin , the Convener Member of the Expert Group, Shri K Sasidharan Nair, Assistant Director, MPEDA,Cochin, Shri V Vinod, Technical Officer, MPEDA,Cochin and Shri Nobert Karikkasserry, Regional President, SEAI, Kerala to represent India in the 5th Meeting of ISO/TC-234. In the plenary meeting Dr. S Girija presented the standards evolved for "Traceability for Shellfish including Crustaceans and Molluscs", the New Work Item Proposal (NWIP). After deliberations and assessing the progress made in the NWIP, the ISO/TC- 234 agreed to establish a 'Working Group' in the ISO/TC- 234 (viz. WG-07 – "Traceability Standards of Shellfish Including Crustaceans and Molluscs") and passed a resolution to

A view of the Indian Delegation at the Working Group meeting of ISO/TC-234 (L-R) Shri K S Nair, Asst. Director, Shri V Vinod, Technical Officer, MPEDA, Dr. S Girija, Director, NIFPHATT and Shri Nobert Karikkasserry, Regional President, SEAI, Kerala

Fishing auction system at Boulogne Sur Mer fishing harbour in France

the effect that India will lead the Working Group and Dr. S Girija will be the Convener for WG-07.

Besides, taking into consideration the views of other participating countries in the NWIP (viz Thailand, Canada, U K etc.), the ISO/TC-234 has also noted that the traceability standards need to be bifurcated into Crustaceans and Molluscs with further segregation into captured and cultured Crustaceans and Molluscs as distinct sectors. Thus, the ISO/TC-234 requested the ISO Secretariat to include the following projects as new work item of the WG-07.

1. "Traceability of Crustacean Products – Specifications on the information to be recorded in the farmed crustacean distribution chains".
2. "Traceability of Crustacean Products – Specifications on the information to be recorded in captured crustacean distribution chains".
3. "Traceability of Molluscan Products – Specifications on the information to be recorded in farmed molluscan distribution chains".
4. "Traceability of Molluscan Products – Specifications on the information to be recorded in captured molluscan distribution chains".

During the field visit that followed the meetings, the delegates were given an opportunity to visit the Fishing Port at Boulogne Sur Mer, France to witness themselves the post harvest handling at the fishing port and sale of the catch. The delegates also had the opportunity to visit a few seafood processing establishments, including establishments engaged in the processing of value-added fishery products like shrimps, salmon, marinated herrings etc. in ready-to-eat / heat & eat product forms.

The landing centre at Boulogne sur Mer, France

Display of a some value added seafood products in a unit visited by the delegates

CORRIGENDUM

In 'Shrimp market report - Japan' in page 4 of November 2011 issue of MPEDA Newsletter, the Quantity is in MT. Error is regretted

AQUACULTURE SCENE

Training Programme on "Eco-friendly and sustainable shrimp farming, better management practices and aquaculture diversification" by MPEDA, RC, Panvel

"M/s Bhagawati Kolambi Sanvardhan Matsya Vyavasayik Sahakari Sanstha, Chaul village, Alibag Taluk, Raigad District is a society that has applied to the Govt. of Maharashtra for getting suitable brackishwater areas at Chaul for development of shrimp farming. Based on a request placed by them, MPEDA, Regional Centre [Aq], Panvel organized five days' training programme on "Eco-friendly and sustainable shrimp farming, better management practices and aquaculture diversification" during October 2011. The venue of the training was "Sadaguru meeting hall" Shri Sadguru Grameen Bigershethi Sahakari Credit Society, Chaul village. Thirty candidates participated in the training programme.

Shri Pravin Raut, Chairman, M/s Bhagawati Kolambi Sanvardhan Matsya Vyavasayik Sahakari Sanstha Maryadit, Chaul inaugurates the training programme

Demonstration to trainees during field visit

The training programme was inaugurated on 17.10.2011 by Shri Pravin Raut, Chairman, M/s Bhagawati Kolambi Sanvardhan Matsya Vyavasayik Sahakari Sanstha Maryadit, Village-Chaul.

The classes were handled by Officials of MPEDA and Shri Ramesh Hingmire, Fisheries Development Officer, Alibag-Raigad on various aspects of shrimp farming such as role of MPEDA in aquaculture development and their schemes, design, layout and construction of farms, water quality management, life cycle and biology of shrimp, seed production in hatcheries, seed selection, transportation, acclimatization and stocking, pond

preparation, growth monitoring, stock assessment, feed management and feeding schedule, shrimp health management and disease, harvest and post harvest handling, antibiotics and its harmful effects, economics in shrimp farming, bio-security issues, diversification of aquaculture, society registration, culture of Asian seabass and *L. vannamei* .

A field trip was arranged for the trainees on the third day to the farm of Shri Chandrakant Gidi at village-Usadi, Murud, Raigad for practical demonstrations.

Shri S R Patil, Branch Manager, State Bank of India, Chaul was the Chief Guest of the valedictory function. He has distributed certificates and stipend to the trainees.

Shri Maruti D Yaligar, Deputy Director (Aqua), MPEDA speaking at the valedictory function

MPEDA Regional Centre, Panvel Organizes Campaign against use of Antibiotic in Aquaculture

In order to create awareness among farmers / technicians on abuse of antibiotics in aquaculture, MPEDA, Regional Centre [Aqua] conducted antibiotic campaign programme at S K Patil School Hall, Pat Village, Kudal Taluka, Sindhudurg district on 6th December 2011. 23 farmers / technicians and officials from Fisheries Department attended the programme.

Shri Vikas Gavand, Director, S K Patil Education Society inaugurated the programme. The programme had sessions on problem of antibiotic and pesticide residue in aquaculture, precautions to be taken by farmers to avoid residues, concept and GMPs in *L.vannamei* farming, Organic shrimp farming, formation of society / aqua

Inauguration of the programme

club, national residue control programme, ELISA test etc. led by Shri Maruti D Yaligar, Deputy Director[Aq] and Mr. S M Shirodkar, Jr. Tech. Officer [Aq], MPEDA.

Shri V G Gavankar, Principal, S K Patil High School and Shri V B Kamble, Assistant Fishery Development Officer, Dept. of Fisheries, Sindhudurg District also attended the programme.

A view of participants

Training Programme on Mud Crab Farming by MPEDA, RC, Bhubaneswar in Ganjam District

A 2-day training programme on Mud Crab Farming was conducted by MPEDA Regional Centre, Bhubaneswar at Sunapur village in Ganjam district from 14th to 15th December, 2011. Twenty crab/shrimp farmers attended this programme.

The training programme was inaugurated by Dr. D Satpathy, Professor (Aquaculture), College of Fisheries, Rangailunda, Brahmapur.

Shri G Rathinaraj, Deputy Director (AQ) in his welcome address narrated the role of MPEDA in the development of shrimp/scampi farming in Odisha state and the importance of conducting the programme for the benefit of farmers. He stressed for diversification in aquaculture for sustainability and suggested Crab/Seabass as the best alternative. 'Mud crab has great demand among all the exportable sea food items. Its meat is delicious and nutritious and is being exported live to overseas market. Scientific method of mud crab farming involves rearing of hatchery produced crablets, feeding with supplementary artificial feed in the rearing ponds with more numbers upto marketable size (> 500 Gm) while maintaining soil & water quality parameters.

Inaugural session

Dr. Satpathy, in his inaugural speech, appreciated MPEDA for conducting such a training programme for the benefit of crab farmers. He has also requested MPEDA to conduct more such programmes especially in Ganjam District as this District is considered to be potential for crab farming and shared his research experiences conducted on mud crab farming with trainees.

Shri U C Mohapatra, Assistant Director (AQ) explained the crab demonstration conducted by MPEDA in the pond of Shri Bagban Behera at Sunapur last year leading to the

Trainees with the harvested crabs

production of 243 Kg. Mud crabs of 525 gm. Average size from 0.16 ha of water spread area of the said demonstration pond.

Transportation is the bottleneck for the farmers of Odisha. As there are no direct flight to overseas markets, farmers depend bus/train to transport their products to Kolkata/Chennai from where crabs in live form are exported to countries like Singapore, Japan, Taiwan and other countries. The farmers get Rs 300 to 400 only per kilogram for the crab from the exporters in Kolkata and Chennai but actually sold at more than double in export markets.

Dr. D Satpathy, Professor (Aquaculture), College of Fisheries delivered the lecture with power point presentation both in the forenoon & afternoon sessions covering topics such as habitat & distribution, taxonomy, identifying features of mud crab such as *Scylla serrata and S. tranquebarica*, life cycle, hatchery seed production of mud crab, nursery rearing, grow out technology, harvest and marketing and diseases were presented by him. On 15th December, 2011, Shri A Panigrahi, District Fisheries Officer, Ganjam District delivered a guest lecture on the present and future prospects of crab farming in Odisha state and pointed out suitable areas available in the district for mud crab farming. Shri U C Mohapatra, Assistant Director (AQ) made a power point presentation covering pond preparation, pond management, crab seed transportation, crab seed stocking, water management, feed & feeding & health management. Shri G Rathinaraj, Deputy Director (AQ) gave a lecture on 'economics of crab farming'. A field visit was arranged to the nearby crab farms belonging to Shri Debaraj Behera, Nirangan Behera & Antaryami Behera.

A group discussion was arranged and trainees interacted with MPEDA/BFDA officials and clarified their various doubts. On behalf of trainees Shri Laxman Behera & Shri Babula Behera expressed their views on the training programme stating that the training was very much useful and they informed that they would stock crablets produced from hatcheries in future. In the afternoon, a valedictory function was organized and was presided over by Shri A Panigrahi, DFO, Ganjam District. Shri Panigrahi, DFO, Ganjam in his address suggested the trainees to make full use of the information gathered during the pogramme and distributed the certificates to the trainees.

A view of the trainees

Screening test menu includes:

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CE

NEWS SPECTRUM

Massachusetts — Throw Away Your Shrimp, But Keep Their Shells

Researchers at Harvard University have combined chitosan and silk to form an amazingly tough material called "shrilk". Here are some quotes from their most recent research.

"We refer to this novel composite material as "shrilk" because chitosan is commonly isolated from shrimp shells and fibroin comes from silk. Interestingly, mechanical testing revealed that the shrilk laminate exhibits an ultimate strength which is ten times stronger than that previously described for a chitosan/fibroin blend with similar weight-to-weight ratios, and it exhibits twice the strength of chitosan, which is its strongest component."

"Bio-inspired cuticle mimics may prove useful as replacements for plastics in consumer products and for certain medical applications, as chitosan and fibroin are bio-degradable, bio-compatible, and used in approved clinical products."

"Importantly, shrilk even exhibits novel properties compared to other common high-strength materials, as it is twice as strong as nylon and it has similar strength to aluminum alloys, but at half their weight due to its lower density."

In one configuration, "shrilk could potentially serve as a bio-compatible and bio-degradable scaffold for small vessel repair or as a nerve conduit given its high bio-compatibility."

"Based on its outstanding strength and versatility, as well as its low cost and density, shrilk is an excellent candidate as a bio-degradable plastic that could have great value as a replacement for existing non-degradable plastics in a wide range of consumer product application areas, including disposable bottles, trash bags, packing materials and diapers that currently pile up in waste

Seafood now DNA certified

RESTAURANTS worldwide will soon use new DNA technology to assure patrons they are being served the genuine fish fillet or caviar they ordered.

In October, the US Food and Drug Administration officially approved so-called DNA barcoding - a standardised fingerprint that can identify a species like a supermarket scanner reads a barcode - to prevent the mislabelling of both locally produced and imported seafood in the United States.

Other national regulators around the world are also considering adopting DNA barcoding as a fast, reliable and cost-effective tool for identifying organic matter.

David Schindel, a Smithsonian Institution palaeontologist and

executive secretary of the Washington-based Consortium for the Barcode of Life, said he has started discussions with the restaurant industry and seafood suppliers about utilising the technology as a means of certifying the authenticity of delicacies.

"When they sell something that's really expensive, they want the consumer to believe that they're getting what they're paying for," Schindel told The Associated Press.

"We're going to start seeing a self-regulating movement by the high-end trade embracing barcoding as a mark of quality," he said.

While it would never be economically viable to DNA test every fish, it would be possible to test a sample of several fish from a trawler load, he said.

Schindel is organiser of the biennial International Barcode of Life Conference, which is being held on Monday in Adelaide. The fourth in the conference series brings together 450 experts in the field to discuss new and increasingly diverse applications for the science.

Applications range from discovering what Australia's herd of one million feral camels feeds on in the Outback to uncovering fraud in Malaysia's herbal drug industry.

Schindel leads a consortium of scientists from almost 50 nations in overseeing the compilation of a global reference library for the Earth's 1.8 million known species.

The Barcode of Life Database so far includes more than 167,000 species.

Mislabelling is widespread in the seafood industry and usually involves cheaper types of fish being sold as more expensive varieties. A pair of New York high school students using DNA barcoding of food stocked in their own kitchens found in a 2009 study that caviar labelled as sturgeon was actually Mississippi paddlefish.

In a published study a year earlier, another pair of students from the high school found that a quarter of fish samples they had collected around New York were incorrectly labelled as higher-priced fish.

Mislabelling of fish - which account for almost half the world's vertebrate species - also poses risks to human health and the environment.

In 2007, several people became seriously ill from eating illegally imported toxic pufferfish from China that had been mislabelled as monkfish to circumvent US import restrictions. Endangered species are also sold as more common fish varieties.

-Rod Mc Guirk, The Daily Telegraph,

Spotlight On Seafood: Outlook

The seafood industry is the most diverse protein-producing industry. It is a unique sector as approximately 50 per cent of the supply for human consumption comes from wild catch, the world's only commercially significant form of food production which relies on wild resources.

The seafood industry is the most diverse protein-producing industry. It is a unique sector as approximately 50 per cent of the supply for human consumption comes from wild catch, the world's only commercially significant form of food production which relies on wild resources.

The other 50 per cent is produced by aquaculture, a young and dynamic industry that represents the fastest growing protein-producing system in the last three decades and also in the foreseeable future. Among these two production systems there are many species- based markets across the globe, all with highly uncorrelated dynamics. All share the same strong demand function, as developing countries are undergoing a dietary shift towards a higher level of protein consumption while developed countries are focusing on food with health benefits found in seafood, such as Omega 3 and low saturated fat content.

However, apart from the demand function, the subsectors in the seafood industry are highly diverse. This diversity has created a sector which is fragmented and challenging for investors. But it is precisely this fragmentation and diversity that is creating the opportunity for leading producers to take a number of strategic directions: they could become specialised in a single subsector and diversify regionally or globally, as Marine Harvest, the world's leading salmon farmer has done, or they could pursue a diversified business model strategy based on the many species of the seafood industry.

In both cases, profitability and sales growth can benefit from the demand function of the seafood industry, technological improvements and potential synergy from acquisitions.

Resilient business model based on three pillars

Rabobank is of the opinion that the global seafood industry is currently at the very beginning of cross-species, cross-geography and cross-value chain consolidation. We believe that the integration of wild catch, aquaculture and seafood processing into a single diversified entity is only just starting to gain ground as a business model concept.

Each one of the three pillars has a role to play. A wild-catch producer in a well-regulated and consolidated fishery will be the key cash generator, and with its strong asset base (fishing quotas and vessels), can function as a guarantor for the diversified group. The aquaculture part will benefit from the sector's growth dynamic and will be the key recipient of investment funds.

Finally, the processing unit will benefit from the upstream synergy in logistics, distribution, marketing and branding, which all seafood products share, regardless of their wild-catch or aquaculture origins. The processing unit will also act to mitigate the volatile spot prices adding further financial stability to the group.

The experience of companies such as Pescanova and Sanford testify to the consistent and peer-leading financial performance of the diversified seafood producer model.

More recently, Chilean companies like Camanachaca and the recently formed Blumar Seafoods, as well as US- based Icicle Seafoods have started to pursue this diversified strategy.

In our opinion, this business model is resilient to macroeconomic and commodity cycles while it also capitalises on the growth potential of the seafood industry. By no means will this be the only successful business model in the seafood sector. Species specialists, one-stop-shop processors and other business models will also perform well. However, it is the diversified business model which utilises the diversity of the seafood industry to create a type of business enterprise unique to this sector.

The profile of this industry is growing among financial investors, who will act as catalysts to enable the expected consolidation as well as help to finance the rapid technology developments and expansion plans of the aquaculture sector. The diversified business model could certainly be attractive for PE investors, which until now have refrained from investing in aquaculture because of its cyclicality, biological assets and frequent business environment changes.

Finally, it is also possible that the seafood industry will gradually attract the attention of the more consolidated and larger animal protein industry which could be a key investor in the mid to long term and is likely to target some of the high- growth aquaculture sectors, such as salmon, shrimp or tilapia.

Source : thefishsite

EU Maritime and Fisheries Fund launched in Brussels

THE European Commission has proposed a new fund for the EU's maritime and fisheries policies for the period 2014-2020: the European Maritime and Fisheries Fund (EMFF).

The Fund will help deliver the ambitious objectives of the reform of the Common Fisheries Policy and will help fishermen in the transition towards sustainable fishing, as well as coastal communities in the diversification of their economies. The fund will finance projects that create new jobs and improve quality of life along European coasts. Red tape will be cut so that beneficiaries have easy access to financing.

Maria Damanaki, Commissioner in charge of Maritime Affairs and Fisheries, said: "This new fund will increase economic growth and create jobs in the sector. No more money will be spent to build big vessels. Small scale fisheries and aquaculture will benefit from this budgetary greening of the Common Fisheries Policy."

This new fund will replace the existing European Fisheries Fund (EFF) and a number of other instruments. The proposed envelope amounts to • 6.5 billion for the period 2014 to 2020.

Struan Stevenson, Conservative fisheries spokesman in the European Parliament commented that the new system contains good and bad news - the European Maritime and Fisheries Fund is intended to offer more-efficient and simpler to access for potential beneficiaries, including governments, enterprises, fishermen and coastal communities. It aims to support sustainable growth - for natural resources and for local communities.

But Mr Stevenson, MEP for Scotland, said the overall funding pot of €6 billion was insufficient.

He explained: "That is only €6 billion for all of the EU maritime economy, of which fisheries is only a part. So compared to the €50 billion spent on Common Agricultural Policy that is not very much."

He pointed to several welcome measures in the package, including more focus to be put on aquaculture, and said: "We need to invest more in research, development and innovation in this industry, as Europe is only 40 per cent self-sufficient in fish and we have to import the other 60 per cent. This means there is a fantastic opportunity to expand EU fish farming if we are prepared to provide the necessary financial support."

He also welcomed the greening aspects of the EMFF and proposed investment aimed at better scientific input to fisheries and closer co-operation between scientists and fishermen.

He said: "Sustainable fisheries and the ecosystem approach are vital for healthy seas, healthy fish stocks and healthy fishing communities.

But one controversial item was a decision to end grants for decommissioning and to rely on the market to sort out fleet overcapacity in future: "The system they wish to implement to achieve this is called Transferable Fisheries Concessions - which the Common Fisheries Reform regulation proposes may be traded between Member States.

"This could lead to the wealthiest Spanish fishing companies buying up all the UK quota, and then landing their catch in Vigo rather than ports such as Peterhead and Fraserburgh. Such an outcome would devastate our fleet and our fragile fishing communities and will be vigorously opposed.

Louize Hill, Head of Marine & Fisheries at WWF's European Policy commented: "After the poor performance of the EFF, subsidies are only justifiable if they help to end overfishing and stimulate the sustainable management of fisheries. In order to save jobs in the fisheries sector and make them profitable, we first need to restore and properly manage fish stocks and the environment on which they depend. Unfortunately, the EMFF proposal lacks the ambition to help transform Europe's fisheries management and lay a solid basis for healthy and profitable fisheries in the future.

"While we welcome the removal of harmful subsidies that increase fishing capacity of the fleet, WWF is concerned about proposed allocations for modernisation of equipment and aquaculture. Strict safeguards are needed to prevent these funds supporting oversized fleets or harming the environment. In times of financial austerity the last thing citizens should be expected to do is pay to keep an unprofitable fishing sector afloat that continues to overexploit scarce natural resources."

US and EU on Collision Course over Antibiotics?


Chris Harris

The debate over the use of antibiotics on animals and their potential to produce antibiotic resistance in humans has been stepped up in recent weeks.

In the EU, the European Commission has introduced an action plan detailing 12 concrete actions to be implemented in close cooperation with the Member States.

European Commissioner for Health and Consumer Policy, John Dalli said: "We need to take swift and determined action if we do not want to lose antimicrobial medicines as essential treatment against bacterial infections in both humans and animals.

"The 12 concrete actions for the next five years could help limit the spread of anti-microbial resistance and help develop new anti-microbial treatment. Their success requires joined efforts from the EU, the Member States, healthcare professionals, industry, farmers and many others."

The Action Plan specifically states that more action should be taken to ensure that antimicrobials are used appropriately in animals.

It also wants to improve the monitoring and surveillance of antimicrobial use.

Tough measures have also been taken separately in Germany and France to increase the monitoring of their use and reduce their use where possible.

In the US, however, the Food and Drug administration has refused two longstanding petitions to limit the use of antibiotics on farms.

The petitions were filed in 1999 and 2005 by the Center for Science in the Public Interest (CSPI) together with several environmental and medical organisations calling on the FDA to cancel its approval of the 'herdwide and flockwide' uses of several classes of antibiotics for promoting growth and preventing disease in chickens, swine and beef cattle, out of concern that such use will spur resistance and reduce the drugs' effectiveness in humans.

The FDA said it preferred a voluntary code for the reduction in the use of antibiotics and added that to ban them could lead to lengthy and expensive litigation.

The FDA's stance comes in the face of research from Tufts University School of Medicine calling for stricter regulation of the practice of using antibiotics for non-therapeutic reasons.

"The United States lags behind its European counterparts in establishing a ban on the use of antibiotics for growth promotion. For years it was believed that giving low-dose antibiotics via feed to promote growth in cows, swine, chickens and the use of antibiotics in fish farming had no negative consequences. Today, there is overwhelming evidence that non-therapeutic use of antibiotics contributes to antibiotic resistance, even if we do not understand all the mechanisms in the genetic transmission chain," says Dr Stuart Levy, MD, professor of molecular biology and microbiology and director of the Center for Adaptation Genetics and Drug Resistance at Tufts University School of Medicine.

It is this dichotomy between the stance being taken by the US Food and Drug Administration and the stricter

stance of the European Commission that could lead to potential troubles.

In the World Trade Organisation Doha trade talks, some of the stumbling blocks in the agricultural discussions have been the divides over the use of Sanitary and Phytosanitary as a means to block free trade.

South American countries have shouted long and hard that they are being unfairly treated by the EU and the US over bocks to trade in meat products and livestock.

Concerns over Foot and Mouth Disease and also health and hygiene practices in processing plants have led the way in the disputes between the two blocs.

The EU and the US has a history in taking robust stance on health and safety issues where meat and food is concerned.

For years, the EU banned beef from the US because of the use of growth promoters that they had banned. The European Commission maintains that they are carcinogenic while the US refutes the claims and backs their safety with different scientific research.

The ban led to a cycle of retaliatory tariff measures against other goods coming from the EU to the US.

Earlier this year the measures were relaxed as a larger quota of non-hormone treated beef was allowed into the EU from the US, but the dispute has still not and is never likely to be finally settled.

Now, the use of antibiotics in livestock production for non-therapeutic reasons could spark another trade war between the US and the EU.

The US Government Accountability Office this autumn called for greater monitoring of their use and surveillance of antibiotic resistance in humans. It also called for research into alternatives to antibiotics for non-therapeutic use - but will this be enough when the FDA still takes a stance that it should be a question of choice.

With the EU tightening its controls on antibiotic use, having already banned their use as a growth promoter, it would seem that a head-on collision between the EU and the US is inevitable and the fallout could be considerable and costly.

Chris Harris, Editor-in-Chief the fish site

Fishermen catch 50 per cent more using fisheries mobile service

Fishermen of over a dozen coastal villages in Raigad district of Maharashtra have been catching 50 per cent more in their nets ever since they began to use mobile sets that provide satellite data and maps on prospective fishing zones.

The fishermen of these villages receive real-time maps and data about prospective fish schools, storms, wind direction and velocity directly on these sets.

The sets were distributed under a pilot project being run by the Indian Council of Agricultural Research (ICAR), Indian National Centre for Ocean Information Services (INCOSIS), Hyderabad, and Tata Consultancy Service (TCS) in Mumbai.

"We are using satellites to get precise data and maps about prospective fish zones, wind direction and wind velocity and weather conditions, which help the fishermen a lot," said Veerendra Veer Singh, Principal Scientist at the Mumbai Research Centre of the Central Marine Fisheries Research Institute (CMFRI), Cochin.

"A total of 13 mobile sets have been distributed to the village societies to disseminate the most up-to-date information," Mr. Singh added.

CMFRI is an institute of ICAR.

Mr. Singh has headed the project since its inception and is currently in charge of the pilot project launched in 2010.

"Currently, 5 per cent of the fishers in selected villages are using the technology, which in turn leads to a saving of 5 lakh litres of diesel per year, costing around Rs. 250 lakh every year," he said.

At present, 1,296 motorised and mechanised boats are operating in the 13 coastal villages covered by the project, consuming approximately 200 lakh litres of diesel per year, the CMFRI scientist said.

It is estimated that after following the advisories provided through 'mKRISHI—Fisheries Mobile Service', fishermen will save approximately 50 per cent of this diesel (i.e. 100 lakh litres of diesel per year), Mr. Singh said.

"The movement of fishes is based on temperature, food resources, water current, wind direction and wind velocity," he said.

The fishermen have reported a 40-50 per cent in their catch, coupled with a reduction in the time they spend at sea and expenses, the CMFRI scientist said.- PTI

'We are using satellites to get precise data and maps about prospective fish zones'

-The Hindu

Vannamei shrimp, falling rupee boost seafood exports

Year 2011 has been good for the Indian seafood export industry aided by afalling rupee and surging unit value realisations.

While total value realisations increased almost 25 per cent, the volume of exports was up tersely at 2-3 per cent.

The unit value in dollar terms was higher, said Mr Anwar Hashim, Vice-President of the Seafood Exporters Association of India (SEAI).

This was accompanied by increased demand from overseas markets such as South-East Asia and China.

Also, farmed shrimp production witnessed substantial growth as more areas were brought under the highly productive vannamei cultivation. While shrimp exports continue to dominate India's export basket, the current surge in shrimp exports was made possible through increased production of the vannamei variety, Mr D. B. Ravi Reddy, President of SEAI said.

Year-on-year, there was a 17-18 per cent depreciation in the value of the rupee enabling the seafood exporters to reap rich rewards.

While all seafood exporters stood to gain, it was the exporters who took the least forward cover in dollar in the currency futures markets who made the most significant gains, Mr Hashim said.

Rupee fall

Going by the present trend he said that the fall in the value of the rupee is likely to persist into March – the end of the current fiscal. Recalling the

experience of Thailand and Indonesia where their currency had plunged sharply couple of years ago, he said currencies made good gains but were never able to recover their previous levels. This is likely to be the case in India as well.

India's seafood export has gained considerable mileage on account of the large size of the new vannamei shrimp.

Being still early days for vannamei production in India, the nutrient rich soil and water had aided in reaping a rich and large-sized crop.

To maintain the crop productivity and size, sufficient nutrients will have to be added before the ensuing seasons. The large size also kindled increased demand for the Indian shrimp. The productivity of vannamei crop is substantially higher than tiger shrimp cultivation, bringing more profits to farmers and shoring up volumes for exports.

Sustainability

Strides in aquaculture have always been accompanied by the call for sustainability, Mr Ravi Reddy said.

The effect of fish farming on the environment has to be acceptable in both the short and long term. As the seafood industry in India is about the witness yet another year of growth and success, the industry's commitment to sustainability remains as strong as ever.

The India International Seafood Show 2012, which is to be organised jointly by the Marine Products Export Development Authority and SEAI, from February 29 to March 2 in Chennai will highlight the potential of the Indian marine industry in achieving sustainability, Mr Ravi Reddy said.

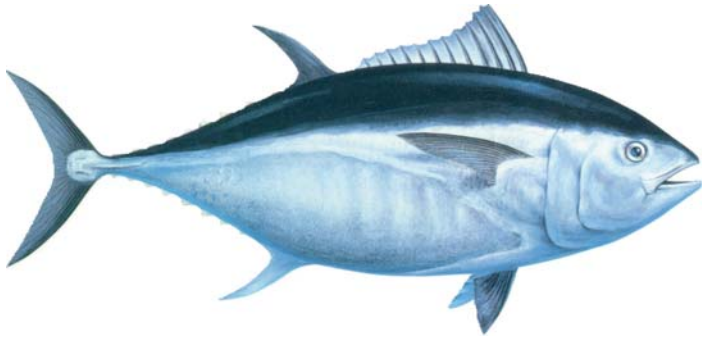
Going by current trends, the ambitious seafood export targets set for the year seems to be within reach.

Aided by a significant marine catch and increased aquaculture production, ASSOCHAM's prediction that India's seafood industry, both domestic and exports, would reach Rs 67,800 crore from the current level of Rs 53,000 crore also seems possible.

-Hindu Business Line

New Technologies In Tuna Breeding

Unlike smaller species, broodstock management for large pelagic finfish such as tuna involves many difficulties, said Christopher Bridges, Heinrich-Heine Universität, at Aquaculture Europe 2011. Charlotte Johnston, TheFishSite editor reports.



The handling of such large fish of over 60 to 80 kg such as the bluefin tuna precludes many of the techniques used previously for smaller fish such as sea bream and sea bass.

New technologues are available through the EU programmes, including environmental monitoring of both cage and fish temperatures to predict spawning, broodstock identification, sex and tagging together with gamete induction and parentage of offspring and traceability.

Environmental and fish monitoring

This task is accomplished by using cage based light and temperature data loggers (HOBO) which could be sampled underwater using a submersible shuttle system. Fish data-loggers (Star-oddi) were mounted in syntactic foam floats and were implanted under water using a speargun. Both types of loggers could be individually programmed to record at set rates and times.

The results of the cage data-loggers were compatible with the recordings made from the Fish data-loggers. Temperature within the cage could be monitored quite easily and predictions made as to when the water temperature would reach 24°C.

Broodstock Identification, Sex and Tagging

This was done using a novel system developed to both tag and take a muscle biopsy at the same time (See Fig. 1. B and C). Fish were DNA-fingerprinted using molecular techniques and at the same time biomarkers (Vtg and ZRP) were used to determine sex. Tags and biopsy sampling is possible using both jab stick and speargun applications.

The broodstock could easily be tagged with ID markers and PIT tags and from the muscle biopsy both sex and DNA fin-printing was carried out enabling an approximate 90 per cent certainty in sex discrimination. A speargun based system for small muscle biopsies required for broodstock fin printing has been developed recently by the HHU Biology Workshop.

For the induction of spawning the tags used have been developed over a number of years moving from plastic carriers for hormones to titanium mounts together with detachable suture material. Application has been by jab stick and speargun and if required the direct implantation of custom-made or hormone pellets can be carried out.

Gamete Induction

Using a series of pre-prepared colour-coded tags (Figure 1. D) together with hormonal implant carriers individual fish could be tagged and hormonally induced or treated underwater. This could involve either GnRHa to induce spawning in mature fish to estradiol implants to improve gamete production.

Parental contribution to gamete production i.e egg production is possible using either microsatellite markers or mitochondrial DNA which give differing resolutions of parental contribution.

Discussion and Conclusions

The use of these new novel methods in aquaculture allows a more complete control of broodstock management and monitoring, concluded Mr Bridges. For open water gamete production the monitoring of temperature and light conditions are of great importance.

Since the size of the fish precludes the normal practices of removal from water then semi non-invasive techniques such as tagging, muscle sampling and hormonal induction can be carried out successfully underwater.

If the goal of sustainable aquaculture is the continued supply of viable gametes from the broodstock then the use of these new technologies will allow the control and performance monitoring of individual broodstock and further the ultimate goal of traceability from parent to egg to the table can be reached for the consumer.

Source: the fishsite

Queensland — The First Commercial Spiny Lobster Hatchery

On December 16, 2011, Tim Mulherin, Queenland's Minister for Agriculture, Food and Regional Economies, announced the opening of the world's first commercial spiny lobster *(Panulirus ornatus)* hatchery at its Northern Fisheries Centre in Cairns, Queensland. Mulherin said scientists at the facility, led by Dr. Clive Jones, "are now seeking investors to expand the pilot hatchery into a full-scale commercial operation at an appropriate location in north Queensland." The Queensland Government recently signed an agreement with Sydney-based company, Harvest Capital Partners, which hopes to raise $12.8 million from investors in Asia to develop the project.

-Source: Factiva

Double ZZ All-Male Prawns

(Excerpts from the interview with Mr. Craig Upstron, Aquaculture of Texas, Inc.)

Shrimp News: Why grow all-male prawns?

Craig Upstrom:

- Males grow much faster than females, and reach a larger size.
- The market likes large prawns and pays more for them.
- All-male prawns have the potential to double pond production in the USA.
- All-male ponds eliminate skewered size distributions in ponds.
- The process requires no chemicals, hormones or genetic manipulations.

Shrimp News: How do you create all male prawns?

Craig Upstrom: It's basically done through the removal of the androgenic gland in the males, which turns them into neo-females. We then mate those neo-females with normal males to get all-male offspring.

Shrimp News: How did you learn how to do that?

Craig Upstrom: A fair amount of research has been done on creating all-male prawns, but the only concept that made sense to me was the work being done on the removal of the androgenic gland, so I started by reading all the research I could find on the androgenic gland in crustaceans.

Unfortunately, most of it was theoretical. It took me more than four years to perfect procedures that worked. It was all trial and error experimentation.

Shrimp News: I like the name—"Double ZZs"—that you're using for the new, all-male prawns. How did you come up with that name?

Craig Upstrom: In crustaceans, the sex chromosomes are ZZ for males and ZW for females (unlike mammals that are XY and XX), so ZZ means they have two male chromosomes.

Shrimp News: Will you have all-male animals ready for sale by the spring of 2012?

Craig Upstrom: I should! Last year, I produced 100,000 in one batch. I hope to have millions of animals ready for the spring of 2012.

Shrimp News: Did you do any growout trials with those 100,000 animals?

Craig Upstrom: Yes, we stocked two of six, 1.5-acre ponds at a customer's farm in Texas with 20,000 double ZZs per acre. Due to the extreme drought in Texas last year and chronic low dissolved oxygen levels in his ponds, production was down; however, the largest and highest production of prawns came from the ponds stocked with "Double ZZ's". Not a single female was found in those two ponds.

Shrimp News: How much are you going to charge for the Double ZZs?

Craig Upstrom: I haven't figured that out yet. Tentatively, I'm thinking about $60 a thousand. The nurseries will probably double that figure and sell them for $120 a thousand, which is not a whole lot more than they're getting for normal juveniles. I think the production of all-male progeny is going to give the United States prawn farming industry the kick that it needs to move to much higher of production levels.

-Source: Telephonic interview with Craig Upstrom, Aquaculture of Texas, Inc., 4141 East IH-20 Service Road North, Weatherford, Texas 76087, USA (phone 1-817-594-4872, email upstrom5@airmail.net, webpage http://www.aquacultureoftexas.com). By Bob Rosenberry. (Shrimp News International, Dec. 9, 2011)

Global warming benefits parasites, disadvantages fish: study

Scientists from the University of Leicester's Department of Biology have found that higher water temperatures allow parasitic worms that infect fish to grow four times faster and influence the fish to prefer warmer temperatures. This study is one of the first to prove that global warming affects how parasites and their hosts interact.

The results, supported by funding from the Biotechnology and Biological Sciences Research Council (BBSRC) and the Centre for Environment, Fisheries and Aquaculture Science (Cefas), were published in the journal *Global Change Biology*.

The researchers saw behavioural changes in infected fish, suggesting that parasites may manipulate host behaviour to make them move to warmer temperatures, where the host's growth rate slowed.

"What we witnessed was that fish infected with the largest worms showed a preference for warmer water, suggesting that these parasites also manipulate the behaviour of host fish in ways that benefit the parasites by maximizing their growth rates," said Dr Iain Barber, who carried out the study with doctoral student Vicki Macnab.

Macnab noted that the size these parasites attain in their fish hosts determines how severely fish reproduction is affected, such that, according to the study, parasites will have a more serious effect on fish reproduction if temperatures rise.

"This research shows that global warming could shift the balance between parasites and their hosts with potentially serious implications for fish populations," she stated

Parasitic worms infecting stickleback fish grew four times faster in waters of 20 °C compared to 15 °C, and the fish grew more slowly, suggesting that fish parasites handle higher temperatures much better than the fish they infect.

"The results are important because the size these parasites attain in their fish hosts also determines their infectivity to fish-eating birds like kingfishers and herons – the next hosts in the parasite's life cycle – and also the number of parasite eggs that they will go on to produce. Bigger larval parasites in the fish go on to become larger adult worms in birds, which produce more eggs," Barber said.

Barber pointed out that after the eight weeks of the study, all of the worms held at 20 °C were mature enough to infect fish-eating birds, whereas none of those held at 15 °C had reached that size.

Moreover, a follow-up study showed that fish infected with the largest worms showed a preference for warmer water — suggesting that these parasites also maneuver the behaviour of host fish to benefit the parasites and maximize their growth rates.

The results provide some of the first evidence that increasing environmental temperatures can accelerate the speed at which parasites complete their life cycles, which could lead to a higher overall level of parasitism in natural animal populations.

Source:fis., UK

Algae Farm To Provide Biodiesel & Fish Food

INDIA - World Health Energy Holdings, Inc, a public holding company developing joint venture partnerships for algae production for biodiesel and commercial fish food, has announced the signing of a Letter of Intent with Prime Inc, an Indian Industrial and transport Company, to develop a biodiesel production facility ramping up to 250 acres with a budget of up to 100 million dollars.

The proposed sites for development are in Tamil Nadu and Karnataka, India and will utilise an Algae Enhancement Technology, known as the GB3000 system, used for growing algae for the production of Fish Feed, Proteins and

Biofuel in the Territory of India. Prime Inc. India's current clients include: Exon, Shell, General Electric (GE) and Siemens.

Liran Kosman, CFO of World Health Energy, said: "We look forward to working with Prime Inc. India in the design, development and support of a cost-efficient algae production farm. We anticipate scaling up operations and completing a number of significant algae projects in 2012."

World Health Energy Holdings, Inc. recently acquired GNE-India, an algae technology company with the distribution and licensing rights to a unique and innovative technology, the GNE GB 3000 system, to grow algae quickly and efficiently for the production of biodiesel and commercial fish food protein. GNE-India owns and retains the territorial rights for distribution and sales of the proprietary technology to both India and Sri Lanka. The company has exclusive distribution and licensing rights to the GNE GB 3000 system in India and Croatia. Earlier this year, the GB 3000 system was used to grow a combination of local algae species, as well as Chlorella, targeting the product to the fish feed and biodiesel markets.

World Health Energy Holdings, Inc. is focused on biofuels produced from algae, which boasts substantially higher yields in comparison to ethanol derived from corn, rapeseed, jatropha and palm oil. The company also works with visionary enterprises in the multi-billion dollar renewable energy arena producing progressive, broad-based solutions for better physical, nutritional and environmental health worldwide. In addition, the company is pursuing an ancillary use of algae — the efficient production of high-protein fish feed for commercial fish farms.

TheFishSite News Desk

Killing of endangered fish for research work comes under criticism

Miss Kerala (Puntius Denisonii), is an endemic fish variety found mainly in the Western Ghats.

A study on the risks of over collection of the endangered freshwater fish *Puntius denisonii* for aquarium trade has come under criticism for the "wasteful euthanasia" of 1,080 such fish.

R.J. Ranjit Daniels, conservation biologist and popular writer, in his correspondence published in the latest edition of *Current Science* terms this experiment as "science without ethics" carried out with scant disregard to guidelines prescribed by the International Union for Conservation of Nature (IUCN).

Members of the Conservation Research Group of St. Albert's College in Kochi had done a study on the reproductive biology of the fish and their research paper was published in *Journal of Threatened Taxa* in September 2011.

Known colloquially as Miss Kerala, these vividly coloured fish are endemic (naturally restricted) to the Western Ghats and feature in the Red List of endangered species of the IUCN.

The species, which stayed 'dormant' for 130 years after being scientifically documented for the first time, was 'rediscovered' in 1990s, and has since been traded as aquarium fish. According to estimates, close to one lakh of these fish are exported every year, with each pair fetching around Rs. 2,000.

The research group purchased the fish from aquarium fish collectors operating in three major rivers of the southern Western Ghats: Chandragiri, Valapattanam and Chaliyar.

The live fish, procured in polythene bags, were killed immediately by immersing them in ice-slurry and subsequently preserved in formaldehyde and their reproductive organs removed for study. The research paper concluded that the sex ratio of the fish was skewed in favour of males.

Mr. Daniels points out that under the section titled 'responsible collecting', the IUCN prescribes guidelines for researchers: that they ensure that the material they need is not already available in the museum or other institutional colections; that they do not collect more than the minimum number of specimens necessary; and that they employ preferential collection of post-reproductive individuals. "This study raises the question: how widely known are the IUCN guidelines to researchers in India?" asks Mr. Daniels in his letter to *Current Science* .

It is not just Miss Kerala but several other forms of aquatic life that face extinction due to habitat loss and unsustainable harvest in the Western Ghats, he adds. "The Miss Kerala experience is an early warning to field biologists against irresponsible collection of species and must be taken seriously especially by those concerned with freshwater fish conservation in the Western Ghats," says Mr. Daniels.

-The Hindu

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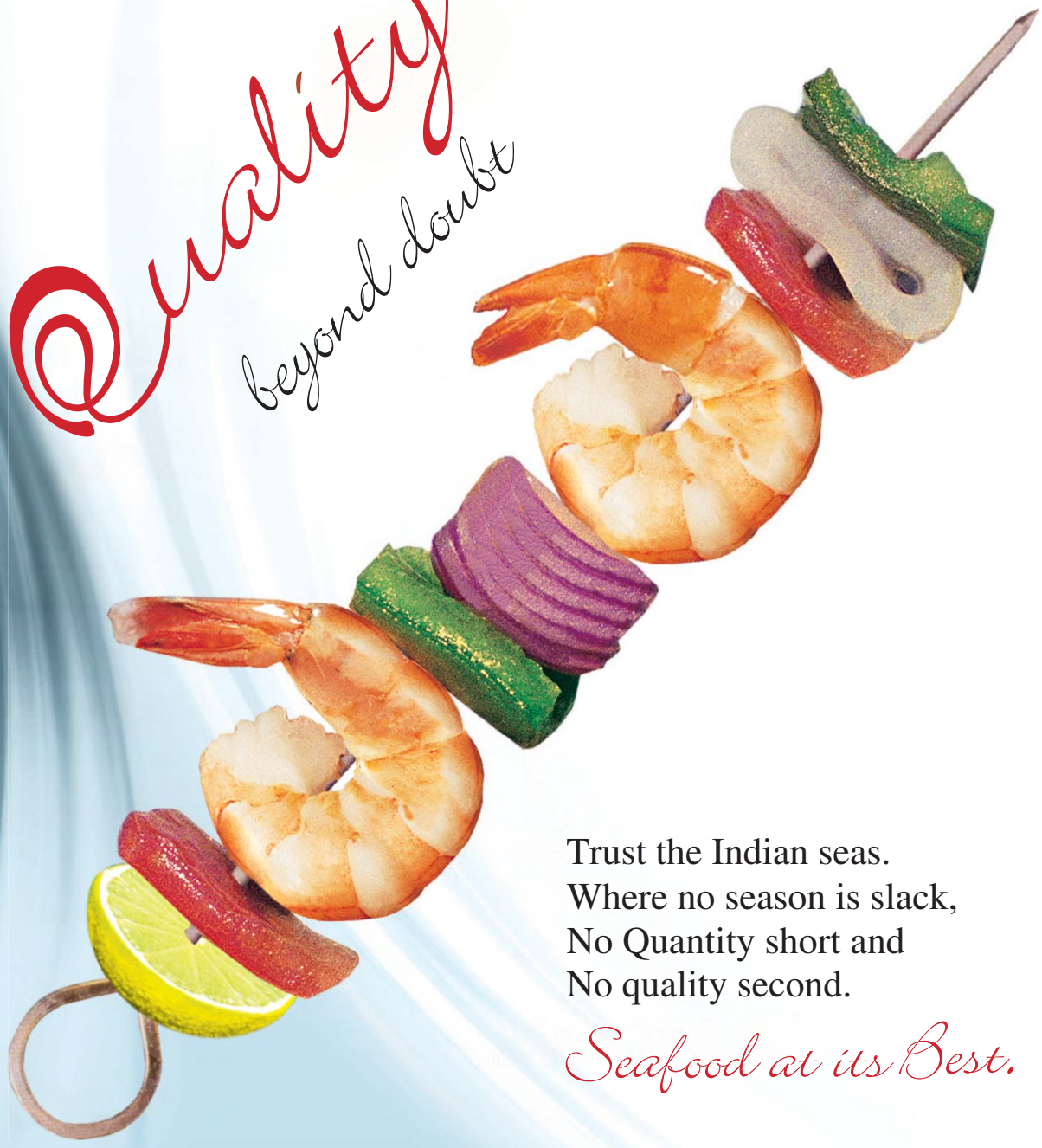

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