

MPEDA

Newsletter

OCTOBER

2011



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MPEDA NEWSLETTER



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MARKETING NEWS

MPEDA's participation in the 5th Seafood Expo, 2011 – Dubai

The United Arab Emirates (UAE) is a federation of seven States formed in 1971. Since then, it has emerged as one of the Middle East's most important economic centre. Though each Emirate—*viz.*, Abu Dhabi, Dubai, Ajman, Fujairah, Ras-al-Khaimah, Sharjah and Umm-al-Qaiwain maintains a great degree of independence, UAE is governed by a Supreme Council of Rulers made up of seven Emirates, who appoint the Prime Minister and the Cabinet.

Before oil was discovered in the 1950's, the UAE's economy was dependent on mainly fishing. But since 1962, when Abu Dhabi became the first of the Emirates to begin oil exports, the country's economy and social status have transformed a lot. Further, the oil industry is attracted a large influx of foreigners, who together with the expatriates, now make up more than three quarter of



L to R: Mr. P.K. Ashok Babu Consul, Consulate General of India, UAE, Mr. Premdev K V and Mr. K S Nair, Asst. Directors, MPEDA

the population. Of the total 7.512 million population of UAE, slightly more than 20% are Emirati, more than one-third South Asians and a significant number are from Europe

and North America. The capital of Emirates is Abu Dhabi and the major city is Dubai.

While Abu Dhabi still remains relatively conservative in its approach, Dubai, which has far smaller oil reserves, has grown bolder in its diversification policy which attracted huge foreign investment for ambitious construction projects. The famous Burj Khalifa Sky Scrap, the tallest man made structure ever built and the futuristic land reclamation project (such as the artificial palm islands) are a couple of examples. But the worldwide freeze in credit markets hit Dubai harder than oil rich Abu Dhabi.

UAE's economy depends largely on export trade of petroleum gas and petroleum products. Import constitutes machinery, chemicals and food products. India is also one among the major suppliers to UAE.



Mr. K S Nair, Asst. Director, MPEDA and Mr. Rajakannu, SO, MoCI with a visitor

MARKETING NEWS

The food import also includes a substantial quantity of seafood from all over the world as the residents of

UAE generally enjoy a high standard of living because of their economic power.

The 'Seafood Expo, 2011- Dubai' is the only seafood show of its kind in the Middle East. The Expo is an international event, targeting a very specific sector of the market which is focussed on the seafood and seafood processing industry. Apart from the producers, exporters and buyers, the expo is also meant for those who are engaged in packing, labelling and transportation of fish and fishery products.

In the 5th Expo in its series, the exhibitors from world around brought with them an excellent range of seafood products to tempt the Middle East buyers. There were almost 40 stalls in the event, putting up an excellent show of their products and services. A majority of the visitors of the Expo were either decision makers or able to influence decision making within their company/organisation, pre-dominantly from the Middle East, Asia and Europe.

The compact nature of the show facilitated the select group of visitors to spent longer time at each stand, giving the exhibitors adequate time to explain their products showcased.

In the 5th Seafood Expo, 2011, MPEDA-India set up a stall (at AE 8 & 9) admeasuring 18 Sq. mtrs. The stall was aesthetically decorated with colourful self sticking flex boards depicting a range of value-added seafood products being processed and exported from the country. A wide range of value-added seafood products procured from different centres in India were also displayed in the freezer display cabinet, apart from the fresh/chilled seafood products displayed in a revolving chiller.

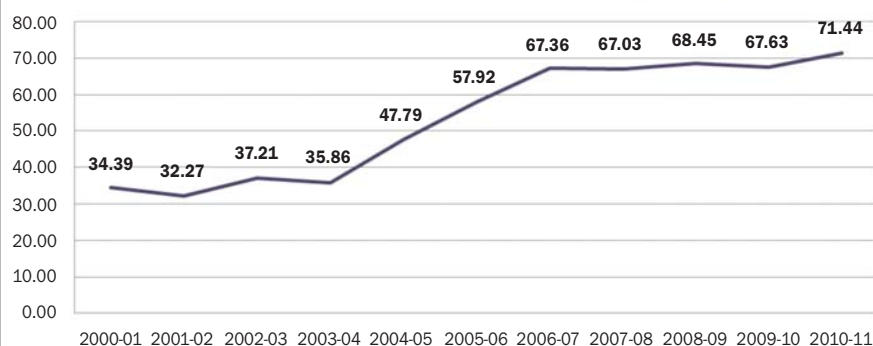
Located at a vantage point, there was a continuous good flow of visitors in the MPEDA-India stall on all the

ITEM WISE EXPORT OF MARINE PRODUCTS TO UAE

Q: Quantity in M T, V: Value in Rs. Crore, \$: US Dollar Million

		2006-07	2007-08	2008-09	2009-10	2010-11
Frozen Shrimp	Q:	6821	6455	6029	6789	5768
	V:	189.91	172.63	185.96	208.41	195.36
	\$:	42.23	42.83	41.47	43.98	43.16
Frozen Fish	Q:	5018	3701	3230	2204	3263
	V:	55.79	37.13	37.76	24.98	40.34
	\$:	12.36	9.30	8.43	5.28	8.97
Fr Cuttle Fish	Q:	102	68	117	41	90
	V:	1.18	0.93	1.73	0.63	1.77
	\$:	0.26	0.23	0.39	0.14	0.39
Fr Squid	Q:	1629	1304	1517	2104	1580
	V:	15.56	10.74	15.24	18.21	14.96
	\$:	3.49	2.65	3.46	3.86	3.33
Dried Item	Q:	487	529	1110	1192	709
	V:	0.50	0.52	7.09	6.77	14.49
	\$:	0.11	0.13	1.60	1.40	3.22
Live Items	Q:	2	0	2	2	2
	V:	0.03	0.00	0.03	0.04	0.02
	\$:	0.01	0.00	0.01	0.01	0.01
Chilled Items	Q:	1179	929	1199	1641	1474
	V:	19.71	18.58	27.47	39.56	38.53
	\$:	4.35	4.62	6.03	8.33	8.48
Others	Q:	626	836	815	548	443
	V:	20.35	29.15	31.74	22.00	17.48
	\$:	4.54	7.26	7.07	4.63	3.88
Total	Q:	15864	13822	14020	14521	13328
	V:	303.04	269.68	307.02	320.61	322.95
	\$:	67.36	67.03	68.45	67.63	71.44

EXPORT GROWTH TO UAE IN US \$ Miln.





Products displayed in MPEDA stall

three days of the exhibition. Adequate lighting, colourful depiction of Indian value-added seafood products and

gorgeous display of a wide range of value added products in the freezer display cabinet provided a novel look

to our stall, which was widely appreciated.



Mr. K S Nair, Asst. Director, MPEDA (centre) and Mr. Rajakannu, SO, MoCI (left) holding discussions with a delegate

There were substantial enquiries for a wide variety of shrimp products (both wild caught and farm raised; particularly for *L. vannamei*) displayed in our stall. 76 trade enquiries were received during the three day event which was published in the September 2011 issue of MPEDA Newsletter. Apart from the enquiries received from the Middle East buyers, a number of trade enquiries were also received from the countries like USA, Australia, Thailand, Taiwan, Philippines, China, Pakistan, Portugal, Poland, France, etc. This evidences the need for our continued participation in the Seafood Expo – Dubai.



Mr. P.K. Ashok Babu, Consul, Consulate General of India, UAE (second from left) is briefed on the displayed products by Mr. K S Nair, Asst. Director. Mr. K V Premdev, Asst. Director, MPEDA and Mr. Rajakannu, SO MoCI, are also seen

Shri. P.K. Asok Babu, Consul, Consulate General of India, Dubai, UAE visited MPEDA stall on the 29th September, 2011 and appreciated the overall arrangements made in the stall, including display of the value-added products in the freezer cabinet. He has also visited the stall of M/s. Gadre Marine Export Pvt. Ltd., Ratnagiri, India, the manufacturer exporter of *surimi* and *surimi* - analogue products from India.

MPEDA team also promoted 18th India International Seafood Show, 2012, the biennial event to be held at Chennai from 29th February to 2nd March, 2012. Brochures on announcement of the mega event were



Dr. Muhammad Ayub, Director / CEO, INFOFISH (extreme left) in MPEDA stall



Mr. K V Premdev, Asst. Director, MPEDA (right) with a visitor

distributed to those evinced interest to participate in the show and invited them to be a part of the international show.

Considering the genuine enquiries received for Indian seafood products and the importance of the Seafood Expo, Dubai, the only show

of its kind in the Middle East, future participation in the show will enhance India's market position in the Middle East market.

Infofish announces 12th Global Tuna Trade Conference & Exhibition

INFOFISH has announced the 12th Global Tuna Trade Conference and Exhibition viz., 'INFOFISH TUNA 2012 BANGKOK' to be held in Bangkok, Thailand from 23-25 May 2012 at the Shangri-La Hotel. The event is organised by INFOFISH in collaboration with Department of Fisheries, Thailand, Thai Food Processors' Association (TFPA), FAO-GLOBFISH, World Tuna Purse Seine Organization (WTPO), Indian Ocean Tuna Commission (IOTC), Inter-American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tunas (ICCAT) and Western and Central Pacific Fisheries Commission (WCPFC).

The series of world tuna trade conferences, organized by INFOFISH,



Participants in the 11th Conference.

has always been the best forum for the industry players to keep abreast of the latest trends and developments, exchange views and make business deals with partners from all over the world.

TUNA 2012, the world's largest tuna industry gathering, will take a close look at the current issues and challenges facing the global tuna industry.

India International Seafood Show – 2012: Early Bird Scheme for Stall/Delegate Registration Continues

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 products export 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 shall be at the disposal for displaying wide variety of products, machineries, inputs etc. The early bird registration of the Show with 20% discount for stalls and delegates closes on 30th November 2011.



However, early bird offer with 10% discount for registration of stalls and delegates will be open upto 31st December 2011.

Exhibitors Profile

- Seafood Importers and exporters
- Seafood Processors
- Manufacturers of processing/packaging machinery/

equipments

- Suppliers of ingredients, additives and other inputs
- Cold storage solution providers
- Manufacturers of aquaculture related machinery/equipments
- Producers of shrimp, scampi, fish, hatchery owners and other allied sectors

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

Early bird scheme

	Stall (3m x 3m)		Delegate		Registered Members of MPEDA or SEAI	
	Indian Rs.	Overseas \$	Indian Rs.	Overseas \$	Stall Rs.	Delegates Rs.
Upto 30 th Nov 2011 (less 20%)	60000	1400	8000	200	40000	4800
1 st Dec to 31 st Dec 2011 (less 10%)	67500	1575	9000	225	45000	5400

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

- Investors, bankers, financial institutions and insurance bodies
 - Manufacturers of electronic testing/clearing equipments.
 - Manufacturers of fishing gear, insulated fish box, tubes, crates etc.
 - Operators of shipping lines, reefer cargo, logistic service providers
 - Technicians and technocrats from processing plants and quality control departments
 - Policy makers from the state and central government fishery institutions
- More than 1000 delegates are expected to be a part of the event. A technical session involving eminent speakers on various advanced topics is also being organized for 2 days during the show. There is an overwhelming response to participate in the Show from China, Japan and South East Asia besides exhibitors from USA and Europe.
- There would be two delegate pass and one attendant pass per stall of 9 sq.m.
 - Discount of 25% on booking done by other countries Seafood Associations (subject to minimum of 45 sq.m) and one slot in Technical Session (If interested) will be given.
 - The number of delegates per registered members of MPEDA or SEAI is restricted to TWO.
 - The delegate fee includes complimentary lunch for 3 days



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Fishing Vessel Monitoring System in the Republic of Mauritius

(Dr. Ram Mohan M K and S Sasidharan Pillai)

The Republic of Mauritius is an island nation off the southeast coast of the African continent in the southwest Indian Ocean, about 900 kilometres (560 mi) east of Madagascar. In addition to the island of Mauritius, the Republic includes the islands of Cargados Carajos, Rodrigues and the Agalega Islands. Mauritius Island is part of the Mascarene Islands along with the French island of Réunion and the island of Rodrigues. The capital of Mauritius is Port Louis. The country shares strong ethnic and socio-economic relations with India.

Mauritius imports about 60% of their seafood demand from other countries that includes African nations, Seychelles, Madagascar, China, Thailand, Vietnam, Singapore, Sri Lanka, India etc. The annual per capita consumption of fish is about 22 kg. The country's average production is around 8,000-10,000 tons whereas an equal quantity of seafood is imported. Shrimps form a major import. The shrimp market for hospitality industry is very lucrative as the local production is low and comprised mainly of the deep sea variety, *Heterocarpus laevigatus* caught from 800-1000m depth. Mauritius imported 1650740 Kgs of fish and fishery products worth US \$ 8.67 million in 2009 and 1,395,499 kgs worth US \$ 8.2 million during 2010. India's marine products export to Mauritius was around 743.98 tons valued at US \$3.62 million in 2009-10. During 2010-11,

India exported 1240 tons of marine products worth US \$ 7.40 million recording an increase of more than 66% and 104% respectively in quantity and value terms with frozen shrimp being the principal item.

As per the 2007 statistics, there were 2300 fishermen and about 1543 boats were operating in the country. The country has vessels above 24m length also, that goes for a voyage of 9-10 days. The bigger foreign vessels fish mostly in international waters and they have on board freezing facility and are capable to stay at sea for about 3-4 months. They come to shore for bunkering provisions, fuel etc. and to declare the catch. The country has permitted certain vessels to fish in its

EEZ. This included vessels from EU also. Based on an agreement between the EU and Mauritius, the catch landed has to be exported to EU only. During 2010, about 1, 20, 000 tons of tuna was sourced by Mauritius from the licensed vessels for processing. 45% of the tuna caught was from Mauritian EEZ while 55% was from international waters. Processed tuna is mainly exported to EU & USA as chilled tuna, tuna in jars, canned tuna, tuna frozen loins (raw and cooked) and tuna chunks in pouches. The tuna varieties are mainly Yellowfin, Skipjack, Big eye and Little Tunny. The country has about 11 EU approved units. Though licenses are issued to non-EU vessels, the material



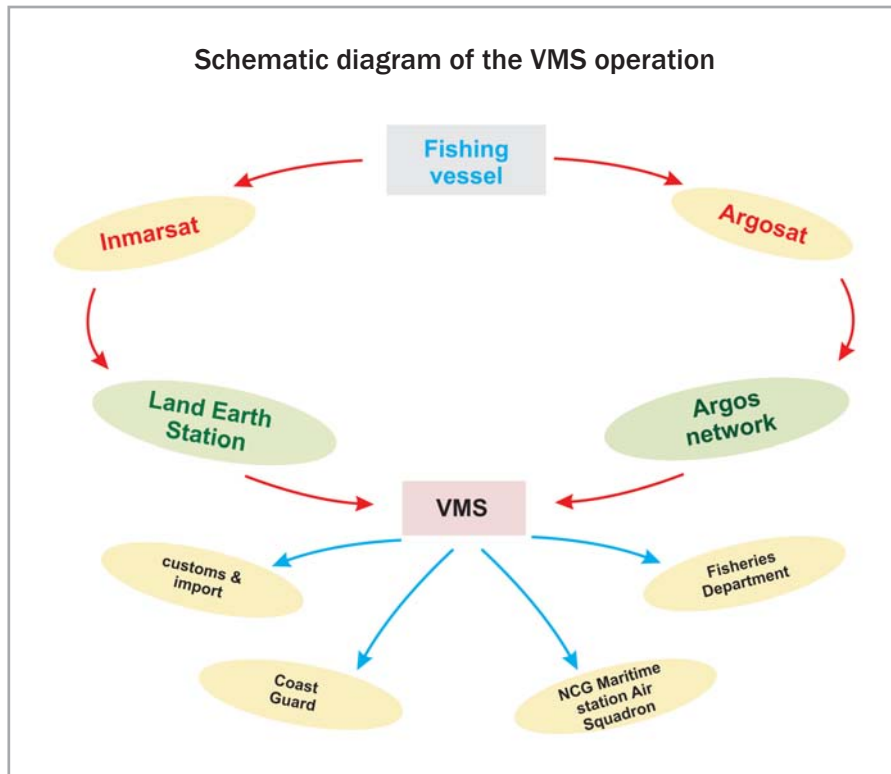
FOCUS AREA

from such vessels cannot be exported to EU. The country has got 8 commercial vessels for lethrineds (snappers), which is a major fishery in Mauritius. 16 vessels operate for chilled fish trade. The country mainly depends on neighbouring Seychelles for fresh fish supplies. Farmed Red drum, Red Tilapia and European Seabass are also exported from Mauritius.

Vessel Monitoring System

Vessel Monitoring System (VMS) in Mauritius is a monitoring body that coordinates with similar bodies in the South West Indian Ocean Fisheries Project (SWIOFP) that comprises countries like Comoros Islands, Reunion (France), Kenya, Madagascar, Mozambique, Seychelles, South Africa and Tanzania besides Mauritius. VMS, introduced in 2005, monitors all licensed fishing vessels and software for it has been developed with the help of a private firm based in UK. The vessels are fitted with transponders and the signals are used to track the movement and location of the vessel through satellite network. They use two types of transponders viz., Mini-C (uses the satellite Inmarsat) and Argos (Argosat). The system facilitates the position of the vessels every 1-2 hours. The generated data is stored on to the server at VMS. All the licensed fishing vessels have to report the catch to any of the countries in the VMS system, without which they cannot sell the catch. No mid-sea transfer is allowed. This ensures traceability of the catch. The VMS transfers catch data to Fisheries department as well as Customs. The position details of the vessels are also provided to the Coast Guard and national Air Squadron.

The VMS also helps the vessels in distress. Licence to fish are issued



only to those vessels that are covered under VMS. Around 229 vessels are licensed by Mauritian Authorities upto 2010, of which 115 are Taiwanese vessels and 16 are EU vessels. There are also vessels from Seychelles, Oman, African countries, Indonesia, Vietnam, Malaysia etc.

The system is very effective in monitoring the fishing vessels in the region and in ensuring traceability of the catch meant for exports. India can also explore the possibility of establishing a similar system from major fishing harbours in order to track the movement of fishing vessels as well as to trace the catch from production point.

SHRI B. SREEKUMAR JOINS MPEDA AS SECRETARY



Shri B. Sreekumar is appointed as Secretary of the Marine Products Export Development Authority (MPEDA). Prior to joining MPEDA, he was working as Deputy Director (Marketing) in SPICES BOARD holding additional charges of Planning & Co-ordination. He has also served the International Pepper Community, Indonesia an Organisation formed under the auspices of the United Nations as Economist and has also worked in Rubber Board in various capacities.

NETFISH Conducts Coastal Cleaning-up programmes in Tamilnadu

Coastal pollution is one of the major concerns for the developing countries like India. Insufficient basic infrastructure facilities and lack of proper awareness among the public adds up the problem of dumping debris in fishing harbours and its surroundings. This debris, if not removed, can be harmful and even fatal to many marine organisms and can also become a human health hazard. There are issues such as fishes and other marine animals getting entangled themselves in broken fishing net pieces and die. At other times, the marine creatures accidentally eat the marine debris while feeding on natural food which can further lead to starvation or malnutrition, internal injuries, infections and even death. Every year, countless marine mammals, sea turtles, seabirds, and other animals are sickened, injured, or killed because of dangerous items we allow into the sea. Plants, other immobile living organisms, and sensitive ecosystems can also be harmed by marine debris. Coral reefs can be damaged by derelict fishing gear that breaks or suffocates coral. Trash also poses health threats to humans, contaminates marine environments, and clogs boat propellers. Hence controlling this form of pollution is utmost important to maintain a healthy marine ecosystem.

In this context, and in connection with International Coastal Clean-up Day, NETFISH and M. S. Swaminathan Research Foundation (MSSRF) took an opportunity to educate students, fisher folks, service groups and other stakeholders about these adverse impacts of marine debris and the means to prevent it. The major objectives of the programmes were (i)



Cleaning-up Programme at Pazhaiyar

to create awareness among the coastal community on coastal pollution and its bad impact and (ii) to remove debris and other waste materials along the coast and harbour for encouraging the local community in doing so. With this view two clean-up programmes were organized in Tamilnadu; one at Mandapam in Ramnad District on 17th September and the other one at Pazhaiyar in Nagapattinam District on 20th September. Both Mandapam and Pazhaiyar are among the major fishing harbours in Tamilnadu and are important in terms of quantity of fish landed meant for exports.

The programme in Pazhaiyar was initiated with active participation of more than 100 volunteers including students from Pudhupattinam Higher Secondary School and President and members of Mechanized Boat Owners

Association and the Village Head. Impact of Coastal pollution and importance of Coastal Clean-up programme were explained to the participants. The students were divided into small groups and each group was given gloves and jute bags to collect the debris. The cleaning activity was carried out in the sea shore nearby Pazhaiyar Fishing Harbour. The participants removed garbage, debris and non bio-degradable materials found on the beach which in turn motivated the local populace towards maintaining a clean environment. Approximately 300 kg of waste materials were collected in 2 hr duration and properly disposed off through local panchayath garbage truck. The programme also included a rally by the students holding banners, phrases and slogans about cleanliness



Cleaning-up Programme at Mandapam

FOCUS AREA

and coastal pollution etc., which has drawn much attention of natives of the Pazhaiyar. NETFISH has also provided two dust bins that are to be kept in the auction hall and fixed sign boards describing do's and don'ts in fishing harbours.

The clean-up programme conducted at Mandapam region involved 200 volunteers including National Service Scheme volunteers from Schools, Youth Club members, Members of Boat owner's association, National Virtual Academy (NVA) Fellows, Fisheries Officials, Scientists

from Central Marine Fisheries Research Institute, Coast Guard officials, Village Knowledge Centre (VKC) Knowledge workers and MSSRF staff team. They were divided into 5 groups and did the cleaning activities. The purpose and the importance of the coastal clean-up programme and the impacts of coastal pollution were detailed to the participants. Coastal line of 500m was cleaned by the volunteers and removed the debris and garbage from the north part of Mandapam coast. Around 1000 kg of debris were collected which were later disposed off with the help

of Mandapam Town Panchayat disposal vehicle. After the coastal clean-up, bit notices were distributed to the fishing community by the volunteers to raise awareness on the importance of clean fishing harbor. Do's and Don'ts banners were also prepared and pasted in the Mandapam Fishing harbour for further reference of fisher folks.

The clean-up programmes envisaged the creation of awareness among the coastal community of Mandapam and Pazhaiyar on coastal pollution, causes of litter and their impact and removal of waste along the coast.

Basic Training Programme on Ornamental Fish Breeding & Culture

MPEDA, Sub Regional Office, Mangalore, Organized 5 days' Basic training programme on Ornamental Fish breeding and Culture during November 2011 at Krishi Vigyan Kendra, Mangalore. The Programme was inaugurated by Dr. K. M. Shankar, Dean, College of Fisheries, Mangalore, in the presence of Dr. Hanumanthappa, Project Coordinator, KVK, Mangalore, Smt. Sushmitha Rao, Assistant Director of Fisheries, Mangalore, Mr. Rajkumar S. Naik, Assistant Director, MPEDA, Mangalore.

30 beneficiaries from various district of Karnataka attended the training programme. During the programme various topics such as Introduction to biology and varieties of Ornamental fishes, Importance of Ornamental fish culture, Breeding Techniques of Live Bearers and Egg layers, Aquarium Fabrication and Setting, Identification of Important Ornamental aquatic plants, Design and construction of Ornamental fish farm



Inauguration of the basic training programme

and Introduction to farm equipments, Water quality analysis and water management (Ornamental fish culture), Entrepreneurship development and marketing strategies, Packing and Export of Ornamental fishes, Importance of artificial feed in Ornamental fish

culture, Larval Rearing-Production of live feed, Fish Health Management etc. were covered.

The trainees were also given farm exposure visit as part of training. The trainees were evaluated on the final day of training and feedback information was collected.

Dr. E. G. Jayaraj, Professor, Dr. Gangadhara Gowda, Professor and Head, Dept. of Aquatic Environment and Management, Dr. Shivananda Murthy, Professor and Head, Dr. Iqbal Ahmad, Assistant

Professor, Dept. of Aquaculture, College of Fisheries, Mangalore, Dr. K. M. Rajesh, Subject Matter Specialist, KVK, Mangalore, Mr. Ronald Dsouza and Dr. Ashwin Rai, MPEDA assisted beneficiaries,

Mangalore, P. Moidu Kunhi, Farmer, Sullya taluk, Mangalore district, were the faculty members.

The course certificates were distributed to the participants by Dr. Shivananda Murthy.

CIFT Conducts Training on Square Mesh Netting

Conventionally, the codend of trawls use diamond mesh. Square mesh codends are more ecofriendly and fuel efficient than the diamond mesh codends. The meshes in the square mesh codends remain open under tension during trawling and the filtration of water will be efficient and resultant drag will be comparatively less which minimizes fuel consumption. As the mesh lumen remains open, it is easy for small fishes and juveniles to escape through the meshes which reduce the quantum of bycatch enabling the conservation of aquatic resources. In addition to these benefits, the quantity of net required for fabricating square mesh codend is less than the requirement for



Dr. M.R. Boopendranath addressing the trainees

diamond mesh codend of the same dimensions, resulting in lower fabrication costs.

A training programme on 'Square mesh netting' for State Coordinators of NETFISH (MPEDA), was held at



Trainees along with Director-in-charge, Head of Division (EIS) and staff of Fishing Technology Division

FOCUS AREA

CIFT from 27th September to 01st October 2011. Dr. S. Balasubramaniam, HOD, EIS welcomed the gathering and the training programme was inaugurated by the Director-in-charge, Dr. P.T. Lakshmanan. Dr. M.R. Boopendranath, Principal Scientist, Fishing Technology Division, gave an overview of the programme. Dr. P. Pravin, Senior Scientist was the Coordinator of the programme.

Nine State Coordinators and one Research Assistant of NETFISH from different maritime states of India participated in the training programme. The 5 day training programme broadly dealt with different aspects of bycatch reduction technologies, overview of fishing gear materials, impacts of trawling on the resources and trawl cod end selectivity. The training programme focused on square mesh codend with more emphasis on

practical aspects of making square mesh codend and square mesh window for trawls. The participants also were taken out at sea for a day on board the departmental research vessel Sagar Sakthi for demonstration of trawling with square mesh codend.

The valedictory function was held on 1st October 2011 and certificates were distributed to the participants by Dr. P.T. Lakshmanan.

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Application of Bacteriophages in Hatcheries

Abhilash EC, MPEDA, Cochin

Hatcheries are the primary platform of the breeding of fishes. Water is a source various microorganisms and they can attack the seeds in suitable time. Several bacterial infections are reported in connection with hatcheries due to microbes such as bacteria. The transmission of bacterial infection is too fast when the host is seeds and use approved antibiotics may also create mutated bacteria species. There are different types of bacteria present in the aquatic environments and among the infectious fishes, bacterial diseases are reported to infest to most of the cultivable aquatic species. There are 40 - 60 bacterial fish pathogens found to be involved in fish diseases. Among them, *Vibrio*, *Flavobacterium*, *Pseudomonas* and *Aeromonas* spp. are known to be great impeder of breeding of fishes.

There are several methods have been used world wide to prevent bacterial infection in the hatcheries and few of them only succeeded and still the research focused to find out better remedy against bacterial infections in the aquaculture sectors. There are reports from world wide that formerly antibiotics or veterinary drugs used in hatcheries to prevent the bacterial infection. Further, the misuse of antibiotics caused the formation of antibiotic resistance gene in bacteria as well as the health risk in seafood consumers. As a result, use of veterinary drugs is regulated in the European Union according to the legal framework defined in the Directive 2377/90/EC of 26th June 1990. This

regulation describes the procedure for the establishment of maximum residue limits (MRs) for veterinary medicinal products in foodstuffs of animal origin. Consequently, various preventive measures replaced antibiotics and the bacteriophage therapy is one of the important remedy against bacterial infection in hatcheries. Different institutes have been formulated bacteriophages in laboratories and found to be safe and effective medication against bacterial infection in the hatcheries.

Bacteriophages are viruses that parasitize bacteria. Bacteriophages were jointly discovered by Frederick Twort (1915) in England and by Felix d'Herelle (1917) in France. Bacteriophage means to eat bacteria, and are called so because virulent bacteriophages can cause the complete lysis of a susceptible bacterial culture. They occur widely in nature and can readily be isolated from feces and

sewage. Most phages range in size from 24-200 nm in length. Bacteriophages are classified based on nucleic acid such as DNA and RNA. Depending upon the phage, the nucleic acid can be either DNA or RNA but not both. Certain phages are known have single stranded DNA as their nucleic acid.

Water is the major source of several bacteriophages since those are naturally found in various water bodies. In such cases, producing large quantity of phages is highly technical and the specific phages against the etiological agent can be detected from the same hatchery water where the infection reported. Some cases, the specific phages can be isolated from the infected aquatic animals. Because the phages might have already produced or reproduced in the hatchery water or the animal by killing its host or bacteria. In view of bacteriophage therapy, a high quantity of phages to be needed and it can be cultivated in the laboratories. Firstly, agent of disease or bacteria to be isolated separately and cultivated in normal nutrient broth. Therefore, water samples from hatcheries can be inoculated to nutrient broth and the bacteria can be isolated and identified the same time the bacteriophage also can be isolated. In this experiment, the broth shall be checked in nutrient agar plates by "soft agar overlay technique" and the formation of clear zones (plaques) after 24h incubation at 35C° are the indication of bacteriophage. The same technique can be used for the isolation of genus specific or species specific bacteriophages. For



Phages attacked on bacterial cell

example, the nutrient broth contains *Vibrio* species then the *Vibrio*-phages (Specific bacteriophages for *Vibrio* species) shall be isolated from the water samples by overnight incubation. This specificity shall also be checked by “soft agar overlay technique” on nutrient agar plate or thiosulphite citrate bile sucrose agar (TCBS) with the pure culture of that *Vibrio* spp. The same soft agar overlay technique shall be used for quantifying the number of phages in the media by counting the clear zones on the agar plates and the unit is known as “plaques forming unit per gram (pfu/g). Further the each plaque to be removed from the soft agar plate and dispensed in the phage buffer. Those phages are to be further purified by

filtering through 0.45 micron filters hence, the phages will be free from bacterial cells. Such purified phage filtrate can be concentrated by ultracentrifugation with maximum speed or rpm (rotation per minutes). Purified phages can be stored in minus 70°C in the phage buffer for long term use. Quantified phage concentrate can be used in the hatcheries at specified intervals against bacterial infection. Dosage of bacteriophages varies as per the infection caused by bacteria. Differing from earlier inventions, the recent research works made alterations in the phage therapy and now it is modified with the following aspects, a) detection of specific-phages towards the target bacteria, b) modification in

the way of application, c) mixing up of different phages in single dose, d) concentration of dose, e) Invention of lytic phages etc. Recent studies on phage therapy have been carried out by South Asian countries confirmed and stated that gene specific phages completely demolished the bacteria in shrimp farms; the experiments in India concluded that a bacteriophages mixture could be successfully used in protective programs on shrimp hatcheries as a bio-control. The results of current works with bacteriophages in the laboratories as well as the farm assure that phage therapy will save the aquaculture industry from the bacterial disease outbreaks in hatcheries as well as farms.

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Food Safety & Standards Regulations – Impact on industry

-Prabodh Halde & Chetana Bhandari

Introduction

The Food Safety and Standards Act, 2006, was born out of the need for an integrated food law, prioritizing consumer safety and harmonization of food standards with international regulations. The Food Safety and Standards Act, 2006, is a new legislation that integrates eight different existing food laws and is a comprehensive enactment aimed at ensuring public health and safety. The implementation of this Act will be a major transformation that ensures to bring paradigm shift in the food regulatory scenario of India. The Food Safety and Standards Regulations, 2011, have been released now in seven chapters and are effective from August 5, 2011. This analysis presents the highlights of the regulations and discusses the impact of the regulations for the industry.

Impact on industry

The FSS Act 2006 compels the licensing / registration of every single entity in the food business. The entities have been categorized as petty food manufacturers and food business operators depending upon their manufacturing capacities. Petty food manufacturers, e.g. street food vendors or small food business operators (FBOs) with annual turnover less than Rs 12 lakh will, fall under the purview of registration and it is mandated that these petty food manufacturers must register with the registering authority. The petty food manufacturer must follow the basic hygiene and safety requirements provided in Part I of Schedule 4 of the Regulations. On application, a registration certificate and a photo identity card will be granted by the authority, which the petty food

manufacturer shall display at a prominent place at all times within the premises or his place of business. Licensing is applicable to food business operators which include big and medium scale manufacturers, warehouses, distributors, importers, etc. The licensing system has been laid down as a two-tier system comprising Central & state licensing. The list of businesses which fall under the purview of Central Licensing Authority are enlisted in Schedule 1 of the Food Safety and Standards (Licensing & Registration) Regulations, 2011.

SCHEDULE 1 : FBOS Under Central Licensing

Dairy units including milk chilling units equipped to handle or process more than 50,000 litres of liquid milk / day or 2,500 MT of milk solid per annum

Vegetable oil processing units and units producing vegetable oil by the process of solvent extraction and refineries including oil expeller unit having installed capacity more than 2 MT per day

All slaughter houses equipped to slaughter more than 50 large animals or 150 or more small animals including sheep and goats or 1,000 or more poultry birds per day

Meat processing units equipped to handle or process more than 500 kg of meat per day or 150 MT per annum

All food processing units other than mentioned under (I) to (IV) including re-labellers and re-packers having installed capacity more than 2 MT / day except grains, cereals and pulses milling units

100 % Export Oriented Units

All Importers importing food items including food ingredients and additives for commercial use

All food business operators manufacturing any article of food containing ingredients or substances or using technologies or processes or combination thereof whose safety has not been established through these regulations or which do not have a history of safe use or food containing ingredients which are being introduced for the first time into the country

Food Business Operator operating in two or more states

Food catering services in establishments and units under Central government agencies like railways, air and airport, seaport, defence etc.

The following officers have been appointed as Designated Officers under Central Licensing for the respective jurisdiction / area provided against the names.

The medium-scale manufacturers, depots / warehouses, distributors will

Sl. No.	Name of the Officer	Areas of Jurisdiction
1.	Dr. A.K. Singla, SMO	Delhi, Uttarakhand, Rajasthan, J&K, Himachal Pradesh,
2.	Dr. Bishan Chand, MO	Punjab, Haryana, Chandigarh
3.	Shri. M.K. Singh, SIO	Uttar Pradesh
4.	Shri. Ais Kumar, DD	Gujarat, Maharashtra, Dadra & Nagar Haveli, Daman & Diu, Goa, Madhya Pradesh
5.	Dr. G. Srinivasan, SMO	Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Puducherry, Lakshadweep
6.	Dr. S.K. Mohanta, SMO	West Bengal, Orissa, Bihar, Jharkhand, Sikkim, A&N Islands, Chhattisgarh
7.	Shri. V.K. Pancham, SIO	Assam, Arunachal Pradesh, Tripura, Mizoram, Meghalaya, Nagaland

have to attain a licence from the State Licensing Authority.

Licensing

The licence will be granted by Licencing Authority based on compliance to the conditions of licence and it may be obtained for a period of 1 to 5 years. The licenced establishments will be subject to periodical inspections and food safety audits by licencing authority or certain agencies authorized for the purpose. The following section enlists the conditions of licence that are mandatory for compliance at all times of business.

Licensing Requirements

- A true copy of the FSSAI licence is displayed at a prominent place in the premises at all times
- Information with respect to any change or modifications in activities / licence content is communicated to the authorities
- The production process is supervised by at least one technical person, who possesses at least a degree in science with chemistry / biochemistry / food

and nutrition / microbiology or a degree or diploma in food technology or any degree or diploma related to the specific requirements of the business from a recognized university or institute or equivalent

- The periodic annual return from April 1 to March 31 is furnished within May 31 of each year
- No product other than the product(s) indicated in the licence / registration is produced in the facility
- The sanitary and hygienic standards and worker's hygiene is followed and implemented as specified in the Schedule – 4
- The daily records of production, raw materials utilization and sales are maintained in a separate register
- The source and standards of raw material used are of optimum quality Premises for manufacture, storage, exposure for sale of food are well separated from any urinal, drain, storage area for foul / waste matter
- Clean-in-place systems (wherever

necessary) for regular cleaning of the machine & equipments are maintained and followed

- The testing of all relevant chemical and microbiological contaminants in food products is carried out through own or NABL / FSSA recognized labs at least once in six months
- Required temperature / conditions are maintained throughout the supply chain from the place of procurement / sourcing till the consumer end including transportation, storage, etc
- The food products are bought / sold by the manufacturer / importer / distributor only from or to licensed / registered vendors and records are maintained A register is maintained for edible oils and solvent extracted oil, showing the quantity of oil manufactured, received, nature of oil used as applicable and the destination of each consignment of the substances sent out from the factory. Such register is furnished for inspection when required by the Licencing Authority
- Well equipped laboratory facility for analytical testing of samples is available in the premises
- No edible oil is sold / distributed / offered for sale / dispatched or delivered for purpose of sale unless it is packed, marked and labelled in the manner specified in the regulations

Labelling

There are not many changes in labelling requirements for other products. However with some of the orders merging into FSSA, the registration numbers issued under such orders may not be valid. This may

imply labelling revisions for labels of certain products. However, the Legal Metrology Act & Rules and Agmark regulations are still operative. Also elaborate legislation for regulating label claims and claim substantiation are being framed and may be made available soon.

Product standards

For the product standards chapter, the Food Safety & Standards Act includes a section (Section 22) providing for new categorisation of foods namely health supplements, foods for special dietary uses, novel foods, etc. The categories are defined broadly in the Act and a more detailed regulation on this front is expected. This feature which was absent in the existing food laws was anticipated to facilitate and promote the development of new products thus enabling innovation opportunities and the growth of the industry.

Sampling procedure

Sampling procedures have also been changed in the new food legislation. The Food Safety Officer (FSO) will now draw four samples, instead of three as was the case in Prevention of Food Adulteration Act. The product sample will be divided into four parts, sealed and signature of the person from whom sample is drawn shall be taken. One or more witnesses will be called upon and their signatures taken at the time of drawing samples. One part of the drawn sample will be sent to the food analyst and the two parts of the sample will be sent to the Designated Officer by suitable means. The Food Safety Officer must serve a notice in form VA to the FBO right at the time of sample pick up. There is a provision that the FBO may request for analysis of the remaining fourth sample by NABL-accredited laboratory. However, if the reports of

food analyst and accredited laboratory are at variance, the sample may be sent to a referral laboratory the results of which shall be considered final. The following schematic representation depicts the process following the sample pickup by the Food Safety Officer.

Adjudication

The Food Safety & Standards Act also provides for a new judicial process of adjudication. When the sample picked by FSO fails in the analysis, the non-compliance may be punishable with fine or imprisonment. Prosecution will be launched in the court in case of the offences to be penalised with imprisonment. For offences punishable with fine, the FSO must file for adjudication of the alleged offence. An adjudicating officer, appointed by the state, would preside on such cases. Anybody unsatisfied with the decision may appeal to the food safety appellate tribunal. The tribunal enjoys the same powers as a civil court and decides the penalty in case of non-compliance with the provisions of the Act. Thus only the severe cases of unsafe food will go to court. This system will help in the reduction of number of litigations and facilitate quick disposal of cases.

Unlike the Prevention of Food Adulteration Act, a graded penalty structure is proposed based on the severity of offences. The punishment imposed will be a fine for offences like manufacturing, selling, storing, or importing sub-standard or misbranded food. Severe offences of manufacturing, selling, importing unsafe food may be punished with imprisonment along with a fine. However, the penalties for non-compliances are very high and this only emphasises the need for total compliance to the regulations in all respects.

Penalties and punishment

Penalty for substandard food	Rs. 5 lakh
Penalty for misbranded food	Rs. 3 lakh
Penalty on misleading advertisement	Rs. 10 lakh
Food containing extraneous matter	Rs. 1 lakh
Penalty for failure to comply with food safety officer	Rs. 2 lakh
Penalty for unhygienic processing of food	Rs. 1 lakh
Punishment for unsafe food	Six months to 10 yrs of imprisonment

Import of food

An additional chapter is expected to be incorporated in the Food Safety & Standards Regulations on food imports. The Authority has uploaded the draft regulations for Food Safety and Standards (Food Import) Regulations, 2011, and comments had been invited for the same. The draft regulations include various chapters on licencing of food imports, their prohibition and regulation, the risk categorisation, sampling and analysis and disposal of rejected food products. The imported food clearance process has already been operationalised by the authority since August-September, 2010, through appointment of authorised officers at 14 major ports of entries.

Food recall

There are some other requirements which have been introduced with the implementation of these regulations. With a view to address the issues of food traceability under the FSSA, 2006, establishment of food recall procedures have been

made compulsory and it has been laid down that a recall plan must be submitted where applicable, along with the licence application. The nominations are present under the PFA Act. The companies will need to file the nominations under the new law to inform the licencing authority of the nominees for their establishments.

Way forward

Considering the size of the food industry, it will take time to penetrate the new food law and lots of awareness needs to be created by FSSAI authorities. Features such as single-window for licences and special courts to settle disputes have been welcomed.

The companies expect the lead time to settle litigations and implement their expansion plans to decrease drastically if the FSSA policies are implemented. Industry anticipates that stronger implementation, involvement of stakeholders in rule framing, single authority and law, sound scientific standards aligned with international regulations are many of the important benefits of FSSA implementation. The Indian food industry appreciates the new law and looks forward to its implementation. The most important thing is consumer safety which is prime motto of FSSA.

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AQUACULTURE SCENE

Rajiv Gandhi Centre for Aquaculture organized mud crab aquaculture training

Rajiv Gandhi Centre for Aquaculture (RGCA) has conducted a training programme on Mud Crab Aquaculture at the Head quarters of RGCA at Karaimeedu during October 2011. Fish farmers and private entrepreneurs hailed from the states of Maharashtra, Orissa, Tamilnadu, Puducherry and Karaikal had participated in the programme.

The participants included 7 members including 3 women from the fishermen's society of Raigad District, Maharashtra. Remaining four trainees were from Orissa, Tamilnadu, Pondicherry and Karaikal. All of them have shown active interest to start the mud crab aquaculture in their respective areas after the training.

Classes on mud crab aquaculture were handled by S. Pandiyarajan, Project Manager, S. Arualraj Asst. Project Manager, RGCA hatchery Thoduvai, K. Ganesh Asst. Project Manager, Demo farm, Karaikal, G. Ganapathy, Asst. Project Manager, Technology Transfer and Training, Karimeedu and Shri. Dinakaran, ATM, Demo farm, Karaikal.

Extensive field training on pond preparation, construction of pens, stocking of seeds, monitoring of water quality parameters, feed calculation, feeding, grading of mud crab, cage fabrications, packing of crab lets etc. were also arranged to the trainees in RGCA demonstration farm at Karukkalacherry, Karaikal. The trainees were also given practices on fencing of nets around the earthen



Practical session

ponds, cat walk construction in the culture pond and recording data on grading, feeding, and water quality assessment.

The RGCA Hatchery facilities at Thoduvai were also shown to the trainees and explained various activities

involved in the production and rearing of Mud crab and Seabass seeds. Various levels of algal and larval feed production were explained to them. CDs containing various aspects of Mud Crab Aquaculture were distributed to the trainees.



Algal Concentrates in Hatchery Culture

Culture of uni-cellular algae is a prerequisite for successful operations in hatchery practices for shrimp, crab and most fish. Problems with algal culture and inherent disadvantages are described here, with their advantages in many cases being overcome by these disadvantages.

The current study describes a novel, industrialised approach to negate these disadvantages and to place hatchery culture methods on a more consistent and stable platform. This strategy was designed and implemented by Meriden Animal Health of the UK and is presented in the form of the PHYCONOMIX range of products.

It is estimated that over 40 species of uni-cellular algae are in use in the aquaculture sector. They are generally recognised as difficult to grow in mass culture, particularly in low light (cloudy) or rainy conditions.

The most important factors to consider in algal culture are temperature, salinity, pH, light intensity, photoperiod and nutrient composition; the major expense in algal culture comes in the nutrient component.

Algae can require up to 17 different trace components in their culture medium. The cost of production is further increased due to the requirement for specialist technicians. Large scale culture increases the likelihood of breaches in bio-security, as pathogens can easily be transmitted from nearby culture tanks or via inadvertent introduction of insects etc.

Generally speaking, only one algal species tends to be cultured per single farmed species, therefore nutrient

composition becomes a critical factor especially when algae is entering its decline and death phases, and composition can therefore vary widely.

Since single species algae cannot provide all of the nutrients required by larval shrimp and fish, careful selection of a range of algal species which cover the spectrum of larval nutrient requirements would seem a logical progression. Said species of algae can be grown in a sterile, hermetically sealed, bio-secure environment, then harvested at pre-determined times during the log phase of growth to optimise nutrient quality and consistency. Such algae can then be concentrated via centrifuge then packaged and stored prior to use.

Such a system is flexible in terms of algal composition in that formulations for fish and shrimp larvae can be tailored to meet the requirements of the larvae. These concentrates are easily stored and applied to tanks and can also be used to enhance and enrich living feeds such as rotifers and *Artemia* nauplii. Its use reduces the need for mass culture tanks which can then be turned over to larval and nursery rearing and also reduces demand on labour time and equipment.

Larval quality is improved and development is accelerated, resulting in healthier, stronger larvae which can be sold at a premium, thereby improving returns on investment. A trial was run comparing live *Chaetoceros* with a



commercially available algal concentrate (Meridens PHYCONOMIX SHRIMP ZM) as food sources for larvae of the white shrimp (*Litopenaeus vannamei*) in Thailand.

There were three control treatments and three test treatments in each study group, tank size was 5MT and stocking density at nauplius was 200/litre. As well as their conventional feeds the test groups were fed on SHRIMP ZM two times/day to Mysis three and then three times/day to PL 15 following the manufacturers feeding instructions.

Survival, length, weight, length/weight ratio, gut/muscle ratio, feed consumption, hepatopancreatic *Vibrio* count, formalin stress test were all recorded during this trial. Scanning Electron Microscope studies of the

harvested post-larvae were also conducted.

The accumulated data allowed for a return on investment calculation to be made between the use of live and concentrated algae during larval shrimp culture.

Effects of a multi species algae diet

By Zoea two an obvious size difference was noted (Li, pers. Comm.). At the same time, Controls experienced an outbreak of Zoea two Syndrome and a significant mortality occurred.

It was noteworthy that water quality in the test tanks was viewed as superior to that observed in live controls. This has been mirrored in other trials (Pota, pers comm.; Somhathai, pers.comm).

The mean survival of three concentrate treatments ranged from 80 – 88 per cent and was significantly higher than in the live controls (47-57 per cent). Animals are significantly greater in length, being 12.6mm in length compared to 11.3mm and significantly heavier (1.52mg compared to 1.43mg) than the controls, which resulted in a significantly more favourable length/weight ratio of 1.29 compared to 1.20. Body weight and muscle depth are considered to be the most important factors in purchasing post larvae.

Feed utilisation seems superior in that the gut/muscle ratio favours muscle in the test groups (3.7 as opposed to 2.9) and this is manifested as an increased Artemia nauplius and flake feed consumption, which are 30-40 per cent higher in the test groups.

The final post-larvae are significantly stronger and more resistant to formalin stress as evidenced by survival rates of 100 per cent compared to 75 per cent in

controls. Scanning Electron Microscope studies show significant differences in exo-skeletal structure and strength (Figure 1) as well as in development rate of the compound eye (Figure 2).

Such differences in stress survival and the structural improvement in the animals fed concentrates has significance to the grow out phase of farming operations.

Cost and return on investment figure prominently in any hatchery. The use of concentrates does in fact lead to more profitable production of post-larvae. This, coupled with the many advantages relating to ease of use make algal concentrates very attractive to hatchery operators.

A future for hatcheries

Anecdotal evidence suggests that Zoea two Syndrome commonly experienced in many hatcheries is nutritional in origin but complicated by secondary invasion by bacteria or viruses (Li. Pers. Comm.).

This study, in which no outbreak was experienced in the test groups, would tend to support that premise. The nutritional profile of a multi-algal species diet will be more complete than a single species diet and this will aid in the protection of target animals

The improved water quality using concentrates may simply be a function of improved shrimp larval health leading to improved vigour and appetite. It was noted feed consumption rates were higher but were non-detrimental to the larval environment.

In such an environment and with a much more complete, nutritionally balanced dietary regimen, it is not surprising that survival, growth, feed intake and resistance to stress are all significantly improved.

The developmental and structural advantages seen in the harvested post larvae are of considerable interest to grow out farmers.

An examination of the carapace by SEM reveals the carapace to be thin and pliable, and therefore more prone to damage. By contrast, the carapace of animals fed on concentrate appears much denser and stronger, and would therefore be capable of resisting much more handling stress. Such considerations are of vital importance to farmers.

Even in the case of the compound eye, the eye seems incomplete in the controls (Fig.2) and this will of course impact on feeding behavior. It seems in general the concentrate fed animals are more developed than controls and therefore more suited to the rigours of pond life.

Advantages are therefore not restricted to simple survival and growth. There are many subtle advantages that may escape direct attention but become evident on deeper study.

This developmental advantage is also observed in trials with concentrates in the nutrition of larval fish. In a recent study on larval sea bass (*Lates calcarifer*) apart from the advantages in terms of survival and growth, significant developmental acceleration was observed in development of dentition.

When factors such as ease of storage, ease of use, nutritional consistency, absence of potential pathogens, reduced labour cost and freeing of tank space are considered alongside the aforementioned performance superiority, the future of algal concentrates as a significant tool in hatchery culture seems secure.

Source: Meriden Animal Health, UK/the fishsite

Extension Programmes in Aquaculture Organised by RC (AQ), Bhubaneswar in Odisha

A) Campaigns against Antibiotics in Aquaculture

The Regional Centre of MPEDA, Bhubaneswar continued its programmes of campaign against antibiotics in aquaculture in different villages of Odisha during the month of October, 2011. The programme at Ranakotha, Balasore district was attended by 50 farmers. Another campaign was organised at Pala Jamkunda village in Balasore Dist., which was attended by 47 farmers.

The third campaign in the series was organized at Patisunapur village in Ganjam District, which was attended by 38 farmers. The 4th Campaign was held at Mandarajpur Village in Ganjam District. 33 farmers attended the campaign. 5th campaign was organised at Chudamani Village, Basudevpur Tahasil in Bhadrak Dist. for the benefit of 45 farmers from shrimp farming villages viz., Chudamani, Adia and Radhanathpur.

Apart from MPEDA officials, distinguished guests namely Sri



Farmers attending the Awareness Programme at Ranakotha.

Sadananda Mahapatra, Dist. Fishery Officer cum CEO, BFDA/FFDA, Balasore, Dr. Maguni Maharana, Scientist, Krishi Vigyan Kendra, Baliapal, Balasore, Sri Anup Kumar Chand, Head Master, UGME School, Ranakotha, Balasore, Shri Chandrashekar Rao, Lead Farmer, Sri Rabindranath Andia, Lead farmer cum feed dealer, Jamkunda, Balasore, Shri K K Ray, Director, M/s Raysons Aquatics (P) Ltd, Chudamani and Shri Bishnu Murthy, Lead farmer participated in these programmes. Lectures on various subjects related to shrimp aquaculture were made by MPEDA officials and distinguished guests. Subjects discussed included BMPs, CAA Licence, non-use of



Farmers in the programme at Palajamkunda

antibiotics in aquaculture, Sample analysis under NRCP, ELISA Lab & Pre-harvest Tests, MPEDA Schemes and Society formation.

Shri K K Ray, Director, M/s Raysons Aquatics (P) Ltd, Chudamani, a progressive farmer himself enlightened the audience at Chudamani on the on-going sea bass demonstration programme of MPEDA in his farm.

Leaflets on banned antibiotics and guidelines on "Abuse of antibiotics in Aquaculture" in Oriya vernacular were distributed among the participants. Sri G Rathina Raj, Deputy Director (AQ), Dr. Vishnudas R. Gunaga, JTO (AQ) and Dr D Roy, Field Supervisor, MPEDA have coordinated the arrangements for these programmes.

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AQUACULTURE SCENE



L-R: Dr. Vishnudas R. Gunaga, JTO (AQ), Shri Chandrashekar Rao, Lead Farmer, Shri G. Ratina Raj, DD (AQ) and Shri L.K. Patnaik, FS, MPEDA



Shri K K Ray, Director, M/s Raysons Aquatics (P) Ltd, Chudamani addressing the farmers during the campaign



View of participants at Patisunapur



View of farmers at Mandarajpur

B) Awareness Campaign on Mud Crab Farming

An awareness campaign on mud crab farming was organized at Sonapur village in Ganjam Dist., which was attended by 26 farmers. The area is known for its vast potential for crab farming. Proven crab fattening techniques prevail in the area. MPEDA has also conducted a successful crab farming demonstration programme in Sonapur in recent past. This has inspired many farmers to come forward and take up crab farming in Ganjam District which is blessed with the presence of Chilka Lake.

During the campaign, MPEDA officials explained various techniques



L-R: Shri G. Rathina Raj, DD (AQ), Shri Gokul Behera, Lead Farmer, Shri S.K. Patra, FS at Sonapur Village.



View of participants at Sonapur village

During the first 3 days technical sessions were held. Classes were handled by MPEDA and BFFDA Officials. Subjects discussed included Status & future prospects of shrimp farming in Orissa, site selection, design & construction of shrimp farm, CAA registration & Legal aspects of shrimp farming, Society formation, Seed selection & stocking, water/soil quality management, nutrition management and MPEDA Schemes.

Sri Nabakishore Sinhal, SMS, KVK and Kendrapara delivered a guest lecture on selection of good quality seed and stocking procedure.

On the fourth day, trainees were taken to a field trip to crab demonstration pond at Krishnapriyapur and to the shrimp pond of Sri Akshya Kumar Rout, Krishnapriyapur where harvesting was going on. Trainees were briefed on harvesting method and post harvest procedure.

On the final day, a group discussion was arranged where the farmers interacted with the officials on various problems faced by them. The certificates to the trainees were distributed by Sri Sapan Kumar Mandal Secretary, Multipurpose Cyclone Centre, Benakanda.

involved in crab farming. Shri Gokul Behera, a leading farmer of shrimp and crab aquaculture narrated his experience, and stressed the need for diversification to crab as a best alternative. Literature on mud crab farming was distributed to the participants.

C) 5-day Training Programme for SC/ST beneficiaries on 'Adoption of CoPs for antibiotic-free shrimp production' organised at Benakanda Village, Kendrapara Dist.

MPEDA, Regional Centre, Bhubaneswar has also organized a 5-

day training programme on "Adoption of Code of Practices (CoPs) for antibiotic free shrimp production" at Benakanda Village, Kendrapara district for the benefit of 20 farmers belonging to SC/ST Communities of Benakanda, Babar, Panchagochia, Guludia and Kalatunga villages from 10-14 October, 2011.

Shri G Rathina Raj, Deputy Director, MPEDA, inaugurated the training programme. Besides MPEDA Officials, the inaugural programme was attended by Shri Biranchi Narayana Kar, DSF, BFDA, Kendrapara.



L-R: Shri L.K. Patnaik, FS, Shri G. Rathina Raj, Dy. Director (AQ), Shri Sapan Mandal, Secretary, MPCC and Shri Dibakar Maity, Lead Farmer at Benakanda, Kendrapara



Trainees' field visit at Benakanda

Deep-Sea Fish in Deep Trouble: Scientists Find Nearly all Deep-Sea Fisheries Unsustainable

A team of leading marine scientists from around the world is recommending an end to most commercial fishing in the deep sea, Earth's largest ecosystem. Instead, they recommend fishing in more productive waters nearer to consumers.

In a comprehensive analysis published online in the journal *Marine Policy*, marine ecologists, fisheries biologists, economists, mathematicians and international policy experts show that, with rare exceptions, deep-sea fisheries are unsustainable. The "Sustainability of deep-sea fisheries" study, funded mainly by the Lenfest Ocean Program, comes just before the UN decides whether to continue allowing deep-sea fishing in international waters, which the UN calls "high seas."

Life is mostly sparse in the oceans' cold depths, far from the sunlight that fuels photosynthesis. Food is scarce and life processes happen at a slower pace than near the sea surface. Some deep-sea fishes live more than a century; some deep-sea corals can live more than 4,000 years. When bottom trawlers rip life from the depths, animals adapted to life in deep-sea time can't repopulate on human time scales. Powerful fishing technologies are overwhelming them.

"The deep sea is the world's worst place to catch fish" says marine ecologist Dr. Elliott Norse, the study's lead author and President of the Marine Conservation Institute in Bellevue, Washington USA. "Deep-sea fishes are especially vulnerable because they can't repopulate quickly after being overfished."



The deep sea provides less than 1% of the world's seafood. But fishing there, especially bottom trawling, causes profound, lasting damage to fishes and life on the seafloor, such as deep-sea corals, these experts say.

Since the 1970s, when coastal fisheries were overexploited, commercial fishing fleets have moved further offshore and into deeper waters. Some now fish more than a mile deep.

"Because these fish grow slowly and live a long time, they can only sustain a very low rate of fishing," says author Dr. Selina Heppell, a marine fisheries ecologist at Oregon State University. "On the high seas, it is impossible to control or even monitor the amount of fishing that is occurring. The effects on local populations can be devastating."

The authors document the collapse of many deep-sea fishes around the world, including sharks and

orange roughy. Other commercially caught deep-sea fishes include grenadiers (rattails) and blue ling.

"Fifty years ago no one ate orange roughy," said author Dr. Daniel Pauly, a fisheries biologist with the University of British Columbia (UBC). "In fact, it used to be called slimehead, indicating no one ever thought we would eat it. But as we've overfished our coastal species, that changed and so did the name."

Orange roughy take 30 years to reach sexual maturity and can live 125 years. Compared with most coastal fishes, they live in slow-motion. Unfortunately for them and the deep-sea corals they live among, they can no longer hide from industrial fishing.

"Fishing for orange roughy started in New Zealand and grew rapidly through the 1980s and 1990s. However, most of the fisheries were overexploited, and catch levels have either been dramatically reduced or the

fisheries closed all together,” says author Dr. Malcolm Clark, a New Zealand-based fisheries biologist. “The same pattern has been repeated in Australia, Namibia, the SW Indian Ocean, Chile and Ireland. It demonstrates how vulnerable deep-sea fish species can be to overfishing and potential stock collapse.”

There are very few exceptions to unsustainable deep-sea fisheries around the world. One is the Azores fishery for black scabbardfish. There the Portuguese government has banned bottom trawling, which overfished black scabbardfish elsewhere. Azores fish are caught sustainably with hook and line gear from small boats. In most deep sea fisheries, however, trawlers fish outside of nations’ 200-mile Exclusive Economic Zones, outside of effective government control.

“Deep-sea fisheries can be sustainable only where the fish population grows quickly and fisheries are small-scale and use gear that don’t destroy fish habitat,” said Dr. Norse. “With slow-growing fish, there’s economic incentive to kill them all and reinvest the money elsewhere to get a higher return-on-investment. Killing off life in the deep sea one place after another isn’t good for our oceans or economies. Boom-and-bust fisheries are more like mining than fishing,” Dr. Norse said.

The lawlessness of the high seas adds to overfishing in the deep. So do nations’ fisheries subsidies.

High seas trawlers receive some \$162 million each year in government handouts, which amounts to 25% the value of the fleet’s catch, according to

Dr. Rashid Sumaila, an author and fisheries economist at UBC.

The authors of this Marine Policy paper say that the best policy would be to end economically wasteful deep-sea fisheries, redirect subsidies to help displaced fishermen and rebuild fish populations in productive waters closer to ports and markets, places far more conducive to sustainable fisheries.

“Instead of overfishing the Earth’s biggest but most vulnerable ecosystem, nations should recover fish populations and fish in more productive coastal waters,” says Dr. Norse. “Deep-sea fishes are in deep trouble almost everywhere we look. Governments shouldn’t be wasting taxpayers’ money by keeping unsustainable fisheries afloat.”

Source: Sciencedaily.com

Aquaculture output up on better prices, larger area

Aquaculture production in India during 2010-11 increased significantly over the previous year, with a 40 per cent rise in output, to 145,600 tonnes, valued at Rs 3,585 crore (a rise of 40 per cent).

A rise in acreage and improved prices are both responsible for the rise. The area under aquaculture rose to 50,000 hectares (ha) by the end of 2010-11, a rise of 10,000 ha over the previous year. The average farm gate price rose to Rs 246 a kg from Rs 200. Of the total exports of marine products of 813,091 tonnes in 2010-11, aquaculture items contributed 18.4 per cent. Last year, this was around 15 per cent. Of the total export value realisation of Rs 12,901 crore, aquaculture contributed 27.5 per cent. This was 20 per cent in 2009-10.

Andhra Pradesh led in aquaculture farming, with a total output of 66,631 tonnes (45 per cent of the total),

followed by West Bengal with 42,983 tonnes (30 per cent). A remarkable increase in productivity was noted in Gujarat, from 1.9 tonnes/ha in 2009-10 to 2.9 t/ha.

Compared to the previous year’s output of 95,919 tonnes, shrimp production (of the Black Tiger variety) rose 23.6 per cent, with an additional 11,592 ha brought under cultivation. Andhra led with 49,030 tonnes from 42,055 ha, followed by West Bengal with 40,725 tonnes from 47,588 ha. The exports rose to Rs 3,080 crore from Rs 2,398 crore in 2009-10, a growth of 28.4 per cent.

Vannamei shrimp production began for the first time in 2009. This increased to 18,247 tonnes, almost entirely from Andhra. Of the total, 10,000 tonnes were exported, with a value realisation of Rs 365 crore. Scampi production also rose in 2010-11, compared to 2009-10, though the



area under scampi farming had reduced. The reduction is attributed mainly to lack of good quality seed for farming and the difficulty in marketing small quantities.

Compared to the previous year’s production of 6,567 tonnes, production during 2010-11 was 8,778 tonnes, higher by 33.6 per cent. The total value realisation was Rs 140 crore, an increase of 33 per cent over the previous year. These three varieties and that of tiger shrimp (output of 118,000 tonnes) make for almost the entire aquaculture production in India.

-Business Standard

APEDA Official Elected Codex Chief

Sanjay Dave, Director of APEDA has been elected as the Chairman of Codex Alimentarius Commission (CAC), a UN body for food safety standards. It is for the first time in the history of CAC that an Indian official has been elected at such a coveted post. The elections

FAO and WHO to frame international food standards for protecting health of consumers around the globe and ensuring fair practices in food trade.

Mr. Dave, while voicing his future strategies said his priorities would be

consensus between the member countries. He added that since the Codex standards are taken as reference standards in the framework of WTO, it is important to maximise the role of developing countries in the Codex standardisation process, for greater market access in agricultural products. He also hoped that countries would work towards harmonisation of their foodstandards with Codex to facilitate trade.

He said that private standards are becoming a major trade barrier for the developing countries, thus, encouraging the private standard setting bodies work closely with Codex, while it assumes importance to FAO and WHO regularly conduct a number of capacity building programmes, particularly in food safety areas and the developing countries including India need to take maximum advantage to enhance their market access efforts.

-Apex Update



were held at Geneva on July 5, 2011. CAC is an international inter-governmental body set up jointly by

to ensure continuity of the leadership role for Codex and setting sound standards based on science through

International Action To Fight Illegal Fishing

EU - Illegal fishing not only seriously distorts markets for EU fishermen and consumers, but threatens to destroy the biodiversity of the world's oceans, warned the Fisheries Committee on Tuesday.

Given the high mobility of fish stocks and fishing fleets, illegal, unregulated and unreported (IUU) fishing can only be effectively tackled by international cooperation, said MEPs, stressing that the EU, as the world's major fishing power and the largest importer of fisheries products, should play a key role in mobilising international community to combat IUU.

An estimated 15 per cent of world catches - between 11 and 26 million tonnes a year - come from illegal fishing, making sustainable management of marine resources impossible, says the text. Besides threatening fish stock sustainability and food security, which affects both consumers and fishing communities illegal fishing constitutes unfair competition for fishermen who abide by the rules, says the text.

“The EU needs to do more to promote effective international cooperation to combat illegal fishing,” said rapporteur Isabella Lövin (Greens/EFA, SE) stressing that “we

need to ensure that ruthless operators cannot simply change the flag of their vessels to avoid their responsibilities. With many fish stocks around the world already perilously threatened, illegal fishing could be the final straw.”

Sanctions against negligent states

The technology to monitor and prevent illegal fishing now exists - what is missing is the political will to do so, say MEPs. The committee urges the Commission and Member States to press the issue in international fora such as the WTO, and calls for sanctions against states that fail to meet their international obligations, e.g. by

ensuring that vessels that fly their flags abide by the rules.

The committee also says that aid from the EU's generalised preference system should be conditional upon applicant countries' compliance with FAO and UN rules against IUU and that the Commission and Member States should step up their financial and technical support for surveillance programmes in the waters of developing countries.

Closing markets to illegal seafood

Since two thirds of world's oceans are beyond national jurisdiction, new measures are needed, such as compulsory registration of fishing vessels above 10GT (gross tonnage), a global catch certification scheme, international exchange of information on vessels activities, import controls and an agreement on closing markets to illegally caught fish, say MEPs.

To be effective, such measures must be backed by major fish markets.

MEPs urge the EU to consult major market states, such as the US, Japan and China, about developing international legal instruments, possibly under WTO auspices, to halt, prosecute and punish trade in IUU fish.

Other measures

MEPs would also like the EU to establish a register of fishing vessels authorised to fish and blacklist those that engage in illegal fishing. They also advocate stepping up inspections at sea, developing catch-documentation schemes, banning transshipments, compulsory use of electronic vessel



monitoring systems (VMS) and stronger regional fisheries management organisations to cover all high seas fisheries.

Next steps

The committee vote was unanimously in favour (20 votes). Parliament as a whole will vote on the recommendations at its 14-17 November plenary session in Strasbourg.

UK fish buying standards are good news, say MSC

RULES requiring all UK Government departments and agencies to source fish from "demonstrably sustainable" fisheries have been welcomed by the Marine Stewardship Council (MSC.)

The standards – coming into force this autumn – require caterers to ensure that "All fish are demonstrably sustainable with all wild-caught fish meeting the FAO Code of Conduct for Responsible Fisheries (includes MSC certification...")

The MSC say Government buying standards apply to catering contracts across all central government departments and agencies, including military institutions and prisons. This equates to a total annual commitment

by government buyers of £16.1 million per annum to sourcing sustainable fish for meals provided to over 400,000 people.*

Toby Middleton, UK country manager for the MSC said: "This represents an important recognition by the UK government of the commitments made by stakeholders in certified fisheries across the UK. We warmly welcome this as a positive leadership piece setting an example to the wider market which is showing ever increasing engagement with certification. MSC certification is a rigorous assessment process and these new procurements standards reward the efforts to achieve sustainable practices made by fishermen throughout the country."

In total, over 250 fisheries are engaged in the MSC programme with 131 certified and 131 under full assessment. Another 40 to 50 fisheries are in confidential pre-assessment. Together, fisheries already certified or in full assessment record annual catches of close to nine million metric tonnes of seafood. This represents over 10 per cent of the annual global harvest of wild capture fisheries. Certified fisheries currently land over five million metric tonnes of seafood annually – close to six per cent of the total harvest from wild capture fisheries. Worldwide, more than 10,000 seafood products, which can be traced back to the certified sustainable fisheries, bear the blue MSC ecolabel.

-fishnews

First half exports up 52 % at \$160 billion

(Shipments rise 36 % at \$25 b in September)

Even as exports continued to maintain a robust growth, registering a 36.3 per cent growth at \$24.80 billion in September despite downturn in the U.S. and eurozone, signs of deceleration have already started to set in.

Total exports for the current fiscal might reach \$290-300 billion, Commerce Secretary Rahul Khullar said here on Wednesday. Exports slowed down in September when compared to the 44.2 per cent growth recorded in August. The U.S. and Europe are the two biggest markets for Indian merchandise, accounting for about 30 per cent of total shipments.

Imports in September grew 17.2 per cent at \$34.60 billion vis-a-vis the same period last year, leaving a trade deficit of \$9.80 billion.

During April-September, exports expanded by 52.1 per cent to \$160 billion and imports by 32.4 per cent to \$233.50 billion, leaving a trade gap of \$73.50 billion. "The good news is that exports continue to grow over the last year, but the heady numbers have gone, it is clear there is deceleration," Mr. Khullar told reporters here.

During the first half of this fiscal, the sectors that registered healthy growth in exports include engineering (103 per cent), petroleum and oil lubricants (53

per cent), gems and jewellery (23 per cent), ready-made garments (32 per cent), **marine products (48 per cent)** and drugs (33 per cent).

Mr. Khullar said exports were growing in new markets such as Africa, Latin America and Asia, which had helped India maintain the export growth momentum. The Federation of Indian Exporters Association said the trade deficit was huge and might touch \$150 billion by the end of 2011-12 which was a matter of concern. During April-September 2011-12, PoL imports grew by 42 per cent to \$70.4 billion year-on-year.

-The Hindu

U.S. turns to India, Ecuador, Mexico for Shrimp

Thanks to India, China, Indonesia, Ecuador and Mexico, U.S. shrimp imports jumped 9.8 percent in August, to 97 million pounds, according to figures released by the National Oceanic and Atmospheric Administration's (NOAA) Fisheries Service on Thursday.

U.S. shrimp imports are well on track to top last year's total of 1.23 billion pounds. Through the first eight months of 2011, they were up 3.5 percent, to almost 757 million pounds, reported NOAA Fisheries.

The greatest month-over-month increase came from Mexico. In August, U.S. shrimp imports from Mexico were up about 38 fold, to 5.6 million pounds, from August 2010. That's because the U.S. government had banned shrimp imports from the country last year, citing some Gulf of Mexico and Sea

of Cortez trawlers for improper use of turtle excluder devices (TEDs); the ban was lifted in October 2010.

India also boosted its shrimp exports to the United States significantly in August, up 68.2 percent, to 15.5 million pounds. The country has shifted its shrimp production away from black tigers and toward Pacific whites, allowing it to increase its overall shrimp production. According to one Thailand-based shrimp exporter, India expects this year's shrimp harvest to be up 25 to 30 percent from last year, to about 300,000 metric tons, 60 percent of which will be vannamei.

China also recorded a sizeable increase in its shrimp exports to the United States in August, up 10.7 percent to 11.9 million pounds, while Indonesia watched its shrimp exports to the United States edge up 8.8

percent in August, to 15.2 million pounds. The same goes for Ecuador, which posted an impressive 52.5 percent increase in its shrimp exports to the United States in August, to 16.2 million pounds.

As for Thailand — by far the United States' No. 1 shrimp supplier — the news isn't as positive. Its shrimp exports to the United States were down 4.3 percent in August, to 41.3 million pounds. Through the first eight months of 2011, they were down 4.2 percent, to 246.8 million pounds.

Severe floods in early spring and again in early fall due to a volatile monsoon season has hampered Thailand's shrimp production. One industry veteran told SeafoodSource recently that raw material in Thailand is "very short" currently.

Source: Vietfish International

Fish oil supplements ‘can slow growth of prostate cancer cells in just four weeks’

A low-fat diet with fish oil supplements can slow down the growth of prostate cancer, research has shown.

Scientists in the U.S. made the discovery after testing prostate tissue samples taken from men with the disease.

They found that just four to six weeks on the diet was enough to reduce the growth of cancer cells.

Lifesaver? An American study has found that fish oil supplements can slow the growth of prostate cancer

The same effect was not seen in men who remained on a regular Western diet with no fish oil supplements.

Study leader Professor William Aronson, from the University of California at Los Angeles, said: ‘The finding that the low-fat, fish oil diet reduced the number of rapidly dividing cells in the prostate cancer tissue is important because the rate at which the cells are dividing can be predictive of future cancer progression.

‘The lower the rate of proliferation, the lesser the chances that the cancer will spread outside the prostate, where it is much harder to treat.’

The findings appear in the journal *Cancer Prevention Research*.

The scientists tested blood samples before and after the diet commenced, and examined tissue from surgically removed prostate glands.

Changes prompted by what the men were eating were clearly evident



in the prostate tissue, said Prof Aronson.

The diet appeared to alter the fatty acid composition of prostate cell membranes.

Similar results were previously obtained from laboratory cell cultures and animals.

‘You truly are what you eat,’ said Prof Aronson.

‘Based on our animal studies, we were hopeful that we would see the same effects in humans. We are extremely pleased about our findings, which suggest that by altering the diet, we may favourably affect the biology of prostate cancer.’

Study participants on the Western diet obtained 40 per cent of their calories from fat. Food sources were typical of diets in well-off countries and included high levels of omega-6 fatty acids from corn oil. Levels of fish oil, which provide omega-3 fatty acids, were low.

The low-fat diet relied on fat to provide just 15% of calories. Men on the diet also took five grams of fish oil per day in five capsules.

‘Preclinical studies suggest that lowering dietary omega-6 fatty acids from corn oil and increasing omega-3 fatty acids from fish oil decreases the risk of prostate cancer development and progression,’ the scientists wrote.

‘We found this diet intervention resulted in a decrease in omega-6 versus omega-3 fatty acid ratios in benign and malignant prostate tissue and a decrease in malignant cell proliferation.’

Prof Aronson said the short duration and small size of the study meant he could not recommend dietary changes.

He is now planning a larger study of 100 men with prostate cancers who were not being actively treated but receiving regular biopsies and check-ups.

The study will take a year to evaluate the effects of a low fat diet, Western diet, or fish oil supplements on prostate cancer growth.

Each year around 36,000 men in the UK are diagnosed with prostate cancer and 10,000 die from the disease.

-dailymail.co.uk

Solar fish dryer inaugurated

A furnace-like equipment for drying fishes and operated from solar energy has been inaugurated at the Lamphelpat complex of Indian Council for Agricultural Research (ICAR), NEH Region today.

Inauguration of the solar fish dryer was held with Deputy Director General (Fisheries) of ICAR, New Delhi Dr B Meenakumari as the chief guest.

In her address, Dr Meenakumari informed that the equipment has in-built capacity to dry 250 kgs fish and requires at least two days to complete the drying process.

Explaining that the equipment, costing Rs 20 lakhs, could also be used to dry 10-20 kg fish, she said with the equipment requiring only solar energy to operate consumption of the dried fish do not pose any risk to health.

Noting widespread use of firewood and other conventional

sources of energy to dry fish in Manipur, where consumption of dried fish is considered to be high, the ICAR official said not only will the lengthy process to manually prepare dry fish be addressed but fishes dried in the new environment-friendly equipment could be seasoned for longer period of time.

It is informed that individual fish farmers of the state could utilize the newly installed machine to process dry fish.

The machine reportedly requires only about 80 degree centigrade solar heat to dry 250 kg fish.

CIFT (Cochin) Director Dr TK Srinivas Gopal, ICAR Manipur Centre Director Dr N Prakash, Joint Head of Engineer Division of CIFT (Cochin) PN Joshi and State's Fishery Department Director K Sarat were also present at the inaugural programme.

-The Sangai Express

Rare fish netted

A rare flying fish was caught by a fisherman at Keni in Ankola taluk on Tuesday. Mohan Belya Tandel netted the fish using his traditional boat. But Mohan caught 1.5-foot long flying fish near the beach. This fish had the capacity to fly 50 metres high and has wings. The fish has been handed over to Chandrakant Balegar who collects rare fishes.



A collector holding the flying fish.

-The Hindu

Researchers thrilled at sighting of rarest shark

May be the lone shark travelling from its native waters off South Africa or the Arabian waters of Yemen might have lost its way or its family on its journey towards the western coast in India, but it sure has made the Indian researchers at School of Industrial Fisheries of Cochin University of Science and Technology here happy.

Being one of the rarest-of-the-rare shark species to be found even on the international waters, the discovery of this species on the Indian waters has impressed researchers here. "The discovery is a surprise because it is on very rare occasions that marine species migrate to unfriendly and hostile territories. We are amazed at the shark's

capacity to survive in waters with different climatic conditions," said M Harikrishnan, principal investigator of project.

The tiger shark was fished out of the Arabian sea by bottom trawlers and was later found by a team of young researchers at Kollam Shakthikulangara Fisheries Harbour where it was dumped in December 2010.

Known as *Halaaelurus Natlensis* (Regan 1904), the shark species was named after British ichthyologist Charles Tate Regan who hypothetically stated the existence of the species in the natal coast of South Africa in 1904. Says Deepak Jose, a member of the

three-member team, who spotted the shark at the harbour. "We were supposed to be at the far off seas doing our research in Sagar Sambha, but couldn't because of some technical reasons. So, we decided to stick to the shores.

But, this irrelevantly led to the discovery of the new species." The others in the team are Jenson Victor Rozario and Diana Benjamin. It took them almost eight months of tireless quest to confirm whether this was the same rare shark species mentioned in text books.

The path-breaking fact is that it is also for the first time that a molecular

study to understand the DNA sequence of the shark has been conducted, despite its occurrences in the Yemen and African waters. The 18.8-cm female shark, belonging to the Scyliorhinidae family, is unique with features such as broad, flattened head and an upturned snout tip. It can also additionally be identified by its broad dark brown dorsal saddles enclosing lighter areas, without spots.

The team is conducting a research into its origin and how it happened to swim into the Indian water. They are also looking into migratory habit of the species.

This find has led to the confirmation of the existence of the species in Indian water while earlier studies in India had reported otherwise. The shark was collected as

part of the Ministry of Earth Sciences- funded project titled Assessment of fishery resources along the Indian continental slope and Central Indian Ocean. The research project is being guided by Kerala University of Fisheries and Ocean Studies Vice-Chancellor Madhusoodana Kurup.

-The New Indian Express.

MPEDA to set up seafood parks in 2 southern States

The Marine Products Export Development Authority (MPEDA) will set up seafood parks in the Special Economic Zones (SEZs) in Nellore in Andhra Pradesh (AP) and Tuticorin in Tamil Nadu. The parks would concentrate on producing and exporting value-added products, primarily in the ready-to-cook and ready-to-eat categories.

About 400 acres of land is available at the Nellore SEZ and 100 acres at Tuticorin. The former, part of the 'Kisan SEZ,' would see an investment of approximately Rs.500 crore. It would be operational in two years. About 10 units had already expressed willingness to launch operations from the Tuticorin SEZ which would start functioning first, according to official sources. Though Kerala had plenty of marine resources for setting up seafood parks, availability of land had been a problem. Aroor in Alappuzha district had a seafood pre-processing and associated facilities centre.

The proposed SEZ units would have common facility centres of European Union (EU) standards. A study would be conducted in two months on the modalities of setting up the parks in the public-private participatory model. MPEDA will

provide initial monetary assistance to set up the parks, apart from providing infrastructure and marketing support.

Introducing latest technologies and tapping the marine resources would be the key elements of MPEDA's plan. The agency targeted exports worth \$5 billion by 2014-15, out of which 75 per cent would be value-added products. Foreign collaboration, investments, and tie-ups in marketing would be encouraged. Many countries in Asia and Latin America had taken up shrimp farming and competition was stiff.

Despite recessionary trends in various countries, India managed to make gains in the export of marine products. During 2010-11, the export earnings crossed \$2.8 billion. The exports aggregated 8.13 lakh tonnes, valued at Rs.12,901.47 crore, a growth of 19.85 per cent in quantity, 28.39 per cent in Rupee and 33.95 per cent in Dollar earnings respectively.

Frozen shrimp continued to be the major export value item accounting for 44.17 per cent of the total dollar earnings. EU continued to be the largest market with a share of 26.78 per cent in Dollar realisation, followed by South East Asia (16.43 per cent).

-The Hindu

MPEDA to promote organic aquaculture

Owing to a surge in global demand for organic food, the Marine Products Export Development Authority (MPEDA) seeks to actively promote organic aquaculture in suitable areas.

Ms Leena Nair, Chairman, MPEDA, said fish products are considered health food and the organic fishery market is valued at \$800-900 million. Organic aquaculture enjoys global demand, which is increasing by 10-15 per cent a year.

MPEDA will introduce a scheme to promote organic aquaculture that meets international standards, she said. This practice is very similar to traditional aquaculture practices in the country. Each farmer group can formulate an Internal Control System (ICS) to implement the programme successfully.

Inputs such as seed and feed have to come from a certified organic hatchery or feed mill. Use of chemicals is prohibited at any stage of the culture period. Organically processed fishes/shellfishes command a premium over conventional products.

Ms Nair said MPEDA has introduced an attractive assistance

package that provides farmers 50 per cent of the cost of procuring organic seed and feed, as well as certification. Supplies can come only from approved hatcheries and feed mills. The subsidy ceiling has been raised to Rs 50,000 a hectare of water-spread area.

Each beneficiary is entitled to subsidy for a maximum of 6 hectares, subject to the financial ceiling of Rs 3 lakh. In the case of a group/ cluster/ society/ *padasekaram*, the upper limit is Rs 15 lakh for 30 hectares or more. Subsidy is available for the

conversion crop as well as succeeding three organic crops.

MPEDA also arranges technical training related to the organic certification process, both for farmers and other stakeholders.

-The Hindu BS

Seafood industry likely to get agriculture status

The Union government is considering granting agriculture status to the seafood industry, including aquaculture. This old demand of the seafood industry is expected to be fulfilled soon, according to sources. The proposal is now under consideration of the ministry of agriculture.

The seafood sector has an industry status and is under the control of the ministry of commerce.

Since fish farming is a fast growing business and similar to agriculture activities, the Seafood Exporters Association of India (SEAI)

has been pressing this demand for quiet some time.

“The agri status will benefit the industry in a multifaceted ways,” said Ravi Reddy, president, SEAI. The fish production sector, especially aquaculture farms, are not getting sufficient loans from financial institutions. Once the status is granted, loans at lower interest rates will be easy and will benefit thousands of aquaculture farmers.

Because of inadequate finance and high risk in the production, insurance is also not provided to this sector. A majority of the aquaculture

farms in the country are not yet insured, he added.

Also, power will be provided at lower rates, as in the case of farming. For the sea fishing sector, diesel might be available at subsidized rates for mechanized boats.

The country produced 145,600 tonnes of products through aquaculture valued at Rs 3,585 crore in 2010-11.

Production increased 39.7 per cent as against 41,381 tonnes valued at Rs 1,054 crore in 2009-10.

-Business Standard

Some freshwater molluscs under threat

Unsustainable harvesting and pollution of waterbodies may force some freshwater molluscs in the Western Ghats region into extinction or throw up increased risks for their survival in the near future, experts warn.

In a maiden assessment of the 77 freshwater molluscs of the region using the IUCN Red List categories and criteria, four species — *Cremnochonchus syhadrensis*, *Cremnochonchus carinatus*, *Arcidopsis footie*, and *Pseudomulleria dalyi* — were categorised as endangered.

Cremnochonchus conicus, *Parreysia khadakvaslaensis*, and *Scaphula nagarjunai*



— were assessed as vulnerable. Fifty-one species were listed in the least-concern category.

The scientists put 19 species on the data-deficient list as sufficient

scientific data on them were unavailable.

The threats faced by the species include indiscriminate harvesting, water abstraction for agricultural purposes, sand-mining, and construction of dams.

Assessments revealed that no information was available on a few species, including six from Kerala, after they were first reported.

The endemic Kerala species among them are *Corbicula annadalei*, *Iravadia funereal*, *Paludomus annandalei*, *Paludomus rotunda*, *Paludomus stomatodon*, and *Paludomus sulcatus*, says N.A. Aravind Madhyastha, Fellow of the

Academy for Conservation Science and Sustainability Studies, Ashoka Trust for Research in Ecology and the Environment, Bangalore.

Paludomus rotunda was first reported in 1870 from Travancore and subsequently from three sites in Tamil Nadu.

However, no subsequent reporting was made from Kerala. *Paludomus sulcatus* was reported from Travancore in 1880 and *Corbicula annadalei* from specifically Thenmala in 1909, Mr. Madhyastha says.

There is the probability that they are either extinct or wrongly classified as some other species.

Extensive field work is required to assess their precise status, Mr. Madhyastha, who participated in the assessment process, says. Some of the

species are highly endemic and have restricted distribution in the streams of the Western Ghats. *Cremnochonchus syhadrensis*, *Cremnochonchus conicus*, and *Cremnochonchus carinatus* are the only freshwater relatives in an otherwise entirely marine family.

These species are adapted to the spray zone of perennial waterfalls in a few localities in the Karnataka and Maharashtra region of the Western Ghats, he says in a communication.

Another restricted range species is *Pseudomulleria dahyi*, an endemic freshwater pearl confined to the Tunga and the Bhadra rivers in the central western region of Karnataka.

The estimated surviving population of this species is fewer than 5,000. The population of *Pseudomulleria dahyi* has been “exterminated” after the

recent increase in the height of the Tunga dam, near Shimoga, in Karnataka, he says.

Vembanad harvest

Black clam harvested from the Vembanad lake in Kerala may become threatened in the near future considering its unsustainable exploitation. Kerala is the leading producer of this most important clam species landed in India.

Around 60,000 tonne of black clam is harvested from the lake annually, says K. Sunilkumar Mohammad, Head of the Molluscan Fisheries Division of the Central Marine Fisheries Research Institute, Kochi.

An estimated 6,500 fishermen are engaged in clam fishery, each collecting around 200 kg a day, he says.

-The Hindu

Open-ocean aquaculture company receives patent for fish pen

A Hawaii open-ocean aquaculture company received a patent for its fish pen this week.

Hawaii Oceanic Technology Inc. received the patent for the Oceansphere Automated Positioning and Submersible Open Ocean Platform for Fish Farming on Tuesday, CEO Bill Spencer said Thursday.

He called the patent approval a major milestone.

“We continue to be very excited about this project,” Spencer said. “The patent affirms we’re doing it in a new way.”

One of Spencer’s long-term goals is to use the Oceansphere as a means to farm fish in a more environmentally sustainable way, he said.

The patent, U.S. Patent Number 8,028,660, was filed in November 2007.

The company, formed in 2006,

has permits and approval for a 247-acre lease site 2.6 miles off Malae Point, on the North Kohala coast. The company will be permitted to operate 12 Oceanspheres in the site, with the goal of producing 6,000 tons of tuna annually.

Patent applications have also been filed in Europe, Canada, Japan, Australia and the Philippines. Getting the patent approved in the U.S. makes it likelier to get the foreign patents approved, Spencer said.

“It’s a very important step,” he said. “Our long-term goal is to license the technology around the world.”

A prototype Oceansphere should be deployed by the end of next year, Spencer said. A full-size sphere would follow.

In September 2010, Spencer said the company wasn’t scaling back, but

did amend its application to the U.S. Army Corps of Engineers to permit one prototype Oceansphere in 2012, instead of deploying all 12 at once. In November, Spencer said he hoped to have the company’s first fish harvest in 2013, with two more spheres deployed in 2014.

The state accepted Hawaii Oceanic Technology’s final environmental impact statement in July 2009. The company got a state Conservation District Use permit in November 2009.

“The goal of the company is to demonstrate new fish farming technology that allows pelagic species such as tuna to be grown in deep ocean waters where constant currents and large volumes of clean water assure fish health and rapid mineralization of effluents,” Spencer said.

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India Aims To Increase Marine Fish Catch In 2011-12

INDIA - Concerned over depleting marine catches mainly due to weak presence in the exclusive economic zone (EEZ) and high seas, India is working on the harmonized development of the coastal and deep sea sectors to enhance marine capture fisheries to three million tonnes in the 2011-12 fiscal year.

The Economic Times reports that the present annual production of marine fisheries is 2.96 million tonnes, according to official sources.

Marine fishing policy aims to increase marine fish production of the country up to the sustainable level in a responsible manner so as to boost seafood exports from the country, a

senior officer of Department of Fishery under Union Agriculture ministry said.

The planned strategy for boosting marine fishery includes regulated fishing and capacity management in the mechanized sector and diversified fishing in deep sea and oceanic resources, the officer added.

A sum of Rs 350 crore has been earmarked in the 11th Plan for marine fisheries infrastructure and post-harvest operations.

Highlighting the marine fisheries scenario, the official identified weak presence in the EEZ and high seas and over fishing in coastal waters.

Under the law of the sea, an EEZ is a sea zone over which a state has special rights over the exploration and use of marine resources, including production of energy from water and wind.

It stretches from the seaward edge of the state's territorial sea out to 200 nautical miles from its coast. In casual usage, the term may include the territorial sea and even the continental shelf beyond the 200-mile limit.

There is a need for rationalization of restricted zones along coast for fisheries and aquaculture, the officer said, pointing towards areas needing attention for boosting marine fish catch.

-TheFishSite News Desk

Indian Shrimp Harvest A Success

There has been a sharp rise in Indian shrimp production even though disease outbreaks, adverse weather and crop delays have hit global output.

Disease outbreaks are reported to have affected Chinese and Vietnamese shrimp harvests, while floods have washed away the crop in Thailand.

But Indian farmers have a happier story. The farmed shrimp production has been substantially higher, Mr Hashim said. To add to that, the vannamei crop, which is being increasingly cultivated in India, is of a significantly bigger size, he said. However, the increased farmed production has been offset by lower catch from the sea.

The lower catches have ensured that shrimp prices have continued to remain firm in the global markets.

As of mid-June, seasonal harvest throughout Asia remained below that of last year.

In Thailand, the leading supplier to the international market, the seasonal harvest peak was only expected in July. It has been delayed by flooding and the production is expected to decline by 10-15 per cent this year. Thailand's domestic prices were expected to shoot up by 40 per cent.

In Viet Nam, shrimp farms have been affected by the worst outbreak of diseases in the seven provinces of the Mekong delta, which is prime aquaculture country. With the resultant raw material shortage, processing plants in the region are operating only at 50-60 per cent of capacity.

The situation was the reverse in South India, where bumper crops of vannamei shrimp have been harvested in June and July. With heavy arrivals,

processing plants have been forced to operate at 150-200 per cent of their capacity by using two shifts. The demand for the Indian shrimp continues to be strong in the US markets without any dent in prices. The large vannamei shrimp from India has been commanding higher prices.

But the simultaneous arrivals of sea-caught and farmed shrimp in August resulted in the domestic prices ruling lower, Mr Hashim said. As arrivals dwindled, the domestic prices are now holding firm.

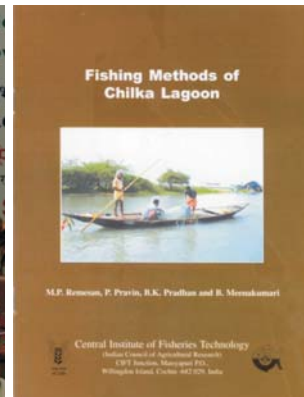
Farms have reported high productivity of 10 tonnes a hectare after shifting to vannamei, Mr Hashim said. The shift to vannamei cultivation has been reported more from South India while East India continues to farm black tiger. There has been a decline in black tiger output.

TheFishSite News Desk

New Publications from CIFT, Cochin

Hand book of Fishing Technology: A book titled “Hand book of Fishing Technology” was translated in to Hindi and published under the co-ordination of Dr. B. Meenakumari, DDG (Fy.), ICAR, New Delhi. The book was edited by Dr. M.M. Prasad, Dr. G. Rajeswari, Dr. U. Sreedhar, Dr. R Raghu Prakash and Dr. Prem Kumar, and translated by Dr. Santhosh Alex with the technical help of ShriK.V.S.S.S.K. Haranath. The book was released on the eve of ICAR Foundation Day at New Delhi on 16 July 2011.

Fishing Methods of Chilka Lagoon: A special publication “Fishing Methods of Chilka Lagoon” authored by Dr. M.P. Remesan, Dr. P. Pravin, Shri B.K. Pradhan and Dr. B. Meenakumari was published by CIFT, Cochin. Chilka lagoon in the state of



Orissa, east coast of India is the largest brackishwater lagoon in Asia with rich biodiversity which consist of more than 300 species of fish and shell fish and several Irrawaddy dolphins and migratory birds. The book gives a comprehensive picture of various types of traditional fishing craft, fishing gear and practices in Chilka lagoon. There are design drawings of

important fishing gears and photographs of various activities in the Chilka lagoon. The authors suggest improvements of the existing fishing gears for sustainable fishery and conservation and biodiversity of the resources in the Chilka lagoon. It is hoped that the publication will be of immense use to the stakeholders and all interested parties in the region.

Pearl farming loses its sheen in Tuticorin

In spite of huge potential for pearl farming, Tuticorin has lost its sheen. Fortunately, Tuticorin is called as Pearl City because of its rich history of pearl fishery and pearl farming potential. Cultured pearls were produced in India long ago but success was achieved only in the 70s, when spherical pearls were produced in Tuticorin, according to Joe Austin, an expert in pearl farming, Tuticorin.

Due to certain bottlenecks, pearl farming could not flourish much on the expected lines. Since most of the suitable coastal farming sites were under the control of Tuticorin Port, the required sites could not be availed to promote pearl farming, a lucrative venture.

The availability of oyster from the wild is limited to certain period of the year. Problems, which led to poor settlement of oysters, were destruction of marine wealth caused by trawlers

and accelerated fishing over oyster beds. Besides, factors like hunting by predators and current pattern would also affect the settlement.

“India is endowed with the natural resource of pearl oyster in the Gulf of Mannar, the southeast coast and in the Gulf of Kutch, in the northwest coast. Pearls from the Gulf of Mannar are famous throughout the world as orient pearls. Pearl producing oysters of the sea have remained government monopoly from time immemorial. It is also difficult to obtain permission for collecting oysters and an amount has to be paid as royalty,” Dr. Austin said.

To regain the lost glory, government agencies could demarcate certain areas at sea to the farmers for executing their tasks. The move would also avoid confrontation with fisher folks. Availability of oyster throughout

the year could also be regulated through these agencies. Procedures of importing shell nucleus, a base material for production of cultured pearls, should be relaxed. If such basic requirements were made available for farming, many people would come forward to take cultured pearl production in Tuticorin, which could put India in the world map of pearl farming.

“So far, 38 pearl fisheries have been recorded between 1663 and 1961. Pearl oyster, *Pinctada fucata*, contributes to the major pearl fishery of India. Six species of oysters have been recorded in India. They are *Pinctada fucata*, *Pinctada margaritifera*, *Pinctada cheminitzi*, *Pinctada sugillata*, *Pinctada anomioidea* and *Pinctada atropurpurea*. Among this, *Pinctada fucata* is the dominant species,” he added.

-The Hindu

‘Quilon Flavours’ – A Seafood Fest Organized by CIFT

“Quilon Flavors” a seafood fest was organised at Azheekal, Kollam on 23rd July 2011 as part of the Department of Science and Technology funded project ‘Location specific livelihood interventions for fisherwomen in Kerala, conceptualized keeping in mind the popularity and appeal of seafood amongst the food enthusiasts. The event was inaugurated by Dr. Femeena Hassan, Senior Scientist and Principal Investigator of the Project. She said that the fishing industry and seafood recipes are integral to the economy, life and culture of the fisherwomen. Smt. Lasitha, Project Officer, Matsyafed presided over the event. The main objective of the festival was to bring the fisherwomen to mainstream to discuss

the recent developments in production technologies, value addition and marketing of fish and fishery products. The Fest also aimed at creating awareness among the consumers on fish as a healthy food. Recipe competitions on various types of seafood preparations have been arranged for women to bring out the talent in preparing varieties of ready to eat fish products. The women Self Help Groups (SHGs) made the evaluators spell bound by featuring a lavish range of local delicacies. Some of the mouthwatering catch included sardine chutney, tuna cutlets, crab masala, and many more delicious and richly spiced traditional dishes. The seafood delicacies are sure to satisfy the food enthusiasts. The evaluators found



Dr. Femeena Hassan and Smt. Lasitha evaluating the preparations

it very difficult to finalise the judgment since each edible discovery competed for evoking the taste. For the best preparations prizes were awarded by Shri Babu, Secretary, Matsyafed Cooperative society.



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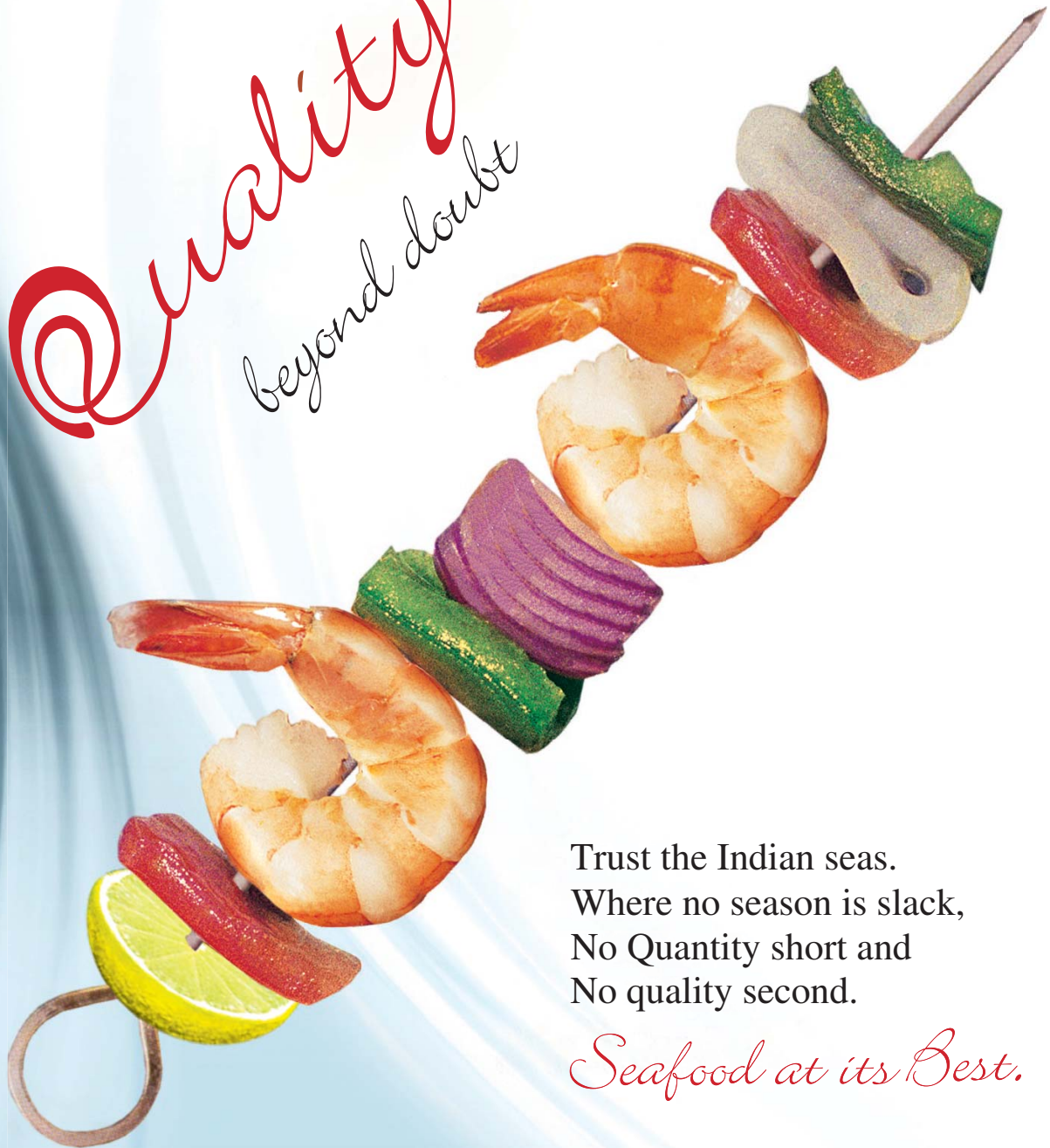
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