THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY
(Ministry of Commerce & Industry, Government of India)
MPEDA House, Panampilly Avenue, Kochi - 682 036, Kerala, India
Phone:+91 - 484 - 2311979 Fax: +91 - 484 - 2313381
E-mail: mpeda@mpeda.nic.in Website: www.mpeda.com
Contents

Marketing News

Effective showcasing of Indian Seafood in European Seafood Exposition (ESE) 2012 .......................................................... 3

Dish Hospitality wins for the second time, while Kaviari and Prins & Dingemanse take top honors at 2012 Seafood Prix d’Elite .......................................................... 7

MPEDA leads the Indian delegation visit to the Port of Rotterdam ........................ 9

Co-exhibitors with MPEDA in ESE 2012 .......................................................... 10

Focus Area

Awareness Programmes on Ornamental Fish Development by MPEDA SRO, Guwahati in Tripura ....................................................... 11

Status of fisheries in Tripura ........................................................................... 12

Training Programme on Organic Aquaculture conducted at Palghar, Thane District, Maharashtra .................................................... 15

Fish scales – functions & applications ............................................................ 17

MPEDA participates in the 5th Freshwater Fish Specialist Group (FFSG) Symposium 2012 at Chester, UK .................................................... 19

Aquaculture Scene

New Business opportunities in Aquaculture: Harvest of farmed Cobia in sea cages .......................................................... 20

Quality Front

HACCP (Basic) Training Programme held at Visakhapatnam ......................... 25

News Spectrum ...............................................................................................27

Trade Enquiry .................................................................................................30
Dear Friends,

While I write this message, I am on a visit to Israel to negotiate the 3rd agreement for the Scampi project of RGCA in Vijayawada with the Ben Grunion University in Be’er Sheva. I have also been able to learn about some of the modern aquaculture techniques developed by the country.

MPEDA and its 24 co-exhibitors had an excellent Seafood Exposition at Brussels late April. It was a matter of great delight that one of our co-exhibitors, M/s. Dish Hospitality P Ltd, Mumbai won the Seafood Prix d’Elite special award for Originality in the product competition held at Brussels. As mentioned in my previous message, certification has become very critical in the international marketing of seafood. One could see the showcasing of various sustainably sourced and certified seafood products throughout the ESE pavilions irrespective of their country of origin. We have to understand (and start taking necessary action) that the certification tag is going to be a key marketing tool for seafood in developed markets in the coming years.

Another matter of joy is that the Chinese authorities (AQSIQ) have accepted the certification by Indian Authorities thereby clearing the way for continued seafood exports to that country. MPEDA was in liaison with our Embassy in China almost on a daily basis for this and our Counsellor (Trade & Commerce), Shri K Nagaraj Naidu was of immense help. As usual MPEDA was in the forefront to take up the genuine issues faced by exporters affecting trade and get solutions in their favour.

While the units on the East coast will be bustling with activity by June, those on the West coast mostly will be facing a lull period for another couple of months due to fishing restrictions. I am hopeful that the year ahead will be very prosperous for each and every stake holder of the fishing, aqua farming and seafood exporting community so that our exports scale much higher.

Thanking you,

Sd/-

May 2012

(LEENA NAIR IAS)
Chairman
Effective showcasing of Indian Seafood in European Seafood Exposition 2012

The 20th edition of the prestigious European Seafood Exposition (ESE), witnessed a strong participation of Indian seafood exporters under MPEDA - India pavilion. ESE, regarded as the largest seafood show on the globe, had 23 leading seafood exporters as co-exhibitors from India together with Seafood Exporters Association of India (SEAI) and MPEDA this year. Active participation coupled with ad campaigns by MPEDA in print and electronic media made the India Pavilion a ‘must visit’ place in Hall 7 and stands 1501 & 1601 to major buyers, diplomats and journalists in the Show. This year also MPEDA has taken 448 sq. m. space. The India Pavilion had the unique ‘Red Fort’ design with a colour tone and lighting that resembled the original structure in our National Capital. It stood unique and distinctive amongst other stands with conventional designs and colour patterns.

MPEDA had displayed almost all the products produced by the Indian seafood exporters. Special emphasis was given to promote value added seafood products, particularly the ready-to-eat and ready-to-cook products which were prominently displayed.

The ESE this year also had more than 1600 exhibitors from over 80 countries in the 34000 sq. m. exhibition space. Along the sidelines of the ESE, there was an exclusive Show on seafood processing and allied machinery, Seafood Processing Europe (SPE) in Hall 4.

Europe as a whole had been the largest market for Indian seafood, especially for cephalopods, despite the economic slowdown that affected many of our major markets in the EU such as Portugal, Italy, Spain and Greece. The trade enquiries in the Show indicated a shift in the business proposal to countries like Poland, Turkey, besides the conventional markets like Germany, UK and Russia. The trade enquiries received in the Show is published elsewhere in this issue of MPEDA Newsletter.

Shri Santhosh Jha, Deputy Chief of Mission and Charges’ d’ Affaires, Embassy of India, Brussels paid a visit to the India Pavilion on 25th April 2012 along with Shri B Vanlalvawna, Counsellor (European Union). Ms. Ismat Jahan, Her Excellency Ambassador of Bangladesh to Belgium, Luxembourg and European Union also made a short visit to MPEDA stall and India Pavilion.

MPEDA has also organized the India Event on 25th April 2012 from 13.00 to 14.00 hrs. in the Ambassador Hall at Hall 10. The event aimed facilitating interactions between buyers, exporters, diplomats and press people on Indian seafood had an enthralling participation this year. The India Event, which became an integral part of MPEDA’s participation in ESE, started with a detailed presentation by Chairman, MPEDA on the Indian seafood production and processing scenario. The presentation specially emphasized on the initiatives in quality and sustainable fishery and aquaculture practices. Shri Santhosh Jha, Deputy Chief of Mission and Charges’ d’ Affaires, Shri B Vanlalvawna, Counsellor (European Union) and other senior officials of
Eventful ESE 2012

Chairman, MPEDA interacts with Ms. Ismat Jahan, H.E. Ambassador of Bangladesh to EU

Chairman, MPEDA presents during India Event 2012

L - R : Shri Deepak Gadre, Shri Rajgopal Sharma, Trade Advisor, EoI, Shri Santosh Jha, Dy. Chief of Mission & Charges’ d’ Affairs, EoI and Shri B Vanlalvawna, Counsellor (EU), EoI, Brussels in the stall of M/s. Gadre Marine Export Pvt. Ltd.

Shri N Ramesh, Director (M) attends visitors

Shri K J Antony, Dy. Director with visitors

Senior dignitaries from EoI, Brussels with Chairman, MPEDA in the India Event 2012
Glimpses of ESE 2012
Glimpses of ESE 2012
Embassy of India, Brussels graced the occasion. A brief Sitar recital by Mr. Surajit Das added to the entertainment in the event.

A grand seafood luncheon was provided to the gathering by Executive Chefs Mr. Amit Ghosh of SFC group Abu Dhabi and Mr. Meril A Antony of The Gateway Hotel, Vijayawada. They also arranged cooking demonstration for visitors to the MPEDA stand on first and third day of the exposition.

The co-exhibitors praised the arrangements made by MPEDA for effective participation in ESE 2012. The SEAI exhibition space in India Pavilion had four freezers with display of a number of product varieties for the buyer to choose. It is considered to be one among the largest display of seafood in the ESE 2012. For the first time, we had also displayed a handful variety of fresh fishes, lobsters and crabs in a dome chiller. The farmed Cobia and Asian Seabass from RGCA units attracted a lot of visitors and business enthusiasts. The co-exhibitors were able to re-establish their relations with the existing buyers and could make several new orders from buyers of various countries. MPEDA has also brought out for the first time a special co-exhibitor guide and an India Pavilion layout specifically for ESE 2012, which were appreciated by co-exhibitors and visitors alike.

The participation of MPEDA in ESE 2012 was organized by Ms. Leena Nair IAS, Chairman, Mr. N Ramesh, Director (Marketing), Mr. K J Antony and Dr. Ram Mohan M K, Deputy Directors. The Ministry of Commerce & Industry was represented by Mrs. Amrit Raj, Director (Finance). SEAI was represented by its Secretary, Mr. Sandu Joseph. The Embassy of India at Brussels, especially a team of officials under Shri Rajgopal Sharma, Trade Adviser extended all support to MPEDA and co participants in making the participation in ESE 2012 and organizing the India Event, a fruitful one.

Dish Hospitality wins for the second time, while Kaviari and Prins & Dingemanse take top honors at 2012 Seafood Prix d’Elite

Dish Hospitality Pvt Ltd of Mumbai, India was presented with a Seafood Prix d’Elite special award for Originality for its product, International Shrimp S’cones in a separate function at Brussels on 24th April 2012 in conjunction with the European Seafood Exposition. This innovative product consists of savory mini waffle cones with two flavors of black tiger shrimp filling — shrimp in creamy tomato gravy with a hint of fenugreek, and shrimp in coconut curry. The filling is provided in microwaveable packaging, which allows the consumer to pipe it into the waffle cones, and the package includes a unique cut-out tray to hold the cones upright.

Dish Hospitality Pvt Ltd receives Prix d’Elite award

Earlier Dish Hospitality won the same award for their product ‘Shrimp Lollypop’ in 2010. The company had four products in the final list for Seafood Prix d’Elite awards.

Kaviari and Prins & Dingemanse were awarded the top prizes in the 12th annual Seafood Prix
MARKETING NEWS

d'Elite new products competition at the European Seafood Exposition, the world’s largest and most prestigious seafood event. The winners were selected from a field of 37 finalists and were announced this evening at a special Seafood Prix d'Elite reception.

Karviari of Paris, France took the top award for best new retail product with its entry, En K de Caviar®. Designed to change the way consumers eat caviar, En K de Caviar presents 15 grams of Osetra caviar and a special caviar spoon in an original tin with an embossed lid. Available in six colors, the tin can be easily tucked into a bag to be enjoyed while traveling, playing, picnicking or working. The judges particularly noted the attractiveness and the originality of the presentation.

Karviari's En K de Caviar was also presented the Seafood Prix d'Elite special award for Retail Packaging. Designed to attract new consumers and offer new meal opportunities, the unique tin with sliding lid presents caviar in fun and attractive way. The small, convenient package also allows consumers to easily carry and enjoy caviar anywhere, and encourages new customers to try a luxury product.

In addition to the two grand prizes, the judges also gave five special awards, of which Dish Hospitality and Kaviari won those respectively for originality and retail packaging. The rest are:

1. Lerøy Påleggslaks Provence from Hallvard Lerøy in Bergen, Norway was awarded the Seafood Prix d’Elite special award for Convenience. Designed to meet the high demand for sandwich options in the Scandinavian market, these sandwich slices are made from smoked salmon with flavorings from Provence. They are perfectly sized for bread and presented in a consumer-friendly package. The product is also available in natural and pepper flavors.

2. The Seafood Prix d’Elite special prize for Health & Nutrition was won by Jens Møller Products ApS of Lemvig, Denmark for its product, Vita-All®. This non-sparkling energy/sports drink is made of seaweed and black currant juice, and is enriched with vitamins, anti-oxidants and a little caffeine. It is designed to appeal to young people as a healthy alternative to sodas.

3. A new line of seafood ready-meals from Heiploeg Group in Oostende, Belgium was presented with a Seafood Prix d’Elite special award for Seafood Product Line. This line features three seafood combinations: Seafood Duo for Risotto, featuring sebob shrimp and crayfish; Seafood Duo for Pasta also with sebob shrimp and crayfish; and Seafood Trio for Paella, with sebob shrimp, mussels and Alaska pollock. The line is packed in colorful retail boxes and offers the consumer a quick and easy way to add seafood and Mediterranean flavor to their meals.

The 37 Seafood Prix d’Elite finalists in this year’s competition represented 11 countries. The winners and finalists were on display at a special Seafood Prix d’Elite stand, Patio-4609,
A team led by Ms. Leena Nair IAS, Chairman, MPEDA visited the Port of Rotterdam on 23rd April 2012, subsequent to an invitation from the Port of Rotterdam authorities. The visit was for familiarization of the various facilities and unique advantages offered by the port and to explore the possibilities of using Rotterdam as a Gateway port to Europe.

It was a one-day tour on a vessel arranged by the port authority. Capt. Kees Weststrate, Sr. Project Manager of Port of Rotterdam gave a guided tour of the port. He explained the salient features of the port and the ease of handling reefer cargo through Rotterdam. The vessel sailed past the important terminals and facilities in the port.

Mr. Jan Bouman, General Manager of FrigoCare, the Cold Storage specialist showed their storage facility adjacent to the port. They have the Border Inspection facility in their own premises which enables them do the veterinarian inspection as well as storage of cargo, thus facilitating smoother and faster clearance. Holland is the only country in the EU where Border Inspection can be done outside the port terminal and FrigoCare is one among the two active license holders. The biggest advantage of this operation is huge savings on demurrage.

Mr. Dennis Peltzer, Manager Operations of Samskip Icepak Logistics explained to the delegation their capability to do clearance and distribution anywhere in Europe, be it a full truck load or even one Europallet. If documents are ready well in time prior arrival of vessel, port clearance, veterinary check and trucking from container yard to cold store can be done in 1-2 working days. Thus the requirement of free days does not arise.

The MPEDA team also included Mr. N Ramesh, Director (Marketing) and Mr. K J Antony, Deputy Director. Mr. Sandu Joseph, Secretary, SEAI, Mr. M C Roy of M/s. D2D Logistics and other exporters also joined the delegation. The visit revealed the fact that without having own office, today the exporters have an opportunity for storage and distribution within Europe in a cost effective and efficient manner. Moreover, this opens up a whole new world in front of the Indian exporters to deliver anywhere in Europe in small parcels and thus to develop the market further.
Co-exhibitors with MPEDA in ESE 2012

1. Shabina Exports, Veraval, Gujarat
2. West Coast Frozen Foods Pvt Ltd, Mumbai
3. Oceanic Edibles International Ltd, Chennai
4. Capithan Exporting Company, Kollam, Kerala
5. Tandel’s Shree Datt Aquaculture Farms Pvt Ltd, Navsari, Gujarat
6. Gadre Marine Export Pvt Ltd, Ratnagiri
7. Naik Frozen Foods Pvt Ltd, Mumbai
8. Naik Seafoods Pvt Ltd, Mumbai
9. Apex Frozen Foods, Kakinada, Andhra Pradesh
10. Abad Fisheries Pvt Ltd, Kochi, Kerala
11. Forstar Frozen Foods Pvt Ltd, Mumbai
12. Pesca Marine Products Pvt Ltd, Mumbai
13. Castlerock Fisheries (P) Ltd, Mumbai
14. Elque & Company, Kolkata
15. Seasaga Enterprises Pvt Ltd, Mumbai
16. Sanchita Marine Products Pvt Ltd, Navi Mumbai
17. Geo Seafoods, Kochi, Kerala
18. Parayil Food Products Pvt Ltd, Aroor, Kerala
19. Naik Ice & Cold Storage, Mumbai
20. Dish Hospitality Pvt. Ltd, Mumbai
21. Moon Fishery (India) Pvt Ltd, Aroor, Kerala
22. Ulka Seafoods (P) Ltd, Taloja, Maharashtra
23. Keshodwala Group, Veraval, Gujarat
24. Seafood Exporters Association of India

Advertisement Tariff

MPEDA NEWSLETTER

Rate per insertion

<table>
<thead>
<tr>
<th>Advertisement Type</th>
<th>Rate per Insertion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back Cover</td>
<td>₹ 7200/- US$160</td>
</tr>
<tr>
<td>Inside Cover</td>
<td>₹ 6000/- US$135</td>
</tr>
<tr>
<td>Inside Full Page</td>
<td>₹ 4000/- US$90</td>
</tr>
<tr>
<td>Inside Half Page</td>
<td>₹ 2000/- US$45</td>
</tr>
</tbody>
</table>

Ten Percent concession for contract advertisement for one year (12 issues) or more. Matter for advertisement should be provided by the advertiser in JPEG or PDF format in CMYK mode.

Mechanical Data:

Size: 27 x 20 cms.

Printing:

Offset (Multicolour)

Print Area:

Full Page: 23 x 17.5 cm
Half Page: 11.5 x 17.5 cm

For details contact:
Deputy Director (P & MP) &
Editor, MPEDA Newsletter,
MPEDA House, Panampilly, Avenue, Cochin - 36
Tel: +91-484-2321722, 2311979
Telefax: +91-484-2312812
E-mail: rmohan@mpeda.nic.in
newslet@mpeda.nic.in
FOCUS AREA

Awareness Programmes on Ornamental Fish Development by MPEDA SRO, Guwahati in Tripura

MPEDA SRO, Guwahati organized four awareness campaigns on ornamental fish development in the state of Tripura as part of expanding fishery activities of MPEDA in the North East. The programmes were organized in collaboration with Krishi Vigyan Kendras (KVKs) and College of Fisheries at Lembucherra in Tripura during March 2012. The areas selected for these programmes were West Tripura, Dhalai, Lembucherra and South Tripura.

The First awareness programme was organised at Chebri in association with Divyodaya KVK in the West Tripura district, which was attended by about 30 participants including farmers, fish hobbyist, young entrepreneurs, Self Help Groups and NGOs. From the KVK, Dr. L C Patel, Programme Coordinator, Mr. Suresh Biswas, SMS, Dr. Nurul Islam, SMS, Ms. Suchetha Chakraborty, SMS, Mr. Dipak Nath, SMS and Mr Subrata Choudhary, Programme Assistant were present during the programme.

The second programme was organized in College of Fisheries, Lembucherra, Tripura. Prof. Dr. A B Patel, HOD, Department of Aquaculture, Dr. Janmejay Parhi, Assistant Professor, Dr. Sagar C Mandal, Assistant Professor and Dr. Mrinal Kanti Dutta, Assistant Professor coordinated the programme. The programme was attended by about 40 students and technical officers of the college.

In South Tripura, the awareness programme was organized at Bir Chandra Manu, in coordination with Krishi Vigyan Kendra, South Tripura. The programme was attended by about 40 participants including farmers, fish hobbyist, young entrepreneurs, Self Help Groups and NGOs etc. Dr. A K Singh, Programme Coordinator and Mr. Biswajeet Deb Nath, SMS of KVK assisted in organizing the programme.

The fourth programme was organized at Dhalai in coordination with Krishi Vigyan Kendra, Salema of Dhalai district. The programme was attended by Shri Abhijit Chakraborty, BDO and Shri Tarendra Debbarma, Suptd. Of Fisheries, Kamalpur, who gave a short speech on fisheries department initiatives on ornamental fishery. Mr. Jagat Das, President, Salema Panchayat Samiti, Mr. Kunn Singh, Vice President, Salema Panchayat Samiti and Mr. Ramanuj Chakraborty, SMS, KVK, Salema, South Tripura participated in the programme. The programme was attended by about 31 participants including farmers, fish hobbyist, young entrepreneurs, SHG’s, NGO’s etc.

The awareness programmes were coordinated by Dr. T R Gibin Kumar, Deputy Director, SRO Guwahati and Shri Subenthung Odyuo, Programme Manager (OFD), NER.

A view of the awareness programme in College of Fisheries, Lembucherra.

Programme at KVK, Birchandra Manu, South Tripura.
Tripura is the third smallest state of India and second smallest state in North Eastern region with an area of 10,492 km² but is the second most populous state in the North East. The state has borders with Bangladesh in the west, south and north; the Indian states of Assam to the north-east while Mizoram forms the eastern boundary. Geographic isolation and communication bottleneck coupled with insufficient infrastructure has restricted economic growth of the state. With 99% fish eating population, fishery plays an important role in the state not only as food item but also to improve the socio-economic condition of the 73.58% of the rural people. As per 2007-08 statistics there exists a shortage of 10,500 MT of fish in the state which necessitated the import of fish from nearby Bangladesh and even from distant Andhra Pradesh.

Until 21st January 2012 the state of Tripura consisted of 4 districts, 17 sub divisions and 40 development blocks. The four districts are West Tripura, South Tripura, North Tripura and Dhalai. Since then, for administrative purposes, 4 new districts, 6 new subdivisions and 5 new development blocks were created. Four new districts created are Khowai, Unakoti, Sipahijala and Gomati. The new six sub-divisions are Jirania, Mohanpur, Kumarghat, Panisagar, Jampuijala and Karbook. Five new blocks are Yuvarajnagar, Durga Chawmuhani, Jolaibari, Silachari & Lefunga.

Tripura is the first state in India that has developed a vision plan to achieve self-sufficiency in fish production. Tripura initiated the ‘fish for all’ program for providing reasonable amount of fish to its population, much before it was conceived by the Worldfish Center and this vision of the state was appreciated when the program was formally launched in Kolkata by the Worldfish Center in 2003. As per the Department of fisheries, Tripura state has achieved the level of providing 9 kg fish / person/year during 2007-08 and it was targeted to achieve the per capita fish availability of 13 kg by the end of 12th Five Year Plan, but Tripura Fishery had made a remarkable progress in nutritional self sufficiency by achieving the per capita availability of fish of around 14.2 kg by the year 2010-2011.

**Strength of Tripura fishery**

- Efforts from Department of Fisheries and Agriculture University have brought mass awareness about the profitability of fish culture.
- Tripura has got a strong database of the fishery resources updated each year through door to door survey.
- Good governance with transparent administration is being appreciated at all levels.
- Maintenance of a good network for better growth in fishery segment.
- Fund flow from MGNREGA in Fishery segment is much higher in the state.
- Government is keen on the development of fishery for socio economic development of the state by building confidence and entrepreneurship development among the SHG’s.
- Fisheries College at Lembucherra and ICAR institutes are playing significant role in fisheries development of the state.
- Proximity of Bangladesh is a big advantage, which is a large market and trade relations are getting stronger.
### Fishery statistics of Tripura at a glance*

<table>
<thead>
<tr>
<th>Culturable water area</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ponds / Tanks</td>
<td>10820.61 ha</td>
</tr>
<tr>
<td>Mini barrages</td>
<td>6554.29 ha</td>
</tr>
<tr>
<td>Total</td>
<td>17374.80 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capture Fisheries</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>3049.34 ha</td>
</tr>
<tr>
<td>Lake</td>
<td>100.46 ha</td>
</tr>
<tr>
<td>River / Rivulets</td>
<td>4728.96 ha</td>
</tr>
<tr>
<td>Total</td>
<td>7878.76 ha</td>
</tr>
</tbody>
</table>

**Total Water Area (Culture & Capture)** 25253.56 ha

### Demand and Production of Fish and Fish Seed

| Demand of Fish                  | 43280.00 MT |
| Production of Fish              |           |
| Culture Fisheries               | 30840.52 MT |
| Capture Fisheries               | 1989.14 MT  |
| **Total**                      | 32829.66 MT |
| Productivity of Fish / ha / yr (culture fishery) | 1931.00 kg |
| Requirement of Fish Seed        | 1440.75 lakhs |
| Production of Fish Seed         | 2533.04 lakhs |

**Status of Fish farmers and Fishermen**

- Number of Fish farmers: 1,25,247
- Number of Fisherman: 77,748

### Govt. Fish Farms and other infrastructure in the state

- Fish Breeding farm: 7
- Fish Seed Centre: 16
- M. C. Seed Producing Hatchery: 7
- Prawn Seed Producing Hatchery: 6
- Pabda Hatchery: 2

### Others

- Ornamental Fish Breeding Centre: 1
- Fish Health Investigation Centre: 1
- Soil and Water testing laboratory: 14
- Fishermen Cooperative Societies: 142
- Pisciculture based SHGs: 936

### FFDAs

- Tripura Fisheries Training Institute: 1
- Fish farmers Training Centre: 4
- Fisheries Awareness Centre: 2
- Fish Feed Analysis Laboratory: 1

### Weakness of Tripura fishery

- Lack of Fishery law in the state to prevent illegal fishing activities, poaching etc. Legislation is required for seed certification, hatchery regulations, regulating invasive fishes etc.
- Invasive fish species like Pacu (*Pygocentrus nattereri*), African catfish (*Clarius gariepinus*) etc. got entered into the ecosystem by different hatchery people through Bangladesh, creating threat for local endangered and endemic species.
- Lack of data regarding the indigenous fish species and non-adoption of any documentation programmes for fish species and its availability in the state.
- Absence of small scale industry for producing fishing gear, boats, aerators etc. in the state.
- Due to hilly terrain and forest cover, only 27% of land is available for cultivation.
- Acidic soil conditions impaire aquaculture to some extend

### Opportunities in Tripura fishery

- Tripura is getting good rain fall, which ranges between 926 mm to 2098 mm and vast water resources available can be judiciously harnessed for proper use in fish farming.
- Possibility for export oriented fish and scampi farming can be undertaken in the state.
- Opportunity is there for farming exotic species in controlled way.
Opportunity is there for exporting endemic species with proper propagation.

Adopt auto stocking technique to enhance fisheries in the larger water bodies.

Opportunity for establishing fish processing facilities for value addition of the fish exported to Bangladesh.

By improving the trade relations with Bangladesh Tripura can act as a link for the entire North east to the export market. As a primary step Tripura Government would be setting up markets along the border of India and Bangladesh with an aim to provide impetus to trade relations between the two countries. Trade between Bangladesh and Tripura has increased from Rs. 40 million in 1996 to Rs. 2,580 million in 2011. Bangladesh has decided to open more consulates in north east region to improve trade, people-to-people contacts and cultural ties.

Technological cooperation with Bangladesh is also ascertained, which would be much easier than getting it from Indian mainland.

Enormous scope to build Aqua Tourism also prevails in the state.

Possibility for developing fresh water dry fish processing units.

**Threats in Tripura fishery**

- Unscientific exploitation of natural resources, fast urbanization, deforestation, industrialization, inappropriate technology, pollution etc.

- Encroachment of lakes, bheels and other wetlands

- Lack of quality manpower for extension in grass root level.

Tripura Fishery has achieved a remarkable progress in nutritional self sufficiency with per capita availability of fish much above the national level and the state had formulated specific plans to keep the momentum in the 12th FYP also. In the case of ornamental fishes the state is still at nascent stage with limited markets in urban areas. Commencement of this sector in Tripura would be aiming to reduce the current imports of ornamental fishes from Kolkata by augmenting domestic production by projecting the schemes of MPEDA in this direction. Tripura being an agrarian state, with more than 50% of its population depending on agriculture and allied activities, bringing awareness among the people in the state is more vital to adopt ornamental fish as a business opportunity to provide alternate income to improve their livelihood.
Training Programme on Organic Aquaculture conducted at Palghar, Thane District, Maharashtra

A Training Programme on “Organic Aquaculture” was conducted by MPEDA & INDOCERT jointly on 16th March 2012 at Hotel Viva Celebration, Palghar, Thane dist., Maharashtra. The major objective of the training was to promote organic aquaculture in the maritime state of Maharashtra and to create awareness among the shrimp farmers of Maharashtra on organic aquaculture. The programme was organized with the financial and technical support of Marine Products Export Development Authority (MPEDA), Kochi. The India Organic Aquaculture Project (IOAP) was initiated by MPEDA for the promotion of Organic Aquaculture in India. INDOCERT has been closely associating with the IOAP, as one of the active project partners and as an inspection and certification body of the project, since 2007. The present programme was planned to expand the organic aquaculture activities in to new areas, with the experience and expertise available with MPEDA and INDOCERT. The training programme was attended by 24 participants.

The programme started with the welcome address by Mr. Maruti D Yaligar, Deputy Director, MPEDA. In his address, he mentioned that the State of Maharashtra has good potential to develop organic farming, and the farmers should make use of the opportunity.

The session was inaugurated by Mr. Ulhas Sawant, AFDO, Palghar. In his inaugural address he cited the growing relevance of aquaculture for food security and the importance of organic aquaculture. He also highlighted about the current aquaculture practices in the region and the prospects of organic aquaculture in Maharashtra.

The training started with the presentation of Mr. Sreekumar M S, Inspection officer, INDOCERT. He explained the present status of organic aquaculture in the world and market potential for organic aquaculture products in the foreign countries. He also explained about INDOCERT, introduction to organic aquaculture practices and various certification procedures.

The next session started with organic aquaculture standards as per the EU regulations 834/2007 and 710/2009 in which Mr. Sreekumar explained the standard requirement such as the suitability of aquatic medium, environmental assessment, sustainable management plan, conversion period, simultaneous production of organic and non-organic aquaculture animals, animal husbandry and welfare practices, management of aquaculture, breeding, transportation, feeding and feed requirement, disease prevention and treatment, sustainability and labeling etc with examples. The doubts raised by the participants were clarified and opened discussions with the farmers on the practicability of the implementation of the standards.

The details of the revised scheme for development of organic farming by MPEDA under the Modified Organic Aquaculture Programme (MOAP) were explained, along with the guidelines for implementation of the programme by Mr. K Reji Mathew, Assistant Director, RC (Aqua), MPEDA, Panvel.

The final session started after lunch, with a presentation on the small holder group certification and internal control system (ICS) by Mr. Sreekumar M S. He detailed the Internal Control System (ICS) as a part of a documented quality assurance system that allows an external certification body to delegate the periodical inspection of individual group
members to an identified body or unit within the certified operator. He explained the rationale behind ICSs for group certification which is to facilitate smallholder certification i.e. simplify certification and reduce its cost for smallholders through coordinated documentation and to implement and maintain a high quality assurance system for organic standards in smallholder production. He also explained that group certification enables smallholders to access organic markets to commercialize their products at the international level and also provide a good basis for sound quality systems to ensure organic quality and provide consumers with imported organic products at reasonable cost. He explained about the requirements of operating manual, the importance of conducting risk assessment and the need and the requirements of internal inspectors and the necessity of internal standard.

Mr. S M Shirodkar, Junior Technical Officer, RC (Aqua) of MPEDA, Panvel translated the details in to local language for the benefit of farmers, during various sessions. The one day training was concluded by Mr. Sreekumar, INDOCERT by extending thanks to the MPEDA for providing the support and the aqua farmers of Maharashtra for showing keen interest in the training on organic aquaculture certification procedures.

### Price List of MPEDA Publications / Periodicals

<table>
<thead>
<tr>
<th>PERIODICALS</th>
<th>Annual Subscription (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PRIME Weekly (Price Indicator for Marine Products)</td>
<td>350.00</td>
</tr>
<tr>
<td>2 MPEDA Newsletter</td>
<td>300.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PUBLICATIONS</th>
<th>Price Per copy (Postage extra)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Chart on Commercial Fishes of India</td>
<td>75.00</td>
</tr>
<tr>
<td>4 MPEDA Act, Rules &amp; Regulations</td>
<td>25.00</td>
</tr>
<tr>
<td>5 Statistics of Marine Products 2008</td>
<td>350.00</td>
</tr>
<tr>
<td>6 Seafood Delicacies from India</td>
<td>100.00</td>
</tr>
<tr>
<td>7 Indian Fishery Hand Book</td>
<td>250.00</td>
</tr>
<tr>
<td>8 Product Catalogue</td>
<td>150.00</td>
</tr>
<tr>
<td>9 Handbook on Ornamental Fish Diseases</td>
<td>50.00</td>
</tr>
<tr>
<td>10 Water Quality in the Ornamental Aquatic Industry - Serial 1</td>
<td>125.00</td>
</tr>
<tr>
<td>11 International Transport of Live Fish in the Ornamental Aquatic industry Serial - 2</td>
<td>125.00</td>
</tr>
<tr>
<td>12. Live Food Culture for the Ornamental Aquatic Industry - Serial 3</td>
<td>125.00</td>
</tr>
</tbody>
</table>
The skin of most bony and cartilaginous fishes is covered by scales. Scales vary enormously in size, shape, structure and extent, ranging from rigid armour plates in fishes such as shrimp and boxfishes, to microscopic or absent in fishes such as eels and anglerfishes. The morphology of a scale can be used to identify the species of fish it came from.

Fish scales are produced from the mesoderm layer of the dermis, which distinguishes them from reptile scales. The same genes involved in tooth and hair development in mammals are also involved in scale development.

**TYPES OF FISH SCALES**

1) **Placoid scales**

Also called dermal denticles, placoid scales are found in the cartilaginous fishes: sharks, rays and chimaeras. They are structurally homologous with vertebrate teeth (“dentine” translates to “small tooth”), having a central pulp cavity supplied with blood vessels, surrounded by a conical layer of dentine, all of which sits on top of a rectangular basal plate that rests on the dermis. The outermost layer is composed of vitrodentine, a largely inorganic enamel-like substance. Placoid scales cannot grow in size, but rather more scales are added as the fish increases in size.

Similar scales can also be found under the head of the Denticle herring.

Sharks are entirely covered by placoid scales. Studies have found that the scales create tiny vortices that reduce drag, which makes swimming more efficient, as well as quieter compared to bony fishes. The amount of scale coverage is much less in rays and chimaeras. The rough, sandpaper-like texture of shark and ray skin, coupled with its toughness has led it to be valued as a source of leather. Called shagreen, one of its many applications was in the historical manufacture of hand-grips for swords.

2) **Cosmoid scales**

Cosmoid scales are found in several ancient lobe-finned fishes, including some of the earliest lungfishes and were probably derived from a fusion of placoid scales. They are composed of a layer of dense, lamellar bone called isopedine, above which is a layer of spongy bone supplied with blood vessels. The bone layers are covered by a complex dentine layer called cosmine and a superficial outer coating of vitrodentine. Cosmoid scales increase in size through the growth of the lamellar bone layer.

3) **Ganoid Scales**

Ganoid scales are found in the sturgeons, paddlefishes, gars, bowfin and bichirs. They are derived from cosmoid scales, with a layer of dentine in the place of cosmine, and a layer of inorganic bone salt called ganoine in place of vitrodentine. Most are diamond-shaped and connected by peg-and-socket joints. In sturgeons, the scales are greatly enlarged into armor plates along the sides and back, while in the bowfin the scales are greatly reduced in thickness to resemble cycloid seats.

4. Elasmoid Scales

Elasmoid scales are thin, imbricated scales composed of a layer of dense, lamellar bone called isopedine, about which is a layer of tubercles usually composed of bone,
as in *Eusthenopteron*. The layer of dentine that was present in the first sarcopterygians is usually reduced, as in the extant coelacanth, or entirely absent, as in extant lungfish and in the Devonian *Eusthenopteron*. Elasmoid scales appeared several times. They are present in some lobe-finned fishes: coelacanths, all extent and some extinct lungfishes, some tetraptodomorphs like *Eusthenopteron*, amiids and teleosts, whose cycloid and ctenoid scales represent the least mineralized elasmoid scales.

5. Cycloid and ctenoid Scales

Cycloid and ctenoid scales are found in the teleosts, the more derived clade of ray-finned fishes. Cycloid scales have smooth margins, while ctenoid scales have tiny teeth called ctenii on the posterior edge that give them a rough texture. These scales contain almost no bone, being composed of a surface layer containing hydroxyapatite and calcium carbonate, and a deeper layer composed of mostly collagen. The enamel of the other scale types is reduced to superficial ridges and ctenii. Most ray-finned fishes have ctenoid scales. In flatfishes, some species have ctenoid scales on the eyed side and cycloid scales on the blind side, while other species have ctenoid scales in males and cycloid scales in females.

Ctenoid scales can be further subdivided into three types:

- **In crenate scales**, the margin of the scale bears indentations and projections.
- **In spinoid scales**, the scale bears spines that are continuous with the scale itself.
- **In “true” ctenoid scales**, the spines on the scale are distinct structures.

Cycloid and ctenoid scales are overlapping, making them more flexible than cosmoid and ganoid scales. They grow in size through additions to the margin, creating bands of uneven seasonal growth called annuli (singular annulus). These bands can be used to age the fish.

**Modifications of Fish Scales**

Different groups of fish have evolved a number of modified scales to serve various functions:

- Almost all fishes have a lateral line, a system of mechanoreceptors that detect water movements. In bony fishes, the scales along the lateral line have central pores that allow water to contact the sensory cells.
- The dorsal fin spines of dogfish, shark and chimaeras, the stinging tail spines of stingrays, and the “saw” teeth of sawfishes and sawsharks are fused and modified placoid scales.
- River herrings and threadfins have an abdominal row of **scutes** which are scales with raised, sharp points that are used for protection. Some jacks have a row of scutes following the lateral line on either side.
- Porcupinefishes have scales modified into spines.
- Surgeonfishes have a sharp, blade-like spines on either side of the caudal peduncle.
- Some herrings, anchovies and halfbeaks have **deciduous scales**, which are easily shed and aid in escaping predators.
- Male *Percina* darters have a row of enlarged **caducous scales** between the pelvic fins and the anus.
- Many groups of bony fishes, including pipefishes and seahorses, several families of catfishes, sticklebacks, and poachers, have developed external bony plates, structurally resembling placoid scales, as protective armours. In the boxfishes, the plates are all fused together to form a rigid shell enclosing the entire body. Yet these bony plates are not modified scales, but skin that has been ossified.

**Significance of Fish Scales**

Fish scales contain a silvery substance called “pearlesence” or natural fish silver. This gives fish such as herring – and yes, certain types of lipstick and nail polish – their pearly sheen. The makeup pigment consists of 75 percent to 97 percent guanine and 3 percent to 2 percent hypoxanthine. And since it takes a ton of fish to yield 250g of guanine, the market price for natural silver is proportionally high.

**Functions of Fish Scales**

Because of the natural iridescence in fish scales, some artists have used them decoratively. Historically, fish scale art has involved ornamentation and jewelry making. Claudia Miclaus in an April 5, 2008, Buzzle.com posting notes a Red Deer College in Alberta, Canada, class offering of “Mixing beads & Fishscale Art.”

**Health Benefits**

Fish scales are also a raw material in collagen-based products such as skin moisturizers, anti-aging creams, wrinkle removers, hand creams, cleansing gels and all manner of Botox Knock-offs and and raccoon-eye miracle cures.

**Effects**

One Chinese company on the Internet markets its skin-care product in these refreshingly candid terms: “Athena Fish Collagen capsule is manufactured from fish scale or skin using modern biochemical separation technology. It is (a) new collagen that is safe to human being(s). There is 50% collagen in this product to promote skin health. It is suitable to support skin, hair….nail health and beauty.” An Indian company M/s. Nitta Gelatin has also now started production of fish based gelatin recently.
MPEDA participates in the 5th Freshwater Fish Specialist Group (FFSG) Symposium 2012 at Chester, UK

Dr. E G Silas, Chairman, Taskforce for the preparation of Guidelines for Green Certification was deputed by MPEDA for attending the 5th Freshwater Fish Specialist Group (FFSG) Symposium 2012 on Global Challenges from 1-3 May, 2012 at Chester, UK. The Symposium was attended by delegates from 16 countries. The Symposium on “Global Challenges in Caring for and Conserving Freshwater Fishes” was arranged under five plenary sessions as given below:

1. Strategic issues in Fish Conservation.
2. Fish survival in the Geographic Regions - Africa, Meso America and South America.
3. Action for Sustainability.
4. Specialised habitats, specialised fishes and special problems including Lampreys, Cave-fish, and Live - bearers, rapid water and migratory fishes.
5. Fish survival in the geographic regions: Europe, Middle East, Australasia, South Asia.

Dr. E G Silas presented a paper on ‘Green Certification of fresh water ornamental fishes- India’s Initiatives’ in the third plenary session. In his presentation, Dr. Silas brought out the threats to the two hotspots of biodiversity in India, the Western Ghats and North Eastern Hills from anthropogenic activities and natural calamities. Dr. Silas briefed about the efforts taken by MPEDA for bringing out the Guidelines for Green Certification of Freshwater Ornamental Fish and also the initiatives by MPEDA to develop the Ornamental Fish Sector in India.

In addition to the plenary sessions, there were five workshops, each of one hour duration on the following topics:

1. Green Fish Initiative
2. Census of Freshwater Life Project
3. Mitigating the impact of dams on migratory and other freshwater Fish Species
4. IUCN Anguilled Specialist Subgroup of FFSG Development Planning
5. Prospects for establishing a global freshwater fish observatory Network

After Dr. Silas’s presentation, Dr. David Cooper from New Zealand conducted a one hour workshop on ‘Green Fish Initiative on Global Stamp.’ There was a feeling that Dr. Cooper’s workshop was inconclusive, while India had progressed far ahead. The FFSG meeting announced to the world that the concept of Green Fish/Certification is not a novel one, and efforts are already taken by India for implementing it for which guidelines have already been prepared. Implementation of Green Certification will be done in a phased manner through workshops, trainings and awareness programmes.

Seafood exports to China unaffected

General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), People’s Republic of China has brought in a notification during late May 2011 bringing in an Inspection and Quarantine Certification which has to accompany all the seafood exports to China. It was widely rumoured that China is going to ban Indian seafood exports from 1st June 2012, which is the proposed date of implementation of the certification requirement.

The Marine Products Export Development Authority (MPEDA) and the Export Inspection Council of India (EIC) under the Ministry of Commerce and Industry, Govt. of India had approached the Chinese Authorities through Embassy of India in Beijing on this issue. The format of Inspection and Quarantine Certification issued with respect to marine products export from the Republic of India to the P R of China has been accepted by the Chinese Authorities. The Export Inspection Council of India would be issuing the required certificates for seafood exports to China. Exports of seafood from India to the P R of China would not be hindered by the said notification.
New business opportunities in aquaculture: Harvest of farmed Cobia in sea cages

The marine finfish project of RGCA that had developed technology for breeding and mass production of Cobia (*Rachycentron canadum*) seeds last year, has now successfully developed and demonstrated the technology for farming of this species in Sea cages at its Sea Cage Farm in Muttom, Kanyakumari District, Tamil Nadu. Open Sea farming has become a promising area for aquaculture all over the world. With an annual growth rate of 10%, this system of farming is now predicted to become the most popular form of aquaculture contributing the maximum to the total world aquaculture production in the years to come. At present every coastal country is either involved or is seriously considering to engage in sea cage farming.

The technology developed by RGCA in sea cage farming of Cobia was dedicated to the Nation during a harvest function that was organized on the 9th April 2012 at Muttom. The function was graced by the presence of MS. Leena Nair IAS, Chairman MPEDA & President RGCA, Shri Tarun Sridhar IAS, Joint Secretary (Fy), Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Dr. E G Silas, former Vice Chancellor of Kerala Agriculture University and former Director, Central Marine Fisheries Research Institute (CMFRI), and Dr. Jeppiaar, Chancellor of the Sathyabhama University and Chairman of the Muttom Fishing Harbour. The function was witnessed by a gathering of over 1200 people from a wide array of fields, including fishermen, scientists, officials, students and faculty from fisheries institutes and professionals and entrepreneurs from aquaculture sector. In the inaugural function, Ms Lin Li Che, Yan Chia Trading Co Ltd, Taiwan received first sale of cobia from Chairman, MPEDA who is also the President of RGCA.
There was a live demonstration of Sashimi preparation later. The raw cobia sashimi with soya sauce and wasabi was tasted by many. 298 kg of harvested cobia was given to Central Institute of Fisheries Technology (CIFT) and National Institute of Fisheries Post Harvest and Training (NIPHAT) for product development and other evaluations. The first consignment of sashimi grade cobia in chilled form was airlifted to Taiwan on 12th April 2012 and the response from the overseas buyer on quality and acceptance of cobia was encouraging, particularly on the taste, fat content and freshness. MPEDA has also exhibited the farmed cobia by RGCA in the European Seafood Exposition held from 24th to 26th April 2012 at Brussels with a view to find the export potential for the species to other countries in future.

This is a landmark event in Indian aquaculture that promises excellent and endless opportunities for large entrepreneurs to venture into and also an opportunity for fisher folk to ensure a steady income round the year without being totally dependent on the unpredictable catches from the sea by venturing into sea farming of Cobia.

The formal programme was conducted at Jeppia kalyana Mandapam at Muttom. The gathering was welcomed by Shri Thampi Sam Raj, Project Director, RGCA. In his welcome address, he commented that this is one of the auspicious occasions in the history of Indian aquaculture. Inspite of all the enhanced efforts by employing more fleets and methods, marine catch is declining. So the only alternative to increase fish production from Sea is development of mariculture through the application of eco friendly, user friendly and community friendly principles. Today it is demonstrated in a small scale that it is possible to increase fish productivity by applying aquaculture technology. Another way of increasing productivity is by conservation and stock enhancement of the selected species without challenging biosecurity and biodiversity. He recalled the sea ranching programme initiated by Sri Oommen Chandy, Honourable Chief Minister of Kerala in Vizhinjam, Kerala by releasing quality Cobia seeds during July 2011 in the exact fishing grounds where the brooders were caught. He suggested to evolve policies, development of technologies, investment base etc. to spread mariculture.

In his technical paper, Shri Anilkumar P, Project Manager, RGCA
indicated that cobia was selected as a candidate species as (i) its seeds can be produced in hatchery (ii) fast growth rate (iii) acceptance of formulated feed and (iv) market acceptance etc. Cobia juveniles used for stocking in the cages were produced at the RGCA hatchery facility at Pozhiyoor. Pellet feeds imported from M/s. Uni-President Feed Co., Taiwan was used during the entire culture period. Cobia seeds can be produced throughout the year at stipulated intervals. Various stages of production of cobia were explained in the presentation. Later he showed different types and different stages of sea cage fabrication. The details of farming of cobia in sea cages at Muttom are given below:

- Stocking Size: 150 – 200g
- Duration of culture: 11 months
- FCR: 1 : 1.9
- Survival rate: 70%
- Estimated biomass: 4250 kg
- Feed: Extruded pellets

Dr. E G Silas, in his presidential address appealed to fishermen to take up cage culture of cobia fish to earn extra income in addition to the income from fishing. He congratulated the efforts taken by RGCA for making this harvest possible. He pleaded the State and Union governments to provide financial support to the fishermen groups who come forward to grow fish in cages in the Sea.

Ms. Leena Nair IAS, Chairman MPEDA & President RGCA, formally inaugurated the harvest by lighting the traditional lamp. She explained that offshore mariculture in India is poised for a big leap with technology for farming of marine finfish being successfully demonstrated by Rajiv Gandhi Centre for Aquaculture (RGCA) at its sea cage farm in Muttom fishing Harbour. Over the last three decades, export oriented aquaculture in India has been restricted to farming the marine/brackish water shrimp and freshwater prawn in land based aquaculture systems alone. Though there is enormous potential for farming of several other native aquatic species in several bio-categories of realms such as lakes, reservoirs, bays and open seas, efforts to utilize these for sustainable and environment friendly aquaculture has so far not been explored in the country.

Taking lead in making such new technologies available to the aquaculture industry, RGCA has established different projects for high valued marine finfish such as the Grouper, Cobia and Asian Seabass at species-specific locations across the
This is one such project in which Cobia is the candidate species.

Cobia, also known as Lemon fish, Ling, black King Fish or the Black Salmon is a pelagic fish found in tropical waters worldwide. There is no commercial fishery for Cobia as this fish is usually solitary in nature. This fish is known to grow exceedingly fast to approximately 6 – 8 Kg within a year and therefore is a highly promising species for aquaculture. Cobia meat has a desirable appearance, texture and flavours that appeal to all seafood lovers. As in other seafoods, Cobia also has a horde of health benefits and boasts of having one of the highest levels of heart-healthy omega-3 fatty acid, much higher than that of the Atlantic salmon. Cobia is also rich in Riboflavin, vitamin B6, Magnesium and Potassium. Success in breeding and seed production in Cobia is of recent origin. However, its amazingly fast growth even in captivity as well as the nutrient profile of this species has made it extremely popular both among aquaculturists as well as researchers. This fish, in the coming years is tipped to give the Atlantic salmon a run for its money, both in terms of consumer acceptance as well as profitability in aquaculture.

Sea areas with pristine water, less environmental fluctuations and a depth of around 20m are ideal for Sea farming of Cobia. South Tamil Nadu and the south west coasts of India are excellent grounds for farming Cobia by virtue of their stable water conditions throughout the year.

The technology for Sea Cage Farming of Cobia, developed by RGCA presents excellent investment opportunities to large entrepreneurs as a high investment-low risk venture with a very high future potential. Cobia has great demand among all major seafood markets across the world including Japan, US and the UK. This demand is likely to grow considerably owing to the growing popularity of the fish as an excellent Sashimi grade product. Presently, the global aquaculture production of Cobia is around 31,900 tons with China, Taiwan and Vietnam being the major countries that meet the entire Global demand. This opportunity is up for grabs for prospective entrepreneurs as there is absolutely no competition in India and very little competition across the world.

This technology could also become extremely popular among local fisher folk if adequate investment support is provided to them either by government agencies or NGOs. By virtue of their natural ability to stay on the sea, they can easily manage such offshore installations and utilize this as a steady source of income in contrast to the uncertainty in their regular fishing operations. In addition to meeting the export demands, the fisher folk could also use their regular marketing channels to supply limited quantities of this super fresh fish into the domestic markets based on the demand to obtain the best prices.

Two major constraints in popularization of Sea cage Farming in India are:

1. Steady supply of Finfish Seeds around the year and year after year in adequate quantities.
2. Lack of policies for use of Open water bodies.

The first constraint is already taken care of with RGCA having acquired the capability to breed the fish throughout the year. The production capacity could easily be enhanced based on the increasing demand. Seeds of other species of finfish such as the Asian Seabass can also be supplied by RGCA. Other agencies also have reported success in breeding other varieties of marine finfishes.

Any major effort for commercialization of the technology for mariculture will depend on the policy framework. Therefore policies on use of estuaries, bays and seas for aquaculture needs to be urgently formed giving due importance to an
ensuring minimal environmental impacts. Demarcation of suitable areas for aquaculture also needs to be urgently looked into. With catches from the sea steadily declining, urgent measures are needed to ensure that technological advances are used responsibly for food security and that communities dependant on the sea for income should have alternate and additional sources of income.

Shri Tarun Shridhar IAS, Joint Secretary (Fy), Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture said that he was happy to participate in two important initiatives undertaken in the country, viz., i) laying of foundation stone for post harvest fish handling facility in the Jeppiar Fishing Harbour area, ii) to witness the first real demonstration of mariculture in the country which has resulted in commercial transaction. He requested MPEDA to focus attention through RGCA for the development of potential fresh water species for export and nutrition to the ever growing world population. The sea cage farming yield more productivity than the land based aquaculture systems. He requested MPEDA to focus attention through RGCA for the development of potential fresh water species for export as well as domestic market.

Shri P Mohanasundaram, Director, MPEDA in his address appreciated the RGCA for the adoption of technology for growing cobia fish in sea cages. Dr. Jeppiaar, Chancellor of the Sathyabhama University and Chairman of the Muttom Fishing Harbour said that he was ready to invest for 100 cages for the fishermen groups for growing cobia fish for their employment and income. He requested smooth supply of cobia seeds from MPEDA. Vote of thanks was proposed by Shri Johnson D’Cruz, Asst. Project Manager, RGCA.

The function was well attended by fishermen, scientists, officials, entrepreneurs and professionals from aquaculture sector. Students and faculty from Fisheries institutes also visited the cage site to witness the technological advances made by RGCA.
An HACCP (Basic) training programme was organized by MPEDA Regional Office, Vizag from 11th to 16th March, 2012. The four day training programme was inaugurated by Shri V Padmanabham, Regional President, SEAI (AP Region). In his inaugural address, he has requested all the participants representing various seafood processing establishments in the region to take maximum advantage of this kind of training for ensuring safety of the seafood products processed for export from the country. He emphasized the need to comply with various requirements stipulated by the importing countries including HACCP compliance, which is a food safety assurance system. To give an impetus to the participants attending the training programme, the Regional President has announced two prizes (1st and 2nd) to those securing the 1st and 2nd places in the examination to be followed upon completion of the training.

Shri V Padmanabham, Regional President, SEAI (AP Region) (3rd from left) addressing the participants during the valedictory function chaired by Shri K N Vimal Kumar, Course Director and Joint Director (QC), MPEDA (2nd from left)
in seafood industry towards safeguarding the quality of the products through the effective implementation of HACCP.

The faculty attached to the HACCP Cell of MPEDA viz., Shri K S Nair, Shri S S Shaji and Shri V Vinod handled various sessions during the four day training workshop which included the curriculum prescribed by USFDA, the US Seafood Regulation, special sessions on CGMP and SSOP, apart from the National Regulations, EU Regulations and Traceability. Besides, the participants were divided into different groups in the work sessions followed and assigned with topics to familiarize them on Hazard Analysis, establishing Critical Control Points and Critical Limits, thereby evolving the HACCP plan for an identified product.

The four-day training workshop concluded on 16th March 2012 and as promised, the Regional President (SEAI) gave away the prizes to those stood first and second in the examination held on the last day. He appreciated the efforts of MPEDA in conducting this type of training programmes periodically towards capacity building among the technical personnel in the industry.

The valedictory function of the training was chaired by Shri K N Vimal Kumar, Joint Director (QC) & the Course Director of the programme. In his valedictory address, he congratulated the participants who secured first and second position in the examination and urged all of them to put into practice the knowledge acquired in their daily work in the processing establishments. Shri V Padmanabham and Shri K N Vimal Kumar gave away the course certificates to the trainees.

The programme concluded with the vote of thanks proposed by Shri Hanumantha Rao, State Co-ordinator, MPEDA- NETFISH, Visakhapatnam.

---

**Subscription Order / Renewal Form**

Please enroll me / us as a subscriber / renew my existing subscription of the MPEDA Newsletter. The subscription fee of Rs. 300/- for one year is enclosed vide local cheque / DD No................................. dt. ............................... drawn in favour of the Secretary, MPEDA, payable at Kochi.

Please send the journal in the following address:

........................................................................................................................................................................................................................
........................................................................................................................................................................................................................

Tel No. : ..............................................Fax : .......................................E mail : ........................................................................................

For details, contact:

The Editor, MPEDA Newsletter, MPEDA House, Panampilly Nagar, Kochi - 682 036

Tel : 2311979, 2321722, Fax : 91-484-2312812. E-mail : newslet@mpeda.nic.in / rmohan@mpeda.nic.in
The Central Marine Fisheries Research Institute (CMFRI) located in all maritime states of India, in its quest to introduce new species of fish to Indian Aquaculture successfully bred Silver Pompano, a fish which is akin to highly priced Pomfrets. Very few countries are successful in breeding this fish and the entire world production is only about 300 tonnes. After the successful larval rearing they were transported by road in the last week of August 2011 from Mandapam, near Rameswaram in Tamilnadu to Antervedi in the East Godavari District of Andhra Pradesh at a distance of 1200 km and stocked in 1 acre pond of a farmer. About 3,600 seed were stocked and fed with indigenous pellet feed and maintained good pond environment, resulting in a survival of more than 95%. The formulated pellet feed cost is about Rs 25/kg. An FCR of 1:1.8 was achieved in this crop. During the course of 8 months they reached a size range of 450-550 g weight, which is an excellent table size for marketing. This fish tolerates wide salinity range from 5 ppt to 35 ppt and can feed at all angles, which makes it a versatile and most aquaculture friendly species. Karnataka Fisheries Development Corporation has taken up the marketing in Bangalore, where it is popularly referred as American Pomfret. By separating the nursery phase it is possible to have two harvests in one year. About 12,000 seed can be stocked in one hectare and about 5 tons of fish can be harvested for each crop.

Silver pompano looks and tastes like silver pomfrets and fetches a farm gate price of about Rs 200/kg. It is the most prized high value marine fish, which is rarely available in the sea. They were collected as young ones, nurtured them to maturity and successfully induced them to spawn with suitable hormonal protocols developed by the Institute. The total availability of high valued marine fish in India from marine capture fisheries is about 2 lakh tonnes per year. Such fish are in great demand in all Metros, particularly during April-July period due to the national trawl ban on east coast and west coast successively. The demand during this period is estimated at about 2 lakh tonnes and fetches the highest price during this period. In this context Silver pompano’s harvest gains lot of importance to aquaculture along with other marine fish already bred by CMFRI to bring lakhs of acres of barren coastal saline low lying lands to produce the high valued fish, thus improving the food production and nutritional enhancement of the country.

The harvest was conducted on 17th April, 2012 in presence of about 300 leading aqua farmers of coastal districts of AP, Local MP and peoples representatives press and electronic media.

**Handing over of Harvested Pompano to Karnataka Fisheries Development Corporation**

**A progressive fish farmer sharing his experience**
Central Institute of Fisheries Technology, Cochin has developed an edible oyster (*Crassostrea madrasensis*) peptide-based nutraceutical, OPex. OPex is a 100% natural blend of oyster peptides & oyster protein concentrate that has been scientifically proven in experiments conducted in the state-of-the-art-laboratories of Biochemistry & Nutrition Division, to possess several bioactivities. Bio-activities of significant mention are anti-inflammatory, anti-oxidant and anti-bacterial properties. Oysters are a good source of high quality easily digestible protein and essential amino acids of high amino acid score and hence quite beneficial for human health. Increasing consumer knowledge of the link between diet and health has raised the awareness and demand for functional food ingredients and nutraceuticals. It is well recognized that apart from their basic nutritional role, many food proteins contain encrypted within their primary structures peptide sequences capable of modulation of specific physiological functions. The peptide extract characterization has been carried out by sophisticated analytical instruments like high performance liquid chromatography (HPLC), LCMS, electrophoresis etc. Director, CIFT said that this is the first instance in the country that a peptide based nutraceutical has been developed from oyster and stressed on the immense potential that exists in the area of discovering bio-active compounds from marine sources. He also revealed that further experiments to improve the product are underway and the possibilities of chemical synthesis of the bio-active peptides are being explored.

The product was officially launched by Honorable Director General of Indian Council of Agricultural Research Dr. S Ayyapan in a function to be held at CIFT Cochin on 5th April 2012.
Business Incubation Centre Inaugurated at CIFT, Cochin

The Business Incubation Centre established at Central Institute of Fisheries Technology under the project Zonal Technology Management – Business Planning and Development (ZTM-BPD) Unit was inaugurated by Dr. S Ayyappan, Secretary, DARE and Director General, ICAR on 5th April, 2012. Inaugurating the Centre Dr. Ayyappan opined that Innovation and integration of available technologies is the need of the hour; for which Agri-incubator Centres like the one at CIFT, Cochin should lead the country. About 40 technologies have already been commercialized in the ICAR system through 10 BPD units set up all over India. The Business Incubator facility at CIFT, Cochin is a ‘One-Stop-Shop’ for budding entrepreneurs. About 100 such incubators will be set up by the 12th Plan Period. The ICAR scientists are presently on a ‘Farmer First’ drive devoting 25% of their time for farmer-friendly technologies. Secondary agriculture is gaining momentum in the ICAR system in which CIFT is a pioneer by introducing the production of chitin and chitosan from prawn shell waste about 30 years back. Dr. Ayyappan also released a new product named ‘OPex’ developed by CIFT from Oyster Peptide Extract and a book on novel seafood recipes that can be prepared from oyster.

Delivering the Presidential address Dr. T K Srinivasa Gopal, Director, CIFT informed that the Institute helped in setting up India’s first “Zero-waste” seafood industry at Shri Sulthan Singh’s Unit at Karnal in Haryana. Dr. B Meenakumari, Deputy Director General, ICAR and Dr. Bangali Baboo, National Director, NAIP, ICAR were the Guests of Honour. Felicitations were offered by Dr. G Syda Rao, Director, CFMI, Cochin, Dr. S Maura, Assistant Director General (IP&TM), ICAR and Dr. S Pravin, Senior Scientist briefed about the training programme and said that the training programme was mainly focusing on the practical aspects and purse seining and power block operations will be carried out on board a private vessel.

Theory classes were held on different aspects of purse seining with special emphasis on large mesh purse seining. The fishermen trainees were also taken around the Institute and were briefed about various technologies developed by the Institute. Field visits to Cochin Fishing Harbour, fish markets and fish landing centers were also arranged for the fishermen trainees. A demonstration fishing trip was carried out onboard Fishermen Cooperative Society purse seiner ‘Bharat Darshan’ on 12th April, 2012. Dr. Srinivasa Gopal gave away the certificates to the trainees on 13th April, 2012 after successful completion of the training.

CIFT Conducts Training on “Power Block Aided Purse Seining”

A training programme on “Power Block Aided Purse Seining” was held at CIFT, Cochin during 10-13 April, 2012. Nine fishermen trainees sponsored by the Directorate of Fisheries, Goa under the ‘Rajeev Gandhi Rashtriya Krishi Vikas Yojana’ participated in the training programme. Dr. S Balasumbramanian, Head, Extension Information and Statistics Division welcomed the trainees. Dr. T K Srinivasa Gopal, Director of the Institute in his inaugural address highlighted the success of purse seining and its operation using of power block which was carried out under the Institute project. Dr. S Pravin, Senior Scientist briefed about the training programme and said that the training programme was mainly focusing on the practical aspects and purse seining and power block operations will be carried out on board a private vessel.

Theory classes were held on different aspects of purse seining with special emphasis on large mesh purse seining. The fishermen trainees were also taken around the Institute and were briefed about various technologies developed by the Institute. Field visits to Cochin Fishing Harbour, fish markets and fish landing centers were also arranged for the fishermen trainees. A demonstration fishing trip was carried out onboard Fishermen Cooperative Society purse seiner ‘Bharat Darshan’ on 12th April, 2012. Dr. Srinivasa Gopal gave away the certificates to the trainees on 13th April, 2012 after successful completion of the training.
Trade Enquiry – European Seafood Exposition 2012, Brussels

1. **Mr. Albert Bakker**  
   Managing Director  
   AB Seahorse Ltd  
   P O Box 166 8320 AD Urk, The Netherlands  
   Tel: +31 527 68 70 75  
   Fax: +31 527 68 70 76  
   Mob: +31 6 5338 2337  
   E-mail: ab@abseahorse.eu  
   Web: www.abseahorse.com

2. **Mr. Shahin Zaman**  
   Executive Director  
   Acqua International Seafood sourcing & Trading  
   3 Ahsan Ahmed Road, Khulna-9100, Bangladesh  
   Tel: 0088 041 2832027  
   Fax: 0088 041 725 225  
   Mob: +880 171244 33879  
   E-mail: zaman@acqua-int.com; info@acqua-int.com  
   Web: www.acqua-int.com

3. **Mr. Walid Cherif**  
   Agriprotec  
   Ben Arous, Km 5 Route de Ben Arous Mornag BP 64 - CP 2090 - Tunis - Tunisia  
   Tel: 00216 71 300 600  
   Fax: 00216 71 300 605  
   E-mail: ferriplast@yahoo.fr  
   Web: www.agriprotec.com.tn

4. **Mr. Nuria Novoa Gonzalez**  
   Alaska Grupo  
   Poligono Industrial San Ciprian de Vinas, Calle 7 - Nave 13 - 32901 Ourense (Spain)  
   Tel: 34 988 254 573

5. **Mr. Steve Frith**  
   Director  
   Albus Solutions Ltd.  
   2 Carlisle Terrace, Derry, BT47 6JX  
   Tel: +44 7874 688 986  
   E-mail: albussolutions@live.com

6. **Mr. Didier Amand**  
   Amand-Bianic Sas  
   Rue De La Sorriere, ZI Nord-BP 90007, 14501 Vire Cedex, France  
   Tel: +33 0 2 31 66 67 00  
   Fax: +33 0 2 31 66 67 45  
   E-mail: d.amand@amand-terroir.com  
   Web: www.amand-bianic.fr  
   Seafood Mix, Salad Cuttle fish, Squid

7. **Mr. Stellios Hatzopoulos**  
   Company President  
   Anemotrata Superfish s.a  
   Industrial Park, Neohorouda - P.O.Box 205, IONIA 57008 Thessaloniki, Hellas  
   Tel: +30 2310 780 981  
   Fax: +30 2310 780 511  
   Mob: +30 6942 433200  
   E-mail: info@superfish.gr  
   Web: www.superfish.gr

8. **Mr. Lorenzo Mancini**  
   Responsabile Commerciale  
   Artik srl  
   Via Tornareccio, 16 00132 Roma  
   Tel: 06 2261 756/0622460 264  
   Mob: 327 1869711  
   Fax: 0622 625 13  
   E-mail: lorenzomancini@artiksgelati.it  
   Web: www.artiksgelati.it

9. **Mr. Safak Zeren**  
   Foreign Trade Specialist  
   AYFROST  
   Ayten Sok No.9 Tandogan  
   Ankara 06580 Turkey  
   Tel: +90 312 212 66 12  
   Fax: +90 312 215 61 43  
   E-mail: szeren@aydeniz.com  
   Web: www.ayfrost.com  
   Shrimp

10. **Mr. Anthony Azzopardi**  
    Managing Director  
    Azzopardi Fisheries  
    Mosta Road, St. Paul’s Bay, SPB 3111-Malta  
    Tel: +356 21571148  
    Fax: +356 2157 6017  
    Mob: +356 9949 6708  
    E-mail: info@azzopardifisheries.com.mt  
    Web: www.azzopardifisheries.net  
    IQF Shrimp

11. **Mr. Hatem Taher Saleh**  
    Chairman/ Ashraf M Taha Elbedawy, Member of Board  
    Blue Marine 64 El Gomhoria ST., Front of Faculty of Medicine 6th Floor, El mansoura, Egypt  
    Telefax: +2 050 2377567  
    Mob: +2 0100 920 6666/ +2 012234 83059  
    E-mail: hatem_salehe@yahoo.de; ashraf.elbedawy@yahoo.com  
    Shell on PUD U/015, 16/20, Lobster, Sardine, Cuttle fish, Mackerel
12. **Mr. Louis Calleja, Director**  
C & L Calleja Trading Ltd  
19, Flagstone Wharf, Marsa, Malta  
Tel: +356 21225767 - 2123 0611  
Fax: +356 2124 9093  
Mob: +356 9988 1971  
E-mail: callejafisheries@onvol.net; callejal@go.net.mt  
PUD Shrimps IQF, BT IQF Squid Tubes, Frozen Tuna

13. **Mr. Douw Krugmann, Managing Director**  
Cape Town Fish Market  
Unit 2, The Edward, 113 Blauwberg Road, Table View 7441, Cape Town, PO Box 11250  
Bloubergrant 7443  
Tel: +27 (0) 21 556 7070  
Fax: +27 (0) 21 557 0472  
Mob: +27 (0) 83 455 5444  
E-mail: douw@ctfm.co.za  
Web: www.ctfm.com  
Squid

14. **Mr. Denis Schoch**  
Casic Einkaufsgenossenschaft  
Zurlindenstrasse 29, Postfach.CH-4133 Pratteln 1  
Tel: +41 0 61 335 45 50  
Telefax: +41 (0) 61 335 45 90  
Direct: +41 (0) 61 335 45 54  
E-mail: d.schoch@casic.ch  
All items

15. **Mr. Ghislain Beaussart**  
Cristal Seafood  
88/100 Route de Paris, Residence la Clarite 62280 Saint Martin Boulogne  
Tel: 03 231 10 26 10  
Fax: 03 21 10 26 11  
E-mail: ghislain.cristal.seafood @wanadoo.fr  
L. Vannamei, BT

16. **Mr. Peony Yan**  
Dalian East Coast Aquatic Products Co. Ltd.  
Room 2202, Jiahe Building A, Baoding Street, 2, Zhongshan District, Dalian, China  
Tel: 086 0411 82650 112  
Fax: 086 0411 82776336  
Mob: 1599 869 1429  
E-mail: dha005@dleastcoast.com  
Skype: peony198607  
Squid products

17. **Mr. Sebastian T A**  
Delight Foods (UK) Limited  
Manor Farm, Shellbank Lane, Green Street Green, Dartford, Kent, DA2 8DL, United Kingdom  
Tel/Fax: 0 1474 70 82 66  
Ph: 0 773735 6715  
E-mail: delight.uk@dailydelight.com

18. **Mr. Abraham Benjamin**  
General Manager  
Delta Group  
P.O.Box: 22032, Doha, Qatar  
Tel: 4693 476 / 4693 265  
Fax: 4693 440  
Mob: 00974 5510 428  
E-mail: deltaco@qatar.net.qa

19. **Mr. Juan Luis Prieto/ Hoang-Zhu**  
Director Commercial  
distribuciones Hoang Luis S.L.  
Pol.Ind. Campillo, 43 Gallarta - Bizkaia  
Tel: 94 636 33 26, Fax: 9463633 26  
E-mail: hoangluis@hotmail.com  
Squid, Cuttle fish

20. **Mr. Ivan Dasyuk**  
EPIGON S.A.  
Bernarda Chrzanoskiego 8, 81 338 gdynia, Poland  
Tel: +48 58/736 32 50  
Fax: +48 58/736 32 60  
Mob: +48 669 466 288  
E-mail: biuro@epigonsa.pl  
Web: www.epigonsa.pl  
Shrimps, Seafood mix

21. **Ms. Margaret Grandison**  
Foods of Scotland  
Z.I.Pallerone-Via Guido Rossa, 20/D, Aulla (MS)- Italy  
Tel: +39 0187 418138  
Fax: +39 0187 417349  
E-mail: mygfish@tiscali.co.uk  
Fr: Tuna, Martin loins, Sword Fish

22. **Mr. Fouad Mrichcha,**  
Director General  
Frodis S.A.R.L.  
Aeropole-Onda Pole Industriel, Tranche 2, Nouaceur, Casablanca, Maroc  
Tel: 05 22 59 07 07  
GSM: +212 6 45 117 117  
E-mail: fouad.mrichcha@gmail.com

23. **Mr. Panagiotis Kallimanis,**  
General Manager  
G.Kallimanis S.A.  
Eliki Egio, 25100 Egio, Greece  
Tel: +30 26910 81946  
Fax: +30 26910 81948  
Mob: +30 6977 57 57 04  
E-mail: takis@kallimanis.gr  
Web: www.kallimanis.gr  
Cuttle Fish, Shrimp, Squid

24. **Mr. Gergo Sedlak,** CEO  
Gran Export Kft-Hungary  
4033 Debrecen, Veres Peter Utca 1.  
Phone/Fax: +36 52 420-635; 431-843;453-423  
Cell: +36 30/4159-619  
E-mail: sedger1@t-online.hu  
Web: www.gran-export.hu  
IQF PUD Cooked Shrimps, 500gm, 200gm, 61/70,30/40,100/200
25. **Ms. Maria Clara Vergne**  
Green Sushi FabSushi, Parc des Docks Maritimes Hall 2B, Quai Carriet - 33310 Lormont  
Tel: 05 57 30 83 37  
E-mail: m.vergne@greesushi.fr  
Web: www.greensushi.fr  
*Tuna, Shrimp - Cooked BT & LV*

26. **Mr. Prins Sandhu**  
Groothandel in vis en garnalen  
Postbus 413 2300 AK Leiden  
Tel: 0031 642 30 3152  
E-mail: prinssandhu@live.nl ; www.pa-garnalen.nl  
*Shrimp*

27. **Mr. Salah A Alkhiyami**  
Operation Manager  
Gulf Center for Foodstuffs  
P.O.Box: 37777, Doha, Qatar  
Tel: +974 44620733  
Mob: +974 55506269  
Fax: +974 44620768  
E-mail: alkhiyami@qatar.net.qa

28. **Mr. Mohanad Alkhiyami**  
Operation Manager  
Gulf Center for Foodstuffs  
P.O.Box: 37777, Doha, Qatar  
Tel: +974 44 55 08 83  
Mob: +974 55 83 47 99  
Fax: +974 44 55 31 41  
E-mail: mohanad@gulfcenter.com.qa

29. **Mr. E A M Soliman**  
HAYAT Fish Products  
Watervliet 40, 2134 VV Hoofddorp, The Netherlands.  
Tel: +31 (0) 23 5574064  
Fax: +31 (0) 23 557 4063  
Mob: +31 (0) 6 1023 6987  
E-mail: info@hayatfish.nl  
Web: www.hayatfish.nl  
*Whole white and vannamei, PUD White (C&F Alexandria, Egypt)*

30. **Mr. Patrick Westra**  
Purchase Manager  
Heiploeg B.V. P.O.Box 2  
NL - 9974 ZG Zoutkamp  
Tel: +31 (0) 595 40 55 55  
Fax: +31 (0) 595 40 23 54  
Mob: +31 (0) 622 40 92 27  
E-mail: purchase.zoutkamp@heiploeg.com  
Web: www.heiploeggroup.com

31. **Mr. Thanh Truong**  
Hung Fat Trading Asien Livs  
AB Tagenevagen 3, S-422 59  
Hisingen backa Sweden  
Tel: +46 (0) 31 13 21 82/23 33  
84(12 line)  
Fax: +46 (0) 31 13 92 83/23 33  
68  Mob: +46 (0) 707 18 59 91  
E-mail: hungfat@telia.com

32. **Mr. William Davies**  
Technical Manager  
Icelandic UK Estate Road  
Number 2, South Humberside  
Ind. Est. Grimsby, NE Lincolnshire, DN31 2TG, England, Tel: +44 1472 582 900  
Fax: +44 1472 582 920  
Mob: +44 7557 850724  
E-mail: wldavies@icelandic.co.uk  
Web: www.icelandic.co.uk

33. **Mr. Arkady Panchernikov**  
IP Trading LLC  
538 Madison Avenue at 54th Street, New York, NY 10022  
Tel: 212 980 5959 ext 210  
Fax: 212 980 5928  
Mob: 516 503 3907  
Skype: Arkady.Panchernikoc  
E-mail: ararkady@iptradingllc.com  
*Frozen Cobia*

34. **Mr. H.T.Kalpoe/ R.R.Kalpoe Kadok**  
Jacob Obrechtspark 11, 5144 XC Waalwijk  
Mob: 06-51599525 / 06 21511100  
E-mail: h.kalpoe@home.nl  
*Scampi, Red Snapper Steak, Tilapia, Whole cleaned Mud Crab -1 Kg Frozen*

35. **Mr. Samuel Diaz Farray**  
General Manager  
Kalima Fish  
Diderot, 12, 35007 Las Palmas de G.C.(Spain)  
Tel: 0928 27 30 49  
Fax: 00 34 928 05 60 32  
Mob: 00 34 608 51 21 24  
E-mail: kalimafish@hotmail.com; kalimafish@gmail.com  
*Fin fish*

36. **Mr. Anass Karzazi**  
Chief of Promotion and Communication Service  
Kingdom of Morocco National Agency for Development of Aquaculture  
B.P476 Agdal, Rabat- Morocco.  
Tel: +212 5 37 68 83 30  
Fax: +212 5 37 68 83 29  
E-mail: karzazi@mpm.gov.ma; anasskarzazi@gmail.com

37. **Mr. Jean-Paul Lunven**  
LDC Traiteur  
ZI St Laurent-BP 88 - 72302 Sable Cedex  
Tel: 02 43 62 70 00  
Fax: 02 43 62 09 50  
E-mail: jean-paul.lunven@ldc.fr  
Web: www.ldc.fr  
*Shrimp Black Tiger*

38. **Mr. Grazyna Langendoen**  
Purchase Manager  
LIMITO S.A.  
80-322 Gdansk,
39. **Mr. Orhan Malkoc**  
Directeur,  
Malkoc Oglu Food B.V.  
OBA Halal Snacks Kranenberg  
4, 5047 TR Tilburg, Nederland  
Tel: +31 0 13 571 37 45  
Fax: +31 0 13 571 16 70  
Mob: +31 (0) 6 513 46771  
E-mail: admin@obafood.nl  
Web: www.obafood.nl  
**HL BT Peeled, peeled/cooked, breaded, White cooked PD, Other shrimps PD Cooked/breaded, Squid rings/tubes, Fish fillets, Pangasius, Tilapia, Perch, Steaks, Kingfish, Crab claws (surimi), Seafood mix***

40. **Mr. Hernan Ponce De Leon**,  
Director  
Maraustral  
Ruta Interbalnearia KM 24.500  
CP 15005 Canelones, Uruguay  
Tel/Fax: +598 2696 0060 /53  
Cell: +598 99 698 558/95 400 100  
E-mail: hponcedeleon@maraustral.com.uy  
Web: www.maraustral.com.uy  
**41. Mr. Per Mjelva**  
Managing Director  
Marine Sales AS  
Kongensgate 1, P.O.Box 383, NO-6001 Aalesund, Norway  
Tel: +47 70 11 45 45  
Fax: +47 70 11 45 40  
E-mail: per@marinesales.no  
Skype: permarinesales  
Web: www.marinesales.no

42. **Mr. Mosa Omar Esretee**  
General Manager  
Marrakesh Group, Tripoli - Libya  
Tel: +218 91 2121711, + 218 92 6457142  
E-mail: m.ge_2012@yahoo.com;  
mesretee@yahoo.com;  
**Shrimp***

43. **Ms. Sabrina Benini**  
Marupesca  
1, Avenue Henry Dunant - Bur n° 1198 MC 98000 Principauté de Monaco  
Tel: +377 977 051 93  
Fax: +377 977 051 94  
E-mail: s.benini@marupesca.mc

44. **Metarex S.p.A**  
Via s. Pellico, 1/a, 30020 Marcon (VE) Italy  
Tel: +39 041 59 69 044  
Fax: +39 041 59 69 003  
E-mail: info@metarex.it  
Web: www.metarex.it  
**Squid Ring Cleaned/Cuttle Fish Whole/Cuttle Fish Whole Cleaned, PUD Shrimps, Squid Ring, SQTN***

45. **Mr. Alexandros Mendrinos**  
Juvenile Sales Manager  
NIREUS Aquaculture S.A  
1st Km Koropiou - Varis Ave,  
194 00 Koropi Greece  
Tel: +30 210 6698 145  
Fax: +30 210 6626 804  
Mob: +30 693 6698 353  
E-mail: a.mendrinos@nireus.com  
**Cobia, Fish meal, Fish oil***

46. **Mr. Steven Zhang**, Managing Director  
Nishin Unit 5, 208 Swanson Road, Henderson, Auckland,  
New Zealand P.O.Box 104 118  
Lincon North, Auckland  
Tel: +64 (9) 836 1468  
Fax: +64 (9) 836 1438  
E-mail: nishin@xtra.co.nz  
Website: www.nishin.co.nz  
**Sea Crab, Pomfet, Lobster***

47. **Mr. Frederic Avril**  
Novamer  
Rue du Canal - ZA CAEN Canal - 14550 Blainville Sur Orne- France  
Tel: +33 (0) 2 31 82 06 10  
Fax: +33 (0) 2 31 82 06 07  
Mob: +33 (0) 6 86 58 23 73  
E-mail: frederic.avril@novamer.com  
**Shrimps, Squid***

48. **Mr. Rajiv Banerjee**  
Area Manager  
NOWACO A/S  
Prinsensgade 15, P.O.Box 40, DK-9100 Aalborg, Denmark  
Tel: +45 9630 8080  
Fax: +45 96 30 80 90  
Mob: +45 5240 8499  
E-mail: nowaco@nowaco.com;  
rab@nowaco.com  
Web: www.nowaco.com

49. **Mr. Derek Thai (Joe)**  
Ocean King  
Pacific House, Castle Business Park, Pavilion Way,  
Loughborough, Leicestershire  
LE11 5GW  
Tel: +44 (0) 1509 268882  
Fax: +44 (0) 1509 268883  
Mob: 07831 209098  
E-mail: sales@oceanking.co.uk  
All Products

50. **Mr. Andreas Gabathuler**,  
CEO Opaga ag  
Banneggstrasse 4 CH-9506 Lommis  
Tel: +41 (0) 52 366 39 38  
Fax: +41 (0) 52 366 39 45  
Mob: +41 (0) 79 437 11 21  
E-mail: info@opaga.ch
51. **Mr. Peter Y Huh**  
President/CEO  
PAFCO - Pacific American Fish Company, Inc.  
5525 South Santa Fe Avenue  
Vemon, California 90058  
Tel: 323 319 1515/ 1526  
Fax: 323 319 1517  
Mob: 213 494 0336  
E-mail: pehuh@pafco.net  
Web: www.pafco.net  
*Pony fish, Tuna, Cobia*

52. **Mr. Joanna Bielec**  
Key Account Manager  
Pescadero Spolka Zo.o  
Hutnicza 4, 81-963 Gdynia  
Tel: 58 7463598/97  
Fax: 58 7833524  
Mob: +48 606 370 810  
E-mail: handlowy@pescadero.com.pl;  
j.bielec@pescadero.com.pl  
Web: www.pescadero.com.pl

53. **Mr. Lamb Weston**  
Pescados Lorca S/L  
Pol.Ind.Casa Grande II - Nave 2  
03183 Torrevieja (Alicante)  
Tel/fax: 96 573 48 27  
E-mail: comercial@pescadoslorca.com  
*Cuttle Fish*

54. **Mr. Wojciech Kolodziejski**  
Przedsiębiorstwo Handlowe Koryb s.j.  
84-100 Puck ul. Zamkowa 20  
Tel: 058 673 45 69  
Fax: 774 77 05  
E-mail: koryb@op.pl  
*Shrimps, Squids, Cuttle Fish, Fishes & Other seafood*

55. **Ms. Irene Wambolt**  
Assistant Category Manager Import  
Real SB-Warenhaus GmbH,  
Schluterstr.7, 40235 Dusseldorf  
Tel: 0211 969 9527  
Fax: 0211 969 490 9527  
E-mail: irene.wambolt@real.de  
*Vannamei shrimp*

56. **Mr. Derek M Golding**  
Managing Director  
Seahawk Marine Foods Ltd.  
Broadleigh House, Woodmarsh, North Bradley, Trowbridge,  
Wiltshire BA14 OSA UK  
Tel: +44 (0) 1225 768461  
Fax: +44 (0) 1225 760954  
E-mail: derek@seahawk.co.uk

57. **Mr. Dominique**  
Seaprosas  
Tel: 00 33 (0) 25137 8687  
Fax: 00 33 (0) 2514 3924  
Mob: 00 33 (0) 6295011 40  
E-mail: dominique@seaprosas.com  
Skype: dominique2347  
Web: www.seaprosas.com  
*Swimming Crab, Grouper, Red Snapper, Seabream*

58. **Mr. Philip Vladimirov**  
Manager  
Silvex Commerce Ltd.  
Sofia 1528, Bulgaria,  
Myunhen 14 Str.  
Tel: +359 2 979 82 82  
Fax: +359 2 979 82 43  
Mob: +3598 97 92 92 92  
E-mail: phil@seafoods.bg ; silvex@dir.bg  
Web: www.silvex-seafoods.com;  
www.seafoods.bg

59. **Mr. Masilamany Thirumamany**  
SM Seafood GmbH  
Tobelackerstrasse 4 8212  
Neuhausen, Switzerland  
Tel: 0041 52 672 28 38  
Fax: 052 672 28 39

60. **Mr. Miguel Pereira**  
Project Manager  
Soguima Commerce Industria Alimentar S.A.  
Zona Industrial 2, Vila Nova de Sandr, Apartado 4089 4806-909  
Caldas da Taipas, Portugal  
Tel: +351 253 470 070 Fax:  
+351 253 572 214  
E-mail: soguima@soguima.com;  
miguelpereira@soguima.com  
Web: www.soguima.com  
*Scampi*

61. **Mr. Wang Enfu**  
General Manager  
Sun River International S.A.R.L  
66, Avenue Des Champs Elysees  
75008 Paris- France  
Tel: 33 1 46 66 01 55  
Fax: 33 1 46 56 88 70  
Mob: 33 6 24 98 56 67  
E-mail: enfu.wang@free.fr  
*Fresh Water Shrimps/Crabstick, PD/Whole Shrimps*

62. **Mr. Amirdeen A N Mohammed**  
Sales Manager  
The Deep Seafood Co. L.L.C.  
P.O.Box 81196, Dubai, United Arab Emirates  
Tel: +971 4 284 4227  
Fax: 971 4 2858 401  
Mob: +971 56 691 0604  
E-mail: amirdeen@thedeepeseafood.com  
Web: www.thedeepseafood.com  
*BT - PD / PUD*

63. **Mr. Haim Avioz**  
Managing Partner  
Tiran Shipping (1997) Ltd.  
44 Jaffa St., P.O.B.33196, Haifa  
31331, Israel  
Tel: 972 4 8509000
64. **Mr. Thanh Cao**  
Import/Export Manager  
Tran Soan,  
Darmstädter Strabe 73, 64572 Buttelborn  
Tel: +49 (0) 6152 92 77 453  
E-mail: thanhcao@transoan.com  
Web: www.transoan.com

65. **Mr. Juan F Noriega Fdez**  
The Seafood Network  
C/Circunvalacion, 4 10D, 28850 Torrejon de Ardoz, Madrid, Spain  
Mob: +34 625 462 170  
E-mail: jfnoriegaf@gmail.com  
Skype: jfnoriega70  
*M.affinis PUD 20/40, 40/60, 60/80, 80/100, 100/120, 25/glaze 1 kg with leader label*

66. **Mr. Augustine Christian**  
Sales Director  
Vaani Foods  
Kanendra House, Unit 1, 22 Ullswater Crescent, Coulsdon, Surrey, CR5 2HR, UK  
Tel: +44 (0) 208 668 7648  
Fax: +44 (0) 208 660 8446  
Mob: +44 (0) 787 669 6782  
E-mail: augustine@vaanifoods.co.uk  
Web: www.vaanifoods.co.uk  
*Cobia*

67. **Commerciele Dienst**  
Vlaamse schelpdier-en Viscooparatie Cvba  
Vismijngebouw,  
Kaaiplein 2/0011, B-8620 Nieuwpoort  
Tel: 058 222 160 Fax: 058 222 169  
E-mail: info@vsve.be  
*Shrimp HL, BT/PD to Scampi HL, Cephalopod Products*

68. **Mr. Naoki Yamada**  
President, Wakayama Kyouwa Suisan Co. Ltd.  
190-2, IMAI, Mihara-Ku, Sakai-Shi, Osaka, 587-0061, Japan  
Tel: +81 72 362 3001  
Fax: +81 72 362 3002  
E-mail: n.yamada@wakayama-kyouwa.co.jp  
Web: www.wakayama-kyouwa.co.jp  
*Fresh Fish*

69. **Mr. Taher Ibrahim Wahba**  
Chairman  
World Industries, Export & Import Center  
New Cairo- South of Police Academy - vella 112 Area (D)  
Tel: 292 00814/816 / 805 Fax: 292 00 610  
Mob: 01222 59089  
E-mail: taher.wahba@twweic.com  
Web: www.twweic.com  
*Shrimps*

70. **Mr. Richard Luo**  
Vice General Manager  
Wuhan Coland Aquatic Products and Food Co. Ltd.  
No.1, Wangji Industry Zone, Xinzhou District, Wuhan, Hubei, China  
Tel: 86 27 5990 3991  
Fax: 86 27 5990 3990  
Mob: 1397 1391339  
E-mail: richardonly99@hotmail.com  
Web: www.colandwuhan.com.cn  
*Shrimp, Scampi*

71. **Mr. Zhang Lu Yong,**  
General Manager  
Xiamen East Ocean Fishery Imp & Exp. Co. Ltd.  
110-3 Haitian Road, Huli District, Xiamen, China  
Tel: 86 592 6039652  
Fax: 86 592 6039 653  
Mob: 86 133 0601 6406  
E-mail: xof@xmeastocean.com  
Web: www.xmeastocean.com  
*Octopus 100gm/up*

72. **Mr. Yasin H. Ismail**  
Operation Manager  
Y.M.Bakhsh Trading Est.  
P.O.Box 876 - Al-Khobar 31952,  
Kingdom of Saudi Arabia  
Tel: +966 3 893 2211 Ext.232  
Fax: +966 3 894 6955  
Mob: 050 385 7374  
E-mail: yismail@mfs.com.sa  
*Fresh Fish*

73. **Mr. Helen Yang**  
Deputy General Manager  
Yantai Taiyu Foodstuff Co. Ltd.  
Dajijia District, Yantai Etdz, China- 264006  
Tel: +86 535 6931078  
Fax: +86 535 6979300  
Mob: +86 1390 535 3272  
Skype: yanghongmei17  
E-mail: yanghongmei17@yahoo.com.cn  
Web: www.taiyufood.com

74. **Mr. Steven Zhao/Toby Gao**  
Yihe Corporation  
199S. Los Robles Avenue, Suite 580 Pasadena, CA 91101 USA  
Tel: 626 795 8588  
Fax: 626 793 8688  
Mob: 150 20008 7898  
E-mail: zzctyb@163.com  
*Shrimp, Scampi*

75. **Mr. Jiang Bo**  
Vice General Manager  
Zhoushan Mingyu Aquatic Product Co. Ltd.  
Pingyang Industrial Zone Puto, Zhoushan, Zhejiang, China  
Tel: 0086 580 637 1681  
Fax: 0086 580 637 1398  
Mob: 0086 1330 6312924  
E-mail: jb1119@163.com  
Web: www.zsmingyu.com.cn  
*Squid*
Modern Plastics and Equipments

- Standard & Custom Built and Compact Power Packs
- Cost Effective & Innovative Design and Leigh Economic Efficiency
- Control Blocks After Ideal System Solution Thanks to Their Compact Design and Direct Valve Connection.
- Standard and Reported Hydraulic Elements Used
- Trouble Free Performance
- Ease to Maintenance
- Application wise we are manufacturing into Power Packs.

E-mail : info@modernplasticsandequipments.com