



# IFFO

THE MARINE INGREDIENTS ORGANISATION

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[www.iffonet.net](http://www.iffonet.net)

# UPDATE

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## IFFO closes 56th Annual Conference by announcing the winner of the Leadership and Innovation Awards



The IFFO 56th Annual Conference closed after three successful days of discussions with 418 delegates from 43 countries. The winner of the Leadership and Innovation award was announced by the IFFO President Mike Copeland at the event's Gala Dinner. This is the second year that IFFO has held the awards and the winner, who was selected by the IFFO Management Board was TASA. The award had previously been split into two categories with TASA submitting substantial applications for both. It proved exceptionally difficult to decide which of the many impressive applications deserved to win the awards. After a vote, the majority of the board members agreed that TASA should win both the Leadership and Innovation Awards. At the Gala Dinner, Mr Copeland congratulated all the applicants for their hard work and presented the award to Carlos Pinillos González, Chief Executive Officer

of TASA.

TASA's strong focus on R&D won the Board's approval for the Leadership part of the award. In December 2015, TASA and the Universidad Peruana Cayetano Heredia, jointly won the "Basic research projects and Applied research projects" competition organized by the National Council of Science, Technology and Technological Innovation (CONCYTEC), to develop the project entitled: "Evaluation of the effect of oral administration of collagen peptides of anchovy on bone metabolism and the mechanism of tissue scarring in ovariectomised animals" which is currently under development. The development of collagen peptides is intended to produce a product that meets chemical and functional properties required by the market and that also constitutes a safe and effective treatment to combat osteoporosis and skin alterations generated by the loss of oestrogens in the post-menopausal period. The product will provide added value and at the same time allow the population to benefit directly from the utilization of this natural resource.

For the innovation part of the award, TASA won for their SUMAQ project Businesswomen of Huanta. Started in 2015, the project is combined effort through a public-private alliance between TASA, the Universidad Nacional Agraria La Molina, the Ministry of Production, the District Municipality of Huanta- Ayacucho and SANIPES, with the Fundación Acción Contra el Hambre as operator. The purpose of the SUMAQ Project is to increase the availability and consumption of fish in families of the districts of Huanta, in the Region of Ayacucho, south of Peru, through the promotion of business enterprise, technological innovation and community awareness actions to encourage good practices of healthy nutrition.

To ensure a balanced and fair vote, Board members from the companies selected excused themselves from the vote. The winner was judged on the degrees of change or positive impact that was achieved. It was mistakenly noted in a previous release that TASA had only been selected for the Innovation award, they were selected for both.

Quote: *'Such an impressive example of success has provided the perfect closing celebration to another effective IFFO Annual Conference. Over these last three days, we have addressed some of our industry's greatest challenges, analysed new technological opportunities, and looked at market trends to better prepare our members for the coming years. But most importantly, after over 50 years of meeting, this group of old and new friends have gathered once again to strengthen business ties and work together as a cohesive community.'* Andrew Mallison, IFFO Director General

### About the IFFO Annual Conference

Held every year in a different city and running for over 50 years, the IFFO Annual Conference is the essential meeting place for the worldwide fishmeal, fish oil and wider marine ingredients industry to network and share information. The programme included presentations from across the industry, workshops and market meetings, giving a 360 degree overview of the marine ingredients industry in just three days. More information on this event can be found at [www.iffoevents.com](http://www.iffoevents.com)

## IFFO 56th Annual Conference—Summary of proceedings



### Day 1

Monday, 24<sup>th</sup> October 2016

Held in the beautiful Shangri-La Hotel in Bangkok, Thailand, this year's conference sees 418 delegates from 43 countries come together to discuss the latest trends and developments in the marine ingredients industry. With speakers from all corners of our industry, the presentations and discussions promise to lead to many rich discussions over the next 3 days.

#### President's Address

**Michael Copeland, IFFO President, South Africa**

The conference was opened by IFFO President, Mike Copeland, asking the audience to hold a short silence to show condolences for the recent death of King Bhumibol Adulyadej of Thailand. Mr Copeland stated how important this meeting is to our industry both in terms of information sharing and the forging of vital business relationships. He went on to highlight the key challenge of resources that faces the feed industry, noting that alternatives should be used "As Well As, Not Instead Of" fishmeal and fish oil. He thanked the conference

sponsors for all their support in making this event possible. Copeland ended his presentation with a polite reminder to respect antitrust regulations and wished all the members a successful and enjoyable conference.

#### Opening Remarks

**Andrew Mallison, Director General, IFFO, U.K.**

IFFO's Director General, Andrew Mallison, opened his presentation by adding his welcome to delegates. He then gave an update on IFFO's advocacy, media and project work, highlighting IFFO's recent work on

Antioxidants and Forage Fish Ecosystem Management. He welcomed our new members and showed how IFFO's membership has grown by 20% in the last 5 years. He then gave an insight into IFFO's long term vision, showing where we will focus our efforts in the next 4 years and wished everyone a successful conference before introducing the first speaker, Andy Lohawatanakul from CP Group.

#### Sustainable Shrimp Supply Chain presentation

**Andy Lohawatanakul, Head of International Sustainability Development, CP Group, Thailand**

Andy Lohawatanakul gave a presentation covering the importance of traceability in dealing with criticisms of sustainability (including social issues) in seafood production, describing some of the work within the sustainable shrimp supply chain task force. He stated that CP's focus 30 years ago had been on quality, 15 years ago on environmental preservation and now on full traceability and social accountability, with the complexities of the many tiers beyond their operations. Lohawatanakul then went through CPF's sustainable development strategy and disclosures,



employee and labour management and their sustainable sourcing policy. He noted that there are only two feed mills in the world certified that are IFFO RS CoC and both are CPF. He detailed CPF's shrimp feed mills electronic traceability system, their shrimp sustainable supply chain task force and their independent auditing program. He ended with an update on the Songkhla Fishermen's Life Enhancement Center and their objectives.

## Investability – How the fish industry can attract capital

**Stephen Hall, Principal, Avalerion Capital, U.K.**

Stephen Hall opened by introducing Avalerion Capital, a boutique advisory and support service who build sustainability strategy and leadership in organizations and individuals to help drive systemic change. He provided a provocative presentation looking at investment in the sector and asking where the marine ingredients industry may position itself in the future, noting the importance of being able to respond to changes in the market place (and high costs as a driver for innovation of competing products). He pointed out that the whaling industry had failed with the advent of the electric light bulb (whale oil used to be used for lamps), and drew parallels with what could happen to the marine ingredients industry if it wasn't focused on the market.

He looked at industry trends and key drivers of change, analysing whether these trends are short or long term. Hall went on to analyse the demand for fish and technological advances and how they have or will affect the industry. He touched on the Thai slavery issue, as well as values and beliefs and their implications. Hall detailed the key to investability, stating that companies that want to attract

capital for growth will probably need to educate investors about the sector. He mentioned the complexities of Satisfying Environmental, Social, and Governance (ESG) criteria and the importance for companies to improve their sustainability reporting performance in the language of the international marketplace. He ended with key questions, such as are we shaping the future or reacting to it.

## Certification for the marine ingredients, fisheries and aquaculture industry

### Panel discussion with invited industry experts

The day ended with the IFFO RS V2.0 workshop where all the developments of the new version were presented to a varied stakeholder group. The objectives of this workshop were to communicate and involve all interested parties in the development of the IFFO RS V2.0 and to get feedback regarding the relevance and practicalities of the new parts of the standard. The main points for discussion were about the mixed trawl fishery section proposed for the new version, but also the Good Manufacturing Practice (GMP) requirements together with the social aspects at the factory level that will be included. Another point for discussion was about the social issues regarding forced labour in Thailand and how the IFFO RS can cover

that point. It was decided that a risk based assessment of all information available regarding the social aspect should be included in the fishery assessment. All the feedback obtained during this third workshop will be sent to the IFFO RS Technical Advisory Committee for consideration.

The panel featured:

- Andrew Jackson, IFFO RS, U.K.
- Ben Hadfield, Marine Harvest Scotland, U.K.
- Camiel Derichs, Marine Stewardship Council (MSC), The Netherlands
- Chad Gauger, Cargill Aqua Nutrition, Thailand
- Humberto Speziani, Tecnológica de Alimentos S.A. (TASA), Peru
- Jeremy Crawford, Thai Union Group PCL, Thailand
- Michael Copeland, Lucky Star Ltd., South Africa
- Michiel Fransen, Aquaculture Stewardship Council (ASC), The Netherlands
- Wendy Norden, Monterey Bay Aquarium, U.S.A.

Moderated by: Rachel Mutter, IntraFish Media

Key points include:

- Marine ingredients compare well against terrestrial feed ingredients with respect to certification;





- Certification is important for market entry but it affects the cost of production;
- IFFO RS has been successful in achieving 45% of the global fishmeal market, which was the low hanging fruit and there is still much to do;
- There needs to be more clarity on which certification schemes fit where in the market (e.g. IFFO RS, ASC and MSC);
- IFFO RS is seen to provide assurance within other schemes –the Russian doll approach;
- The biggest issue is social responsibility, IFFO RS is looking to address this with v.2.0 and discussing options for a risk-based approach within the fisheries assessment;
- Investment in (fisheries and aquaculture) improvement programmes seen as important tools to drive overall environmental (and social) improvements;
- Certification should not be regarded as an alternative to government regulation, it aids in support of standardisation of production systems across countries and regions
- Fishmeal in salmon feeds has been declining over time; with the increase in price it could have already been removed but hasn't been as it

remains essential for fish health and quality; and

- The agenda on the importance, perception and acceptance of marine ingredients in aquafeeds and aquatic protein production needs to be influenced more positively so that the contributions to protein supply are more widely recognised.

## Welcome Reception

In the evening, delegates enjoyed a cruise around the city on board the Wonderful Pearl, which was made possible thanks to our gold sponsor Intertek.

## Day 2

Tuesday, 25<sup>th</sup> October 2016

### IFFO Technical Report and Update

**Neil Auchterlonie, Technical Director, IFFO, U.K.**

Following a successful first day, Tuesday morning was filled with the first Market Forum, followed by the afternoon's technical session. Neil Auchterlonie, IFFO Technical Director, introduced the technical session and summarised the work of the IFFO technical team in the key areas of antioxidants, regulation and science projects. Much of the work has

been linked to the reauthorisation of ethoxyquin and other feed additives in the EU, prompting IFFO-funded science being delivered by Nifes, Norway, on the safety of the compound and how it relates to the reauthorisation process. There was also an update on the reauthorisation of BHT as another antioxidant used by the marine ingredients industry by Dr Heinrich Schrage of Lanxess, as well as a summary of the IFFO trials work by Dr Gretel Bescoby.

Dr Auchterlonie included an overview of the complexity of the subject matter (including alternative approaches, and liaison with the IMO), illustrating how the individual components of a complicated puzzle sit together. Additional presentations on raw material supply and opportunities for new product development were provided by Dr Richard Newton of Stirling University, and Ebbe Torp of Due Miljoe, respectively. A stimulating and informative session was rounded off with an update on the development of version 2.0 of the IFFO RS scheme by the Head of Operations, Francisco Aldon.

### Estimating the future availability of raw material for fishmeal and fish oil production

**Richard Newton, Institute of Aquaculture, University of Stirling, U.K.**

IFFO and the Institute of Aquaculture have collaborated to create a database of raw material resources; a continuation of work to better understand issues around utilisation and strategically improving the use of raw materials. Three MSc students investigated the UK fishing and salmon aquaculture industries to assess by-product fractions, their potential value and opportunities for better utilisation. The projects found processing on-board fishing vessels accounted for large

amounts of wasted by-product discarded over board, and there were issues around “by-catch”. In the salmon industry, utilisation was often better but improvements could be made. Challenges remain in both industries for small scale and remote processors, where volumes and quality may be low.

## IFFO antioxidant project trials - results and discussion

**Gretel Bescoby, Research Associate - Regulatory and Scientific Affairs, IFFO, U.K.**

Gretel Bescoby from IFFO presented the results of the IFFO stability trial on fishmeal which was conducted over a 12 month period in 50 kg as well as 1 ton bags of fishmeal for a period of a year. The treatments included lower levels of ethoxyquin as well as the alternatives BHT and the natural tocopherol and rosemary extract blend. The results showed that lower dosage levels of ethoxyquin as well as the alternative antioxidants will provide effective protection of fishmeal during storage and shipping. In addition, there was ample residual antioxidants remaining to provide further protection for another 6 months to a year. The results will be presented to the United Nation Transport for Dangerous Good committee in November 2016 to propose reduced residual ethoxyquin levels as well as the inclusion of the alternative antioxidants BHT and natural tocopherol blends.

## Fishmeal and Feed stabilisation with BHT & the European reauthorisation process

**Heinrich Schrage, Head of Technical Marketing & QEM, Lanxess Distribution GmbH, Germany**

BHT is an important antioxidant for food and feed. A short overview about BHT and its properties was presented. All food and feed additives are subject to a re-authorization process within the EU.

Schrage gave an overview of the legislation, current status of the authorization processes (accomplished targets; outstanding studies) and an outlook of the estimated time schedule.

## Fishmeal and added-value: opportunities for a refined product in a new market

**Ebbe Torp, Business Development, Due Miljø A/S, Norway**

Fish derived proteins have been known as an excellent nutritional source for some time. Despite their good sustainability profile, the odour and taste makes marketing challenging. Innovation and improvements in separation technology will overcome the problem.

DUE MILJØ AS, Norway proprietary technology brings a secure and tested separation expertise from the dairy industry to the biomarine sector, which permits the production of proteins, peptides and separated oils, suitable for direct human consumption.

## IFFO RS 2016 Update

**Francisco Aldon, Head of Operations, IFFO RS Ltd., U.K.**

The IFFO RS Standard currently have 118 certified sites around 16 countries

representing up to 45% of the worlds fishmeal and fish oil production, most of which come from the Americas and Europe. The other 55% comes from other parts such as Africa and Asia. Asia is also a major contributor in the production of marine ingredients; however only a fraction of its production has been approved as compliant to the IFFO RS Standard. One reason for this is that their fisheries management often does not meet the requirements of the IFFO RS Standard. Another potential reason is that conventional methods for fisheries assessments are not well suited to assess the complex mixed fisheries practised in Asia. In this regard, IFFO RS has implemented an ‘Improvers Programme’ to help those producers to achieve the Standard requirements, and is developing IFFO RS V2.0 which will include mixed fisheries assessment criteria, as well as including Good Manufacturing Practice criteria to the factory audit. This is in order to increase the accessibility of the Standard in the mentioned areas and to make the standard more relevant to others such as the nutraceutical value chain. The full draft of the IFFO RS V2.0 (excl. mixed trawl fisheries criteria) will go for public consultation for 60 days at the beginning of 2017 with the aim to





publish the new version by mid-2017 and to include the mixed trawl fishery criteria by the end of 2017.

## Day 3

Wednesday, 26<sup>th</sup> October 2016

### China Update

**Maggie Xu, China Director, IFFO, China**

IFFO's China Director Maggie Xu gave a succinct overview of the Chinese economy and current trends in the fishmeal and fish oil markets. She first analysed the country's GDP growth rates and the 2016 growth target of 6.5%-7%. She showed the Public-Private Partnership (PPP model) is called to promote private investment, but how the days of cheap labour are over, with the work force decreasing by 10 million in the next 5 years. Xu noted that consumption was on the rise with a \$630bn on-line market, 80% bigger than the US on-line market. With this growth, exchange rates of USD-RMB are rising and RMB is expected to become an international currency.

Regarding fishmeal production and trade, China's fishmeal output has been low due to limited resources, and plants being closed. Imports continue to rise, higher than in 2015, with a rise in imports from countries such as Vietnam and Thailand. For fish oil trade, imports are lower than previous years. The

demand for fishmeal remains high, with 60% going to aquafeed and 31% going to hog feed. The hog and sow inventory just started to recover but 600,000 pigs were lost in heavy rainfall and floods, and pork imports are therefore higher. Heavy rainfall and strong typhoons have also affected aquatic product output and Xu noted fishmeal demand for each species.

She ended her presentation by stating that aquaculture will continue to be promising, with shrimp being the highlight. She noted that integration and technology will bring dramatic changes to China's pig sector and that consolidation will make IFFO RS mission possible in China.

### Omega-3 market update

**Adam Ismail, Executive Director, GOED**

### Omega-3, U.S.A

Ismail opened his presentation by asking three questions: How are consumers spending their money? Is the ingredient market growing? Where is the growth? He noted that consumers spend \$31 billion on products with added EPA and DHA. The US is the largest single market, but Asia as a region is larger and growing faster, so attention has shifted. The East and Southeast Asian omega-3 market is expected to develop very quickly very soon. This year, Asia accounts for two-thirds of global growth in omega-3s. He then analysed the crude oil market, noting that lower yield products have been growing in volume, which has increased demand for crude oil despite tight supplies, with Anchoveta still being the dominant source. He ended by noting the refiners and concentrators are facing a challenge with increased raw material prices, causing gross margins to decline.

### Institutionalism for Sustainable Fisheries

**Elena Conterno, Chair of the Board, Sociedad Nacional de Pesqueria, Peru**

Elena Conterno's presentation addressed how institutions can help with the challenges to biomass sustainability and the sustainability of the industry. She looked at how the tradition institutional framework for fisheries management in Peru had





changed with the arrival of new players, including media (both print and social media) and NGO's. She noted the misinformation about fishmeal production from whole fish and that wild fish FIFO is greater than aquaculture FIFO. Conterno stated that conflicting and unclear messages on sustainability and the industry confuses the public, and how NGOs often engage in unfounded activism.

Conterno then presented the many institutional initiatives and challenges facing the industry. She noted that consumers demand products that can prove their sustainability, aquaculture demands fishmeal whose sustainability can be proven, and the industry and scientists have the answers but do not communicate them properly. The main challenges are biomass sustainability, requiring science and data, and industry sustainability, requiring institutional frameworks. She stated that most major global fisheries are well managed and governments and companies must combat misinformation with science and data. Regarding industry sustainability, there are new private sector institutional frameworks under development and Conterno noted work by SNP, the recently launched Humboldt Institute and the Sustainable Fisheries Group. The intention was to provide an accessible resource of science and data demonstrating good fishery management for various stocks to

disprove the many incorrect claims often levelled at the industry. Conterno then reiterated the importance of the science being better communicated by the whole industry, focusing on user-friendly informative materials, there is a lot of positive work and the industry just needs to show this.

### **The Peruvian Anchovy Fisheries after the 2014-2015 El Niño: Perspectives**

**Hector Soldi, Vice-Minister of Fisheries and Aquaculture, Peru (VIA VIDEO LINK)**

Soldi started his presentation with a brief introduction to El Niño–Southern Oscillation, looking at weather patterns, the role of winds and then complex interaction among water masses of Peru during El Niño. He noted that the unusual pattern of the 2014-2015 El Niño in the Tropical Pacific and its manifestation in the Eastern Pacific and

the coast of Peru was not as strong as expected in the atmosphere. However, the ocean component had a strong impact in the marine environment and its resources. He looked at the climate impact on anchovy fisheries and the changes in biomass over this year. He then analysed current weather conditions and forecasts, noting that during the next two months and for next summer, neutral conditions are expected. Soldi described how the fisheries is monitored and managed, looking at the biomass anchovy biomass assessment cruise (Sep-Oct 2016). He closed by looking at the overall impact on fisheries stock, noting that the current stock shows strong spawning activity and that ocean variables are slowly moving to normal conditions.

### **Concluding remarks**

**Andrew Mallison, Director General, IFFO, U.K.**

IFFO Director General, Andrew Mallison, closed the conference by saying that the mix of networking, panel discussions, market forum and technical workshops had provided a fruitful three days. He thanked the IFFO team for their tireless work over the last few months and the delegates for coming and creating such a productive and positive atmosphere. He invited delegates to give their feedback in our conference survey,.



## Follow on work from the Institute of Aquaculture, Stirling University on the supply of raw material from by-products for marine ingredient production



Three of this year's students at the Institute of Aquaculture at the University of Stirling have been continuing the theme of addressing the opportunities and potential for fisheries and aquaculture by-product to support the marine ingredients industry, recently summarised in a report written by Dr Richard Newton and Dr Andy Jackson available on the [IFFO website here](#). The three students – studying on the Sustainable Aquaculture MSc. programme – undertook this work as part of a 3-month project within their course, and all have recently been successful in completing their studies.

Alban Caratis, Jean Peignon and Julien Stevens looked at different areas of the marine ingredients supply chain, including the issues and the opportunities to secure more fishery by-product raw material in Scotland and the UK, and the possibility of achieving increased value from farmed Scottish salmon by-product. This work, under the supervision of Dr Newton, and the direction of Prof Dave Little in the Sustainable Aquaculture Research Group at the Institute, is seen as an important development towards addressing raw material supply opportunities in other regions and

improving the efficiency of seafood value chains. The significance of looking at future opportunities with the raw material that may be provided by the continually developing aquaculture industry in Asia has been highlighted as an essential topic for the future, for example, and this early work is likely to support some of that thinking through the development of an approach and methodology.

Some of the key findings are as follows:

- More than 82% of secondary processing fish by-products are utilised in marine ingredients production;
- In the study area (Scotland, UK) fisheries by-products were often poorly valued, and added-value processes were not common;
- Geographically remote processing raises a problem around collection of the raw material;
- Shellfish by-products are particularly poorly utilised, despite opportunities for added-value via some specific compounds;
- By-catch and on board processing represent a potential resource of about 24% of current UK raw material supply, but this is discarded at sea because there is no incentive to land the material;
- Logistics, and storage of the material are key issues to be addressed;
- Hydrolysates have potential as a value-added product, and especially in

aquafeed production, but are strongly influenced by the storage regime;

- By-products should be managed with the same level of care as the primary product (adopt HACCP);
- The whole of the supply chain needs to work together to improve the availability and utilisation of the raw material from by-product.
- The aquaculture and fisheries sectors should work together to provide a combined strategy for their mutual benefit.

As part of the course, the students presented their work in front of an external examiner and copies of those presentations may be accessed by members [here](#). The literature review undertaken by Julien Stevens, and the discussions held with Dr Newton and Prof Little have centred around a new way of looking at the importance of fishmeal and fish oil in global food production systems, and Mr Stevens is currently drafting a scientific manuscript on the subject that is planned for submission to an appropriate journal at the end of this year. The rationale for the paper centres around a more sophisticated way of looking at the importance of marine ingredients, and drawing back from the FIFO argument into more of a multiplier effect from marine protein into available protein for human consumption.

Neil Auchterlonie

Technical Director, IFFO

## New IFFO Members

Country	Company	Category
USA	Starbound LLC	Producer
Norway	Nutrimar A.S	Producer
New Zealand	SeaDragon	Premium
U.A.E.	Uniglobe General Trading L.L.C.	Non-Producer

## INDUSTRY NEWS

### New Report Finds Farmed Salmon has Lower Environmental Cost than Pork, Beef, Chicken

A detailed assessment of consumers' most common protein choices shows salmon raised in the ocean have the lowest overall cost to the environment. A new study prepared for the BC Salmon Farmers Association by Ottawa based RIAS Inc. examines the evidence from life-cycle analyses in the literature on the environmental footprint of BC farm-raised salmon compared to production of other food proteins.

Through a life-cycle analysis (LCA), which the United Nations Environmental Programme (UNEP) defines as "a tool for the systematic evaluation of the environmental aspects of a product or service system through all stages of its life cycle," it is possible to compare different food systems based on several objective environmental measures.

The most common indicators in an ISO

standardized method for measuring a "cradle-to-farm gate" approach across the animal or crop's life are: energy use, greenhouse gas emissions, eutrophication potential, water use and land use.

Based on the valuation of greenhouse gases, land use, water use, and eutrophication, BC salmon farming has a lower total environmental cost than beef, chicken, or pork. Farm-raised salmon is 24% less costly to the environment than chicken, while beef has a cost that is 500% greater than salmon raised in an ocean environment.

- B.C. farm raised salmon (\$0.59/kg) has the lowest overall environmental cost of any of the major protein options available to consumers today.
- Farm-raised salmon is 24% less

costly to the environment than chicken (\$0.73/kg) to almost 500% less costly than beef (\$3.45/kg).

"Health professionals agree that salmon is by far the most healthy protein choice for people to eat, this study shows it's also the most healthy protein for our planet," said Jeremy Dunn, BC Salmon Farmers Association Executive Director.

"With world population estimated by the United Nations to grow by over two-billion by 2050, governments must consider the full environmental costs of the food we grow and eat, we have a global food supply and a global environment."

Source: [TheFishSite.com](http://TheFishSite.com)

## Thai fishery bodies unite for Gulf of Thailand feed FIP

Eight private-sector fishery bodies -- the Thai Sustainable Fisheries Roundtable (TSFR) -- have announced a cooperation with the country's government to adopt international standards in the Gulf of Thailand.

The team-up has initiated a fishery improvement project, or FIP, which will implement internationally-recognized standards. The project's main focus is to improve the efficiency of Thai fisheries management and governance, together with environmental responsibility and transparent traceability throughout the supply chain.

The FIP is a collaboration between the government and the private sectors involved in the fisheries, more specifically the eight private-sector fishery bodies who founded TSFR, said Pornsil Patchrintanakul, president of Thai Feed Mill Association.

Those associations include: the National Fisheries Association of Thailand; the Thai Overseas Fisheries Association; the Thai Fishmeal Producers Association; the Thai Feed Mill Association; the Thai Frozen Food Association; the Thai Shrimp Association; the Thai Tuna Industry Association; and the Thai Food Processors' Association.

The Gulf of Thailand FIP comes after

success in developing a FIP in the Andaman Sea with WWF Thailand, said TSFR. The main goals for the FIP in the Gulf of Thailand are to ensure:

- Fisheries products come from responsible fisheries sources, and can be traceable throughout the supply chain.
- Supply chains are transparent. Related information shall be clearly communicated among international buyers and all stakeholders.
- The implementation of effective fisheries management that prevent, deter and eliminate IUU fishing and overfishing as well as the protection of wider marine ecosystem.
- The development of credible monitoring and traceability system that reduces IUU fishing and protects those that respect the rules.

"Development of FIP in the Gulf of Thailand is a proof of a true intention of the government's and related fishing products industry's effort to create a sustainable fishery for the business, taking into account the problems of IUU fishing and overfishing that result in a decline of fish stock at the present," said Pornsil.

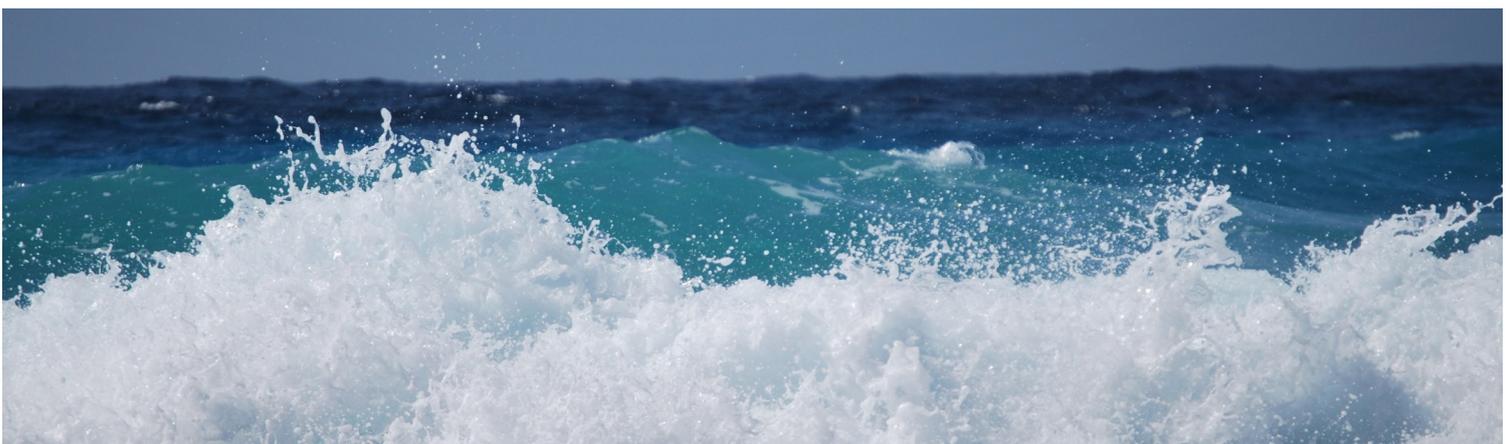
This will also be the first project globally

to apply the latest version of IFFO Responsible Supply standards. "More importantly, the IFFO RS standard is the most suitable for the marine fisheries resource management in Thailand, since Thai Sea is filled with multi-species fish. This FIP will ensure the effective management of marine resources for the development of fisheries for maximum sustainability."

The Gulf of Thailand FIP will also be partnered on by Sustainable Fisheries Partnership, which will act as a project advisor. "Sustainable Fisheries Partnership welcomes the launch of the Gulf of Thailand FIP and applauds the hard work of all the participants," the NGO said. "SFP will offer support to the project through participation in the steering committee and providing expert advice, training and quality assurance that will support progress towards a successful outcome."

SFP will also help communicate the achievements of the project to stakeholders in the seafood industry and other audiences, it said. Duncan Leadbitter, director of Australian consultancy Fish Matter, will act as a project manager for this FIP, providing guidance on best practices.

Source: [Undercurrentnews.com](http://Undercurrentnews.com)



## Seafood imports flowing into more Chinese cities

In a decision that has changed the face of the seafood market in China, in the past few years, the country's government has begun to allow more regional cities to handle imports of perishable goods, enabling these municipalities to generate customs revenues while also keeping local food supply and pricing stable. As a result, major seafood exporting countries are finding it possible to bring their goods into place places like Jiangsu, Suzhou and Nanjing, smoothing out one wrinkle in the logistical puzzle of the Chinese exporting process.

Imports of seafood into the capital of comparatively wealthy Jiangsu province

have trebled since the region was granted the right to process foreign seafood imports. Authorities in Jiangsu, one of China's wealthiest regions, say the two motivations for increasing imports of foreign seafood are restraining prices and guaranteeing quality.

The city of Suzhou was allowed to start handling seafood imports in 2015 when Suzhou Gao Xin Qu Comprehensive duty free zone and Xuzhou Guanyin Airport were appointed official quarantine zones for seafood. The local AQSIQ (China's quarantine and inspection bureau) office predicts more than 1,000 tons of fresh

salmon will be imported into the city in 2017.

Also open for seafood imports: Nanjing's Lukou Airport, which handled 300 tons of salmon from Chile, the Faroe Islands, the United Kingdom and Australia in the past year, according to AQSIQ. Noticeably, the bureau said nothing about Norwegian imports into China, signaling that the Scandinavian country continues to have problems gaining access for its fresh salmon into the market in mainland China on political grounds.

Source: [Seafoodsource.com](http://Seafoodsource.com)

## Fisheries losses from climate change estimated at USD 10 billion, study says



Global warming and ocean acidification are causing noticeable declines in some fisheries currently and are expected to cause major ecological and financial damage to the world's fisheries in the future. Fisheries around the world could lose an estimated USD 10 billion (EUR 9.2 billion) in annual revenue by 2050 if climate change continues unchecked, according to a recent study published in Scientific Reports. "We show that global fisheries revenues could drop by 35%

more than the projected decrease in catches by the 2050's under high carbon dioxide emission scenarios," wrote the team of scientists from the University of British Columbia.

Countries that are most dependent on fisheries to feed their populations will experience the biggest impacts, they found. "It is necessary to implement better marine resource management plans to increase stock resilience to climate change," said Vicky Lam, lead author and a postdoctoral fellow at UBC's Institute for the Oceans and Fisheries, in a statement.

However, some developed countries such as Greenland and Iceland could see revenue increases as more fish move into cooler waters, they found. In North America, New England-area fisheries are already feeling the impacts of warmer

waters and changes in water acidity – and significant challenges are expected to continue into the future. The amount of cod in the Gulf of Maine, for example, has drastically fallen over the past few years. Over the past 10 years, the Gulf of Maine has warmed 99% faster than any other sea in the world, according to the National Oceanic and Atmospheric Administration (NOAA).

Plus, a new study, published in the ICES Journal of Marine Science, found that Maine lobster larvae and postlarvae reared in high temperature treatments (19° C) experienced significantly lower survival, developed twice as fast, and had significantly higher oxygen consumption rates, than those in ambient treatments (16° C).

Source: [Seafoodsource.com](http://Seafoodsource.com)

## EU: Starfish now allowed as fishmeal source for pig and poultry feed

The European Commission (EC) has adopted regulation enabling meal produced from wild starfish and aquatic invertebrates to be used to make fishmeal for pig and poultry feed. In an amendment published on 11 October, the EU executive updated Annexes IV and X to Regulation (EC) No 999/2001, which previously banned the use of wild starfish and farmed aquatic invertebrates, other than molluscs and crustaceans, for the production of fishmeal.

The EC revised the legislation on the basis that the use of meal produced from those marine organisms does not represent a higher risk for the transmission of TSEs than the use of standard fishmeal in feed for nonruminants. But the Commission stressed, in order to protect the environment, the use of wild starfish for the production of fishmeal should be restricted to cases where they are multiplying and represent a threat to an aquaculture production area.

"This is excellent news. It was never intentional to exclude starfish as a source for the production of fishmeal in the original legislation. That marine organism was just not taken into consideration when the regulation was made.

"It is our expectation that starfish meal, with its good amino acid profile, can be used in the organic pig and poultry production sector, a market in need of new protein sources. Of course, it can also be used as an alternative protein in conventional monogastric production as well," said

Professor Jens Kjerulf Petersen, from the Danish Shellfish Centre at the Technical University of Denmark. He heads up the Danish project, STARPRO, which is an

initiative aimed at establishing a sustainable fishery of starfish for conversion into a feed ingredient, reducing predators and simultaneously developing a new source of valuable protein.

Starfish in high concentrations are considered pests by commercial mussel farmers, as they consume large amounts of mussels in culture beds, said Petersen. The amount of starfish is increasing in Danish coastal waters, particularly in the Limfjorden. Petersen said the players in STARPRO, which also includes Aarhus University, the Mussel Fishing Association and Agro Korn, contacted the Danish authorities to get the ball rolling on the legislative amendment required to allow starfish meal to be used in pig and poultry feed in the EU.

And the Danish officials, easily convinced of the economic and environmental benefits of producing fishmeal from such a cheap source, pressed home the problem with the Commission. Such a fishery, he said, would be somewhat limited in scale but the expectation is for the plant to process 10,000 tons of starfish a year, generating around 2,500 tons of meal annually, and, at a lower price than that for fishmeal currently.

The turnover of such a facility is estimated at €600,000 annually and local job creation from starfish meal production is also touted as an additional beneficial outcome. "We anticipate that targeted fishing of starfish for meal production will begin in early 2017," added Petersen.

### Feeding trials

Petersen said trials, undertaken as part of the STARPRO project, have been evaluating the use of starfish meal, which is said to contain 70% raw protein, in pigs

and poultry. The most recent studies in poultry have not yet been written up but the findings are reportedly very positive, he claimed.

Danish researchers, in a study we reported on last December, found starfish meal (SM) an effective alternative protein source for pig diets when included at a certain dosage. The study by Poul Sørensen and Jan Værum Nørgaard, from Denmark's Aarhus University, was published in the journal *Animal Feed Science and Technology*.

Sørensen and Nørgaard's research noted SM had been evaluated as a feed ingredient in trials with poultry many decades ago; those investigations had concluded the protein fraction in SM was comparable to fish meal (FM) in quality but its high calcium (Ca) content was reported to result in poor growth performance and protein digestibility when fed in high amounts to poultry. But Sørensen and Nørgaard hypothesized that the chemical composition and standardized ileal digestibility (SID) of crude protein (CP) and amino acids (AA) in SM would be beneficial to pigs.

Following a trial with 96 pigs fed one of four diets containing separate protein sources for 14 days, including fish meal (FM), extruded soybean meal (ESBM) and two levels of SM – SM50 and SM100, they concluded SM may be included in diets for weanling pigs by up to 50g per kg and thereby partly replace FM or ESBM. They found the negative effect on performance when feeding 100g SM/kg may be caused by the high Ca level and wide Ca to phosphorus (P) ratio that can affect digestibility and absorption of P negatively, maybe by reducing the effect of exogenous phytase.

Source: [FeedNavigator.com](http://FeedNavigator.com)

## The Global Salmon Initiative (GSI) announces 100th farm achieves Aquaculture Stewardship Council (ASC) certification



The Global Salmon Initiative (GSI)

announced that its members have achieved Aquaculture Stewardship Council (ASC) certification for 100 farms, the equivalent of ~20% of all GSI member farms. This is an important milestone as GSI ultimately strives to achieve 100% certification across all member farms, and demonstrates GSI members' commitment to reaching the ASC standard's challenging environmental and social indicators across all of their farming operations.

"The ASC standard is the world's leading certification and labeling program for responsibly farmed seafood. Its challenging criteria are designed to promote the highest level of responsible aquaculture," said Chris Nannes, CEO of ASC. "The GSI members are leading the way with certifications, and this announcement sends a significant signal that they are committed on their journey towards improved sustainability."

The first GSI farm was awarded ASC certification in 2014, and since then huge progress has been made, with 10 farms certified in 2014, 45 farms in 2015, and now a further 45 farms certified so far in 2016. GSI members

now have ASC certified farms across 6 farming regions, including 48 farms in Norway, 33 in Chile, 12 in Canada, 3 in Ireland, 2 in Scotland and 2 in the Faroe Islands, with a further 29 currently under assessment.

"With more and more farms becoming ASC certified, we now have a growing supply of responsibly sourced salmon on the market. We trust that this will trigger more retailers to offer ASC labeled salmon products, enabling consumers to make a sustainable seafood choice," said Piers Hart, Global Lead for Aquaculture at WWF. "Considering the increasing demand for seafood and dwindling marine fish stocks, ASC certification is a key component of ensuring a sustainable food system for the future. The GSI is demonstrating that significant change can happen at scale when an industry works together towards a common sustainability goal."

In order to achieve ASC certification, farms must meet the standard's 152 criteria, which support responsible aquaculture practices that minimize environmental and social impact. Through achieving the ASC standard, certified farms deliver a cleaner seabed, cleaner water and healthier fish, while also ensuring social responsibility.

"When we signed up to GSI and made our commitment to ASC certification, we knew it was going to be a very tough challenge, and we weren't exactly sure how we were going to get there. However, through collective knowledge and shared problem solving, we are starting to see progress with more and more farms achieving certification," said Alf-Helge Aarskog, CEO Marine Harvest ASA. "We have made good progress so far, but bigger challenges lie ahead of us as we look at regions where it will be tougher to achieve certification. But within GSI we support each other by sharing experience and advice, and now that we have the ball rolling we feel confident that the certifications will continue."

In line with the ASC standard, the GSI publishes an annual Sustainability Report online, which allows the public to transparently review all member company data across key sustainability and environmental indicators. The Report also tracks GSI's progress towards ASC certification, showing the latest number of ASC certified farms, as well as farms currently under ASC assessment. The Sustainability Report can be viewed [here](#).

Source: [GSI](#)



## Omega-3 levels fall in farmed salmon but it's still a top source

You are what you eat. Farmed salmon are too. As the salmon aquaculture industry expanded to four continents in recent decades, a reality about the product's primary input – feed, largely derived from wild fisheries in the industry's earlier days – became abundantly clear to producers: Feed required supplementation, via terrestrial agriculture, to reduce dependency on finite marine resources, namely fishmeal and fish oil.

This work – embraced by the entire seafood value chain from feed formulators to retail buyers – is thus far a rousing success. Commonly accepted “feed conversion ratios” – the amount of animal feed required to produce an equivalent body mass – for farmed fish check in well below those of terrestrial animals like broiler chickens, hogs and cattle.

But with the inclusion of more terrestrial plant ingredients (soy, rapeseed oil and other ingredients that do not contain similarly high levels of healthful fatty acids) came another reality: The nutritional profile of the farmed fish would inevitably change as well. Research from the University of Stirling, originally published in February, confirmed this, and even put a number on the decline: Farmed salmon from Scotland, on average, have about half the levels of the much-touted omega-3s that they once did.

“This is not controversial but rather a fact,” said Ronald W. Hardy, director of the Aquaculture Research Institute at the University of Idaho. “Levels are a little more than half of levels a decade ago but they are still quite high, such that the recommended intake can be supplied by

consuming a relatively small amount of salmon each week.”

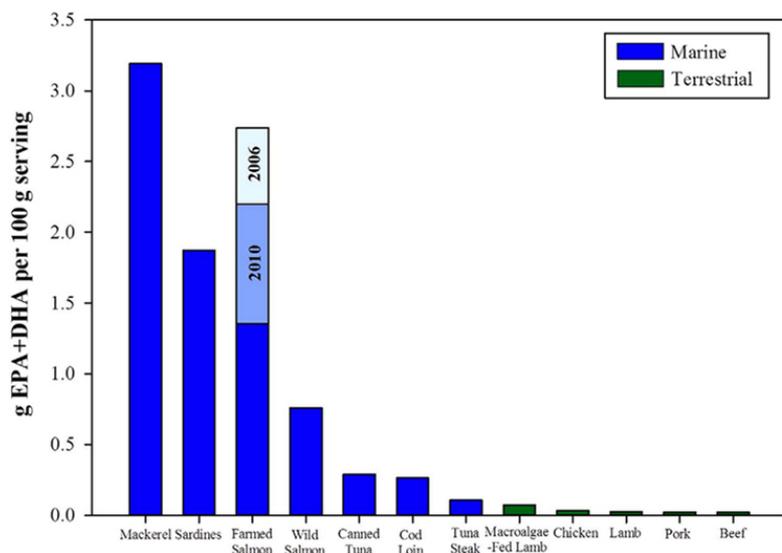
Drs. Matthew Sprague and Douglas Tocher, the University of Stirling (Scotland) researchers whose work was recently given fresh legs in a BBC News report – Omega-3 oils in farmed salmon ‘halve in five years’ – told the Advocate that despite the changes, farmed salmon remain one of consumers’ best sources of omega-3s, which are crucial long-chain polyunsaturated fatty acids (LC-PUFA) originating from algae that animals cannot synthesize and must get from diet.

This fact, they said, was unfortunately lost in ensuring mass media reports about their study, which was published in an open-access journal from the publishers of Nature [Sprague, M. et al. Impact of sustainable feeds on omega-3 long-chain fatty acid levels in farmed

thinner and combined with vegetable oils in the feeds of fish, resulting in a decrease in the levels of omega-3s in farmed salmon,” said Sprague.

Comparison between the levels of EPA + DHA (g.100 g<sup>-1</sup>) in Scottish farmed Atlantic salmon compared to other fish species (blue) and land animals (green). Stacked bars for farmed Scottish salmon indicate the decline in EPA and DHA levels for 2006, 2010 and 2015, respectively. All samples are based on duplicate analysis and analyzed in 2014/15, with exception to wild salmon (Pacific species, n = 21) and Scottish farmed Atlantic salmon (n = 106, 85 and 687 for 2006, 2010 and 2015 respectively). Refer to methodology for further information on species sampled.

Despite this decline in LC-PUFAs – EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) – farmed salmon



Atlantic salmon, 2006-2015. Sci. Rep. 6, 21892; doi: 10.1038/srep21892 (2016).]

“So, as the aquaculture industry continues to grow the finite amount of fish oil is being spread thinner and

still delivers the second-highest EPA-plus-DHA total of any fish species, right behind mackerel. Sprague and Tocher’s work still discovered an average of 1.5 grams of EPA+DHA per 100 grams of flesh, when in 2006 the standard

recommended portion of 130 grams contained 3.5 grams of EPA+DHA.

“Compared to the wild Pacific salmon species that we find here on UK supermarket shelves, farmed salmon can contain two to five times more EPA+DHA!” said Sprague. “The EPA+DHA of salmon farmed in the UK is largely dictated by the retailers themselves, and so it is a very bespoke product. So there are some salmon producers who use higher levels of fish oil in the diets.”

One such producer, Loch Duart Ltd., which farms in northwest Scotland, exclaimed shortly after the BBC News report was published that the omega-3 levels in its fish remain high, at 2.7 g EPA+DHA per 130-gram portion, or 90% of the weekly recommended requirement of 3 grams EPA+DHA. Loch Duart commissions the Nutrition Analytical Service at the University of Stirling’s Institute of Aquaculture – where Sprague and Tocher work – to

carry out fatty acid analysis on its salmon.

“Our feed policy, low-density rearing, fallowing and other environmentally friendly practices make Loch Duart salmon a little more expensive and we think it is worth it,” the company stated in its response.

Sprague said that Scotland’s salmon production, much smaller in comparison to world leaders Norway and Chile, makes this possible. The researchers also commended the aquaculture industry for helping to investigate alternative future sources of omega-3s.

“The likely contenders [are] microalgae and transgenic plant sources,” Sprague said. “These have been investigated for some time now, but take time to come to fruition to supply the levels that aquaculture requires.”

Regarding the media coverage of their study, Sprague and Tocher made one

thing clear: The repercussions of feeding fish a diet containing larger amounts of vegetables – lower omega-3 levels – were certainly not a surprise, or some unintended consequence.

“Of course we knew the consequences. That is why the EU alone spent millions of euros in FP5-7 funding research into fishmeal and fish oil replacement. We knew exactly what the impact would be,” said Tocher. “There were no better options and we did a huge amount of research into determining what we could do without impacting fish health and welfare – something that was paramount – while still maintaining a healthy level of omega-3. This is why I object to this story being portrayed in a negative light. There are masses of positives!”

Source: [Global Aquaculture Advocate](#)

*IFFO Response to BBC article can be found [here](#).*

## Doubling Scotland's aquaculture sector



An ambitious new growth strategy for Scotland’s aquaculture sector has been created, thanks to a group of leading businesses and organisations from the industry working together for the first time. The 2030 Aquaculture Strategy was launched on 28 October identifies key actions required to double the economic contribution of the industry from £1.8bn in 2016, to £3.6bn by 2030. It is estimated this will generate

over 9,000 new jobs in the sector and establish Scotland as a global leader in the industry.

Stewart Graham, group managing director of Gael Force Group and co-chair of the Working Group, said: “This new strategy reflects the industry’s ambition to drive sustainable growth and for Scotland to be a world leader in aquaculture.” He added: “We have developed a roadmap to 2030 which can make a transformational impact on Scotland’s economy and our rural communities. “However, the real work begins now and we want to forge a new partnership between the industry, government and its agencies to unlock the full potential of sustainably farming Scotland’s seas.”

The launch coincides with the Scottish Government Finfish Summit being held in Fort William and the strategy, developed after industry-wide consultation, sets out key recommendations for action by both the industry itself and government. These recommendations cover six themes: industry leadership; regulation; innovation; skills development; investment; and infrastructure. Among the 20 specific recommendations, three are identified as critical to the sustainable growth of the industry:

First, the creation of a new industry leadership group to drive alignment between industry and government to deliver growth. A restructure of the role of Marine Scotland - the government

agency that regulates the sector - to maintain its regulatory role but to remove its industry development role. And finally, he introduced world-leading innovation sites to trial cutting-edge equipment, technology and fish

health strategies.

Fergus Ewing, cabinet secretary for Economy and Rural Affairs, concluded: "Aquaculture is one of our real economic success stories of recent years, with the

industry on track to grow to a value of well over £2bn annually to the Scottish economy by 2020, supporting 10,000 jobs."

Source: [Worldfishing.net](http://Worldfishing.net)

## The way fish diets have changed

In business there's a drive to make a profit; to make a profit by either increasing margins, increasing productivity or reducing costs. Ideally, by all 3. The biggest single expense item, and a prime target for budget pruning - is obviously feed. However, 2 questions arise:

- Are we compromising productivity – and jeopardizing our businesses – in striving for lowest cost diets?
- And are we losing the very thing we tout as an advantage in choosing fish over terrestrial animals as a protein source?

### Fish health and inadequate nutrition

Health issues seem to be springing up around the planet. True, many are dominated by environmental issues, but to what degree is the fishes' immune system compromised by inadequate nutrition?

### Natural species specific diet v cheap and convenient

The premise I'd like to propose was actually raised in conversation with Bill Wiadrowski of Natural Balance Pet Foods. Over the years Bill has designed highly efficient diets for eels, barramundi, silver & jade perch, and Murray cod. He proposes that when natural, species specific ingredients – such as fishmeal & fish oil - are replaced by cheaper, or more conveniently available, non-species specific components, general health diminishes.

Because of the range and degree of other limiting or stock-threatening factors, it's difficult to quantify the actual degree to which the immune system is compromised by a diet made up of ingredients that the fish wouldn't naturally encounter in their natural state, it's at least one that can be rectified fairly easily.

### Finding substitutes for fishmeal

The issues driving the trend are of course worthy ones: non-reliance on a finite resource; lowering staple food production costs; recycling of by-products from other food sectors.

Fishmeal is most certainly a finite, and let's face it, an endangered resource. The same environmental factors that plague open system aquaculture endanger the wild harvest of fishmeal species. The rush to find substitutes in respect of this is commendable, but from Bill's observations, since the experiments with vegetable oils & proteins, terrestrial animal proteins, and such delights as feather meal, the general health of fish has diminished. This is especially so in the case of high order predators such as salmonids, and some of the pioneer aquaculture candidates such as kingfish.

### The financial driving force

To produce a low cost diet only escalates the shortcomings of the above supply driven strategy, but leans more toward an outright dollar saving goal than a balanced nutrition without loss of productivity.

The real question is what is the long term viability of such an approach, and with the added pressure of extreme weather events and long term climatic shift, what steps is the industry taking to cope?

Fish don't make omega-3 – they store it

The second question raised – the altered nutrient profile of the finished product – hinges on the fact that fish don't make long chain fatty acids, omega-3 included; they store it. Some fish store more than others. If the ingredients of the rations they're fed don't contain them, they can't store them. This has been demonstrated on more than one occasion when fish tested while being fed on a diet of aquatic-based ingredients, including fish oil and fish meal, gave a high reading, however, when tested subsequently, while fed on a diet of alternative, terrestrial-based ingredients, such as soymeal, were unable to reach the same high levels. The search for a viable fishmeal & fish oil replacement, like the search for the holy grail, is ongoing. The outcomes thus far have been as equally frustrating.

Another step in seeking resolution in this situation could be to bring the farms on-shore into recirculating aquaculture systems. That would at least eliminate, or at least monitor, water quality & temperature factors as culprits. And it would pinpoint the influence of husbandry practices on productivity. That just leaves nutrition & genetics as limiting factors. I'll concede that it's a quantum leap for aquaculture, but one that some

growers have already fruitfully explored. And one that we may all have to ponder at some stage.

**IFFO Response:**

*There are many concerns relating to the reduction in the marine ingredient content of aquafeeds but also some land animal feeds e.g. pigs. Some recent research in China (see <http://www.iffonet.net/animal-feeding>) shows that reducing fish protein in weaning pig diets also prejudices their growth potential. There is clearly need a for additional feed ingredients but too often the emphasis*

*seems to be on removing marine ingredients rather than supplementing - surely it should be "as well as" not "instead of".*

*I would also disagree with calling fishmeal an endangered resource - over 40% of world production comes from sites that are independently certified, including a requirement to source raw material from well managed stocks or fish processing by-product. As more whole fish goes for direct human consumption, more by-products are being collected, a trend that is expected*

*to continue. Finite yes but endangered, no.*

*And is it really sensible to bring fish farming systems on shore when one of the benefits of aquaculture is that it does not take up land needed for people's living space or to produce other food crops? Given the popularity of free range poultry and eggs, it is likely consumers would also prefer their fish to be raised in the most natural environment possible, rather than concrete tanks with artificial lighting.*

*Andrew Mallison, Director-General, IFFO*

## Algae-grower Alltech willing to build plants globally for fish oil alternative



Alltech is willing to invest in overseas algae production

plants closer to its feed customers if demand for its products as a fish oil supplement grows, a company official said. Keith Filer, who serves as the company's research coordinator for aquaculture described Alltech's work on alternatives for fishmeal and fish oil undertaken over the past three years to a crowd of shrimp farmers at Ecuador's

AquaExpo 2016.

In responding to one attendee's question about whether the company would consider expanding its production from its current Kentucky plant, Filer said that's been part of company founder Thomas "Pearse" Lyons' vision all along.

"Our concept of where production is going would be exactly that, to build plants in countries next to production areas where you would remove that algae, you wouldn't even dry it, just take

it, concentrate it, make it wet and add it to the feed. You'd save on drying costs, save on transportation costs," Filer said. "Every since we bought that plant that's been the concept to take it from global production to local production. Right now, we're not there. But, it's somewhere where we'd like to be in the future."

Source: [Undercurrentnews.com](http://Undercurrentnews.com)

## Cargill working on plant-based omega-3 for aquaculture sector



Cargill says it is developing omega3 fatty acids from canola plants to realize a

sustainable form of DHA and EPA and reduce reliance on fishmeal and fish oil. Though, it will likely be several years before such products will be commercialized, said Einar Wathne, president of Cargill Animal Nutrition's aquaculture business. However, the

company is cultivating canola crops producing the eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in a closed loop system.

"Aquaculture continues to grow in lock step with growing populations and economic development," he old FeedNavigator. "The demand for omega-3 oil will inevitably outpace supply." The potential for a plant-based form of omega-3 oil could support expansion in the aquaculture industry and be a way to

supplement the oil generated from fisheries, he said.

The aim is to increase the sustainability of the aquaculture sector, by reducing pressure from harvest on wild fish populations, said Wathne. "Having a replacement option like this is important to help meet market demands," he said. "EPA/DHA canola will enable the continued growth of this vital industry."

Source: [Feednavigator.com](http://Feednavigator.com)

## BUSINESS



Omega Protein Corporation has announced that the Atlantic States Marine Fisheries Commission

(ASMFC) has increased the annual harvest quota by 6.45% for the Atlantic menhaden fish meal/oil fisheries and bait fisheries.

The decision to increase the quota is based on the continued strength of the Atlantic menhaden stock as it expands in its range up and down the Atlantic coastline. The new harvest quota will take effect for the 2017 Atlantic menhaden fishing season.

“Omega Protein has responsibly harvested menhaden from these Atlantic waters for more than a century and no one has more at stake in a healthy, sustainable menhaden resource than we do. We were pleased by ASMFC’s judgment to increase the menhaden quota by 6.45%,” said Bret D. Scholtes, Chief Executive Officer of Omega Protein. “A growing number of observed sightings of very large menhaden schools have validated the strong findings of the ASMFC’s most recent assessment. This illustrates to us that there should be no doubt that the stock is robust and healthy enough for increased harvest.” Source: [Omega Protein](#)



Camanchaca has been given the necessary approvals to build and operate a new processing plant for fishmeal and fish oil in Iquique. The plant will replace the current facility Camanchaca rents from the port – Empresa Portuaria de Iquique (EPI). Camanchaca said in August, 2015, it

was to leave its site in the port of Iquique after failing to get a five-year extension of the concession contract with EPI. However in August this year, Camanchaca said it reached an agreement with EPI to continue fish processing operations at the site throughout 2017 and 2018.

Reportedly, EPI gave Camanchaca a deadline of April 30, 2019 to leave the port area. Nevertheless, the company seeks to continue its production activity in the city of Iquique, it said. The project includes a more compact, efficient and environmentally friendly plant in the industrial area of Iquique, Camanchaca said. “With this initiative, Camanchaca will continue its operations and continue to contribute to the development of the Region of Tarapaca, and offer stability to its work force as well as suppliers and contractors.” Source: [Intrafish.com](#)



BioMar has signed an agreement to purchase 30% of the Lenca research centre from Aquainnovo, Chile, broadening its network of global research centres. Renamed Aquaculture Technology Centre

Patagonia (ATC Patagonia), the facility has capacity for a broad range of trials on different species and nutritional projects, enabling BioMar to further the development of functional feeds and fish welfare. The centre can also be used for research based on genetic resistance challenges and pathogen and parasite trials for therapeutic and preventive treatments, and for gaining new knowledge on recirculation technology systems, assessment of chemical products, development of vaccines and product registration studies in general.

Matias Del Campo, general manager of Aquainnovo, said: ‘Aquainnovo has a state-of-the-art infrastructure and proven record of applied trials. ‘Our team of specialists is permanently supporting our customers by being effective in developing solutions to the main technological challenges in the industry. ‘This initiative will strengthen the technological development thanks to the synergy of knowledge that is being brought in from both companies. The 2.5 ha centre, located 33 km from Puerto Montt, on the banks of the river Lenca, was created in 2011 and further improved in 2015. More than 16 trials can be run simultaneously, including nutrition and feeding, parasites, pathogens and other multi-used areas. Source: [Fishupdate.com](#)



New Norwegian main shareholder in Triple Fish A/S. Koppernæs AS increased their engagement in one of

Europe's largest producers of fish meal and fish oil, TripleNine Group A/S, by taking over 63% of the shares in Triple Fish A/S, one of the two 50% shareholders in TripleNine Group. After nearly 100 years as a leading producer of fish meal and fish oil, Koppernæs AS, Ålesund, Norway, continues an expansion strategy that in 2013 led to a merger with the Danish company TripleNine A/S in the 50/50 owned TripleNine Group A/S – one of Europe's largest producers of fish meal and fish oil, based in Esbjerg, Denmark.

Koppernæs AS purchased 63% of the shares in the Danish company Triple Fish A/S with effect on October 6, 2016. Triple Fish A/S owns 50% of TripleNine Group A/S, and with the purchase, Koppernæs becomes a majority owner of TripleNine Group. TripleNine Group has subsidiaries and production

## BUSINESS

facilities in Denmark, Norway and Chile.

CEO Kenneth Lande Klock, Koppernæs AS, emphasises that TripleNine Group will continue business as usual, and that they will continue to invest in supporting and developing the production in Denmark as in the other two factories of the group: ‘We are very satisfied with the positive development of the business and sincerely happy that the Danish shareholders wanted to sell to us. Especially because they also continue as fellow owners. In this way, we have found an optimal solution that "keeps it in the family". Source: [TripleNine Group](#)



**DSM (Parsippany, NJ) has unveiled a new omega-3 process technology that it says allows for “tailored omega-3 EPA and DHA high concentrates.”** The new 3C technology, which is suitable for

both dietary supplements and pharmaceutical applications,

allows for omega-3 concentrates of up to 85% and customizable ratios of EPA and DHA.

DSM adds that the “radically efficient” technology is designed to make high-concentrate omega-3 ingredients more accessible than ever by giving brand owners more versatility to tailor their products to meet consumer needs. The firm says its 3C technology “will be a catalyst for category growth by helping to eliminate key barriers to consumption of omega-3 supplements, such as capsule size.” “This new technology truly makes the oversized pills of traditional fish oil with low EPA and DHA omega-3 content a thing of the past,” says Tobe Cohen, vice president of DSM Nutritional Products. DSM’s new technology debuted at the recent SupplySide West trade show. Source: [Nutritionaloutlook.com](#)

## COUNTRY



**U.S.A:** A new annual report released by NOAA reveals that 2015 was another above-average year for fishing and seafood consumption, with the average American adding nearly an extra pound of seafood to their diet. The report, Fisheries of the United States, also shows that across the nation, U.S. fishermen

landed 9.7 billion pounds of fish and shellfish valued at USD 5.2 billion, a volume and value similar to recent years. The highest value U.S. commercial species were lobster (USD 679.2 million), crab (USD 678.7 million), shrimp (USD 488.4 million), salmon (USD 460.2 million), and Alaska (walleye) pollock (USD 441.7 million).

By volume, the nation’s largest commercial fishery remains Alaska (walleye) pollock, which had landings of 3.3 billion pounds (up 4% from last year), trailed by Atlantic and Gulf menhaden, which accounted for 1.6 billion pounds (up 29%). “Fishing and seafood is big business for our country. Marine and coastal fisheries contribute billions of dollars to the national economy, support 1.8 million jobs, and keep our ports

and waterways open for business,” said Eileen Sobeck, assistant NOAA administrator for fisheries. Source: [FIS.com](#)



**Chile:** FAO recommends improvements to Fisheries Act. President of Chile Michelle Bachelet received at a meeting held at the Palace La Moneda, the final report performed by the FAO on the current situation of the Fisheries and Aquaculture Act (LPGA) governing this activity in Chile.

After the hearing, the president instructed the Minister of Economy, Development and Tourism, Luis Felipe Céspedes, and Undersecretary of Fisheries Raul Sunico to meet with the various stakeholders involved in the fishing and aquaculture activities to publicize, analyze and discuss the content of the report.

Delivered to the Head of State by Eve Crowley, representative of the agency in Chile, and Alejandro Flores, FAO Fisheries Officer for Latin America and the Caribbean, the report contemplated a multidisciplinary project for its creation as well

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as the participation of representatives of the industrial, artisanal, academic, non-governmental organizations and indigenous peoples' sectors. FAO emphasizes that "the LPGA incorporates a number of principles of modern fisheries legislation such as the sustainability principle, the ecosystem approach and the precautionary principle that demonstrate the importance of maintaining fisheries resources and their protection in the future". Source: [FIS.com](http://FIS.com)



**The Scottish aquaculture sector is to be granted a GBP 2.5 million European funding boost to support sustainable growth and investment,** announced Rural Economy Secretary Fergus Ewing. The news was released at the

Farmed Finfish Summit at Marine Harvest Ltd in Fort William, where the secretary intended to demonstrate how essential support from the European Union is and again call on the UK Government to provide clarity around future funding.

"This is a great example of how essential EU funding is, helping to encourage further innovation and supporting the sustainable growth of aquaculture, in turn benefiting rural communities which depend on this industry," stressed Ewing. The secretary also requested clarity from the UK Government on the longer-term impact of the EU referendum vote on EU funding and expressed his determination to champion their shared interests and provide reassurance to their aquaculture industry. Referring to the funding, the secretary explained that GBP 1.7 million from the European Maritime and Fisheries Fund (EMFF) will go to the Scottish Aquaculture Innovation Centre at Stirling University to promote environmental sustainability, and bring industry and research together to provide innovative solutions to sector challenges. Source: [FIS.com](http://FIS.com)

**Chile's fishing secretary Raul Sunico signed a deal with Guatemala** at the AquaSur trade show in southern Chile to worth together on aquaculture matters. Chile and Guatemala will exchange information about growing their aquaculture industries and conduct field trips as part of a bilateral accord,



the Chilean fisheries secretariat said in a press release. Sunico signed the agreement with Guatemala agriculture, livestock and food minister Byron Acevedo. The agreement will also include information exchange about sustainable wild fishing. The two countries

already have signed a free trade agreement, which was promulgated in 2010. Sunico said at AquaSur that Chile is keen to develop a small-scale aquaculture industry to complement its salmon industry that is typically operated by large companies. The government secretary cited Colombia as an example of a country that has successfully developed a small-scale aquaculture industry and said the Chilean government would conduct a field trip there. Source: [Undercurrent-news.com](http://Undercurrent-news.com)



**A South Korean seafood company has successfully farmed salmon in a seawater cage off the east coast for the first time in the country,** paving the way for the mass-production of the fish,

officials at the Gangwon provincial government said. The salmon farmer, Donghae STF -- which produced a shipment of salmon farmed at the cage off the coastal town of Goseong on the country's east coast this week -- plans to supply 400 metric tons of farmed salmon to outlets of the country's major discount store chains and raw fish restaurants by the end of the year, reports Yonhap News Agency. Supported by the government and South Korea's northeast province of Gangwon, Donghae has owned facilities capable of producing about 2,000t of farmed salmon since 2013. Source: [Undercurrent-news.com](http://Undercurrent-news.com)

## RESEARCH



**Chemical testing on the source of marine food products could help fight fraud**, according to scientists. Animals who eat at sea inherit a chemical record reflecting where they fed, said the study from the University of

Southampton. The research team, led by Dr Clive Trueman and PhD student Katie St John Glew, built maps of chemical variation in jellyfish caught across the North Sea and assessed accuracy and precision through dietary isotope based location methods. Predictable spatial variations in carbon and nitrogen isotopes in primary production provide a basis for stable isotope based location.

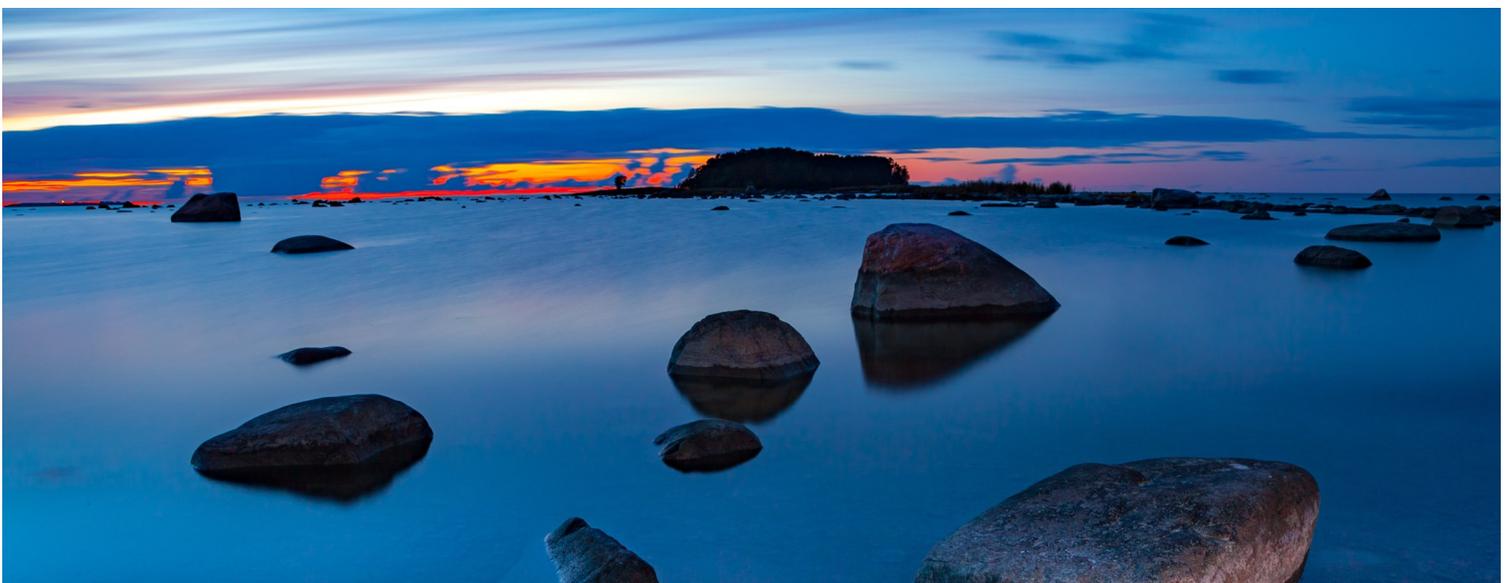
They compared chemical signals in scallops and herring caught in known places across the North Sea, and used statistical tests to find areas of the North Sea with the most similar chemical compositions. The chemical tests were able to link scallops and herring to their true locations and can be used to see if the chemical composition of an animal matches a claimed area of origin. "Accuracy and precision for retrospective isotope based location in the North Sea were of a similar order to light based location devices, with 75% of individual scallops assigned correctly to areas representing c. 30% of the North Sea, with a mean linear error on the order of 102 km," according to the study. Source: [Foodqualitynews.com](http://Foodqualitynews.com)



**Supplements of omega-3 rich fish oils during pregnancy may reduce the risk of allergy in children**, according to a new study from Sweden. As could be expected, omega-3 supplementation during pregnancy and lactation

raised the mothers' levels of EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) omega-3's. And data published in *Acta Paediatrica* indicated that the EPA and DHA levels in colostrum and early breastmilk were associated with fewer allergies (food allergies or eczema) in the infant.

"Preventive studies in the field of atopic disease in childhood should supplement mothers and children with high enough doses of omega-3's LCPUFA [long chain polyunsaturated fatty acids] to achieve high levels of eicosapentaenoic acid already in colostrum," wrote researchers from Linköping University. "Supplementation during pregnancy and early lactation seems mandatory, and supplementation just during the lactation period is not enough." Source: [Nutraingredients-usa.com](http://Nutraingredients-usa.com)





2016

9-11 November	<a href="#">TaiWan International Fisheries and Seafood Show</a>	Kaohsiung Exhibition Center
10-11 November	<a href="#">Sixth Annual Pelagic Fish Forum</a>	Barcelona, Spain
22-24 November	<a href="#">Food Matters Live</a>	London, UK
25-26 November	<a href="#">Sustainable seafood sourcing</a>	London, UK
30 November	<a href="#">Intrafish Seafood Investor Forum</a> <b>IFFO MEMBER OFFER WITH CODE: SIF365</b>	London, UK
4-6 December	<a href="#">CIFTE China</a>	Shanghai Everbright Convention & Exhibition Center
1-3 May	IFFO Members Meeting	Barcelona, Spain



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