



Third open SEAFOODplus Conference

A better life with seafood

After Copenhagen (DK) in 2004 and Granville (F) in 2005, researchers and industry partners from the integrated SEAFOODplus project met to present the results gained so far and discuss their work progress. The organizers had chosen Tromsø (N) as the location for this year's event. A total of 170 participants from 17 countries attended the conference and convinced themselves of the competence and innovative power behind the biggest research project that the EU has ever sponsored in the seafood sector.

The SEAFOODplus project has been running for more than two years now. The project's key data alone are already impressive: 26 million euros are available for research work; 14.4 million of the total comes from the EU. About 200 researchers and industry partners from 68 institutes, universities, medical facilities and industrial companies from 17 countries are taking part. The extent of public interest in the mammoth project can be seen from numerous details. Project Co-ordinator Torger Børresen said at the opening of the conference, for example, that the project's homepage registers an average of 3,500 hits per day. At peak times, the number of people who log into seafoodplus.org can be three times as high.

This is a remarkable rate for a homepage that doesn't offer mu-



Torger Børresen, Project Co-ordinator SEAFOODplus, Helga Pedersen, Norwegian Minister of Fisheries, Ivan Burkow, Managing Director Fiskeriforskning, Ciaran Mangan, Scientific Officer Directorate E, EU Commission.

sic, fashion, or lifestyle but scientific research on fish and seafood. In his welcoming speech at the conference, Ciaran Mangan from the EU Commission underlined the importance of the project's role for Europe in picking up central topics related to fisheries, aquaculture, healthy diets and seafood: sustainability of production, food

safety, social aspects, environmental issues and animal welfare. The project was thus an important part of European research programmes in that its results supported and influenced political decision-making processes.

Helga Pedersen, the Norwegian Minister of Fisheries and Coast-

The third open SEAFOODplus Conference was a success. The participants were able to show that the high expectations of this research project are fully justified.

al Affairs, also emphasized the huge significance of the project for gaining new findings in the seafood sector. In Norway, where after the oil industry fisheries and aquaculture are the most important economic sectors, people were well aware of the great potential that science and research could set free. It was essential to constantly develop new technologies and products to meet the growing significance of seafood on a global scale. The fact that the Norwegians don't only talk about these things but act, too, is particularly evident in Tromsø where a considerable share of the country's research potential is concentrated in the fields of fisheries, aquaculture, and oceanography.

Topic-based organization of talks inspired discussion

The conference took place at the Arktika Conference facilities of the Polar Environment Centre, a modern, generously equipped meeting area. With regard to the space and technical equipment the centre offers, Tromsø was an ideal venue for the presentation of specialist lectures. What proved more difficult was the conference organization itself with regard to the choice of talks. After more than two years' intensive work in the individual sub-projects there is now an abundance of valuable results available of which, due to time constraints, unfortunately only a small part could be presented. In their selection, the organization team behind Joop Luten from

the Fiskeriforskning Institute in Tromsø had tried to take into account not only the quality of the scientific results but also the interests of the seafood industry because, after all, quite a lot of small and middle-sized companies (SMEs) are involved in the project.

On the first of the two conference days there was a plenary session. In order to encourage more intensive and lively discussion of specialist topics, the organizers had grouped the individual talks so that certain topics were treated from different viewpoints - an original idea which enabled the audience easier access to the sometimes



Conference participants showed great interest in the specialist lectures at the plenary session and the three symposia.

quite complex topic areas and also triggered intense discussion in the aftermath of each topic block. Who would want to

be accused of having overlooked individual aspects or not having worked thoroughly enough without having the chance to

contradict? This grouping of the talks also made it clear to listeners and participants, however, just how well the individual projects complement and build up on one another.

The first conference day was dominated by four main topic blocks. The first topic focused on the elementary question as to what consumers know about seafood, what they should know, and what they want to know. In connection with this, the question arose as to how well the seafood industry is prepared for and pays attention to these market requirements. What information can industry actually supply and what role does traceability place in this

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context? Karen Brunsø (MAPP, Aarhus School of Business, Denmark) presented the results of a consumer survey which was carried out in five European states and examined nearly 4,800 people. The questions focused on expectations and preferences in the seafood sector, on what encouraged consumers to eat seafood, and what put them off. Irrespective of the differences between the individual countries one finding was the same everywhere: the vast majority of consumers know that fish is a healthy food. In contrast, the biggest problems arise with regard to ethical issues such as the overfishing of the seas and animal welfare on the farms. There are still uncertainties regarding preparation of seafood - even in "fish country" Spain.



Torger Børresen presented José Luis Hurtado with a certificate acknowledging the Spanish company, Angulas Aguinaga, as the SEAFOODplus project's first 'associate'.

Erling P. Larsen (Danish Institute for Fisheries Research) gave a talk on the problems arising from the increasing globalization of the seafood sector. On the one hand, globalization offered the

consumer the advantage of being able to obtain the best products from all over the world at moderate prices but, on the other hand, it encouraged overfishing. In 1977 only 29.1% of world seafood production was exported, in 1989, 34.5%, and in 2003 already 36.7%.

and 40 years had consumed 150 g of lean or fatty fish three times per week or received fish oil capsules. The test group did not only lose weight during this diet but also had considerably better blood values after just a few weeks. There is only one conclusion that can be drawn from these results: that a seafood rich diet contributes considerably towards improving the quality of life and health status of young people.

Improve sustainability and animal welfare in aquaculture

The third topic block was concerned with various aspects of aquaculture, including new sustainable feed resources and animal welfare on fish farms. A research team led by Øyvind Aas-Hansen (Fiskeriforskning) carried out experiments, for example, to determine whether smart tags could be used to measure the condition and well-being of fish. Electronic chips and pressure sensors were implanted into large cod to convey data on parameters such as respiration rate, and pressure in the gill cavity and display them on the computer screen. In combination with appropriate calibration curves this gives valuable information on the current condition of the fish within its environment. The researchers hope that this system can be used as a kind of early warning system which would trigger immediately if environmental parameters deviated from the norm values or if the fish suddenly felt unwell. Another work group tried to enrich the fish with valuable selenium by using a special feed. Selenium is an essential micro nutrient that might even have a preventive effect in relation to cancer. Garlic was used as the source of selenium in the fish feed. The experiments showed that it is possible to

Seafood can improve quality of life and health

The second topic block was devoted to how the properties and quality of seafood can be characterized and how these foods can influence the quality of young consumers' lives. New findings on fat oxidation processes in fresh fish were presented in the talks and ways were shown to reduce or perhaps even prevent rancidity through the use of natural antioxidants, for example. Another topic that was closely examined were the changes that occur in fish after the fish's death and which lead to the fillet's becoming soft and losing its characteristic texture. Understanding the biochemical processes perhaps offers starting points for enabling longer maintenance of product quality. One very interesting experiment had also tested what effects a diet involving the addition of fish oil preparations can have. 320 voluntary participants aged between 20

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enrich fish with selenium in this way and thereby deliver more selenium in the diet for consumers.

By-products are still not used enough

The last topic block was about possible losses of nutritional substances and other content that can occur during industrial processing or preparation of fish in the household. Edel O. Elvevoll (University of Tromsø) gave an entertaining account of how our eating habits have changed over the course of human history. Whilst the Eskimos in Greenland traditionally ate all parts of the fish, including its inner organs, today we prefer to eat more or less only the fillet. This means that only about half of the fish is actually used. The rest, more correctly called by-products, thus constitutes a valuable resource for which initial uses still often have to be found, something which could lead to the evolution of a completely new industry. Similar to olive oil, it would be possible, for example, to produce cold pressed fish oil or to make use of the minerals, amino acids, enzymes and vitamins which are still present in the by-products. In Elvevoll's opinion, the less fish is processed, the better and healthier it is. Narcisa M. Bandarra (IPIMAR) came to similar conclusions together with her team when they examined the changes that occur in fish during home preparation. They sum up that heat and cooking time considerably reduce the health value of seafood. Elements such as free amino acids or fatty acids are affected. Frying came off worst in this test, particularly because this cooking method also enriches the fish with fat not containing omega 3 fatty acids.

Symposia on the second conference day supplied further important results

Three symposia were held on the second conference day, each bundling ten specialist papers on the topic fields "Consumer oriented seafood product development", "Seafood and lowering the risk of chronic diseases", and "New developments to manage microbial seafood safety". They offered a host of valuable information and original solutions for the urgent problems faced by industry. For example, Paw Dalgaard and Ole Mejlholm (DIFRES) presented a new kind of model with which the growth of *Listeria* germs can be predicted and reduced in cold smoked and minimally preserved seafood products depending on storage conditions.

And in a meta-analysis Ellen Kampman (Wageningen University) found signs that regular seafood consumption can reduce the frequency of certain types of cancer. Even if some of the experiment series are still not complete or some results have not yet reached the stage where they can be put into practice there are already clear indications of how valuable these studies are. Eurofish Magazine will continue presenting some of the most interesting and exciting findings from the conference in the coming issues.

The third open SEAFOODplus Conference was undoubtedly a success. The scientists and their partners from industry showed impressively that the expectations of this integrated research project are fully justified. We can already look forward to the next conference 4-8 June in Bilbao (Spain) in 2007. *mk*

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