

“AQUAMAX”

Formulating fish diets to maximise human health benefits

In 2001, global seafood consumption was estimated at a 100 million tonnes, and a further increase of 65 million tonnes is expected by the year 2030. As fisheries will be unable to meet this demand, the role of aquaculture will become more and more pronounced.

It is already well known that eating seafood is good for one's health: fish components like Omega-3's, Vitamin D, Iodine and Selenium are said to decrease the risk of cancer, improve intelligence, prevent obesity, and so on. At the same time, fish – farmed as well as wild – contain undesirable substances like PCB's and dioxins, which are present in fish feeds and might affect human health.

Over the last decades, for reasons of sustainability, a lot of research effort is being put in the search for alternatives to fish meal – the protein source – and fish oil – the lipid source – in fish feeds, like vegetable meal and oil. In the Fifth Framework Programme, a thematic network on fish oil and fish meal replacement, known as the FORM network (PP reference AA-FI-FEED-04), was funded by the EU so as to give researchers the opportunity to discuss about further research needs on sustainable fish feeds with various stakeholders, including food and consumer organisations. This was accomplished through four workshops, which were held between 2002 and 2006.

One of the outcomes of this network was the establishment of **AQUAMAX**, an integrated project funded under the Sixth Framework Programme that was launched with a kick-off meeting held in Bergen (Norway), October 23-24, 2006.

The basic aim of AQUAMAX is to **develop feeds based on sustainable alternatives to fish meal and fish oil to produce healthy and minimally contaminated fish that are highly nutritious, health-beneficial and acceptable to consumers.** To be able to detect very low levels of

contaminants in feeds to ensure farmed fish are as low in contaminants as possible, analytical methodology will be advanced. The feeds developed will be tested on Atlantic salmon, rainbow trout, sea bream and carp.



FISH FEED IN THE FORM OF PELLETS.
SOURCE: NIFES.

To assess the **health benefits** of the fish produced on the new diets, a **nutritional trial** will be conducted in pregnant women. During this study, researchers will focus on predictors of atopic disease and on the development of immune competence and atopic disease in infancy. The **safety** of fish farmed using the diets will be assessed by developing **new molecular methods** to complement existing traditional methods (the latter being Mammalian models and cell cultures). These new methods will be used to investigate the effect of contaminants in the gene expression of farmed fish.

Project acronym:

AQUAMAX

Full title of Project:

Sustainable aquafeeds to maximise the health benefits of farmed fish for consumers

EU contract number:

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Web-site:

www.aquamaxip.eu

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Changing the composition of a fish diet might possibly lead to changes in fish quality traits, like taste and texture. Therefore, an assessment will also be made of the **consumer perception and acceptance** of fish farmed on conventional and new diets. This will be done by conducting taste panel trials and objective electronic sensory evaluations of the final products, as well as by using focus groups, and responses of consumers purchasing the new fish in retail outlets.



SEAFOOD. SOURCE: NIFES.

sector's image among the wider public significantly.



VIEW ON A FISH FARM. SOURCE: NIFES.

“TO ASSESS THE HEALTH BENEFITS OF THE FISH PRODUCED ON THE NEW DIETS, A NUTRITIONAL TRIAL WILL BE CONDUCTED IN PREGNANT WOMEN”

In the last phase of the project, a framework to communicate the risk and benefits of consuming farmed fish to the public and other stakeholders will be devised, and socio-economic analyses of farming fish using the new diets will also be conducted.

By making use of the results and knowledge gained in previous EU funded projects and expanding them to a wider scope, the AQUAMAX project will not only contribute to an improved sustainability of the aquaculture sector but also improve the