

POLICY BACKGROUND

Policy-relevant issues in Aquaculture & Fisheries

Sustainable Feeds for Aquaculture



General introduction to the Policy background of Sustainable feeds for aquaculture

Fishmeal and fish oil have always played an important role in prepared diets for carnivorous and omnivorous aquaculture species¹. For fishmeal, this is for two main reasons; it has an almost ideal available amino acid profile for most aquatic species and it is highly palatable, making the finished feed very attractive and promoting maximum feed intake. Fish oil has played a similar role, proving to be an ideal energy source and, as well as providing essential fatty acids to farmed fish and crustacea, it imparts the final product with high levels of health-giving omega-3 fatty acids, increasingly sought by the consumer.

However, the rapid growth of world aquaculture, combined with the finite nature of the sustainable feed fisheries, has meant that there is concern whether there is sufficient fishmeal and fish oil to meet the growing demand of aquaculture and therefore whether this growth will be limited by their availability²).

The Fisheries Department of the FAO provides every two years its global view of capture and aquaculture fisheries entitled 'State of World Fisheries and Aquaculture'. The 2004 issue was published in March 2005 and the overall conclusion was that, from 1974, the current global situation follows the general trend observed in previous years noting a consistent downward trend in the proportion of stocks offering potential for expansion, coupled with an increase in the proportion of over-exploited and depleted stocks - from about 10% in the mid-1970's to close to 25% in the early 2000s.

The percentage of stocks exploited at or beyond their maximum sustainable levels varied widely among fishing regions. It is estimated that one quarter of the main fisheries monitored in 2003 are underexploited (3%) or moderately exploited (21%) and could perhaps produce more. About half of the stocks are fully exploited and therefore producing catches that were close to their maximum sustainable limits. Just less than one quarter is overexploited (16%), depleted (7%) or recovering from depletion (1%) and needed rebuilding. (Stock by stock analyses of the status of the individual feed grade fish stocks used for fishmeal are contained in this Dossier).

Available information continues to confirm that, despite local differences, the global potential for marine capture fisheries has been reached, and more rigorous plans are needed to rebuild depleted stocks and prevent the decline of those being exploited at or close to their maximum potential.

Fisheries and fishmeal industry

In order to achieve sustainable fisheries, the FAO created a Code of Conduct for responsible fisheries and the International Council for the Exploration of the Sea (ICES) gives independent assessments of fish stocks³.

The Common Fisheries Policy (CFP) is the European Union's instrument for the management of fisheries and aquaculture. It was created to manage a common resource and to meet the obligation set in the original Treaties of the then European Community. Because fish are a natural and mobile resource they are considered as common property. In addition, the Treaties which created the Community stated that there should be a common policy in this area, that is, common rules adopted at EU level and implemented in all Member States.

The Common Fisheries Policy shall ensure exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions. For this purpose, the Community shall apply the precautionary approach in taking measures designed to protect and conserve living aquatic resources, to provide for their sustainable exploitation and to minimise the impact of fishing activities on marine ecosystems. It shall aim at a progressive implementation of an eco-system-based approach to fisheries management. It shall aim to contribute to efficient fishing activities within an economically viable and competitive fisheries and aquaculture industry, providing a fair standard of living for those who depend on fishing activities and taking into account the interests of consumers.

Policy documents for sustainable aquaculture feeds

As explained above, it is now recognised that aquaculture is a major and growing provider of food to mankind and that, because of its high usage of fishmeal and fish oil, is exerting increasing and undue pressure on strictly limited marine resources⁴. Therefore, the case for developing sustainable alternatives to fishmeal and oil in aquafeeds is overwhelming. The clear need is to replace fish meal and fish oil simultaneously without affecting the growth performance, or the health and welfare of the fish, or its health benefits, or its acceptability to the consumer.

The Commission has reacted to this position through a statement on Aquaculture feeds in the strategy for the sustainable development of European aquaculture, COM(2002)511 published in September 2002. In this strategy, the Commission proposed to promote research to find substitute protein sources in fish feed formulation, and states:

“Aquaculture feeds. Fishmeal and fish oils are essential constituents of fish feeds. In 2000, no more than 35% of world fishmeal production went into fish feed. In the last decade the amount of fishmeal used to produce feed for fish farming has considerably increased, but the annual world fishmeal production has remained static. This because as aquaculture has grown it has diverted a growing portion of the fishmeal supply from its traditional use as feed for land animals. The use of fishmeal in animal feeds is determined by economics; when fishmeal prices increase, feed formulators use other protein sources from plants (soy, corn, wheat) to replace them in land animal feeds. The elimination of fishmeal from aquaculture feeds would not have a net effect on global fishmeal production in the short term, as fishmeal price would fall and higher levels would be used in poultry and swine feeds. However the intensification of freshwater fish aquaculture in Asia may absorb by the end of this decade as much as 70-80 percent of world fish oil production and at least 50 percent of fishmeal production, creating problems of supply. This resource being limited, it is extremely important to continue the research effort to find substitute protein sources in the fish feed formulation.”

The Strategy for Sustainable Aquaculture has been endorsed by the European Parliament, following an own-initiative Hearing on European Aquaculture and has also been supported by the Economic and Social Committee of the European Union.

EC research projects on sustainable feeds for aquaculture

Research towards sustainable feeds for aquaculture has been funded and supported by the European Commission since 1998, with the start of the Fifth Framework Program (FP5). In FP5, under Key action 5 (Sustainable agriculture, fisheries and forestry) of the Quality of Life programme, funding of sustainable feeds research projects started. Under FP6, sustainable feeds are addressed mainly within “Food Quality and Safety”.

Sustainable Feeds for Aquaculture

For FP7, it is anticipated that research towards sustainable feeds for aquaculture will be mainly addressed within the Food, Agriculture, Fisheries and Biotechnology Research Theme.

The primary aim in funding food, agriculture, fisheries and biotechnology research under FP7 is to build a European Knowledge Based Bio-Economy (KBBE) (food, feed, forest, fisheries, agriculture, aquaculture, chemistry, etc.) by bringing together all industries and economic sectors that produce, manage and exploit biological resources and related services, supply or consumer industries, such as food, fisheries, forestry, agriculture, etc.

The summaries (Technical Leaflets) on past and current research projects related to sustainable feeds in aquaculture are given in the following pages of this section.

Footnotes

1. Jackson A., The importance of Fishmeal and Fish oil in Aquaculture Diets International aquafeed volume 16 December 2006
2. SEAFEEDS (Sustainable Environmental Aquaculture Feeds). Final report of the Seafeeds Workshop - 9th April 2003
3. The FIN (2007) Fishmeal Information Network FIN Dossier, March 2006, Annual Review of the feed grade fish stocks used to produce fishmeal and fish oil for the UK market, available at: www.gafta.com/fin/sustainability.pdf
4. AquaMax project, www.aquamaxip.eu