



Magazine



Use of fish in animal feeds: a fresh perspective

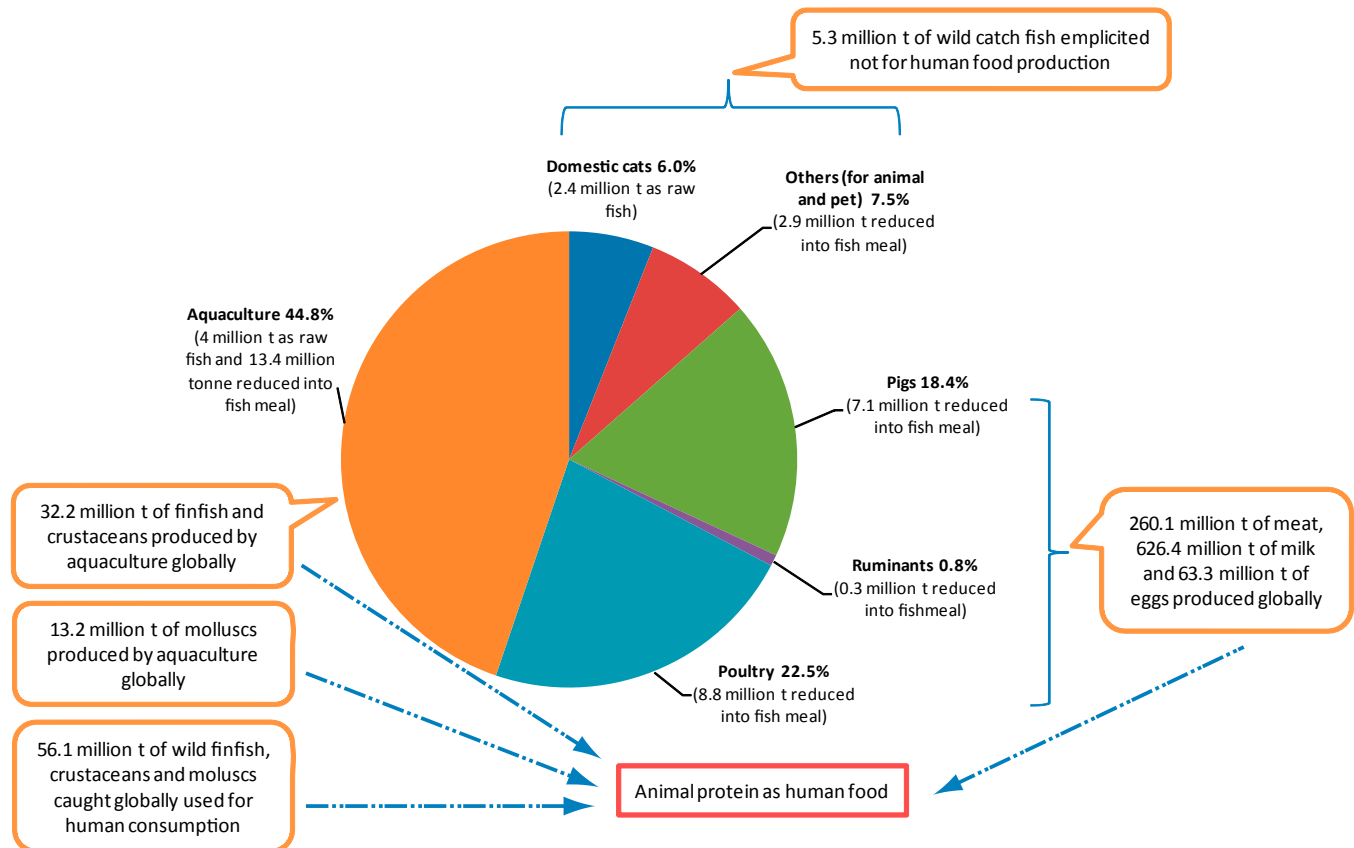
Aquaculture is often criticised by lobby groups because it uses about 43 percent of global fish meal production and 85 percent of fish oil. Industrial production of fish meal and fish oil are based on what is termed as a reduction process, using smaller sized fish species commonly termed 'trash fish', although 'low-value' fish is probably a more accurate description. In essence, nearly 25 percent of the global marine fish catch is used for these purposes, predominantly consisting of species such as the Peruvian anchovy, capelin, menhaden and sand eel, amongst others.

There is a growing view that the fish resources used in the reduction industry should be channelled for feeding humans directly in developing countries; an ethical stance that is gaining increasing momentum. An alternate interpretation of this view is that valuable protein sources should not be used to convert to higher cost proteins that are inaccessible to the poor.

In aquaculture fish meal and fish oil usage is mostly for the culture of high valued species such as salmon and shrimp, which together account for about 16 percent of the global aquaculture production, and to a much lesser extent other finfish species. Similarly, a large quantity of fish meal is used in feeds for other livestock, mainly poultry.

Aquaculture is commonly condemned, in spite of the fact that it provides millions of livelihood opportunities in poor rural communities, contributes to food security and poverty alleviation, and currently provides approximately 50 percent of total global food fish consumption. However, what seems to have gone unnoticed by its critics is that a very substantial quantity of fish is used for non-human food production purposes, principally for pet food production, and an unknown but significant quantity for feeding animals farmed for the fur trade.

Figure 1: Fish meal and fish oil consumption by sector.



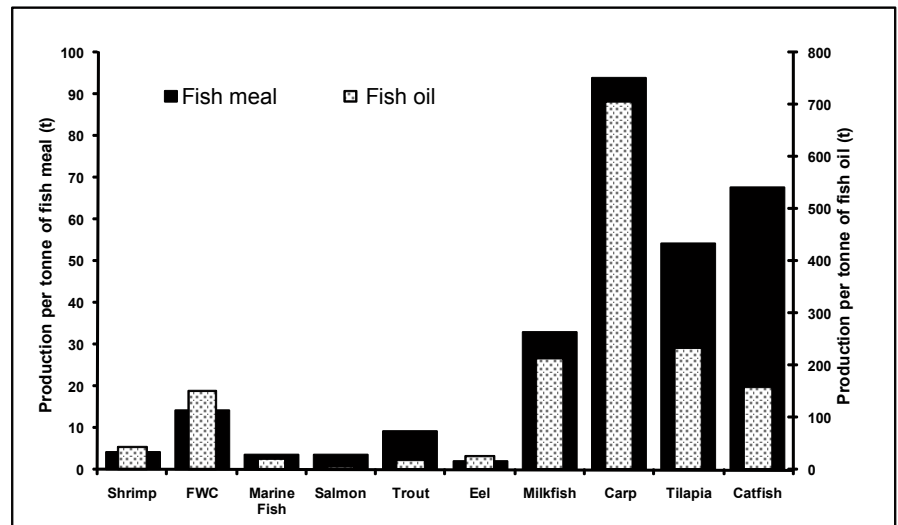
It is in the above context that Professor Sena S De Silva and his colleague Dr. Giovanni Turchini set about to estimate the quantities of fish used in the above sectors. They were able to make a rather conservative estimate of the use of fish in the pet food industry, in particular cat feeds, covering only certain parts of the globe (for example China was excluded). The results were staggering, very conservatively estimated at 5.3 million tonnes, almost certainly a gross underestimation (Figure 1). The detailed analysis is published in the *Journal of Agriculture and Environmental Ethics* (2008; Volume, 21, pp. 459–467).

This article generated a lot of coverage in the press and in particular in the Australian media as the study was primarily based on basic information on cat feeds from Australia. The study demonstrated that on average an Australian household cat consumes more fish than the average Australian citizen.

The main point the authors raised was that it is not a question of pets versus aquaculture - human food - but the fact that a common biological resource that could be channelled for direct food consumption (at least a good proportion of it) is being used for non-human food production; and that there needs to be a global dialogue with regard to the sharing and channelling of this resource for various purposes. Furthermore, that aquaculture, which uses fish meal and fish oil for producing human food should be considered in context of other uses of these resources, and not be singled out.

NACA's mandate is to facilitate sustainable rural aquaculture development involving millions of small scale farmers, who own, operate and manage relatively small units, which are essentially the backbone of Asian aquaculture and account for over 85 percent of global production. Although Asian aquaculture accounts for a significant usage of global fish meal production its use of fish oil is relatively small, and the returns in production terms for both are considerably higher for those species/species groups cultured in Asia (Figure 2). Accordingly, it would be incorrect to extend the same arguments with regard to such usages "lock, stock and barrel" to Asian aquaculture. However, NACA does accept the need to reduce use fish

Figure 2. Aquaculture production per tonne of fish meal and fish oil used in the different cultured groups that are provided with aqua feeds containing these commodities From De Silva & Soto, in press).



meal and fish oil in Asian aquaculture and is taking steps in conjunction with its member countries in this direction.

It is in the above context that NACA calls for a global dialogue on the use of fish resources in the reduction industry as well as on fish meal and fish oil usage in aquaculture.

Reference

- De Silva, S.S. and Turchini, G.M. (2008). Towards understanding the impacts of the pet food industry on world fish and seafood supplies. *Journal of Agricultural and Environmental Ethics* 21: 459-467.

New book 'The Aquaculture of Groupers'

The recently released book 'The Aquaculture of Groupers' provides an overview of grouper aquaculture in Asia. This new reference book is authored by Dr I-Chiu Liao and Edward Leaño, and has been jointly published by the Asian Fisheries Society, the World Aquaculture Society, the Fisheries Society of Taiwan, China and National Taiwan Ocean University, China.

The first five chapters deal with research and development to improve production technology (hatchery, nursery and grow-out) in Japan, Taiwan, China, Korea, Indonesia and the Philippines. The following five chapters review the status of grouper aquaculture in India, China, Hong Kong, Thailand, Malaysia and Australia. These chapters review culture methods employed for larval rearing, nursery and grow-out, constraints to grouper aquaculture development, and trade and market issues. Two more chapters describe aspects of fish health, including studies on reducing the impacts of the major viral diseases of groupers (nodavirus

and iridovirus), and the final chapter provides an economic analysis of grouper aquaculture in Taiwan, China.

Chapters are as follows:

- Reproduction and larviculture of seven-banded grouper, *Epinephelus septemfasciatus*, in Japan.
- Developing techniques for enhancing seed production of *Epinephelus coioides* in Taiwan, China.
- Grouper aquaculture research in Jeju Island, Korea.
- Hatchery and grow-out technology of groupers in Indonesia.
- Grouper aquaculture R&D in the Philippines.
- Groupers: current status and culture prospects in India.
- Grouper aquaculture in mainland China and Hong Kong.

- Overview of grouper aquaculture in Thailand.
 - Status and prospects of grouper aquaculture in Malaysia.
 - Grouper aquaculture in Australia.
 - Nutrition, immunology and health management of groupers.
 - Prophylaxis for iridovirus and nodavirus infections in cultured grouper in Taiwan, China.
 - Technical efficiency of the grouper industry in Taiwan, China.
- 'The Aquaculture of Groupers' is available from the Asian Fisheries Society (<http://www.asianfisheriessociety.org>).

NACA post-graduate fellowships, Aceh, Indonesia

Following the tsunami disaster of December 2004, NACA has been involved in rehabilitation of aquaculture and related livelihoods in Aceh, in partnership with various donor and development agencies. Most of the donor assisted programs are now coming to an end.

Recognising the need for further capacity building in Aceh, NACA wishes to institute a fellowship for a post graduate program for one or two competent young people. The fellowship will be open only to people from Aceh who are below 40 years of age and working in government or private institutions related to aquaculture. The two year fellowship can be utilised to study in any of the ASEAN Universities in the chosen field of interest of the selected candidate, and will include a monthly stipend, two international return air-fares, tuition fees and a book allowance.

Priority will be given to the following areas of specialization:

- Aquaculture and fisheries.
- Fisheries and or aquaculture business management.
- Policy and legislation in relation to fisheries and aquaculture.
- International trade with special reference to cultured aquatic commodities.
- Socio-economics in aquaculture.

Interested candidates should send their CV along with a letter of intent indicating the chosen field of interest and the preferred regional university for study, to NACA before 30th April 2009 to Dr. C.V. Mohan, Research & Development Program Manager, NACA, email mohan@enaca.org.



Capacity building is a core NACA activity.

NACA is an intergovernmental organisation with 17 members. NACA seeks to improve rural incomes, increase food production and ensure livelihoods through sustainable aquaculture. NACA promotes regional cooperation in aquaculture and small-scale fisheries development, and provides technical

assistance throughout the Asia region in partnership with governments, donor foundations, development agencies, universities and a range of non-government organizations and private sector organisations. The ultimate beneficiaries of NACA activities are farmers and rural communities.

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