

Challenges for the Development of EU Aquaculture – Use of Marine Ingredients in Feed

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IFFO

International Fishmeal and Fish Oil Organisation is the global trade association representing fishmeal and fish oil producers and related trades.

Represents two thirds of world production and 80% of trade in fishmeal and fish oil worldwide with producers in Europe, South America, Africa, USA, China and India.



What are the main challenges facing Marine Ingredient use in Aquaculture?

Concern over feeding fish to fish

Demonstrating the sustainability of feed fisheries

Fixed Resource with no opportunity to increase production

Fluctuating Price with natural variations

Negative campaigning by marine environmentalists

Feeding fish to fish

Fish is a natural food for fish – all fish are carnivorous at some stage

Fishmeal & fish oil provide an almost perfect nutrient balance promoting health & welfare

Ethical objections about not feeding the poor are misplaced

Increasing amounts are going for direct human consumption.....



Increasing use for direct human consumption

Norway - Capelin, Herring & Blue Whiting

Denmark - Herring & Blue Whiting

Chile - Jack Mackerel & Horse Mackerel

Peru – Last year approx. 190,000 tonnes of anchovy went for human consumption (3%)



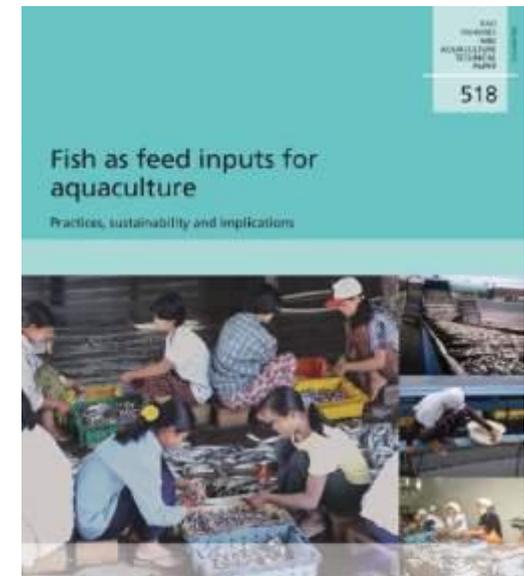
The market ensures that where ever possible the fish goes for food rather than feed

The use of wild fish as aquaculture feed and its effects on income and food for the poor and the undernourished

Ulf N. Wijkström
FAO Consultant,

“The idea of landing large quantities of anchoveta, or sand eel, or most of the other species used in feed fisheries, and using them to provide food for the poor is a laudable objective, but unrealistic

.....there does not seem to be any foundation for the argument that aquaculture threatens the sustainability of South American reduction fisheries and, therefore, endangers the food security of those who are already undernourished or the income levels of the poor in Chile, Peru or anywhere else”



But he says :

*“Where feed fisheries are **not** managed sustainably, aquaculture today constitutes an important threat to world fish stocks because of aquaculture’s reliance on fishmeal and thus on reduction fisheries”*

- Most fisheries have been poorly managed at some stage
- Significant improvements have been made in the last ten years
- For example Peru now has some of the best managed fisheries in the world:

Table 6. Average performance scores for the 53 countries.

Country	Average score	Country	Average score
Peru	6.42	Sweden	3.82
Namibia	5.10	Pakistan	3.81
USA	5.10	Indonesia	3.80
Germany	4.90	Japan	3.78
Poland	4.82	Australia	3.78
Norway	4.71	Spain	3.77
Senegal	4.70	Taiwan	3.75
Chile	4.67	Thailand	3.74
South Africa	4.64	Viet Nam	3.70

**RANKING MARITIME COUNTRIES
BY THE SUSTAINABILITY OF THEIR
FISHERIES Mondoux *et al* (2008)**

Responsible management of fisheries

World's largest feed fishery - the Peruvian anchovy – now well managed

Europe re-building their feed fisheries

Still concern over feed fisheries in Asia – mostly due to a lack of fisheries information

It is becoming increasingly important to be able to demonstrate responsible fisheries management of the raw material

Reassuring the value-chain about fisheries management

FAO Code of
Conduct for
Responsible
Fisheries is the
only
internationally
recognised
measure of good
management

MSC standard
certifies fisheries
that are managed
according to FAO
Code

Currently small
volumes of
fishmeal & fish
oil available from
MSC approved
fisheries – more
under
assessment

It can be very
slow and very
expensive to
undertake an
MSC assessment

IFFO recently launched its Global Standard for Responsible Supply (IFFO-RS)

- RS is a B-to-B initiative following the ISO-65 Standard
- 3rd party auditable standard ensures responsible raw material procurement & good manufacturing practice
- The standard requires an applicant to demonstrate that the factory:



- Sources its whole-fish raw material from fisheries managed according to the FAO Code
- Avoids the use of IUU fish
- Manufactures under a recognised quality control scheme to ensure product safety & purity



MSC & IFFO RS are different things

IFFO RS is a B-to-B certification programme that enables a compliant factory to demonstrate that it responsibly sources its raw material from well managed fisheries and responsibly converts that into pure and safe products.

The MSC's fishery certification program and seafood eco-label recognise and reward sustainable fishing.



IFFO-RS progress to date - 1

Multi-stakeholder group including fishmeal & feed producers, farmers, processors, retailers & environmental NGOs worked to produce the standard.

Launched to producer members in October 2009

First factory was awarded certification in February 2010

IFFO-RS progress to date - 2

As of end September 2010 there were 47 fully certified factories in 4 countries utilising 6 approved fisheries

This represents over 20% of world production of fishmeal and fish oil

There are more factories in assessment

Factories utilising fisheries by-products can now apply for approval under a recently launched new extension to the RS standard

The IFFO-RS standard is under continuous development

Global Standard for Responsible Supply (IFFO RS)



Certification programme
for fishmeal and fish oil

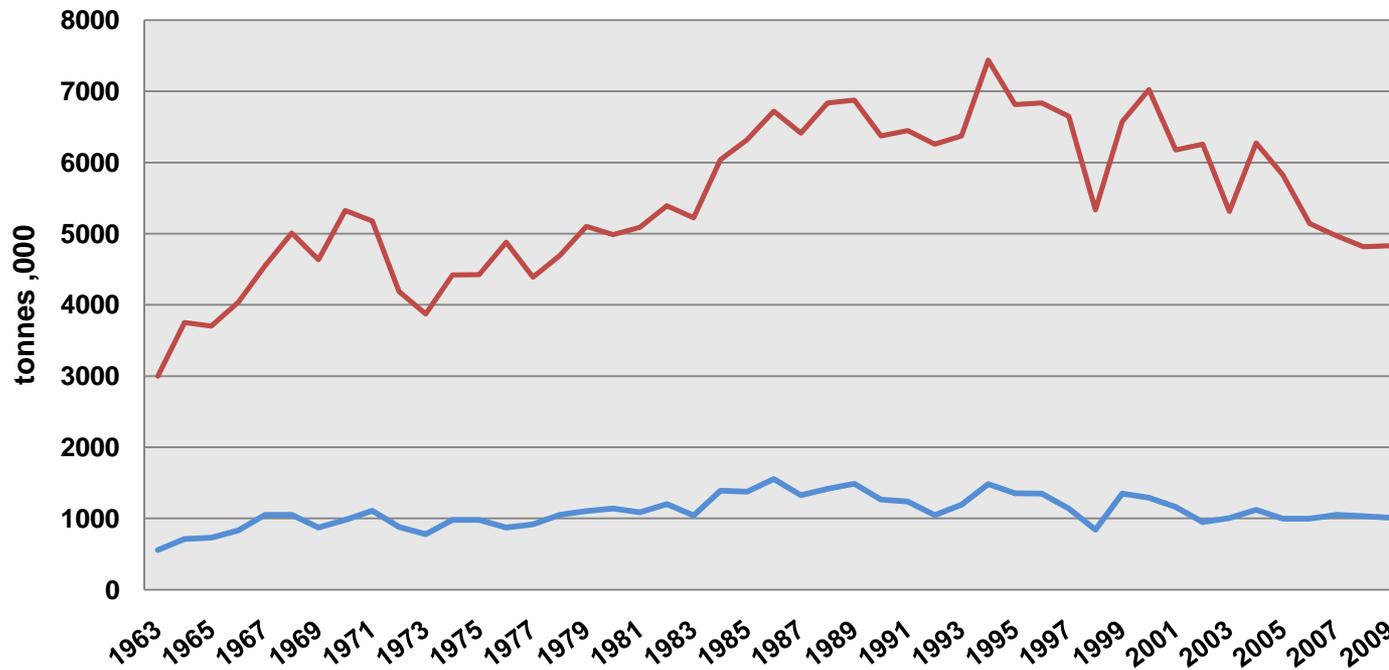
Supplies of fishmeal and fish oil from factories which have been independently audited and certified as complying with the IFFO RS, first entered the market in 2010. The IFFO RS programme assures the animal feed, food and nutraceutical value chains that these key ingredients are both responsibly sourced and responsibly produced.



www.iffo.net
for more
information

Static or declining volumes

Global Fishmeal & Fish Oil Production 1963-2009
thousand tonnes



— Fishmeal
— Fish Oil



Use of Fisheries By-products

Estimate of Global Production By-Product Fishmeal 2008

Production in thousand tonnes	Fishmeal	By-Product Coefficient %	By-product FM Production
THAILAND	468.0	60	280.8
JAPAN	202.9	90	182.6
CHILE	673.3	14	94.3
U.S.A.	216.2	25	54.1
MEXICO	105.8	50	52.9
ICELAND	140.9	32	45.1
RUSSIAN FED.	71.0	50	35.5
DENMARK	161.3	20	32.3
CANADA	31.2	100	31.2
NORWAY	135.0	22	29.7
TOTAL 10	2,205.6		838.4
OTHERS	2,612.4	15	389.5
TOTAL WORLD	4,818.0	25%	1227.9

Increasingly marine feed ingredients are coming from fisheries by-products - now reached over 25% of global production.

Eco-efficiency of fishmeal & fish oil

Seasonal surplus of less desirable fish and inedible by-products are collected.

They are efficiently converted into concentrated stable products which can be economically shipped to where they are required



Thousand tonnes

Will static supplies of marine ingredients limit aquaculture growth?

As prices rise alternatives (e.g. soy meal, rapeseed oil) are used in partial replacement

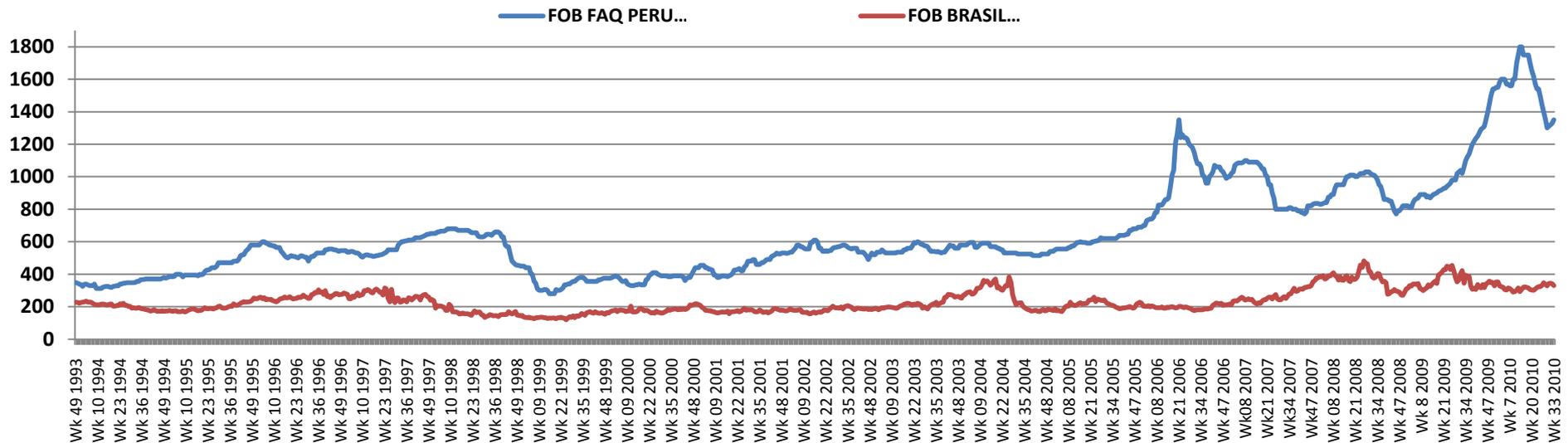
Increasing nutritional knowledge allows more replacement to take place particularly on more established species

Improved genetics and processing are improving the quality of alternative proteins

Increasingly fishmeal is being used as a strategic ingredient at lower levels and retained in special diets e.g. fry and broodstock diets

Fishmeal prices have risen but then so have the alternatives

Price US\$ in 1994-2010

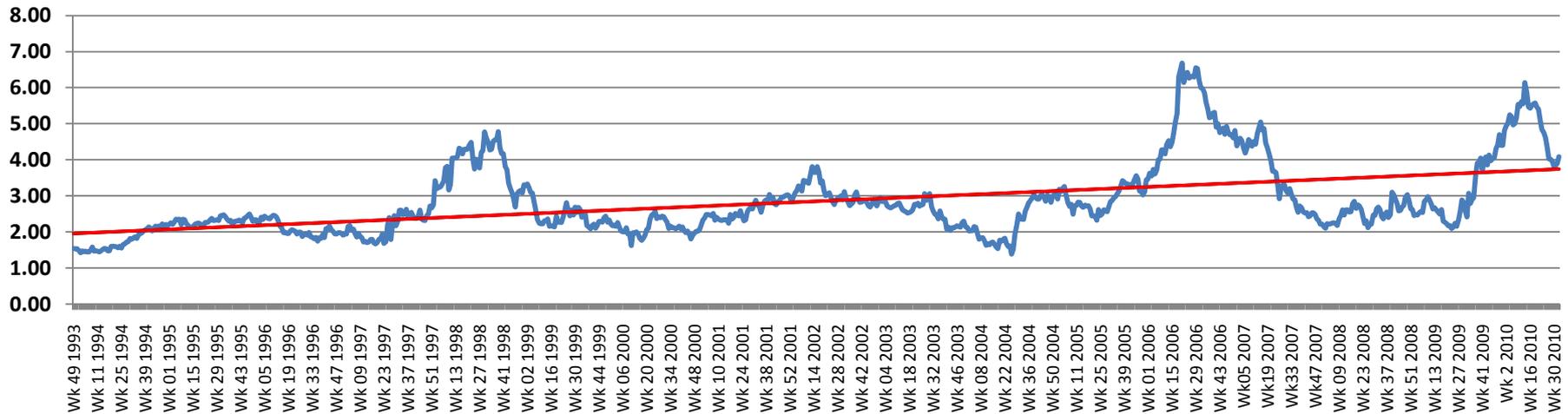


IFFO data



Fishmeal has become more expensive compared to soy which underlines why replacement has taken place

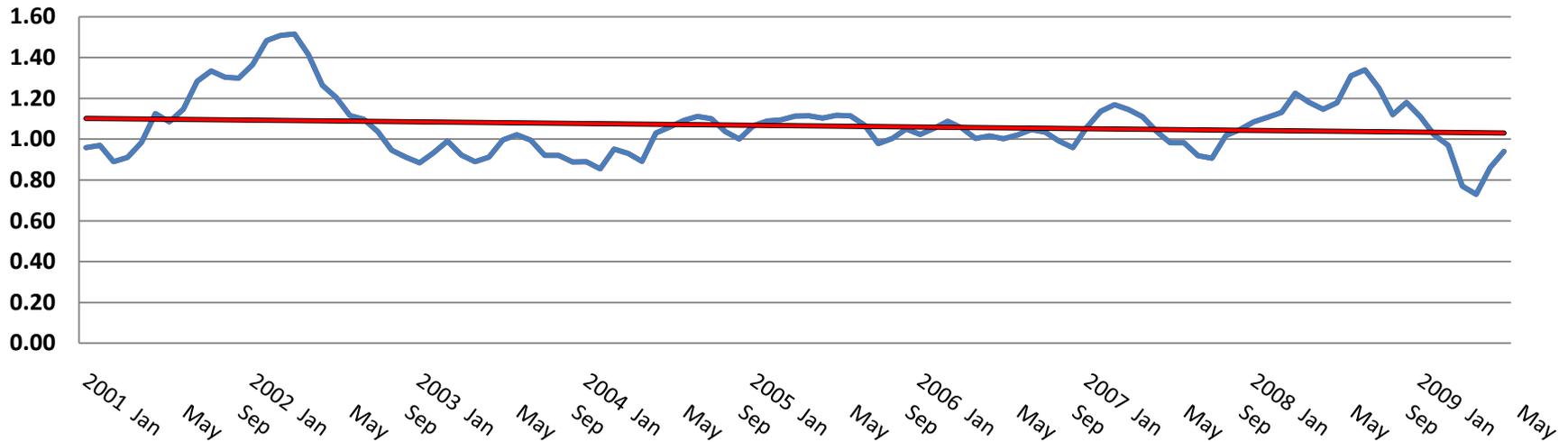
**Ratio FOB Peru Fishmeal/FOB Brasil Soyameal
1994-2010**



Fish oil for feed over a shorter period has got cheaper showing that it is more easily replaced

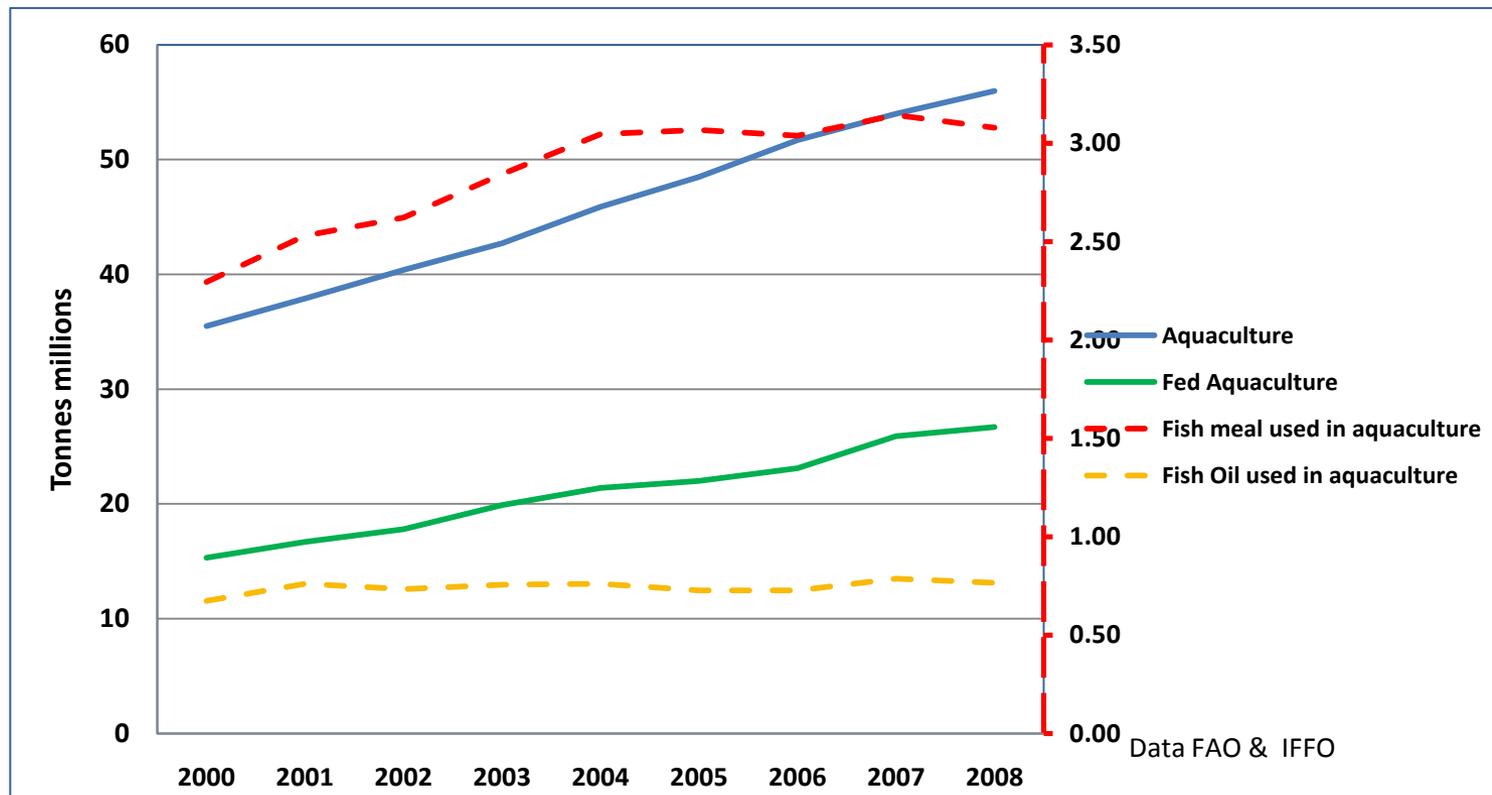
Ratio of average monthly price delivered Europe fish oil and rapeseed oil 2001-2009

Oil World & IFFO data



The risk in replacing fish oil is the loss of omega-3 & the healthy image of the final product

Global aquaculture production has continued to grow while usage of fishmeal & fish oil is static



Static supplies of marine ingredients are not limiting aquaculture growth

The move from agri to aqua will continue for fishmeal

Fishmeal inclusion levels will decrease as it increasingly becomes a strategic ingredient

Fish oil will increasingly be valued for its omega-3 content with increasing volumes going for direct human consumption

New sources of long-chain omega-3 may well come from algae and GM plants

Importance of fatty acids found in marine ingredients

“Long-chain omega-3 fatty acids EPA and DHA are important for cardiovascular health” Report 2010

Farmed fish only contain the EPA & DHA given to them in their diets

Only significant source of EPA & DHA comes from marine ingredients

Farmed fish fed on marine ingredients make a beneficial contribution to the diets of European consumers



Priorities for the future - Government

Governments must ensure responsible fisheries management

Government to consider encouraging the use of discards for marine ingredients

Government & Industry should work to increase use of fisheries by-products

Governments must encourage the intake of EPA & DHA to improve cardiovascular health

Priorities for the future - Industry

Industry must keep improving quality to ensure products can be used at lower inclusion levels and justify a higher price

Aquaculture & Marine Ingredients industries should combine to communicate the facts and good news around their industries

Industry must demonstrate its responsible practices – IFFO RS, MSC etc

.....this will ensure feeding marine ingredients to fish will continue to make a vital contribution to sustainable food production