



***Fishmeal and fish oil production
and its role in sustainable
aquaculture and agriculture***

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Introduction

IFFO

Production

Consumption

Responsible Sourcing

Conclusions





IFFO

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

Represents 60 % of world production of fishmeal and fish oil worldwide with producers in Europe, South America, Africa, USA, China, Australia and India

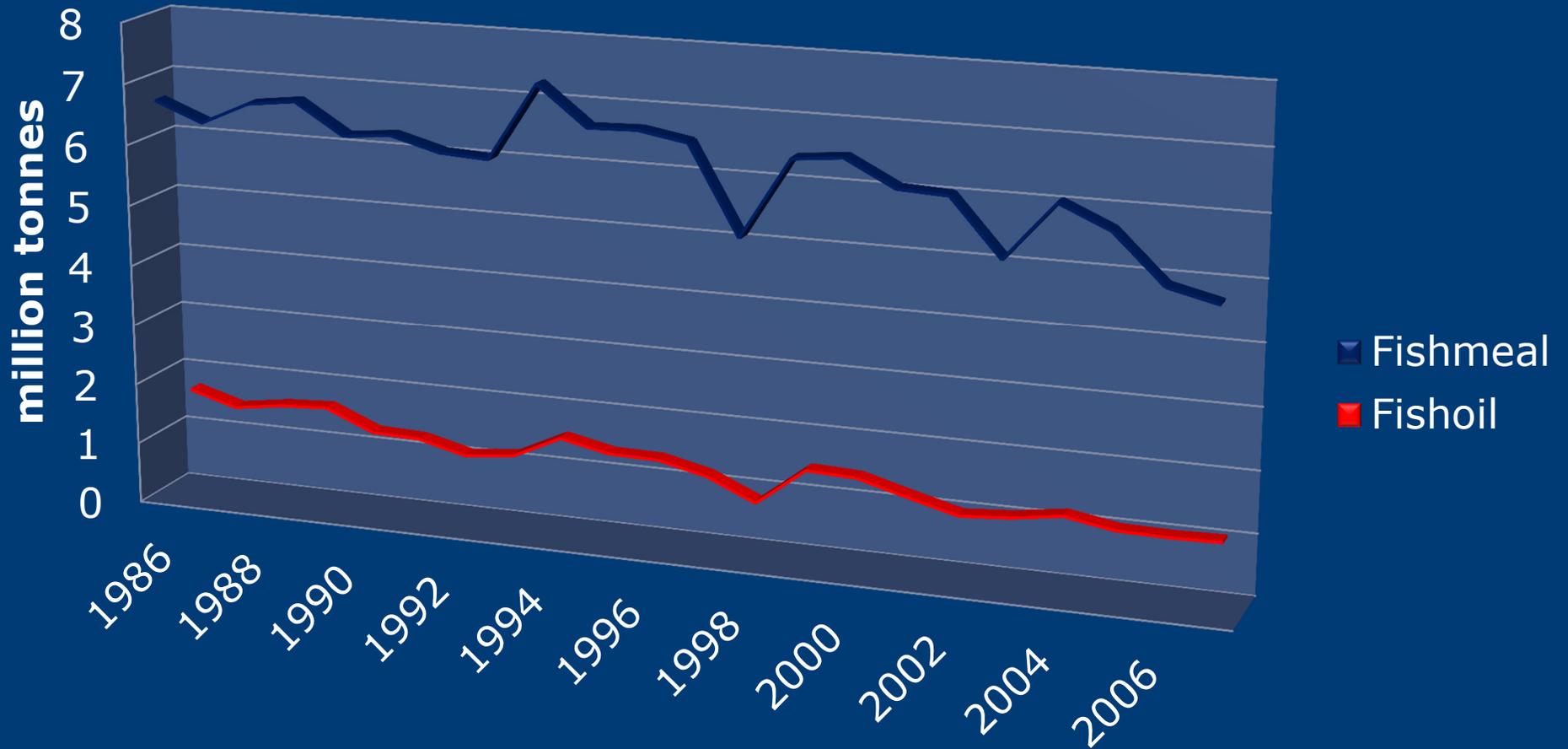


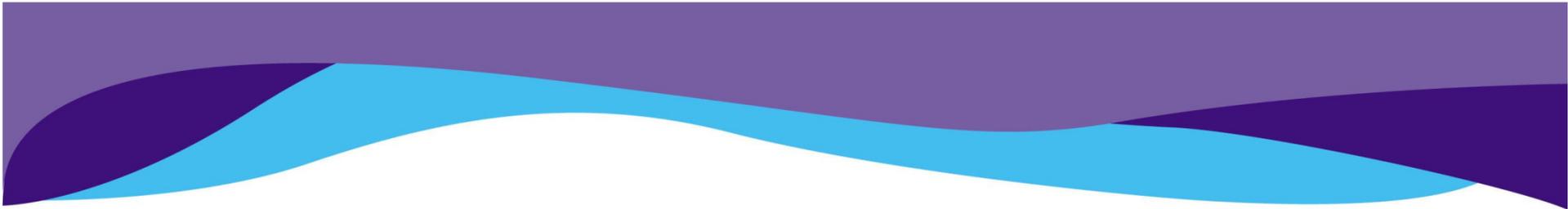


Production



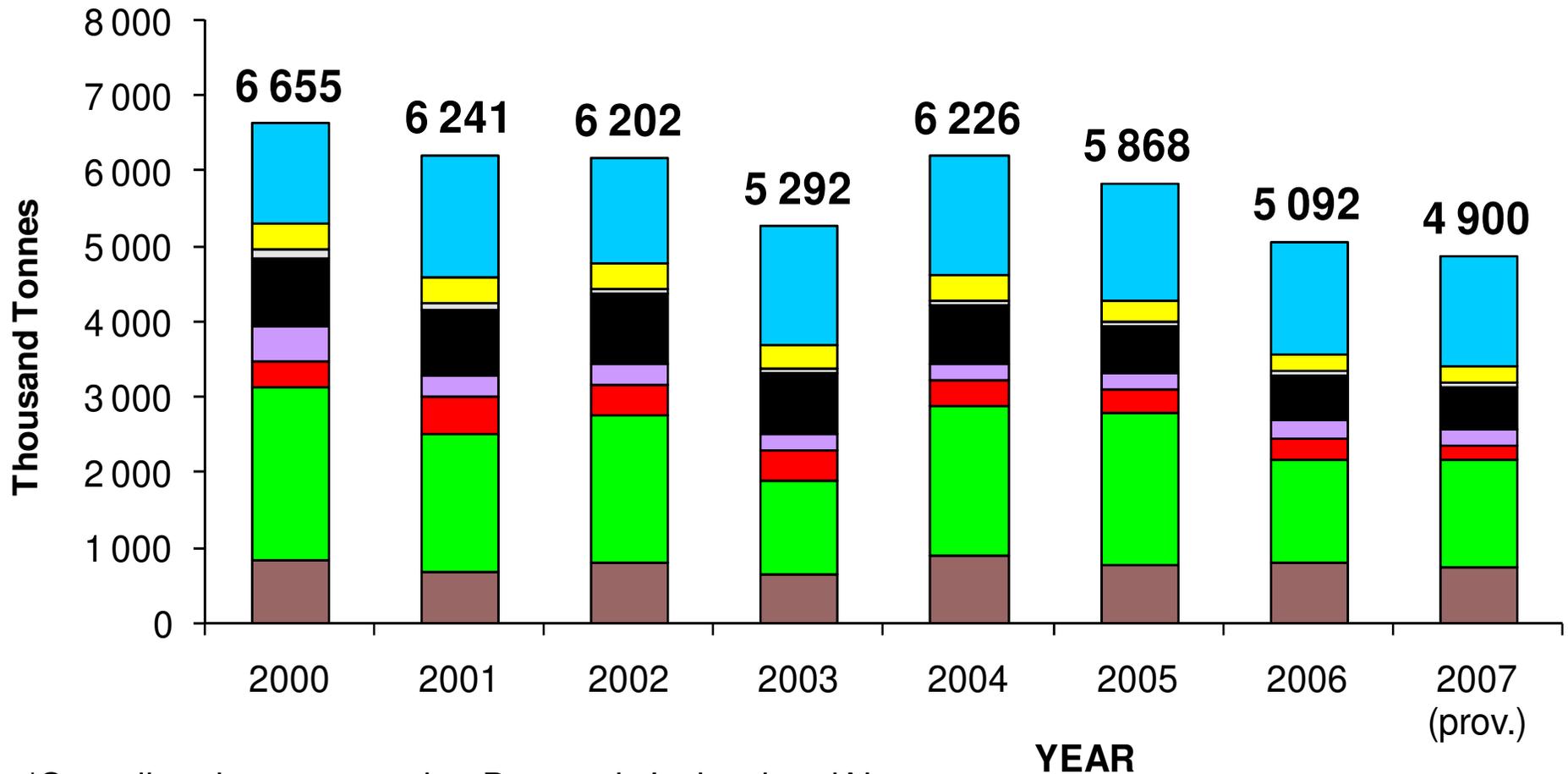
Global Production 1986-2007





WORLD FISH MEAL PRODUCTION MAJOR PRODUCERS

- Peru
- Japan
- Russ. Fed.
- Rest
- China
- Scandinavia*
- USA
- Total



*Scandinavia - representing Denmark, Iceland and Norway

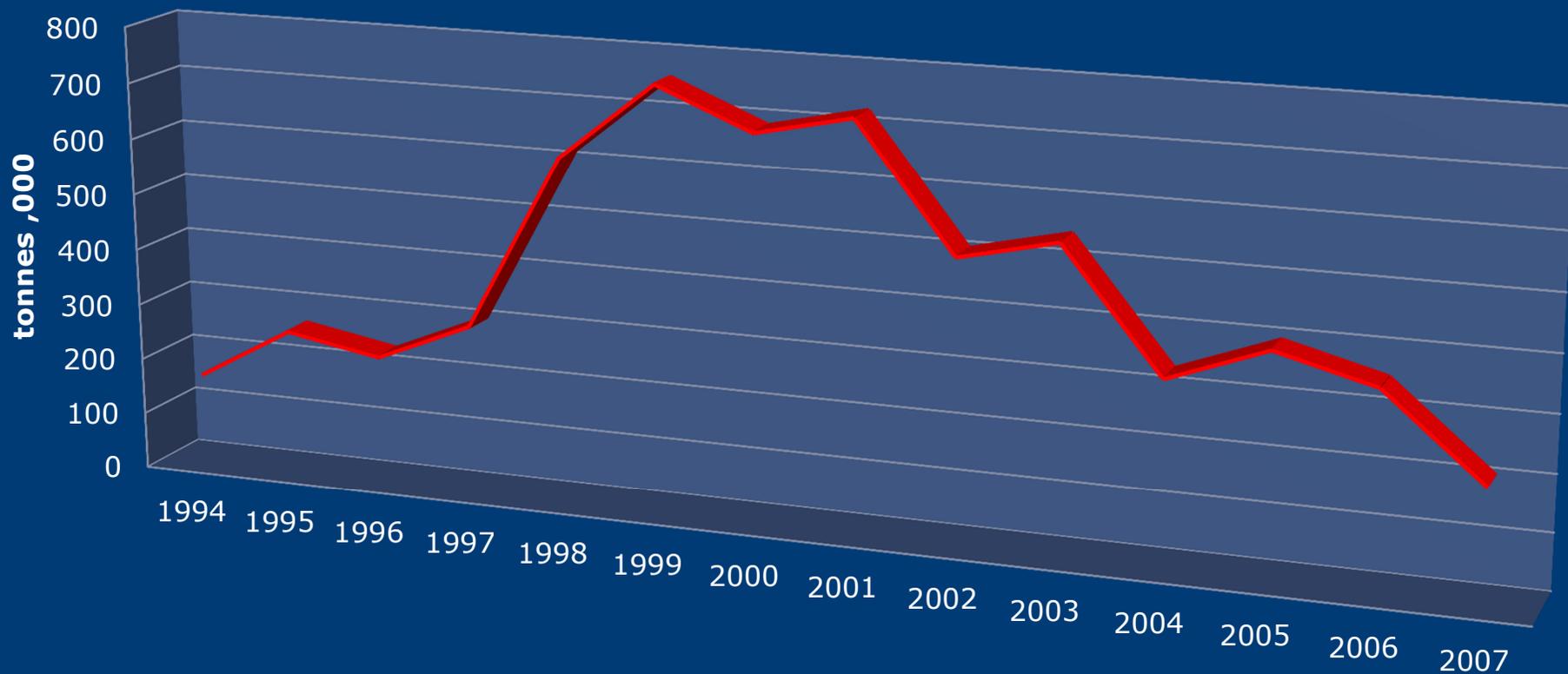


Peruvian production

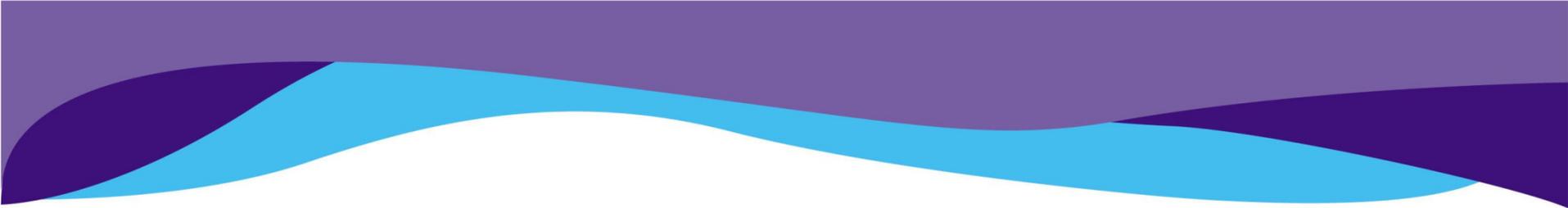
- ❖ The Peruvian anchovy fishery is the largest fishery in the world
- ❖ The anchovy fishing quota has been tight for the last two years
- ❖ Latest reports from IMARPE state that the fishery is in very good shape
- ❖ Tight quota this year has been set based on a precautionary principle
- ❖ Peruvian Government have announced that starting from next year they are introducing individual fishing limits
- ❖ Increasing demand for direct human consumption principally from within Peru



Chinese Fishmeal Production 1994-2007



.....but more fish are going for direct human consumption



Trends in production

- ❖ Relatively constant with periodic El Niños
- ❖ Tightening supplies in recent years due to a combination of :
 - Precautionary quota setting
 - Increased use for human consumption e.g. over 50% Chilean Jack mackerel go for freezing/canning
 - Global warming and fishery changes
 - Poor fisheries management in some countries

Hopefully the precautionary quota setting will allow increased quotas in the future with a return to Maximum Sustainable Yields (e.g. EU, Peru)

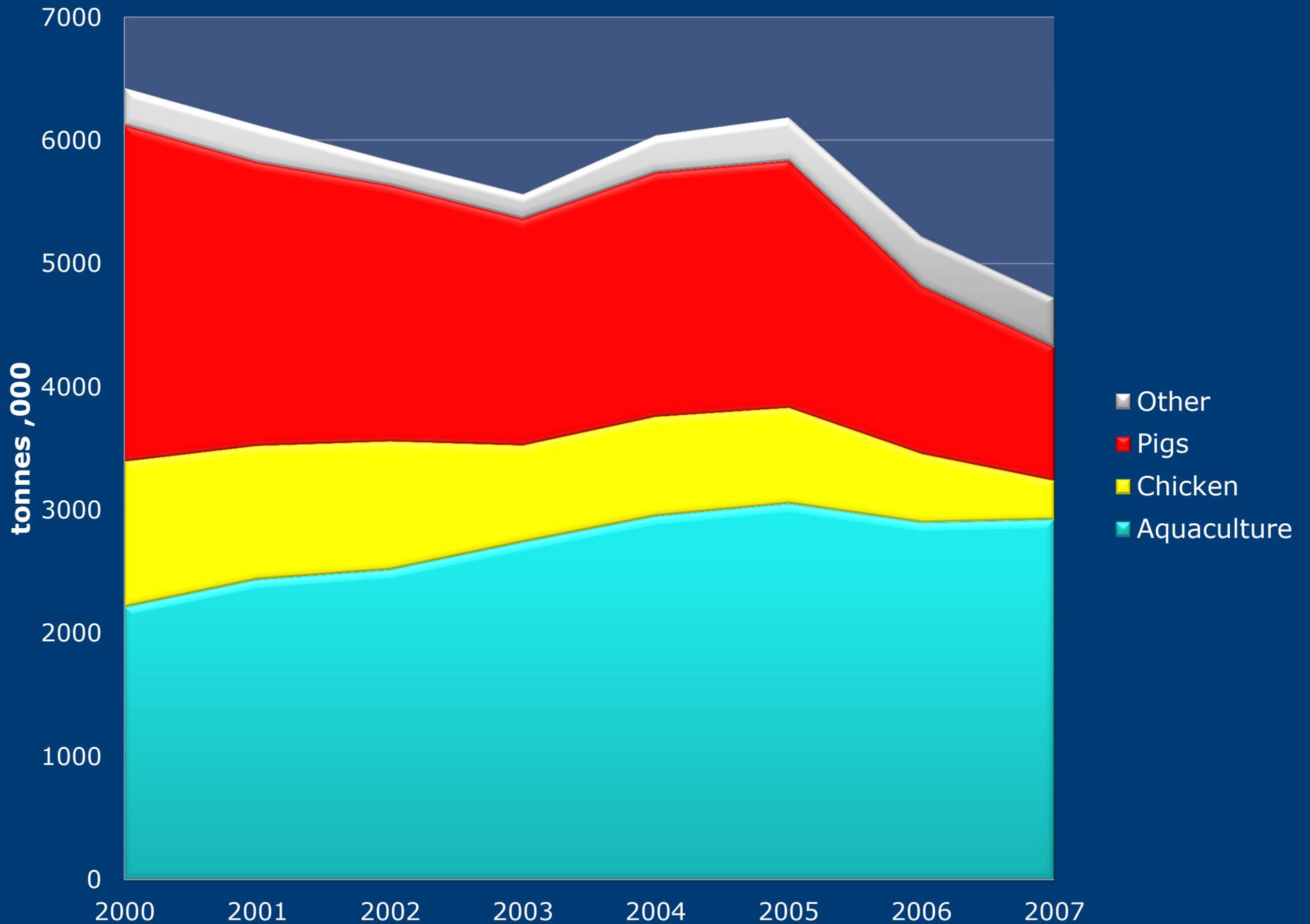




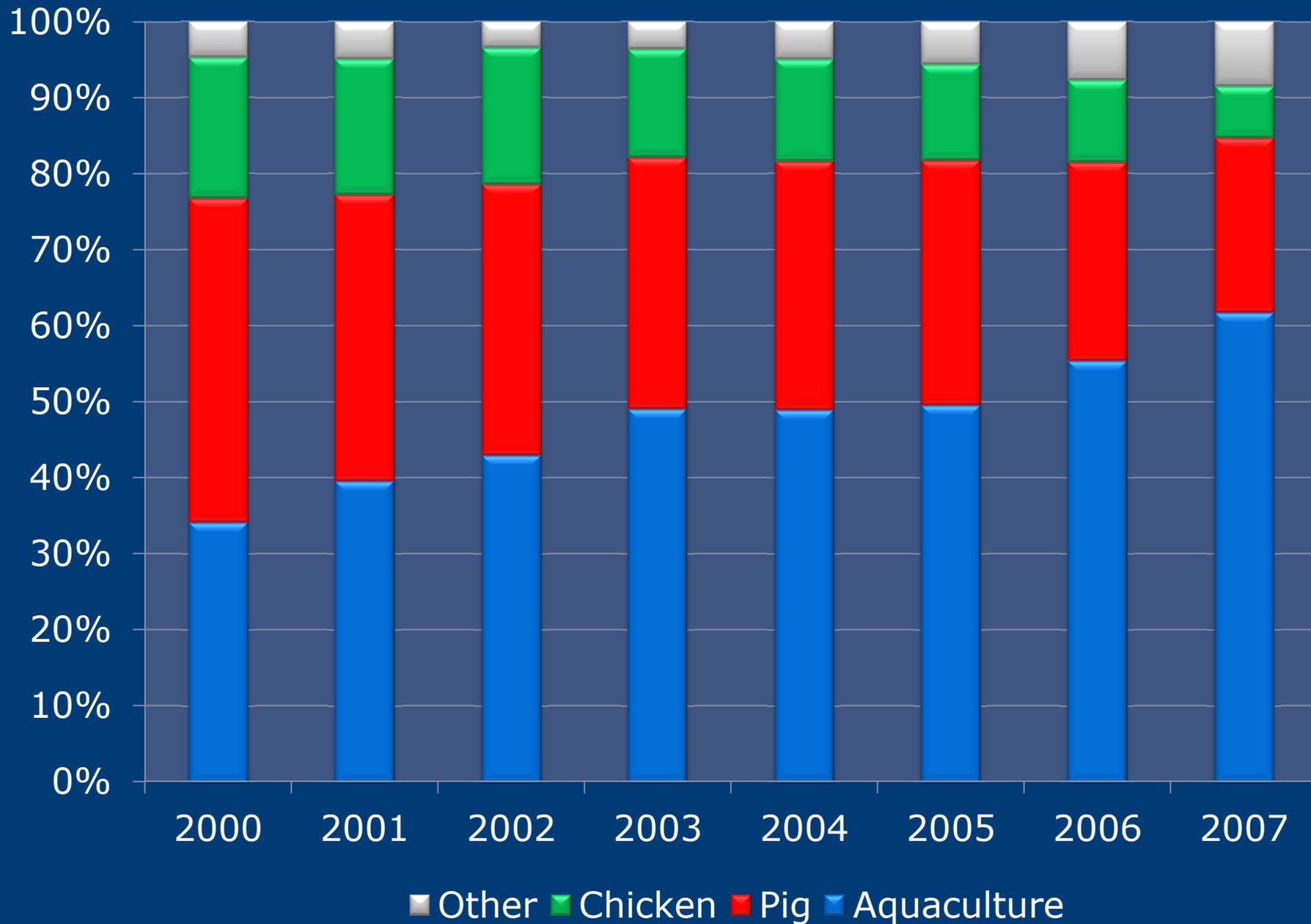
Consumption



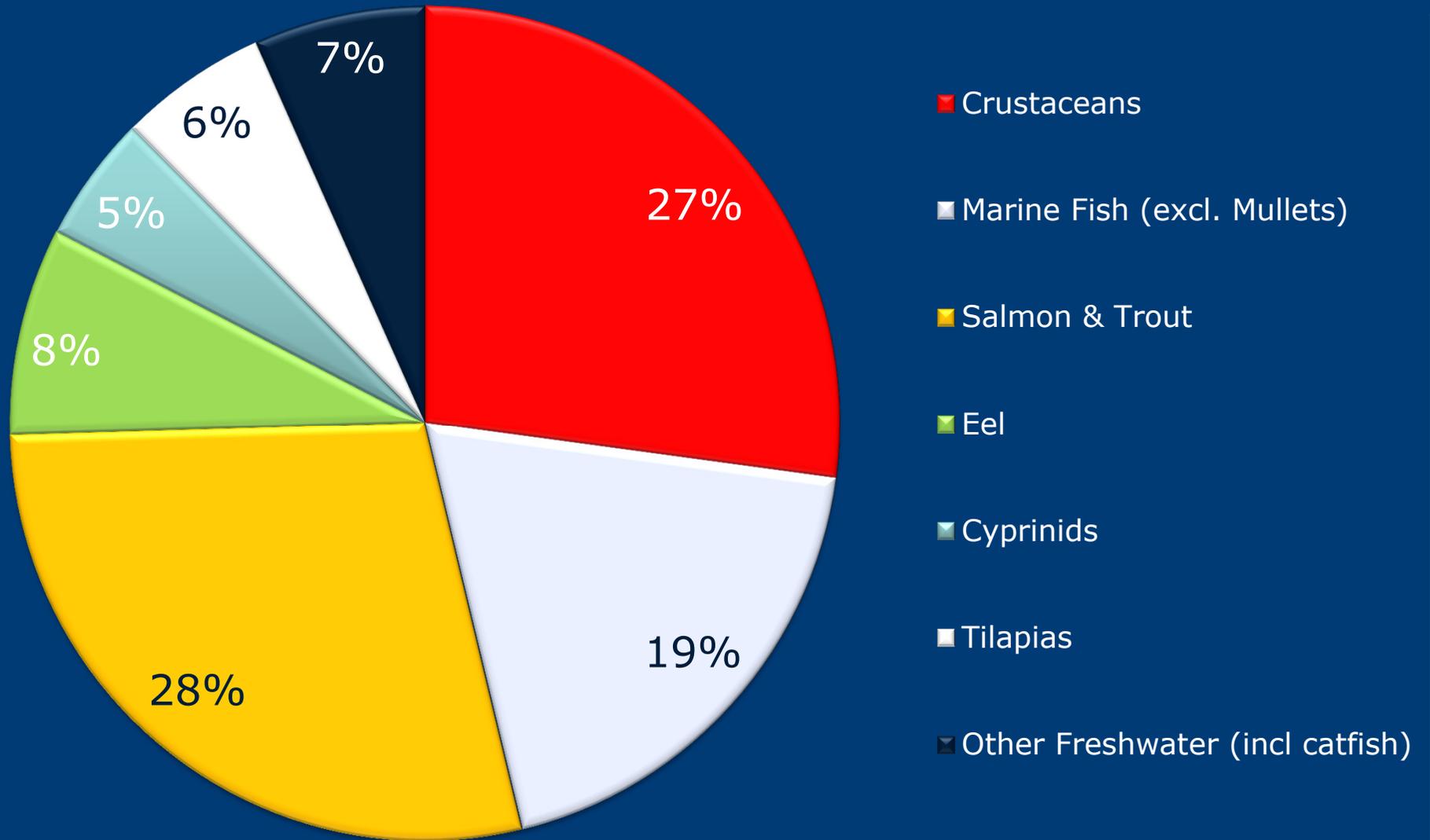
Fishmeal Use by sector 2000-2007



Change in Percentage Fishmeal Use



Fishmeal Usage in Aquaculture 2007





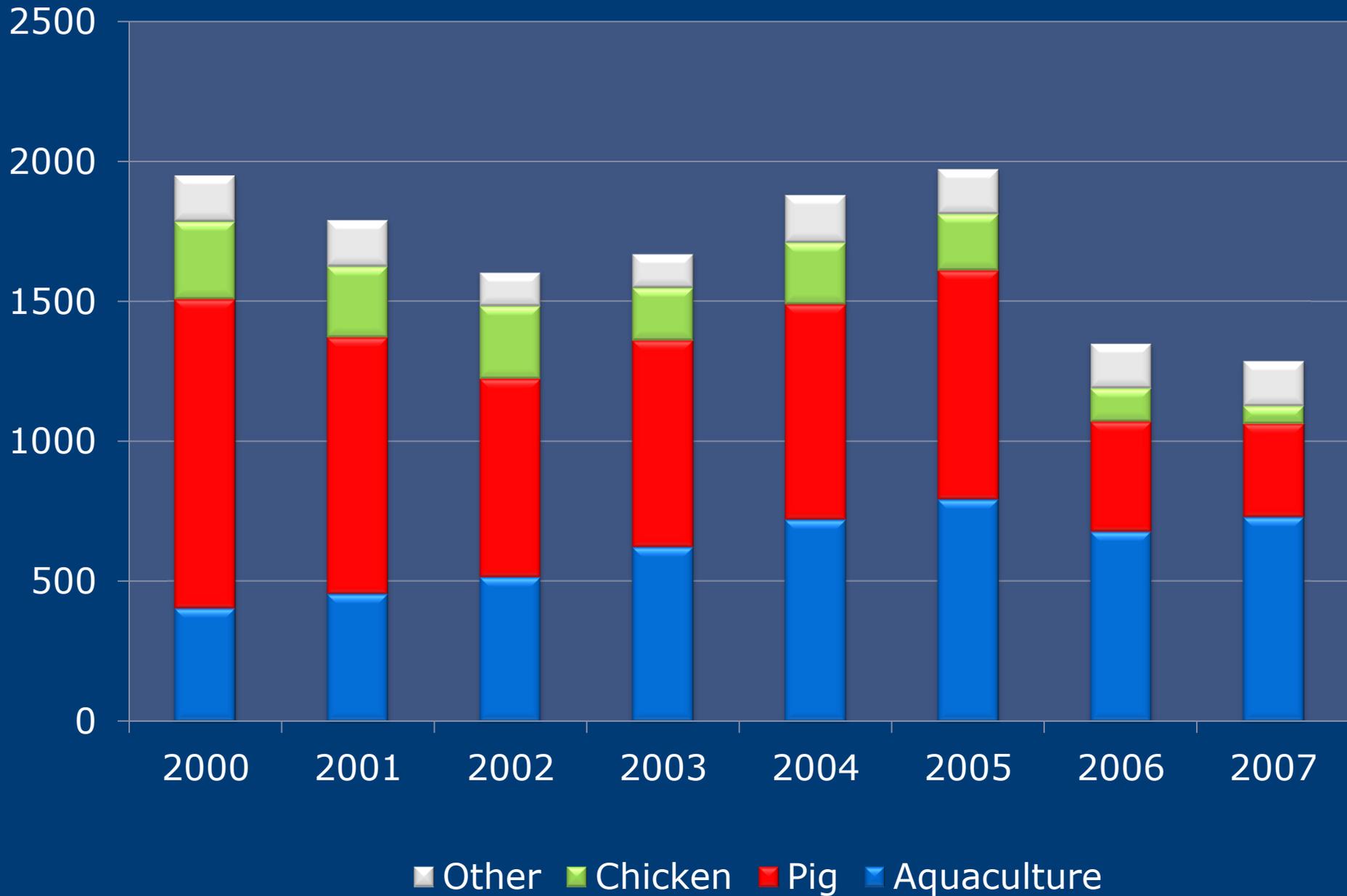
Change in different usage has been driven by:

- ❖ Price elasticity for the different segments – chicken most elastic , eels least elastic
- ❖ Growth in different sectors – crustaceans have seen a huge increase in production 1.5 m to 4.5 million from 00-07
- ❖ But the growth of aquaculture has not been limited by the availability of fishmeal
- ❖ Market forces, technology and nutritional knowledge have driven substitution

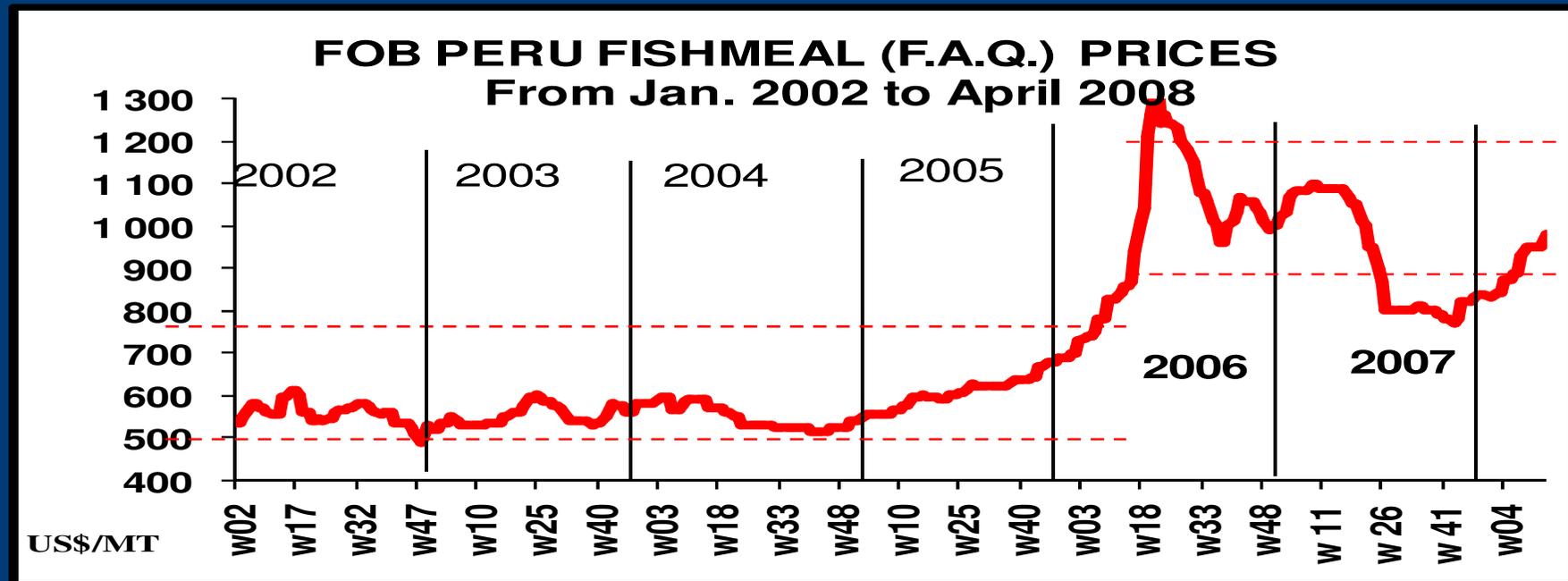
China the world's largest fishmeal user consumed less fishmeal in '07 than it had for a decade



China Fishmeal Usage (1000 tonnes)

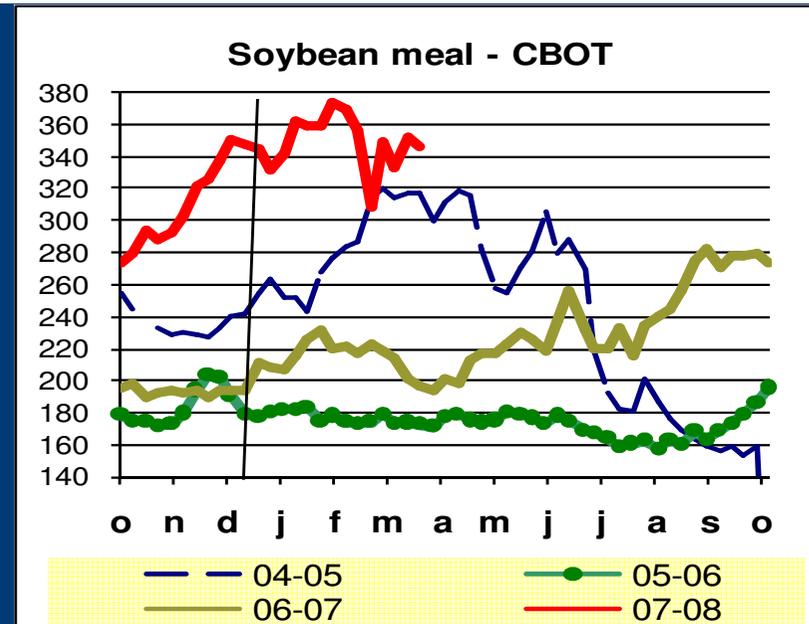
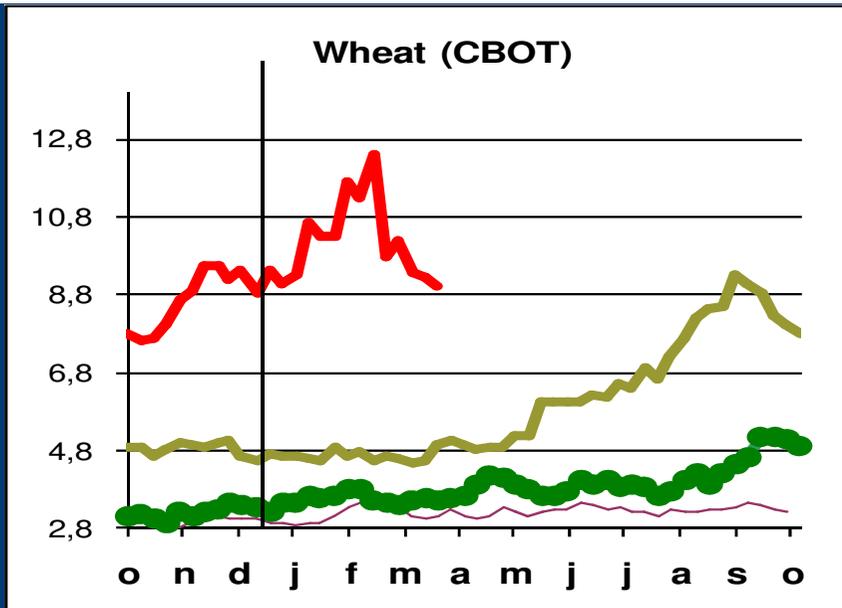


The growth in Chinese use to 2005 was in part responsible for the price rise of '05 to early '06

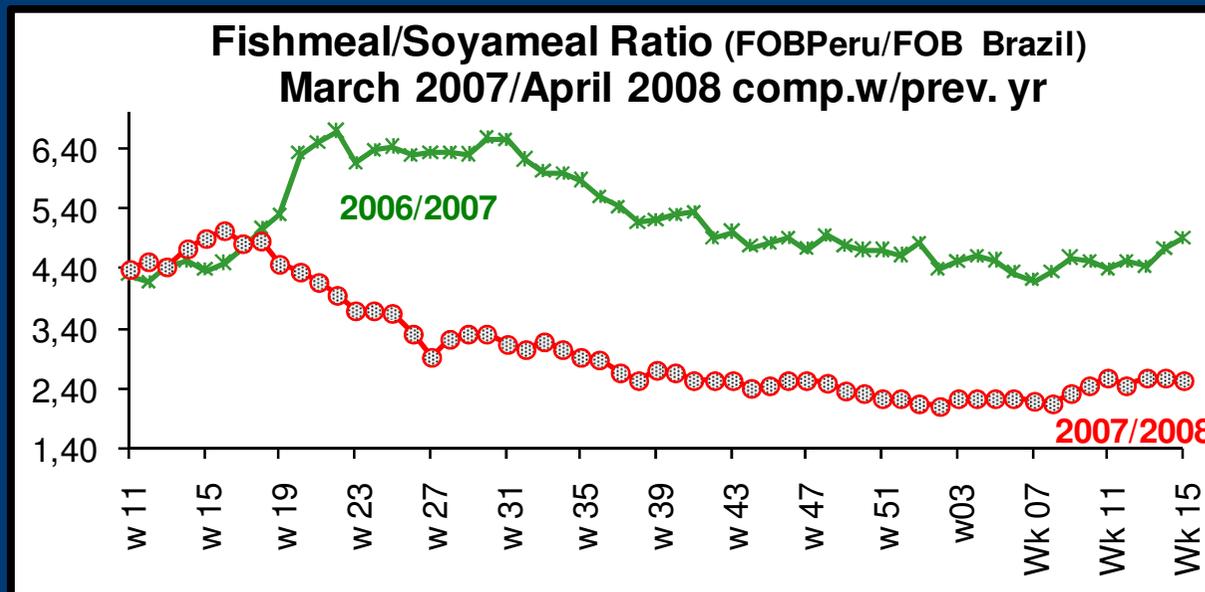


but the sharp rise then contributed to a reduced use and the consequent price reduction.

The universal rise in protein prices is now driving a new rally....



this has now resulted in fishmeal once again being attractive by comparison....



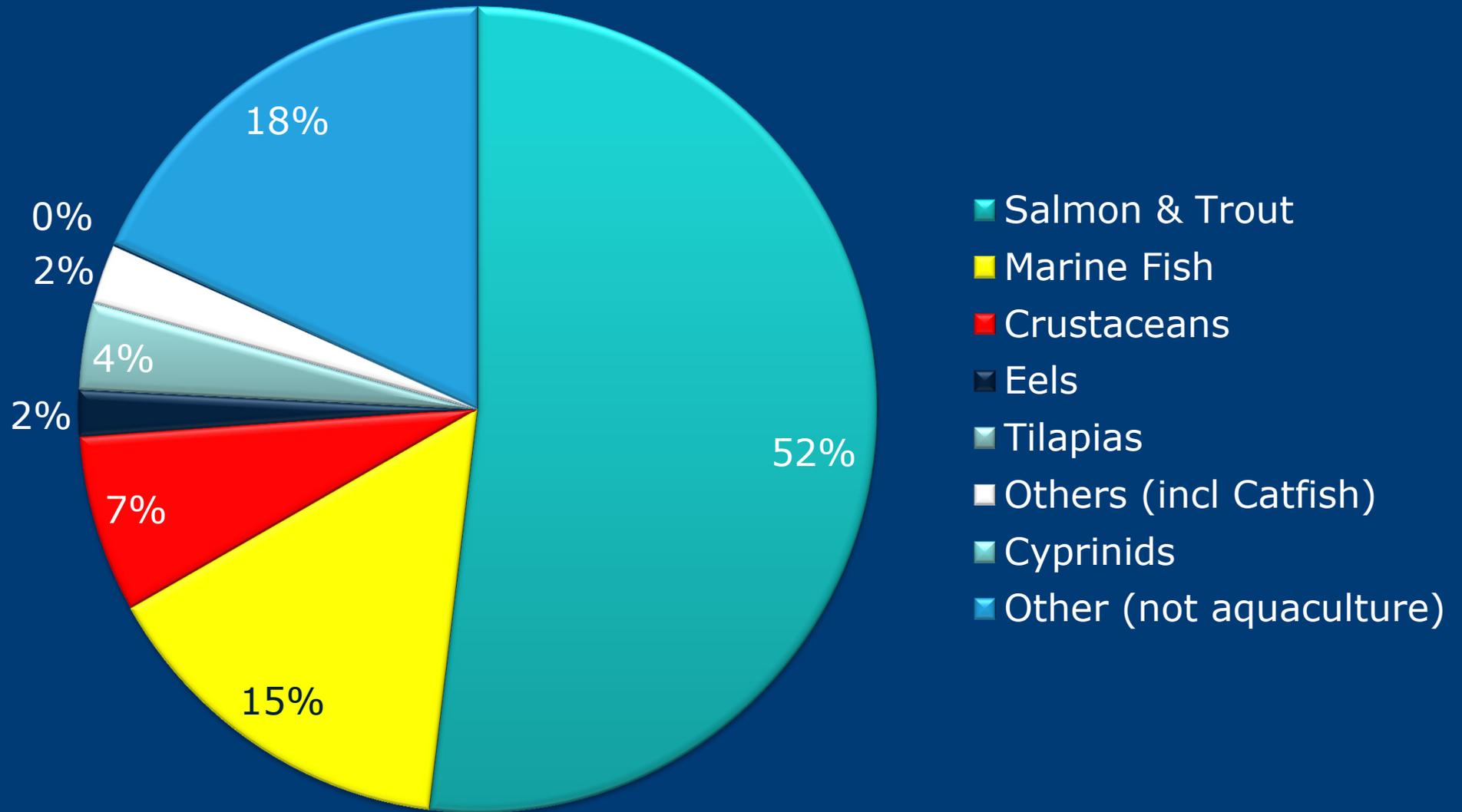


The growth of aquaculture

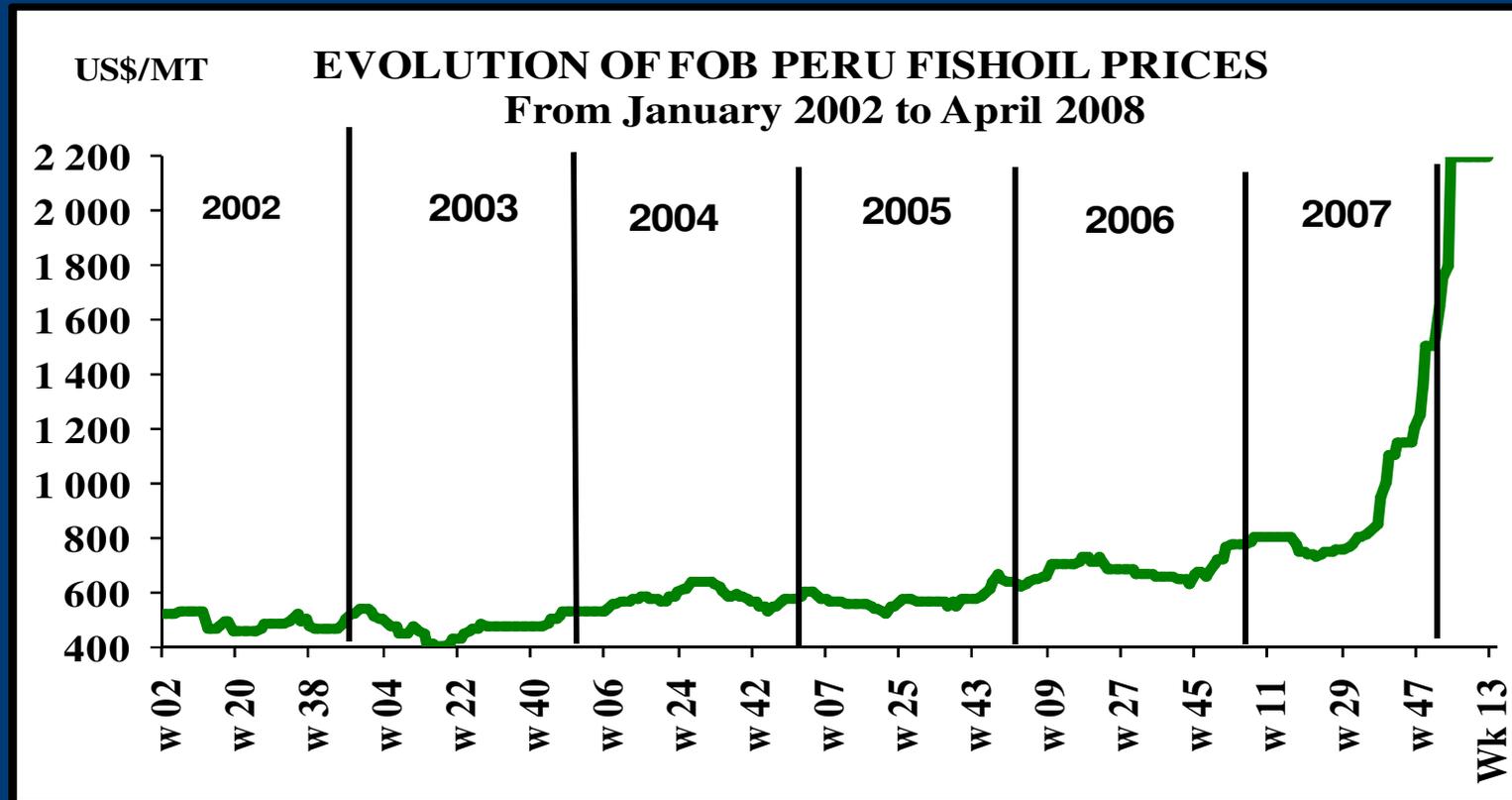
- ❖ The availability of fishmeal has not been a limiting factor in aquaculture growth to date
- ❖ Fishmeal supplies are likely to remain tight into the future
- ❖ As it continues to grow aquaculture will seek to take a larger share of fishmeal production – there is still 40%
- ❖ Improved processing technology will make better vegetable proteins available
- ❖ This combined with improving nutritional knowledge will allow lower dietary inclusion levels as feed volumes grow
- ❖ Fishmeal will increasingly become a strategic ingredient in specialist diets such as starter, broodstock and finisher diets



Fish Oil Use 2007

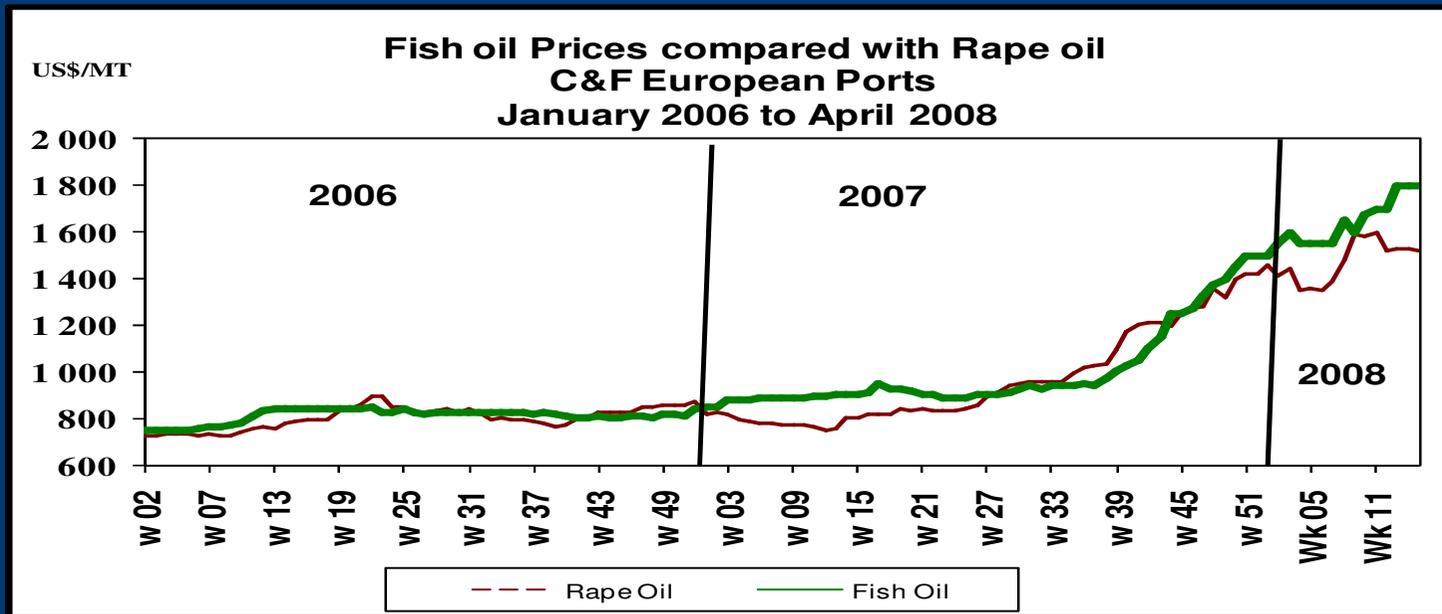


Fish oil prices have risen sharply over the last year

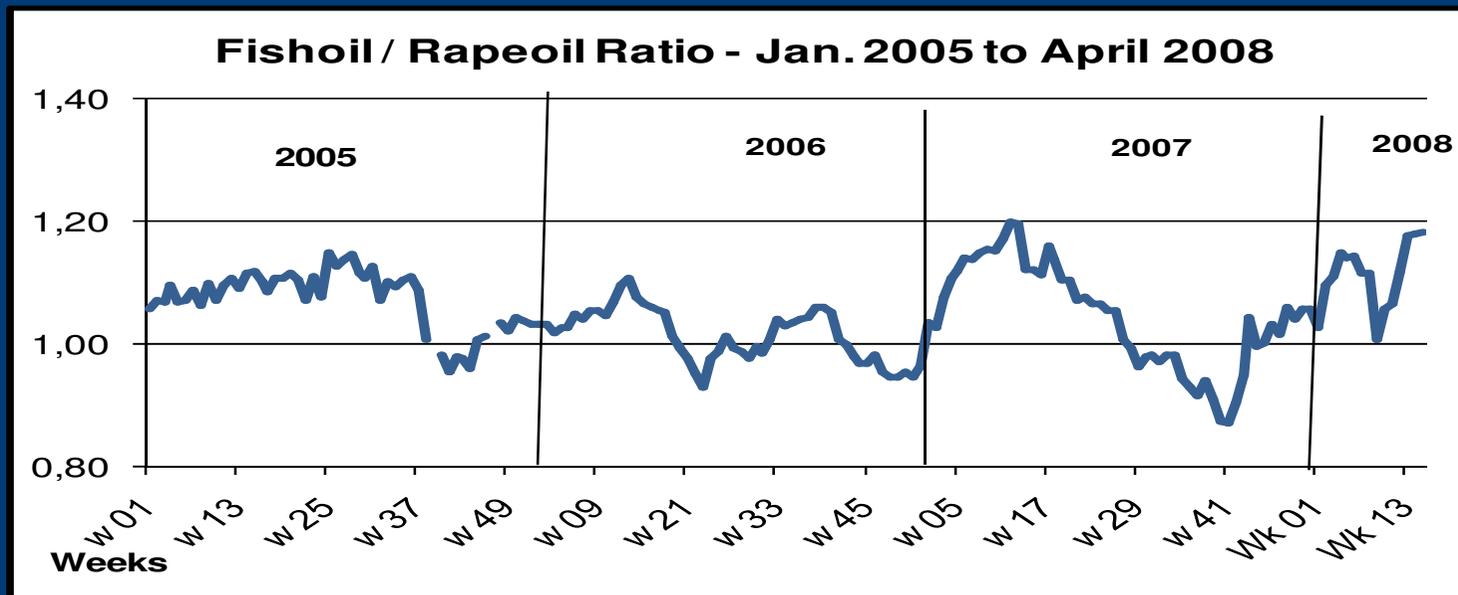


this is as a result of a number of factors.....

but mostly due to a rise of all oil prices...



and it is still within usual parameters...





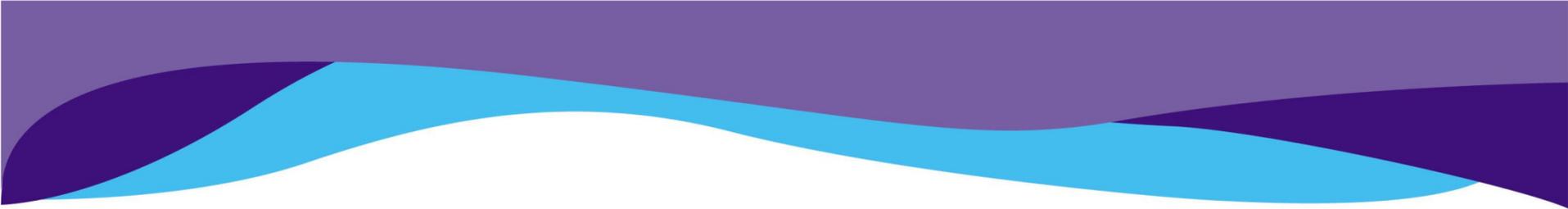
Fish oil

- ❖ The market for fish oil is now segmenting with the growth of EPA & DHA rich supplements for direct human consumption
- ❖ Anchovy oil one of the richest oils for EPA & DHA, now commands a price premium
- ❖ Evidence is increasing that EPA & DHA fulfil a range of essential roles in human nutrition that cannot be met by shorter chained omega-3 oils found in plants
- ❖ Recent evidence has been produced that shows fillets from salmon fed 100% fish oil are more beneficial for patients suffering from Coronary Heart Disease than those fed vegetable oil or even a mix.....



“Tailor-made Atlantic salmon fillets very high in n-3 PUFA’s of marine origin seem to impose favourable biochemical changes in patients with CHD when compared with ingestion of fillets with intermediate and low levels of marine n-3 PUFA’s, when replaced with rapeseed oil”

Seierstad *et al* 2005 European Journal of Clinical Investigation, 35 52-59



Responsible Sourcing



Food safety and traceability in the aquaculture value chain

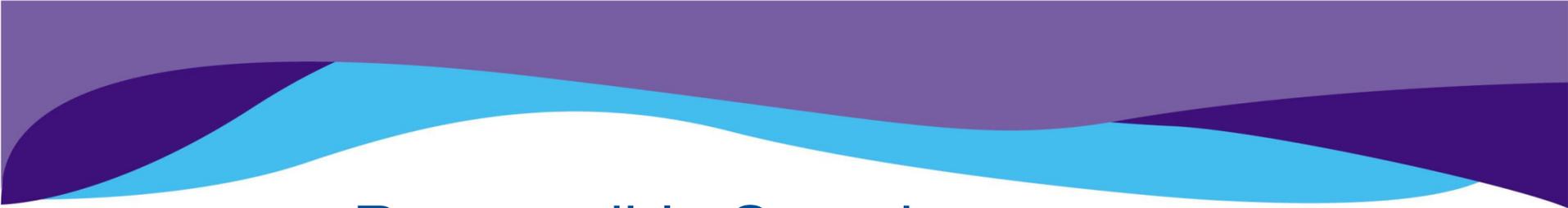


Acronyms

- IFFO International Fishmeal and Fish Oil Organisation
- CORP Code Of Responsible Practice
- IFSA International Feed Safety Alliance
- IFIS International Feed Ingredient Standard
- GAA Global Aquaculture Alliance
- BAP Best Aquaculture Practice
- Global GAP Global Good Agricultural Practice

The whole 5 production steps are covered by HACCP & ISO standards





Responsible Sourcing

- ❖ The Sustainability Movement is here to stay
- ❖ Aquaculture needs to show that it is “sustainable” over the long-term
- ❖ All feed ingredients whether fishmeal or fish oil or vegetable protein or oil need to be from sustainable sources
- ❖ The fishmeal industry is continuing to do a lot to ensure that it is behaving responsibly in conjunction with governments
- ❖ It needs to be able to demonstrate the different measures taken regarding responsible production using third-party verification





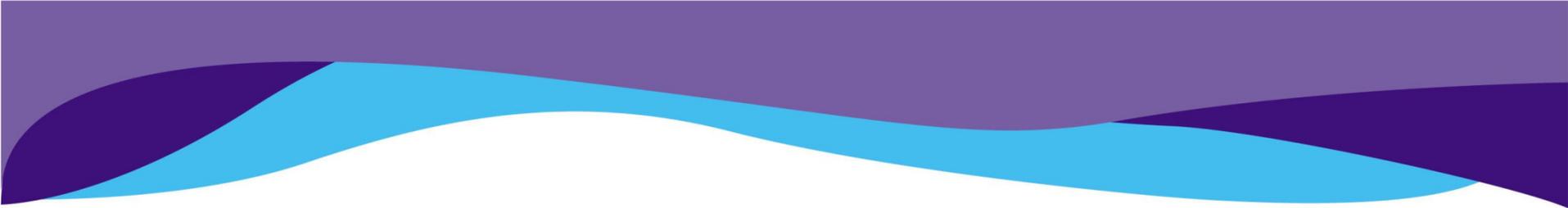
Responsible Production

- ❖ Fishmeal, particularly in South-East Asia, has had issues of accidental and deliberate contamination – meat & bone meal, melamine, anti-biotic residues etc.
- ❖ It was therefore decided that IFFO should develop a Code of Responsible Practice (CORP) for the production of fishmeal & fish oil which will be 3rd Party Audited
- ❖ The Code should cover three areas:
 - Feed safety and purity
 - Responsible sourcing of raw material (no IUU)
 - Fishery management - follows key elements of the FAO code of responsible fishing
- ❖ Code under development with full-chain Technical Advisory Committee
- ❖ Subject to final approval in Oct looking to have certified product available next year.

Conclusions

- ❖ Fish feed prices are set to remain high and possibly rise
- ❖ This is not because of the “fishmeal trap”
- ❖ The cause is the world-wide rise in protein and oil costs
- ❖ Fishmeal compared to other protein sources is as cheap as it has been for a long-time
- ❖ Over the long-term fishmeal and fish oil inclusion levels are likely to continue their decrease as aquaculture grows
- ❖ Feed prices will not fall until world commodity prices fall
- ❖ Experts say that the days of cheap food are over
- ❖ The only good news for farmers is that the price of the finished products – fish, crustacea, pigs etc should also rise





Summary

Sustainably produced fishmeal and fish oil will continue to be available and desired for use in aquaculture to provide high performance diets imparting health promoting properties to the finished products

