



Feeding fish to fish – is this a responsible practice?

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Humber Seafood Summit

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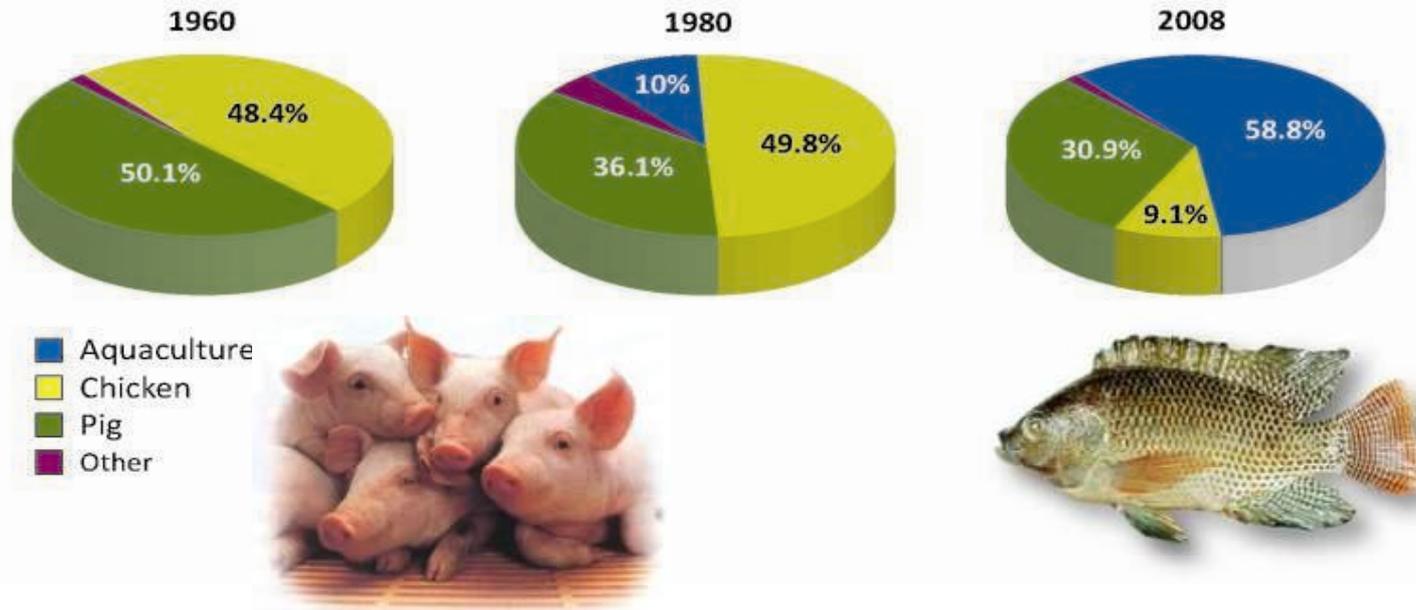
IFFO

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.

Fishmeal usage moves from 'Agri' to 'Aqua' sector

Changing uses of fishmeal

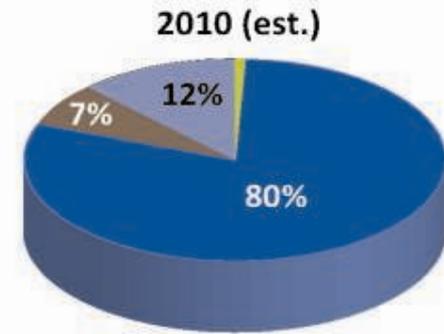
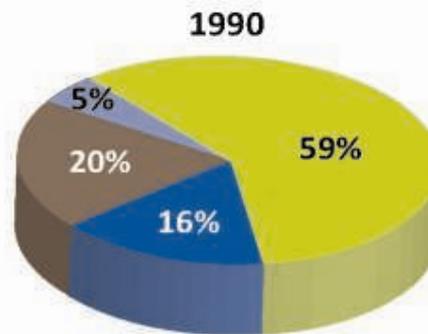
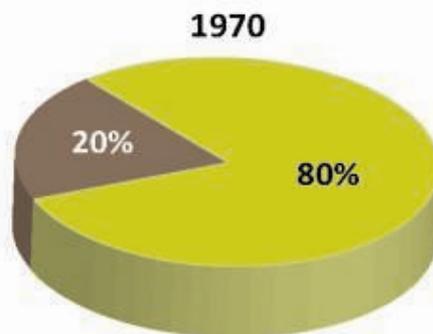


Two species used over 98% of production in 1960 but dropped to 40% of usage while production grew from 32 to 182 million tonnes

Fish oil usage moves from hydrogenated fat to aquaculture & capsules

A growing recognition of the importance of EPA & DHA

Changing uses of fish oil

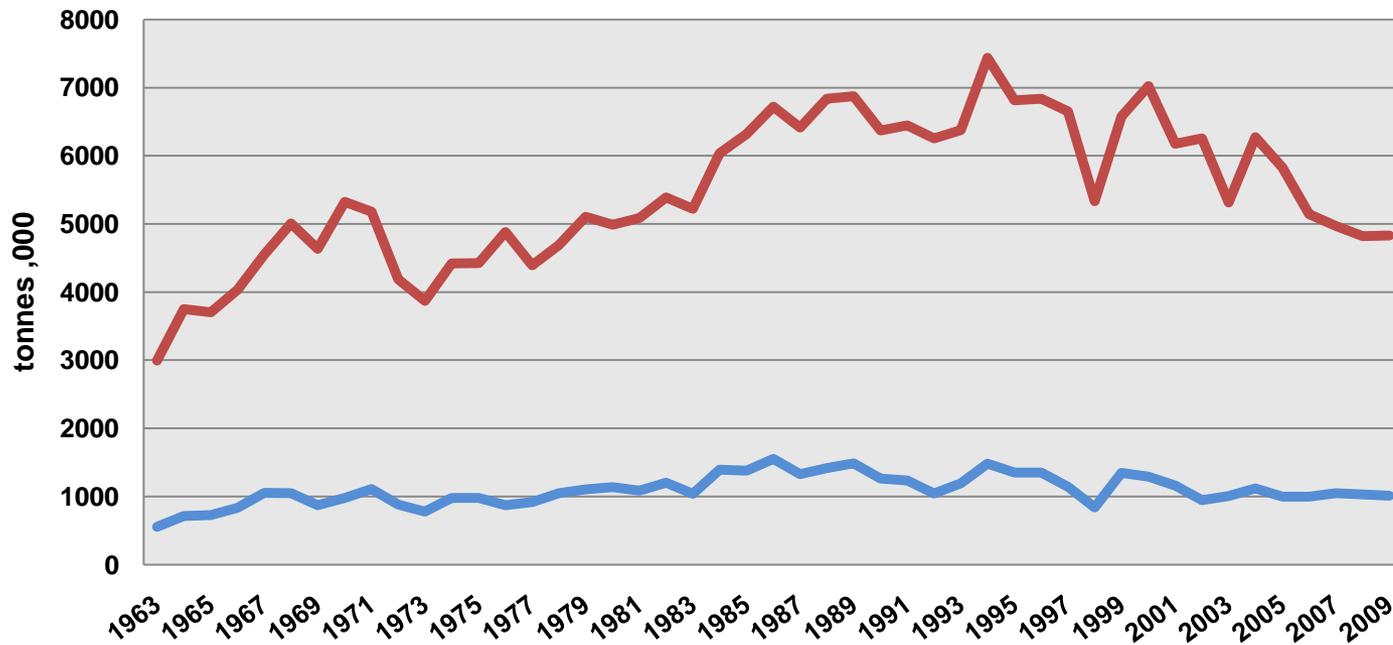


- Hardened edible
- Aquafeed
- Industrial
- Refined edible



Static or declining volumes

Global Fishmeal & Fish Oil Production 1963-2009
thousand tonnes



— Fishmeal
— Fish Oil



Increased use of raw material for direct human consumption

- Norway - Capelin, Herring & Blue Whiting
- Denmark - Herring & Blue Whiting
- Chile - Jack Mackerel & Chub 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 feed rather than food





Total Production .000 tonnes	Fishmeal	By-Product Coefficient %	By-product FM Production
ANGOLA	5.3	50	2.7
ARGENTINA	50.0	55	27.5
AUSTRALIA	14.0	50	7.0
BRAZIL	42.5	22	9.4
CAMBODIA	3.0	60	1.8
CANADA	31.2	100	31.2
CHILE	673.3	14	94.3
CHINA	141.0	5	7.1
DENMARK	161.3	20	32.3
ECUADOR	48.0	14	6.7
FAROE ISLANDS	44.4	5	2.2
FINLAND	3.6	70	2.5
FRANCE	13.7	100	13.7
GERMANY	19.0	100	19.0
ICELAND	140.9	32	45.1
INDIA	19.3	5	1.0
INDONESIA	15.0	30	4.5
IRAN	29.8	30	8.9
IRELAND	19.3	40	7.7
ITALY	4.3	100	4.3
IVORY COAST	1.0	60	0.6
JAPAN	202.9	90	182.6
KOREA (Rep)	49.6	20	9.9
LITHUANIA	22.0	20	4.4
MALAYSIA	44.2	40	17.7
MALDIVES	2.0	80	1.6
MAURITIUS	5.0	60	3.0
MEXICO	105.8	50	52.9
MOROCCO	78.0	15	11.7
NAMIBIA	12.5	100	12.5
NEW ZEALAND	27.0	10	2.7
NORWAY	135.0	22	29.7
PAKISTAN	56.2	20	11.2
PANAMA	55.2	10	5.5
PERU	1,396.1	2	27.9
POLAND	22.4	40	9.0
RUSSIAN FED.	71.0	50	35.5
SENEGAL	4.3	100	4.3
SEYCHELLES	20.0	70	14.0
SOUTH AFRICA	83.8	10	8.4
SPAIN	20.0	100	20.0
SWEDEN	23.6	50	11.8
TAIWAN	18.2	70	12.7
THAILAND	468.0	60	280.8
U.K.	42.0	70	29.4
U.S.A.	216.2	25	54.1
VIETNAM	45.9	50	23.0
TOTAL 47	4,706.8		1205.6
OTHERS	111.2	20	22.2
TOTAL WORLD	4,818.0	25%	1227.9

Increasingly fishmeal is coming from fisheries by-products - now reached over 25% of global production.

Grimsby fishmeal plant 100% by-products

Mass Balance of Production 2008

Based on global fed volumes not produced volumes



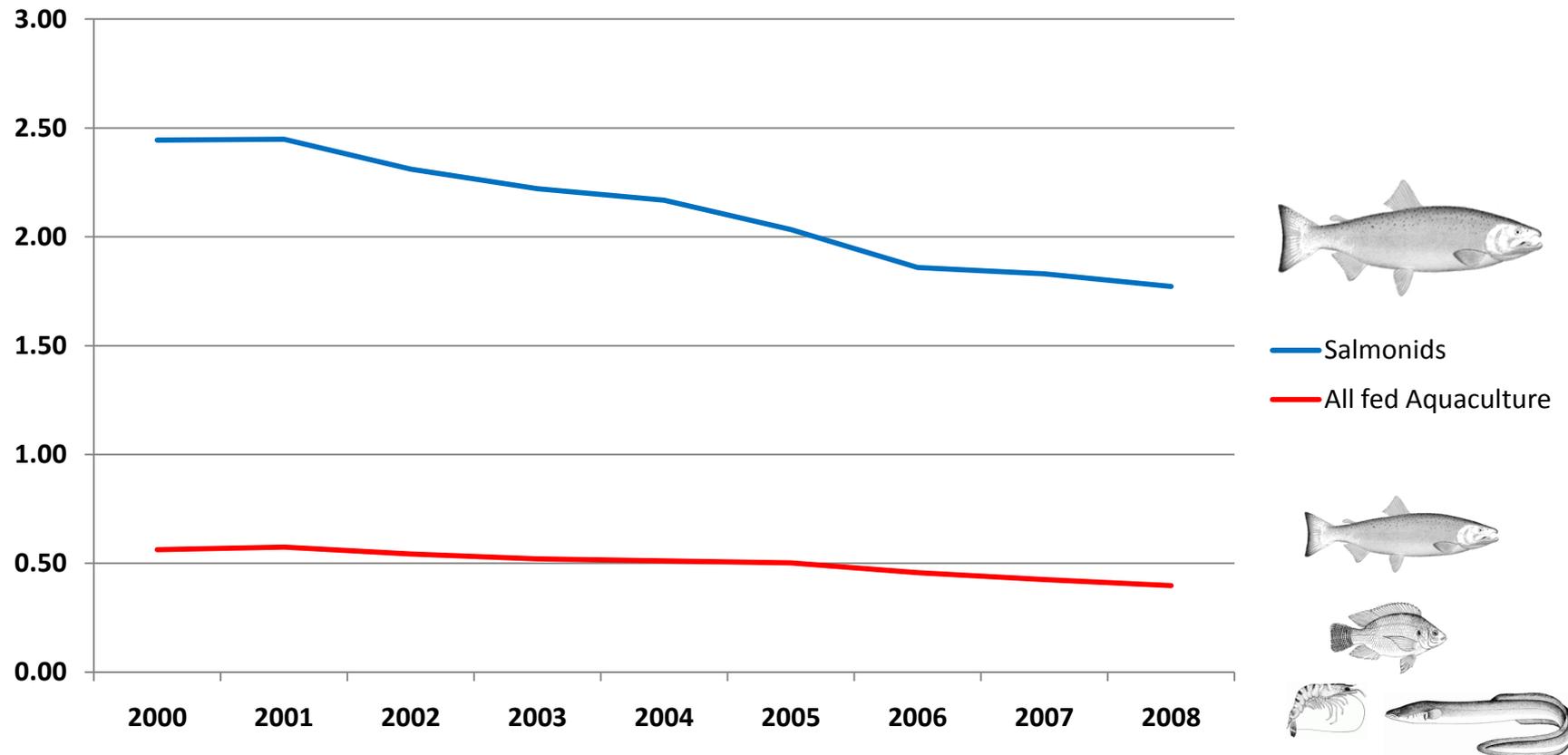
Total Mass Balance and resulting FIFO's

thousand tonnes (fish-in-fish-out ratio based on whole fish in to whole fish out)

	FO	FM	Water	Total RM	Whole Fish	Farmed Production	FIFO
Chicken	0	440	1178	1619	1214	N/A	N/A
Pig	0	1263	3380	4643	3482	N/A	N/A
Other Land Animals	0	160	428	588	441	N/A	N/A
Other oil uses	110	0	294	404	303	N/A	N/A
Human Consumption	126	0	337	463	347	N/A	N/A
Crustaceans	28	786	2178	2992	2244	4673	0.48
Marine Fish	115	738	2285	3138	2354	2337	1.01
Salmon & Trout	604	916	4069	5588	4191	2365	1.77
Eels	15	186	537	738	554	244	2.26
Cyprinids	1	130	350	481	361	13037	0.03
Tilapias	18	143	430	591	443	2737	0.16
Other Freshwater	15	180	521	716	537	2102	0.26
Aquaculture Sub-total	796	3079	10371	14246	10684	27495	0.39
Total	1032	4942	15990	21964	16473		

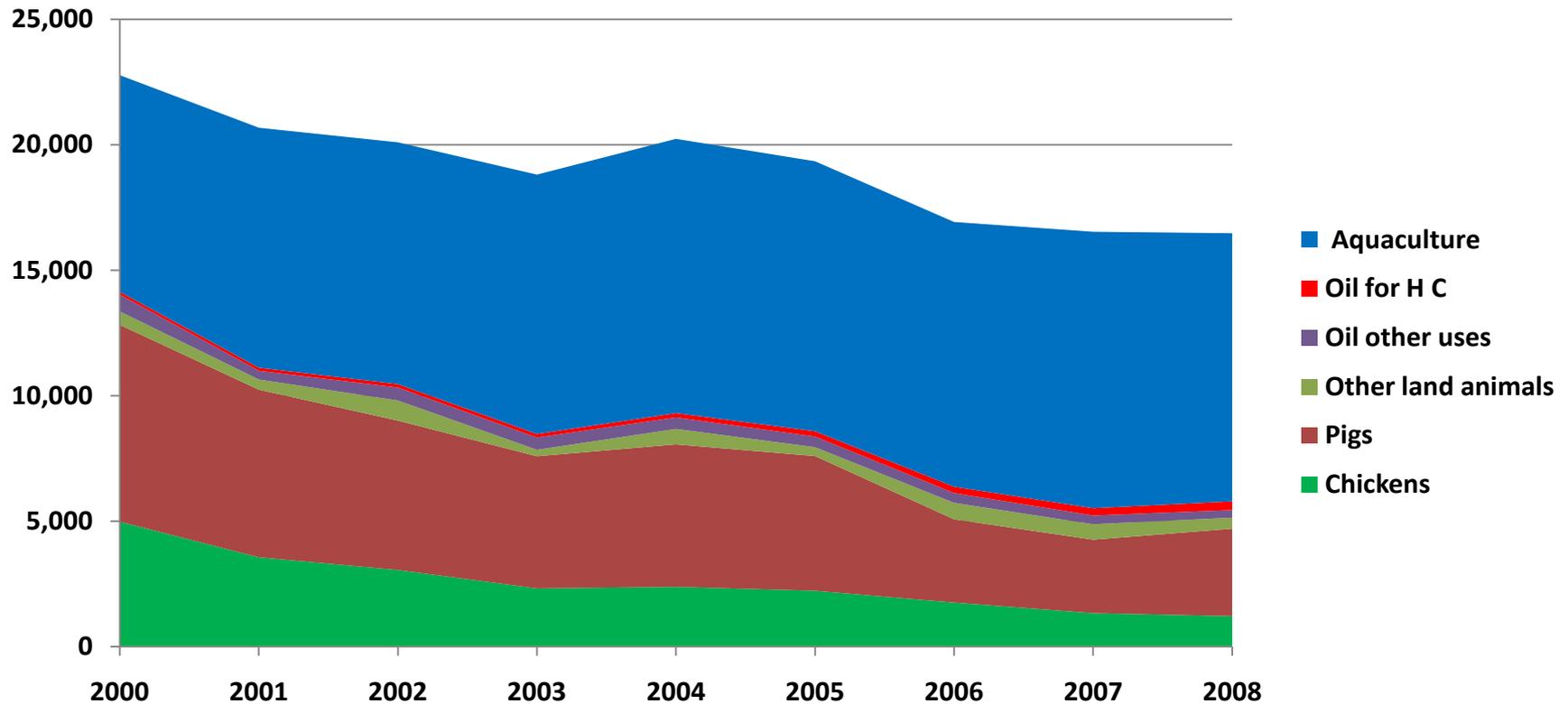
Falling FIFO ratios in aquaculture

FIFO 2000-2008 based on whole rendered fish



Reducing global use of rendered whole fish

Whole fish rendered for different purposes
Tonnes ,000



Future availability of raw material

- Whole fish from feed fisheries will continue to be tight
- Increasing volumes of raw material will come from fisheries by-products
- More & more of the fisheries by-products will come from aquaculture
- Supplies of whole fish will increasingly come from stocks shown to be responsibly managed in order to reassure stakeholders

Reassuring the value-chain about fisheries management

- FAO Code of Responsible Fisheries is the only 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



IFFO recently launched its Global Standard for Responsible Supply (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



RS progress to date

- Multi-stakeholder group including fishmeal & feed producers, farmers, processors, retailers & eNGO's worked to produce the standard.
- Launched to members in October 2009
- Recently announced first approved plant – one in Peru for the processing of Peruvian Anchovy
- Another 70 factories under assessment as of June 2010 in four different countries (over 25% of world production)

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



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.



RS – The Future

- Continuous development of the programme
- Fisheries by-product element being added
- Discussions on how to cover factory pollution



Improvers Programme

- Concern that factories in some countries will find the RS Standard difficult to achieve
- No wish to dilute the Standard
- Desire to bring about fishery and factory improvement where required
- May require government commitment
- May require access to capital funds for investment in factory & fisheries management
- IFFO in discussion with FAO on implementation

Improvers Programme cont

To consist of:

- Identification of areas of non-compliance
- Structured programme of continuous improvement
- Agreed milestones along a defined timeline
- Final goal to be accreditation to RS Standard



Conclusions

- Fishmeal & fish oil will continue to play an important role in the healthy production of many farmed aquatic and terrestrial animals
- Fishmeal is becoming less a commodity and more a strategic nutritional ingredient
- The unique properties of fish oil will ensure continued strong demand to promote human health
- Decreasing amounts of whole fish are being used in feed while the resulting farmed production is increasing
- It will become increasingly important to be able to demonstrate that production is being conducted in a responsible manner so that.....

.....feeding fish to fish will continue to make a vital contribution to sustainable aquaculture