



Resource budget for raw materials in Norwegian salmon feeds 2010 and 2012

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Salmon produced in Norway

1000
tonns

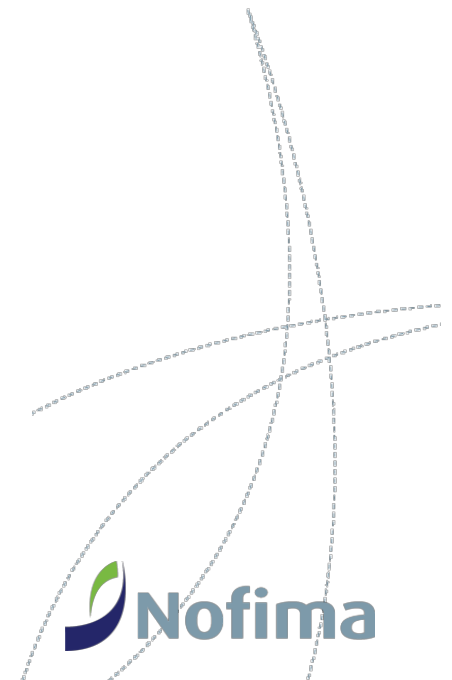
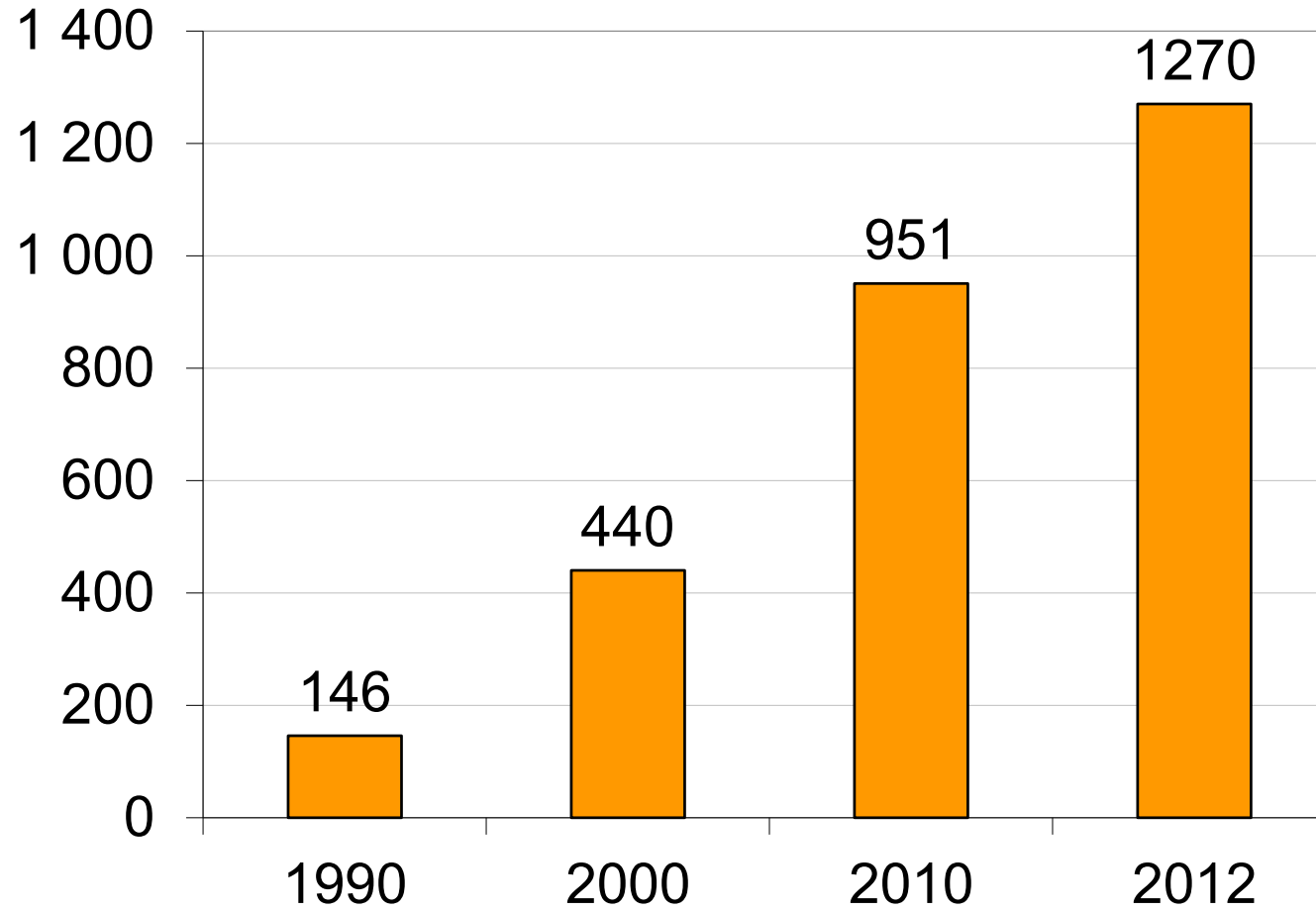
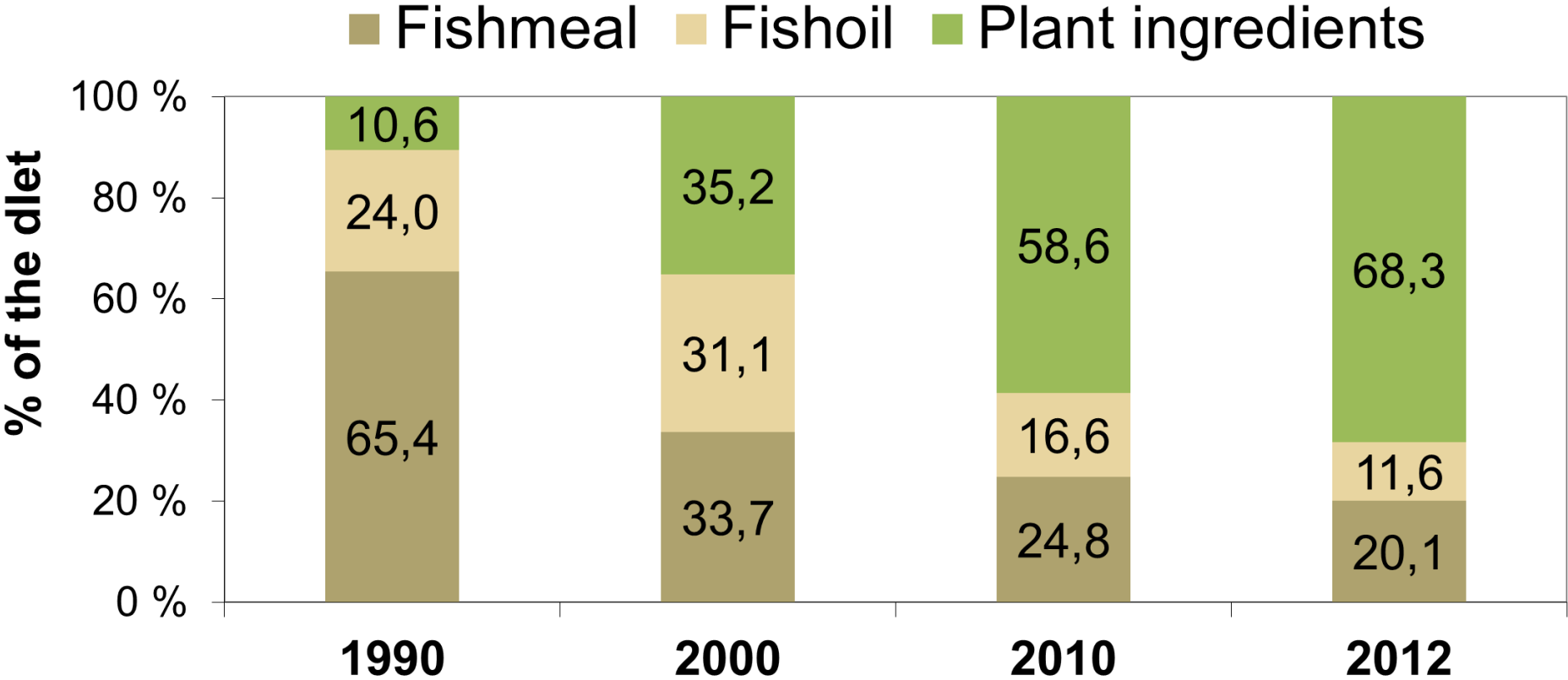
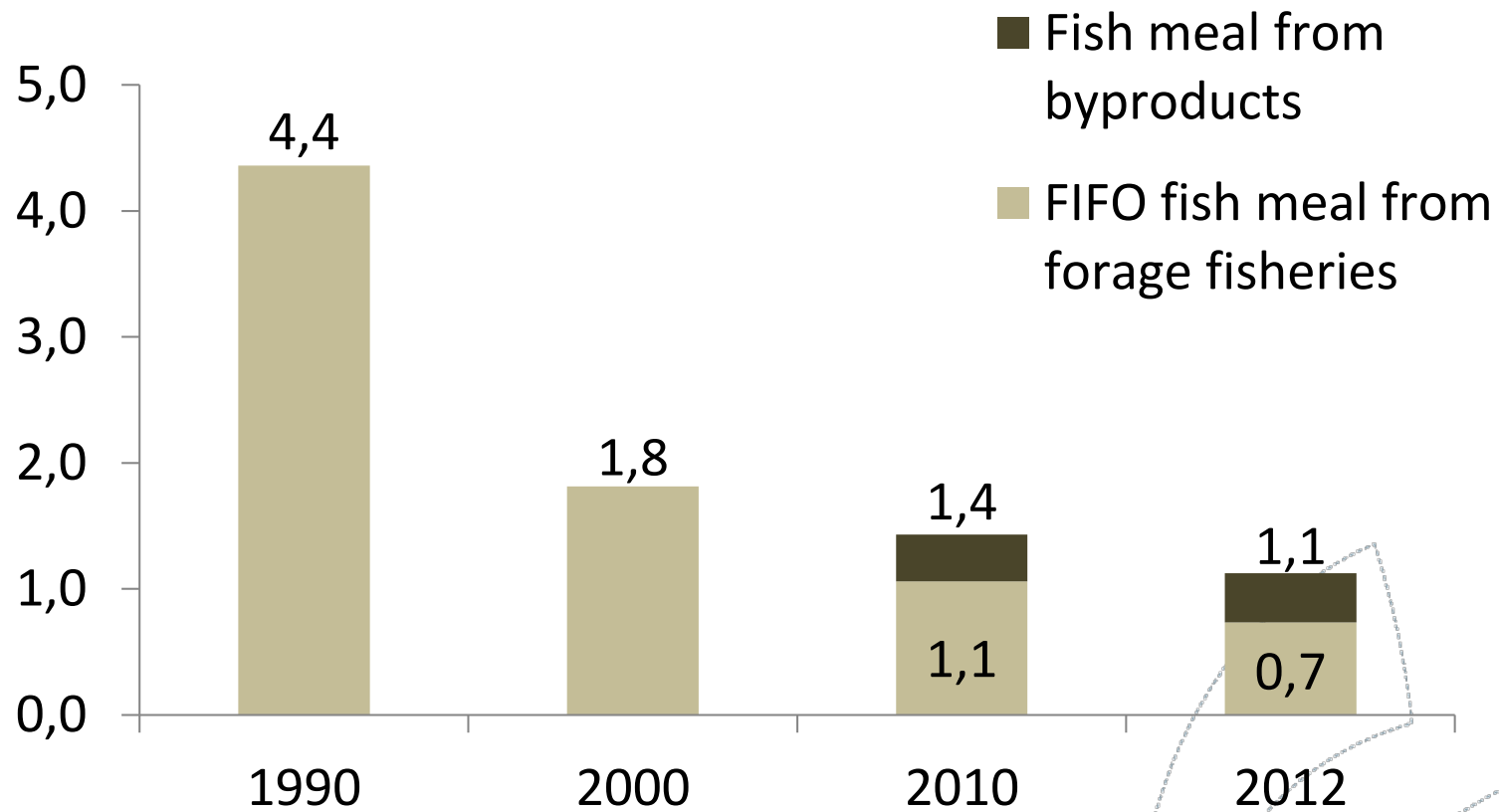


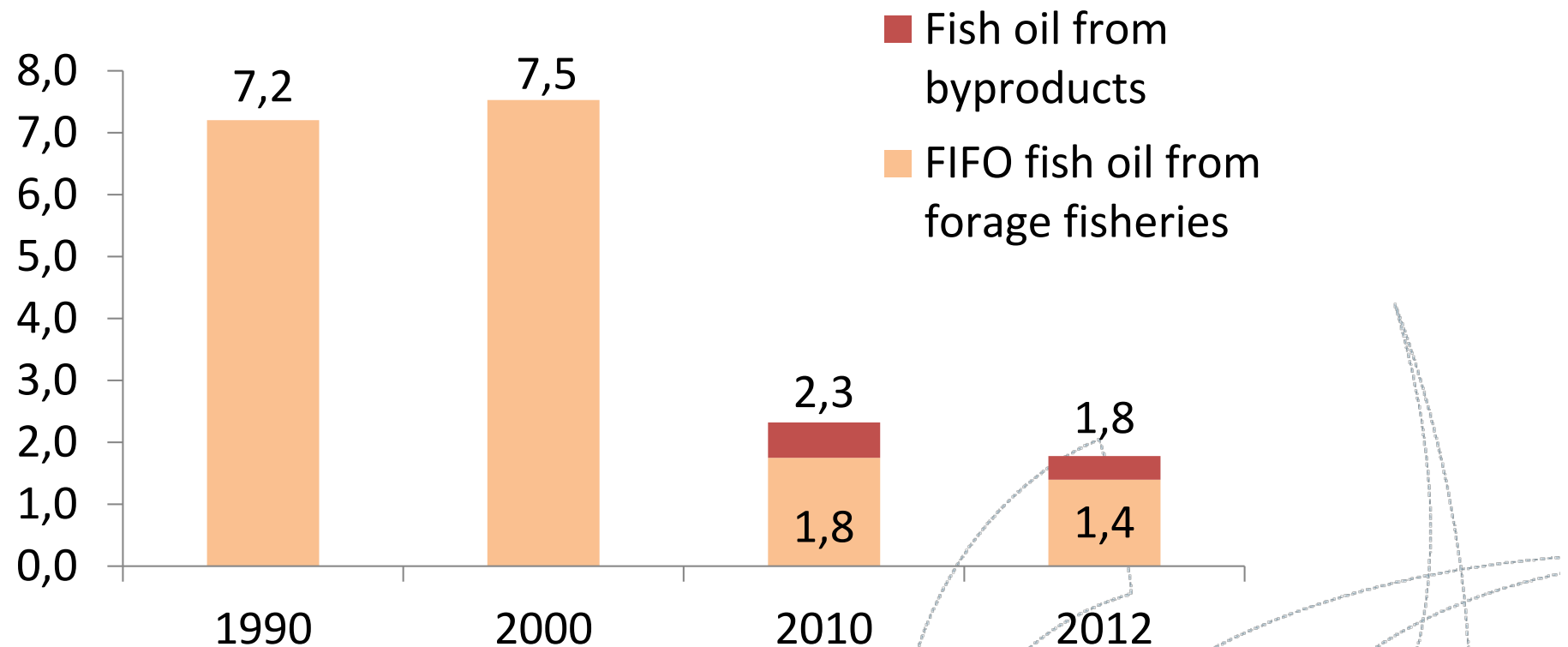
Figure 1: Norwegian salmon feed 1990-2012



FIFO for fish meal 1990-2012

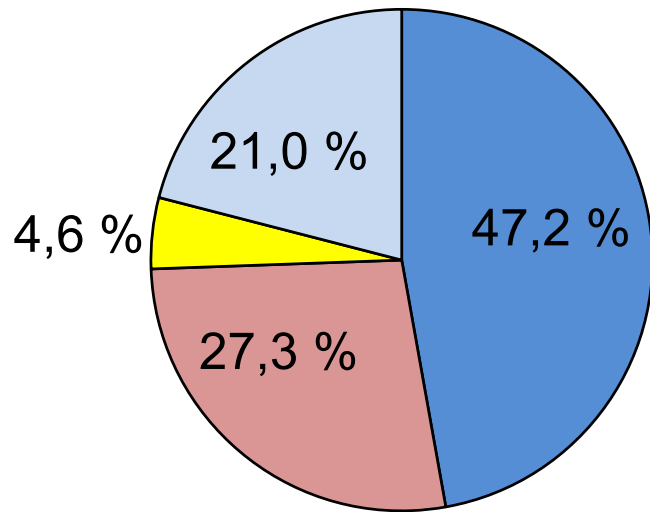


FIFO for Fish oil 1990-2012

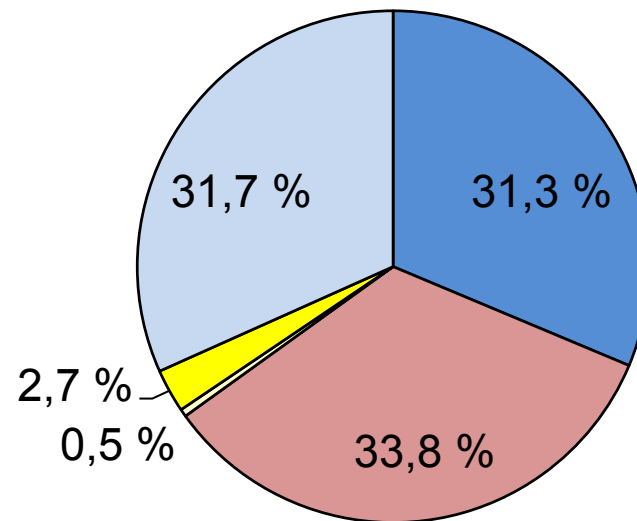


Origin of fish meal

2010

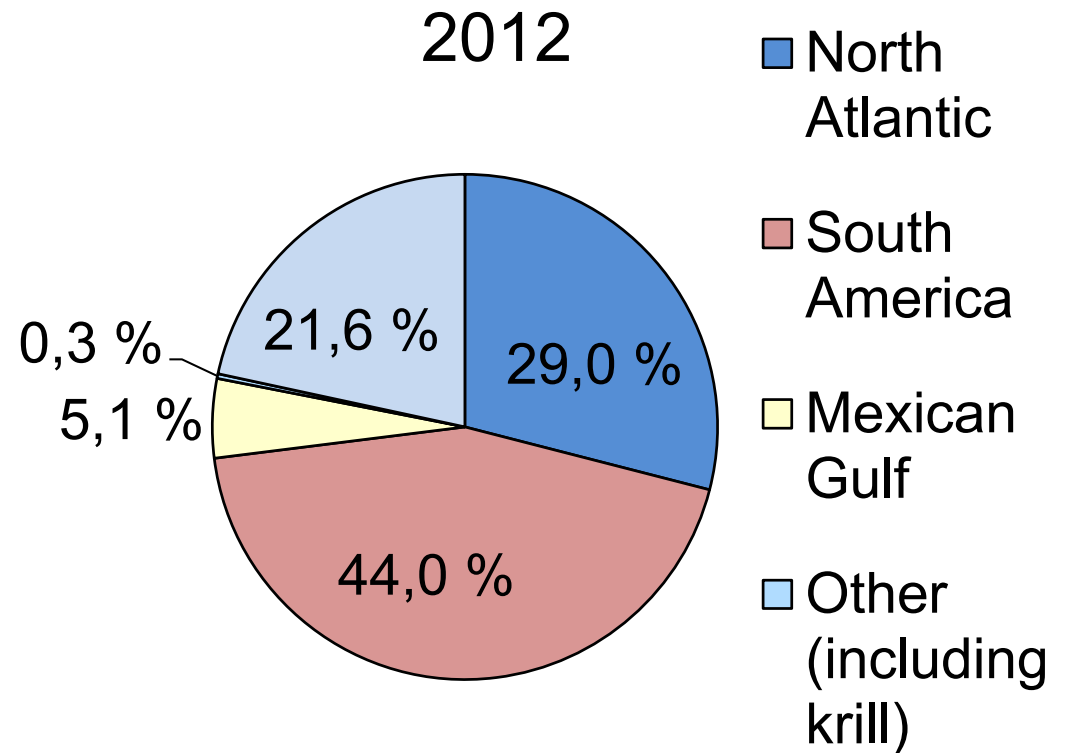
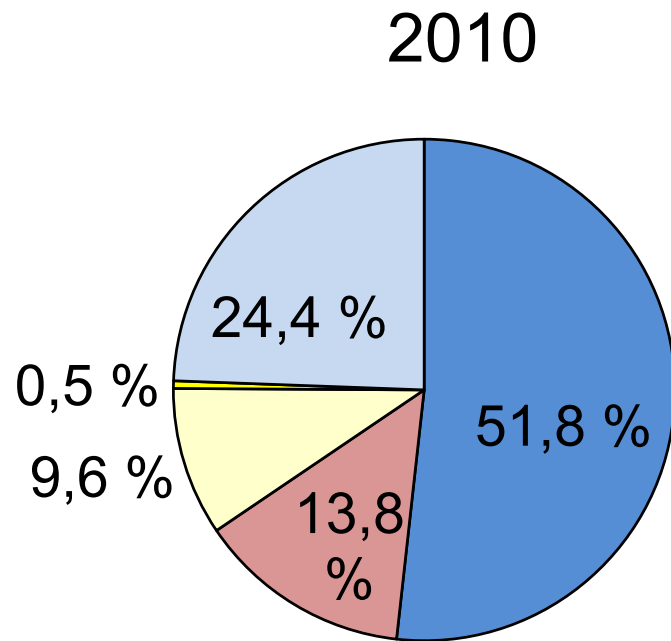


2012

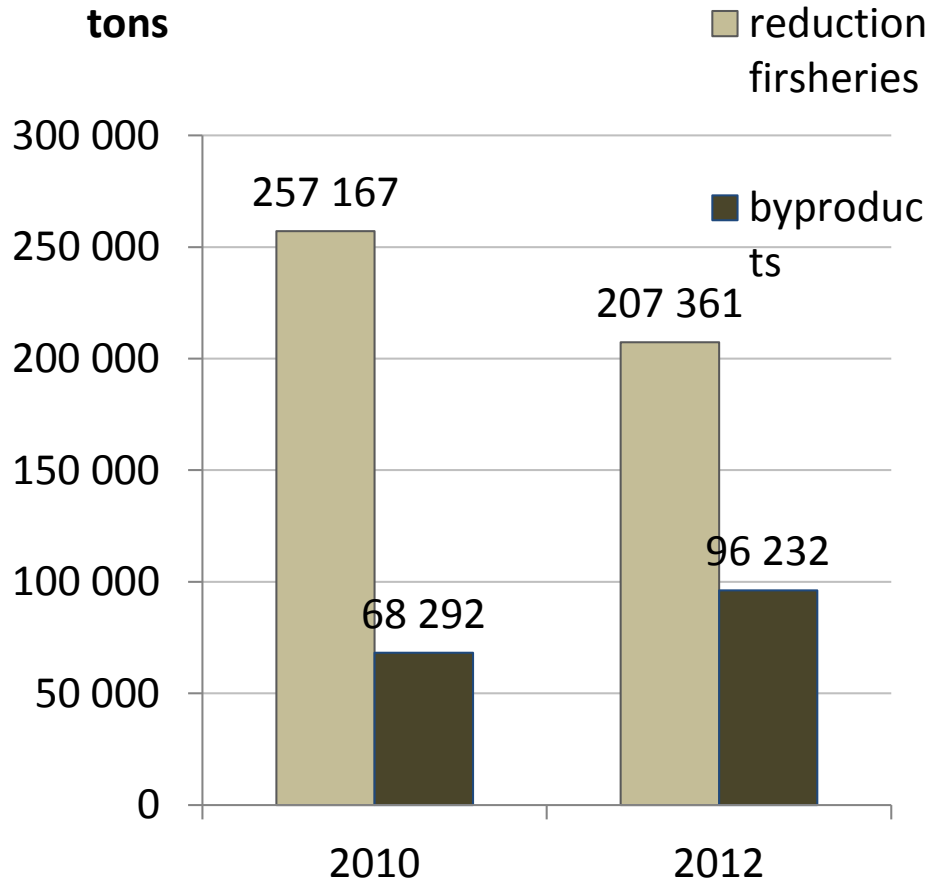


- North Atlantic
- South America
- Mexican Gulf
- Other (including krill)
- By-products (N Atlantic)

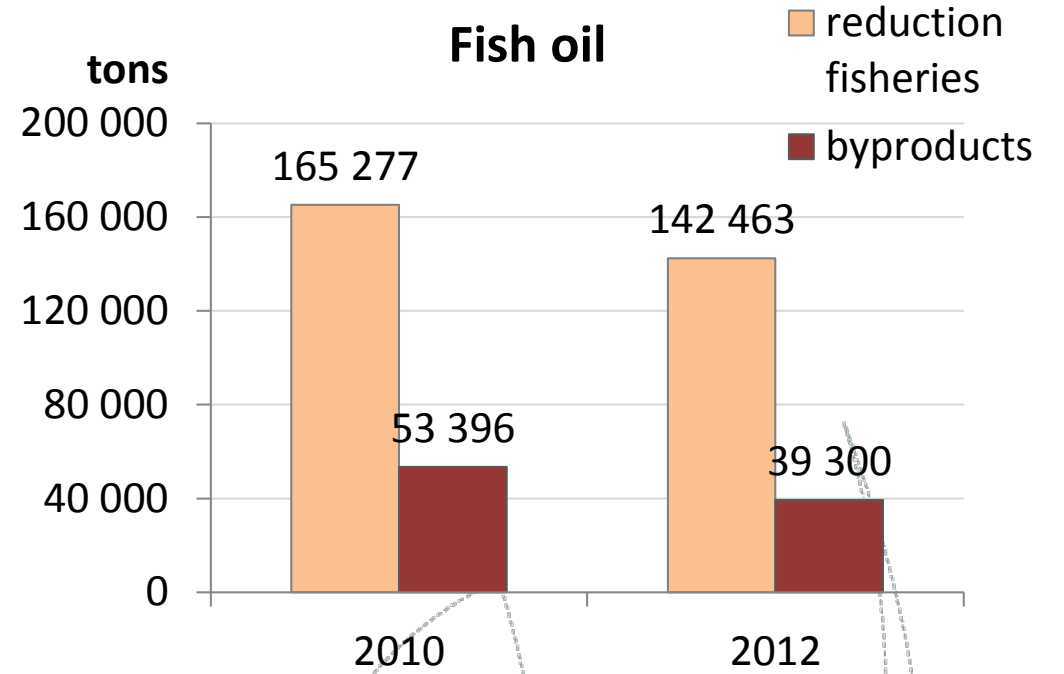
Origin of fish oil



Fishmeal



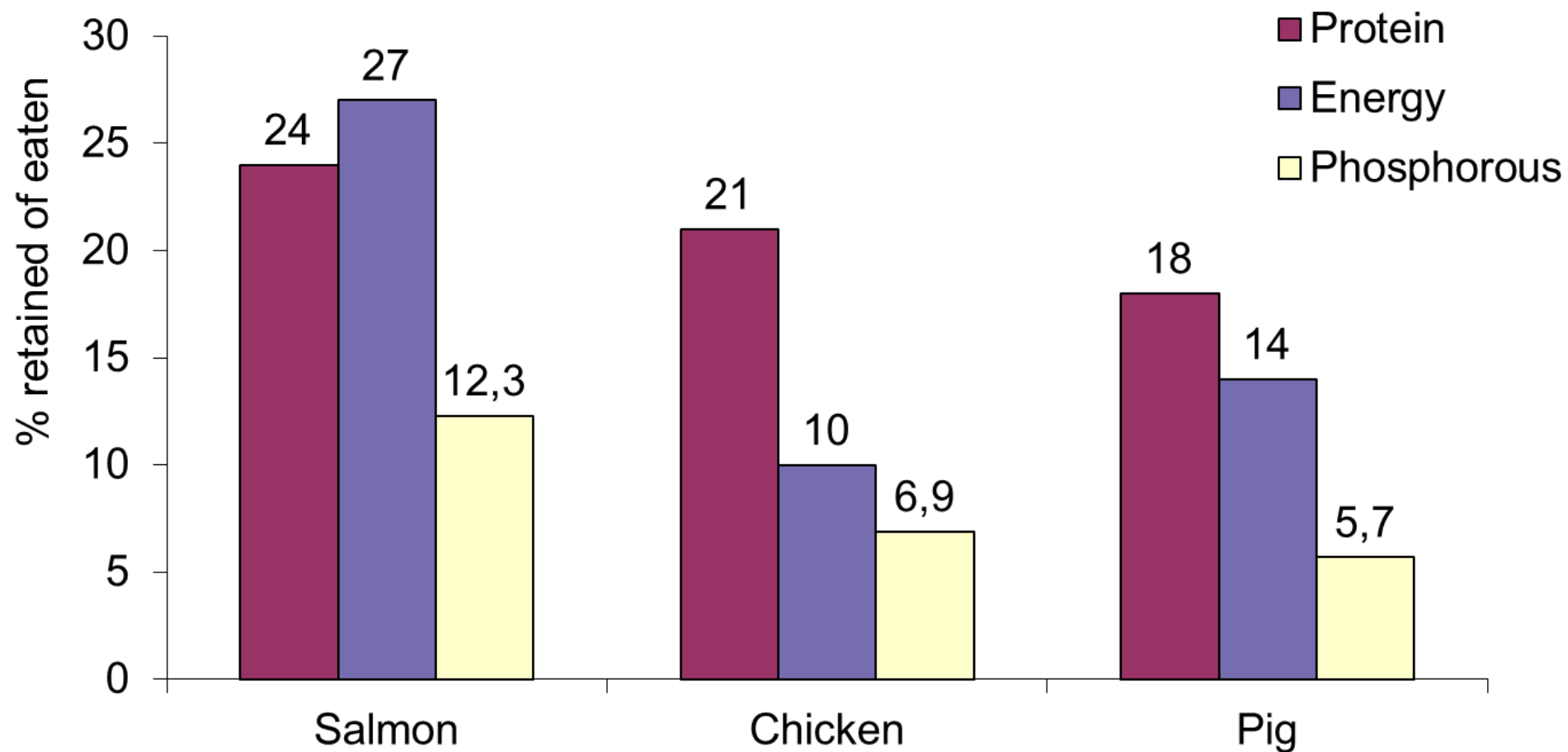
Fish oil



Nutrient or energy content and utilization in salmon

2012	Nutrient content (% or MJ/kg)		Retention (% of eaten)	
	Whole body	Fillet	Whole body	Fillet
Energy	12.6	11.5	45	27
Protein	17.5	19.1	33	24
Fat	21.3	18.4	51	29
EPA+DHA	1.58	1.36	41	23

Nutrient retention in edible product



Conclusions

- We have a detailed overview of the feed resources used in Norwegian salmon farming
- The use of feed resources is very dynamic
- The salmon production increased more than 30 % from 2010 til 2012 but the use of fish meal and oil from reduction fisheries (i.e. fish caught for this purpose) decreased
- Salmon is very efficient in converting feed resources to meat compared to terrestrial domestic animals and thereby an important innovation in meat production
- We get more for less and the industry becomes less dependent on specific resources

Thank you for your attention!

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