



# State of Small pelagic Fish resources and its implications for Food Security and Nutrition

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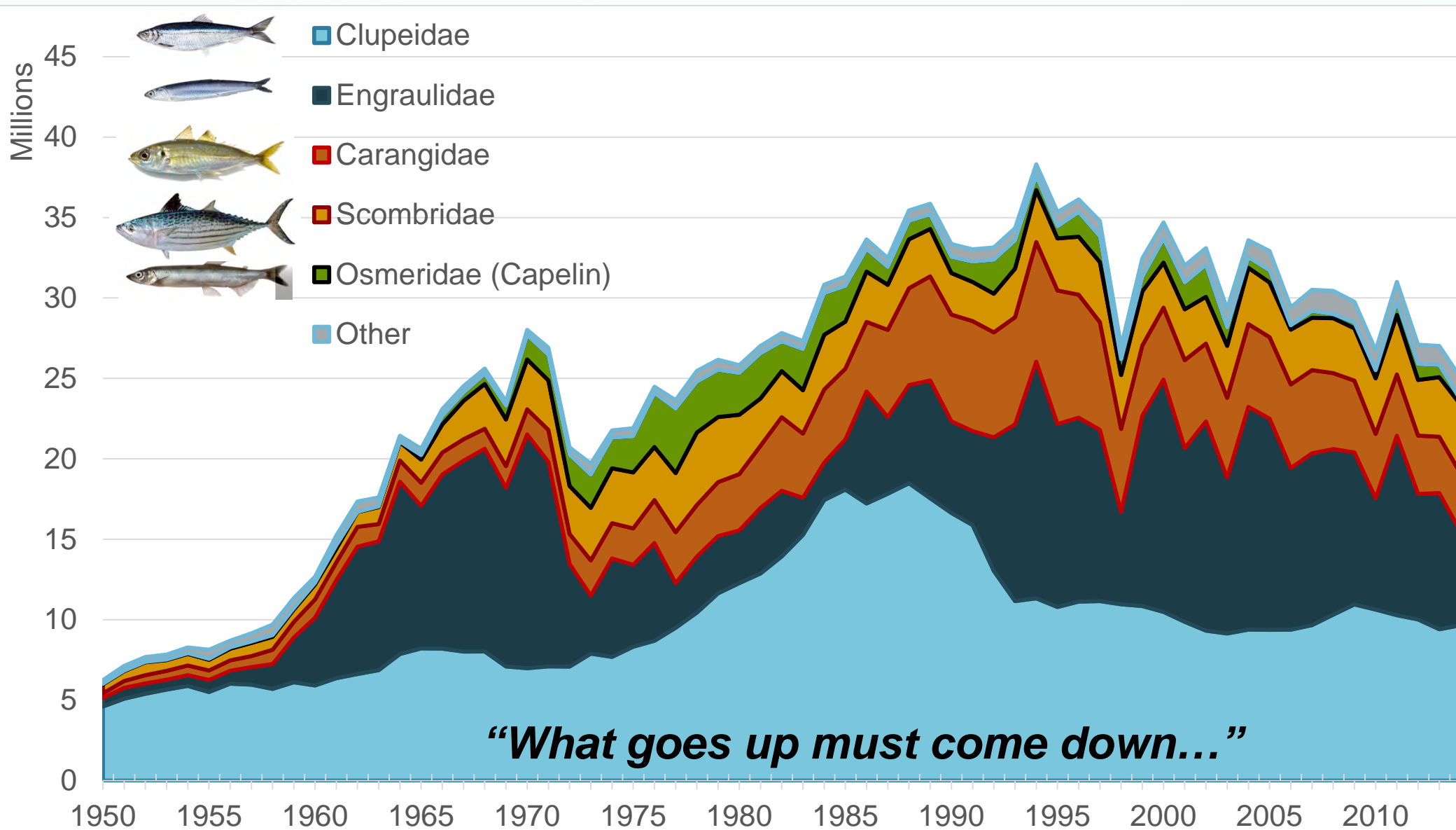


# Historical trends and Sustainability





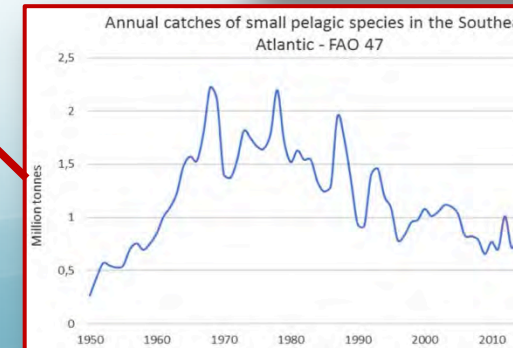
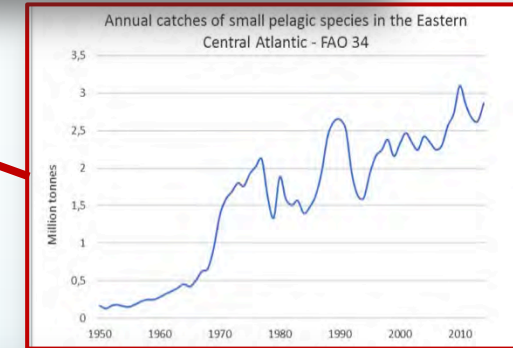
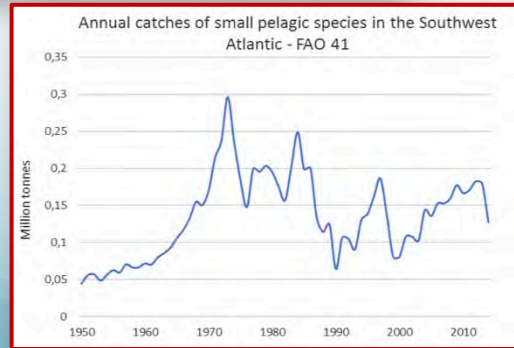
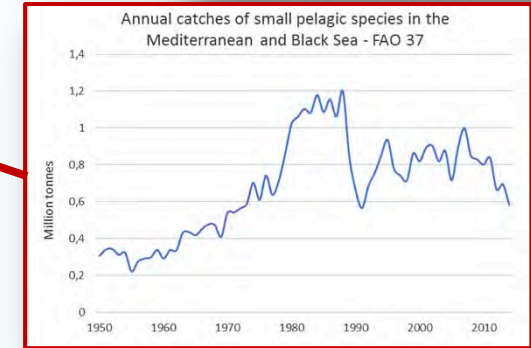
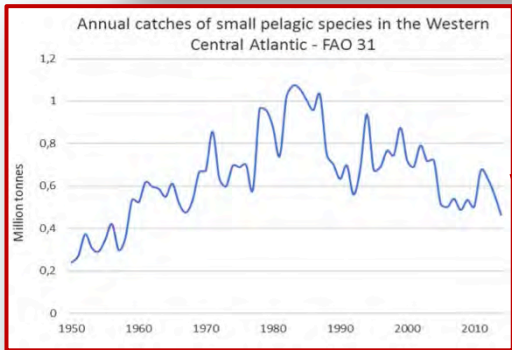
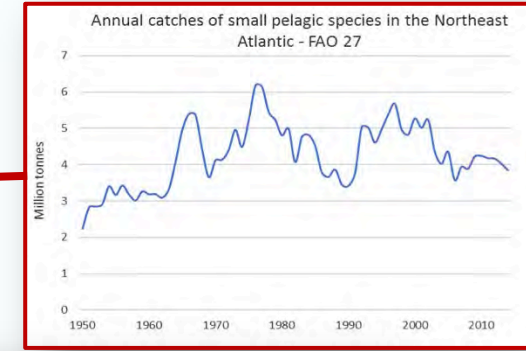
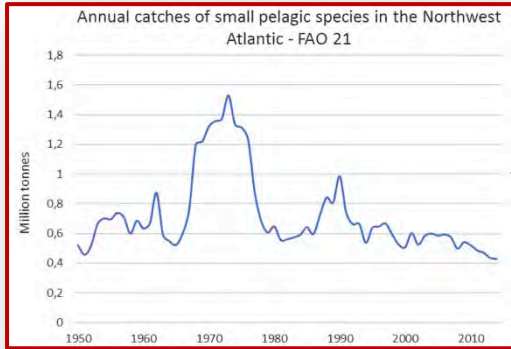
## Global landings of Small Pelagic Fish (by family)



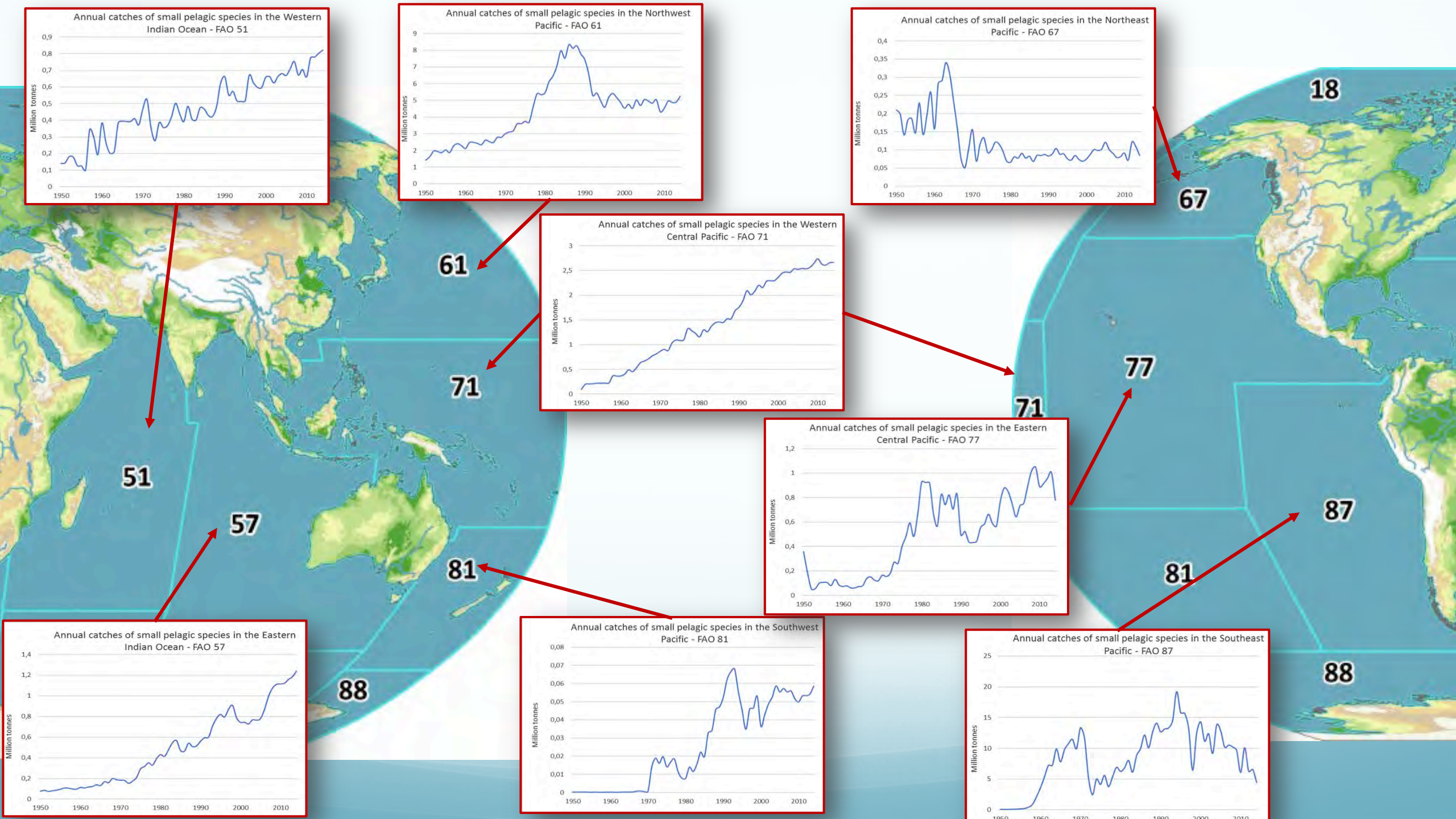
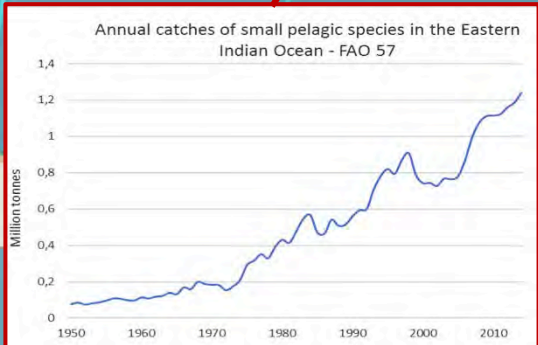
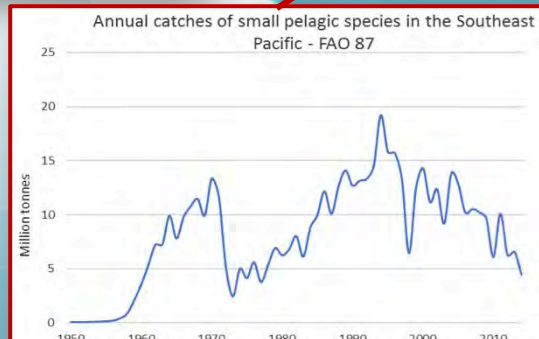
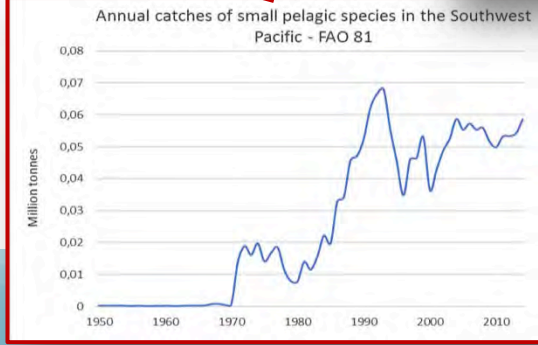
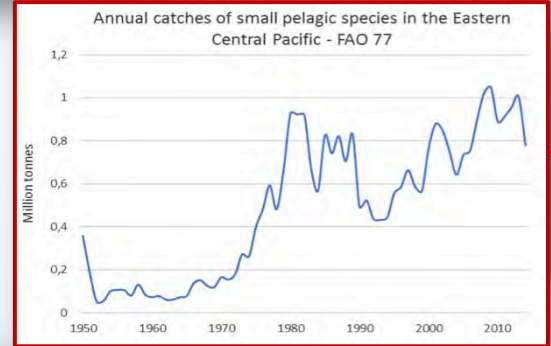
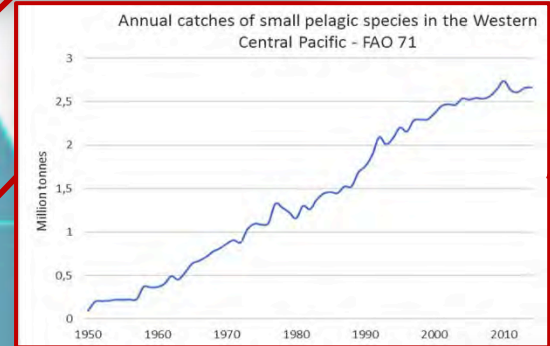
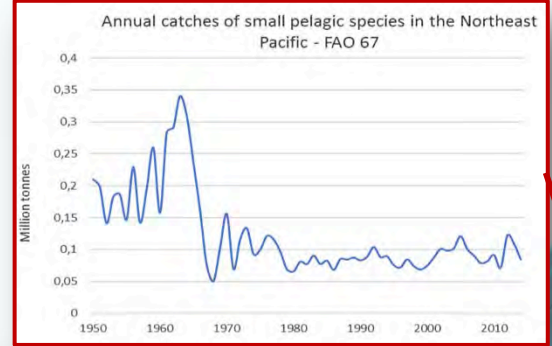
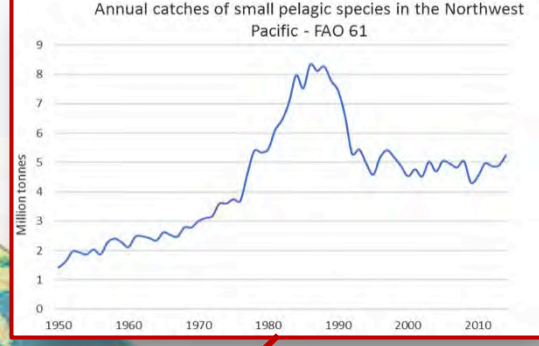
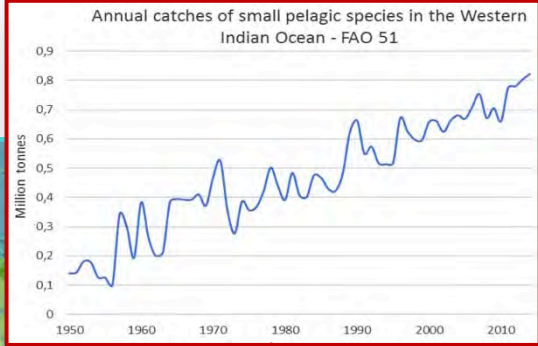
***“What goes up must come down...”***



# Total Landings of SPF (by FAO Area)



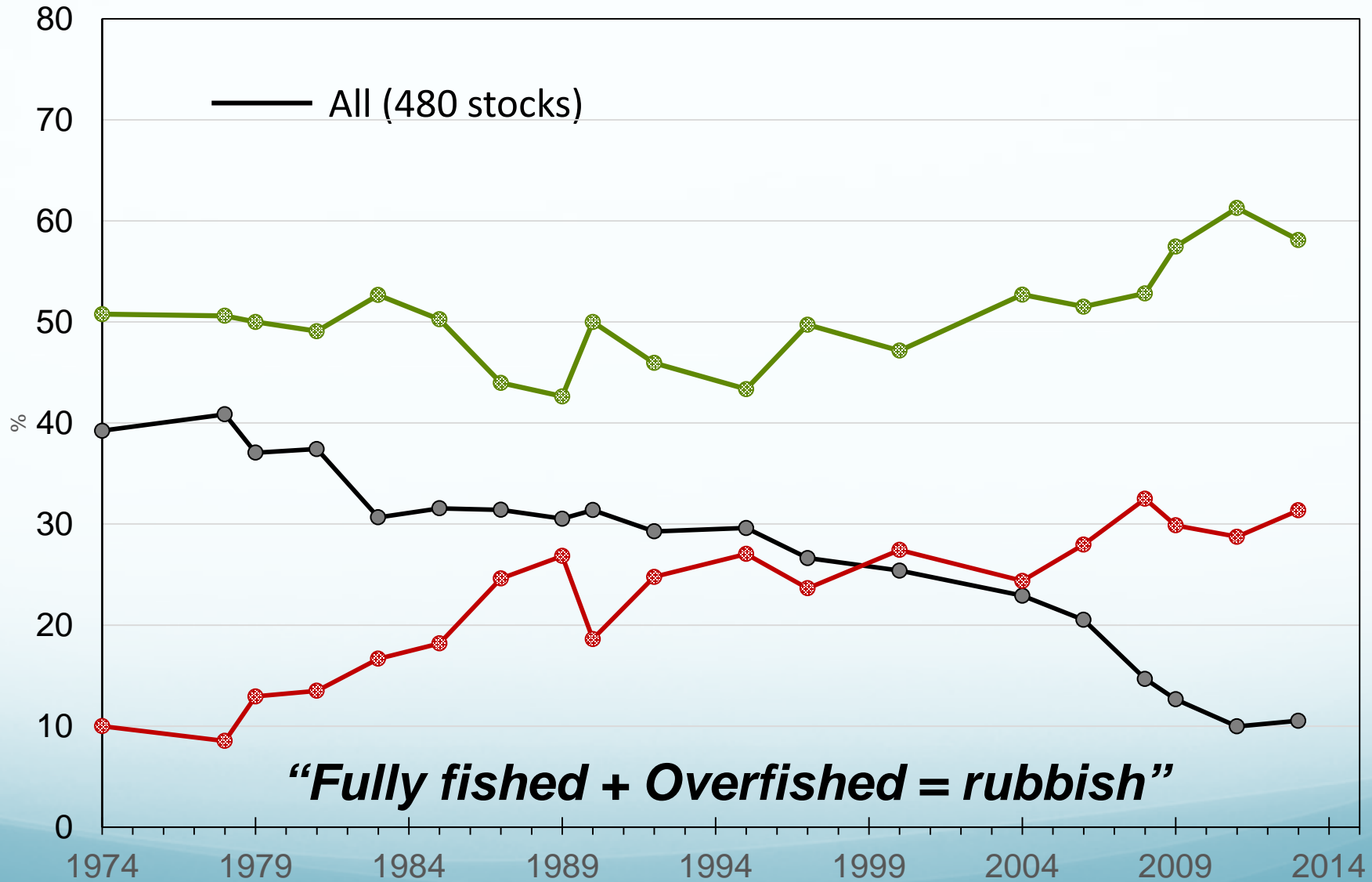
***“But not at the same time...”***





# FAO State of Stocks

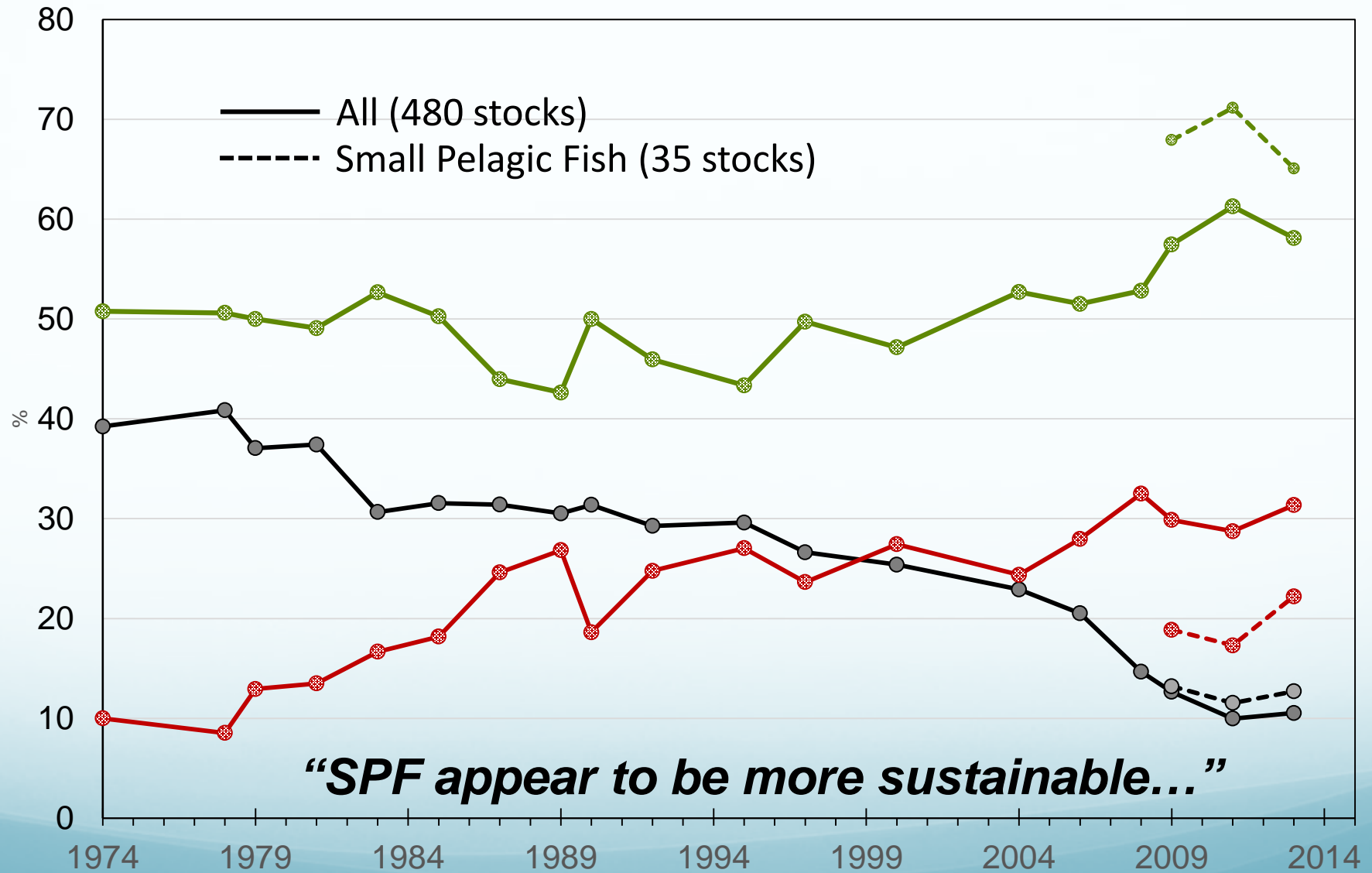
● Underfished   ● Fully fished   ● Overfished





# FAO State of Stocks

● Underfished   ● Fully fished   ● Overfished



***“SPF appear to be more sustainable...”***



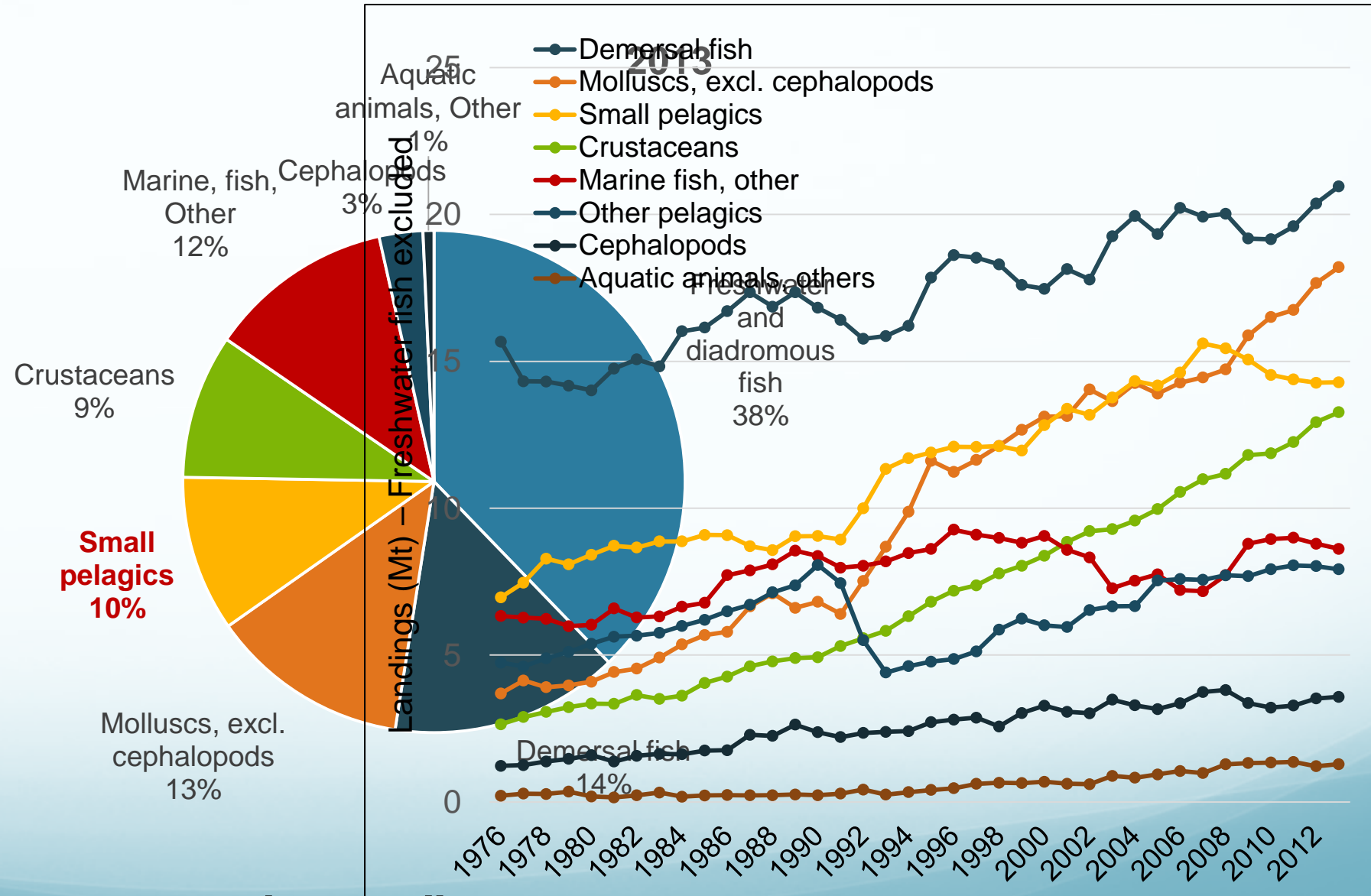
# Small Pelagic Fish as Food







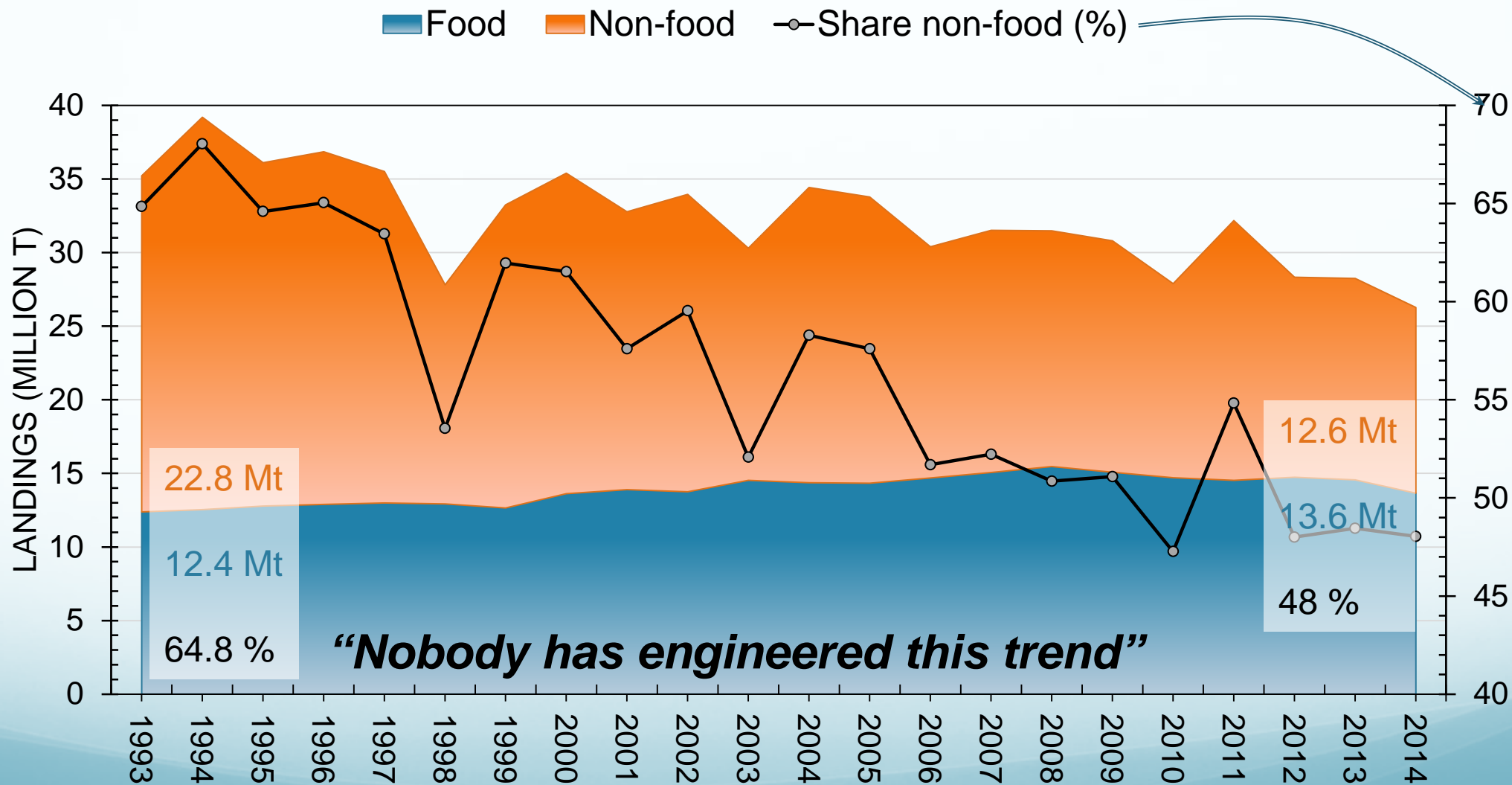
# Fish food supply by species group



*"...pickled herring is not everyone's treat"*

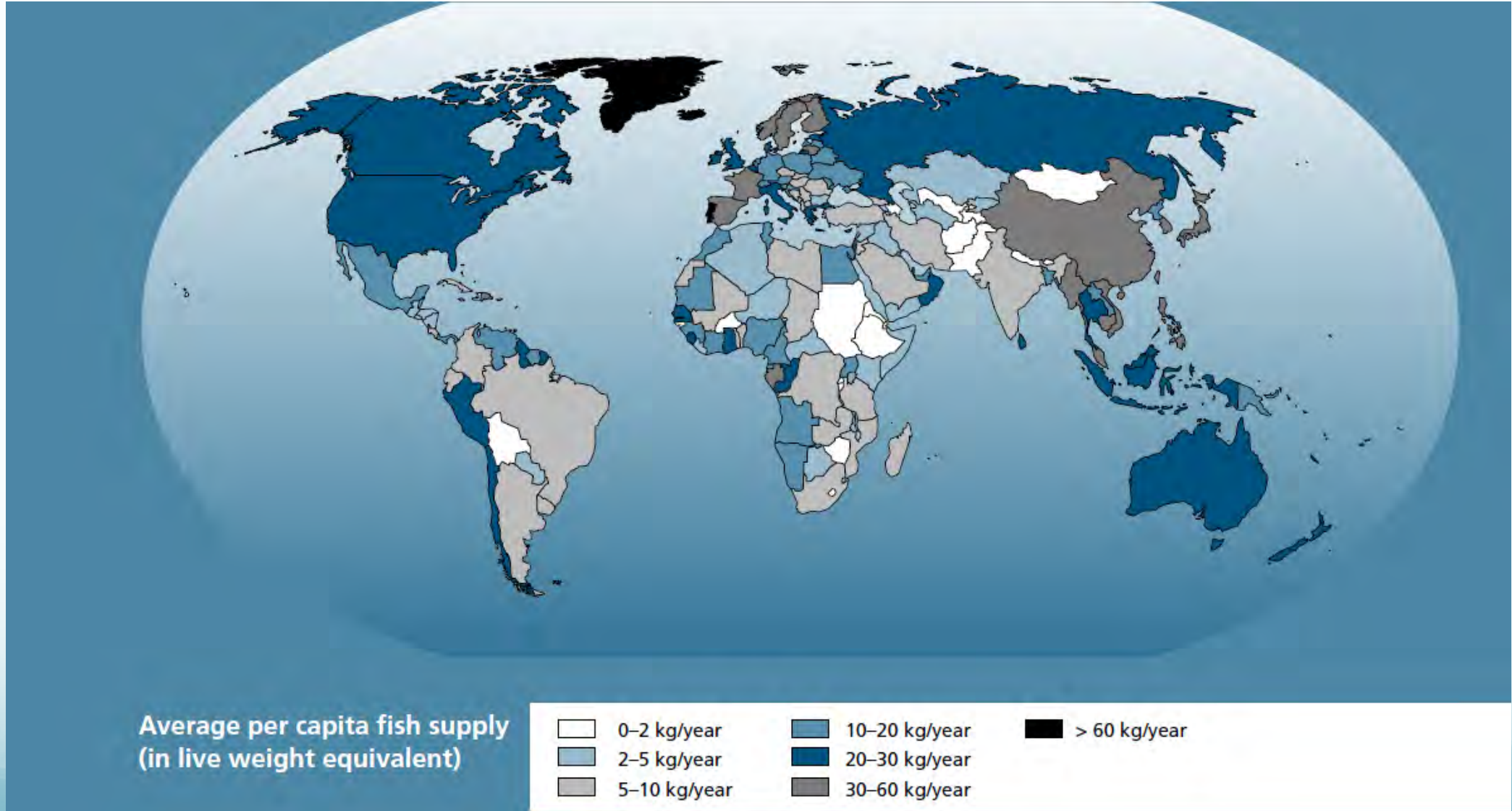


# Use of Small Pelagic Fish



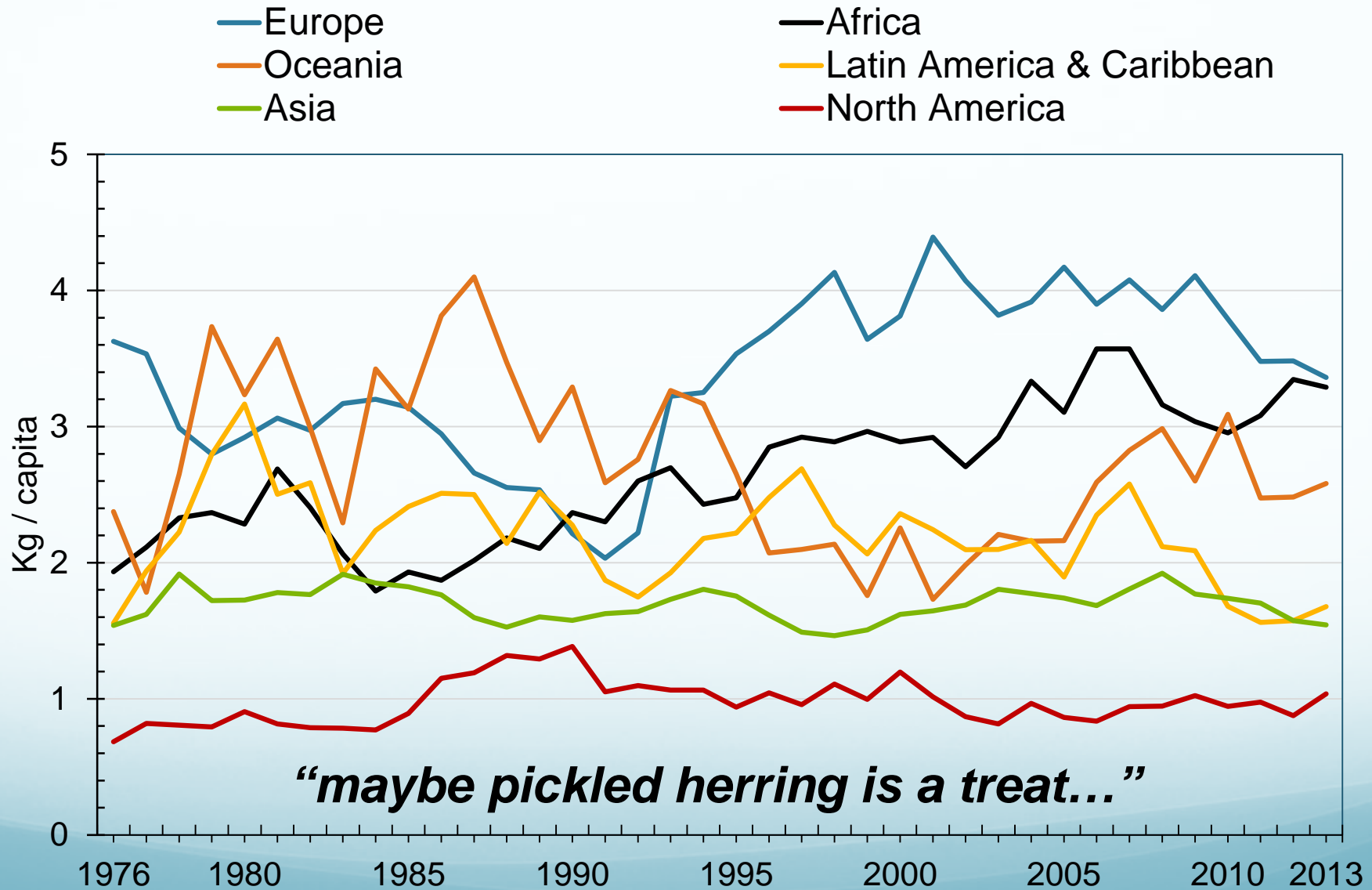


## Fish food supply (apparent consumption)





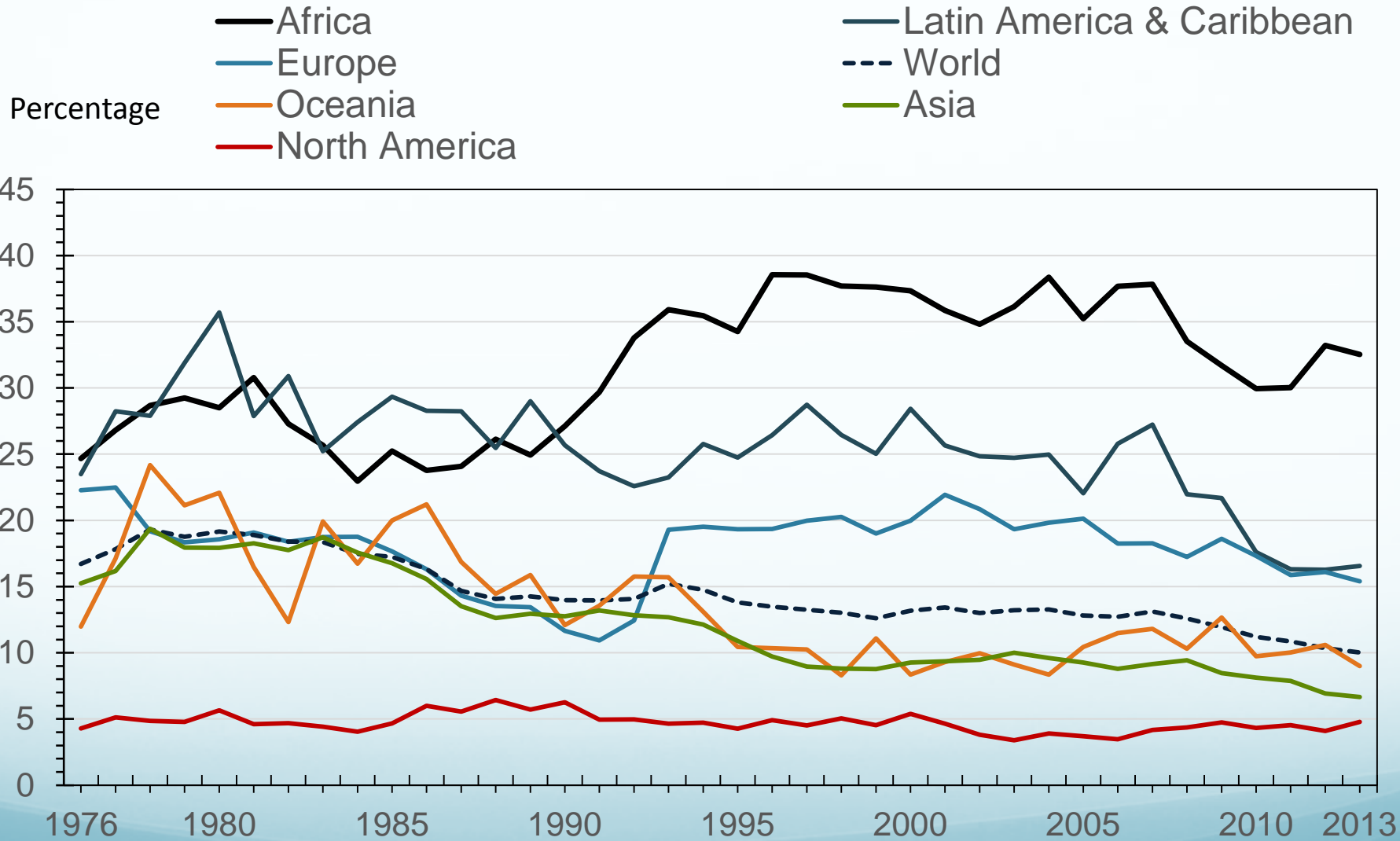
# Per capita consumption of small pelagics per region



*“maybe pickled herring is a treat...”*



# Share of small pelagics in total fish food supply



***“SPF are cheaper and accessible to the poor...”***

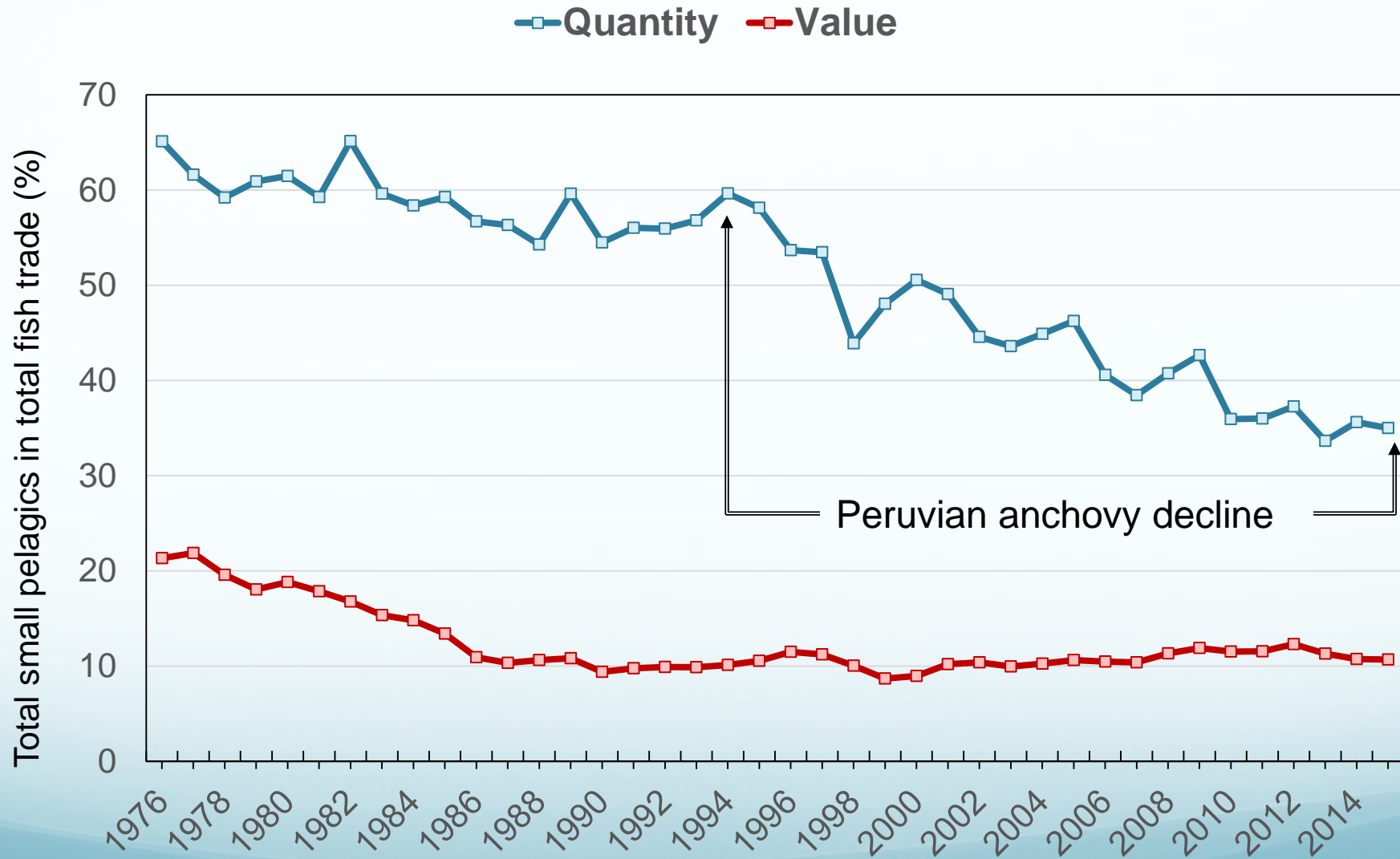


# Small Pelagics and Trade





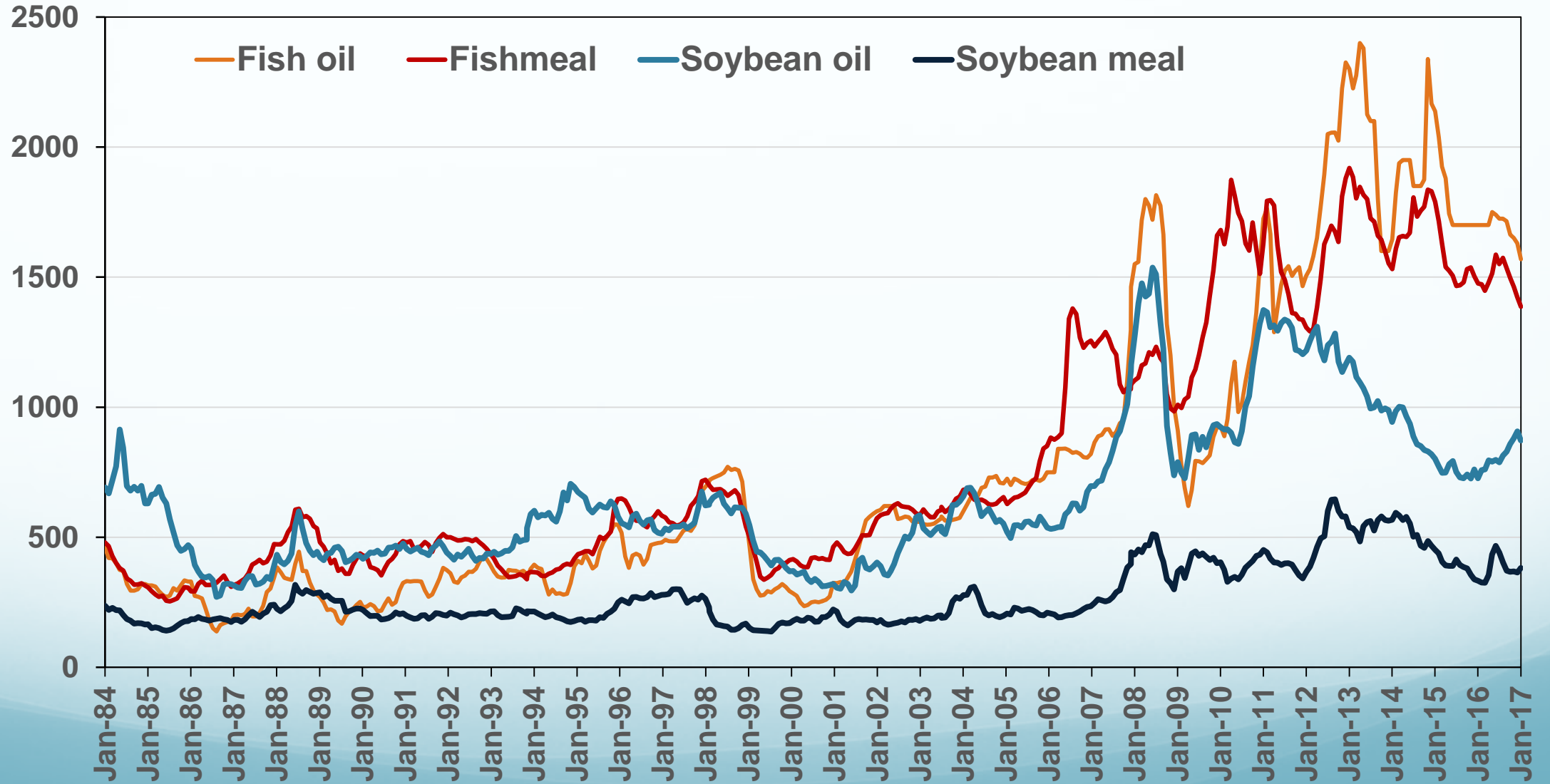
# Share of small pelagics in total Fish trade





## Fishmeal and Fish oil price

US\$/t

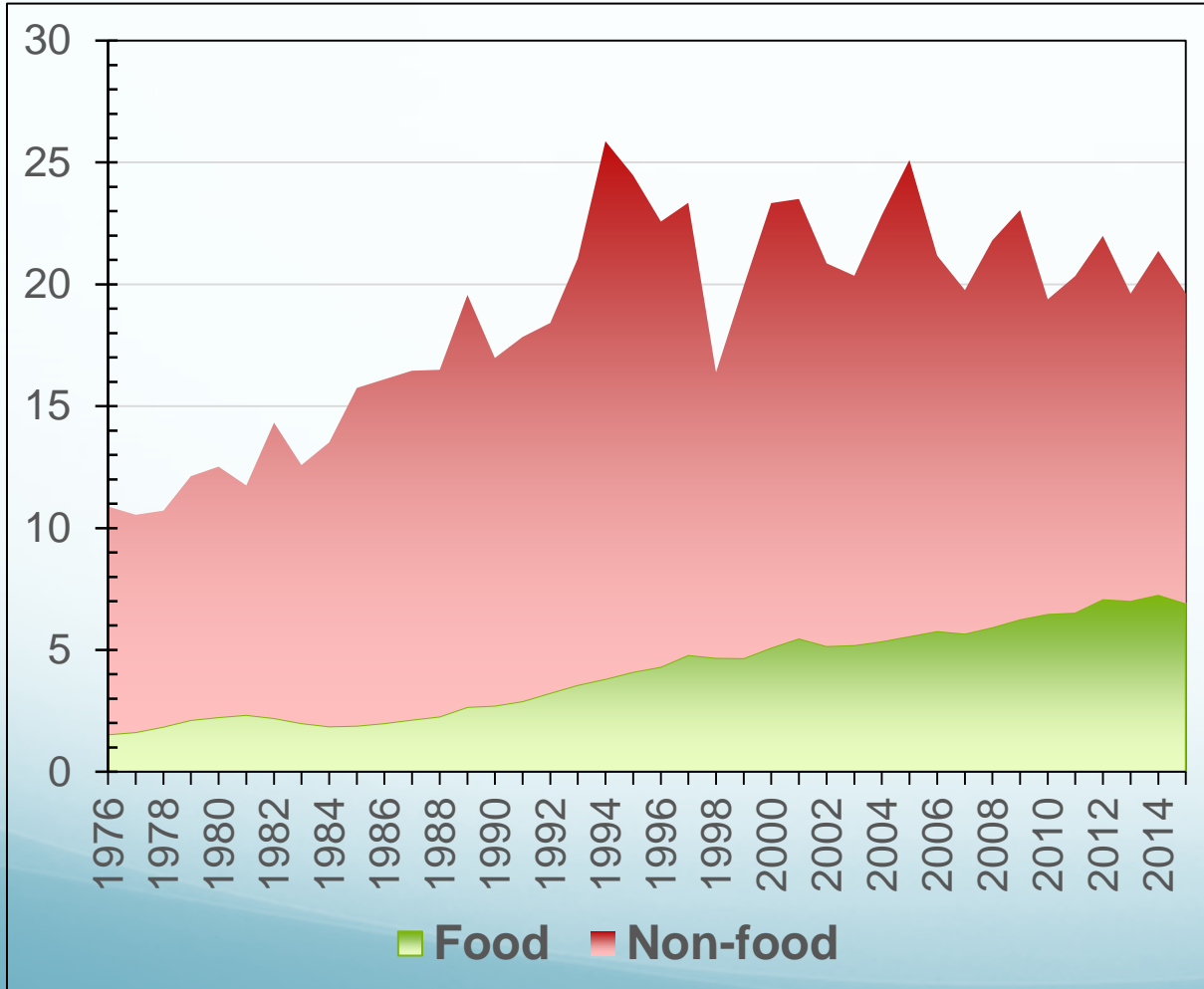




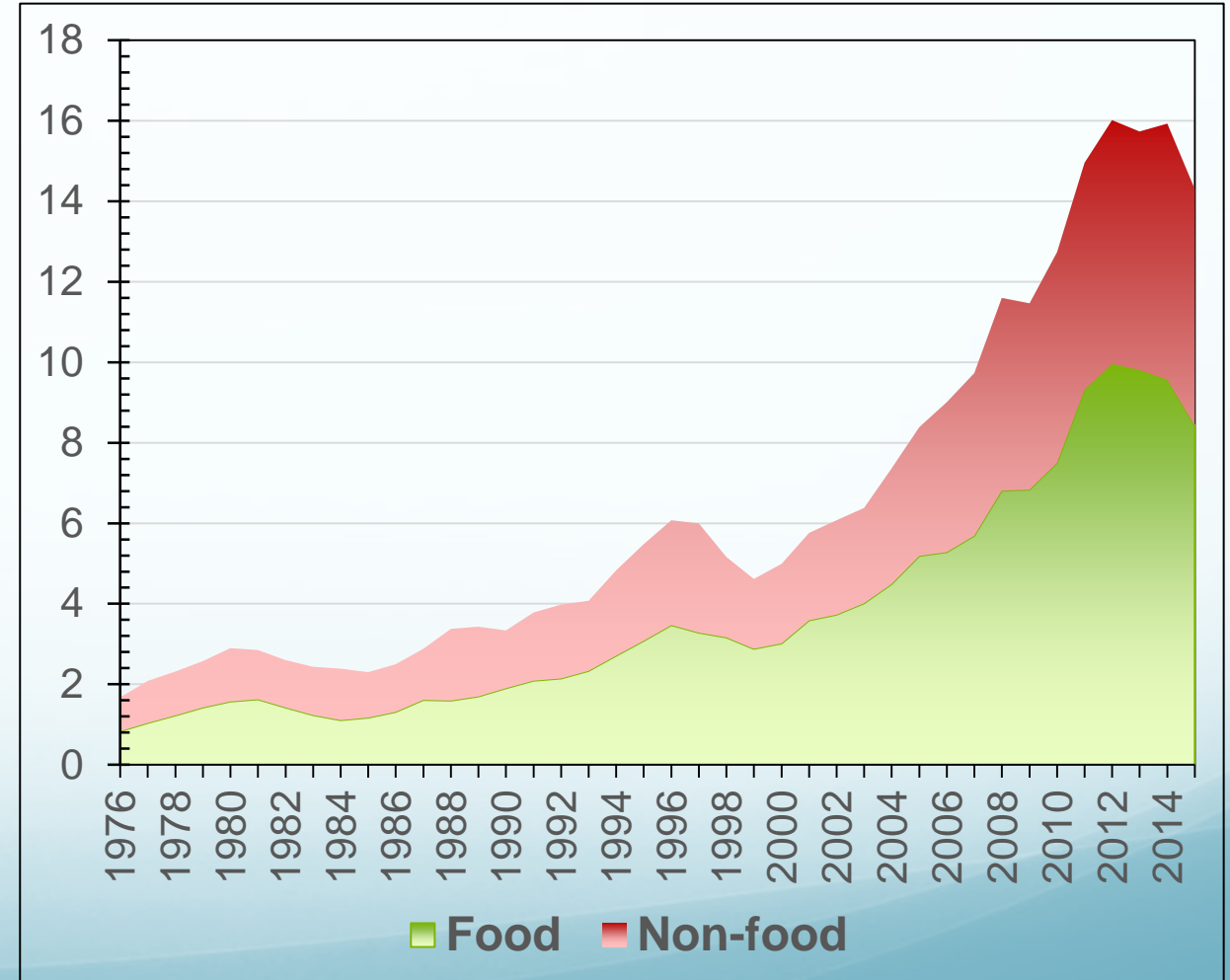


# Trade of small pelagics (Quantity & Value)

Million tonnes (live weight equivalent)



US\$ billions



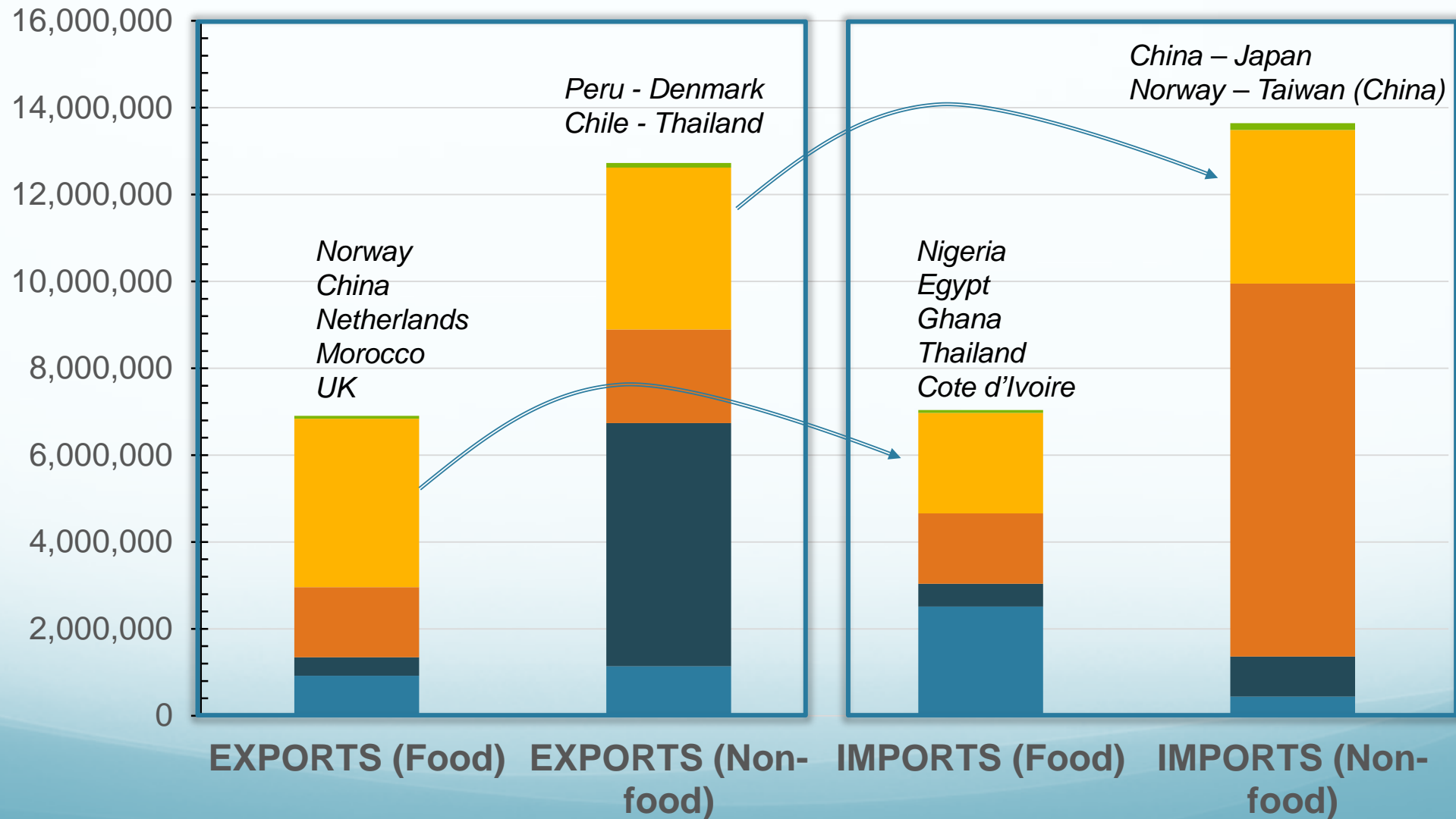
***“Selling SPF for food is economically beneficial...”***



# Trade of small pelagics, 2015

Share in quantity (live weight)

■ Africa ■ Americas ■ Asia ■ Europe ■ Oceania



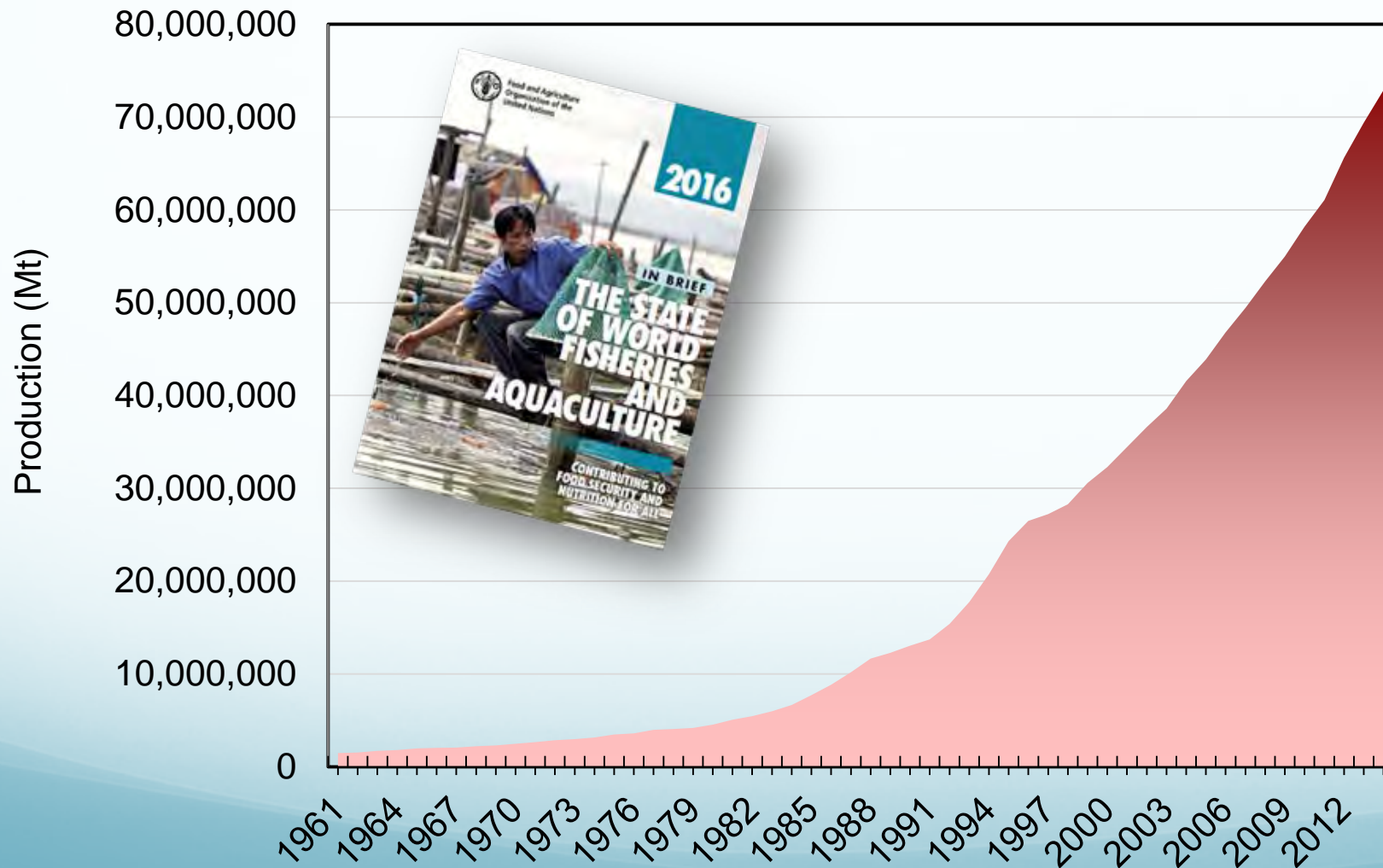


# Small Pelagic Fish and Aquaculture





## Aquaculture Trends



### Growth rate

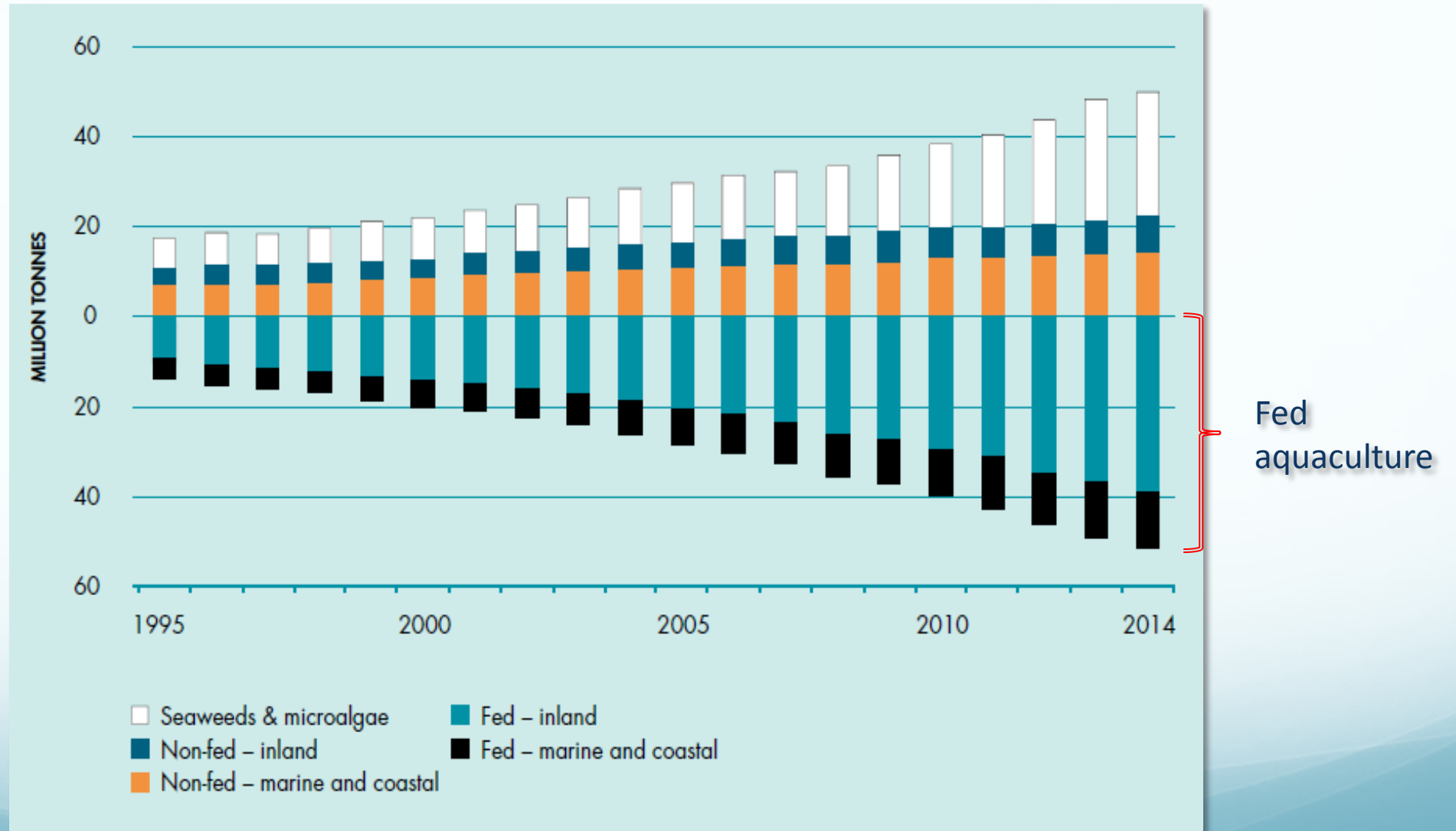
- 1995 – 2004, 7.2%/yr growth
- 2005 – 2014, 5.8%/yr growth

### Production and Food

- 35 countries produced more farmed than wild-caught fish in 2014.
- This group of countries has a combined population of 3.3 b, or 45% of the world's population.

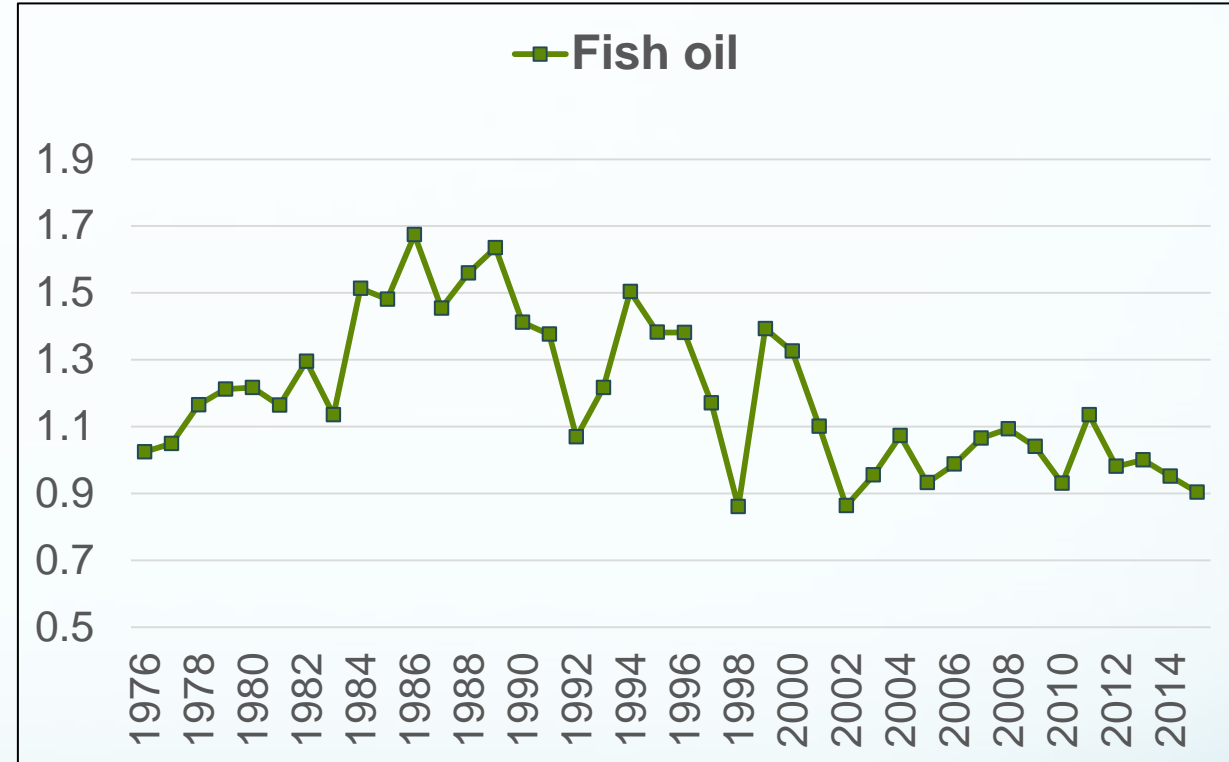
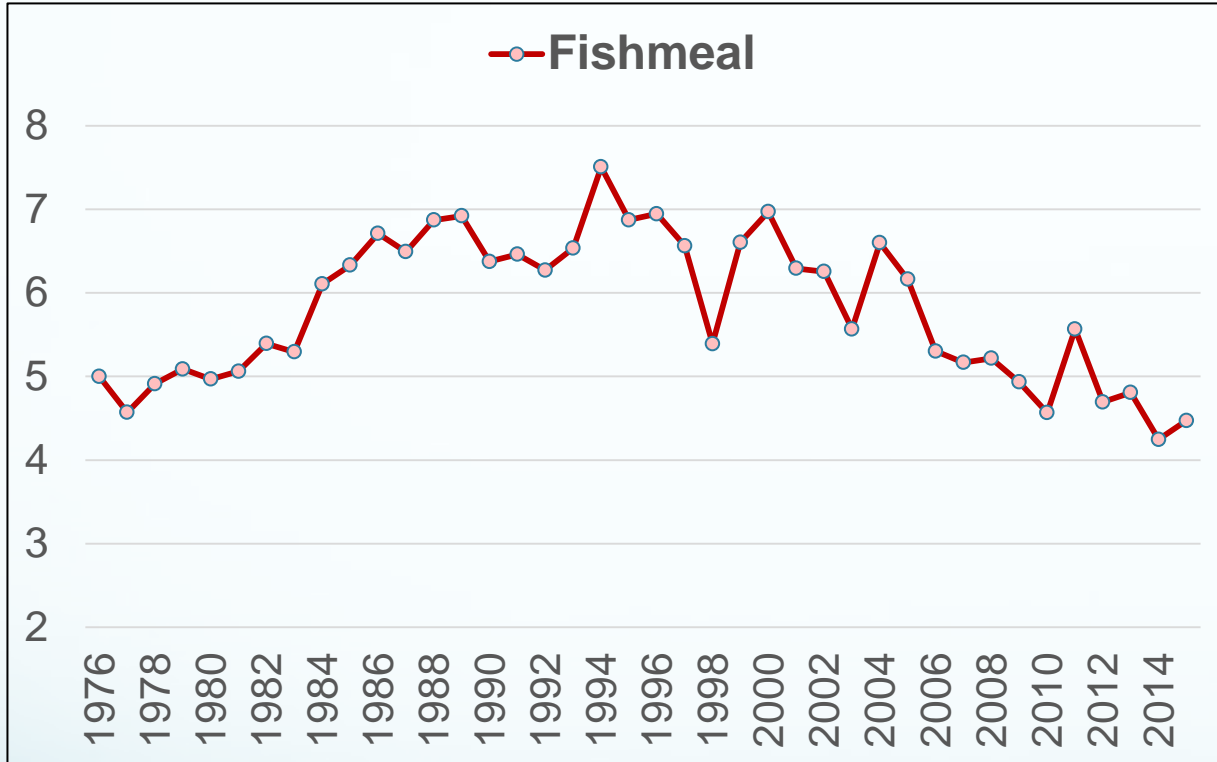


# Half of aquaculture production relies on feed ... and is growing



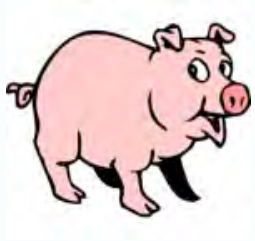


# Production of Fishmeal and Fish Oil (Mt)

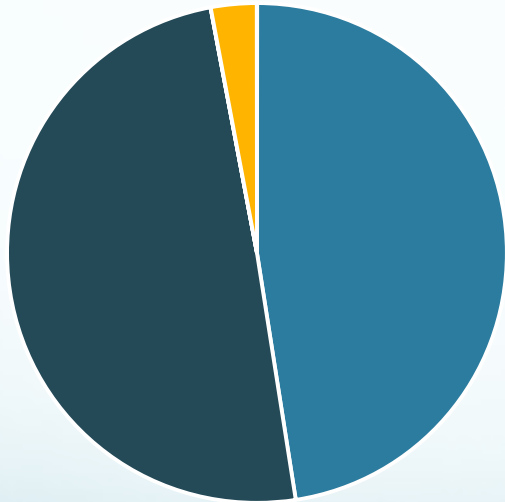




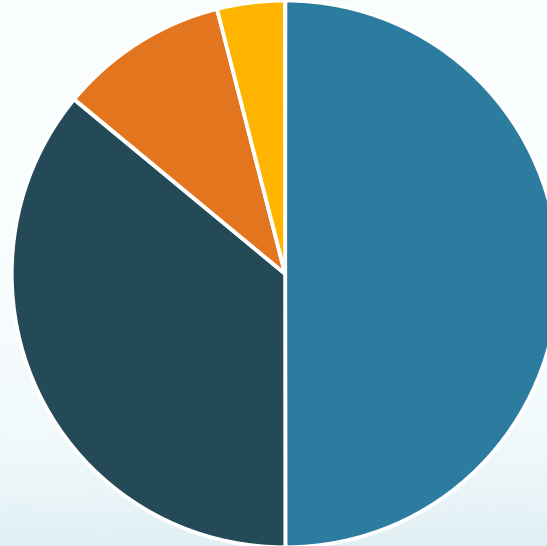
## Use of fishmeal



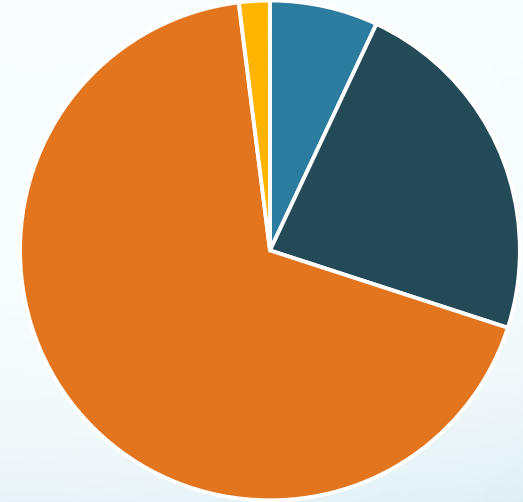
1960



1980



2012



→ *“this is a good thing”*

■ Chicken ■ Pork ■ Aquaculture ■ Other



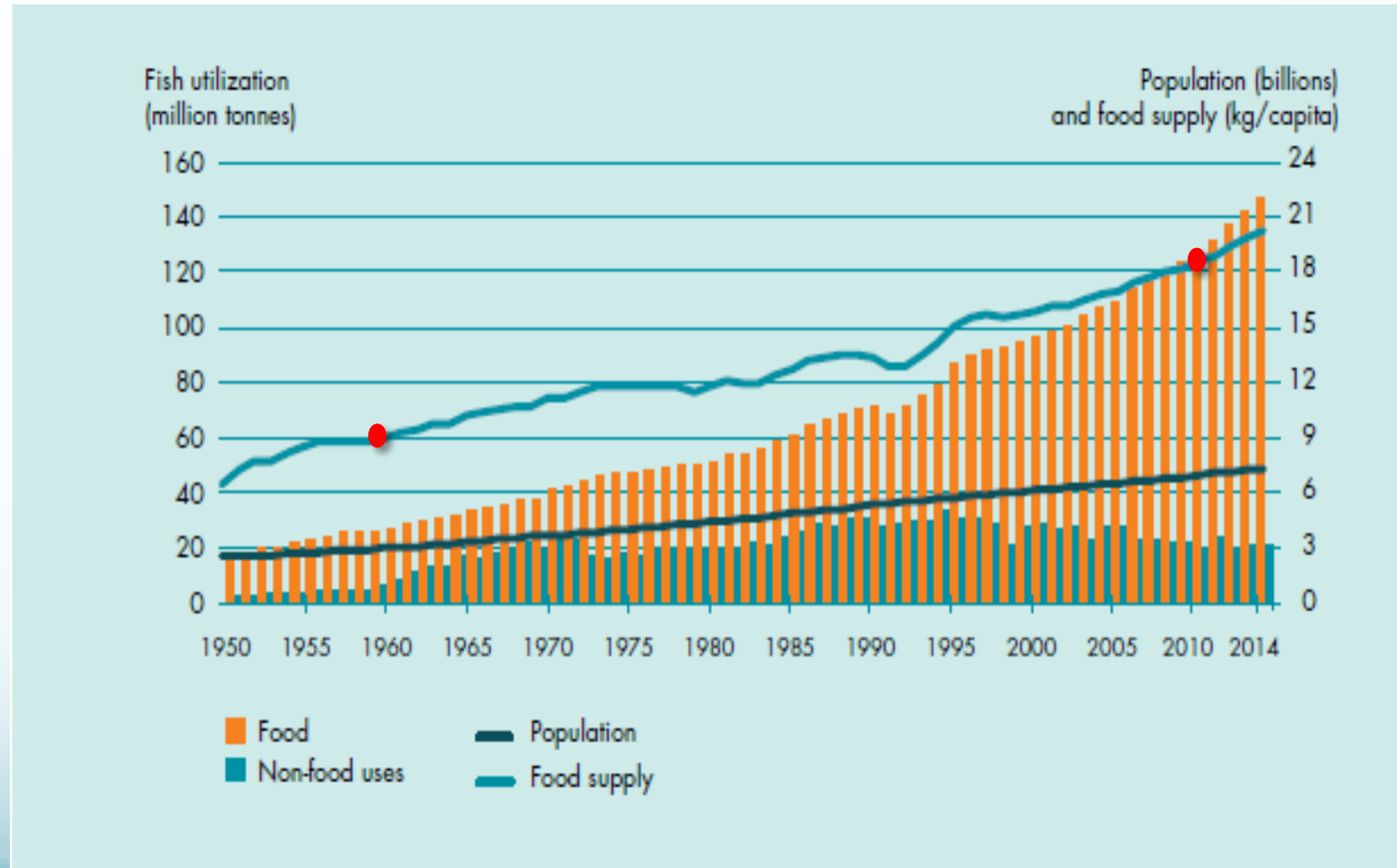
# Fish are highly efficient converters of feed into flesh







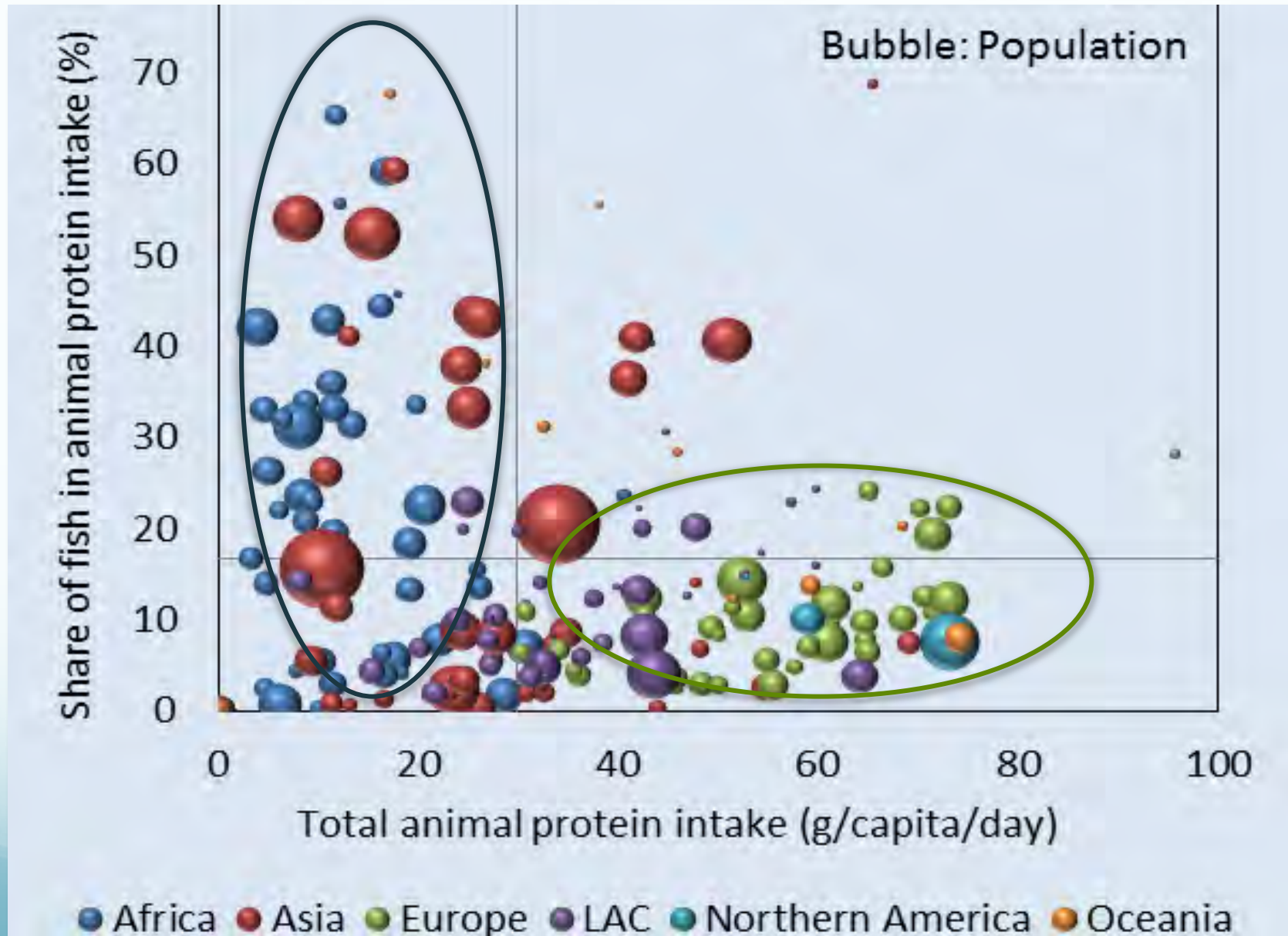
# Per capita fish supplies have doubled over the past half century, despite a doubling of the global population



source: <http://www.fao.org/3/a-i5555e.pdf>



## Fish – rich food for poor people?...



*Of the top 30 fish consuming nations 22 are from Low Income Food Deficit (LIFD) countries*



## SPF are perfectly good to eat. Why are we reducing them to meal?



source: <http://www.healthnewsline.net/>

**Producers prefer to sell for Human Use – it is much more profitable!**

- Society has preferences
- SPF are often caught seasonally – preservation costs too high for low price
- Value adding is common in food systems



# The future of Small Pelagics and Food





# FAO Objectives

Eradicate hunger, food insecurity and nutrition



Eliminate poverty through economic and social progress for all

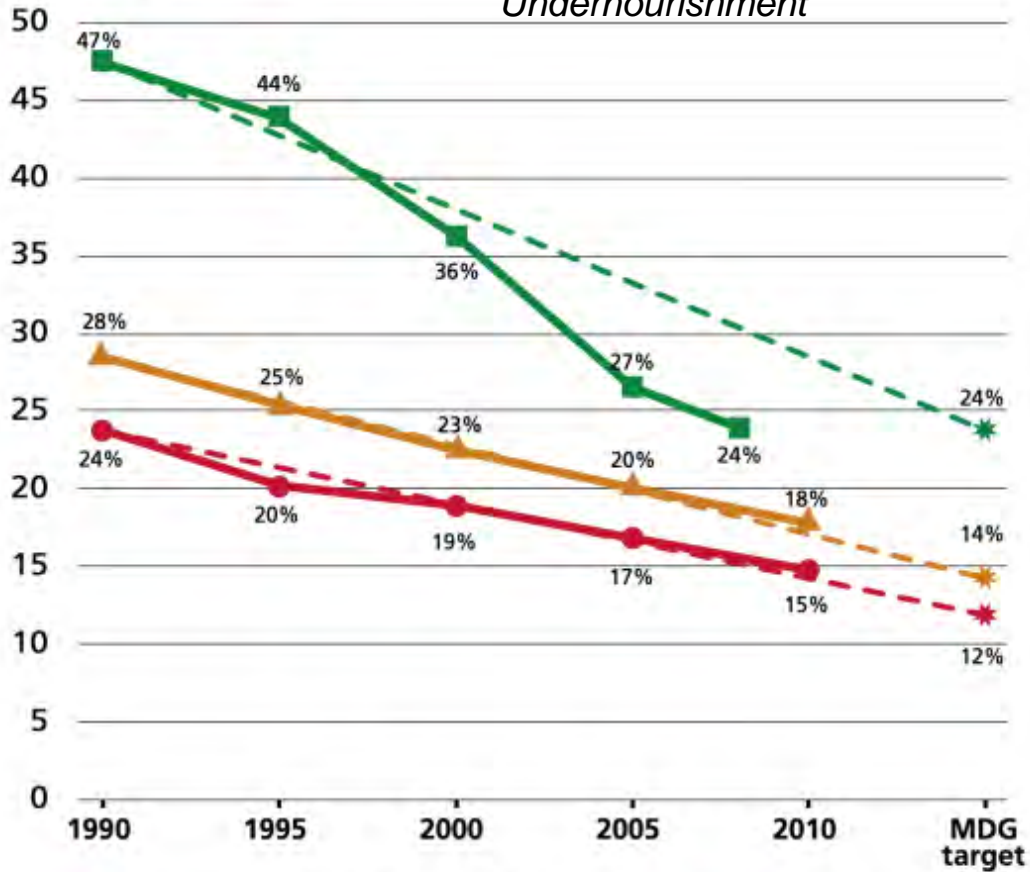


Sustainable management and utilization of natural resources



Percentage

Max Roser (2016) – 'Hunger and Undernourishment'



● Prevalence of undernourishment

■ Poverty incidence

▲ Prevalence of underweight



# FAO Objectives

Eradicate hunger, food insecurity and nutrition



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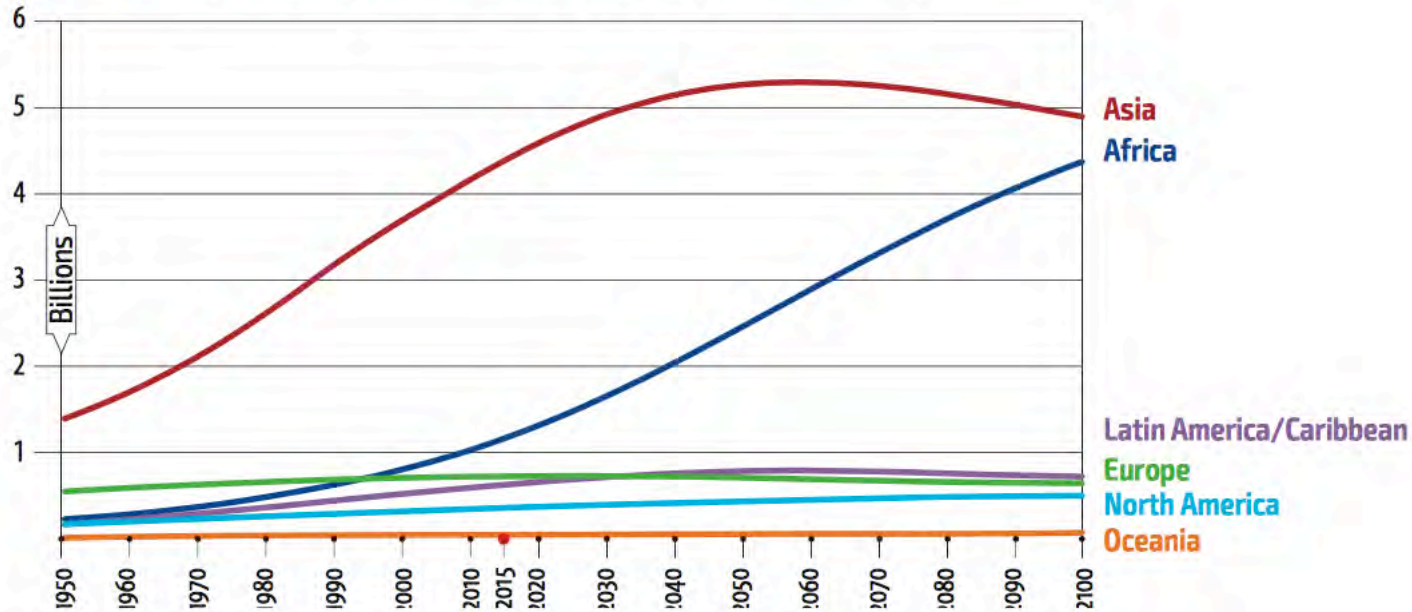


Sustainable management and utilization of natural resources

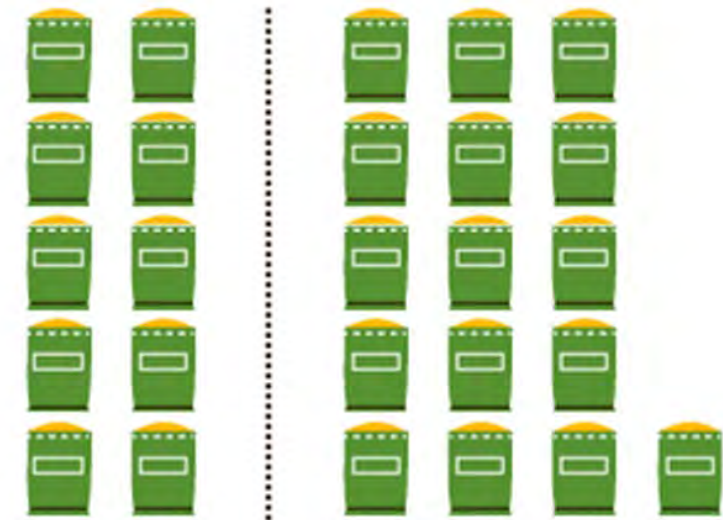
## A morally compelling conundrum... protect OR feed

FAO 2017. *The Future of Food*

**Figure 1.2** Population growth to 2100, by region (medium variant)



With current global trends in diets and population **50% more food** will be needed in 2050.



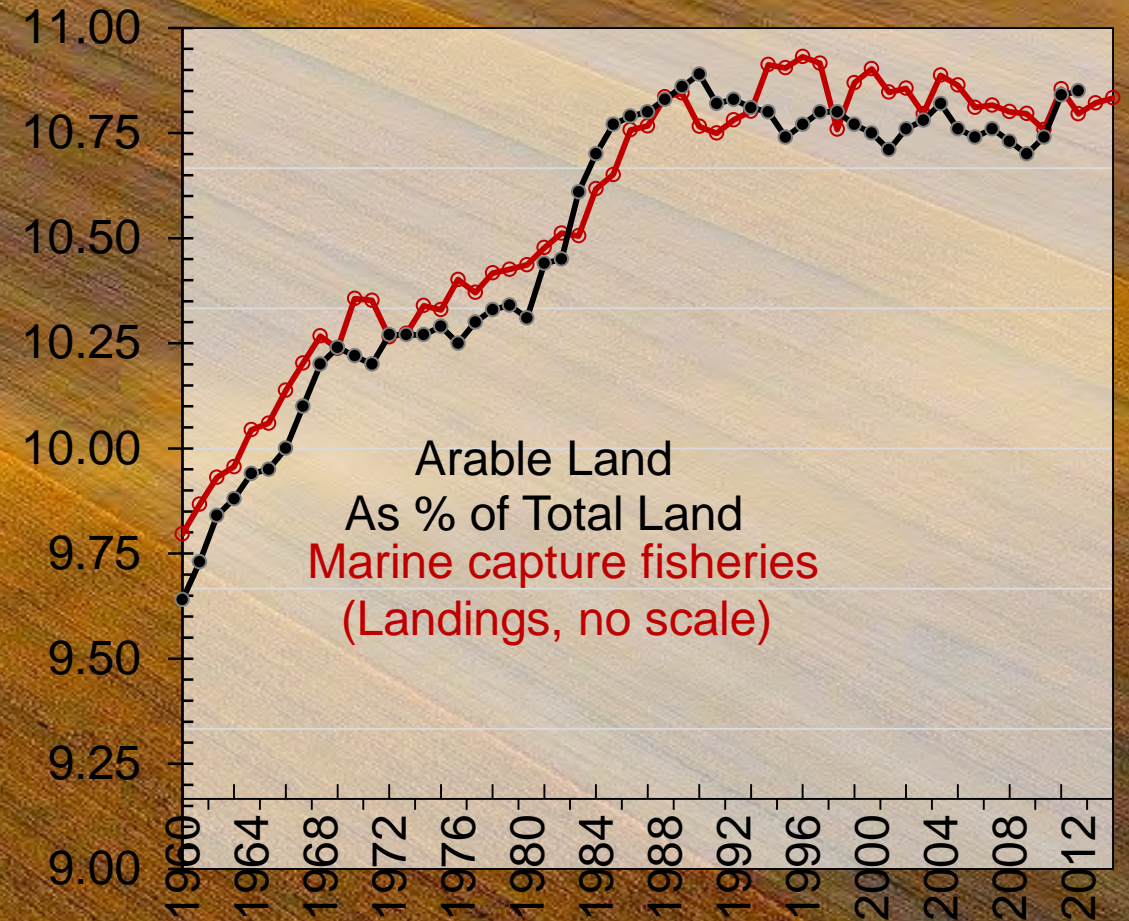
NOW

2050

Alexandratos N, Bruinsma J. 2012. FAO

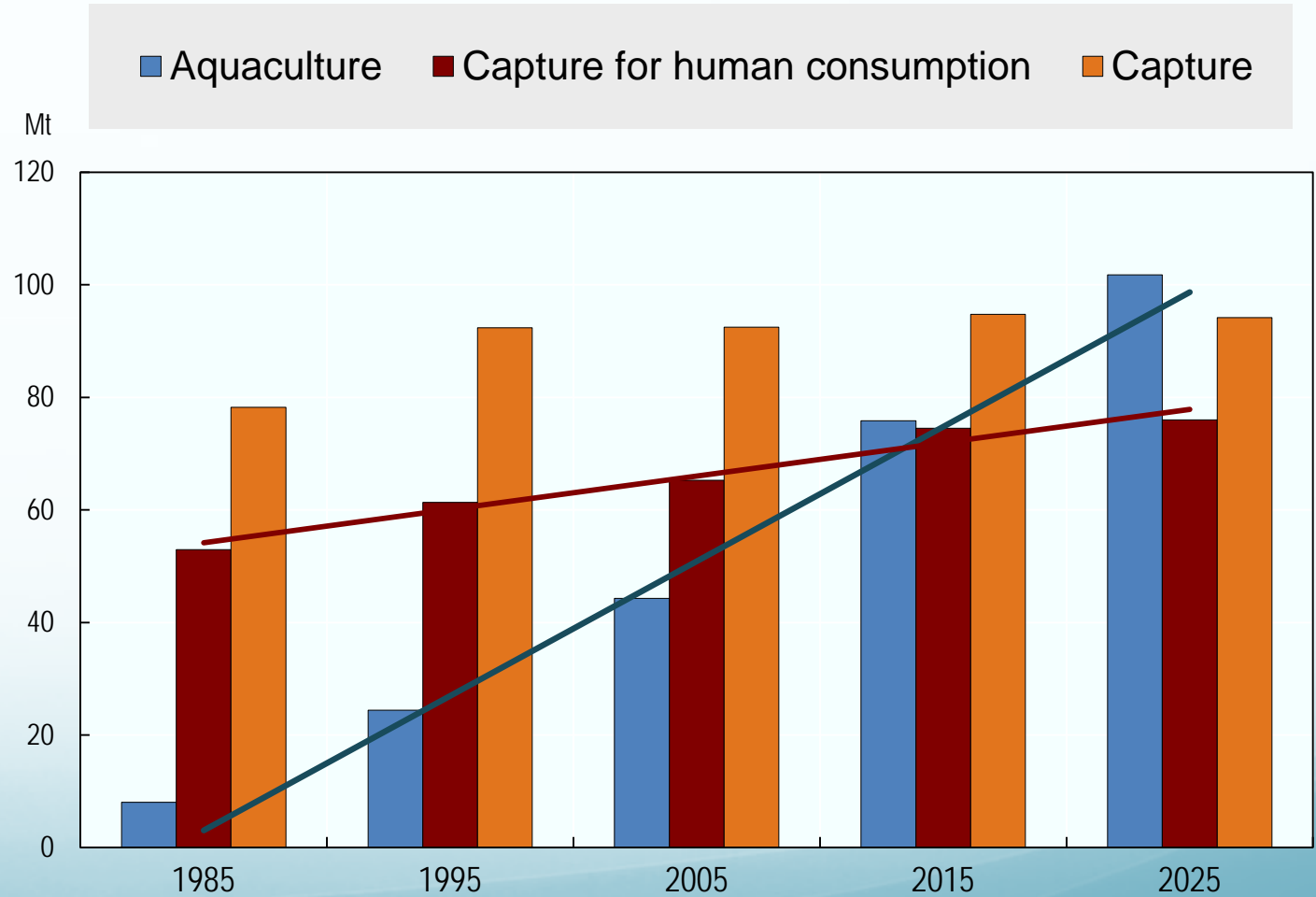


# A morally compelling conundrum... protect AND feed

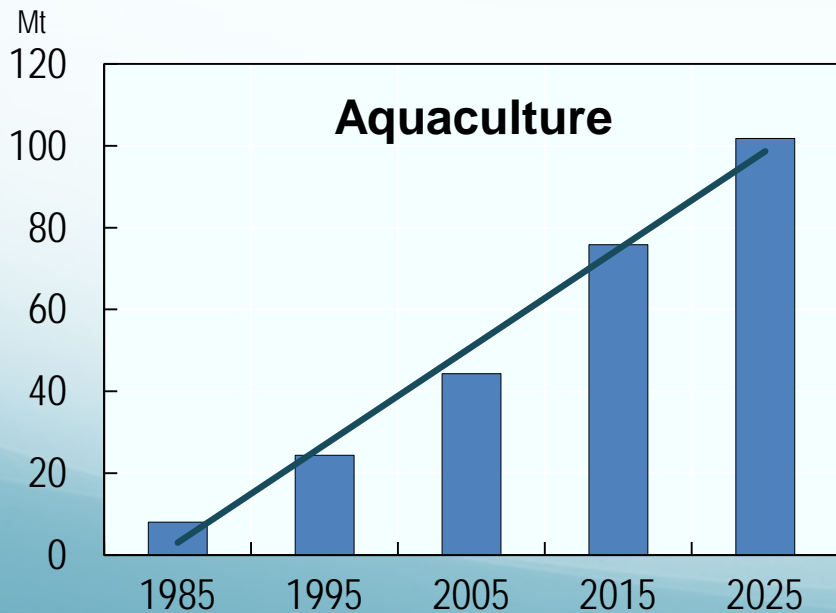
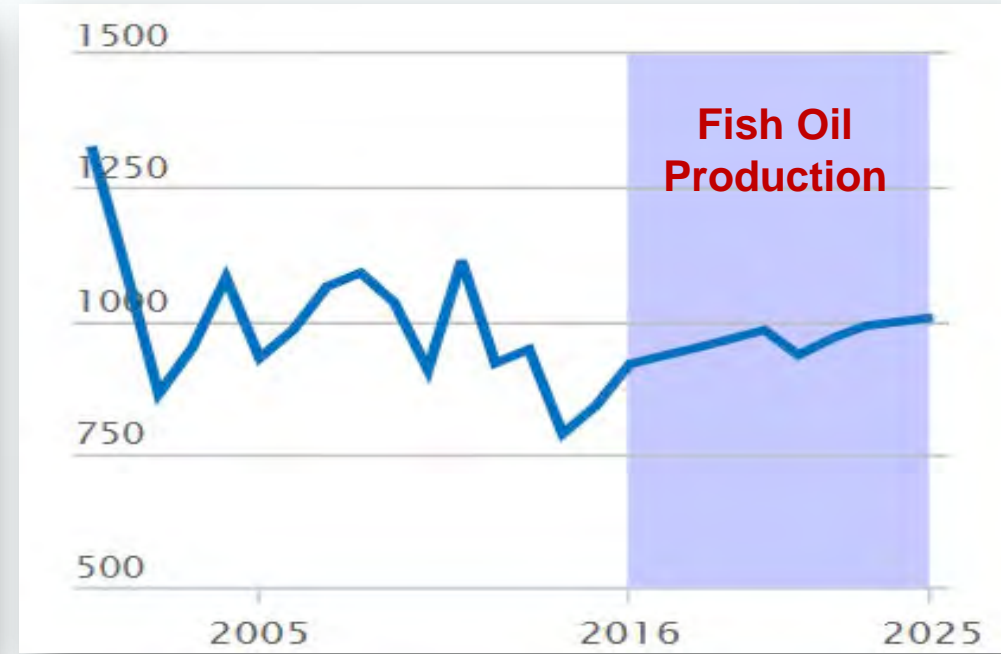
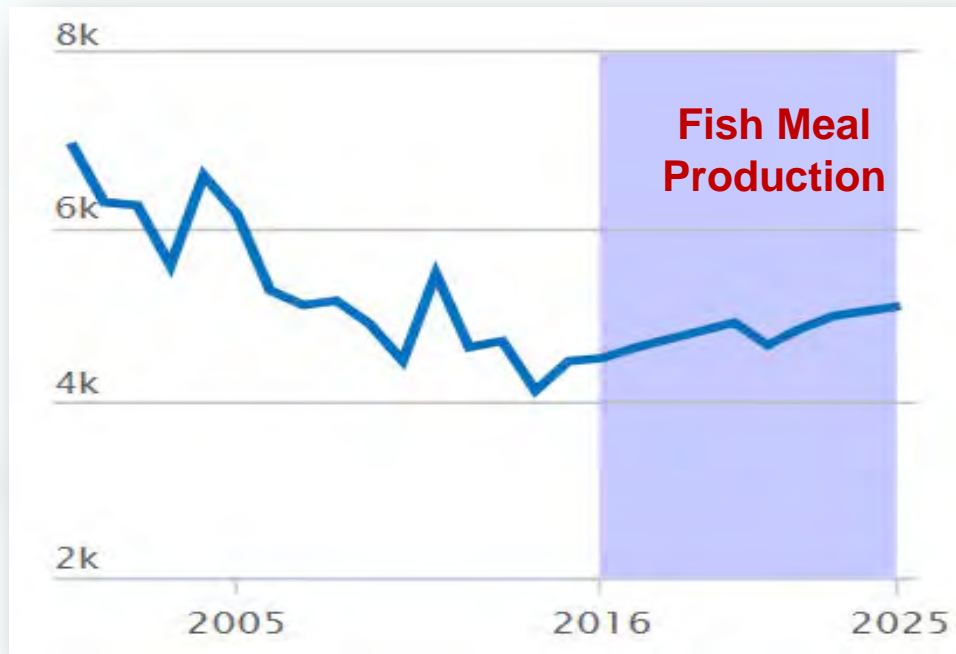




# Projecting the future







**MagMeal™ and MagOil™**

...AgriProtein has announced plans to build up to 200 factories globally to scale up production of insect protein for animal feeds. Each factory will produce 5,000 tonnes of MagMeal, as well as and 2,000 tonnes of MagOil per year...

# A Blue Revolution in Food Production



- Increasing Aquaculture production, especially in low intensity regions, but at lower rates than before, and increase diversity
- Stability in marine capture production, requiring strengthening management frameworks, resource rebuilding, addressing IUU fishing
- Significant increases in efficiencies across the entire value chain
- Integration of F+A in food production strategies at national and global level
- Changing people's behaviours (lower protein intake, fish-food diversity, lower waste, tackle obesity and malnutrition)
- SPF are part of the solution, not the problem