



Food and Agriculture
Organization of the
United Nations

The Importance of Forage Fisheries

Linking Forage Fisheries to Food Security

Perspectives for Fishmeal and Fish Oil - Hirtshals, Denmark - August 29-30, 2016

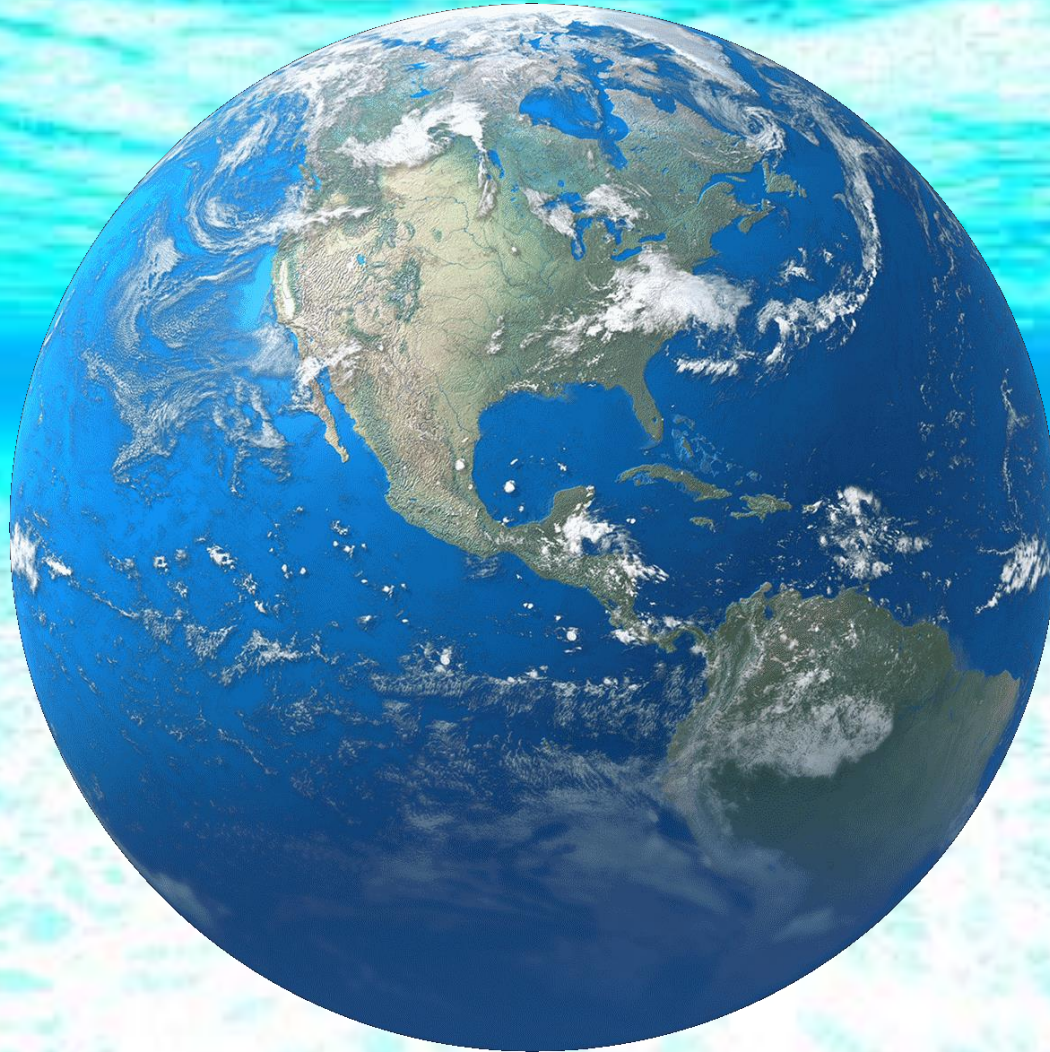
Stefania Vannuccini Stefania.Vannuccini@fao.org



Before starting... let's reflect



This is the BLUE planet



Water

72% of the Earth's surface, with about 97% in oceans

Healthy aquatic ecosystems are vital to human welfare

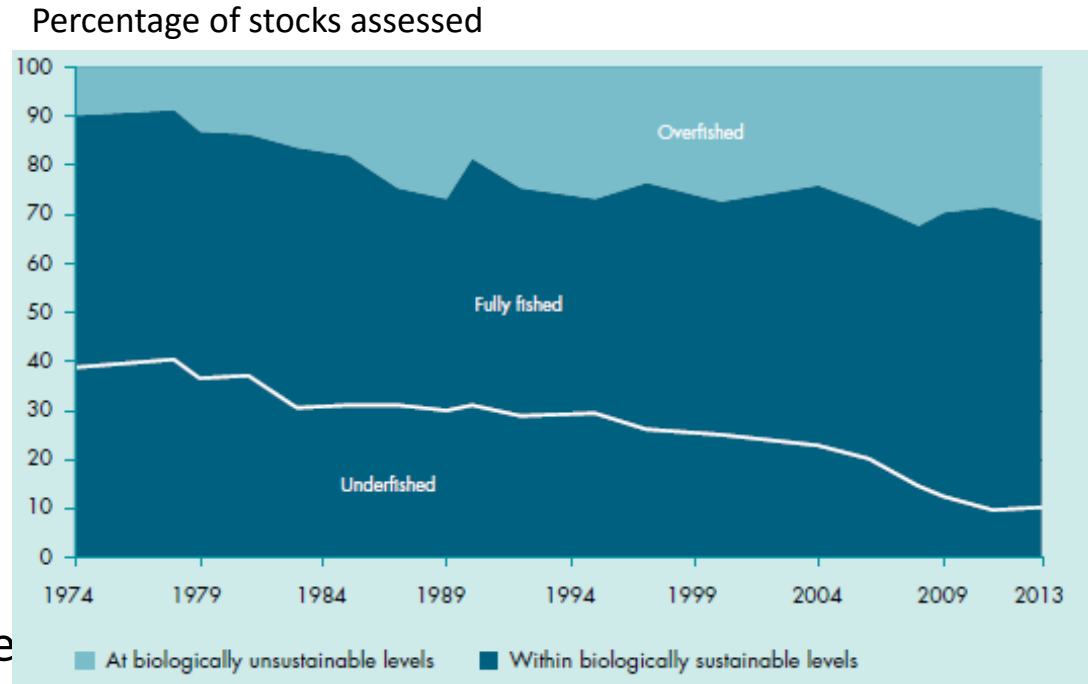
What **OCEANS/WATER** give to us

All kinds of **Provisioning, Regulating,
Cultural and Supporting** services

- Fish and plants as a source of protein and micronutrients (food) and non-food ingredients
- Pharmaceutical compounds (medical cures)
- Fixation of atmospheric carbon by algae
- Regulation of the climate and weather trends
- Provide mass transportation routes
- Provide pleasure and wellbeing (recreation)
- And much more...

Status of stocks: 2013

- ✓ **31.4%** of overfished stocks
- ✓ **68.6%** of stocks fished within biologically sustainable levels:
 - ✓ 58.1% fully fished
 - ✓ 10.5% underfished
- ✓ But signs of recovery due to improved management of some of the stocks



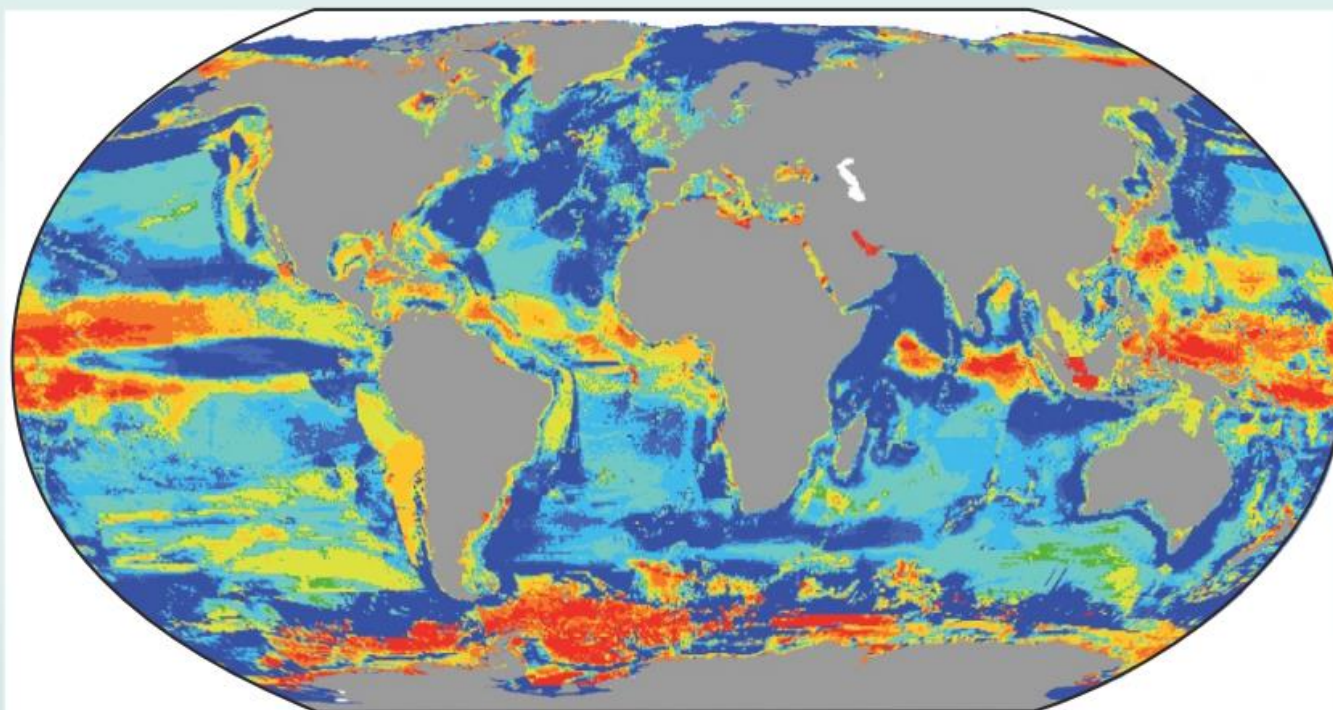
Climate change

(Intergovernmental Panel Climate Change)

PROJECTIONS

Ocean warming 2051-60: displaced and reduced fish and invertebrate stocks

CHANGE IN MAXIMUM CATCH POTENTIAL (2051-2060 COMPARED TO 2001-2010, SRES A1B, 2°C warming)



WGII, 6-14, SPM.6



SDGs

Sustainability is at the heart of the new global development goals SDGs

SUSTAINABLE DEVELOPMENT GOALS



SDGs

They also set the aims for the contribution and conduct of fisheries and aquaculture towards food security and nutrition in the use of natural resources so as **to ensure sustainable development in economic, social and environmental terms**



Forage fisheries

Relevant share of fisheries resources and of capture fisheries

From utilization, potential competitive use of these resources:

- for other predators
- for marine mammals and seabirds
- for direct human consumption
- for reduction into fishmeal/fish oil and other non-food uses

Focus on their utilization after being harvested



Food security

It exists when “all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life”



Fisheries and aquaculture including forage fisheries

- Prominent role in world food security.
- Vital source of food including micronutrients, particularly for many low-income populations in rural areas
- Contribution to economic growth and development by being a source of employment, livelihoods and income to millions of people engaged in fish harvesting, culturing, processing and trade



Food security and nutrition status

795 million hungry people

	Number (millions)		Regional share (%)	
	1990-92	2014-16	1990-92	2014-16
A Developed regions	20	15	2.0	1.8
B Southern Asia	291	281	28.8	35.4
C Sub-Saharan Africa	176	220	17.4	27.7
D Eastern Asia	295	145	29.2	18.3
E South-Eastern Asia	138	61	13.6	7.6
F Latin America and the Caribbean	66	34	6.5	4.3
G Western Asia	8	19	0.8	2.4
H Northern Africa	6	4	0.6	0.5
I Caucasus and Central Asia	10	6	0.9	0.7
J Oceania	1	1	0.1	0.2
Total	1 011	795	100	100

Millions of children suffering nutrition deficiency

Vitamin A deficiency

- Causes blindness.
- 250 million preschool children affected.

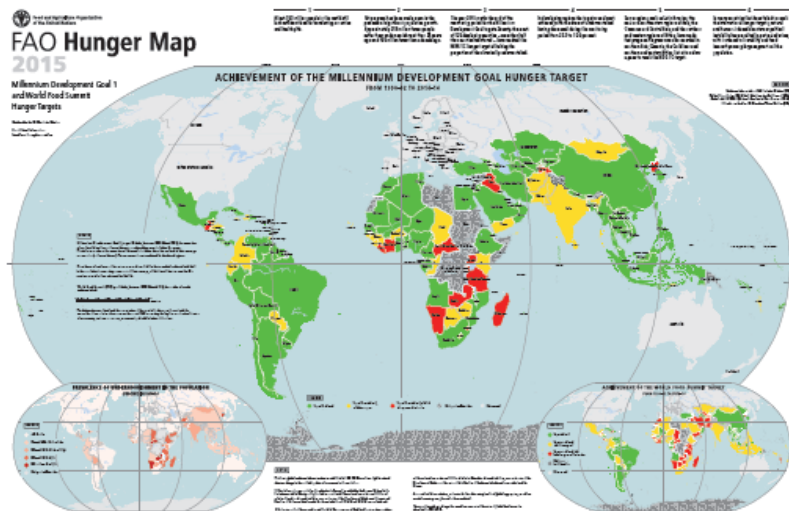
Iron deficiency

- Anaemia contributes to 20% of all maternal deaths.
- 40% of preschool children anaemic in developing countries.

Iodine deficiency

- Impairing cognitive development in children
- 54 countries still iodine-deficient

Source: WHO



Trend

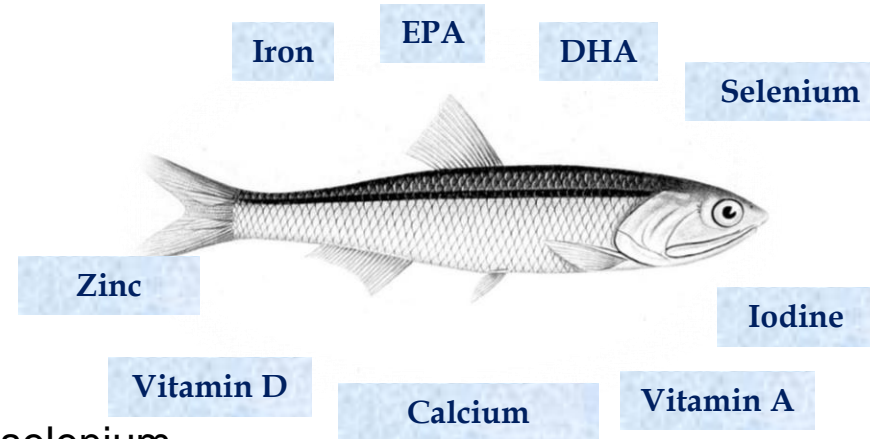
- Worldwide **obesity** has nearly doubled since 1980.
- **Adults (aged 20 or older)**
- More than 1.4 billion (35% of total) **overweight** in 2008
- Over 200 million men and nearly 300 million women (11 % of total) **obese** in 2008.
- **Children (under the age of 5)**
- More than 40 million children **overweight** or **obese** in 2012.

Source: WHO

Fish & Nutrition

Fish provides many valuable nutrients

- protein
- long-chain omega-3 fatty acids
- fat-soluble vitamins
- minerals like iron, calcium, iodine, zinc & selenium



With numerous health benefits

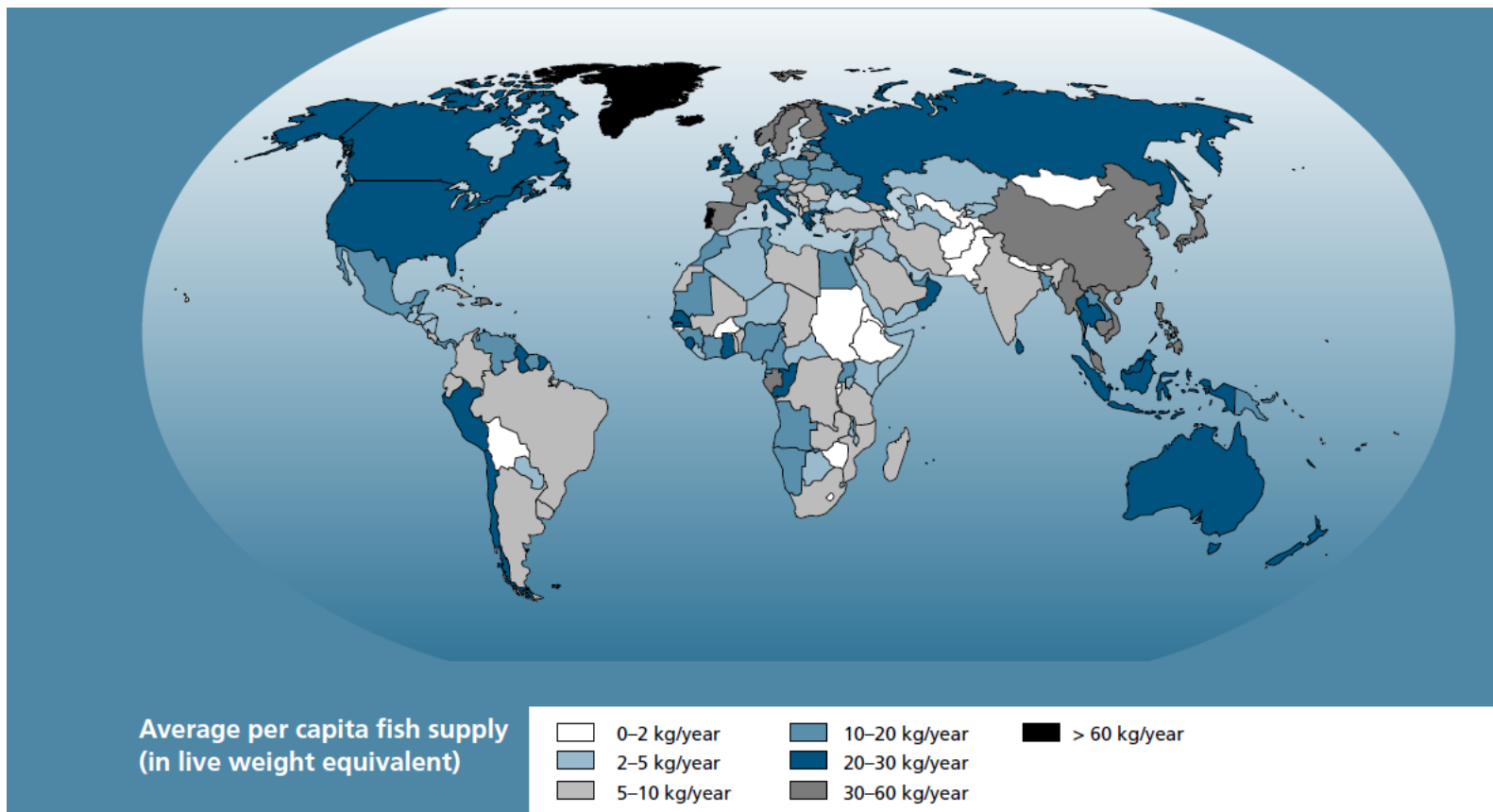
- (*known*) reduced risk of cardiac death, aids neurodevelopment in unborn infants
- (*probable*) reduced risk of stroke, (*possible*) reduced risk of depression

Which are important in developing countries

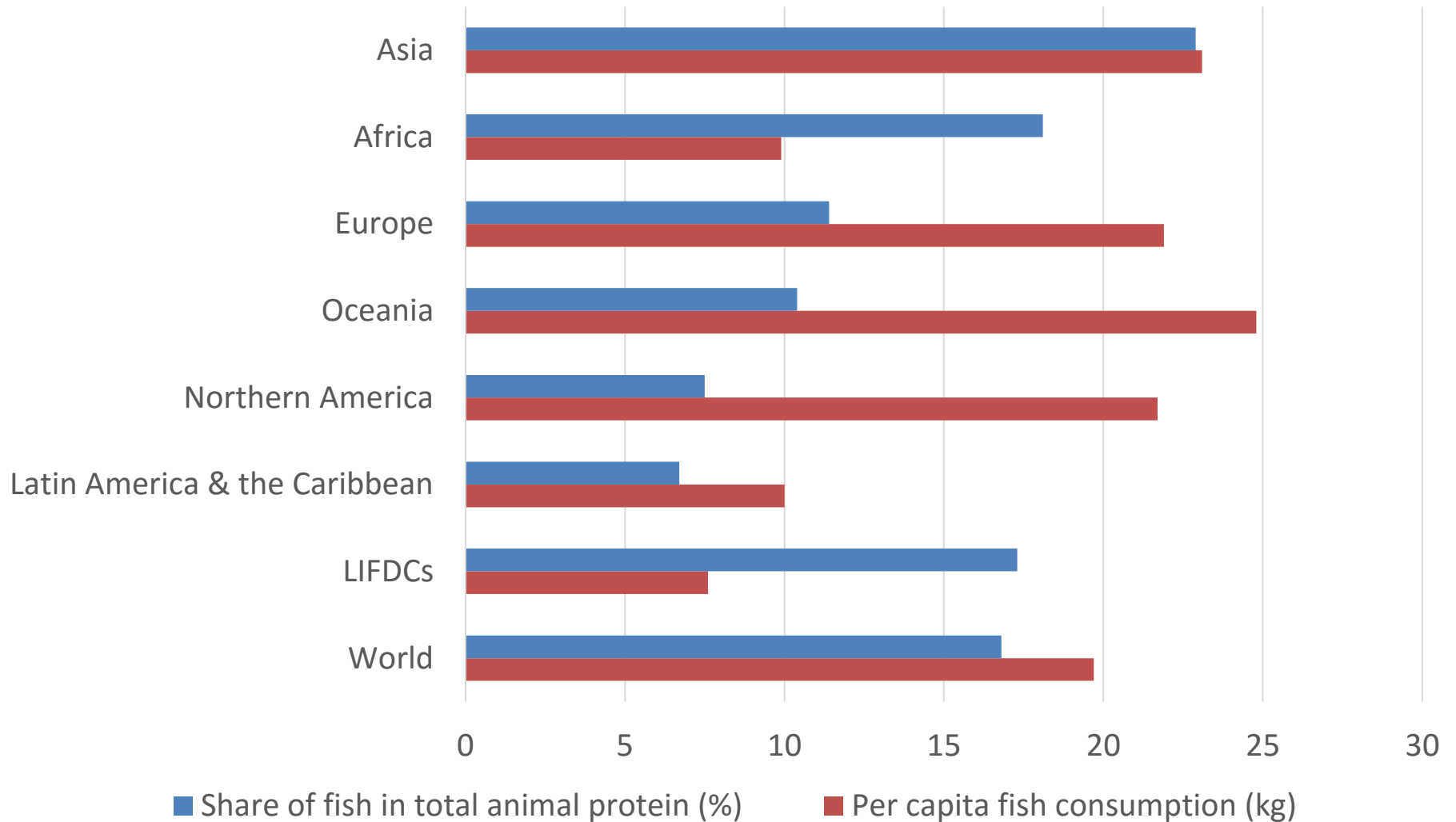
- fish provides nutrients where they are most needed
- cheap small pelagics growing component of developing country diets



Fish food supply



Fish contribution to human nutrition



Share of fish in animal protein

- **>20% to more than 3.1 billion people**
- **>50% in many developing countries:**

Cambodia (69%)

Maldives (67%)

Sierra Leone (65%)

Gambia (57%)

Bangladesh (56%)

Indonesia (55%)

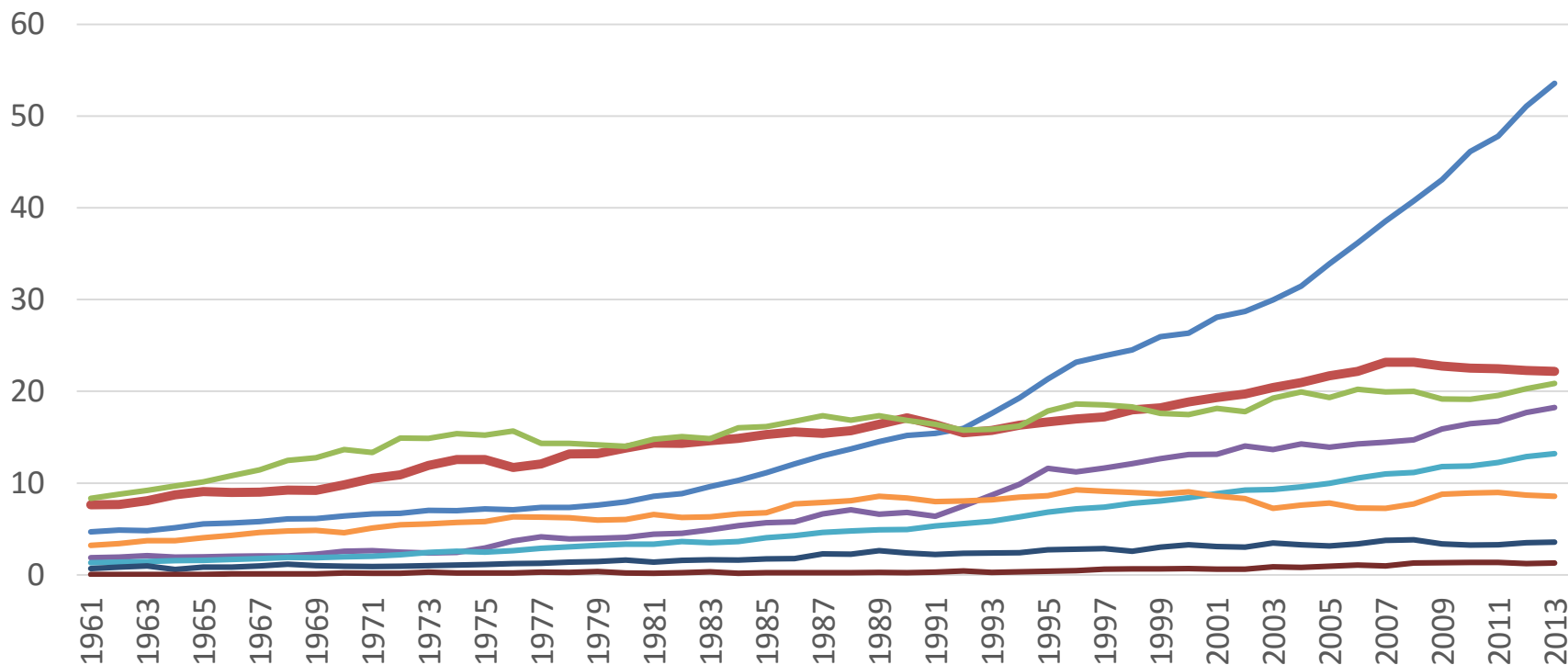
Sri Lanka (54%),

Ghana (50%)



World: fish food supply

Million tonnes (live weight)

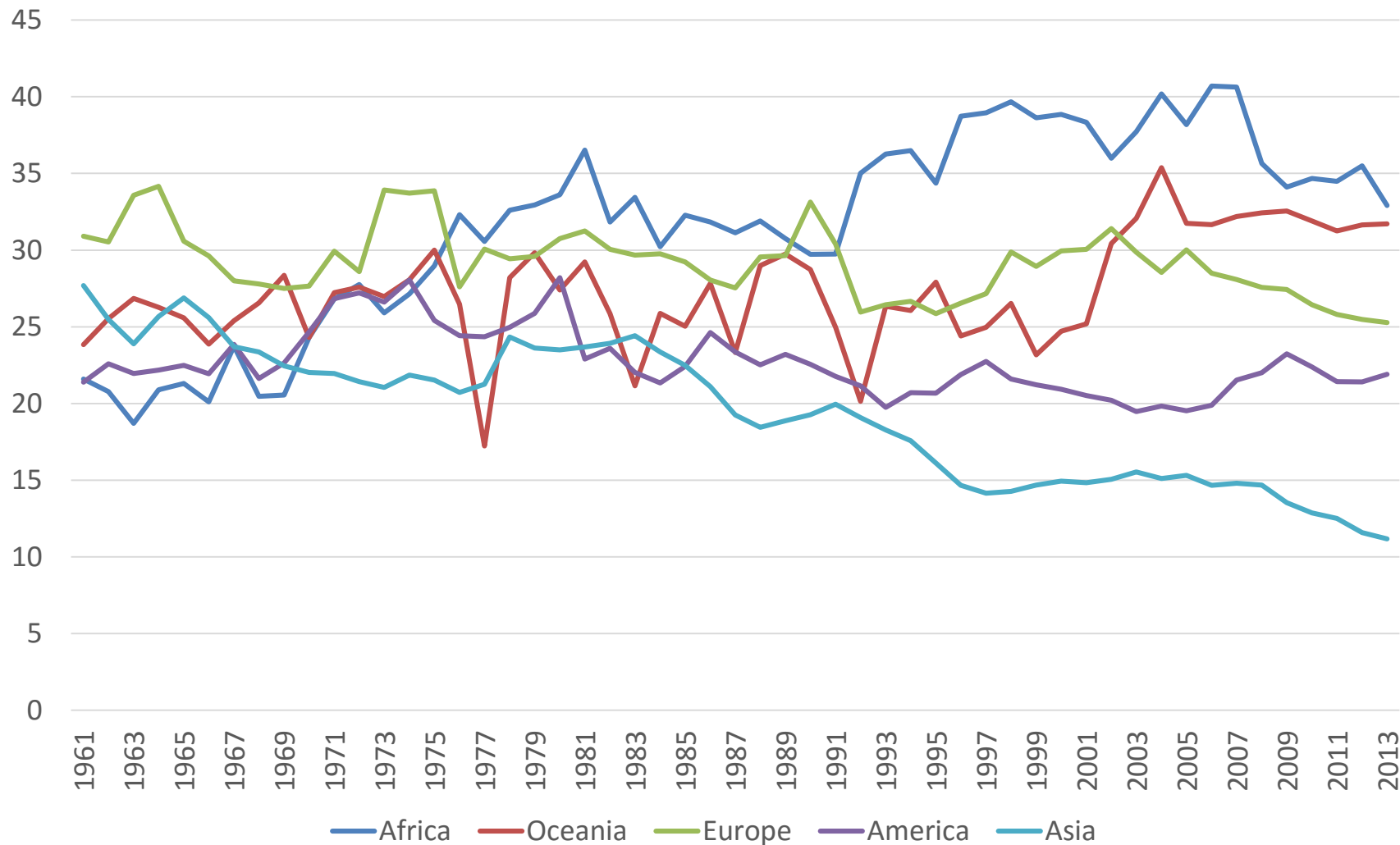


- Freshwater & diadromous fish
- Demersal fish
- Crustaceans
- Cephalopods
- Pelagic fish
- Molluscs excl. cephalopods
- Marine fish nei
- Aquatic animals nei



Share of pelagics in fish food supply

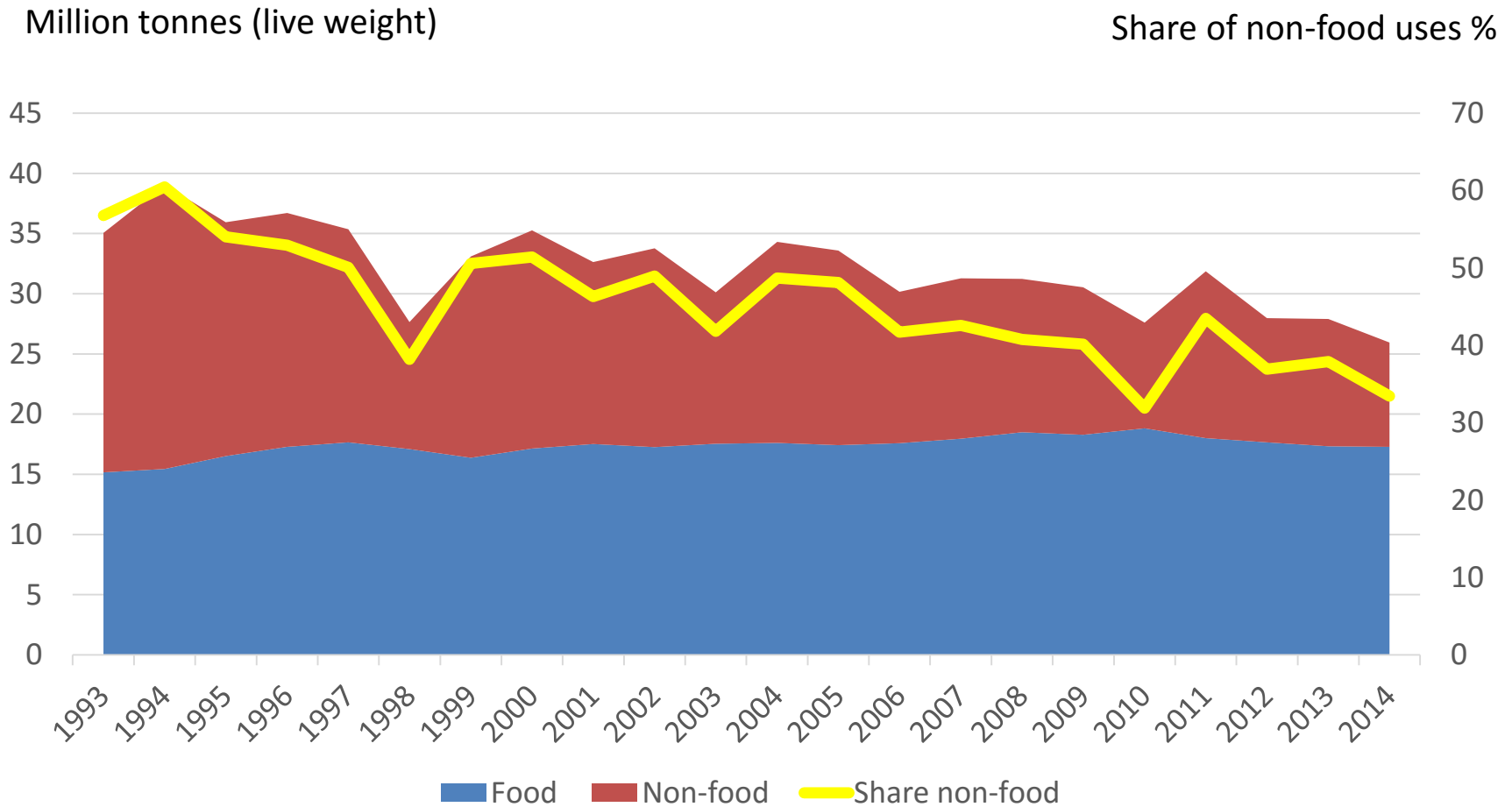
Percentage



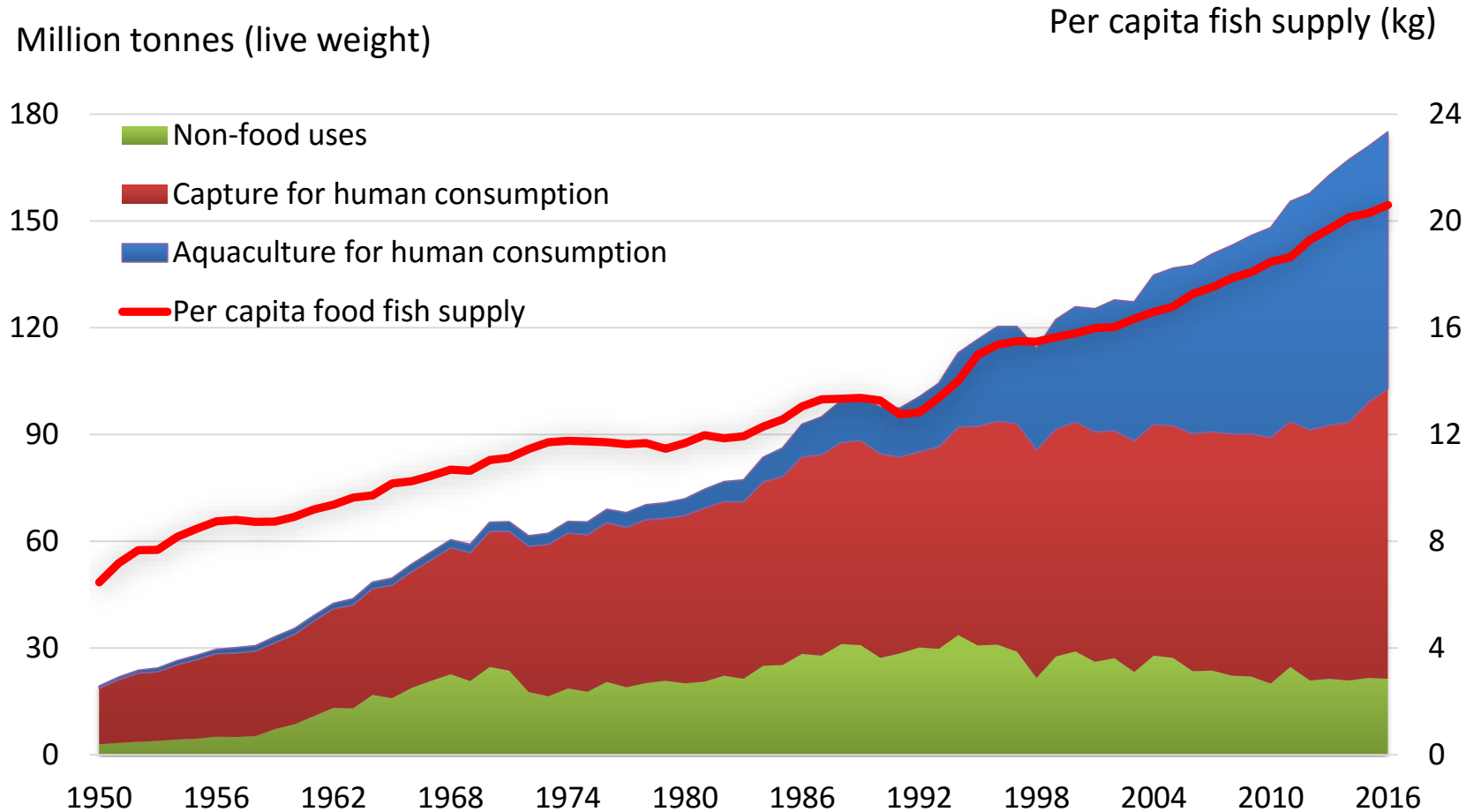
In 2013, 48 countries
where pelagic fish
contributed over 50% of
total fish food supply
Many SIDS



Small pelagics: utilization



Fish production and utilization

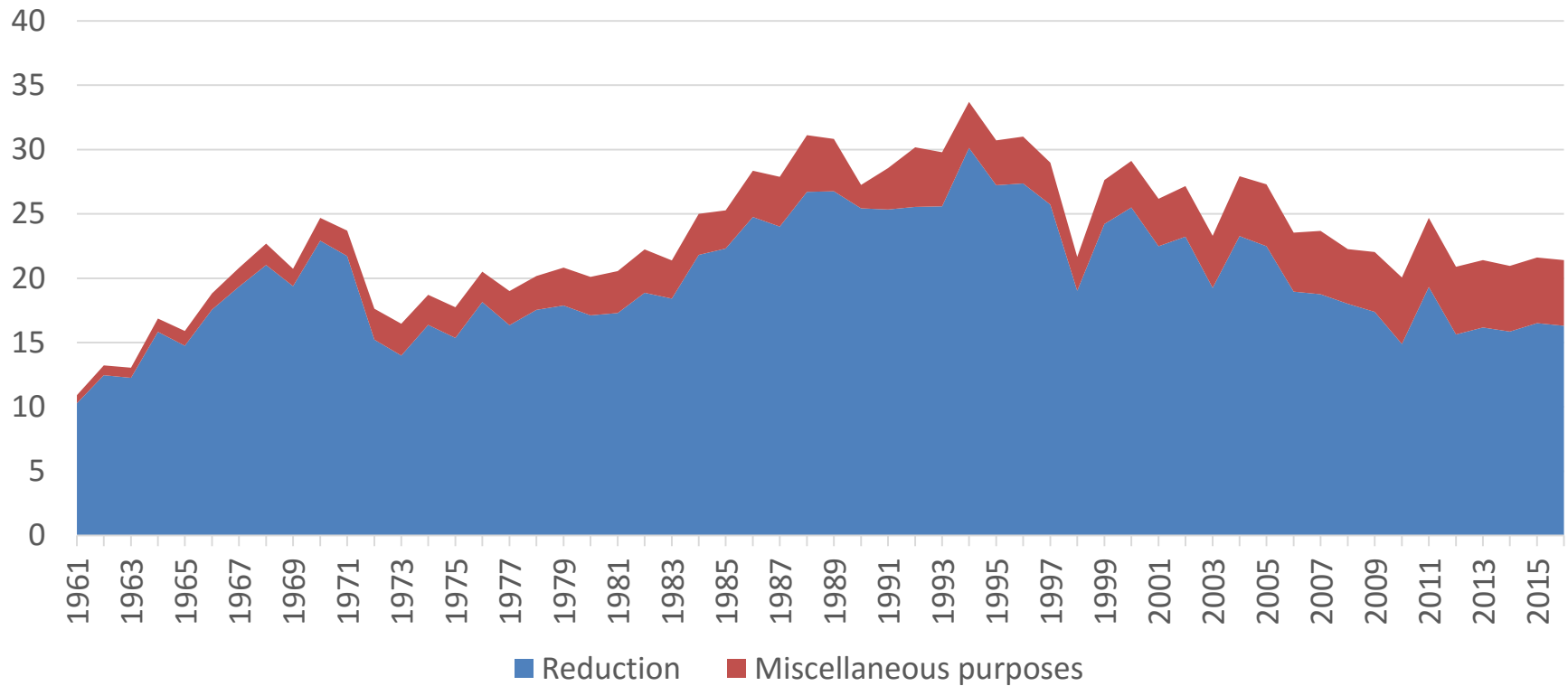


Excluding aquatic plants. 2015: estimate; 2016 forecast



World fishery production: Non-food uses

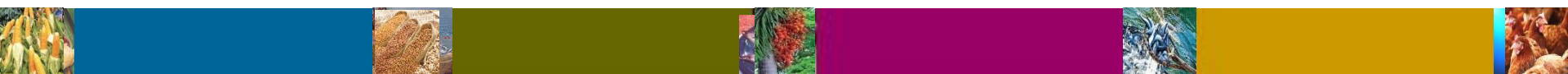
Million tonnes (live weight)



- Joint OECD-FAO report
- Country collaborators
- Aglink-COSIMO, partial equilibrium model
- 10 year horizon
- Major temperate commodities
- Global coverage

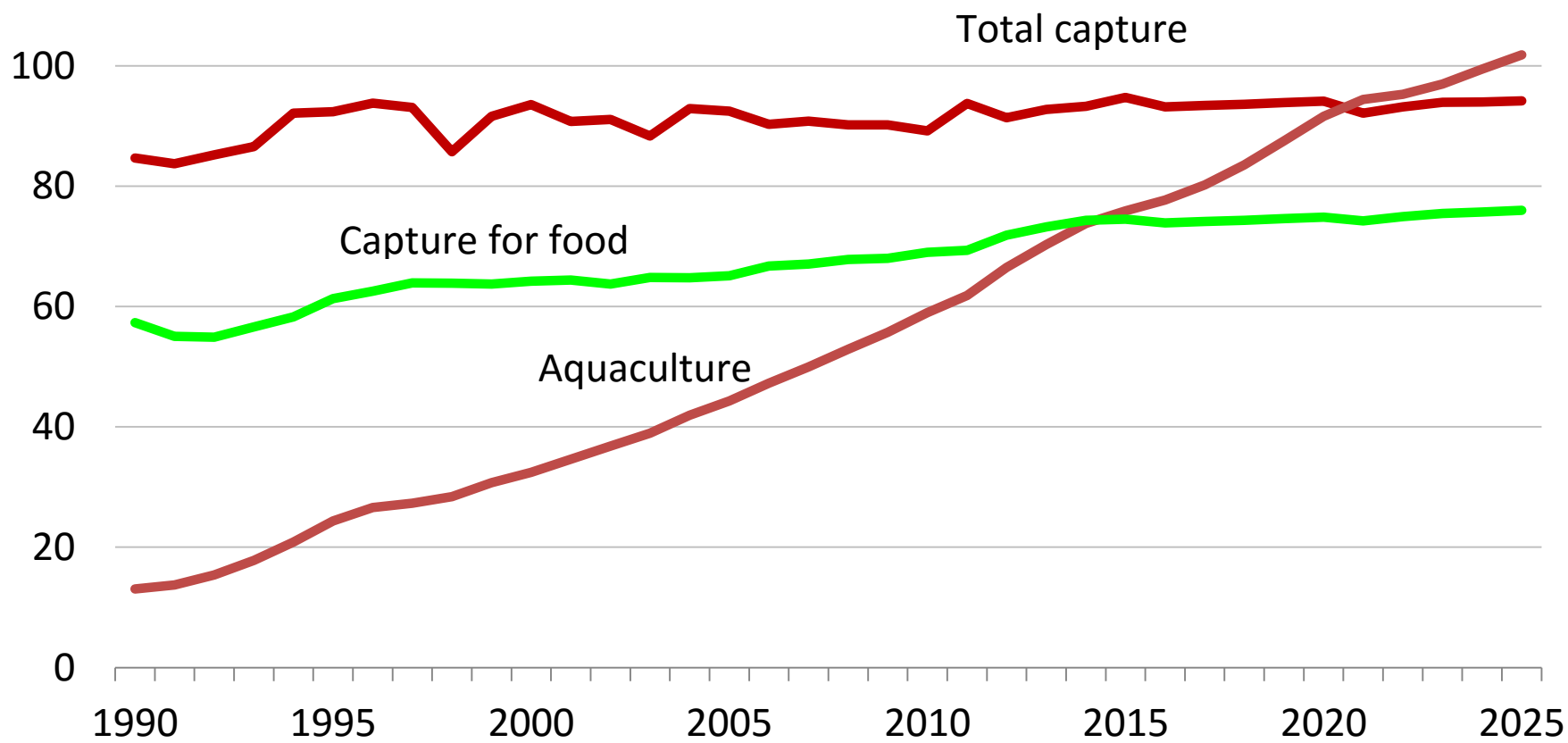


<http://www.agri-outlook.org/>



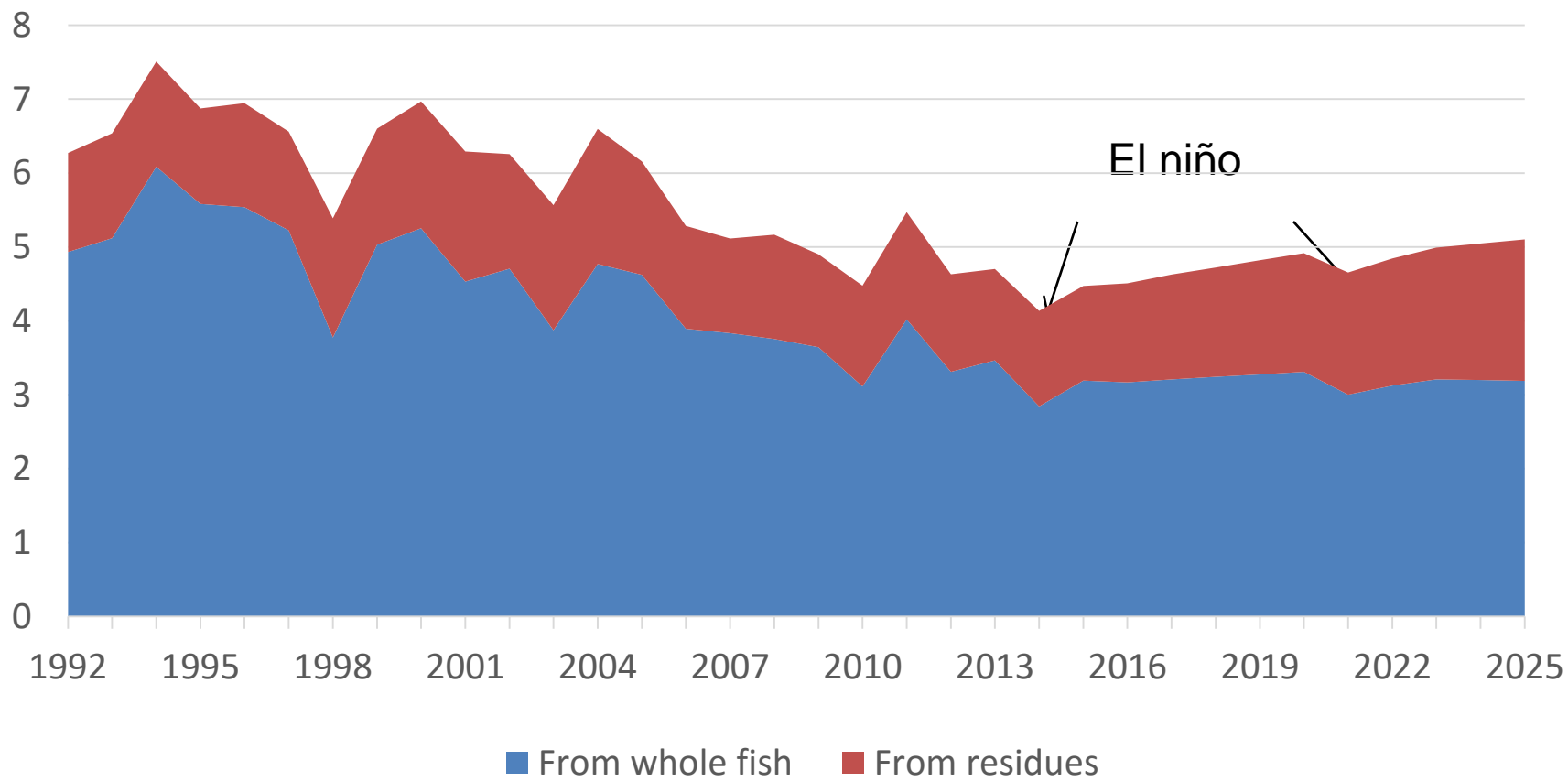
Surpass of aquaculture (2014 and 2021)

Million tonnes (live weight)

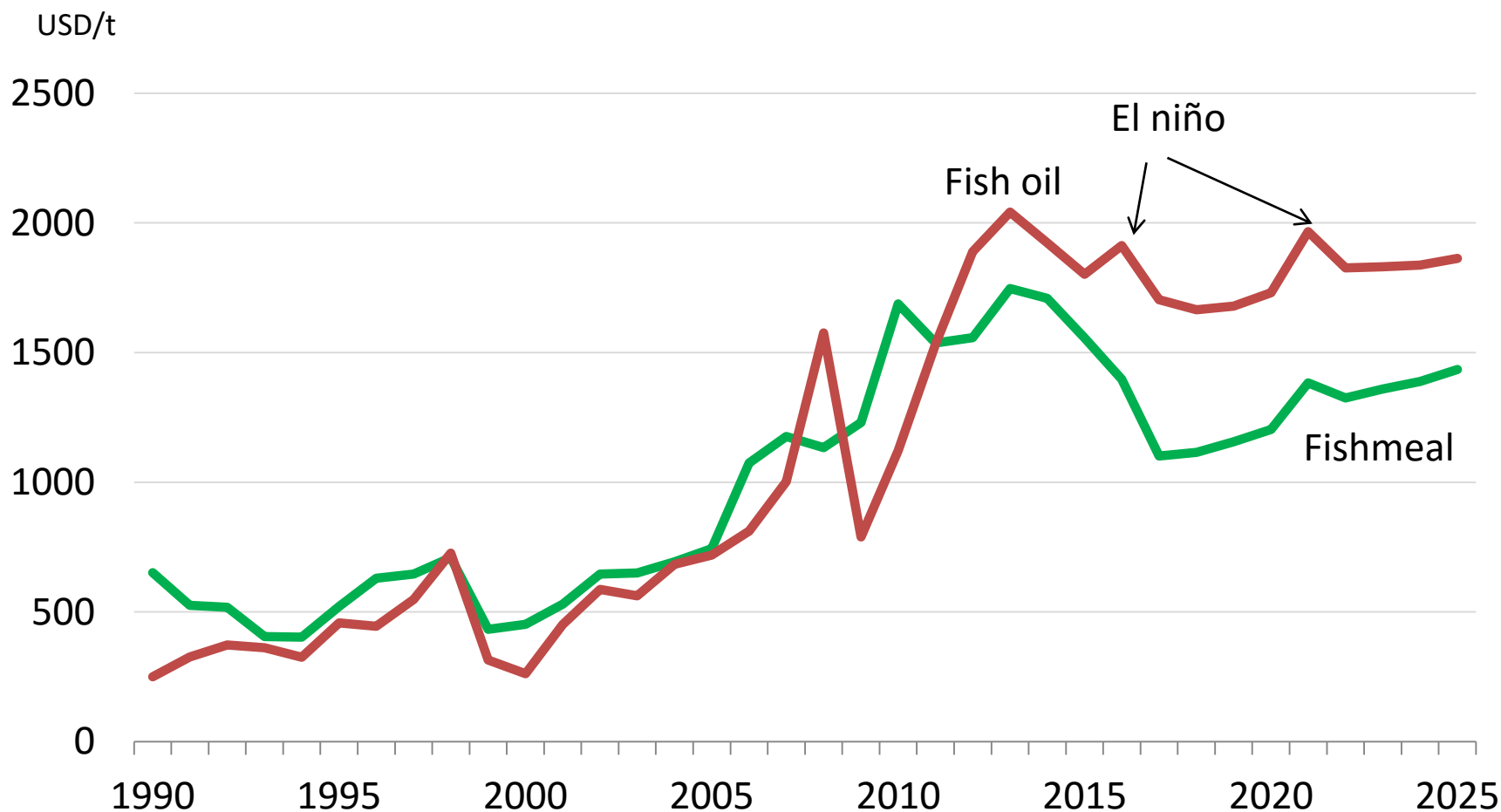


Fishmeal: raw material

Million tonnes (product weight)

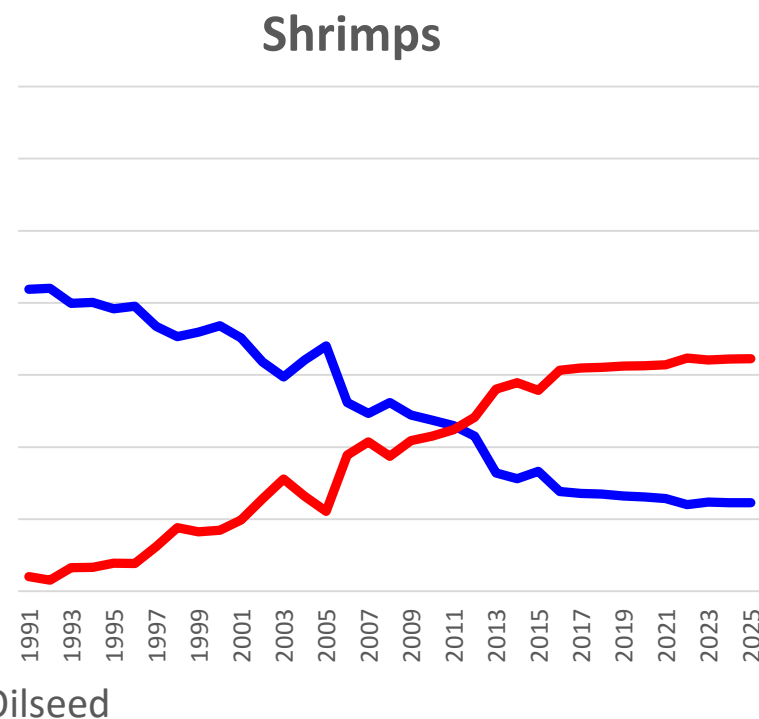
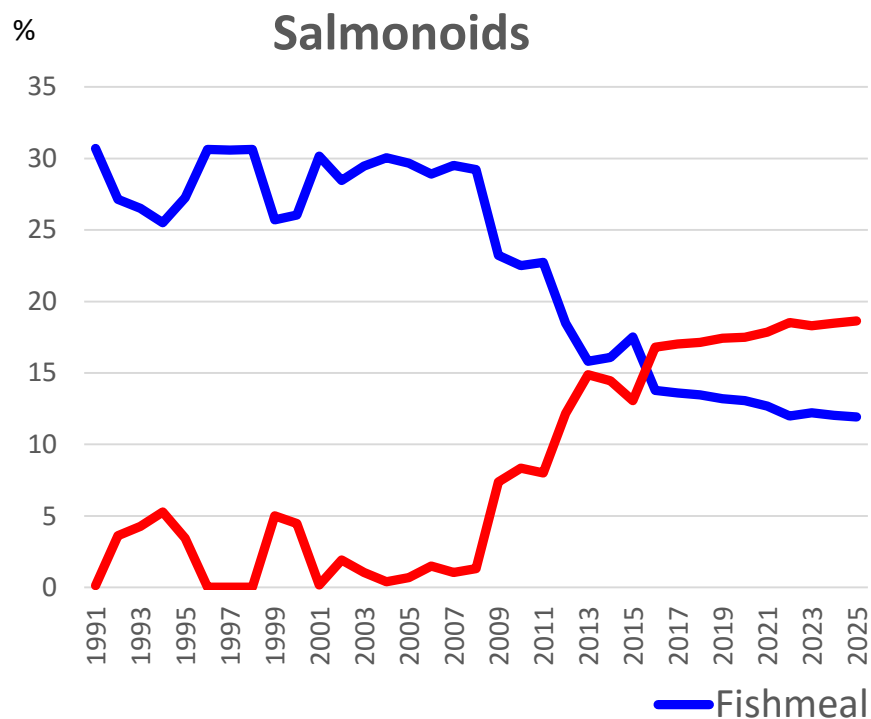


Fishmeal and fish oil prices



Share of fishmeal in feed ratio

World average



THANK YOU

Stefania.Vannuccini@fao.org

