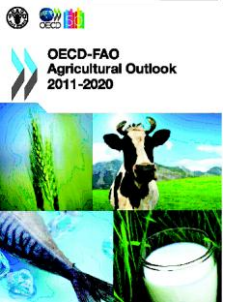


Fish model and OECD-FAO Agricultural Outlook 2011-2020

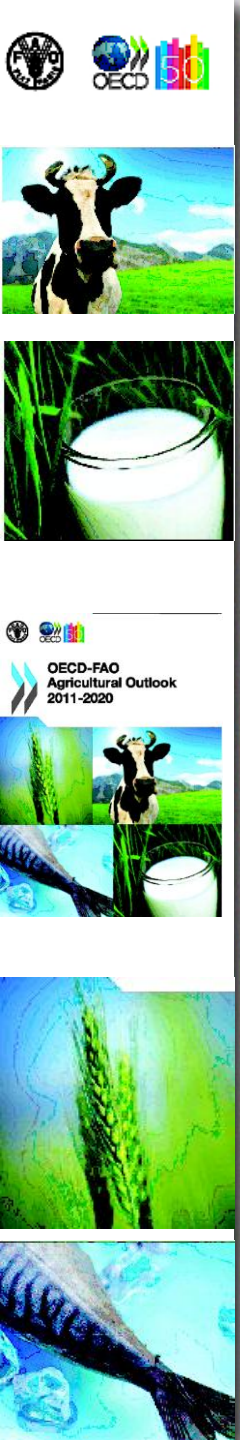
Stefania Vannuccini, Fisheries Statistician (Commodities), FAO





Aglink-CO.SI.MO.

- OECD FAO Aglink-CO.SI.MO. modelling system
- Partial equilibrium model for international agriculture and food markets
- Medium term projections
- Perform alternative scenarios
- OECD-FAO Agricultural Outlook publication



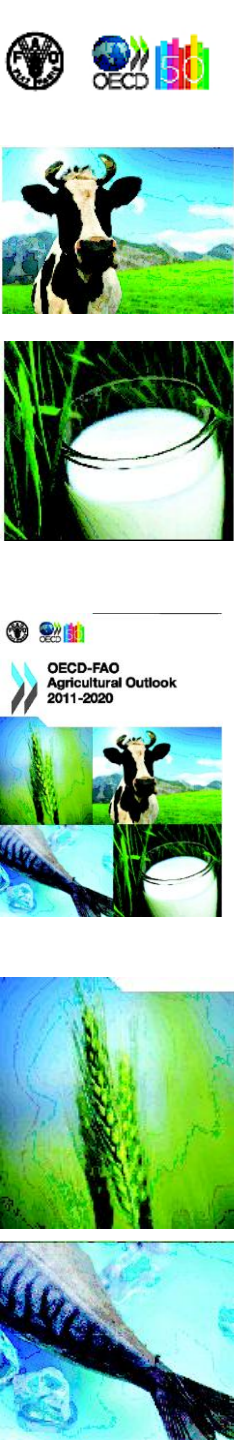
AGLINK Model

- OECD
- Dynamic, partial equilibrium supply-demand model
- Yearly basis since early 1990s
- Medium-term projections
- Agricultural key commodities
- OECD member countries, Argentina, Brazil, China, Russian Federation
- Influence of agricultural policy

CO.SI.MO. Model

- FAO COmmodity SIMulation Model
- Yearly basis since 2004
- Other countries





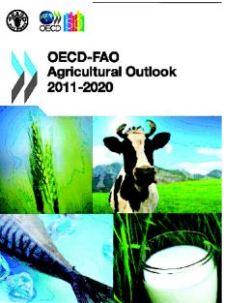
OECD-FAO Agricultural Outlook

- Country views are the starting point
- AGLINK CO.SI.MO is used to get a consistent and coherent picture
- Model outcomes adjusted through expert opinions
- Final reviews in OECD commodity working groups
- The datasets are available at:
www.agri-outlook.org

Interaction fisheries-agriculture

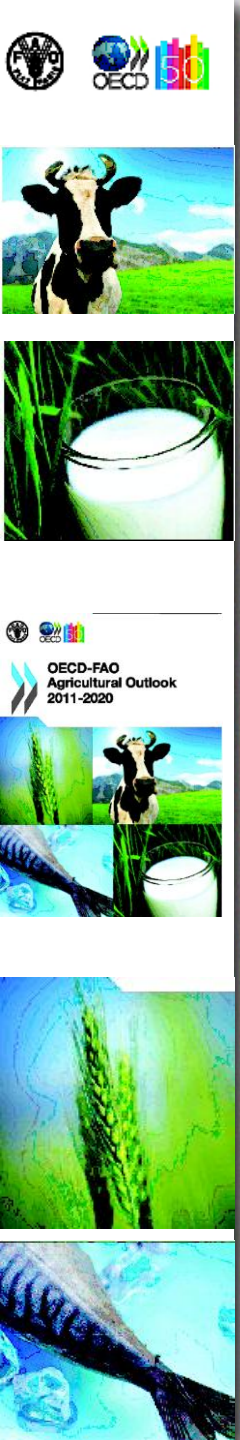
- Integrating farming
- Ecosystems, markets, products, prices, innovation, technology
- Competition on water and land resources
- Feed
- Fish meal, fish oil
- Raw material from agriculture and livestock





Fish model

- Construction of a satellite model on fish and fishery products
- After a few years of use as a stand alone component, possible merging to the AGLINK-COSIMO model
- Benefit also for the overall model as will expand the coverage of food consumption and in particular of protein as well as of the oil and feed markets



Fish model: supply

- Two supply functions: capture and aquaculture
- Capture: either exogenous, endogenous but only affected by el Niño and endogenous but responding to price (13%)
- Aquaculture, 99% endogenous and responding to price of output and feed
- Fish meal and oil are composed by two components: from whole fish and from fish residue

Fish model: demand

- Demand is split to three end uses:
 - food, fishmeal/fish oil and other uses (kept exogenous)
- Demand for fish meal and oil responds to the need of aquaculture, the own price and the price of the respective oilseed products
- Imports and exports of fish are either exogenous or a function of domestic and world prices adjusted for tariffs and transport costs





Fish model

2011 assumptions

- El nino will affect South American capture in 2010, 2015 and 2020.
- Fishing quota under-fill will be minimal.
- Aquaculture productivity gains will be smaller than in the previous decade.
- New feeding technics will not prevent increase in the ratio of fish to oilseed meal price.

OECD-FAO Agricultural outlook 2011-2020



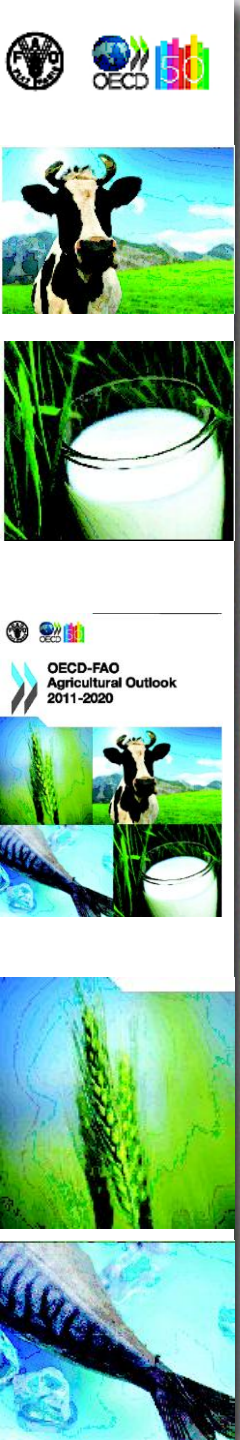
OECD-FAO Agricultural Outlook 2011-2020



Agricultural outlook 2011-2020

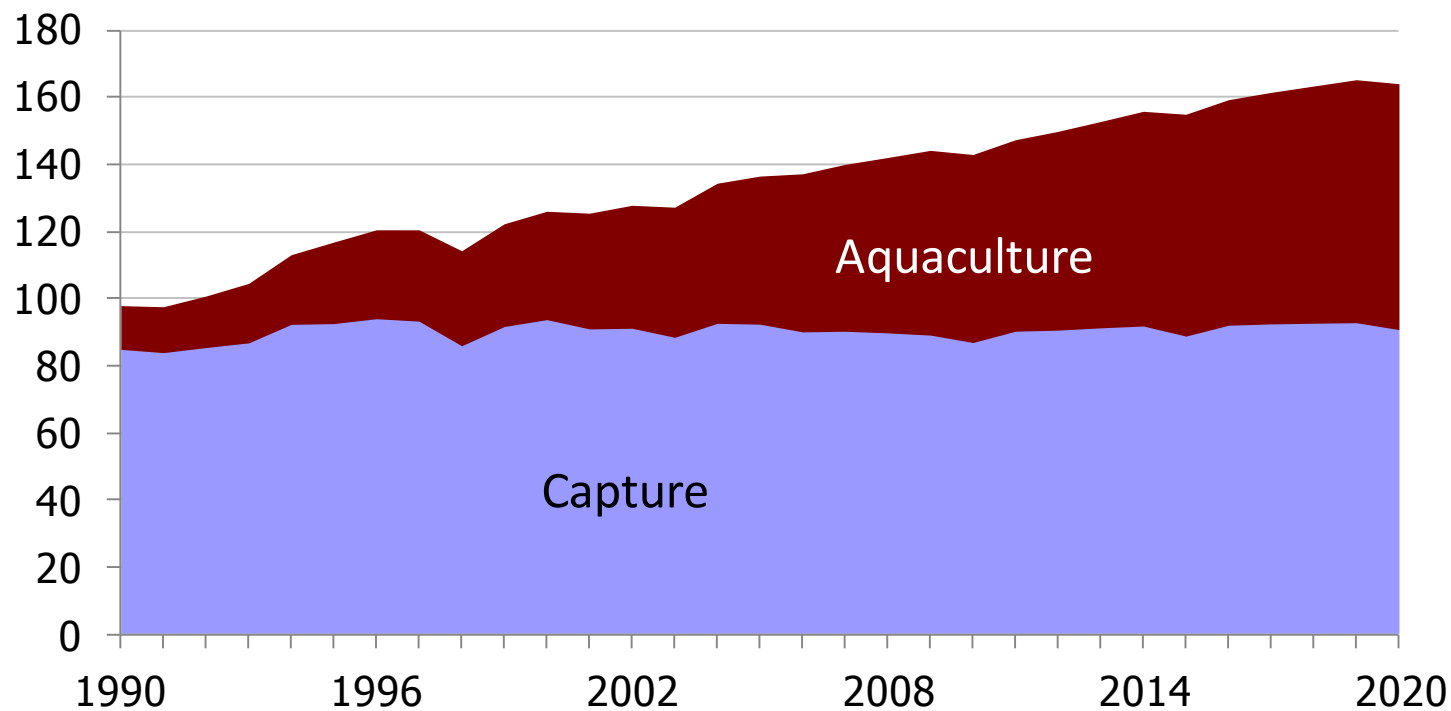
- Agricultural commodity prices in real terms higher compared to 2001-2010.
- Production costs are rising and productivity growth is slowing (1.7% compared to 2.6%)
- Energy related costs and feed cost will continue to increase
- Resource pressures on water and land are increasing
- Need of further investments into productivity enhancements
- Per capita food consumption will expand most rapidly in Eastern Europe, Asia and Latin America, with highest increases for vegetable oils, sugar, meat and dairy products
- Trade is expected to grow by 2% per year, slower than the previous decade

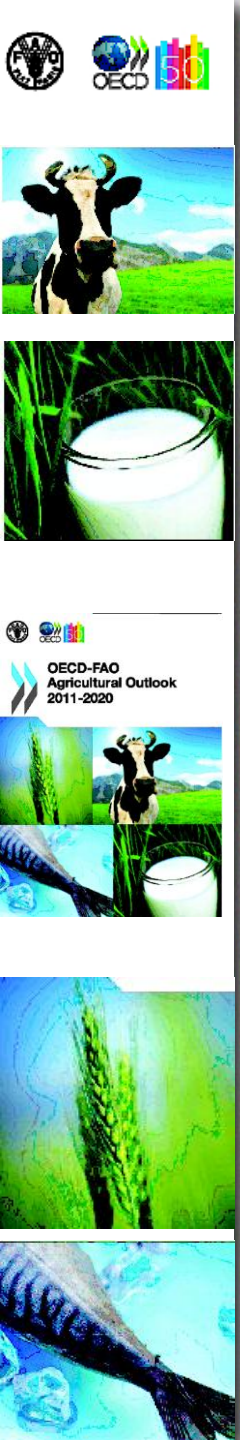




TOTAL FISHERY PRODUCTION

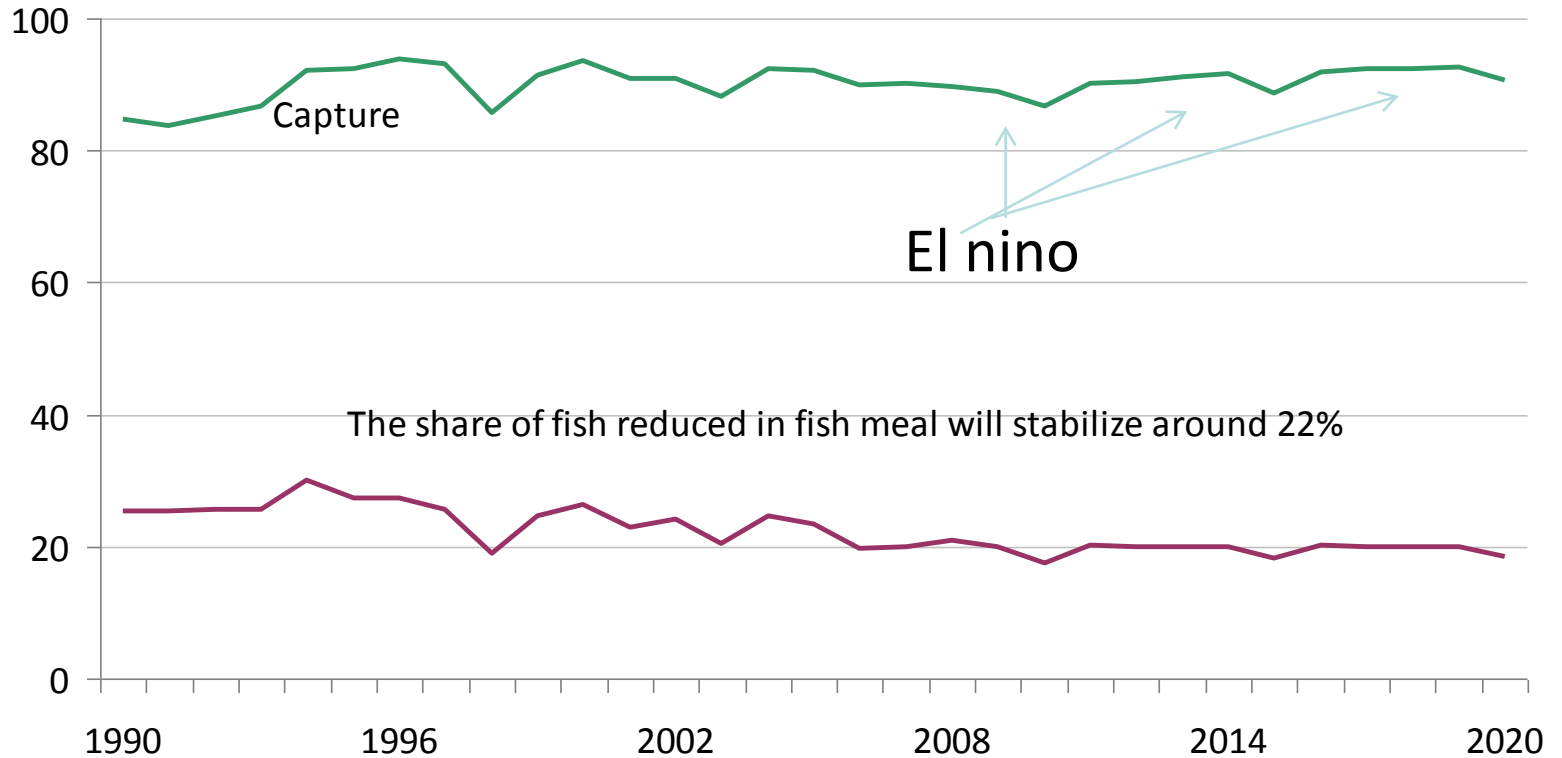
million tonnes





Projections for capture fisheries

million tonnes



Capture fisheries

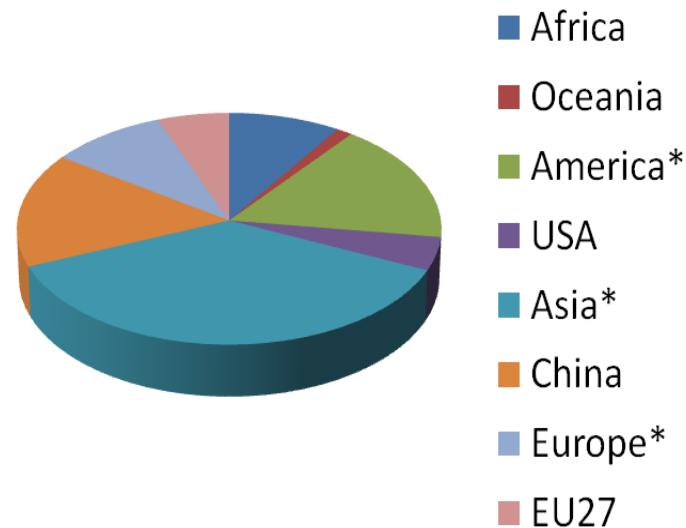
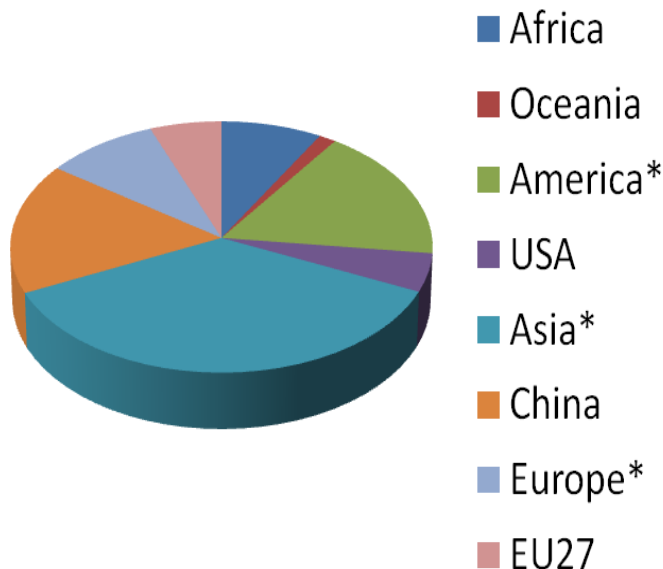


Capture average 2008-10

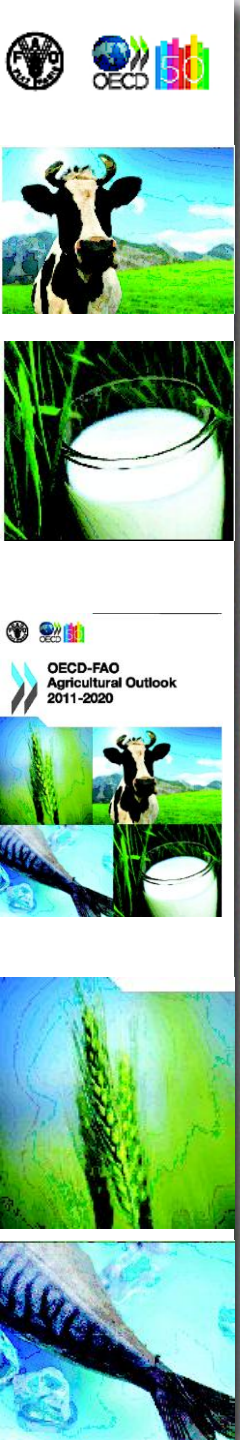
Total= 88.4 mt

Capture average 2018-20

Total= 91.9 mt

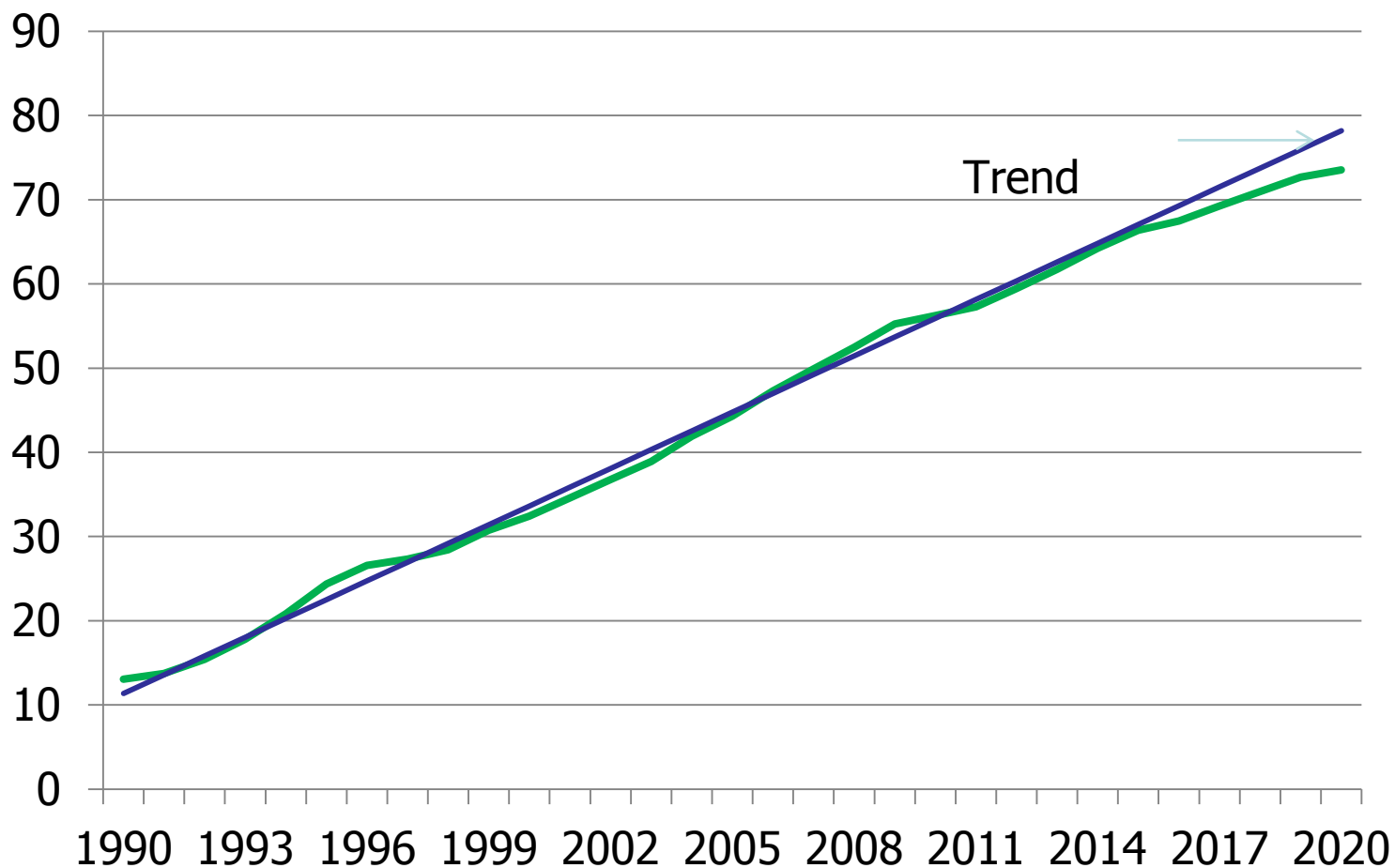


* Indicates excluding USA, China and EU27 respectively



Projections for aquaculture production

million tonnes





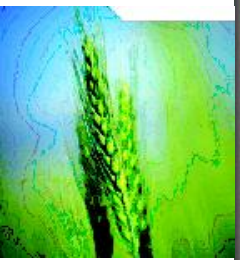
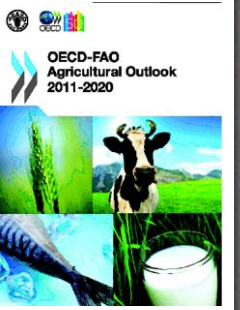
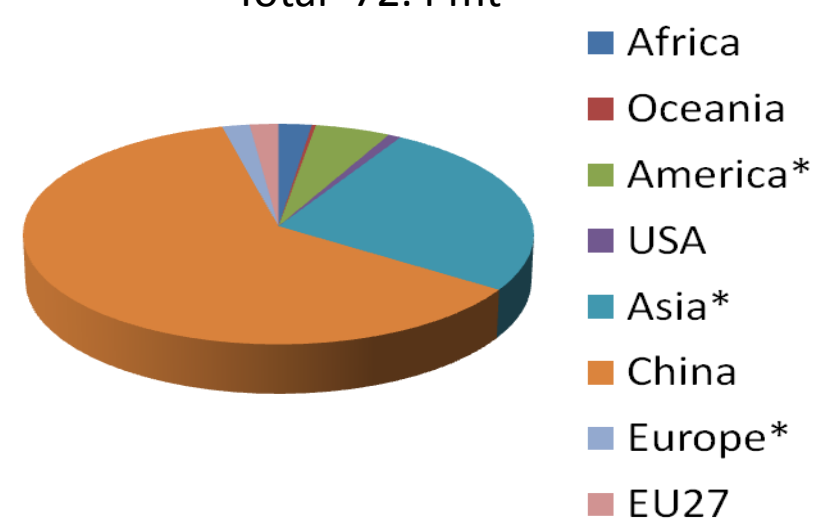
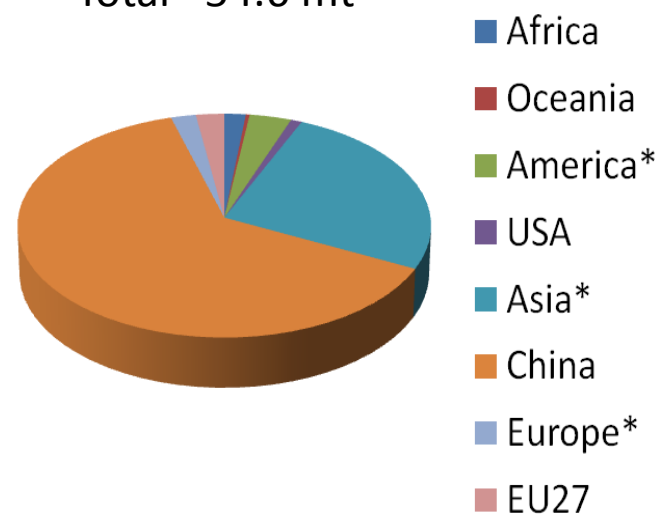
Aquaculture production

Aquaculture ave. 2008-10

Aquaculture ave. 2018-20

Total= 54.6 mt

Total=72.4 mt

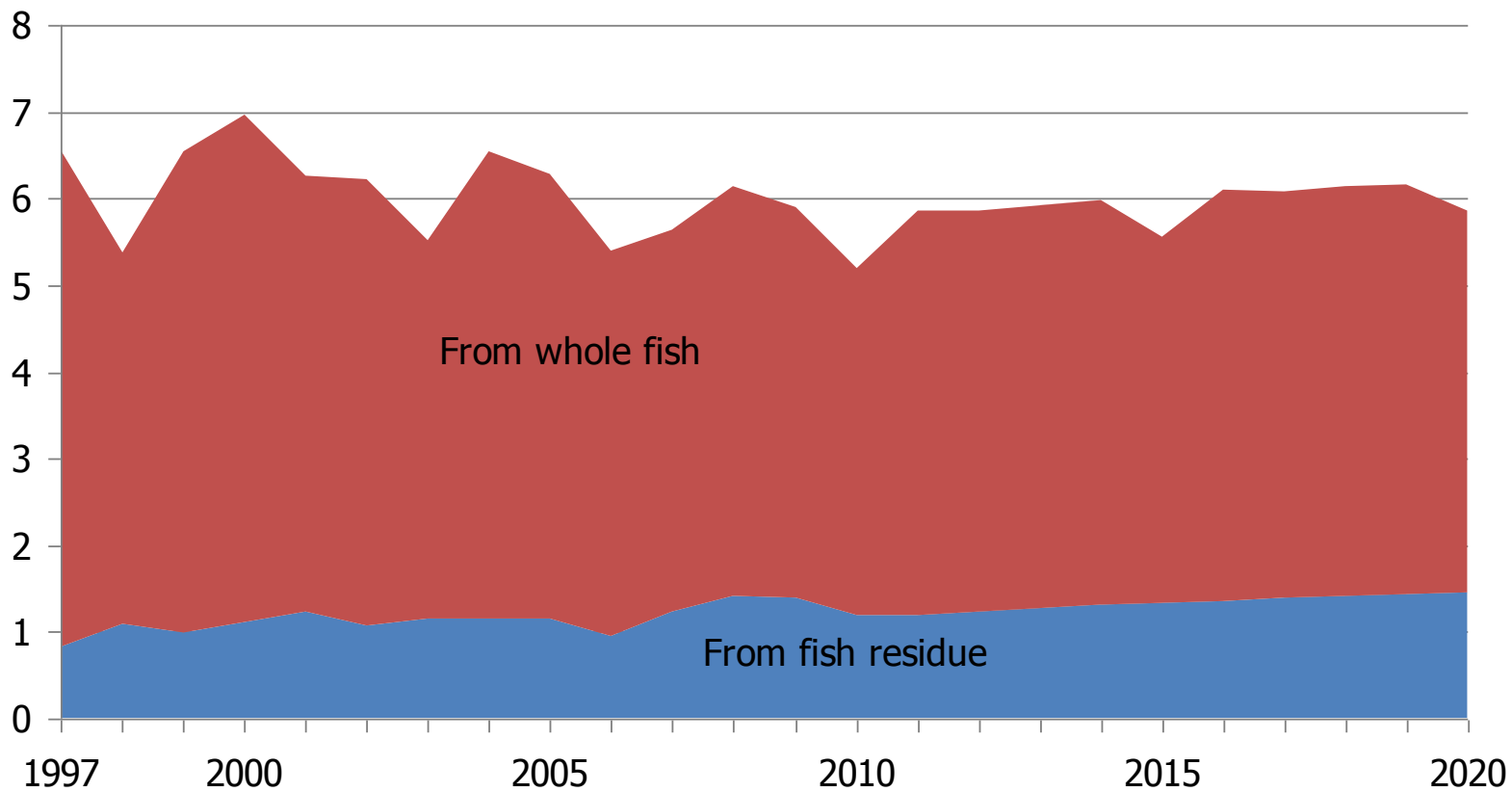


*Indicates excluding USA, China and EU27 respectively

Fish meal production



million tonnes

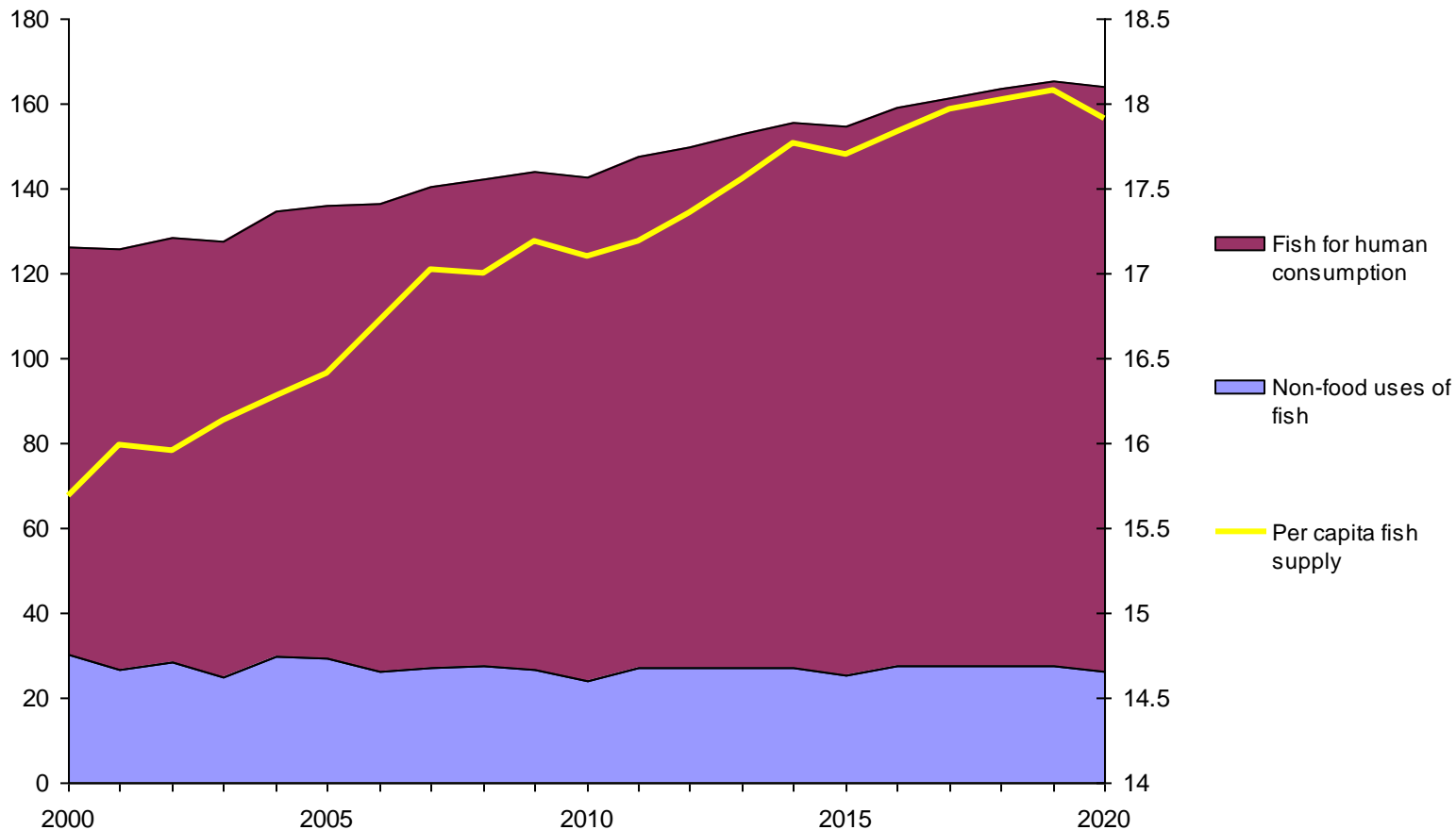


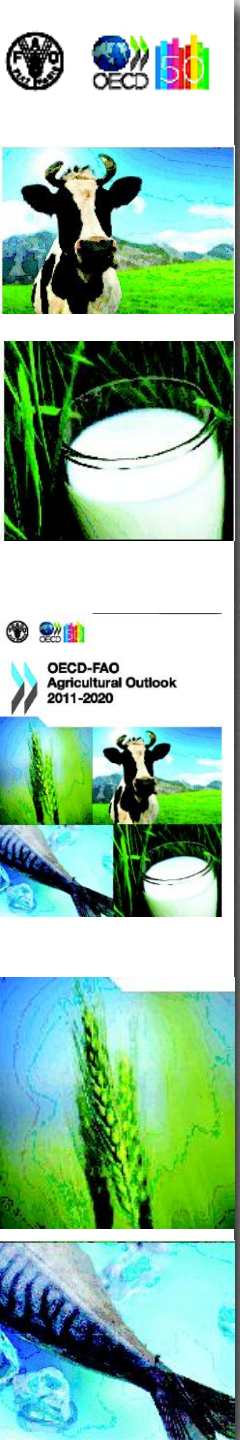
World utilization and consumption projections



Utilization in million tonnes

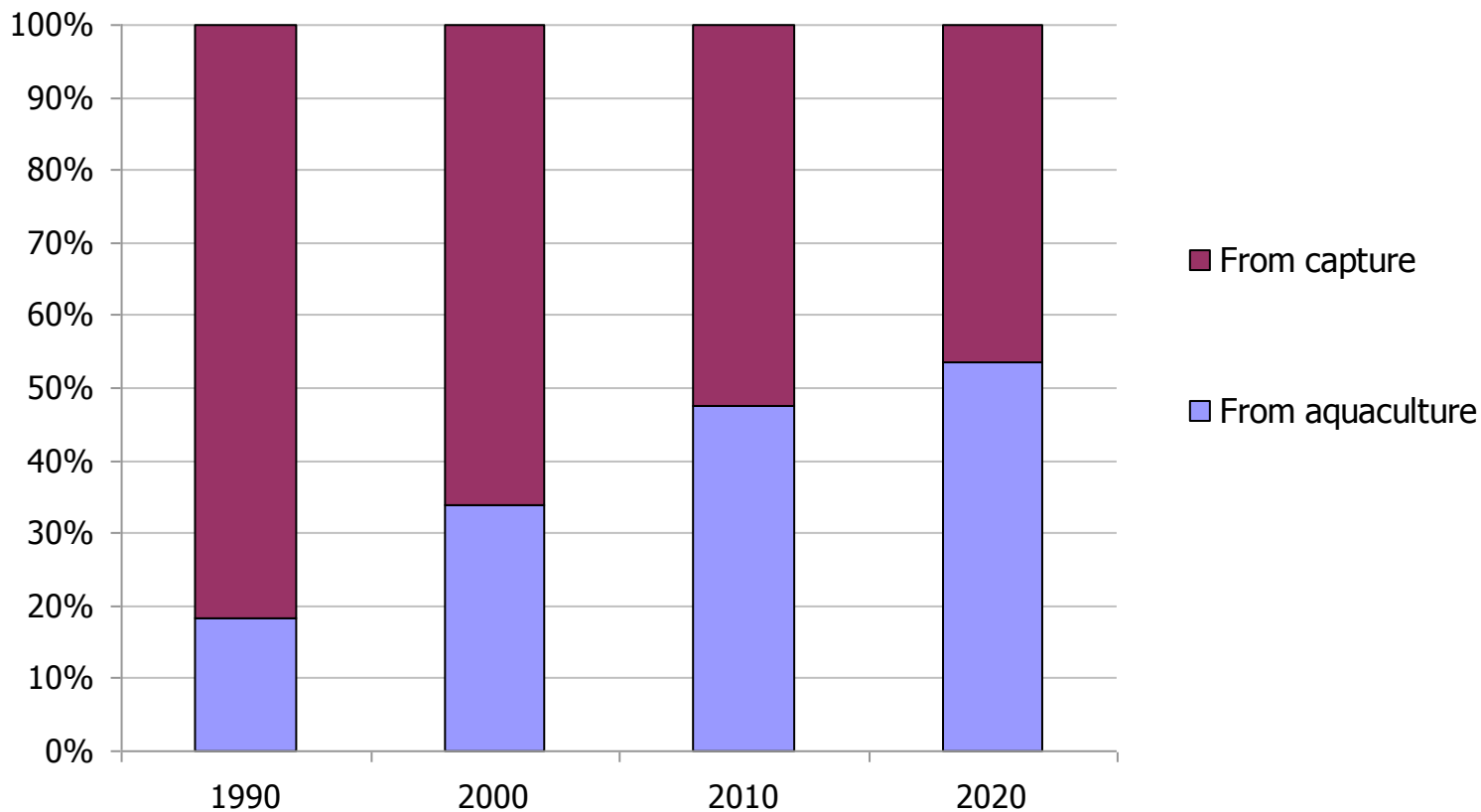
kg/capita





Increasing role of aquaculture in human consumption

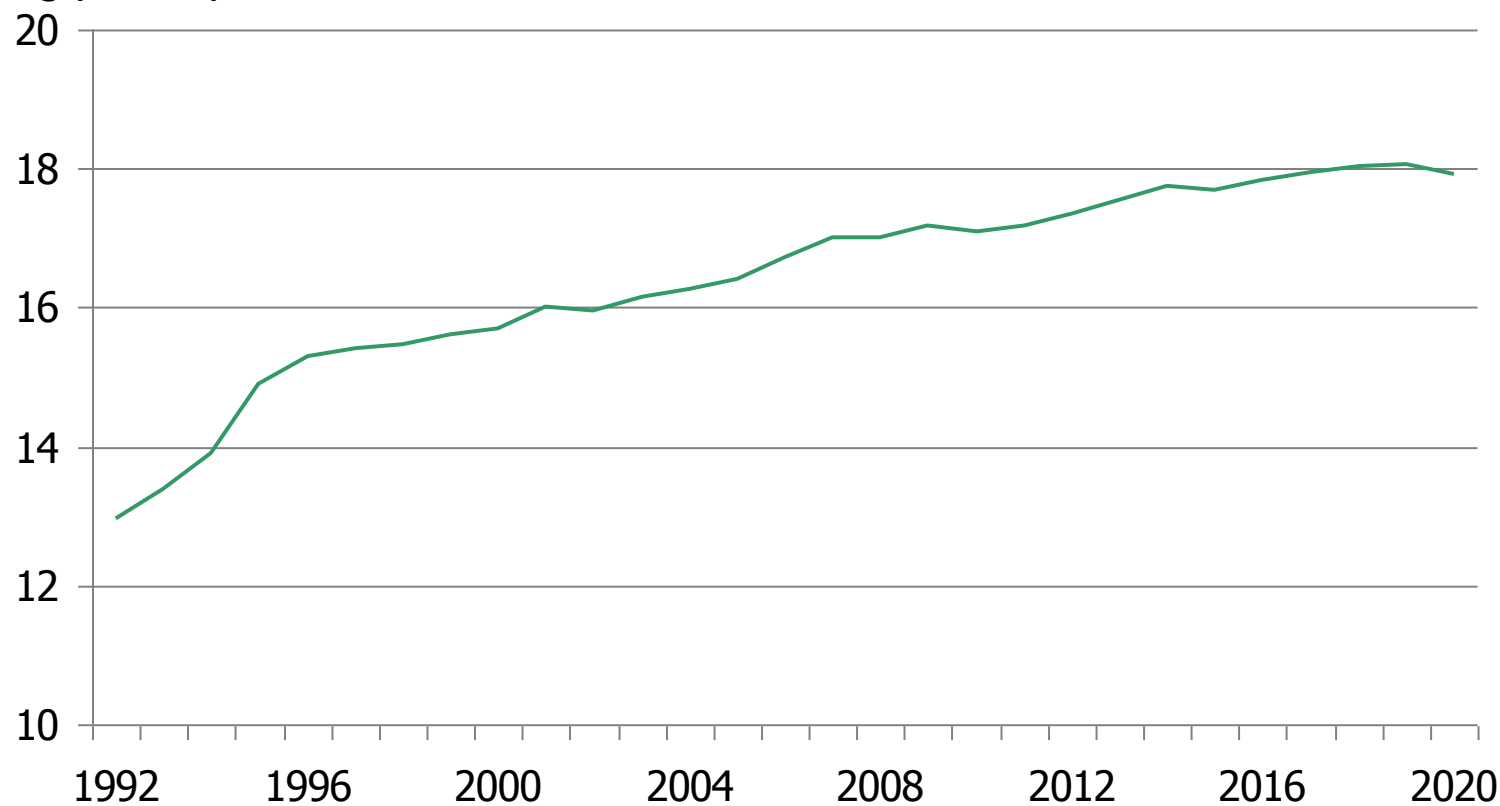
Fish for human consumption (%)



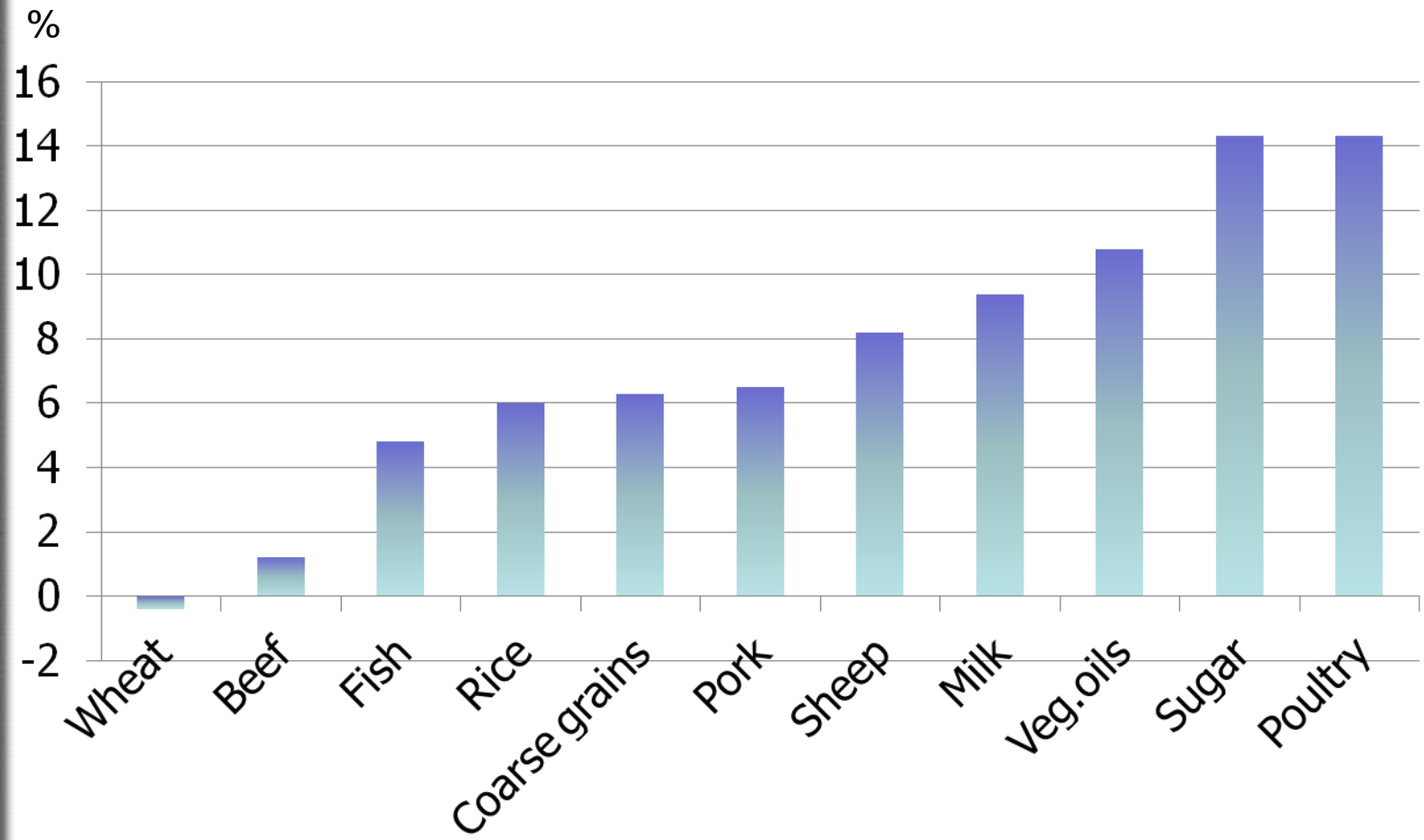
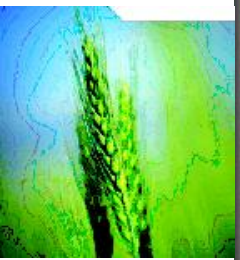
World per capita fish consumption



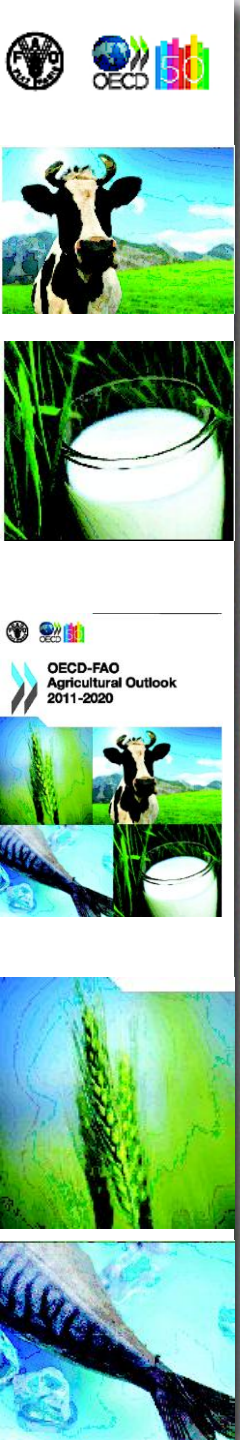
kg per capita



Per capita consumption growth 2011-20 vs 2008-2010



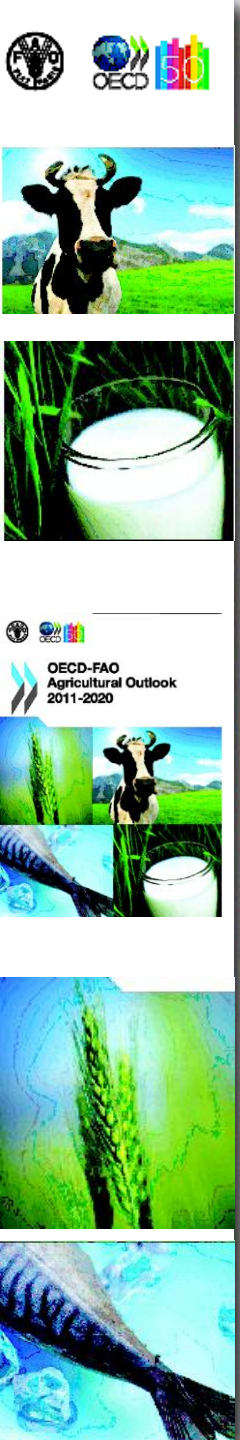
Source: OECD-FAO



Trend in world trade of fish and fishery products

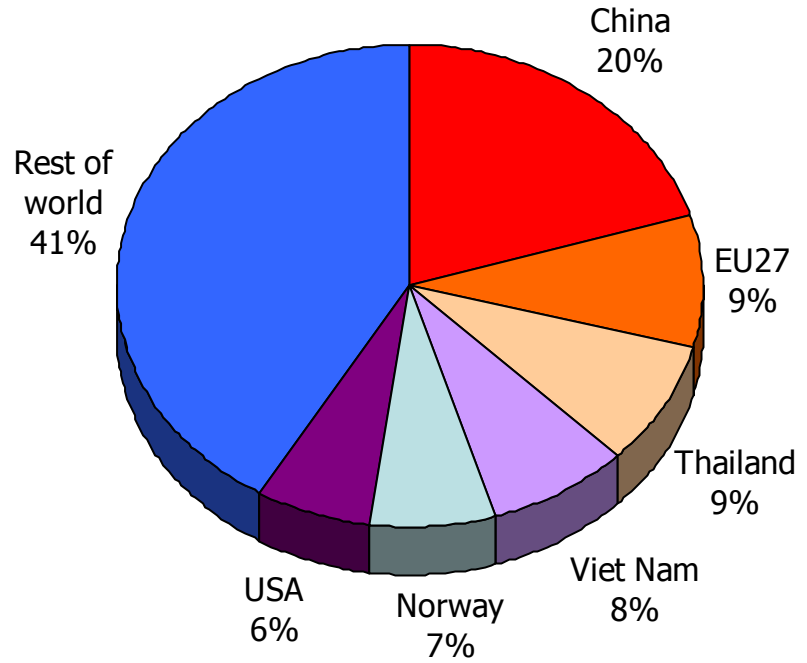
million tonnes live weight



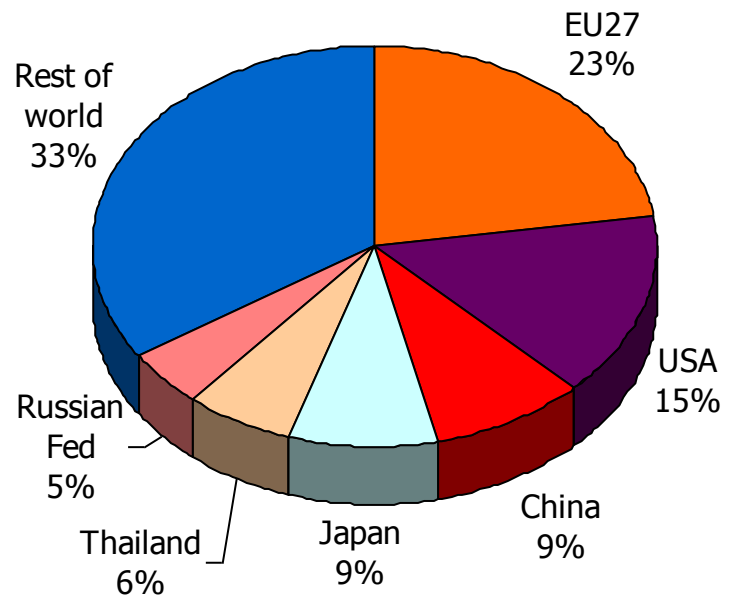


2020: trade of fish food by countries in quantity

Exports



Imports



Share of 7 major exporters to increase

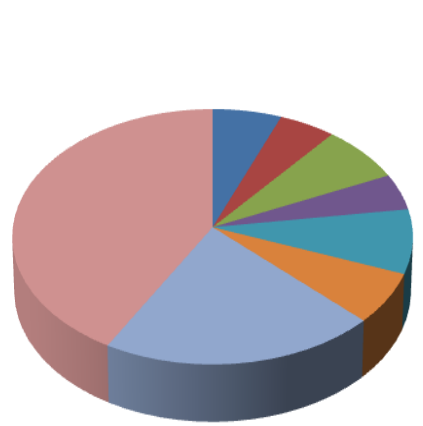


Exports ave. 2008-10

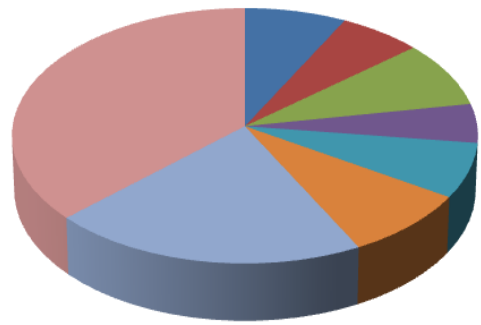
Total= 34.8 mt

Exports ave. 2018-20

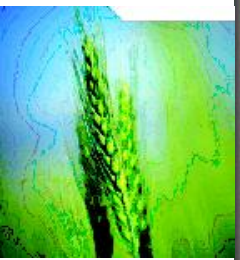
Total= 43.4 mt



- Vietnam
- USA
- Thailand
- Russia
- Norway
- EU27
- China
- Others



- Vietnam
- USA
- Thailand
- Russia
- Norway
- EU27
- China
- Others

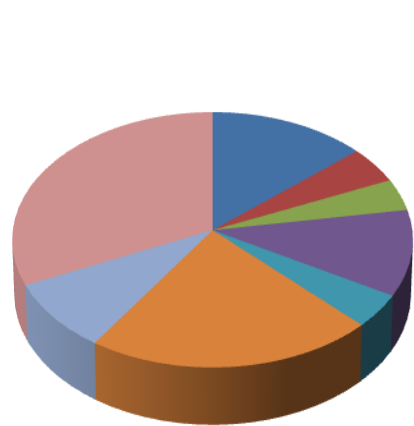
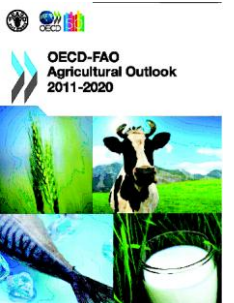


Share of major importing countries to remain rather stable (about 68%)

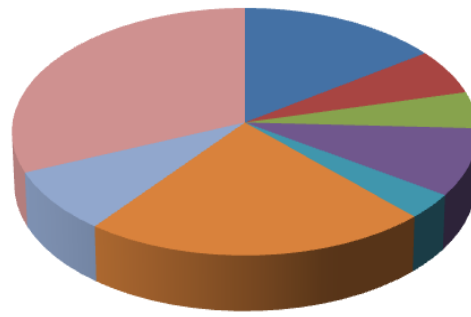


Imports ave. 2008-10
Total= 34.1 mt

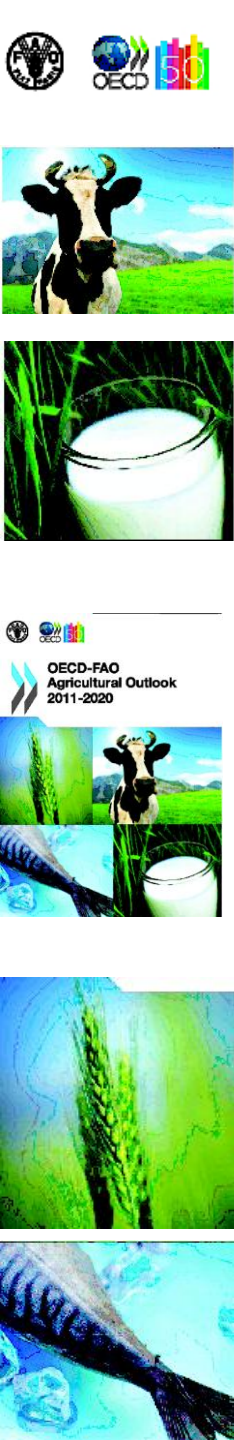
Imports ave. 2018-20
Total= 43.46 mt



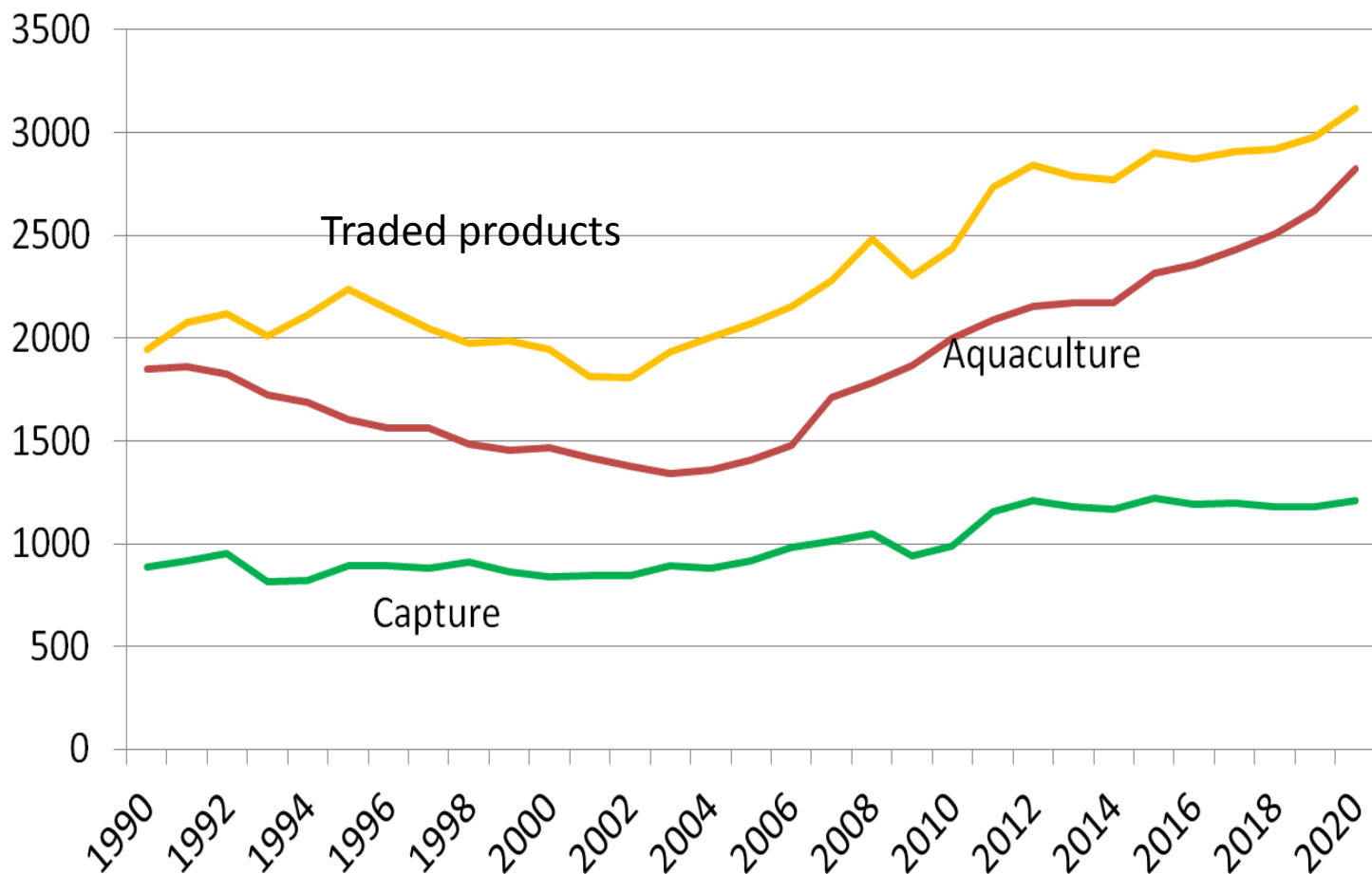
- USA
- Thailand
- Russia
- Japan
- Korea
- EU27
- China
- Others

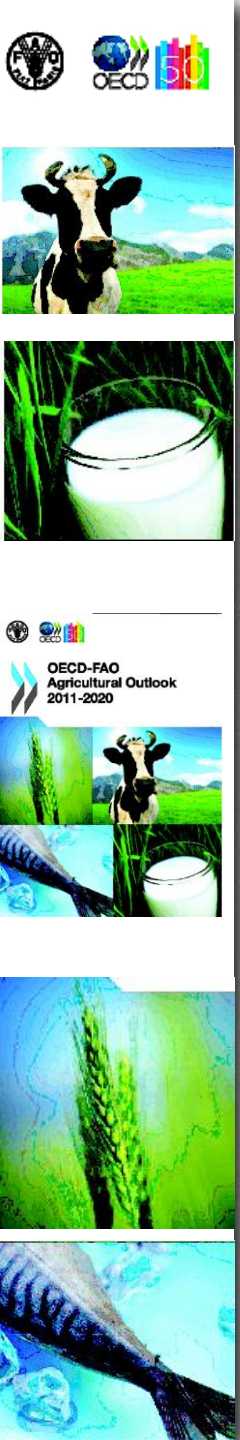


- USA
- Thailand
- Russia
- Japan
- Korea
- EU27
- China
- Others

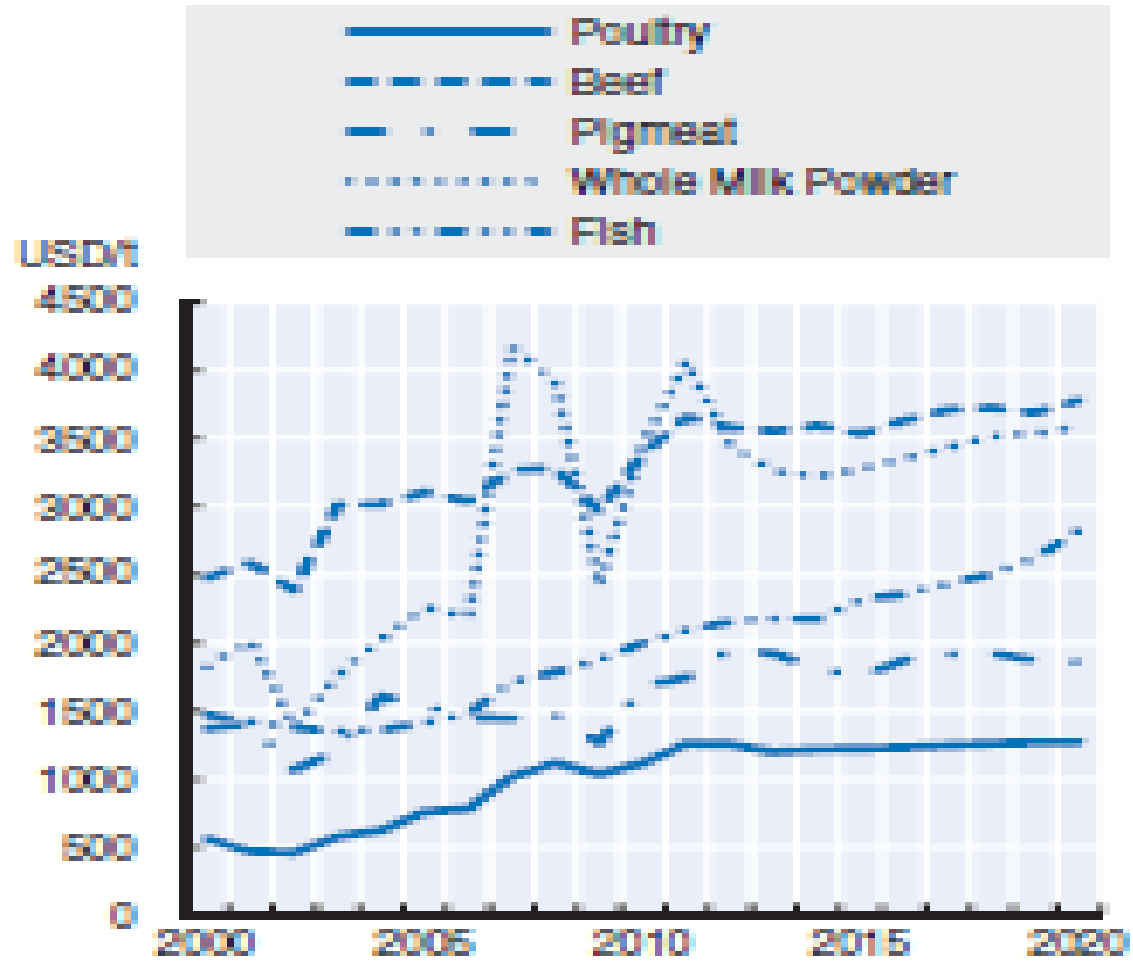


Fish price projected to increase as prices of other commodities





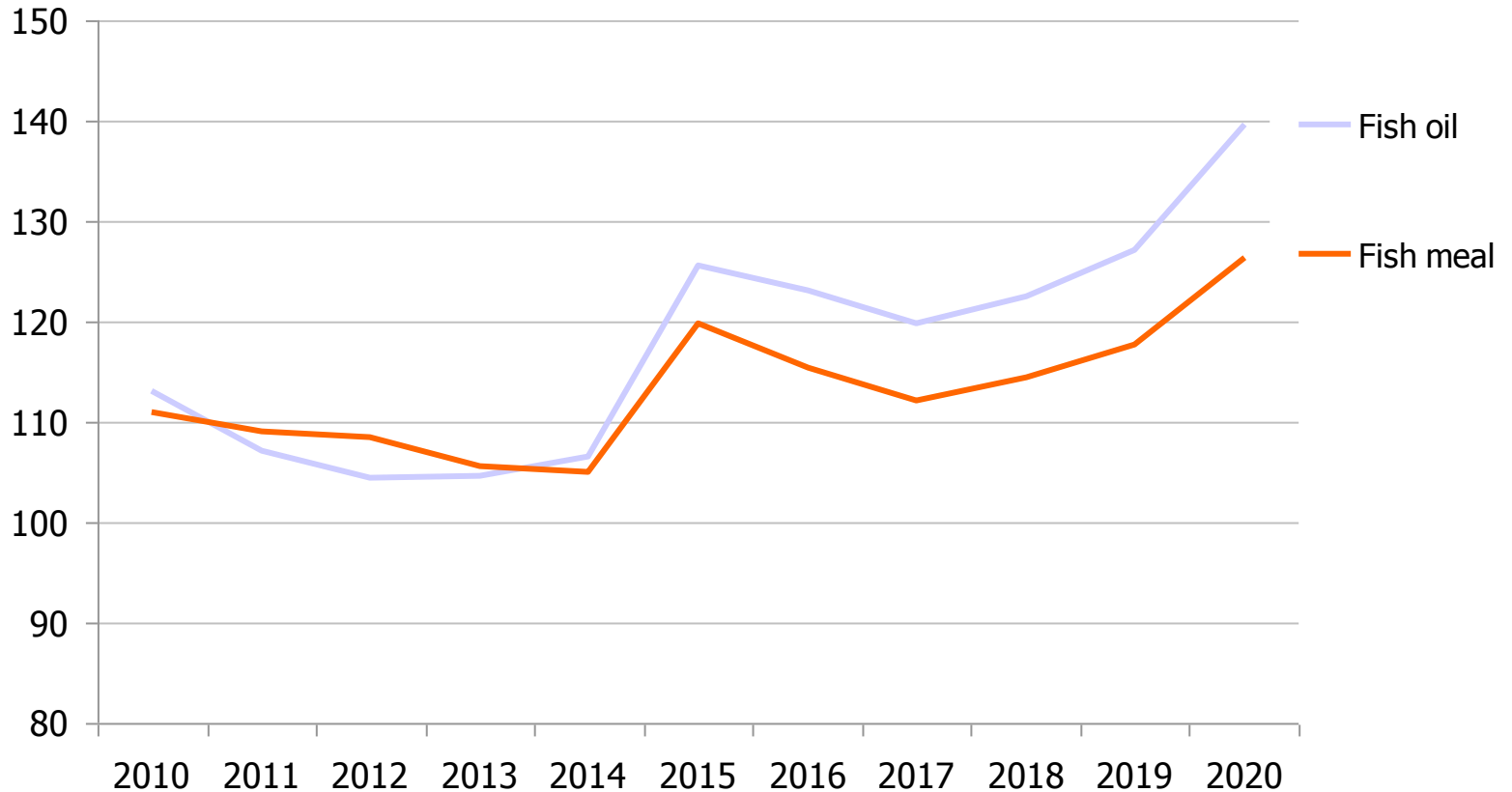
Outlook: fish vs meat prices



Source: OECD-FAO

Growing prices

2009-2011=100





Conclusion

- Projections indicate a continuous rise in demand for fish and fishery products, with growing trade and consumption
- Need to long-term resource conservation and effective management of resources as well as of aquaculture
- Differentiation of consumption, opening of new markets
- Risk of increase of costs of production due to stable production of fishmeal/fish oil
- Too high prices in the market will risk the effect of substitution with other emerging commodities

Outlook for fish: supply

- Major increases will depend on aquaculture.
- Factors to influence future growth of aquaculture:
 - costs/availability of feed for selected species; access and availability of areas/water
 - environmental impacts
 - availability of technology and finance
 - effects on biodiversity
 - climate changes
 - governance
 - food safety and traceability issues
- Capture: importance of implement more cautious and effective fisheries management





Outlook for fish: demand

- Population/rural/urban
- Income
- Retail concentration in developed and developing which will affect demand
- Product development, technological innovation
- Continuous increase of trade
- Increased imports from developing countries
- Outsourcing of processing will continue
- Slow growth in per capita consumption



Next Steps

- Improvement of elasticities, in particular for aquaculture
- At present examining possible inclusion of the FAO Fish Price Index in the Fish model
- Working on the yearly projections
- Prepare a a new fish chapter in the OECD-FAO Agricultural Outlook 2012-2021

Future steps

- Final goal: inclusion of the Fish Model in the Aglink-CO.SI.MO. overall model
- Done during revision oilseed module?
- More disaggregated model by selected groups of species?





THANK YOU!!!!