



PrimeFish



Horizon 2020
Programme

WP2 ECONOMIC PERFORMANCE

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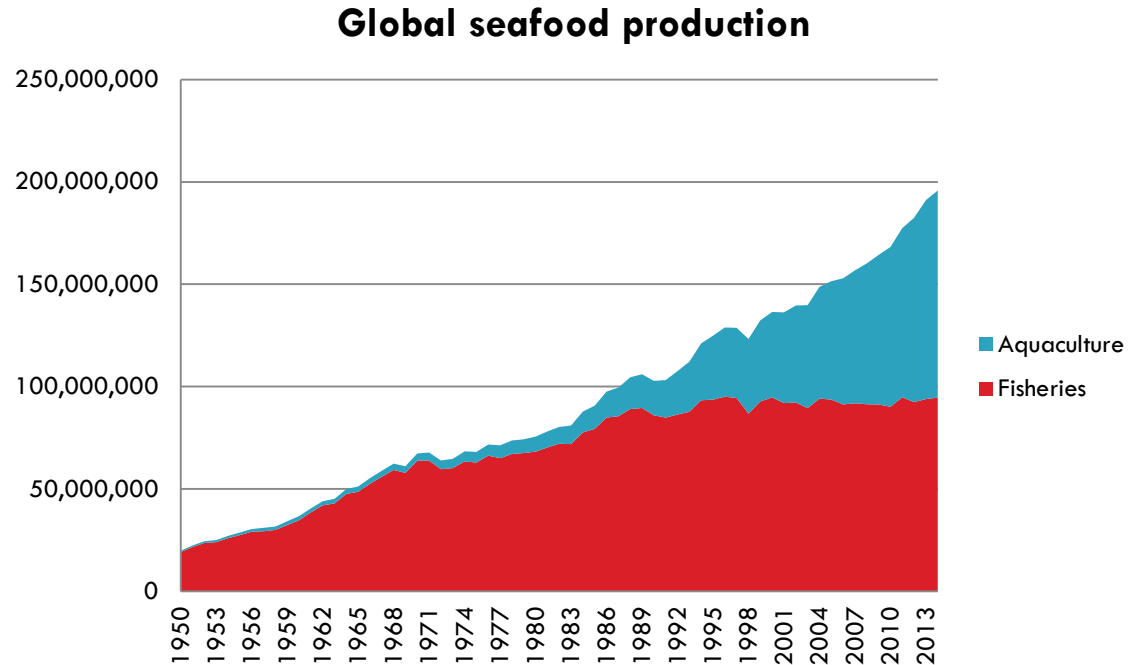
PrimeFish Canada Strategic Advisory Board Meeting
St. John's, Newfoundland, March 10th 2017

WP2 Economic performance and prices

- **Objectives:**
 - Historical development of prices and quantities
 - Development of productivity in selected fisheries
 - Decompose productivity changes
 - Efficiency analysis
 - Boom and bust cycles

Some perspectives – fisheries versus aquaculture

- The global macro perspective
 - Aquaculture is growing
 - Fisheries are flat



Fisheries and Aquaculture by continent

□ Asia

□ Growth in both

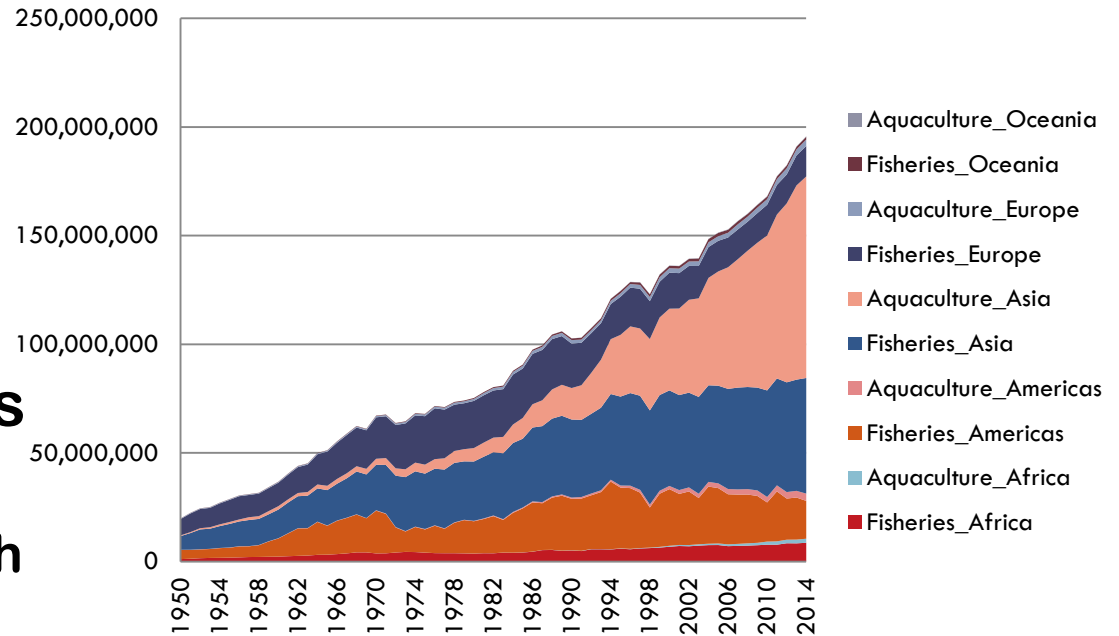
■ Aquaculture

■ Fisheries

□ Other continents

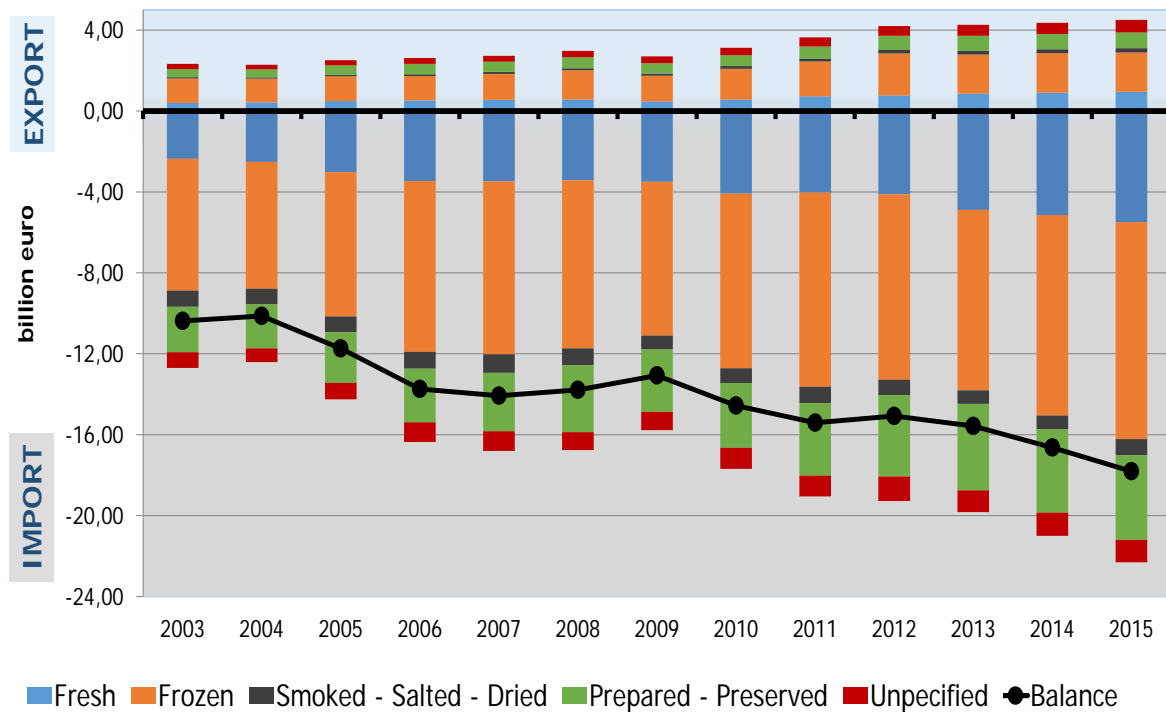
□ Going flat or declining for both

Fisheries and Aquaculture by continent



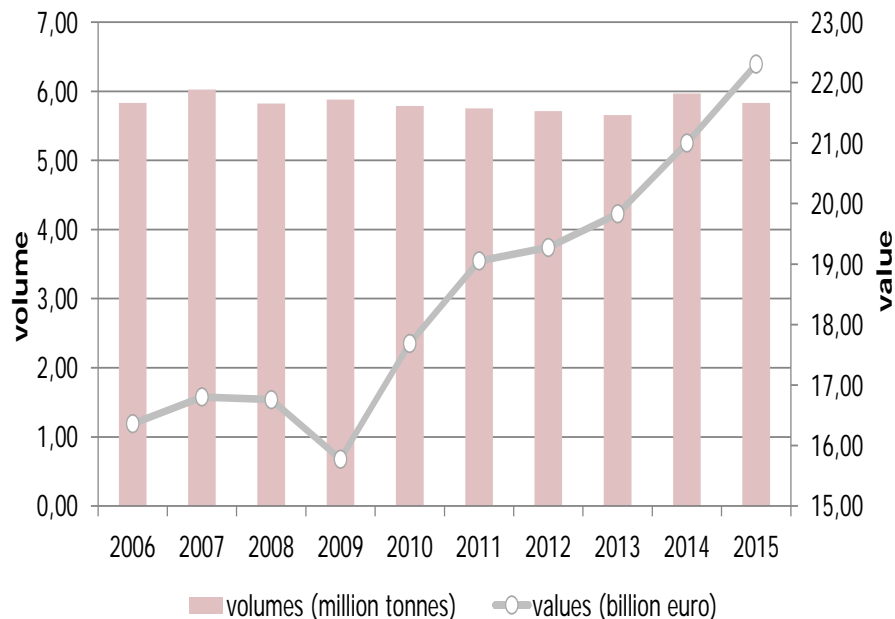
Europe – worried about the trade balance

- The export import imbalance for seafood in Europe (EU) increases



EU – now pays more for the same volume

- The imbalance is **NOT** due to volume, but because EU pays more for the same volume.
- Also, self sufficiency has dropped from around 100 % in the 90'ies to currently around 60 %.



D2.2 Economic performance

- Approach based on traditional growth-accounting models
- Multi-factor productivity growth is calculated as a residual; the difference between changes in output on one hand and changes in inputs on the other hand
- Output is measured as landed catch
- Two inputs controlled by firms; capital and labour
- Capital is measured as the product of numbers of vessels, average length and average engine size
- Labour is measured as the number of employed individuals
- Allowance is also made for changes in stocks, which are regarded as non-control inputs as the stocks are outside the realm of individual harvesters

D2.2 Economic performance

Impact on productivity

	Increase	Decline
Landings	+	-
Capital	-	+
Labour	-	+
Stocks	-	+

D2.2 Economic performance; demersal fisheries

	Period	Fleet	Species
Faroe Islands	1993-2014	Trawlers, longliners	Cod, haddock, saithe
Iceland	2002-2014	Trawlers, netters, longliners	Cod, haddock, saithe, redfish, wolffish, ling
Norway	2002-2014	Trawlers, netters, longliners	Cod, haddock, saithe
Spain	2006-2014	Trawlers	Greenland halibut, thorny skate, cod, redfish
UK	2008-2014	Trawlers, netters, longliners	Cod, haddock, saithe, plaice, hake, monk

D2.2 Economic performance

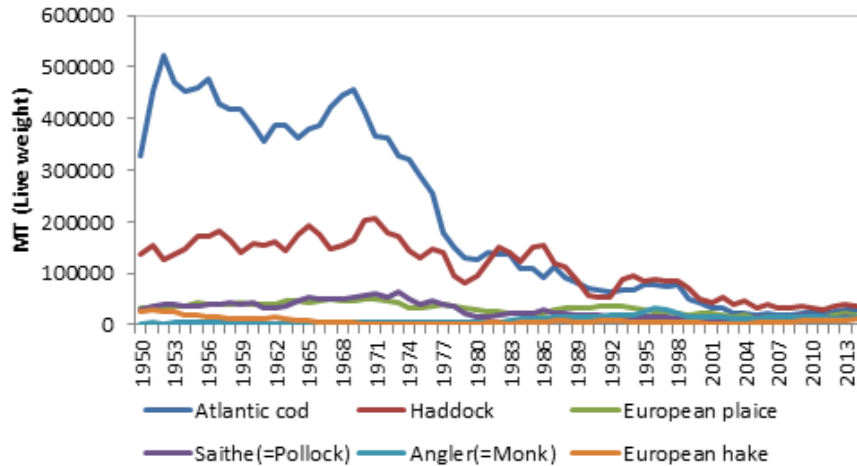
- **The utilisation of capital and labour is weighted by**
 - **Share of landings of species included in the study in total catches**
 - **Number of days-at-sea (where available)**
- **Aggregate stock is defined as the combined stocks of all species included in the output variable (landings)**

D2.2 Economic performance

- The study includes all the main demersal fishing nations in Europe, except Russia
- European catches of cods, hakes and haddocks in 2014

Country	000 tonnes
Denmark	98
France	112
United Kingdom	140
Spain	179
Faroe Islands	308
Iceland	523
Norway	1.179
Russia	2.347
Other countries	206
Total	5.091

D2.2 Economic performance; catches

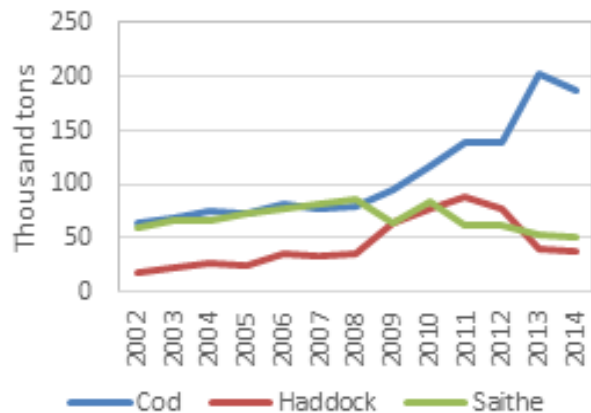


UK

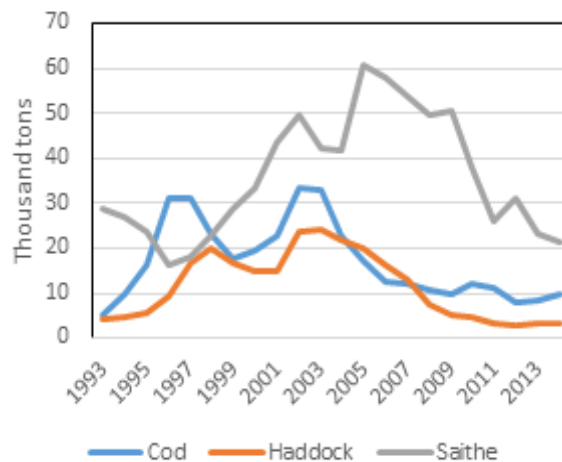


Spanish NAFO fleet

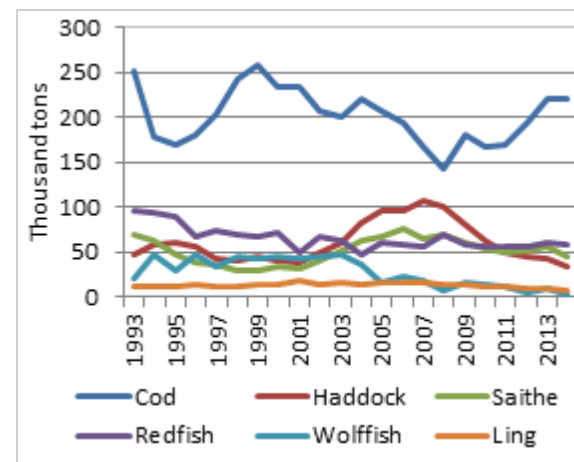
D2.2 Economic performance; catches



Norway



Faroe Islands

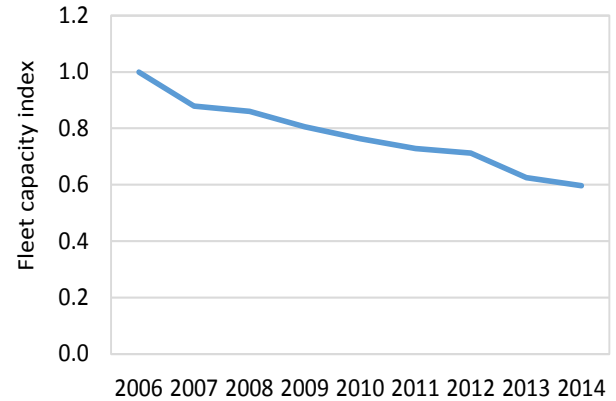


Iceland

D2.2 Economic performance; fleet capacity

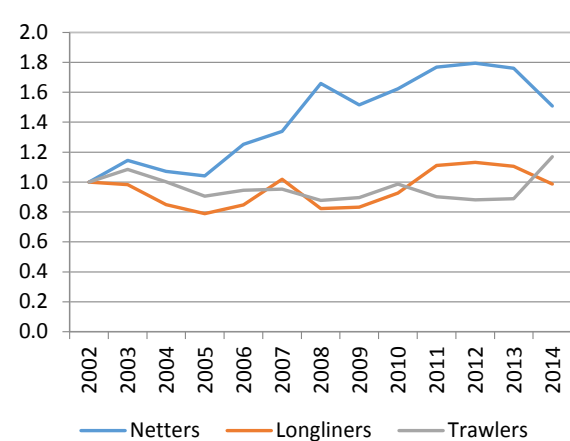


UK

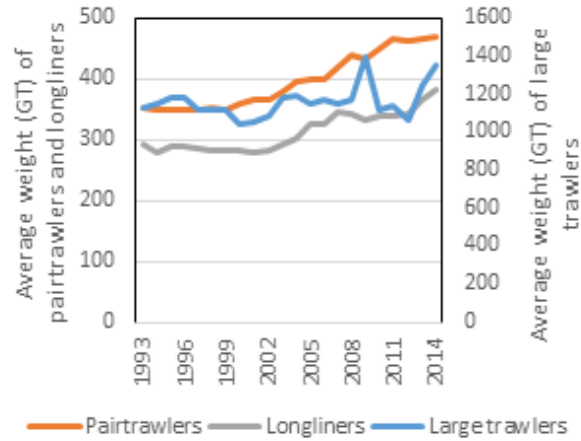


Spanish NAFO fleet

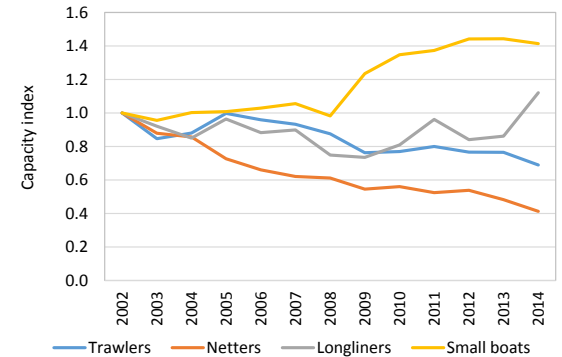
D2.2 Economic performance; fleet capacity



Norway

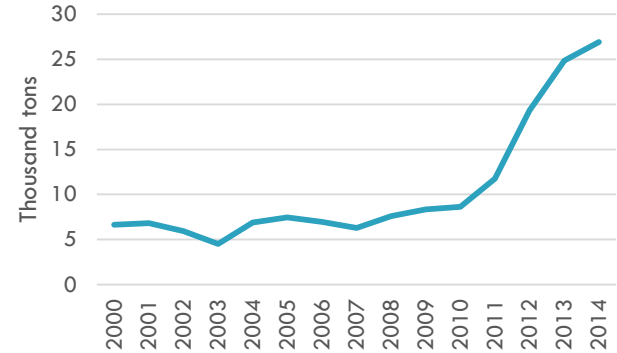
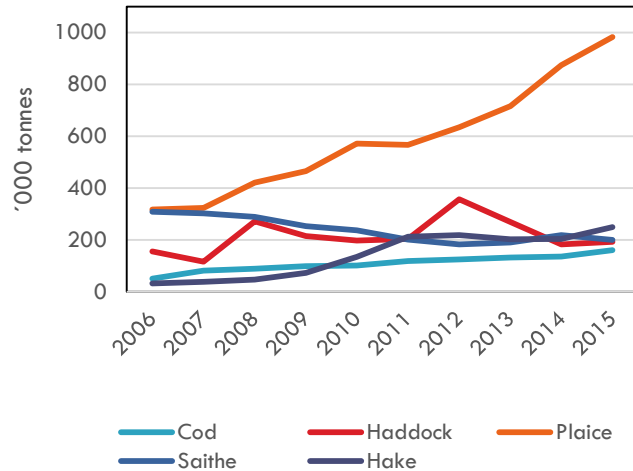


Faroe Islands



Iceland

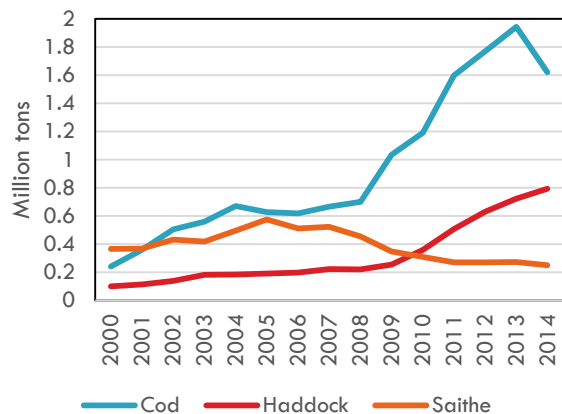
D2.2 Economic performance; stocks



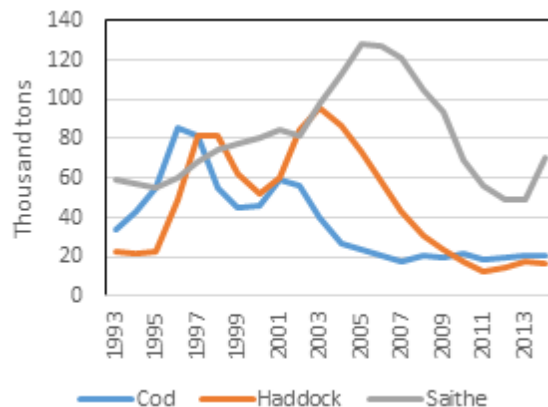
UK

Spanish NAFO fleet

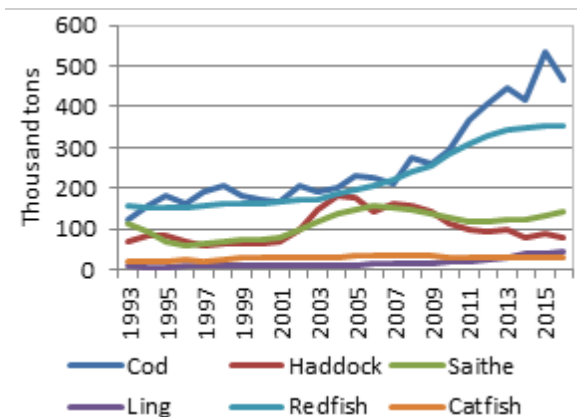
D2.2 Economic performance; stocks



Norway



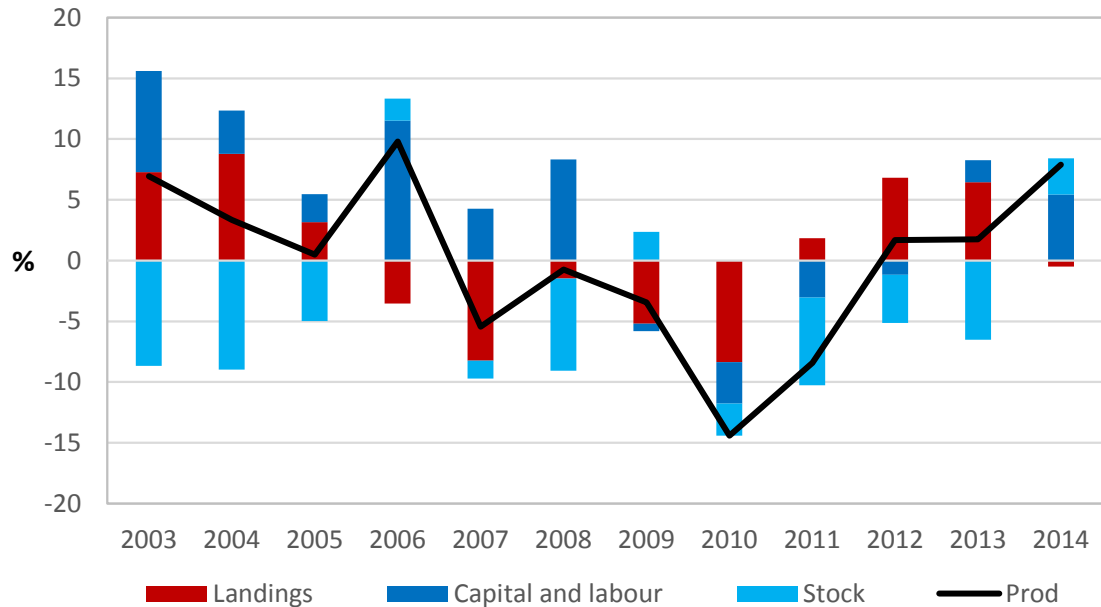
Faroe Islands



Iceland

D2.2 Economic performance

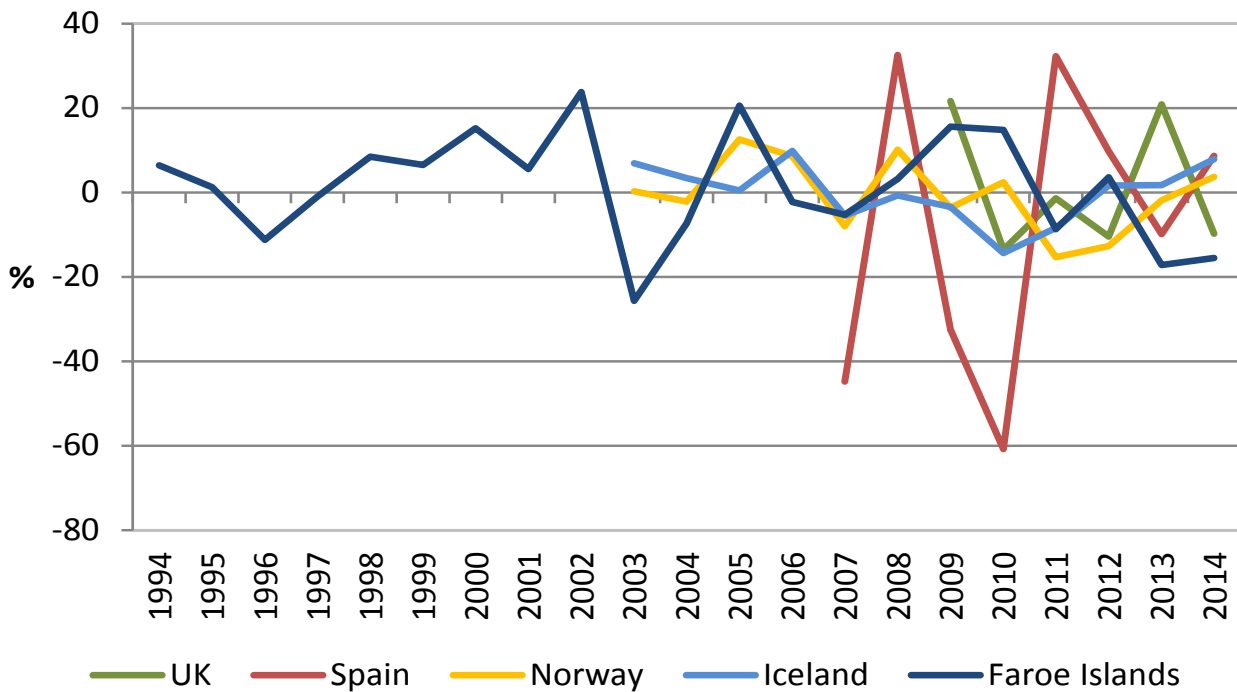
Graphical representation of productivity development.



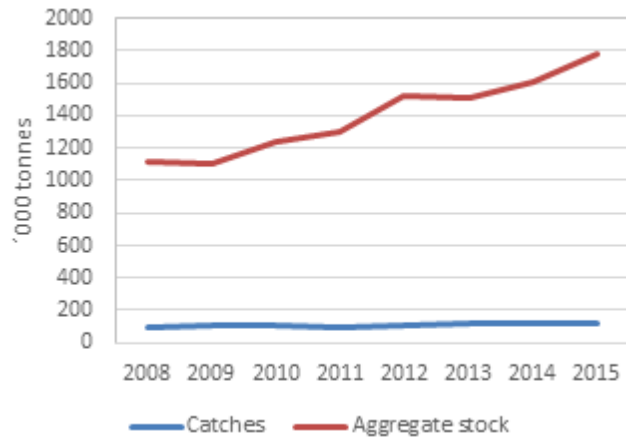
D2.2 Economic performance; demersal fisheries

Country	Period	Landings	Capital and labour	Stock	3-factor productivity	2-factor productivity
UK	2009-2014	3.8	2.6	-5.2	1.2	6.4
Spain	2007-2014	-3.2	2.8	-7.6	-8.1	-0.4
Norway	2003-2014	5.5	0.4	-6.4	-0.5	5.9
Iceland	2003-2014	0.6	3.1	-3.7	0.0	3.7
Faroe Islands	1994-2014	-0.5	1.6	0.3	1.5	1.2
Average		1.3	2.1	-4.5	-1.2	3.4

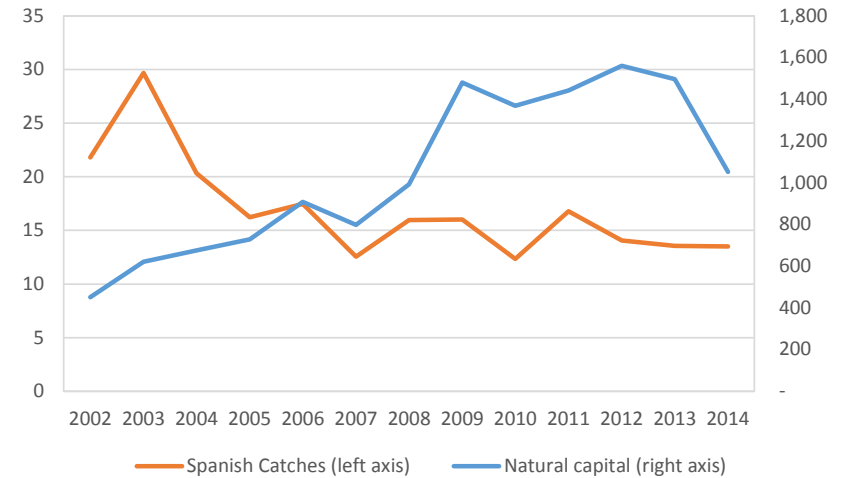
D2.2 Economic performance; demersal fisheries



D2.2 Economic performance; stocks and catches

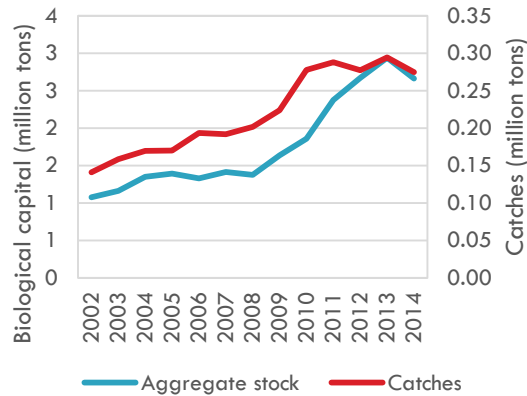


UK

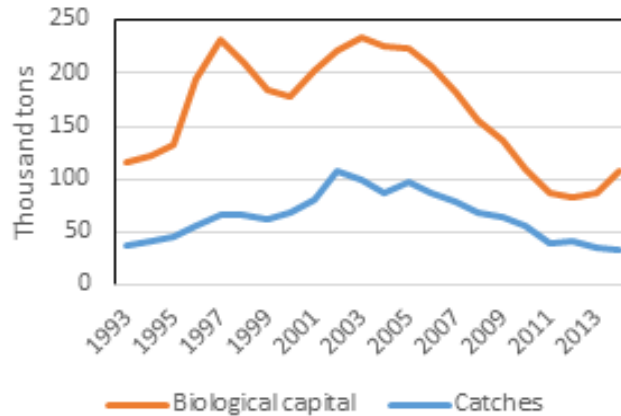


Spanish NAFO fleet

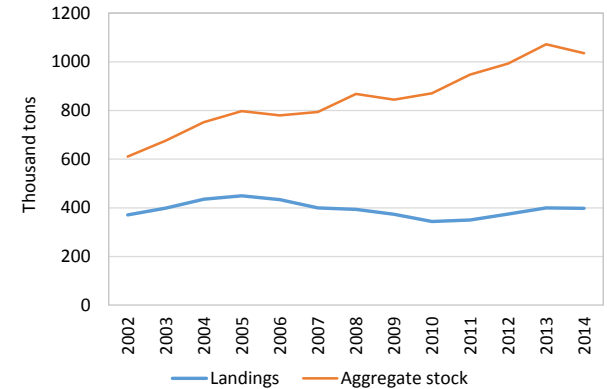
D2.2 Economic performance; stocks and catches



Norway



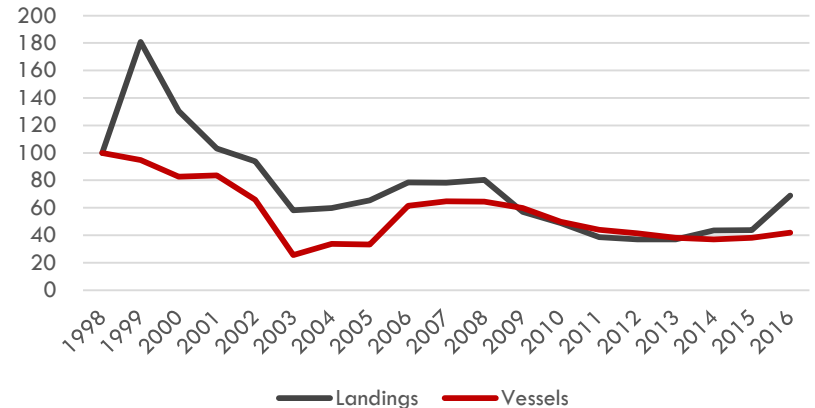
Faroe Islands



Iceland

D2.2 Economic performance

- **Newfoundland not included in this comparison**
 - **Data missing**
 - Size of vessels and engine
 - Labour share of value added
 - Labour
 - Stocks
 - **Could be used in later publications**

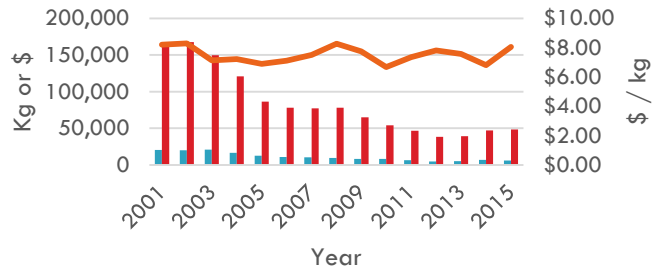


D2.2 Economic performance

- **Drawbacks and limitations**
 - Short time period
 - Output is measured in tons, not in value terms
 - All species lumped together, irrespective of value
 - Data on days-at-sea often missing
 - Different vintages of capital assumed to be equally productive
 - Labour input difficult to measure – sometimes ad-hoc
 - Growing stocks only have a negative impact, no allowance made for improved catchability
 - Does not take changes in costs into account

Boom and Busts – Canadian Cod

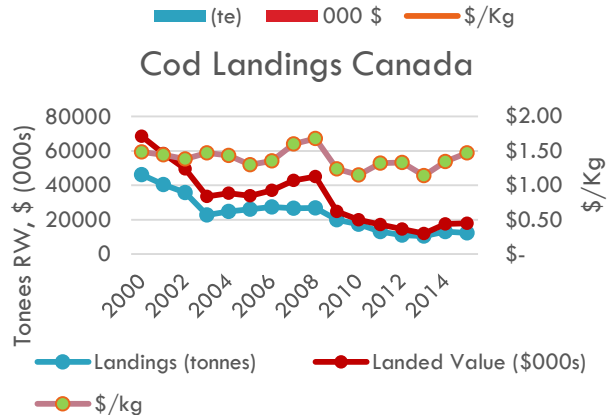
Canadian Exports of Atlantic Cod



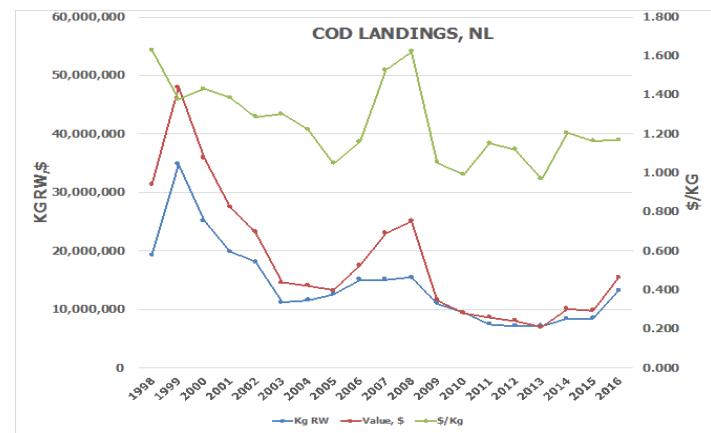
NL Exports of Atlantic Cod



Cod Landings Canada

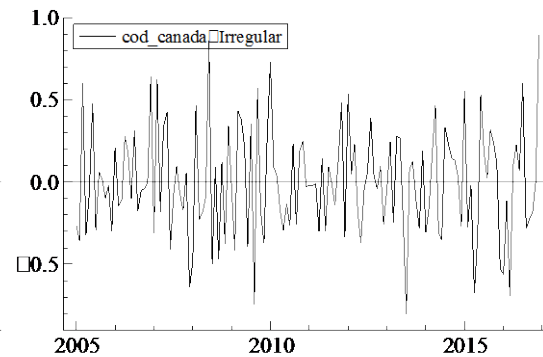
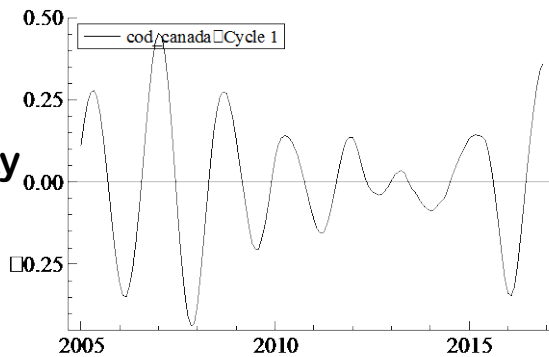
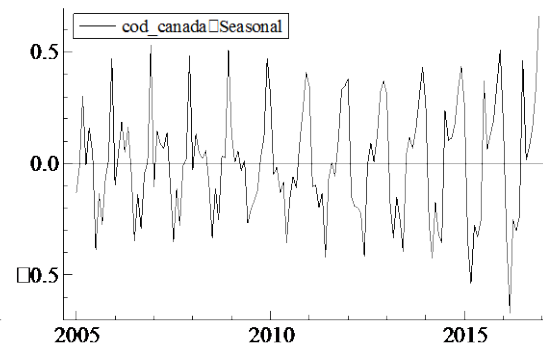
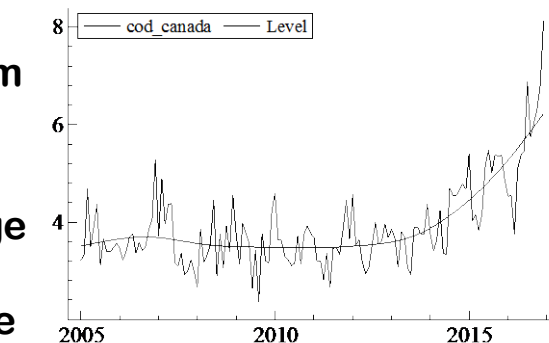


COD LANDINGS, NL



Boom and Busts – Canadian Codv- modelling

- **Steady level of prices from 2005 until 2013**
- **Growth from 2013**
- **The price fluctuation range varies from 3€ to 8 €**
- **No strong regularity of the seasonality**
- **There is a cycle of 20 months**
- **There is strong irregularity i.e. the model cannot explain what is going on.**



«Forecast» – i.e. projections Canadian cod prices

- Based on the previous analysis (model) – on can make forecasts – as illustrated.
- Will be the basis for work with the descicson support tool.

