

Mixed fisheries and quota management under the landing obligation

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Project FIS012a



European Maritime and Fisheries Fund (EMFF)



Project objectives

1. To describe the current system of quota allocation and trading within Scotland and evaluate the extent of flexibility
2. To develop and implement the Fcube mixed-fishery model for the North Sea in order to permit a detailed evaluation of the potential for managing quota shares to balance fishing opportunities with catches in mixed fisheries
3. To run a number of different quota allocation scenarios in order to evaluate the contribution they could make to reducing the extent of the choke species issue for Scottish vessels.



Why does choke occur?

Catches

- Gear used
- Fishing grounds

Vessel operation

Landing opportunities

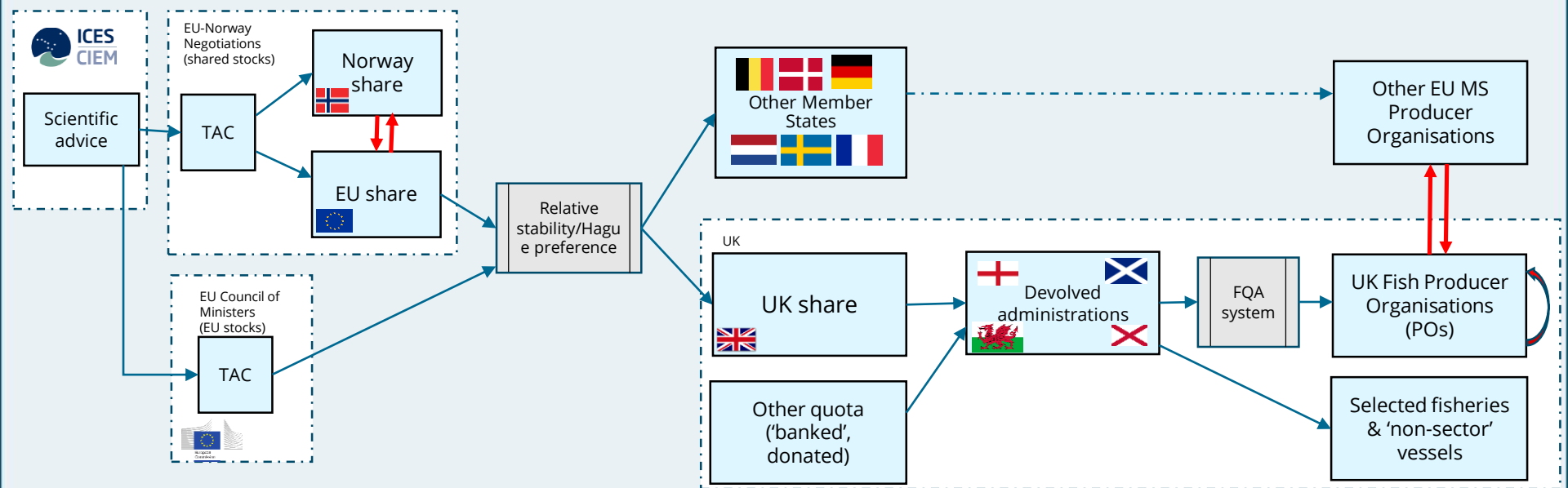
- TAC setting
- Quota allocation & trading

Fishery management



TAC setting & allocation for North Sea stocks

Red arrows (↔) indicate trading/swapping of quota



Relative Stability

- Requirement to ensure 'relative stability' of fishing opportunities for national fishing industries
 - Fixed allocation keys
- Reference period: 1973 – 1978



Hague preference

- Special provisions for areas considered to be heavily dependent on fishing
 - Ireland
 - “Northern Britain”
 - [Greenland]
- Reference year: 1975
 - Ireland: 2 x total landings
 - UK: Landings by vessels \leq 24 metres in ports in Scotland, Northern Ireland and Eastern England south to Whitby
- Also some negotiation over preferential shares for some stocks



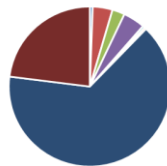
Agreed allocations of North Sea demersal stocks

North sea cod



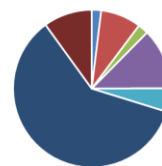
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■ The Netherlands ■ Sweden ■ United Kingdom ■ Norway

North sea haddock



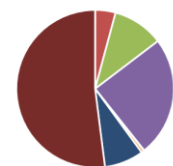
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North sea whiting



■ Belgium ■ Denmark ■ Germany ■ France
■ The Netherlands ■ Sweden ■ United Kingdom ■ Norway

North sea saithe



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North sea plaice



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■ The Netherlands ■ Sweden ■ United Kingdom ■ Norway

North sea sole



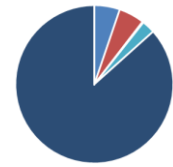
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North sea hake



■ Belgium ■ Denmark ■ Germany ■ France
■ The Netherlands ■ Sweden ■ United Kingdom ■ Norway

North sea Nephrops



■ Belgium ■ Denmark ■ Germany ■ France
■ The Netherlands ■ Sweden ■ United Kingdom ■ Norway



Fixed Quota Allocations (FQAs)

- One kg of a stock landed during reference period = 1 FQA for that stock
- Reference period 1994-1996
 - (some exceptions)
- Only limited trading
 - Attached to licence
 - Some held by POs against dummy licences.



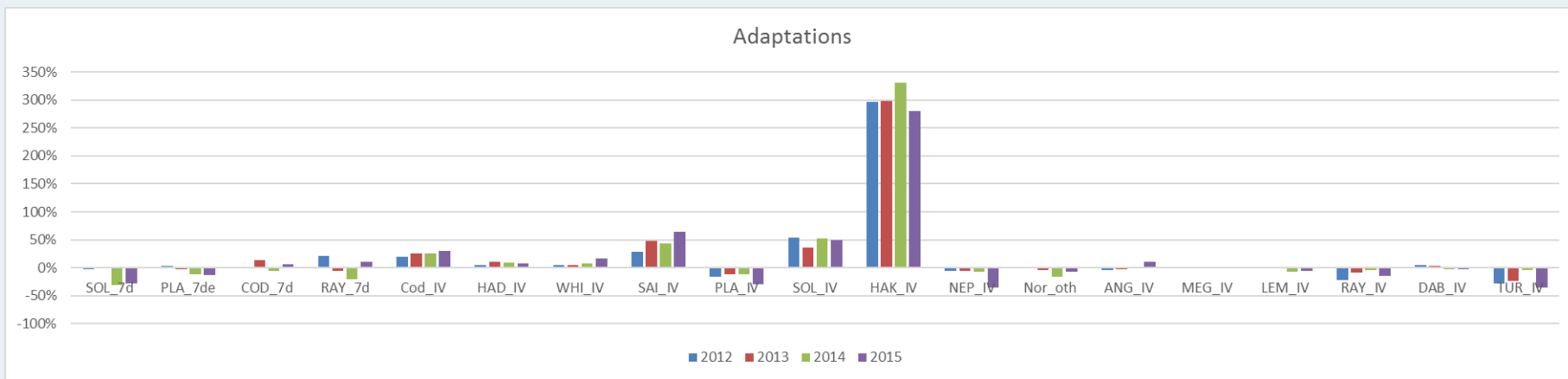
UK quota allocations: the story so far...

- UK quota shares based on fishing practices and national priorities in the late 1970s.
- Allocations within the UK based on fishing during the mid 1990s
- Inertia...



Initial and 'adapted' quotas

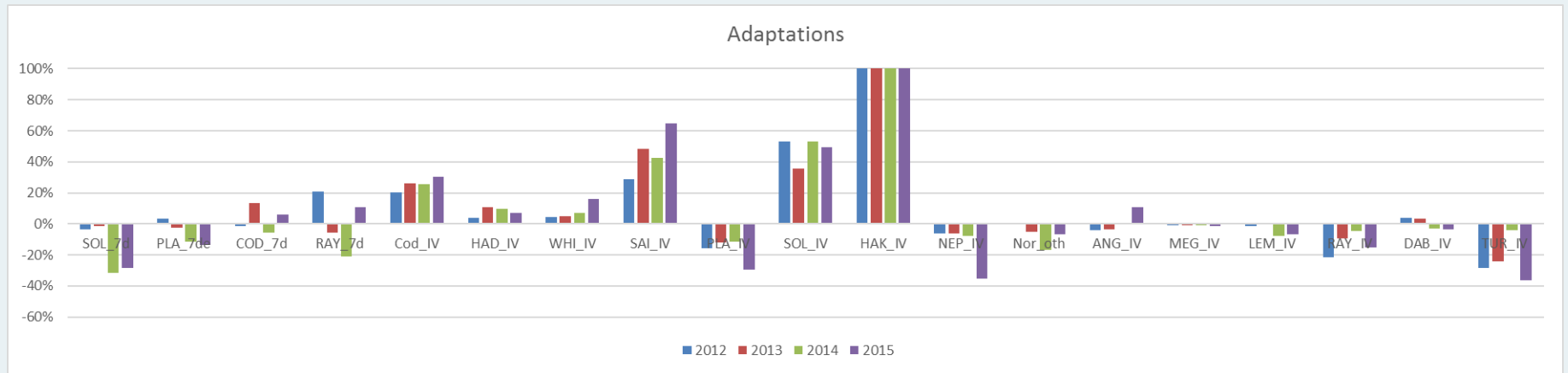
The 'adapted' quota is the initial UK allocation plus any subsequent traded quota.



Initial and 'adapted' quotas

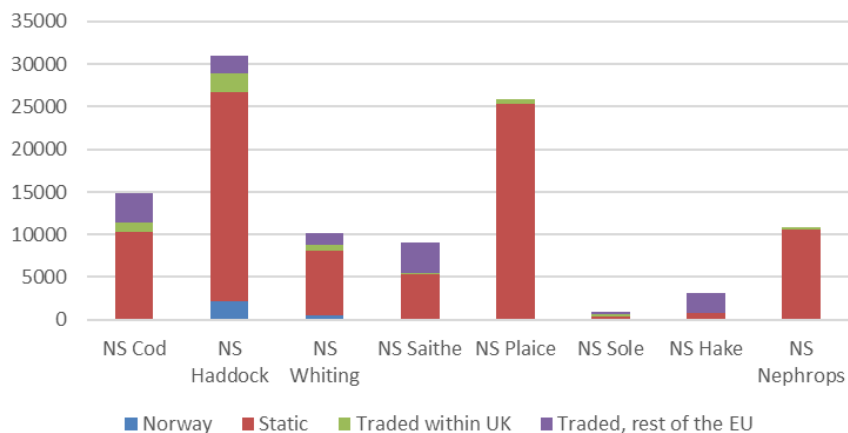
The 'adapted' quota is the initial UK allocation plus any subsequent traded quota.

Y-axis truncated at 100% to avoid distortion by Hake figures

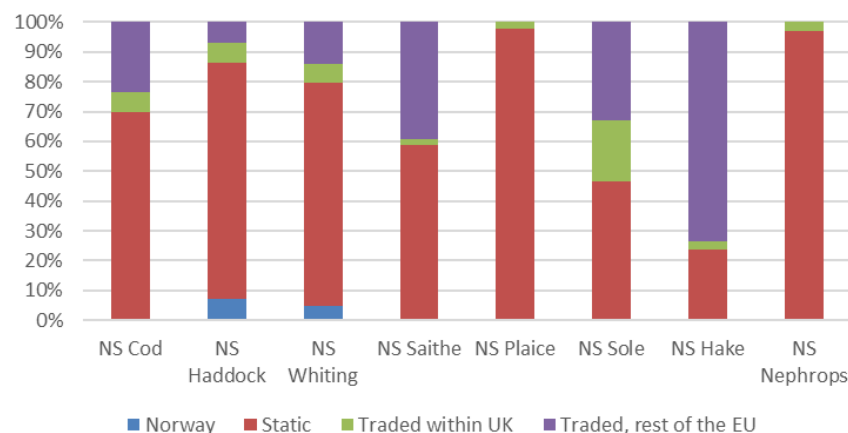


The results of quota trading

Origins of 2015 UK quota



Origins of 2015 UK quota (%)



North Sea hake – the perfect storm

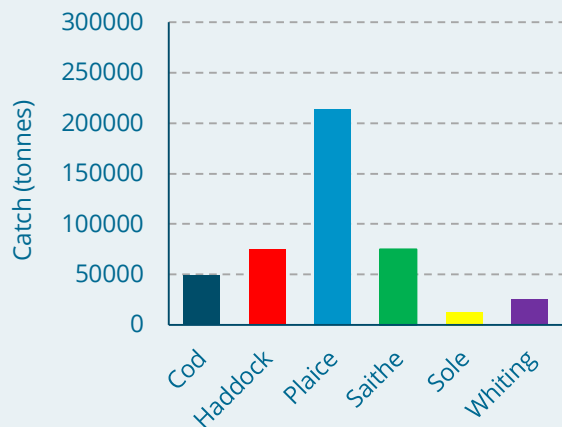
Risk factor	Risk score	Comments
Stock state – SSB	●	Spawning stock biomass at a high level
Stock State – F	●	Fishing mortality below F-MSY
Discards	●	Stock-level discarding relatively low
Uptake & trading	●	Very high degree of inward trading/transfer of quota
Assessment quality	●	ICES category 1, full analytical assessment
Distribution	●	Part of large Northern hake stock, North Sea allocation is 3.5% of total stock TAC
Stock change	●	Increase in abundance and northward shift in distribution
Fishery change	●	Fishery in deeper waters North of Scotland developed from mid 1980s, after establishment of relative stability shares



Mixed-fishery modelling

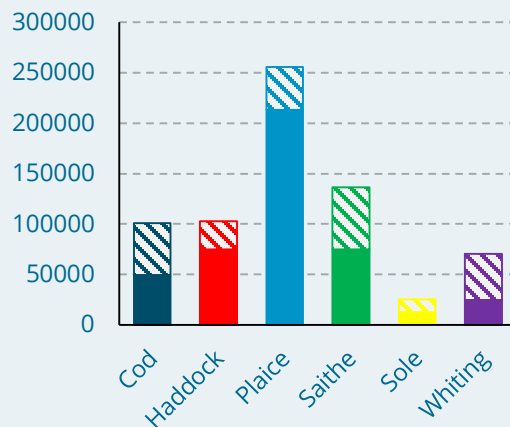
In a mixed-fishery, total catches depend on how vessels respond to their fishing opportunities

If all stocks could be caught independently:



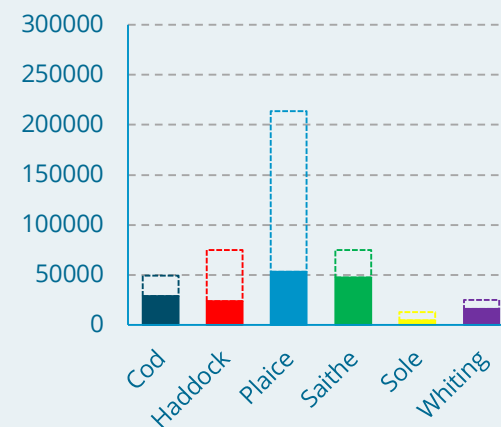
Scientific advice (North Sea, 2016)

If all vessels fish until they have exhausted all of their quotas:



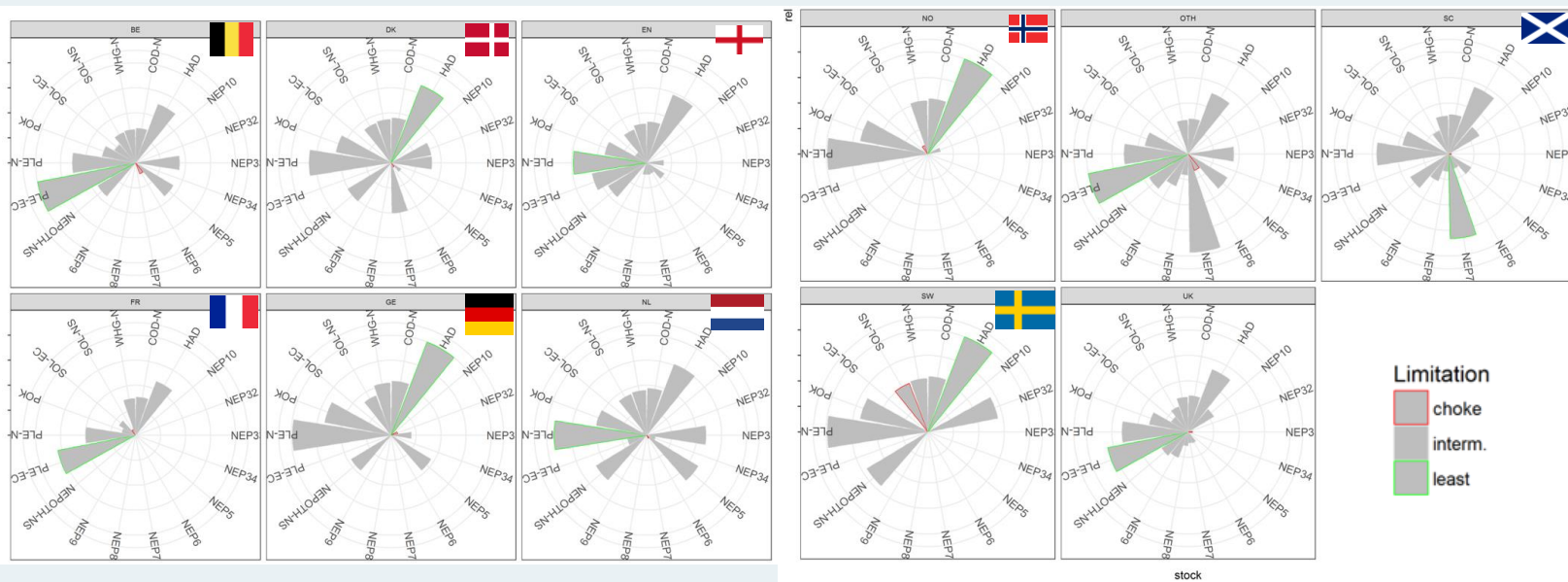
Over-quota catches leading to discards

If all vessels stop fishing when they have exhausted one of their quotas:



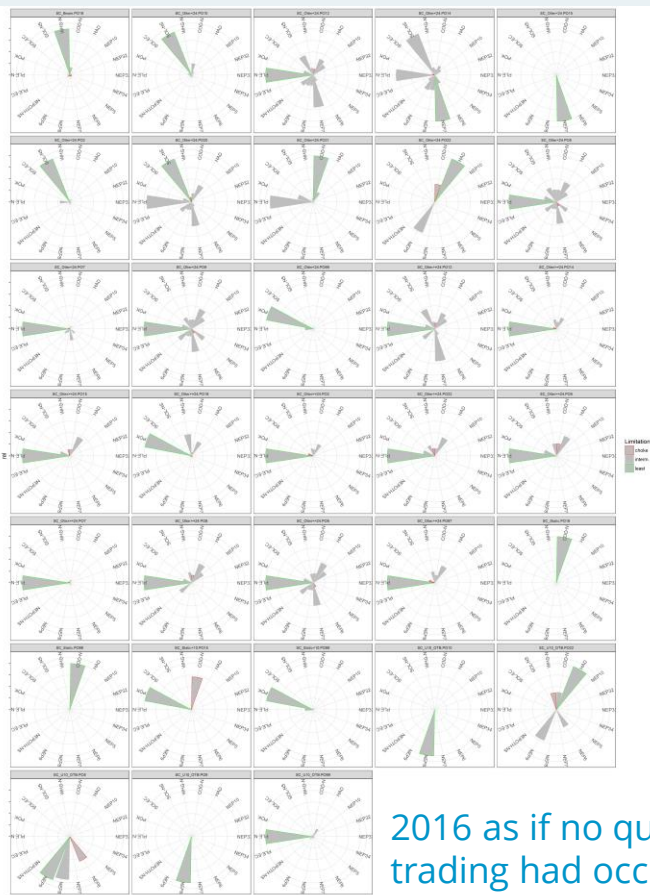
Quotas under-utilised, leading to fishing opportunities being 'choked-off'

Mixed-fishery modelling – radar plots

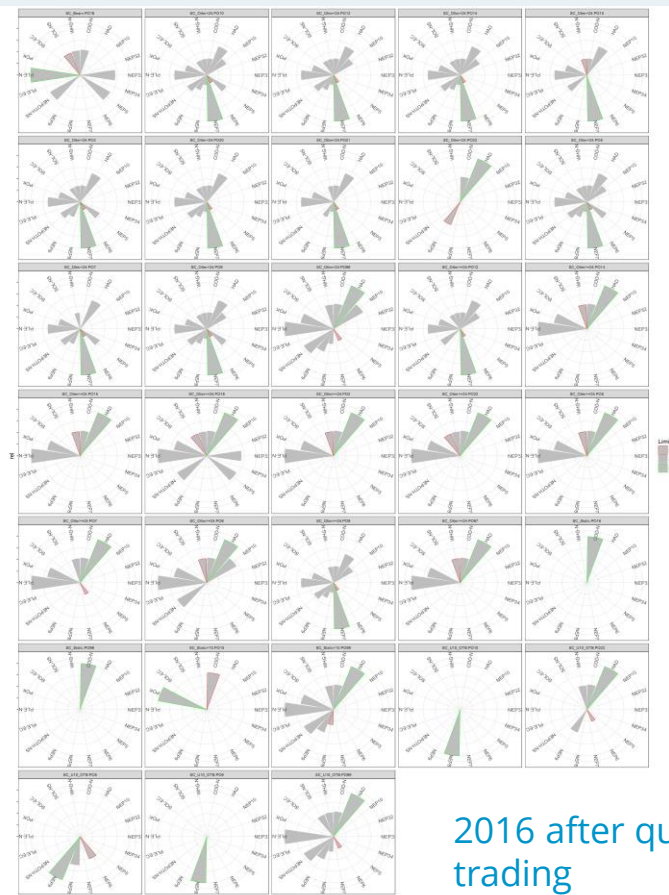


The length of each ‘spoke’ is proportional to the fleet effort that would be required to take the catch share for each stock in 2016.

Mixed-fishery modelling – Results for Scottish fleet/PO combinations



2016 as if no quota trading had occurred



2016 after quota trading

Quota allocation within the UK and choke

- What is it the quota allocation process trying to achieve?
 - Administrations
 - No specified objectives
 - Ensure full usage of quotas
 - “Hands off”
 - Producers’ Organisations
 - Avoid closing fisheries
 - Overall
 - Overcoming the inertia of relative stability/FQAs
- How well is it achieving it?
 - No criteria to judge
 - bottom-up approach appears to help flexibility.
- Other factors also influence choke:
 - TAC setting process
 - History!



Thank you!



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