Bio-economic Scenario Analysis of Landing Obligation

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This is what we set out to determine:

1. Estimate the operational effects of the flexibilities and exemptions

2. From outcomes, estimate impacts ££
Just to be clear....

...this is not our prediction of the future!
Phases of work:
Choke analysis
Scenario analysis
Onshore analysis
Potential responses to mitigate the negative impacts of the landing obligation

**Policy Responses:**
- Exemptions and derogations
- Quota top-up

**Fleet Responses:**
- New gear technology
- Decision-making on board
- Quota trading

**Market Responses:**
- Price changes
- Flexible procurement

Focus of Scenario Analysis
Summary of Findings

From 2013 end-of-year landings analysis
Scenarios presented

**Baseline scenario B3**
Introduction of LO plus catch allowances for zero-TAC stocks and quota top-up

**Single policy lever scenario 1C**
B3 plus de minimis (5% of UK TAC)

**Single policy lever scenario 2**
B3 plus interspecies flexibility

**Single policy lever scenario 3**
B3 plus survivability (skates and rays)

**Combined policy lever scenario 4C**
B3 plus de minimis, interspecies flexibility and survivability
UK Beam Trawl Revenue: Relative Value of Policy Levers, 2016-22
UK Whitefish Trawl Revenue: 
Relative Value of Policy Levers, 2016-22

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</thead>
<tbody>
<tr>
<td>Baseline B3</td>
<td>112%</td>
<td>106%</td>
<td>77%</td>
<td>36%</td>
<td>37%</td>
<td>37%</td>
<td>36%</td>
</tr>
<tr>
<td>Scenario 1c</td>
<td>112%</td>
<td>116%</td>
<td>80%</td>
<td>43%</td>
<td>44%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>Scenario 2a</td>
<td>112%</td>
<td>120%</td>
<td>115%</td>
<td>40%</td>
<td>40%</td>
<td>41%</td>
<td>42%</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>112%</td>
<td>106%</td>
<td>77%</td>
<td>41%</td>
<td>39%</td>
<td>38%</td>
<td>36%</td>
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<tr>
<td>Scenario 4c</td>
<td>112%</td>
<td>120%</td>
<td>117%</td>
<td>60%</td>
<td>62%</td>
<td>64%</td>
<td>66%</td>
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UK Nephrops Trawl Revenue: Relative Value of Policy Levers, 2016-22

Estimated revenue from demersal quota landings as a % of 2013 revenue

- Baseline B3: 83%, 84%, 55%, 14%, 14%, 14%, 14%
- Scenario 1c: 90%, 106%, 88%, 20%, 20%, 20%, 21%
- Scenario 2a: 104%, 107%, 56%, 14%, 14%, 14%, 14%
- Scenario 3: 83%, 84%, 55%, 14%, 14%, 14%, 14%
- Scenario 4c: 104%, 107%, 93%, 18%, 18%, 17%, 14%
## Primary Choke Stocks in 2019 under Scenario 4C (best case scenario)

<table>
<thead>
<tr>
<th>Fleet Segment by Home Nation</th>
<th>Primary Choke Stock and Choke Point as % of 2013 days*</th>
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<tbody>
<tr>
<td></td>
<td>Area 4</td>
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<tr>
<td>England whitefish trawl</td>
<td></td>
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<tr>
<td>England nephrops trawl</td>
<td>Dabs – 24%</td>
</tr>
<tr>
<td>England beam trawl</td>
<td>Dabs – 22%</td>
</tr>
<tr>
<td>Northern Ireland nephrops trawl</td>
<td>-</td>
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<tr>
<td>Scotland whitefish trawl</td>
<td></td>
</tr>
<tr>
<td>Scotland nephrops trawl</td>
<td>Dabs – 60%</td>
</tr>
<tr>
<td></td>
<td>Dabs – 18%</td>
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</tbody>
</table>

*Findings for sea areas where fleet spent more than 10% of total days in 2013.*
Conclusions based on final report

• With effective policy levers (scenario 4C) negative consequences of the LO may be relatively limited in 2016, 2017 and 2018

• Once LO fully implemented policy levers can only do so much – fishing adaptations required

• Nephrops trawl segment most badly affected, although if IQA is retained outlook is less bad

• Fleet-based responses have to achieve a lot by 2019 to avoid business failures!
Additional analyses produced for 2017+ to inform phasing decisions

Scotland Whitefish Trawl/Seine Fleet Segment
Area 4 – North Sea
Initial Quota Allocation Scenario Analysis

Scotland whitefish trawl/seine fleet, choke point analysis in Area IV if stock subject to LO in 2017

Scenario B1: Estimated choke point (72%) in 2017 as a result of haddock already being subject to the LO from 2016.

Scenario B3: Estimated choke point (79%) in 2017 as a result of haddock already being subject to the LO from 2016.

If the columns for a stock extend above the horizontal lines shown for haddock, which is already subject to the LO, then, according to the model, including the stock in the LO is not expected to result in an earlier choke point for the fleet in Area IV. If the columns for a stock sit below the horizontal lines then an earlier choke point could be expected if this stock is included in the LO in 2017.

To support interpretation of the findings, the quota top-up percentage and discard rate applied to each stock are shown in the table. Discard rates were used to calculate catch rates.
Scenarios B1 and B3: No choke point is expected for the fleet overall as a result of the stocks introduced in 2016 - under the EoY landings analysis.

Under the EoY analysis, no choke point is expected from the stocks already subject to the LO from 2016. Therefore if the results for a stock are below 100%, then if this stock was to become subject to the LO it could limit the activity of the fleet in Area IV. If the choke point of a stock is stated as 100% of the days fished in 2013, then the stock is not expected to become a choke stock.

To support interpretation of the findings, the quota top-up percentage and discard rate applied to each stock are shown in the table. Discard rates were used to calculate catch rates.
Comparison of de minimis interpretation

total catch vs. single stock
Figure 1: Scotland Whitefish Trawl/Seine Fleet: Estimated days at sea before choke point under de minimis scenarios
Figure 2: Scotland Whitefish Trawl/Seine Fleet: Estimated revenue earned from demersal quota stocks under de minimis scenarios.
Arina Motova, Senior Economist

Coming soon…

Choke analysis – category 1, 2, 3
Business economics
De minimis comparison
Choke points/species at different levels

1. **A. Fleet segment / PO level** – there is enough of quota in the fishing region on UK level, however PO/individual vessel owner doesn’t have it.

   **B. UK home nation**

2. **UK level** – there is enough of quota in the region, however UK quota is not enough to cover catches, therefore Swaps needed

3. **Sea basin level** – there is no MS to Swap with.
Very preliminary candidates for groups 2 or 3 in 2016

**North Sea:**
- + hake, saithe
- - cod (not in LO)

**WoS:**
- + saithe and whiting

**Area VII:**
- - megrims (not in LO)

**Irish Sea:**
- + haddock and plaice
Investigating possible business effects of LO on individual vessels at trip level:

- Dealing with unwanted catches
  - Costs of additional boxes, ice?, etc?.
  - Crew time spend
- Possible capacity limitation and increase of traveling time/decrease of trip duration
- Change in revenues
- Others?
De minimis comparison with Marine Scotland Science

- Multi-year illustration to see if benefit is only in year one or if they could be long term
- Using total catch interpretation and discards not counted against quota
- All MS in North Sea in illustration
- Would mortality increase?
- Would there be a decline in stock size and TACs in subsequent years if de minimis discards not counted against quota?
Thoughts, comments, suggestions welcome

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