

# The North Sea Advisory Council



## NSAC Advice Ref. 3-1516

### Implementation of the Landing Obligation; implications for whiting, cod & haddock in 2017 and 2018

This paper was approved by the NSAC Executive Committee on the 12<sup>th</sup> May 2016 via a written procedure. It is submitted to the Scheveningen High Level Group in advance of their meeting on 25<sup>th</sup> May 2016. On this occasion a consensus has not been achieved. Where a minority position has been expressed by more than one member this is written into the text. Where one member has expressed a different opinion this is given in a footnote.

#### **1.0 Background to this Advice**

- 1.1 In responding to the work programme of the Scheveningen Group for the North Sea, the NSAC provided its initial advice on Phasing in 2017/2018 in a paper that was sent to the Scheveningen Group in December 2015. That advice was followed in February 2016 by a further paper providing advice on the main issues raised in the Scheveningen Group's work plan. The latter paper listed and discussed mitigation measures for implementation of the Landing Obligation in order of their likely efficacy as seen by the NSAC. Additional comment was provided on the Documentation of Catches and Minimum Conservation Reference Sizes. Individual members of the NSAC also summarised their own separate ideas on those chokes that might arise in specific fisheries.
- 1.2 This current paper takes the advice from the NSAC further forward. It emphasises the need to find solutions to the problems that might arise in 2017, based on the species the Scheveningen Group will put forward in a new Joint Recommendation. In 2015 the Scheveningen Group set out a roadmap on phasing in which it is recommended that in 2017:
  - For the TR1 and TR2 trawl fisheries, all whiting and cod are to be added (subject to the removal of the current cod plan).
  - For the BT1 and BT2 trawl fisheries, all *Nephrops*, sole, haddock and whiting are to be added.



- For gill net fisheries, all *Nephrops*, haddock, whiting and cod are to be added.
- For hook and line fisheries, all *Nephrops*, sole, haddock, whiting and cod are to be added.

This NSAC advice paper is intended to assist the Scheveningen Group in preparing its new Joint Recommendation to the Commission on the development of a Discard Plan for 2017/2018. The advice is also relevant to the proposal of the Scheveningen Group to prepare an Action Plan for dealing with choke species.

## 2.0 Dealing with choke species

2.1 The NSAC understands that definitive decisions have yet to be taken on what to include in the Joint Recommendation for a new delegated act. The NSAC has chosen to prepare its advice based on the following species included in the 2015 Scheveningen Group road map of how phasing was to be applied for the North Sea in 2017:

- Whiting;
- Cod;
- Haddock;
- Sole;
- *Nephrops*.

This advice paper will focus on whiting, cod and haddock. Potential concerns about sole and *Nephrops* have yet to be addressed.

2.2 The tools within the toolbox that are available with respect to finding solutions to chokes are:

- Quota uplift
- The setting of TACs and quotas for these species
- Exemptions on the basis of high survivability
- *De minimis* exemptions
- Interspecies flexibility
- Selectivity measures
- Avoidance measures
- Quota swaps



- Internal Member States' quota allocation/management
- Inter-annual quota flexibilities – “banking and borrowing”.

These measures for mitigating the effects of chokes will differ in their relevance and the degree to which they have utility in specific fisheries.

2.3 The contribution that can be made by each of these mitigation measures is considered in this paper, using whiting, cod and haddock as examples, in relation to the following fisheries:

- Trawls >100mm mesh
- Trawls 80-99mm mesh
- Trawls 70-99mm mesh
- Trawls 32-69mm mesh (*Pandalus* trawls)
- Beam Trawls >120mm mesh
- Beam Trawls 80-119mm mesh
- Gill nets
- Hook and lines
- Traps

2.4 The workshop on chokes, held by the Scheveningen Group in Edinburgh on the 14th -15th April, identified the following positions where choke species might develop and be resolved:

1. *Sufficient quota at MS level—choke is due to distribution within the Member State such that a region or fleet segment does not have enough and can be resolved by the Member State itself.*
2. *Sufficient quota at EU level, but insufficient quota at MS level—choke is due to distribution between Member States and can be resolved between themselves in a regional context.*
3. *Insufficient quota at EU level—choke is due to insufficient quota within the relevant sea basin to cover present catches or catch levels that can be realistically reduced, resulting in a total cease to fishing for a Member State or Member States.*

2.5 In some cases, the various exemptions, flexibilities and other measures provided within the current toolbox may not be sufficient to enable chokes to be dealt with adequately. Chokes may still occur. In these circumstances it may become necessary to extend the range of remedies available; additional measures may need to be considered that are not currently in the toolbox.



### 3.0 Norway

3.1 It is significant that some candidate species for inclusion under the Landing Obligation in 2017 are jointly managed stocks with Norway:

- TACs are set within the context of the annual reciprocal fisheries agreement with Norway, which follows a series of negotiations between EU and Norway each Autumn;
- Long term management and harvesting strategies agreed between EU and Norway have a bearing on exploitation rates and TAC setting;
- EU/Norway Long Term Management Plans are currently under review. Discussions on the relevance of EU multi-annual management plans for TAC setting within the context of EU/ Norway have been held in Norway and Brussels;
- Norway has accepted quota uplift associated with implementing the EU Landing Obligation. Indeed, in 2016 Norway benefited from agreed uplifts as a result of the inclusion of haddock, plaice, saithe and *Pandalus* within the Landing Obligation. Norway has also in recent years agreed on inter-annual quota flexibilities;
- It is yet to be seen whether Norway will support the use of inter-species flexibilities;
- Norwegian vessels operating within EU waters will be expected to comply with the EU Landing Obligation, as EU vessels operating within Norwegian waters have complied with Norwegian rules on discards for many years.

3.2 Given the above, it is clear that that Norway will have a say in the decision making process, and it will be important to take the Norwegian dimension fully into account when dealing with jointly managed stocks in the North Sea, recognising that the annual reciprocal fisheries agreement is a broad package that also includes:

- Fishing opportunities in the Barents Sea and at Greenland;
- Transfers of significant quotas of exclusive stocks between Norway and the EU;
- The management of pelagic stocks that to some degree fall under coastal states agreements.

3.3 Interactions with Norway will affect the way the Landing Obligation is implemented in the North Sea for stocks jointly managed by the EU and Norway. Specifically, it will affect our ability to implement mitigation measures to deal with chokes. This dimension could have an important bearing on the successful implementation of the Landing Obligation in respect of the jointly managed stocks.

### 4.0 The availability of discard data for the North Sea

4.1 Any analysis of likely choke species must be based on estimates of the quantities of fish that are discarded. A Discard Atlas is available for the North Sea, prepared by the Scheveningen Group in 2014 in accordance with article 14 of the CFP Basic Regulation.



The Discard Atlas (which is available on the [NSAC website](#)) is based on landings and discards data from the official STECF database. Quantities of landings are derived from national fisheries statistics, which are recorded in accordance with the Control Regulation (Council Regulation 1224/2009). Although discard information from the North Sea is considered to be better than that from some other areas, the NSAC is still concerned that the data currently available are subject to a number of problems:

- Discard data are recorded from less than 2% of all fishing operations and are extrapolated based on a fleet's fishing effort.
- Not every Member State has the capacity to sample all the relevant fisheries.
- A strict and uniform protocol for sampling at-sea covering different fisheries does not exist.
- Differences in fisheries result in considerable variation in on-board sampling practices, further influenced by the volume of the catch and the diversity of the catch composition.
- Interpretation of results may be influenced by the use of average discard ratios instead of reported data.

4.2 In setting the quota uplift for stocks and fisheries included in the Landing Obligation for 2016, the EU and Norway used the ICES estimates of discards. To some degree, the ICES estimates have the same origins as those found in the Discard Atlas, with the caveat that ICES estimates also include Norwegian fisheries. Furthermore, for stocks such as hake, cod and saithe the ICES advice and estimate of discards covers two or three management areas. ICES advice is not broken down by management area and provides an average discard rate across all management areas. This was also recognised by the Council in December, when most of the Scheveningen Group countries made the declaration:

*“The Commission and BE, DK, DE, NL, SE and UK are of the opinion that the quota adjustments should be based on the best available data for the different management areas. For the North Sea, Skagerrak and Kattegat this would mean that fleet specific estimations of discard levels (by the Scientific Technical and Economic Committee for Fishery) should be used in line with the discard plan for 2016.*

*BE, DK, DE, NL, SE and UK note that the quota adjustments for 2016 may not fully reflect the discard levels that have been caused by the different management areas subject to the Landing Obligation.*

*The Commission will continue working with the Member States and the relevant scientific bodies with a view to identify any necessary improvements of the method in 2017 and in the future implementation of the Landing Obligation.”*

4.3 A recent discard study carried out in Shetland waters for the TR1 fleet (<https://www.nafc.uhi.ac.uk/research/fisheries/discards>) found high discard rates compared with the data from the Scheveningen Group Discard Atlas and Scottish data respectively (which are given in brackets):

NS Cod 49% (22%, 27%)



NS Saithe 43% (8.6%, 41%)

NS Hake 90% (10%, 51%)

The study notes that: '*in the absence of observers, it was not possible to directly verify the results obtained from the analysis of the samples, but comparison with data from other sources and the internal consistency of the self-sampling data has suggested a reasonable level of confidence in them.*' Other independent studies of discarding levels are now needed for comparison. The differences observed in this study suggest that there are problems associated with estimating discard levels within particular fisheries. There remain gaps in the information on discards and these need to be addressed through improved monitoring and data collection, for example through planned observer programmes.

- 4.4 A recent Demersal Landing Obligation Trial carried out in Scotland by a team of demersal vessels ([www.gov.scot/Resource/0043/00438386.pdf](http://www.gov.scot/Resource/0043/00438386.pdf)) concluded that: *there are likely to be significant challenges in operating under a Landing Obligation due to choke species, even where current quota levels are increased by current discard rates relevant to the specific fishing fleet, which in some cases are higher than the average EU estimated rates.*
- 4.5 The foregoing examples demonstrate that there are recognised uncertainties in the estimation of discard rates in both the Discard Atlas and ICES assessments. This is of importance, as these data will be used to calculate uplifts of fish to be landed under the Landing Obligation. The successful implementation of the Landing Obligation will rely heavily on the quality of discard data available to policy makers. Member States and the Commission should discuss with the NSAC how to address this problem, and how to enhance the collection of discard data in the future. It should be noted that the various illustrations provide later in this paper are inevitable prone to uncertainty for these same reasons.

## 5.0 Whiting as a potential choke species

- 5.1 Whiting in the North Sea is a widely distributed fish species which reaches maturity at a young age. Spawning Stock Biomass (SSB) is influenced by variations in recruitment from year to year. SSB continues on an upward trend from a low point in 2007. There have been improvements in recruitment for some parts of the North Sea but not others and the spatial distribution of whiting is also considered to have changed over the last decade. This may reflect the existence of whiting sub-stocks. There are few fisheries targeted solely on whiting but whiting is caught in mixed demersal round fish fisheries, fisheries targeting flatfish, and the *Nephrops* fisheries. Cod recovery measures since 2002 have influenced fishing effort and its distribution. Improved selectivity of fishing gears through increases in minimum mesh sizes, the introduction of sorting grids in the Norway pout fisheries and the introduction of large mesh panels in some beam trawl fisheries have contributed significantly in rebuilding whiting stocks. Notwithstanding these developments, the phasing in of whiting to the Landing Obligation in 2017 may create problems of choking in some fisheries.
- 5.2 Whiting in the Skagerrak and Kattegat (IIIa) is jointly managed by the EU and Norway. Whiting is caught as by-catch in the mixed demersal fisheries and the industrial fisheries;



landings for human consumption are very limited. Hence, ICES has not developed any analytical assessment for this stock, so the stock is categorized as *data poor*. Survey abundance indices do exist for whiting; however, the advice is based entirely on catch information due to inconsistent survey indices, probably due to unknown stock mixing with whiting in Subarea IV and the Western Baltic.

5.3 The different mitigation measures within the current toolbox vary in the contribution they might make to resolving problems with whiting as a choke species. We have listed below the overall merits of the various measures, but it is important to remember that their efficacy will vary within the different fisheries:

- The negotiation of appropriate TACs and quotas for whiting, including uplift, will have a major influence and can contribute much to alleviating chokes; but those TACs have to be agreed with Norway;
- Availability of quota transfers from Norway might mitigate part of the chokes problem, although to a relatively limited degree;
- Internal Member State decisions on the allocation of quota and quota uplift to minimise the scope for chokes will be an important factor. However, data on whiting discards are poor for some fisheries and uplift may be distributed inappropriately amongst and within fleets;
- Progress has been made by some Member State fleets in developing selectivity measures to avoid the capture of juvenile whiting. Measures introduced for cod recovery have also had a direct effect on selectivity for whiting. Trials with a variety of new trawl designs have achieved reductions in whiting by catch. Further trials with large mesh panels in the beam trawl fisheries are being negotiated with scientific entities. It remains to be seen whether the results from such trials can be applied more widely in other fisheries;
- Fishers in the Southern part of the North Sea report that they are taking steps to avoid whiting concentrations;
- Exemptions on the basis of high survivability are not likely to be relevant for whiting, as survival of discarded whiting is thought to be low;
- *De minimis* exemptions will be formulated for some fisheries, where further selectivity is not possible to achieve or there are disproportionate costs associated with dealing with the Landing Obligation. However, these will be limited to 7% in the first year, reducing with time, and this may be insufficient to solve the problem of whiting chokes;
- Interspecies flexibility is unlikely to be an effective instrument at the moment, given that some stocks are not considered to be within safe biological limits;
- Quota swaps and transfers may play a role in dealing with whiting bycatch under the Landing Obligation, but there may be limitations in terms of the quota currency available to pay for the swaps;



- Inter-annual quota flexibilities – “banking and borrowing” – is not seen as appropriate for whiting and may simply transfer the problem to the succeeding year.

5.4 A preliminary analysis has been carried out by the NSAC Landing Obligation Focus Group to examine the possible efficacy of different measures to alleviate chokes in the various fisheries for whiting. Tables are presented below, summarising the results of this initial and tentative analysis. Table 1 below identifies a minimal situation with respect to chokes where expert judgement is used to indicate which potential mitigation measures could be used to prevent choke situations developing. The table is provisional, and is only provided for illustrative purposes. Note that some fishing industry representatives have expressed the view that the assumptions made in the tables cannot currently be substantiated. They question the validity and accuracy of the discard information on which the tables are based, and point out that the interpretation of the use of derogations is still largely a matter of conjecture. They also emphasise that the assumption is made that Member States' distribution of uplift would accrue to active participants in a fishery. This has not always been the case in the past. These reservations on the part of some members apply to all the tables in this advice paper<sup>1</sup>.

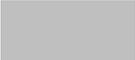
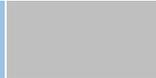
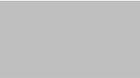
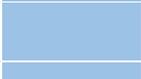
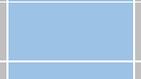
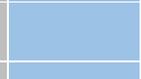
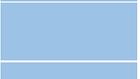
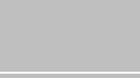
---

<sup>1</sup> The Scottish Fishermen's Organisation disagrees with the categorisation of *de minimis* measures in these tables as being of low effectiveness. They refer to a joint EAPO/Europeche position paper on dealing with chokes that calls for a more literal interpretation and application of *de minimis*. They assert that how *de minimis* is applied for each stock/fishery will range from no effectiveness to high effectiveness. They also see a problem with the inclusion of arbitrary selectivity improvement percentages. They point out that the potential for selectivity improvements varies amongst gear types and the choice of arbitrary figures does not incorporate that reality.

Implementation of the LO: Implications for Whiting, Cod & Haddock



**Table 1: Applicability of mitigation measures on whiting for different fleet segments**

		not applicable	Low effectiveness	Medium effectiveness	High effectiveness				
Colour codes									
Fleet segment	Relevance to whiting catches	Avoidance	Selectivity improvement	High survival	<i>De minimis</i>	interspecies flexibility	Quota swaps	Inter annual flexibility	
Trawl >100mm mesh	High								
Trawl 80-99mm mesh	Medium								
Trawl 70-99mm mesh (area IIIa)	Low								
Trawl 32-69mm mesh ( <i>Pandalus</i> )	Low								
Beam trawl >120mm mesh	Low								
Beam Trawls 80-119mm mesh	Medium								
Gill nets	Low								
Hook and lines	Low								
Traps	Low								

5.5 An analysis has also been carried out of the position for whiting in different Member States for 2016, and the results are shown in Table 2 below. It is important to note that the analysis is based in part on the discard data used by ICES to provide advice on TAC setting, including TAC uplifts. Because of the problems with data quality, outlined in paragraph 4.1, reliance on this discard data may lead to underestimation of the gravity of the choke species problem in areas where there is insufficient information on discard levels. It is clear that some of the available discard estimates are uncertain, and the analyses presented in both tables above therefore have their limitations. However, despite these limitations, qualitative methodologies like those illustrated here will be important in helping us identify and deal with chokes. There is a need for the NSAC to work with Member States’ scientists to provide further insight and improve the discard information available, and to refine and perfect methodologies for identifying potential chokes and their magnitude.

**Table 2: Breakdown of North Sea TAC, discards and potential surplus/deficit per Member State.**

	 UK (ex Scot.)	 Scotland	 Denmark	 Netherlands	 Belgium	 France	 Germany	 Sweden
Union TAC (wanted catch) for 2016 (t) <sup>1</sup>	12610							
Union Total TAC including uplift (t) Assumed 52% discard rate and full uplift	19167.2							
Relative Stability Share (%)	67		9.25	5.35	2.15	13.9	2.42	0.015
Relative Stability share of wanted catch) (t)	2620	5829	1166	675	271	1753	305	2
Relative Stability share of Uplifted tac (t)	3982	8860	1773	1025	412	2664	464	3
Difference between TAC for wanted and unwanted catch (t)	1362	3031	607	351	141	911	159	1
Discard rate %, 3 Year Average (2010 - 2012) <sup>2</sup>	32	32	51	79	79	46	52	52
Uplift required to cover discard rate (t)	838	1865	595	533	214	806	159	1
<b>end of year surplus/deficit when matched against discard rate and % uplift (t)</b>	<b>524</b>	<b>1166</b>	<b>12</b>	<b>-182</b>	<b>-73</b>	<b>105</b>	<b>0</b>	<b>0</b>
new discard rate applying a 20% improvement in selectivity <sup>3</sup>	26	26	41	63	63	37	42	42
New Uplift required to cover discard rate (t)	671	1492	476	426	171	645	127	1
<b>New end of year surplus/deficit when matched against new discard rate and % uplift (t)</b>	<b>692</b>	<b>1539</b>	<b>131</b>	<b>-76</b>	<b>-30</b>	<b>266</b>	<b>32</b>	<b>0</b>

1: TAC and overall discard level taken from 2015 ICES advice

2: Discard rates are taken from the discard atlas of the North Sea

3: 20% is taken as an arbitrary value to indicate some improvements in selectivity will be made (see table section 4.4)

5.6 The analysis in Table 2 sets out relative stability shares for both the current North Sea TAC (12,610t) and the TAC if a full uplift is applied (52% of total catch, 19,167t). The difference between the two has been calculated and is then matched against the Member States' actual needs, using the discard rates set out in the North Sea Discard Atlas. The resulting table shows whether or not a Member State has sufficient own-quota, to cover discards. A further level of analysis emphasises improved selectivity as having real potential for reducing discards (an arbitrary reduction of 20% discards has been applied for all) The analysis takes no account of the mechanics of quota distribution within a Member State. Thus, even in those Member States with sufficient quota, particular fleet segments may face a choke situation because of inappropriate distribution of quota at national level. Furthermore, the analysis does not take into account current exchanges between Member States.

5.7 The breakdown for whiting by country shows that for this species at least the choke potential is limited at a national level when selectivity is maximised and uplift is granted. Within those Member States that would seem to have sufficient quota there may still be choke situations at the fleet segment level. Detailed analysis of all stocks falling under the Landing Obligation will be essential to provide insight into the potential for chokes, or the lack thereof, in different fisheries

5.8 The bar-chart provided in Table 3 shows the whiting TAC surplus per Member State (under full uplift with one bar showing no change in discard levels and the other showing a 20%

Implementation of the LO: Implications for Whiting, Cod & Haddock



decrease in discards). However, there are problems to resolve with respect to discard data quality before a full analysis can be completed.

**Table 3: North Sea whiting surplus/deficit per Member State**



5.9 There remains a perception in parts of the industry, based on experience at sea, that the situation with whiting could be more serious than the above analysis suggests. The NSAC has not currently reached agreement that whiting can be added to the species coming under the Landing Obligation in the North Sea as of 1 January 2017. Although the available data indicate that the problems for whiting may be limited, fishing industry representatives point out that both the accuracy of the discard data itself and the way the data are used can be questioned.

### 6.0 Cod as a potential choke species: the impact of the Cod Recovery Plan

6.1 During the 1970s and 80s both recruitment and spawning biomass of North Sea cod were exceptionally high. However, during the 1990s and 2000s poor recruitment and heavy exploitation reduced Spawning Stock Biomass, and led to the imposition of a Cod Recovery Plan in 2003, which was succeeded by the Cod Management Plan in 2008. Cod biomass is now increasing, with limits on catches and conservation actions by fishers to protect juvenile and spawning populations playing a major role in that recovery. North Sea cod stocks are now in a healthier state and are being fished more sustainably. However, the Cod Management Plan remains in place and a number of its requirements are incompatible with the Landing Obligation. These impediments are described below.

- 6.2 There are conflicts between the current Cod Management Plan and the Landing Obligation that affect fisheries not just for cod but also for other species, including whiting and haddock. The Scheveningen Group itself has considered the constraints in Regulation (EC) No. 1342/2008) (Council Regulation) and Regulation (EU) No. 237/2010 that might hamper successful implementation of the Landing Obligation. The original Joint Recommendation from the Scheveningen Group in 2015 proposed that cod should not be included in the Discard Plan until the Cod Recovery Plan had been reformed.
- 6.3 The main issue arises from the fishing effort regime imposed by the Cod Management Plan, which limits the operational flexibility of fishers seeking to adapt their fishing patterns, either by changing their fishing gears, or by selecting areas to avoid the capture of unwanted species. Avoidance of areas where unwanted species or juvenile fish are especially abundant is an essential tool for successful implementation of the Landing Obligation, and also facilitates economically viable fisheries. Limitations in the time fishers can spend at sea affects their ability to choose particular fishing areas, as vessels may have to spend more time travelling to distant fishing grounds and use more effort.
- 6.4 A further issue arising from the current cod plan is continuing use of TAC constraints. The NSAC has argued elsewhere that such constraints are in conflict with the operation of the discard ban. Artificially suppressing TACs in a situation where the biomass is increasing year-on year only leads to the unnecessary creation of choke situations. The Cod Management plan also limits the ability of fishing vessels to use larger more selective mesh sizes, as adopting a larger mesh size could bring them into a different effort group.
- 6.5 For cod, as with whiting, different mitigation measures will vary in the contribution they can make to resolving problems with choking in the different fisheries:
- The negotiation of appropriate TACs and quotas for cod, including uplift, will have a major influence and can contribute much to alleviating chokes, but TACs have to be agreed with Norway;
  - Selectivity measures have already been adopted successfully for cod by some fleets and there may be scope for further improvements, and for the adoption of similar measures by other fleets;
  - Avoidance measures including real time closures (RTCs) have also been successfully developed by some fleets to avoid juvenile and spawning cod concentrations, and their wider adoption may yield some benefits;
  - Exemptions on the basis of high survivability are irrelevant for cod as survival of discarded cod is likely to be very poor;
  - *De minimis* exemptions could be relevant for some fisheries, where there is proof that further selectivity is not possible to achieve or there are disproportionate costs associated with dealing with the Landing Obligation. Although limited, this may be an option for some specific fisheries.
  - Interspecies flexibility is unlikely to be an effective instrument at the moment, because some stocks are not considered to be within safe biological limits;



- Quota swaps and transfers may play a role in dealing with cod, but there may be limitations in terms of the quota currency required to pay for the swaps;
- Inter-annual quota flexibilities – quota currency “banking and borrowing” – is not seen as appropriate for cod as it may simply transfer the problem to succeeding years.

6.6 As with whiting, it is essential for Member States to analyse in detail which mitigation measures will be relevant and effective to address potential chokes for cod. The same analysis as the one carried out in paragraph 5.4 for whiting is presented below for cod with the only difference that there is a concern that the potential for selectivity increase is limited as increased selectivity would lead to a large economic impact on the fleet. This is why for cod the selectivity increase has been set at only 10%. Discard data for several Member States is not available, so for these Member States the average as calculated by ICES (22%) is used. As stated in paragraph 4.1 there are problems with the quality of the discard information that this analysis is based upon. The analysis is provisional and provided for illustrative purposes only. The data used in this analysis for cod are not of sufficient quality to enable any firm conclusions to be drawn.

**Table 4: Applicability of mitigation measures on cod for different fleet segments**

		not applicable	Low effectiveness	Medium effectiveness	High effectiveness			
Colour codes								
Fleet segment	Relevance to cod catches	Avoidance	Selectivity improvement	High survival	<i>De minimis</i>	interspecies flexibility	Quota swaps	Inter annual flexibility
Trawl >100mm mesh	High							
Trawl 80-99mm mesh	Medium							
Trawl 70-99mm mesh (area IIIa)	Low							
Trawl 32-69mm mesh ( <i>Pandalus</i> )	Low							
Beam trawl >120mm mesh	Low							
Beam Trawls 80-119m mesh	Low							
Gill nets	Medium							
Hook and lines	Low							
Traps	Low							



**Table 5: Breakdown of North Sea TAC, discards and potential cod surplus/deficit per Member State.**

	UK (ex Scot.) 	Scotland 	Denmark 	Netherlands 	Belgium <sup>4</sup> 	France 	Germany 	Sweden 
Union TAC (wanted catch) for 2016 (t) <sup>1</sup>	27930							
Union Total TAC including uplift (t) Assumed 22% discard rate and full uplift <sup>1</sup>	34038							
Relative Stability Share (%)	46.93		20.45	11.56	3.56	4.40	12.97	0.14
Relative Stability share of wanted catch (t)	5505	7602	5713	3228	994	1228	3622	38
Relative Stability share of Uplifted tac (t)	6716	9275	6970	3938	1213	1498	4419	46
Difference between TAC for wanted and unwanted catch (t)	1211	1672	1257	710	219	270	797	8
Discard rate %, 3 Year Average (2010 - 2012) <sup>2</sup>	8	23	6	22	22	22	7	22
Uplift required to cover discard rate (t)	479	2271	365	910	280	346	273	11
<b>end of year surplus/deficit when matched against discard rate and % uplift (t)</b>	<b>732</b>	<b>-598</b>	<b>892</b>	<b>-200</b>	<b>-62</b>	<b>-76</b>	<b>524</b>	<b>-2</b>
new discard rate applying a 10% improvement in selectivity <sup>3</sup>	7	21	5	20	20	20	6	20
New Uplift required to cover discard rate (t)	426	1992	325	809	246	304	243	9
<b>New end of year surplus/deficit when matched against new discard rate and % uplift (t)</b>	<b>785</b>	<b>-319</b>	<b>932</b>	<b>-99</b>	<b>-27</b>	<b>-34</b>	<b>554</b>	<b>-1</b>

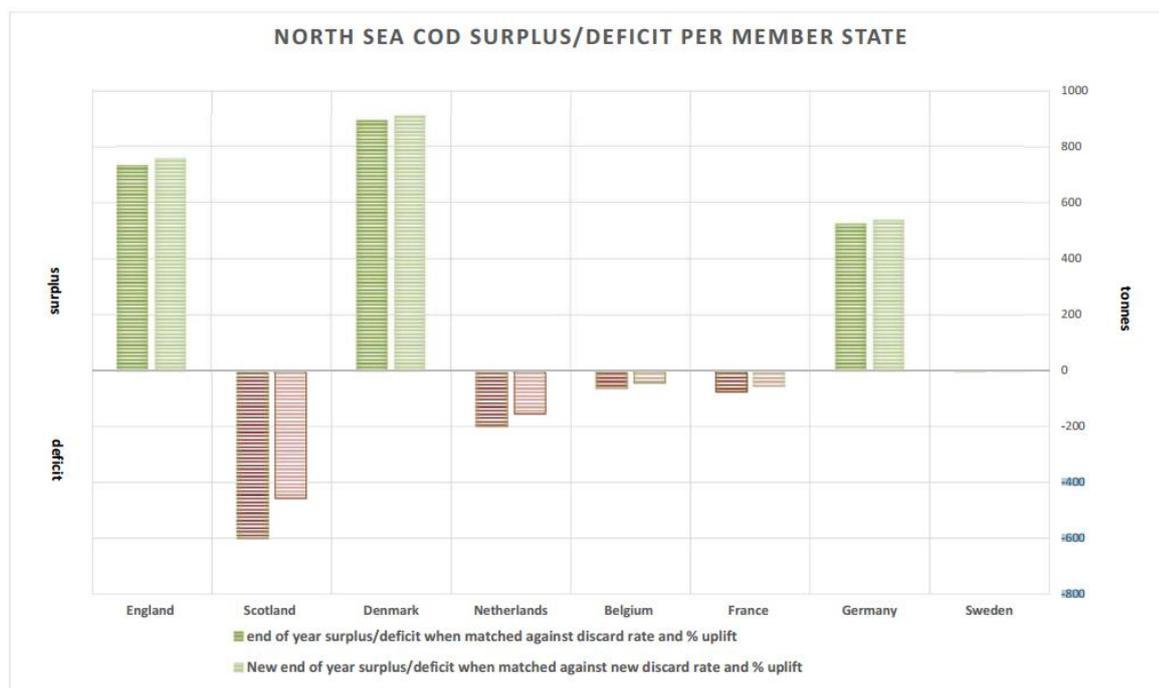
1: TAC and overall discard level taken from 2015 ICES advice

2: Discard rates are taken from the discard atlas of the North Sea

3: 10% is taken as an arbitrary value to indicate some improvements in selectivity will be made (see table section 4.4)

4: Where no specific discard rate is known the North Sea average rate is used



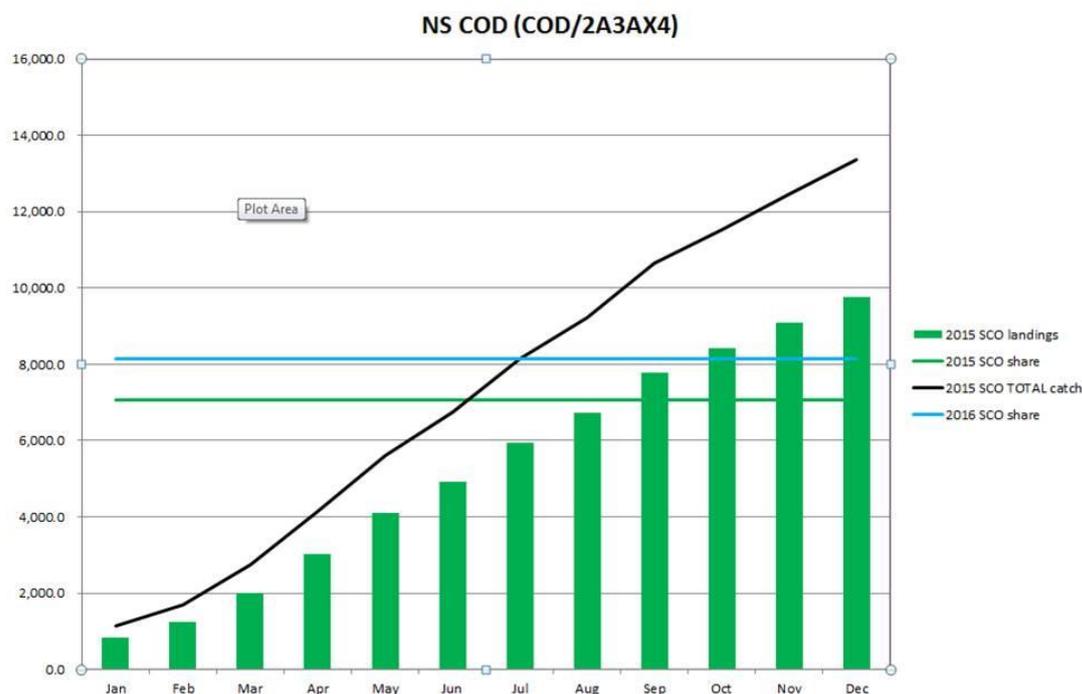
**Table 6: North Sea cod surplus/deficit per Member State**

- 6.7 Cod in the Skagerrak is an example where a quota uplift based solely on the ICES estimates of discards will not reflect the level of discards presented in the Scheveningen Group Discard Atlas. Given the distribution of cod in recent years, the level of discards of cod in this management area is higher than in the North Sea. However, this is not reflected in the ICES discard estimates, as these are given for the North Sea and the Skagerrak as one combined area.
- 6.8 The restrictive nature of the Cod TAC in the Kattegat makes cod a major choke species as quotas could be taken within weeks of the start of the year resulting in the closure of all demersal fisheries in the area. In 2015 ICES finally presented a stock assessment for cod in the Kattegat. This assessment suggests that the stock is at about the same level as it was in 2007. The population has grown for the past 6 years, and in 2015 it was estimated to be nearly 7 times as large as it was in 2009, when it was at its lowest. However, over the same period, the TAC was reduced from 500 tons to just 100 tons. Though a step in the right direction was taken with the setting of a TAC of 370 tons for 2016, there is still a long way to go if serious choking of cod is to be avoided. Fishing industry representatives from this region report that the TAC still does not reflect the considerable increase in the cod population that fishermen experience on a daily basis in the Kattegat, and they emphasise that they do not recognize the discard estimates being used in the ICES calculations. The TAC for cod in the Kattegat is set by the EU; there is no joint management for this stock. Industry representatives suggest that the only way to resolve the choking problem in this case is to have a quota uplift that reflects the abundance of cod, as they believe that other mitigating measures cannot contribute to alleviating cod as a choke. It is important therefore to improve the discard estimates for cod and to ensure that quota uplift reflects the actual abundance of cod as far as possible.



6.9 At the Edinburgh Workshop on chokes a worked example was provided by Marine Scotland, in a discussion document, illustrating the timescale over which cod might develop as a choke species. The 2015 monthly landings were scaled up, using Scottish discard rates, to get an estimate of the monthly total catch. Thus, as an example of the method of calculation: 825 tonnes of North Sea cod were landed in January 2015. The Discard Rate (DR) = 27% (0.27). Therefore, total catch = landings / (1 minus DR)  $825 / (1 - 0.27) = 1,130$  tonnes was the estimated total catch by Scottish POs for North Sea cod in January 2015. This 12-month line was then mapped against the Scottish quota share for 2015 or 2016. Where the 2 lines intersect is the month that exhaustion occurs, as illustrated in the figure below. The catch could also be mapped against the 2016 allocation including discard uplift, or indeed any valid quota allocation value. Note that the analysis underlying this figure is provisional, and the figure is provided for illustrative purposes only. It does demonstrate, however, another dimension of the choke issue that needs to be followed up – the need to estimate when in the fishing year particular chokes will appear.

**Figure: Illustrating a provisional analysis by Marine Scotland of the time of the fishing year when cod may become a choke species**



6.10 We stress the importance of undertaking a *risk analysis* for chokes in the various cod fisheries in the North Sea. There is a need for a detailed assessment of the extent to which specific mitigation measures will be relevant and effective in each case. Such an analysis will provide a powerful indicator of what measures should be included in any Discard Plan for the inclusion of cod within the Landing Obligation for the North Sea.



## 7.0 Haddock as a potential choke species

7.1 Haddock is one of the defining species of the whitefish fishery and the Landing Obligation was introduced for haddock in 2016 for all large mesh otter trawls  $\geq 100$  mm and in IIIa also for vessels using 70-99 mm mesh trawls. Such fisheries represent more than 80% of total removals in the North Sea and 100% in the Skagerrak and Kattegat (IIIa). Many of the problems with haddock as a choke species have been dealt with in the North Sea through the appropriate allocation of quota uplift so graphics will not be produced for this species. However, following the 2015 road map, haddock are now due to be introduced in 2017 for the BT1 and BT2 beam trawl fisheries, the gill net fisheries, and the hook and line fisheries. Although the quantities of haddock caught by the latter fishing methods are not high, the allocation of haddock quota to these fisheries is relatively low, and this may lead to haddock becoming a choke species within those fisheries.

7.2 For haddock, different mitigation measures will vary in the contribution they can make to resolving problems with choking:

- As was done for 2016 in agreement between EU and Norway the negotiation of a quota uplift for haddock for the remaining fisheries can contribute to alleviating chokes;
- Gear adaptations improving selectivity for gadoids have contributed substantially to reducing haddock catches in some fisheries, according to fishermen, but scientific evidence is not yet available, and such measures may not be applicable to all fisheries;
- The new technical measures framework proposal contains the scope for improving the exploitation patterns through instruments such as a “move-on” policy.
- Avoidance measures for haddock may offer some scope for avoiding the capture of this species;
- Exemptions on the basis of high survivability are irrelevant for haddock as survival of discarded haddock is likely to be very poor;
- *De minimis* exemptions could be formulated for fisheries where there is proof that further selectivity is not possible to achieve or there are disproportionate costs associated with dealing with the Landing Obligation. *De minimis* provisions will be for only 7% in the 1<sup>st</sup> year, decreasing in later years;
- Interspecies flexibility is likely to be of limited utility.
- Quota swaps and transfers may play a role in dealing with haddock, but there may be limitations in terms of the quota currency required to pay for the swaps;



- Inter-annual quota flexibilities – “banking and borrowing” – is not seen as appropriate for haddock as it may simply transfer the problem to the succeeding year.

## 8.0 Demersal catches in the pelagic fisheries

- 8.1 Demersal species, such as saithe, hake and whiting, are caught as unwanted by-catch in the pelagic fisheries and in the past have been discarded. There are few data on the numbers likely to be caught and this by-catch is only to a limited degree reflected in the scientific advice. The capture of these fish is therefore not taken into account when setting quota uplift.
- 8.2 By not providing quota uplift related to by-catches in the pelagic fisheries, but at the same time forcing the pelagic fisheries to secure quotas, the management regime potentially increases competition for demersal stocks in some countries, thereby increasing the likelihood of choke situations developing.
- 8.3 This problem could be dealt with through:
- Quota uplift; e.g. via a bycatch-quota for pelagic fisheries specifically allocated to those pelagic vessels catching these species;
  - The *de minimis* exemption or some kind of interspecies flexibility;
  - A footnote giving a limited by-catch option in the TACs and quotas regulation.

Note that some NGO representatives in the Advisory Council hold that using footnotes to adjust guidance set out in the CFP basic regulation is not a legal option to use as a mitigation measure and would like to see a legal analysis of any such proposal before it is put forward.

## 9.0 Conclusions of the NSAC

- 9.1 The NSAC has produced this advice on the basis that cod, whiting and haddock caught in bycatch fisheries may be subject to the Landing Obligation in 2017, as set out in the *road map* provided by the Scheveningen Group in its 2015 Discard Plan.

Consequently, the advice has:

- Highlighted the importance of repealing or amending the EU Cod Plan to remove impediments to the implementation of the Landing Obligation for these species;
- Stressed the importance of undertaking a detailed risk analysis for each species/fishery being brought under the Landing Obligation, both to identify chokes that might arise and to provide a reasoned assessment of which of the available measures might be useful in mitigating those chokes;



- Provided preliminary examples of the kind of detailed analysis that will be required, accompanied by tentative but highly provisional illustrations of possible outcomes;
- Drawn attention to the uncertainties in the data on which discard estimates are based, not least because data deficiencies will affect the degree to which quota uplifts will resolve the issue of chokes;
- Underlined that, as we move into uncharted territories of implementation, Member States and the Commission should work closely with the NSAC to define and prepare contingency measures in the event of serious chokes occurring in 2017 or subsequent years. We envisage that the NSAC will need to work in conjunction with Member States and their scientists on: providing insight and improving the information available on discards; refining and perfecting methodologies for identifying potential chokes and their magnitude; and undertaking risk analysis. Such work will provide important information on the measures that should be included in any new Discard Plan for implementation of the Landing Obligation for the North Sea.

