ECOREGION North Sea
STOCK Mixed-fisheries advice for Subarea IV (North Sea) and Divisions IIIa North (Skagerrak) and VIId (Eastern Channel)

Scenarios for 2015

Mixed-fisheries considerations are based on the single-stock assessments combined with knowledge on the species composition in catches in the North Sea, Skagerrak, and Eastern English Channel fisheries. Five example scenarios of fishing opportunities considering mixed fisheries are presented, taking into account the single-stock advice for fisheries catching cod, haddock, whiting, saithe, plaice, sole, turbot and *Nephrops*. Without specific mixed-fisheries management objectives, ICES cannot recommend specific scenario(s).

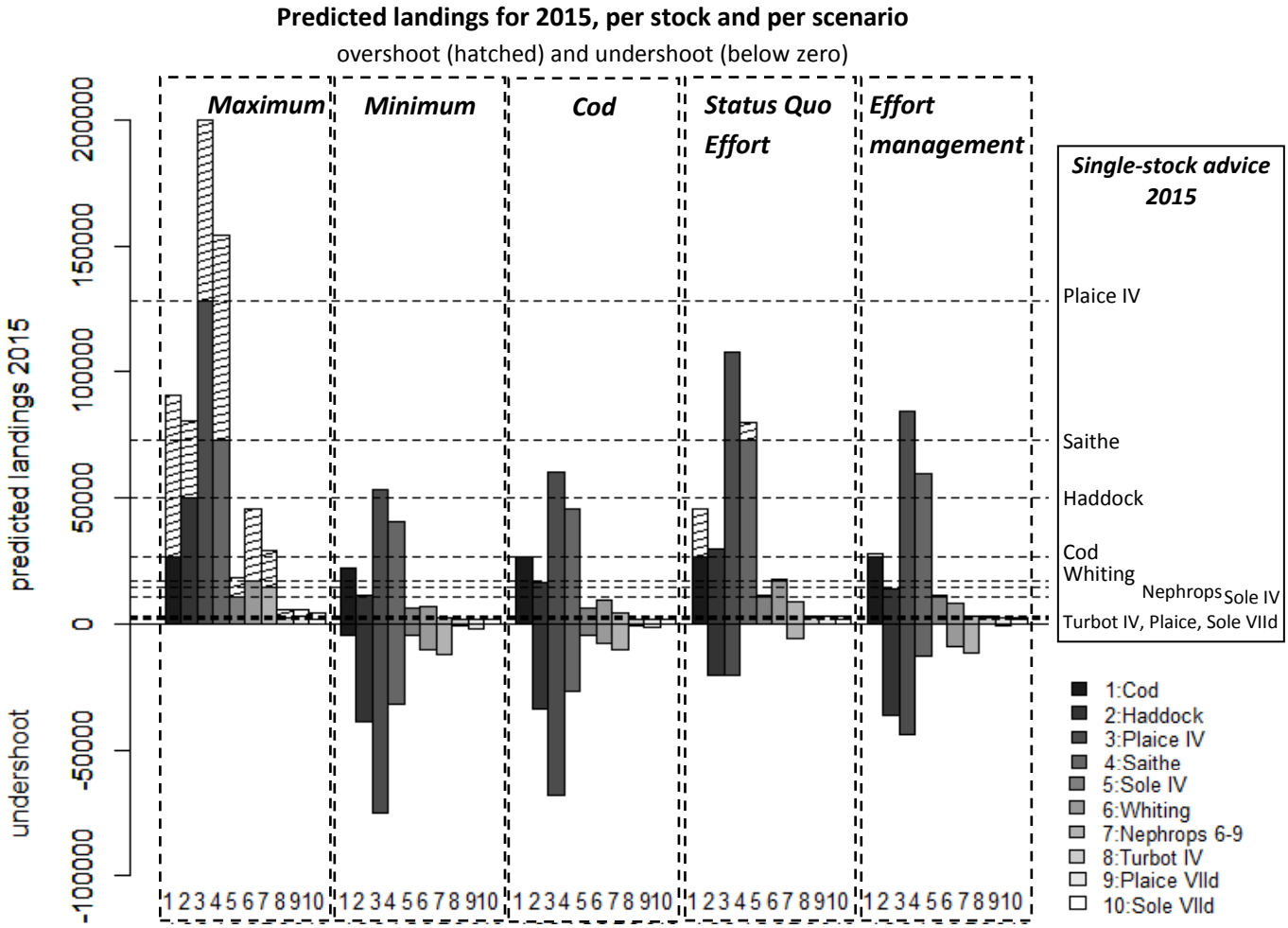


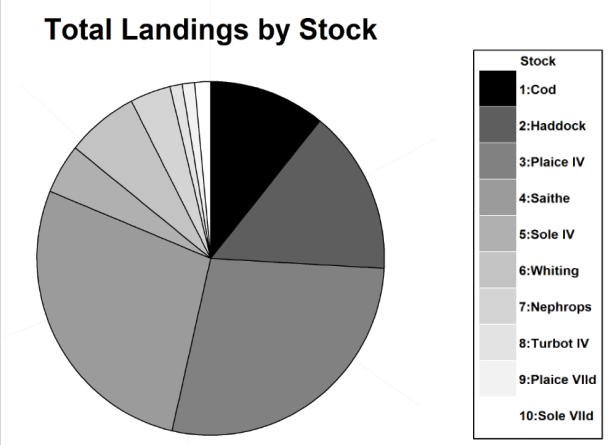
Figure 6.3.2.1 North Sea mixed-fisheries projections. Estimates of potential landings (in tonnes) by stoc Discards are not shown. Horizontal lines correspond to the single-stock landings advice for 2015. Bars below the value of zero show undershoot (compared to single-stock advice) where landings are predicted to be lower when applying the scenario. Hatched columns represent landings in overshoot of the single-stock advice. Details for turbot IV & plaice and sole division VIId stocks are shown in Figure 6.3.2.2.

	Scenarios
Max	**"Maximum":** Fishing stops when all stocks considered have been caught up to the ICES single-stock advice. This option causes overfishing of the single-stock advice possibilities of most stocks.
Min	**"Minimum":** Fishing stops when the catch for any one of the stocks considered meets the single-stock advice. This option is the most precautionary option, causing underutilization of the single-stock advice possibilities of other stocks.
Cod	**"Cod management plan":** All fleets set their effort corresponding to their cod quota share, regardless of other catches.
Sq_E	**'*Status quo* effort':** The effort is set equal to the effort in the most recently recorded year for which landings and discard data are available.
Ef_Mgt	**"Effort management":** The effort in métiers using gear controlled by the EU effort management regime (EC 1342/2008) have their effort adjusted assuming a 45% reduction for TR1 and TR2 between 2014- 2015 (Table 6.3.2.3).

The fisheries

Fleet and métier categories used in the mixed-fisheries analysis are based on the EU data collection framework (DCF) level 6 categories, but merging over DCF categories has been performed to (a) reflect national sampling schemes, and (b) aggregate over "small" métiers (a métier failing to catch at least 1.0% in 2013 of at least one of the stocks considered). Fleet categories are consistent with the EU annual economic report (AER) database and métiers are made consistent with the categories specified in the cod long-term management plan.

Catch distribution



Total landings (2013) of all species considered in the mixed-fisheries advice were 289 000 t with:

~ 60% landed by otter trawls and seines;
~ 21% by beam trawls;
~ 6% by gill- and trammelnets; and
~ 8% by other gears
~ 5% from other areas (divisions IIIaS & VI).

Total discards were 61 000 t (17% by weight of total catch).

Quality considerations

Mixed-fisheries projections build on single-stock assessments, most of which are of high quality and precision. Single-stock forecasts are also reproduced independently as part of the mixed-fisheries analyses, allowing additional quality control of both processes.

The quality of data has improved in recent years because of the single ICES data call combining data needs and ensuring common data storage in Intercatch for single-stock assessment and mixed-fisheries forecasts. Mixed-fisheries analysis and projections critically rely on data being available on time to allow sufficient quality checking and preparation. Some data were submitted only shortly before the meeting, which limited the possibilities for additional data investigations.

Scientific basis

Stock Category	1 / 2 / 4 (ICES, 2014a)
Assessment type	F-Cube (FLR).
Input data	Assessments on the relevant stocks in the North Sea fisheries working group (WGNSSK), catch and effort by fleet and metiers.
Discards and bycatch	Included as in the single-stock assessments.
Indicators	None.
Other information	This assessment was presented for the first time in 2012. In 2014 turbot in the North Sea (ICES area IV) was added to the stocks considered in the mixed fishery forecasts. As any scenario results in trade-offs between different fisheries that are informed by more than scientific considerations, no one scenario is presented as advice. The scenarios indicate which stocks will limit, and thus influence the fisheries most.
Working group report	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK), Working Group on Mixed Fisheries Advice (WGMIXFISH-NS).

ECOREGION North Sea
STOCK Mixed-fisheries advice

Reference points

The reference points for the various stocks can be found in the single-stock advice sheets (ICES, 2014d).

Outlook for 2015

Mixed-fisheries advice considers the implications of mixed fisheries under current TAC and effort regimes, taking into account the fishing pattern and catchability of the various fleets. The outcome of the mixed-fisheries modelling was consistent with the catch proportion by country in 2013.

In the "Minimum" scenario, the most limiting stocks are cod and *Nephrops* (FU6) for fleets representing 73% and 27% of the effort in 2013 respectively. In the "Maximum" scenario, the least limiting stocks are haddock, *Nephrops* (FU 7), North sea plaice and *Nephrops* (FU9) for fleets representing 66%, 22%, 7% and 5% of the effort in 2013, respectively. It is also noted that the implied F would exceed F_{pa} for cod, saithe, and sole in the Eastern Channel in this scenario, which is therefore not considered precautionary for those stocks.

The ICES single-stock advice for demersal stocks in 2015 (ICES, 2014d) is based on existing management plans, the ICES maximum sustainable yield (MSY) approach, or the ICES approach to data-limited stocks.

Basis: single-stock SSBs at the end of 2013 and assumptions on F in 2014 and SSB at the start of 2015. Fishing patterns and catchability in 2014 and 2015 were assumed to remain as in 2013. The *Status quo* effort scenario (Sq_E) is assumed to take place in 2014.

Stock	Single-stock landings advice 2015*	Landings per mixed-fisheries scenario 2015 *Relative to the single stock advice*				
		"Max"	"Min"	"Cod"	"Sq_E"	"Ef_Mgt"
Cod IIIaN, IV, VIId	26.713	3.41	0.83	1.00	1.71	1.03
Haddock IIIaN, IV, VIa	48.176	1.68	0.24	0.34	0.62	0.29
Plaice IV	128.376	1.56	0.42	0.47	0.84	0.66
Saithe IIIaN, IV, VI	72.854	2.12	0.56	0.63	1.10	0.82
Sole IV	10.973	1.65	0.57	0.59	1.04	1.03
Turbot IV	2.406	2.27	0.75	0.82	1.39	1.26
Whiting IV, VIId	17.190	2.65	0.40	0.56	1.02	0.48
Nephrops FU 5	1.043	2.00	0.17	0.31	0.59	0.20
Nephrops FU 6	0.983	11.41	1.02	1.85	3.48	1.27
Nephrops FU 7	10.759	1.00	0.08	0.15	0.28	0.08
Nephrops FU 8	1.769	2.96	0.27	0.50	0.94	0.31
Nephrops FU 9	1.185	1.87	0.17	0.31	0.58	0.18
Nephrops FU 10	0.032	2.00	0.19	0.31	0.59	0.19
Nephrops FU 32	0.625	2.00	0.17	0.32	0.59	0.20
Nephrops FU 33	1.136	2.00	0.17	0.31	0.59	0.20
Nephrops FU 34	0.383	1.99	0.17	0.31	0.59	0.20
Nephrops other IV	0.409	2.00	0.17	0.32	0.59	0.04
Plaice VIId	2.657	2.04	0.57	0.68	1.18	0.96
Sole VIId	1.931	2.24	0.83	0.93	1.56	1.43

Weights in thousand tonnes.

* Advised landings no more than the indicated value.

Absolute results can be found in table 6.3.2.1.

Mixed-fisheries catch options can take specific management priorities into account. Scenario results show that it is not possible to achieve all management objectives simultaneously. For instance, if rebuilding of the cod stock is the major objective, this could mean that the TAC for other species in the mixed fisheries cannot be fully utilized. In contrast to single-stock advice there is therefore no single recommendation, but a range of plausible options. ICES single-stock advice provides TACs expected to meet single stock FMSY, or to meet a management plan targets. To be consistent with these objectives a scenario is necessary that delivers the SSB and/or F objectives of the single-stock advice for all stocks considered simultaneously.

This document presents five example scenarios out of which the "minimum" scenario meets this outcome. However, the "minimum'" scenario (and to a large extent the "cod" scenario this year) assumes that fleets would stop fishing when their first quota share is exhausted, regardless of the actual importance of this quota share, thus leading to a distorted perception of plausible fleet behaviour. It is included only to demonstrate the lower bound of potential fleet effort and stock catches.

In addition to the "minimum" scenario a "maximum'" scenario is included. This is to demonstrate the upper bound of potential fleet effort and stock catches but, through assuming all fleets continue fishing until all their quotas are exhausted irrespective of the economic viability of such actions, this is also considered a scenario with low plausibility. In 2015 fleets which take *Nephrops* FU7 and haddock as bycatch are simulated to significantly increase their effort to achieve their quotas for these stocks, leading to large overshoots of their target stocks (e.g. saithe). This is an unrealistic outcome for these fleets but the scenario indicates these fleets are unlikely to fully utilise their quota for these stocks. Currently three intermediate scenarios are included, reflecting basic current management measures and also the *status quo* option. ICES has not conducted work to assess which of these scenarios may represent the most likely outcome.

Additional considerations

Management considerations

ICES provides five example scenarios. Alternative scenarios taking account of other specific management objectives can be considered. The option to manage all fisheries based on single-species F_{MSY} was studied (ICES, 2012) and further developments on MSY-based medium-term projections was undertaken this year. As expected, the successive application of the "cod" scenario lead all species to be fished at or below F_{MSY} (cod continues to be the most limiting, or "choke'" species in terms of effort required to catch available quota). None of the five scenarios presented are aimed at achieving MSY for all stocks in 2015. Finding the optimal scenario would imply prioritization of management objectives and redesigning of harvest control rules for integrated management at the regional level.

Scenarios are based on central assumptions that fishing patterns and catchability in 2014 and 2015 are the same as those in 2013 (similar to procedures in single-stock forecasts where growth and selectivity are assumed constant). Options that result in under- or overutilization are useful in identifying the main points of friction between the fishing opportunities of the various stocks. They indicate in which direction fleets may have to adapt to fully utilize these catch opportunities.

The "cod" scenario reflects the target fishing mortality as set for the cod management plan, and the results present fishing opportunities for other stocks in a mixed-fisheries context. Similar scenarios based on the management plans for the other finfish stocks could be provided by ICES, but the "cod" scenario is considered here because cod has generally been the limiting species since the beginning of mixed-fisheries analysis in 2006.

The "cod" scenario presents the expected outcome if the F reductions on cod stipulated in the cod long-term management plan were achieved in full and the catchability of different species by fleets and metiers remained constant. According to the single-stock advice a reduction of 45% in cod F is required (from 0.40 in 2014 to 0.22 in 2015). In this scenario it is assumed that effort reductions in fleets (to achieve new partial Fs) apply equally to all fleets with any cod catch, including those where it represents a small bycatch component. In 2015 the most pronounced example of this effect is for saithe-targeted fisheries where application of the "cod" scenario leads to small reductions in cod catch for these fisheries, but very large reductions in saithe catches.

The "effort management" scenario presents the expected outcome if the nominal effort reductions stipulated in the effort management plans were translated in full into actual effort cuts and if there existed a 1:1 relationship between fleet effort and mean F. As for 2014, effort reductions were assumed to apply to EU TR1 and TR2 gear types (based on the EU cod management plan, as these gears take >=80% of overall EU cod catches). The data used for the mixed-fisheries projections show that effort reductions to date have been less than those stipulated for overall effort by fleet in the fishing opportunities regulations, and studies have indicated that the strength of linkages between effort and F differ depending on fleet and species (STECF, 2013). Equally, the projections assume that the catchability remains constant which does not take account of changing vessel behaviour in 2014 and 2015 because of e.g. real-time closures or technical measures. Contrary to the effort management regulations in 2013 and 2014, no reduction in effort was applied between 2012 and 2014. The effort reduction from 2014 to 2015 was assumed to be 45%, which is in line with the reduction in F stipulated by Council Regulation (EC) 1342/2008, Art. 8.4.b.

The effort reductions stipulated under the cod management plan have not been implemented in the past two years. If the same occurs in 2015 exploratory analysis indicates cod avoidance by 40-50% would be required in order to avoid over quota catches of cod. Cod avoidance at this level would lead to a better match between the current level of effort and the single species TAC for cod, without the scale of foregone catches of other stocks implied by effort reduction (Effort

management scenario). The mechanism by which this avoidance should be achieved for the different fleets and gears (e.g. changes in fishing patterns, catchability, or discarding practices), depends on the fishery and takes place at the individual vessel level. As such, no specific advice is given though improved mixed-fisheries management should act towards reducing areas of friction between stocks exploited together in a mixed fishery.

Mixed-fisheries results for Nephrops are displayed combined for several functional units in plots, but stock status and fishing opportunities differ widely across FUs. In particular, FU6 (Farn Deep) is currently exploited over the MSY target, and this FU acts therefore as a limiting stock for some fleets in the mixed-fisheries advice 2015. Conversely, FU7 (Fladen Ground) is exploited below the MSY target, and acts as a least limiting stock. In order to ensure Nephrops stocks are exploited sustainably in the different FUs, management should therefore be implemented at the FU level. Potential undershoot of catch opportunities for FU7 should not be transferred to other FUs.

Newly added to the list of stocks is Turbot in IV. Like plaice and sole in the eastern channel turbot has low landings compared to other stocks and the results for these stocks are presented in detail in Figure 6.3.2.2. The single-species advice for turbot is for a reduction in landings. Under the mixed fishery projections, this results in an overshoot in quota in the *status quo* and *effort management* scenarios, with an undershoot in the *min* and *cod* scenarios.

Catch and landing advice

At present the mixed fisheries projections are presented in terms of landings and overshoots or undershoots of the retained portion of the catch. Discards are not presented but are forecast according to the same method as the single species advice (i.e. a constant landings to discards ratio) and cover under legal landings size fish and may also include additional over legal landings size fish (e.g. those fish high-graded or subject to regulatory discards). Given the recent improvements in data, catch based mixed fisheries forecasts could be provided in the near future after some developments of the mixed fisheries model.

The mixed fisheries forecasts have been including an increasing number of stocks (from 20 in 2012 to 23 stocks in 2014). In addition, methods to include data-limited stocks in the mixed fisheries forecasts based on catch per unit effort are being developed. This is in order to take account of the potential 'choke' species for fleets operating under a landings obligation.

Species involved

The species considered here as part of the demersal mixed fisheries are cod, haddock, whiting, saithe, plaice, sole, and *Nephrops*. Pelagic stocks (herring, mackerel) are not included as they are taken by fisheries subject to little technical interaction.

Species	**ICES single-stock advice area**	**Management area**	**Management plan ref(s)**
Cod	Subarea IV and Divisions VIId and IIIa West (Skagerrak)	• EU TAC Skagerrak • EU TAC Division VIId • Subarea IV; EC waters of Division IIa; that part of Division IIIa not covered by the Skagerrak and Kattegat	• EU and Norway management plan • Council Reg (EC) 1342/2008
Haddock *	Subarea IV and Divisions IIIa West and VIa (North Sea, Skagerrak and West of Scotland)	• EU TAC Division IIIa, EC waters of Divisions IIIb, IIIc, and IIId • Subarea IV; EC waters of Division IIa • Union and international waters of Vb and VIa	• EU and Norway management plan (not relevant for the new advice unit)
Plaice	Subarea IV	• Subarea IV; EC waters of Division IIa; that part of Division IIIa not covered by the Skagerrak and the Kattegat	• Council Reg (EC) No. 676/2007
Saithe	Subarea IV, Division IIIa West (Skagerrak), and Subarea VI	• Division IIIa and Subarea IV; EC waters of Divisions IIa, IIIb, IIIc, and IIId • Subarea VI; EC waters of Division Vb; EC and international waters of Subareas XII and XIV	• EU and Norway management plan
Sole	Subarea IV	• EC waters of Subareas II and IV	• Council Reg (EC) No. 676/2007
Turbot	Subarea IV	• EC waters of Subareas II and IV	• n/a
Whiting	Subarea IV and Division VIId (advice includes human consumption and industrial landings)	• Subarea IV • EU TAC Subarea VII	• EU and Norway management plan
Nephrops	Functional units (FUs) in Subarea IV: 5, 6, 7, 8, 9, 10, 32, 33, 34, and other areas outside FUs	• EU: TAC for Subarea IV • Norway: no TAC	• n/a

Plaice	Division VIId	• Divisions VIId and VIIe	• n/a
Sole	Division VIId	• Division VIId	• n/a

* Before 2014 this stock was assessed for Subarea IV and Division IIIa West (Skagerrak) only.

Data and methods

The projections made use of data requested as part of an ICES data call issued formally under the EU Data Collection Framework (DCF) regulations. This has allowed a greater consistency between catch totals supplied to ICES. To allow consideration of fleets defined by length categories, separate data files containing total weight of landings and discards and effort in kW-days by fleet and métier were also requested.

All analyses were conducted using the Fcube method (Ulrich *et al.*, 2011).

Uncertainties in the assessment

The quality of the individual forecasts of the single stocks may affect the results of the mixed fish scenarios. An error or bias the forecast of one stock could lead to an inappropriately low or high TAC for this stock. This in turn would affect the estimated effort required for each metier to land this TAC. If the effort required to land the TAC for this stock is pivotal in any of the scenarios examined, this would affect the exploitation prognoses of the other stocks in this scenario. In other words, the quality of the mixed fish model is limited by the stock which has the most biased assessment, if that stock is the limiting factor in a mixed fisheries scenario.

Also, an assumption in the forecast is that catchability for fleets remains constant, but this is heavily dependent on fishing patterns, which may change over time.

Another assumption is that the selectivity is the same for all the fleets (based on the F at age as coming from the assessment). Therefore changes in the relative contribution of each fleet to the total effort cannot be translated in specific changes in the relative F at age. This prevents from taking advantage of better selection patterns of some fleets (such as gill netters) in achieving the MSY approach. With the use of Intercatch, the possibility of using catch at age by fleet is being investigated.

The effort management scenario assumes a reducing effort will reduce fishing mortality proportionally. Studies have indicated that the strength of linkages between effort and F differ depending on fleet and species (STECF, 2013)

The quality of data had improved since 2012 because of the ICES data calls, merging data needs and ensuring common data storage for single-stock assessment and mixed-fisheries forecasts. In 2013 additional work was performed that further improved consistency and transparency of data collection and processing.

Nephrops is managed on the basis of one TAC for the whole North Sea, while ICES advises on the basis of FUs. This means, for example, that catches of Nephrops in FU7 were much lower than advised for 2013, and catches in FU6 were higher than advised. The mixed fisheries analysis is based on the ICES catch advice for the individual FUs. As a consequence, fisheries behaviour between FUs will differ from the modelled runs and this influences the outcomes of the 'Max' and 'Min' scenarios.

Comparison of the basis of previous assessment and advice

The basis for the assessment has not changed from last year, but this year turbot in the North Sea was added in the calculations and the assessment unit for haddock changed. The basis for the advice this year is the same as last year: scenario presentations that indicate the consequences of single species advice and management choices for mixed fisheries results.

Sources

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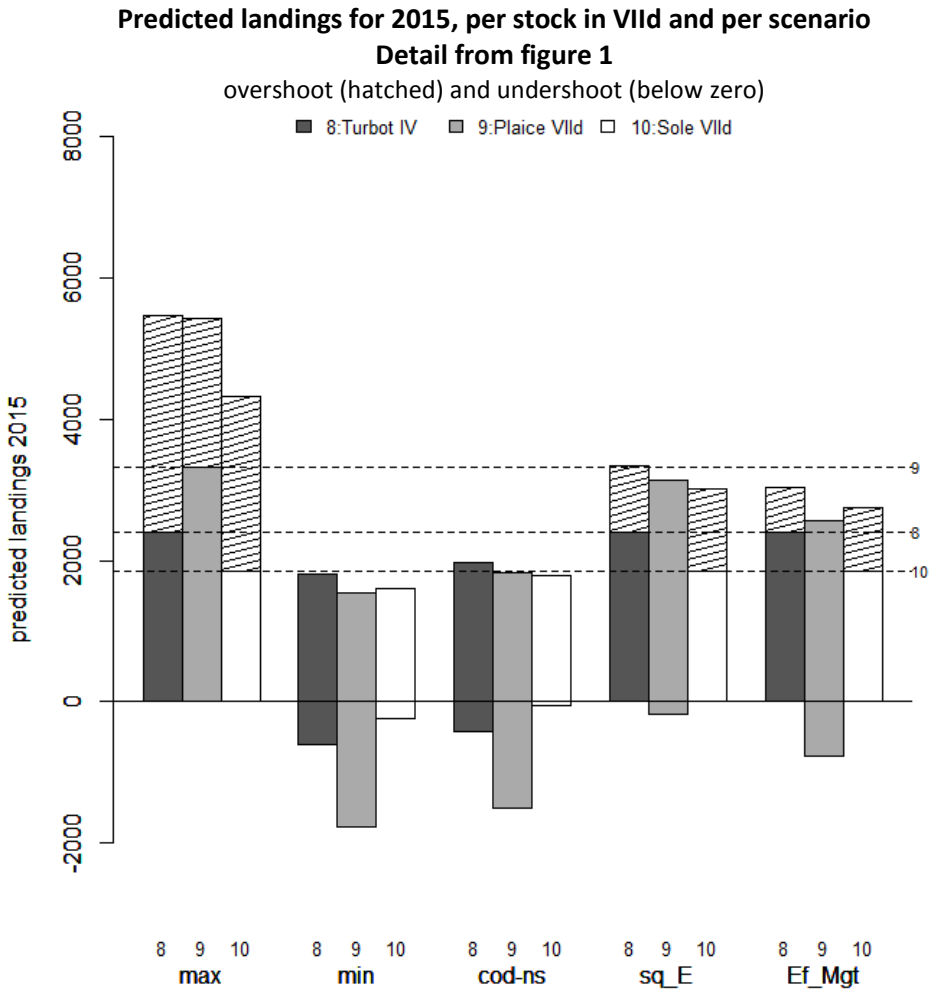

Figure 6.3.2.2 Mixed-fisheries projections for the stocks subject to lower landings (detail from Figure 6.3.2.1). Estimates of potential landings (in tonnes) by stock and by scenario. Horizontal lines correspond to the single-stock advice for 2015. Bars below the value of zero show the scale of undershoot (compared to single-stock advice) in cases where landings are predicted to be lower when applying the scenario. Hatched columns represent landings in overshoot of the single-stock advice.

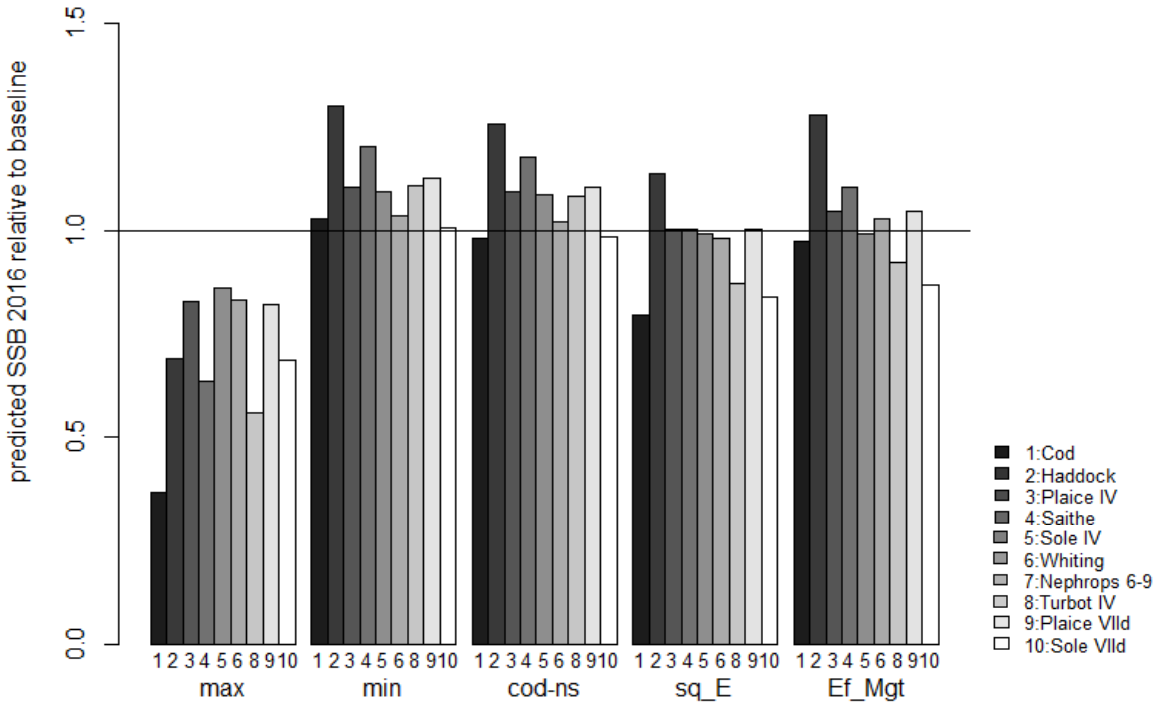

Figure 6.3.2.3 Mixed-fisheries advice in the North Sea. Estimates of potential SSB at the start of 2016 by stock after applying the mixed-fisheries scenarios, expressed as a ratio to the single-stock advice forecast. Horizontal line corresponds to the SSB resulting from the single-stock advice (at the start of 2016). *Nephrops* are not included as abundance is not forecast from the mixed-fisheries model.

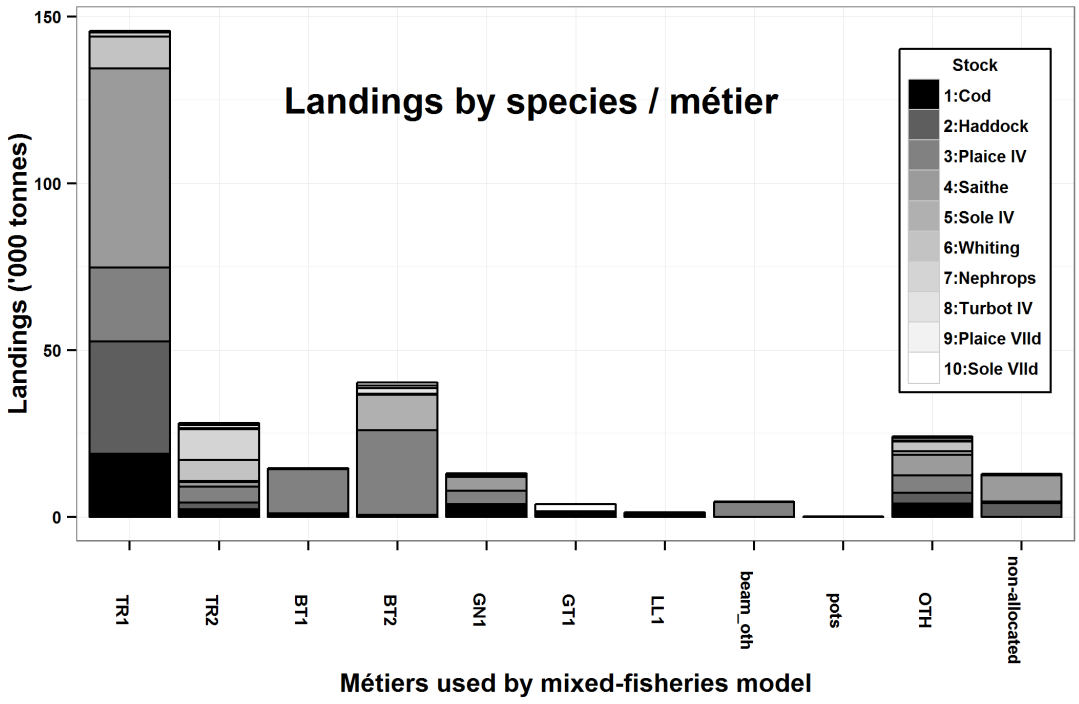

Figure 6.3.2.4 Mixed-fisheries advice in the North Sea. Landings distribution of species by métier with landings consisting of ≥1% of any of the stocks (see Figure 6.3.2.1) in 2013 (list of métiers available in Table 6.3.2.2). Note: The "other" (OTH) displayed here is a mixed category consisting of (i) landings without corresponding effort and (ii) landings of any combination of fleet and metier with landings < 1% of any of the stocks 1–10 in 2013. The "non-allocated" is the differences between total landings used in single-stock advice and mixed-fisheries advice, such as saithe and haddock landings in Subarea VI and VIa respectively.

Table 6.3.2.1 Mixed-fisheries advice in the North Sea. Landings per mixed-fisheries scenario 2015 – In absolute values

Stock	Single-stock landings advice 2015*	Landings per mixed-fisheries scenario 2015				
		"Max"	"Min"	"Cod"	"Sq_E"	"Ef_Mgt"
Cod IIIaN, IV, VIId	26.713	91.087	22.267	26.713	45.681	27.597
Haddock IIIaN, IV, VIa	48.176	80.792	11.466	16.592	29.759	14.066
Plaice IV	128.376	199.978	53.520	60.175	107.902	84.387
Saithe IIIaN, IV, VI	72.854	154.343	40.792	45.797	80.221	59.947
Sole IV	10.973	18.156	6.211	6.469	11.460	11.328
Turbot IV	2.406	5.469	1.803	1.972	3.351	3.026
Whiting IV, VIId	17.190	45.494	6.798	9.654	17.483	8.299
Nephrops FU 5	1.043	2.082	0.181	0.328	0.618	0.207
Nephrops FU 6	0.983	11.215	0.999	1.819	3.425	1.252
Nephrops FU 7	10.759	10.758	0.867	1.572	2.961	0.904
Nephrops FU 8	1.769	5.234	0.484	0.881	1.660	0.552
Nephrops FU 9	1.185	2.215	0.205	0.362	0.684	0.216
Nephrops FU 10	0.032	0.064	0.006	0.010	0.019	0.006
Nephrops FU 32	0.625	1.247	0.108	0.197	0.370	0.124
Nephrops FU 33	1.136	2.267	0.197	0.357	0.673	0.225
Nephrops FU 34	0.383	0.764	0.066	0.120	0.227	0.076
Nephrops other IV	0.409	0.816	0.071	0.129	0.242	0.018
Plaice VIId	2.657	5.433	1.524	1.819	3.145	2.555
Sole VIId	1.931	4.323	1.606	1.790	3.008	2.758

Weights in thousand tonnes.
* Advised landings no more than the indicated value.

Table 6.3.2.2 Mixed-fisheries advice in the North Sea. SSB results from single-stock advice and different mixed-fisheries scenarios (see Figure 6.3.2.3). *Nephrops* are not included as abundance is not forecasted from the mixed-fisheries model. SSB for plaice in Division VIId and turbot in Subarea IV are not included because the assessments are relevant for trends only.

Stock	Single-stock advice	SSB resulting from mixed-fisheries scenario 2015				
	SSB result in **2016**	"Max"	"Min"	"Cod"	"SQ_E"	"Eff_mgt"
Cod	109.100	39.170	109.603	104.855	84.826	103.913
Haddock	117.426	80.374	152.156	146.776	132.999	149.426
Plaice IV	735.259	608.786	812.718	803.339	736.365	769.298
Saithe	178.867	113.460	214.756	210.160	178.820	197.218
Sole IV	53.783	46.333	58.793	58.524	53.306	53.444
Whiting	266.012	221.296	274..893	270.986	260.239	272.841
Sole VIId	9.065	6.215	9.136	8.936	7.624	7.893
legend						
	SSB 2016 >B_{pa} or MSY $B_{trigger}$					
	SSB 2016 > B_{lim} , no B_{pa} defined					
	SSB 2016 >B_{lim}					
	SSB 2016 < B_{lim}					

Weights in thousand tonnes.

Table 6.3.2.3 Mixed-fisheries advice North Sea. Métier categories used in the mixed-fisheries analysis.

Mixed-fisheries metiers	**Gear**	**Mesh size**
TR1	Otter trawl or demersal seine	≥100 mm
TR2	Otter trawl or demersal seine	≥70 mm and < 100 mm
BT1	Beam trawl	≥120 mm
BT2	Beam trawl	≥80 mm and < 120 mm
GN1	Gillnets	All possible mesh sizes
GT1	Trammelnets	All possible mesh sizes
LL1	Longlines	n.a.
Pelagic	Pelagic trawl or seine	
Pots	Pots	n.a.
OTH	Any gear type	

Table 6.3.2.4 Mixed-fisheries advice North Sea. Effort reductions in 2014 compared to 2013, by EU-regulated fleet segment (Council Regulation (EC) 43/2014), and the assumed reduction between 2014 and 2015 for the "Effort" scenario.

Gear description	Code	% effort reduction in 2014 compared to 2013	Assumed % effort reduction in 2015 compared to 2014
Bottom trawls and seines ≥100 mm	TR1	0%	45.0%
Bottom trawls and seines ≥70 mm and < 100 mm	TR2	0%	45.0%
Bottom trawls and seines ≥16 mm and < 32 mm	TR3	0%	0%
Beam trawls ≥120 mm	BT1	0%	0%
Beam trawls ≥80 mm and < 120 mm	BT2	0%	0%
Gillnets and entangling nets, excluding trammelnets	GN1	0%	0%
Trammelnets	TN1	0%	0%
Longlines	LL1	0%	0%
Non-regulated gear	None	0%	0%