

Discard Atlas of North Western Waters Pelagic and Industrial Fisheries

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Executive summary

The data presented here are derived from the STECF catch and effort database, the same source used to produce the Discard Atlas of North Sea Fisheries by the “Schevevingen Group” which ensures data compatibility between the two areas. This report focuses solely on pelagic and industrial species. At sea observer coverage in pelagic and industrial fisheries tends to be considerably lower (or even absent in some fisheries) in comparison to demersal fisheries.

The main source of discarding is through deliberate slipping of the catch and discarding from on-board processing because of high-grading and by-catches of other pelagic species. Slipping is considered to be a significant phenomenon in pelagic fisheries, but because slipping rarely (if ever) occurs when scientific observers are present the estimates obtained from the STECF database are therefore likely to be a gross underestimation of the true catch.

Given the low level of observer coverage, the available data are very sparse and the majority of estimates are derived through “fill-in” procedures resulting in discard levels that are highly uncertain. In addition, it is not possible to assess the specific catch composition from individual trips from the STECF database, as such no by-catch estimates e.g. by-catch of boarfish in the herring fishery, can be provided. Lack of by-catch data, and the general paucity of data, may undermine the information base for de minimis exemptions for example.

1 Introduction

Article 15 of the recently introduced Common Fisheries Policy (EU regulation 1380/2013) states that discarding of regulated species will no longer be permitted and be phased out from 2015 onwards. Fisheries for pelagic species are one of the first groups to fall under the obligation to land all catches and in accordance with the regionalisation provisions contained in the basic CFP regulation, member states can develop regional discard plans for the purpose.

Article 14 of the new basic regulation notes that “Member States may produce a ‘discard atlas’ showing the level of discards in each of the fisheries covered by the landing obligation”, to this end the technical group of the DGNWWG has been tasked with developing such an atlas. Given the time window to develop a regional plan for pelagic species, this atlas relates only to small pelagic species caught in Western Waters (ICES divisions VI and VII). However, the intention is to develop a discard atlas which covers both pelagic and demersal species over the coming months.

2 Materials and methods for quantifying discards

2.1 Stocks and fisheries

Pelagic fisheries are generally specialist in targeting and catching predominantly one species at a time. In Western Waters the main quota managed pelagic species are herring, horse mackerel, boarfish, blue whiting, mackerel, sprat and argentines (silver smelt). According to the STECF database, there are no industrial fisheries operational in VI and VII.

2.2 Data sources

The data on landings and discards presented here are derived from two sources. Information on volume of landings is derived from the national fisheries statistics and discard estimates are obtained through individual MS ‘at-sea’ sampling programmes. These national programs, which are part funded under the Data Collection Programme, are designed to estimate the catch of commercial marine fisheries, in particular of those individuals discarded at-sea. Discard estimates are included in several fish stock assessments so that overall fishing mortality can be estimated. Even though the control regulation also prescribes that fishers have to report all discards above 50 kg per species per trip, only very limited information on discards is actually registered in the logbooks (STECF, 2014).

It is noted that the group of North Sea MS (the Scheveningen Group) have already produced a discard atlas covering the pelagic and demersal fisheries of the North Sea. To ensure consistency and comparability between the Western Waters and the North Sea, the technical group of DGNWWG opted to follow the same approaches and use the same data set as used by the Scheveningen Group (see section 2.3 of the Discard Atlas of North Sea fisheries).

The results presented here are based on the STECF database on fisheries data that is generated by the STECF Expert Working Group on the Evaluation of Fishing Effort Regimes (STECF EWG 13-13). Each year member states are asked to deliver data on landings and discards (and effort) in a

predefined format. A detailed description of available data from each member state can be found in STECF (2013a). Following the approach taken by the Scheveningen Group only data from 2010 to 2012 were used in this analysis because the quality of data has improved over the years and the number of species included has increased (STECF, 2013).

3 Pelagic in ICES Division VI and VII

3.1 Quality of discard information

There is a number of quality issues associated with discard estimates in particular that need to be considered. Typically observer sampling levels are low, covering less than 1% of the total effort for a given fleet segment or metier, this means that discard estimates can be imprecise with a high degree of uncertainty. This can be further exaggerated when some fisheries have not been covered by individual member states, under these circumstances the STECF database “borrows” or “fills-in” with data from other member states that have similar fisheries operating in the same area.

The tables provided below highlight how much of the final discard estimates stem from reported data and how much had to be filled in by assuming an average discard ratio from countries that have submitted data for a given metier/fishery. The quality is expressed as %DQ (% discard quality) derived as the amount of discards from submitted data relative to the overall estimate of discards (in tonnes). As can be seen in tables 3.1 to 3.3 (small pelagics) and table 3.4 (large pelagic), the %DQ is very low in almost all cases suggesting that the available data is **very suspect** given that in the majority of cases more than 67% of the discard estimates stem from “fill-ins” It is also noted that there appear to be some spurious estimates which are probably a consequence of the low sampling levels and/or in appropriate fill in procedures e.g. FRA discarding of Mackerel (table 3.5). Discard rates by gear type are also given in table 3.7 – 3.9 for ICES Division VI and VII separately and for VI and VII combined.

3.2 Discard ratios by Species and Country

For the majority of pelagic species, the available discard data would imply that overall discard ratios are low for most species. However, these data need to be treated with a high degree of caution. In practice, it is highly likely that the discard rates for small pelagic species presented in tables 3.1 to 3.3 (2009 to 2012) are a gross underestimation of discarding in these fisheries.

ICES (2013) considers that the estimates of mackerel catch are likely to be an underestimate. In many cases estimates of discarding or slipping are either not available or incomplete for most countries. Anecdotal evidence suggests that discarding and slipping can occur for a number of reasons including high-grading (fish weighing more than 600g attracts a premium price), lack of quota, storage or processing capacity and when mackerel is taken as by-catch. High grading is also an issue in pelagic fisheries for other species such as herring, where catches are discarded during onboard processing (Borges *et al*, 2008). Discarding can occur due to by-catches of other pelagic species e.g. boarfish in the herring fishery, mackerel in the fishery for horse mackerel (Borges *et al*, 2008).

Slipping is prohibited under EU law and therefore tends not to occur in the presence of observers (so called observer effect). For this reason, many EU countries have suspended their observer programmes, resulting in a further deterioration in catch estimates. While table 3.5 shows relative

high discards in a small number of cases, these estimates should be treated with a high level of caution as it is likely that these are heavily inflated estimates based on few or a single observation.

The available data only provides an indication of the discarding at a stock level and does not provide any indication as to the extent of discarding across species at a trip or fishery level i.e. no indication of the level of unwanted by-catch. This general lack of data will limit the information base available in circumstances where *de minimis* exemptions may be sought.

Table 3.4 provides landings and discard estimates for large pelagic species caught in ICES Divisions VI and VII (2009-2012) and this data is broken down by country in table 3.6 while table 3.10 provides a breakdown by gear type. The available data shows very low discard rates by species but this should be treated with caution, although there is no *a priori* reason to expect high discards in these fisheries.

3.3 Quota allocations

- Substantial quota exchange occurs between countries.

3.4 Conclusions

- Unaccounted mortality due to slipping and other sources of discarding is considered to be a significant phenomenon in pelagic fisheries and the estimates obtained from the STECF database are likely to be a gross underestimation of the true catch.
- The available data are very sparse and the majority (>66%) are derived through “fill-in” procedures resulting in estimates that are highly uncertain.
- Lack of by-catch data may undermine the information base for *de minimis* exemptions for example.

4 References

Borges, L., van Keeken, O. A., van Helmond, A. T. M., Couperus, B., and Dickey-Collas, M. 2008. What do pelagic freezer-trawlers discard? – ICES Journal of Marine Science, 65: 605–611.

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STECF, 2013a. Scientific, Technical and Economic Committee for Fisheries (STECF) – Evaluation of Fishing Effort Regimes in European Waters - Part 2 (STECF-13-13). 2013.

STECF, 2013b. Landing obligation in EU fisheries, Varese, 9-13 September 2013 (EWG 13-16).

STECF, 2013d. Landing obligation in EU fisheries, part 2, Dublin, 26-28 November 2013 (EWG 13-17).

VI																					
SPEC_NAME	2010 Land.	2010 Dis.	2010 Catch	2010 %DR	%DQ	2011 Land.	2011 Dis.	2011 Catch	2011 %DR	%DQ	2012 Land.	2012 Dis.	2012 Catch	2012 %DR	%DQ	Avg Land.	Avg Dis.	Avg Catch	Avg %DR	AVG %DQ	
Blue whiting	40723	260	40983	1%	33%	8758	3139	11897	26%	5%	28593	1049	29642	4%	54%	26025	1482	27507	5%	18%	
Boarfishes	1365		1365	0%	N/A	26		26	0%	N/A	130		130	0%	N/A	507	0	507	0%	N/A	
Herring	29444	68	29512	0%	31%	23782	191	23973	1%	18%	25323	64	25387	0%	24%	26183	108	26291	0%	22%	
Horse mackerels	23547	904	24452	4%	1%	40006	247	40253	1%	24%	45178	110	45288	0%	28%	36244	420	36664	1%	8%	
Mackerel	107318	825	108144	1%	8%	159088	15703	174791	9%	8%	119779	4292	124071	3%	10%	128728	6940	135668	5%	9%	
Greater Silver Smelt	5822		5822	0%	N/A	1485		1485	0%	N/A	2318	18	2336	1%	N/A	3208	6	3214	0%	N/A	
Sprat	869	0	869	0%	N/A	1223	0	1223	0%	N/A	1797		1797	0%	N/A	1296	0	1296	0%	N/A	
Grand Total	209089	2057	211146	1%	9%	234367	19280	253648	8%	8%	223119	5531	228651	2%	16%	222192	8956	231148	4%	10%	

VII																					
SPEC_NAME	2010 Land.	2010 Dis.	2010 Catch	2010 %DR	%DQ	2011 Land.	2011 Dis.	2011 Catch	2011 %DR	%DQ	2012 Land.	2012 Dis.	2012 Catch	2012 %DR	%DQ	Avg Land.	Avg Dis.	Avg Catch	Avg %DR	AVG %DQ	
Blue whiting	34614	2641	37255	7%	1%	2930	0	2930	0%	N/A	21630	39	21668	0%	49%	19725	893	20618	4%	2%	
Boarfishes	136586	0	136586	0%	N/A	28073	0	28073	0%	N/A	77153	0	77153	0%	N/A	80604	0	80604	0%	N/A	
Herring	33059	35	33094	0%	32%	36159	6735	42894	16%	2%	61316	1759	63075	3%	44%	43511	2843	46354	6%	11%	
Horse mackerels	141415	107	141522	0%	7%	116751	492	117243	0%	22%	126566	549	127115	0%	58%	128244	382	128626	0%	38%	
Mackerel	86112	34040	120152	28%	2%	45637	9182	54820	17%	5%	57361	9736	67097	15%	32%	63037	17653	80690	22%	8%	
Greater Silver Smelt	11	0	11	0%	N/A	0	0	0	0%	N/A	0	0	0	0%	N/A	4	0	4	0%	N/A	
Sprat	7147		7147	0%	N/A	5996		5996	0%	N/A	12060	0	12060	0%	N/A	8401	0	8401	0%	N/A	
Grand Total	438944	36823	475767	8%	2%	235545	16410	251955	7%	4%	356086	12083	368169	3%	35%	343525	21772	365297	6%	8%	

VI and VII																					
SPEC_NAME	2010 Land.	2010 Dis.	2010 Catch	2010 %DR	%DQ	2011 Land.	2011 Dis.	2011 Catch	2011 %DR	%DQ	2012 Land.	2012 Dis.	2012 Catch	2012 %DR	%DQ	Avg Land.	Avg Dis.	Avg Catch	Avg %DR	AVG %DQ	
Blue whiting	75338	2900	78238	4%	1%	11688	3139	14827	21%	5%	50223	1087	51310	2%	53%	45750	2376	48125	5%	12%	
Boarfishes	137951	0	137951	0%	N/A	28099	0	28099	0%	N/A	77283	0	77283	0%	N/A	81111	0	81111	0%	N/A	
Herring	62503	103	62607	0%	31%	59940	6926	66867	10%	2%	86639	1823	88462	2%	43%	69694	2951	72645	4%	11%	
Horse mackerels	164962	1011	165973	1%	1%	156757	739	157496	0%	23%	171744	659	172403	0%	53%	164488	803	165291	0%	22%	
Mackerel	193430	34866	228296	15%	2%	204725	24886	229610	11%	7%	177140	14027	191168	7%	23%	191765	24593	216358	11%	8%	
Greater Silver Smelt	5832	0	5832	0%	N/A	1485	0	1485	0%	N/A	2318	18	2336	1%	N/A	3212	6	3218	0%	N/A	
Sprat	8016	0	8016	0%	N/A	7219	0	7219	0%	N/A	13857	0	13857	0%	N/A	9697	0	9697	0%	N/A	
Grand Total	648033	38880	686914	6%	2%	469913	35690	505603	7%	6%	579205	17614	596819	3%	28%	565717	30728	596445	5%	9%	

Tables 3.1 – 3.3 – Estimates of discards and landings for small pelagic species in ICES Division VI (upper panel); VII (middle table) and VI and VII combined (lower table). Note that the %DR, discard ratio (discard/catch) is the percentage of total amount of catch discarded by species. %DQ is an indicator of the quality of the DR estimate and indicates the proportion of the discard estimate derived from actual data rather than ‘fill-ins’ using data borrowed from another fleet or MS. The colour coding refers to larger than 66% (green); between 33% and 66% (orange) and below 33% (red).

VI and VII																					
SPEC_NAME	2010 Land.	2010 Dis.	2010 Catch	2010 %DR	%DQ	011 Land.	2011 Dis.	2011 Catch	2011 %DR	%DQ	2012 Land.	2012 Dis.	2012 Catch	2012 %DR	%DQ	Avg Land.	Avg Dis.	Avg Catch	Avg %DR	AVG %DQ	
Albacore	1112	2	1114	0.1%	25%	5626	106	5731	1.8%	31%	6174	0	6174	0.0%	N/A	4304	36	4340	0.8%	31%	
Swordfish	6		6	0.0%	N/A	7		7	0.0%	N/A	16	0	16	0.0%	N/A	10	0	10	0.0%	N/A	
Bluefin tuna	5		5	0.0%	N/A	8		8	0.0%	N/A	11	0	11	0.0%	N/A	8	0	8	0.0%	N/A	
Bigeye tuna	0		0	0.0%	N/A	2		2	0.0%	N/A	0	0	0	0.0%	N/A	1	0	1	0.0%	N/A	
Grand Total	1124	2	1125	0.1%	25%	5642	106	5748	1.8%	31%	6201	0	6201	0.0%	N/A	4322	36	4358	0.8%	31%	

Table 3.4. Estimates of discards and landings for large pelagic species in ICES Division VI and VII. Note that the %DR, discard ratio (discard/catch) is the percentage of total amount of catch discarded by species. %DQ is an indicator of the quality of the DR estimate and indicates the proportion of the discard estimate derived from actual data rather than 'fill-ins' using data borrowed from another fleet or MS. The colour coding refers to larger than 66% (green); between 33% and 66% (orange) and below 33% (red).

SPECIES	SPEC_NAME	COUNTRY	2010 Landings	2010 Discards	2010 %DR	2011 Landings	2011 Discards	2011 %DR	2012 Landings	2012 Discards	2012 %DR	Avg 2010-2012 Landings
MAC	Mackerel	SCO	90,488	1,947	2%	91,054	8,989	9%	77,057	3,489	4%	86,200
		IRL	43,081	441	1%	46,060	5,445	11%	42,268	2,413	5%	43,803
		NLD	21,304	827	4%	18,335	3,514	16%	19,757	3,724	16%	19,799
		FRA	7,030	30,196	81%	9,744	2,241	19%	8,977	3,002	25%	8,583
		DEU	15,509	368	2%	17,451	2,399	12%	13,091	506	4%	15,351
		ENG	12,391	1,057	8%	9,946	1,380	12%	7,478	602	7%	9,938
		NIR	3,578	30	1%	9,220	626	6%	8,504	291	3%	7,101
		DNK	48	0	0%	2,888	290	9%	7	0	1%	981
LTU			0%	23	0	0%			0%	8		
JAX	Horse mackerels	NLD	76,123	55	0%	69,585	397	1%	77,702	348	0%	74,470
		IRL	44,714	842	2%	37,215	164	0%	44,643	103	0%	42,191
		DEU	21,176	61	0%	24,419	122	0%	21,897	123	1%	22,498
		ENG	14,481	19	0%	13,372	35	0%	13,044	52	0%	13,632
		DNK	5,247	5	0%	5,977	6	0%	4,472	7	0%	5,232
		FRA	1,351	0	0%	1,648	6	0%	5,895	17	0%	2,965
		SCO	1,815	29	2%	833	0	0%	1,335	3	0%	1,328
		NIR	53	0	0%	3,035	8	0%	899	2	0%	1,329
		LTU			0%	671	0	0%	1,838	4	0%	836
BEL			0%			0%	16	0	0%	5		
BOR	Boarfishes	IRL	89,748		0%	20,320		0%	55,856		0%	55,308
		DNK	38,789		0%	7,779		0%	18,288		0%	21,619
		SCO	9,414		0%			0%	3,139		0%	4,184
HER	Herring	IRL	18,471	0	0%	18,488	0	0%	23,436	509	2%	20,132
		NLD	14,232	53	0%	12,194	129	1%	21,083	833	4%	15,836
		DEU	9,033	35	0%	8,372	83	1%	9,411	8	0%	8,939
		SCO	6,400	0	0%	7,642	80	1%	8,370	32	0%	7,471
		ENG	5,167	13	0%	5,107	5,639	52%	6,312	131	2%	5,529
		NIR	7,292	0	0%	6,330	14	0%	7,307	21	0%	6,977
		FRA	1,907	3	0%	1,808	982	35%	10,395	279	3%	4,703
DNK			0%			0%	325	10	3%	108		
WHB	Blue whiting	NLD	43,381	1,813	4%	4,542	160	3%	25,904	581	2%	24,609
		IRL	8,324	397	5%	1,195	370	24%	7,557	8	0%	5,692
		DEU	9,078	535	6%	235		0%	6,201	490	7%	5,171
		FRA	7,842	112	1%	4,338	1,973	31%	1,394	1	0%	4,524
		SCO	4,239	30	1%	1,331	618	32%	6,301	6	0%	3,957
		ENG	2,475	13	1%	16		0%	1,590	1	0%	1,360
		NIR			0%	4	2	37%	1,277	1	0%	427
DNK			0%	29	17	37%			0%	10		
SPR	Sprat	IRL	3,103	0	0%	3,318	0	0%	7,695	0	0%	4,705
		ENG	4,375		0%	3,107		0%	4,458	0	0%	3,980
		SCO	537		0%	507	0	0%	1,689		0%	911
		NIR			0%	248	0	0%			0%	83
		NLD			0%	38		0%	8		0%	15
ARU	Greater argentine	NLD	5,810		0%	1,483		0%	1,743	13	1%	3,012
		DEU			0%			0%	571	5	1%	190
		SCO	20		0%	2		0%	5		0%	9
BOC	Boarfish	SCO			0%	2,813		0%			0%	938
Grand Total			648,029	38,880	6%	472,719	35,689	7%	579,194	17,614	3%	566,647

Table 3.5 Breakdown of catch of small pelagics by MS for ICES Division VI and VII

SPECIES	SPEC_NAME	COUNTRY	Data												
			2010 Landings	2010 Discards	2010 %DR	2011 Landings	2011 Discards	2011 %DR	2012 Landings	2012 Discards	2012 %DR	Avg 2010-2012 Landings	Avg 2010-2012 Discards	Avg 2010-2012 Catch	Avg 2010-2012 %DR
ALB	Albacore	IRL	693	1	0%	3,591	71	2%	3,362		0%	2,549	24	2,573	1%
		FRA	366	0	0%	2,010	35	2%	1,244		0%	1,207	12	1,218	1%
		ESP			0%			0%	1,538		0%	513	0	513	0%
		SCO	50		0%	24		0%	29		0%	35	0	35	0%
		ENG	3		0%	1		0%			0%	1	0	1	0%
NIR			0%			0%			0%	0	0	0	0%		
SWO	Swordfish	FRA	5		0%	5		0%	10		0%	7	0	7	0%
		IRL	1		0%	2		0%	6		0%	3	0	3	0%
		SCO	0		0%			0%	0		0%	0	0	0	0%
		ENG			0%			0%			0%	0	0	0	0%
BFT	Bluefin tuna	IRL	2		0%	4		0%	11		0%	6	0	6	0%
		FRA	4		0%	3		0%	0		0%	2	0	2	0%
		SCO			0%			0%			0%	0	0	0	0%
ENG			0%			0%			0%	0	0	0	0%		
BET	Bigeye tuna	FRA	0		0%	2		0%	0		0%	1	0	1	0%
		IRL			0%			0%			0%	0	0	0	0%
Grand Total			1,124	2	0%	5,642	106	2%	6,201		0%	4,322	36	4,358	1%

Table 3.6 Breakdown of catch of large pelagics by MS for ICES Division VI and VII

VI															
REG_GEAR	SPECIES	SPEC_NAME	2010 Landings	2010 Discards	2010 %DR	2011 Landings	2011 Discards	2011 %DR	2012 Landings	2012 Discards	2012 %DR	Avg 2010-2012 Landings	Avg 2010-2012 Discards	Avg 2010-2012 Catch	Avg 2010-2012 %DR
PELAGIC TRAWLS	MAC	Mackerel	106,766	825	1%	153,483	15,703	9%	119,518	4,292	3%	126,589	6,940	133,529	5%
	JAX	Horse mackerels	23,542	904	4%	38,800	247	1%	44,663	110	0%	35,668	420	36,089	1%
	WHB	Blue whiting	40,723	260	1%	8,758	3,139	26%	28,045	1,049	4%	25,842	1,482	27,324	5%
	HER	Herring	28,363	68	0%	22,962	191	1%	25,314	64	0%	25,546	108	25,654	0%
	ARU	Greater argentine	5,802		0%	1,483		0%	2,314	18	1%	3,200	6	3,205	0%
BOTTOM TRAWLS	MAC	Mackerel	545	0	0%	5,579	0	0%	254	0	0%	2,126	0	2,126	0%
	HER	Herring	1,001	0	0%	819	0	0%	1		0%	607	0	607	0%
	JAX	Horse mackerels	5	0	0%	1,206	0	0%	78	0	0%	430	0	430	0%
	WHB	Blue whiting			0%			0%	549		0%	183	0	183	0%
	SPR	Sprat	11	0	0%	33	0	0%	127		0%	57	0	57	0%
none	JAX	Horse mackerels			0%			0%	438		0%	146	0	146	0%
	HER	Herring	4		0%			0%			0%	1	0	1	0%
	MAC	Mackerel	0		0%			0%			0%	0	0	0	0%
LONGLINE	HER	Herring	60		0%			0%	9		0%	23	0	23	0%
	MAC	Mackerel	6		0%	24		0%	8		0%	12	0	12	0%
GILL	HER	Herring	16		0%			0%			0%	5	0	5	0%
	SPR	Sprat			0%			0%			0%	0	0	0	0%
	MAC	Mackerel			0%			0%			0%	0	0	0	0%
POTS	MAC	Mackerel	1		0%	2		0%	0		0%	1	0	1	0%
	SPR	Sprat			0%			0%	0		0%	0	0	0	0%
	HER	Herring			0%			0%			0%	0	0	0	0%
TRAMMEL	MAC	Mackerel			0%			0%			0%	0	0	0	0%
	JAX	Horse mackerels			0%			0%			0%	0	0	0	0%
Grand Total			206,846	2,057	1%	233,150	19,280	8%	221,315	5,531	2%	220,437	8,956	229,393	4%

VII															
REG_GEAR	SPECIES	SPEC_NAME	2010 Landings	2010 Discards	2010 %DR	2011 Landings	2011 Discards	2011 %DR	2012 Landings	2012 Discards	2012 %DR	Avg 2010-2012 Landings	Avg 2010-2012 Discards	Avg 2010-2012 Catch	Avg 2010-2012 %DR
PELAGIC TRAWLS	JAX	Horse mackerels	140,837	107	0%	116,181	390	0%	122,990	549	0%	126,669	349	127,018	0%
	BOR	Boarfishes	127,367		0%	27,160		0%	73,398		0%	75,975	0	75,975	0%
	MAC	Mackerel	81,460	32,807	29%	38,984	8,221	17%	49,106	9,485	16%	56,517	16,837	73,354	23%
	HER	Herring	31,571	35	0%	33,000	148	0%	60,402	1,738	3%	41,657	640	42,298	2%
	WHB	Blue whiting	32,367	2,641	8%	2,930		0%	20,157	39	0%	18,485	893	19,378	5%
BOTTOM TRAWLS	MAC	Mackerel	4,488	1,233	22%	6,527	933	13%	8,114	251	3%	6,377	806	7,182	11%
	BOR	Boarfishes	9,219		0%	515		0%	3,467		0%	4,400	0	4,400	0%
	HER	Herring	1,477	0	0%	3,130	6,588	68%	802	21	3%	1,803	2,203	4,006	55%
	JAX	Horse mackerels	564	0	0%	569	102	15%	3,160	0	0%	1,431	34	1,465	2%
	WHB	Blue whiting	2,247		0%	0		0%	1,472		0%	1,240	0	1,240	0%
none	BOR	Boarfishes			0%	397		0%	288		0%	228	0	228	0%
	JAX	Horse mackerels			0%			0%	401		0%	134	0	134	0%
	SPR	Sprat			0%			0%	1		0%	0	0	0	0%
	MAC	Mackerel			0%	0		0%			0%	0	0	0	0%
	HER	Herring	0		0%			0%			0%	0	0	0	0%
LONGLINE	MAC	Mackerel	131		0%	89		0%	74		0%	98	0	98	0%
	SPR	Sprat	0		0%	0		0%	0		0%	0	0	0	0%
	HER	Herring	0		0%	0		0%	0		0%	0	0	0	0%
GILL	JAX	Horse mackerels	0		0%	0		0%	0		0%	0	0	0	0%
	HER	Herring	6	0	0%	20		0%	108		0%	45	0	45	0%
	JAX	Horse mackerels	14		0%	0		0%	15		0%	10	0	10	0%
	MAC	Mackerel	5	0	0%	9	0	0%	8	0	1%	7	0	7	0%
	SPR	Sprat	6		0%	1		0%	14		0%	7	0	7	0%
	WHB	Blue whiting			0%			0%			0%	0	0	0	0%
DREDGE	ARU	Greater argentine			0%			0%			0%	0	0	0	0%
	MAC	Mackerel	6		0%	7		0%	45		0%	19	0	19	0%
	SPR	Sprat			0%	24		0%			0%	8	0	8	0%
	HER	Herring			0%	2		0%	0		0%	1	0	1	0%
	JAX	Horse mackerels	0		0%	0		0%			0%	0	0	0	0%
TRAMMEL	MAC	Mackerel	9		0%	15	29	65%	6		0%	10	10	20	49%
	HER	Herring	4		0%	6		0%	2		0%	4	0	4	0%
	WHB	Blue whiting	0		0%	0		0%	0		0%	0	0	0	0%
	BOR	Boarfishes			0%			0%	0		0%	0	0	0	0%
	JAX	Horse mackerels			0%			0%			0%	0	0	0	0%
BEAM	SPR	Sprat			0%	19		0%	30		0%	16	0	16	0%
	MAC	Mackerel	5		0%	4		0%	3		0%	4	0	4	0%
	JAX	Horse mackerels			0%	1		0%	1		0%	1	0	1	0%
	HER	Herring	0		0%	1		0%			0%	0	0	0	0%
	WHB	Blue whiting			0%			0%	0		0%	0	0	0	0%
POTS	MAC	Mackerel	8		0%	2		0%	6		0%	5	0	5	0%
	HER	Herring	1		0%	0		0%	0		0%	0	0	0	0%
	WHB	Blue whiting	1		0%			0%			0%	0	0	0	0%
	JAX	Horse mackerels			0%			0%	0		0%	0	0	0	0%
	SPR	Sprat			0%	0		0%			0%	0	0	0	0%
Grand Total			431,792	36,823	8%	229,593	16,410	7%	344,070	12,082	3%	335,152	21,772	356,924	6%

VI and VII															
REG_GEAR	SPECIES	SPEC_NAME	2010 Landings	2010 Discards	2010 %DR	2011 Landings	2011 Discards	2011 %DR	2012 Landings	2012 Discards	2012 %DR	Avg 2010-2012 Landings	Avg 2010-2012 Discards	Avg 2010-2012 Catch	Avg 2010-2012 %DR
PELAGIC TRAWLS	MAC	Mackerel	188,227	33,632	15%	192,466	23,924	11%	168,624	13,777	8%	183,106	23,778	206,883	11%
	JAX	Horse mackerels	164,379	1,011	1%	154,981	637	0%	167,652	659	0%	162,337	769	163,106	0%
	BOR	Boarfishes	128,733		0%	27,183		0%	73,528		0%	76,481	0	76,481	0%
	HER	Herring	59,934	103	0%	55,962	339	1%	85,716	1,802	2%	67,204	748	67,952	1%
	WHB	Blue whiting	73,090	2,900	4%	11,688	3,139	21%	48,202	1,087	2%	44,327	2,376	46,702	5%
BOTTOM TRAWLS	MAC	Mackerel	5,033	1,233	20%	12,107	933	7%	8,368	251	3%	8,503	806	9,308	9%
	HER	Herring	2,478	0	0%	3,949	6,588	63%	803	21	3%	2,410	2,203	4,613	48%
	BOR	Boarfishes	9,219		0%	519		0%	3,467		0%	4,402	0	4,402	0%
	JAX	Horse mackerels	569	0	0%	1,775	102	5%	3,237	0	0%	1,860	34	1,894	2%
	WHB	Blue whiting	2,247		0%	0		0%	2,021		0%	1,423	0	1,423	0%
none	JAX	Horse mackerels			0%			0%	839		0%	280	0	280	0%
	BOR	Boarfishes			0%	397		0%	288		0%	228	0	228	0%
	HER	Herring	4		0%			0%			0%	1	0	1	0%
	SPR	Sprat			0%			0%	1		0%	0	0	0	0%
	MAC	Mackerel	0		0%	0		0%	0		0%	0	0	0	0%
LONGLINE	MAC	Mackerel	137		0%	113		0%	81		0%	111	0	111	0%
	HER	Herring	60		0%	0		0%	9		0%	23	0	23	0%
	SPR	Sprat	0		0%	0		0%	0		0%	0	0	0	0%
	JAX	Horse mackerels	0		0%	0		0%	0		0%	0	0	0	0%
GILL	HER	Herring	22	0	0%	20		0%	108		0%	50	0	50	0%
	JAX	Horse mackerels	14		0%	0		0%	15		0%	10	0	10	0%
	MAC	Mackerel	5	0	0%	9	0	0%	8	0	1%	7	0	7	0%
	SPR	Sprat	6		0%	1		0%	14		0%	7	0	7	0%
	WHB	Blue whiting			0%			0%			0%	0	0	0	0%
	ARU	Greater argentine			0%			0%			0%	0	0	0	0%
DREDGE	MAC	Mackerel	6		0%	7		0%	45		0%	19	0	19	0%
	SPR	Sprat			0%	24		0%			0%	8	0	8	0%
	HER	Herring			0%	2		0%	0		0%	1	0	1	0%
	JAX	Horse mackerels	0		0%	0		0%			0%	0	0	0	0%
TRAMMEL	MAC	Mackerel	9		0%	15	29	65%	6		0%	10	10	20	49%
	HER	Herring	4		0%	6		0%	2		0%	4	0	4	0%
	WHB	Blue whiting	0		0%	0		0%	0		0%	0	0	0	0%
	BOR	Boarfishes			0%			0%	0		0%	0	0	0	0%
	JAX	Horse mackerels			0%			0%			0%	0	0	0	0%
BEAM	SPR	Sprat			0%	19		0%	30		0%	16	0	16	0%
	MAC	Mackerel	5		0%	4		0%	3		0%	4	0	4	0%
	JAX	Horse mackerels			0%	1		0%	1		0%	1	0	1	0%
	HER	Herring	0		0%	1		0%			0%	0	0	0	0%
	WHB	Blue whiting			0%			0%	0		0%	0	0	0	0%
POTS	MAC	Mackerel	9		0%	4		0%	6		0%	6	0	6	0%
	HER	Herring	1		0%	0		0%	0		0%	0	0	0	0%
	WHB	Blue whiting	1		0%			0%			0%	0	0	0	0%
	SPR	Sprat			0%	0		0%	0		0%	0	0	0	0%
	JAX	Horse mackerels			0%			0%	0		0%	0	0	0	0%
Grand Total			634,191	38,880	6%	461,254	35,690	7%	563,075	17,596	3%	552,840	30,722	583,562	5%

Tables 3.7 – 3.9 – Estimates of discards and landings for small pelagic species by gear type in ICES Division VI (upper panel); VII (middle table) and VI and VII combined (lower table).

REG_GEAR	SPECIES	SPEC_NAME	2010 Landings	2010 Discards	2010 %DR	2011 Landings	2011 Discards	2011 %DR	2012 Landings	2012 Discards	2012 %DR	Avg 2010-2012 Landings	Avg 2010-2012 Discards	Avg 2010-2012 Catch	Avg 2010-2012 %DR
PELAGIC TRAWLS	ALB	Albacore	989	2	0%	5,460	106	2%	4,399		0%	3,616	36	3,652	1%
	SWO	Swordfish	6		0%	7		0%	15		0%	9	0	9	0%
	BFT	Bluefin tuna	5		0%	8		0%	10		0%	8	0	8	0%
	BET	Bigeye tuna			0%	2		0%			0%	1	0	1	0%
LONGLINE	ALB	Albacore	62		0%	33		0%	1,588		0%	561	0	561	0%
	SWO	Swordfish			0%	0		0%	0		0%	0	0	0	0%
BOTTOM TRAWLS	ALB	Albacore	62		0%	106		0%	140		0%	102	0	102	0%
	SWO	Swordfish	0		0%	0		0%	1		0%	0	0	0	0%
	BFT	Bluefin tuna	0		0%	0		0%	0		0%	0	0	0	0%
	BET	Bigeye tuna	0		0%	0		0%	0		0%	0	0	0	0%
none	ALB	Albacore			0%			0%	29		0%	10	0	10	0%
TRAMMEL	ALB	Albacore	0		0%	26		0%			0%	9	0	9	0%
	BFT	Bluefin tuna			0%			0%			0%	0	0	0	0%
GILL	ALB	Albacore			0%			0%	19		0%	6	0	6	0%
	SWO	Swordfish	0		0%			0%			0%	0	0	0	0%
DREDGE	BET	Bigeye tuna			0%			0%	0		0%	0	0	0	0%
Grand Total			1,124	2	0%	5,642	106	2%	6,201		0%	4,322	36	4,358	1%

Tables 3.10 – Estimates of discards and landings for large pelagic species by gear type in ICES Divisions VI and VII.

Table 3.11 TAC allocations by species and member states. Note that at the time of writing, it was not possible to obtain end of year quota allocations associated with between MS swaps.

Species	TAC Area	Country	Initial 2010	Final 2010	% Change 2010	Initial 2011	Final 2011	% Change 2011	Initial 2012	Final 2012	% Change 2012	
Herring	IVc, VIId	BE	7100			7100			8774			
		DK	321			395			882			
		DE	202			248			573			
		FR	5235			6447			10871			
		NL	8193			10092			19261			
		UK	1830			2254			4189			
Herring	By-Catches in Areas IIa, IV and VIId	BE	67			82			89			
		DK	13008			15833			17134			
		DE	67			82			89			
		FR	67			82			89			
		NL	67			82			89			
		SE	64			77			84			
		UK	247			301			326			
	Vb, VIaN, VIb	DE	2656			2432			2486			
		IE	3589			3286			3360			
		FR	503			460			470			
		NL	2656			2432			2486			
		UK	14356			13145			13438			
		NR	660			726			660			
	VIaS, VIIbc	IE	6774			4065			3861			
		NL	677			406			386			
	VI Clyde	UK	720									
	VIIa	IE	1250			1374			1237			
		UK	3550			3906			3515			
	VIIef	FR	500			490			490			
		UK	500			490			490			
	VIIghjk	DE	113			147			234			
		IE	8770			11407			18236			
		FR	627			815			1302			
		NL	627			815			1302			
		UK	13			16			26			
	Herring Sum			85009			89487			116429		

Horse mackerel	IIa, IVa, VI, VIIa-c, VIIe-k, VIIIa bde, Vb, XII, XIV	BE										
		DK	15691			15562			15502			
		DE	12243			12142			12096			
		IE	40775			40439			40284			
		ES	16699			16562			16498			
		FR	6301			6250			6226			
		NL	49123			48719			48352			
		PT	1609			1595			1589			
		SE	675			675			675			
		UK	14765			14643			14587			
		FOR	2000			2200						
		NR							2000			
		IVbc, VIId	BE	48			47					
			DK	20875			20447			15502		
			DE	1843			1805			12096		
			IE	1313			1286			40284		
			ES	388			380			16498		
			FR	1732			1696			6226		
			NL	12568			12310			48532		
PT	44				43			1589				
SE	75				75			675				
UK	4968				4866			14587				
NR	3600							2000				
Horse Mackerel Sum		207335	0	0	201742	0	0	315798	0	0		
Mackerel	IIa, Vb, VI, VII, VIIIab de, XII, XIV	BE										
		DK										
		DE	18793			16459			16487			
		IE	62641			54861			137			
		EE	156			137			54956			
		ES	20			20			18			
		FR	12530			10974			10993			
		LV	115			101			101			
		LT	115			101			101			
		NL	27405			24002			24043			
		PL	1323			1159			1161			
		PT										
		SE										
		UK	172268			150870			151132			
NR												
Mackerel Sum		295366	0	0	258684	0	0	259129	0	0		

Blue whiting	I,II,III,IV,V,V,VI,VII,VIII,abde,XI,XIV	DK	10128			1533			9683		
		DE	3938			596			3765		
		IE	7843			1187			7498		
		ES	8586			1300			8209		
		FR	7048			1067			6738		
		NL	12350			1869			11807		
		PT	798			121			763		
		SE	2505			379			2395		
		UK	13141			1990			12563		
		NR							4500		
Blue Whiting Sum			66337	0	0	10042	0	0	67921	0	0
Boarfish	VI, VII, VIII	DK				7900			20123		
		IE				22227			56666		
		UK				1223			5211		
Boarfish Sum			0	0	0	31350	0	0	82000	0	0
Greater Silver Smelt	V, VI, VII	DE	389			357			329		
		FR	8			8			7		
		IE	360			331			305		
		NL	4057			3733			3434		
		UK	285			262			241		
Greater Silver Smelt Sum			5099	0	0	4691	0	0	4316	0	0
Sprat	VIIe and VIII	BE	27			26			26		
		DK	1762			1674			1674		
		DE	27			26			26		
		FR	379			361			361		
		NL	379			361			361		
		UK	2847			2702			2702		
Sum Sprat			5421			5150			5150		