ECOREGION North Sea
STOCK Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners)

Advice for 2015

ICES advises on the basis of the agreed 2008 EU–Norway management plan that catches of North Sea autumn spawning herring in all areas in 2015 should be no more than 461 664 t in 2015, including 429 797 t for the A fleet. ICES advises, under precautionary considerations, that activities that have a negative impact on the spawning habitat of herring, such as extraction of marine aggregates and marine construction on the spawning grounds, should not occur.

Stock status

Fishing pressure	2011	2012	2013	
MSY (F_{MSY})	✓	✓	✓	Appropriate
Precautionary approach (F_{pa})	?	?	?	**Undefined**
Management plan (F_{MP})	✓	✓	✓	Below limit

Stock size (at spawning time in autumn)	2011	2012	2013	
MSY ($B_{trigger}$)	?	?	?	Undefined
Precautionary approach (B_{pa},B_{lim})	✓	✓	✓	Full reproductive capacity
Management plan (SSB_{MP})	✓	✓	✓	Above trigger

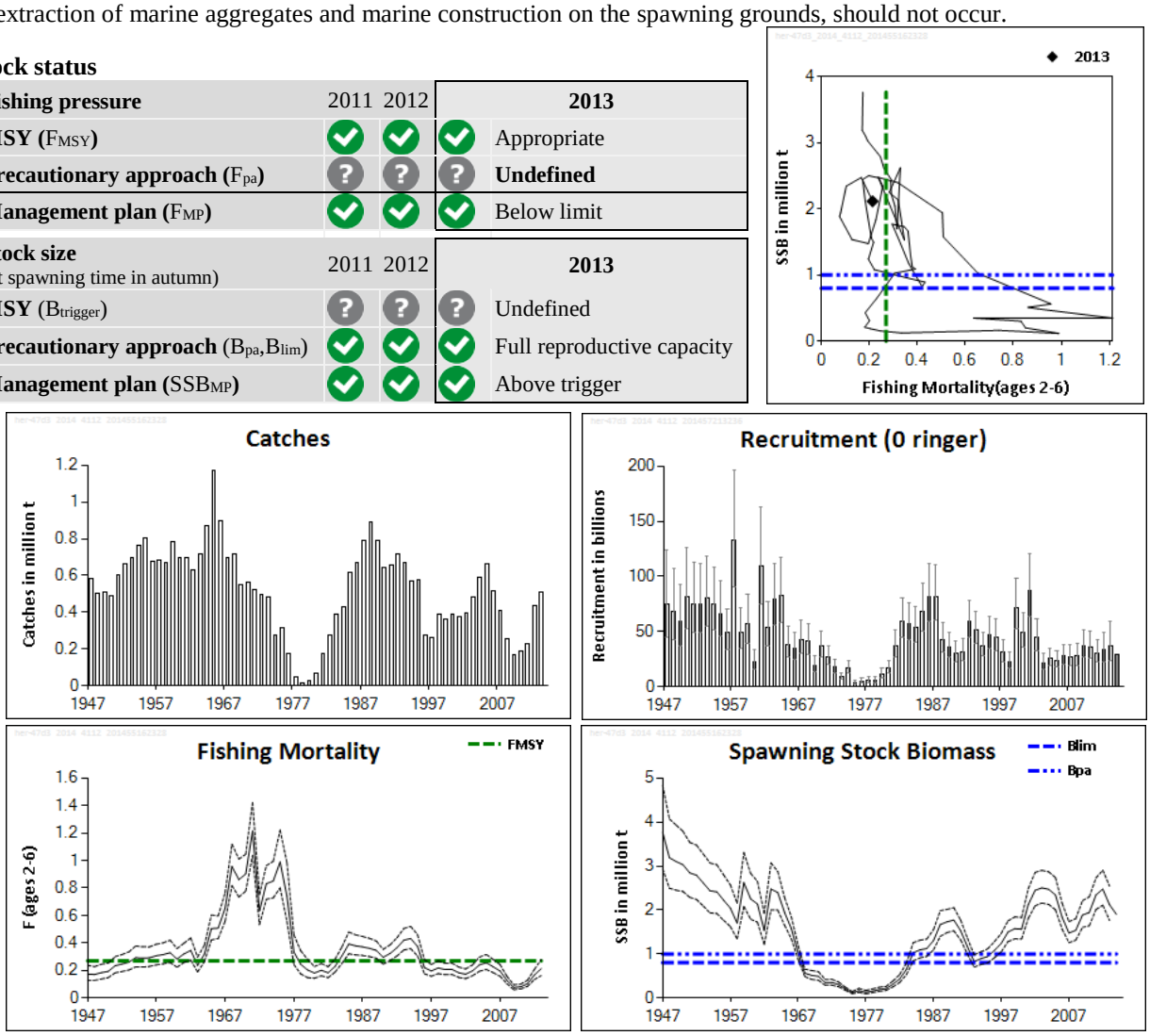

Figure 6.3.9.1 Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners). Summary of stock assessment with 95% confidence intervals, predicted recruitment value is shaded. Top right: SSB and F for the time-series used in the assessment.

Year-class strength has been consistently weak since 2002 with year classes 2002 to 2007 being among the weakest. Since 1996 the stock has fluctuated above B_{pa}; however, ICES considers that the stock is in a low productivity phase. Fishing mortality has been below F_{MSY} since 1996.

Management plans

A management plan was agreed by the EU and Norway in 2008 (Annex 6.3.9.a). ICES evaluated the 2008 plan (ICES, 2012) and concluded that it is consistent with both the precautionary and MSY approaches. A new management plan was agreed by EU–Norway in 2014 (Annex 6.3.9.b. Until ICES evaluates this management plan as precautionary, the 2008 plan will be the advice basis.

Biology

Herring is considered to have a major impact on other fish stocks as prey and predator and is itself prey for seabirds and marine mammals. Recent trends in natural mortality-at-age show that natural mortality increased from 1991 to 2005,

and decreased thereafter. Spawning and nursery areas are sensitive and vulnerable to anthropogenic influences. Gravel extraction or disturbance in the close vicinity of any herring spawning will disturb spawning and reduce the available area for successful spawning. Herring abandon and repopulate spawning grounds; absence of spawning in any particular year does not mean that the spawning ground is not required to maintain a resilient herring population.

Environmental influence on the stock
Year-class strength has been consistently weak since 2002, something that has never been observed before when SSB was above the B_{lim} (800 000 t). The poor recruitment is attributed to reduced survival during the larval stage associated with lower larval growth rates. The productivity of the stock (in terms of recruits-per-spawner and larval survival) in the last decade are the lowest on record. Environmental variability is hypothesized to underlie these changes, but a mechanistic understanding remains elusive.

The fisheries
North Sea herring is caught for human consumption and as a bycatch in industrial fisheries. In the transfer area in the eastern North Sea and Division IIIa it is caught mixed with western Baltic spring-spawning herring. The fishery is seasonal, taking place mostly in the late spring and summer in the central and northern North Sea and in the autumn and winter in the southern North Sea. There is limited knowledge about the present rate of discarding, but it is considered to be negligible.

Catch distribution	ICES landings in 2013 were 490 kt directed North Sea fisheries, fleet A; 8 kt bycatches, fleet B; 12 kt directed Division IIIa fisheries, fleet C; and 2 kt bycatch in Division IIIa fisheries, fleet D. Discards are considered to be negligible and are only quantified for part of the fishery. A major fleet, the Pelagic Freezer-trawler Association, PFA, is estimated to discard 1% of their herring landings. For the purposes of providing advice, catch is considered to be equal to landings.

Effects of the fisheries on the ecosystem
The human consumption fisheries for herring have little bycatch of other fish and cause almost no disturbance to the seabed. Evidence from observer programmes on human consumption fisheries suggests that discarding of herring is negligible. Interactions between the human consumption North Sea herring fishery with marine mammals, sharks, and seabirds are considered to be rare. Juvenile herring are caught as bycatch in industrial fisheries.

Quality considerations
Input data are considered to be of good quality. Both the spawning stock-biomass and the fishing mortality are reliably estimated by the stock assessment. The survey information on the 2013 recruiting year class is currently under investigation. The 2013 year class estimate was replaced with an average recruitment in the forecast.

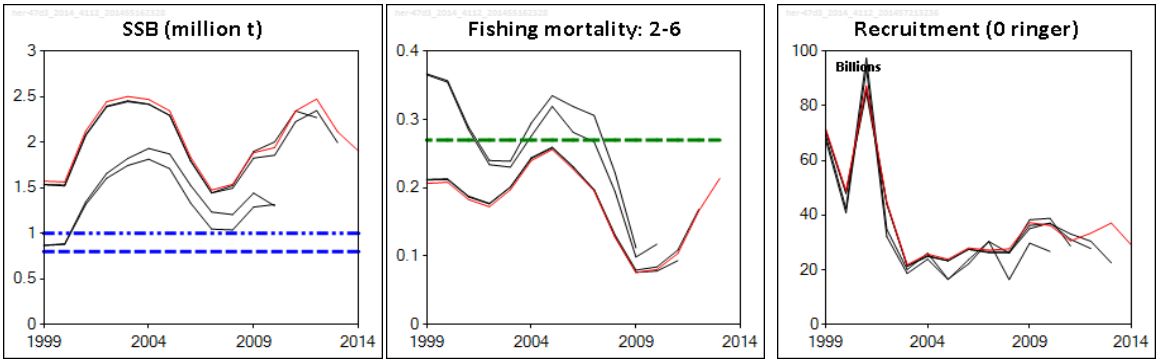

Figure 6.3.9.2 Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners). Historical assessment results (final-year recruitment estimates included). The stock was benchmarked in 2012.

Scientific basis

Stock data category	1. (ICES, 2014a)
Assessment type	Age-based analytical (SAM).
Input data	Commercial catches and four survey indices (IBTS Q1 1 ringer, IBTS0, SCAI, HERAS), annual maturity data from HERAS survey, and natural mortalities from SMS North Sea multispecies model.
Discards and bycatch	Considered to be negligible.
Indicators	None.
Other information	The last benchmark for this stock occurred in 2012.
Working group	Herring Assessment Working Group for the Area South of 62ºN (HAWG; ICES, 2014b).

ECOREGION North Sea
STOCK Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners)

Reference points

	Type	Value	Technical basis
Management plan (2008)	F_{MP}	$F_{0–1}$ = 0.05 $F_{2–6}$ = 0.25	SSB is greater than the SSB_{MP} upper trigger of 1.5 million t (based on simulations).
		$F_{0–1}$ = 0.05 $F_{2–6}$ = 0.25 – (0.15×(1500000−SSB)/700000)	SSB is between the SSB_{MP} triggers of 0.8 and 1.5 million t (based on simulations).
		$F_{0–1}$ = 0.04 $F_{2–6}$ = 0.10	SSB is less than the SSB_{MP} lower trigger of 0.8 million t (based on simulations).
MSY Approach	MSY $B_{trigger}$	Not defined.	
	F_{MSY}	0.27 [0.24–0.3]	Stochastic simulations with Beverton & Holt and Ricker stock–recruitment curve
Precautionary approach	B_{lim}	800 000 t	< 0.8 million t; poor recruitment has been experienced. Defined in 1997/2008.
	B_{pa}	1.0 million t	Based on 5% risk of falling below B_{lim} and the terminal year spawning-stock biomass CV from the SAM assessment.
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	

(Last changed in: 2013)

The current management plan is based on the pre-benchmarked perception of the stock. ICES suggested a range for F_{MSY} between 0.24 and 0.3, based on two different stock–recruitment relationship assumptions. As either stock–recruitment relationship assumption is equally likely, the point estimate of F_{MSY} (0.27) can be derived by equally weighting the 0.24 and 0.3 estimates.

Outlook for 2015

Because the current management plan (2008) only stipulates overall fishing mortalities for juveniles and adults, making fleet-wise predictions for the four fleets that are more or less independent, different options for 2015 are provided. The consequence of other combinations of catch options can be explored on request. Fleet definitions are given below the outlook table.

Catch forecasts and resulting total fishing mortality are presented below for seven different scenarios of sharing the catch amongst fleets. The seven scenarios presented are based on an interpretation of the harvest control rule as well as other options and are only illustrative of the wide ranges of possible scenarios:

1. No fishing.
2. The EU–Norway management plan (2008).
3. A roll-over TAC from 2014 to 2015 of 470 037 t for the A-fleet.
4. A 15% increase in the A-fleet TAC in 2015.
5. A 15% decrease in the A-fleet TAC in 2015.
6. MSY approach (F_{MSY}).
7. The updated and agreed EU–Norway 2014 management plan (not evaluated by ICES).

For the intermediate year, no overshoot for the A-fleet was assumed, as the catches corresponded closely to the TAC in 2013. However, an additional 21 000 t was included to account for the Division IIIa TAC transfer agreement.

For the B-fleet (small-meshed EU fleet in the North Sea) the same proportion of the uptake of the bycatch ceiling as observed in 2013 was used. For the C- and D-fleets, the same fraction of the North Sea autumn spawners (NSAS) in the catch as last year was assumed.

Basis: Intermediate year (2014) with catch constraint for fleet A, and for fleet B assuming the same proportion of the bycatch ceiling that is taken in 2013. Recruitment (2014) = GM calendar years 2003–2013 = 28.9 billion.

F fleet A	**F fleet B**	**F fleet C**	**F fleet D**	**F_{2-6}**	**F_{0-1}**	**Catches fleet A [1]**	**Catches fleet B**	**Catches fleet C**	**Catches fleet D**	**SSB 2014**
0.25	0.012	0.003	0.002	0.26	0.03	490 622	7 398	9 777	2493	1 902 874

[1] Includes a transfer of 452 t of the Norwegian quota and 45% of Division IIIa TAC from the C-fleet to the A-fleet.

Scenarios for prediction year (2015)

		F values by fleet and total						Catches by fleet				Biomass[1)]			
BASIS		FLEET A	FLEET B	FLEET C	FLEET D	F_{2-6}	F_{0-1}	FLEET A	FLEET B	FLEET C	FLEET D	**SSB 2015**	**SSB 2016[4)]**	**%SSB change [2)]**	**%TAC change fleet A [3)]**
1	No fishing	0.00	0.000	0.000	0.000	0.00	0.00	0	0	0	0	2 196 466	2 412 352	15	-100
2	2008 Management plan	0.24	0.030	0.004	0.002	0.25	0.05	429 797	16 055	12 600	3 212	1 894 298	1 750 014	0	-9
3	No change in TAC	0.27	0.030	0.004	0.002	0.28	0.05	470 037	16 055	12 600	3 212	1 866 619	1 698 867	-2	0
4	TAC increase of 15%	0.32	0.030	0.004	0.002	0.32	0.05	540 543	16 055	12 600	3 212	1 817 709	1 611 584	-4	15
5	TAC reduction of 15%	0.22	0.030	0.004	0.002	0.23	0.05	399 531	16 055	12 600	3 212	1 915 004	1 789 129	1	-15
6	F_{MSY}	0.26	0.030	0.004	0.002	0.27	0.05	460 536	16 055	12 600	3 212	1 873 170	1 710 856	-2	-2
7	2014 Management plan[5]	0.25	0.029	0.004	0.002	0.26	0.05	445 329	15 744	12 600	3 212	1 883 738	1 730 548	-1	-5

Weights in tonnes.
All numbers apply to North Sea autumn-spawning herring only.
[1)] For autumn-spawning stocks, the SSB is determined at spawning time and is influenced by fisheries between 1st January and spawning.
[2)] SSB (2015) relative to SSB (2014).
[3)] Calculated catches (2015) relative to TAC 2014 for the A-fleet.
[4)] Assuming same F in 2016 as in 2015.
[5)] For the 2014 Management plan options, the A Fleet catches are calculated to give target F_{2-6} and the B fleet catches are then calculated to give the target F_{0-1}.

Fleet definitions:

Fleet A Directed herring fisheries with purse-seiners and trawlers (32 mm minimum mesh size) in the North Sea. Bycatches in the Norwegian industrial fisheries are included.

Fleet B Herring taken as bycatch in the small-mesh fisheries in the North Sea under EU regulations (mesh size less than 32 mm).

Fleet C Directed herring fisheries in Skagerrak and Kattegat with purse-seiners and trawlers (32 mm minimum mesh size).

Fleet D Bycatches of herring caught in the small-mesh fisheries (mesh size less than 32 mm) in Skagerrak and Kattegat.

Management plan

Following the 2008 agreed management plan between EU and Norway (F = 0.25) implies a decrease in TAC of 9% resulting in a TAC of 429 797 t for the A-fleet in 2015 (Scenario 2), which would lead to an SSB of around 1.9 million t at spawning time in 2015.

The agreed 2008 management plan (Annex 6.3.9.a) between EU and Norway was evaluated (ICES, 2011a) and ICES concluded that the plan is consistent with the precautionary and MSY approaches. ICES evaluated new options of the management plan in 2012 (ICES, 2012). On this basis, the EU and Norway agreed on a new management plan in 2014. ICES has not yet evaluated the agreed 2014 management plan (see Annex 6.3.9.b).

MSY approach

As no MSY $B_{trigger}$ has been identified for this stock, the ICES MSY approach has been applied without considering SSB in relation to MSY $B_{trigger}$. Following the ICES MSY approach implies an increase in fishing mortality to 0.27, resulting in catches of less than 460 536 t in 2015 (Scenario 6). This is expected to lead to an SSB of around 1.9 million tonnes in 2015.

Precautionary approach

The SSB is expected to remain above B_{pa} in 2015. Under the revised reference points, F_{pa} is no longer considered an operational reference point for the fisheries management of the North Sea herring stock.

Additional considerations

Advice considerations

In recent years, there has been an increase in marine anthropogenic activity, especially in the area of marine renewables. Construction and development of, for example, wind farms results in disturbance to the seabed. Any activities that have a negative impact on the spawning habitat of herring, such as extraction of marine aggregates (e.g. gravel and sand) and construction in the vicinity of spawning grounds, require consideration. This is because a gravel substratum is an essential habitat for herring spawning. There is scientific information supporting the advice that no gravel extraction should occur in areas with spawning grounds (Groot, 1979, 1996). Acoustic surveys show that the distribution of herring in the months prior to the onset of spawning has a strong relationship to seabed substratum and water depth (Maravelias *et al.*, 2000). Herring abandon and repopulate spawning grounds; absence of spawning in any particular year does not mean that the spawning ground is not required to maintain a resilient herring population (Corten, 1999). In general, advice regarding use of spawning grounds will be *precautionary* and it will often be broad to ensure that all probable scenarios are covered. Information on particular herring spawning grounds (e.g. timing of spawning) will require a more detailed description, if available. More detailed and specific advice can only be obtained through additional research to obtain the necessary information.

Management considerations

ICES considers the stock to be in a low productivity phase. The survival ratio between newly hatched larvae and recruits during the most recent decade is much lower than in prior periods (Figure 6.3.9.3). Recruits-per-spawner are the lowest in the time-series (Figure 6.3.9.3). The poor recruitment is attributed to reduced survival during the larval stage associated with lower larval growth rates (Payne *et al.*, 2009, 2013). The management plan has proven an effective tool in maintaining sustainable exploitation and conserving the North Sea herring stock during this low-productivity regime. Any deviation from this plan that leads to a higher F would result in an increased risk of SSB falling below B_{lim}.

The 2008 EU–Norway agreement (Annex 6.3.9.a) called for a review of the current plan no later than December 2011. WKHELP (ICES, 2012) re-evaluated the management plan, including a set of new management plan options. On this

basis, the EU and Norway agreed on a new management plan in 2014 (Annex 6.3.9.b). ICES has not yet evaluated the agreed management plan.

Fisheries on North Sea herring and western Baltic spring-spawning herring (WBSS) are managed under mixed quotas in some areas of the North Sea, Skagerrak, and Kattegat. With the decline of the WBSS herring, conservation of this stock needs to be considered when setting TACs. With the mixing of stocks within a fishery, primary consideration should be given to protection of the stock most vulnerable to exploitation in the area of overlap. ICES recommends that the TAC setting between Subarea IV and Division IIIa be based on the status of the weaker stock, which is now the WBSS.

The options selected for the C- and D-fleets of North Sea autumn-spawning herring for 2015 are compatible with the advised exploitation of western Baltic spring spawners for the C- and D-fleets. The C and D fleet catches are set based on the predicted catch of NSAS catches by the fleets in Division IIIa.

Advice is based on catch assuming discards are negligible. Some discarding is known to occur, though estimates for all fleets are not available. In recent years some fleets have estimates of discarding; these estimates (1 - 3%) are considered by ICES to be negligible. The ICES assessment is based on a combination of landings and partial discard data, so the assessment does not represent only landings and cannot be used to give landings advice. Recent discard data (last three years) are not included.

North Sea herring components

The composition of the NSAS herring population changes over time (Figure 6.3.9.4). The most recent estimate of the Downs component has been impacted by an anomalously low larval survey observation in 2013.

The sub-TAC for Divisions IVc and VIId was established for the conservation of the spawning aggregation of Downs herring. It is probable that exploitation of Downs herring has been relatively high. In the absence of data to the contrary, ICES proposes that a share of 11% of the total North Sea TAC (average share 1989–2002) would still be appropriate for Downs herring.

Changes in the ecosystem

Temperatures on the spawning grounds have increased in the recent decades (Payne *et al.*, 2009). Substantial changes in the plankton community are known to have occurred in the North Sea in the late 1990s (Weijerman *et al.*, 2005; Alvarez-Fernandez *et al.*, 2012). The contemporary regime consists of a more diversified warmer water community (Beaugrand, 2004; Edwards *et al.*, 2007); however, the implications for herring, if any, are unclear.

Herring is considered to have a major impact on the ecosystem as prey for seabirds, marine mammals, and other fish. Young age groups of herring are primarily eaten by cod, saithe, and whiting. The contribution of saithe and cod alone makes up for nearly 90% of the predation mortality from 4-ringers onwards. It is therefore likely that predation mortality on herring changes with the abundance of saithe and cod as has been observed over the past two decades (ICES, 2011b).

Herring is an important predator for some species; a large population of herring in the North Sea may repress cod recruitment (Speirs *et al.*, 2010).

Information from the fishing industry

Information from the fishing industry shows that discarding occurs in the B fleet as the landing of herring bycatches above a certain limit by area in the industrial fisheries is not permitted. The landing obligation that will be enacted in the EU pelagic fishery may change the fleet behaviour.

Data and methods

The quality of the recruitment estimates are influenced by the IBTS0 index: in recent years, this survey index has exhibited systematic biases due to the ingression of small larvae from the Downs component which have proved difficult to exclude from the calculation of the survey index. Therefore, ICES decided to replace the 2014 index value with the geometric mean over the recent low productivity period (2002–2012).

Estimation of stock identity of herring from the transfer area in Division IVa East is still poor and ICES recommends increasing and/or redesigning sampling for determination of stock affiliation of herring catches in ICES Divisions IVa,b and IIIa. This is likely to affect the quality of the western Baltic spring-spawning herring assessment.

Quality considerations

Bycatch data from industrial fisheries are available from Denmark. Discard information (including slippage and high-grading) is monitored in the Dutch, English, French, and German fisheries. ICES is concerned about the lack of information on unallocated removals in all herring fisheries; efforts should be made to maintain observer coverage across fleets that catch a substantial proportion of pelagic fish and to report on these issues. Introduction of the EU landing obligation may change this situation.

Comparison of the basis of previous assessment and advice

The basis for the assessment has not changed from last year. The basis for the advice this year is the same as last year: the 2008 management plan.

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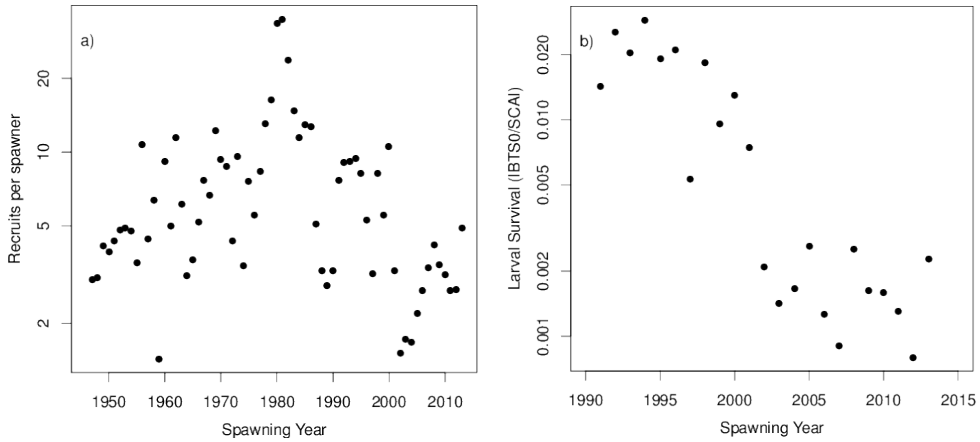

Figure 6.3.9.3 Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners). Time-series of productivity indicators for the stock. Left panel: Recruits per spawner from the assessment. Right panel: Larval survival ratio (Nash *et al.*, 2005; Payne *et al.*, 2009), defined as the ratio of the SCAI index (representing larvae less than 10–11 mm) and the IBTS0 index (representing the late larvae, of approximately 20–30 mm. Note the logarithmic scale on both vertical axes.

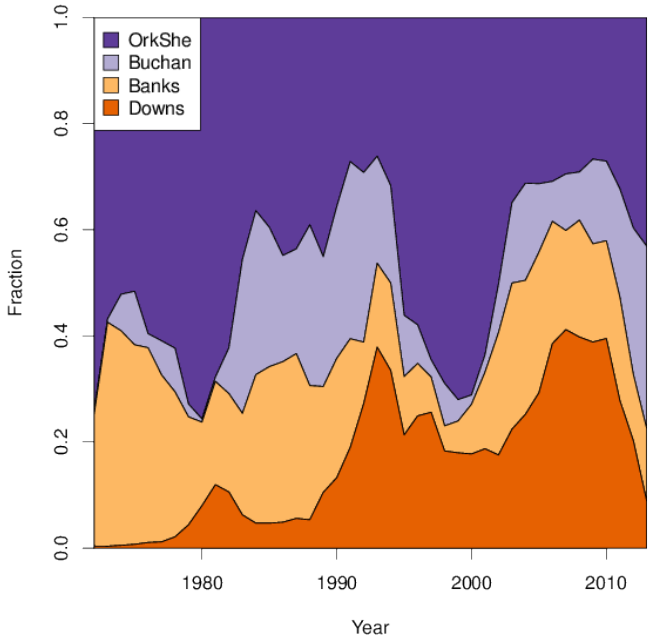

Figure 6.3.9.4 Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners). Time-series of the contribution of each spawning component to the total stock, as estimated from the SCAI index (Payne, 2010). Areas are arranged from top to bottom according to the north-to-south arrangement of the components. Dark purple: Orkney–Shetland component. Light purple: Buchan component. Light orange: Banks component. Dark orange: Downs component.

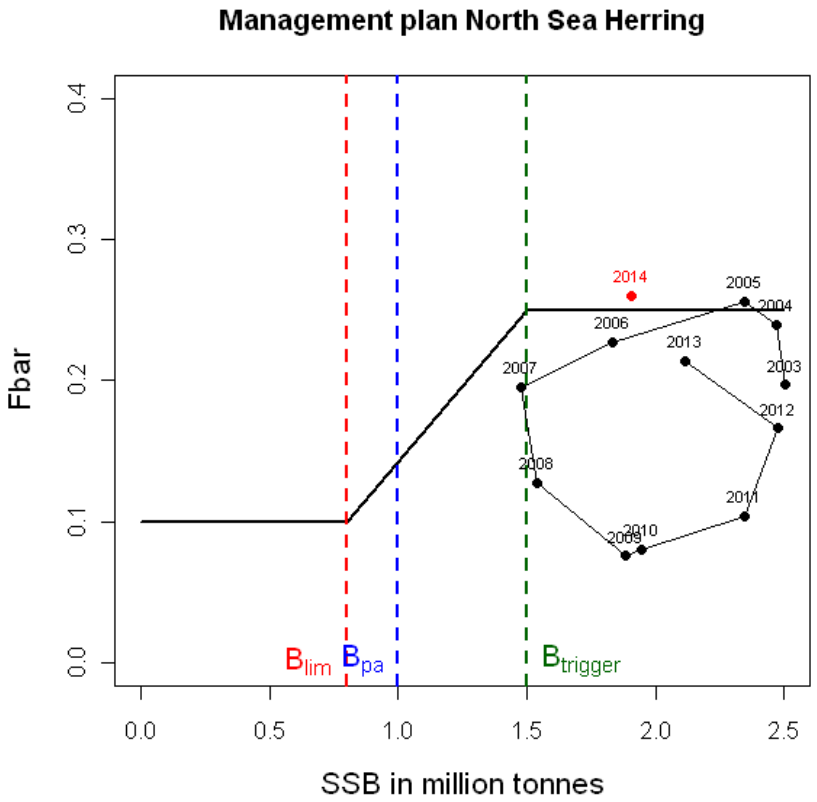

Figure 6.3.9.5 Herring in Subarea IV and Divisions IIIa and VIId (North Sea autumn spawners). The 2008 management plan for the adult fishery (A-fleet, 2- to 6-ringers) including trigger biomass points. Black dots represent realised estimated fishing mortalities from 2003 until 2013. Fishing mortality in 2014 (red dot) is estimated from the short-term prediction, based on the agreed TACS for the A-fleet.

Table 6.3.9.1 Herring caught in the North Sea (Subarea IV and Division VIId). ICES advice, management, and catches/landings.

Year	ICES Advice	Predicted catch corresp. to advice	Agreed TAC[1]	Bycatch ceiling Fleet B	ICES landings[4] IV, VIId	ICES catch[5] IV, VIId	ICES catch Autumn spawners IIIa, IV, VIId
1987	TAC	610	600		625	625	792
1988	TAC	515	530		710	710	888
1989	TAC	514	514		669	717	787
1990	TAC	403	415		523	578	646
1991	TAC	423	420		537	588	657
1992	TAC	406	430		518	572	716
1993	No increase in yield at F > 0.3	340[1]	430		495	540	671
1994	No increase in yield at F > 0.3	346[1]	440		463	498	571
1995	Long-term gains expected at lower F	429[1]	440		510	516	579
1996	50% reduction of agreed TAC[2]	156[1]	156[3]	44	207	233	275
1997	F = 0.2	159[1]	159	24	175	238	264
1998	F(adult) = 0.2, F(juv)< 0.1	254[1]	254	22	268	338	392
1999	F(adult) = 0.2, F(juv)< 0.1	265[1]	265	30	290	333	363
2000	F(adult) = 0.2, F(juv)< 0.1	265[1]	265	36	284	346	388
2001	F(adult) = 0.2, F(juv)< 0.1	See scenarios	265	36	296	323	363
2002	F(adult) = 0.2, F(juv)< 0.1	See scenarios	265	36	304	353	372
2003	F(adult) = 0.25, F(juv) = 0.12	See scenarios	400	52	414	450	480
2004	F(adult) = 0.25, F(juv) = 0.1	See scenarios	460	38	484	550	567
2005	F(adult) = 0.25, F(juv) = 0.1	See scenarios	535	50	568	639	664
2006	F(adult) = 0.25, F(juv) = 0.12	See scenarios	455	43	490	511	515
2007	Bring SSB above B_{pa} by 2008	See scenarios	341	32	361	388	407
2008	F(adult) = 0.17, F(juv) = 0.08 (MP)	See scenarios	201	19	228	245	258
2009	Adopt one of the new proposed HCRs	See scenarios	171	16	167	166	168
2010	F(adult) = 0.15, F(juv) = 0.05 (MP)	See scenarios	164	14	175	175	188
2011	See scenarios	See scenarios	200	16	218	218	226
2012	2008 Management plan	See scenarios	405	18	425	425	435
2013	2008 Management plan	See scenario	478	14	498	498	511
2014	2008 Management plan	See scenario	470	13			
2015	2008 Management plan	See scenario					

Weights in thousand tonnes.
[1] Catch in directed fishery in Subarea IV and Division VIId.
[2] Revision of advice given in 1995.
[3] Revised in June 1996, down from 263.
[4] Landings are provided by the working group and do not in all cases correspond to official statistics.
[5] ICES catch includes unallocated and misreported landings, discards, and slipping.

Table 6.3.9.2 Herring caught in the North Sea (Subarea IV and Division VIId). Catch in tonnes by country, 2004–2013. These figures do not in all cases correspond to the official statistics and cannot be used for legal purposes.

Country	**2004**	**2005**	**2006**	**2007**	**2008**
Belgium	8	6	3	1	-
Denmark [6]	99037	128380	102322	84697	62864
Faroe Islands	402	738	1785	2891	2014
France	34521	38829	49475	24909	30347
Germany	41858	46555	40414	14893	8095
Netherlands	96162	81531	76315	66393	23122
Norway [1]	137638	156802	135361	100050	59321
Poland	-	458	-	-	-
Sweden	5692	13464	10529	15448	13840
USSR/Russia	-	99	-	-	-
UK (England)	20855	25311	22198	15993	11717
UK (Scotland)	45331	73227	48428	35115	16021
UK (N.Ireland)	2656	2912	3531	638	331
Unallocated landings	48898 [5]	57788	18764	26641	17151
Total landings	533058	626101	509125	387669	244823
Discards	17059	12824	1492	93	224
Total catch	**550117**	**638925**	**510617**	**387762**	**245047**
Estimates of the parts of the catches which have been allocated to spring spawning stocks					
WBSS	7079	7039	10954	1070	124
Thames estuary [2]	62	74	65	2	7
Others [3]	-	-	-	-	-
Norw. Spring Spawners [4]	452	417	626	685	2721

Country	**2009**	**2010**	**2011**	**2012**	**2013**
Belgium	-	-	4	3	14
Denmark [6]	46238	45869	58726	105707	117367
Faroe Islands	1803	3014	-	-	-
France	18114	17745	16693	23819	30122
Germany	5368	7670	9427	24515	46922
Netherlands	24552	23872	34708	72344	80462
Norway [1]	50445	46816	60705	119253	143718
Lithuania	-	90	-	-	-
Sweden	5299	4395	8086	14092	15615
Ireland	-	-	-	-	221
UK (England)	652	10770	11468	25346	19079
UK (Scotland)	14006	14373	18564	34414	39243
UK (N.Ireland)	-	-	17	4794	5738
Unallocated landings	-726	-	-	321	-
Total landings	165751	174614	218398	424608	498501
Discards	91	13	-	-	-
Total catch	**165842**	**174627**	**218398**	**424608**	**498501**
Estimates of the parts of the catches which have been allocated to spring spawning stocks					
WBSS	3941	774	308	2095	452
Thames estuary [2]	48	85	2	63	20
Others [3]	-	-	-	-	-
Norw. Spring Spawners [4]	44560	56900	12178	9619	3150

[1] Landings of Norwegian spring spawners removed (taken under a separate TAC).

[2] Landings from the Thames estuary area are included in the North Sea catch figure for UK (England).

[3] Caught in the whole North Sea, partly included in the catch figure for The Netherlands.

[4] These landings (including some local fjord-type spring spawners) are taken by Norway under a separate quota south of 62°N and are not included in the Norwegian North Sea catch figure for this area.

[5] May include misreported catch from Division VIaN and discards.

[6] Including any bycatches in the industrial fishery.

Table 6.3.9.3 Herring caught in the North Sea. Catch in tonnes in Division IVa West. These figures do not in all cases correspond to the statistics and cannot be used for legal purposes.

Country	2004	2005	2006	2007	2008
Denmark [1]	48128	80990	60462	45948	28426
Faroe Islands	-		580	1118	2
France	10941	13474	18453	8570	13068
Germany	17559	22278	18605	4985	498
Netherlands	43876	36619	39209	42622	11634
Norway	36119	66232	38363	40279	40304
Poland	-	458	-	-	-
Sweden	2178	8261	4957	7658	7025
Russia	-	99	-	-	-
UK (England)	13480	15523	12031	11833	8355
UK (Scotland)	43490	71941	47368	35115	14727
UK (N. Ireland)	2656	2912	3531	638	331
Unallocated landings Misreporting from VIa North	28631 [2]	39324 [2]	10981 [2]	22215 [2]	14952
Total Landings	247058	358111	253048	220981	139322
Discards	15794	10861	1492	93	194
Total catch	**262852**	**368972**	**254540**	**221074**	**139516**

Country	2009	2010	2011	2012	2013
Denmark [1]	16550	25092	26523	42867	80874
Faroe Islands	288	1110	-	-	-
France	7067	6412	7885	11131	9750
Germany	-	505	2642	13060	19323
Netherlands	11017	13593	15202	46654	18418
Norway	25926	38897	45200	72581	49517
Lithuania	-	90	-	-	-
Sweden	1435	2310	5121	6065	12280
Ireland	-	-	-	-	221
UK (England)	578	7384	4555	18289	10874
UK (Scotland)	10249	13567	17909	33352	37889
UK (N. Ireland)	-	-	17	4794	5738
Unallocated landings Misreporting from VIa North	-977	0	0	-3416	0
Total Landings	72133	108960	125054	245377	244884
Discards	91	13	0	0	0
Total catch	**72224**	**108973**	**125054**	**245377**	**244884**

[1] Including any bycatches in the industrial fishery.
[2] May include misreported catch from Division VIaN and discards.

Table 6.3.9.4 Herring caught in the North Sea. Catch in tonnes in Division IVa East. These figures do not in all cases correspond to the off statistics and cannot be used for legal purposes.

Country	**2004**	**2005**	**2006**	**2007**	**2008**
Denmark [1]	16278	5761	8614	2646	1587
Faroe Islands	-	738	975	577	400
France	-	-	-	-	-
Germany	888	-	34	-	-
Netherlands	-	-	-	263	-
Norway [2]	100443	89925	90065	54424	17474
UK (Scotland)	-	-	83	-	-
Sweden	1720	3510	2857	640	-
Unallocated landings	0	0	0	-96 [3]	0
Total landings	119329	99934	102628	58454	19461
Discards	-	-	-	-	-
Total catch	**119329**	**99934**	**102628**	**58454**	**19461**
Norw. Spring Spawners [4]	452	417	626	685	2721

Country	**2009**	**2010**	**2011**	**2012**	**2013**
Denmark [1]	499	-	1590	1822	1162
Faroe Islands	700	719	-	-	-
France	-	-	-	-	-
Germany	-	-	-	-	15
Netherlands	-	-	-	-	-
Norway [2]	6981	7362	12922	32714	76894
UK (Scotland)	-	-	167	-	-
Sweden	1735	1505	150	815	865
Unallocated landings	0	0	0	0	0
Total landings	9915	9586	14829	35351	78936
Discards	-	-	-	-	-
Total catch	**9915**	**9586**	**14829**	**35351**	**78936**
Norw. Spring Spawners [4]	44560	56900	12178	9619	3150

[1] Including any bycatches in the industrial fishery.

[2] Catches of Norwegian spring-spawning herring removed (taken under a separate TAC).

[3] Negative unallocated catches due to misreporting into other areas.

[4] These catches (including some fjord-type spring spawners) are taken by Norway under a separate quota south of 62°N and are not included in the Norwegian North Sea catch figure for this area.

Table 6.3.9.5 Herring caught in the North Sea. Catch in tonnes in Division IVb. These figures do not in all cases correspond to the official statistics and cannot be used for legal purposes.

Country	2004	2005	2006	2007	2008
Denmark [1]	33857	41423	32277	35990	32230
Faroe Islands	402	-	200	1196	1612
France	10592	10205	17385	8421	9687
Germany	13823	14381	14222	2205	2415
Netherlands	23649	10038	13363	8550	904
Norway	1076	645	6933	5347	1543
Sweden	1794	1694	2715	7150	6815
UK (England)	2864	3869	4924	577	833
UK (Scotland)	1841	1286	977	-	1293
Unallocated landings [3]	8300	10233	2364	-203	-904
Total landings	98198	93774	95360	69233	56428
Discards [2]	1265	1963			30
Total catch	**99463**	**95737**	**95360**	**69233**	**56458**

Country	2009	2010	2011	2012	2013
Denmark [1]	29164	19671	30498	60503	34707
Faroe Islands	815	1185	-	-	-
France	4316	2349	1687	3898	8728
Germany	1061	1994	1778	4187	17701
Netherlands	3164	830	7314	9202	43339
Norway	17538	557	2537	13958	17307
Sweden	2129	580	2815	7212	2470
UK (England)	2	1577	4748	3045	4391
UK (Scotland)	3757	805	488	1062	1312
Unallocated landings [3]	-166	0	0	411	42
Total landings	61780	29548	51865	103478	129955
Discards					
Total catch	**61780**	**29548**	**51865**	**103478**	**129997**

[1] Including any bycatches in the industrial fishery.
[2] Discards partly included in unallocated.
[3] Negative unallocated catches due to misreporting into other areas.

Table 6.3.9.6 Herring caught in the North Sea. Catch in tonnes in Divisions IVc and VIId. These figures do not in all cases correspond to the official statistics and cannot be used for legal purposes.

Country	**2004**	**2005**	**2006**	**2007**	**2008**
Belgium	8	6	3	1	-
Denmark [3]	774	206	969	113	621
Faroe Islands			30	-	-
France	12988	15150	13637	7918	7592
Germany	9588	9896	7553	7703	5182
Netherlands	28637	34874	23743	14958	10584
UK (England)	4511	5919	5243	3583	2529
UK (Scotland)	-	-	-	-	1
Unallocated landings	9963	8231	5419	4725	3103
Total landings	68473	74282	56597	39001	29612
Discards [2]	-	-	-	-	-
Total catch	**68473**	**74282**	**56597**	**39001**	**29612**
Coastal spring spawners included above [1]	62	74	65	2	7

Country	**2009**	**2010**	**2011**	**2012**	**2013**
Belgium	-	-	4	3	14
Denmark [3]	25	1106	115	515	624
France	6731	8984	7121	8790	11644
Germany	4307	5171	5007	7268	9883
Netherlands	10371	9449	12192	16488	18705
Norway	-	-	46	-	-
UK (England)	72	1809	2165	4012	3814
UK (Scotland)	-	1	-	-	42
Unallocated landings [4]	417	0	0	3326	-42
Total landings	21923	26520	26650	40402	44684
Discards [2]	-	-	-	-	-
Total catch	**21923**	**26520**	**26650**	**40402**	**44684**
Coastal spring spawners included above [1]	48	85	2	63	20

[1] Landings from the Thames estuary area are included in the North Sea catch figure for UK (England).
[2] Discards partly included in unallocated landings.
[3] Including any bycatches in the industrial fishery.
[4] Negative unallocated landings due to misreporting into other areas.

Table 6.3.9.7 Herring in Subarea IV and in Divisions Illa and Vlld (autumn spawners). Summary of the assessment. Recruits 0-ringer; SSB is at spawning time. Low = lower limit and High = higher limit of 95% confidence interval.

Year	Recruitment 0-ringer thousands	High	Low	SSB* tonnes	High	Low	Catches tonnes	Mean F Ages 2 - 6	High	Low	Mean F Ages 0 - 1
1947	74551446	124156174	44765540	3767793	4833572	2937013	581760	0.173	0.238	0.126	0.002
1948	67795068	107543245	42737888	3188305	4072568	2496039	502100	0.17	0.227	0.128	0.002
1949	58938200	93063964	37326064	3103373	3931042	2449966	508500	0.184	0.245	0.138	0.002
1950	81490744	125713089	52824582	3029778	3791020	2421395	491700	0.193	0.253	0.147	0.005
1951	74402492	113280862	48867309	2844791	3537714	2287589	600400	0.234	0.3	0.183	0.016
1952	74402492	111949899	49448288	2791250	3476647	2240974	664400	0.246	0.315	0.192	0.029
1953	80277505	118292201	54479312	2615589	3272765	2090376	698500	0.261	0.335	0.203	0.041
1954	74700698	108472539	51443383	2436322	3069259	1933908	762900	0.293	0.378	0.226	0.054
1955	66452635	96050245	45975445	2412080	3030630	1919775	806400	0.289	0.372	0.224	0.084
1956	48837060	70778596	33697453	2224405	2799818	1767250	675200	0.292	0.371	0.229	0.078
1957	133151748	196458545	90244932	2043143	2572171	1622923	682900	0.307	0.391	0.241	0.099
1958	49724086	71564464	34549057	1699764	2153091	1341884	670500	0.315	0.401	0.248	0.084
1959	57253538	83513228	39250879	2623448	3309926	2079345	784500	0.329	0.42	0.258	0.106
1960	22771037	33978278	15260342	2251259	2830176	1790760	696200	0.283	0.359	0.223	0.12
1961	110000998	162820154	74316473	2137185	2652600	1721918	696700	0.32	0.398	0.257	0.065
1962	53276186	77231812	36751074	1531870	1925154	1218930	627800	0.346	0.436	0.275	0.055
1963	79161450	111882481	56009977	2478093	3070363	2000072	716000	0.237	0.297	0.189	0.07
1964	82639638	117016043	58362166	2397651	2878421	1997182	871200	0.319	0.385	0.265	0.134
1965	38416592	54575455	27042093	1943498	2283106	1654406	1168800	0.505	0.603	0.422	0.121
1966	34726026	48813174	24704333	1578523	1849175	1347484	895500	0.508	0.597	0.433	0.111
1967	42926504	59986542	30718302	1026843	1196934	880923	695500	0.653	0.764	0.558	0.146
1968	40873807	57294088	29159520	563544	655186	484719	717800	0.957	1.12	0.818	0.153
1969	19638451	27946977	13800017	511959	622210	421243	546700	0.861	1.01	0.734	0.15
1970	36506468	50487826	26396902	489432	596622	401500	563100	0.902	1.046	0.777	0.149
1971	26963644	36992524	19653649	349060	420500	289758	520100	1.215	1.423	1.037	0.281
1972	17663307	24138678	12925000	350109	422835	289891	497500	0.634	0.753	0.534	0.297
1973	8921726	12360138	6439831	301945	360152	253145	484000	0.832	0.963	0.719	0.327
1974	16535167	23034296	11869768	202805	240967	170687	275100	0.851	0.994	0.728	0.257
1975	3874782	5760233	2606481	117830	143850	96517	312800	0.99	1.222	0.802	0.304
1976	4901246	7446132	3226133	164720	217251	124890	174800	0.74	0.984	0.557	0.114
1977	5515098	8514633	3572239	125116	169383	92418	46000	0.335	0.459	0.244	0.091
1978	5780496	9047129	3693341	155438	204913	117908	11000	0.245	0.344	0.175	0.097
1979	11172880	16845936	7410289	190613	242850	149612	25100	0.203	0.28	0.147	0.104
1980	17004694	23941358	12077829	211716	262604	170689	70764	0.181	0.228	0.143	0.11
1981	37393221	51511869	27144288	309898	383085	250694	174879	0.201	0.251	0.161	0.287
1982	59769138	80831654	44194937	431059	528025	351899	275079	0.183	0.227	0.147	0.256
1983	56627200	75834175	42284891	645642	788201	528867	387202	0.23	0.282	0.188	0.289
1984	53704105	72389137	39842040	1028899	1255910	842921	428631	0.306	0.371	0.251	0.197
1985	68407977	93677107	49955122	1092523	1312343	909523	613780	0.392	0.479	0.321	0.198
1986	81003263	111188331	59012745	1123546	1337788	943613	671488	0.379	0.459	0.313	0.188
1987	81899218	110376742	60768979	1304069	1554601	1093911	792058	0.372	0.447	0.309	0.245
1988	43055477	58300079	31797111	1667773	1984772	1401404	887686	0.361	0.434	0.301	0.295
1989	36143222	48842666	26745725	1730637	2014213	1486984	787899	0.346	0.414	0.289	0.24
1990	30431840	41592233	22266102	1770903	2053247	1527384	645229	0.295	0.354	0.246	0.23

1991	31896282	43164372	23569734	1530339	1772807	1321034	658008	0.324	0.386	0.271	0.203
1992	59352215	78110512	45098737	1168230	1364104	1000481	716799	0.365	0.437	0.305	0.293
1993	51649961	68083292	39183159	827364	978611	699492	671397	0.42	0.505	0.349	0.323
1994	36836509	49105087	27633153	892695	1048607	759965	568234	0.433	0.521	0.359	0.199
1995	47299014	63584583	35184577	942226	1116121	795424	579371	0.375	0.461	0.306	0.203
1996	44812604	61015665	32912359	1081652	1280782	913482	275098	0.221	0.279	0.175	0.106
1997	30922666	42747924	22368601	1240469	1467234	1048751	264313	0.196	0.243	0.158	0.032
1998	22771037	31287087	16572976	1498537	1751822	1281873	391628	0.218	0.269	0.177	0.058
1999	71771642	98665431	52208444	1573794	1843062	1343866	363163	0.206	0.252	0.169	0.039
2000	48885921	67094887	35618709	1564380	1828363	1338511	388157	0.208	0.254	0.171	0.043
2001	87312134	120229287	63407252	2124400	2488663	1813454	374065	0.183	0.224	0.149	0.039
2002	44633712	61374193	32459379	2446087	2855489	2095382	394709	0.172	0.211	0.14	0.03
2003	21856305	29970281	15939059	2502999	2902292	2158639	482281	0.197	0.241	0.161	0.039
2004	25725673	35220160	18790666	2470670	2868650	2127904	587698	0.24	0.297	0.194	0.041
2005	23866826	32575519	17486302	2345479	2740872	2007124	663813	0.256	0.316	0.207	0.076
2006	27979985	38229958	20478170	1833982	2148701	1565360	514597	0.227	0.281	0.184	0.045
2007	27207412	38181605	19387432	1476227	1735068	1256001	406482	0.196	0.243	0.158	0.035
2008	27646232	39181043	19507243	1538010	1802204	1312546	257870	0.128	0.157	0.104	0.036
2009	37281210	51424044	27027991	1886059	2214137	1606594	168443	0.076	0.096	0.06	0.026
2010	36215581	50205443	26124026	1941555	2297956	1640431	187611	0.08	0.1	0.065	0.026
2011	30553812	42517095	21956707	2345479	2732429	2013325	226478	0.104	0.129	0.084	0.027
2012	33397780	48650994	22926803	2475616	2905803	2109117	434710	0.166	0.207	0.133	0.035
2013	37095269	59318963	23197624	2115919	2541099	1761882	511416	0.214	0.281	0.163	0.033
2014	28917780**			1902874***							
Average	**45670149**	**65454214**	**32308312**	**1568959**	**1895411**	**1292103**	**519291**	**0.353**	**0.433**	**0.289**	**0.123**

* At spawning time.
** Geometric mean used.
*** Predicted.

Table 6.3.9.8 ("The Wonderful Table"). Herring caught in the North Sea. Catch in thousand tonnes in Subarea IV and in Divisions VIId and IIIa.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sub-Area IV and Division VIId: TAC (IV and VIId)														
Agreed Divisions IVa,b	240	223	340.5	393.9	460.7	404.7	303.5	174.6	147.4	149.0	173.5	360.4	427.7	418.3
Agreed Div. IVc, VIId	25	43	59.5	66.1	74.3	50.0	37.5	26.7	23.6	15.3	26.5	44.6	50.3	51.7
Bycatch ceiling in the small mesh fishery [1]	36	36	52.0	38.0	50.0	42.5	31.9	18.8	16.0	13.6	16.5	17.9	14.4	13.1
CATCH (IV and VIId)														
National landings Divisions IVa,b [2]	272	261	354.5	427.7	502.3	439.2	326.8	201.2	145.0	148.1	191.7	387.2	453.8	
Unallocated landings Divisions IVa,b	2	24	23.7	36.9	49.6	13.3	21.9	14.0	-1.1	0.0	0.0	-3.0	0.0	
Discard/slipping Divisions IVa,b [3]	-	17	4.1	17.1	12.8	1.5	0.1	0.2	0.1	0.0	-	-	-	
Total catch Divisions IVa,b [4]	273	303	382.3	481.6	564.6	454.0	348.8	215.4	143.9	148.1	191.7	384.2	453.9	
National landings Divisions IVc, VIId [2]	24	43	59.5	56.5	66.1	51.2	34.3	26.5	21.5	26.5	26.7	37.1	44.7	
Unallocated landings Divisions IVc,VIId	26	7	8.2	12.0	8.2	5.4	4.7	3.1	0.4	0.0	0.0	3.3	0.0	
Discard/slipping Divisions IVc, VIId [3]	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total catch Divisions IVc, VIId	50	50	67.7	68.5	74.3	56.6	39.0	29.6	21.9	26.5	26.7	40.4	44.7	
Total catch IV and VIId as used by ICES [4]	**323**	**353**	**450.0**	**550.1**	**638.9**	**510.6**	**387.8**	**245.0**	**165.8**	**174.6**	**218.4**	**424.6**	**498.5**	
CATCH BY FLEET/STOCK (IV and VIId) [5]														
North Sea autumn spawners directed fisheries (Fleet A)	296	323	434.9	529.5	610.0	487.1	379.6	236.3	152.1	164.8	209.2	411.8	489.9	
North Sea autumn spawners industrial (Fleet B)	20	22	12.3	13.6	21.8	11.9	7.1	8.6	9.8	9.1	8.9	10.6	8.1	
North Sea autumn spawners in IV and VIId total	**317**	**346**	**447.2**	**543.0**	**631.9**	**499.0**	**386.7**	**244.9**	**161.9**	**173.9**	**218.1**	**422.5**	**498.1**	
Baltic-IIIa-type spring spawners in IV	6	7	2.8	7.1	7.0	11.0	1.1	0.1	3.9	0.8	0.3	2.1	0.5	
Coastal-type spring spawners	1	0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	
Norw. Spring Spawners caught under a separate quota in IV [6]	7	4	1.0	0.5	0.4	0.6	0.7	2.7	44.6	56.9	12.2	9.6	3.2	
Division IIIa: TAC (IIIa)														
Agreed herring TAC	80	80	80.0	70.0	96.0	81.6	69.4	51.7	37.7	33.9	30.0	45.0	55.0	
Bycatch ceiling in the small mesh fishery	21	21	21.0	21.0	24.2	20.5	15.4	11.5	8.4	7.5	6.7	6.7	6.7	
CATCH (IIIa)														
National landings	90	79	76.0	61.1	90.8	88.9	47.3	38.2	38.8	37.3	20.0	27.7	31.2	
Catch as used by ICES	82	73	68.1	52.7	69.6	51.2	47.4	38.2	38.8	37.3	20.0	27.7	31.2	
CATCH BY FLEET/STOCK (IIIa) [5]														
Autumn spawners human consumption (Fleet C)	34	17	24.1	13.4	22.9	11.6	16.4	9.2	5.1	12.0	6.6	7.8	11.8	
Autumn spawners mixed clupeoid (Fleet D) [7]	12	9	8.4	10.8	9.0	3.4	3.4	3.7	1.5	1.8	1.8	4.4	1.6	
Autumn spawners in IIIa total	**46**	**26**	**32.5**	**24.2**	**31.9**	**15.0**	**19.8**	**12.9**	**6.5**	**13.8**	**8.4**	**12.2**	**13.4**	
Spring spawners human consumption (Fleet C)	33	38	31.6	16.8	32.5	30.2	25.3	23.0	29.4	23.0	10.8	14.5	16.6	
Spring spawners mixed clupeoid (Fleet D) [7]	3	9	4.0	11.2	5.1	5.9	2.3	2.2	2.9	0.5	0.8	1.0	1.3	
Spring spawners in IIIa total	**36**	**47**	**35.6**	**28.0**	**37.6**	**36.1**	**27.6**	**25.2**	**32.3**	**23.5**	**11.6**	**15.5**	**17.9**	
North Sea autumn spawners Total as used by ICES	**363**	**372**	**479.7**	**567.2**	**663.8**	**514.6**	**406.5**	**257.9**	**168.4**	**187.6**	**226.5**	**434.6**	**511.4**	

[1] IVa,b and EC zone of IIa. [2] Provided by Working Group members. [3] Incomplete, only s ome countries providing discard information. [4] Includes spring s pawners not included in assessment. [5] Based on sum-of-products (number x mean weight at age). [6] These catches (including local fjord-type Spring Spawners) are ta ken by Norway under a separate quota south of 62i N and a re not included in the Norwegian North Sea catch figure. [7] Fleet D and E a re merged since 1999.

Annex 6.3.9.a Agreed Management Plan (2008) for North Sea herring

According to the EU–Norway agreement (November 2008):

The Parties agreed to continue to implement the management system for North Sea herring, which entered into force on 1 January 1998 and which is consistent with a precautionary approach and designed to ensure a rational exploitation pattern and provide for stable and high yields. This system consists of the following

1. *Every effort shall be made to maintain a minimum level of Spawning Stock Biomass (SSB) greater than 800,000 tonnes (Blim).*

2. *Where the SSB is estimated to be above 1.5 million tonnes the Parties agree to set quotas for the directed fishery and for bycatches in other fisheries, reflecting a fishing mortality rate of no more than 0.25 for 2 ringers and older and no more than 0.05 for 0 - 1 ringers.*

3. *Where the SSB is estimated to be below 1.5 million tonnes but above 800,000 tonnes, the Parties agree to set quotas for the direct fishery and for bycatches in other fisheries, reflecting a fishing mortality rate on 2 ringers and older equal to:*

   0.25-(0.15(1,500,000-SSB)/700,000) for 2 ringers and older, and no more than 0.05 for 0 - 1 ringers*

4. *Where the SSB is estimated to be below 800,000 tonnes the Parties agree to set quotas for the directed fishery and for bycatches in other fisheries, reflecting a fishing mortality rate of less than 0.1 for 2 ringers and older and of less than 0.04 for 0-1 ringers.*

5. *Where the rules in paragraphs 2 and 3 would lead to a TAC which deviates by more than 15 % from the TAC of the preceding year the parties shall fix a TAC that is no more than 15 % greater or 15 % less than the TAC of the preceding year.*

6. *Notwithstanding paragraph 5 the Parties may, where considered appropriate, reduce the TAC by more than 15 % compared to the TAC of the preceding year.*

7. *Bycatches of herring may only be landed in ports where adequate sampling schemes to effectively monitor the landings have been set up. All catches landed shall be deducted from the respective quotas set, and the fisheries shall be stopped immediately in the event that the quotas are exhausted.*

8. *The allocation of the TAC for the directed fishery for herring shall be 29 % to Norway and 71 % to the Community. The bycatch quota for herring shall be allocated to the Community.*

9. *A review of this arrangement shall take place no later than 31 December 2011.*

10. *This arrangement enters into force on 1 January 2009.*

Annex 6.3.9.b Agreed Management Plan (2014) for North Sea herring

According to the EU–Norway agreement (March 2014):

The Parties have agreed to revise the existing long-term management plan for herring in the North Sea as follows:

1. *Every effort shall be made to maintain a minimum level of Spawning Stock Biomass (SSB) greater than 800,000 tonnes (Blim).*
2. *Where the SSB is estimated to be above 1.5 million tonnes the Parties agree to set quotas for the directed fishery and for by-catches in other fisheries, reflecting a fishing mortality rate of no more than 0.26 for 2 ringers and older and no more than 0.05 for 0 - 1 ringers.*
3. *Where the SSB is estimated to be below 1.5 million tonnes but above 800,000 tonnes, the Parties agree to set quotas for the direct fishery and for by-catches in other fisheries, reflecting a fishing mortality rate on 2 ringers and older equal to:*

   0.26-(0.16(1,500,000-SSB)/700,000) for 2 ringers and older,*

   and no more than 0.05 for 0 - 1 ringers
4. *Where the SSB is estimated to be below 800,000 tonnes the Parties agree to set quotas for the directed fishery and for by-catches in other fisheries, reflecting a fishing mortality rate of less than 0.1 for 2 ringers and older and of less than 0.04 for 0-1 ringers.*
5. *Where the rules in paragraphs 2 and 3 would lead to a TAC which deviates by more than 15 % from the TAC of the preceding year the parties shall fix a TAC that is no more than 15 % greater or 15 % less than the TAC of the preceding year. However, if the resulting fishing mortality rate would be more than 10% higher or more than 10% lower than that indicated by the rules in paragraphs 2 and 3, the TAC shall be fixed at a level corresponding to a fishing mortality that is respectively 10% higher or 10% lower than that indicated by the rules of paragraphs 2 and 3.*
6. *Notwithstanding paragraph 5 the Parties may, where considered appropriate, reduce the TAC to a level that corresponds to a fishing mortality more than 10 % lower than that indicated by the rules of paragraphs 2 and 3.*
7. *By-catches of herring may only be landed in ports where adequate sampling schemes to effectively monitor the landings have been set up. All catches landed shall be deducted from the respective quotas set, and the fisheries shall be stopped immediately in the event that the quotas are exhausted.*
8. *The allocation of the TAC for the directed fishery for herring shall be 29% to Norway and 71% to the EU. The by-catch quota for herring shall be allocated to the EU.*
9. *A review of this arrangement shall take place no later than 31 December 2017.*
10. *This arrangement shall enter into force on 1 January 2015*