

5.3.33 Herring (*Clupea harengus*) in divisions 6.a and 7.b-c (west of Scotland, west of Ireland)

ICES stock advice

ICES advises that when the MSY approach is applied, there should be zero catch in 2017. ICES advises that a stock recovery plan be developed for this stock.

ICES advises, under precautionary considerations, that activities that have an impact on the spawning habitat of herring should not occur, unless the effects of these activities have been assessed and shown not to be detrimental.

Stock development over time

The information presented here represents two stocks assessed as one. The spawning-stock biomass (SSB) has been declining since 2004 and is currently at B_{lim} . The fishing mortality (F) has been below F_{MSY} since the late 1990s. Recruitment (R) has been at the lowest in the entire time-series in the period 2013-2015.

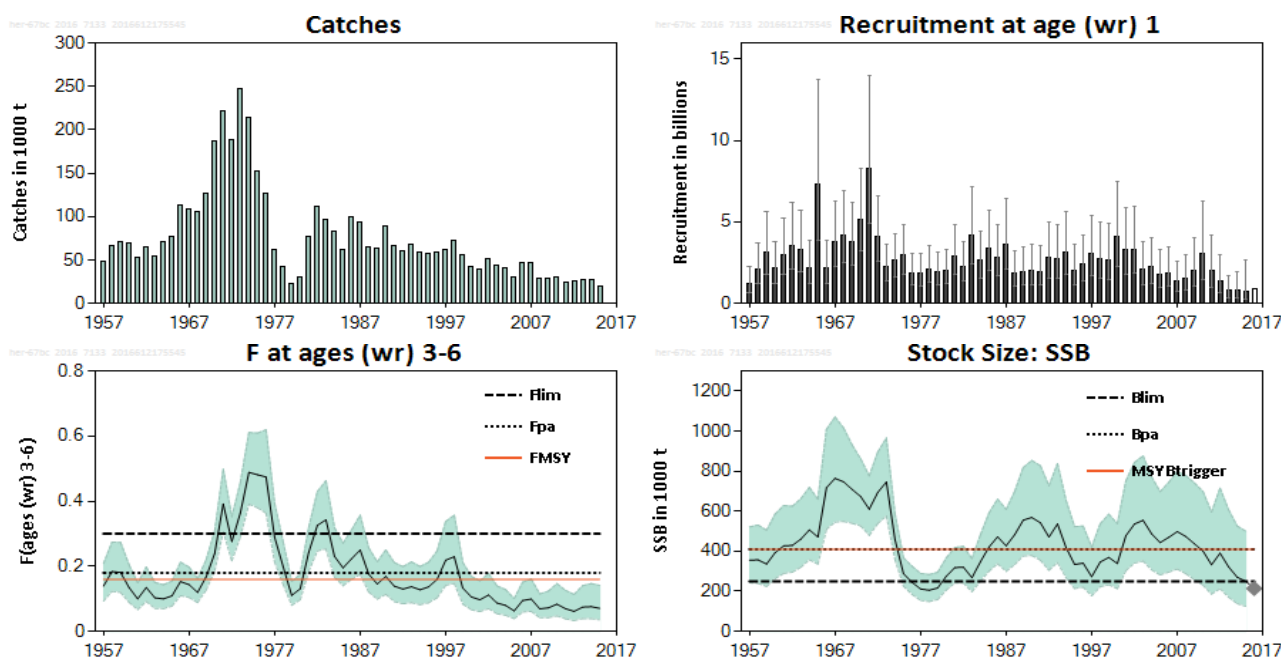


Figure 5.3.33.1 Herring in divisions 6.a and 7.b-c. ICES estimated catches, and the R, F, and SSB from the stock assessment (weights in thousand tonnes). Estimated values for recruitment are unshaded and a diamond shape designates the estimated SSB. Confidence intervals are 95%.

Stock and exploitation status

Table 5.3.33.1 Herring in divisions 6.a and 7.b-c. State of the stock and fishery relative to reference points.

	Fishing pressure				Stock size			
	2013	2014	2015		2014	2015	2016	
Maximum sustainable yield	F_{MSY}	✓	✓	✓	Appropriate	✗	✗	✗
Precautionary approach	F_{pa}	✓	✓	✓	Harvested sustainably	○	○	✗
Management plan	F_{MGT}	-	-	-	Not applicable	-	-	-
					MSY	✗	✗	✗
					$B_{trigger}$	✗	✗	✗
					B_{pa} , B_{lim}	○	○	✗
					SSB_{MGT}	-	-	-
								Below trigger
								Reduced reproductive capacity
								Not applicable

Catch options

Table 5.3.33.2 Herring in divisions 6.a and 7.b-c. The basis for the catch options.

Variable	Value	Source	Notes
F ages (wr) 3-6 (2016)	0.020	(ICES, 2016a)	Catch constraint based on scientific monitoring advice
R age (wr) 1 (2016-2017)	908682 thousand	ICES (2016b)	Geometric mean 2012-2015
SSB (2016)	216280 tonnes	ICES (2016b)	Estimated from the intermediate year of the assessment for an autumn spawning stock
Discards	Negligible		
Total catch (2016)	4840 tonnes	(ICES, 2016a)	Catch constraint, 4840 t based on Scientific Monitoring advice.

Table 5.3.33.3 Herring in divisions 6.a and 7.b-c. The catch options. All weights are in tonnes.

Rationale	Catch (2017)	Basis	F (2017)	SSB (2017) *	% SSB change **	% TAC change ***
MSY approach	0	Zero catch	0	202073	-7	-100
Other options	17072	$F_{MSY} \times SSB_{2016} / MSY B_{trigger}$	0.082	192703	-11	+253
	4270	F_{2016}	0.023	199745	-8	-12
	4840	2016 advice for scientific monitoring	0.023	199433	-8	0
	32290	F_{MSY}	0.16	184208	-15	+567
	36040	F_{PA}	0.18	182093	-16	+645
	57312	F_{lim}	0.30	169920	-21	+1084
		$SSB_{2017} = MSY B_{trigger} = B_{pa}^{\wedge}$		410000		
		$SSB_{2017} = B_{lim}^{\wedge}$		250000		
	10545	$F = 0.05$	0.05	196305	-9	+118

* For this autumn-spawning stock, the SSB is determined at spawning time and is influenced by fisheries between 1st January and spawning (September).

** SSB 2017 relative to SSB 2016.

*** Catch 2017 relative to scientific monitoring advice of 4840 t (ICES, 2016a).

$\wedge$ The B_{lim} , B_{pa} and $MSY B_{trigger}$ options were left blank because B_{lim} cannot be achieved in 2017 even with zero catch advice.

Basis of the advice

Table 5.3.33.4 Herring in divisions 6.a and 7.b-c. The basis of the advice.

Advice basis	MSY approach
Management plan	There is no agreed management plan for the combined stocks. There was a management plan for herring in Division 6.a North; this plan is not appropriate for the combined stocks.

Quality of the assessment

The 2015 benchmark concluded that a combined assessment of herring in Division 6.a North and herring in divisions 6.a South and 7.b-c should be the basis for the ICES advice (ICES, 2015a). The stocks were combined because it is not possible to segregate them in commercial catches or surveys. ICES still assumes that separate stocks exist.

The assessment estimates an average F for the combined stocks. The estimated F is not indicative of F on either stock, and the smaller component stock may suffer a much higher F than the larger stock. The estimations of SSB and R reflect the combined stocks.

There is uncertainty in the assessment due to a lack of information in the available data sources on recruitment and the abundance of fish of younger ages. The 2016 assessment resulted in an upward revision of SSB 2014 of 17% compared to the 2015 assessment estimate of the 2014 SSB.

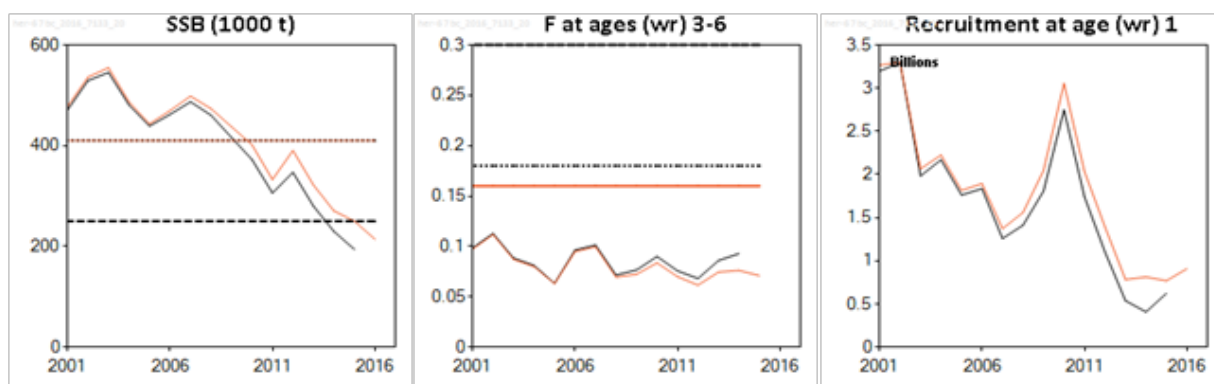


Figure 5.3.33.2 Herring in divisions 6.a and 7.b-c. Historical assessment results (final-year recruitment estimates included). The stock was benchmarked (ICES, 2015a).

Issues relevant for the advice

In April, 2016 ICES issued advice for a scientific monitoring fishery for herring in this area, based on the 2015 assessment, at the request of the European Commission (ICES, 2016a). The advised catch for scientific monitoring is assumed to be taken in 2016 and is used as the basis for the catch options for 2017 (see Table 5.3.33.3).

Under a zero-catch regime, the stock is expected to continue to decline. There is no catch option for 2017 that is consistent with the combined stocks recovering to above B_{lim} .

Fishing should not proceed unless accompanied by a stock recovery plan. Such a plan should include rebuilding targets and time lines as well as protections for each stock. This would also imply including a research component to resolve the lack of information on stock mixing and recruitment.

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 (see for example, Groot, 1979, 1996; ICES 2003, 2015b). This is because a gravel substratum is an essential habitat for herring spawning.

Reference points

Table 5.3.33.5 Herring in divisions 6.a and 7.b-c. Reference points, values and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	410000 t	B_{pa}	ICES (2015a)
	F_{MSY}	0.16	Stochastic simulations from segmented regression stock–recruitment relationship	ICES (2015a)
Precautionary approach	B_{lim}	250000 t	Breakpoint in segmented regression stock-recruitment relationship	ICES (2015a)
	B_{pa}	410000 t	$B_{pa} = B_{lim} * \exp(1.645\sigma_B)$ and the value of $\sigma_B = 0.30$	ICES (2016b)
	F_{lim}	0.30		ICES (2015a)
	F_{pa}	0.18	$F_{pa} = F_{lim} * \exp(-1.645\sigma_F)$ and the value of $\sigma_F = \sigma_B = 0.30$	ICES (2016b)
Management plan	SSB_{MGT}	Not applicable		
	F_{MGT}	Not applicable		

Basis of the assessment

Table 5.3.33.6 Herring in divisions 6.a and 7.b-c. The basis of the assessment.

ICES stock data category	1 (ICES, 2016c)
Assessment type	Age-based analytical assessment (SAM; ICES, 2016b) that uses catches in the model and in the forecast
Input data	Commercial catches, (weights, ages and length frequencies from catch sampling); Malin Shelf Herring Acoustic Survey data (MSHAS), west of Scotland herring acoustic survey (MSHAS_N), Scottish west coast IBTS surveys (quarters 1 and 4).
Discards and by-catch	Not included, considered negligible.
Indicators	None
Other information	Benchmarked in WKWEST (ICES, 2015a), updated with corrected natural mortalities by ICES (2015c). This is an autumn/winter spawning stock. Age is given in winter rings, so for example: a 2-year-old fish is termed "1-winter ring".
Working group	Herring Assessment Working Group for the Area South of 62°N (HAWG)

Information from stakeholders

The fishing industry has recognized the scientific difficulty in separating the stocks of Division 6.a North herring and divisions 6.a South and 7.b-c herring that has lead to the combined assessment. To remedy this situation the industry, in conjunction with the Pelagic Advisory Council (PELAC), has initiated a genetic research programme in 2016 that aims to provide new tools for stock separation.

In addition, the industry is initiating an industry acoustic survey on the spawning populations of Division 6.a North herring (September 2016) and divisions 6.a South and 7.b-c herring (December 2016) so as to provide minimum estimates of spawning stock size and to provide genetic and morphometric samples of the two separate spawning populations.

PELAC understood that a benchmark would take place in February 2017 in light of new data generated from the genetics study and the industry acoustic surveys in 2016. This issue will be pursued by PELAC.

History of advice, catch and management

Table 5.3.33.7 Herring in divisions 6.a and 7.b-c. History of ICES advice, the agreed TAC, and ICES estimates of catch. Weights are in tonnes.

Year	ICES advice	Predicted catch corresponding to advice	Sum of agreed TACs	Discards / slippage	ICES estimated catches
2015*	Prior to the advice for 2016, ICES advised separately for herring in Division 6a North and herring in Division 6a South and 7b,c. See ICES 2014a and 2014b for the history of ICES advice on these individual stocks	-	22 690	0	19885
2016	MSY approach	0	0		
2017	MSY approach	0			

* See Table 5.3.12.1 [Herring in Division 6a \(North\)](#) and Table 5.3.13.1 in [Herring in Divisions 6aS and 7b,c](#) for the full histories of ICES advice, management, landings, and catches.

History of catch and landings

Table 5.3.33.8 Herring in divisions 6.a and 7.b, c. Catch distribution by fleet in 2015 as estimated by ICES.

Catch (2015)	Landings		Discards
19.885 kt	Pelagic trawl 100 %	Ringnets (negligible)	Negligible
	19.885 kt		

Table 5.3.33.9 Herring in divisions 6.a and 7.b,c. History of commercial catch and landings, both official and ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Faroe Islands	0	0	274	0	0	0	0	0	0	0	800	400
France	119	818	5087	3672	2297	3093	1903	463	870	760	1855	1 370
Germany	5890	4693	7938	3744	7836	8873	8253	6752	4615	3944	3810	2 935
Ireland	33985	35836	30493	28998	33521	26275	36399	24240	15005	15589	17311	16
Netherlands	8900	8632	10683	9015	11196	13273	10983	9112	5881	6622	4978	3 609
Lithuania	0	0	0	0	0	0	0	0	0	0	0	0
Norway	2389	7447	30676	4840	6223	4962	5317	2695	0	0	0	0
UK	32730	32802	4237	42685	46639	44273	42302	36446	22816	21862	20604	16
Total landings	84013	90228	80914	92954	10771	100749	105157	79708	49187	48777	49358	41
Discards*	300	250	700	0	0	112	90	0	0	0	0	0
Total catch	84313	90478	81614	92954	10771	100861	105247	79708	49187	48777	49358	41
Corrected for 6.a South/7.b-c unallocated/ area misreported	88913	96728	87864	94054	11461 2	101561	116447	87624	57635	50167	53231	45 344
Corrected for 6.a North unallocated	83428	92975	88564	89513	96859	93546	104699	79469	57635	50444	59475	48 164
Corrected for 6.a North area misreported	60835	68578	58330	57367	58605	63780	72253	55846	43008	40007	50740	44 583
ICES estimate	60835	68578	58330	57367	58605	63780	72253	55846	43008	40007	50740	44
Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Faroe Islands	228	1810	570	484	927	1544	70	0	0	0	360	0
France	625	613	701	703	564	1049	511	504	244	586	589	0
Germany	1046	2691	3152	1749	2526	27	3583	3518	1829	4025	3354	3292
Ireland	12844	16231	19192	17791	13340	10468	10241	8203	7178	4584	5565	1872
Netherlands	8296	5132	7361	8065	4133	5675	3600	1684	3523	1815	1641	956
Lithuania	0	0	0	0	0	0	0	0	0	0	770	0
Norway	0	0	0	0	0	0	0	0	0	0	0	1
UK	17706	17494	18290	17618	13963	11076	12018	11696	12249	15906	16769	1526
Total landings	40745	43971	49266	46410	35453	29839	30023	25605	25023	26916	29048	2138
Discards*	123	772	163	0	0	0	95	0	0	30	0	0
Total catch	40868	44743	49429	46410	35453	29839	30118	25605	25023	26946	29048	2138
Corrected for unallocated/area misreported	43681	47623	54135	51552	38556	31774	32846	28277	27803	29414	31211	2238 6
Corrected for 6.a North	47171	47623	54135	51552	38556	31774	32846	28277	27803	29414	31211	2238
Corrected for 6.a North area misreported	40286	30360	47251	47433	29394	28976	30118	24678	25023	26946	27123	1988 0
ICES estimate	40286	30360	47251	47433	29394	28976	30118	24678	25023	26946	27123	1988

* Unraised discards

Table 5.3.33.10 Herring in divisions 6.a and 7.b,c. The Division 6.a North component of the stock. History of commercial catch and landings, both official and ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Faroe Islands			274								800	400
France	119	818	5087	3672	2297	3093	1903	463	870	760	1340	1370
Germany	5640	4693	7938	3733	7836	8873	8253	6752	4615	3944	3810	2935
Ireland	7985	8236	6093	3548	9721	1875	11199	7915	4841	4311	4239	3581
Netherlands	8000	6132	8183	7808	9396	9873	8483	7244	4647	4534	4612	3609
Lithuania												
Norway	2389	7447	30676	4840	6223	4962	5317	2695				
UK	32730	32602	-4287	42661	46639	44273	42302	36446	22816	21862	20604	16947
Unallocated	-5485	-3753	700	-4541	-17753	-8015	-11748	-8155		277	6244	2820
Discards*	200					62	90					
Total	51578	56175	54664	61271	64359	64995	65799	61514	37789	35688	41649	31622
Area misreported	-22593	-24397	-30234	-32146	-38254	-29766	-32446	-23623	-14627	-10437	-8735	-3581
ICES estimate	28985	31778	24430	29575	26105	35233	33353	29736	23162	25251	32914	28081
Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Faroe Islands	228	1810	570	484	927	1544	70				360	
France	625	613	701	703	564	1049	511	504	244	586	589	
Germany	1046	2691	3152	1749	2526	27	3583	3518	1829	4025	3354	3292
Ireland	1894	2880	4352	5129	3103	1935	2728	3956	3451	3124	2632	1799
Netherlands	8232	5132	7008	8052	4133	5675	3600	1684	3523	1775	1641	956
Lithuania											770	
Norway												1
UK	17706	17494	18284	17618	13963	11076	12018	11696	12249	15906	16769	15260
Unallocated	3490											
Discards*	123	772	163				95			30		
Total	33344	31392	34230	33735	25216	21306	22510	21358	21296	25446	26115	21307
Area misreported	-6885	-17263	-6884	-4119	-9162	-2798	-2728	-3599	-2780	-2468	-4088	-2506
ICES estimate	26459	14129	27346	29616	16054	18508	19877	17759	18516	22978	22027	18801

* Unraised discards

Table 5.3.19.11 Herring in divisions 6.a and 7.b-c. The divisions 6.a South/7.b-c component of the stock. History of commercial catch and landings, both official and ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
France											515			
Germany	250			11										
Ireland	26000	27600	24400	25450	23800	24400	25200	16325	10164	11278	13072	12921	10950	13351
Netherlands	900	2500	2500	1207	1800	3400	2500	1868	1234	2088	366		64	
UK (Northern Ireland)														
UK (England & Wales)			50	24										
UK Scotland		200												
Total landings	27150	30300	26950	26692	25600	27800	27700	18193	11398	13366	13953	12921	11014	13351
Unallocated/ area misreported	4600	6250	6250	1100	6900	700	11200	7916	8448	1390	3873	3581	2813	2880
Discards	100	250	700			50								
ICES estimated catch	31850	36800	33900	27792	32500	28550	38900	26109	19846	14756	17826	16502	13827	16231
Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
France														
Germany														
Ireland	14840	12662	10237	8533	7513	4247	3727	1460	2933	73				
Netherlands	353	13						40						
UK (Northern Ireland)														
UK (England & Wales)														
UK Scotland	6									5				
Total landings	15199	12675	10237	8533	7513	4247	3791	1500	2933	78				
Unallocated/ area misreported	4706	5142	3103	1935	2728	2672	2780	2468	2163	1000				
Discards*														
ICES estimate	19193	17791	13340	10468	10241	6919	6571	3968	5096	1078				

* Unraised discards

Summary of the assessment

Table 5.3.19.12 Herring in divisions 6.a and 7.b,c. Assessment summary with weights (in tonnes).

Year	R age (wr) 1	High	Low	SSB	High	Low	Total catch	F Ages (wr) 3-6	High	Low	Low	Model catch	High
	thousands			tonnes			tonnes					tonnes	
1957	1218340	2223782	667490	355756	521311	242777	48508	0.139	0.208	0.093	32047.314	37123.297	43003.267
1958	2090680	3668325	1191537	357182	530808	240348	66494	0.184	0.274	0.123	43582.873	50970.382	59610.111
1959	3162900	5627971	1777539	336381	504819	224144	70447	0.181	0.273	0.12	42412.985	49861.279	58617.593
1960	2160824	3809948	1225518	392778	585759	263376	69160	0.135	0.204	0.089	36019.953	41814.565	48541.369
1961	3011654	5220959	1737240	426770	628456	289809	52535	0.1	0.149	0.067	28874.956	33489.927	38842.492
1962	3580453	6197903	2068384	429338	624308	295257	65594	0.135	0.198	0.092	42365.938	49069.846	56834.57
1963	3328392	5719272	1936994	460469	662202	320192	54089	0.103	0.15	0.071	34233.138	39497.79	45572.083
1964	2186910	3853600	1241066	506865	718625	357505	70403	0.1	0.143	0.07	36096.321	41522.885	47765.254
1965	7282611	13717701	3866276	470711	659423	336005	76685	0.109	0.154	0.077	38887.213	45844.018	54045.374
1966	2195675	3877092	1243455	717121	1008388	509985	112834	0.153	0.213	0.11	74468.415	88610	105437.078
1967	3771563	6285010	2263272	763753	1069717	545302	109281	0.144	0.198	0.104	68068.081	81389.374	97317.715
1968	4180745	6900020	2533127	746387	1015147	548782	105345	0.12	0.162	0.089	60912.848	72911.379	87273.365
1969	3813279	6221672	2337169	708567	930119	539788	126777	0.167	0.22	0.127	83575.673	98223.424	115438.389
1970	5147388	8304423	3190541	673336	860758	526724	186236	0.239	0.308	0.186	116586.154	136216.39	159151.873
1971	8260536	13980605	4880794	609869	775982	479316	222211	0.391	0.498	0.307	187025.67	227066.908	275680.769
1972	4089773	6576066	2543503	694537	895461	538695	188230	0.276	0.352	0.217	134156.963	158895.177	188195.057
1973	2226630	3649556	1358490	745641	965013	576138	246989	0.364	0.457	0.291	203198.278	242558.937	289543.98
1974	2657775	4269747	1654377	459549	587659	359367	214749	0.489	0.611	0.391	185569.731	220135.82	261140.538
1975	2946121	4801843	1807562	288082	367418	225877	152765	0.481	0.609	0.38	124249.783	147561.453	175246.845
1976	1861699	3087330	1122628	244997	325125	184616	126409	0.474	0.619	0.363	102119.462	120210.542	141506.566
1977	1828488	3063198	1091463	211928	289654	155058	61908	0.29	0.394	0.213	50162.724	58395.844	67980.251
1978	2107473	3531609	1257626	205664	283501	149198	41871	0.199	0.275	0.144	33290.021	38676.985	44935.663
1979	1899308	3159777	1141653	216642	295095	159046	22668	0.111	0.153	0.08	19531.764	22697.272	26375.812
1980	2022814	3330927	1228419	275130	366836	206350	30430	0.131	0.176	0.097	28162.24	32630.411	37807.495
1981	2922646	4809363	1776090	318380	418815	242030	76342	0.244	0.32	0.185	60098.663	69912.518	81328.934
1982	2294441	3823804	1376760	320616	424643	242073	111569	0.326	0.43	0.247	94020.575	108988.756	126339.888
1983	4193306	7157619	2456657	268069	363048	197938	96511	0.343	0.463	0.254	84977.745	98814.536	114904.35
1984	2639236	4452547	1564400	348015	482772	250872	83462	0.23	0.318	0.167	68955.599	81145.572	95490.488
1985	3399028	5741108	2012397	421679	591127	300804	62485	0.195	0.271	0.14	52836.103	62567.422	74091.048
1986	2822123	4805338	1657402	472125	660678	337384	99549	0.223	0.312	0.16	83915.411	98125.25	114741.315
1987	3641841	6434369	2061276	427197	608612	299858	92960	0.25	0.357	0.175	82772.166	95894.125	111096.323
1988	1823011	3203815	1037316	482627	698366	333534	64691	0.176	0.257	0.121	57203.816	65841.13	75782.61
1989	1964994	3436663	1123533	555154	818009	376763	63236	0.146	0.214	0.099	55254.446	64344.066	74928.973
1990	2051332	3610094	1165611	568638	852891	379122	88662	0.169	0.25	0.114	70595.808	82289.599	95920.4
1991	1964994	3512595	1099245	542531	826835	355983	66229	0.139	0.211	0.091	57943.757	66903.061	77247.658

Year	R age (wr) 1	High	Low	SSB	High	Low	Total catch	F Ages (wr) 3-6	High	Low	Low	Model catch	High
	tonnes			tonnes			tonnes						
1992	2796838	4974758	1572399	470711	726464	304997	60841	0.13	0.199	0.085	50852.431	58454.269	67192.492
1993	2706048	4853722	1508677	536059	837186	343244	68541	0.137	0.213	0.088	56265.257	64408.443	73730.179
1994	3181935	5641459	1794697	418738	653871	268159	58338	0.128	0.199	0.082	47012.929	54122.215	62306.565
1995	2024837	3614040	1134455	334369	522700	213894	57367	0.137	0.212	0.088	47966.922	55326.097	63814.332
1996	2404855	4217511	1371265	340783	525518	220987	58639	0.16	0.247	0.103	48938.989	56726.684	65753.641
1997	3054114	5381403	1733305	273211	420681	177437	62458	0.219	0.338	0.142	57474.552	66171.16	76183.672
1998	2774552	5017829	1534158	346279	537291	223174	72248	0.23	0.357	0.148	62430.394	72258.121	83632.918
1999	2673770	4922873	1452210	369165	585205	232881	55845	0.133	0.212	0.084	42953.872	50211.532	58695.475
2000	4130876	7477504	2282063	338744	537233	213590	43008	0.106	0.169	0.066	34577.093	40014.613	46307.227
2001	3265750	5896916	1808593	477825	751627	303764	40007	0.097	0.155	0.061	34672.266	40094.723	46365.207
2002	3298571	5965761	1823836	536059	843098	340838	50740	0.112	0.178	0.07	41966.134	48922.858	57032.797
2003	2065742	3781534	1128455	554599	875785	351205	44583	0.087	0.14	0.054	37892.735	43782.961	50588.792
2004	2224405	4046522	1222773	486991	771529	307389	40186	0.08	0.129	0.05	35766.8	41315.789	47725.668
2005	1815733	3293908	1000905	443299	697413	281776	30360	0.063	0.101	0.039	25135.991	28911.653	33254.454
2006	1893618	3474268	1032099	469301	743577	296195	46539	0.095	0.151	0.059	39157.59	44756.86	51156.786
2007	1372302	2614095	720407	498321	798271	311077	47407	0.1	0.161	0.062	39265.218	44846.463	51221.039
2008	1559694	3013577	807228	473544	777456	288433	29394	0.069	0.115	0.042	25990.47	29732.619	34013.569
2009	2045187	4046783	1033609	437574	741155	258341	28976	0.072	0.124	0.042	26665.601	30607.489	35132.093
2010	3054114	6252780	1491754	401917	698603	231229	30118	0.084	0.147	0.048	25345.822	29114.744	33444.104
2011	2032953	4194146	985397	332701	594720	186121	24678	0.07	0.126	0.039	21536.281	24834.771	28638.456
2012	1393041	2945008	658934	390428	714590	213317	25087	0.062	0.113	0.033	21079.828	24735.63	29025.446
2013	783088	1723927	355715	321901	606805	170764	26947	0.075	0.14	0.04	22560.1	26449.697	31009.902
2014	812605	1908625	345970	270493	526232	139038	27123	0.076	0.147	0.04	22008.972	25719.378	30055.307
2015	769118	2626327	225236	250196	500082	125176	19885	0.071	0.141	0.036	17372.154	20040.289	23118.216
2016	908682			214219									

* Geometric mean 2012-2015.

** Output from short-term forecast.

For this autumn-spawning stock, the SSB is determined at spawning time and is influenced by fisheries between 1 January and spawning (September).

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