

Sprat (*Sprattus sprattus*) in Division 3.a (Skagerrak and Kattegat)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches from 1 July 2017 to 30 June 2018 should be no more than 6 255 tonnes.

Stock development over time

The abundance index has been fluctuating without trend over the time-series with high interannual variability. The stock abundance index in 2017 is 27% lower than the average of the four preceding years.

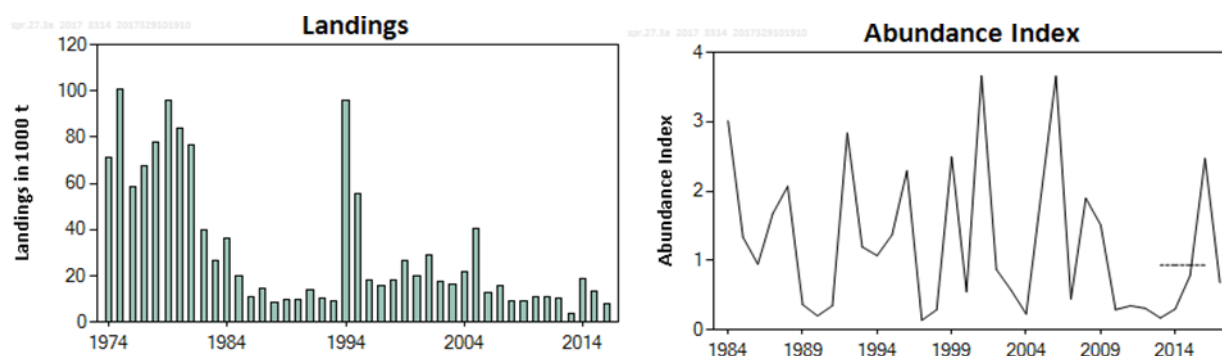





Figure 1 Sprat in Division 3.a. Summary of the stock assessment. The index of the stock size is derived from the combination of three survey indices: the herring acoustic survey (HERAS) in June–July of the previous year, the third quarter International Bottom Trawl Survey (IBTS) of the previous year, and the first quarter IBTS in the current year. The dashed horizontal line indicates the average of the four years (2013–2016) preceding 2017.

Stock and exploitation status

Table 1 Sprat in Division 3.a. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size				
		2014	2015	2016			2015	2016	2017	
Maximum sustainable yield		?	?	?	Undefined	MSY $B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa} , F_{lim}	?	?	?	Undefined	B_{pa} , B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	—	—	—	Not applicable	SSB_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	Qualitative evaluation				Decreasing

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The index of stock size is derived from the combination of three surveys: the herring acoustic survey (HERAS) in June–July, the third quarter International Bottom Trawl Survey (IBTSQ3), and the first quarter IBTS (IBTSQ1) in the following year, and it is applied as the index of stock development. The advice is based on a comparison of the latest index value (index A) with the four preceding values (index B), multiplied by the recent advised catch. The index is estimated to have decreased by more than 20% and thus the uncertainty cap was applied. ICES considers that a precautionary reduction of catches should be implemented every three years unless there is ancillary information clearly indicating that the current level of exploitation is appropriate for the stock. The precautionary buffer was last applied in 2012.

Because there is no evidence that the stock has continuously increased over a period of several years, or that fishing pressure on the stock is low or has been reduced significantly, the precautionary buffer was applied again in 2017.

Table 2 Sprat in Division 3.a. The basis for the catch options.

Index A (2017)		0.679 (unitless)
Index B (2013–2016)		0.933 (unitless)
Index ratio (A/B)		0.73
Uncertainty cap	Applied	0.8
Advised catch for 1 July 2016 to 30 June 2017		9773 tonnes
Discard rate		Negligible
Precautionary buffer	Applied	0.8
Catch advice*		6255 tonnes

* advice for 2016 × uncertainty cap × precautionary buffer.

Basis of the advice

Table 3 Sprat in Division 3.a. The basis of the advice.

Advice basis	Precautionary approach
Management plan	There is no management plan for sprat in this area.

Quality of the assessment

The advice is based on a combined abundance index from three surveys, used as an indicator of stock size. The uncertainty associated with the index values is not available. There are concerns related to the accuracy of these abundance indices as analyses show that the survey may not cover the entire stock, but the current assessment is considered to reflect stock trends.

Issues relevant for the advice

ICES provides catch advice for the period July to June in the following year. The advice given for this stock since 2012 has not been implemented and catches have frequently exceeded ICES advice.

Under the EU landing obligation, which entered into force in 2015, up to 9% interspecies quota transfers are allowed for stocks that are considered to be within safe biological limits (see Article 15 of EU, 2013). Potential quota transfers were not considered in this catch advice. The bycatch of sprat under the other species' quotas (e.g. herring) under this regulation may result in overexploitation of sprat in Division 3.a. To achieve F_{MSY} exploitation, any transfer under this regulation should be accounted for in setting the TAC.

Reference points

There are no reference points for this stock.

Basis of the assessment

Table 5 Sprat in Division 3.a. Basis of assessment and advice.

ICES stock data category	3 (ICES, 2016a)
Assessment type	Survey trends (ICES, 2017)
Input data	Commercial catches (international landings), surveys (1st and 3rd quarters IBTS, HERAS). The index is a weighted average of the three surveys (ICES, 2015).
Discards and bycatch	Discards are not included. Discards are known to have taken place but are now considered negligible.
Indicators	None
Other information	Benchmarked in WKSPRAT (ICES, 2013a). For this short-lived stock, in-year (July–June) advice is given.
Working group	Herring Assessment Working Group for the Area South of 62°N (HAWG)

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 6 Sprat in Division 3.a. ICES advice and official landings. All weights are in tonnes. Values of official landings for the period 1987–2015 are presented to the nearest thousand tonnes.

Year	ICES advice	Predicted catch corresponding to advice	Agreed TAC*	Official landings**	ICES landings
1987	-	-	80000	68000	14000
1988	TAC for “mixed clupeoid” fishery	80000	80000	63000	9000
1989	Lowest possible level; TAC for “mixed clupeoid” fishery	80000	80000	62000	10000
1990	Lowest possible level; TAC for “mixed clupeoid” fishery	60000	65000	43000	10000
1991	Lowest possible level; Zero TAC for “mixed clupeoid” fishery	-	50000	44000	14000
1992	No advice for sprat; Zero TAC for “mixed clupeoid” fishery	-	50000	40000	11000
1993	No advice for sprat	-	45000	36000	9000
1994	Separate sprat TAC based on recent catches	10000–14000	43000	67000	96000
1995	Separate sprat TAC based on recent catches	9000–14000	43000	45000	56000
1996	No advice	-	43000	28000	18000
1997	Reduce by-catch of herring	-	40000	19000	15800
1998	Limited by restriction on juvenile herring catches	-	40000	26000	18400
1999	Limited by restriction on juvenile herring catches	-	50000	33000	26700
2000	Limited by restriction on juvenile herring catches	-	50000	28000	20100
2001	Limited by restriction on juvenile herring catches	-	50000	43000	29107
2002	Limited by restriction on juvenile herring catches	-	50000	31000	17703
2003	Limited by restriction on juvenile herring catches	-	50000	33000	16479
2004	Limited by restriction on juvenile herring catches	-	50000	32000	21996
2005	Limited by restriction on juvenile herring catches	-	50000	48000	40296
2006	Limited by restriction on juvenile herring catches	-	52000	23000	12507
2007	Limited by restriction on juvenile herring catches	-	52000	21000	15706
2008	Limited by restriction on juvenile herring catches	-	52000	12000	9123
2009	Same advice as last year	-	52000	13000	9200
2010	Same advice as last year	-	52000	13000	10706
2011	No advice ***	-	52000	13000	10731
2012	20% Reduction in catches (last 3 years average) ***	< 8200	52000	14000	10417
2013 [#]	Reduce catch by at least 36% compared to the average catch of the last three years	< 6787	41600	9000	3900
2014 [#]	Wanted catch at the level of the 2013 advice ^{##}	< 6787	33280	24000	18537
2015 [#]	Precautionary approach (20% more than recent advice) ^{##}	< 8144	33.280	20000	13276
2016 [#]	Precautionary approach (20% more than recent advice) ^{##}	≤ 9773	33280	11031	8204
2017 [#]	Precautionary approach (36% less than recent advice)	≤ 6255	33280		

* TAC applies to all species in “mixed clupeoid” catches for the period 1988–1997.

** Includes other species in “mixed clupeoid” catches.

*** Limited by restriction on juvenile herring catches.

[#] Advice for the period 1 July to 30 June.

^{##} The term “wanted catch” is used to describe fish that would be landed in the absence of the EU landing obligation. Note that even though the EU landing obligation was in effect in 2016, discards are unknown for this fishery; therefore, advice is for wanted catch.

History of the catch and landings

Table 7 Sprat in Division 3.a. Catch distribution by fleet in 2016 as estimated by ICES.

Table 7 Sprat in Division 3.a: Catch distribution by fleet in 2016 as estimated by ICES.			
Catch (2016)	Landings		Discards
8204 tonnes	Trawl 96%	Purse seine 4%	negligible
	8204 tonnes		

Table 8 Sprat in Division 3.a. History of commercial catch 1996–2016 as estimated by ICES. These figures do not in all cases correspond to the official statistics and cannot be used for management purposes. Catch data prior to 1996 are not presented as they are considered less reliable because of mixed clupeoid catches. With the implementation of an improved monitoring scheme in 1996, catch data after 1996 are considered reliable. Catches are in tonnes from 2001. From 1996 to 2000 the figures are presented to the nearest 100 tonnes.

Year	Skagerrak						Kattegat			Div. 3.a total
	Denmark	Sweden	Norway	Germany	Faroe Islands	Total	Denmark	Sweden	Total	
1996	7000	3500	1000			11500	3400	3100	6500	18000
1997	7000	3100	400			10500	4600	700	5300	15800
1998	3900	5200	1000			10100	7300	1000	8300	18400
1999	6800	6400	200			13400	10400	2900	13300	26700
2000	5100	4300	900			10300	7700	2100	9800	20100
2001	5209	4546	1398			11153	14945	3009	17954	29107
2002	3507	2829	13			6349	9939	1428	11367	17703
2003	2301	2442	836			5579	7882	3058	10940	16479
2004	6207	4451	1100			11758	8200	2038	10238	21996
2005	12074	5674	712			18460	19782	2054	21836	40296
2006	1217	2771	303			4291	6602	1614	8216	12507
2007	1438	2835	1642			5915	8466	1325	9791	15706
2008	254	1500	894			2648	5575	900	6475	9123
2009	1103	1431	672			3206	5786	216	6002	9208
2010	3369	1165	913			5447	5022	237	5259	10706
2011	3494	1758	708			5960	4499	272	4771	10731
2012	1742	1252	481			3476	6692	249	6941	10417
2013	263	660	859			1782	1599	371	1970	3752
2014	12002	1050	257	47		13356	4746	482	5228	18584
2015	7465	950	298			8712	4192	371	4563	13276
2016	3255	768	346		15	4369	3482	338	3820	8204

Summary of the assessment

Table 9 Sprat in Division 3.a. Assessment summary. Weights are in tonnes.

Year	Stock size index*	IBTS Q1 Age 1	IBTS Q1 Age 2	IBTS Q3 Age 1	HERAS Age 1	IBTS Q1 Age 1 anomaly	IBTS Q1 Age 2 anomaly	IBTS Q3 Age 1 anomaly	HERAS Age 1 anomaly	ICES estimated landings (tonnes)
(unitless)										(tonnes)
1974										71300
1975										100600
1976										58800
1977										67400
1978										77900
1979										95600
1980										83900
1981										76300
1982										39600
1983										26400
1984	3.012803859	5675.453	868.877			3.481833	0.50094			36100
1985	1.336368124	2157.763	2347.024			1.323766	1.353147			19700
1986	0.945339608	628.636	1979.238			0.385662	1.141104			10800
1987	1.675636929	2735.918	2845.931			1.678458	1.640785			14400
1988	2.067308139	914.468	5262.547			0.561017	3.034054			8700
1989	0.364561201	413.943	911.276			0.25395	0.525385			9800
1990	0.200949234	481.022	223.894			0.295102	0.129083			9700
1991	0.349878787	492.498	726.822	493.724		0.302143	0.41904			14000
1992	2.835941459	5993.636	598.711	1731.961		3.677035	0.345179	0.088335		10500
1993	1.195691462	1589.922	4168.612	309.005		0.975401	2.40336	0.309876		9100
1994	1.069870064	1788.861	715.839	9945.215		1.097448	0.412708	0.055286		96000
1995	1.369317488	2204.074	1769.532	13295.42		1.352177	1.020201	1.779362		55600
1996	2.292181715	199.3	5515.416	130.748		0.122269	3.179843	2.378769		18000
1997	0.138754202	232.654	391.234	437.176		0.142731	0.225561	0.023393		15800
1998	0.291004183	72.245	1585.222	62.82		0.044322	0.91394	0.078218		18400
1999	2.491516178	4534.96	355.242	8082.645		2.782152	0.20481	0.01124		26700
2000	0.550158091	292.316	737.798			0.179333	0.425368	1.446118		20100
2001	3.662731985	6539.478	1144.344	8501.662		4.011903	0.659757			29100
2002	0.871210341	1180.52	1035.707	3568.48		0.724237	0.597124	1.521087		17700
2003	0.567691974	461.659	1247.151	444.802		0.283223	0.719029	0.63846		16500
2004	0.23039108	402.87	49.002	7388.165		0.247157	0.028251	0.079582		22000
2005	1.942497437	3314.171	1563.164	12817.78		2.03321	0.901222	1.321864		40300
2006	3.656566232	1323.589	11855.76	849.819	61.3	0.812008	6.835288	2.29331		12500
2007	0.443303371	774.11	306.631	10899.96	5611.9	0.474909	0.176784	0.152047	0.073477	15700
2008	1.898667338	150.598	981.9	809.366	23	0.09239	0.566102	1.950181	6.728182	9100
2009	1.509864622	2686.719	124.463	3258.747	169.5	1.648275	0.071758	0.144809	0.027575	9200
2010	0.291952886	218.659	618.486	2335.444	836.1	0.134145	0.35658	0.583043	0.203216	10700
2011	0.346563335	135.548	2887.269	1413.118	45.4	0.083157	1.664618	0.417849	1.002411	10700
2012	0.310450607	209.485	1531.549	832.37	123.9	0.128517	0.882995	0.25283	0.054431	10416
2013	0.171016792	301.264	237.338	356.27	14.5	0.184822	0.136834	0.148925	0.148545	3900
2014	0.300242628	518.178	229.093	30111.5	614.5	0.317897	0.132081	0.063743	0.017384	18537
2015	0.785240345	957.727	206.943	16064.67	840.8	0.587556	0.11931	5.387441	0.736732	13276
2016	2.469419966	4208.379	2216.262	5034.654	5.4	2.581798	1.277758	2.874233	1.008046	8204
2017	0.679100462	1102.765	752.58			0.711716073	0.43769			

* Calculated from the age 1 indicator (IBTS Q1 age 1) and the age 2 indicator (IBTS Q3 age 2, and IBTS Q3 age 1 and HERAS age 1 in the previous year), taking into account the relative proportions of age 1 and age 2 in the sprat commercial catches (ICES, 2016b).

Sources and references

EU. 2013. Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013R1380>.

ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM:68. 42 pp.

ICES. 2013a. Report of the Benchmark Workshop on Sprat Stocks (WKSPRAT), 11–15 February 2013, Copenhagen, Denmark. ICES CM 2013/ACOM:48. 220 pp.

ICES. 2013b. Sprat (*Sprattus sprattus*) in Division IIIa (Skagerrak and Kattegat). In Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 6, Section 6.3.48.

ICES. 2015. Stock Annex: Sprat (*Sprattus sprattus*) in Division 3.a (Skagerrak and Kattegat). Produced by the Herring Assessment Working Group for the Area south of 62°N (HAWG). 5 pp.

ICES. 2016a. Advice basis. In Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.

ICES. 2016b. Report of the Herring Assessment Working Group for the Area South of 62°N (HAWG), 29 March–7 April 2016, ICES Headquarters, Copenhagen, Denmark. ICES CM 2016/ACOM:07. 867 pp.

ICES. 2017. Report of the Herring Assessment Working Group for the Area South of 62°N (HAWG) 14–22 March 2017. ICES CM 2017/ACOM:08.