

Sprat (*Sprattus sprattus*) in divisions 7.d and 7.e (English Channel)

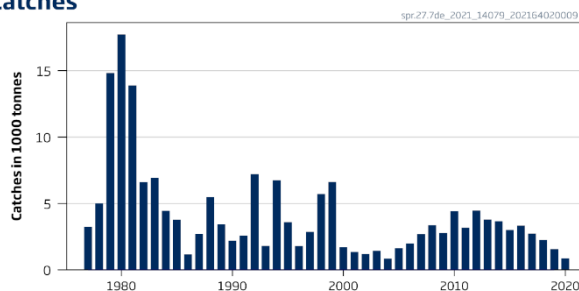
ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2022 should be no more than 2897 tonnes.

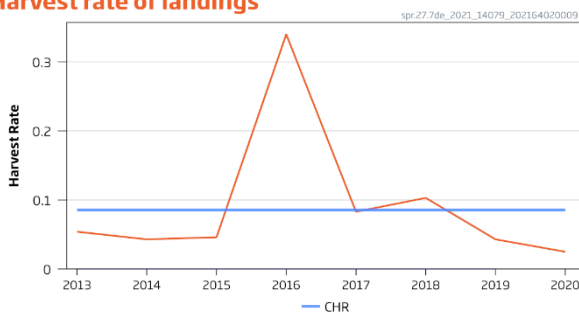
Stock development over time

Fishing pressure on the stock is below F_{MSY} (sustainable constant harvest rate [CHR]), and spawning-stock size is above MSY $B_{trigger}$ (Istat).

Catches



Harvest rate of landings



Biomass index

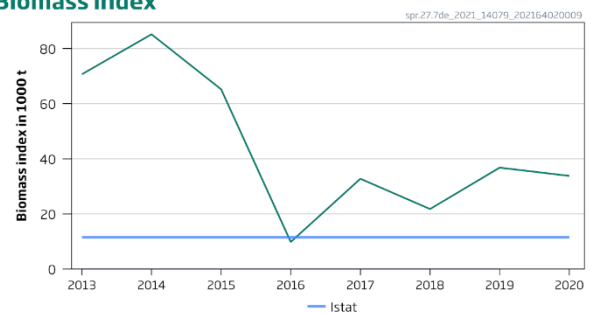


Figure 1 Sprat in divisions 7.d and 7.e. Summary of the stock assessment. Upper left: ICES estimated landings (in thousand tonnes). Lower left: harvest rate index (ratio between landings and PELTIC survey acoustic biomass estimate) for Division 7.e only. The blue line indicates a sustainable constant harvest rate (CHR) Lower right: stock-size index of acoustic biomass estimates (thousand tonnes) for Division 7.e only. The blue line indicates the Istat (biomass safeguard based on a trigger index value).

Catch scenarios

ICES framework for category 3 data limited stocks (specifically Method DLSSL 2 – Constant harvest rate; ICES, 2020) is used. The acoustic biomass estimates were used as the index of stock development. The catch advice is based on the latest biomass index multiplied by a sustainable constant harvest rate (CHR). Discarding is considered to be negligible.

Table 1 Sprat in divisions 7.d and 7.e. The basis for the catch scenarios.

Biomass index 2020	33 798
Constant harvest rate	8.57%
Discard rate	Negligible
Catch advice for 2022 *	2897 tonnes
% advice change **	100%

* [Index value 2020] × [CHR]

** Advice value for 2022 relative to the advice value for 2021.

The advice from last year has increased, following on from the application of a new advice method (MSE derived constant harvest rate) after an inter-benchmark.

Basis of the advice

Table 2 Sprat in divisions 7.d and 7.e. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is not aware of any currently agreed precautionary management plans for sprat in this area.

Quality of the assessment

An interbenchmark was conducted in 2021 (ICES, 2021a), and a sustainable CHR considered as a proxy for an MSY harvest rate validated through an MSE and adjusted to account for in-year growth, was retained to provide catch advice for the stock.

The stock structure of sprat populations in the Celtic Seas ecoregion is unknown, and the acoustic survey index in the western English Channel area covers only part of the potential distribution of this stock in the area (the English part of Division 7.e). However, in 2017 the acoustic survey was extended into the French waters of Division 7.e and further extended into Division 7.d in 2018. The 2020 survey again did not extend into the eastern English Channel (Division 7.d). The 2017–2019 surveys showed that little sprat was observed either in the southern part of Division 7.e or in Division 7.d, which suggests that the majority of the stock is within the survey area.

Issues relevant for the advice

Sprat in the English Channel mature early (at 90–100 mm) and grow fast, reaching their maximum length between ages 1 and 3. Only 8% survive beyond age 3, and the fishery is dominated by ages 1–3. The fishing season for sprat runs from August to February, and catch advice is based on an acoustic survey carried out in October. This means that at the time of the advice a large part of the biomass observed in the 2020 acoustic survey will not be available to the fishery in 2022 because it will have been caught or died already.

Sprat is a relatively short-lived species and given the timing of the survey, an advice period, valid from 1 July to 30 June in the following year, is more appropriate for the stock.

Reference points

Framework	Reference point	Value	Technical basis	Source
MSY approach	Istat	11527.9	Geomean(I_{hist})*exp(-1.645*sd(log(I_{hist}))); I_{hist} is the available historical series of the abundance index (2013-2020)	(ICES, 2021a)
	CHR	8.57%	Harvest rate consistent with MSY, derived through an MSE and adjusted for in-year growth	(ICES, 2021a)
	F _{lim}	Not defined		
	F _{pa}	Not defined		
Management plan	SSB _{mgt}	Not defined		
	F _{mgt}	Not defined		

Basis of the assessment

Table 3 Sprat in divisions 7.d and 7.e. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2021b)
Assessment type	Survey biomass (ICES, 2021c)
Input data	Acoustic survey biomass estimates (PELTIC; 2013–2020, A6259)
Discards and bycatch	Discards were not included as discarding is considered negligible
Indicators	
Other information	This stock was benchmarked in WKSPRAT (ICES, 2018) and went to an inter-benchmark in 2021 (ICES, 2021a)
Working group	Herring Assessment Working Group for the Area South of 62°N (HAWG)

History of the advice, catch, and management

Table 4 Sprat in divisions 7.d and 7.e. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice	Agreed TAC	Official landings	ICES catch*
1987	No advice	-	5000	2700	2700
1988	No advice	-	5000	5500	5500
1989	No advice	-	12000	3400	3600
1990	No advice	-	12000	2100	2200
1991	No advice	-	12000	2600	2600
1992	No advice	-	12000	1800	7200
1993	No advice	-	12000	1800	1800
1994	No advice	-	12000	3200	6800
1995	No advice	-	12000	1500	3600
1996	No advice	-	12000	1800	1800
1997	No advice	-	12000	1600	2900
1998	No advice	-	12000	2000	5700
1999	No advice	-	6300	3600	6600
2000	No advice	-	12000	1700	1700
2001	No advice	-	12000	1300	1300
2002	No advice	-	12000	1200	1200
2003	No advice	-	9600	1400	1400
2004	No advice	-	9600	800	800
2005	No advice	-	7700	1600	1600
2006	No advice	-	6100	2000	2000
2007	No advice	-	6100	1800	2700
2008	No advice	-	6100	3400	3400
2009	No advice	-	6100	2800	2800
2010	No advice	-	5500	4400	4400
2011	No advice	-	5400	3100	3100
2012	Reduce catches	-	5100	4400	4400
2013	20% reduction in catches (last three-year average)	< 2800	5150	3800	3800
2014	Decrease catches by 4% (20% increased followed by a 20% precautionary reduction)	< 3832	5150	3633	3633
2015	Same advice as last year	< 3832	5150	3000	3000
2016	Precautionary approach (increase catches by no more than 20%)	< 4598	5150	3334	3340

Year	ICES advice	Catch corresponding to advice	Agreed TAC	Official landings	ICES catch*
2017	Precautionary approach	< 3678	4120	2762	2767
2018	Precautionary approach	< 2354	3296	1805	2252
2019	Precautionary approach	≤ 1883	2637	1573	1573
2020	Precautionary approach	≤ 1506	1506	873	873**
2021	Precautionary approach	≤ 1446	1446		
2022	MSY approach	≤ 2897			

* Catch values are rounded to the nearest 100 tonnes prior to 2014.

** Preliminary.

History of the catch and landings

Table 5 Sprat in divisions 7.d and 7.e. Catch distribution by fleet in 2020 as estimated by ICES. All weights are in tonnes

Catch (2020)	Landings	Discards
873 tonnes	100% mid-water trawl	Negligible
	873 tonnes	

Table 6 Sprat in divisions 7.d and 7.e. History of ICES catch presented for each country. All weights are in tonnes.

Country	Denmark	France	Germany	Netherlands	UK		Total
					Eng + Wales + N.Irl.	Scotland	
1986	15	0	0	0	1163	0	1178
1987	250	23	0	0	2441	0	2714
1988	2529	2	0	1	2944	0	5476
1989	2092	10	0	0	1520	0	3622
1990	608	79	0	0	1562	0	2249
1991	0	0	0	0	2567	0	2567
1992	5389	35	0	0	1791	0	7215
1993	0	3	0	0	1798	0	1801
1994	3572	1	0	0	3176	40	6789
1995	2084	0	0	0	1516	0	3600
1996	0	2	0	0	1789	0	1791
1997	1245	1	0	0	1621	0	2867
1998	3741	0	0	0	1973	0	5714
1999	3064	0	0	1	3558	0	6623
2000	0	1	0	1	1693	0	1695
2001	0	0	0	0	1349	0	1349
2002	0	0	0	0	1196	0	1196
2003	0	2	0	72	1368	0	1442
2004	0	6	0	0	836	0	842
2005	0	0	0	0	1635	0	1635
2006	0	7	0	0	1969	0	1976
2007	0	0	0	0	2706	0	2706
2008	0	0	0	0	3367	0	3367
2009	0	2	0	0	2773	0	2775
2010	0	2	0	0	4408	0	4410
2011	0	1	0	37	3138	0	3176
2012	6	2	0	8	4458	0	4474
2013	0	0	0	0	3793	0	3793
2014	45	0	0	275	3338	0	3658
2015	0	1	0	352	2659	0	3012
2016	185	7	49	231	2867	0	3339
2017	0	0	0	235	2498	0	2733
2018	474	1	0	0	1776	0	2252
2019	0	1	28	0	1544	0	1573
2020	0	0	0	0	873	0	873

Summary of the assessment

Table 7 Sprat in divisions 7.d and 7.e. Assessment summary. All weights are in tonnes.

Year	Biomass	Catches	Harvest rate*
1977		3237	
1978		4999	
1979		14833	
1980		17732	
1981		13890	
1982		6612	
1983		6911	
1984		4455	
1985		3785	
1986		1178	
1987		2714	
1988		5475	
1989		3421	
1990		2195	
1991		2567	
1992		7214	
1993		1801	
1994		6750	
1995		3599	
1996		1791	
1997		2867	
1998		5714	
1999		6623	
2000		1695	
2001		1349	
2002		1196	
2003		1442	
2004		842	
2005		1635	
2006		1976	
2007		2706	
2008		3367	
2009		2775	
2010		4410	
2011		3176	
2012		4474	
2013	70680	3793	0.054
2014	85184	3658	0.043
2015	65219	3012	0.046
2016	9826	3339	0.340
2017	32751	2733	0.083
2018	21772	2252	0.103
2019	36789	1573	0.043
2020	33798	873	0.025

* Harvest rate of landings relative to survey index

Sources and references

ICES. 2018. Report of the Benchmark Workshop on Sprat (WKSPRAT 2018), 5–9 November 2018. ICES HQ, Copenhagen, Denmark. ICES CM 2018/ACOM:35. 60 pp.

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[Download the stock assessment data and figures.](#)

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