

Sole (*Solea solea*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2025 should be no more than 1 149 tonnes.

ICES notes the existence of a precautionary management plan, developed and adopted by one of the relevant management authorities for this stock.

Non-fisheries conservation considerations

Conservation aspects and associated management measures may exist at a national or regional level but were not reviewed by ICES.

Stock development over time

Fishing pressure on the stock is above F_{MSY} but below F_{pa} and F_{lim} ; spawning-stock size is above MSY $B_{trigger}$, B_{pa} , and B_{lim} .

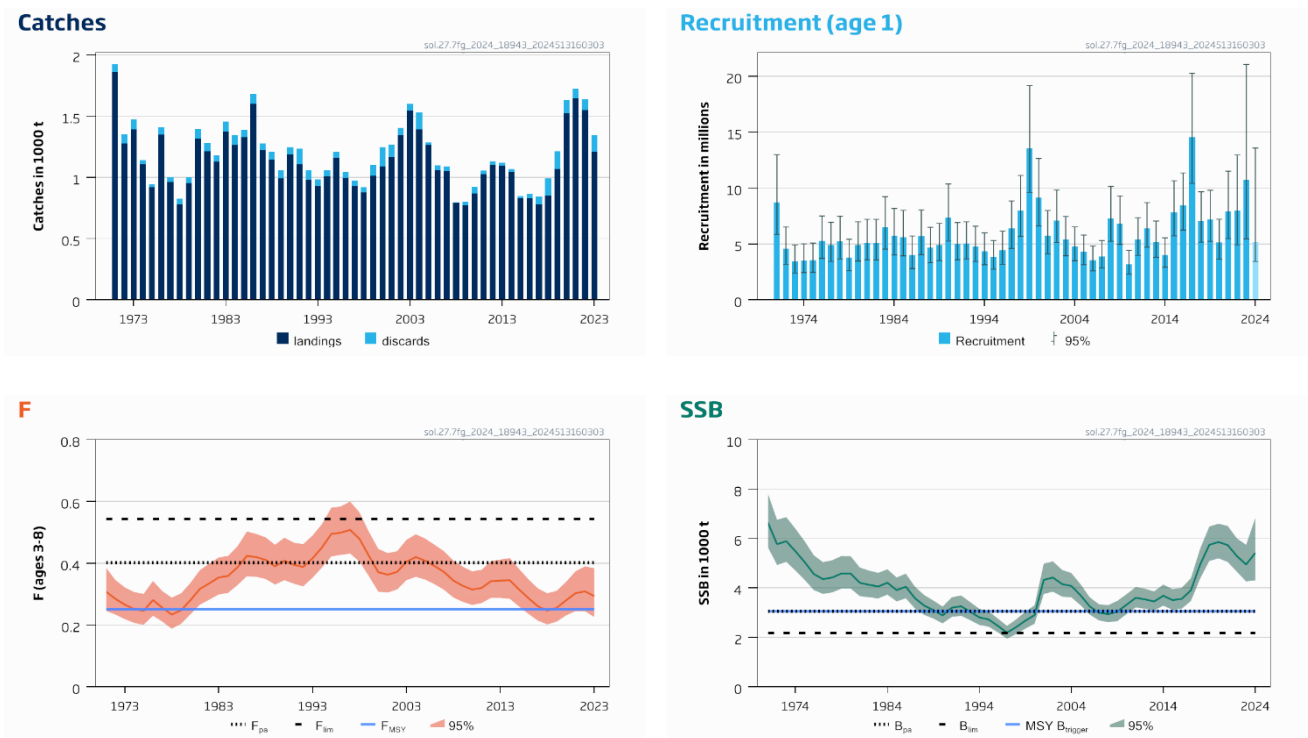


Figure 1 Sole in divisions 7.f and 7.g. Summary of the stock assessment. The assumed recruitment value for 2024 is shaded in a lighter colour.

Catch scenarios

Table 1 Sole in divisions 7.f and 7.g. Assumptions made for the interim year and in the forecast.

Variable	Value	Notes
F _{ages 3-8} (2024)	0.30	F = F _{Average (2021-2023)}
SSB(2025)	5275	Short-term forecast; in tonnes
R _{age 1} (2024, 2025)	5177	Median recruitment, resampled from the years 1971–2021; in thousands
Catch (2024)	1347	Short-term forecast; in tonnes
Projected landings (2024)	1252	Short-term forecast; assuming average landings ratio by age 2021–2023; in tonnes
Projected discards (2024)	95	Short-term forecast; assuming average discard ratio by age 2021–2023; in tonnes

Table 2 Sole in divisions 7.f and 7.g. Annual catch scenarios. Weights are in tonnes.

Basis	Total catch (2025)	Projected landings* (2025)	Projected discards** (2025)	F _{total} (2025)	F _{projected landings} (2025)	F _{projected discards} (2025)	SSB (2026)	% SSB change ***	% advice change^	Probability of SSB (2026) < B _{lim} (%)
ICES advice basis										
MSY approach: F = F _{MSY}	1149	1080	69	0.251	0.237	0.014	5226	-0.93	-9.3	0
Other scenarios										
EU MAP^^: F _{MSY}	1149	1080	69	0.251	0.237	0.014	5226	-0.93	-9.3	0
EU MAP^^: F _{MSY lower}	656	617	39	0.136	0.128	0.008	5734	8.7	-48	0
EU MAP^^: F _{MSY upper}	1922	1802	120	0.462	0.436	0.026	4425	-16.1	52	0.01
F = 0	0	0	0	0	0	0	6427	22	-100	0
F = F _{pa}	1718	1611	107	0.402	0.379	0.023	4637	-12.1	36	0
F = F _{lim}	2180	2042	138	0.543	0.513	0.03	4159	-21	72	0.06
SSB ₂₀₂₆ = B _{lim}	4117	3823	294	1.48	1.393	0.083	2184	-59	225	50
SSB ₂₀₂₆ = B _{pa} = MSY B _{trigger}	3252	3037	215	0.96	0.91	0.054	3057	-42	157	8.3
SSB ₂₀₂₆ = SSB ₂₀₂₅	1101	1034	67	0.24	0.226	0.013	5275	0	-13.1	0
F = F ₂₀₂₄	1350	1267	83	0.30	0.285	0.017	5017	-4.9	6.6	0

* Marketable landings, assuming recent discard rate.

** Including below minimum size (BMS) landings (EU stocks), assuming recent discard rate.

*** SSB 2026 relative to SSB 2025.

^ Advice value for 2025 relative to the advice value for 2024 (1267 tonnes). The 2024 TAC is similar to the advice value.

^^ EU multiannual plan (MAP) for the Western Waters and adjacent waters (EU, 2019).

The reduction in catch advice is caused by a lower estimate of stock size at the start of the advice year. This is caused by a combination of the downscaling of recent stock size and assumption of higher fishing pressure in 2024.

Basis of the advice

Table 3 Sole in divisions 7.f and 7.g. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is aware of the multiannual management plan (MAP) that has been adopted by the EU for this stock (EU, 2019) and that ICES considers to be precautionary. There is no agreed shared management plan between the EU and the UK for this stock, and ICES provides advice according to ICES MSY approach. Catch scenarios consistent with the MAP F _{MSY} ranges are provided.

Quality of the assessment

Discard estimates are based on incomplete sampling of the fisheries in recent years. However, the main fleet is considered to be represented; therefore, this is considered to have minimal impact on the assessment.

This year's assessment has resulted in a downscaling of recent stock size and upscaling of F.

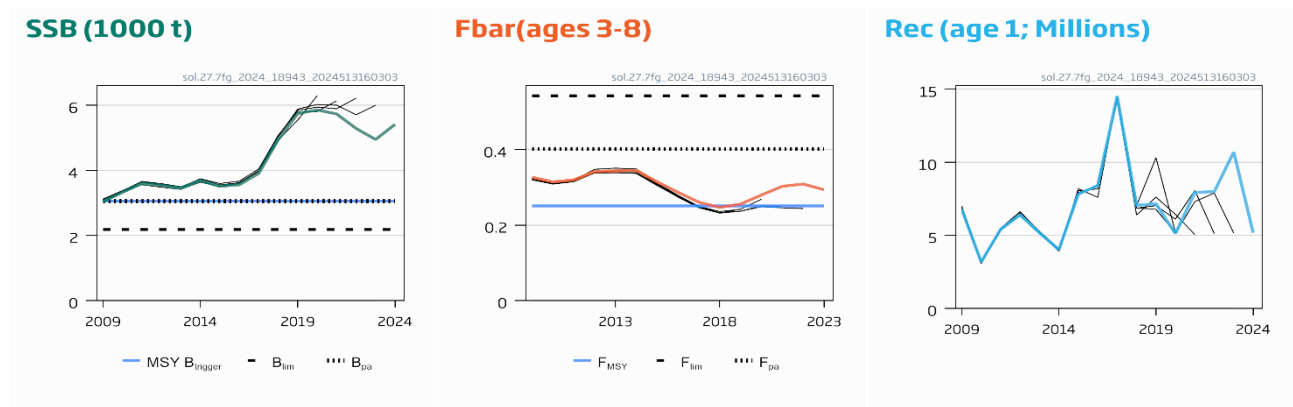


Figure 2 Sole in divisions 7.f and 7.g. Historical assessment results (final-year SSB estimate and recruitment assumption included for each line).

Issues relevant for the advice

The ICES estimated catch for 2021 and 2022 was revised to account for area misreporting, following the same approach as the corrections done in 2020 for the period 2004–2007 as a result of the previous benchmark (ICES, 2020a).

Reference points

Table 4 Sole in divisions 7.f and 7.g. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	3057	B_{pa} ; in tonnes.	ICES (2020b)
	F_{MSY}	0.251	Eqsim analysis based on the recruitment period 1971–2018	ICES (2020b)
Precautionary approach	B_{lim}	2184	B_{loss} estimated in 2020, corresponding to SSB in 1997; in tonnes	ICES (2020b)
	B_{pa}	3057	$B_{lim} \times 1.4$; in tonnes	ICES (2020b)
	F_{lim}	0.543	Eqsim analysis, based on the recruitment period 1971–2018	ICES (2020b)
	F_{pa}	0.402	F_{POS} ; F that leads to $SSB \geq B_{lim}$ with 95% probability	ICES (2020b)
Management plan*	MAP MSY $B_{trigger}$	3057	MSY $B_{trigger}$; in tonnes	EU (2019), ICES (2020b)
	MAP B_{pa}	3057	B_{pa} ; in tonnes	EU (2019), ICES (2020b)
	MAP B_{lim}	2184	B_{lim} ; in tonnes	EU (2019), ICES (2020b)
	MAP F_{MSY}	0.251	F_{MSY}	EU (2019), ICES (2020b)
	MAP range $F_{MSY lower}$	0.136	Consistent with ranges provided by ICES (2020b), resulting in no more than 5% reduction in long-term yield compared with MSY	EU (2019), ICES (2020b)
	MAP range $F_{MSY upper}$	0.462	Consistent with ranges provided by ICES (2020b), resulting in no more than 5% reduction in long-term yield compared with MSY	EU (2019), ICES (2020b)

* EU multiannual plan (MAP) for the Western Waters and adjacent waters (EU, 2019).

Basis of the assessment

Table 5 Sole in divisions 7.f and 7.g. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2024)
Assessment type	Age-based analytical assessment (SAM; Nielsen and Berg, 2014; ICES, 2024) that uses landings and discards in the model and in the forecast.
Input data	Total international landings, ages and length frequencies from catch sampling by métier; one survey index (UK[E&W]-BTS-Q3 [B6596], 1988–2023); five commercial biomass indices (BE-CBT [1971–1983 and 1984–1996]), BE-CBT3 [2006–2023], and UK[E & W]-CBT [1984–2005 and 2006–2023]); maturity data (ICES, 2020a); natural mortality is assumed to be constant. Catch numbers for ages 1 and 2 prior to 2004 are not used in the assessment model.
Discards and bycatch	Discard numbers available from 2004 onwards. Discards prior to 2004 are calculated using a constant ratio of discards to landings by age based on data from 2004–2018 (ICES, 2020a).
Indicators	None
Other information	Last benchmark in 2020 (ICES, 2020a)
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

* [View assessment in Transparent Assessment Framework \(TAF\)](#)

History of the advice, catch, and management

Table 6 Sole in divisions 7.f and 7.g. ICES advice, the agreed TAC, official landings and ICES estimates of landings and discards. Weights are in tonnes.

Year	ICES advice	Catches corresponding to advice	Landings corresponding to advice	Agreed TAC	Official landings	ICES landings**	ICES discards
1987	Status quo F; TAC		1600	1600	1264	1222	
1988	F = F (pre-86); TAC		900	1100	1204	1146	
1989	F at F (81–85); TAC		1000	1000	992	992	
1990	No increase in F		1200	1200	1239	1189	
1991	No increase in F		1100	1200	1496	1107	
1992	No long-term gains in increasing F		1100	1200	1060	981	
1993	No long-term gains in increasing F		-	1100	1030	928	
1994	No long-term gains in increasing F		-	1100	1018	1009	
1995	No increase in F		1000	1100	1165	1157	
1996	20% reduction in F		800	1000	1081	995	
1997	20% reduction in F		800	900	1038	927	
1998	20% reduction in F		700	850	1013	875	
1999	Reduce F below F_{pa}		810	960	947	1012	
2000	Reduce F below F_{pa}		< 1160	1160	1040	1091	
2001	Reduce F below F_{pa}		< 810	1020	1120	1168	
2002	Reduce F below F_{pa}		< 1000	1070	1118	1345	
2003	Reduce F below F_{pa}		< 1240	1240	1207	1547	
2004	Reduce F below F_{pa}		< 1000	1050	1130	1391	140
2005	Reduce F below F_{pa}		< 840	1000	997	1263	23
2006	Reduce F below F_{pa}		< 880	950	921	1058	41
2007	Reduce F below F_{pa}		< 840	893	943	1052	36
2008	Keep F below F_{pa}		< 1000	964	781	790	8
2009	No long-term gains in increasing F		< 940	993	806	772	30
2010	No long-term gains in increasing F		< 920	993	871	867	56
2011	See scenarios		-	1241	1027	1027	28
2012	MSY approach		< 1060	1060	1099	1101	32
2013	MSY approach		< 1100	1100	1085	1093	26
2014	MSY approach		< 920	1001	1042	1041	27
2015	MSY approach		< 652	851	830	831	17
2016	MSY approach	≤ 760	≤ 745	779	830	832	31
2017	MSY approach	≤ 806		845	777	778	65
2018	MSY approach	≤ 931		920	850	850	141
2019	MSY approach	≤ 864		1009	1068	1068	145

Year	ICES advice	Catches corresponding to advice	Landings corresponding to advice	Agreed TAC	Official landings	ICES landings**	ICES discards
2020	Management plan	1686 (range 993–2597)		1652	1507	1524	106
2021	Management plan	1413 (range 811–2364)		1413	1364	1646	76
2022	MSY approach	≤ 1337		1337	1299*	1551	86
2023	MSY approach	≤ 1338		1338	1218*	1210	134
2024	MSY approach	≤ 1267		1267			
2025	MSY approach	≤ 1149					

* Preliminary.

** ICES estimated total landings in 2004–2007 and in 2021–2022 were corrected.

History of the catch and landings

Table 7 Sole in divisions 7.f and 7.g. Catch distribution by fleet in 2023, as estimated by ICES.

Total catch	Landings			Discards		
	Beam trawlers	Otter trawlers	Other gears	Beam trawlers	Otter trawlers	Other gears
1344 tonnes	87%	13%	< 1%	92%	7%	< 1%
	1210 tonnes			134 tonnes		

Table 8 Sole in divisions 7.f and 7.g. History of commercial landings by country and ICES estimates of landings and area misreporting. Weights are in tonnes.

Year	Belgium	France	Ireland	UK (E, W and N.I.)	UK (Scotland)	Other	Total official	ICES landings***
1986	1039*	146	188	611	-	5	1989	1600
1987	701*	117	9	437	-	-	1264	1222
1988	705*	110	72	317	-	-	1204	1146
1989	684*	87	18	203	-	-	992	992
1990	716*	130	40	353	0	-	1239	1189
1991	982*	80	32	402	0	-	1496	1107
1992	543*	141	45	325	6	-	1060	981
1993	575*	108	51	285	11	-	1030	928
1994	619*	90	37	264	8	-	1018	1009
1995	763*	88	20	294	-	-	1165	1157
1996	695*	102	19	265	0	-	1081	995
1997	660*	99	28	251	0	-	1038	927
1998	675*	98	42	198	-	-	1013	875
1999	604	61	51	231	0	-	947	1012
2000	694	74	29	243	-	-	1040	1091
2001	720	77	35	288	-	-	1120	1168
2002	703	65	32	318	-	-	1118	1345
2003	715	124	26	342	-	-	1207	1547
2004	735	79	33	283	-	-	1130	1391
2005	645	101	34	217	-	-	997	1263
2006	576	75	38	232	-	-	921	1058
2007	582	85	32	245	-	-	943	1052
2008	466	68	28	218	-	-	781	790
2009	513	73	26	195	-	-	806	772
2010	620	44	27	180	-	-	871	867
2011	775	54	30	168	-	-	1027	1027
2012	843	48	33	175	-	-	1099	1101
2013	789	49	42	205	-	-	1085	1093
2014	703	58	28	252	-	-	1042	1041
2015	674	24	27	105	-	-	830	831
2016	563	72	21	174	-	-	830	832
2017	551	49	28	149	-	-	777	778

Year	Belgium	France	Ireland	UK (E, W and N.I.)	UK (Scotland)	Other	Total official	ICES landings***
2018	607	44	27	171	-	-	850	850
2019	800	42	33	193	-	< 1	1068	1068
2020	1121	44	51	291	-	< 1	1507	1524
2021	858	61	48	395	-	2	1364	1646
2022**	840	67	31	354	-	7	1299	1551
2023**	876	42	43	242	-	14	1218	1210

* Including divisions 7.g–k.

**Preliminary official landings.

*** ICES estimated total landings in 2004–2007 and in 2021–2022 were corrected.

Summary of the assessment

Table 9 Sole in divisions 7.f and 7.g. Assessment summary. Weights are in tonnes and recruitment in thousands. “High” and “Low” refer to approximate 95% confidence intervals.

Year	Recruitment age 1			SSB			Landings**	Discards***	Fishing mortality ages 3–8		
	Low	Value	High	Low	Value	High			Low	Value	High
1971	5853	8718	12985	5647	6650	7832	1861	62	0.25	0.31	0.39
1972	3184	4556	6520	4927	5771	6760	1278	74	0.23	0.28	0.35
1973	2399	3435	4918	5057	5894	6870	1391	81	0.22	0.27	0.32
1974	2442	3497	5009	4701	5485	6400	1105	36	0.21	0.25	0.31
1975	2461	3537	5084	4325	5049	5895	919	27	0.20	0.25	0.30
1976	3708	5277	7510	3912	4564	5324	1350	58	0.23	0.28	0.34
1977	3435	4880	6931	3759	4356	5048	961	41	0.21	0.26	0.31
1978	3653	5223	7467	3819	4424	5124	780	45	0.188	0.23	0.29
1979	2604	3757	5421	3972	4586	5295	954	45	0.20	0.25	0.30
1980	3464	4917	6979	3974	4584	5288	1314	81	0.24	0.28	0.34
1981	3576	5076	7206	3667	4209	4831	1212	70	0.27	0.32	0.38
1982	3566	5069	7206	3622	4128	4705	1128	52	0.28	0.34	0.40
1983	4540	6474	9232	3576	4062	4614	1373	81	0.30	0.35	0.42
1984	4010	5724	8171	3726	4212	4761	1266	77	0.30	0.36	0.42
1985	3933	5613	8011	3456	3912	4428	1328	60	0.33	0.39	0.46
1986	2802	4001	5713	3579	4050	4583	1600	80	0.36	0.42	0.50
1987	4041	5701	8043	3164	3582	4055	1222	56	0.36	0.42	0.50
1988	3329	4650	6497	2912	3289	3715	1146	61	0.35	0.41	0.48
1989	3510	4903	6849	2760	3106	3495	992	70	0.33	0.39	0.46
1990	5252	7375	10356	2567	2889	3251	1189	57	0.35	0.41	0.48
1991	3589	4981	6914	2827	3201	3625	1107	126	0.33	0.40	0.47
1992	3663	5057	6982	2873	3262	3703	981	77	0.33	0.39	0.46
1993	3431	4753	6584	2697	3042	3432	928	56	0.35	0.42	0.49
1994	3141	4338	5993	2500	2810	3159	1009	52	0.39	0.45	0.53
1995	2743	3816	5311	2433	2729	3060	1157	50	0.42	0.50	0.58
1996	3182	4425	6156	2204	2470	2769	995	47	0.43	0.50	0.58
1997	4599	6378	8846	1948	2193	2470	927	46	0.43	0.51	0.60
1998	5684	7952	11126	2134	2416	2734	875	43	0.41	0.48	0.56
1999	9619	13579	19170	2354	2678	3046	1012	89	0.36	0.42	0.50
2000	6613	9145	12646	2550	2904	3307	1091	158	0.31	0.37	0.45
2001	4114	5735	7995	3755	4328	4988	1168	101	0.31	0.36	0.43
2002	5131	7101	9827	3849	4421	5078	1345	58	0.32	0.37	0.44
2003	3937	5421	7464	3648	4156	4733	1547	54	0.35	0.41	0.48
2004	3499	4778	6525	3618	4083	4608	1391	140	0.36	0.42	0.49
2005	3144	4269	5795	3300	3703	4155	1263	23	0.35	0.41	0.48
2006	2594	3533	4812	2921	3255	3627	1058	41	0.33	0.39	0.46
2007	2857	3891	5300	2686	2997	3345	1052	36	0.31	0.37	0.44
2008	5232	7288	10153	2616	2941	3308	790	8	0.29	0.34	0.41
2009	4965	6791	9289	2656	3042	3483	772	30	0.28	0.33	0.39
2010	2287	3184	4433	2945	3323	3750	867	56	0.27	0.32	0.37

Year	Recruitment age 1			SSB			Landings**	Discards***	Fishing mortality ages 3–8		
	Low	Value	High	Low	Value	High			Low	Value	High
2011	3971	5400	7342	3211	3601	4040	1027	28	0.27	0.32	0.38
2012	4711	6402	8699	3157	3541	3971	1101	32	0.29	0.34	0.41
2013	3801	5177	7050	3088	3454	3864	1093	26	0.29	0.34	0.41
2014	2913	4020	5547	3284	3687	4141	1041	27	0.28	0.35	0.42
2015	5726	7810	10653	3114	3510	3955	831	17	0.26	0.32	0.38
2016	6241	8418	11356	3162	3559	4006	832	31	0.24	0.29	0.35
2017	10418	14531	20266	3470	3909	4403	778	65	0.21	0.26	0.32
2018	5150	7055	9664	4375	4946	5590	850	141	0.20	0.25	0.30
2019	5235	7164	9802	5089	5746	6489	1068	145	0.21	0.26	0.31
2020	3636	5121	7211	5200	5859	6602	1524	106	0.23	0.28	0.34
2021	5479	7942	11512	5048	5734	6513	1646	76	0.25	0.30	0.37
2022	4925	7991	12963	4654	5290	6012	1551	86	0.25	0.31	0.39
2023	5450	10713	21056	4263	4950	5748	1210	134	0.23	0.29	0.38
2024	3435	5177*	13579	4307	5415	6837					

* Median resampled recruitment (1971–2021) as estimated by a stochastic projection.

** ICES estimated total landings in 2004–2007 and in 2021–2022 were corrected

*** ICES discard estimates only available from 2004 to 2023. Discards prior to 2004 are calculated using a discard rate-at-age based on 2004–2018 discard data.

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