

Plaice (*Pleuronectes platessa*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches in 2020 should be no more than 2295 tonnes.

Stock development over time

Fishing mortality (F) has been declining since the late 1990s and has been below F_{MSY} proxy since 2010. The biomass (SSB) has an increasing trend since 2007 and has been above $MSY B_{trigger}$ proxy since 2010.

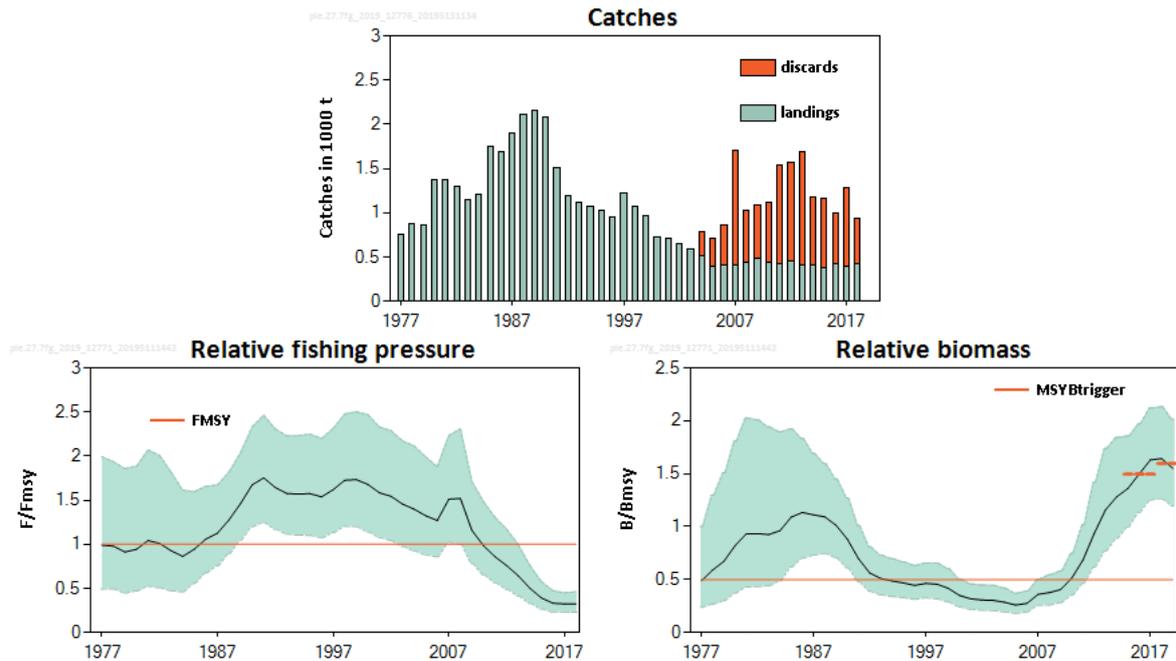


Figure 1 Plaice in divisions 7.f and 7.g. Catches (thousand tonnes). Observed discards are only available since 2004. Fishing mortality relative to F_{MSY} (bottom left panel) and biomass relative to B_{MSY} (bottom right panel). The shaded areas in the F/F_{MSY} and B/B_{MSY} plots represent 95% confidence intervals. The short orange lines in the relative SSB plot indicate the average values of the respective years (2015 to 2017 and 2018 to 2019).

Stock and exploitation status

ICES assesses that fishing pressure on the stock is below F_{MSY} proxy and biomass is above $MSY B_{trigger}$ proxy.

Table 1 Plaice in divisions 7.f and 7.g. State of the stock and fishery relative to reference points.

		Fishing pressure			Stock size			
		2016	2017	2018	2017	2018	2019	
Maximum sustainable yield	F_{MSY}	✓	✓	✓	$MSY B_{trigger}$	✓	✓	✓
				Below proxy				Below proxy
Precautionary approach	F_{pa} , F_{lim}	✓	✓	✓	B_{pa} , B_{lim}	✓	✓	✓
				Below possible reference points				Below possible reference points
Management plan	F_{MGT}	—	—	—	B_{MGT}	—	—	—

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). A biomass index, based on a Surplus Production in Continuous Time (SPiCT) model, was used as an indicator of stock development. The advice is based on the ratio between the average of the two latest index values (index A) and the average of the three preceding values (index B), multiplied by the recent advised catch.

The index indicates an increase of 6% between 2015–2017 and 2018–2019 and therefore the uncertainty cap was not applied. As the fishing mortality is below and the stock size above the proxy levels, no additional precautionary buffer was applied. The mean discard rate in 2014–2018 was 67% of the total catch.

Table 2 Plaice in divisions 7.f and 7.g. The basis for the catch scenarios*.

Index A (2018–2019)		1.60
Index B (2015–2017)		1.50
Index ratio (A/B)		1.06
Uncertainty cap	Not applied	-
Recent advised catch (for 2019)		2160 tonnes
Precautionary buffer	Not applied	-
Catch advice**		2295 tonnes
% Advice change***		+6%

* The figures in the table are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

** [recent advised catch] × [index ratio].

*** Advice value for 2020 relative to the advice value for 2019.

This year's advice has increased by 6% when compared to last year's advice, due to the recent increasing trend in biomass index.

Basis of the advice

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

Advice basis	Precautionary approach.
Management plan	The EU multiannual plan (MAP) for stocks in the Western Waters and adjacent waters (EU, 2019) applies to bycatches of this stock.

Quality of the assessment

Discard estimates for the period of 1977–2003 used in the model are uncertain as they were assumed using the mean ratio between landings and discards in 2004–2010, when discarding of commercial-sized fish was negligible.

Discard sampling has improved in recent years under the EU Data Collection Framework (DCF); unknown levels of discard mortality are a source of uncertainty in the assessment.

Issues relevant for the advice

Sole and plaice are caught in mixed fisheries, which generates high discards of plaice owing to a mismatch in the selectivity properties of the gear and the plaice minimum landing size. In addition, the relatively low market value of plaice may contribute to the high and variable discard rates. Catchpole *et al.* (2015) estimate discard survival of plaice at around 40%.

There is no quantitative mixed-fishery analysis that includes plaice in this area. Plaice in divisions 7.f and 7.g is primarily a bycatch of the targeted sole fishery, so changes in effort in this fishery will impact fishing mortality on plaice.

Reference points

Table 4 Plaice 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 proxy}	$\frac{B}{B_{MSY}} = 0.5^*$	Estimated by SPiCT	ICES (2019)
	F _{MSY proxy}	$\frac{F}{F_{MSY}} = 1^*$	Estimated by SPiCT	ICES (2019)
Precautionary approach	B _{lim}	Not defined		
	B _{pa}	Not defined		
	F _{lim}	Not relevant		
	F _{pa}	Not relevant		
Management plan	SSB _{MGT}	Not applicable		
	F _{MGT}	Not applicable		

* No reference points are defined for this stock in terms of absolute values. The SPiCT-estimated values of the ratios F/F_{MSY} and B/B_{MSY} are used to estimate stock status relative to the proxy MSY reference points.

Basis of the assessment

Table 5 Plaice in divisions 7.f and 7.g. The basis of the assessment.

ICES stock data category	3 (ICES, 2018).
Assessment type	SPiCT (Surplus Production model in Continuous Time), considered indicative of trends only (ICES, 2019).
Input data	Commercial landings and discards, two survey indices (UK (E&W)-BTS-Q3, IGFS-WIBTS-Q4), LPUE from UK beam and otter trawlers.
Discards and bycatch	Discard numbers used in the model for the period of 1977–2003 were assumed using the mean ratio between landings and discards in 2004–2010, when discarding of commercial-sized fish was negligible.
Indicators	None.
Other information	Benchmarked in 2011 (ICES, 2011) and moved to category 3 in 2012 (ICES, 2012).
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

Information from stakeholders

There is no additional available information.

History of the advice, catch, and management

Table 6 Plaice in divisions 7.f and 7.g. History of ICES advice, the agreed TAC, and the official and ICES estimates of landings and discards. Weights are in tonnes. N/A = French landings not available.

Year	ICES advice	Catch corresponding to advice	Landings corresponding to advice	Agreed TAC	Official landings	ICES landings	ICES discards*
1987	TAC not to be restrictive on other species	-	-	2000	1912	1901	-
1988	TAC not to be restrictive on other species	-	-	2500	2194	2116	-
1989	TAC not to be restrictive on other species	-	-	2500	2583	2151	-
1990	F likely to be F(88)	-	~1900	1900	2219	2082	-
1991	F likely to be F(89)	-	~1700	1900	1827	1501	-
1992	No long-term gains in increasing F	-	-	1500	1362	1188	-
1993	No long-term gains in increasing F	-	-	1400	1303	1114	-
1994	No long-term gains in increasing F	-	-	1400	982	1070	-
1995	No increase in F	-	1290	1400	956	1028	-
1996	20% reduction in F	-	930	1100	978	952	-
1997	20% reduction in F	-	1100	1100	1259	1217	-
1998	20% reduction in F	-	1000	1100	1149	1067	-
1999	35% reduction in F	-	670	905	656	968	-
2000	30% reduction in F	-	700	800	721	718	-
2001	40% reduction in F	-	600	760	684	714	-
2002	At least 35% reduction in F	-	680	680	618	642	-
2003	At least 40% reduction in F	-	660	660	564	594	-
2004	F < 0.10 or recovery plan	-	< 210	560	489	510	274
2005	70% reduction in F or recovery plan	-	< 250	476	399	386	321
2006	50% reduction in F or recovery plan	-	< 400	476	414	404	453
2007	50% reduction in F or recovery plan	-	< 380	417	417	410	1288
2008	60% reduction in F	-	< 240	491	375	437	583
2009	75% reduction in F	-	< 170	422	N/A	481	608
2010	50% reduction in F	-	< 330	451	442	442	670
2011	See scenarios	-	-	410	420	427	1107
2012	Reduce catches	-	-	369	450	442	1123
2013	Decrease landings by 19% (1.5% increase followed by 20% PA reduction)	-	< 360	369	412	414	1274
2014	Increase catches by 20%	< 1608	< 519	461	411	410	772
2015	Catches should be no more than recent catches (last 3 years)	< 1500	< 420	461	381	381	778
2016	Precautionary approach (same catch value as advised for 2015)	≤ 1500	≤ 420**	420	430	431	571
2017	Precautionary approach (same catch value as advised for 2016)	≤ 1500	≤ 405	405	388	390	895
2018	Precautionary approach	≤ 1800	≤ 511	511	422***	422	508
2019	Precautionary approach	≤ 2160		1 662			
2020	Precautionary approach	≤ 2295					

* Discards only available from 2004 to 2018.

** Wanted catch.

*** Preliminary.

History of the catch and landings

Table 7 Plaice in divisions 7.f and 7.g. Catch distribution by fleet in 2018 as estimated by ICES.

Catch	Landings					Discards				
	Otter trawl	Beam trawl	Gillnet	Seine	Other	Otter trawl	Beam trawl	Gillnet	Seine	Other
930 tonnes	42%	53%	< 1%	2%	3%	19%	76%	< 1%	2%	3%
	422 tonnes					508 tonnes				

Table 8 Plaice in divisions 7.f and 7.g. History of official landings by country, ICES estimated landings, and discards. Weights are in tonnes.

Year	Belgium	UK	France	Ireland	The Netherlands	Total reported	Discards	ICES landings	ICES catch
1977	214	150	365	28		757	na	757	a
1978	196	152	527	0		875	na	875	a
1979	171	176	467	49		863	na	863	a
1980	372	234	706	61		1373	na	1373	a
1981	365	251	697	64		1377	na	1377	a
1982	341	196	568	198		1303	na	1303	na
1983	314	279	532	48		1173	na	1146	na
1984	283	366	558	72		1279	na	1210	na
1985	357	466	493	91		1407	na	1752	na
1986	665	539	878	302	9	2384	na	1691	na
1987	581	496	708	127		1912	na	1901	na
1988	617	630	721	226		2194	na	2116	na
1989	843	471	1089	180		2583	na	2151	na
1990	794	498	767	160		2219	na	2082	na
1991	836	392	444	155		1827	na	1501	na
1992	371	307	504	180		1362	na	1188	na
1993	542	299	373	89		1303	na	1114	na
1994	350	252	298	82		982	na	1070	na
1995	346	286	254	70		956	na	1028	na
1996	410	239	246	83		978	na	952	na
1997	594	258	329	78		1259	na	1217	na
1998	540	176	298	135		1149	na	1067	na
1999	371	170	N/A	115		N/A	na	968	na
2000	224	134	287	76		721	na	718	na
2001	241	136	262	45		684	na	714	na
2002	248	105	186	79		618	na	642	na
2003	221	127	165	51		564	na	594	na
2004	212	87	145	45		489	274	510	784
2005	168	55	132	44		399	321	386	707
2006	172	88	106	48		414	453	404	857
2007	194	61	104	58		417	1288	410	1698
2008	188	63	70	64		385	583	437	1020
2009	216	56	148	61		482	608	481	1071
2010	188	54	136	63		442	670	442	1103
2011	210	45	98	67		420	1107	427	1528
2012	203	44	126	76		442	1123	450	1565
2013	186	40	106	80		412	1274	414	1686
2014	181	24	155	50		411	1158	410	1183
2015	185	25	111	59		381	1159	381	1159
2016	244	27	108	64		431	1002	430	1002
2017	180	38	108	63		390	895	388	1284
2018*	204	40	127	51		422	508	422	930

* Preliminary.

na = not available.

Summary of the assessment

Table 9 Plaice in divisions 7.f and 7.g. SPiCT assessment summary. High and Low refer to the 95% confidence intervals for B/B_{MSY} and F/F_{MSY} . Weights are in tonnes.

Year	B/B_{MSY}			Landings	Discards	F/F_{MSY}		
	Low	Value	High			Low	Value	High
1977	0.24	0.49	1.00	757		0.49	0.99	1.99
1978	0.27	0.59	1.30	875		0.50	0.98	1.94
1979	0.30	0.67	1.51	863		0.45	0.91	1.86
1980	0.37	0.82	1.81	1373		0.47	0.94	1.89
1981	0.43	0.93	2.03	1377		0.52	1.04	2.07
1982	0.43	0.93	2.01	1303		0.51	1.01	2.01
1983	0.44	0.93	1.94	1146		0.47	0.93	1.82
1984	0.49	0.96	1.90	1210		0.46	0.86	1.61
1985	0.62	1.09	1.92	1752		0.56	0.94	1.60
1986	0.70	1.13	1.83	1691		0.68	1.06	1.66
1987	0.73	1.11	1.69	1901		0.76	1.13	1.67
1988	0.75	1.09	1.60	2116		0.90	1.28	1.82
1989	0.71	1.01	1.45	2151		1.05	1.46	2.04
1990	0.61	0.88	1.27	2082		1.20	1.67	2.33
1991	0.48	0.70	1.01	1501		1.25	1.75	2.46
1992	0.39	0.56	0.81	1188		1.17	1.64	2.31
1993	0.36	0.51	0.73	1114		1.12	1.58	2.23
1994	0.34	0.49	0.70	1070		1.10	1.57	2.23
1995	0.33	0.47	0.67	1028		1.10	1.57	2.25
1996	0.31	0.45	0.63	952		1.08	1.54	2.20
1997	0.33	0.46	0.66	1217		1.13	1.62	2.31
1998	0.32	0.46	0.66	1067		1.20	1.73	2.48
1999	0.29	0.42	0.60	968		1.20	1.73	2.50
2000	0.24	0.35	0.51	718		1.14	1.68	2.47
2001	0.22	0.32	0.46	714		1.08	1.58	2.33
2002	0.21	0.31	0.45	642		1.04	1.54	2.29
2003	0.21	0.30	0.45	594		0.98	1.46	2.17
2004	0.20	0.29	0.42	510	274	0.93	1.40	2.11
2005	0.18	0.26	0.37	386	321	0.88	1.32	1.99
2006	0.19	0.28	0.39	404	453	0.86	1.27	1.88
2007	0.26	0.36	0.50	410	1288	1.02	1.51	2.23
2008	0.26	0.38	0.55	437	583	1.00	1.52	2.31
2009	0.28	0.41	0.58	481	608	0.78	1.16	1.71
2010	0.35	0.51	0.75	442	670	0.65	0.98	1.48
2011	0.46	0.69	1.02	427	1107	0.57	0.86	1.30
2012	0.62	0.94	1.42	450	1123	0.49	0.76	1.17
2013	0.77	1.16	1.74	414	1274	0.42	0.64	1.00
2014	0.89	1.28	1.84	411	1158	0.33	0.50	0.76
2015	1.00	1.36	1.86	381	1159	0.27	0.39	0.58
2016	1.14	1.50	1.97	431	1002	0.23	0.33	0.47
2017	1.25	1.63	2.12	390	895	0.23	0.32	0.45
2018	1.27	1.64	2.13	422	508	0.23	0.33	0.46
2019	1.19	1.55	2.01					

Sources and references

Catchpole, T., Randall, P., Forster, R., Smith, S., Ribeiro Santos, A., Armstrong, F., Hetherington, S., Bendall, V., and Maxwell, D. 2015. Estimating the discard survival rates of selected commercial fish species (plaice – *Pleuronectes platessa*) in four English fisheries. MF1234, Cefas report. 108 pp.

EU. 2019. REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. 57 pp. <https://data.consilium.europa.eu/doc/document/PE-78-2018-INIT/en/pdf>.

ICES. 2011. Report of the Benchmark Workshop on Flatfish (WKFLAT), 1–8 February 2011, Copenhagen, Denmark. ICES CM 2011/ACOM:39. 257 pp.

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

ICES. 2018. Advice basis. In Report of the ICES Advisory Committee, 2018. ICES Advice 2018, Book 1, Section 1.2. <https://doi.org/10.17895/ices.pub.4503>.

ICES. 2019. Report of the Working Group for the Celtic Seas Ecoregion. ICES Scientific Reports. 1:29. XXXX pp. <http://doi.org/10.17895/ices.pub.4982>.

Recommended citation: ICES. 2019. Plaice (*Pleuronectes platessa*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea). In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, ple.27.7fg, <https://doi.org/10.17895/ices.advice.4800>