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Plaice (*Pleuronectes platessa*) in Division 7.e (western English Channel)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches of the Division 7.e plaice stock in 2019 should be no more than 3648 tonnes.

Stock development over time

The assessment is indicative of trends. Fishing mortality (F) declined substantially after 2007, but has increased again since 2015 and is currently above F_{MSY}. The spawning–stock biomass (SSB) has increased substantially since 2008, and is currently well above MSY $B_{trigger}$. Recruitment has been fluctuating without trend.

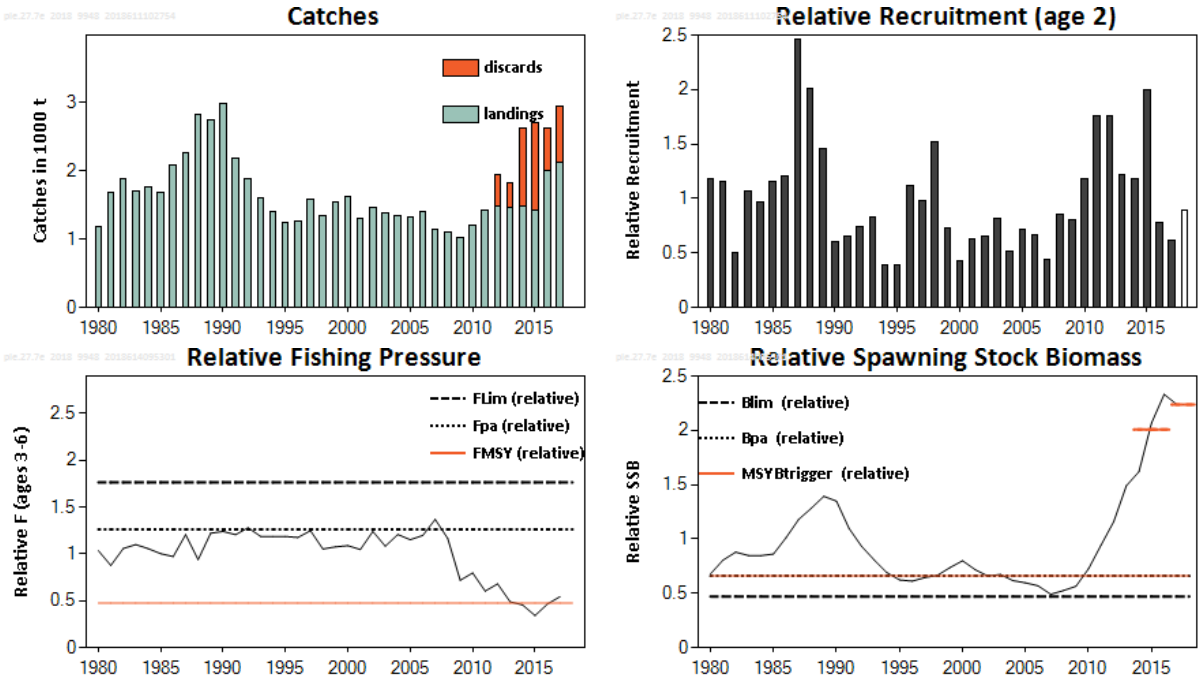

Figure 1 Plaice in Division 7.e. Summary of the stock assessment. Recruitment, fishing pressure, and SSB are relative in relation to the average of the time-series. The short red lines in the relative SSB plot indicate the average values of the respective years. The assumed recruitment value is not shaded. Discard data are only available for 2012–2017 and are not included in the assessment.

Stock and exploitation status

ICES assesses that fishing pressure on the stock is above F_{MSY} proxy but below F_{pa} and F_{lim}, and spawning–stock size is above MSY $B_{trigger\ proxy}$, B_{pa}, and B_{lim}.

Table 1 Plaice in Division 7.e. State of the stock and fishery relative to reference points.

	Fishing pressure				Stock size			
	2015	2016	2017		2016	2017	2018	
Maximum sustainable yield	$F_{MSY\ proxy}$	✓	✓	✗ Above proxy	MSY $B_{trigger\ proxy}$	✓	✓	✓ Above proxy
Precautionary approach	F_{pa},F_{lim}	✓	✓	✓ Harvested sustainably	B_{pa},B_{lim}	✓	✓	✓ Full reproductive capacity
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	—	— Not applicable

Catch scenarios

ICES framework for category 3 stocks was applied (ICES, 2012). The SSB values from the assessment are used as 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 is estimated to have increased by less than 20% and, thus, the uncertainty cap was not applied. The fishing mortality is estimated to be above the proxy of the MSY reference point; however, as the SSB is estimated to be more than three times B_{pa}, the precautionary buffer was not applied to the advice. The discard rate is 31% of the total catch in weight.

Table 2 Plaice in Division 7.e. The basis for the catch scenarios*.

Division 7.e plaice stock		
Index A (2017–2018)		2.2
Index B (2014–2016)		2.0
Index ratio (A/B)		1.12
Uncertainty cap	Not applied	-
Advised catch for 2018 issued in 2017		3257 tonnes
Discard rate (2012–2017)		0.31
Precautionary buffer	Not applied	-
Catch advice**		3648 tonnes
Wanted catch corresponding to catch advice^		2517 tonnes
% Advice change (plaice Division 7.e stock)***		+12
Plaice in Division 7.e		
Proportion of Division 7.e stock landings caught in Division 7.e (2003–2017)		0.90
Catch of plaice in Division 7.e corresponding to the advice for the stock		3283 tonnes
Wanted catch of plaice in Division 7.e corresponding to the advice for the stock^		2265 tonnes

* 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 2019 relative to the advice value 2018.

^ "Wanted catch" is used to describe fish that would be landed in the absence of the EU landing obligation.

This year's advice has increased by 12% when compared to last year's advice, which is in line with the increase in the biomass index.

Basis of the advice

Table 3 Plaice in Division 7.e. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	The EU has proposed a multiannual management plan for the Western Waters, which is not yet finalized (EU, 2018).

Quality of the assessment

The assessment is considered only indicative of trends because it is based on landings data only and because discarding is considered to be significant in this stock. Reliable discard data are only available from 2012.

There is uncertainty about the landing statistics of the Division 7.e plaice stock because of migration between this area and the eastern English Channel (Division 7.d) during the spawning period. The assessment partially corrects for this by incorporating an added element of Division 7.d landings and age information to account for migration. The assessment results depend on the assumption on the mixing rate, which is estimated from the existing tagging survey (ICES, 2010). Stock structure and mixing rate during the spawning period need to be investigated; with the general increase in plaice stocks, new data are needed to determine if the current mixing rate estimates are still valid.

The assessment relies heavily on the age composition data derived from UK (E+W) sample data and would benefit from the addition of age composition data from France and Belgium as each of these fisheries have accounted for approximately 8% of the landings in 2017.

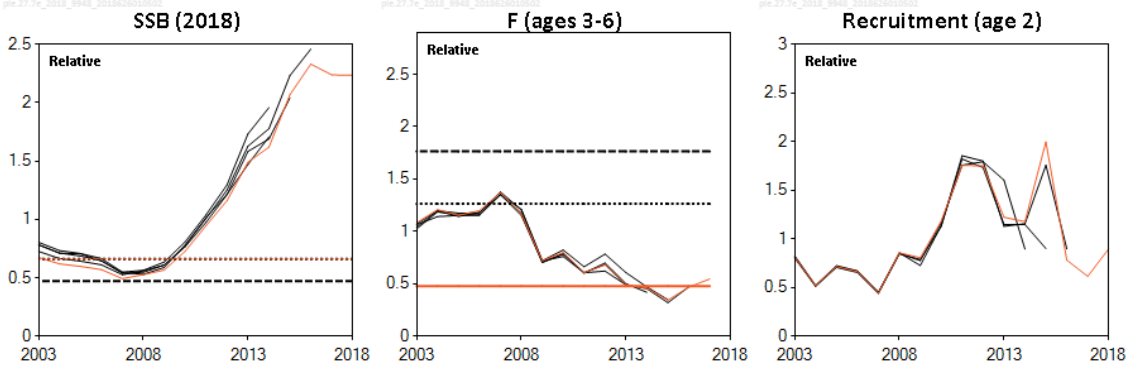

Figure 2 Plaice in Division 7.e. Historical assessment results.

Issues relevant for the advice

The stock assessment is for the Division 7.e plaice stock and ICES provides catch advice for that stock. A single TAC covers both of the divisions 7.d and 7.e; management should ensure that fishing opportunities are in line with the stock status for each of the stocks in the combined management area in order to ensure that both stocks are exploited sustainably.

Assuming the same proportion of the Division 7.e plaice stock is taken in Division 7.d as during 2003–2017, this will correspond to catches of plaice in Division 7.e in 2019 of no more than 3283 tonnes.

Reference points

Table 4 Plaice in Division 7.e. Reference points, relative values, and their technical basis.

Framework	Reference point	Relative value*	Technical basis	Source
MSY approach	MSY $B_{trigger\ proxy}$	0.66	B_{pa}	ICES (2016a, 2018)
	$F_{MSY\ proxy}$	0.48	EqSim run with segmented regression with breakpoint at B_{loss}. F_{MSY} was taken as the peak of the median landings yield curve.	ICES (2016a, 2018)
Precautionary approach	B_{lim}	0.47	B_{loss}	ICES (2016a, 2018)
	B_{pa}	0.66	$1.4 \times B_{lim}$	ICES (2016a, 2018)
	F_{lim}	1.76	Based on a segmented regression simulation of recruitment without error.	ICES (2016a, 2018)
	F_{pa}	1.26	$F_{lim} \times \exp(-1.645 \times \sigma)$; $\sigma = 0.2$	ICES (2016a, 2018)
Management plan	SSB_{mgt}	Not applicable		
	F_{mgt}	Not applicable		

* All values are relative to the average of the time-series in the stock assessment (see Table 9).

Basis of the assessment

Table 5 Plaice in Division 7.e. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016b).
Assessment type	Age-based analytical assessment (XSA), considered indicative of trends only (ICES, 2018).
Input data	Commercial catches (international landings, ages and length frequencies from catch sampling); two survey indices (UK-FSP_Q3 and Q1SWBeam). Maturity and natural mortality are constant for all years.
Discards and bycatch	Used to provide advice, but not included in the assessment. Discard information is available from 2012 onwards.
Indicators	None.
Other information	Inter-benchmark in 2015 (IBPWCFlat2; ICES, 2015). Reference points were defined at WKMSYREF4 (ICES, 2016a).
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 Division 7.e. History of ICES advice, the agreed TAC, official landings, and ICES estimates of landings and discards. Weights are in tonnes.

Year	ICES advice	Catch corresponding to advice 7.e stock	Landings corresponding to advice 7.e stock	Catch corresponding to advice 7.e area	Landings corresponding to advice 7.e area	Agreed TAC 7.d + 7.e	Official landings in 7.e	ICES discard estimates in 7.e	ICES landings 7.e plaice stock
1987	Precautionary TAC		6800			8300	1920	-	2272
1988	Precautionary TAC		6900			9960	2330	-	2835
1989	No increase in effort; TAC		11700			11700	2250	-	2742
1990	No increase in F; TAC		10700			10700	1980	-	285
1991	50% reduction in F in 7.e		8800			10700	1640	-	2183
1992	Sq. F gives over mean SSB		2000			9600	1570	-	1882
1993	Not outside safe biological limits		-			8500	1440	-	1614
1994	Within safe biological limits		-			9100	1290	-	1404
1995	No increase in F		1400			8000	1160	-	1247
1996	60% reduction in F		600			7530	1140	-	1266
1997	60% reduction in F		510			7090	1370	-	1583
1998	60% reduction in F		500			5700	1240	-	1346
1999	Reduce F below F_{pa}		1100			7400	1150	-	1543
2000	Reduce F below F_{pa}		< 1080			6500	1290	-	1626
2001	Reduce F below F_{pa}		< 930			6000	1110	-	1310
2002	Reduce F below F_{pa}		<890			6690	1250	-	1472
2003	At least 50% reduction in F		< 530			5970	1240	-	1387
2004	A 55% reduction in F		< 660			6060	1140	-	1337
2005	A 64% reduction in F		< 580			5151	1130	-	1319
2006	Substantial reduction in catch		-			5151	1239	-	1411
2007	Substantial reduction in catch		-			5050	966	-	1146
2008	Substantial reduction in catch		-			5050	890	-	1112
2009	Same advice as last year		-			4646	975	-	1024
2010	Substantial reduction in catch		-			4274	1123	-	1207
2011	See scenarios		-			4665	1354	-	1417
2012	MSY Framework (F_{MSY})		< 1440			5062	1363	380	1492
2013	MSY Framework (F_{MSY})		-		< 2100	6400	1360	291	1472
2014	MSY transition		-		< 1397	5322	1340	1006	1490

Year	ICES advice	Catch corresponding to advice 7.e stock	Landings corresponding to advice 7.e stock	Catch corresponding to advice 7.e area	Landings corresponding to advice 7.e area	Agreed TAC 7.d + 7.e	Official landings in 7.e	ICES discard estimates in 7.e	ICES landings 7.e plaice stock
2015	MSY Framework (F_{MSY})	< 1885	< 1546		< 1318	6223	1249	1172	1424
2016	Precautionary approach (increase recent advised catch by no more than 20%)	≤ 2262	≤ 1697	≤ 1944	≤ 1458	12446	1779*	500	2013
2017	Precautionary approach (increase recent advised catch by no more than 20%)	≤ 2714	≤ 1391	≤ 2454	≤ 1258	10022	1908*	593	2128
2018	Precautionary approach (increase recent advised catch by no more than 20%)	≤ 3257	≤ 2239	≤ 2946	≤ 2025	10360			
2019	Precautionary approach	≤ 3648		≤ 3283					

* Preliminary.

History of the catch and landings

Table 7 Plaice in Division 7.e. Catch distribution of plaice in 7.e by fleet in 2017 as estimated by ICES.*

Catch	Landings				Discards			
	Beam trawl	Otter trawl	Fixed nets	Other gear	Beam trawl	Otter trawl	Fixed nets	Other gear
2508 t	71%	24%	4.3%	0.97%	53%	47%	0.0183%	0.021%
	1915 t				593 t			

*Catch and the catch contribution by fleet correspond to the amount taken in Division 7.e and do not include the catch taken in Division 7.d.

Table 8 Plaice in Division 7.e. History of commercial catch and landings; both the official and ICES estimated values are presented by country. All weights are in tonnes.

Year	Landings										Discards***
	Belgium	Netherlands	France	UK (E &W) incl. CI's	Others	Total reported	Unallocated *	Total*	7.e stock caught in 7.d**	ICES estimated landings	
1976	5	-	323	312	-	640	-	640	-	640	
1977	3	-	336	363	-	702	-	702	-	702	
1978	3	-	314	467	-	784	-	784	-	784	
1979	2	-	458	515	-	975	2	977	-	977	
1980	23	-	325	609	9	966	113	1079	99	1178	
1981	27	-	537	953	-	1517	−16	1501	175	1676	
1982	81	-	363	1109	-	1553	135	1688	190	1878	
1983	20	-	371	1195	-	1586	−91	1495	219	1714	
1984	24	-	278	1144	-	1446	101	1547	211	1758	
1985	39	-	197	1122	-	1358	83	1441	236	1677	
1986	26	-	276	1389	-	1691	119	1810	268	2078	
1987	68	-	435	1419	-	1922	36	1958	314	2272	
1988	90	-	584	1654	-	2328	130	2458	377	2835	
1989	89	-	448	1712	-	2249	109	2358	384	2742	
1990	82	-	N/A	1891	2	1977	616	2593	392	2985	
1991	57	-	251	1326	-	1634	214	1848	335	2183	
1992	25	-	419	1110	14	1568	56	1624	258	1882	
1993	56	-	284	1080	24	1444	−27	1417	197	1614	
1994	10	-	277	998	-	1285	−129	1156	248	1404	
1995	13	-	288	857	-	1158	−127	1031	216	1247	
1996	4	-	279	855	-	1138	−94	1044	222	1266	
1997	6	-	329	1038	1	1374	−51	1323	260	1583	

Year	Landings										Discards***
	Belgium	Netherlands	France	UK (E &W) incl. CI's	Others	Total reported	Unallocated *	Total*	7.e stock caught in 7.d**	ICES estimated landings	
1998	22	-	327	892	1	1242	−111	1131	215	1346	
1999	12	-	194	947	-	1153	146	1299	244	1543	
2000	4	-	360	926	+	1290	−9	1281	345	1625	
2001	12	-	303	797	-	1112	−6	1106	204	1310	
2002	27	-	242	978	+	1247	10	1257	215	1472	
2003	39	-	216	985	-	1240	37	1277	110	1387	
2004	46	-	184	912	-	1142	70	1212	126	1337	
2005	48	-	198	887	-	1133	70	1203	117	1319	
2006	52	-	223	964	-	1239	74	1313	97	1411	
2007	84	-	202	680	-	966	37	1003	143	1146	
2008	66	-	148	676	-	890	86	976	135	1112	
2009	53	2	191	729	-	975	−52	923	101	1024	
2010	51	2	227	843	-	1123	−31	1092	116	1208	
2011	141	3	274	936	-	1354	−20	1334	83	1417	
2012	134	2	224	1003	-	1363	3	1366	126	1492	448
2013	97	1	221	1041	-	1360	−9	1351	121	1472	351
2014	41	0	323	976	-	1340	1	1341	149	1490	1133
2015	111	1	224	912	1	1249	3	1246	178	1424	1276
2016^	145	< 1	204	1429	-	1779	−1	1777	235	2013	618
2017^	151	< 1	153	1602	1	1908	7	1915	213	2128	821

* Estimated by the working group.
** Migration correction (15% of the mature population caught in Quarter 1 in Division 7.d) added to stock.
*** Discard estimated by the working group, including discards from the migration correction.
^ Preliminary.

Summary of the assessment

Table 9 Plaice in Division 7.e. Assessment summary. Weights are in tonnes.

Year	Relative recruitment (age 2)	Relative SSB	Landings	Discards	Relative F (ages 3–6)
1980	1.18	0.68	1178		1.04
1981	1.16	0.81	1676		0.88
1982	0.50	0.88	1878		1.06
1983	1.06	0.85	1714		1.10
1984	0.96	0.85	1758		1.06
1985	1.16	0.86	1677		1.00
1986	1.21	1.01	2078		0.97
1987	2.5	1.18	2272		1.21
1988	2.0	1.28	2835		0.94
1989	1.45	1.39	2742		1.22
1990	0.61	1.35	2985		1.24
1991	0.65	1.10	2183		1.21
1992	0.74	0.93	1882		1.28
1993	0.83	0.81	1614		1.19
1994	0.39	0.69	1404		1.19
1995	0.39	0.62	1247		1.19
1996	1.12	0.61	1266		1.18
1997	0.98	0.64	1583		1.25
1998	1.52	0.67	1346		1.05
1999	0.73	0.74	1543		1.08
2000	0.43	0.80	1626		1.09
2001	0.63	0.72	1310		1.05
2002	0.65	0.66	1472		1.24

Year	Relative recruitment (age 2)	Relative SSB	Landings	Discards	Relative F (ages 3–6)
2003	0.81	0.67	1387		1.08
2004	0.52	0.62	1337		1.21
2005	0.71	0.60	1319		1.15
2006	0.66	0.57	1411		1.20
2007	0.44	0.49	1146		1.37
2008	0.86	0.53	1112		1.17
2009	0.81	0.57	1024		0.72
2010	1.18	0.73	1207		0.80
2011	1.75	0.95	1417		0.60
2012	1.75	1.16	1492	448	0.68
2013	1.22	1.49	1472	351	0.49
2014	1.18	1.62	1490	1133	0.46
2015	2.0	2.1	1424	1276	0.34
2016	0.78	2.3	2013	618	0.47
2017	0.61	2.2	2128	821	0.55
2018	0.90*	2.2			

* Geometric mean of the time-series.

Sources and references

EU 2018. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a multiannual plan for fish stocks in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulation (EU) 2016/1139 establishing a multiannual plan for the Baltic Sea, and repealing Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) 509/2007 and (EC) 1300/2008. COM/2018/0149 final. 30 pp. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0149&from=EN.

ICES. 2010. Report of the Benchmark Workshop on Flatfish (WKFLAT), 25 February–4 March 2010, Copenhagen, Denmark. ICES CM 2010/ACOM:37. 270 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. 2015. Report of the Second Inter-Benchmark Protocol on West of Channel Flatfish (IBPWCFlat2), June–September 2015, by correspondence. ICES CM 2015/ACOM:55. 142 pp.

ICES. 2016a. Report of the Workshop to consider F_{MSY} ranges for stocks in ICES categories 1 and 2 in Western Waters (WKMSYREF4), 13–16 October 2015, Brest, France. ICES CM 2015/ACOM:58. 187 pp.

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

ICES. 2018. Report of the Working Group for the Celtic Seas Ecoregion (WGCSE), 9–18 May 2018, ICES Headquarters, Copenhagen, Denmark. ICES CM 2018/ACOM:13. In prep.