

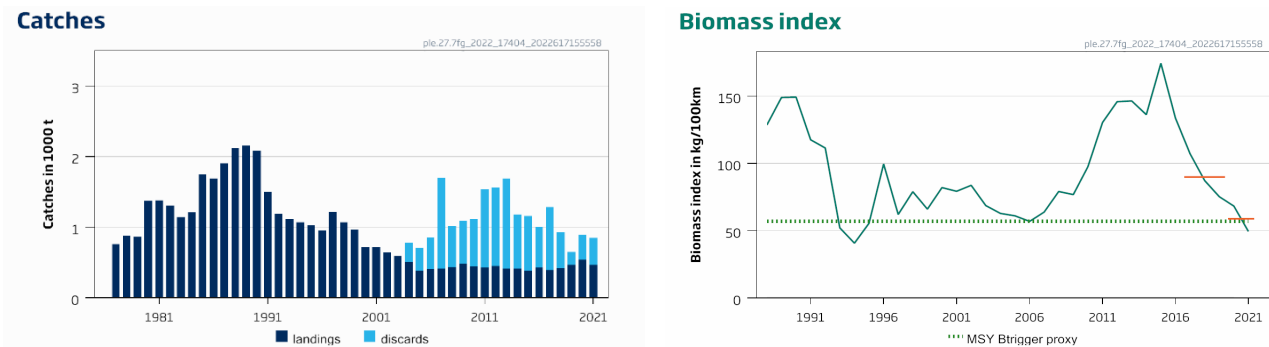
## Plaice (*Pleuronectes platessa*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea)

### ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches should be no more than 402 tonnes in each of the years 2023 and 2024.

### Stock development over time

The fishing pressure proxy on the stock is above  $F_{MSY\ proxy}$  (Figure 2), and the stock-size index is below  $MSY\ B_{trigger\ proxy}$  ( $I_{trigger}$ ).



**Figure 1** Plaice in divisions 7.f and 7.g. Catches (thousand tonnes) and biomass index. The short orange lines in the biomass index indicate the average values of the respective years (2017 to 2019 and 2020 to 2021).

### Catch scenarios

ICES framework for category 3 stocks was applied (rfb rule, method 2.1; ICES, 2022a). A survey biomass index was used as an indicator of stock development. The advice is based on the recent advised catches, multiplied by the ratio of the mean of the last two index values (index A) and the mean of the three preceding values (index B), a ratio of observed mean length in the catch relative to the target mean length, a biomass safeguard, and a precautionary multiplier. Recent catch was used rather than recent advice because catches have been considerably lower than the advice and the advice rule is intended to adjust the realized catches. The stability clause was not applied because the recent biomass index value was below  $MSY\ B_{trigger}$ . The discard rate (average 2019–2021) was 38%.

**Table 1** Plaice in divisions 7.f and 7.g. The basis for the catch scenarios\*.

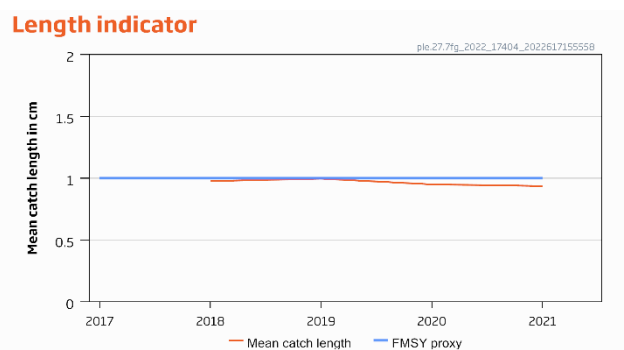
Mean catch 2019-2021 ( $C_y$ )	793 tonnes	
Biomass index trend		
Index A (2020–2021)	58.9 kg / 100 km	
Index B (2017–2019)	89.9 kg / 100 km	
r: Stock biomass trend (index ratio A/B)	0.655	
Fishing pressure proxy		
Mean catch length ( $L_{\text{mean}} = L_{2021}$ )	28.3 cm	
MSY proxy length ( $L_{F=M}$ )	30.2 cm	
f: Fishing pressure proxy relative to MSY proxy ( $L_{2021}/L_{F=M}$ )	0.937	
Biomass safeguard		
Last index value ( $I_{2021}$ )	49.3 kg / 100 km	
Index trigger value ( $I_{\text{trigger}} = I_{\text{loss}} \times 1.4$ )	57.0 kg / 100 km	
b: index relative to trigger value, $\min\{I_{2021}/I_{\text{trigger}}, 1\}$	0.87	
Precautionary multiplier to maintain biomass above $B_{\text{lim}}$ with 95% probability		
m: multiplier (generic multiplier based on life history)	0.95	
RFB calculation**	402 tonnes	
Stability clause (+20%/-30% compared to $A_y$ , only applied if $b \geq 1$ )	Not applied	
Discard rate	38%	
Catch advice for 2023 and 2024 [ $C_y \times r \times f \times b \times m$ ]	402 tonnes	
% advice change***	-77%	

\* 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.

\*\*  $A_{y+1} = C_y \times r \times f \times b \times m$ , limited by stability clause if applicable.

\*\*\*Advice value for 2023 relative to the advice value for 2022 (1735 tonnes).

The current advice has decreased by 77% compared to last year's advice because of a change in the advice method and a declining trend in the recent stock biomass.



**Figure 2** Plaice in divisions 7.f and 7.g. Length indicator (mean length of fish in the catch and MSY proxy reference length  $L_{F=M}$ ). The exploitation status is below the  $F_{\text{MSY proxy}}$  when the indicator ratio value is higher than 1 (shown by the blue line).

### Basis of the advice

**Table 2** Plaice in divisions 7.f and 7.g. The basis of the advice.

Advice basis	MSY approach
Management plan	The EU multiannual plan (MAP) for stocks in Western Waters and adjacent waters (EU, 2019) takes into account bycatch of this species. There is no agreed shared management plan with UK for this stock, and ICES provides advice according to ICES MSY approach.

### Quality of the assessment

The method for providing advice has changed in 2022 following new ICES guidelines (ICES, 2022a), and advice is now based on the empirical rfb rule (Fischer *et al.*, 2021). The UKBTS survey (1988–2021) alone was used as the index of abundance. This survey covers the main habitat of the stock and has similar trends as the Irish groundfish survey.

### Issues relevant for the advice

Sole and plaice are caught in mixed fisheries, which generates high discards of plaice owing to a combination of 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%. 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.

There is no quantitative mixed-fishery analysis that includes plaice in this area.

### Reference points

**Table 3** 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 <sub>trigger proxy</sub>	57	Biomass index trigger value, defined as $I_{\text{trigger}} = I_{\text{loss}} \times 1.4$ , where $I_{\text{loss}}$ is the lowest observed historical biomass index value, kg/100 km.	ICES (2022a; 2022c)
	F <sub>MSY proxy</sub>	1	$L_{\text{mean}}/L_{F=M}$ ; mean catch length divided by MSY proxy reference length ( $L_{F=M} = 30.2$ cm)	ICES (2022a; 2022c)
Precautionary approach	B <sub>lim</sub>	Not defined		
	B <sub>pa</sub>	Not defined		
	F <sub>lim</sub>	Not defined		
	F <sub>pa</sub>	Not defined		
Management plan	SSB <sub>MGT</sub>	Not applicable		
	F <sub>MGT</sub>	Not applicable		

### Basis of the assessment

**Table 4** Plaice in divisions 7.f and 7.g. The basis of the assessment.

ICES stock data category	3 (ICES, 2022b)
Assessment type	Survey biomass trend applying the <i>rfb</i> rule for advice (ICES, 2022c)
Input data	Commercial landings and discards, one survey index (UK [E&W]-BTS-Q3 [B6596]), length frequencies of the entire catch (landings + discards)
Discards and bycatch	Discards were raised to get the total international commercial catches. Discard information is available since 2004. Prior 2004 discards were reconstructed from the mean ratio in 2004-2010.
Indicators	IGFS-WIBTS-Q4 [G7212]
Other information	Benchmarked in 2022 (ICES, 2022d)
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

### History of the advice, catch, and management

**Table 5** 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.

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	1027
1988	TAC not to be restrictive on other species	-	-	2500	2194	2116	1143
1989	TAC not to be restrictive on other species	-	-	2500	2583	2151	1162
1990	F likely to be F (88)	-	~ 1900	1900	2219	2082	1124
1991	F likely to be F (89)	-	~ 1700	1900	1827	1501	811
1992	No long-term gains in increasing F	-	-	1500	1362	1188	642
1993	No long-term gains in increasing F	-	-	1400	1303	1114	602
1994	No long-term gains in increasing F	-	-	1400	982	1070	578
1995	No increase in F	-	1290	1400	956	1028	555

Year	ICES advice	Catch corresponding to advice	Landings corresponding to advice	Agreed TAC	Official landings	ICES landings	ICES discards *
1996	20% reduction in F	-	930	1100	978	952	514
1997	20% reduction in F	-	1100	1100	1259	1217	657
1998	20% reduction in F	-	1000	1100	1149	1067	576
1999	35% reduction in F	-	670	905	656	968	523
2000	30% reduction in F	-	700	800	721	718	388
2001	40% reduction in F	-	600	760	684	714	386
2002	At least 35% reduction in F	-	680	680	618	642	347
2003	At least 40% reduction in F	-	660	660	564	594	321
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	481	481	608
2010	50% reduction in F	-	< 330	451	442	442	670
2011	See scenarios	-	-	410	420	427	1107
2012	Reduce catches	-	-	369	450	450	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	410	410	772
2015	Catches should be no more than recent catches (last three years)	< 1500	< 420	461	381	381	778
2016	Precautionary approach (same catch value as advised for 2015)	≤ 1500	≤ 420	420	443	430	571
2017	Precautionary approach (same catch value as advised for 2016)	≤ 1500	≤ 405	405	389	390	895
2018	Precautionary approach	≤ 1800	≤ 511	511	422	422	508
2019	Precautionary approach	≤ 2160		1662	394 †	463	189
2020	Precautionary approach	≤ 2295		2003	536**	535	357
2021	Precautionary approach	≤ 1911		1911	470**	468	378
2022	Precautionary approach	≤ 1735		1611			
2023	MSY approach	≤ 402					
2024	MSY approach	≤ 402					

\* Discard estimates are available from 2004; discard values prior to 2004 are assumed, based on limited sampling information.

† Incomplete/missing as a result of part of the data being unavailable under data confidentiality clauses.

\*\* Preliminary.

## History of the catch and landings

**Table 6** Plaice in divisions 7.f and 7.g. Catch distribution by fleet in 2021 as estimated by ICES.

Catch	Landings					Discards				
	Otter trawl	Beam trawl	Gillnet	Seine	Other	Otter trawl	Beam trawl	Gillnet	Seine	Other
846 tonnes	28%	69%	< 1%	3%	< 1%	5%	94%	< 1%	< 1%	< 1%
	468 tonnes					378 tonnes				

**Table 7** 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	Spain	Netherlands	Total reported	ICES discards	ICES landings	ICES catch
1977	214	150	365	28			757	n/a	757	n/a
1978	196	152	527	0			875	n/a	875	n/a
1979	171	176	467	49			863	n/a	863	n/a
1980	372	234	706	61			1373	n/a	1373	n/a
1981	365	251	697	64			1377	n/a	1377	n/a
1982	341	196	568	198			1303	n/a	1303	n/a
1983	314	279	532	48			1173	n/a	1146	n/a
1984	283	366	558	72			1279	n/a	1210	n/a
1985	357	466	493	91			1407	n/a	1752	n/a
1986	665	539	878	302		9	2384	n/a	1691	n/a
1987	581	496	708	127			1912	n/a	1901	n/a
1988	617	630	721	226			2194	n/a	2116	n/a
1989	843	471	1089	180			2583	n/a	2151	n/a
1990	794	498	767	160			2219	n/a	2082	n/a
1991	836	392	444	155			1827	n/a	1501	n/a
1992	371	307	504	180			1362	n/a	1188	n/a
1993	542	299	373	89			1303	n/a	1114	n/a
1994	350	252	298	82			982	n/a	1070	n/a
1995	346	286	254	70			956	n/a	1028	n/a
1996	410	239	246	83			978	n/a	952	n/a
1997	594	258	329	78			1259	n/a	1217	n/a
1998	540	176	298	135			1149	n/a	1067	n/a
1999	371	170	n/a	115			n/a	n/a	968	n/a
2000	224	134	287	76			721	n/a	718	n/a
2001	241	136	262	45			684	n/a	714	n/a
2002	248	105	186	79			618	n/a	642	n/a
2003	221	127	165	51			564	n/a	594	n/a
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			481	608	481	1089
2010	188	54	136	63			442	670	442	1112
2011	210	45	98	67			420	1107	427	1534
2012	203	44	126	76			450	1123	450	1573
2013	186	40	106	80			412	1274	414	1688
2014	181	24	155	50			410	772	410	1182
2015	185	25	111	59			380	778	381	1159
2016	244	27	108	64			443	571	430	1001
2017	180	38	108	63			389	895	388	1283
2018	204	40	127	51			422	508	422	930
2019	263	45	84	†	1	< 1	394†	189	463	652
2020*	332	47	47	110	< 1	< 1	536	357	536	893
2021*	263	48	51	105	0.5	<1	468	378	468	846

† Incomplete/missing as a result of part of the data being unavailable under data confidentiality clauses.

\*Preliminary.

## Summary of the assessment

**Table 8** Plaice in divisions 7.f and 7.g. Assessment summary. Weights are in tonnes, length is in cetimeters.

Year	Biomass index (kg / 100 km towed)	Length indicator (cm)	ICES landings (tonnes)	ICES discards (tonnes)
1988	129		2116	
1989	149		2151	
1990	149		2082	
1991	118		1501	
1992	111		1188	
1993	52		1114	
1994	41		1070	
1995	56		1028	
1996	100		952	
1997	62		1217	
1998	79		1067	
1999	66		968	
2000	82		718	
2001	79		714	
2002	84		642	
2003	69		594	
2004	63		510	274
2005	61		386	321
2006	57		404	453
2007	64		410	1288
2008	79		437	583
2009	77		481	608
2010	98		442	670
2011	130		427	1107
2012	146		450	1123
2013	146		414	1274
2014	136		410	772
2015	174		381	778
2016	134		430	571
2017	107		388	895
2018	87	0.976	422	508
2019	75	0.996	463	189
2020	68	0.950	536	357
2021	49	0.937	468	378

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*Recommended citation:* ICES. 2022. Plaice (*Pleuronectes platessa*) in divisions 7.f and 7.g (Bristol Channel, Celtic Sea). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, ple.27.7fg, <https://doi.org/10.17895/ices.advice.19453634>.