

Plaice (*Pleuronectes platessa*) in Division 7.d (eastern English Channel)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2023 should be no more than 4738 tonnes.

Management of plaice in Divisions 7.d and 7.e under a combined area TAC prevents effective control of the single-species exploitation rates and could lead to the overexploitation of either species. ICES advises that management should be implemented at the stock area level.

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

Stock development over time

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

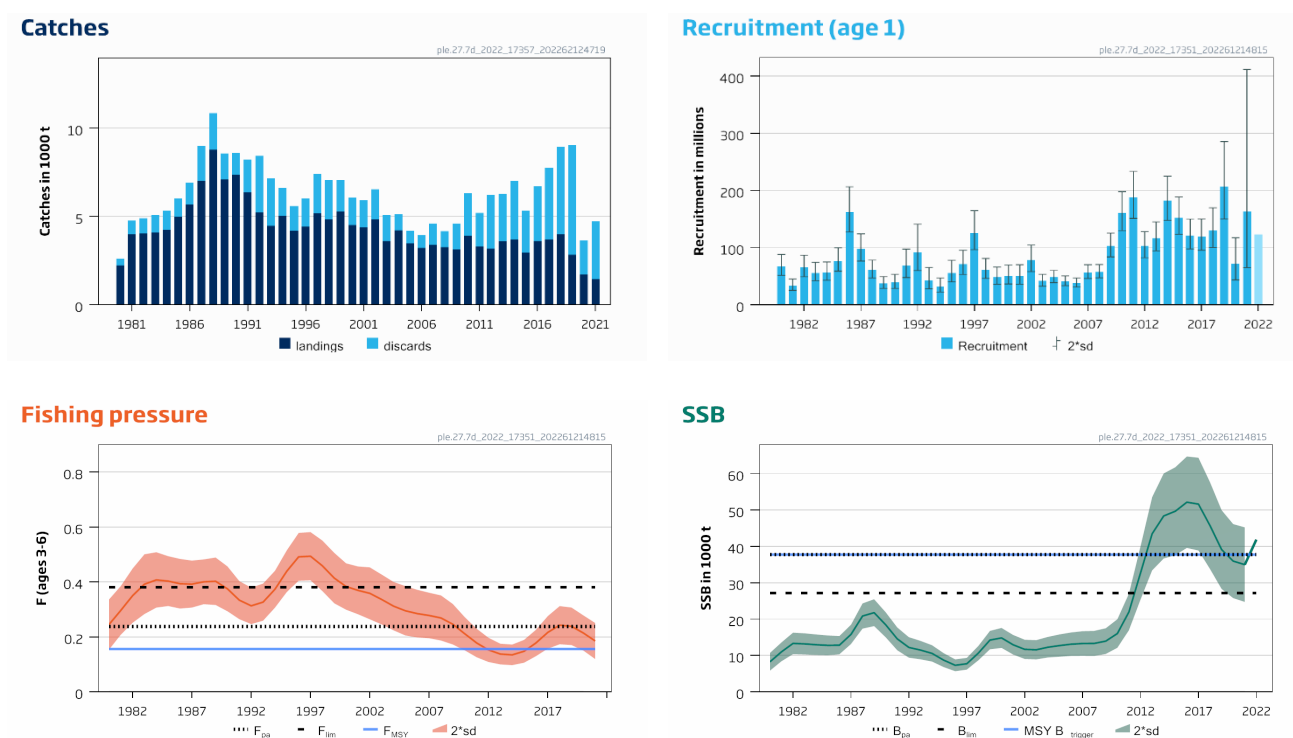


Figure 1 Plaice in Division 7.d. Summary of the stock assessment. The assumed recruitment value for 2022 is shaded in a lighter colour. Discard data are only available since 2006; values prior to that are model estimates.

Catch scenarios

Table 1 Plaice in Division 7.d. Values in the forecast and for the interim year for Division 7.d plaice stock only.

Variable	Value	Notes
$F_{ages\ 3-6}$ (2022)	0.185 [†]	Average exploitation pattern (2019–2021), scaled to $F_{ages\ 3-6}$ 2021
SSB (2023)	41 642	Short-term forecast (STF); in tonnes
$R_{age\ 1}$ (2022–2023)	122 963	Geometric mean 2016–2020; in thousands
Total catch (2022)	5392	STF; in tonnes

[†] Version 2: Value corrected and Notes updated

Variable	Value	Notes
Projected landings (2022)	2385	STF; assuming average landings ratio (2019–2021); in tonnes
Projected discards (2022)	3007	STF; assuming average discards ratio (2019–2021); in tonnes

Table 2 Plaice in Division 7.d. Annual catch scenarios. All weights are in tonnes.

Basis	Division 7.d plaice stock									All plaice in Division 7.d [#]				
	Total catch (2023) [^]	Projected landings (2023)	Projected discards * (2023)	F _{total} (ages 3–6) (2023)	F _{projected} landings (ages 3–6) (2023)	F _{projected} discards (ages 3–6) (2023)	SSB (2024)	% SSB change **	% advice change [§]	Total catch (2023)	Projected landings (2023)	Projected discards* (2023)	% change in projected catches ^{^^}	% advice change ^{##}
ICES advice basis														
MSY approach: F _{MSY}	4738	2204	2534	0.156	0.046	0.110	44 175	6.08	–25	5671	2638	3033	4.20	–25
Other scenarios														
F = F _{MSY} lower	3493	1627	1866	0.113	0.034	0.079	45 820	10	–45	4181	1948	2233	–23	–45
F = F _{MSY}	4738	2204	2534	0.156	0.046	0.110	44 175	6.08	–25	5671	2638	3033	4.20	–25
F = F _{MSY} upper	6618	3070	3548	0.22	0.067	0.157	41 706	0.15	4.00	7922	3674	4247	46	4.70
F = 0	0	0	0	0	0	0	50 473	23	–100	0	0	0	–100	–100
F _{pa}	6992	3506	3750	0.23	0.07	0.17	41 217	–1.02	9.80	8370	3880	4990	54	10
F _{lim}	10 578	4876	5702	0.38	0.27	0.11	36 573	–12	66	12 661	5836	6826	133	67
SSB (2024) = B _{lim}	18 080	8210	9870	0.75	0.22	0.53	27 147	–35	184	21 642	9827	11 814	298	186
SSB (2024) = B _{pa}	9655	4457	5198	0.34	0.10	0.24	37 761	–9.32	52	11 555	5335	6222	112	53
SSB (2024) = MSY B _{trigger}	9655	4457	5198	0.34	0.10	0.24	37 761	–9.32	52	11 555	5335	6222	112	53
F = F ₂₀₂₂	5556	2581	2975	0.185	0.06	0.130	43 098	3.50	–13	6651	3090	3561	22	–12

* Including BMS landings, assuming recent discard rate.

** SSB 2024 relative to SSB 2023.

§ Total catch of plaice stock in 2023 relative to the advice value 2022 (6365 tonnes)

^ Differences between total catch and the sum of projected landings and discards result from rounding.

^^ Total catch of plaice in division 7d in 2023 relative to the ICES estimates of catches in 2021 (5442 tonnes)

All plaice in Division 7.d, including plaice originating from the North Sea and the western English Channel, according to a ratio calculated over the years 2003–2021: 16.46 % of the plaice landed in Division 7.d is assumed to originate from the North Sea and the western English Channel which is equivalent to an additional 19.70% on top of the landings from the Division 7.d plaice stock. This ratio is therefore added to the predicted values for the Division 7.d plaice stock and applies to total catch, projected landings, and projected discards.

Total catch of plaice in division 7d in 2023 relative to the advice value 2022 (7566 tonnes)

The advice change (–25% for the Division 7.d plaice stock) is the result of a revision of reference points.

Basis of the advice

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

Advice basis	MSY approach
Management plan	ICES is aware of the multiannual management plan (MAP) which has been adopted by the EU for this stock (EU, 2018) and which ICES considers to be precautionary. There is no agreed shared management plan with 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

There is uncertainty about catches of the Division 7.d plaice stock because of migrations between 7.d and the North Sea and the western English Channel during the spawning period. The current assessment results are dependent on the proportion of quarter 1 removals estimated from an historical tagging survey (ICES, 2010).

A new FR CGFS index is used in 2022 assessment to fix the reported issues in 2021 assessment (ICES, 2021). The update of reference points, based on the latest selectivity and biological patterns, resulted in a substantial decrease of F_{MSY} due to decreasing trends in the stock weight at age in the recent years.

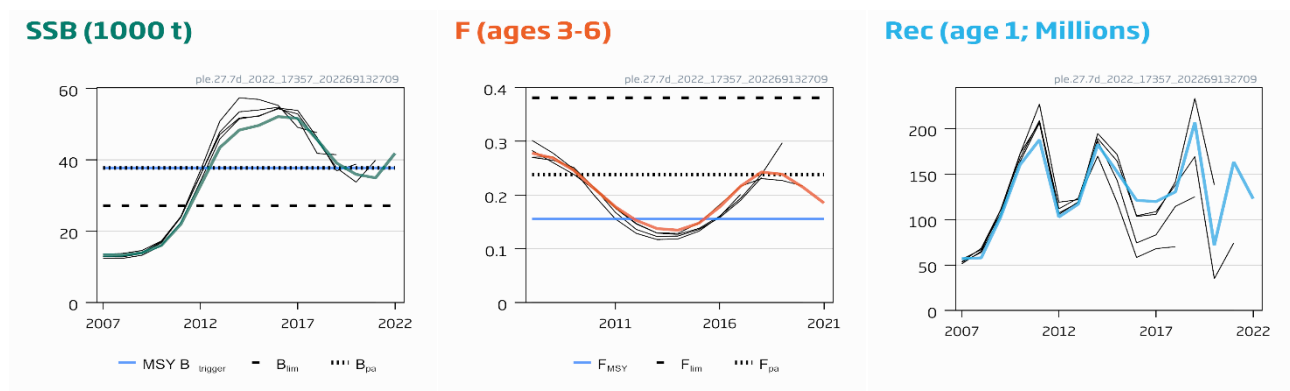


Figure 2 Plaice in Division 7.d. Historical assessment results (final-year recruitment included for each line, corresponding to the forecast recruitment in the interim year). The reference points were revised in 2022, and only assessment results from the final year should be compared to the reference points indicated.

Issues relevant for the advice

A single TAC covers both 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 to ensure that both stocks are exploited sustainably.

A catch advice of 4738 tonnes corresponds to catches of plaice in Division 7.d of no more than 5671 tonnes in 2023, assuming the same proportion of the Division 7.e and Subarea 4 plaice stocks is taken in Division 7.d as was estimated during 2003–2021. Management should be implemented at the stock level.

Plaice is caught in a mixed fishery targeting sole, with 80 mm mesh size. This leads to a large number of plaice being discarded because this mesh size is not matched to the minimum conservation reference size (MCRS).

Decreasing trends in observed mean weight at age could be explained by a change in the catchability and need to be investigated.

Reference points

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

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	37 761	B_{pa} ; in tonnes	ICES (2022a)
	F_{MSY}	0.156	EQsim analysis based on recruitment period 1980–2020	ICES (2022a)
Precautionary approach	B_{lim}	27 174	Break-point of hockey stick stock–recruit relationship, based on recruitment period 1980–2020; in tonnes	ICES (2022a)
	B_{pa}	37 761	$B_{lim} \times \exp(1.645 \times \sigma) \approx 1.4 \times B_{lim}$, $\sigma = 0.20$; in tonnes	ICES (2022a)
	F_{lim}	0.381	EQsim analysis based on recruitment period 1980–2020	ICES (2022a)
	F_{pa}	0.238	The F that provides a 95% probability for SSB to be above B_{lim} ($F_{p,0.05}$ with advice rule [AR])	ICES (2022a)
EU Management plan (MAP)*	MAP MSY $B_{trigger}$	37 761	MSY $B_{trigger}$; in tonnes	ICES (2022a)
	MAP B_{lim}	27 174	B_{lim} ; in tonnes	ICES (2022a)
	MAP F_{MSY}	0.156	F_{MSY}	ICES (2022a)
	MAP range F_{lower}	0.113	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2022a)
	MAP range F_{upper}	0.224	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2022a)

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

Basis of the assessment

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

ICES stock data category	1 (ICES, 2022b)
Assessment type	Age-based analytical assessment (Aarts and Poos, 2009) that uses catches in the model and in the forecast (ICES, 2022a)
Input data	Commercial catch (international landings, with age frequencies from catch sampling covering 75% of the landings), two survey indices UK-BTS [B2453]. A delta-GAM is used to calculate FR-GFS index [G3425]. Time invariant natural mortality by age is calculated from Peterson and Wroblewski (1984). Fixed maturity ogive is based on biological sampling.
Discards and bycatch	Discards are included in the assessment and all major fleets are covered. In 2021, 60% of the landings had associated discard information, with age frequencies from catch sampling covering 57% of the discards. Fifty eight percent of the discard estimates are based on observations. The model reconstructs discards for years where data are not available (before 2006).
Indicators	None
Other information	Last benchmarked in 2015 (WKPLE; ICES, 2015), Reference points updated in 2022 (WGNSSK; ICES, 2022a)
Working group	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)

History of the advice, catch, and management

Table 6 Plaice in Division 7.d. History of ICES advice, official landings for plaice in Division 7.d, agreed TAC for divisions 7.d and 7.e, and ICES estimates for landings and discards of Division 7.d plaice and for plaice in Division 7.d. All weights are in tonnes.

Year	ICES advice	Landings corresponding to advice			Catch corresponding to advice		Agreed TAC 7.d, e	Official landings of plaice in 7.d *	ICES landings of plaice in 7.d*	ICES landings 7.d plaice	ICES discards of 7.d plaice	ICES discards of plaice in 7.d ^^
		7.d plaice	Plaice in 7.d	Plaice in 7.d, e	7.d plaice stock	Plaice in 7.d						
1987	Precautionary TAC for 7.d, e			6800			8300	7867	8366	7006		
1988	Precautionary TAC for 7.d, e			6900			9960	9103	10 420	8785		
1989	No increase in effort for 7.d, e			11 700			11 700	7115	8758	7093		
1990	No increase in F; TAC for 7.d, e			10 700			10 700	8367	9047	7349		
1991	TAC for 7.d, e			8800			10 700	7913	7813	6362		
1992	<i>Status quo</i> F gives mean SSB		7600				9600	6232	6337	5219		
1993	<i>Status quo</i> F within safe biological limits		6400				8500	4771	5331	4479		
1994	No long-term gains in increased F		-				9100	5633	6121	5047		
1995	No increase in F		5600				8000	4569	5130	4196		
1996	No long-term gains in increasing F		6500				7530	4598	5393	4430		
1997	No advice		-				7090	5316	6307	5180		
1998	Reduce F in 1998 by 30% from 1996 value		4300				5700	4830	5762	4831		
1999	Fishing at F_{pa}		6300				7400	5437	6326	5268		
2000	Fishing at F_{pa}		4900				6500	5235	6014	4521		
2001	Fishing at $< F_{pa}$		< 4400				6000	4968	5266	4380		
2002	Fishing at $< F_{pa}$		< 5800				6700	5496	5777	4846		
2003	Fishing at $< F_{pa}$		< 5300				5970	4650	4086	3610		
2004	Fishing at $< F_{pa}$ **		< 5400				6060	4312	4750	4206		
2005	Fishing at $< F_{pa}$ **		< 4400				5150	3706	3991	3485		
2006	No effort increase **						5151	3525	3646	3225	727	749
2007	Average landings **		< 4000				5050	3845	4001	3381	1220	1252
2008	Average landings **		< 3500				5050	3609	3864	3278	888	936
2009	Average landings (2006–2008) **		< 3500				4646	3522	3560	3124	1473	1528

Year	ICES advice	Landings corresponding to advice			Catch corresponding to advice		Agreed TAC 7.d, e	Official landings of plaice in 7.d *	ICES landings of plaice in 7.d*	ICES landings 7.d plaice	ICES discards of 7.d plaice	ICES discards of plaice in 7.d ^^
		7.d plaice	Plaice in 7.d	Plaice in 7.d, e	7.d plaice stock	Plaice in 7.d						
2010	Average landings (2007–2009)		< 3500				4274	3892	4411	3910	2412	2511
2011	Average landings (2008–2010)		< 3500				4665	3593	3649	3291	1926	2024
2012	No increase in catches and reduce discards		-				5062	3611	3723	3178	3043	3336
2013	Transition to F_{MSY} proxy for data-limited stocks by 2015 and reduce discards		< 4300				6400	4182	4127	3604	2696	2955
2014	Transition to F_{MSY} proxy for data-limited stocks by 2015 and reduce discards	< 3016	< 3925				5322	4326	4320	3675	3325	3886
2015	ICES DLS approach (F_{MSY} proxy)	< 2811	< 3469				6223	3749	3727	2957	2368	2821
2016	MSY approach	≤ 10 855	≤ 12 512	≤ 16 249	≤ 16 923	≤ 19 506	12 446	4658	4638	3617	3090	3603
2017	MSY approach	≤ 7550	≤ 8764	≤ 11 381	≤ 12 805	≤ 14 864	10 022	4581	4613	3689	4075	5065
2018	MSY approach	≤ 7132	≤ 8335	≤ 10 909	≤ 10 592	≤ 12 378	10 360	4977	4999	3975	4959	6215
2019	MSY approach				≤ 7864	≤ 9225	10 354	3681	3721	2836	6211	7064
2020	Management Plan^				9073 (range 6545–12 029)	10 687 (range 7710–14 170)	9154	2120	2152	1727	1902	2191
2021	Management Plan^				8402 (range 6066–11 130)	9959 (range 7190–13 192)	11 920	1774	1770	1456	3261	3672
2022	MSY approach				≤ 6365	≤ 7566	9138					
2023	MSY approach				≤ 4738	≤ 5671						

* Plaice in Division 7.d, taking into account fish caught in the first quarter in Division 7.d that come to spawn from Division 7.e and Subarea 4.

** Single-stock boundary and the exploitation of this stock should be conducted in the context of mixed fisheries.

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

^^ Including BMS landings.

History of the catch and landings

Table 7 Plaice in Division 7.d. Catch distribution of plaice in 7.d by fleet in 2021 as estimated by ICES.

Catch	Landings				Discards
5442 tonnes	Beam trawl 39 %	Otter trawl 39 %	Trammel nets 10 %	Other gears 11 %	3672 tonnes
	1770 tonnes				

Table 8 Plaice in Division 7.d. History of commercial catch and landings; both the official and ICES estimated values are presented by area for each country participating in the fishery. All weights are in tonnes.

Year	Belgium	France	UK(E+W)	Others	Official landings in 7.d	BMS landings	Unallocated in 7.d	ICES estimated landings of plaice in 7.d	Quarter 1 removals^	ICES estimated landings for 7.d plaice^	ICES estimated landings for plaice in 7.e	Agreed TAC for 7.d, e*
1976	147	1 439	376		1 962		1	1 963		1 963	640	
1977	149	1 714	302		2 165		81	2 246		2 246	702	
1978	161	1 810	349		2 320		156	2 476		2 476	784	
1979	217	2 094	278		2 589		28	2 617		2 617	977	
1980	435	2 905	304		3 644		-994	2 650	427	2 223	1 178	
1981	815	3 431	489		4 735		34	4 769	760	4 009	1 676	
1982	738	3 504	541	22	4 805		60	4 865	825	4 040	1 878	
1983	1 013	3 119	548		4 680		363	5 043	950	4 093	1 714	
1984	947	2 844	640		4 431		730	5 161	912	4 249	1 758	
1985	1 148	3 943	866		5 957		65	6 022	1 022	5 000	1 677	
1986	1 158	3 288	828		5 274		1 560	6 834	1 161	5 673	2 078	
1987	1 807	4 768	1 292		7 867		499	8 366	1 360	7 006	2 272	8 300
1988	2 165	5 688	1 250		9 103		1 317	10 420	1 635	8 785	2 835	9 960
1989	2 019	3 713	1 383		7 115		1 643	8 758	1 665	7 093	2 742	11 700
1990	2 149	4 739	1 479		8 367		680	9 047	1 698	7 349	2 985	10 700
1991	2 265	4 082	1 566		7 913		-100	7 813	1 451	6 362	2 183	10 700
1992	1 560	3 099	1 572	1	6 232		105	6 337	1 118	5 219	1 882	9 600
1993	877	2 792	1 102		4 771		560	5 331	852	4 479	1 614	8 500
1994	1 418	3 199	1 007	9	5 633		488	6 121	1 074	5 047	1 404	9 100
1995	1 157	2 598	814		4 569		561	5 130	934	4 196	1 247	8 000
1996	1 112	2 630	856		4 598		795	5 393	963	4 430	1 266	7 530
1997	1 161	3 077	1 078		5 316		991	6 307	1 127	5 180	1 583	7 090
1998	854	3 276	700		4 830		932	5 762	931	4 831	1 346	5 700
1999	1 306	3 388	743		5 437		889	6 326	1 058	5 268	1 543	7 400
2000	1 298	3 183	754		5 235		779	6 014	1 494	4 521	1 625	6 500
2001	1 346	2 962	660		4 968		298	5 266	886	4 380	1 310	6 000

Year	Belgium	France	UK(E+W)	Others	Official landings in 7.d	BMS landings	Unallocated in 7.d	ICES estimated landings of plaice in 7.d	Quarter 1 removals^	ICES estimated landings for 7.d plaice^	ICES estimated landings for plaice in 7.e	Agreed TAC for 7.d, e*
2002	1 204	3 450	841	1	5 496		281	5 777	931	4 846	1 472	6 700
2003	998	2 893	756	3	4 650		-564	4 086	476	3 610	1 387	5 970
2004	954	2 766	582	10	4 312		438	4 750	544	4 206	1 337	6 060
2005	832	2 432	421	21	3 706		285	3 991	506	3 485	1 319	5 150
2006	1 024	1 935	550	16	3 525		121	3 646	421	3 225	1 411	5 151
2007	1 355	2 017	463	10	3 845		156	4 001	620	3 381	1 146	5 050
2008	1 386	1 740	471	12	3 609		255	3 864	586	3 278	1 112	5 050
2009	1 002	1 892	612	16	3 522		38	3 560	436	3 124	1 024	4 646
2010	1 123	2 190	517	62	3 892		519	4 411	501	3 910	1 208	4 274
2011	1 067	1 994	472	60	3 593		56	3 649	358	3 291	1 417	4 665
2012	1 045	1 962	542	63	3 612		111	3 723	544	3 178	1 492	5 062
2013	1 295	2 159	641	87	4 182		-55	4 127	523	3 604	1 472	6 400
2014	1 389	2 229	633	76	4 327		-7	4 320	645	3 675	1 490	5 322
2015	1 600	1 702	392	54	3 748		-21	3 727	770	2 957	1 424	6 223
2016	2 247	1 557	795	60	4 659		-21	4 638	1 020	3 617	2 013	12 446
2017	2 189	1 487	814	86	4 576		37	4 613	924	3 689	2 128	10 022
2018	1 876	2 171	832	98	4 977		27	4 999	1 024	3 975	1 880	10 360
2019	1 277	1 688	628	87	3 681	<1	40	3 721	885	2 836	1 725	10 354
2020	745	984	342	50	2 120	<1	32	2 152	424	1 727	1 373	9 154
2021	663	769	284	53	1 774	<1	- 4	1 770	313	1 456		11 920

* TACs for divisions 7.d and 7.e.

^ Takes into account the 'quarter 1 removal' of 65% of the quarter 1 Division 7.d landings of plaice that originate from Division 7.e and Subarea 4.

Summary of the assessment

Table 9 Plaice in Division 7.d. Assessment summary. Recruitment in thousands. Weights are in tonnes. High and low correspond to 2 standard deviation.

Year	Recruitment (Age 1)			Spawning-stock biomass			Landings	Discards*	Catch*	Fishing pressure (Ages 3–6)		
	R	High	Low	SSB	High	Low				F	High	Low
1980	67 465	88 163	51 589	8 247	10 694	5 800	2 223	410	2 223	0.24	0.34	0.153
1981	33 795	45 124	25 307	11 002	13 604	8 400	4 009	758	4 009	0.30	0.39	0.21
1982	65 393	86 913	49 185	13 330	16 292	10 368	4 040	865	4 040	0.35	0.45	0.25
1983	55 990	74 407	42 138	13 197	16 111	10 283	4 093	995	4 093	0.39	0.50	0.28
1984	56 818	75 097	43 022	12 962	15 795	10 129	4 249	1 083	4 249	0.41	0.51	0.31
1985	76 696	99 900	58 928	12 794	15 521	10 067	5 000	1 033	5 000	0.40	0.49	0.31
1986	162 331	206 612	127 440	12 832	15 350	10 314	5 673	1 245	5 673	0.39	0.48	0.30
1987	97 494	124 179	76 613	15 793	18 456	13 130	7 006	2 006	7 006	0.39	0.48	0.31
1988	60 683	78 355	46 958	20 853	24 330	17 376	8 785	2 063	8 785	0.40	0.48	0.32
1989	37 703	49 395	28 750	21 777	25 484	18 070	7 093	1 490	7 093	0.40	0.49	0.32
1990	39 243	53 429	28 851	18 447	21 903	14 991	7 349	1 245	7 349	0.37	0.46	0.29
1991	68 216	97 591	47 642	14 568	17 722	11 414	6 362	1 873	6 362	0.33	0.40	0.26
1992	91 906	141 071	59 933	12 222	15 048	9 396	5 219	3 212	5 219	0.31	0.38	0.25
1993	42 871	65 353	28 126	11 489	14 034	8 944	4 479	2 678	4 479	0.33	0.39	0.26
1994	32 365	47 006	22 292	10 583	12 844	8 322	5 047	1 574	5 047	0.37	0.44	0.31
1995	55 921	78 056	40 088	8 733	10 665	6 802	4 196	1 394	4 196	0.44	0.52	0.36
1996	71 171	95 532	53 039	7 307	8 943	5 671	4 430	1 590	4 430	0.49	0.58	0.40
1997	126 137	164 743	96 554	7 732	9 357	6 106	5 180	2 240	5 180	0.49	0.58	0.41
1998	61 351	81 144	46 352	10 662	12 655	8 669	4 831	2 241	4 831	0.46	0.55	0.37
1999	48 647	66 087	35 785	14 242	16 784	11 700	5 268	1 801	5 268	0.41	0.51	0.32
2000	50 401	69 691	36 468	14 835	17 591	12 079	4 521	1 556	4 521	0.38	0.47	0.30
2001	50 251	70 214	35 979	12 957	15 661	10 253	4 380	1 550	4 380	0.37	0.46	0.28
2002	78 014	104 608	58 222	11 691	14 338	9 044	4 846	1 687	4 846	0.36	0.45	0.26
2003	41 723	53 410	32 606	11 571	14 227	8 915	3 610	1 472	3 610	0.34	0.43	0.25
2004	48 453	60 341	38 880	12 280	15 114	9 446	4 206	940	4 206	0.31	0.40	0.22
2005	41 310	50 755	33 632	12 731	15 810	9 652	3 485	714	3 485	0.30	0.39	0.21
2006	38 133	46 967	30 971	13 109	16 343	9 875	3 225	727	3 952	0.28	0.37	0.20
2007	56 959	70 298	46 143	13 303	16 692	9 914	3 381	1 220	4 601	0.28	0.36	0.195
2008	57 758	70 542	47 289	13 327	16 779	9 875	3 278	888	4 167	0.27	0.35	0.187
2009	102 694	125 676	83 997	13 958	17 499	10 417	3 124	1 473	4 596	0.25	0.32	0.172
2010	160 341	197 996	129 832	16 048	19 990	12 106	3 910	2 412	6 323	0.21	0.27	0.151
2011	187 961	233 482	151 318	22 000	27 057	16 943	3 291	1 926	5 217	0.18	0.23	0.126
2012	102 738	128 068	82 428	32 719	40 072	25 366	3 178	3 043	6 222	0.15	0.20	0.109
2013	117 014	145 199	94 291	43 469	53 554	33 384	3 604	2 696	6 299	0.14	0.175	0.100
2014	182 490	225 258	147 709	48 380	60 097	36 663	3 675	3 325	7 001	0.13	0.172	0.097
2015	152 566	188 633	123 308	49 684	61 790	37 578	2 957	2 368	5 324	0.15	0.189	0.106
2016	121 187	150 091	97 831	52 165	64 749	39 581	3 617	3 090	6 707	0.18	0.23	0.130
2017	119 821	150 260	95 595	51 636	64 411	38 861	3 689	4 075	7 764	0.22	0.28	0.157
2018	130 540	169 763	100 292	45 709	57 667	33 751	3 975	4 959	8 934	0.24	0.31	0.173
2019	207 083	285 467	150 260	39 131	49 987	28 275	2 836	6 211	9 047	0.24	0.31	0.170
2020	71 614	117 494	43 646	35 967	46 161	25 773	1 728	1 901	3 629	0.21	0.28	0.150
2021	163 630	411 778	64 975	34 987	45 246	24 728	1 456	3 261	4 717	0.185	0.25	0.119
2022	122963**			41 883								

* Since 2006, discard estimates are raised from observer programmes. Prior to 2006, discards are reconstructed by the model and are not included in the total catch column.

** Geometric mean 2016–2020.

Sources and references

- Aarts, G., and Poos, J. J. 2009. Comprehensive discard reconstruction and abundance estimation using flexible selectivity functions. *ICES Journal of Marine Science*, 66: 763–771. <https://doi.org/10.1093/icesjms/fsp033>.
- EU. 2019. Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 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 Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. *Official Journal of the European Union*, L 83: 1–17. <http://data.europa.eu/eli/reg/2019/472/oj>.
- ICES. 2010. Report of the Benchmark Workshop on Flatfish (WKFLAT), 25 February–4 March 2010, Copenhagen, Denmark. ICES CM 2010/ACOM:37. 270 pp. <https://doi.org/10.17895/ices.pub.5340>.
- ICES. 2015. Report of the Benchmark Workshop on Plaice (WKPLE), 23–27 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM:33. 200 pp. <https://doi.org/10.17895/ices.pub.5341>.
- ICES. 2021. Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK). ICES Scientific Reports. 3:66. 1281 pp. <https://doi.org/10.17895/ices.pub.8211>.
- ICES. 2022a. Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK). ICES Scientific Reports. 4:43. <https://doi.org/10.17895/ices.pub.19786285>. *In prep.*
- ICES. 2022b. Advice on fishing opportunities. *In* Report of the ICES Advisory Committee, 2022. ICES Advice 2022, section 1.1.1. <https://doi.org/10.17895/ices.advice.19928060>.
- Peterson, I., and Wroblewski, J. S. 1984. Mortality rate of fishes in the pelagic ecosystem. *Canadian Journal of Fisheries and Aquatic Sciences*, 41(7): 1117–1120. <https://doi.org/10.1139/f84-131>.

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Recommended citation: Plaice (*Pleuronectes platessa*) in Division 7.d (eastern English Channel). *In* Report of the ICES Advisory Committee, 2022. ICES Advice 2022, ple.27.7d. <https://doi.org/10.17895/ices.advice.19453628>.