

Plaice (*Pleuronectes platessa*) in Subarea 4 (North Sea) and Subdivision 20 (Skagerrak)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2022 should be no more than 142 508 tonnes.

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 below F_{MSY} , F_{pa} , and F_{lim} , and spawning-stock size is above MSY $B_{trigger}$, B_{pa} , and B_{lim} .

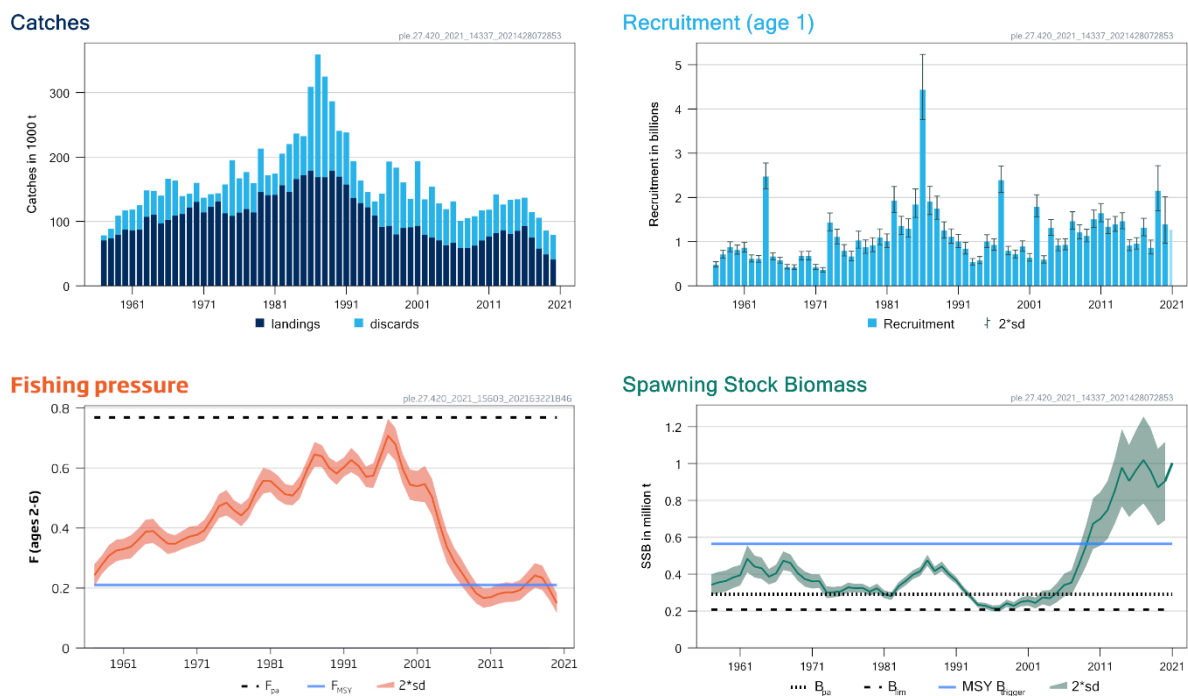


Figure 1 Plaice in Subarea 4 and Subdivision 20. Summary of the stock assessment. The assumed recruitment value for 2021 is shaded in a lighter colour.

Catch scenarios

Table 1 Plaice in Subarea 4 and Subdivision 20. Values in the forecast and for the interim year.

Variable	Value	Notes
$F_{ages\ 2-6}$ (2021)	0.149	Average exploitation pattern (2018–2020), scaled to average $F_{ages\ 2-6}$ in 2020.
SSB (2022)	1 093 696	From the short-term forecast (STF); tonnes
R_{age1} (2021–2022)	1 263 949	Geometric mean of recruitment (GM, 2008–2017); thousands
Total catch (2021)	97 598	From STF using average exploitation pattern of 2018–2020, scaled to average $F_{ages\ 2-6}$ in 2020; tonnes
Projected landings (2021)	51 458	From STF, assuming average landings ratio by age 2018–2020; tonnes
Projected discards (2021)	46 140	From STF, assuming average landings ratio by age 2018–2020; tonnes

Table 2 Plaice in Subarea 4 and Subdivision 20. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch (2022)	Projected landings * (2022)	Projected discards ** (2022)	F _{total} ages 2–6 ^^ (2022)	F _{projected landings} ages 2–6 (2022)	F _{projected discards} ages 2–3 (2022)	SSB (2023)	% SSB change***	% advice change^
ICES advice basis									
MSY approach: F _{MSY}	142508	82622	59886	0.21	0.082	0.20	1112676	1.74	-15.1
Other scenarios									
F = F _{MSY upper}	195622	113764	81858	0.30	0.117	0.29	1063091	-2.8	16.6
F = F _{MSY lower}	101854	58940	42914	0.146	0.057	0.142	1150784	5.2	-39
F = 0	0	0	0	0.00	0.00	0.00	1247700	14.1	-100
F _{pa}	411268	243345	167923	0.769	0.30	0.75	864628	-21	145
SSB (2023) = B _{lim}	1198527	860596	337931	11.3	4.4	11.0	207288	-81	610
SSB (2023) = B _{pa}	1093596	759527	334069	7.8	3.0	7.6	290203	-73	550
SSB (2023) = MSY B _{trigger}	753542	470359	283183	2.3	0.91	2.3	564599	-48	350
Rollover advice	167785	97392	70393	0.25	0.098	0.25	1089081	-0.42	0
F ₂₀₂₂ = F ₂₀₂₁	103816	60080	43736	0.149	0.058	0.145	1148941	5.1	-38

* “Projected” (marketable) landings and discards are used to describe fish that would be landed and discarded in the absence of the EU landing obligation, based on average discard rate estimates for 2018–2020. Both projected landing and projected discards refer to Subarea 4 and Subdivision 20, calculated as the projected total stock catch (including Division 7.d) deducting the catch of plaice from Subarea 4 taken in Division 7.d in 2022. The subtracted value (445 t of projected landings and 530 t of projected discards) is estimated based on the plaice catch advice for Division 7.d for 2022.

** Including BMS landings (EU stocks), assuming recent discard rates.

*** SSB 2023 relative to SSB 2022.

^ Total catch in 2022 relative to the advice value 2021 (167 785 tonnes).

^^ F_{projected landings} and F_{projected discards} do not add up to the F_{total} as they are calculated using different ages.

The 15.1% decrease in advice is the result of a downward revision of the 2019 recruitment.

Basis of the advice

Table 3 Plaice in Subarea 4 and Subdivision 20. The basis of the advice.

Advice basis	MSY approach
Management plan	An EU multiannual management plan (MAP) has been agreed by the EU for this stock (EU, 2018). There is no agreement with Norway regarding this plan, and it is not used as the basis of the advice for this shared stock. ICES was requested by the EC and UK to provide advice based on the MSY approach and to include F _{MSY} ranges in the catch scenarios.

Quality of the assessment

Conflicting information between different surveys, a large proportion of the SSB in the plus group, and changes in the spatial distribution of the stock are known to increase the uncertainty in this assessment.

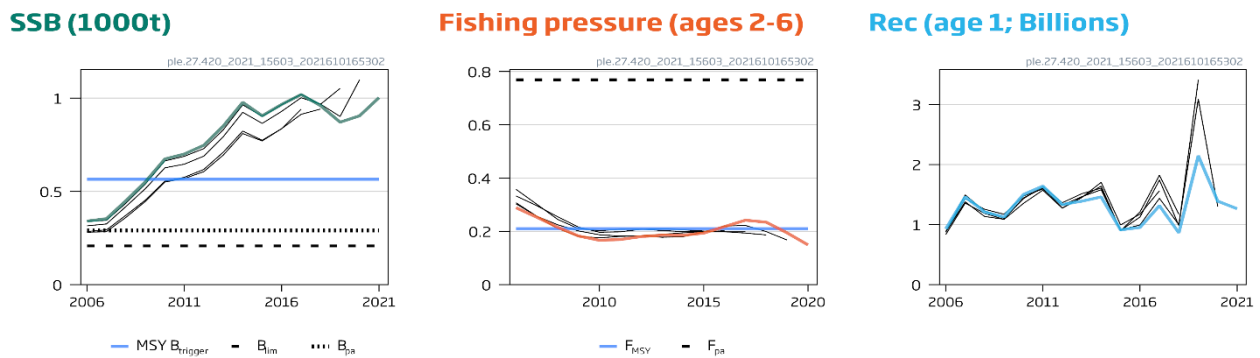


Figure 2 Plaice in Subarea 4 and Subdivision 20. Historical assessment results (final-year recruitment included for each line, corresponding to the forecast recruitment in the interim year).

Issues relevant for the advice

There is no information to present for this stock.

Reference points

Table 4 Plaice in Subarea 4 and Subdivision 20. Reference points, values, and their technical basis. All weights are in tonnes.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY B _{trigger}	564 599	(Fifth percentile of the SSB as estimated at the benchmark = SSB ₂₀₁₅)/1.4	ICES (2017)
	F _{MSY}	0.21	EqSim analysis based on the recruitment period 1958–2012	ICES (2017)
Precautionary approach	B _{lim}	207 288	Break-point of hockey stick stock–recruit relationship, based on the recruitment period 1958–2012	ICES (2017)
	B _{pa}	290 203	B _{lim} × exp(1.645 × 0.2) ≈ 1.4 × B _{lim}	ICES (2017)
	F _{lim}		F _{lim} (0.516) is no longer considered appropriate given the estimate of F _{pa}	ICES (2017, 2021)
	F _{pa}	0.769	F _{P05} with advice rule (AR): The F that provides a 95% probability for SSB to be above B _{lim}	ICES (2017, 2021)
EU Management plan (MAP)*	MAP MSY B _{trigger}	564 599	MSY B _{trigger}	ICES (2017)
	MAP B _{lim}	207 288	B _{lim}	ICES (2017)
	MAP F _{MSY}	0.21	F _{MSY}	ICES (2017)
	MAP target range F _{lower}	0.146–0.21	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2017)
	MAP target range F _{upper}	0.21–0.30	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with MSY	ICES (2017)

* EU multiannual plan (MAP) for the North Sea (EU, 2018).

Basis of the assessment

Table 5 Plaice in Subarea 4 and Subdivision 20. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2021a)
Assessment type	An age-structured stock assessment, based on Aarts and Poos (2009) that uses catches in the model and the forecast (ICES, 2021b)
Input data	Commercial catch, ages, and length frequencies from port and observer sampling. Six survey indices: combined BTS (Tridens, Isis, Belgica, Solea, UK-BTS; 1996–2020, [B2453]), BTS-Isis (1985–1995, [B2453]), SNS (split into two series, SNS1 1970–1999 and SNS2 2000–2020, [B3499]), IBTS Q1 (2007–2020, [G1022]), and IBTS Q3 (1997–2020, G2829)). Both the combined BTS Tridens and Isis and the IBTS (Q1 and Q3) survey indices are updated yearly using a delta-GAM model (Berg <i>et al.</i> , 2014). Maturity-at-age is assumed constant over time; natural mortality-at-age is assumed constant at 0.1 year ⁻¹ (ICES, 2017).
Discards, BMS landings, and bycatch	Data from the majority of fleets were included in the assessment. In 2020, 68% of the total discards in Subarea 4 were obtained from sampling programmes. For Subdivision 20, 43% of the total discards were obtained from sampling programmes. BMS landings, where reported, are included with discards in the assessment from 2016 onwards.
Indicators	None
Other information	Catch information, landings since 1984, and discards since 2002 for plaice from Subdivision 20 (Skagerrak) are now added to plaice for Subarea 4 (North Sea). The SNS survey was split into two time-series, 1984–1999 and 2000–2020. Plaice migrate into Division 7.d during quarter 1; 50% of the mature catches in Division 7.d were assigned, therefore, to the North Sea plaice stock during the stock assessment. This stock was last benchmarked in 2017 (WKNSEA; ICES, 2017).
Working groups	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)

History of the advice, catch, and management

Table 6a Plaice in Subarea 4 and Subdivision 20. **North Sea (Subarea 4)**. ICES advice, TAC, and official and ICES estimates of landings and discards. All weights are in tonnes.

Year	ICES advice	Landings corresponding to advice	Catch corresponding to advice [^]	Agreed TAC	Official landings	ICES landings	ICES discards ^{^^}
1987	F < F (84); TAC	120000		150000	130794	153670	190524
1988	70% of F (85); TAC	150000		175000	138412	154475	156423
1989	Reduce F; buffer SSB	< 175000		185000	152408	169818	107793
1990	Status quo F; TAC	171000		180000	156261	156240	71225
1991	No increase in F; TAC	169000		175000	143565	148003	80935
1992	No long-term gains in increasing F	-*		175000	123482	125190	57049
1993	No long-term gains in increasing F	170000*		175000	115278	117113	35016
1994	No long-term gains in increasing F	-*		165000	109679	110392	23785
1995	Significant reduction in F	87000**		115000	96410	98356	21828
1996	Reduction in F of 40%	61000		81000	80033	81673	52049
1997	Reduction in F of 20%	80000		91000***	81483	83048	100145
1998	Fish at F = 0.3	82000		87000	70365	71534	103751
1999	Fish at F = 0.3	106000		102000	78617	80662	70976
2000	Fish at F = 0.3	95000		97000	82151	81150	44311
2001	Fish at F = 0.26	78000		78000	79700	81847	100309
2002	F < F _{pa}	< 77000		77000	69705	70217	54525
2003	Fish at F = 0.23	60000		73000	65669	66489	77838
2004	Recovery plan	-		61000	61008	61436	54605
2005	Rebuild the SSB above B _{pa} in 2006	35000		59000	54908	55700	54169
2006	Rebuild the SSB above B _{pa} in 2007	48000		57000	55933	57943	61917
2007	Rebuild the SSB above B _{pa} in 2008	< 32000		50000	49031	49744	39511
2008	Rebuild the SSB above B _{pa} in 2009	< 35000		49000	47682	48875	45950
2009	Limit total landings to 55 500 t	< 55500		55500	n/a	54973	45292
2010	Limit total landings to 63 825 t	< 63800		63800	50666	60674	45728
2011	See scenarios	< 64200		73400	65923	67386	40553
2012	Apply first stage of the management plan	< 84410		84400	71246	73830	59068
2013	Apply first stage of the management plan	< 97070		97100	78982	78905	38864
2014	Apply first stage of the management plan	< 111631		111600	69179	70847	51915

Year	ICES advice	Landings corresponding to advice	Catch corresponding to advice [^]	Agreed TAC	Official landings	ICES landings	ICES discards ^{^^}
2015	(November update) apply second stage of the management plan	< 128376	179301	128376	74807	74963	49432
2016	Apply second stage of the management plan	-	≤ 216345	131714	78659	81059	42063
2017	MSY approach	-	≤ 158201	129917	64352	65442	37613
2018	MSY approach	-	≤ 142481	112643	49513	50783	46305
2019	MSY approach	-	≤ 142217	125435	39374	39972	33397
2020	MSY approach	-	≤ 166499	146852	32110	32736	35747
2021	MSY approach (value revised in May 2021)	-	≤ 167785	143419			
2022	MSY approach	-	≤ 142508				

* Catch at *status quo* F.

** Catch at 20% reduction in F.

*** After revision from 77 000 t.

[^] From 2016 onwards, the advice is for the combined North Sea and Skagerrak stock.

^{^^} Since 2016, discards include BMS landings.

n/a = not available.

Table 6b Plaice in Subarea 4 and Subdivision 20. **Skagerrak (Subdivision 20)**. ICES advice, TAC, official and ICES estimates of landings and discards. All weights are in tonnes. Advice until 2012 was provided for Skagerrak and Kattegat separately. Since 2016, the Skagerrak component has been merged with plaice in Subarea 4.

Year	ICES advice	Landings corresponding to advice	Catch corresponding to advice [^]	Agreed TAC	Official landings	ICES landings	ICES discards ^{**}
1992	TAC	14000		11200	11823	9554	
1993	Precautionary TAC	-		11200	11407	9854	
1994	If required, precautionary TAC	-		11200	11334	9551	
1995	If required, precautionary TAC	-		11200	10766	9380	
1996	If required, precautionary TAC	-		11200	10517	8003	
1997	No advice	-		11200	10292	7814	
1998	No increase in F from the present level	11900		11200	8431	6449	
1999	No increase in F from the present level	11000		11200	8719	7049	
2000	$F < F_{pa}$	11800		11200	8826	6989	
2001	$F < F_{pa}$	9400		9400	11653	9231	
2002	$F < F_{pa}$	8510		6420	8789	7102	574
2003	$F < F_{pa}$	18400		10400	9110	7143	1437
2004	$F < F_{pa}$	*		9500	9090	8033	2873
2005	$F < F_{pa}$	< 9500		7600	6764	6099	2081
2006	No increase in F	< 9600		7600	9565	8345	2243
2007	Maintain current TAC	< 9600		8500	8747	7621	2862
2008	No increase in catch	< 9400		9300	8657	8356	1043
2009	Same advice as last year	< 9400		9300	6748	6514	610
2010	Same advice as last year	< 9400		9300	9057	8700	842
2011	Average landings from last three years (2007–2009)	< 8000		7900	8251	8218	1040
2012	Reduce catch	-		7900	7611	7680	846

Year	ICES advice	Landings corresponding to advice	Catch corresponding to advice [^]	Agreed TAC	Official landings	ICES landings	ICES discards**
2013	Increase catch by 7% – protect eastern component		< 8400	9142	6911	6812	1161
2014	Increase catch by 7% – protect eastern component	< 8972	< 10196	10056	9004	9213	1022
2015	Decrease catch (2012–2013) by 13% – protect eastern component	≤ 6287	≤ 7232	10056	10171	9804	676
2016	Apply second stage of the management plan	-	≤ 216345	11766	10883	10900	1908
2017	MSY approach	-	≤ 158201	17639	8467	8775	1353
2018	MSY approach	-	≤ 142481	15343	5958	6229	1487
2019	MSY approach	-	≤ 142217	16782	4614	8091	3316
2020	MSY approach	-	≤ 166499	19647	5179	7826	2363
2021	MSY approach (value revised in May 2021)	-	≤ 167785	19188			
2022	MSY approach	-	≤ 142508				

* The exploitation of this stock should be conducted in the context of mixed fisheries.

** Since 2016, discards include BMS landings.

[^] From 2016 onwards, the advice is for the combined North Sea and Skagerrak stock.

History of the catch and landings

Table 7 Plaice in Subarea 4 and Subdivision 20. Catch distribution by fleet in Subarea 4 and Subdivision 20 in 2020 as estimated by ICES. Weights are in tonnes.

Catch (2020)	Landings			Discards
	Beam trawl 52%	Otter trawl 34%	Other 14%	
78 672	40 562			38 110

Table 8 Plaice in Subarea 4 and Subdivision 20. History of official commercial catch and landings of plaice in Subarea 4, along with ICES estimates for individual areas. All weights are in tonnes.
 NS = North Sea, SK = Skagerrak.

Year	Belgium NS	Denmark NS	France NS	Germany NS	Netherlands NS	Norway NS	Sweden NS	UK NS	Others NS	Landings NS (official)	Total landings NS (ICES estimates)	Landings SK (ICES estimates)	Landings NS+SK (ICES estimates)	Discards NS+SK (ICES estimates)	Landings SK (official)	BMS landings (official)
1980	7005	27057	711	4319	39782	15	7	23032	0	101928	139951	10510	150461	31080	-	
1981	6346	22026	586	3449	40049	18	3	21519	0	93996	139697	8501	148198	33031		
1982	6755	24532	1046	3626	41208	17	6	20740	0	97930	154546	8073	162619	49127		
1983	9716	18749	1185	2397	51328	15	22	17400	0	100812	144030	7130	151160	74483		
1984	11393	22154	604	2485	61478	16	13	16853	0	114996	156149	7921	164070	70816		
1985	9965	28236	1010	2197	90950	23	18	15912	0	148311	159838	10095	169933	60549		
1986	7232	26332	751	1809	74447	21	16	17294	0	127902	165347	11378	176725	129953		
1987	8554	21597	1580	1794	76612	12	7	20638	0	130794	153670	12503	166173	190524	15694	
1988	11527	20259	1773	2566	77724	21	2	24497	43	138412	154475	10820	165295	156423	12858	
1989	10939	23481	2037	5341	84173	321	12	26104	0	152408	169818	5997	175815	107793	7710	
1990	13940	26474	1339	8747	78204	1756	169	25632	0	156261	156240	10048	166288	71225	12078	
1991	14328	24356	508	7926	67945	560	103	27839	0	143565	148003	6679	154682	80935	8685	
1992	12006	20891	537	6818	51064	836	53	31277	0	123482	125190	9554	134744	57049	11823	
1993	10814	16452	603	6895	48552	827	7	31128	0	115278	117113	9854	126967	35016	11407	
1994	7951	17056	407	5697	50289	524	6	27749	0	109679	110392	9551	119943	23785	11334	
1995	7093	13358	442	6329	44263	527	3	24395	0	96410	98356	9380	107736	21828	10766	
1996	5765	11776	379	4780	35419	917	5	20992	0	80033	81673	8003	89676	52049	10517	
1997	5223	13940	254	4159	34143	1620	10	22134	0	81483	83048	7814	90862	100145	10292	
1998	5592	10087	489	2773	30541	965	2	19915	1	70365	71534	6449	77983	103751	8431	
1999	6160	13468	624	3144	37513	643	4	17061	0	78617	80662	7049	87711	70976	8719	
2000	7260	13408	547	4310	35030	883	3	20710	0	82151	81150	6989	88139	44311	8826	
2001	6369	13797	429	4739	33290	1926	3	19147	0	79700	81847	9231	91078	100309	11653	
2002	4859	12552	548	3927	29081	1996	2	16740	0	69705	70217	7102	77319	55099	8789	
2003	4570	13742	343	3800	27353	1967	2	13892	0	65669	66489	7143	73632	79275	9110	
2004	4314	12123	231	3649	23662	1744	1	15284	0	61008	61436	8033	69469	57478	9090	
2005	3396	11385	112	3379	22271	1660	0	12705	0	54908	55700	6099	61799	56250	6764	
2006	3487	11907	132	3599	22764	1614	0	12429	0	55933	57943	8345	66288	64160	9565	
2007	3866	8128	144	2643	21465	1224	4	11557	0	49031	49744	7621	57365	42373	8747	

Year	Belgium NS	Denmark NS	France NS	Germany NS	Netherlands NS	Norway NS	Sweden NS	UK NS	Others NS	Landings NS (official)	Total landings NS (ICES estimates)	Landings SK (ICES estimates)	Landings NS+SK (ICES estimates)	Discards NS+SK (ICES estimates)	Landings SK (official)	BMS landings (official)
2008	3396	8229	125	3138	20312	1051	20	11411	0	47682	48875	8356	57231	46993	8657	
2009	3474	n/a*	n/a*	2931	29142	1116	1	13143	0	n/a	54973	6514	61487	45902	6748	
2010	3699	435	383	3601	26689	1089	5	14765	0	50666	60674	8700	69374	46570	9057	
2011	4466	11634	344	3812	29272	1223	3	15169	0	65923	67386	8218	75604	41593	8251	
2012	4862	12245	281	3742	32201	1022	5	16888	0	71246	73830	7680	81510	59914	7611	
2013	6462	13650	249	4903	33537	843	3	19334	0	78982	78905	6812	85717	40025	6911	
2014	7105	12004	276	4203	29309	577	5	17370	0	69179	70847	9213	80060	52937	9004	
2015	5522	14401	223	5171	32074	169	7	17240	0	74807	74963	9804	84767	50108	10171	
2016	6659	16398	169	4371	32227	94	9	18731	0	78659	81059	10900	91959	43971**	10883	
2017	5317	12518	151	2526	28775	67	5	14993	0	64352	65442	8775	74217	38966**	8467	5
2018	4894	9666	112	2580	22586	69	3	9603	0	49513	50783	6229	57012	47792**	5958	90
2019*	3912	6583	61	2059	19289	57	3	7410	0	39374	39970	8091	48063	36713**	4614	207
2020*	2560	5636	25	1396	16870	37	5	5582	0	32110	32736	7826	40562	38110**	5179	184

n/a = not available.

* preliminary

** Since 2016, discards correspond to unwanted catch (including BMS landings).

Table 9 Plaice in Subarea 4 and Subdivision (SD) 20. ICES estimated landings for plaice in Subdivision (SD) 20 for each country participating in the fishery. All weights are in tonnes.

Year	Denmark	Sweden	Germany	Belgium	Norway	Netherlands	Total landings SD 20	BMS landings (official)
1972	5095	70			3		5168	
1973	3871	80			6		3957	
1974	3429	70			5		3504	
1975	4888	77			6		4971	
1976	9251	51		717	6		10025	
1977	12855	142		846	6		13849	
1978	13383	94		371	9		13857	
1979	11045	67		763	9		11884	
1980	9514	71		914	11		10510	
1981	8115	110		263	13		8501	
1982	7789	146		127	11		8073	
1983	6828	155		133	14		7130	
1984	7560	311		27	22		7921	
1985	9646	296		136	18		10095	
1986	10645	202		505	26		11378	
1987	11327	241		907	27		12503	
1988	9782	281		716	41		10820	
1989	5414	320		230	33		5997	
1990	8729	779		471	69		10048	
1991	5809	472	15	315	68		6679	
1992	8514	381	16	537	106		9554	
1993	9125	287	37	326	79		9854	
1994	8783	315	37	325	91		9551	
1995	8468	337	48	302	224		9380	
1996	7304	260	11		428		8003	
1997	7306	244	14		249		7814	
1998	6132	208	11		98		6449	
1999	6473	233	7		336		7049	
2000	6680	230	5		67		6989	
2001	9045	125			61		9231	
2002	6773	141	3		164	3	7102	
2003	5079	143	8		385	1484	7143	
2004	5999	545	67		111	1288	8033	
2005	4684	554	14		9	823	6099	
2006	6563	366	21		352	1059	8345	
2007	5656	281	21		166	1503	7621	
2008	7163	220	17		117	775	8356	
2009	5828	92	13		62	506	6514	
2010	7101	127	13		103	1331	8700	
2011	7746	179	13		230	15	8218	
2012	7338	155	12		136	10	7680	
2013	6326	160	10		138	181	6812	
2014	7484	240	46		48	506	9213	
2015	7808	274	14		69	1639	9804	
2016	8035	218	14	0	84	2550	10900	
2017	6864	159	11	0	154	1588	8775	2
2018	4382	70	7	0	26	1743	6229	19
2019	4605	40	15	0	9	3422	8091	13
2020	5099	65	50	0	7	2605	7826	6

Summary of the assessment

Table 10 Plaice in Subarea 4 and Subdivision 20. Assessment summary. Recruitments are in thousands, weights are in tonnes. High and low are 2 standard deviations.

Year	Recruitment			Spawning-stock biomass			Fishing pressure			Landings *	Discards
	Age 1	High	Low	SSB	High	Low	Ages 2–6	High	Low		
1957	477589	542061	421201	342242	399232	285248	0.24	0.28	0.21	70563	7880
1958	709851	803132	627642	354957	412354	297566	0.28	0.31	0.25	73354	14837
1959	875663	993487	772219	362346	419618	305082	0.31	0.34	0.27	79300	29864
1960	812141	921144	715422	381626	438896	324364	0.32	0.36	0.29	87541	29793
1961	862591	979841	759833	393621	449368	337872	0.33	0.36	0.30	85984	32490
1962	612897	696977	539011	483270	556848	409692	0.34	0.38	0.30	87472	37903
1963	605848	686813	534016	441066	500778	381362	0.36	0.40	0.32	107118	41258
1964	2471860	2778967	2196575	431488	489506	373474	0.39	0.43	0.35	110540	37031
1965	664338	746484	591768	385724	427854	343586	0.39	0.43	0.35	97143	43080
1966	577369	648938	513450	404834	452238	357422	0.37	0.40	0.33	101834	64718
1967	428580	483974	379350	472634	523652	421608	0.35	0.38	0.31	108819	54546
1968	418924	476417	368042	459738	505828	413652	0.35	0.38	0.32	111534	27987
1969	675320	775834	587896	404958	445964	363956	0.36	0.39	0.33	121651	21169
1970	677563	779533	588628	373090	414316	331864	0.37	0.41	0.34	130342	29640
1971	422011	483339	368622	360246	398660	321840	0.38	0.41	0.35	113944	22995
1972	358303	412285	311305	361649	398988	324312	0.39	0.43	0.36	122843	19632
1973	1430910	1647682	1243101	300941	332822	269058	0.43	0.47	0.40	130429	13354
1974	1103680	1283000	949118	302185	330754	273626	0.47	0.51	0.43	112540	44945
1975	793459	933655	674103	306689	333426	279954	0.48	0.53	0.44	108536	86699
1976	664145	783398	562757	328092	353514	302666	0.46	0.49	0.43	113670	53247
1977	1026960	1236399	852805	323400	347332	299468	0.44	0.48	0.41	119188	57501
1978	873543	1037726	734877	324663	347606	301714	0.47	0.50	0.43	113984	45655
1979	916945	1087952	773122	305422	328436	282404	0.52	0.56	0.48	145347	67935
1980	1095220	1287002	931148	323063	347766	298354	0.56	0.60	0.51	140764	31080
1981	1008700	1171911	867919	290624	312390	268850	0.56	0.59	0.52	141233	33031
1982	1927830	2245341	1655530	280775	301992	259568	0.53	0.57	0.49	156153	49127
1983	1351750	1570995	1163310	334269	356508	312032	0.51	0.55	0.48	145779	74483
1984	1291040	1516243	1099377	363590	387498	339682	0.51	0.54	0.48	165772	70816
1985	1838730	2187500	1546848	396845	420882	372818	0.54	0.57	0.50	171838	60549
1986	4434690	5231947	3759160	415131	439916	390344	0.60	0.63	0.56	178878	129953
1987	1902910	2249881	1609786	474638	504978	444302	0.65	0.69	0.60	168759	190524
1988	1745920	2027581	1504011	416753	441316	392184	0.64	0.68	0.60	168552	156423
1989	1251170	1447994	1081987	441588	468520	414660	0.60	0.63	0.57	178891	107793
1990	1110280	1286987	957601	398657	420108	377212	0.58	0.62	0.54	169453	71225
1991	1001720	1164148	861560	365521	385295	345745	0.60	0.64	0.57	157277	80935
1992	839808	982441	717985	315454	332929	297971	0.63	0.67	0.59	136727	57049
1993	535299	617627	464334	277411	292841	261979	0.61	0.64	0.57	128506	35016
1994	575317	660098	501749	233483	248002	218958	0.57	0.60	0.54	121925	23785
1995	1001170	1153812	869278	229063	244309	213811	0.57	0.62	0.53	109348	21828
1996	925946	1064703	805964	214555	230715	198385	0.64	0.68	0.60	91386	52049
1997	2390280	2712893	2106364	213890	232003	195777	0.71	0.76	0.65	92958	100145
1998	791741	892482	702386	241452	261428	221472	0.68	0.73	0.62	79810	103751
1999	714473	808107	631309	228090	248708	207472	0.60	0.65	0.55	89726	70976
2000	891133	1017704	779915	249438	273770	225110	0.54	0.59	0.49	90754	44311
2001	638896	731623	557367	255574	282740	228400	0.54	0.59	0.49	92912	100309
2002	1791150	2056722	1558721	243596	273634	213566	0.55	0.61	0.49	79178	55099
2003	589990	677604	513848	273686	311326	236054	0.50	0.56	0.44	74722	79275
2004	1308480	1500010	1140546	268931	312684	225176	0.41	0.47	0.36	70511	57478
2005	913606	1054303	791441	299784	351374	248186	0.34	0.39	0.28	62796	56250
2006	927631	1058551	812270	340645	402604	278676	0.29	0.33	0.24	67143	64160
2007	1461350	1672109	1277485	353442	420398	286482	0.25	0.30	0.21	58576	42373

Year	Recruitment			Spawning-stock biomass			Fishing pressure			Landings *	Discards
	Age 1	High	Low	SSB	High	Low	Ages 2–6	High	Low		
2008	1210210	1375935	1063798	449571	536998	362142	0.22	0.25	0.176	58336	46993
2009	1128760	1284058	992978	551534	662598	440462	0.182	0.22	0.149	62360	45902
2010	1501900	1710359	1318211	673527	811358	535702	0.166	0.198	0.134	70340	46570
2011	1641860	1859853	1448432	700043	845594	554486	0.169	0.20	0.138	76507	41593
2012	1334070	1507848	1180922	747104	904192	590008	0.180	0.21	0.147	82018	59914
2013	1389650	1568606	1232188	850184	1027680	672680	0.186	0.22	0.153	86222	40025
2014	1460730	1651829	1290585	977692	1187190	768190	0.185	0.22	0.154	80686	52937
2015	911173	1043013	795222	905332	1100966	709694	0.193	0.23	0.160	85360	49100
2016	952119	1088353	832197	966389	1182870	749910	0.22	0.25	0.182	92744	44205
2017	1314950	1526045	1132355	1019257	1255520	783080	0.24	0.28	0.20	74928	39361
2018	862519	1033945	720073	959080	1191320	726840	0.23	0.28	0.193	57800	47987
2019	2147830	2718036	1697352	871071	1079710	662430	0.194	0.23	0.159	48745	37346
2020	1390640	2012604	960357	905056	1117880	692240	0.149	0.182	0.116	40888	38097
2021	1263949**			1002918							

* These values include part of the catches in Division 7.d in the first quarter.

** GM estimate of 2008–2017: the last ten years prior to the recent three years.

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Recommended citation: ICES. 2021. Plaice (*Pleuronectes platessa*) in Subarea 4 (North Sea) and Subdivision 20 (Skagerrak). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, ple.27.420.

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