

Plaice (*Pleuronectes platessa*) in subdivisions 24–32 (Baltic Sea, excluding the Sound and Belt Seas)

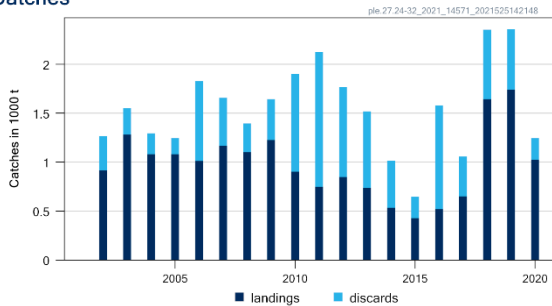
ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches in 2022 should be no more than 3956 tonnes.

Stock development over time

ICES assesses the relative fishing pressure on the stock to be below $F_{MSY\ proxy}$ and the relative spawning-stock size to be above $MSY\ B_{trigger\ proxy}$ see Figure 2.

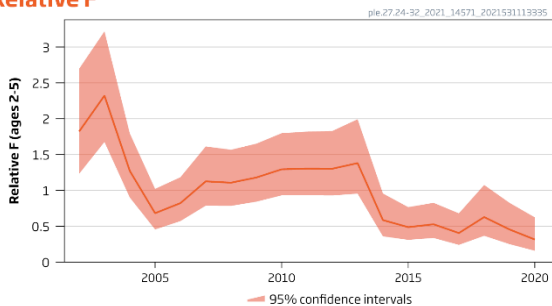
Catches



Relative Recruitment (age 1)



Relative F



Relative Spawning Stock Biomass

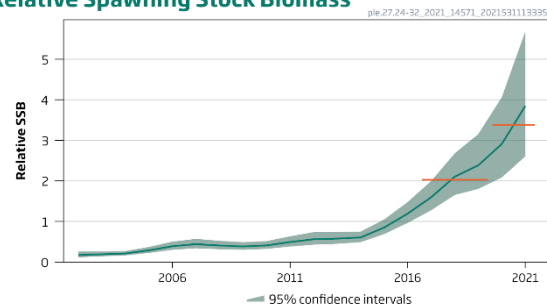


Figure 1* Plaice in subdivisions 24–32. Summary of stock assessment (catch weights in thousand tonnes). Recruitment, F, and SSB are relative to the mean of the time-series. The solid orange horizontal lines in the SSB plot indicate the average values of the respective years.

* Version 2: includes the correct confidence interval specification (95%) in the plot.

Catch scenarios

ICES framework for category 3 stocks was applied (ICES, 2012). The trends in relative SSB from the exploratory assessment were used as the index of stock development. The advice is based on the ratio of the mean of the last two index values (index A) and the mean of the three preceding values (index B), multiplied by the recent advised catch.

The index is estimated to have increased by more than 20%; thus, the uncertainty cap was applied to calculate the catch advice.

Relative stock size is above and relative fishing pressure is below proxy MSY reference points; therefore, the precautionary buffer was not applied in the advice.

Table 1 Plaice in subdivisions 24–32. The catch scenarios table.*

Index A (2020, 2021)		3.4
Index B (2017, 2018, 2019)		2.03
Index ratio (A/B)		1.65
Uncertainty cap	applied	1.2
Advised catch for 2021		3297 tonnes
Discard rate (average 2018–2020)		0.248
Precautionary buffer	Not applied	-
Catch advice**		3956 tonnes
Projected landings corresponding to the advice		2975 tonnes
% change in advice ^		20%

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

** [Advised catch for 2021] × [uncertainty cap].

^ Advice 2022 relative to advice 2021.

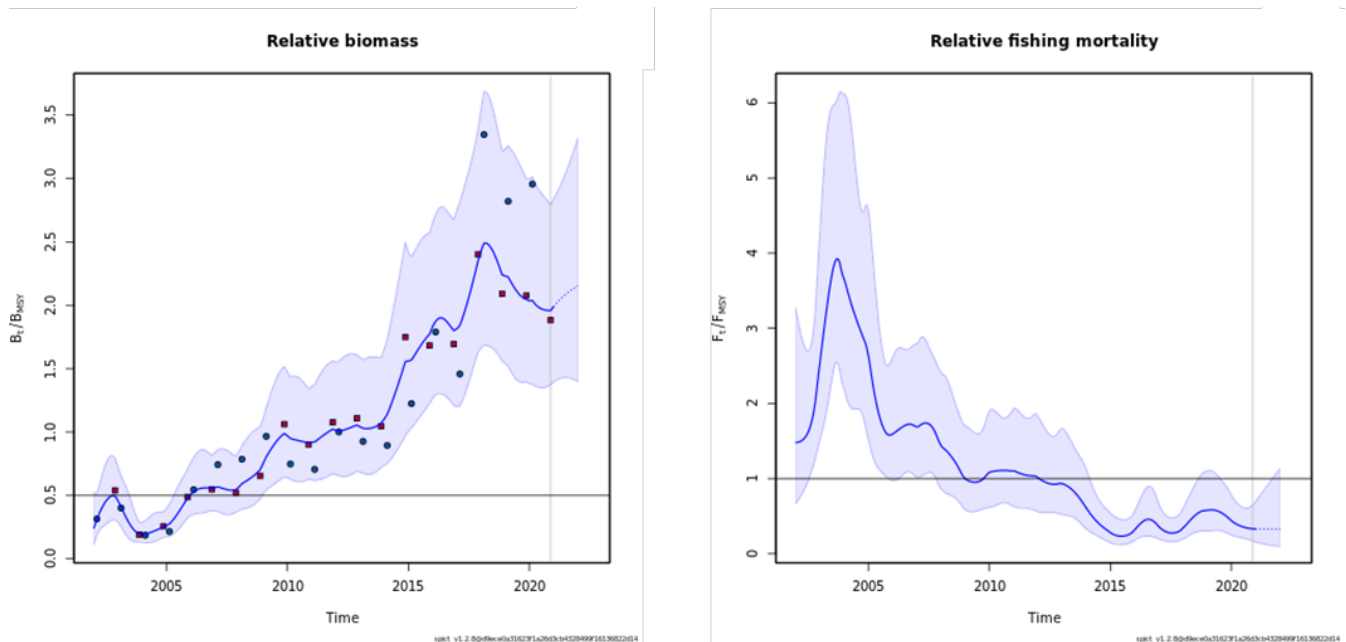


Figure 2 Plaice in subdivisions 24–32. SPiCT model results used for the evaluation of the stock and exploitation status (proxy F_{MSY} and $MSY B_{trigger}$ are represented by horizontal lines in the right and left panels, respectively). The dots in the left panel represent indices from BITS-Q1 and Q4.

Basis of the advice

Table 2 Plaice in subdivisions 24–32. The basis of the advice.

Advice basis	Precautionary approach
Management plan	The EU multiannual plan for the Baltic Sea (EU, 2016, 2019) applies to bycatches of this stock taken when fishing for the target stocks described in the plan

Quality of the assessment

The assessment is considered indicative of trends only and the resulting Category 3 advice is robust to uncertainties in the assessment.

There is a difference between the recent trends in the SAM assessment and the SPiCT assessment that is used as an indicator for stock status. This is likely due to differences in the model assumptions. The SAM assessment includes the age structure of catches and surveys which show strong incoming recruitments that is not instantaneously taken into account in the SPiCT model.

Issues relevant for the advice

The management areas for plaice in the Baltic Sea (i.e. subdivisions [SDs] 21 and 22–32) are different from the stock areas (i.e. SDs 21–23 and 24–32). As for the plaice stock in SDs 21–23 (ICES, 2021a), this section provides an option for calculating TACs by management area, based on the catch distribution observed in 2020. The catch ratio between SDs 21 and 22–23 in 2020 was used to calculate a split of the advised catches for the stock in SDs 21–23 for 2022. The advised catch for the stock in SDs 24–32 was added to the calculated catch for SDs 22–23; in this way plaice catches by management area were obtained that would be consistent with ICES advice for the two stocks.

Landings and estimated discards have decreased considerably compared to the two previous years by almost 50%. This is likely due to reductions in fishing effort because of COVID-19 restrictions and low fishing opportunities for cod in the eastern Baltic (as a result of a reduced quota and spatial-temporal closure of fisheries), where plaice would be caught as bycatch. A considerable increase of about 50% in small plaice (< 20 cm) was recorded in catches of BITS-Q1 2021 and BITS-Q4 2020 as well as in commercial fisheries discards compared to previous years. These small plaice are only partially reflected in the survey index as these only take larger individuals into account.

Table 3 Plaice in subdivisions 24–32. Catch and landings overview and calculation of catches by management area for plaice in subdivisions 21–23 and 24–32.

Basis		Catch 2020	Landings 2020	ICES stock advice 2022 (catch)
Stock area-based	SDs 21–23	4469	3409	8821
	SDs 24–32	1247	1024	3956
Total advised catch, 2022 (SDs 21–32)				12777
Management area-based	SD 21	859	283	
	SDs 22–23	3610	3126	
	SDs 24–32	4857	4150	
Calculation				Result
Share of SD 21 of the total catch in SDs 21–23 in 2020		= 859/4469 (catch in 2020 SD 21 / catch in 2020 SDs 21–23)		0.192
Catch in 2022 for SD 21		= 8821 * 0.192 (ICES stock advice in 2022 (catch) for SDs 21–23 share)		1695
Catch in 2022 for SDs 22–32		= 12777–1695 (total advised catch in 2022 SDs 21–32 – catch SD 21)		11082
Share of SD 21 of the total landings in SDs 21–23 in 2020		= 283/3409 (landings in 2020 SD 21/landings in 2020 SDs 21–23)		0.083

Reference points

Table 4 Plaice in subdivisions 24–32. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{\text{trigger proxy}}$	0.5*	Relative value (B/B_{MSY}) from the SPiCT assessment model. B_{MSY} is estimated directly from the SPiCT model and changes when the assessment is updated.	ICES (2021a)
	$F_{\text{MSY proxy}}$	1*	Relative value (F/F_{MSY}) from the SPiCT assessment model. F_{MSY} is estimated directly from the SPiCT model and changes when the assessment is updated.	ICES (2021a)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
Management plan	F_{pa}	Not defined		
	SSB_{mgt}	Not defined		
	F_{mgt}	Not defined		

*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 MSY reference points.

Basis of the assessment

Table 5 Plaice in subdivisions 24–32. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2021b)
Assessment type	Age-based analytical assessment, SAM, considered indicative of trends only (ICES, 2021a)
Input data	Commercial catches; two survey indices (BITS-Q1, G2916 and BITS-Q4, G8863); averaged maturity data (2008–2018 BITS-Q1); natural mortalities are fixed and assumed to be 0.2 (age 1) and 0.1 (age 2+)
Discards and bycatch	Used to provide advice. Discard estimates from the main fleets are included in the assessment from 2002 onwards; however, the estimations of the first years (2002–2005) are considered uncertain.
Indicators	SPiCT assessment
Other information	This stock was last benchmarked in 2015 (ICES, 2015)
Working group	Baltic Fisheries Assessment Working Group (WGBFAS)

History of the advice, catch, and management

Table 6 Plaice in subdivisions 24–32. ICES advice, TACs and ICES catch estimates. All weights are in tonnes.

Year	ICES advice	Landings corresp. to advice*	Catch corresponding to advice	Agreed TAC**	Landings (ICES estimates)	Catches (ICES estimates)
2000	No advice	-		-	630	
2001	No advice	-		-	790	
2002	No advice	-		-	915	1270
2003	No advice	-		-	1281	1550
2004	No advice	-		-	1081	1300
2005	No advice	-		-	1081	1250
2006	No advice	-		-	1012	1830
2007	No advice	-		-	1167	1660
2008	No advice	-		-	1102	1400
2009	No advice	-		-	1226	1640
2010	No advice	-		-	903	1900
2011	No advice	-		3041	748	2130
2012	No increase in catches	-		2889	848	1770

Year	ICES advice	Landings corresp. to advice*	Catch corresponding to advice	Agreed TAC**	Landings (ICES estimates)	Catches (ICES estimates)
2013	No more than 20% catch increase	≤ 900		3409	738	1520
2014	No more than 20% landings increase	≤ 1000		3409	534	1020
2015	No more than 20% wanted catches increase	≤ 886		3409	427	650
2016	Precautionary approach		≤ 2156	4034	521	1580
2017	Precautionary approach		≤ 2587	7862	650	1058
2018	Precautionary approach		≤ 3104	7076	1644	2355
2019	Precautionary approach		≤ 3725	10122	1741	2359
2020	Precautionary approach		≤ 2826	6894	1024	1247
2021	Precautionary approach		≤ 3297	7240		
2022	Precautionary approach		≤ 3956			

*Prior to 2013 the advice was for subdivisions 22–32.

**For subdivisions 22–32.

History of the catch and landings

Table 7 Plaice in subdivisions 24–32. Catch distribution by fleet in 2020 as estimated by ICES.

Catch (2020)	Landings/wanted catch		Discards	
	Active gears 77%	Passive gears 23%	Active gears 84%	Passive gears 12%
1247 tonnes	1024 tonnes		223 tonnes	

Table 8 Plaice in subdivisions 24–32. History of commercial catch and landings; both the official and ICES estimated values are included. Landings are shown by area for each country participating in the fishery. All weights are in tonnes.

Year	Denmark		Germany, FRG (+ GFR before 1990)		Poland		Sweden*				Finland	Discards	BMS landings	
	Subdivision(s)													
	24(+25)	25-27	24(+25)**	25	25(+24)***	26	24	25	26	27-29	24-26			
1970	494		16				149							
1971	314		2				107							
1972	290		2				78							
1973	203		45		174	30	75							
1974	126		12		114	86	60							
1975	184		68		158	142	45							
1976	178		85		164	76	44							
1977	221		38		265	26	41							
1978	681		1201		633	290	32							
1979	2027		1611		555	224	113							
1980	1652		308		383	53	113							

Year	Denmark		Germany, FRG (+ GFR before 1990)		Poland		Sweden*				Finland	Discards	BMS landings
	Subdivision(s)												
	24(+25)	25-27	24(+25)**	25	25(+24)***	26	24	25	26	27-29	24-26		
1981	937		83		239	27	118						
1982	393		31		43	64	40	6		8			
1983	297		26		64	12	133	20		26			
1984	166		10		106		23	3		5			
1985	771		633		119	49	25	4		6			
1986	1019		379		171	59	48	7		10			
1987	794		158		188	5	68	10		13			
1988	323		17		9	1	49	7		10			
1989	149		5		10		34	5		7			
1990	100		2		6		50			0			
1991	112		9		2	1	5	2		2			
1992	74		4		6		3	1		1			
1993	66		6		4		4						
1994	159				43	4	4	7					
1995	343		91		233	2	13	10	1				
1996	263		77		183	5	28	23	10	1			
1997	201		56		308	3	7	8		1			
1998	278		41		101	14	6	17		1			
1999	183		46		145	1	5	10					
2000	161		37		408	3	9	12					
2001	173		43		549	3	9	13					
2002	153	159	137	7	429	3	10	15				353	
2003	326	301	68	25	480	10	16	51		0		271	
2004	167	239	50	13	292	8	6	37				214	
2005	164	241	90	17	511	11	16	28		0		166	
2006	82	632	173	11	52	3	17	41				818	
2007	408	490	151	12			41	61		0		491	
2008	450	339	150	10	29	0	45	69				294	
2009^	581	359	96	21	42	0	43	79		0		418	
2010	345	296	66	13	93	8	22	61	1	0		998	
2011	291	233	109	6	37	1	33	36	0	0	1	1377	

Year	Denmark		Germany, FRG (+ GFR before 1990)		Poland		Sweden*				Finland	Discards	BMS landings
	Subdivision(s)												
	24(+25)	25-27	24(+25)**	25	25(+24)***	26	24	25	26	27-29	24-26		
2012	477	148	86	4	62	2	23	43	1	0	3	917	
2013	382	196	46	1	45	5	29	33	0	0	1	781	
2014	231	118	57	< 1	80	7	21	19	< 1	< 1	< 1	481	
2015	145	69	44	1	140	5	12	12	0	0	0	220	
2016	187	61	93	2	151	3	15	10	< 1	< 1	0	1060	
2017	124	68	143	1.4	293	3	6	12	< 1	0	0	408	7
2018	435	160	353	3	667	1.0	13	11	0	< 1	0	720	9
2019	611	51	331	0	728	1.0	13	6	0	< 1	0	617	17
2020	462	11	232	2	311	3.0	1	4	0	< 1	0	223	8

* For the years 1970–1981 and 1990 the Swedish catches from subdivisions 25–28 are included in Subdivision 24.

** Values correspond to landings from subdivisions 24 and 25 combined until 2001 – and only from Subdivision 24 afterwards.

*** Values represent mainly landings from Subdivision 25 but may also contain some landings from Subdivision 24.

^ From 2009 onwards landings below 0.5 tonnes are given as < 1, landings ≥ 0.5 tonnes are given as 1. Zeros (0) represent true zero landings. Before 2009, a distinction between “true zero landings” and rounded zero landings (< 0.5 tonnes) is not possible.

Summary of the assessment

Table 9 Plaice in subdivisions 24–32. Assessment summary. Weights are in tonnes. High and low refers to 95% confidence intervals.

Year	Relative Recruitment			Relative SSB			Landings*	Discards	Relative F		
	Age 1	High	Low	Relative SSB	High	Low			Ages 2–5	High	Low
2002	0.30	0.43	0.21	0.172	0.26	0.114	915	353	1.82	2.7	1.23
2003	0.40	0.55	0.29	0.189	0.26	0.139	1281	271	2.3	3.2	1.68
2004	0.49	0.69	0.35	0.21	0.27	0.162	1081	214	1.27	1.80	0.90
2005	0.43	0.60	0.30	0.29	0.37	0.22	1081	166	0.68	1.02	0.45
2006	0.39	0.55	0.28	0.39	0.50	0.30	1012	818	0.82	1.18	0.57
2007	0.30	0.43	0.21	0.44	0.57	0.34	1167	491	1.12	1.61	0.79
2008	0.30	0.43	0.21	0.41	0.52	0.32	1102	294	1.11	1.57	0.78
2009	0.48	0.68	0.34	0.38	0.49	0.30	1226	418	1.18	1.65	0.84
2010	0.80	1.17	0.55	0.41	0.52	0.32	903	998	1.29	1.80	0.93
2011	0.87	1.26	0.59	0.49	0.63	0.38	748	1377	1.30	1.82	0.93
2012	0.57	0.77	0.41	0.56	0.74	0.43	848	917	1.30	1.83	0.93
2013	0.86	1.16	0.64	0.58	0.74	0.45	738	781	1.38	1.99	0.95
2014	0.96	1.31	0.71	0.61	0.75	0.49	534	481	0.58	0.96	0.36
2015	1.26	1.73	0.92	0.85	1.05	0.69	427	220	0.49	0.77	0.31
2016	1.75	2.5	1.24	1.19	1.48	0.96	521	1058	0.53	0.83	0.34
2017	1.82	2.6	1.27	1.60	2.00	1.28	650	408	0.40	0.68	0.24
2018	1.81	2.8	1.19	2.1	2.7	1.65	1644	711	0.63	1.07	0.37
2019	1.85	3.1	1.10	2.4	3.2	1.80	1741	617	0.45	0.83	0.25
2020	3.4	6.3	1.78	2.9	4.1	2.1	1024	223	0.31	0.62	0.157
2021				3.8	5.7	2.6					

* Below minimum size (BMS) landings are included since 2017.

Sources and references

ICES. 2021a. Baltic Fisheries Assessment Working Group (WGBFAS). ICES Scientific Reports. 3:53. 717 pp.
<http://doi.org/10.17895/ices.pub.8187>

ICES. 2021b. Advice on fishing opportunities. *In* Report of the ICES Advisory Committee, 2021. ICES Advice 2021, section 1.1.1. <https://doi.org/10.17895/ices.advice.7720>.

[Download the stock assessment data and figures.](#)

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