ICES Advice on fishing opportunities, catch, and effort
Baltic Sea ecoregion
Published 29 May 2019
Version 2: 26 July 2019

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 2020 should be no more than 2826 tonnes.

Stock development over time

The assessment is indicative of trend only. The relative spawning-stock biomass (SSB) and relative recruitment have been increasing significantly since 2013. The relative fishing mortality has been declining in recent years and relative F in 2018 is close to the lowest observed in the time-series.

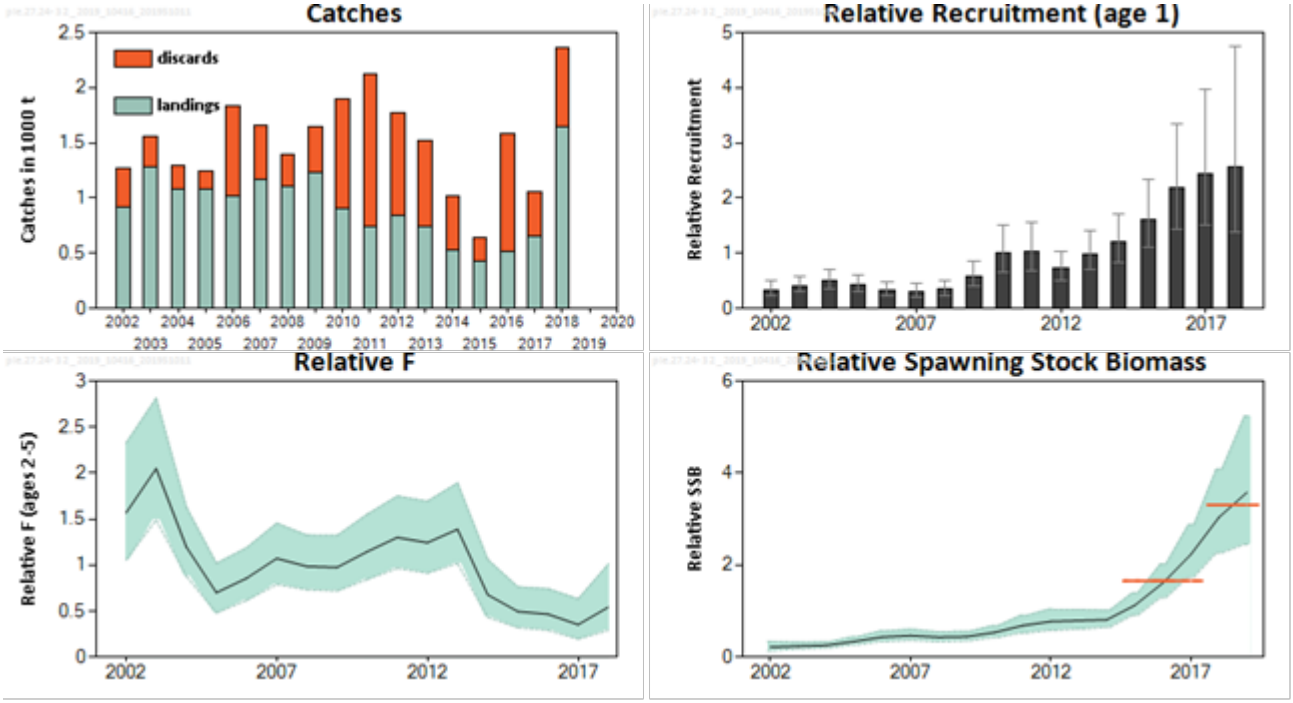

Figure 1 Plaice in subdivisions 24–32. Summary of stock assessment (catch weights in thousand tonnes). Recruitment, F, and SSB are relative to the mean of the time-series. The dashed lines in the SSB plot indicate the average values of the respective years. Relative recruitment, F, and SSB have confidence intervals (95%) in the plots.

Stock and exploitation status

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 $B_{trigger\ proxy}$ (Figure 2).

Table 1 Plaice in subdivisions 24–32. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size			
		2016	2017	2018		2017	2018	2019	
Maximum sustainable yield	$F_{MSY\ proxy}$	✓	✓	✓	Below proxy	MSY $B_{trigger}$	✓	✓	✓ Above proxy
Precautionary approach	F_{pa},F_{lim}	✓	✓	✓	Below possible reference points	B_{pa},B_{lim}	✓	✓	✓ Above possible reference points
Management plan	F_{MGT}	–	–	–	Not applicable	SSB_{MGT}	–	–	– Not applicable

Figure 2 Plaice in subdivisions 24–32. SPiCT model results used for the evaluation of the stock and exploitation status (the 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 Q1 and Q4 BITS indices.

Catch scenarios

The 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 a comparison of the two latest index values (index A) with the three preceding values (index B), multiplied by the recent advised catch (in this case catches in 2018 were used instead of the 3 year average because the stock has increased in recent years and higher catches than those in 2018 would be sustainable). The index is estimated to have increased by more than 20%, thus the uncertainty cap was applied to calculate the catch advice.

The relative fishing mortality is below, and the relative stock size above, proxies of the MSY reference points; no additional precautionary buffer was, therefore, applied.

Table 2 Plaice in subdivisions 24–32. The catch scenarios table.*

Index A (2018, 2019)		3.3
Index B (2015, 2016, 2017)		1.64
Index ratio (A/B)		2.012
Uncertainty cap	Applied	1.2
Total catch 2018		2355 tonnes
Discard rate (2018)		0.305
Precautionary buffer	Not applied	-
Catch advice**		2826 tonnes
% change in advice ^		–24%

* 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.
** Catch in 2018 × index ratio.
^ Advice 2020 relative to advice 2019.

The advice this year is for a 20% increase in catch. This is numerically a decrease from last years advice; this is, however, due to the index ratio being applied to the catch in 2018 rather than the advice for 2018.

Basis of the advice

Table 3 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) takes bycatch of this species into account.

Quality of the assessment

The trend in SSB from the the qualitative assessment is consistent over time, and considered a reasonable basis for advice.

Issues relevant for the advice

In recent years, catches have been well below the advice. The stock index is responding to that level of catch and exploitation. This is the rationale for applying the response in the index to recent catch, and not to the previous advised catches which were not taken. This is also why, while the advice this year is lower than last year, it represents a 20% increase on 2018 catches.

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, 2019a), this section provides an option for calculating TACs by management area, based on the catch distribution observed in 2018. The catch ratio between SDs 21 and 22–23 in 2018 was used to calculate a split of the advised catches for the stock in SDs 21–23 for 2020. 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 the ICES advice for the two stocks. The details of this calculation are presented in Table 4. This results in catches of no more than 3010 tonnes in SD 21, and of 10 452 tonnes in SDs 22–32.

Landings of fish below the minimum conservation reference size (MCRS) are very low (8.6 tonnes below minimum conservation reference size [BMS] reported in 2018), and discarding still takes place despite the fact that the landing obligation has been in place since 2017. The estimated discard amount of 720 tonnes in 2018 (approximately 30.5%) is based on observer data. ICES understands that this is not in accordance with the current regulations.

Table 4 Plaice in subdivisions (SDs) 24–32. Catch and landings overview and calculation of catches by management area for plaice in subdivisions 21–23 and 24–32.

Basis		Catch 2018 (t)	Landings 2018 (t)	ICES stock advice 2020 (catch)
Stock area-based	SDs 21–23	4846	3459	10 636
	SDs 24–32	2355	1644	2 826
Total advised catch, 2020 (SDs 21–32)				13 462
Management area-based	SD 21	1372	534	
	SDs 22–23	3474	2925	
	SDs 22–32	5829	4569	

	Calculation	Results
Share of SD 21 of the total catch in SDs 21–23 in 2018	1372 t / 4846 t (catch in 2018 SD 21 / catch in 2018 SDs 21–23)	0.283
Catch in 2020 for SD 21	10 636 t * 0.283 (ICES stock advice in 2019 (catch) for SDs 21–23 × share)	3010
Catch in 2020 for SDs 22–32	13 462 t – 3010 t (total advised catch in 2019 SDs 21–32 – catch SD 21)	10 452
Share of SD 21 of the total landings in SDs 21–23 in 2018	534 t / 3459 t (landings in 2018 SD 21 / landings in 2018 SDs 21–23)	0.154

Reference points

Table 5 Plaice in subdivisions 24–32. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger\ proxy}$	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 (2019b)
	$F_{MSY\ proxy}$	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 (2019b)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	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 6 Plaice in subdivisions 24–32. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2018).
Assessment type	Age-based analytical assessment, SAM, considered indicative of trends only (ICES, 2019b).
Input data	Commercial catches; two survey indices (2002–2019 BITS–Q1 and 2002–2018 BITS-Q4); 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)

Information from stakeholders

There is no additional available information.

† Version 2: value updated.

History of the advice, catch, and management

Table 7 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	-		-	920	1270
2003	No advice	-		-	1280	1550
2004	No advice	-		-	1080	1300
2005	No advice	-		-	1080	1250
2006	No advice	-		-	1010	1830
2007	No advice	-		-	1170	1660
2008	No advice	-		-	1100	1400
2009	No advice	-		-	1230	1640
2010	No advice	-		-	900	1900
2011	No advice	-		3041	750	2130
2012	No increase in catches	-		2889	850	1770
2013	No more than 20% catch increase	≤ 900		3409	740	1520
2014	No more than 20% landings increase	≤ 1000		3409	530	1020
2015	No more than 20% wanted catches increase	≤ 886		3409	430	650
2016	Precautionary approach		≤ 2156	4034	530	1580
2017	Precautionary approach		≤ 2587	7862	650	1058
2018	Precautionary approach		≤ 3104	7076	1644	2355
2019	Precautionary approach		≤ 3725	10 122		
2020	Precautionary approach		≤ 2826			

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

History of the catch and landings

Table 8 Plaice in subdivisions 24–32. Catch distribution by fleet in 2018 as estimated by ICES.

Catch (2018)	Landings / wanted catch		Discards	
2355 tonnes	Active gears 76%	Passive gears 24%	Active gears 65%	Passive gears 35%
	1644 tonnes*		711 tonnes	

*Includes 9 tonnes BMS landings

Table 9 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/SD	Denmark			Germ. Dem. Rep*	Germany, FRG		Poland		Sweden**						Finland			Discards	BMS landings
	24 (+25)^	25	26+27	24	24 (+25)^	25	25 (+24)^^	26	24	25	26	27	28	29	24	25	26		
1970	494	-			16	-			149										
1971	314	-			2	-			107										
1972	290	-			2	-			78										
1973	203	-		44	1	-	174	30	75										
1974	126	-		10	2	-	114	86	60										
1975	184	-		67	1	-	158	142	45										
1976	178	-		82	3	-	164	76	44										
1977	221	-		36	2	-	265	26	41										
1978	681	-		1198	3	-	633	290	32										
1979	2027	-		1604	7	-	555	224	113										
1980	1652	-		303	5	-	383	53	113										
1981	937	-		52	31	-	239	27	118										
1982	393	-		25	6	-	43	64	40	6		7	1						
1983	297	-		12	14	-	64	12	133	20		24	2						
1984	166	-		2	8	-	106		23	3		4	1						
1985	771	-		593	40	-	119	49	25	4		5	1						
1986	1019	-		372	7	-	171	59	48	7		9	1						
1987	794	-		142	16	-	188	5	68	10		12	1						
1988	323	-		16	1	-	9	1	49	7		9	1						
1989	149	-		5		-	10		34	5		6	1						
1990	100	-		1	1	-	6		50										
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	0	-	137	7	429	3	10	15								353	
2003	326	299	2	-	68	25	480	10	16	51		0	0					271	

Year/SD	Denmark			Germ. Dem. Rep*	Germany, FRG		Poland		Sweden**						Finland			Discards	BMS landings
	24 (+25)^	25	26+27	24	24 (+25)^	25	25 (+24)^^	26	24	25	26	27	28	29	24	25	26		
2004	167	239		-	50	13	292	8	6	37								214	
2005	164	241		-	90	17	511	11	16	28		0	0					166	
2006	82	632		-	173	11	52	3	17	41			0					818	
2007	408	490	0	-	151	12			41	61		0	0					491	
2008	450	339		-	150	10	29	0	45	69			0					294	
2009***	581	359	< 1	-	96	21	42	0	43	79	0	< 1	0	0	3	< 1	0	418	
2010	345	295	1	-	66	13	93	8	22	61	1	0	0	0	2	< 1	0	998	
2011	291	233	< 1	-	109	6	37	1	33	36	< 1	0	0	0	1	1	0	1377	
2012	477	148	< 1	-	86	4	62	2	23	43	1	0	0	0	2	< 1	< 1	917	
2013	382	196	< 1	-	46	1	45	5	29	33	< 1	0	0	0	1	0	0	781	
2014	231	118	0	-	57	< 1	80	7	21	19	< 1	< 1	0	0	< 1	0	0	481	
2015	145	69	0	-	44	1	140	5	12	12	0	0	0	0	0	0	0	220	
2016	187	60	1	-	93	2	151	3	15	10	< 1	< 1	0	0	0	0	0	1060	
2017	124	68	< 1	-	142	1	290	3	5	11	< 1	0	0	0	0	0	0	408	7
2018	435	158	2		353	3	667	1	13	11	0	0	0	0	0	0	0	711	9

* From October to December 1990 landings from Fed. Rep. of Germany are included.

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

^ 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.

Summary of the assessment

Table 10 Plaice in subdivisions 24–32. Assessment summary. Weights are in tonnes. High and low refers to 95% confidence intervals.

Year	Relative Recruitment (Age 1)	Relative Recruitment High	Relative Recruitment Low	Relative SSB	Relative SSB High	Relative SSB Low	Landings	Discards	Relative F (Ages 2-5)	Relative F High	Relative F Low
2002	0.34	0.50	0.23	0.22	0.34	0.137	915	353	1.57	2.3	1.05
2003	0.41	0.57	0.29	0.24	0.32	0.172	1281	271	2.0	2.8	1.49
2004	0.50	0.72	0.35	0.25	0.33	0.195	1081	214	1.20	1.63	0.88
2005	0.42	0.60	0.30	0.34	0.44	0.26	1081	166	0.70	1.02	0.48
2006	0.34	0.48	0.24	0.44	0.57	0.34	1012	818	0.86	1.19	0.62
2007	0.31	0.44	0.21	0.47	0.60	0.36	1167	491	1.07	1.46	0.79
2008	0.35	0.50	0.24	0.43	0.55	0.34	1102	294	0.98	1.32	0.73
2009	0.59	0.86	0.41	0.44	0.56	0.35	1226	418	0.97	1.32	0.72
2010	1.00	1.50	0.66	0.54	0.68	0.42	903	998	1.14	1.55	0.84
2011	1.04	1.57	0.69	0.68	0.90	0.52	748	1377	1.30	1.75	0.97
2012	0.72	1.03	0.50	0.77	1.03	0.58	848	917	1.24	1.69	0.91
2013	0.99	1.40	0.70	0.79	1.03	0.61	738	781	1.39	1.89	1.02
2014	1.20	1.71	0.84	0.81	1.02	0.65	534	481	0.68	1.06	0.43
2015	1.62	2.3	1.12	1.12	1.40	0.91	427	220	0.49	0.76	0.32
2016	2.2	3.3	1.44	1.61	2.0	1.29	521	1058	0.47	0.74	0.29
2017*	2.4	4.0	1.50	2.2	2.9	1.73	650	498	0.35	0.63	0.196
2018*	2.6	4.8	1.38	3.0	4.1	2.3	1644	711	0.54	1.01	0.29
2019*				3.6	5.2	2.4					

* From 2017 onwards BMS landings are included.

Sources and references

EU. 2016. Regulation (EU) 2016/1139 of the European Parliament and of the Council of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2187/2005 and repealing Council Regulation (EC) No 1098/2007. Official Journal of the European Union, L 191. 15 pp. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R1139

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 Benchmark Workshop on Plaice (WKPLE), 23–27 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM:33. 200 pp.

ICES. 2018. Advice basis. In Report of the ICES Advisory Committee, 2019. ICES Advice 2019, Book 1, Section 1.2. https://doi.org/10.17895/ices.pub.4503

ICES. 2019a. Plaice (*Pleuronectes platessa*) in subdivisions 21–23 (Kattegat, Belt Seas, and the Sound). *In* Report of the ICES Advisory Committee, 2019. ICES Advice 2019, ple.27.21-23. https://doi.org/10.17895/ices.advice.4751

ICES. 2019b. Report of the Baltic Fisheries Assessment Working Group (WGBFAS). ICES Scientific Reports. 1:20. 651 pp. http://doi.org/10.17895/ices.pub.5256

Recommended citation: ICES. 2019. Plaice (*Pleuronectes platessa*) in subdivisions 24-32 (Baltic Sea, excluding the Sound and Belt Seas). *In* Report of the ICES Advisory Committee, 2019, ple.27.24-32. https://doi.org/10.17895/ices.advice.4752