

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

ICES stock advice

ICES advises that when the precautionary approach is applied, catches in 2018 should be no more than 3104 t.

Stock development over time

The stock size indicator (relative SSB) and relative recruitment have been increasing significantly since 2002.

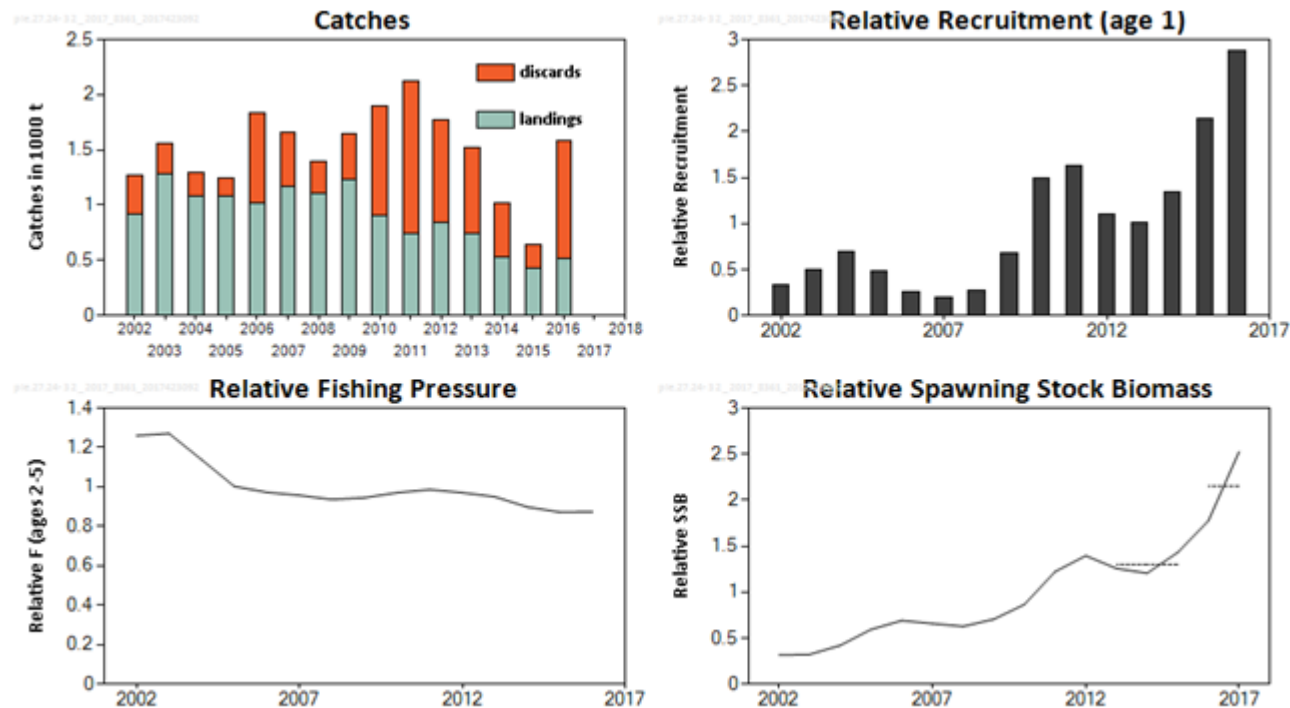


Figure 1 Plaice in subdivisions 24–32. Summary of stock assessment (catch weights in thousand tonnes). Recruitment, F, and SSB are relative to the mean of the time-series. The dashed lines in the SSB plot indicate the average values of the respective years.

Stock and exploitation status

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

		Fishing pressure			Stock size					
		2014	2015	2016	2015	2016	2017			
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	MSY	?	?	?	Undefined
Precautionary approach	F_{pa} , F_{lim}	?	?	?	Undefined	B_{pa} , B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	-	-	-	Not applicable	SSB_{MGT}	-	-	-	Not applicable
Qualitative evaluation	-	→	→	→	Stable	-	✓	✓	✓	Above possible reference points

Catch options

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

The stock status relative to candidate reference points is unknown. The exploitation on the stock is considered to be stable and the stock size indicator is steadily increasing; therefore the precautionary buffer was not applied.

The average discard ratio of the last three years (2014–2016) was used instead of the exceptionally high discard rate in 2016.

Table 2 Plaice in subdivisions 24–32. The basis for the catch options.*

Index A (2016, 2017)		2.15
Index B (2013, 2014, 2015)		1.30
Index ratio (A/B)		1.66
Uncertainty cap	Applied	1.2
Advised catch for 2017		2587 tonnes
Discard rate (2014, 2015, 2016)		0.495
Precautionary buffer	Not applied	-
Catch advice**		3104 tonnes
Wanted catch*** corresponding to Catch advice		1568 tonnes

* 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.

** [Advised catch for 2017] × [uncertainty cap].

*** [Catch advice] × [1 – discard rate from 2014–2016].

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

Depending on market prices and quota of target species (e.g. cod), discarding varies between quarters and years. The discarded fraction can cover all length classes and comprise as much as 100% of the catch. The sampling coverage allows reasonable discard estimations back to 2006. For the period 2002 to 2005, the sampling coverage and discard estimations are very scattered. Discard estimates used in the assessment are underestimates, especially for fishing nations with no quota for plaice. Discards in 2016 were exceptionally high (67% of the catch), mostly taken in quarter 4 by Danish trawl fisheries in subdivision 25.

Issues relevant for the advice

Both plaice stocks in the Baltic Sea show similar development in stock size, but data for the stock in subdivisions 24–32 is insufficient to perform an analytical assessment.

The management areas for plaice in the Baltic Sea (i.e. Subdivision (SD) 21 and SDs 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, 2017a), this section provides an option for calculating TACs by management area, based on the catch distribution observed in 2016. The catch ratio between SD 21 and SDs 22–23 in 2016 was used to calculate a split of the advised catches for the stock in SDs 21–23 for 2018, and a similar calculation was done for the landings only. The advised catch for the stock in SDs 24–32 was added to the calculated catch for SDs 22–23 to obtain

plaice catches by management area 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 2237 tonnes in SD 21 and 6272 tonnes in SDs 22–32. The corresponding wanted catches would be no more than 1467 tonnes in SD 21 and 4106 tonnes in SDs 22–32.

Table 4 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 2016	Landings 2016	ICES stock advice 2018 (catch)	ICES stock advice 2018 (corresponding wanted catch)
Stock area-based	SDs 21–23	4521	3020	5405	4005
	SDs 24–32	1580	521	3104	1568
Total advised catch and corresponding wanted catch, 2018 (SDs 21–32)				8509	5573
Management area-based	SD 21	1871	1106		
	SDs 22–23	2650	1914		
	SDs 22–32	4230	2435		
				calculation	results
Share of SDs 21–23 2016 catch in SD 21		1871 t / 4521 t (catch 2016 SD 21 / catch 2016 SDs 21–23)			0.414
Catch 2018 for SD 21		5405 t × 0.414 (ICES stock advice 2018 (catch) for SDs 21–23 × share)			2237
Catch 2018 for SDs 22–32		8509 t – 2237 t (total advised catch 2018 SDs 21–32 – catch SD 21)			6272
Share of SDs 21–23 2016 landings in SD 21		1106 t / 3020 t (landings 2016 SD 21 / landings 2016 SDs 21–23)			0.366
Wanted catch 2018 for SD 21		4005 t × 0.366 (ICES stock advice 2018 (wanted catch) for SDs 21–23 × share)			1467
Wanted catch 2018 for SDs 22–32		5573 t – 1467 t (wanted catch 2018 SDs 21–32 – wanted catch SD 21)			4106

Reference points

No reference points are defined for this stock. An attempt was made this year to calculate MSY proxy reference points for this stock. However, there were concerns on the quality of the input parameters for the analysis and further investigation is needed (ICES, 2017b).

Basis of the assessment

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

ICES stock data category	3 (ICES, 2016).
Assessment type	Exploratory age-based analytical assessment, SAM (ICES, 2017b).
Input data	Commercial catches (international landings, catch numbers by age, mean weight in catch by age); two survey indices (BITS–Q1 and Q4); averaged maturity data (2008–2016 Q1 surveys); 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	None.
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 available information.

History of the advice, catch, and management

Table 6 Plaice in subdivisions 24–32. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Predicted landings corresp. to advice*	Agreed TAC**	Landings (ICES estimates)	Catches (ICES estimates)
2000	No advice	-	-	0630	
2001	No advice	-	-	0790	
2002	No advice	-	-	0920	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	-	-	0900	1900
2011	No advice	-	3041	0750	2130
2012	No increase in catches	-	2889	0850	1770
2013	No more than 20% catch increase	≤ 0900	3409	0740	1520
2014	No more than 20% landings increase	≤ 1000	3409	0530	1020
2015	No more than 20% wanted catches increase	≤ 0886	3409	0430	0650
2016	Precautionary approach	≤ 2156***	4034	0530	1580
2017	Precautionary approach	≤ 2587***	7862		
2018	Precautionary approach	≤ 3104***			

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

**For subdivisions 22–32.

*** Advice corresponds to total catch, not landings.

History of the catch and landings

Table 7 Plaice in subdivisions 24–32. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings		Discards	
	Active gears 81%	Passive gears 19%	Active gears 98%	Passive gears 2%
1580 tonnes	521 tonnes		1059 tonnes	

Table 8 Plaice in subdivisions 24–32. 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/SD	Denmark			Germ. Dem. Rep*	Germany, FRG			Poland		Sweden**					Finland			Discards
	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
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

Year/SD	Denmark			Germ. Dem. Rep.*	Germany, FRG		Poland		Sweden**						Finland			Discards
	24(+25) [^]	25	26+27		24	24(+25) [^]	25	25(+24) ^{^^}	26	24	25	26	27	28	29	24	25	
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	0		96	21	42	0	43	79		0						418
2010	345	295	1		66	13	93	8	22	61	1	0						998
2011	291	233			109	6	37	1	33	36	0	0			1	0	0	1377
2012	477	148	0		86	4	62	2	23	43	1	0			2	1	0	917
2013	382	196	0		46	1	45	5	29	33	0	0			1			781
2014	231	118	0		57	<1	80	7	21	19	<1	<1	0	0	<1			481
2015	145	69	0		44	1	140	5	12	12	0	0	0	0	0			220
2016	187	60	1		93	2	151	3	15	10	<1	<1	0	0	0	0	0	1060

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

** For the years 1970–1981 and 1990 the Swedish catches of 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.

Summary of the assessment

Table 9 Plaice in subdivisions 24–32. Assessment summary. Weights are in tonnes.

Year	Relative recruitment (age 1)	Relative SSB	Landings	Discards	Relative F (ages 2–5)
2002	0.34	0.32	915	353	1.26
2003	0.49	0.32	1281	271	1.27
2004	0.70	0.42	1081	214	1.14
2005	0.49	0.59	1081	166	1.003
2006	0.26	0.69	1012	818	0.97
2007	0.195	0.66	1167	491	0.96
2008	0.27	0.63	1102	294	0.94
2009	0.67	0.71	1226	418	0.95
2010	1.50	0.86	903	998	0.97
2011	1.63	1.22	748	1377	0.99
2012	1.10	1.39	848	917	0.97
2013	1.00	1.26	738	781	0.95
2014	1.34	1.20	534	481	0.90
2015	2.1	1.43	427	220	0.87
2016	2.9	1.77	521	1059	0.87
2017		2.5			

Sources and references

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