

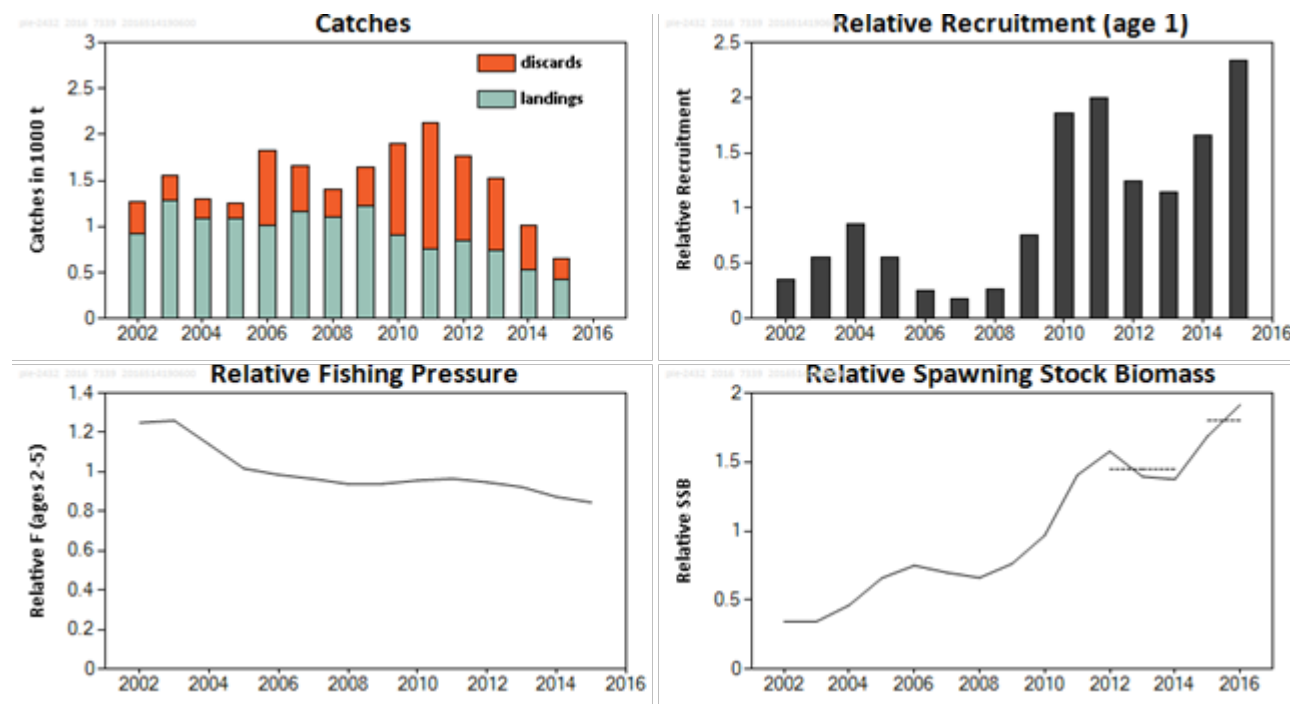
### 8.3.16 Plaice (*Pleuronectes platessa*) in subdivisions 24–32 (Baltic Sea, excluding the Sound and Belt Seas)

#### ICES stock advice

ICES advises that when the precautionary approach is applied, catches in 2017 should be no more than 2587 tonnes.

#### Stock development over time

The stock size indicator (relative SSB) has increased fivefold since 2002.



**Figure 8.3.16.1** 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 8.3.16.1** Plaice in subdivisions 24–32. State of the stock and fishery relative to reference points.

		Fishing pressure			Stock size					
		2013	2014	2015	2014	2015	2016			
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 candidate 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. Fishing mortality 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, no additional precautionary buffer was applied. Discarding is known to take place and the discard ratio has been estimated, based on the discard rate in 2015.

**Table 8.3.16.2** Plaice in subdivisions 24–32. For stocks in ICES data categories 3–6, one catch option is provided.

Index A (2015, 2016) <sup>1</sup>		1.80
Index B (2012, 2013, 2014) <sup>1</sup>		1.45
Index ratio (A/B)		1.24
Uncertainty cap applied	Applied	1.2
Recent advised catch for 2016		2156 t
Discard rate (2015)		0.34
Precautionary buffer	Not applied	-
Catch advice*		2587 t
Wanted catch** corresponding to the catch advice		1707 t

\*(Recent advised catch) × cap.

\*\* “Wanted” and “unwanted” catch are used to described fish that would be landed and discarded in the absence of the EU landing obligation, based on discard rate estimates for 2015.

## Basis of the advice

**Table 8.3.16.3** Plaice in subdivisions 24–32. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	There is no management plan for plaice in this area. There is a proposed EU management plan for the Baltic Sea where bycatch of this species is considered. The plan has not been formally implemented.

## 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.

## 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). The following shows an option for calculating TAC by management area, based on the catch distribution observed in 2015. The catch ratio between SD 21 and SDs 22–23 in 2015 was used to calculate a split of the advised catches for the stock in SDs 21–23 for 2017 (Section 8.3.15), 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

<sup>1</sup> Version 2: year ranges used corrected.

management area that would be consistent with the ICES advice for the two stocks. This results in catches of no more than 3058 tonnes in SD 21 and 7862 tonnes in SDs 22–32. The corresponding wanted catches would be no more than 2065 tonnes in SD 21 and 5841 tonnes in SDs 22–32.

**Table 8.3.16.4** 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 2015	Landings 2015	ICES stock advice 2017 (catch)	ICES stock advice 2017 (corresponding wanted catch)
Stock area based	SDs 21–23	3707 t	2687 t	8333 t	6199 t
	SDs 24–32	647 t	427 t	2587 t	1707 t
<b>Total advised catch and corresponding wanted catch, 2017 (SDs 21–32)</b>				10920 t	7906 t
Management area based	SD 21	1361 t	895 t		
	SDs 22–23	2346 t	1792 t		
	SDs 22–32	2993 t	2219 t		
<b>calculation</b>				<b>results</b>	
<b>Share of SDs 21–23 2015 catch in SD 21</b>		1361 t / 3707 t (catch 2015 SD 21 / catch 2015 SDs 21–23)		0.367	
<b>Catch 2017 for SD 21</b>		8333 t × 0.367 (ICES stock advice 2017 (catch) for SDs 21–23 × share)		<b>3058 t</b>	
<b>Catch 2017 for SDs 22–32</b>		10920 t – 3058 t (total advised catch 2017 SDs 21–32 – catch SD 21)		<b>7862 t</b>	
<b>Share of SDs 21–23 2015 landings in SD 21</b>		895 t / 2687 t (landings 2015 SD 21 / landings 2015 SDs 21–23)		0.333	
<b>Wanted catch 2017 for SD 21</b>		6199 t × 0.333 (ICES stock advice 2017 (wanted catch) for SDs 21–23 × share)		<b>2065 t</b>	
<b>Wanted catch 2017 for SDs 22–32</b>		7906 t – 2065 t (wanted catch 2017 SDs 21–32 – wanted catch SD 21)		<b>5841 t</b>	

### Reference points

No reference points are defined for this stock.

### Basis of the assessment

**Table 8.3.16.5** Plaice in subdivisions 24–32. The basis of the assessment.

ICES stock data category	3.2.0 (ICES, 2016a)
Assessment type	Exploratory age-based analytical assessment (SAM; ICES, 2016b)
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 (2008–2015 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 8.3.16.6** Plaice in subdivisions 24–32. History of ICES advice, the agreed TAC, landings, and catches (ICES estimates). Weights in thousand tonnes.

Year	ICES advice	Predicted landings corresp. to advice*	Agreed TAC**	Landings (ICES estimates)	Catches (ICES estimates)
2000	No advice	-	-	0.63	
2001	No advice	-	-	0.79	
2002	No advice	-	-	0.92	1.27
2003	No advice	-	-	1.28	1.55
2004	No advice	-	-	1.08	1.30
2005	No advice	-	-	1.08	1.25
2006	No advice	-	-	1.01	1.83
2007	No advice	-	-	1.17	1.66
2008	No advice	-	-	1.10	1.40
2009	No advice	-	-	1.23	1.64
2010	No advice	-	-	0.90	1.90
2011	No advice	-	3.041	0.75	2.13
2012	No increase in catches	-	2.889	0.85	1.77
2013	No more than 20% catch increase	≤ 0.9	3.409	0.74	1.52
2014	No more than 20% landings increase	≤ 1.0	3.409	0.53	1.02
2015	No more than 20% wanted catches increase	≤ 0.886	3.409	0.43	0.65
2016	Precautionary approach	≤ 2.156***	4.034		
2017	Precautionary approach	≤ 2.587***			

\*Before 2013 the advice was for subdivisions 22–32.

\*\*For subdivisions 22–32.

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

### History of catch and landings

**Table 8.3.16.7** Plaice in subdivisions 24–32. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch (2015)	Landings		Total discards	
	Trawls 79%	Passive gears 21%	Trawls 83%	Passive gears 17%
647 t	427 t		220 t	

**Table 8.3.16.8** Plaice in subdivisions 24–32. History of landings and ICES estimates of discards presented by area for each country participating in the fishery. Weights 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	
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

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	
2005	164	241			90	17	511	11	16	28		0	0					166	
2006	82	632			173	11	52	3	17	41		0	0					818	
2007	408	490	0		151	12			41	61		0	0					491	
2008	450	339			150	10	29	0	45	69		0	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	0	80	7	21	19	0	0	0	0	0			481	
2015	145	69	0		44	1	140	5	12	12	0	0	0	0	0			220	

\*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.

\*\*\* From 2002 Danish catches in SW Baltic were separated into subdivisions 24 and 25.

## Summary of the assessment

**Table 8.3.16.9** Plaice in subdivisions 24–32. Weights are given in tonnes.

Year	Relative recruitment (age 1) <sup>†</sup>	Relative SSB	Landings	Discards	Relative mean F (ages 3–5)
2002	0.351	0.343	915	353	1.249
2003	0.555	0.344	1281	271	1.26
2004	0.851	0.462	1081	214	1.139
2005	0.56	0.659	1081	166	1.017
2006	0.257	0.75	1012	818	0.985
2007	0.181	0.699	1167	491	0.964
2008	0.263	0.661	1102	294	0.938
2009	0.753	0.763	1226	418	0.939
2010	1.854	0.967	903	998	0.956
2011	1.998	1.405	748	1377	0.965
2012	1.24	1.577	848	917	0.947
2013	1.148	1.394	738	781	0.923
2014	1.657	1.375	534	481	0.872
2015	2.332	1.687	427	220	0.845
2016		1.915			

## Sources and references

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<sup>†</sup> Version 2: Relative recruitment values corrected.