

ECOREGION Baltic Sea
STOCK Plaice in Subdivisions 21–23 (Kattegat, Belts, and Sound)

Advice for 2015

ICES advises on the basis of the data-limited approach that catches in 2015 should be no more than 4031 tonnes. If unwanted catch¹ rates do not change from the 2013 ratio, this implies wanted catch of no more than 2626 t.

Stock status

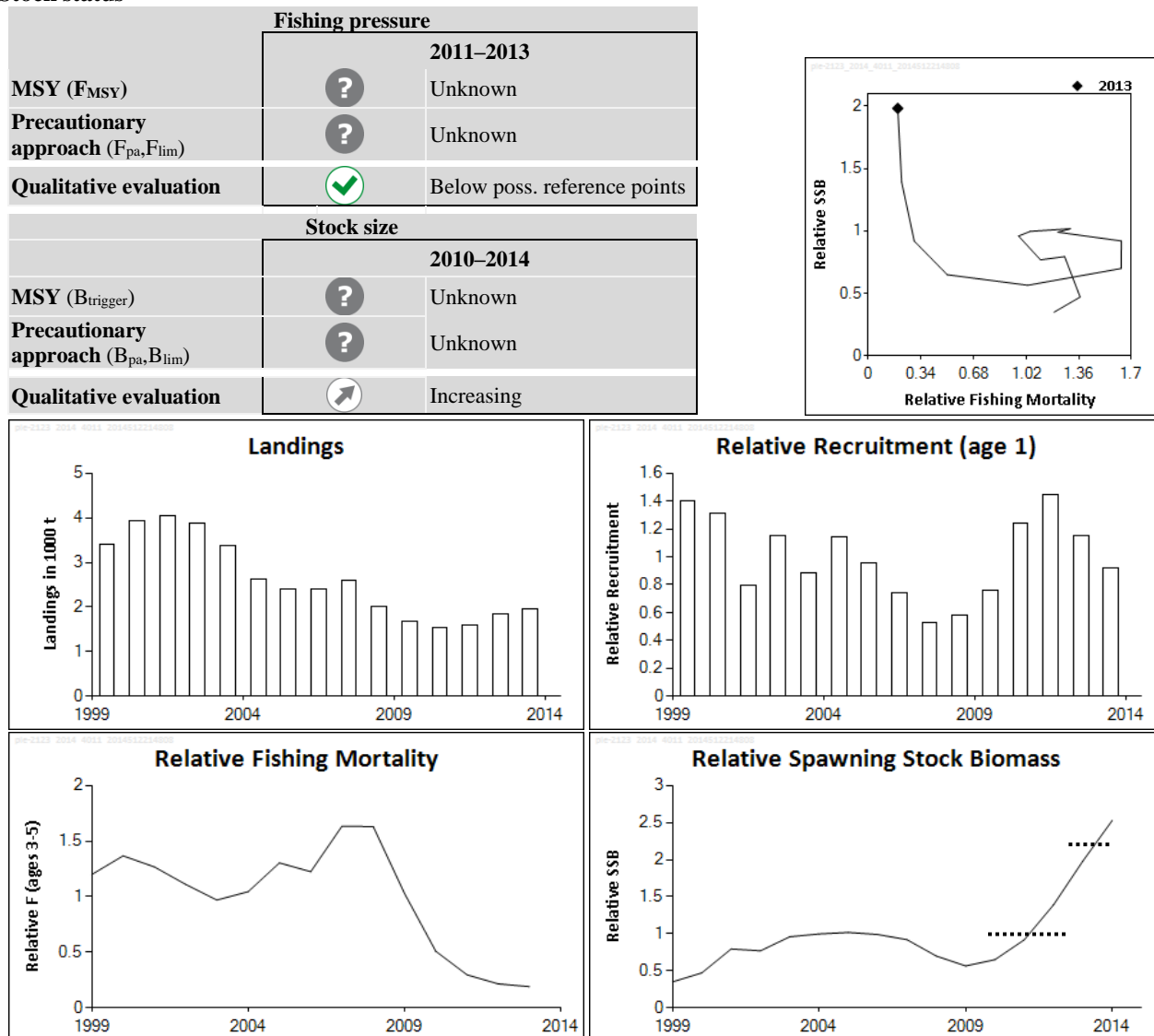


Figure 8.3.14.1 Plaice in Subdivisions 21, 22, and 23 (Kattegat, Belts, and Sound). Summary of stock assessment (landings weights in thousand tonnes). Recruitment, F, and SSB are relative to the mean of the time-series. The dashed lines in the SSB plot indicate the average values of the respective years.

The exploratory assessment shows that fishing mortality has dropped since 2008, and SSB has been increasing since 2009. The SSB in the last two years (2012–2013) is 129% higher than the average of the three previous years (2009–2011). Fishing mortality is likely to be below any potential reference points.

¹ “Wanted catch” is used to describe fish that would be landed in the absence of the EU landing obligation. The “unwanted catch” refers to the component that was previously discarded.

Management plans

No specific management objectives are known to ICES.

Biology

Plaice (*Pleuronectes platessa*) aggregate at spawning grounds in the first quarter of the year. Stock boundaries are not well understood, due to potentially large connectivity between areas occurring through spawning migration, larval drift, and juvenile homing.

Environmental influence on the stock

Growth patterns for plaice in this area are highly variable, likely because of the great diversity of the local hydrographical conditions in the Kattegat, the Sound, and the Belt Sea.

The fisheries

Plaice is caught all year round, mainly from winter to spring. In Subdivision 22 plaice are mostly taken in mixed fisheries together with cod. In Subdivision 21 plaice is almost exclusively a bycatch in the combined *Nephrops*–sole fishery. Information on discarding in 2013 indicates that discard in weight was 42% of the total catch. Discarding peaks in Subdivision 22 in the 1st quarter in connection with the intensive fishery targeting cod, and in the 3rd quarter in the Kattegat coinciding with the peak in the *Nephrops*–sole fishery

Catch distribution	Total catch (2013) = 3360 tonnes, where total landings = 1955 tonnes (62% active gears and 38% passive gears), total discard is 1405 tonnes (\approx 1% from passive and 99% from active gears).
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Quality considerations

The assessment is only accepted for trends because historical discard data are not available. Nevertheless, technically the assessment seems to perform quite well with respect to, e.g. the retrospective analysis, although the confidence limits are quite large; this is probably due to the relative short time-series of catch data.

The 2013 discard estimate is based on a different method and therefore not directly comparable to last year's estimate.

The advice is based on an assessment model accepted for trends, used as an indicator of stock size. The methods applied to derive quantitative advice for data-limited stocks are expected to evolve as they are further developed and validated. The harvest control rules are expected to stabilize stock size in the short term (3–5 years), but they may not be suitable if the stock size is low and/or overfished

Scientific basis

Stock data category	3.2.0. (ICES, 2014a)
Assessment type	Exploratory age-based analytical assessment (SAM).
Input data	Commercial catches (international landings, catch numbers by age, mean weight in catch by age); four survey indices (IBTSQ1 and Q3, BITS-Q1 and Q4); annual maturity data (from commercial catch during surveys); natural mortalities are fixed and assumed to be 0.1.
Discards and bycatch	Used to provide advice, but not included in the assessment. Discard information available from 2013 from the main fleets (covering 100% of the landings).
Indicators	None.
Other information	The stock is planned to be benchmarked in 2015.
Working group	Baltic Fisheries Assessment Working Group (WGBFAS)

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Reference points

	<i>Type</i>	<i>Value</i>	<i>Technical basis</i>
MSY approach	MSY B _{trigger}	Undefined.	
	F _{MSY}	0.25	F _{MSY} proxy from the neighbouring North Sea stock. Since selectivity in Kattegat is towards larger fish (discards are considerably lower) this proxy is considered conservative and in the range of other possible proxies.
Precautionary approach	Not defined.		

(Last changed in: 2012).

Outlook for 2015

No reliable forecast can be presented for this stock, because the assessment is only indicative of trends and the absolute level of stock size is uncertain.

ICES approach to data-limited stocks

For data-limited stocks for which a biomass index is available, ICES uses as harvest control rule an index-adjusted *status quo* catch. The advice is based on a comparison of the two most recent index values with the three preceding values, combined with recent catch or landings data. Knowledge about the exploitation status also influences the advised catch.

For this stock, the biomass from the exploratory assessment is estimated to have increased by more than 20% between the average of 2010–2012 (three years) and the average of 2013–2014 (two years). This implies an increase of catches of at most 20% in relation to last year's (2013) catches, corresponding to catches in 2015 of no more than 4031 t. Assuming the same discard rates as last year, this implies wanted catches of no more than 2626 t.

Considering that biomass has increased more than 50% and fishing mortality is below the possible F_{MSY} proxy, no additional precautionary reduction is needed.

Additional considerations*Regulations and their effects*

Implementation of a number of changes in the regulatory systems in the Kattegat between 2007 and 2008 as well as continuous reductions in the allowed days-at-sea to protect Kattegat cod have significantly changed the fishing patterns of the Danish and Swedish fleets since the early 2000s. The “Seltra” trawl, which has a lower selectivity for flatfish, was introduced in 2009 in Kattegat for protection of cod. To decrease discards of cod in SD 22, a “Bacoma” codend with a 120 mm mesh was introduced by the International Baltic Sea Fisheries Commission (IBSFC) in 2001 in parallel to an increase in diamond mesh size to 130 mm in traditional codends. In October 2003, the regulation was changed to a 110 mm “Bacoma” window. On 1 January 2010 the “Bacoma” 120 mm was re-introduced along with an extended “Bacoma” window (5.5 m).

The plaice fisheries in the western Baltic have been regulated from 1998 by a seasonal closure from 1st of February to 30th of April, when landing of mature females is prohibited. This regulation was officially suspended in 2006 by EU and since then has only been nationally enforced by Denmark.

Uncertainties in the assessment and forecast

No historical discard information prior to 2011 is available, but discards are considered to be significant.

Comparison of the basis of previous assessment and advice

The basis for the assessment has not changed from last year (SAM assessment model).

As in last year, the basis for the advice is ICES approach to data-limited stocks. However, the advice this year is now based on catches, using landings topped up by the 2013 discard ratio, while last year's advice was on landings.

Sources

- ICES. 2014a. Advice basis. *In* Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 1, Section 1.2.
- ICES. 2014b. Report of the Baltic Fisheries Assessment Working Group (WGBFAS), 3–10 April 2014, ICES Headquarters, Copenhagen, Denmark. ICES CM 2014/ACOM:10.

Table 8.3.14.1 Plaice in Subdivisions 21, 22, and 23 (Kattegat, Belts, and Sound). ICES advice, management, and official landings.

Year	ICES Advice	Pred. catch corresp. to advice Kattegat, Belts, Sounds, and western Baltic Sea	Pred. catch corresp. to advice for Skagerrak and Kattegat	TAC Kattegat	TAC Baltic Sea (SDs 22–32)	ICES landings (SDs 21–23)	Discards (SDs 21–23)
1992	TAC		14.0	2.8		2.7	
1993	Precautionary TAC		-	2.8		1.7	
1994	If required, precautionary TAC		-	2.8		2.1	
1995	If required, precautionary TAC		-	2.8		2.1	
1996	If required, precautionary TAC		-	2.8		3.5	
1997	No advice		-	2.8		3.4	
1998	No increase in F from the present		11.9	2.8		2.9	
1999	No increase in F from the present		11.0	2.8		3.4	
2000	$F < F_{pa}$		11.8	2.8		3.9	
2001	$F < F_{pa}$		9.4	2.35		4.1	
2002	$F < F_{pa}$		8.5 ^a	1.6 ^b		3.9	
2003	$F < F_{pa}$		18.4	3.0		3.4	
2004	$F < F_{pa}$ ^c		^c	1.8		2.6	
2005	$F < F_{pa}$		< 9.5	1.9		2.4	
2006	No increase in F		< 9.6	1.9		2.4	
2007	Maintain current		< 9.6	2.1		2.6	
2008	No increase in catch		< 9.4	2.3		2.0	
2009	Same advice as last		< 9.4	2.3		1.7	
2010	Same advice as last		< 9.4	2.3		1.5	
2011	Last three years' average landings		< 8.0	2.0	3.041	1.6	
2012	Reduce catch		-		2.889	1.8	
2013	Increase catch by 16%, transition to	< 1.8 ^d		2.0	2.889	2.0	1.4
2014	Increase landings by	2.224 ^d		2.16	3.409		
2015	Increase catch by	4.031					

Weights in thousand tonnes.

^a In March 2002 ACFM revised its advice to 11.6 for both areas combined.

^b The TAC for the two areas combined was adjusted to 11 200 tonnes in mid-2002.

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

^d Landings.

Table 8.3.14.2

Plaice in Subdivisions 21, 22, and 23 (Kattegat, Belts, and Sound). ICES estimates of landings by country and subdivision in tonnes.

Year/SD	SD 21			SD 22			SD 23		Total
	Denmark	Germany	Sweden	Denmark	Germany	Sweden	Sweden	Denmark	
1970				3757	202				3959
1971				3435	160				3595
1972	15504	77	348	2726	154				18809
1973	10021	48	231	2399	165				12864
1974	11401	52	255	3440	202				15350
1975	10158	39	296	2814	313				13620
1976	9487	32	177	3328	313				13337
1977	11611	32	300	3452	353				15748
1978	12685	100	312	3848	379				17324
1979	9721	38	333	3554	205				13851
1980	5582	40	313	2216	89				8240
1981	3803	42	256	1193	80				5374
1982	2717	19	238	716	45				3735
1983	3280	36	334	901	42				4593
1984	3252	31	388	803	30				4504
1985	2979	4	403	648	94				4128
1986	2470	2	202	570	59				3303
1987	2846	3	307	414	18				3588
1988	1820	0	210	234	10				2274
1989	1609	0	135	167	7				1918
1990	1830	2	202	236	9				2279
1991	1737	19	265	328	15				2364
1992	2068	101	208	316	11				2704
1993	1294	0	175	171	16		2		1658
1994	1547	0	227	355	1		6		2136
1995	1254	0	133	601	75		12	64	2139
1996	2337	0	205	859	43	1	13	81	3539
1997	2198	25	255	902	51		13		3444
1998	1786	10	185	642	213		13		2849
1999	1510	20	161	1456	244	1	13		3405
2000	1644	10	184	1932	140		26		3936
2001	2069		260	1627	58		39		4053
2002	1806	26	198	1759	46		42		3877
2003	2037	6	253	1024	35	0	26		3381
2004	1395	77	137	911	60		35		2615

Table 8.3.14.2 (cont.) Plaice in Subdivisions 21, 22, and 23 (Kattegat, Belts, and Sound). ICES estimates of landings by country and subdivision in tonnes.

Year/SD	SD 21			SD 22			SD 23		Total
	Denmark	Germany	Sweden	Denmark	Germany	Sweden	Sweden	Denmark	
2005	1104	47	100	908	51		35	145	2390
2006	1355	20	175	600	46		39	166	2401
2007	1198	10	172	894	63		69	193	2599
2008	866	6	136	750	92	0	45	116	2011
2009	570	5	84	633	194	0	42	139	1668
2010	428	3	66	748	221	0	17	57	1541
2011	328	0	40	851	310		11	46	1586
2012	196	0	30	1189	365	7	12	54	1853
2013 ¹	232	0	60	1253	319	0	76	14	1955

¹ Preliminary.

Table 8.3.14.3

Plaice in Subdivisions 21, 22, and 23 (Kattegat, Belts, and Sound). Summary of the assessment: Recruitment, total stock biomass (TSB), and SSB are relative to the mean of the time-series.

Year	Recruitment Age 1 Relative	SSB Relative	Landings (tonnes)	Mean F Ages 3–5 Relative
1999	1.398	0.349	3405	1.2
2000	1.313	0.47	3936	1.368
2001	0.8	0.794	4053	1.268
2002	1.155	0.769	3877.38	1.112
2003	0.881	0.959	3381.197	0.97
2004	1.139	0.996	2615.134	1.045
2005	0.952	1.018	2389.894	1.305
2006	0.739	0.99	2400.79	1.225
2007	0.524	0.92	2599.361	1.634
2008	0.582	0.699	2011	1.633
2009	0.761	0.565	1668.44	1.03
2010	1.238	0.649	1541.198	0.509
2011	1.445	0.919	1585.813	0.296
2012	1.154	1.391	1853	0.215
2013	0.919	1.982	1954.888	0.19
2014		2.53		