

ECOREGION **Baltic Sea**
STOCK **Flounder in Subdivisions 24–25 (Southern Baltic Sea)**

Advice for 2015

This is the first time ICES gives advice for this stock. Previously, the ICES advice concerned the flounder in Subdivisions 22–32.

ICES advises on the basis of the data-limited approach, but cannot quantify the resulting catches. The implied landings should be no more than 17 182 tonnes.

Stock status

Fishing pressure		
2011–2013		
MSY (F_{MSY})	?	Unknown
Precautionary approach (F_{pa}, F_{lim})	?	Unknown
Qualitative evaluation	→	Stable at low level
Stock size		
2009–2013		
MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	↗	Increasing

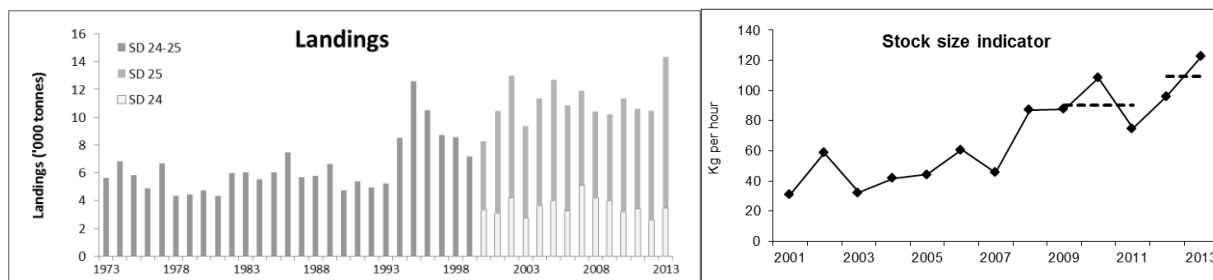


Figure 8.3.6.1 Flounder in Subdivisions 24–25 (Southern Baltic Sea). Left panel: Official landings in Subdivisions (SDs) 24–25. Right panel: 1st and 4th quarters combined biomass index ($\text{kg} \times \text{hr}^{-1}$; weighted average per depth stratum area) of fish equal to or larger than 20 cm, from the BITS in SDs 24–25 (from ICES DATRAS database). The dashed line indicates the average biomass index of the respective year range.

The biomass index from surveys has increased fourfold, since 2003. The average biomass index in the last two years (2012–2013) is 21% higher than the index in the three previous years (2009–2011).

Management plans

No specific management objectives are known to ICES.

Biology

Flounder (*Platichthys flesus*) is the most widely distributed among all flatfish species in the Baltic Sea. Based on information on biology of and fishery on flounder, ICES concluded that the flounder in Subdivisions 24 and 25 (Southern Baltic Sea), which were previously assumed to be part of the Baltic Sea stock, should be considered a separate stock unit.

Based on egg buoyancy, there are two spawning groups of flounder in the Baltic: demersal-spawning flounder that spawn in the shallow water (eggs are demersal and develop on the sea bottom), and pelagic-spawning flounder that spawn in the open sea (eggs are pelagic and develop in the water column). Flounder in Subdivisions 24 and 25 have pelagic eggs.

Pelagic spawners spawn at 70–130 m depth, and their eggs are neutrally buoyant at salinity of 10–20 and require oxygen concentrations of $1\text{--}2 \text{ ml} \times \text{l}^{-1}$ for development. Therefore the recruitment success can fluctuate, depending on the hydrological conditions at the spawning grounds (the spawning areas for this stock are the Arkona Deep, the Slupsk Furrow, and the Bornholm Deep).

The fisheries

Flounder is taken as bycatch in demersal fisheries for cod and, to a minor extent, in a directed fishery.

The quality of the catch data is poor due to the uncertainty of the discard estimates. Discards of flounder may be significantly higher than flounder landings from this stock.

In Subdivisions 24 and 25, Poland, Denmark, and Germany are the main fishing nations. The Polish contribution increased from the 1990s together with an increase in total landings, and has in recent years been about 80%. Flounder landings in both subdivisions are dominated by active gears, taking in average 70% of the total landings.

Catch distribution	Total catch (2013) is unknown. Official landings were 14.3 kt (mainly demersal trawl fishery). Discards are known to take place and are considered to be substantial, but could not be quantified.
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Quality considerations

The discard ratio in both subdivisions is different between countries, fleets, vessels, and even individual hauls of the same vessel and trip. Therefore, a common discard ratio cannot be applied. Discarding practices are, in fact, controlled by factors such as market price and cod catches. Given the high variability in the discard ratios, estimating discards is very uncertain without an extensive sampling programme.

The advice is based on a combined biomass index from two surveys, used as an indicator of stock size. The uncertainty associated with the index values is not available. 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	Survey trends.
Input data	Commercial landings and survey data from the Baltic International Trawl Survey (BITS–Q1+Q4).
Discards and bycatch	Discards are substantial but not considered in the advice.
Indicators	Commercial effort (STECF, 2013; ICES, 2014b).
Other information	This stock was benchmarked in 2014 (WKBALFLAT; ICES, 2014c).
Working group	Baltic Fisheries Assessment Working Group (WGBFAS)

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Reference points

No reference points are defined for this stock.

Outlook for 2015

No reliable forecast can be presented for this stock, because the assessment is only indicative of trends.

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 is estimated to have increased by more than 20% between the periods 2009–2011 (average of the three years) and 2012–2013 (average of the two years). This implies an increase in catches by at most 20% in relation to last year's (2013) catches, corresponding to landings of no more than 17 182 t in 2015.

Additionally, even though the exploitation status is unknown, the effort in the main fisheries has decreased (STECF, 2013; Figures 8.3.6.2 and 8.3.6.3). Furthermore, the biomass index has increased fourfold since 2005 (Figure 8.3.6.1); therefore, no additional precautionary reduction is needed.

Discards are considered to be substantial but could not be quantified; therefore, catches cannot be calculated.

Additional considerations

Management considerations

Flounder in this region are caught in mixed fisheries. Flounder is not regulated by a TAC.

Data and methods

The stock is evaluated using the biomass index and fishing effort provided for Subdivisions 24 and 25.

There are still uncertainties around the exact stock split between flounder in Subdivisions 24 and 25 and in Subdivisions 26 and 28. The split is based on separate spawning areas and tagging data indicate no dispersal between these areas, but trends in survey cpue are inconclusive. The extent of exchange of early life stages between the areas is unknown. Therefore, the distinction between these two stocks should be further examined, e.g. whether a more consistent assessment with lower uncertainty would be obtained in merging these two units. For the time being, it was decided to assume two separate stocks.

Comparison of the basis of previous assessment and advice

This is the first time ICES gives advice for this stock. Previously, the ICES advice concerned the flounder in Subdivisions 22–32.

The assessment last year for the Subdivisions 22–32 was based on a combined index of abundance ($\text{number} \times \text{hour}^{-1}$) from the BITS–Q1 and Q4 surveys conducted in Subdivisions 22–28. The present assessment for this stock is based on a combined index of biomass ($\text{kg} \times \text{hour}^{-1}$) from the BITS–Q1 and Q4 surveys conducted in Subdivisions 24–25.

Last year's advice for flounder in Subdivisions 22–32 was based on ICES approach to data-limited stocks. The advice this year for the flounder stock in Subdivisions 24 and 25 is on the same basis: ICES approach to data-limited stocks.

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.

ICES. 2014c. Report of the Benchmark Workshop on Baltic Flatfish Stocks (WKBALFLAT), 27–31 January 2014, Copenhagen, Denmark. ICES CM 2014/ACOM:39.

STECF. 2013. Scientific, Technical and Economic Committee for Fisheries (STECF) – Evaluation of Fishing Effort Regimes in European Waters – Part 2 (STECF-13-21). Publications Office of the European Union, Luxembourg, EUR 26327 EN, JRC86088. 863 pp.

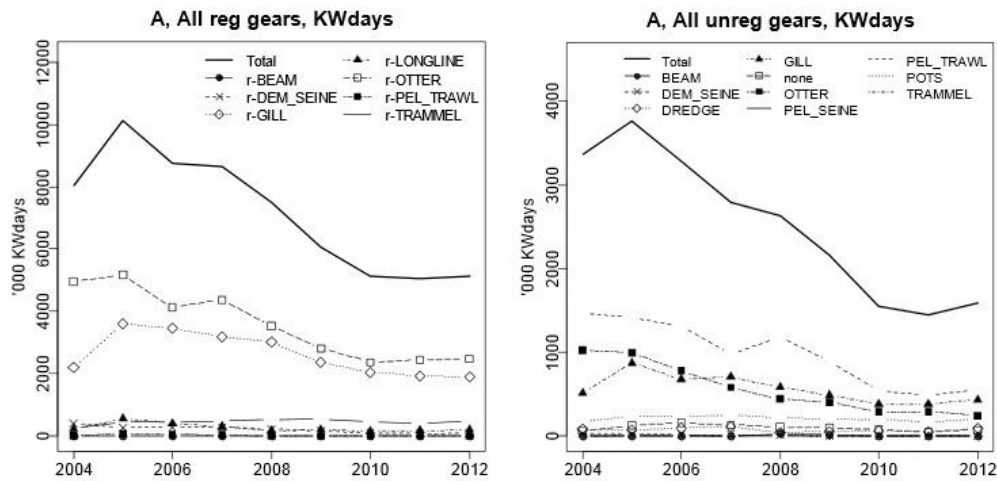


Figure 8.3.6.2 Flounder in Subdivisions 24–25 (Southern Baltic Sea). Area A Baltic (Subdivisions 22–24): Trend in nominal effort by gear types 2004–2012 ($\text{kW} \times \text{days-at-sea}^{-1}$). Left panel: Regulated gears. Right panel: Unregulated gears. Note that data from Poland, Latvia, and Lithuania are only available from 2004, and from Estonia from 2005 onwards. Therefore, effort trends are shown from 2004 to 2012. No data was available from Finland (from STECF, 2013).

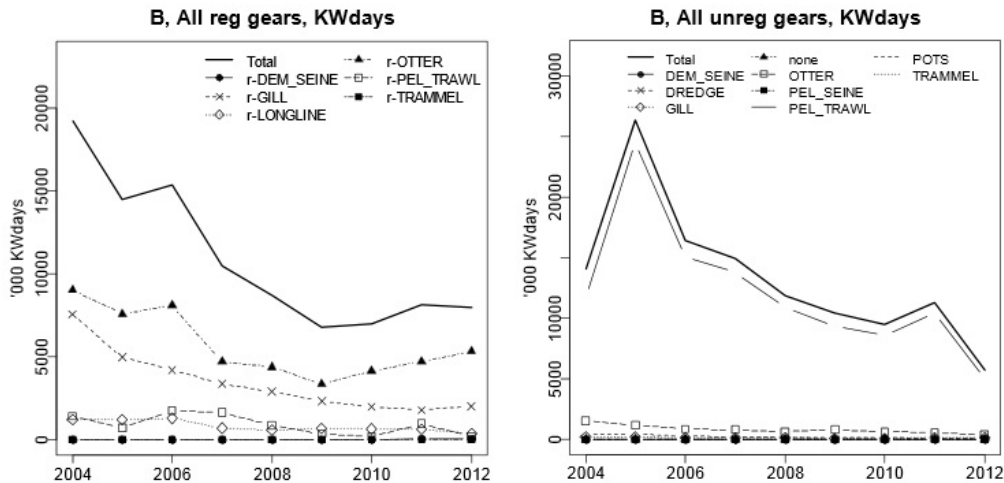


Figure 8.3.6.3 Flounder in Subdivisions 24–25 (Southern Baltic Sea). Area B Baltic (Subdivisions 25, 26, 27, and 28.2): Trend in nominal effort by gear types 2004–2012 ($\text{kW} \times \text{days-at-sea}^{-1}$). Left panel: Regulated gears. Right panel: Unregulated gears. Note that data from Poland, Latvia, and Lithuania are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2012. Additionally, the Estonian data set of 2005–2012 was included in database. No data was available from Finland (from STECF, 2013).

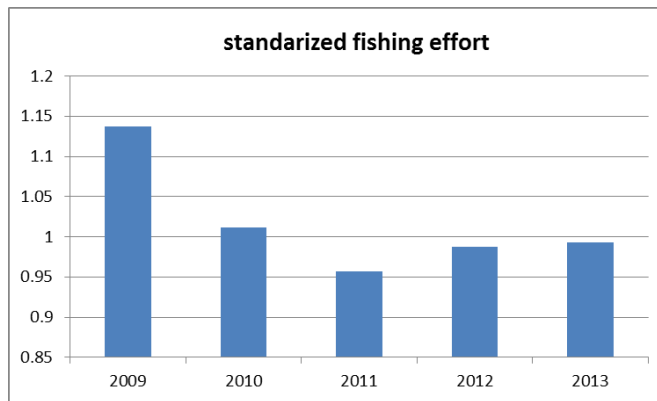


Figure 8.3.6.4 Flounder in Subdivisions 24–25 (Southern Baltic Sea). Standardized fishing effort weighted by the mean of cod landings by country. Includes only countries with flounder landings (Table 8.3.6.2).

Table 8.3.6.1 Flounder in Subdivisions 24–25 (Southern Baltic Sea). ICES advice, management, and official landings.

Year	ICES Advice ¹⁾	Predicted landings corresp. to advice ¹⁾	Agreed TAC	Official landings SDs 22–32	Official landings SDs 24–25
2000	No advice	-	-	14.5	8.3
2001	No advice	-	-	17.6	10.5
2002	No advice	-	-	19.4	13.0
2003	No advice	-	-	15.2	9.4
2004	No advice	-	-	18.2	11.4
2005	No advice	-	-	20.1	12.7
2006	No advice	-	-	17.2	10.9
2007	No advice	-	-	19.3	11.9
2008	No advice	-	-	16.8	10.4
2009	No advice	-	-	15.1	10.2
2010	No advice	-	-	16.2	11.3
2011	No advice	-	-	15.2	10.6
2012	No advice	-	-	15.8	10.4
2013	Catches should be reduced by 5%	< 15.1	-	21.1	14.3
2014	Landings should be reduced by 15%	< 13.5	-	-	-
2015	Increase landings by no more than 20%	< 17.182	-	-	-

Weights in thousand tonnes.

¹⁾ Advice prior to 2015 was for flounder in Subdivisions 22–32.

Table 8.3.6.2

Flounder in Subdivisions 24–25 (Southern Baltic Sea). Landings (tonnes) by subdivision and country.

	Denmark			Estonia			Finland			Germany			Latvia			Lithuania			Poland			Sweden			Total				
	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24	SD 25	SD 24-25	SD 24-25				
1973			386									3144													1580			502	5612
1974			2578									2139													1635			470	6822
1975			1678									1876													1871			400	5825
1976			482									2459													1549			400	4890
1977			389									3808													2071			416	6684
1978			415									2573													996			346	4330
1979			405									2512													1230			315	4462
1980			286									2776													1613			62	4737
1981			548									2596													1151			51	4346
1982			257									3203													2484			55	5999
1983			450									3573													1828			180	6031
1984			306									2720													2471			45	5542
1985			649									3257													2063			40	6009
1986			1558									2848													3030			51	7487
1987			1007									2107													2530			43	5687
1988			990									2986													1728			58	5762
1989			1062									3618													1896			56	6632
1990			1389									1632													1617			120	4758
1991			1497									1814													2008			55	5374
1992			975									1972													1877			129	4953
1993			635									1230													3276			90	5231
1994			1016									4262													3177			38	8493
1995			2110			8						2825													7437			214	12594
1996			2306									1322													6069			819	10517
1997			2452			15						1982													3877			370	8697
1998			2393			10						1729													4215			236	8587
1999			1206			8						1825													4015			111	7165
2000	825	923	1748				14	4	18	1809	171	1979							605	3765	4370	49	123	172			172	8288	
2001	1026	1976	3002				9	68	77	1468	299	1766							531	4962	5493	30	95	125			125	10464	
2002	995	1877	2872				5	34	39	1910	154	2064							1288	6577	7865	30	111	141			141	12982	
2003	750	1052	1802				2	7	8	1165	389	1553							758	5087	5845	45	106	152			152	9360	
2004	1114	1753	2866							1307	275	1582	1	6		7			1177	5633	6810	19	86	105			105	11370	
2005	853	1445	2298				1	2	3	881	43	924	2			2			2194	7192	9386	26	58	84			84	12696	
2006	513	1518	2031				2	3	5	973	7	979				11			1782	5959	7741	23	61	84			84	10852	
2007	620	623	1243				2	8	10	1455	215	1670	8	7		15		11	11	11	3016	5840	8856	27	59	86		86	11891
2008	422	313	736							1601	238	1840				74		74	4	4	2094	5569	7663	29	66	95		95	10410
2009	325	199	524				41		41	1175	29	1204				155		155	31	31	2378	5802	8180	27	65	92		92	10227
2010	333	368	701	16	16	13	2	16	16	953	31	983				31		31	19	19	1833	7665	9498	21	64	85		85	11348
2011	310	226	536	20	20	3	2	5	1529	147	1676				39		39	15	15	1567	6666	8233	26	60	86		86	10610	
2012	290	250	540	19	19	20	17	36	904	151	1055				8		8	24	24	1331	7325	8657	23	67	90		90	10430	
2013	572	1889	2460	10	10	1	9	10	771	332	1103				4		76		54	54	2104	8118	10222	35	344	379		379	14318

Table 8.3.6.3

Flounder in Subdivisions 24–25 (Southern Baltic Sea). Biomass index ($\text{kg} \times \text{hr}^{-1}$; weighted average per depth stratum area) of fish equal to or larger than 20 cm, from the BITS in Subdivisions 24–25, from 1st and 4th quarters and combined (geometric mean).

	Biomass index (kg/h)		
	1st Quarter	4th Quarter	Combined index
2001	46	21	31
2002	59	58	59
2003	51	20	32
2004	49	35	42
2005	77	25	44
2006	68	54	61
2007	74	28	46
2008	126	60	87
2009	93	83	88
2010	127	93	108
2011	59	94	75
2012	129	71	96
2013	98	154	123