

Flounder (*Platichthys flesus*) in subdivisions 22 and 23 (Belt Seas and the Sound)

ICES advice on fishing opportunities

ICES has not been requested to provide advice on fishing opportunities for this stock for 2020, 2021, or 2022.

Stock development over time

The stock size indicator from surveys (biomass index) peaked in 2015, and has been decreasing since then.

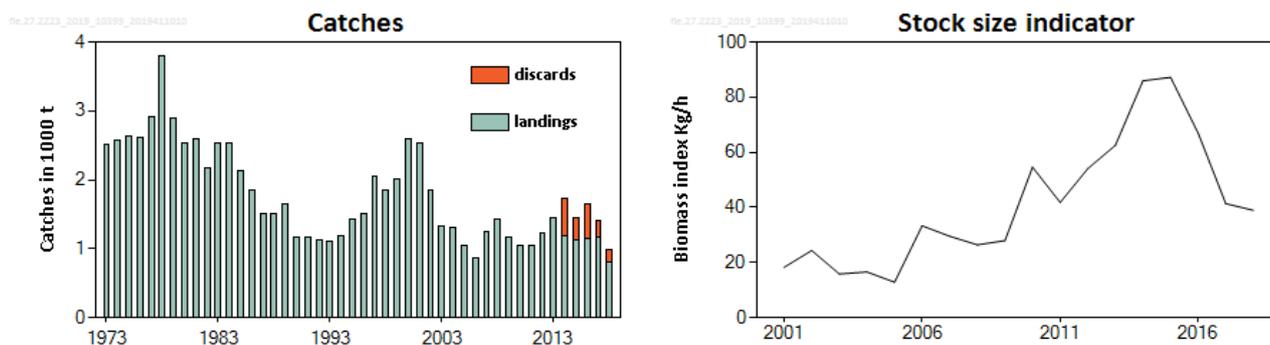


Figure 1 Flounder in subdivisions 22 and 23. Left panel: ICES landings and ICES estimates of discards in thousand tonnes. Discard data have only been included since 2014. Right panel: Combined biomass index (kg h^{-1}) of flounder equal to or larger than 20 cm, from the Baltic International Trawl Survey (BITS – Q1 and Q4).

Stock and exploitation status

ICES assesses that fishing pressure on the stock is below F_{MSY} proxy; no reference points for stock size have been defined for this stock.

Table 1 Flounder in subdivisions 22 and 23. State of the stock and fishery relative to reference points. The status evaluation is based on reference point proxies (ICES, 2019).

		Fishing pressure			Stock size				
		2016	2017	2018	2016	2017	2018		
Maximum sustainable yield	$F_{\text{MSY proxy}}$	✓	✓	✓ Below	MSY	?	?	?	Undefined
Precautionary approach	$F_{\text{pa}}, F_{\text{lim}}$	✓	✓	✓ Below possible reference points	$B_{\text{pa}}, B_{\text{lim}}$?	?	?	Undefined
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	—	—	— Not applicable	-	↘	↘	↘	Decreasing

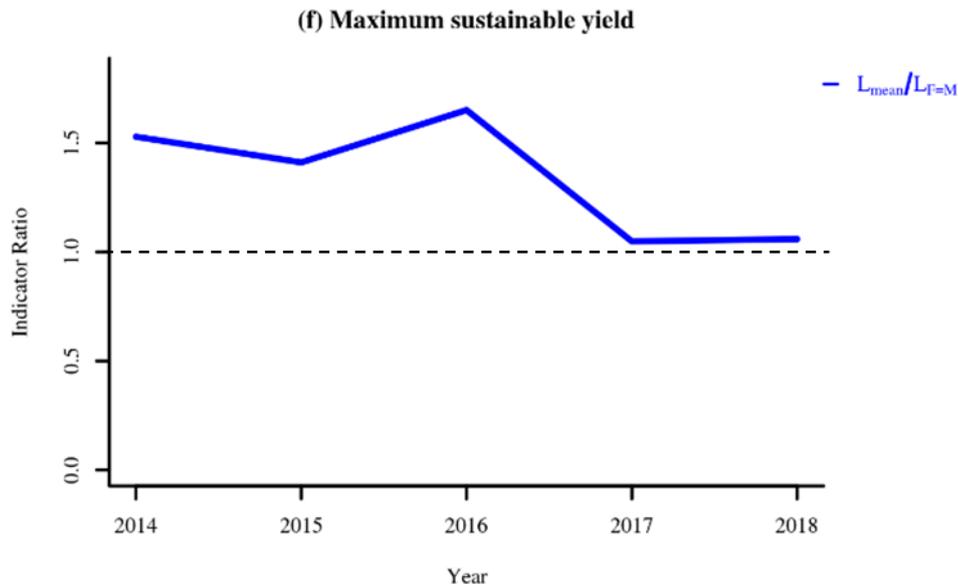


Figure 2 Flounder in subdivisions 22 and 23. Index ratio $L_{\text{mean}}/L_{F=M}$ from the length-based indicator method (LBI; ICES, 2018a, 2019) used for the evaluation of the exploitation status. The exploitation status is below the F_{MSY} proxy when the index ratio value is higher than 1.

Catch scenarios

ICES has been requested to provide information on stock status but has not been requested to provide advice on fishing opportunities for this stock.

Basis of the advice

ICES has not been requested to provide advice on fishing opportunities for this stock.

Table 2 Flounder in subdivisions 22 and 23. The basis of the advice.

Advice basis	Precautionary approach
Management plan	The EU Multiannual Plan for the Baltic Sea (MAP; EU, 2016) takes bycatch of this species into account.

Quality of the assessment

The discard ratio in both subdivisions varies between countries, gear types, and quarters. Discarding practices are controlled by factors such as market price and cod catches. Catch sampling is improving, and most of the fleets catching this stock are now covered. The length sampling from the fishery is considered adequate to provide a reliable length-based indicator of flounder exploitation.

Although the survey from which the biomass index is calculated was designed for cod, sampling is considered adequate to provide a consistent trend of flounder biomass.

Issues relevant for the advice

Catches are mainly taken as bycatch. This stock is currently not regulated by a TAC.

Reference points

Table 3 Flounder in subdivisions 22 and 23. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger_proxy}$			
	F_{MSY_proxy}	23.6 cm	Length-based indicator (LBI); expected mean length of catch (above the length at first catch) when $F = M$.	ICES (2019)
Precautionary approach	B_{lim}			
	B_{pa}			
	F_{lim}			
	F_{pa}			
Management plan	SSB _{mgt}			
	F_{mgt}			

Basis of the assessment

Table 4 Flounder in subdivisions 22 and 23. Available data and approaches for the assessment are described below; ICES has not, however, been requested to provide advice on fishing opportunities for this stock in 2019.

ICES stock data category	3 (ICES, 2018b).
Assessment type	Survey trends – based assessment (ICES, 2019).
Input data	Commercial catches and survey data from Baltic bottom trawl survey (BITS–Q1 and Q4).
Discards and bycatch	Flounder in the Belt Seas and the Sound is mostly a bycatch species in cod fisheries and mixed flatfish fisheries. Discard numbers are included in the advice.
Indicators	A length-based indicator method (LBI; ICES, 2018a) using catch data from commercial sampling and the biological parameters of the BITS to assess the stock status.
Other information	This stock was benchmarked in 2014 (WKBALFLAT; ICES, 2014).
Working group	Baltic Fisheries Assessment Working Group ()

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 5 Flounder in subdivisions 22 and 23. ICES advice, landings and catch. All weights are in thousand tonnes.

Year	ICES advice	Predicted landings corresp. to advice*	Agreed TAC	Landings (SDs 22–32, ICES estimates)	Landings (SDs 22–23, ICES estimates)	Catch (ICES estimates)
2000	No advice	-	-	15 000	2597	
2001	No advice	-	-	18 100	2540	
2002	No advice	-	-	19 400	1849	
2003	No advice	-	-	15 100	1337	
2004	No advice	-	-	17 400	1298	
2005	No advice	-	-	19 600	1041	
2006	No advice	-	-	16 600	866	
2007	No advice	-	-	19 300	1250	
2008	No advice	-	-	16 900	1427	
2009	No advice	-	-	15 700	1176	
2010	No advice	-	-	16 600	1053	
2011	No advice	-	-	15 300	1044	
2012	No advice	-	-	15 900	1219	
2013	Catches should be reduced by 5%	< 15 100	-	21 100	1454	
2014	Landings should be reduced by 15%	< 13 500	-	20 600	1193	1733

Year	ICES advice	Predicted landings corresp. to advice*	Agreed TAC	Landings (SDs 22–32, ICES estimates)	Landings (SDs 22–23, ICES estimates)	Catch (ICES estimates)
2015	No more than 20% landings increase	≤ 1745	-	16 900	1130	1444
2016	Precautionary approach (≤ 20% increase)	≤ 3042 **	-	20 220	1155	1650
2017	Precautionary approach (≤ 20% increase)	≤ 3650 **	-	16 046	1158	1407
2018	Precautionary approach (≤ 10% increase relative to advised catch for 2017)	≤ 4030 **	-	17 199	809	982
2019	Precautionary approach (≤ 10% increase relative to advised catch for 2017)	≤ 4030 **	-			
2020	No catch advice requested	-	-			
2021	No catch advice requested	-	-			
2022	No catch advice requested	-	-			

*Prior to 2015 the advice was for subdivisions 22–32.

**Advice corresponds to total catch and not landings only.

History of the catch and landings

Table 6 Flounder in subdivisions 22 and 23. Catch distribution by fleet in 2018 as estimated by ICES.

Catch (2018)	Landings		Discards
	Active gears 73%	Passive gears 27%	
982 tonnes	809 tonnes		173 tonnes

Table 7 Flounder in subdivisions 22 and 23. History of commercial landings; (ICES-estimated values after 2000) are presented by area for each country participating in the fishery. All weights are in tonnes.

Year	Denmark		Germany Dem. Rep.	Germany FRG	Sweden		Total by subdivision		Total subdivisions 22–23
	Subdiv. 22	Subdiv. 23	Subdiv. 22	Subdiv. 22	Subdiv. 22	Subdiv. 23	Subdiv. 22	Subdiv. 23	
1973	1983		181	349			2513		2513
1974	2097		165	304			2566		2566
1975	1992		163	469			2624		2624
1976	2038		174	392			2604		2604
1977	1974		555	393			2922		2922
1978	2965		348	477			3790		3790
1979	2451		189	259			2899		2899
1980	2185		138	212			2535		2535
1981	1964		271	351			2586		2586
1982	1563	104	263	248			2074	104	2178
1983	1714	115	280	418			2412	115	2527
1984	1733	85	349	371			2453	85	2538
1985	1561	130	236	199			1996	130	2126
1986	1525	65	127	125			1777	65	1842
1987	1208	122	71	114			1393	122	1515
1988	1162	125	92	133			1387	125	1512
1989	1321	83	126	122			1569	83	1652
1990	941		52	183			1176		1176
1991	925			246			1171		1171
1992	713	185		227			940	185	1125
1993	649	194		235		26	884	220	1104
1994	882	181		44		84	926	265	1191
1995	859	231		286		58	1145	289	1434
1996	1041	227		189	2	58	1232	285	1517
1997	1356			655		42	2011	42	2053
1998	1372			411		61	1783	61	1844
1999	1473			510		37	1983	37	2020
2000	1896			660		41	2556	41	2597
2001	2030			458		52	2488	52	2540
2002	1490			317		42	1807	42	1849
2003	1063			241		33	1304	33	1337
2004	952			315		31	1267	31	1298
2005	725	184		94		38	819	222	1041
2006	620	182		34		30	654	212	866
2007	585	233		406		26	991	259	1250
2008	554	199		627		47	1181	246	1427
2009	505	113		521		37	1026	150	1176
2010	557	91		376		29	933	120	1053
2011	441	78		497	0.2	28	938	106	1044
2012	530	98		569		22	1099	120	1219
2013	639	83		713		19	1352	102	1454
2014	513	68		589		23	1102	91	1193
2015	361	73		679		16	1040	90	1130
2016	436	63		641		15	1077	78	1155
2017	508	61		575	0	13	1083	74	1158
2018	406	59		330	< 1	15	736	73	809

Summary of the assessment

Table 8 Flounder in subdivisions 22 and 23. Total landings and discards (tonnes, t) and stock size indicator (kg h⁻¹). The stock size indicator is a combined biomass index of flounder equal to or larger than 20 cm, from the Baltic International Trawl Survey (BITS Q1 and Q4). The individual indices are weighted averages per depth stratum area and the two indices are combined using geometric mean.

Year	Stock size indicator (kg h ⁻¹)	Landings (t)	Discards (t)
2001	18.27	2540	
2002	24.4	1849	
2003	15.84	1337	
2004	16.6	1298	
2005	12.87	1041	
2006	33.35	866	
2007	29.53	1250	
2008	26.43	1427	
2009	27.96	1176	
2010	54.61	1053	
2011	41.8	1044	
2012	54.04	1219	
2013	62.55	1454	
2014	85.93	1193	540
2015	87.17	1130	314
2016	66.85	1153	495
2017	41.36	1158	249
2018	38.95	809	173

Sources and references

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