

Turbot (*Scophthalmus maximus*) in Division 3.a (Skagerrak and Kattegat)

ICES advice on fishing opportunities

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

Stock development over time

The IBTS Q1 biomass index is variable and has been fluctuating without trend over time. The IBTS Q3 biomass index is also variable but has shown an increased level after 2005.

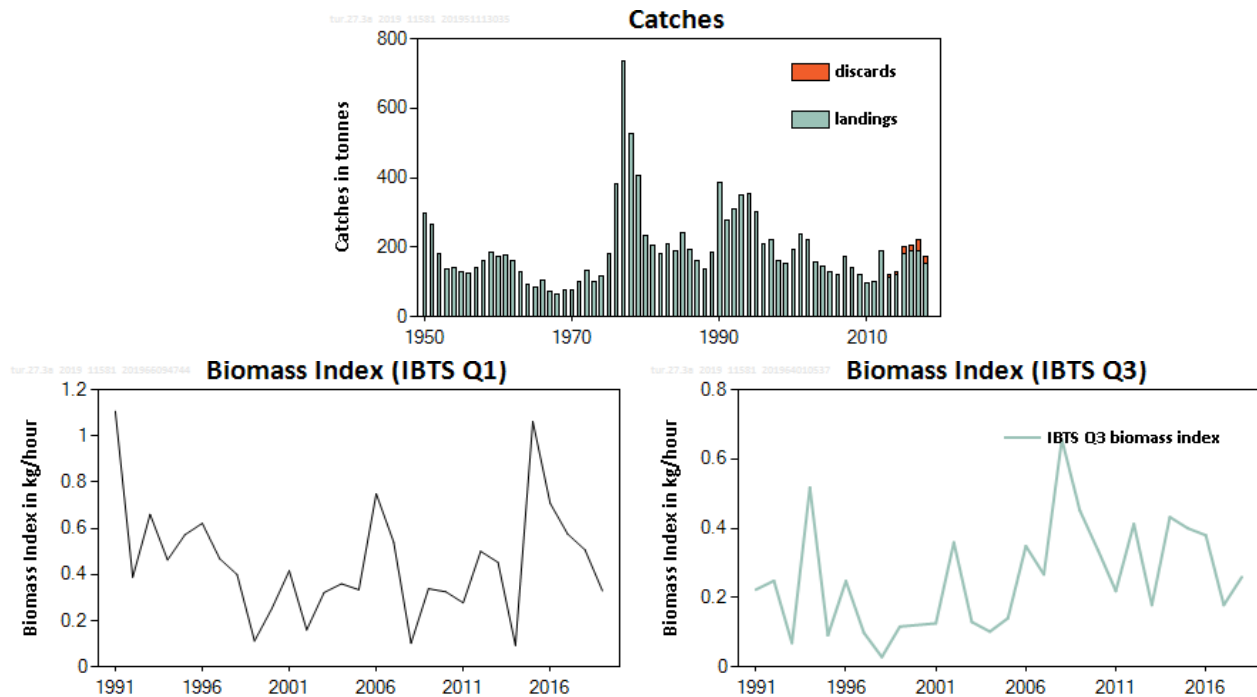


Figure 1 Turbot in Division 3.a. Summary of the stock assessment. Top: Official landings until 2012, and ICES estimated catches afterwards (tonnes). Discard data are available since 2013. Bottom: Biomass indices (catch per unit of effort in kg h⁻¹) from IBTS Q1 and IBTS Q3.

Stock and exploitation status

ICES cannot assess the stock and exploitation status relative to maximum sustainable yield (MSY) and precautionary approach (PA) reference points because the reference points are undefined.

Table 1 Turbot in Division 3.a. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size				
		2016	2017	2018		2017	2018	2019		
Maximum sustainable yield	F_{MSY}	?	?	?	Unknown	$MSY B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Unknown	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	—	—	—		B_{MGT}	—	—	—	
Qualitative evaluation	-	?	?	?	Unknown	-	↘	↘	↘	Decreasing

Catch scenarios

ICES 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 Turbot in Division 3.a. The basis of the advice.

Advice basis	ICES has not been requested to provide advice on fishing opportunities for this stock.
Management plan	The EU multiannual plan (MAP) for stocks in the North Sea (EU, 2018) and adjacent waters applies to by-catches of this stock.
	The MAP stipulates that when the FMSY ranges are not available, fishing opportunities should be based on the best available scientific advice.

Quality of the assessment

The current surveys in this area are not designed for catching turbot (Van der Reijden *et al.*, 2015), and the average catch rates are low and highly variable. It is uncertain if the survey covers the main areas of distribution for turbot. A fisheries-independent survey that has both adequate catchability of large flatfish and covers the entire distribution area of the stock, would improve the assessment.

Stock identity and boundaries remain unclear.

Issues relevant for the advice

Discarding is related to the size of the fish. There is no minimum landing size (MLS) at EU level, but there is a minimum landing size of 30 cm in Denmark and all recorded discards are below this value.

Reference points

No reference points are defined for this stock.

Basis of the assessment

Table 3 Turbot in Division 3.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2018).
Assessment type	Survey trends-based assessment (ICES, 2019).
Input data	Commercial catches (international landings), two survey indices (IBTS Q1 and IBTS Q3).
Discards and bycatch	Discards are estimated at around 11% (average 2016–2018). Discard ratios are provided for 63% of the landings in 2018.
Indicators	None.
Other information	None.
Working group	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)

Information from stakeholders

There is no additional available information for this stock.

History of the advice, catch, and management

Table 4 Turbot in Division 3.a. ICES advice and official landings. All weights are in tonnes. There is no TAC for turbot in this area.

Year	ICES advice	Catch corresponding to advice	Official landings turbot Division 3.a	ICES discards	ICES catches
2011	No advice	-	99		
2012	No increase in catches	-	189		
2013	No new advice, same as for 2012	-	111	7	120
2014	Reduce recent average catch by 20% (2010–2012)	≤ 102	122	11	131
2015	No new advice, same as for 2014	≤ 102	175	18	201
2016	Precautionary approach (decrease catches by no more than 20%)	≤ 88	179	16	204
2017	Precautionary approach (same advised catch value as given for 2016)	≤ 88	188	30	220
2018	Precautionary approach	≤ 84	150	21	174
2019	Precautionary approach	≤ 84			
2020	No catch advice requested				
2021	No catch advice requested				

History of the catch and landings

Table 5 Turbot in Division 3.a. Catch distribution by fleet in 2018 as estimated by ICES.

Catch (2018)	Landings			Discards
174 tonnes	Otter trawl and seines 60%	Beam trawl 15%	Others 25%	21 tonnes
	153 tonnes			

Table 6 Turbot in Division 3.a. History of commercial landings; official values are presented by area for each country participating in the fishery. All weights are in tonnes.

Year	Belgium	Germany	Denmark	UK	Netherlands	Norway	Sweden	Total
1950	0	13	212	0	0	1	73	299
1951	0	6	191	0	0	6	62	265
1952	0	6	114	0	0	3	58	181
1953	0	4	80	0	0	4	51	139
1954	0	0	78	0	0	1	61	140
1955	0	4	77	0	0	0	49	130
1956	0	7	75	0	0	0	41	123
1957	0	3	108	0	0	0	30	141
1958	0	7	112	0	0	0	41	160
1959	0	6	132	0	0	3	43	184
1960	0	11	115	0	0	2	46	174
1961	0	4	130	0	0	0	45	179
1962	0	5	157	0	0	0	0	162
1963	0	4	124	0	0	0	0	128
1964	0	5	89	0	0	0	0	94
1965	0	6	79	1	0	0	0	86
1966	0	2	104	0	0	0	0	106
1967	0	4	68	1	0	0	0	73
1968	0	0	64	0	0	0	0	64
1969	0	1	75	0	0	0	0	76
1970	0	1	76	0	0	0	0	77
1971	0	1	100	0	0	0	0	101
1972	0	2	130	0	0	0	0	132
1973	0	2	98	0	0	0	0	100
1974	0	1	116	0	0	0	0	117
1975	0	2	167	0	7	0	7	183

Year	Belgium	Germany	Denmark	UK	Netherlands	Norway	Sweden	Total
1976	7	2	178	0	190	0	6	383
1977	7	4	331	0	389	0	5	736
1978	2	4	327	0	186	0	6	525
1979	8	0	307	0	87	0	4	406
1980	7	0	205	1	14	0	6	233
1981	2	0	183	2	12	0	8	207
1982	1	0	164	1	9	0	7	182
1983	4	0	171	0	24	0	10	209
1984	0	0	176	0	0	0	12	188
1985	1	0	224	0	0	0	16	241
1986	2	0	180	0	0	0	11	193
1987	5	0	147	0	0	0	9	161
1988	2	0	115	0	11	0	10	138
1989	2	0	173	0	0	0	9	184
1990	5	0	363	0	0	0	18	386
1991	4	0	244	0	0	7	21	276
1992	4	0	278	0	0	8	19	309
1993	3	0	336	0	0	10	0	349
1994	2	0	313	0	0	15	22	352
1995	4	0	268	0	0	17	11	300
1996	0	0	185	0	0	13	11	209
1997	0	0	200	0	0	9	11	220
1998	0	0	148	0	0	7	8	163
1999	0	0	139	0	0	10	6	155
2000	0	0	180	0	0	6	6	192
2001	0	0	227	0	0	8	3	238
2002	0	0	205	0	0	11	5	221
2003	0	0	128	0	13	14	4	159
2004	0	0	119	0	14	7	7	147
2005	0	0	108	0	7	6	6	127
2006	0	1	95	0	8	8	9	121
2007	0	1	138	0	15	7	12	173
2008	0	1	121	0	4	6	11	143
2009	0	1	94	0	2	6	17	120
2010	0	0	72	0	6	4	13	95
2011	0	1	78	0	0	7	13	99
2012	0	0	168	0	0	8	14	189
2013	0	0	91	0	0	5	15	111
2014	0	0	94	0	0	6	17	120
2015	0	0	135	0	20	8	11	175
2016	0	0	137	0	25	6	10	179
2017	0	0	153	0	16	7	12	188
2018		0	109		23	8	10	150

Summary of the assessment

Table 7 Turbot in Division 3.a. Assessment summary. Weights are in tonnes.

Year	Biomass index (IBTS Q1)	Landings	Discards	IBTS Q3 biomass index
	kg h ⁻¹	tonnes		kg h ⁻¹
1950		299		
1951		265		
1952		181		
1953		139		
1954		140		
1955		130		
1956		123		
1957		141		
1958		160		
1959		184		
1960		174		
1961		179		
1962		162		
1963		128		
1964		94		
1965		86		
1966		106		
1967		73		
1968		64		
1969		76		
1970		77		
1971		101		
1972		132		
1973		100		
1974		117		
1975		183		
1976		383		
1977		736		
1978		525		
1979		406		
1980		233		
1981		207		
1982		182		
1983		209		
1984		188		
1985		241		
1986		193		
1987		161		
1988		138		
1989		184		
1990		386		
1991	1.11	276		0.223
1992	0.39	309		0.248
1993	0.66	349		0.069
1994	0.46	352		0.518
1995	0.57	300		0.091
1996	0.62	209		0.248
1997	0.47	220		0.098
1998	0.4	163		0.028
1999	0.11	155		0.116

Year	Biomass index (IBTS Q1)	Landings	Discards	IBTS Q3 biomass index
	kg h ⁻¹	tonnes		kg h ⁻¹
2000	0.25	192		
2001	0.42	238		0.126
2002	0.16	221		0.359
2003	0.32	159		0.13
2004	0.36	147		0.102
2005	0.33	127		0.14
2006	0.75	121		0.348
2007	0.54	173		0.267
2008	0.1	143		0.656
2009	0.34	120		0.451
2010	0.33	95		0.338
2011	0.28	99		0.219
2012	0.5	189		0.412
2013	0.45	113	7	0.179
2014	0.09	120	11	0.432
2015	1.06	183	18	0.4
2016	0.71	188	16	0.38
2017	0.58	190	30	0.178
2018	0.51	153	21	0.259
2019	0.33			

Sources and references

EU. 2018. Regulation (EU) 2018/973 of the European Parliament and of the Council of 4 July 2018 establishing a multiannual plan for demersal stocks in the North Sea and the fisheries exploiting those stocks, specifying details of the implementation of the landing obligation in the North Sea and repealing Council Regulations (EC) No 676/2007 and (EC) No 1342/2008. Official Journal of the European Union, L 179. 13 pp. <http://data.europa.eu/eli/reg/2018/973/oj>.

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