

ECOREGION **Baltic Sea**
STOCK **Turbot in Subdivisions 22–32 (Baltic Sea)**

Advice for 2013

Based on the ICES approach for data-limited stocks, ICES advises that catches should be less than 220 tonnes.

This is the first year that ICES is providing quantitative advice for data-limited stocks (see Quality considerations).

Stock status

F (Fishing Mortality)	
	2009–2011
MSY (F_{MSY})	? Unknown
Precautionary approach (F_{pa}, F_{lim})	? Unknown
SSB (Spawning-Stock Biomass)	
	2007–2011
MSY ($B_{trigger}$)	? Unknown
Precautionary approach (B_{pa}, B_{lim})	? Unknown
Qualitative evaluation	↓ Decreasing

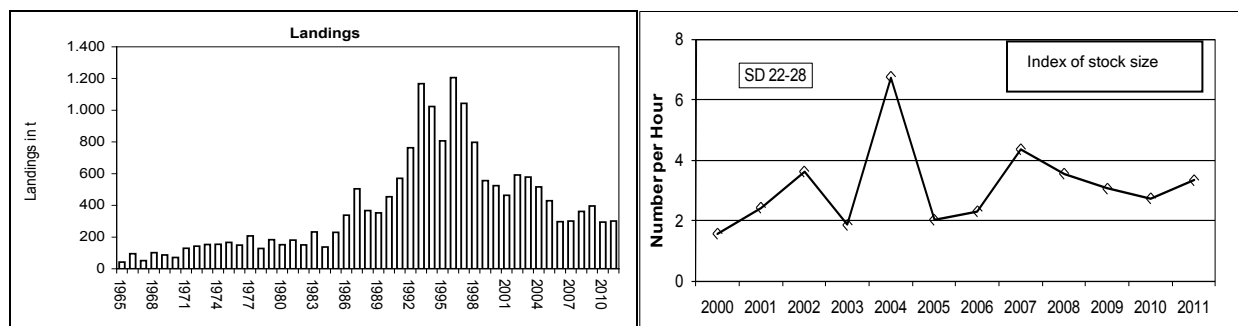


Figure 8.4.12.1 Turbot in Subdivisions 22–32 (Baltic Sea). ICES estimates of landings (in tonnes, left panel). Combined 1st and 4th quarters cpue (no./hr) (weighted average per depth stratum area), of fish equal to or larger than 20 cm, from the Baltic International Trawl Survey (BITS-Q1+Q4) in Subdivisions (SD) 22–28 (data from ICES DATRAS database, right panel).

The average stock size indicator (number/hour) in the last two years (2010–2011) are 17% lower than the abundance indices in the three previous years (2007–2009). There are indications that turbot should be treated as several local stocks, but there are not enough data to identify these stocks.

Management plans

No specific management objectives are known to ICES.

Biology

In the Baltic Sea turbot (*Psetta maxima*) occurs in the western and southern area up to the Sea of Åland. Turbot mainly feeds on sandeel, herring, and gobies. Turbot spawn in shallow waters and the metamorphosing post-larvae migrate close to shore into shallow water for feeding. Female growth and size-at-age are significantly higher than for males. This leads to higher exploitation of females.

The fisheries

Turbot are caught as a bycatch in trawling and gillnetting and in some years as a target species in a gillnet fishery.

Catch distribution No information on total catch (2011), 301 t landings (recently mainly from trawl fishery).

Quality considerations

Almost all aspects of data collection need to be improved to get a better understanding of the state of turbot in the Baltic.

The advice is based on a combined abundance 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, but they may not be suitable if the stock size is low and/or overfished.

Scientific basis

Assessment type	Survey trends.
Input data	Commercial landings and survey data from the Baltic International Trawl Survey (BITS-Q1+Q4).
Discards and bycatch	Information not available.
Indicators	None.
Other information	None.
Working group report	WGBFAS

ECOREGION **Baltic Sea**
STOCK **Turbot in Subdivisions 22–32 (Baltic Sea)****Reference points**

No reference points are defined for this stock.

Outlook for 2013

No analytical assessment can be presented for this stock. Therefore, detailed management options cannot be presented.

ICES approach to data-limited stocks

For data-limited stocks for which an abundance 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 abundance is estimated to have decreased by 17% in 2007–2009 (average of the three years) and 2010–2011 (average of the two years). This implies a decrease of catches of at most 17% in relation to the last three years' average landings, corresponding to catches of no more than 278 tonnes in 2013.

Additionally, considering that exploitation is unknown, ICES advises that catches should decrease by a further 20% as a precautionary buffer. This results in catches of no more than 220 t in 2013.

Additional considerations

A turbot gillnet fishery started at the beginning of the 1990s in Subdivisions 26 and 28. This development was caused by fishers showing more interest in turbot. In all eastern Baltic countries since 1990 turbot has been sorted out from the flatfish catches due to the better price. For example, from 1999 to 2003 the Polish landings of turbot increased from 33 t to 360 t. Swedish landings are taken mainly in a gillnet fishery that reached a maximum of 250 t in 1996. Since then landings have decreased and been under 50 t for the last five years. Denmark and Germany landed turbot from Subdivisions 22 and 24. Due to the low turbot availability in the EEZ of Latvia and Lithuania, fisheries targeting turbot have been totally closed for the past 10 years.

Genetic information does not reveal any stock structure, while tagging data indicated the existence of small local stocks. Further investigations on stock structure are recommended, especially in the eastern part of the Baltic Sea.

Age determination is uncertain. Some data from Subdivision 28 indicate that fishing mortality is moderate to high.

Turbot is now believed to be taken almost exclusively as valuable bycatch. This limits the possibility to reduce catch of turbot without reducing the much bigger fisheries on other flatfish and cod. The value of the fish suggests it is rarely discarded, which is likely to change if the TAC becomes very restrictive.

Sources

- ICES. 2010. Report of the ICES/HELCOM Workshop on Flatfish in the Baltic Sea (WKFLABA), 8–11 November 2010, Öregrund, Sweden. ICES CM 2010/ACOM:68.
- ICES. 2012. Report of the Baltic Fisheries Assessment Working Group, ICES Headquarters, 12–19 April 2012. ICES CM 2012/ACOM:10.

Table 8.4.12.1

Turbot in Subdivisions 22–32 (Baltic Sea). ICES advice, management, and official landings.

Year	ICES Advice	Predicted catch corresp. to advice	Agreed TAC	Official landings
2000	No advice	-	-	0.53
2001	No advice	-	-	0.46
2002	No advice	-	-	0.59
2003	No advice	-	-	0.58
2004	No advice	-	-	0.52
2005	No advice	-	-	0.43
2006	No advice	-	-	0.30
2007	No advice	-	-	0.30
2008	No advice	-	-	0.36
2009	No advice	-	-	0.40
2010	No advice	-	-	0.30
2011	No advice	-	-	0.30
2012	Reduce catch	-	-	-
2013	Reduce catches by 17% (and an additional 20%)	< 0.22	-	-

Weights in thousand tonnes.

Table 8.4.12.2 Turbot in Subdivisions 22–32 (Baltic Sea). Total landings (tonnes) by subdivision and country.

Year/SD	Denmark					erm. Dem. Re		Germany, FRG				Poland		Sweden ²							Latvia		Lithuania	Russia	Finland					Estonia					
	22	23	24(+25)	25	26+27	22	24	22	24	25	27	5(+24)	26	22	23	24	25	26	27	28(+29)	26	28	26	26	24	25	29	30	31	32	29	32			
1965						3	39																												
1966	16		21			5	53																												
1967	14		20			7	10																												
1968	14		18			3	67																												
1969	13		13			4	57																												
1970	11		13			5	40									2																			
1971	11		26			4	86								2																				
1972	10		26			3	100								3																				
1973	11		30			3	33					58	13		5																				
1974	14		40			2	23					34	36		6																				
1975	27		48			3	38	15				23	6		7																				
1976	29		24			52	11					14	12		7																				
1977	32		37				55	9				12	55		8																				
1978	33		37			2	27	9				7	3		10																				
1979	23		38			3	39	6				29	34		12																				
1980	28		38				30	9				12	20		15																				
1981	28		62			1	46	8				10	19		7																				
1982	31		51			1	27	7				2	17		3	4			4	3															
1983	33		40			3	9	8				5	4		31	41			35	24															
1984	41		45			4	8	12				13	2		3	4			3	2															
1985	56		34			5	22	15				67	15		4	5			4	3															
1986	99		81			6	32	25				32	37		6	8			7	5															
1987	134		93			4	34	30				155	21		8	11			9	6															
1988	117		117			3	28	34				7	10		12	16			14	9															
1989	135		109			7	22	20				11	11		11	15			13	9															
1990	178		181			4	2	26				24	25		14																				
1991	228		137					44	39			73	20		2	12			16																
1992	267		127					55	68			80	55		12	12			21	36															
1993	159	29	152					74	56			520	72		2	4	14		13	38															
1994	211	18	166					52	57	10		380	30		2	3	18	1	17	44															
1995	257	11	94					65	53	4		30	15		2	3	54	9	31	83	34	27													
1996	207	12	95					36	47	4	1	288	92	1	3	15	100	5	54	104	42	3													
1997	151		68					60	52	3		290	70		2	6	70	1	53	86	33	14													
1998	138		80					44	55	1		66	68		2	4	58	1	18	69	12	24													
1999	106		59					23	48			18	15		2	4	41	3	17	60	20	34													
2000	97		58					23	54			90	12		2	3	39		16	39	7	9													
2001	76		53					19	31			121	10		2	5	16		9	29	5	1													
2002	73		22	4	0			20	32	2		245	65		5	2	15		7	21	2	8													
2003	48		28	5	0			10	39	1		184	178		1	2	18		3	14	7	2													
2004	61		27	7				12	27	1		225	96		1	1	8		3	14	3	8													
2005	57	5	36	12				14	35	1		123	57		1	3	6		5	21	1	6													
2006	30	5	16	33				19	45	1		87	11		1	2	5	0	4	19	3	3													
2007	60	5	26	5	0			22	34	0		83	8		0	5	5		2	15	0	1													
2008	79	5	33	6				24	30	0		95	15		1	7	11		8	17															
2009	111	6	35	7	0			33	50	1		92	11		1	6	10	0	5	6	0	0													
2010	102	6	31	4	0			24	35	0		38	1		1	4	16	0	4	8	3	7													
2011 ⁴	84	3	24	3	0			26	31	0		66	11	0	0	8	23	0	2	4	3	6													

continued

Table 8.4.12.2 continued

Year	Total by SD								Total
	22	23	24 ³	25	26	27	28(+29)	30-32	SD 22-32
1965	3		39						42
1966	21		74						95
1967	21		30						51
1968	17		85						102
1969	17		70						87
1970	16		55						71
1971	15		114						129
1972	13		129						142
1973	14		68	58	13				153
1974	16		69	34	36				155
1975	45		93	23	6				167
1976	40		83	14	12				149
1977	41		100	12	55				208
1978	44		74	7	3				128
1979	32		89	29	34				184
1980	37		83	12	20				152
1981	37		115	10	19				181
1982	39		81	6	17	4	3		150
1983	44		80	46	4	35	24		233
1984	57		56	17	2	3	2		137
1985	76		60	72	15	4	3		230
1986	130		119	40	37	7	5		338
1987	168		135	166	21	9	6		505
1988	154		157	23	10	14	9		367
1989	162		142	15	11	13	9		352
1990	208		197	24	25				454
1991	272		178	85	20	16			571
1992	322		207	92	85	21	36		763
1993	233	31	212	534	106	13	38		1.167
1994	263	20	226	408	46	17	44		1.024
1995	322	13	150	88	93	31	110		807
1996	244	15	157	392	236	55	107		1.206
1997	211	2	126	363	188	53	100		1.043
1998	182	2	139	125	239	18	93		798
1999	129	2	111	59	144	17	94		556
2000	120	2	115	129	95	16	48		525
2001	95	2	89	137	102	9	30		464
2002	93	5	56	266	135	7	29		591
2003	58	1	69	208	225	3	16		579
2004	73	1	55	241	121	3	22		516
2005	72	5	74	143	104	5	27		429
2006	49	5	61	126	30	4	22		297
2007	83	5	60	94	42	2	16		301
2008	103	6	70	113	46	8	17		362
2009	144	7	91	110	33	5	6		396
2010	126	7	70	58	15	4	15		295
2011 ⁴	110	4	82	74	34	2	10	0	316

¹ From October-December 1990 landings of Germany, Fed. Rep. are included

² For the years 1970-1981 and 1990 the catches of Sub-divisions 25-28 are included in Sub-division 24

³ For the years 1970-1981 and 1990 the Swedish catches of Sub-divisions 25-28 are included in Sub-division 24

⁴ Preliminary data

Danish catches in 2002-2004 in SW Baltic were separated according to Sub-divisions 24 and 25

In 2005 Lithuanian landings are reported for 1995 onwards

Table 8.4.12.2 Turbot in Subdivisions 22–32 (Baltic Sea). Combined 1st and 4th quarters cpue (no./hr) (weighted average per depth stratum area) from the Baltic International Trawl Survey (BITS-Q1+Q4) of fish equal to or larger than 20 cm in Subdivisions (SDs) 22–24, SDs 25–28, and SDs 22–8. Data from ICES DATRAS database.

Year	Cpue (no./hr)		
	SD 22-24	SD 25-28	SD 22-28
2000	3.7	0.4	1.6
2001	6.4	1.1	2.4
2002	4.6	3.3	3.6
2003	4.2	1.2	1.9
2004	5.4	7.2	6.7
2005	3.7	1.5	2.0
2006	5.0	1.5	2.3
2007	6.5	3.7	4.4
2008	6.4	2.7	3.6
2009	7.8	1.6	3.1
2010	8.1	1.1	2.7
2011	8.4	1.8	3.3