

9.3.45 Tusk (*Brosme brosme*) in Subarea XIV and Division Va (East Greenland, Iceland Grounds)

ICES stock advice

ICES advises that when the MSY approach is applied, catches in 2016 should be no more than 3440 tonnes. All catches are assumed to be landed.

Stock development over time

Recruitment peaked in 2004 to 2006 but declined to a historical low level in 2013. There are signs of increased recruitment since then. Fishing mortality has declined in recent years and is above the current F_{MSY} estimate. SSB has been increasing in recent years and is likely above any candidate MSY $B_{trigger}$.

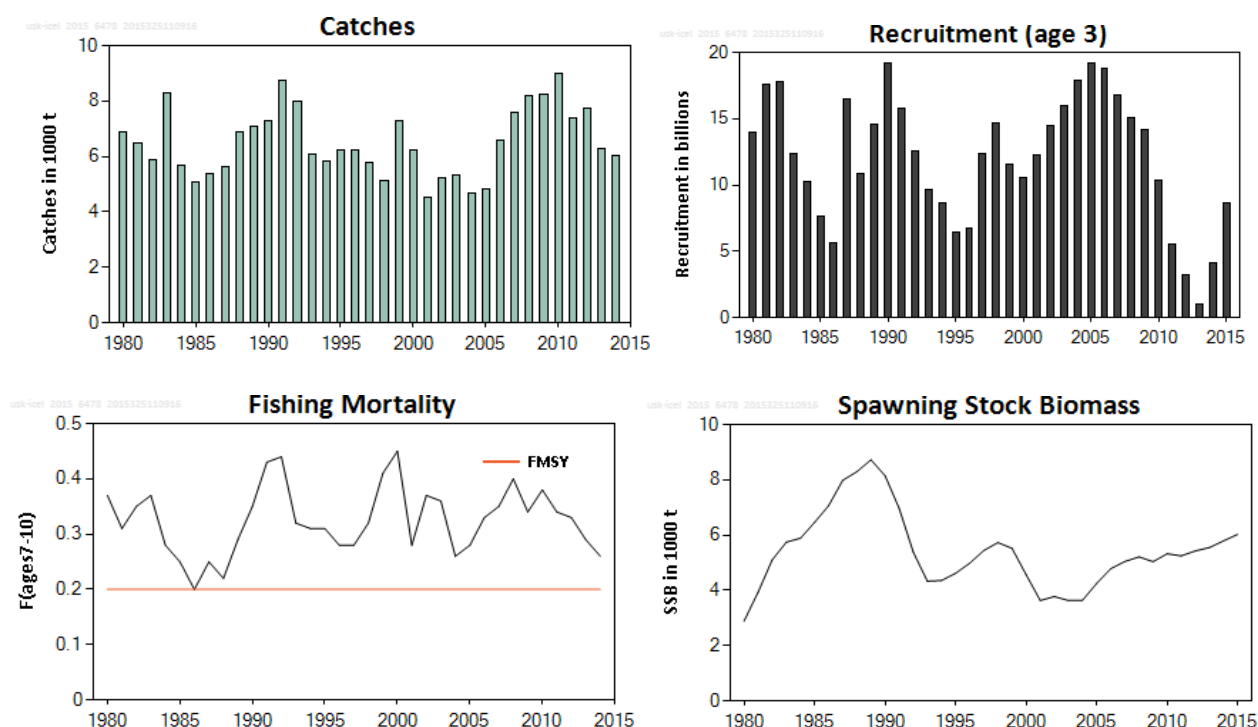


Figure 9.3.45.1 Tusk in Subarea XIV and Division Va. Summary of the stock assessment.

Stock and exploitation status

Table 9.3.45.1 Tusk in Subarea XIV and Division Va. State of the stock and fishery, relative to reference points.

		Fishing pressure			Stock size		
		2012	2013	2014	2013	2014	2015
Maximum Sustainable Yield	F_{MSY}	✗	✗	✗ Above	MSY	?	?
Precautionary approach	F_{pa} , F_{lim}	?	?	?	$B_{trigger}$?	?
Management Plan	F_{MGT}	-	-	- Not applicable	B_{pa} , B_{lim}	?	?
					SSB_{MGT}	-	-
							Undefined
							Undefined
							Not applicable

Catch options

Table 9.3.45.2 Tusk in Subarea XIV and Division Va. The basis for the catch options.

Variable	Value	Source	Notes
F ages 7–10 (2015)	0.25	ICES (2015a)	TAC constraint (4 000 t for the fishing year)
SSB (2016)	6070 t	ICES (2015a)	
R _{age3} (2016)	2.8 millions	ICES (2015a)	Mean of 2012–2014
Total catch (2015)	4 657 t	ICES (2015a)	

Table 9.3.45.3 Tusk in Subarea XIV and Division Va. The catch options.

Rationale	Catches (2016)	Basis	F (2016)	SSB (2017)	%SSB change *	% TAC change **
ICES MSY framework	3 440 t	F _{MSY}	0.2	6 279 t	3%	–14%
Zero catch	0	Zero catch	0	9 290 t	53%	–100%

Weights in thousand tonnes.

* SSB 2017 relative to SSB 2016.

** Catches 2016 relative to TAC 2015.

Basis of the advice

Table 9.3.45.4 Tusk in Subarea XIV and Division Va. The basis of the advice.

Advice basis	MSY approach.
Management plan	There is no management plan for tusk in this area.

Quality of the assessment

Landings in Subarea XIV are not included in the analytical assessment. Since landings from this subarea have been on average less than 1% of the total, the exclusion does not alter the perception of the state of tusk in Division Va.

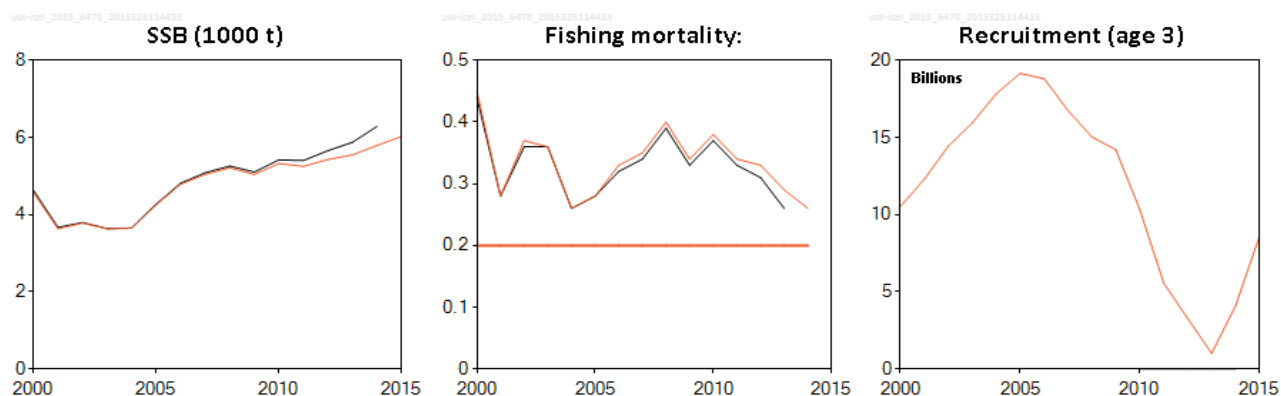


Figure 9.3.45.2 Tusk in Subarea XIV and Division Va. Historical assessment results (final-year recruitment estimates included).

Assessments made since the benchmark in 2010 show a consistent SSB and fishing mortality.

Issues relevant for the advice

No additional information is available for this stock.

Reference points

Table 9.3.45.5 Tusk in Subarea XIV and Division Va. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY B_{trigger}	Not defined.		
	F_{MSY}	0.2	Based on stochastic simulations.	ICES (2015a)
Precautionary approach	B_{lim}	Not defined.		
	B_{pa}	Not defined.		
	F_{lim}	Not defined.		
	F_{pa}	Not defined.		
Management plan	SSB_{MGT}	Not defined.		
	F_{MGT}	Not defined.		

Basis of the assessment

Table 9.3.45.6 Tusk in Subarea XIV and Division Va. The basis of the assessment.

ICES stock data category	Category 1 (ICES, 2015b).
Assessment type	Analytical length-based assessment (Gadget model) that uses catches in the model and in the forecast.
Input data	March Icelandic groundfish survey and landings in Division Va.
Discards and bycatch	Discarding is considered to be negligible.
Indicators	None.
Other information	This stock was benchmarked in 2010 (WKDEEP 2010; ICES, 2010).
Working group	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP).

Information from stakeholders

No information is available for this stock.

History of advice, catch, and management

Table 9.3.45.7 Tusk in Subarea XIV and Division Va. History of ICES advice, the agreed TAC, and ICES estimates of catches. Weights in thousand tonnes.

Year*	ICES advice*	Predicted catch corresp. to advice**	ICES catches**	TAC Icelandic Division Va***	ICES catches Division Va***
2004/05	^		4.9	3.5	4.9
2005/06	^		5.1	3.5	5.9
2006/07	^		6.7	5.0	7.9
2007/08	^		7.6	5.5	7.6
2008/09	Constrain catches to 5 000 t	< 5.0	8.2	5.5	8.2
2009/10	Biennial	< 5.0	8.3	5.5	8.4
2010/11	Fishing at $F_{0.1}$	< 6.0	9.0	6.0	7.8
2011/12	Biennial	< 6.0	7.4	7.0	7.4
2012/13	Fishing at F_{MSY} (F_{MAX})	< 6.7	7.8	6.4	6.8
2013/14	No new advice, same as 2013	< 6.7	6.3	5.9	5.9
2014/15	Fishing at F_{MSY}	< 3.95	6.1	4.0	
2015/16	Fishing at F_{MSY}	< 3.44			

* National fishing year ending 31 August.

** Calendar year (refers to first year in fishing year).

*** National fishing year.

^ Advice for tusk in the Northeast Atlantic, not split in several assessment units (see Table 9.3.29.1).

History of catch and landings

Table 9.3.45.8 Tusk in Subarea XIV and Division Va. Catch distribution by fleet in 2014 as estimated by ICES.

Total catch	Commercial landings	Commercial discards
6 053 t	98% longline	Negligible
	6 053 t	

Table 9.3.45.9 Tusk in in Division Va. History of official catches (tonnes) by country.

Year	Faroes	Denmark	Germany	Iceland	Norway	UK	Total
1973	3 363	0	576	2 366	911	391	7 607
1974	3 172	0	375	1 857	893	230	6 527
1975	2 445	0	384	1 673	975	254	5 731
1976	2 397	0	334	2 935	1 352	94	7 112
1977	2 818	0	212	3 122	1 796	0	7 948
1978	2 168	0	0	3 352	812	0	6 332
1979	2 050	0	0	3 558	845	0	6 453
1980	2 873	0	0	3 089	928	0	6 890
1981	2 624	0	0	2 827	1 025	0	6 476
1982	2 410	0	0	2 804	666	0	5 880
1983	4 046	0	0	3 469	772	0	8 287
1984	2 008	0	0	3 430	254	0	5 692
1985	1 885	0	0	3 068	111	0	5 064
1986	2 811	0	0	2 549	21	0	5 381
1987	2 638	0	0	2 984	19	0	5 641
1988	3 757	0	0	3 078	20	0	6 855
1989	3 908	0	0	3 131	10	0	7 049
1990	2 475	0	0	4 813	0	0	7 288
1991	2 286	0	0	6 439	0	0	8 725
1992	1 567	0	0	6 437	0	0	8 004
1993	1 329	0	0	4 746	0	0	6 075
1994	1 212	0	0	4 612	0	0	5 824
1995	979	0	1	5 245	0	0	6 225
1996	872	0	1	5 226	3	0	6 102
1997	575	0	0	4 819	0	0	5 394
1998	1 052	0	1	4 118	0	0	5 171
1999	1 035	0	2	5 794	391	2	7 224
2000	1 154	0	0	4 714	374	2	6 244
2001	1 125	0	1	3 392	285	5	4 808
2002	1 269	0	0	3 840	372	2	5 483
2003	1 163	0	1	4 028	373	2	5 567
2004	1 478	0	1	3 126	214	2	4 821
2005	1 157	0	3	3 539	303	41	5 043
2006	1 239	0	2	5 054	299	2	6 596
2007	1 250	0	0	5 984	300	1	7 535
2008	959	0	0	6 932	284	0	8 175
2009	997	0	0	6 955	300	0	8 252
2010	1 794	0	0	6 919	263	0	8 976
2011	1 347	0	0	5 845	198	0	7 390
2012	1 203	0	0	6 341	217	0	7 761
2013	1 092	0.12	0	4 973	192	0	6 257
2014*	728	0	0	4 995	306	0	6 029

* Preliminary.

Table 9.3.45.10 Tusk in in Subarea XIV. History of official catches (tonnes) by country.

Year	Faroes	Denmark	Greenland	Germany	Iceland	Norway	Russia*	Spain	UK	Total
1973	16	0	0	9	0	0	0	0	2	27
1974	259	0	0	2	15	0	0	0	1	277
1975	29	0	0	17	13	138	0	0	0	197
1976	0	0	0	5	89	47	0	0	1	142
1977	167	0	0	16	0	40	0	0	1	224
1978	0	0	0	47	0	38	0	0	0	85
1979	0	0	0	27	0	0	0	0	0	27
1980	0	0	0	13	0	0	0	0	0	13
1981	110	0	0	10	0	0	0	0	0	120
1982	0	0	0	10	0	0	0	0	0	10
1983	74	0	0	11	0	0	0	0	0	85
1984	0	0	0	5	0	58	0	0	0	63
1985	0	0	0	4	0	0	0	0	0	4
1986	33	0	0	2	0	0	0	0	0	35
1987	13	0	0	2	0	0	0	0	0	15
1988	19	0	0	2	0	0	0	0	0	21
1989	13	0	0	1	0	0	0	0	0	14
1990	0	0	0	2	0	7	0	0	0	9
1991	0	0	0	2	0	68	0	0	1	71
1992	0	0	0	0	3	120	0	0	0	123
1993	0	0	0	0	1	39	0	0	0	40
1994	0	0	0	0	0	16	0	0	0	16
1995	0	0	0	0	0	30	0	0	0	30
1996	0	0	0	0	0	157	0	0	0	157
1997	0	0	0	0	10	9	0	0	0	19
1998	0	0	0	0	0	12	0	0	0	12
1999	0	0	0	0	0	8	0	0	0	8
2000	0	0	0	0	11	11	0	3	0	25
2001	3	0	0	0	20	69	0	0	0	92
2002	4	0	0	0	86	30	0	0	0	120
2003	0	0	0	0	2	88	0	0	0	90
2004	0	0	0	0	0	40	0	0	0	40
2005	7	0	0	0	0	41	8	0	0	56
2006	3	0	0	0	0	19	51	0	0	73
2007	0	0	0	0	0	40	6	0	0	46
2008	0	0	33	0	0	7	0	0	0	40
2009	12	0	15	0	0	5	11	0	0	43
2010	7	0	0	0	0	5	0	0	0	12
2011	20	0	0	0	131	24	0	0	0	175
2012	33	0	0	0	174	46	0	0	0	253
2013	1.9	0.3	0	0	0	23.8	0	0	0	26
2014**	2	0	0	0	0	26	0	0	0	28

* Russian catches were taken in Subdivision XIVb₁ (Mid-Atlantic Ridge).

** Preliminary.

Summary of the assessment

Table 9.3.45.11 Tusk in Subarea XIV and Division Va. Assessment summary. Weights in tonnes, recruitment in thousands.

Year	Recruitment (age 3) (thousands)	SSB (tonnes)	Total catch (tonnes)	Mean F ages (7–10)
1980	13 956	2 887	6 890	0.37
1981	17 564	3 938	6 476	0.31
1982	17 775	5 105	5 880	0.35
1983	12 331	5 747	8 287	0.37
1984	10 288	5 887	5 692	0.28
1985	7 665	6 462	5 065	0.25
1986	5 680	7 068	5 381	0.20
1987	16 428	7 984	5 645	0.25
1988	10 869	8 295	6 865	0.22
1989	14 591	8 723	7 077	0.29
1990	19 206	8 146	7 292	0.35
1991	15 760	6 968	8 733	0.43
1992	12 546	5 383	8 010	0.44
1993	9 677	4 333	6 059	0.32
1994	8 679	4 359	5 828	0.31
1995	6 484	4 620	6 231	0.31
1996	6 737	4 985	6 241	0.28
1997	12 341	5 445	5 759	0.28
1998	14 697	5 731	5 146	0.32
1999	11 545	5 520	7 290	0.41
2000	10 542	4 571	6 240	0.45
2001	12 304	3 634	4 526	0.28
2002	14 448	3 780	5 249	0.37
2003	15 940	3 633	5 315	0.36
2004	17 838	3 646	4 655	0.26
2005	19 157	4 254	4 820	0.28
2006	18 819	4 787	6 602	0.33
2007	16 749	5 046	7 594	0.35
2008	15 035	5 213	8 175	0.40
2009	14 200	5 041	8 253	0.34
2010	10 313	5 325	8 986	0.38
2011	5 558	5 251	7 391	0.34
2012	3 262	5 429	7 762	0.33
2013	1 011	5 552	6 258	0.29
2014	4 095	5 794	6 029	0.26
2015	8 606	6 027		

Sources and references

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