

**ECOREGION** Widely distributed and migratory stocks  
**STOCK** Tusk (*Brosme brosme*) in Divisions IIIa, Vb, VIa, and XIIb, and Subareas IV, VII, VIII, and IX (other areas)

**Advice for 2013 and 2014**

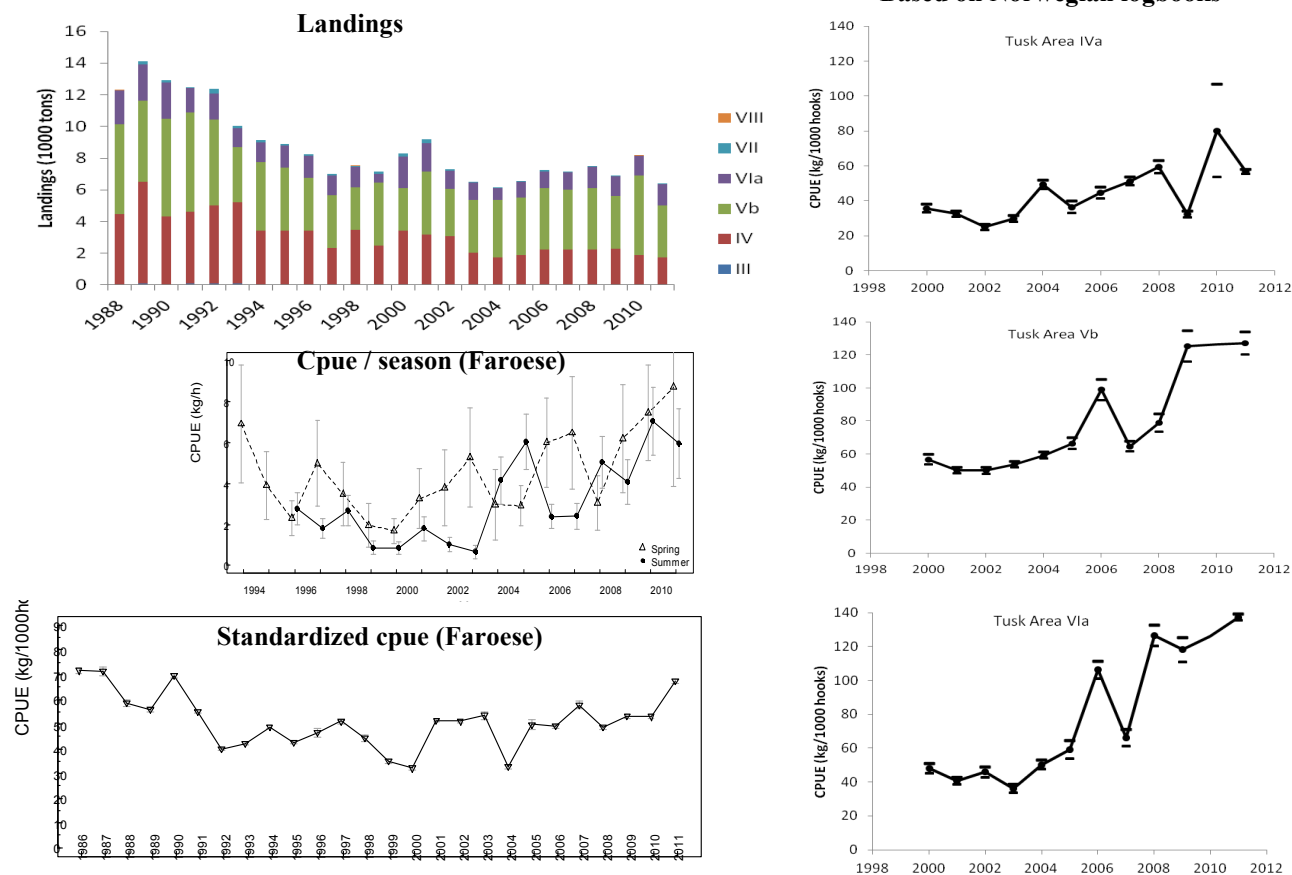
Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 8500 tonnes.

This is the first year 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)		
	2009–2011	
MSY ( $B_{trigger}$ )	?	Unknown
Precautionary approach ( $B_{pa}, B_{lim}$ )	?	Unknown
Qualitative evaluation	✓	Above possible reference points

**Commercial catch per unit effort  
Based on Norwegian logbooks**



**Figure 9.4.12.5.1** Tusk in other areas. . Left, top to bottom: Landings by ICES division; Faroes cpue in spring and autumn bottom-trawl surveys; and standardized cpue for 4–5 longliners (<110 GRT) fishing in Faroese waters (criteria: tusk was in the catch, ling+tusk>60% of total catch, and the depth was >200 m). Right: Cpue index (kg/1000 hooks) from Norwegian longliners for tusk in Divisions IVa, Vb, and VIa, based on official logbooks.

Landings in all subareas have been stable since 2002. Both Faroese survey indices show an increasing trend since the early 2000s and cpue series both from the Faroes fishery in Division Vb and Norwegian longline fisheries in Divisions IVa, Vb, and VIa (not standardized) show similar trends. The average of the stock size indicator (the Faroese survey indices, number/hour) in the last two years (2010–2011) is substantially higher than the average of the three previous years (2007–2009).

### Management plans

No specific management objectives are known to ICES.

### The fisheries

Tusk is a bycatch species in longline, trawl, and gillnet fisheries for a range of species, including ling and other gadoids. Norway has traditionally landed a large share of the total international landings and in 2011 Norwegian landings for all areas except Division Vb constituted 86% of the total landings. Ca. 90% of the Norwegian landings are taken by longliners. The Faroese fleet caught nearly all landings in Division Vb in 2011 because of no bilateral or multilateral agreements between the Faroes and Norway/EU.

### Biology

The life history traits are in line with other members of the gadoid family and suggest that tusk is less vulnerable to fishing mortality than typical deep-water species.

<b>Catch distribution</b>	Total catch (2011) was 6.4 kt, where 100% were landings (90% longliners, 5% trawlers, and 5% gillnets).
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### Quality considerations

The advice is based on the Faroese cpue series, used as an indicator of stock size. The uncertainty associated with the index values is not available. The Faroese cpue series has been standardized. The Norwegian cpue series is not standardized, but a standardized series will be presented in 2013. Fewer Norwegian logbooks than normal were available in 2010 due to a change from paper to electronic logbooks; the quality of the data was therefore reduced.

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 the stock overfished.

### Scientific basis

<b>Assessment type</b>	Cpue trends-based assessment.
<b>Input data</b>	Total landings series for all relevant fleets and cpue for Faroese trawl and longline and Norwegian longline.
<b>Discards and bycatch</b>	Not available.
<b>Indicators</b>	-
<b>Other information</b>	-
<b>Working group report</b>	<a href="#">WGDEEP</a>

<b>ECOREGION</b>	<b>Widely distributed and migratory stocks</b>
<b>STOCK</b>	<b>Tusk (<i>Brosme brosme</i>) in Divisions IIIa, Vb, VIa, and XIIb, and Subareas IV, VII, VIII, and IX (other areas)</b>

#### Reference points

No reference points have been proposed for this stock. However, as adult abundance as measured by Faroese surveys and all commercial indices is above the average of the time-series, SSB is considered to be likely above any candidate values for  $MSY B_{trigger}$ .

#### Outlook for 2013 and 2014

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

#### ICES approach to data-limited stocks

For the data-limited stock with abundance information from fishery-independent data ICES uses as harvest control rule the abundance index-adjusted *status quo* catch, which provides advice based on a comparison of the last two years of abundance data compared to the previous three years, combined with the catch data available from previous years. Knowledge on the exploitation status influences the impact of the biomass changes on the advised catch.

For this stock the abundance is estimated to have increased by more than 20% in 2007–2009 (average of the three years) and 2010–2011 (average of the two years). This implies an increase of catches of at most 20% compared to the average catch of the last three years, corresponding to catches of no more than 8500 t.

As the exploitation is not detrimental to the stock (even though the exploitation status is unknown) and the biomass has increased more than 50%, no additional precautionary reduction is needed.

#### Additional considerations

Biomass is considered to be above the likely  $B_{trigger}$ , and Faroese survey and commercial cpue indices are considered to provide reliable indicators of trends in the stock in Division Vb. Trends in non-standardized commercial cpue in other areas show a similar pattern in recent years and on that basis, it is considered that trends in the Faroese survey series are indicative of stock trends for the entire assessment unit. Applying the harvest control rule advised by WKLF (with a 20% limit on annual change) gives a 20% increase in catch relative to 2010 (7.6 kt). *Status quo* advice based on average catch over the period 2007 to 2011 would be 7.2 kt.

A licensing scheme and effort limitation are in place in Division Vb. The minimum landing length for tusk in Division Vb is 40 cm. No bilateral or multilateral agreements were made in 2011 between the Faroese and Norway/EU. Norway has a bilaterally agreed quota in Division Vb and a licensing scheme in EU waters.

#### Comparison with previous assessment and advice

The basis for the assessment has not changed. The basis for the advice this year is the ICES approach to data-limited stocks.

#### Source

ICES. 2012. Report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP), 29 March–5 April 2012, ICES Headquarters, Copenhagen. ICES CM 2012/ACOM:17.

**Table 9.4.12.5.1** Tusk in Divisions IIIa, Vb, VIa, and XIIb, and Subareas IV, VII, VIII, and IX (other areas). ICES advice, management, and landings.

Year	ICES Advice	Predicted catch corresp. to advice	TAC EU Subarea III	TAC EU Subarea IV (EU waters)	TAC EU Subarea IV (Norwegian waters)	TAC EU+Norway Subareas V, VI, and VII	TAC Norway Divisions IIa and Vb, and Subareas IV, VI, and VII	ICES landings
2003	Reduce effort by 30% <sup>1</sup>	-	0.04		0.37	0.71	-	6.51
2004	Biennial <sup>1</sup>	-	0.04		0.37	0.71	-	6.14
2005	Effort should be reduced by 30% of 1998 effort <sup>1</sup>	-	0.04		0.317	0.604	-	6.70
2006	Biennial <sup>1</sup>	-	0.04		0.317	0.604	-	7.26
2007	Constrain catches to 5 000 t <sup>2</sup>	5	0.028	0.231	0.170	0.435	3.35	7.09
2008	Biennial <sup>2</sup>	5	0.028	0.231	0.170	0.435	3.35	7.36
2009	Constrain catches to 5 000 t	5	0.028	0.231	0.170		3.785	6.77
2010	Biennial	5	0.024	0.196	0	0.283	2.938	8.14
2011	Less than 6 900 t, and a reduction from recent levels catches should be considered	6.9	0.024	0.196		0.283	2.938	6.37
2012	No new advice, same as 2011	6.9	0.024	0.196	0	0.294	2.923	
2013	No more than a 20% increase in catches	8.5						
2014	No new advice, same as 2013	8.5						

Weights in thousand tonnes.

<sup>1</sup> Advice for tusk in the Northeast Atlantic.

<sup>2</sup> Advice for this stock prior to 2008 included the Mid-Atlantic Ridge and Division VIb (Rockall).

**Table 9.4.12.5.2** Tusk in Divisions IIIa, Vb, VIa, and XIIb and Subareas IV, VII, VIII, and IX (other areas). ICES estimates of landings (tonnes).

Year	III	IVa	IVb	Vb1	Vb2	VIa	VIIa	VIIb,c	VIIg-k	VIIIa	All areas
1988	61	4429		4059	1606	2120		17	5	1	12298
1989	93	6418	4	3722	1400	2297	2	108	86		14130
1990	60	4254	5	5202	979	2256	4	155	33		12948
1991	84	4537	2	5170	1096	1543	2	52	14		12500
1992	85	4932	12	4399	992	1682	3	218	47		12370
1993	79	5141	14	2862	577	1223		120	32		10048
1994	51	3375	7	3407	909	1262		94	31		9136
1995	42	3348	15	3347	631	1435	1	48	37		8904
1996	44	3369	33	2728	582	1391		58	29		8234
1997	31	2272	38	2742	577	1261	1	75	19		7016
1998	21	3387	66	2073	637	1281	1	33	10	1	7510
1999	29	2435	34	3517	447	539		147	8	0	7156
2000	36	3260	116	2367	333	2011		164	13		8300
2001	57	3095	11	3526	469	1767	1	263	14		9203
2002	50	2961	71	2722	281	1124		66	5		7280
2003	51	1997	8	2733	559	1128		21	3		6500
2004	45	1666	23	3536	107	726		21	1		6125
2005	44	1826	7	3272	360	1019		23	2		6553
2006	29	2159	32	3560	317	1059		90	3		7249
2007	21	2180	15	3468	344	1077		13	1		7119
2008	46	2139	71	3798	61	1347		4	0		7466
2009	19	2268	17	3135	164	1242		4	0		6849
2010	21	1861	15	4889	127	1216		3	0	4	8136
2011*	17	1623	96	3287	0	1337		5	0	0	6365

\*Preliminary.

Table 9.4.12.5.3

Estimated mean cpue ([kg/hook]x1000) based on Norwegian logbook data, shown with standard error (se) and number of catches (n) sampled for tusk.

Tusk	Area	IVA	IVB	VB	VIA	VHC	XII	XIVA	XIVB
2000	cpue	35,7	18,1	56,8	48	62,7	47,2	74,6	40,9
	n	664	17	405	430	60	17	6	84
	se	1,2	7,2	1,5	1,4	3,8	7,2	12,0	3,2
2001	cpue	32,6	16,5	50,2	40,7	4,8	28,2		48,5
	n	721	2	608	444	25	97		48
	se	0,8	12,4	1,0	1,1	4,6	2,3		3,3
2002	cpue	25		50,1	45,9				85,1
	n	649		473	186				70
	se	0,9		1,0	1,6				2,6
2003	cpue	29,8	7,22	53,7	36,1		6,47		49,7
	n	496	13	514	300		7		42
	se	0,9	5,6	0,9	1,2		7,6		3,1
2004	cpue	49,3		59,3	50,3	7,05			17,9
	n	437		693	307	23			60
	se	1,2		0,9	1,4	5,2			3,2
2005	cpue	36,4		66,5	59,1	15,9			8,7
	n	329		374	368	7			47
	se	1,8		1,7	2,7	12,0			
2006	cpue	44,6		98,9	106				
	n	664		159	247				
	se	1,6		3,2	2,6				
2007	cpue	51,2		64,7	66,1	5,14			
	n	583		353	249	10			
	se	1,2		1,5	2,4	8,8			
2008	cpue	59,4		78,9	126				59,3
	n	395		188	137				34
	se	1,83		2,66	3,11				6,25
2009	cpue	32,3		125	118				70,4
	n	663		57	99				20
	se	1,81		6,16	4,67				10,4
2010	cpue	80,1							91,2
	n	27							22
	se	10,4							11,5
2011	cpue	56,8	34,6	127	137,3				55,7
	n	733	12	23	308				5
	se	0,6	4,7	3,4	0,9				8,1