

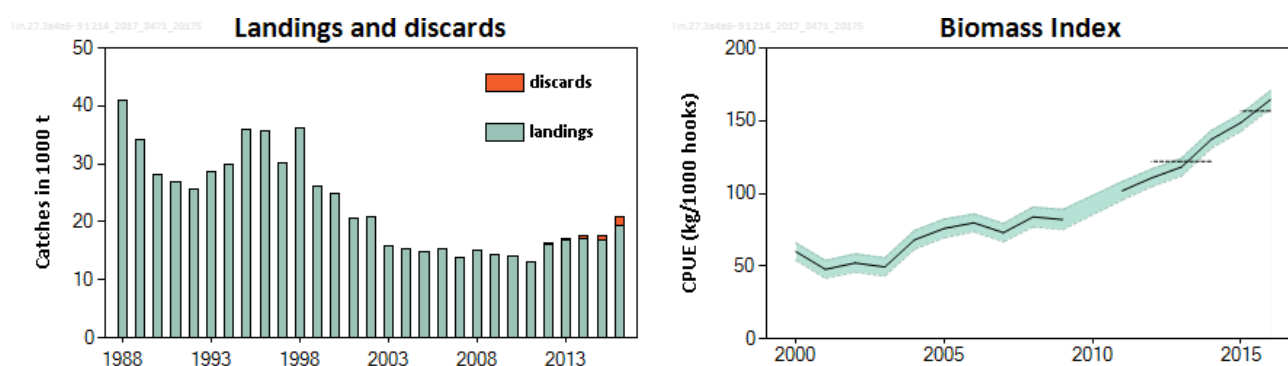
## Ling (*Molva molva*) in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a (Northeast Atlantic and Arctic Ocean)

### ICES stock advice

ICES advises that when the precautionary approach is applied, catches should be no more than 17 695 tonnes in each of the years 2018 and 2019. If discard rates do not change from the average of the last three years (2014–2016) this implies landings of no more than 16 793 tonnes.

### Stock development over time

Landings have been stable for the last five years, with an increase in discards in the last three years. A standardized catch per unit effort (cpue) based on data from the Norwegian longline fleet shows a positive trend since 2004.

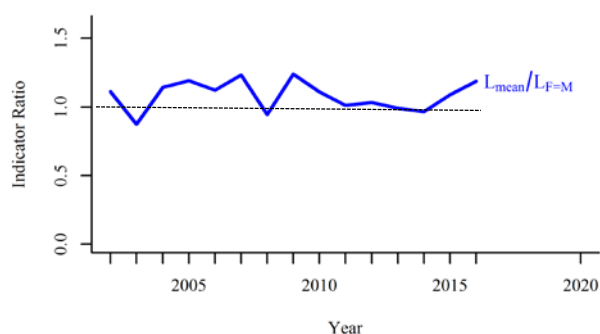


**Figure 1** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Standardized cpue from the Norwegian longline fleet targeting ling for all areas combined (kg per 1000 hooks). Horizontal lines indicate the average cpue index of the respective year range used to calculate the advice.

### Stock and exploitation status

**Table 1** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. State of the stock and fishery relative to reference points. The status evaluation is based on the reference point proxy for  $F_{MSY}$  using the length-based indicator method (ICES, 2017).

		Fishing pressure			Stock size				
		2014	2015	2016	2014	2015	2016		
Maximum sustainable yield	$F_{MSY}$ proxy	✘	✔	✔ Below	$MSY B_{trigger}$ proxy	?	?	?	Undefined
Precautionary approach	$F_{pa}, F_{lim}$	?	✔	✔ Below possible reference points	$B_{pa}, B_{lim}$	?	?	?	Undefined
Management plan	$F_{MGT}$	—	—	— Not applicable	$B_{MGT}$	—	—	—	Not applicable
Qualitative evaluation	-	—	—	— Not applicable	-	↗	↗	↗	Increasing



**Figure 2** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Index ratio  $L_{\text{mean}}/L_F = M$  from the length-based indicator method used for the evaluation of the exploitation status. The exploitation status is below the  $F_{\text{MSY proxy}}$  when the index ratio value is higher than 1.

### Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The standardized cpue series from the Norwegian longline fleet was used as index for the stock development. The advice is based on a comparison of the two latest index values (index A) with the three preceding values (index B), multiplied by the recent (2016–2017) advised catch. The index is estimated to have increased by more than 20%, and the uncertainty cap was applied in estimating the catch advice. Fishing mortality is below the proxy of the MSY reference points. The stock size relative to candidate reference points is unknown, but the stock has been increasing since 2004. Therefore, the precautionary buffer was not applied. The average discard rate in the three last years was 5.1%, and this has been used to provide landings advice.

**Table 2** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. The basis for the catch options.

Index A (2015–2016)		157
Index B (2012–2014)		122
Index ratio (A/B)		1.28
Uncertainty cap	Applied	1.20
Advised catch for (2016–2017)		14746 tonnes
Discard rate		0.051
Precautionary buffer	Not applied	
Catch advice*		17695 tonnes
Landings advice**		16793 tonnes

\* [recent advised catch] × [uncertainty cap].

\*\* [advised catch] × [1 – discard rate]. The figures in the table are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

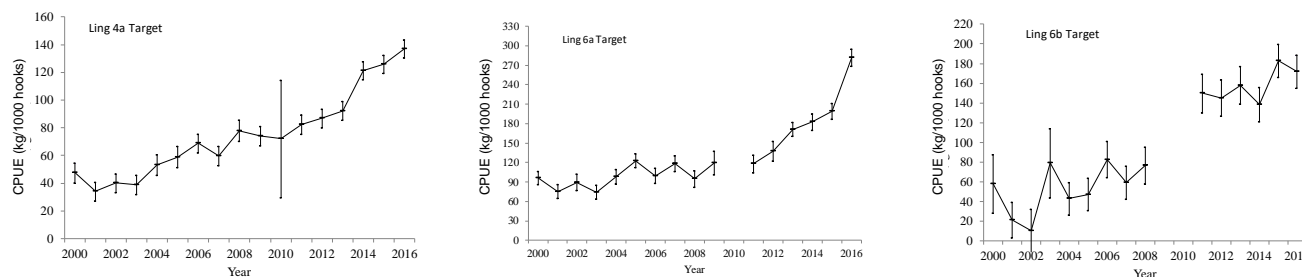
### Basis of the advice

**Table 3** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	ICES is not aware of any agreed precautionary management plan for 2017 in this area.

### Quality of the assessment

The advice is based on a standardized cpue series from the Norwegian longline fleet which shows an increasing trend. Other time-series covering smaller areas of the stock distribution show a similar trend.



**Figure 3** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Cpu series for ling for the period 2000–2016 based on data when ling appeared to have been targeted (>30% of total catch). The bars denote the 95% confidence intervals.

### Issues relevant for the advice

Previous advice considered discarding to be negligible. The discard rate has been increasing and reached 8.3% of the catches in 2016.

### Reference points

**Table 4** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger\_proxy}$	Not defined	-	
	$F_{MSY\_proxy}$	81.25 cm (2016)	Expected mean length of catch above $L_{mean}$ when $F = M$ .	ICES (2017)
Precautionary approach	$B_{lim}$	Not defined		
	$B_{pa}$	Not defined		
	$F_{lim}$	Not defined		
	$F_{pa}$	Not defined		
Management plan	SSB <sub>mgt</sub>	Not defined		
	$F_{mgt}$	Not defined		

### Basis of the assessment

**Table 5** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016).
Assessment type	Cpue trends-based assessment (ICES, 2017).
Input data	Standardized cpue series from the Norwegian longline reference fleet.
Discards and bycatch	Discards are estimated at 5.1% of the catch over the last three years.
Indicators	Length-based indicator.
Other information	None.
Working group	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP)

### Information from stakeholders

There is no available information.

## History of advice, catch, and management

**Table 6** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Predicted catch corresp. to advice	TAC EU Subarea 3	TAC EU Subarea 4 (EU waters)	TAC EU Subarea 4 (Norwegian waters)	TAC EU subareas 6, 7, 8, 9, 10, 12, and 14	TAC Faroe subareas 6, 7, 8, 9, 10, 12, and 14 (EU waters)	TAC Norway subareas 6, 7, 8, 9, 10, 12, and 14 (EU waters)	ICES landings Other areas*
2003	30% reduction on fishing effort**	-	136	4666		14966	800	9500	15913
2004	Biennial**	-	136	4666		14966	800	9500	15244
2005	Effort reduced by 30%	-	136 <sup>†</sup>	3966	1000	14966	800	5780	14942
2006	Biennial	-	136	3966 <sup>†</sup>	1000	14966	-	-	15414
2007	Reduce about 30% in catches	10000	119	3173	1000	11976	250	5780	13927
2008	Biennial	10000	100	2856	850	10776	250	5638	15014
2009	Constrain catches	10000	100	2856	850	10776	250	5638	14341
2010	Biennial	10000	92	2428	0	7003		6140	14104
2011	Constrain catches to 2003–2008 average, and a reduction in catches should be considered	15000	92	2428	NA	7804	NA	6360	13073
2012	No new advice, same as 2011	15000	92	2428	NA	7824	NA	6340	16208
2013	Reduce catches by 20%	10800		2428	850	8024	330	6140	16771
2014	No new advice, same as 2013	10800	87	1942	950	7300		5500	17006
2015	No new advice, same as 2013	10800	87	2428	950	8464	200	5500	16736
2016	Precautionary approach	14746	87	2912	950	10275	200	6500	19269
2017	Biennial	14746	87	3494	1350	13696	200	6500	
2018	Precautionary approach	≤ 17695							
2019	Precautionary approach	≤ 17695							

\* Divisions 3.a and 4.a, and in subareas 6, 7, 8, 9, 12, and 14.

\*\* Advice for ling in the Northeast Atlantic (not split in several assessment units).

## History of the catch and landings

There are no reported catches in the NEAFC regulatory area.

<sup>†</sup> Version 2: Values corrected by WGDEEP 2018

**Table 7** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings				Discards
	Longline 53%	Trawl 40%	Gillnets 5%	Other gears 2%	
20867 tonnes	19269 tonnes				1598 tonnes

**Table 8** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. History of official commercial landings are presented by area. All weights are in tonnes.

Year	3	4a	4bc	6a	6b	7	7a	7bc	7de	7f	7g–k	8	9	12	14	All areas
1988	331	11223	379	14556	1765	5057	211	865	779	444	4415	1028	0	0	3	41056
1989	422	11677	387	8631	3743	5261	311	577	700	310	1012	1221	2	0	1	34255
1990	543	10027	455	6730	1505	4575	169	678	799	233	1077	1372	1	3	9	28176
1991	484	9969	490	4795	2662	3977	125	749	680	302	1394	1139	1	10	1	26778
1992	549	10763	842	4588	1891	2552	105	1286	519	137	1593	802	0	0	17	25644
1993	642	12810	797	5301	1522	2294	219	1434	436	223	2334	510	0	0	9	28531
1994	469	11496	323	6730	2540	2185	284	1595	451	400	3254	85	0	5	6	29823
1995	412	13041	659	8847	1638		305	1944	1389	602	6131	845		50	17	35880
1996	402	12705	569	8577	1124		210	2201	1477	399	6850	1041		2	0	35557
1997	311	11315	699	6746	814		264	1780	1472	547	5045	1034		9	61	30097
1998	214	13631	627	7362	1394		198	1034	1500	561	7814	1797	1	2	6	36141
1999	216	9810	446	6899	1175		84	1366	1060	312	4189	452		2	1	26012
2000	228	9246	384	6909	1879		73	1182	846	218	3578	339		7	26	24915
2001	262	7857	284	5143	788		87	1226	807	220	3360	594		59	36	20723
2002	263	9152	309	4127	533		119	964	891	453	3526	467		8	23	20836
2003	261	6432	234	3246	660		112	524	788	176	2940	436		19	83	15913
2004	236	6306	241	2769	1064		97	640	801	161	2427	492			10	15244
2005	210	6449	149	3028	1142		61	429	786	184	2053	450		1	0	14942
2006	188	6719	144	2573	1411		88	668	687	130	2407	398		1	0	15414
2007	174	5858	159	3120	1314		43	358	710	125	1749	312		0	5	13927
2008	175	7259	200	2950	1513		15	259	569	187	1541	345		0	1	15014
2009	149	7408	314	2324	2635		48	131	363	106	673	186		1	3	14341
2010	142	6398	201	3031	2687		44	253	294	69	848	134		0	3	14104
2011	140	6508	211	2999	1259		28	208	425	155	936	201		0	3	13073
2012	145	7018	192	3655	1390		14	1013	436	167	1520	552		0	106	16208
2013	130	7197	176	4660	795		30	1010	482	224	1608	459		0	0	16771
2014	120	7749	141	4761	774		29	532	605	334	1557	395		0	9	17006
2015	125	8069	147	4764	1215		19	560	347	88	1065	337		0	0	16736
2016*	152	9739	150	5659	1088		24	570	293	114	1172	287			21	19269

\*Preliminary.

**Table 9** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Total discards (in tonnes) by country for the years 2012 to 2016.

Year	Spain	Ireland	France	Sweden	UK(Scotland)	UK(England)	Total
2012	46	176					222
2013	101	160	29				290
2014	54	435	15				504
2015	0	0	131	4	704		839
2016	1	220	72		1302	22	1598

## Summary of the assessment

**Table 10** Ling in subareas 6–9, 12, and 14, and in divisions 3.a and 4.a. Combined cpue (kg per 1000 hooks) from all areas (Norwegian standardized cpue; no survey was conducted in 2010).

Year	cpue	Upper	Lower
2000	60.03	65.98	54.09
2001	47.76	53.81	41.7
2002	52.17	58.46	45.88
2003	49.41	55.65	43.18
2004	68.06	74.45	61.67
2005	75.9	82.31	69.49
2006	79.77	85.88	73.66
2007	73.03	79.29	66.77
2008	83.83	90.62	77.04
2009	82	88.87	75.13
2010	-	-	-
2011	101.8	108.1	95.48
2012	110.7	116.8	104.7
2013	118.1	124.2	112
2014	137.1	143.2	131
2015	148.7	154.7	142.8
2016	164.5	170.7	158.4

## Sources and references

ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM 68. 42 pp.

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ICES. 2017. Report of the Working Group on the Biology and Assessment of Deep-sea Fisheries Resources (WGDEEP), 24 April–1 May 2017, Copenhagen, Denmark. ICES CM 2017/ACOM:14. 702 pp.