ICES Advice on fishing opportunities, catch, and effort
Arctic Ocean, Barents Sea, Faroes, Greenland Sea, Icelandic Waters,
and Norwegian Sea Ecoregions
lin.27.1-2

Published 7 June 2017
DOI: 10.17895/ices.pub.3137

Ling (*Molva molva*) in subareas 1 and 2 (Northeast Arctic)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches should be no more than 13 103 tonnes in each of the years 2018 and 2019. All catches are assumed to be landed.

Stock development over time

A standardized catch per unit effort (cpue) based on data from the Norwegian longline fleet shows a positive trend from 2004 to present. Landings have been relatively stable.

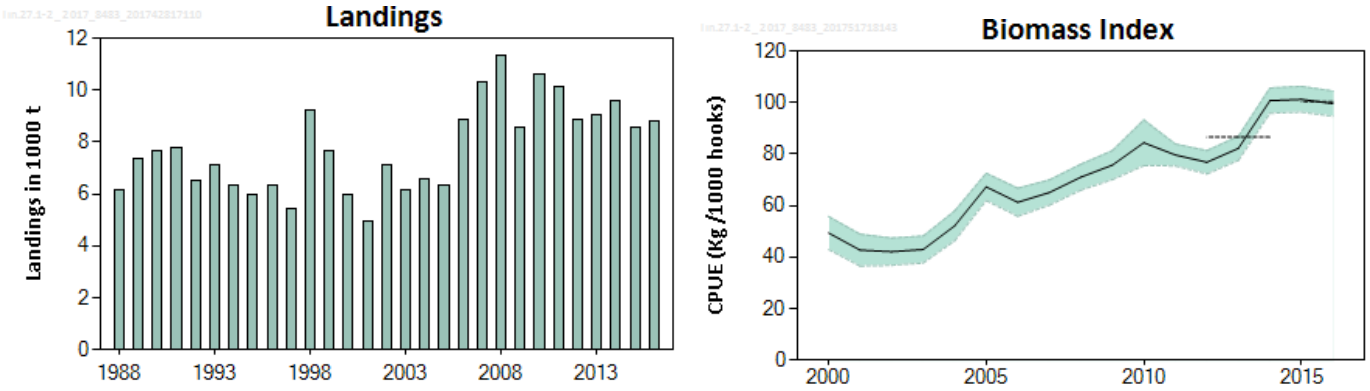

Figure 1 Ling in subareas 1 and 2. Summary of the stock assessment. Landings in all areas (in thousand tonnes) and estimates of cpue (kg per 1000 hooks), based on official logbooks from the Norwegian longline fishery in Division 2.a. The horizontal line indicates the average cpue index of the respective year range used to calculate the advice.

Stock and exploitation status

Table 1 Ling in subareas 1 and 2. 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 model (ICES, 2017).

		Fishing pressure				Stock size			
		2014	2015	2016			2014	2015	2016
Maximum sustainable yield	F_{MSY} proxy	✓	✓	✓	Below	MSY $B_{trigger}$	?	?	? 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	-	↗	→	→ Stable

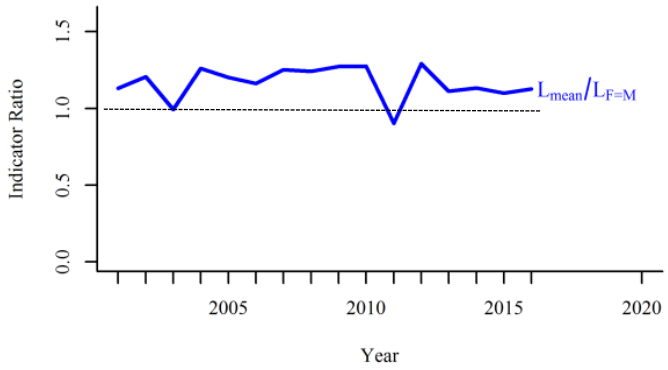

Figure 2 Ling in subareas 1 and 2. Index ratio $L_{mean}/LF = M$ from the length-based indicator method used for the evaluation of the exploitation status. The exploitation status is below the $F_{MSY\ proxy}$ when the index ratio value is higher than 1.

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The standardized cpue series from the Norwegian longline reference 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 not to have increased by more than 20%, which means that the uncertainty cap was not applied in estimating the catch advice. The stock size relative to candidate reference points is unknown. The precautionary buffer was applied for the revised 2012 advice. As the stock indicator has increased over several years and fishing pressure is below $F_{MSY\ proxy}$, the precautionary buffer was not applied this year. Discarding is considered to be negligible.

Table 2 Ling in subareas 1 and 2. The basis for the catch options.

Index A (2015–2016)		100
Index B (2012–2014)		87
Index ratio (A/B)		1.16
Uncertainty cap	Not applied	
Advised catch for 2016–2017		11300 tonnes
Discard rate		Negligible
Precautionary buffer	Not applied	
Catch advice*		13103 tonnes

*[recent advised catch] × [index ratio]. 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 1 and 2. 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 reference fleet which covers the main areas of the stock (Helle *et al.*, 2015).

Issues relevant for the advice

There is no available information to present for this stock.

Reference points

Table 4 Ling in subareas 1 and 2. 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_{mgt}	Not defined		
	F_{mgt}	Not defined		

Basis of the assessment

Table 5 Ling in subareas 1 and 2. Basis of assessment and advice.

ICES stock data category	3 (ICES, 2016).
Assessment type	Trends in the cpue assessment (ICES, 2017).
Input data	International catch and cpue from Norwegian longline reference fleet.
Discards and bycatch	Discarding is considered to be negligible.
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 the advice, catch, and management

Table 6 Ling in subareas 1 and 2. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Predicted catch corresp. to advice	TAC EU in subareas 1 and 2	ICES catches in subareas 1 and 2
2003	30% reduction on fishing effort*		45	6 157
2004	Biennial*		45	6 560
2005	30% reduction on fishing effort*		45	6 306
2006	Biennial*		45	8 848
2007	Maintain catches below the recent level	6000	45	10 334
2008	Biennial	6000	45	11 346
2009	Same advice as last year	6000	45	8 564
2010	Biennial	6000	38	10 580
2011	Constrain catches to 8000 t	8000	38	10 098
2012	No new advice, same as 2011	8000	38	8 849
2013	20% reduction in effort	10000**	36	9 027
2014	No new advice, same as 2013	10000**	36	9 597
2015	No new advice, same as 2013	10000**	36	8 550
2016	Precautionary approach	11300	36	8 822
2017	Biennial	11300	36	
2018	Precautionary approach	≤ 13103		
2019	Precautionary approach	≤ 13103		

*Prior to 2007, the advice for ling was for the whole Northeast Atlantic area.
** This is not a predicted catch, but an expected catch in the context of no increase in effort, given that abundance is judged to be stable.

History of the catch and landings

There are no reported catches in the NEAFC regulatory area.

Table 7 Ling in subareas 1 and 2. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings				Discards
8 822 tonnes	50% longline	45% gillnets	4% trawl	1% other gear types	negligible
	8 822 tonnes				

Table 8 Ling in subareas 1 and 2. History of total official commercial catch by area. All weights are in tonnes.

Year	Subarea I	Division 2.a	Division 2.b	All areas
1988		6119	7	6126
1989		7368		7368
1990		7628		7628
1991		7793		7793
1992		6521		6521
1993		7093		7093
1994		6309	13	6322
1995		5954		5954
1996	136	6083	127	6346
1997	31	5373	5	5409
1998	123	9072	5	9200
1999	64	7581	6	7651
2000	69	5891	4	5964
2001	66	4858	33	4957
2002	206	6917	9	7132
2003	89	6062	6	6157
2004	345	6138	77	6560
2005	107	6106	93	6306
2006	58	8726	64	8848
2007	96	10058	180	10334
2008	80	11104	162	11346
2009	236	8244	84	8564
2010	57	10395	128	10580
2011	129	9798	171	10098
2012	158	8425	266	8849
2013	126	8825	76	9027
2014	123	9337	137	9597
2015	92	8362	96	8550
2016	65	8703	54	8822

Summary of the assessment

Table 9 Ling in subareas 1 and 2. Assessment summary. Standardized cpue series from the Norwegian longline reference fleet (kg per 1000 hooks).

Year	Cpue	Upper	Lower
2000	49.32	55.73	42.90
2001	42.66	48.85	36.48
2002	42.06	47.33	36.78
2003	42.89	48.12	37.66
2004	52.08	57.87	46.29
2005	67.22	72.52	61.91
2006	61.25	66.69	55.80
2007	65.00	69.90	60.10
2008	70.97	75.99	65.94
2009	75.66	81.28	70.03
2010	84.35	93.22	75.47
2011	79.60	83.84	75.36
2012	76.77	81.29	72.25
2013	82.18	86.86	77.51
2014	100.7	105.6	95.82
2015	101.2	106.2	96.24
2016	99.52	104.4	94.62

Sources and references

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