

9.3.35 Ling (*Molva molva*) in Division 5.a (Iceland grounds)

ICES stock advice

ICES advises that when the MSY approach is applied, catches in the fishing year 2016/2017 should be no more than 9343 tonnes. All catches are assumed to be landed.

Stock development over time

Recruitment was high from 2004 to 2010 but has declined to low levels in recent years. The spawning-stock biomass (SSB) is currently the highest in the time-series. Fishing mortality (F) has decreased since 2008 and is now the lowest in the time-series, but above F_{MSY} .

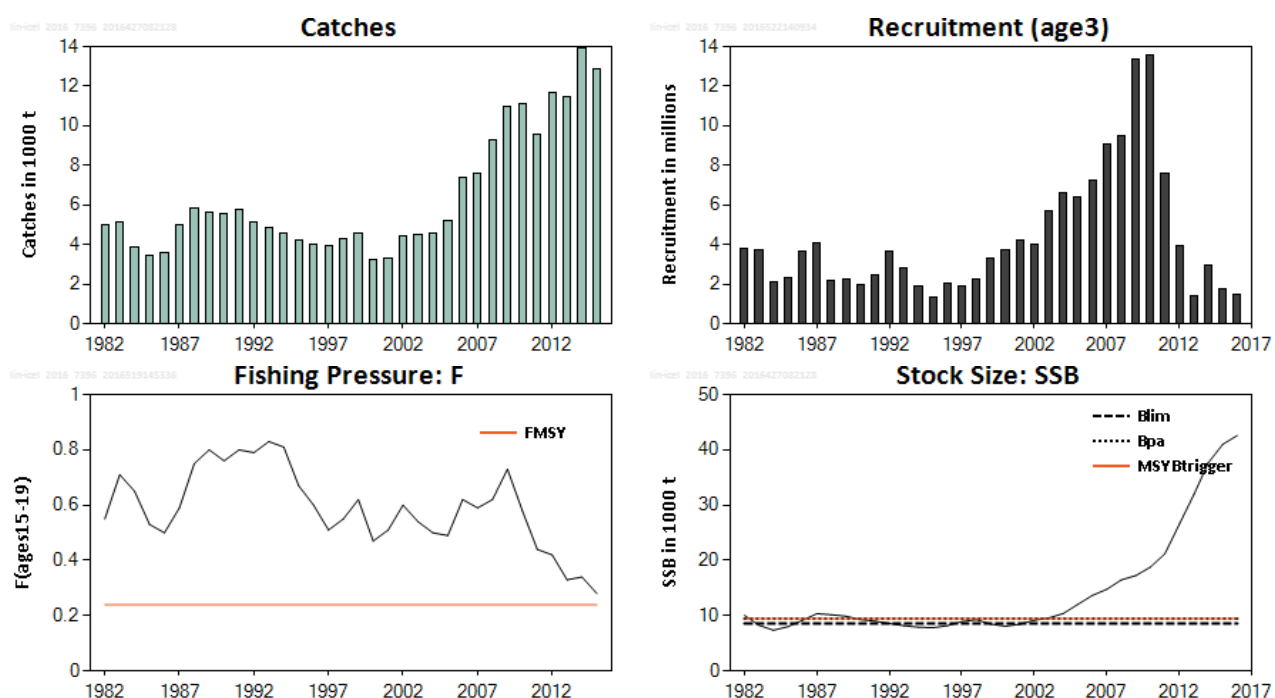


Figure 9.3.35.1 Ling in Division 5.a. Summary of stock assessment. Weights in thousand tonnes and recruitment in millions.

Stock and exploitation status

Table 9.3.35.1 Ling in Division 5.a. State of the stock and fishery relative to reference points.

		Fishing pressure			Stock size		
		2013	2014	2015	2014	2015	2016
Maximum sustainable yield	F_{MSY}	✗	✗	✗ Above	✓	✓	✓ Above
Precautionary approach	F_{pa} , F_{lim}	?	?	? Undefined	✓	✓	✓ Above
Management plan	F_{MGT}	-	-	- Not applicable	-	-	- Not applicable

Catch options

Table 9.3.35.2 Ling in Division 5.a. The basis for the catch options.

Variable	Value	Source	Notes
F ages 15–19 (2016)	0.36	ICES (2016a)	TAC constraint
SSB (2017)	39.7 thousand t	ICES (2016a)	Model estimate
R _{age3} (2017)	2.06 millions	ICES (2016a)	Mean 2014–2016
Total catch (2016)	14.9 thousand tonnes	ICES (2016a)	TAC constraint, best estimates of catches

Table 9.3.35.3 Ling in Division 5.a. The catch options. Weights in thousand tonnes

Rationale	Catches (2017)	Basis	F (2017)	SSB (2018)	% SSB change *	% TAC change **
ICES MSY framework	9.343	F _{MSY}	0.24	38.5	–3	–42
Zero catch	0	Zero catch	0	51.5	+30	–100

* SSB in 2018 relative to SSB in 2017.

** Catches in 2017 relative to the TAC in 2016.

Basis of the advice

Table 9.3.35.4 Ling in Division 5.a. The basis of the advice.

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

Quality of the assessment

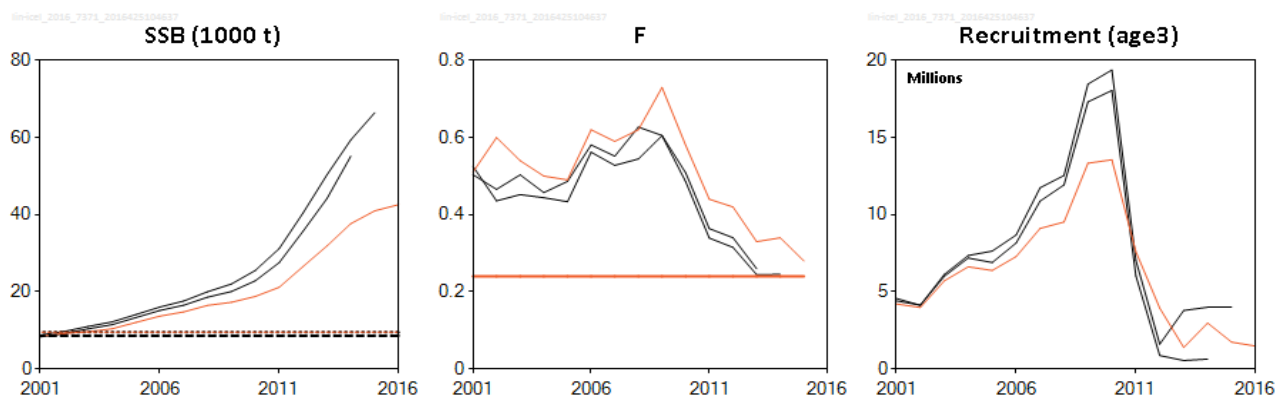


Figure 9.3.35.2 Ling in Division 5.a. Historical assessment results (final-year recruitment estimates included).

The estimates of SSB are considerably lower and fishing mortality higher than the assessments of the two previous years. The model framework is unchanged and the retrospective changes are due to the addition of one more year of data.

Issues relevant for the advice

There is no information to present for this stock.

Reference points

Table 9.3.35.5 Ling in Division 5.a. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	9500 t	Based on B_{pa} .	ICES (2014)
	F_{MSY}	0.24	Based on stochastic simulations.	ICES (2014)
Precautionary approach	B_{lim}	8600 t	Median of the lowest SSB.	ICES (2014)
	B_{pa}	9500 t	Based on the 97.5 percentile of the lowest SSB.	ICES (2014)
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{MGT}	Not defined		
	F_{MGT}	Not defined		

Basis of the assessment

Table 9.3.35.6 Ling in Division 5.a. The basis of the assessment.

ICES stock data category	1 (ICES, 2016b)
Assessment type	Analytical length-based assessment (Gadget model) that uses catches in the model and in the forecast (ICES, 2016a).
Input data	March Icelandic groundfish survey and data from commercial catches.
Discards and bycatch	Not included, discarding is considered negligible.
Indicators	None
Other information	Last benchmark in 2014 (ICES, 2014).
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 9.3.35.7 Ling in Division 5.a. 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 Division 5.a**	TAC Icelandic Division 5.a*	ICES catches Division 5.a*
2003/2004	30% reduction on fishing effort [^]	-	4.600	3.0	5.4
2004/2005	Biennial [^]	-	5.194	3.0	6.1
2005/2006	30% reduction on fishing effort [^]	-	7.402	4.0	8.1
2006/2007	Biennial [^]	-	7.584	5.0	8.6
2007/2008	Maintain catches at 2001–2004 level	3.8	9.278	5.0	10.1
2008/2009	Biennial	3.8	10.942	7.0	11.8
2009/2010	Constrain catches to 2006–2007 average	7.5	11.130	7.0	10.7
2010/2011	Biennial	7.5	9.580	7.5	10.1
2011/2012	Same advice as previously	7.5	11.709	9.0	11.1
2012/2013	F_{proxy} target	12.0	11.445	12	12.4
2013/2014	No new advice, same as 2013	12.0	13.930	14	13.8
2014/2015	Fishing at F_{MSY}	14.4	12.862	14.4	13.2
2015/2016	Fishing at F_{MSY}	≤ 16.2		16.2	
2016/2017	Fishing at F_{MSY}	≤ 9.3			

* Icelandic fishing year ending on 31 August.

** Calendar year (refers to the second year of the fishing year).

[^] Prior to 2007/2008, the advice for ling was for the whole Northeast Atlantic area.

History of catch and landings

Table 9.3.35.8 Ling in Division 5.a. Catch distribution by fleet in 2015 as estimated by ICES.

Table 3333333: Lingcod Division SIA: Catch distribution by fleet in 2015 as estimated by ICES.				
Total catch (2015)	Landings			Discards
12862 t	67% longline	15% trawl	8% gillnet and Danish seine	Negligible
	12862 t			

Table 9.3.35.9 Ling in Division 5.a. History of catch as estimated by ICES. Values (tonnes) are presented by country participating in the fishery. Landings previous to 1973 are not available by country.

Year	Belgium	Faroes	France	Germany	Iceland	Norway	UK	Total
1950					3551			10497
1951					3278			10929
1952					4420			11454
1953					3325			11470
1954					3442			13095
1955					3972			11693
1956					3823			11525
1957					3591			9687
1958					4195			11663
1959					2681			8700
1960					6774			13770
1961					6032			10066
1962					7073			12117
1963					5607			10492
1964					4976			10374
1965					4811			10658
1966					4559			10032
1967					7531			13152
1968					8697			14526
1969					8677			14138
1970					8345			14362
1971					8867			15391
1972					6085			10177
1973	1080	984	0	586	3564	418	829	7461
1974	681	890	0	486	3868	318	532	6775
1975	736	732	23	375	3748	522	562	6698
1976	431	498	0	404	4538	502	268	6641
1977	442	613	0	254	3433	506	0	5248
1978	541	534	0	0	3439	484	0	4998
1979	508	536	0	0	3759	399	0	5202
1980	445	607	0	0	3149	423	0	4624
1981	196	489	0	0	3348	415	0	4448
1982	116	524	0	0	3733	612	0	4985
1983	128	644	0	0	4256	115	0	5143
1984	103	450	0	0	3304	21	0	3878
1985	59	384	0	0	2980	17	0	3440
1986	88	556	0	0	2946	4	0	3594
1987	157	657	0	0	4161	6	0	4981
1988	134	619	0	0	5098	10	0	5861
1989	95	614	0	0	4896	5	0	5610
1990	42	399	0	0	5153	0	0	5594
1991	69	530	0	0	5206	0	0	5805
1992	34	526	0	0	4556	0	0	5116
1993	20	501	0	0	4333	0	0	4854
1994	3	548	0	0	4049	0	0	4600

Year	Belgium	Faroes	France	Germany	Iceland	Norway	UK	Total
1995	0	463	0	0	3729	0	0	4192
1996	0	358	0	0	3670	20	0	4048
1997	0	299	0	0	3634	0	0	3933
1998	0	699	0	0	3603	0	0	4302
1999	0	500	0	0	3973	120	1	4594
2000	0	0	0	0	3196	67	3	3266
2001	0	362	0	2	2852	116	1	3333
2002	0	1629	0	0	2779	45	0	4453
2003	0	565	0	2	3855	108	5	4535
2004	0	739	0	1	3721	139	0	4600
2005	0	682	0	1	4311	180	20	5194
2006	0	960	0	1	6283	158	0	7402
2007	0	807	0	0	6592	185	0	7584
2008	0	1366	0	0	7736	176	0	9278
2009	0	1157	0	0	9610	172	0	10939
2010	0	1095	0	0	9867	168	0	11130
2011	0	588	0	0	8743	249	0	9580
2012	0	875	0	0	10586	248	0	11709
2013	0	1030	0	0	10121	294	0	11445
2014	0	1524	0	0	12248	158	0	13930
2015	0	1095	0	0	11551	216	0	12862

Summary of the assessment

Table 9.3.35.10 Ling in Division 5.a. Assessment summary. Weights in tonnes, recruitment in thousands.

Year	Recruitment (age 3) thousands	Stock size: SSB tonnes	Catch tonnes	Fishing pressure: F ages 15–19 year ⁻¹
1982	3790	10085	4985	0.55
1983	3706	8267	5143	0.71
1984	2106	7374	3878	0.65
1985	2306	8024	3440	0.53
1986	3654	9170	3594	0.5
1987	4072	10376	4981	0.59
1988	2199	10177	5861	0.75
1989	2261	9915	5610	0.8
1990	2005	9299	5594	0.76
1991	2450	9023	5805	0.8
1992	3696	8595	5116	0.79
1993	2835	8187	4854	0.83
1994	1928	7932	4600	0.81
1995	1330	7839	4192	0.67
1996	2075	8192	4048	0.6
1997	1874	8938	3933	0.51
1998	2248	9281	4302	0.55
1999	3321	8473	4594	0.62
2000	3706	8100	3266	0.47
2001	4211	8455	3333	0.51
2002	3984	9181	4453	0.6
2003	5709	9614	4535	0.54
2004	6620	10410	4600	0.5
2005	6384	12054	5194	0.49
2006	7278	13666	7402	0.62

Year	Recruitment (age 3) thousands	Stock size: SSB tonnes	Catch tonnes	Fishing pressure: F ages 15–19 year ⁻¹
2007	9105	14786	7584	0.59
2008	9523	16474	9278	0.62
2009	13337	17261	10939	0.73
2010	13558	18781	11130	0.58
2011	7606	21181	9580	0.44
2012	3937	26545	11709	0.42
2013	1390	31905	11445	0.33
2014	2973	37665	13930	0.34
2015	1732	40995	12862	0.28
2016	1482	42596		

Sources and references

ICES. 2014. Report of the Benchmark Workshop on Deep-sea Stocks (WKDEEP), 3–7 February 2014, ICES Headquarters, Copenhagen. ICES CM 2014/ACOM:44. 119 pp.

ICES. 2016a. Report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP), 20–27 April 2016, ICES Headquarters, Copenhagen. ICES CM 2016/ACOM:17.

ICES. 2016b. General context of ICES advice. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.