

Blue ling (*Molva dypterygia*) in Subarea 14 and Division 5.a (East Greenland and Iceland grounds)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches in 2018 should be no more than 1957 tonnes. All catches are assumed to be landed.

Stock development over time

The biomass index in 2016 is at a similar level as in 2015. The F_{proxy} is estimated to be below the reference $F_{\text{MSY proxy}}$ in the last three years.

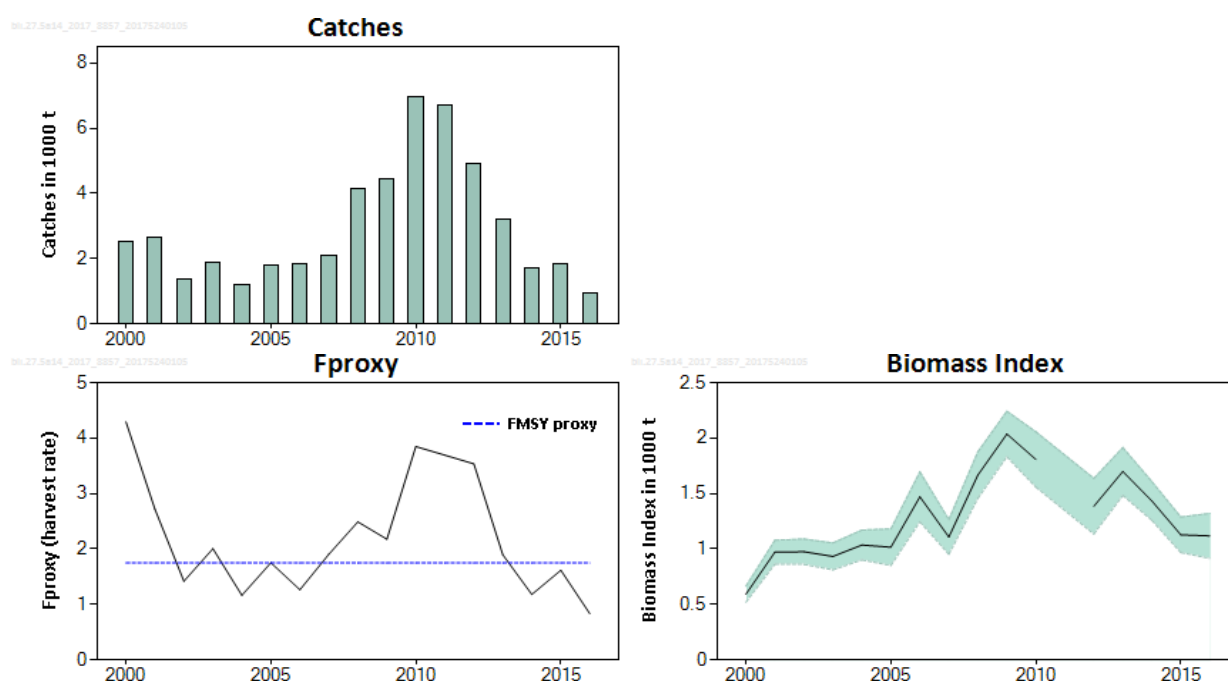


Figure 1 Blue ling in Subarea 14 and Division 5.a. Catches in thousand tonnes. Biomass index (+40 cm) from the Icelandic autumn survey in Division 5.a. F_{proxy} is based on catch/survey biomass (the dashed blue line is the reference $F_{\text{MSY proxy}}$, calculated as the average F_{proxy} for the reference period 2002 to 2009).

Stock and exploitation status

Table 1 Blue ling in Subarea 14 and Division 5.a. State of the stock and fishery relative to reference points. The status evaluation is based on reference point proxies (ICES, 2016a).

		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

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The Icelandic autumn trawl survey was used as biomass indicator. The reference $F_{MSY proxy}$ (catch divided by survey biomass and equivalent to a harvest rate) used to provide advice is estimated as the average F_{proxy} for the reference period 2002 to 2009.

The advice is based on multiplying the reference $F_{MSY proxy}$ with the most recent index value. The reference $F_{MSY proxy}$ used to provide advice is considered precautionary because it is based on exploitation during a period when no detrimental effects were observed on the stock. Therefore, the precautionary buffer was not applied. Discarding is considered negligible.

Table 2 Blue ling in Subarea 14 and Division 5.a. The basis for the catch options.

Index A (2016)			1118 t
Reference $F_{MSY proxy}$ (average 2002–2009)			1.75
Advice 2016			2032 t
(Index A × Reference $F_{MSY proxy}$) / Advice 2016			0.96
Uncertainty cap	Not applied		—
Discard rate			Negligible
Precautionary buffer	Not applied		—
Catch advice *			1957 t

* Index A (2016) × Reference F_{proxy} . 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 Blue ling in Subarea 14 and Division 5.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 Icelandic autumn survey (IS-SMH) covers the full depth range and geographical distribution of the stock and the fisheries. The uncertainty of the survey estimates is small.

Issues relevant to the advice

It is anticipated that the low recruitment estimated in the Icelandic survey since 2010 will result in stock decline when these year classes enter the fishery in the near future.

Blue ling is susceptible to sequential depletion of spawning aggregations. Two spawning areas were depleted prior to 1993 and have not recovered. Maintaining the current closed areas will provide protection for the spawning aggregations.

Reference points

Table 4 Blue ling in Subarea 14 and Division 5.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}	1.75	The harvest rate F_{MSY_proxy} from catch and survey data: (total catch) / (survey biomass) for the period 2002–2009 when no detrimental effects were observed.	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 applicable		
	F_{mgt}	Not applicable		

Basis of the assessment

Table 5 Blue ling in Subarea 14 and Division 5.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016b).
Assessment type	Survey trends-based assessment (ICES, 2017).
Input data	Catch data from Division 5.a and Subarea 14 and the Icelandic autumn survey (IS-SMH).
Discards and bycatch	Discarding is considered negligible.
Indicators	None.
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 Blue ling in Subarea 14 and Division 5.a. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Predicted catch corresp. to advice	ICES Division 5a and Subarea 14 catches
2003	No direct fisheries*	-	1871
2004	Biennial*	-	1207
2005	No direct fisheries*	-	1779
2006	Biennial*	-	1859
2007	No direct fisheries	-	2111
2008	Biennial	-	4147
2009	No direct fisheries	-	4434
2010	Biennial	-	6952
2011	No direct fishery and minimum bycatch	-	6711
2012	No new advice, same as 2011	-	4900
2013	F _{proxy} target	3100	3220
2014	No new advice, same as 2013	3100	1692
2015	F _{proxy} target	3085	1823
2016	F _{proxy} target	2548	932
2017	Precautionary approach	≤ 2032	
2018	Precautionary approach	≤ 1956	

*Prior to 2007 advice for blue ling was provided for the Northeast Atlantic (not split into different assessment units).

History of the catch and landings

Table 7 Blue ling in Subarea 14 and Division 5.a. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings		Discards
932 tonnes	Longlines 29%	Trawl 71%	negligible
	932 tonnes		

Table 8 Blue ling in Subarea 14 and Division 5.a. History of official commercial catch in Division 5.a by country participating in the fishery in tonnes.

Year	Faroes	Germany	Iceland	Norway	UK	Total
1973	74	1678	548	6	61	2367
1974	34	1959	331	140	32	2496
1975	69	1418	434	366	89	2376
1976	29	1222	624	135	28	2038
1977	39	1253	700	317	0	2309
1978	38	0	1237	156	0	1431
1979	85	0	2019	98	0	2202
1980	183	0	8133	83	0	8399
1981	220	0	7952	229	0	8401
1982	224	0	5945	64	0	6233
1983	1195	0	5117	402	0	6714
1984	353	0	3122	31	0	3506
1985	59	0	1407	7	0	1473
1986	69	0	1774	8	0	1851
1987	75	0	1693	8	0	1776
1988	271	0	1093	7	0	1371
1989	403	0	2124	5	0	2532
1990	1029	0	1992	0	0	3021
1991	241	0	1582	0	0	1823
1992	321	0	2584	0	0	2905
1993	40	0	2193	0	0	2233
1994	89	1	1542	0	0	1632
1995	113	3	1519	0	0	1635
1996	36	3	1284	0	0	1323
1997	25	0	1319	0	0	1344
1998	59	9	1086	0	0	1154
1999	31	8	1525	8	11	1583
2000	0	7	1605	25	8	1645
2001	95	12	752	49	23	931
2002	28	4	1256	74	10	1372
2003	16	16	1098	6	24	1160
2004	38	9	1083	49	20	1199
2005	24	25	1497	20	26	1592
2006	63	22	1734	27	9	1855
2007	78	0	1999	4	10	2091
2008	88	0	3653	21	0	3762
2009	178	0	4132	5	0	4315
2010	515	0	6377	13	0	6905
2011	797	0	5903	2	0	6702
2012	312	0	4207	2	0	4521
2013	435	0	2769	2	0	3204
2014	71	0	1588	30	0	1689
2015	10	0	1744	4	0	1758
2016*	0	0	925	0	0	925

* Preliminary.

Table 9 Blue ling in Subarea 14 and Division 5.a. History of official commercial catch in Subarea 14 by country in tonnes.

Year	Faroes	Germany	Greenland	Iceland	Norway	Russia	Spain	UK	Denmark	Total
1973	0	50	0	10	0	0	0	0	0	60
1974	0	90	0	6	0	0	0	0	0	96
1975	0	285	0	90	3	0	0	0	0	378
1976	0	65	0	21	0	0	0	13	0	99
1977	0	491	0	0	0	0	0	6	0	497
1978	0	933	0	0	4	0	0	0	0	937
1979	0	1026	0	0	0	0	0	0	0	1026
1980	0	746	0	0	0	0	0	0	0	746
1981	0	1206	0	0	0	0	0	0	0	1206
1982	0	1946	0	0	0	0	0	0	0	1946
1983	0	621	0	0	0	0	0	0	0	621
1984	0	537	0	0	0	0	0	0	0	537
1985	0	315	0	0	0	0	0	0	0	315
1986	214	149	0	0	0	0	0	0	0	363
1987	0	199	0	0	0	0	0	0	0	199
1988	21	218	3	0	0	0	0	0	0	242
1989	13	58	0	0	0	0	0	0	0	71
1990	0	64	5	0	0	0	0	10	0	79
1991	0	105	5	0	0	0	0	45	0	155
1992	0	27	2	0	50	0	0	32	0	111
1993	0	16	0	3124	103	0	0	22	0	3265
1994	1	15	0	300	11	0	0	57	0	384
1995	0	5	0	117	0	0	0	19	0	141
1996	0	12	0	0	0	0	0	2	0	14
1997	1	1	0	0	0	0	0	2	0	4
1998	48	1	0	0	1	0	0	6	0	56
1999	0	0	0	0	1	0	66	7	0	74
2000	0	1	0	4	0	0	889	2	0	896
2001	1	0	0	11	61	0	1631	6	0	1710
2002	0	0	0	11	1	0	0	0	0	12
2003	0	0	0	0	36	0	670	5	0	711
2004	0	0	0	0	1	0	0	7	0	8
2005	2	0	0	0	1	0	176	8	0	187
2006	0	0	0	0	3	1	0	0	0	4
2007	19	0	0	0	1	0	0	0	0	20
2008	1	0	0	0	2	0	381	0	1	385
2009	1	0	0	0	3	0	111	4	0	119
2010	1	0	0	0	9	0	34	0	3	47
2011	0	0	0	0	2	0	0	1	6	9
2012	0	0	0	367	9	0	0	0	3	379
2013	0	0	4	0	0	0	0	3	9	16
2014	0	0	0	0	3	0	0	0	0	3
2015	0	0	59	0	1	0	0	0	5	65
2016*	0	0	0	0	7	0	0	0	0	7

* Preliminary.

Summary of the assessment

Table 10 Blue ling in Subarea 14 and Division 5.a. Assessment summary. The index is from the Icelandic autumn survey (IS-SMH). Weights are in tonnes.

Year	Biomass index (tonnes)	High	Low	Total catch (tonnes)	F _{proxy}
2000	592	665	520	2541	4.292
2001	971	1079	863	2641	2.72
2002	975	1090	861	1384	1.419
2003	933	1054	812	1871	2.005
2004	1036	1171	901	1207	1.165
2005	1016	1181	851	1779	1.751
2006	1470	1695	1245	1859	1.265
2007	1108	1264	952	2111	1.905
2008	1666	1876	1456	4147	2.489
2009	2037	2242	1831	4434	2.177
2010	1807	2057	1558	6952	3.847
2011				6711	3.691
2012	1386	1637	1135	4900	3.535
2013	1699	1915	1483	3220	1.895
2014	1433	1608	1259	1692	1.181
2015	1128	1288	968	1823	1.616
2016	1118	1320	916	932	0.834

Sources and references

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