

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

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches in 2019 should be no more than 1520 tonnes. All catches are assumed to be landed.

Stock development over time

The biomass index has declined since its peak in 2009 and the recruitment has been low since 2009. The F_{proxy} is estimated to have been below the reference $F_{\text{MSY proxy}}$ since 2014.

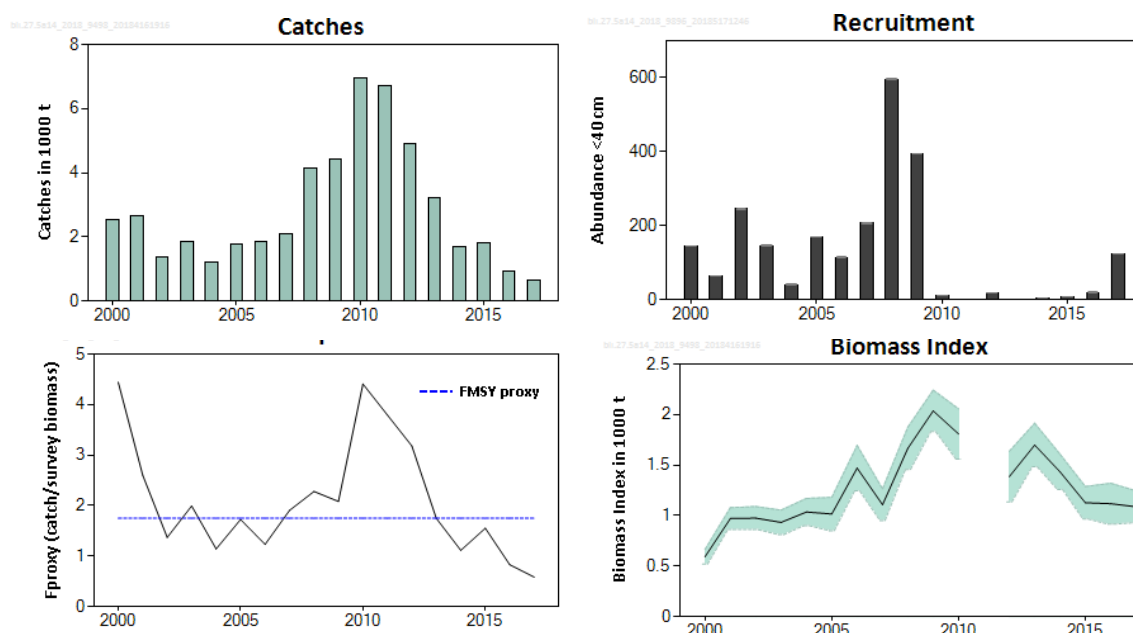


Figure 1 Blue ling in Subarea 14 and Division 5.a. Catches in thousand tonnes. Biomass index (+40 cm) from the Icelandic autumn survey in Division 5.a (IS-SMH). F_{proxy} is based on catch/survey biomass (the dashed blue line is the reference $F_{\text{MSY proxy}}$, calculated as the average F_{proxy}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

Stock and exploitation status

ICES assesses that fishing pressure on the stock is below $F_{\text{MSY proxy}}$. No reference points for stock size have been defined for this stock

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		
		2015	2016	2017	2015	2016	2017
Maximum Sustainable Yield	$F_{\text{MSY proxy}}$	✓	✓	✓ Below	MSY	?	?
Precautionary Approach	$F_{\text{pa}}, F_{\text{lim}}$	✓	✓	✓ Below possible reference points	$B_{\text{pa}}, B_{\text{lim}}$?	?
Management plan	F_{MGT}	—	—	— Not applicable	B_{MGT}	—	—
Qualitative evaluation	—	—	—	— Not applicable	—	↘	↗
							→ Stable

Catch scenarios

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

The advice is based on multiplying the reference $F_{MSY\ proxy}$ with the most recent index value. The difference between the resulting value and the previous catch advice is less than 20% and, therefore, the uncertainty cap was not applied.

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. The precautionary buffer has not been applied in the past. The fishing mortality is below the proxy of the MSY reference points, but stock size is unknown; thus, the precautionary buffer was applied. Discarding is considered negligible.

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

Index A (2017)	1086 t	
Reference $F_{MSY\ proxy}$ (average 2002–2009)	1.750	
Advised catch for 2018 issued in 2017	1956 t	
$(\text{Index A} \times \text{Reference } F_{MSY\ proxy}) / \text{Advice for 2018}$	0.97	
Uncertainty cap	Not applied	-
Discard rate	Negligible	
Precautionary buffer	Applied	0.8
Catch advice **	1520 t	
% Advice change ***	-22%	

* 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.

** $[(\text{Index A (2017)} \times \text{Reference } F_{proxy}) \times (\text{PA buffer})]$.

*** Advice value for 2019 relative to advice value for 2018.

The advised catch has decreased from last year as a result of a decrease in the biomass indicator and the application of the precautionary approach buffer.

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 blue ling in this area.

Quality of the assessment

The Icelandic autumn survey (IS-SMH) covers the full depth range and most of the geographical distribution of the stock and the fisheries. The uncertainty of the survey estimates is small.

Issues relevant for the advice

It is anticipated that the low recruitment estimated in the Icelandic survey since 2010 will result in stock decline.

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}	1.750	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 (2018)
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, 2018).
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 catches. All weights are in tonnes.

Year	ICES advice	Predicted catch corresp. to advice	ICES Division 5.a 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	Fproxy target	3100	3220
2014	No new advice, same as 2013	3100	1692
2015	Fproxy target	3085	1823
2016	Fproxy target	2548	932
2017	Precautionary approach	≤ 2032	634
2018	Precautionary approach	≤ 1956	
2019	Precautionary approach	≤ 1520	

*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 2017 as estimated by ICES.

Catch (2017)	Landings			Discards
634 tonnes	Longlines 27%	Trawl 70%	Other 3%	negligible
	634 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). There are no catches in the NEAFC regulatory area.

Year	Faroese	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	6	0	925	0	0	925
2017*	4	0	619	0	0	623

* Preliminary.

Table 9 Blue ling in Subarea 14 and Division 5.a. History of official commercial catch in Subarea 14 by country in tonnes. There are no catches in the NEAFC regulatory area.

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
2017*	0	3	4	0	4	0	0	0	0	11

* 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	Recruitment	Biomass index (tonnes)	High	Low	Total catch	F _{proxy}
2000	146	592	665	520	2541	4.4
2001	63	971	1079	863	2641	2.6
2002	245	975	1090	861	1384	1.37
2003	146	933	1054	812	1871	1.99
2004	41	1036	1171	901	1207	1.14
2005	169	1016	1181	851	1779	1.72
2006	115	1470	1695	1245	1859	1.23
2007	206	1108	1264	952	2111	1.91
2008	596	1666	1876	1456	4147	2.3
2009	394	2037	2242	1831	4434	2.1
2010	11	1807	2057	1558	6952	4.4
2011*					6711	3.8
2012	17	1386	1637	1135	4900	3.2
2013	0	1699	1915	1483	3220	1.75
2014	2	1433	1608	1259	1692	1.11
2015	8	1128	1288	968	1823	1.55
2016	19	1118	1320	916	932	0.83
2017	123	1088	1245	930	634	0.58

* No survey in 2011.

Sources and references

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