

ECOREGION Celtic Sea and West of Scotland
STOCK Anglerfish (*Lophius piscatorius* and *L. budegassa*) in Divisions VIIIb–k and VIIIa,b,d

Advice for 2013

Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 24 800 tonnes.

This is the first year ICES is providing quantitative advice for data-limited stocks (see Quality considerations).

Stock status

<i>Lophius piscatorius</i>			<i>Lophius budegassa</i>		
F (Fishing Mortality)			F (Fishing Mortality)		
	2009–2010	2011		2009–2010	2011
MSY (F_{MSY})	?	?	Not available	?	?
Precautionary approach (F_{pa}, F_{lim})	?	?	Not available	?	?
Total Stock Biomass			Total Stock Biomass		
	2007–2011			2007–2011	
MSY ($B_{trigger}$)	?	Unknown	MSY ($B_{trigger}$)	?	Unknown
Precautionary approach (B_{pa}, B_{lim})	?	Unknown	Precautionary approach (B_{pa}, B_{lim})	?	Unknown
Qualitative evaluation	↘	Decreasing	Qualitative evaluation	↘	Decreasing

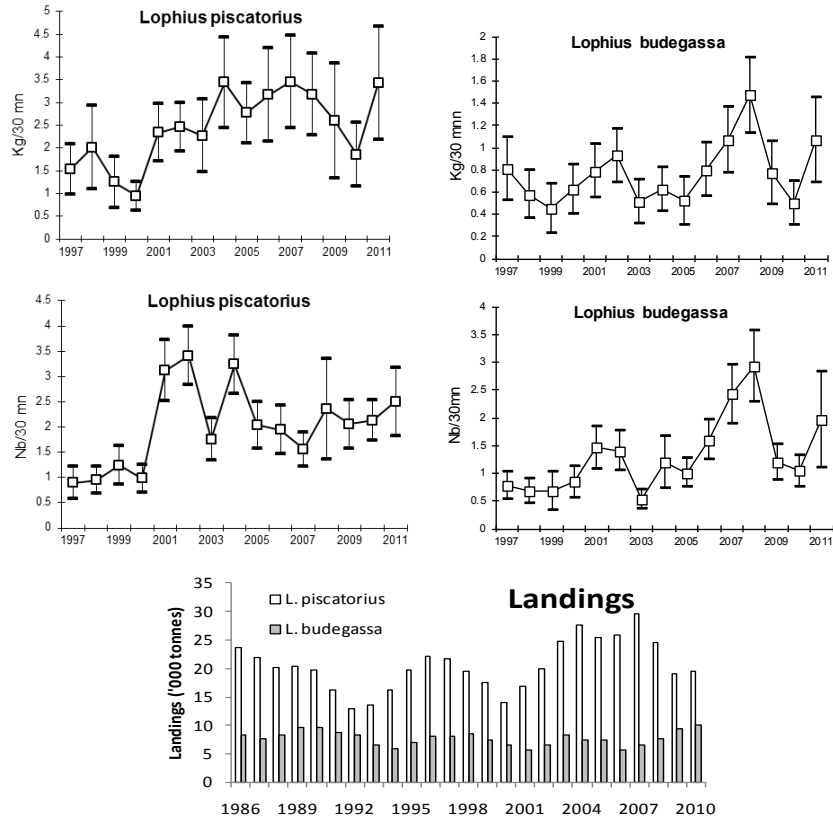


Figure 5.4.20.1 Anglerfish (*L. piscatorius* and *L. budegassa*) in Divisions VIIIb–k and VIIIa,b,d. Bay of Biscay and Celtic Sea (EVHOE-WIBTS-Q4) indices: biomass (top panel, kg/30 min) and total abundance (middle panel, number/30 min). Error bars indicate ± 2 s.d. Lower panel: landings (thousand tonnes).

The long-term trend in biomass is stable for both species. Survey data indicate that the biomass of both species has been increasing until 2008. This is followed by a biomass decline in recent years. For *L. piscatorius* the average of the stock biomass indicator in the last two years (2010–2011) is 14% lower than the average of the three previous years (2007–2009). For *L. budegassa* the average of the stock biomass indicator in the last two years (2010–2011) is 29% lower than the average of the three previous years (2007–2009). For *L. piscatorius* there is evidence of good recruitments in the period 2008 to 2011, whereas strong recruitment for *L. budegassa* is evident in 2008 and 2011. Landings data in 2011 are incomplete, therefore only landings until 2010 were considered in this year's assessment.

Management plans

No specific management objectives are known to ICES.

Biology

Lophius budegassa has a more southern distribution than *L. piscatorius*. Though ICES considers different anglerfish stocks in different areas for each species, the boundaries are not based on biological criteria.

The fisheries

The majority of anglerfish catches consists of young fish. There are indications that discarding of small anglerfish has increased in recent years. There has been an expansion of the French gillnet fishery in the Celtic Sea and in the north of the Bay of Biscay in the last decade, mainly by vessels landing in Spain and fishing in medium-to-deep waters.

Catch distribution Total landings (2010) = 29.7 kt (*L. piscatorius*, 19.5 kt: 65% otter trawl, 17% gillnet, 13% beam trawl, and 2% *Nephrops* trawl. *L. budegassa*, 10.2 kt: 86% otter trawl, 6% beam trawl, 4% *Nephrops* trawl, and 2% gillnet). The data were insufficient to update this information for 2011; however, values for 2010 are still considered appropriate.

Quality considerations

It was not possible to include Spanish commercial data for 2011 in the assessment. Therefore, the assessment conducted in 2012 follows the same approach as last year but omits Spanish commercial data for 2011. This increases the uncertainty in the advice.

The increase in discarding in recent years has resulted in uncertainties in recent levels of catch.

Improved sampling of length composition and accurate estimates of growth parameters are needed to facilitate the development of an analytical assessment. An ageing exchange study for *L. piscatorius* took place in 2011 to compare the different approaches that are used (otoliths and *illicia*).

The advice is based on a biomass index from one survey, used as an indicator of stock size. The methods applied to derive quantitative advice for data-limited stocks are expected to evolve as they are further developed and validated. The harvest control rules are expected to stabilize stock size, but they may not be suitable if the stock size is low and/or the stock overfished.

Scientific basis

Assessment type	Survey trends-based assessment.
Input data	Biomass and abundance indices from of one survey (EVHOE-WIBTS-Q4).
Discards and bycatch	Not included in the assessment.
Indicators	Cpues from three surveys (FSP-Eng-Monk, SPPGFS-WIBTS-Q4, and IGFS-WIBTS-Q4) and lpues of three commercial fleets (EW-FU06, SP-BAKON7, and SP-BAKON8).
Other information	These stocks were benchmarked in 2012 (WKFLAT 2012).
Working group report	WGHMM

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Reference points

There are no reference points defined for these stocks. As a consequence of identified problems with growth estimates, previous reference points are not considered to be valid.

Outlook for 2013

No analytical assessment is available for this stock. The main cause of this is the lack of discard data and the low quality of other parameters (e.g. ageing). Therefore, no forecast can be presented.

ICES approach to data-limited stocks

For data-limited stocks for which a biomass index is available, ICES uses a harvest control rule based on an index-adjusted *status quo* catch. The advice is based on a comparison of the two most recent biomass index values with the three preceding values, combined with recent catch or landings data. Knowledge about the exploitation status also influences the advised catch.

For *L. piscatorius* the biomass is estimated to have decreased by 14% in 2007–2009 (average of the three years) and 2010–2011 (average of the two years). This implies a 14% decrease in catches compared to the average of the last three years with landings information (2008–2010), corresponding to catches of no more than 17 900 t. Considering that effort in the main fisheries has decreased steadily, no additional precautionary reduction is needed.

For *L. budegassa* the biomass is estimated to have decreased by more than 20% in 2007–2009 (average of the three years) and 2010–2011 (average of the two years). This implies a 20% decrease in catches compared to the average of the last three years with landings information (2008–2010), corresponding to catches of no more than 6900 t. Considering that effort in the main fisheries has decreased steadily, no additional precautionary reduction is needed.

The catch advice for the two species combined is 24 800 t.

Additional considerations

Improved sampling of length composition and accurate estimates of growth parameters are needed to facilitate the development of an analytical assessment.

Reliable estimates of discards are not available. The increase in discarding may be related to larger year classes recruiting in the fishery. Information from research surveys indicates an increase in smaller fish on the fishing grounds in recent years. Discarding is also known to be partly dependent on market conditions and quota restrictions.

L. piscatorius and *L. budegassa* are both caught on the same grounds and by the same fleets, and they are usually not separated in the landings. Management measures for both species must be considered together and in conjunction with other species caught in these fisheries (sole, cod, rays, megrim, *Nephrops*, and hake).

Effort of many commercial fishing fleets in Divisions VIIb–k and VIIIa,b,d has declined progressively since the early 1990s (Figure 5.4.20.3).

Regulations and their effects

There is no minimum landing size for anglerfish, but an EU Council Regulation ([No. 2406/96](#)) laying down common marketing standards for certain fishery products fixes a minimum weight of 500 g for anglerfish. Council Regulation (EC) [No. 1954/2003](#) established measures for the management of fishing effort in a ‘biologically sensitive area’ in Divisions VIIb, VIIj, VIIg, and VIIIh. Effort exerted within the ‘biologically sensitive area’ by the vessels of each EU member state may not exceed their average annual effort (calculated over the period 1998–2002).

Information from the fishing industry

The quota has been restrictive for some fleets and substantial underreporting of landings is known to have occurred. Information from the Irish fishery indicates that underreporting of total landings has been a problem before 2005, due to restrictive individual vessel quotas. Since 2005 specific anglerfish licences have been introduced in Ireland to improve compliance.

Comparison with previous assessment and advice

The basis for the assessment is the same as last year. The perception of the stocks remains uncertain. The advice last year was to reduce catch, based on precautionary considerations. The advice this year is quantitative, based on the ICES approach for data-limited stocks.

Assessment and management area

Two separate TACs are set for both species combined. There is a TAC for Subarea VII and a TAC for Divisions VIIa,b,d,e. The advice applies to a smaller area (Divisions VIIb–k and VIIa,b,d) than the management area. However, the advice covers the majority of the area as recent landings in Division VIIa have been relatively small compared to the total TAC.

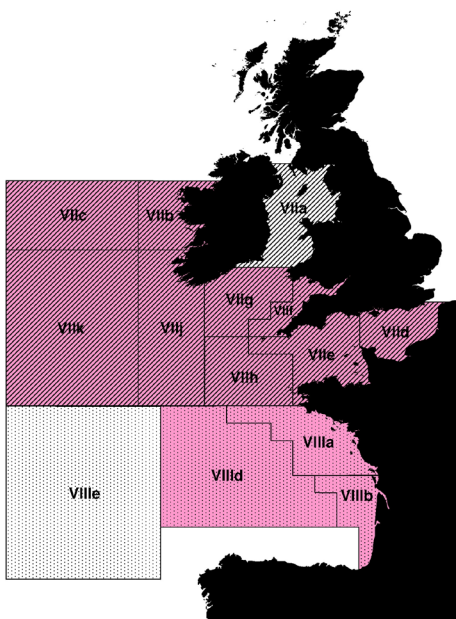


Figure 5.4.20.2 Anglerfish (*L. piscatorius* and *L. budegassa*). Assessment area Divisions VIIb–k and VIIa,b,d (pink, shaded) and EU TAC areas VII (diagonal lines) and VIIIa,b,d,e (dotted).

Source

ICES. 2012. Report of the Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk, and Megrin (WGHMM), 10–16 May 2012, ICES Headquarters, Copenhagen. ICES CM 2012/ACOM:11.

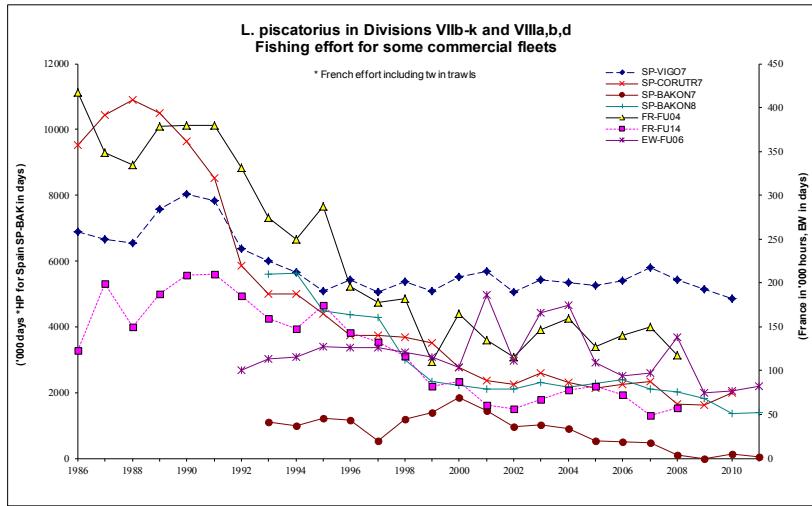


Figure 5.4.20.3 Anglerfish (*L. piscatorius* and *L. budegassa*) in Divisions VIIb–k and VIIIa,b,d. Fishing effort of commercial fleets in Divisions VIIb–k and VIIIa,b,d.

Table 5.4.20.1 Anglerfish (*L. piscatorius* and *L. budegassa*) in Divisions VIIb–k and VIIIa,b,d. ICES advice, management, and landings.

Year	ICES Advice	Predicted catch corresp. advice	Agreed to TAC ¹⁾²⁾	ICES Landings ¹⁾	Landings <i>L. piscatorius</i>	Landings <i>L. budegassa</i>
1987	Not assessed	-	39.08	29.5	21.9	7.6
1988	Not assessed	-	42.99	28.5	20.1	8.4
1989	Not assessed	-	42.99	30	21.1	8.8
1990	Not assessed	-	42.99	29.4	19.8	9.6
1991	No advice	-	42.99	24.9 ³	16.2 ³	8.8 ³
1992	No advice	-	42.99	20.9 ³	12.8 ³	8.2 ³
1993	Concern about <i>L. pisc.</i> SSB decrease	-	25.1	20.0 ³	13.5 ³	6.6 ³
1994	SSB decreasing, still inside safe biological limits	-	23.9	21.9 ³	16.1 ³	5.7 ³
1995	No increase in F	20.0	23.2	26.7 ³	19.7 ³	7.0 ³
1996	No increase in F	30.3	30.4	20.3 ³	22.2 ³	8.1 ³
1997	No increase in F	34.3	34.3	29.8	21.7	8.1
1998	No increase in F	33.0	34.3	28.2 ³	19.6 ³	8.6 ³
1999	No increase in F	32.9	34.3	25.0	18.2	6.7
2000	At least 20% decrease in F	< 22.3	29.6	20.6	13.9	6.6
2001	Reduce F below F _{pa}	< 27.6	27.6	22.4 ³	16.7 ³	5.7 ³
2002	Reduce F below F _{pa}	< 19.9	23.7	26.2	19.8	6.4
2003	At least 30% decrease in F	< 16.4	21.0	33.2	24.9	8.4
2004	At least 10% decrease in F	< 26.7	26.7	35.2	27.7	7.4
2005	Maintain F below F _{pa}	< 37.8	31.2	33.1 ³	25.5 ³	7.5 ³
2006	Maintain F below F _{pa}	< 33.9	34.0	31.6 ³	25.9 ³	5.7 ³
2007	Maintain F below F _{pa}	< 36.0	36.0	35.3 ³	29.0 ³	6.4 ³
2008	Less than average landings	< 33.0	36.0	31.8 ³	24.4 ³	7.4 ³
2009	Same advice as last year	< 33.0	36.0	27.9 ³	18.8 ³	9.1 ³
2010	No increase in effort	-	41.4	28.9 ³	19.5 ³	9.4 ³
2011	No increase in effort	-	40.9	21.9 ⁴	17.1 ⁴	4.8 ⁴
2012	Reduce catch	-	38.877			
2013	Reduce catch by the rate of biomass decrease (14% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>)	< 24.8				

Weights in thousand tonnes.

TAC was changed during 2003 from 19 400 t to 21 000 t following fast-track advice from ICES.

¹ Includes Divisions VIIa and VIIIe.

² Applies to both species.

³ Revised.

⁴ Partial, without Spanish landings.

Table 5.4.20.2 Anglerfish (*L. piscatorius*) in Divisions VIIb–k and VIIIa,b,d. Landings in tonnes by fishery unit.

Year	VIIb.c.e-k						VIIIa.b.d				TOTAL VII +VIII
	Medium/Deep		Shallow	Shallow/medium			Shallow	Medium/Deep		Unallocated	
	Gill-Net (Unit 3+13)	Trawl (Unit 4)	Trawl (Unit 5)	Beam Trawl (Unit 6)	Neph.Trawl (Unit 8)	Other	Neph.Trawl (Unit 9)	Trawl (Unit 10)	Trawl (Unit 14)		
1986	429	13781	2877	1437	1021		746	720	2657		23666
1987	560	11414	2900	1520	787		1035	542	3152		21909
1988	643	9812	3105	1814	774		927	534	2487		20095
1989*	781	8448	5259	2998	754		673	444	1772		21130
1990*	1021	8787	3950	1736	880		410	391	2578		19753
1991*	1752	7563	2793	1142	752		284	218	1657		16160
1992*	1773	6254	1492	998	887		254	166	942		12766
1993*	1742	5776	2125	1258	969		360	278	950		13458
1994*	1377	7344	2595	1523	1236		261	198	1586		16120
1995*	1915	8461	3195	1805	1242		501	429	1954	228	19730
1996	2244	9796	2658	2189	1149	138	441	379	2229	938	22162
1997	2538	9225	2945	2031	964	39	429	376	2045	1068	21660
1998*	3398	8714	2138	1722	812	3	397	149	1699	542	19572
1999	3162	9037	2369	1409	780	19	98	116	1259	0	18250
2000	2034	7067	1642	1434	726	6	91	77	863	0	13941
2001*	2002	7880	2293	1978	886	17	146	76	1402	0	16681
2002*	2719	9465	2609	1836	924	22	247	96	1908	0	19826
2003	3498	12332	2786	1983	974	81	470	168	2575	0	24865
2004	5004	12770	2642	2460	852	14	457	218	3296	0	27714
2005	5154	11556	2400	2388	594	7	342	165	2936	2	25543
2006	3741	13409	2216	2421	700	3	429	218	2758	2	25898
2007*	4594	14949	2382	2836	660	11	286	244	3015	0	28977
2008*	5107	11766	1885	1990	491	10	227	325	2573	1	24376
2009*	3957	9938	358	1880	48	16	221	0	2153	275	18844
2010*	3398	9851	539	2503	21	31	301	0	2373	504	19521
2011**	2152	7785	548	3019	12	42	231	0	1908	1452	17149

* revised

** preliminar, no Spanish reliable data

Table 5.4.20.3 Anglerfish (*L. budegassa*) in Divisions VIIb–k and VIIIa,b,d. Landings in tonnes by fishery unit.

Year	VIIb.c.e-k						VIIIa.b.d				TOTAL VII +VIII
	Medium/Deep		Shallow	Shallow/medium			Shallow	Medium/Deep		Unallocated	
	Gill-Net (Unit 3+13)	Trawl (Unit 4)	Trawl (Unit 5)	Beam Trawl (Unit 6)	Neph.Trawl (Unit 8)	Other	Neph.Trawl (Unit 9)	Trawl (Unit 10)	Trawl (Unit 14)		
1986	23	5126	348	540	406	0	443	150	1181	0	8217
1987	30	3493	696	462	434	0	483	116	1904	0	7619
1988	34	4072	1095	751	394	0	435	102	1498	0	8382
1989*	40	4398	976	505	515	0	446	112	1829	0	8820
1990*	53	4818	631	905	653	0	550	156	1865	0	9632
1991*	0	4416	934	397	507	0	475	117	1933	0	8780
1992*	0	4808	301	305	594	0	459	191	1518	0	8176
1993*	0	3415	429	405	399	0	433	101	1385	0	6566
1994*	0	2935	265	209	540	0	232	49	1515	0	5744
1995*	10	3963	455	159	617	0	312	62	1286	90	6953
1996	118	4587	477	245	524	28	374	109	1239	392	8092
1997	134	4836	602	132	474	9	313	17	1128	471	8114
1998*	179	5565	246	230	288	1	258	72	1454	305	8599
1999	18	4311	119	282	338	0	144	76	1450	0	6739
2000	57	4489	161	284	228	0	124	31	1270	0	6645
2001*	41	3758	107	266	306	0	121	29	1100	0	5728
2002*	30	4272	147	251	372	0	112	14	1195	0	6394
2003	92	5748	337	342	376	5	195	26	1248	0	8368
2004	122	4684	242	343	376	0	254	9	1407	0	7436
2005	73	4837	162	409	329	0	235	56	1431	0	7532
2006	9	3661	145	271	218	0	286	1	1128	1	5720
2007*	92	3874	168	306	250	0	243	0	1424	0	6357
2008*	21	4620	187	392	254	0	235	0	1669	0	7379
2009*	72	5963	24	441	36	0	354	0	2047	145	9082
2010*	224	6137	9	597	27	0	379	0	1763	223	9359
2011**	172	2495	11	591	16	0	378	0	1065	44	4773

* revised

** preliminar, no Spanish reliable data

Table 5.4.20.4 Anglerfish (*L. piscatorius*) in Divisions VIIb–k and VIIa,b,d. Bay of Biscay and Celtic Sea (EVHOE-WIBTS-Q4) indices: biomass (kg/30 min) and total abundance (number/30 min).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Biomass	1.53	2.01	1.25	0.94	2.34	2.46	2.27	3.44	2.77	3.17	3.45	3.18	2.6	1.85	3.43
Abundance	0.89	0.95	1.24	0.98	3.12	3.41	1.76	3.24	2.04	1.94	1.56	2.36	2.06	2.13	2.5

Table 5.4.20.5 Anglerfish (*L. budegassa*) in Divisions VIIb–k and VIIa,b,d. Bay of Biscay and Celtic Sea (EVHOE-WIBTS-Q4) indices: biomass (kg/30 min) and total abundance (number/30 min).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Biomass	0.81	0.58	0.45	0.62	0.79	0.93	0.51	0.62	0.52	0.8	1.07	1.47	0.77	0.5	1.07
Abundance	0.78	0.68	0.68	0.84	1.46	1.4	0.53	1.2	1.01	1.6	2.42	2.92	1.2	1.04	1.97