

5.3.1 Black-bellied anglerfish (*Lophius budegassa*) in divisions 7.b–k, 8.a–b, and 8.d (west and southwest of Ireland, Bay of Biscay)

ICES stock advice

ICES advises that when the precautionary approach is applied, landings should be no more than 10 757 tonnes in each of the years 2017 and 2018. ICES cannot quantify the corresponding total catches.

Stock development over time

The biomass index has been fluctuating without trend over the time-series and with high interannual variability. The recruitment shows an increasing trend over time, although the last year is around the average of the time-series.

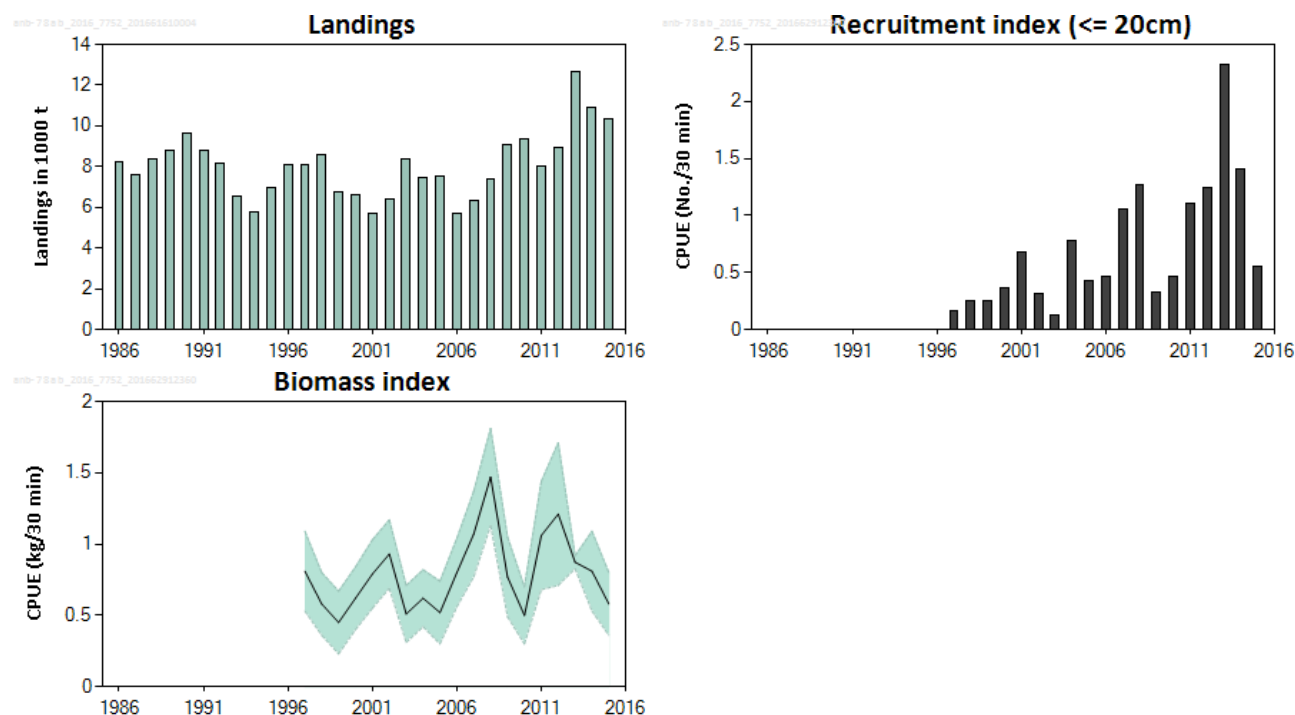


Figure 5.3.1.1 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. ICES estimated landings (tonnes) and two stock size indices from the EVHOE-WIBTS-Q4 survey: biomass (kg [30 min]⁻¹, shaded areas show ±2 s.d.) and recruitment (number [30 min]⁻¹). The recruitment index is defined by fish ≤ 20 cm. Discards are thought to occur, but no reliable estimates exist.

Stock and exploitation status

Table 5.3.1.1 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. State of the stock and fishery relative to reference points.

		Fishing pressure			Stock size					
		2014	2015	2016	2014	2015	2016			
Maximum sustainable yield	$F_{MSY\ proxy}$?	?	?	Undefined	$MSY\ B_{trigger\ proxy}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	-	-	-	Not applicable	SSB_{MGT}	-	-	-	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↘	↘	↘	Decreasing

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012a). The survey index available for the stock has fluctuated without trend and with high interannual variability. Therefore, the perception of the stock has not changed and the advice given in the three most recent years is still applicable for 2017 and 2018.

The precautionary buffer has never been applied to this stock because of a steady decrease in fishing effort since the early 1990s (Figure 5.3.1.2).

Discarding is known to take place, but ICES cannot quantify the corresponding catch.

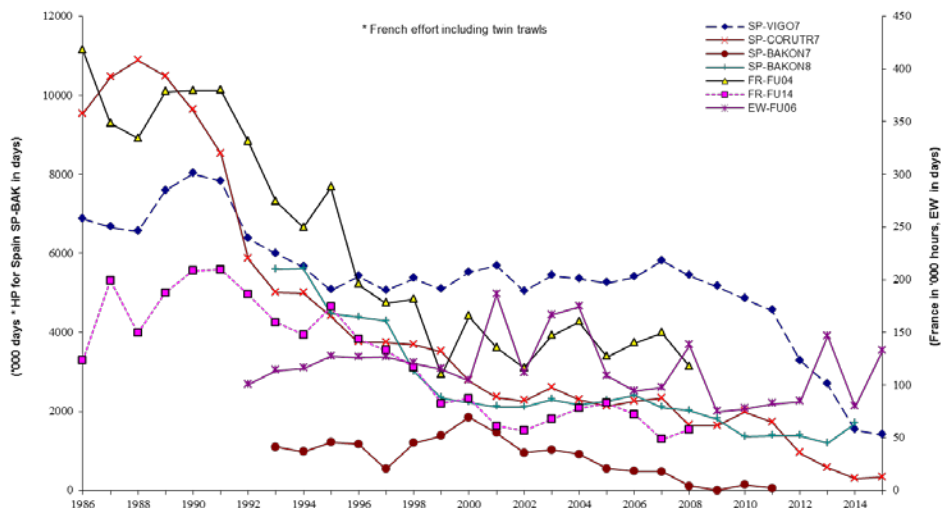


Figure 5.3.1.2 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Effort of some Spanish (SP), French (FR) and English (EW) commercial fleets fishing on anglerfish in the stock distribution area.

Table 5.3.1.2 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. For stocks in ICES data categories 3–6, one catch option is possible.

Recent advised landings (for 2016)			10 757 tonnes
Discard rate			Unknown
Precautionary buffer	Not applied		-
Landings advice*			10 757 tonnes

* = recent advised landings.

Basis of the advice

Table 5.3.1.3 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. The basis of the advice.

Advice basis	Precautionary approach
Management plan	There is no management plan for anglerfish (<i>L. budegassa</i>) in this area.

Quality of the assessment

The EVHOE-WIBTS-Q4 survey mainly covers the shelf area in the Celtic Sea and the Bay of Biscay. It is known that adult anglerfish migrate down the slope as they grow, and this is where the majority of the fishery occurs. The survey is a good index of recruitment for the stock and may not fully reflect the trends in the adult biomass.

Discard data were available this year. However, because of data submission problems an analysis of these data could not be conducted. Available data from previous assessments show that discarding is not negligible (> 5%).

Issues relevant for the advice

Management of the two anglerfish species under a combined TAC prevents effective control of the single-species exploitation rates and could lead to overexploitation of either species.

Reference points

No reference points are defined for this stock.

Basis of the assessment

Table 5.3.1.4 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. The basis of the assessment.

ICES stock data category	3 (ICES, 2016a)
Assessment type	Survey trends-based assessment (ICES, 2016b)
Input data	Commercial landings; one survey index (EVHOE-WIBTS-Q4)
Discards and bycatch	Discarding is known to take place and is considered to be non-negligible (> 5%), but cannot be quantified.
Indicators	Effort and LPUE data for commercial fleets in divisions 7.b–k, 8.a–b, and 8.d.
Other information	This stock was benchmarked in 2012 (WKFLAT; ICES, 2012b).
Working group report	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE)

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 5.3.1.5 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. History of ICES advice, the agreed TAC, and ICES estimates of landings. All weights are in thousand tonnes.

Year	ICES advice	Predicted landings corresp. to advice	Predicted catch/landings corresp. to advice (both <i>Lophius</i> species) *	Agreed TAC ***	ICES landings (both <i>Lophius</i> species)***	Landings <i>L. budegassa</i>
1987	Not assessed	-	-	39.08	29.5	7.6
1988	Not assessed	-	-	42.99	28.5	8.4
1989	Not assessed	-	-	42.99	30	8.8
1990	Not assessed	-	-	42.99	29.4	9.6
1991	No advice	-	-	42.99	24.9	8.8
1992	No advice	-	-	42.99	20.9	8.2
1993	Concern about <i>L. pisc.</i> SSB decrease	-	-	25.1	20.0	6.6
1994	SSB decreasing, still inside safe biological limits	-	-	23.9	21.9	5.7
1995	No increase in F	-	20.0	23.2	26.7	7.0
1996	No increase in F	-	30.3	30.4	20.3	8.1
1997	No increase in F	-	34.3	34.3	29.8	8.1
1998	No increase in F	-	33.0	34.3	28.2	8.6
1999	No increase in F	-	32.9	34.3	25.0	6.7
2000	At least 20% decrease in F	-	< 22.3	29.6	20.6	6.6
2001	Reduce F below F_{pa}	-	< 27.6	27.6	22.4	5.7
2002	Reduce F below F_{pa}	-	< 19.9	23.7	26.2	6.4
2003	At least 30% decrease in F	-	< 16.4	21.0***	33.2	8.4
2004	At least 10% decrease in F	-	< 26.7	26.7	35.2	7.4
2005	Maintain F below F_{pa}	-	< 37.8	31.2	33.1	7.5
2006	Maintain F below F_{pa}	-	< 33.9	34.0	31.6	5.7
2007	Maintain F below F_{pa}	-	< 36.0	36.0	35.3	6.4

Year	ICES advice	Predicted landings corresp. to advice	Predicted catch/landings corresp. to advice (both <i>Lophius</i> species) *	Agreed TAC **	ICES landings (both <i>Lophius</i> species) ***	Landings <i>L. budegassa</i>
2008	Less than average landings	-	< 33.0	36.0	31.8	7.4
2009	Same advice as last year	-	< 33.0	36.0	27.9	9.1
2010	No increase in effort	-	-	41.4	28.9	9.4
2011	No increase in effort	-	-	40.9	28.4#	8.0#
2012	Reduce catch	-	-	38.9	36.4	9.5
2013##	Reduce catch by the rate of biomass decrease (14% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>) ##	< 6.9 ##	< 24.8 ##	37.0	36.9	12.7
2014	Increase landings by the rate of biomass increase (20% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>) ##	< 10.757 ##	< 37.5 ##	42.5	36.2	10.9
2015	Same landings advice for <i>L. budegassa</i> as in 2014 ##	< 10.757 ##	< 37.5 ##	42.5	35.6	10.3
2016	Precautionary approach (same landings value as advised for 2014)	≤ 10.757 ##	< 37.5 ##	42.5		
2017	Precautionary approach (same landings value as advised for 2016)	≤ 10.757 ##				
2018	Precautionary approach (same landings value as advised for 2016)	≤ 10.757 ##				

* Applies to the combined species.

** Includes divisions 7.a and 8.e.

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

Revised.

Advice refers to landings, not catch.

History of catch and landings

Table 5.3.1.6 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Catch distribution by fleet in 2015 as estimated by ICES.

Total catch (2015)	Landings			Discards
Unknown	87%	5%	7%	Discarding is known to take place but cannot be quantified.
	Otter and <i>Nephrops</i> trawl	Beam trawl	Gillnet	
	10.3kt			

Table 5.3.1.7 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. History of commercial catch and landings; both the official and ICES estimated values are presented for divisions 7.b–k only, for each country participating in the fishery. All weights are in tonnes. Fishery units included are: *Unit 3* = Gillnets, *Unit 4* = Non-*Nephrops* trawling in medium to deep water, *Unit 5* = Non-*Nephrops* trawling in shallow water, *Unit 6* = Beam trawling in shallow water, *Unit 8* = *Nephrops* trawling in medium to deep water, *Unit 13* = Gillnets in shallow to medium water.

Year	Divisions 7.b–k														Unallocated	Total
	Ireland		Belgium	UK					France			Spain				
	Trawl		Beam Trawl	Gillnet	Trawl		Beam Trawl	Other	Gillnet	Trawl		<i>Neph.</i> Trawl	Trawl			
	Unit 4	Unit 5	Unit 6	Unit 3	Unit 4	Unit 5	Unit 6		Units 3 & 13	Unit 4	Unit 5	Unit 8	Unit 4			
1986	218	44	165	23	507	44	375	0	0	1585	260	406	2816	0	6443	
1987	155	86	28	30	275	65	435	0	0	888	545	434	2174	0	5115	
1988	144	90	65	34	319	121	686	0	0	1293	885	394	2316	0	6347	
1989	58	252	275	25	109	108	230	0	15	1786	616	515	2445	0	6434	
1990	291	323	109	23	174	36	796	0	30	1959	272	653	2393	0	7059	
1991	171	687	17	0	405	24	380	0	0	1660	223	507	2180	0	6254	
1992	765	10	28	0	685	40	277	0	0	1594	251	594	1763	0	6007	
1993	560	46	68	0	371	19	337	0	0	1179	363	399	1304	0	4646	
1994	224	66	86	0	246	10	122	0	0	1091	190	540	1374	0	3949	
1995	557	73	69	10	264	25	90	0	0	1475	356	617	1668	0	5204	
1996	599	42	90	18	370	4	155	28	100	1709	430	524	1909	0	5978	
1997	456	100	38	20	516	5	94	9	113	1721	497	474	2143	0	6186	
1998	1133	101	53	31	543	11	177	1	148	1848	134	288	2042	0	6510	
1999	529	0	144	0	50	1	141	0	18	1298	118	338	2434	0	5071	
2000	873	0	169	0	48	4	115	0	57	1518	157	228	2050	0	5219	
2001	580	0	168	0	29	4	98	0	41	1067	103	306	2083	0	4479	
2002	565	0	164	0	26	3	88	0	30	1230	145	372	2450	0	5073	
2003	410	0	227	0	88	4	115	5	92	1650	332	376	3600	0	6899	
2004	223	0	245	0	6	2	98	0	122	1580	240	376	2875	0	5767	
2005	336	0	266	0	6	4	142	0	73	1593	159	329	2902	0	5810	
2006	191	0	193	0	7	3	78	0	9	727	142	218	2737	0	4305	
2007	421	0	204	6	9	18	102	0	86	993	150	250	2451	0	4690	
2008	490	0	175	6	7	27	217	0	15	1107	160	254	3017	0	5475	
2009	755	0	220	0	7	24	221	0	72	1704	0	36	3498	0	6537	
2010	959	0	335	65	8	9	262	0	159	2191	0	27	2979	0	6994	
2011	875	0	331	106	11	11	261	0	66	1609	0	16	1067	1747	6100	
2012	613	0	276	79	126	6	207	1	31	2354	0	6	1221	1135	6055	
2013	650	0	363	106	214	4	188	4	48	3394	0	64	1306	1328	7669	
2014	672	0	211	384	274	27	384	1	335	2753	0	74	1349	280	6744	
2015*	613	0	127	216	451	26	430	0	545	2875**		**	1072	312	6669	

* Provisional.

** France estimated landings for unit 8 were not available; may be included in unit 4.

Table 5.3.1.8 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. History of commercial catch and landings. For divisions 8.a, 8.b, and 8.d both the official and ICES estimated values are presented by country participating in the fishery. The final column shows the total for divisions 7.b–k, 8.a–b, and 8.d. All weights are in tonnes. Fishery units included are: *Unit 9 = Nephrops* trawling in shallow to medium water, *Unit 10 = Trawling* in shallow to medium water, *Unit 14 = Trawling* in medium to deep water.

Year	Divisions 8.a, 8.b, and 8.d						Divisions 7.b–k, 8.a–b, and 8.d
	France			Spain	Unallocated	Total	Total
	<i>Neph. Trawl</i>	Trawl		Trawl			
	Unit 9	Unit 10	Unit 14	Unit 14			
1986	443	150	696	485	0	1774	8217
1987	483	116	952	953	0	2504	7619
1988	435	102	804	695	0	2036	8382
1989	446	112	1227	602	0	2387	8820
1990	550	156	1294	571	0	2571	9632
1991	475	117	1134	799	0	2525	8780
1992	459	191	982	536	0	2168	8176
1993	433	101	796	589	0	1919	6566
1994	232	49	891	624	0	1796	5744
1995	312	62	823	463	90	1750	6953
1996	374	109	714	525	392	2114	8092
1997	313	17	761	366	471	1928	8114
1998	258	72	1013	441	305	2089	8599
1999	144	76	992	458	0	1670	6739
2000	124	31	825	445	0	1425	6645
2001	121	29	767	333	0	1250	5728
2002	112	14	732	462	0	1320	6394
2003	195	26	852	396	0	1469	8368
2004	254	9	929	478	0	1670	7436
2005	235	56	1016	415	0	1722	7532
2006	286	1	845	282	1	1415	5720
2007	243	0	1108	316	0	1667	6357
2008	235	0	1404	265	0	1904	7379
2009	354	0	1754	293	145	2546	9082
2010	379	0	1446	317	223	2365	9359
2011	378	0	1065	348	97	1888	7988
2012	275	0	1839	411	384	2909	8964
2013	559	0	2918	646	862	4985	12655
2014	730	0	2452	724	221	4127	10872
2015*	N/A**	0	2901**	656	94	3650	10319

*Provisional.

** France estimated landings for unit 9 were not available; included in unit 14.

Summary of the assessment

Table 5.3.1.9 Black-bellied anglerfish in divisions 7.b–k, 8.a–b, and 8.d. Assessment summary: Landings, recruitment (number [30 min]⁻¹), and biomass (kg [30 min]⁻¹, 90% confidence intervals) indices from the EVHOE-WIBTS-Q4 survey.

Year	Landings	Recruitment index	Low biomass index	Biomass index	High biomass index
1986	8217				
1987	7619				
1988	8382				
1989	8820				
1990	9632				
1991	8780				
1992	8176				
1993	6566				
1994	5744				
1995	6953				
1996	8092				
1997	8114	0.16	0.53	0.81	1.09
1998	8599	0.25	0.36	0.58	0.80
1999	6739	0.25	0.23	0.45	0.67
2000	6645	0.36	0.40	0.62	0.84
2001	5728	0.68	0.55	0.79	1.03
2002	6394	0.32	0.69	0.93	1.17
2003	8368	0.13	0.31	0.51	0.71
2004	7436	0.78	0.42	0.62	0.82
2005	7532	0.43	0.30	0.52	0.74
2006	5720	0.46	0.56	0.80	1.04
2007	6357	1.05	0.77	1.07	1.37
2008	7379	1.27	1.13	1.47	1.81
2009	9082	0.33	0.49	0.77	1.05
2010	9359	0.46	0.30	0.50	0.70
2011	7988	1.10	0.68	1.06	1.44
2012	8964	1.25	0.71	1.21	1.71
2013	12655	2.32	0.83	0.87	0.92
2014	10872	1.41	0.53	0.81	1.09
2015	10319	0.55	0.36	0.58	0.80

Sources and references

ICES. 2012a. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM:68. 42 pp.

ICES. 2012b. Report of the Benchmark Workshop on Flatfish Species and Anglerfish (WKFLAT), 1–8 March 2012, Bilbao, Spain. ICES CM 2012/ACOM:46. 283 pp.

ICES. 2013. Anglerfish (*Lophius piscatorius* and *L. budegassa*) in Divisions VIIb–k and VIIIa,b,d. In Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 5, Section 5.4.2.

<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2013/2013/ang-78ab.pdf>.

ICES. 2014. Anglerfish (*Lophius budegassa*) in Divisions VIIb–k and VIIIa,b,d. In Report of the ICES Advisory Committee, 2014. ICES Advice 2014, Book 5, Section 5.3.2b. <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/2014/anb-78ab.pdf>.

ICES. 2016a. Advice basis. In Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.

ICES. 2016b. Report of the Working Group for the Bay of Biscay and the Iberian waters Ecoregion (WGBIE), 13–19 May 2016, ICES HQ, Copenhagen, Denmark. ICES CM/ACOM:12.

ICES. 2016c. Report of the Workshop to consider MSY proxies for stocks in ICES category 3 and 4 stocks in Western Waters (WKProxy), 3–6 November 2015, ICES Headquarters, Copenhagen. ICES CM 2015/ACOM:61. 183 pp.