

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

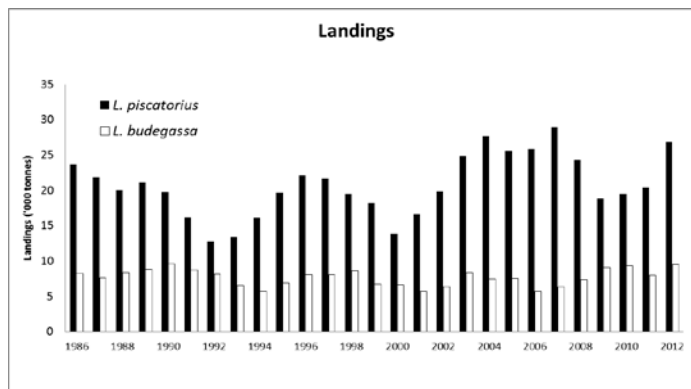
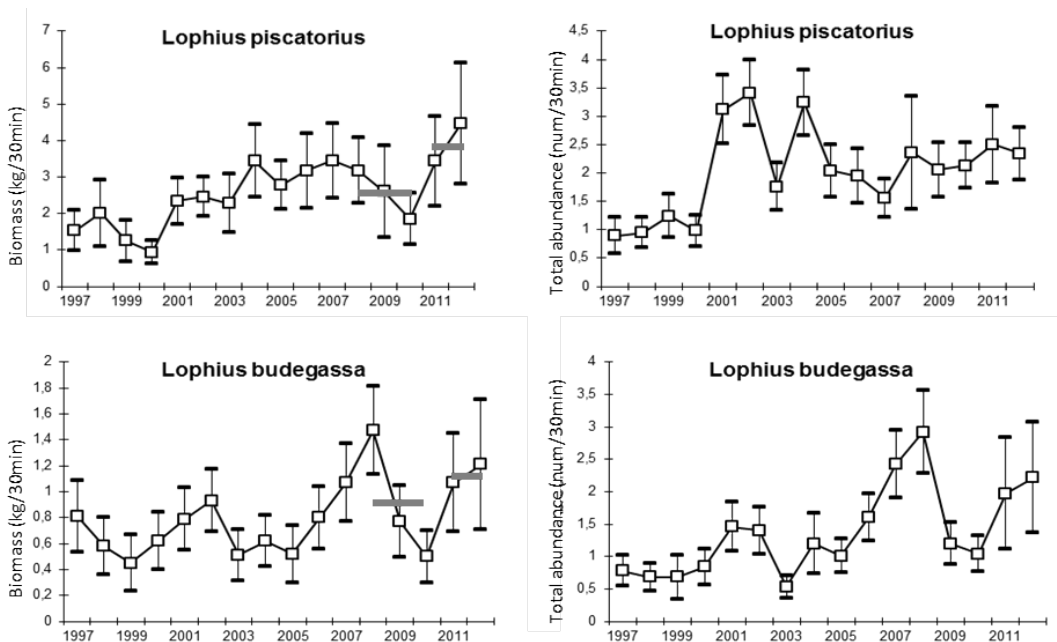
**Advice for 2014**

Based on ICES approach to data-limited stocks, ICES advises that landings should be no more than 37 450 tonnes. Discards are known to take place but cannot be quantified; therefore, total catches cannot be calculated.

**Stock status**

<i>Lophius piscatorius</i>	
F (Fishing Mortality)	
Qualitative evaluation	2010–2012 ? Insufficient information
SSB (Spawning-Stock Biomass)	
Qualitative evaluation	2008–2012 ↗ Increasing

<i>Lophius budegassa</i>	
F (Fishing Mortality)	
Qualitative evaluation	2010–2012 ? Insufficient information
SSB (Spawning-Stock Biomass)	
Qualitative evaluation	2008–2012 ↗ Increasing



**Figure 5.4.2.1** 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 (left panels, kg/30 min; horizontal lines correspond to the average of the

respective year range) and total abundance (right panels, number/30 min). Error bars indicate  $\pm 2$  s.d. Lower panel: landings (thousand tonnes).

The long-term trend in biomass is stable for *L. budegassa* and increasing for *L. piscatorius*. For *L. piscatorius* the average of the stock biomass indicator in the last two years (2011–2012) is 55% higher than the average of the three previous years (2008–2010). For *L. budegassa* the average of the stock biomass indicator in the last two years (2011–2012) is 25% higher than the average of the three previous years (2008–2010). For *L. piscatorius* there is evidence of medium recruitments in the period 2008 to 2012, whereas strong recruitment for *L. budegassa* is evident in 2008, 2011, and 2012.

### Management plans

No specific management objectives are known to ICES.

### Biology

*Lophius budegassa* has a more southern distribution than *L. piscatorius*. Although 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 immature fish. There are indications that discarding of small anglerfish has increased in recent years.

**Catch distribution** Total landings (2012) = 36.4 kt (*L. piscatorius*, 26.9 kt: 76% otter trawl, 12% beam trawl, 11% gillnet, and 1% *Nephrops* trawl. *L. budegassa*, 9.5 kt: 91% otter trawl, 5% beam trawl, 3% *Nephrops* trawl, and 1% gillnet).

### Quality considerations

The increase in discarding in recent years has resulted in uncertainties in recent catch values.

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

<b>Assessment type</b>	Survey trends-based assessment.
<b>Stock data category</b>	Category 3.2.0.
<b>Input data</b>	Commercial landings; one survey index (EVHOE-WIBTS-Q4).
<b>Discards and bycatch</b>	Discards are known to occur, but they are not included in the assessment.
<b>Indicators</b>	Cpues from three surveys (FSP-Eng-Monk, SPPGFS-WIBTS-Q4, and IGFS-WIBTS-Q4) and lpues of five commercial fleets (EW-FU06, SP-VIGO7, SP-CORUTR7, SP-BAKON7, and SP-BAKON8).
<b>Other information</b>	These stocks were benchmarked in 2012 (WKFLAT; ICES, 2012).
<b>Working group report</b>	<a href="#">WGHMM</a> (ICES, 2013).

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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 2014**

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 increased by more than 20% between the periods 2008–2010 (average of the three years) and 2011–2012 (average of the two years). This implies an increase in landings of at most 20% in relation to the average landings of the last three years, corresponding to landings in 2014 of no more than 26 691 t. Considering that effort in the main fisheries has decreased steadily and SSB has increased by more than 50%, no additional precautionary action is needed.

For *L. budegassa* the biomass is estimated to have increased by more than 20% between the periods 2008–2010 (average of the three years) and 2011–2012 (average of the two years). This implies an increase in landings of at most 20% in relation to the average landings of the last three years, corresponding to landings in 2014 of no more than 10 757 t. Considering that effort in the main fisheries has decreased steadily, no additional precautionary action is needed.

The landings advice for the two species combined is 37 448 t. Discards are known to take place but cannot be quantified; therefore, total catches cannot be calculated.

**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. Efforts should be made to obtain reliable estimates of total catches in order to improve the assessment.

*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 5.4.2.3).

*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

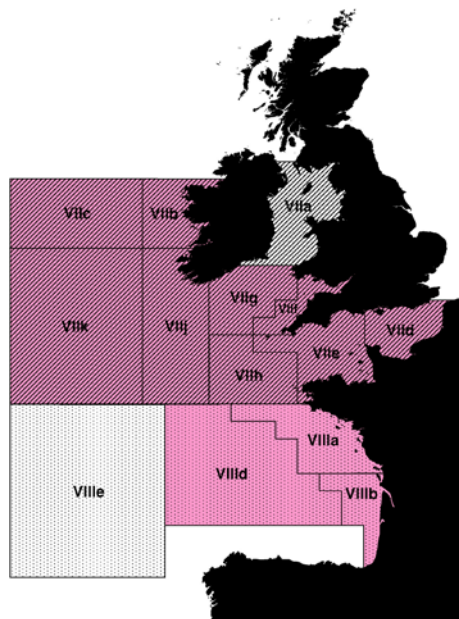
All the fleets fishing in this area are reporting very large quantities of anglerfish on the fishing grounds and that these quantities have been increasing over the last number of years. The quota has been restrictive for some fleets, leading to an increased risk of discarding.

### Comparison with previous assessment and advice

The basis for the assessment and advice is the same as last year (data-limited approach 3.2.0).

### 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 5.4.2.2** 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 VIIa,b,d,e (dotted).

### Sources

ICES. 2012. 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. Report of the Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk, and Megrim (WGHMM), 10–16 May 2013, ICES Headquarters, Copenhagen. ICES CM 2013/ACOM:11.

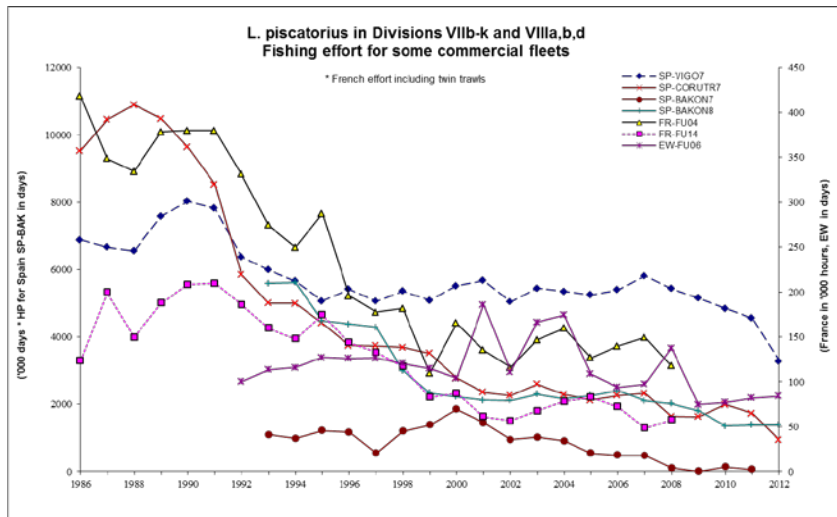


Figure 5.4.2.3

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.

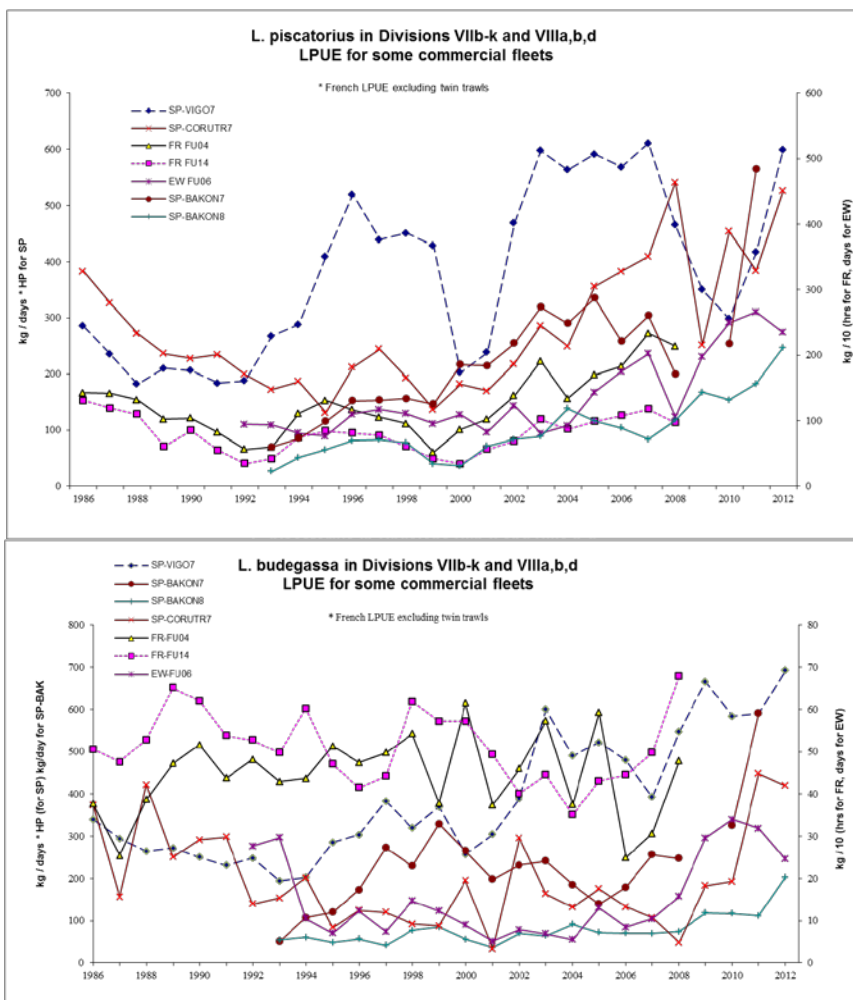


Figure 5.4.2.4

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

Table 5.4.2.1

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 <sup>(1)(2)</sup>	ICES landings <sup>(1)</sup>	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	16.2	8.8
1992	No advice	-	42.99	20.9	12.8	8.2
1993	Concern about <i>L. pisc.</i> SSB decrease	-	25.1	20.0	13.5	6.6
1994	SSB decreasing, still inside safe biological limits	-	23.9	21.9	16.1	5.7
1995	No increase in F	20.0	23.2	26.7	19.7	7.0
1996	No increase in F	30.3	30.4	20.3	22.2	8.1
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	19.6	8.6
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	16.7	5.7
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	25.5	7.5
2006	Maintain F below $F_{pa}$	< 33.9	34.0	31.6	25.9	5.7
2007	Maintain F below $F_{pa}$	< 36.0	36.0	35.3	29.0	6.4
2008	Less than average landings	< 33.0	36.0	31.8	24.4	7.4
2009	Same advice as last year	< 33.0	36.0	27.9	18.8	9.1
2010	No increase in effort	-	41.4	28.9	19.5	9.4
2011	No increase in effort	-	40.9	28.4 <sup>3</sup>	20.4 <sup>3</sup>	8.0 <sup>3</sup>
2012	Reduce catch	-	38.9	36.4	26.8	9.5
2013 <sup>4</sup>	Reduce catch by the rate of biomass decrease (14% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i> )	< 24.8	37.0			
2014	Increase landings by the rate of biomass increase (20% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i> )	< 37.5				

Weights in thousand tonnes.

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

<sup>1</sup> Includes Divisions VIIa and VIIIe.

<sup>2</sup> Applies to both species.

<sup>3</sup> Revised.

<sup>4</sup> Advice refers to landings, not catch.

Table 5.4.2.2

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			Neph.Trawl (Unit 9)	Medium/Deep		Unallocated	
	Gill-Net (Unit 3+13)	Trawl (Unit 4)	Trawl (Unit 5)	Beam Trawl (Unit 6)	Neph.Trawl (Unit 8)	Trawl (Unit 10)		Trawl (Unit 14)			
1986	429	13 781	2 877	1 437	1 021	0	746	720	2 657	0	23 666
1987	560	11 414	2 900	1 520	787	0	1 035	542	3 152	0	21 909
1988	643	9 812	3 105	1 814	774	0	927	534	2 487	0	20 095
1989	781	8 448	5 259	2 998	754	0	673	444	1 772	0	21 130
1990	1 021	8 787	3 950	1 736	880	0	410	391	2 578	0	19 753
1991	1 752	7 563	2 793	1 142	752	0	284	218	1 657	0	16 160
1992	1 773	6 254	1 492	998	887	0	254	166	942	0	12 766
1993	1 742	5 776	2 125	1 258	969	0	360	278	950	0	13 458
1994	1 377	7 344	2 595	1 523	1 236	0	261	198	1 586	0	16 120
1995	1 915	8 461	3 195	1 805	1 242	0	501	429	1 954	228	19 730
1996	2 244	9 796	2 658	2 189	1 149	138	441	379	2 229	938	22 162
1997	2 538	9 225	2 945	2 031	964	39	429	376	2 045	1 068	21 660
1998	3 398	8 714	2 138	1 722	812	3	397	149	1 699	542	19 572
1999	3 162	9 037	2 369	1 409	780	19	98	116	1 259	0	18 250
2000	2 034	7 067	1 642	1 434	726	6	91	77	863	0	13 941
2001	2 002	7 880	2 293	1 978	886	17	146	76	1 402	0	16 681
2002	2 719	9 465	2 609	1 836	924	22	247	96	1 908	0	19 826
2003	3 498	12 332	2 786	1 983	974	81	470	168	2 575	0	24 865
2004	5 004	12 770	2 642	2 460	852	14	457	218	3 296	0	27 714
2005	5 154	11 556	2 400	2 388	594	7	342	165	2 936	2	25 543
2006	3 741	13 409	2 216	2 421	700	3	429	218	2 758	2	25 898
2007	4 594	14 949	2 382	2 836	660	11	286	244	3 015	0	28 977
2008	5 107	11 766	1 885	1 990	491	10	227	325	2 573	1	24 376
2009	3 957	9 938	358	1 880	48	16	221	0	2 153	275	18 844
2010	3 398	9 851	539	2 503	21	31	301	0	2 373	504	19 521
2011*	2 152	8 968	548	3 019	12	1 658	231	0	2 285	1 497	20 370
2012**	2 905	12 821	513	3 231	14	1 260	195	0	3 731	2 168	26 837

\* revised

\*\* preliminar

Table 5.4.2.3

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			Neph.Trawl (Unit 9)	Medium/Deep		Unallocated	
	Gill-Net (Unit 3+13)	Trawl (Unit 4)	Trawl (Unit 5)	Beam Trawl (Unit 6)	Neph.Trawl (Unit 8)	Trawl (Unit 10)		Trawl (Unit 14)			
1986	23	5 126	348	540	406	0	443	150	1 181	0	8 217
1987	30	3 493	696	462	434	0	483	116	1 904	0	7 619
1988	34	4 072	1 095	751	394	0	435	102	1 498	0	8 382
1989	40	4 398	976	505	515	0	446	112	1 829	0	8 820
1990	53	4 818	631	905	653	0	550	156	1 865	0	9 632
1991	0	4 416	934	397	507	0	475	117	1 933	0	8 780
1992	0	4 808	301	305	594	0	459	191	1 518	0	8 176
1993	0	3 415	429	405	399	0	433	101	1 385	0	6 566
1994	0	2 935	265	209	540	0	232	49	1 515	0	5 744
1995	10	3 963	455	159	617	0	312	62	1 286	90	6 953
1996	118	4 587	477	245	524	28	374	109	1 239	392	8 092
1997	134	4 836	602	132	474	9	313	17	1 128	471	8 114
1998	179	5 565	246	230	288	1	258	72	1 454	305	8 599
1999	18	4 311	119	282	338	0	144	76	1 450	0	6 739
2000	57	4 489	161	284	228	0	124	31	1 270	0	6 645
2001	41	3 758	107	266	306	0	121	29	1 100	0	5 728
2002	30	4 272	147	251	372	0	112	14	1 195	0	6 394
2003	92	5 748	337	342	376	5	195	26	1 248	0	8 368
2004	122	4 684	242	343	376	0	254	9	1 407	0	7 436
2005	73	4 837	162	409	329	0	235	56	1 431	0	7 532
2006	9	3 661	145	271	218	0	286	1	1 128	1	5 720
2007	92	3 874	168	306	250	0	243	0	1 424	0	6 357
2008	21	4 620	187	392	254	0	235	0	1 669	0	7 379
2009	72	5 963	24	441	36	0	354	0	2 047	145	9 082
2010	224	6 137	9	597	27	0	379	0	1 763	223	9 359
2011*	172	3 562	11	591	16	1 747	378	0	1 413	96	7 988
2012**	110	4 896	6	483	6	1 135	275	0	2 250	384	9 546

\* revised

\*\* preliminar

**Table 5.4.2.4** Anglerfish (*L. piscatorius*) in Divisions VIIb–k and VIIIa,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	2012
<b>Biomass</b>	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	4.47
<b>Abundance</b>	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	2.34

**Table 5.4.2.5** Anglerfish (*L. budegassa*) in Divisions VIIb–k and VIIIa,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	2012
<b>Biomass</b>	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	1.21
<b>Abundance</b>	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	2.22