

White anglerfish (*Lophius piscatorius*) in Subarea 7 and divisions 8.a–b and 8.d (Celtic Seas, Bay of Biscay)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2024 should be no more than 35 502 tonnes.

ICES notes the existence of a precautionary management plan, developed and adopted by one of the relevant management authorities for this stock.

The use of combined species TAC for the two anglerfish species, black-bellied anglerfish (*Lophius budegassa*) and white anglerfish (*Lophius piscatorius*), prevents effective control of the single-species exploitation rates and could lead to the overexploitation of either species.

ICES advice on conservation aspects

ICES has not identified any conservation aspects.

Stock development over time

Fishing pressure on the stock is below F_{MSY} ; spawning-stock size is above MSY $B_{trigger}$, B_{pa} , and B_{lim} .

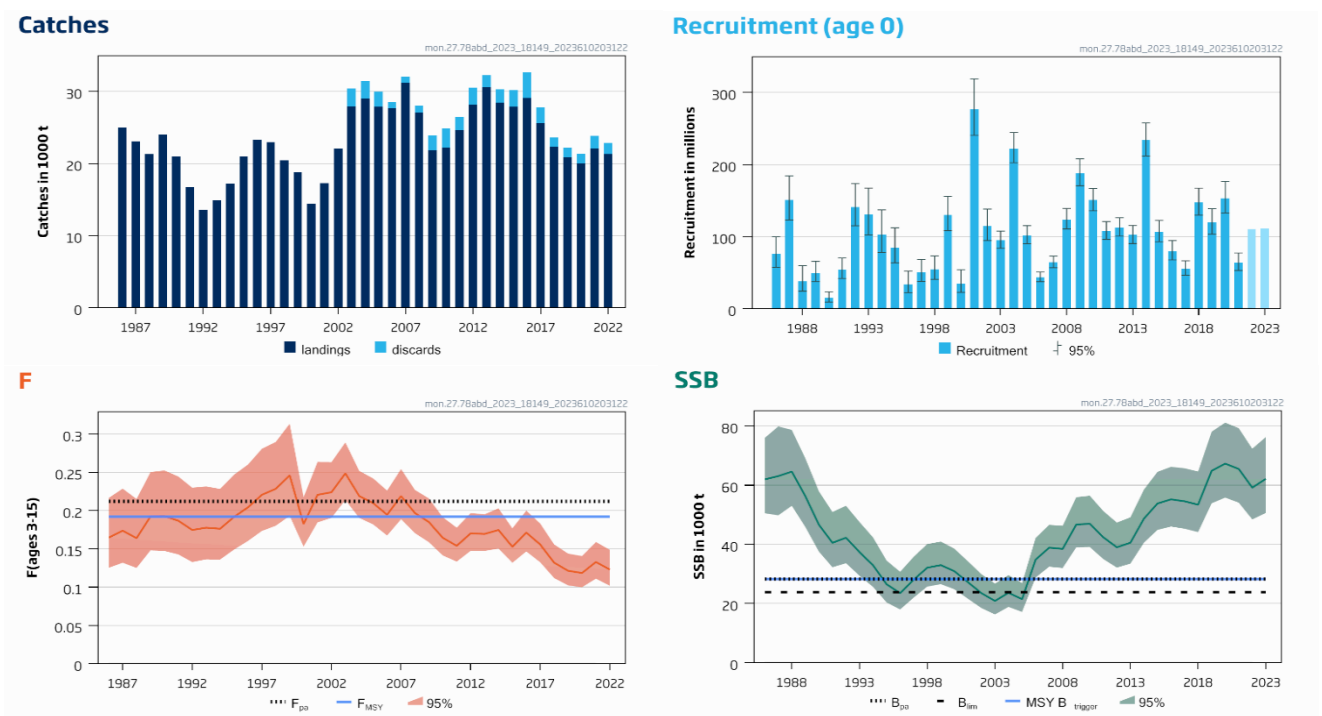


Figure 1 White anglerfish in Subarea 7 and in divisions 8.a–b and 8.d. Summary of the stock assessment. Discard observations are available since 2003. The assumed recruitment values for 2022 and 2023 are shaded in a lighter colour.

Conservation status

ICES is not aware of any information on stock specific conservation status.

Catch scenarios

Table 1 White anglerfish in Subarea 7 and in divisions 8.a–b and 8.d. Values for the forecast and the interim year.

Variable	Value	Notes
$F_{\text{ages 3–15}}$ (2023)	0.125	$F_{\text{ages 3–15}}$, average F (2020–2022).
SSB (2024)	64207	Short-term forecast (STF); in tonnes.
$R_{\text{age 0}}$ (2023)	111245	Predicted from stock-recruitment relationship; in thousands.
$R_{\text{age 0}}$ (2024)	111482	Predicted from stock-recruitment relationship; in thousands.
Catch (2023)	24026	STF; in tonnes.
Projected landings (2023)	21198	STF assuming mean landings ratio-at-age, last three years, 2020–2022; in tonnes.
Projected discards (2023)	2828	STF assuming mean discards ratio-at-age, last three years, 2020–2022; in tonnes.

Table 2 White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. Annual catch scenarios. All weights are in tonnes. Note: the % change in TAC is not computed because the TAC is for both species of anglerfish.

Basis	Total catch (2024)	Projected landings* (2024)	Projected discards** (2024)	$F_{\text{ages 3–15}}$ Total (2024)	$F_{\text{ages 3–15}}$ Projected landings (2024)	$F_{\text{ages 3–15}}$ Projected discards (2024)	SSB (2025)	% SSB change***	% advice change^
ICES advice basis									
MSY approach = F_{MSY}	35502	31090	4411	0.192	0.190	0.00170	64669	0.72	2.8
Other scenarios									
$F_{\text{MSY lower}}$	24976	21876	3100	0.131	0.130	0.00116	68929	7.4	-28
$F_{\text{MSY upper}}$	38811	33987	4824	0.21	0.21	0.00188	63331	-1.36	12.4
$F = 0$	0	0	0	0	0	0	79055	23	-100
F_{pa}	38811	33987	4824	0.21	0.21	0.00188	63331	-1.36	12.4
$\text{SSB}_{2025} = B_{\text{lim}}$	138080	120497	17584	1.15	1.14	0.0102	23868	-63	300
$\text{SSB}_{2025} = B_{\text{pa}} = \text{MSY } B_{\text{trigger}}$	126690	110634	16056	0.99	0.98	0.0087	28275	-56	267
$\text{SSB}_{2025} = \text{SSB}_{2024}$	36645	32091	4554	0.199	0.197	0.00176	64207	0	6.1
$F = F_{2023}$	23873	20911	2962	0.125	0.124	0.00111	69375	8.0	-31

* Marketable landings, assuming recent discard rate.

** Including BMS landings (EU stocks), assuming recent discard rate.

*** SSB 2025 relative to SSB 2024 (64 207 tonnes).

^ Advice value for 2024 relative to advice value for 2023 (34 540 tonnes).

Basis of the advice

Table 3 White anglerfish in Subarea 7 and in divisions 8.a–b and 8.d. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is aware of the multiannual management plan (EU MAP) which was adopted by the EU for this stock (EU, 2019) and which ICES considers to be precautionary. There is no agreed shared management plan with UK for this stock, and ICES provides advice according to ICES MSY approach. Catch scenarios consistent with the MAP F_{MSY} ranges are provided.

Quality of the assessment

The stock was benchmarked in 2022 (ICES, 2023a). The estimated fishing mortality and recruitment have changed considerably due to the new methodology. Perception of stock size relative to MSY $B_{trigger}$ remains unchanged. This year's assessment is consistent with last year's assessment.

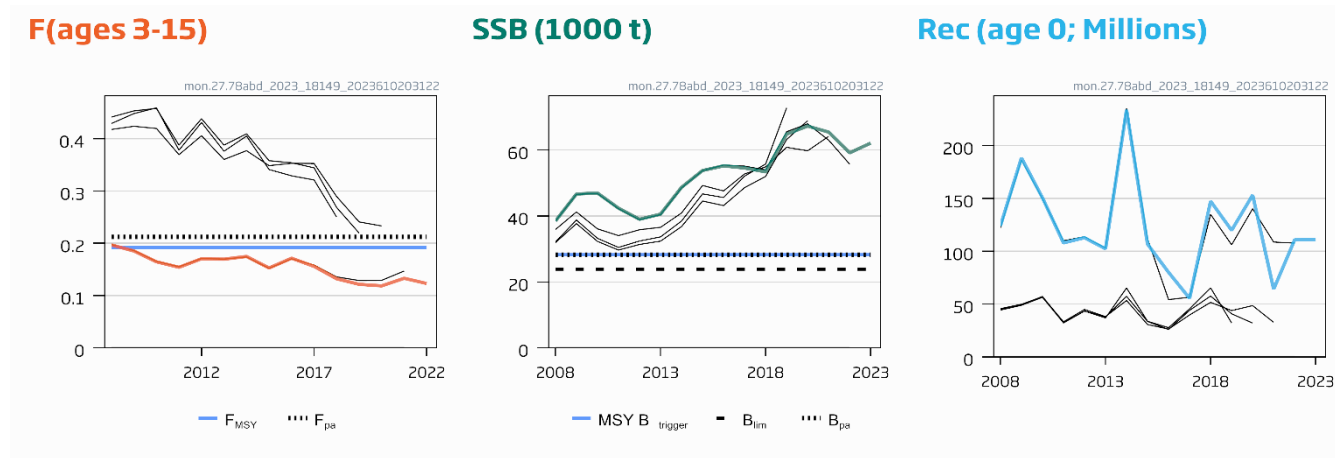


Figure 2 White anglerfish in Subarea 7 and in divisions 8.a–b and 8.d. Historical assessment results. The reference points and assessment results were revised following a benchmark in 2022. Thus the 2022 and 2023 estimates are not comparable to the previous assessments. The final two years of recruitment values are assumptions.

The final year of recruitment is estimated with high uncertainty and is therefore replaced by the recruitment estimated from the stock–recruit relationship.

Issues relevant for the advice

The two anglerfish species (*Lophius budegassa* and *Lophius piscatorius*) are not separated in the landings statistics. The TACs are set separately for subarea 7 and divisions 8.a, 8.b, 8.d, and 8.e with each TAC covering catches of both species. Species specific landings are estimated by ICES. ICES considers that management of the catches of these two species under a combined TAC prevents effective control of single-species exploitation rates and could lead to overexploitation of either species.

Reference points

Table 4 White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	28275	B_{pa} , in tonnes.	ICES (2023c)
	F_{MSY}	0.192	Stochastic simulations (EqSim) with Beverton–Holt stock-recruitment relationship estimated by the assessment model.	ICES (2023c)
Precautionary approach	B_{lim}	23868	SSB_{2004} ; lowest observed SSB with high recruitment; in tonnes.	ICES (2023c)
	B_{pa}	28275	$B_{lim} \times \exp(\sigma \times 1.645)$, where $\sigma = 0.103$; in tonnes.	ICES (2023c)
	F_{lim}	Undefined	Inconsistent with F_{pa} .	ICES (2023c)
	F_{pa}	0.212	F_{P05} with advice rule (AR): the F that provides a 95% probability for SSB to be above B_{lim} .	ICES (2023c)
Management plan	MAP MSY $B_{trigger}$	28275	MSY $B_{trigger}$; in tonnes.	ICES (2023c)
	MAP B_{lim}	23868	B_{lim} ; in tonnes.	ICES (2023c)
	MAP F_{MSY}	0.192	F_{MSY}	ICES (2023c)
	MAP range F_{lower}	0.131	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with F_{MSY} .	ICES (2023c)
	MAP range F_{upper}	0.212	Consistent with ranges resulting in no more than 5% reduction in long-term yield compared with F_{MSY} .	ICES (2023c)

Basis of the assessment

Table 5 White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. The basis of the assessment.

ICES stock data category	1 (ICES, 2023a).
Assessment type	Length-based age-structured Stock Synthesis model that uses catches in the model and forecast (ICES, 2023b).
Input data	Commercial landings and discards; three survey indices consisting of a combined French Southern Atlantic Bottom trawl survey (EVHOE-WIBTS-Q4 [G9527])/Irish Groundfish Survey (IGFS-WIBTS-Q4 [G7212]) index, the Spanish Porcupine Bottom Trawl Survey (SpPGFS -WIBTS-Q3 [G5768]), and the Irish Anglerfish and Megrim Survey (IE-IAMS [G3098]).
Discards and bycatch	Discards are available since 2003 and included in the assessment and forecast.
Indicators	None.
Other information	Last benchmarked in 2022 (ICES, 2023c).
Working group report	Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE).

History of the advice, catch, and management

Table 6 White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. History of ICES advice, the agreed TAC, and ICES estimates of landings. All weights are in tonnes.

Year	ICES advice***, #	Catch corresponding to advice***, #	Landings corresponding to advice (both <i>Lophius</i> species)***, #	Agreed TAC*, **	ICES landings (both <i>Lophius</i> species)***	Landings <i>L. piscatorius</i>	Catches <i>L. piscatorius</i>
1987	Not assessed	-	< 27600	39080	30710	23090	-
1988	Not assessed	-	< 19900	42990	29696	21314	-
1989	Not assessed	-	< 16400	42990	32835	24015	-
1990	Not assessed	-	< 26700	42990	30615	20983	-
1991	No advice	-	< 37800	42990	25543	16763	-
1992	No advice	-	< 33900	42990	21793	13617	-
1993	Concern about <i>L. pisc.</i> SSB decrease	-	< 36000	25100	21461	14895	-
1994	SSB decreasing, still inside safe biological limits	-	< 33000	23900	22945	17201	-
1995	No increase in F	-	< 33000	23200	27987	21033	-
1996	No increase in F	-	-	30400	31426	23333	-
1997	No increase in F	-	-	34300	31097	22983	-
1998	No increase in F	-	-	34300	29073	20474	-
1999	No increase in F	-	< 24800	34300	25531	18792	-
2000	At least 20% decrease in F	-	< 37448	29600	21096	14451	-
2001	Reduce F below F_{pa}	-	< 37448	27600	23021	17293	-
2002	Reduce F below F_{pa}	-	< 37448	23700	28588	22083	-
2003	At least 30% decrease in F	-	< 37448	21000	36104	27933	30444
2004	At least 10% decrease in F	-	< 37448	26700	36565	29028	31439
2005	Maintain F below F_{pa}	-	< 27600	31200	35056	27869	29980
2006	Maintain F below F_{pa}	-	< 19900	34000	33783	27652	28545
2007	Maintain F below F_{pa}	-	< 16400	36000	37821	31213	32029
2008	Less than average landings	-	< 26700	36000	34452	27053	28046
2009	Same advice as last year	-	< 37800	36000	30122	21835	23913
2010	No increase in effort	-	< 33900	41400	30841	22215	24886
2011	No increase in effort	-	< 36000	40900	34005	24657	26489
2012	Reduce catch	-	< 33000	38900	36617	28188	30519
2013	Reduce catch by the rate of biomass decrease (14% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>)	17900		36953	41086	30611	32295

Year	ICES advice***, #	Catch corresponding to advice***, #	Landings corresponding to advice (both <i>Lophius</i> species)***, #	Agreed TAC*, **	ICES landings (both <i>Lophius</i> species)***	Landings <i>L. piscatorius</i>	Catches <i>L. piscatorius</i>
2014	Increase landings by the rate of biomass increase (20% for <i>L. piscatorius</i> and 20% for <i>L. budegassa</i>)	< 26691	< 37448	42496	38306	28474	30333
2015	Same landings advice for <i>L. piscatorius</i> as in 2014	< 26691	< 37448	42496	37508	27859	30183
2016	Precautionary approach (same landings value as advised for 2014)	≤ 26691	≤ 37448	42496	39303	29083	32668
2017	Precautionary approach (same landings value as advised for 2016)	≤ 26691	≤ 37448	42496	37324	25634	27808
2018	Precautionary approach (same landings value as advised for 2016)	≤ 26691	≤ 37448	42496	32421	22345	23595
2019	MSY approach	≤ 31042	≤ 41841	41370	30512	20832	22196
2020	Management plan	31798 (range 21248–42331) ##	≤ 44757	44307	28713	20037	21387
2021	Management plan	34579 (range 23320–45996) ##	≤ 50130	38123	31005	22040	23878
2022	MSY approach	≤ 34275	≤ 52936	52205	31376	21343	22895
2023	MSY approach	≤ 34540	≤ 57976	57976			
2024	MSY approach	≤ 35502	≤ 61081				

* Applies to the combined *Lophius* species.

** Includes Division 8.e.

*** Includes Division 7.a since 2018 (ICES, 2018).

Advice refers to landings up to 2017 and to catches since 2018.

Catches corresponding to F_{MSY} , EU MAP range in brackets.

History of catch and landings

Table 7 White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. Catch distribution by fleet in 2022 as estimated by ICES.

Total catch	Landings					Discards
	64%	3.3%	14.4%	14.6%	3.8%	
22895	otter trawl demersal fish	otter trawl <i>Nephrops</i>	beam trawl	gillnet	other	1552
	21343					

Table 8a White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. History of commercial catch and landings; ICES estimated values are presented for Subarea 7 for each country participating in the fishery. All weights are in tonnes.

Year	Official landings					ICES estimates		
	France	Ireland	Spain	UK	Others	Unallocated	Landings in Subarea 7	Discards in Subarea 7
1986*	9180	950	5831	3145	1753	0	20859	-
1987*	7998	868	5059	3164	1272	0	18361	-
1988*	7677	608	4291	3415	1375	0	17366	-
1989*	8233	1482	4253	3746	3411	0	21126	-
1990*	8161	1371	3985	2647	1440	0	17603	-
1991*	6930	1012	3554	2454	655	0	14604	-
1992*	5206	1050	2484	2570	946	0	12255	-
1993*	5611	1147	2543	2346	1660	0	13308	-
1994*	6834	1891	2652	2117	1663	0	15156	-
1995*	8867	1541	3004	2374	2134	0	17921	-
1996*	9237	1289	3849	2999	1971	0	19345	-
1997*	8895	1855	3302	3143	1871	0	19066	-
1998*	8052	1896	3403	3049	1287	0	17688	-
1999*	7623	3076	2954	2812	853	0	17318	-
2000*	6167	1660	2187	2574	831	0	13420	-
2001*	7780	1535	2395	2903	1057	0	15669	-
2002	9195	1884	3084	2985	1397	0	18546	-
2003	12081	1456	4662	2850	1569	0	22619	2077
2004	12281	1646	4507	2906	1743	0	23083	1968
2005	11137	2071	4663	3032	1469	0	22371	1779
2006	10607	2656	4589	3137	1375	0	22366	674
2007	12253	2902	5065	4036	1596	0	25852	620
2008	10871	2419	4107	2928	1062	0	21387	743
2009	8691	2048	2754	3013	857	0	17363	1509
2010	8188	2523	2353	3675	993	0	17732	2038
2011	9546	2304	920	4287	1174	1313	19544	1443
2012	12225	2648	1398	4028	1835	1167	23302	1833
2013	12775	2557	3316	4629	1625	1148	26051	1405
2014	11410	2707	1892	6129	1055	337	23529	1443
2015	11721	2582	1693	5644	1284	414	23338	1796
2016	12667	2761	1754	6052	1578	351	25164	3056
2017	11473	2543	1744	5222	1498	0	22479	1912
2018	10360	2148	1810	4156	770	85	19327	1192
2019	9379	2388	1473	4553	858	0	18651	1314
2020*	9372	2171	1477	4171	994	0	18185	804
2021^	9673	2696	1567	4778	1173	0	19887	1132
2022^	9970	2219	1596	4275	1149	0	19210	985

* ICES estimated landings values revised (ICES, 2022a).

^ Preliminary official landings data.

Table 8b White anglerfish in Subarea 7 and divisions 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 8.a–b and 8.d. All weights are in tonnes.

Year	Official landings			ICES estimates		
	France	Spain	Others	Unallocated	Total landings in divisions 8.a–b and 8.d	Total discards in divisions 8.a–b and 8.d
1986	3265	858	0	0	4122	-
1987	3955	774	0	0	4729	-
1988	3129	819	0	0	3948	-
1989	2264	625	0	0	2889	-
1990	2580	800	0	0	3379	-
1991	1657	502	0	0	2158	-
1992	1066	296	0	0	1362	-
1993	1314	274	0	0	1587	-
1994	1564	481	0	0	2045	-

Year	Official landings			ICES estimates		
	France	Spain	Others	Unallocated	Total landings in divisions 8.a–b and 8.d	Total discards in divisions 8.a–b and 8.d
1995	2402	482	0	228	3113	-
1996	2216	834	0	938	3988	-
1997	2143	707	0	1068	3917	-
1998	1534	711	0	542	2787	-
1999	924	549	0	0	1473	-
2000	690	341	0	0	1032	-
2001	1240	384	0	0	1624	-
2002	3023	514	0	0	3537	-
2003	4806	508	0	0	5315	434
2004	5227	718	0	0	5945	443
2005	4927	571	0	0	5498	332
2006	4819	420	48	0	5287	219
2007	4935	401	25	0	5361	197
2008	5132	527	7	0	5666	250
2009	4065	374	33	0	4472	569
2010	4043	367	73	0	4483	634
2011	4569	422	93	30	5114	388
2012	4221	430	194	41	4887	497
2013	4105	318	137	0	4560	279
2014	4279	408	174	84	4945	416
2015	4153	293	65	10	4521	528
2016	3561	283	69	5	3919	529
2017	2886	203	66	0	3154	263
2018	2844	156	15	3	3018	58
2019	1987	130	64	0	2181	50
2020*	1666	129	57	0	1852	545
2021^	1973	151	29	0	2153	706
2022^	1850	219	64	0	2134	567

^ Preliminary official landings data.

* ICES estimated landings values revised (ICES, 2022a).

Summary of the assessment

Table 9 White anglerfish in Subarea 7 and divisions 8.a–b and 8.d. Assessment summary. Weights are in tonnes and recruitment in thousands. ‘High’ and ‘Low’ refer to 95% confidence intervals.

Year	Recruitment			Stock size			Catch		Fishing pressure		
	Low	R _{age 0}	High	Low	SSB	High	Landings	Discards	Low	F	High
	thousands			tonnes			tonnes		ages 3–15		
1986	57519	75763	99793	50528	61972	76008	24981		0.125	0.165	0.22
1987	123260	150769	184417	49806	63082	79896	23090		0.132	0.174	0.23
1988	24145	38013	59847	53031	64603	78701	21314		0.125	0.164	0.22
1989	37525	49634	65651	45832	56278	69104	24015		0.148	0.192	0.25
1990	9107	14629	23501	37545	46659	57984	20983		0.147	0.193	0.25
1991	41931	54312	70348	32240	40536	50965	16763		0.143	0.187	0.24
1992	115044	141371	173722	33628	42248	53079	13617		0.133	0.175	0.23
1993	102491	130972	167367	29372	37378	47566	14895		0.136	0.178	0.23
1994	77813	103308	137157	25603	32938	42374	17201		0.136	0.176	0.23
1995	63614	84591	112486	20354	26515	34541	21033		0.149	0.192	0.25
1996	22327	34133	52181	17977	23510	30745	23333		0.160	0.20	0.26
1997	37939	50797	68013	22007	28085	35843	22983		0.173	0.22	0.28
1998	40661	54569	73233	25713	32115	40112	20474		0.180	0.23	0.29

Year	Recruitment			Stock size			Catch		Fishing pressure		
	Low	R _{age 0}	High	Low	SSB	High	Landings	Discards	Low	F	High
	thousands			tonnes			tonnes		ages 3–15		
1999	108278	129937	155928	26558	32988	40975	18792		0.193	0.25	0.31
2000	22699	35071	54186	24818	30945	38585	14451		0.153	0.183	0.22
2001	240639	276937	318711	21624	27237	34307	17293		0.185	0.22	0.26
2002	94592	114360	138260	18459	23518	29963	22083		0.191	0.22	0.26
2003	83850	95044	107732	16301	20883	26754	27933	2511	0.21	0.25	0.29
2004	202603	222581	244529	18855	23639	29637	29028	2411	0.190	0.22	0.25
2005	89974	101811	115206	17143	21484	26925	27869	2110	0.182	0.21	0.24
2006	37444	43708	51020	28770	34833	42173	27652	892	0.167	0.195	0.23
2007	56799	64438	73105	32440	38889	46619	31213	816	0.189	0.22	0.25
2008	110599	124021	139072	31980	38477	46294	27053	993	0.171	0.197	0.23
2009	170622	188403	208037	38969	46693	55949	21835	2078	0.159	0.185	0.22
2010	135881	150672	167074	39092	46986	56473	22215	2672	0.141	0.165	0.191
2011	96149	107917	121126	35024	42392	51311	24657	1832	0.133	0.154	0.178
2012	100727	112756	126222	32134	39019	47379	28188	2330	0.147	0.170	0.197
2013	90614	102286	115462	33482	40577	49175	30611	1684	0.147	0.170	0.195
2014	212047	233878	257957	40541	48713	58532	28474	1859	0.150	0.175	0.20
2015	92957	106713	122504	44883	53819	64532	27859	2324	0.132	0.153	0.177
2016	67732	80039	94583	46034	55225	66250	29083	3585	0.147	0.171	0.20
2017	46198	55427	66499	45290	54569	65749	25634	2175	0.132	0.156	0.183
2018	129912	147424	167297	44129	53414	64652	22345	1250	0.112	0.132	0.156
2019	103312	119791	138898	53865	64869	78120	20832	1364	0.102	0.121	0.144
2020	132864	153211	176674	55814	67311	81177	20037	1350	0.100	0.119	0.141
2021	53059	64079	77387	54082	65487	79296	22040	1839	0.111	0.133	0.159
2022		110863*		48419	59187	72349	21343	1552	0.102	0.123	0.149
2023		111245*		50625	62159	76321					

* Assumed recruitment based on stock–recruitment relationship

Sources and references

- EU. 2019. Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. Official Journal of the European Union, L 83: 1–17. <http://data.europa.eu/eli/reg/2019/472/oj>
- ICES. 2018. Report of the Benchmark Workshop on Anglerfish Stocks in the ICES Area (WKANGLER), 12–16 February 2018, Copenhagen, Denmark. ICES CM 2018/ACOM:31. In prep. <http://ices.dk/community/groups/Pages/WKAngler.aspx>
- ICES. 2019. Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE). ICES Scientific Reports. 1:31. 692 pp. <http://doi.org/10.17895/ices.pub.5299>
- ICES. 2022. Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE). ICES Scientific Reports. 4:52. <http://doi.org/10.17895/ices.pub.20068988>
- ICES. 2023a. Advice on fishing opportunities. In Report of the ICES Advisory Committee, 2023. ICES Advice 2023, section 1.1.1. <https://doi.org/10.17895/ices.advice.22240624>
- ICES. 2023b. Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE). ICES Scientific Reports. 5:69. <https://doi.org/10.17895/ices.pub.23541168>
- ICES. 2023c. Benchmark workshop 2 on the development of MSY advice for category 3 stocks using SPiCT (WKBMSYSPICT2). ICES Scientific Reports. 5:65. <https://doi.org/10.17895/ices.pub.23372990>

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