

Anglerfish (*Lophius budegassa*, *Lophius piscatorius*) in subareas 4 and 6, and in Division 3.a (North Sea, Rockall and West of Scotland, Skagerrak and Kattegat)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches in 2022 should be no more than 14 116 tonnes.

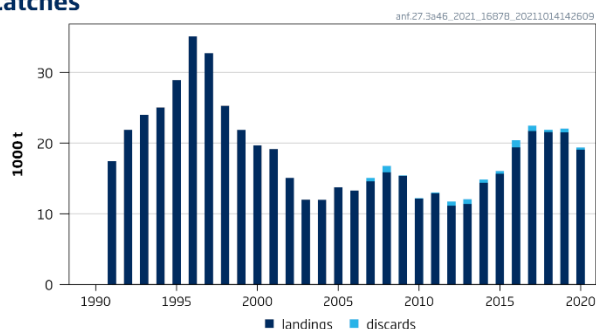
ICES notes the existence of a precautionary management plan, developed and adopted by one of the relevant management authorities for this stock.

Management should be implemented at the stock level.

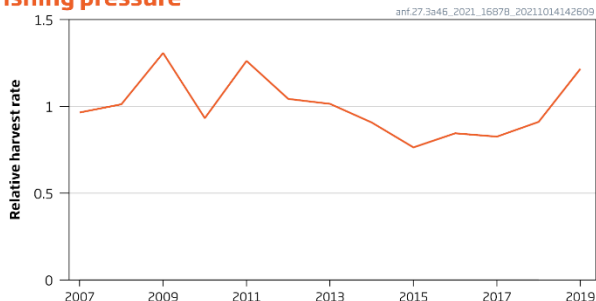
Stock development over time

ICES cannot assess the stock and exploitation status relative to the maximum sustainable yield (MSY) and precautionary approach (PA) reference points, because the reference points are undefined.

Catches



Fishing pressure



Stock size indicator

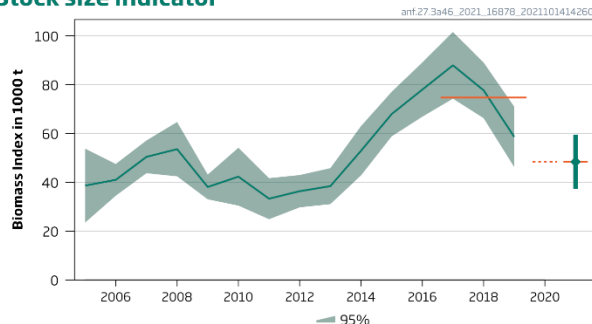


Figure 1 Anglerfish in subareas 4 and 6, and in Division 3.a. Summary of the stock assessment. ICES landings and discards (estimates available since 2007). Relative harvest rate (total catch/stock-size indicator; normalized to the average harvest rate); 2020 value missing in the absence of a survey. Stock biomass from the SIAMISS-Q2 survey. The horizontal orange lines indicate the average of the most recent two years (with 2020 not available and hence excluded from the average) and the previous three years.

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). The Scottish–Irish Anglerfish and Megrin Industry–Science Survey in Subarea 6 and Division 4.a (SIAMISS-Q2) was used as the index of stock development. This survey was cancelled in 2020 because of the COVID-19 pandemic. The advice is based on the ratio of the mean of the last two index values (Index A, with 2020 treated as missing) and the mean of the three preceding values (Index B), multiplied by the recent advised catch.

The index is estimated to have decreased by more than 20% and thus the uncertainty cap was applied. The precautionary buffer was applied in 2019 and its application has, therefore, not been considered again. The discard rate in 2021 was 1.6 % of the total catch.

Table 1 Anglerfish in subareas 4 and 6, and in Division 3.a. The basis for the catch scenarios. All weights are in tonnes. *

Index A (2020–2021; 2020 not available)		48 355
Index B (2017-2019)		74 710
Index ratio (A/B)		0.65
Uncertainty cap	Applied	0.8
Advised catch for 2021		17 645
Precautionary buffer	Not applied	
Catch advice **		14 116
% advice change ^		-20%

* 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.

** [Advised catch for 2021] × [uncertainty cap].

^ Advice value for 2022 relative to the advice value for 2021.

The advised catch for 2022 is lower than the 2021 advice because of the decrease in the index ratio.

Basis of the advice

Table 2 Anglerfish in subareas 4 and 6 and in Division 3.a. The basis of the advice.

Advice basis	Precautionary approach
Management plan	<p>An EU multiannual management plan (MAP) has been agreed by the EU for this stock (EU, 2018). The MAP stipulates that when the F_{MSY} ranges are not available, fishing opportunities should be based on the best available scientific advice.</p> <p>There is no agreed shared management plan with the UK or Norway for this stock, and ICES provides advice according to ICES precautionary approach.</p>

Quality of the assessment

The SIAMISS-Q2 survey was not completed in 2020 following the COVID-19 pandemic; therefore, the stock-size indicator is unknown for 2020. The use of a single value (2021) for index A in the category 3 approach adds a degree of uncertainty. The SIAMISS-Q2 survey does not cover divisions 3.a, 4.b, or 4.c, which collectively account for 7.6% of the landings. It is uncertain to what extent the lack of coverage of these areas affects the quality of the assessment. Discard data are available for most of the fleets except the gillnet fishery, which is not adequately sampled and which accounted for 18% of the landings in 2020. It is not clear how these two issues may affect the estimate of the harvest rate.

Issues relevant to the advice

There is a mismatch between management and assessment area and as a result there is a potential for catches to exceed advice.

Reference points

No reference points are defined for this stock.

Basis of the assessment

Table 3 Anglerfish in subareas 4 and 6 and in Division 3.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2021a)
Assessment type	Survey trends (ICES, 2021b)
Input data	International catch information and a dedicated Scottish–Irish Anglerfish and Megrim Industry–Science Survey in Subarea 6 and Division 4.a (G3745 - Anglerfish surveys II-III [SIAMISS-Q2])
Discards and bycatch	Discard estimates are available from 2007 onwards for most of the fleets (54% of the landings)
Indicators	Length distribution from the SIAMISS–Q2 survey
Other information	Last benchmarked in 2018 (WKANGLER; ICES, 2018a), which did not result in a revision of the assessment method
Working group	Working Group for the Celtic Seas Ecoregion (WGCSE)

History of the advice, catch, and management

Table 4 Anglerfish in subareas 4 and 6, and in Division 3.a. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice		Landings corresponding to advice	Agreed TAC *	Official landings	ICES landings#	ICES discards
		Division 3.a and Subarea 4	Subarea 6					
1990	Not assessed	-	-	-	8600	17605	-	-
1991	Not assessed	-	-	-	8600	18369	17441	-
1992	Not assessed	-	-	-	8600	20807	21872	-
1993	No long-term gain in increased F **	-	-	-	8600	22596	23971	-
1994	No long-term gain in increased F **	-	-	-	8600	25155	25057	-
1995	A precautionary TAC not exceeding recent catch levels**	-	-	-	8600	29055	28913	-
1996	A precautionary TAC not exceeding recent catch levels**	-	-	-	8600	35039	35100	-
1997	Reduction in fishing effort**	-	-	-	8600	32853	32728	-
1998	Reduction in fishing effort**	-	-	-	30700	25471	25293	-
1999	Reduce fishing effort, effective implementation of the TAC**	-	-	-	30700	21230	21854	-
2000	40% reduction in catches	< 9700	< 7400	-	25700	18973	19682	-
2001	2/3 of the catches in 1973–1990	5700	4300	-	20500	19304	19157	-
2002	2/3 of the catches in 1973–1990	5700	4300	-	15300	15978	15067	-
2003	Reduce F below F _{pa}	-	-	< 6700***	10200	13004	12008	-
2004	Reduce F below F _{pa}	-	-	< 8800	10200	13496	11976	-
2005	No effort increase	-	-	-	15000	13557	13728	-
2006	No effort increase	-	-	-	15000	15152	13292	-
2007	No effort increase	-	-	-	16500	16430	14564	490
2008	No effort increase	-	-	-	16500	16918	15878	903
2009	Same advice as last year	-	-	-	16900	16008	15372	38
2010	No effort increase	-	-	-	16900	13898	12136	69
2011	Decrease effort	-	-	-	15100^	13679	12902	95
2012	Reduce catch	-	-	-	14344^	12266	11143	590
2013	Decrease catches by 20%	-	-	-	13627^	12141	11375	687
2014	Decrease catches by 20%	-	-	10231	12265^	13286	14406	448
2015	Increase landings by 20%	-	-	14702	16203^	16182	15663	395
2016	Precautionary approach (increase recent advised catch by no more than 20%)		≤ 18435	17642	19142^	19533	19412	981
2017	Precautionary approach		≤ 22007	21171	21171^	22023	21719	756

Year	ICES advice	Catch corresponding to advice		Landings corresponding to advice	Agreed TAC *	Official landings	ICES landings#	ICES discards
		Division 3.a and Subarea 4	Subarea 6					
2018	Precautionary approach	≤ 26408		≤ 25563	25405^^	21487	21572	326
2019	Precautionary approach	≤ 31690			31690^^	21180##	21551	513
2020	Precautionary approach	≤ 22056			22056^^	19 063##	19 072	316
2021	Precautionary approach	≤ 17645			18349^^^			
2022	Precautionary approach	≤ 14 116						

* TAC for Subarea 4 and Division 2.a (EC until 2020; UK thereafter) plus TAC for Division 5.b (EC) and subareas 6, 12, and 14. Prior to 1998, TAC covered only Division 5.b (EC) and subareas 6, 12, and 14.

** For Subarea 6.

*** Advice for Division 3.a, Subarea 4, and Division 6.a.

^ An additional quota of 1500 tonnes is also available for EU vessels fishing in the Norwegian zone of Subarea 4.

^^ An additional quota of 1700 tonnes is also available for EU vessels fishing in the Norwegian zone of Subarea 4.

^^^ An additional quota of 1000 tonnes is also available for EU vessels fishing in the Norwegian zone of Subarea 4.

Includes Division 3.a official landings when ICES estimates are not available.

Preliminary.

History of the catch and landings

Table 5 Anglerfish in subareas 4 and 6 and in Division 3.a. Catch distribution by fleet in 2020 as estimated by ICES.

Catch	Landings								Discards
	Division 3.a and Subarea 4				Subarea 6				
19 388 tonnes	Demersal trawls 68%	Gillnets20%	Norway lobster trawls 6%	Other 6%	Demersal trawls 82%	Gillnets 13%	Norway lobster trawls 1%	Other 4%	316 tonnes
19 072 tonnes									

Table 6 Anglerfish in subareas 4 and 6 and in Division 3.a. Official landings by ICES area, and ICES estimates of landings and discards. All weights are in tonnes.

Year	3.a	4.a	4.b	4.c	6.a	6.b	4	6	Total (3.a, 4, and 6)	ICES landings**	ICES discards
1973	140	2 085	575	41	9 221	127	2 701	9 348	12 189	-	-
1974	202	2 737	1 171	39	3 217	435	3 947	3 652	7 801	-	-
1975	291	2 887	1 864	59	3 122	76	4 810	3 198	8 299	-	-
1976	641	3 624	1 252	49	3 383	72	4 925	3 455	9 021	-	-
1977	643	3 264	1 278	54	3 457	78	4 596	3 535	8 774	-	-
1978	509	3 111	1 260	72	3 117	103	4 443	3 220	8 172	-	-
1979	687	2 972	1 578	112	2 745	29	4 662	2 774	8 123	-	-
1980	652	3 450	1 374	175	2 634	200	4 999	2 834	8 485	-	-
1981	549	2 472	752	132	1 387	331	3 356	1 718	5 623	-	-
1982	529	2 214	654	99	3 154	454	2 967	3 608	7 104	-	-
1983	506	2 465	1 540	181	3 417	433	4 186	3 850	8 542	-	-
1984	568	3 874	1 803	188	3 935	707	5 865	4 642	11 075	-	-
1985	578	4 569	1 798	77	4 043	1 013	6 444	5 056	12 078	-	-
1986	524	5 594	1 762	47	3 090	1 326	7 403	4 416	12 343	-	-
1987	589	7 705	1 768	66	3 955	1 294	9 539	5 249	15 377	-	-
1988	347	7 737	2 061	95	6 003	1 730	9 893	7 733	17 973	-	-
1989	334	7 868	2 121	86	5 729	313	10 075	6 042	16 451	-	-
1990	570	8 387	2 177	34	5 615	822	10 598	6 437	17 605	-	-
1991	595	9 235	2 522	26	5 061	923	11 790	5 984	18 369	17 441	-
1992	938	10 209	3 053	39	5 479	1 089	13 301	6 568	20 807	21 872	-
1993	843	12 309	3 143	66	5 553	681	15 519	6 234	22 596	23 971	-
1994	811	14 505	3 445	210	5 273	909	18 162	6 182	25 155	25 057	-

Year	3.a	4.a	4.b	4.c	6.a	6.b	4	6	Total (3.a, 4, and 6)	ICES landings**	ICES discards
1995	823	17 891	2 627	402	6 354	958	20 920	7 312	29 055	28 913	-
1996	702	25 176	1 847	304	6 408	602	27 327	7 010	35 039	35 100	-
1997	776	23 425	2 172	160	5 330	990	25 757	6 320	32 853	32 728	-
1998	626	16 859	2 088	78	4 506	1 313	19 026	5 819	25 471	25 293	-
1999	660	13 344	1 517	24	4 284	1 401	14 885	5 685	21 230	21 854	-
2000	602	12 338	1 617	31	3 311	1 074	13 986	4 385	18 973	19 682	-
2001	621	12 861	1 832	21	2 660	1 309	14 714	3 969	19 304	19 157	-
2002	667	11 048	1 244	21	2 280	718	12 313	2 998	15 978	15 067	-
2003	478	8 523	847	20	2 493	643	9 390	3 136	13 004	12 008	-
2004	519	8 987	851	15	2 453	671	9 853	3 124	13 496	11 976	-
2005	458	8 424	688	5	3 019	958	9 117	3 982	13 557	13 728	-
2006	426	10 340	683	3	2 785	915	11 026	3 700	15 152	13 292	-
2007	433	10 632	749	4	3 353	1 261	11 384	4 613	16 430	14 564	490
2008	486	11 038	769	5	3 373	1 246	11 813	4 619	16 918	15 878	903
2009	478	10 067	651	8	2 984	1 820	10 726	4 804	16 008	15 372	38
2010	433	8 190	615	11	3 040	1 606	8 815	4 645	13 833	12 136	69
2011	405	7 760	764	8	2 871	1 871	8 532	4 742	13 679	12 902	95
2012	423	6 459	714	5	2 835	1 831	7 177	4 666	12 266	11 143	590
2013	407	6 393	546	5	2 667	2 123	6 944	4 790	12 141	11 375	687
2014	440	7 633	820	27	2 610	1 754	8 481	4 365	13 286	14 406	448
2015	478	9 690	985	16	3 290	1 723	10 691	5 013	16 182	15 663	395
2016	586	11 690	1 196	11	4 638	1 423	12 887	6 080	19 553	19 412	981
2017	742	13 620	1 107	7	5 024	1 504	14 753	6 528	22 023	21 719	756
2018	914	13 391	823	11	4 292	1 918	14 225	6 210	21 350	21 572	326
2019*	1 028	11 171	1 298	29	5 022	2 632	12 498	7 654	21 180	21 551	513
2020*	866	10 674	1 066	24	4 749	1 685	11 763	6 434	19 064	19 072	316

* Preliminary official landings.

** Revised values to include Division 3.a official landings when ICES estimates are not available (ICES, 2021b).

Table 7 Anglerfish in subareas 4 and 6 and in Division 3.a. Official landings by country in Subarea 6. All weights are in tonnes.

Year	Belgium	Denmark	Faroe Is.	France	Germany	Ireland	Netherlands	Norway	Portugal	Russia	Spain	UK (E,W&NI)	UK (Scotland)	UK (total)	Total	Unallocated	ICES landings
1991	3	1	-	1910	1	522	-	24	-	-	340	369	2814	-	5984	296	6280
1992	2	3	2	2308	2	820	-	24	-	-	274	524	2609	-	6568	2638	9206
1993	9	4	-	2496	163	524	-	25	-	-	186	299	2528	-	6234	3816	10050
1994	6	5	-	2382	140	438	-	30	132	-	215	420	2414	-	6182	2634	8816
1995	5	10	-	2648	160	853	-	18	128	-	333	425	2732	-	7312	4984	12296
1996	-	4	15	2899	113	807	-	15	-	-	229	345	2583	-	7010	11148	18158
1997	5	1	4	2059	249	764	27	5	91	-	234	403	2478	-	6320	7415	13735
1998	2	2	2	1635	269	879	1	9	413	-	338	307	1962	-	5819	4821	10640
1999	-	1	2	1814	194	692	-	6	429	-	344	171	2032	-	5685	3790	9475
2000	-	<1	-	1180	158	596	-	14	20	-	231	316	1870	-	4385	3131	7516
2001	<1	<1	1	1135	78	609	-	7	18	1	397	237	1486	-	3969	1890	5859
2002	<1	-	-	782	38	355	-	4	8	-	229	165	1417	-	2998	-22	2976
2003	-	<1	-	1403	91	348	-	6	4	-	255	164	865	-	3136	-68	3068
2004	<1	<1	2	1366	105	232	-	5	19	2	153	84	1156	-	3124	6	3130
2005	-	-	2	1689	116	391	-	5	63	4	117	113	1482	-	3982	-235	3747
2006	-	-	3	1537	73	445	-	7	-	1	112	70	1451	-	3700	-209	3491

Year	Belgium	Denmark	Faroe Is.	France	Germany	Ireland	Netherlands	Norway	Portugal	Russia	Spain	UK (E,W&NI)	UK (Scotland)	UK (total)	Total	Unallocated	ICES landings
2007	-	-	2	2090	222	540	-	8	-	1	15	188	1546	-	4613	-137	4476
2008	-	-	2	2073	146	371	-	7	-	35	259	6	1720	-	4619	228	4847
2009	-	-	6	1852	211	419	-	9	-	-	242	60	2005	-	4804	388	5192
2010	-	-	12	1374	166	617	-	14	-	-	229	-	-	2234	4645	-733	3912
2011	-	-	1	1676	149	596	-	7	-	-	167	-	-	2145	4742	-49	4693
2012	-	-	5	1622	142	581	-	6	-	-	105	132	2073	2205	6871	-294	4372
2013	-	-	-	1777	136	572	-	10	-	-	123	401	1770	2171	6960	-63	4727
2014	-	-	1	1246	151	572	-	4	-	1	81	-	-	2310	4365	1515	5880
2015	-	-	<1	1326	201	602	-	8	-	2	149	-	-	2724	5013	-5	5008
2016	-	-	1	1734	258	741	-	12	-	-	234	-	-	3080	6060	-94	5966
2017	-	-	<1	1882	246	793	-	5	-	2	290	-	-	3310	6528	-68	6460
2018	-	-	-	1287	394	878	-	4	-	-	261	-	-	3387	6211	145	6356
2019*	-	-	-	1273	434	1262	-	2	-	1	358	-	-	4322	7652	160	7 812
2020*	-	-	-	1304	229	900	-	1	-	3	264	-	-	3731	6432	169	6 601

* Preliminary official landings.

Table 8 Anglerfish in subareas 4 and 6 and in Division 3.a. Official landings by country in Subarea 4. All weights are in tonnes.

Year	Belgium	Denmark	Faroes	France	Germany	Ireland	Netherlands	Norway	Sweden	UK (E&W&NI)	UK (Scotland)	UK (Total)	Total	Unallocated	ICES landings
1991	372	1599	1	124	75	-	313	604	14	804	7884	-	10191	-1224	10
1992	559	1686	-	152	70	-	410	639	7	1158	8620	-	13301	-573	11
1993	595	1293	12	69	113	-	559	1227	7	1463	10181	-	15519	-2441	13
1994	753	1509	18	30	99	-	568	1329	10	1582	12264	-	18162	-2732	15
1995	607	1027	20	18	623	-	363	672	4	1456	16130	-	20920	-5126	15
1996	323	1464	-	7	301	-	201	850	2	1357	22822	-	27327	-1108	16
1997	357	1489	15	7	619	-	260	678	5	2969	19358	-	25757	-7540	18
1998	389	1456	10	13	892	-	238	967	11	1307	13743	-	19026	-4999	14
1999	286	1496	6	18	463	-	166	1236	12	1148	10054	-	14885	-3166	11
2000	476	1347	-	8	196	-	168	1191	81	642	9877	-	13986	-2422	11
2001	594	1540	2	9	104	-	132	1227	46	658	10402	-	14714	-2037	12
2002	459	1563	10	8	112	-	75	938	65	334	8749	-	12313	-600	11
2003	190	1714	3	8	76	1	52	781	10	281	6274	-	9390	-676	8 714
2004	265	1812	11	8	31	-	63	1021	7	206	6429	-	9853	-1330	8 523
2005	211	1616	22	4	93	-	45	896	9	130	6091	-	9117	579	9 696
2006	141	1587	2	7	187	-	47	1018	10	207	7820	-	11026	-1462	9 564
2007	181	1134	-	14	198	-	76	855	26	425	8476	-	11384	-1561	9 823
2008	185	1308	-	13	367	-	71	875	76	118	8800	-	11813	-1081	10
2009	140	1382	4	23	233	-	41	881	-	406	7617	-	10726	-945	9 781
2010	131	1337	-	30	145	-	56	802	-	460	5855	-	8815	-915	7 900
2011	116	1127	-	24	63	-	59	505	-	-	-	6638	8532	-612	7 920
2012	133	1122	-	15	275	-	67	496	-	333	4736	5069	12246	-765	6 412
2013	137	1046	-	15	284	-	42	572	-	621	4226	4847	11790	-638	6 306
2014	217	1135	-	30	339	-	108	533	-	-	-	6120	8481	-316	8 165
2015	200	1331	-	26	309	-	98	415	10	-	-	8303	10691	-448	10
2016	253	2090	-	36	226	-	148	626	11	-	-	9498	12887	-33	12
2017	169	2567	-	91	537	-	199	881	18	-	-	10270	14733	-225	14
2018	156	2201	-	142	536	-	187	1267	25	-	-	9711	14225	55	14
2019*	249	2202	-	186	575	-	404	1291	36	-	-	7555	12498	176	12
2020*	243	1398	-	127	361	-	285	997	72	-	-	8282	11765	-181	11

* Preliminary official landings.

Table 9 Anglerfish in subareas 4 and 6 and in Division 3.a. Official landings by country in Division 3.a. All weights are in tonnes.

Year	Belgium	Denmark	France	Germany	Netherlands	Norway	Sweden	UK (Total)	Total	Unallocated	ICES landings
1991	15	493	-	-	-	64	23	-	595	-	-
1992	48	658	-	-	-	170	62	-	938	-	-
1993	34	565	-	1	-	154	89	-	843	-	-
1994	21	459	-	<1	-	263	68	-	811	-	-
1995	35	312	-	-	-	440	36	-	823	-	-
1996	-	367	-	1	-	309	25	-	702	-	-
1997	-	550	-	1	-	186	39	-	776	-	-
1998	-	415	-	1	-	177	33	-	626	-	-
1999	-	362	-	2	-	260	36	-	660	-	-
2000	-	377	-	1	-	197	27	-	602	-	-
2001	-	375	-	-	-	200	46	-	621	-	-
2002	-	369	-	1	-	242	55	-	667	288	379
2003	-	215	-	-	3	189	71	-	478	252	226
2004	-	311	-	1	4	130	73	-	519	197	322
2005	-	274	-	1	4	100	79	-	458	174	284
2006	-	227	-	2	3	139	54	-	426	189	237
2007	-	255	-	1	1	132	44	-	433	168	265
2008	-	287	-	1	3	144	51	-	486	187	299
2009	-	344	-	1	-	134	-	-	478	79	399
2010	-	270	-	1	5	158	-	-	433	109	324
2011	-	251	-	2	-	153	-	-	405	116	289
2012	-	307	<1	1	-	115	-	-	423	63	360
2013	-	298	<1	1	-	108	-	-	407	65	342
2014	-	309	-	-	4	127	-	-	440	78	362
2015	-	336	-	1	9	90	42	-	478	66	412
2016	-	389	<1	2	17	124	53	<1	586	-5	591
2017	-	526	1	1	16	118	81	-	742	-9	751
2018	-	597	-	2	16	204	95	-	914	-22	936
2019*	-	692	-	1	46	189	100	-	1028	-35	1 063
2020*	-	600	-	1	66	129	71	0	866	-22	888

Preliminary official landings.

Summary of the assessment

Table 10 Anglerfish in subareas 4 and 6, and in Division 3.a. Assessment summary. Weights are in tonnes. High and low refer to 95% confidence intervals.

Year	Stock-size indicator			ICES landings*	ICES discards	Harvest rate index **
	Low	Value	High			
1991				17441		
1992				21872		
1993				23971		
1994				25057		
1995				28913		
1996				35100		
1997				32728		
1998				25293		
1999				21854		
2000				19682		
2001				19157		
2002				15067		
2003				12008		
2004				11976		
2005	23	39	54	13728		

Year	Stock-size indicator			ICES landings*	ICES discards	Harvest rate index **
	Low	Value	High			
2006	34	41	47	13292		
2007	44	50	57	14564	490	0.96
2008	42	54	65	15878	903	1.01
2009	33	38	43	15372	38	1.31
2010	30	42	54	12136	69	0.93
2011	25	33	42	12902	95	1.26
2012	30	36	43	11143	590	1.04
2013	31	38	46	11375	687	1.01
2014	43	53	63	14406	448	0.91
2015	59	68	77	15663	395	0.76
2016	67	78	89	19412	981	0.84
2017	74	88	102	21719	756	0.83
2018	66	78	89	21572	326	0.91
2019	46	59	71	21551	513	1.22
2020		***		19072	316	
2021	37	48	59			

* Includes Division 3.a official landings when ICES estimates are not available.

** Calculated as total catch divided by survey index; normalized to the average harvest rate.

*** Stock abundance is not available, because the survey was not conducted owing to the COVID-19 pandemic.

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