

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)

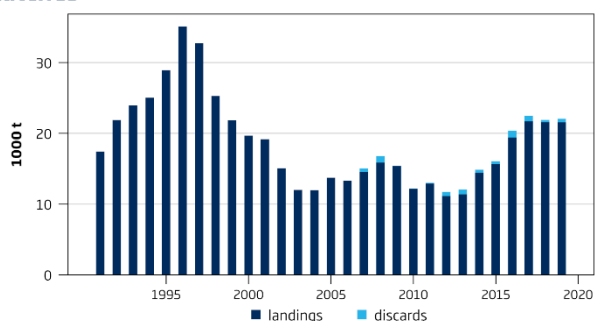
ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, catches in 2021 should be no more than 17 645 tonnes.

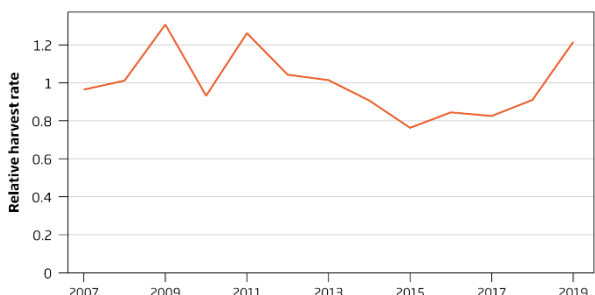
Note: This advice sheet is abbreviated due to the COVID-19 disruption. The previous advice issued for 2020 is attached as Annex 1.

Stock development over time

Catches



Harvest rate



Stock size indicator

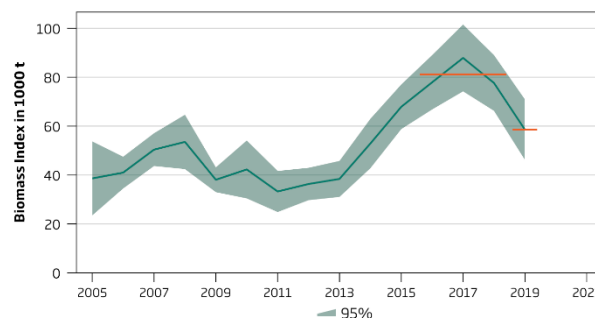


Figure 1 Anglerfish in subareas 4 and 6, and in Division 3.a. Summary of the stock assessment. Top: ICES landings and discards (estimates available since 2007). Bottom left: Relative harvest rate (total catch/stock-size indicator; normalized to the average harvest rate). Bottom right: Stock biomass from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

Stock and exploitation status

Table 1 Anglerfish in subareas 4 and 6, and Division 3.a. State of the stock and the fishery relative to reference points.

		Fishing pressure			Stock size				
		2017	2018	2019	2018	2019	2020		
Maximum sustainable yield	F_{MSY}	?	?	?	MSY $B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	—	—	—	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	→	↗	↗	-	↘	↘	?	Unknown

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). The Scottish–Irish Anglerfish and Megrim 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 COVID-19. 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. This is equivalent to assuming that the 2020 value is equal to the 2019 biomass index.

The index is estimated to have decreased by more than 20% and thus the uncertainty cap was applied. The precautionary buffer was last applied in 2019 and its application has, therefore, not been considered again. The discard rate in 2019 was 2.3% of the total catch.

Table 2 Anglerfish in subareas 4 and 6, and in Division 3.a. The basis for the catch scenarios. All weights are in tonnes. *

Index A (2019–2020; 2020 not available)		58575 tonnes
Index B (2016–2018)		81168 tonnes
Index ratio (A/B)		0.72
Uncertainty cap	Applied	0.8
Advised catch for 2020		22056 tonnes
Precautionary buffer	Not applied	
Catch advice **		17645 tonnes
% 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 2020] × [uncertainty cap].

^ Advice value for 2021 relative to the advice value for 2020.

The advised catch for 2021 is lower than the 2020 advice because of the decrease in the index ratio.

Quality of the assessment

The SIAMISS-Q2 survey was not completed in 2020 following the COVID-19 disruption; therefore, the stock-size indicator is unknown for 2020. Other demersal fish surveys indicate a decline in anglerfish stock biomass in recent years (Figure 2).

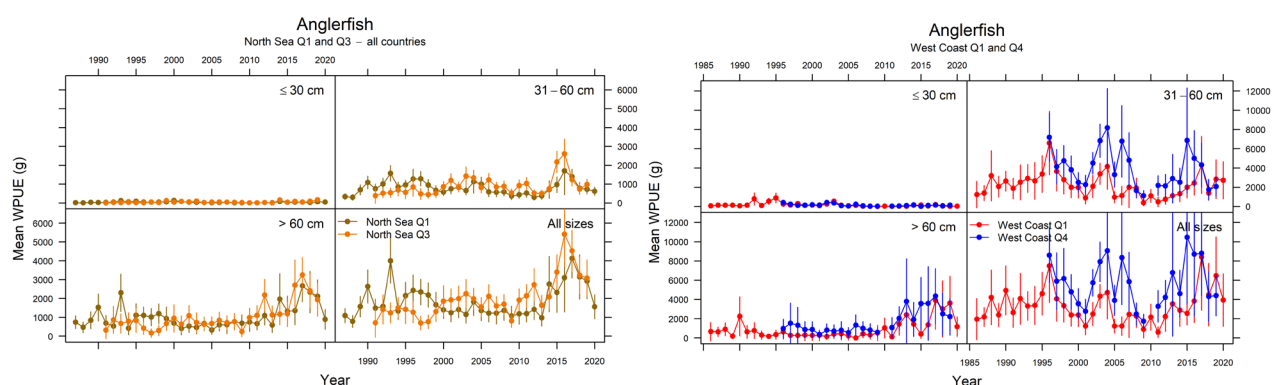


Figure 2 Anglerfish in subareas 4 and 6, and in Division 3.a. Survey indices of mean weight (g) per hour. Left panel: NS-IBTS-Q1 (brown) and NS-IBTS-Q3 (orange). Right panel: SWC-IBTS-Q1 (red) and SWC-IBTS-Q4 (blue), both in Division 6.a.

History of the advice, catch, and management

Table 3 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
2018	Precautionary approach	≤ 26408		≤ 25563	25405 ^^	21487 ^^^	21572	326
2019	Precautionary approach	≤ 31690			31690 ^^	21180 ^^^	21551	513
2020	Precautionary approach	≤ 22056			22056 ^^			
2021	Precautionary approach	≤ 17645						

* TAC for Subarea 4 and Division 2.a (EC) 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.

^^^ Preliminary.

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

Summary of the assessment

Table 4 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		
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	Na ***	Na ***	Na ***			

* 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 disruption.

Sources and references

ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM:68. 42 pp. <https://doi.org/10.17895/ices.pub.5322>.

ICES. 2020. Working Group for the Celtic Seas Ecoregion (WGCSE). ICES Scientific Reports, 2:40. 924 pp. <http://doi.org/10.17895/ices.pub.5978>.

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