

Cod (*Gadus morhua*) in Subdivision 5.b.2 (Faroe Bank)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches should be no more than 78 tonnes in each of the years 2023 and 2024

Stock development over time

Spawning-stock size is above MSY $B_{trigger}$ ($I_{trigger}$); No reference points for fishing pressure have been defined for this stock.

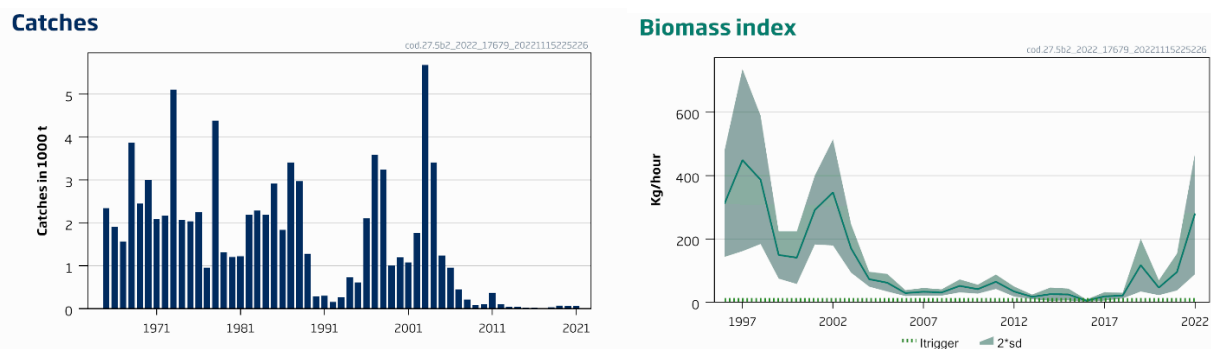


Figure 1 Cod in Subdivision 5.b.2 (Faroe Bank). Summary of the stock assessment.

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2022a). The advice is based on the rb rule to provide MSY advice. A survey biomass index was used as an indicator of stock development. The advice is based on the average of the last three year catches, multiplied by the ratio of the mean of the last two index values (index A) and the mean of the three preceding values (index B), a biomass safeguard, and a precautionary multiplier. Recent catch was used instead of advised catch (zero catch), as the biomass index has been increasing under recent catch levels. The stability clause was applied since the previous advice was zero.

Table 1 Cod in Subdivision 5.b.2 (Faroe Bank). The basis for the catch scenarios.*

C_y : Average catch (2019–2021)	65 tonnes
Biomass index	
Index A (2021–2022)	188 kg/hour
Index B (2018–2020)	62 kg/hour
r: Stock biomass trend (index ratio A/B)	3.06
Biomass safeguard	
Last index value (I_{2022})	281 kg/hour
Index trigger value ($I_{trigger}$)	8 kg/hour
b: index relative to trigger value, $\min\{I_{2022}/I_{trigger}, 1\}$	1.00
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.5
RB calculation**	99 tonnes
Stability clause (+20%/–30% compared to A_y , only considered if b=1)	Applied
Catch advice A_{y+1} for 2023**	78 tonnes
% advice change***	NA

* 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.

** Formula: $A_{y+1} = C_y \times r \times b \times m$, limited by stability clause if applicable.

*** Advice value for 2023 relative to the advice value for 2022 (0 tonnes).

The advice for 2023 has increase in relation to 2022 due to an increase of the biomass index and the application of a new method.

Basis of the advice

Table 2 Cod in Subdivision 5.b.2 (Faroe Bank). The basis of the advice.

Advice basis	MSY approach.
Management plan	ICES is not aware of any agreed precautionary management plan for cod in this area.

Quality of the assessment

The assessment is based on catch rates in the Faroese summer survey. The summer survey suggest that the biomass is generally increasing since 2019. Although the spring survey has declined over the last two years the values since 2020 have been high.

Issues relevant for the advice

The Faroe bank (shallow areas <200 m) has been closed to commercial fisheries from 2008 to 2021, except for a small handline fishery. Over the last 10 years catches have been limited to bycatch from fisheries in deeper waters around the Faroe Bank and the small catches from handlining. In 2022 the fishery has reopened to longlining.

The spring and summer surveys have caught very few small fish in recent years which could be an indicator for low recruitment.

The advice in 2022 is based on category 3 (rb rule, method 2.3). The previous advice was zero catch. Advice will be given biennially.

Reference points

Table 3 Cod in Subdivision 5.b.2 (Faroe Bank). Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{\text{trigger proxy}}$	8	Biomass index trigger value, defined as $I_{\text{trigger}} = I_{\text{loss}} \times 1.4$, where I_{loss} is the lowest observed historical biomass index value, mean of standardized survey CPUE; in kg/hour.	ICES (2022b)
	$F_{\text{MSY proxy}}$	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{mgt}	Not defined		
	F_{mgt}	Not defined		

Basis of the assessment

Table 4 Cod in Subdivision 5.b.2 (Faroe Bank). Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2022a)
Assessment type	Survey biomass index applying the rb rule for advice (ICES, 2022b)
Input data	Landings and Faroese summer groundfish bottom trawl survey FO-GFS-Q3 [G3284].
Discards and bycatch	Discarding is considered negligible.
Indicators	Spring survey FO-GFS-Q1 [G1264], and mean length frequencies from the spring FO-GFS-Q1 [G1264] and summer FO-GFS-Q3 [G3284] surveys.
Other information	None.
Working group	Northwestern Working Group (NWWG)

History of the advice, catch, and management

Table 5 Cod in Subdivision 5.b.2 (Faroe Bank). History of ICES advice, the agreed TAC, and landings. All weights are in tonnes.

Year	ICES advice	Predicted catch corresponding to advice	Agreed TAC**	Landings*
1987	No assessment	-		3500
1988	No assessment	-		3100
1989	Addition to Faroe Plateau TAC	~2000		1400
1990	Access limitation may be required	-		600
1991	Access limitation may be required			400
1992	No fishing	300		154
1993	TAC	500		266
1994	TAC	500		725
1995	Precautionary TAC	500		601
1996	Precautionary TAC	500	1000	2106
1997	Effort at present levels	700		3594
1998	Effort at present levels	-		3239
1999	Effort not to exceed that exerted in 1996–1997	-		1001
2000	Effort not to exceed that of 1996–1998	-		1194
2001	Effort not to exceed that of 1996–1999	-		1080
2002	Effort not to exceed that of 1996–2000	-		1756
2003	Effort not to exceed that of 1996–2001	-		5676
2004	Effort not to exceed that of 1996–2002	-		3411
2005	Effort not to exceed that of 1996–2002	-		1232
2006	Effort not to exceed that of 1996–2002	-		955
2007	Effort not to exceed that of 1996–2002	-		450
2008	No fishing	0		218
2009	No fishing	0		80
2010	Same advice as last year	0		105
2011	Same advice as last year	0		370
2012	Same advice as last year	0		108
2013	Same advice as last year	0		38
2014	Same advice as last year	0		39
2015	Same advice as last year	0		24
2016	Same advice as last year	0		19
2017	Precautionary approach	0		14
2018	Precautionary approach	0		31
2019	Precautionary approach	0		70
2020	Precautionary approach	0		65
2021	Precautionary approach	0		61
2022	Precautionary approach	0		
2023	MSY approach	78		
2024	MSY approach	78		

* Prior to 1992 official landings are presented, thereafter ICES estimates are presented (catches on the Faroe Bank are considered to be taken only by Faroese and Norwegian vessels).

** Not applicable since 1997.

History of the catch and landings

Table 6 Cod in Subdivision 5.b.2 (Faroe Bank). Catch distribution by fleet in 2021 as estimated by ICES. All weights are in tonnes.

Catch	Landings	Discards
61 tonnes	100% longliners	Negligible
	61 tonnes	

Table 7 Cod in Subdivision 5.b.2 (Faroe Bank). Nominal catches by country as officially reported to ICES. From 1992 catches by the Faroe Islands and Norway are used in the assessment. All weights are in tonnes.

Year	Faroe Islands	Correction of Faroese catches in Subdivision 5.b.2	Norway	UK (E/W/NI)	UK (Scotland)	Total	ICES estimates
1986	1836		6		63	1905	1905
1987	3409		23		47	3479	3479
1988	2966		94		37	3097	3097
1989	1270		128		14	1412	1412
1990	289					289	289
1991	297					297	297
1992	122		32			154	154
1993	264		2			266	266
1994	717		8			725	725
1995	561		40			601	601
1996	2051		55			2106	2106
1997	3459		135			3594	3594
1998	3092		147			3239	3239
1999	1001		88			1089	1350
2000		1145	49			1194	1194
2001	1094	-65	51			1080	1080
2002	1840	-109	25			1756	1756
2003	5957	-353	72			5676	5676
2004	3607	-214	18			3411	3411
2005	1270	-75	37			1232	1232
2006	1005	-60	10			955	955
2007	471	-28	7			450	450
2008	231	-14	1			218	218
2009	81	-5	4			80	80
2010	111	-7	1			105	105
2011	393	-23				370	370
2012	115	-7	0			108	108
2013	40	-2				38	38
2014	40	-2	1			39	39
2015	26	-2	0			24	24
2016	19	-1	1			19	19
2017	14	-1	1			14	14
2018	33	-2				31	31
2019	74	-4				70	70
2020*	55	-3	13			65	65
2021*	63	-4	2			61	61

* Preliminary.

Summary of the assessment

Table 8 Cod in Subdivision 5.b.2 (Faroe Bank). Assessment summary. Biomass index, used in the application of the rb advice method (ICES, 2022).

Year	Biomass index kg/hour			Total Catch tonnes
	Estimate	High	Low	
1965				2341
1966				1909
1967				1569
1968				3871
1969				2457
1970				3002
1971				2079
1972				2168
1973				5101

Year	Biomass index kg/hour			Total Catch tonnes
	Estimate	High	Low	
1974				2068
1975				2036
1976				2258
1977				959
1978				4379
1979				1306
1980				1203
1981				1229
1982				2184
1983				2284
1984				2189
1985				2913
1986				1836
1987				3409
1988				2966
1989				1270
1990				289
1991				297
1992				154
1993				266
1994				725
1995				601
1996	311	478	143	2106
1997	449	737	161	3594
1998	387	590	184	3239
1999	150	224	75	1001
2000	141	224	58	1194
2001	292	401	183	1080
2002	347	515	180	1756
2003	170	247	94	5676
2004	73	97	49	3411
2005	62	90	34	1232
2006	29	39	20	955
2007	33	46	21	450
2008	31	41	21	218
2009	52	72	31	80
2010	42	56	27	105
2011	65	88	42	370
2012	34	50	18	108
2013	17	25	10	38
2014	26	47	5	39
2015	25	44	6	24
2016	5	9	2	19
2017	19	32	6	14
2018	21	30	12	31
2019	117	201	34	70
2020	46	70	23	65
2021	96	154	37	61
2022	281	473	89	

Sources and references

Fischer, S. H., De Oliveira, J. A. A., Mumford, J. D., and Kell, L. T. 2021. Application of explicit precautionary principles in data-limited fisheries management. *ICES Journal of Marine Science* 78: 2931–2942.

<https://doi.org/10.1093/icesjms/fsab169>

ICES. 2020. Tenth Workshop on the Development of Quantitative Assessment Methodologies based on LIFE-history traits, exploitation characteristics, and other relevant parameters for data-limited stocks (WKLIFE X). *ICES Scientific Reports*. 2:98. 72 pp. <https://doi.org/10.17895/ices.pub.5985>

ICES. 2022a. Advice on fishing opportunities. *In* Report of the ICES Advisory Committee, 2022. *ICES Advice 2022*, Section 1.1.1. <https://doi.org/10.17895/ices.advice.19928060>

ICES. 2022b. Northwestern Working Group (NWWG). *ICES Scientific Reports*. 4:42. 734 pp. <http://doi.org/10.17895/ices.pub.19771381>

[Download the stock assessment data and figures.](#)

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