

Beaked redfish (*Sebastes mentella*) in Division 14.b, demersal (Southeast Greenland)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches in 2018 should be no more than 1142 tonnes.

Stock development over time

After a 15-year period of no directed fishery, a directed fishery started in 2009. The Greenland Shallow Water survey index indicates that the biomass has been declining since 2010, with an increase in 2016.

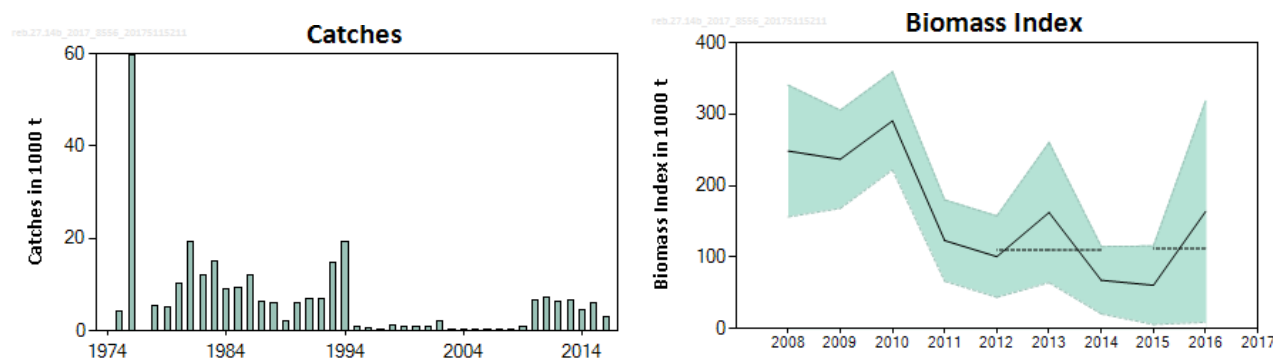


Figure 1 Beaked redfish in Division 14.b, demersal. Summary of the stock assessment. Left: Catches in 1974–2016. Right: Biomass index of *S. mentella* > 17 cm from the Greenland Shallow Water survey (0–600 m); median (solid line) and 95% confidence intervals (shaded area) are plotted. The dashed horizontal lines indicate the average biomass for 2012–2014 and for 2015 and 2016.

Stock and exploitation status

Table 1 Beaked redfish in Division 14.b, demersal. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size			
		2014	2015	2016		2014	2015	2016	
Maximum sustainable yield	F_{MSY}	?	?	?	Undefined	$MSY B_{trigger}$?	?	?
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Undefined	B_{pa}, B_{lim}	?	?	?
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—
Qualitative evaluation	—	?	?	?	Unknown	—	↘	↗	↗
									Uncertain

Catch options

The ICES framework for category 3 stocks was applied. The Greenland Shallow Water survey index was applied as index for the stock development. The advice is based on a comparison of the two latest index values (index A) with the three preceding values (index B), combined with the catch advice for 2017. The index has increased by 2%, and the uncertainty cap is not applied. The precautionary buffer was applied in 2015, and therefore is not reapplied this year. Discarding is considered negligible.

Table 2 Beaked redfish in Division 14.b, demersal. The basis for the catch options.

Index A (2015–2016)		112
Index B (2012–2014)		110
Index ratio (A/B)		1.02
Uncertainty cap	Not applied	-
Advised catch for 2017		1120 tonnes
Discard rate		Negligible
Precautionary buffer	Not applied	-
Catch advice 2018 (= Catch advice for 2017 × index ratio)		1142 tonnes

Note: 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.

Basis of the advice

Table 3 Beaked redfish in Division 14.b, demersal. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	There is no management plan for this stock.

Quality of the assessment

The present recorded catch of redfish does not separate *Sebastes mentella* from *Sebastes norvegicus*. Greenland surveys and samples from the commercial fishery are used to estimate a split of the catches between species based on morphological identification. A comparison of morphological and genetic species identification has shown approximately 5% mistakes in the morphological identification, leading to an overestimate of *S. mentella* catches (ICES, 2016a).

The survey indices have large uncertainties, primarily caused by the aggregating behaviour of the stock. In 2016, one haul accounted for 70% of the survey biomass.

Connection to other stocks of *S. mentella* remains unresolved and their effect on survey estimates and catches is unknown.

Issues relevant for the advice

Sebastes mentella is a slow-growing, late-maturing species and is therefore considered vulnerable to overexploitation. Since 2013 (Greenland survey) and 2010 (German survey; Figure 2), survey estimates of *S. mentella* have consistently shown very low abundance of juveniles. This is consistent with patterns seen in a number of other redfish stocks. The absence of indications of incoming cohorts raises concerns about the future productivity of the stock.

From 2009 *S. mentella* dominated the catches until 2016, when the proportion changed and *S. norvegicus* dominated for the first time. In recent years the fishery pattern has changed and is now operating in shallower waters, which may account for some of the change in catch composition.

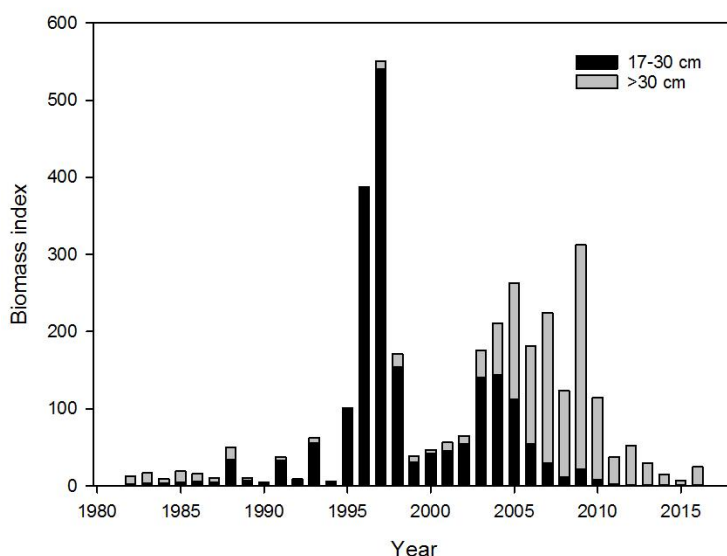


Figure 2 *Sebastes mentella* biomass of individuals size 17–30 cm (black) and >30 cm (grey). German survey (0–400 m).

Reference points

No reference points have been defined for this stock.

Basis of the assessment

Table 4 Beaked redfish in Division 14.b, demersal. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2016b).
Assessment type	Survey trend-based assessment (ICES, 2017).
Input data	Survey index (GRL-GFS).
Discards and bycatch	Discarding is considered negligible.
Indicators	Survey indices GER(GRL)-GFS-Q4.
Other information	The stock was benchmarked in 2012 (ICES, 2012).
Working group	North-Western Working Group (NWWG)

Information from stakeholders

There is no available information.

History of the advice, catch, and management

Table 5 Beaked redfish in Division 14.b, demersal. ICES advice and official landings. Advice prior to 2011 was given for beaked redfish (*S. mentella*) in Subarea 14 and Division 5.a (Icelandic slope stock). Weights are in tonnes.

Year	ICES advice	Predicted catch corresp. to advice	Agreed TAC for demersal redfish in Greenland EEZ	ICES catch
2011	No expansion of fishery	-	6000	7376
2012	No expansion of fishery	< 1000	6800*	6243
2013	Precautionary approach	< 3500	6800*	6761
2014	No new advice same as for 2013	< 3500	6800*	4608
2015	No new advice same as for 2013	< 3500	6800*	5977

Year	ICES advice	Predicted catch corresp. to advice	Agreed TAC for demersal redfish in Greenland EEZ	ICES catch
2016	Precautionary approach	< 2240	3400*, **	3061
2017	Precautionary approach	< 1120	3220*, **	
2018	Precautionary approach	< 1142		

* A total mixed TAC of 8500 t was set for *S. mentella* and *S. norvegicus*.

** In an agreement between Greenland and Iceland, 10% of the TAC set for *S. norvegicus* goes to Greenland. This share is then withdrawn from Greenland's mixed TAC mentioned in the footnote above.

History of the catch and landings

Table 6 Beaked redfish in Division 14.b, demersal. Catch distribution by fleet in 2016 as estimated by ICES.

Table 6: Beaked rechin in Division 14-2, demersal: catch distribution by fleet in 2016 as estimated by REES.			
Catch (2016)	Landings		Discards
3061 tonnes	Bottom trawl 99%	Longline 1%	Negligible
	3061 tonnes		

Table 7 Beaked redfish in Division 14.b, demersal. Total catch as estimated by ICES.

Year	Catch (t)	Year	Catch (t)	Year	Catch (t)
1971		1991	7057	2011	7376
1972		1992	7022	2012	6243
1973		1993	14828	2013	6761
1974	0	1994	19305	2014	4608
1975	4400	1995	819	2015	5977
1976	59700	1996	730	2016	3061
1977	0	1997	199		
1978	5403	1998	1376		
1979	5131	1999	853		
1980	10406	2000	982		
1981	19391	2001	901		
1982	12140	2002	2109		
1983	15207	2003	446		
1984	9126	2004	482		
1985	9376	2005	267		
1986	12138	2006	202		
1987	6407	2007	226		
1988	6065	2008	92		
1989	2284	2009	895		
1990	6097	2010	6613		

Summary of the assessment

Table 8 Beaked redfish in Division 14.b, demersal. Assessment summary. Weights are in tonnes.

Year	Biomass Index (Greenland Shallow Water survey) tonnes	Biomass index 97.5 percentile	Biomass index 2.5 percentile
2008	248300	340420	156180
2009	236700	305300	168100
2010	290500	359100	221900
2011	123100	179940	66260
2012	100600	157440	43760
2013	162300	260300	64300
2014	67600	114640	20560
2015	60600	115480	5720
2016	163700	318500	8700

Sources and references

ICES. 2012. Report of the Benchmark Workshop on Redfish Stocks (WKRED), 1–8 February 2012, Copenhagen, Denmark. ICES CM 2012/ACOM:48. 291 pp.

ICES. 2016a. Report of the North-Western Working Group (NWWG), 27 April–4 May, 2016, ICES Headquarters, Copenhagen. ICES CM 2016/ACOM:08.

ICES. 2016b. Advice basis. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.

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