

2.3.4a Beaked redfish (*Sebastes mentella*) in Subareas V, XII, and XIV (Iceland and Faroes grounds, north of Azores, east of Greenland) and NAFO Subareas 1+2 (deep pelagic stock > 500 m)

ICES stock advice

ICES advises on the basis of precautionary considerations that catches in 2016 of deep pelagic *Sebastes mentella* be significantly reduced since indices from the survey suggest that the stock has declined substantially prior to 2005 and continues to decline. Simulations show that only options with catch below 10 000 t have a more than 50% probability of giving increasing biomass; therefore, only catch options under 10 000 t should be considered for 2016.

Stock development over time

Trawl survey estimates in 2009–2015 are lower than the average for 1999–2003, with the 2015 estimates being the lowest observed. These indices suggest that the stock has been reduced in the past decade. The exploitation rate for this stock is unknown.

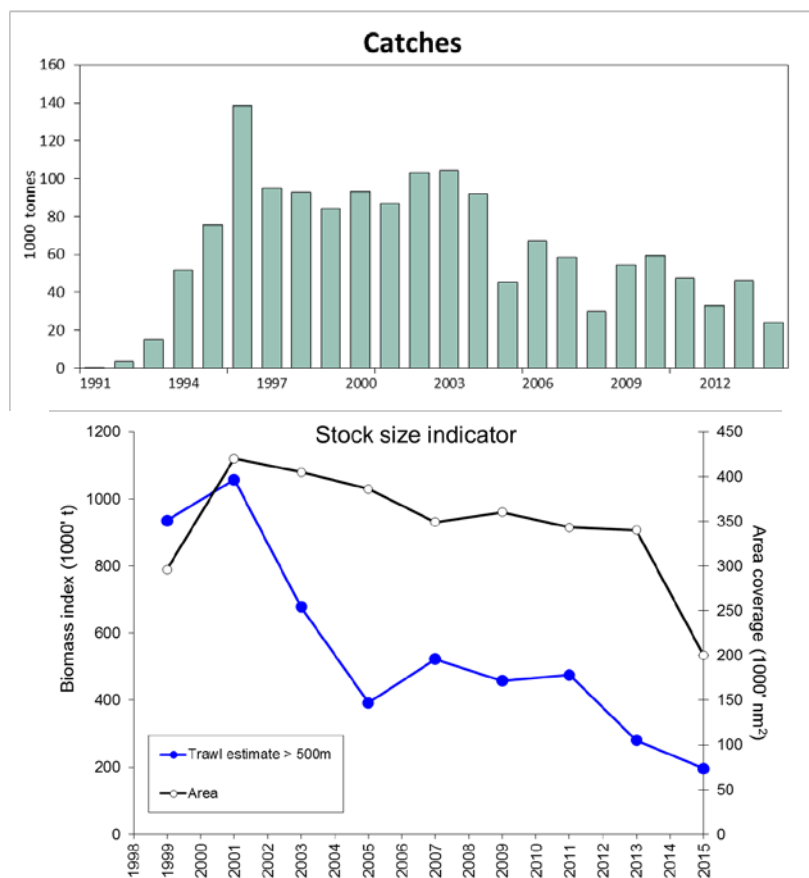


Figure 2.3.4a.1 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). Top: Catches (thousand tonnes). Bottom: Survey indices from trawl estimates deeper than 500 m (blue line) and area coverage of the survey (black open circle) in the Irminger Sea and adjacent waters.

Stock and exploitation status

Table 2.3.4a.1 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). State of the stock and fishery, relative to reference points.

		Fishing pressure			Stock size					
		2012	2013	2014	2013	2014	2015			
Maximum Sustainable Yield	F_{MSY}	?	?	?	Undefined	$B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa} , F_{lim}	?	?	?	Undefined	B_{pa} , B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	-	-	?	Not applicable	SSB_{MGT}	-	-	-	Not applicable
Qualitative evaluation	-				Undefined	-	↘	↘	↘	Declining

Catch options

Since indices from the survey suggest that the stock has been declining rapidly over more than the last decade and that the stock is continuing to decline up to 2015. Therefore, ICES recommends that catches of deep pelagic *S. mentella* be significantly reduced. ICES has previously advised that most deep-water species like redfish can only sustain low rates of exploitation, since slow-growing, long-lived species that are depleted have a long recovery period.

ICES is not yet able to advise on a harvest control rule that ensures a maximum sustainable yield, but has offered options for the harvest from this stock which are considered precautionary in the intermediate period until more data are available (ICES, 2014c). All options indicate a significant reduction in 2016 from recent catches. None of the catch options (Table 2.2.3.2.2 in ICES, 2014b) are precautionary and only options with catch below 10 000 t have a more than 50% probability of giving increasing biomass. Based on these considerations only catch options under 10 000 t should be considered for 2016.

Basis of the advice

Table 2.3.4a.2 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m).

Advice basis	No analytical assessment, qualitative assessment, and evaluation of harvest control rules (ICES, 2014b)
Management plan	There is no management plan for the stock.

Quality of the assessment

The fishery started around 1991–1992 when the commercial fleet of the shallow pelagic redfish moved into deeper waters. A fishery-independent time-series is available only from 1999, with one biomass estimate every two years.

The quality of the trawl biomass estimate from the international trawl–acoustic surveys since 1999 has yet to be verified, and the abundance estimates by the trawl method must be considered only a rough attempt to measure the abundance of the deep pelagic stock. The survey series needs evaluation of consistency over the time-series.

Cpue data are not considered for this stock because it is not known to what extent cpue reflects changes in the stock status of the deep pelagic *S. mentella* stock. The fishery targets pelagic aggregating fish. Therefore, stable or increasing cpues are not considered to reflect the stock status reliably, but decreasing cpues likely indicate a decreasing stock.

Several data improvements are needed – better catch data, better survey information, particularly from within the deep-scattering layer, and a recruitment index.

ICES again had difficulties in obtaining catch estimates from some ICES Member Countries, and especially data disaggregated by depth. Therefore, ICES recommends that all nations should report depth information on a haul basis in accordance with

the NEAFC logbook format. There is a need for action through NEAFC and NAFO to provide ICES with timely and complete information that may lead to more reliable catch statistics.

The reduced area coverage of the survey may give a small underestimate of the index in 2015. However, this is not expected to change the perception of the stock.

Issues relevant for the advice

The Russian Federation has decided on a unilateral quota since 2011 that considers both redfish management units as a single stock. This unilateral quota is more than the total quota recommended by NEAFC. For 2015 the total quota was more than three times the quota recommended by NEAFC for both stocks.

Reference points

No reference points are defined for this stock.

Basis of the assessment

Table 2.3.4a.3 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m).

ICES stock data category	3 (ICES, 2015b).
Assessment type	Qualitative assessment.
Input data	Commercial catches (international landings); one survey index (International Trawl Survey).
Discards and bycatch	Not included, considered negligible.
Indicators	None.
Other information	The stock was benchmarked in 2012 and indices revised in 2014 (ICES, 2014b).
Working group	North-Western Working Group (NWWG).

Information from stakeholders

No information from stakeholders is available.

History of advice, catch, and management

Table 2.3.4a.4 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). History of ICES advice, the agreed TAC, and ICES estimates of catch.

Year	ICES advice*	Predicted catch corresponds to advice*	TAC*	ICES catch* – Total	ICES catch – deep pelagic stock
1991	TAC	66		28	0
1992	Preference for no major expansion of the fishery	-		66	3
1993	TAC	50		116	16
1994	TAC	100		148	52
1995	TAC	100		176	78
1996	No specific advice	-	153	180	139
1997	No specific advice	-	153–158	123	95
1998	TAC not over recent (1993–1996) levels of 150 000 t		153	117	93
1999	TAC to be reduced from recent (1993–1996) levels of 150 000 t		153	110	84
2000	TAC set lower than recent (1997–1998) catches of 120 000 t	85	120	126	93
2001	TAC less than 75% of catch 1997–1999	< 85	95	129	88
2002	TAC less than 75% of catch 1997–1999 – Revised to be below current catch levels	< 85	No agreed NEAFC proposal (95)	146	103
2003	TAC not to exceed current catch levels	119	(119)##	161	104
2004	TAC not to exceed current catch levels	120	(120)##	126	92
2005	Limit catch to 41 kt	41	(75) / (116**)##	74	45
2006	Catch less than 41 kt	41	(62) / (99**)##	83	67
2007	No fishery until clear indications of recovery of the stock	0	(46) / (73**)##	64	59
2008	Starting point for adaptive management strategy	20	(46) / (73**)##	32	30
2009	Starting point for adaptive management strategy	20	(46) / (78**)##	54	52
2010 ¹	Reducing fishing: Starting point for adaptive management strategy	20	(46) / (78**)##	59	57
2011	Reducing fishing: Starting point for adaptive management strategy	20	(38) / (60**) / (30#)##	48	47
2012	Reducing fishing: Starting point for adaptive management strategy	20	(32) / (54**) / (30#)	36	33
2013	Precautionary considerations. Management plan to be developed and implemented	20	(26) / (48**) / (27#)	48	46
2014	Same advice as last year	20	(20) / (43**) / (27#)	30	24
2015	Precautionary consideration	< 10	(9.5) / (35**) / (27#)		
2016	Reduce catches significantly	< 10			

Weights in thousand tonnes.

* Until 2009 the advice and TAC was given for shallow and deep stocks combined.

** Sum of all quotas in force, for both shallow and deep pelagic stocks.

Unilateral Russian Federation TAC for both shallow and deep pelagic stocks.

As in 2002 there was no agreed NEAFC proposal.

History of catch and landings

Table 2.3.4a.5 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). Catch distribution by fleet in 2014 as estimated by ICES.

Total catch (2014)	Commercial landings	Commercial discards
23.8 kt	100% pelagic trawl	0 kt
	23.8 kt	

Table 2.3.4a.6 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). History of commercial catch (t), ICES estimated values are presented by area.

Year	Division Va	Subarea XII	Subarea XIV	NAFO Division 1F	Total
1991	0	7	52	0	59
1992	1862	280	1257	0	3398
1993	2603	6068	6393	0	15064
1994	14807	16977	20036	0	51820
1995	1466	53141	21100	0	75707
1996	4728	20060	113765	0	138552
1997	14980	1615	78485	0	95079
1998	40328	444	52046	0	92818
1999	36359	373	47421	0	84153
2000	41302	0	51811	0	93113
2001	27920	0	59073	0	86993
2002	37269	2	65858	0	103128
2003	46627	21	57648	0	104296
2004	14446	0	77508	0	91954
2005	11726	0	33759	0	45485
2006	16452	51	50531	254	67288
2007	17769	0	40748	0	58516
2008	4602	0	25443	0	30045
2009	16828	4658	32920	0	54406
2010	8552	0	50736	0	59288
2011	0	7	47326	0	47333
2012	5530	608	26668	0	32806
2013	5274	0	40778	0	46052
2014	603	0	23152	0	23755

1992–1996: Estimates are based on different sources.

1997–2014: Calculations based on joint catches by depth database from some countries and total catch of “deep” and “shallow” pelagic *S. mentella*.

Table 2.3.4a.7 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). History of commercial catch (t), ICES estimated values are presented by country.

Year	Bulgaria	Canada	Estonia	Faroes	France	Germany	Greenland	Iceland	Japan	Latvia	Lithuania	Nederland	Norway	Poland	Portugal	Russia	Spain	UK	Ukraine	Total
1991								59												59
1992								3,398												3,398
1993				310		1,135		12,741					878							15,064
1994						2,019		47,435					523		377	1,465				51,820
1995	1,140	181	5,056	1,572	68	8,271	1,579	25,898	396	1,501	6,868	4	3,169		2,955	15,868	227		956	75,707
1996	1,654	307	3,351	3,748		15,549	1,671	57,143	196	512	5,031		5,161		1,903	36,400	5,558	123	245	138,552
1997		9	315	435		11,200		36,830	3				2,849		3,307	33,237	6,895			95,079
1998			76	4,484		8,368	302	46,537	1		34		438		4,073	25,748	2,758			92,818
1999			53	3,466		8,218	3,271	40,261					3,337		4,240	11,419	9,885	5		84,153
2000			7,733	2,367		6,827	3,327	41,466			0		3,108		3,694	14,851	9,740			93,113
2001			878	3,377		5,914	2,360	27,727			7,515		4,275		2,488	23,810	8,649			86,993
2002			15	3,664		7,858	3,442	39,263			9,771		4,197		2,208	25,309	7,402			103,128
2003				3,938		7,028	3,403	44,620			0		5,185		2,109	28,638	9,374			104,296
2004				4,670		2,251	2,419	31,098			0		6,277	1,889	2,286	31,067	9,996			91,954
2005				1,800		1,836	1,431	12,919			1,027		3,950	1,240	1,088	16,323	3,871			45,485
2006				3,498		1,830	744	20,942			1,294		5,968	1,356	1,313	23,670	6,673			67,288
2007				2,902		1,110	1,961	18,097		575	1,394		4,628	636	2,067	21,337	3,810			58,516
2008				2,632			1,170	6,723			749		571	219	1,733	15,106	1,142			30,045
2009				3,206			1,519	15,125		1,355	2,613			178	1,596	25,309	2,907			54,006
2010				3,195			1,932	14,772		1,963	2,228		2,388	3	2,203	22,803	7,801			59,288
2011				2,028		1,787		11,994		845	1,348		1,066		1,540	22,364	4,361			47,333
2012				1,438		1,523		5,912		724	558		3,362		250	18,377	632			32,806
2013				1,882		1,176		8,545		1,200	1,163		2,979			26,463	2,644			46,052
2014*				721		890		2,081		867	1,024		1,965			15,475	732			23,755

* Provisional. Official Spanish catch data were lower than the data provided by NEAFC and the WG decided to use the highest catch data as a precautionary measure.

Summary of the assessment

Table 2.3.4a.8 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). Survey index.

Year	Area covered (1000 NM ²)	Trawl estimate 1000 t
1999	296	935
2001	420	1001
2003	405	678
2005	386	392
2007	349	522
2009	360	458
2011	343	474
2013	340	280
2015	200	196

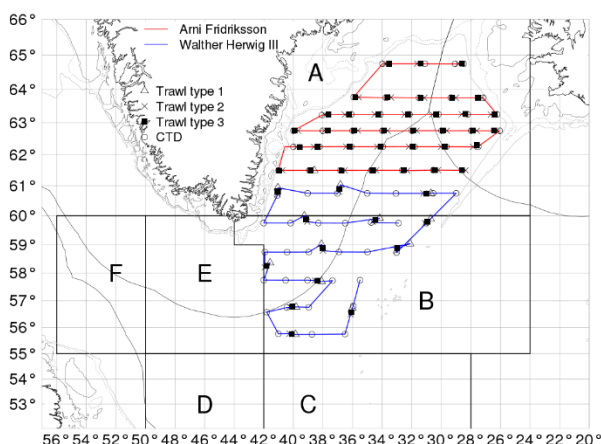


Figure 2.3.4a.2 Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (deep pelagic stock > 500 m). Survey cruise tracks in the international redfish survey in June/July 2015. Areas C–E were not surveyed in this survey. The coverage of the stock is considered adequate as only 5–10% of the survey biomass has been measured in Areas C–E in previous surveys.

Sources and references

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