

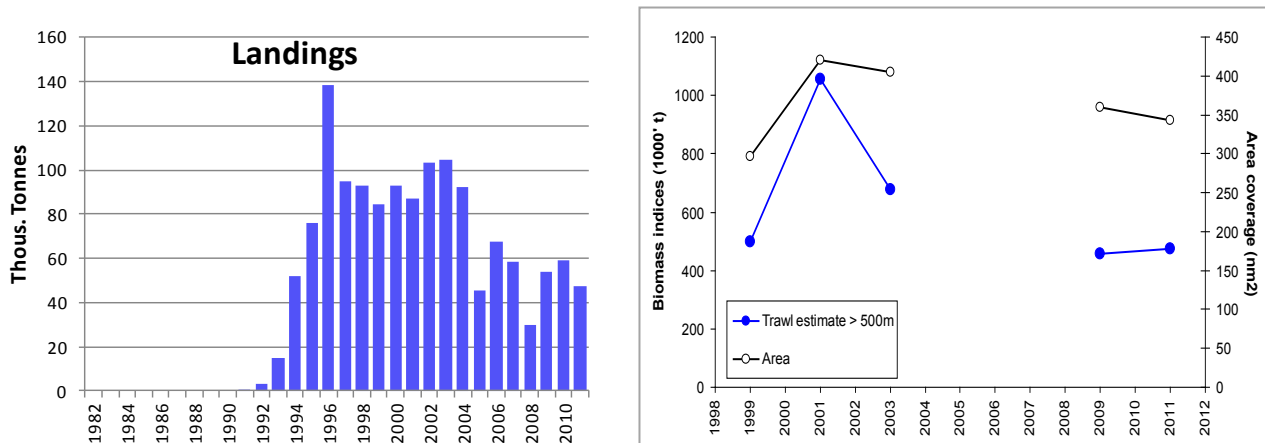
**ECOREGION** Iceland and East Greenland  
**STOCK** Beaked redfish (*Sebastes mentella*) in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock > 500 m)

**Advice for 2013**

The advice for the fishery in 2013 is the same as the advice given in 2011 for the 2012 fishery:  
 “ICES advises on the basis of the precautionary considerations that catches should be reduced to less than 20 000 t and a management plan should be developed and implemented.”

**Stock status**

F (Fishing Mortality)	
	2009–2011
MSY ( $F_{MSY}$ )	Unknown
Precautionary approach ( $F_{pa}, F_{lim}$ )	Unknown
SSB (Spawning-Stock Biomass)	
	2010–2012
MSY ( $B_{trigger}$ )	Unknown
Precautionary approach ( $B_{pa}, B_{lim}$ )	Unknown
Qualitative evaluation	Stable



**Figure 2.4.10.1** Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock > 500 m). Left: Landings (thousand tonnes). Right: Overview of survey indices from trawl estimates deeper than 500 m (blue line) and aerial coverage of the survey (black open circle) in the Irminger Sea and adjacent waters.

Trawl survey estimates in 2009 and 2011 are lower than the average for 1999–2003 and near the lowest observed. These indices in combination with a marked decrease in landings since 2004 suggest that the stock has been reduced in the past decade. The exploitation rate for this stock is unknown.

**Management plans**

There are no explicit management objectives for this stock.

## Biology

*S. mentella* is a species characterized by slow growth, late maturation (matures between 10 and 14 years old), a long lifespan (> 50 years), and a schooling behaviour. These characteristics make the species vulnerable to overexploitation. It can therefore only sustain low exploitation rates and management should be based on that consideration.

## The fisheries

Nursery areas for the stock are found on the continental slope off East Greenland. Technical conservation measures such as mandatory sorting grids in the shrimp fishery that have been in place for several years should be continued in order to protect the juvenile redfish.

<b>Catch distribution</b>	Total catches (2011) are 47.5 kt, all landings (100% pelagic trawl). No discards, industrial bycatch, or unaccounted removals.
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## Effects of the fisheries on the ecosystem

These fisheries are not considered to have an effect on the ecosystem apart from the removal of the target species. The pelagic fisheries on *S. mentella* generally have little or no bycatch.

## Quality considerations

Several data improvements are needed – better catch and landings data, better survey information, particularly within the deep scattering layer, and a recruitment index. However, the few available indices indicate a declining stock.

ICES again had difficulties in obtaining catch estimates and landing data from some ICES member countries, and specially data disaggregated by depth. For the years 2011 and 2012 the Russian Federation has decided on an unilateral quota that considers both redfish management units as a single stock. This unilateral quota nearly equals the total quota recommended by NEAFC. The Russian Federation so far has not facilitated depth disaggregated catch data to the NWWG, and this may affect the assessment. In February 2011 ICES launched a data call requiring better data from the countries participating in the redfish fishery, but the response was very limited. In spite of the best efforts there is a need for a special action through NEAFC and NAFO to provide ICES with timely and reliable catch statistics. Furthermore, ICES recommends that all nations should report depth information in accordance with the NEAFC logbook format.

## Scientific basis

<b>Assessment type</b>	Non-analytical.
<b>Input data</b>	Biomass and abundance survey indices obtained in biennial acoustic and trawling survey.
<b>Discards and bycatch</b>	Not included in the assessment.
<b>Indicators</b>	Biological data collected on this and other surveys and from commercial catches.
<b>Other information</b>	Stock benchmarked in 2012.
<b>Working group report</b>	<a href="#">NWWG</a>

**ECOREGION** Iceland and East Greenland  
**STOCK** Beaked redfish (*Sebastes mentella*) in Subareas V, XII, and XIV and  
NAFO Subareas 1+2 (Deep pelagic stock > 500 m)

**Reference points**

No reference points have been set for this stock.

**Outlook for 2013**

No assessment can be presented for this stock due to the insufficient commercial dataset and short time-series of suitable survey data. Therefore, fishing possibilities cannot be projected.

*Precautionary approach*

ICES advises on the basis of the precautionary considerations that catches should be reduced to less than 20 000 t and a management plan should be developed and implemented. The stock is considered to have decreased over the last decade while the exploitation status is unknown. The stock is considered to be vulnerable to overexploitation because of its biological characteristics (slow-growing, late-maturing, and schooling behaviour).

**Additional considerations***Management considerations*

ICES has previously advised that most deep-water and long-living species like redfish can only sustain low rates of exploitation, since slow-growing, and long-lived species that are depleted have a long recovery period. Fisheries should only be allowed to expand when indicators have been identified and a management strategy including appropriate monitoring requirements has been decided and implemented.

ICES is concerned about the lack of agreed upon management and TAC allocation schemes. Although most nations conducting fisheries have agreed on management measures to reduce catches stepwise over the next three years, the total quotas that have been set are insufficient to constrain catches. This increases the risk of overexploitation. The autonomous quotas that have been set are insufficient to constrain catches, even though ICES acknowledges that some parties have agreed on a step-wise reduction of catches. Therefore, ICES has for the past two years advised that an adaptive management plan be implemented. ICES provided a list of potential elements that could be contained in such a management plan.

*Changes in fishing technology and fishing patterns*

The fishery started around 1991–1992 when the commercial fleet of the shallow pelagic redfish moved into deeper waters. Since 1997, the main fishing season occurred from late April to August in the so-called northwest fishing area near the Greenland and Icelandic EEZ and within the Icelandic EEZ, i.e. in the area east of 32°W and north of 61°N. The trawlers participating in this fishery use large pelagic trawls (*Gloria*-type) with vertical openings of 80–150 m. The vessels have operated at a depth range of 600 to 950 m in 1998–2011. Discarding is at present not considered to be significant in this fishery. The deep pelagic fishery in the Irminger Sea only exploits the mature part of the stock.

*Data and methods*

Survey indices, catches, cpue, and biological data are available for the stock, but the assessment is mainly based on surveys (Figures 2.4.10.1–2.4.10.4 and Table 2.4.10.1).

Data from most fishing nations have been compiled since this fishery started, although some ICES member nations do not supply the required depth information. There is a need for a special action through NEAFC and NAFO to provide ICES, in a timely manner, with all information that might lead to more reliable catch statistics. Furthermore, ICES recommends that all nations should report depth information in accordance with the NEAFC logbook format. Figure 2.4.10.4 shows detailed charts of the area distribution of the fisheries.

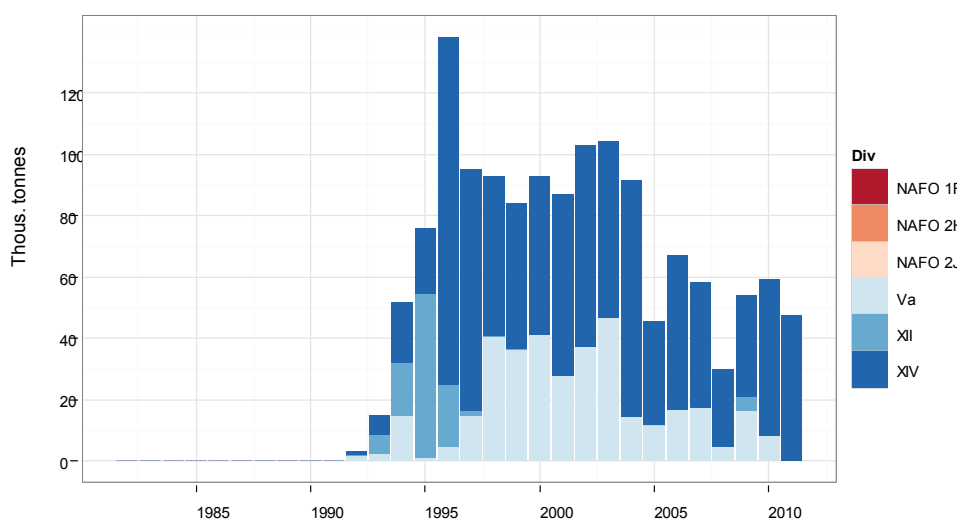
## Uncertainties in assessment and forecast

The quality of the trawl biomass estimate from the international trawl–acoustic surveys since 1999 cannot be verified as the data series is relatively short and the survey is only conducted every second year. Therefore, the abundance estimates by the trawl method must only be considered as a rough attempt to measure the abundance of the deep pelagic stock.

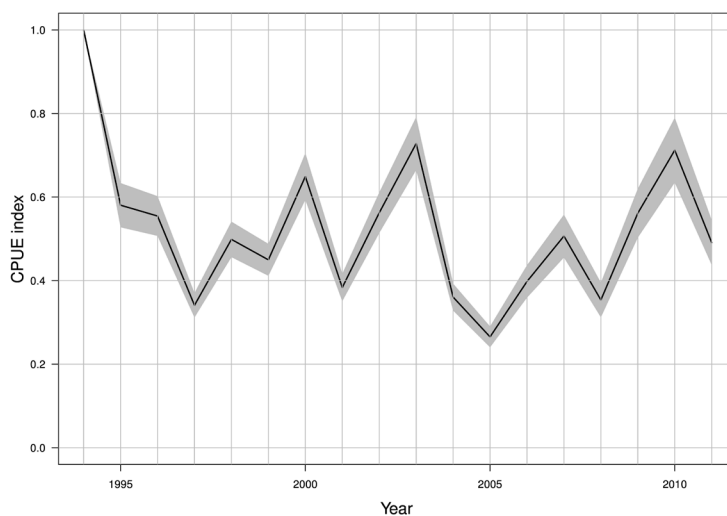
It is not known to what extent cpue reflect changes in the stock status of deep pelagic *S. mentella* stock. The fishery targets pelagic aggregating fish. Therefore, stable or increasing cpues are not considered to reflect the stock status reliably, but decreasing cpues likely indicate a decreasing stock (Figure 2.4.10.3).

### Sources

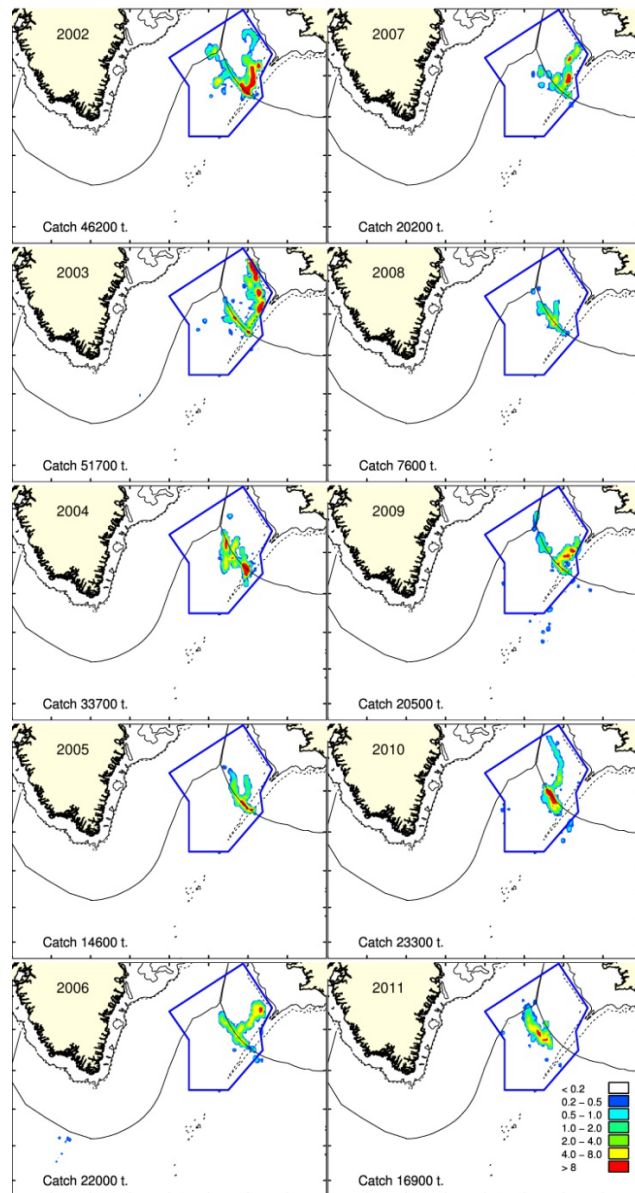
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 ICES. 2011b. Report of the Working Group on Redfish Surveys, 2–4 August 2011. ICES CM 2011/SSGESST:21.  
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 ICES. 2012b. Report of the North-Western Working Group, 26 April–3 May 2012. ICES CM 2012/ACOM:07.



**Figure 2.4.10.2** Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock >500 m). Landings by area (thousand tonnes).



**Figure 2.4.10.3** Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock >500 m). Trends in standardized cpue of the deep pelagic *S. mentella* fishery in the Irminger Sea and adjacent waters, based on logbook data from several nations.



**Figure 2.4.10.4**

Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock >500 m). Fishing areas and total catch of pelagic *S. mentella* from the recommended northeast management unit in the Irminger Sea and adjacent waters 2002–2011. This is a geographic proxy for the deep pelagic stock. Data are from the Faroe Islands (2002–2011), Germany (2002–2007 and 2011), Greenland (2002–2003 and 2009–2010), Iceland (2002–2011), and Norway (2002, 2003, and 2008–2011). The scale given is tonnes per square nautical mile.

**Table 2.4.10.1** Beaked redfish (*Sebastes mentella*) in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock >500 m). ICES advice, management, and catches.

Year	ICES Advice <sup>1)</sup>	Predicted catch corresponds to advice <sup>1)</sup>	TAC <sup>1)</sup>	ICES Catch <sup>1)</sup> 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 exceed current catch levels	119	- ,, - (119)	161	104
2004	TAC not exceed current catch levels	120	- ,, - (120)	126	92
2005	Limit catch to 41 kt	41	- ,, - (75) / (116 <sup>2)</sup> )	74	45
2006	Catch less than 41 kt	41	- ,, - (62) / (99 <sup>2)</sup> )	83	67
2007	No fishery until clear indications of recovery of the stock	0	- ,, - (46) / (73 <sup>2)</sup> )	64	59
2008	Starting point for adaptive management strategy	20	- ,, - (46) / (73 <sup>2)</sup> )	32	30
2009	Starting point for adaptive management strategy	20	- ,, - (46) / (78 <sup>2)</sup> )	54	52
2010 <sup>1)</sup>	Reducing fishing: Starting point for adaptive management strategy	20	No agreed NEAFC proposal (46) / (78 <sup>2)</sup> )	59	57
2011	Reducing fishing: Starting point for adaptive management strategy	20	- ,, - (38) / (60 <sup>2)</sup> / (30 <sup>3)</sup> )	48	47
2012	Reducing fishing: Starting point for adaptive management strategy	20	(32) / (54 <sup>2)</sup> / (30 <sup>3)</sup> )		
2013	Precautionary considerations. Management Plan to be developed and implemented	20			

Weights in thousand tonnes.

<sup>1)</sup> Up to 2009 advice and TAC was given for shallow and deep stocks combined.

<sup>2)</sup> Sum of all quotas in force, for both shallow and deep pelagic.

<sup>3)</sup> Unilateral Russian Federation TAC for both shallow and deep pelagic.

**Table 2.4.10.2** Beaked redfish in Subareas V, XII, and XIV and NAFO Subareas 1+2 (Deep pelagic stock >500 m). Catches (in tonnes) by area as used by the Working Group.

Year	Va	XII	XIV	NAFO 1F	NAFO 2H	NAFO 2J	Total
1982		0	0				0
1983		0	0				0
1984		0	0				0
1985		0	0				0
1986		0	0				0
1987		0	0				0
1988		0	0				0
1989		0	0				0
1990		0	0	0			0
1991		7	52	0			59
1992	1 862	280	1 257				3 398
1993	2 603	6 068	6 393				15 064
1994	14 807	16 977	20 036				51 820
1995	1 466	53 141	21 100				75 707
1996	4 728	20 060	113 765				138 552
1997	14 980	1 615	78 485				95 079
1998	40 328	444	52 046				92 818
1999	36 359	373	47 421	0			84 153
2000	41 302	0	51 811	0			93 113
2001	27 920	0	59 073	0	0	0	86 993
2002	37 269	2	65 858	0		0	103 128
2003	46 627	21	57 648	0	0	0	104 296
2004	14 446	0	77 508	0		0	91 954
2005	11 726	0	33 759	0	0	0	45 485
2006	16 452	51	50 531	254	0	0	67 288
2007	17 769	0	40 748	0	0	0	58 516
2008	4 602	0	25 443	0			30 045
2009	16 428	4 658	32 920				54 006
2010	8 407	0	50 661	0			59 067
2011		7	47 490				47 497

1992–1996 Estimates based on different sources.

1997–2010 Catches from calculations based on the joint catch database and total landings.