

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

Advice summary for 2011

The 2009 landing and logbook data do not change the perception of the stock. The advice for the fishery in 2011 is therefore the same as the advice given in 2009 for the 2010 fishery: “ICES advises on the basis of precautionary considerations that the fishery be reduced below the 2008 level to 20 000 t and that a management plan be developed and implemented. ICES suggests that catches of Deep Pelagic *S. mentella* are set at 20 000 t as a starting point for the adaptive part of the management plan. Given the reduced abundance of this stock in recent years, a total catch limit of no greater than 20 000 tonnes should be implemented in 2010, irrespective of whether a management plan has been developed by that time or not..”

This advice will be updated in the fall of 2011 on the basis of new survey information and the results of an ICES/NAFO expert group that will review available information on stock identification in early 2009.

Stock status

Fishing mortality	2007	2008	2009
F_{MSY}	Undefined	Undefined	Undefined
F_{PA}/F_{lim}	Undefined	Undefined	Undefined
Spawning Stock Biomass (SSB)	2008	2009	2010
MSY B_{trigger}	Undefined	Undefined	Undefined
B_{PA}/B_{lim}	Undefined	Undefined	Undefined

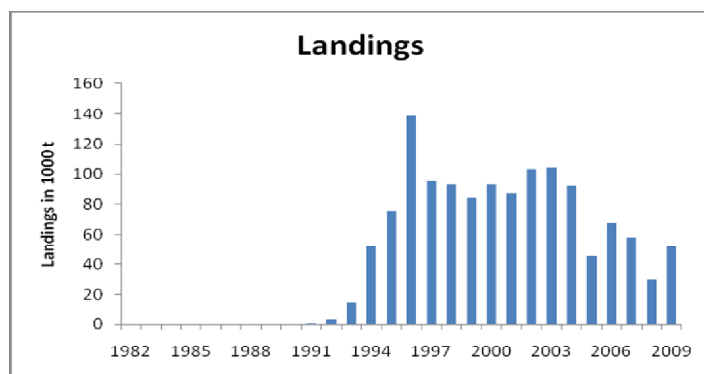


Figure 2.4.10.1 Deep pelagic redfish. Landings 1982-2009.

Based on the trawl survey estimates, there is indication of a decreasing trend in the time series and the 2009 estimate is the lowest in the series. Catch-per-unit-effort (CPUE) has been variable over the years, but on average the recent CPUEs are lower than in the early part of the time series. These indices in combination with a marked decrease in landings since 2004 suggest that the stock has been reduced substantially 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 long lived, slow growing species and therefore very vulnerable to overfishing.

The fisheries

Nursery areas for the stock are found at 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.

Catch by fleet	Total catch (2009) 51,828 kt where 100 % landings (100 % pelagic trawl), 0 % discards, 0 % industrial by-catch, 0 % unaccounted removals.
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Effects of the fisheries on the ecosystem

None apart from the removal of the target species. With some exceptions, pelagic fisheries generate scarce or no bycatch at all.

Quality considerations

Even though the biological stock entities have been clarified by ICES scientists, there are still a number of uncertainties in the assessment of Deep Pelagic *S. mentella* in the Irminger Sea. The lack of reliable indices of abundance and accurate recruitment indices prevent precise determination of stock status. However, all the few indices, even though of limited quality, showed a declining stock.

ICES had again difficulties in obtaining catch estimates and landing data from some ICES member countries. In spite of the best efforts there is a need for a special action through NEAFC and NAFO to provide ICES in time 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.

Scientific basis

Assessment type	Non analytical
Input data	Biomass and abundance survey indices obtained in biennial acoustic and trawling survey, biological data collected on this and other surveys and from commercial catches
Discards and by-catch	Not included in the assessment
Indicators	None
Other information	Stock proposed to be benchmarked in 2011
Working group report	NWWG

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Outlook for 2011

No reliable 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.

MSY approach

Future work on developing a management plan is required to encompass the MSY framework.

PA approach

*ICES advises on the basis of precautionary considerations that the fishery be reduced below the 2008 level to 20 000 t and that a management plan be developed and implemented. ICES suggests that catches of Deep Pelagic *S. mentella* are set at 20 000 t as a starting point for the adaptive part of the management plan. Given the reduced abundance of this stock in recent years, a total catch limit of no greater than 20 000 tonnes should be implemented in 2010, irrespective of whether a management plan has been developed by that time or not..”*

This advice will be updated in the fall of 2011 on the basis of new survey information and the results of an ICES/NAFO expert group that will review available information on stock identification in early 2009.

Additional considerations

Management considerations

ICES suggests that catches of Deep Pelagic *S. mentella* be reduced since indices from surveys and the fishery suggest that the stock has been declining over the last decades. ICES has previously advised that most deepwater species like redfish can only sustain low rates of exploitation, since slow-growing, 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. The basis of the 20 000 t is that this is a significant reduction in catches compared with 2008. A 30% reduction is by ICES considered as a minimum action for a significant reduction. This is expected to result in a lower exploitation rate, but the absolute magnitude cannot be estimated.

ICES is concerned about the lack of agreed management and TAC allocation schemes, which result in catches greatly exceeding the advice. This increases the risk of overexploitation. The autonomous quotas that have been set are insufficient to constrain catches. Therefore, ICES has for the past two years advised that an adaptive management plan be implemented and ICES provided a list of potential elements that could be contained in such a management plan. NEAFC, the main body of management of pelagic redfish in the Irminger Sea, has further requested ICES to specify these elements and also estimate possible candidates for reference points. However, ICES has not been yet able to address this issue.

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 1998–2008. 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 2.4.10.1–2.4.10.3 and Table 2.4.10.1).

Data from most fishing nations have been compiled since this fishery started. Figure 2.4.10.4 shows detailed charts of the area and depth 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 (Figure 2.4.10.2 and Table 2.4.10.2).

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

ICES. 2010. Report of the North-Western Working Group, 27 April - 4 May 2010 ICES CM 2010/ACOM:07.
ICES. 2009. Report of Planning Group on Redfish Surveys, 28–30 July 2009. ICES CM 2009/RMC:05

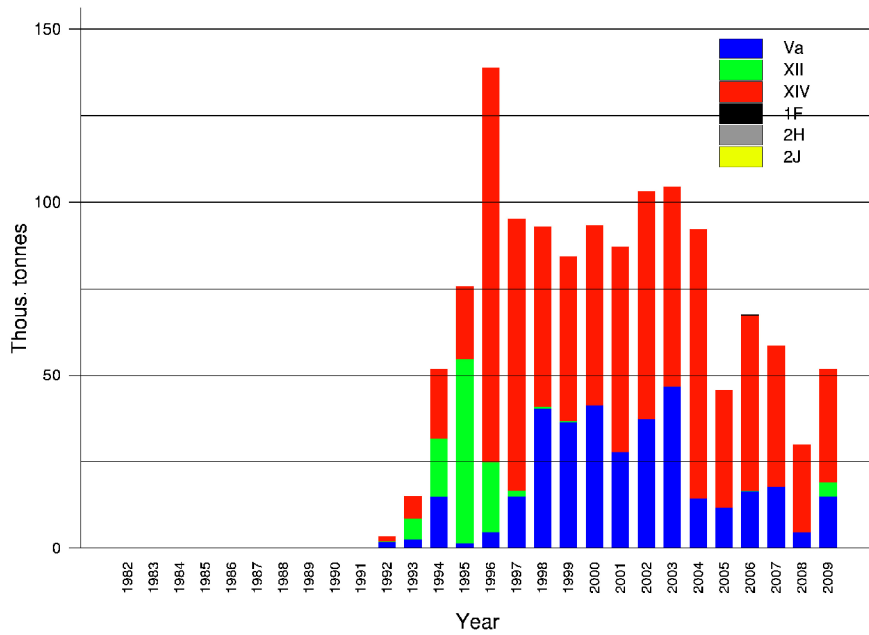


Figure 2.4.10.2 Deep pelagic *S. mentella* landings by area (‘000 tonnes).

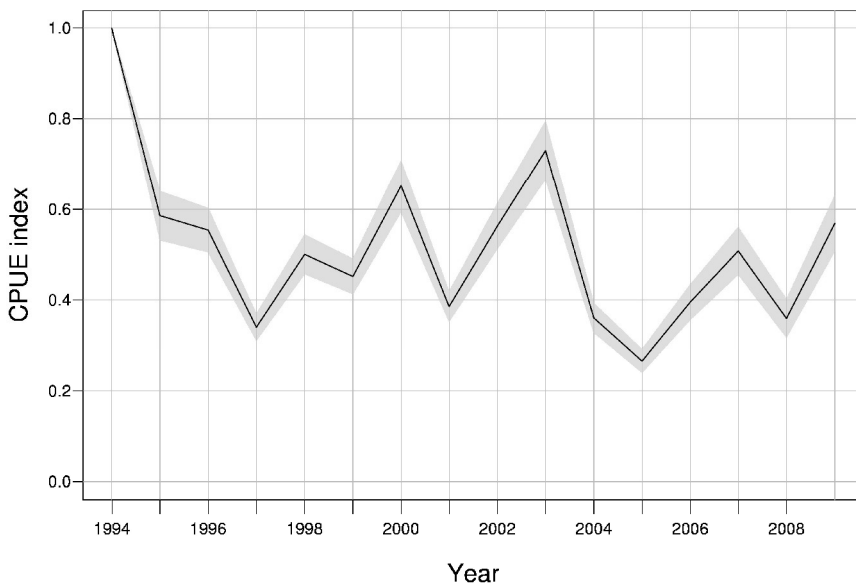


Figure 2.4.10.4 Standardized CPUE for deep pelagic *S. mentella* biological stock, based on data from Faroe Islands and Iceland.

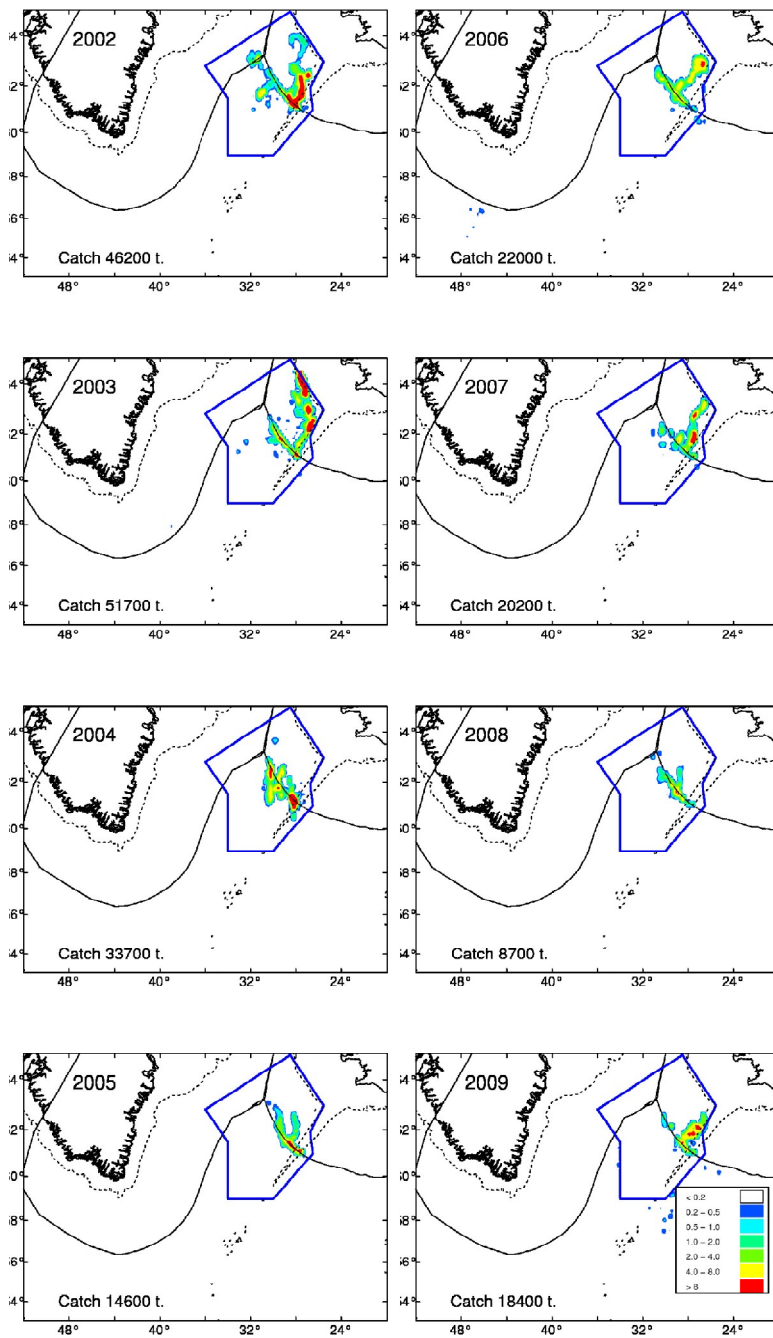


Figure 2.4.10.5 Fishing areas and total catch of pelagic *S. mentella* from the recommended northeast management unit in the Irminger Sea and adjacent waters 2002-2009. This is a geographic proxy for the deep pelagic stock. Data are from the Faroe Islands (2002-2009), Germany (2002-2007), Greenland (2002-2003), Iceland (2002-2009), Norway (2002-2003) and Russia (2002-2009). The scale given is tonnes per square nautical mile.

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

Year	ICES Advice ¹⁾	Predicted catch corresponds to advice ¹⁾	TAC ¹⁾	ACOM Catch ¹⁾	ACOM Catch deep
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	Not agreed NEAFC proposal (95)	146	103
2003	TAC not exceed current catch levels	119	Not agreed NEAFC proposal (119)	161	104
2004	TAC not exceed current catch levels	120	Not agreed NEAFC proposal (120)	126	92
2005	Limit catch to 41 kt	41	Not agreed NEAFC proposal (75) / (116 ²⁾)	74	45
2006	Catch less than 41 kt	41	Not agreed NEAFC proposal (62) / (99 ²⁾)	83	67
2007	No fishery until clear indications of recovery of the stock	0	Not agreed NEAFC proposal (46) / (73 ²⁾)	64	59
2008	Starting point for adaptive management strategy	20	Not agreed NEAFC proposal (46) / (73 ²⁾)	32	30
2009	Starting point for adaptive management strategy	20	Not agreed NEAFC proposal (46) / (78 ²⁾)		
2010 ¹	Reducing fishing: Starting point for adaptive management strategy	20			
2011	Reducing fishing: Starting point for adaptive management strategy	20			

Weights in '000 tonnes

1) Advice and TAC was up to 2009 given for shallow and deep stocks combined 2) Sum of all quotas in force

Table 2.4.10.2 Deep Pelagic *S. mentella*. Catches (in tonnes) by area as used by the Working Group.

YEAR	VA	XII	XIV	NAFO 1F	NAFO 2J	NAFO 2H	TOTAL
1991		2	52	0			43
1992	1,862	280	1,257				2,615
1993	2,603	6,068	6,393				15,678
1994	14,807	16,977	20,036				51,805
1995	1,466	53,141	21,100				78,399
1996	4,728	20,060	113,765				139,025
1997	14,980	1,615	78,485				95,164
1998	40,328	444	52,046				92,805
1999	36,359	373	47,421	0			84,115
2000	41,302	0	51,811	0			93,399
2001	27,920	0	59,073	0	0	0	88,166
2002	37,269	2	65,858	0		0	103,155
2003	46,627	21	57,648	0	0	0	104,263
2004	14,446	0	77,508	0		0	91,968
2005	11,726	0	33,759	0	0	0	45,485
2006	16,452	51	50,531	254	0	0	67,294
2007	17,769	0	40,748	0	0	0	58,511
2008	4,637	0	25,408	0			30,100
2009	14,977	4,337	32,514				
1992-1996	Estimates based on different sources (see text)						
1997-2009	Catches from calculations based on joint catch database and total landings						