

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

Advice for 2011

The new 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 no directed fishery should be conducted and by-catch of this stock in non-directed fisheries should be kept as low as possible. A recovery plan should be developed. Given the very low state of the stock, the directed fishery should be closed in 2010 irrespective of whether the recovery 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

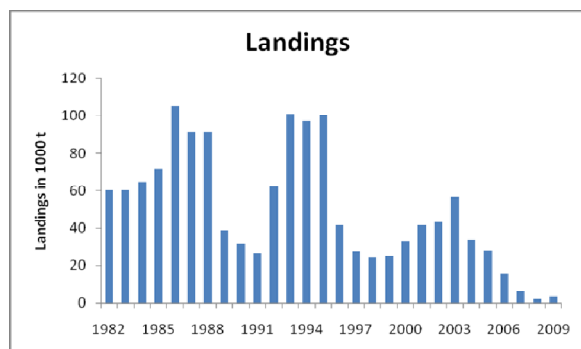


Figure 2.4.9.1 Shallow pelagic redfish. Landings 1982-2009.

Stock size is probably low; the estimate from the acoustic survey in 2009 is less than 5% of the estimates at the beginning of the survey time series in the early 1990s. 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) 1,387 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

The lack of accurate fisheries and survey data (especially for depths within the deep-scattering layer) and recruitment indices prevents precise determination of stock status. ICES is concerned about the lack of agreed management and TAC allocation schemes. This increases the risk of over-exploitation. The autonomous quotas that have been set are insufficient to constrain catches.

Scientific basis

Assessment type	No analytical assessment
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 Commercial indices (CPUE, landings)
Discards and by-catch	Not included in the assessment
Indicators	None
Other information	Stock proposed to be benchmarked in 2012
Working group report	NWWG

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Reference points

Not available.

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.

PA approach

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Additional considerations

Management considerations

The lack of accurate fisheries and survey data (especially for depths within the deep-scattering layer) and recruitment indices prevents precise determination of stock status. ICES is concerned about the lack of agreed management and TAC allocation schemes. This increases the risk of over-exploitation. The autonomous quotas that have been set are insufficient to constrain catches.

For the past two years, ICES has advised that an adaptive management plan be implemented and ICES provided a list of potential elements of such a management plan. The main management organisation concerned with pelagic redfish in the Irminger Sea - NEAFC - 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.

The next independent monitoring of the stock will take place in 2011 and 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 is implemented. ICES therefore stresses the need to develop and implement a recovery plan which takes into account the uncertainties in science and the properties of the fisheries

Changes in fishing technology and fishing patterns

Russian trawlers started fishing on the shallow pelagic *S. mentella* stock in 1982 and covered wide areas of the Irminger Sea. Vessels from other nations soon joined this fishery. The main fishing area in the last decade has been south and southeast of Cape Farwell, Greenland, the so-called southwestern area (south of 60°N and west of about 32°W), and the area is almost entirely shallower than 500 m. Since 2000, the southwestern fishing ground extended also into the NAFO Convention Area, but in later years the fishing area has been limited to the border area between NAFO and ICES south of Greenland. Catches have in parallel with this shrinkage declined substantially (Figure 2.4.9.4). In the period 1982–1992, the fishery was carried out mainly from April to August but since then the fishery has been conducted from July–October. The trawlers participating in this fishery use large pelagic trawls (*Gloria*-type) with vertical openings of 80–150 m.

The shallow pelagic stock 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 2.4.9.1–2.4.9.3).

ICES again had difficulties in obtaining landings data from some ICES' member countries (Figure 2.4.9.1). In spite of 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.*

Acoustic surveys conducted since 1991 in the Irminger Sea and adjacent waters are available for estimation of the stock biomass above the deep-scattering layer or down to ca. 350 m depth. Trawl information from within this layer and shallower than 500 m is available for 2001, 2003 and 2009. The 2003 estimate is considered to be inconsistent with other survey estimates as the survey this year was carried out about one month earlier than usual, and a seasonal effect cannot be ruled out (Figure 2.4.9.2 and Table 2.4.9.2). Data from most fishing nations have been compiled; Figure 2.4.9.4 shows the area distribution of the fisheries and Table 2.4.9.1 shows the catch data.

Uncertainties in assessment and forecast

Commercial CPUE series were previously used to determine stock sizes for pelagic *S. mentella*. The fishery targets pelagic aggregating fish and therefore stable or increasing CPUEs are not considered to reflect the stock status reliably, but decreasing CPUEs likely indicate a decreasing stock. Overall CPUEs declined between 1994 and 1999 and have since then fluctuated without a clear trend (Figure 2.4.9.3).

The acoustic estimates for pelagic redfish only provide stock estimates for redfish distributed shallower than the deep-scattering layer (DSL).

The acoustic biomass estimates provide only approximate indices of stock size due to the varying coverage of the stock distribution area.

The quality of the trawl biomass estimate within the DSL and shallower than 500 m cannot be verified, as the data series is relatively short and only conducted every second year. Therefore, the abundance estimates by the trawl-method must be considered as a rough attempt only to measure the abundance within the DSL and shallower than 500 m.

Sources

ICES. 2010. Report of the North-Western Working Group, 27 April - 4 May 2010 ICES CM 2010/ACOM:07.

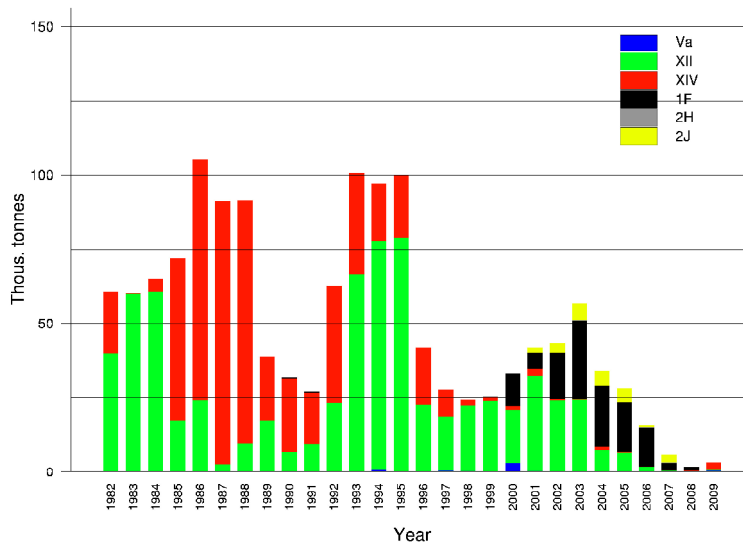


Figure 2.4.9.2 Shallow pelagic *S. mentella* landings by area (weights in '000 tonnes).

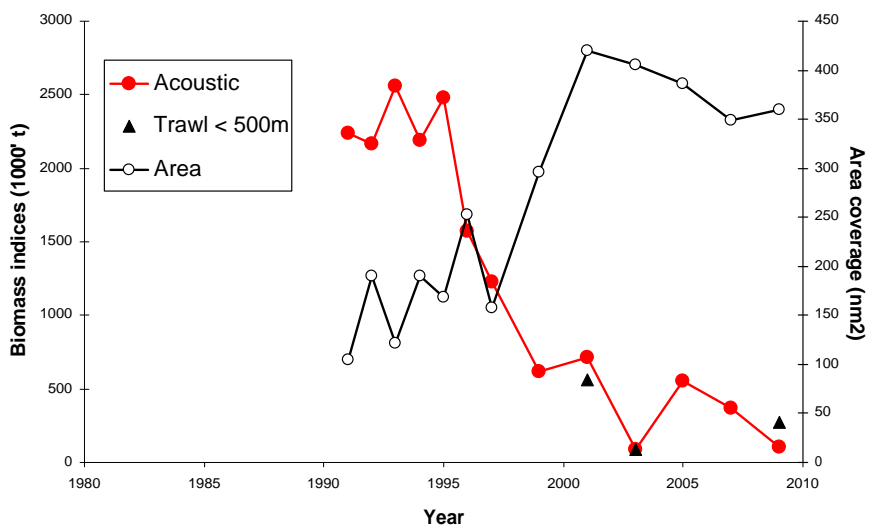


Figure 2.4.9.3 Shallow Pelagic *S. mentella* stock. Overview of acoustic survey indices from above the scattering layer (red filled circle), trawl estimates within the scattering layer and shallower than 500 m (black triangle), and aerial coverage of the survey (black open circle) in the Irminger Sea and adjacent waters.

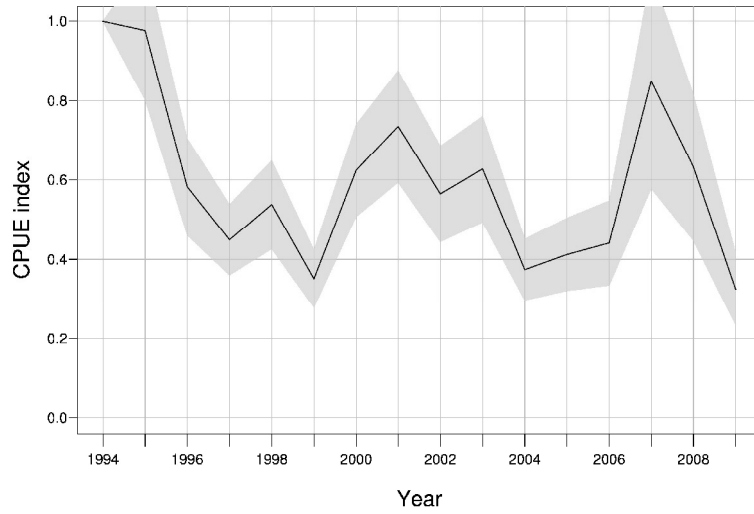


Figure 2.4.9.4 Trends in standardised CPUE of the shallow pelagic *S. mentella* fishery in the Irminger Sea and adjacent waters, based on log-book data from several nations.

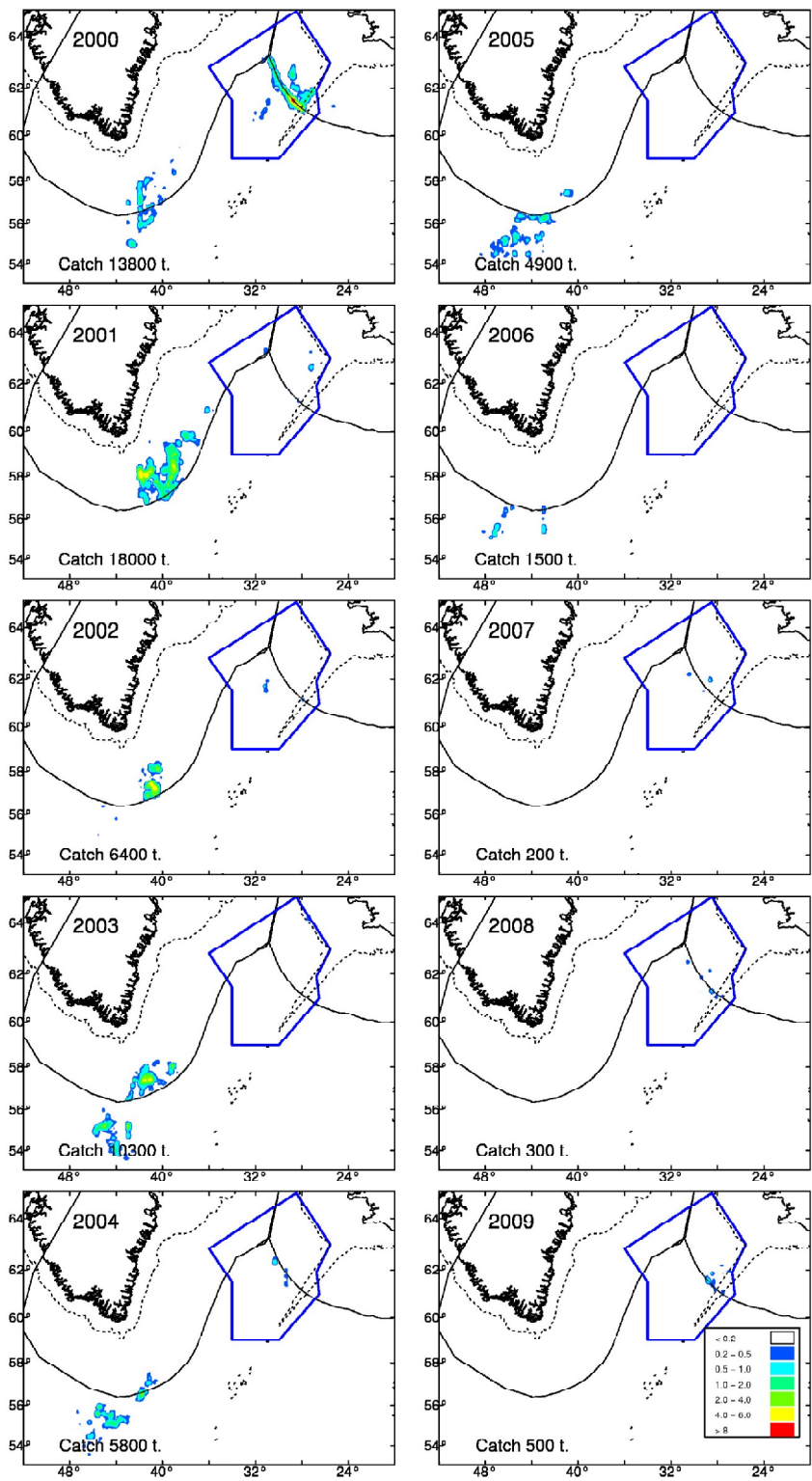


Figure 2.4.9.5 Fishing areas and total catch of pelagic redfish (*S. mentella*) in the Irminger Sea and adjacent waters 2000-2009. This is a geographic proxy for the shallow pelagic stock. Data are from the Faroe Islands (2000-2008), Greenland (2000-2003), Iceland (2000-2009) and Norway (2000-2003). The catches in the legend are given as tones per square nautical mile. The blue box represents the proposed management unit

Table 2.4.9.1 Beaked Redfish (*Sebastes mentella*) in Subareas V, XII, XIV and NAFO Subareas 1+2 (Shallow Pelagic stock < 500 m). ICES advice, management and landings, discards, catches [choose which is appropriate]

Year	ICES Advice ¹⁾	Predicted catch corresponds to advice ¹⁾	TAC ¹⁾	ACOM Catch ¹⁾	ACOM Catch
1987	No assessment	-		91	91
1988	No assessment	-		91	91
1989	TAC	90–100		39	39
1990	TAC	90–100		32	32
1991	TAC	66		28	27
1992	Preference for no major expansion of the fishery	-		66	63
1993	TAC	50		116	100
1994	TAC	100		148	97
1995	TAC	100		176	97
1996	No specific advice	-	153	180	41
1997	No specific advice	-	153–158	123	28
1998	TAC not over recent (1993–1996) levels of 150 000 t		153	117	24
1999	TAC to be reduced from recent (1993–1996) levels of 150 000 t		153	110	26
2000	TAC set lower than recent (1997–1998) catches of 120 000 t	85	120	126	33
2001	TAC less than 75% of catch 1997–1999	<85	95	129	41
2002	TAC less than 75% of catch 1997–1999 – Revised to be below current catch levels	<85	Not agreed NEAFC proposal (95)	146	43
2003	TAC not exceed current catch levels	119	Not agreed NEAFC proposal (119)	161	57
2004	TAC not exceed current catch levels	120	Not agreed NEAFC proposal (120)	126	34
2005	Limit catch to 41 kt	41	Not agreed NEAFC proposal (75) / (116 ²⁾)	74	28
2006	Catch less than 41 kt	41	Not agreed NEAFC proposal (62) / (99 ²⁾)	83	16
2007	No fishery until clear indications of recovery of the stock	0	Not agreed NEAFC proposal (46) / (73 ²⁾)	64	6
2008	Starting point for adaptive management strategy	20	Not agreed NEAFC proposal (46) / (64 ²⁾)	32	2
2009	Starting point for adaptive management strategy	20	Not agreed NEAFC proposal (46) / (78 ²⁾)		
2010 ¹⁾	No directed fishery and by-catch as low as possible				
2011	Same advice as last year				

Weights in '000 tonnes

1) Advice and TAC were up to 2009 given for both shallow and deep stocks

2) Sum of all quotas in force

Table 2.4.9.2 Shallow 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
1982		39,783	20,798				60,581
1983		60,079	155				60,234
1984		60,643	4,189				64,832
1985		17,300	54,371				71,671
1986		24,131	80,976				105,107
1987		2,948	88,221				91,169
1988		9,772	81,647				91,419
1989		17,233	21,551				38,784
1990		7,039	24,477	385			31,901
1991		9,689	17,048	458			27,195
1992	106	22,976	38,709				63,346
1993	0	66,458	32,500				100,158
1994	665	77,174	18,679				96,884
1995	77	78,895	17,895				97,443
1996	16	22,474	18,566				41,297
1997	321	18,212	8,245				27,661
1998	284	21,976	1,598				24,163
1999	165	23,659	827	534			25,550
2000	3,375	17,491	687	11,052			32,930
2001	228	32,164	1,151	5,290	8	1,751	40,652
2002	10	24,004	222	15,702		3,143	43,189
2003	49	24,211	134	26,594	325	5,377	56,721
2004	10	7,669	1,051	20,336		4,778	33,937
2005	0	6,784	281	16,260	5	4,899	28,229
2006	0	2,088	94	12,693	260	593	15,727
2007	71	378	99	2,843	175	2,561	6,132
2008	33	25	354	1,580			2,004
2009	400	290	2,858				3,548

1982–1991 All pelagic catches assumed to be of the shallow pelagic stock
1992–1996 Estimates based on different sources (see text)
1997–2009 Catches from calculations based on joint catch database and total landings

Table 2.4.9.3 Shallow Pelagic *S. mentella*. Results for the acoustic survey indices from shallower than the scattering layer, trawl estimates within the deep scattering layer and shallower than 500 m, and area coverage of the survey in the Irminger Sea and adjacent waters.

Year	Area covered (1000 NM ²)	Acoustic estimates 1000 t	Trawl estimates 1000 t
1991	105	2235	
1992	190	2165	
1993	121	2556	
1994	190	2190	
1995	168	2481	
1996	253	1576	
1997	158	1225	
1999	296	614	
2001	420	716	565
2003*	405	89*	92*
2005	386	550	
2007	349	372	
2009	360	108	276

* The 2003 biomass estimate is considered as inconsistent as the survey was carried out about one month earlier than usual, and a marked seasonal effect was observed.