ECOREGION Iceland and East Greenland
STOCK Beaked Redfish (*Sebastes mentella*) in Division Va and Subarea XIV (Icelandic Slope stock)

Advice for 2011

The 2009 data (landings and survey) do not change the perception of the stock and give no reason to change the advice from that given last year: *"ICES advises that a management plan be developed and implemented which takes into account the uncertainties in science and the properties of the fisheries. ICES suggests that catches are set no higher than 10 000 t as a starting point for the adaptive part of the management plan."*

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

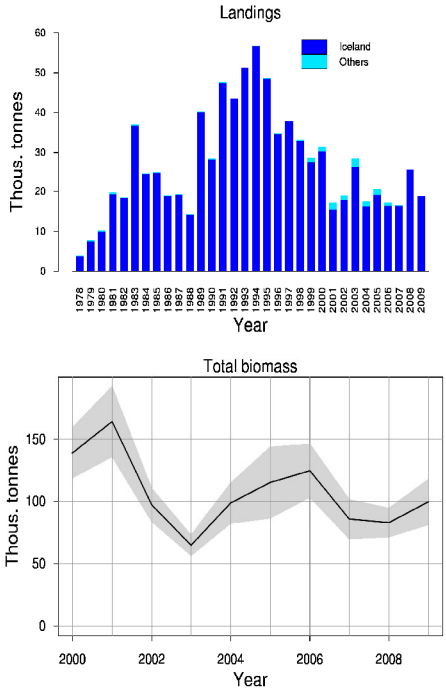

Figure 2.4.8.1 Demersal *S. mentella* on the continental shelf. Landings and survey biomass (Autumn survey)

Available survey biomass estimates indicate that in Division Va the biomass has been low but stable in the last years.

Management plans

No specific management objectives are known to ICES.

Biology

Sebastes mentella is a species with late maturation (matures between 10-14 years old) and slow growth (can get older than 50 years) and aggregating and is hence considered to be vulnerable to overexploitation. It can therefore only sustain low exploitation and management should be based on that consideration.

Subarea XIV in Greenland waters is believed to be an important nursery area for S. mentella found in Icelandic waters.

The fisheries

Beaked redfish is taken by Icelandic trawlers using bottom trawl on the continental slope at depths between 450-700 m. In the fishery small amounts (<2%) of *S. marinus* are caught and may be classified as Beaked redfish in the catches. The average annual catches 2001-2009 have been about 20 thousand tonnes.

Catch by fleet	Total catch 2009 19 kt where 100 % landings (100% bottom trawl, 0 other gear-types), 0 % discards, 0 % industrial by-catch, 0 % unaccounted removals

Quality considerations

There are a number of uncertainties in the assessment of Sebastes mentella. The lack long time series indices of abundance prevents the precise determination of stock status.

Scientific basis

Assessment type	Qualitative assessment
Input data	1 survey (Icelandic fall survey)
Discards and by-catch	
Indicators	
Other information	
Working group report	NWWG

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Outlook for 2011

The lack of long time series indices of abundance prevent analytical assessment. Information on recruitment is not available. 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 suggests that catches are set no higher than 10 000 t as a starting point for the adaptive part of the management plan.

Additional considerations

Management considerations

ICES advises that a management plan be developed for demersal S. mentella and implemented which takes into account the uncertainties in science and the properties of the fisheries. A management plan should include:

- Objectives;
- Knowledge base (life history considerations, catch statistics, effort, surveys, etc.);
- Rules to determine removal rate (adaptive approach: start low, change according to agreed criteria);
- Instruments (TACs, effort, access rights…);
- Implementation and enforcement;

The dialogue between managers, scientists, and stakeholders should go further than specifying a harvest control rule. It should also address the type of scientific knowledge needed for management, the type of management system needed in view of uncertainties, and discuss ways to improve the situation in general.

ICES suggests that catches of S. mentella are set at 10 000 t as a starting point for the adaptive part of the management plan. 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. 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.

A catch of 10 000 t would be a significant reduction in catches compared with the recent past. This is expected to result in a lower exploitation rate, but the absolute magnitude of this reduction cannot be estimated at this time.

Measures to protect juvenile redfish in Subarea XIV should be continued (sorting grids in the shrimp fishery).

ICES advises that separate TACs for S. marinus and S. mentella be set in Division Va.

Changes in fishing technology and fishing patterns

In Icelandic waters, demersal *S. mentella* are taken mainly by Icelandic trawlers at depths greater than 500 m. in a directed fishery. Prior to 2001 *S. mentella* on the continental shelf was taken in both a pelagic fishery and a demersal fishery, but since then pelagic catches have only occurred in 2003 and 2007..

A fishery for *S.mentella* on the shelf southeast of Iceland has decreased gradually since 2000 and is now insignificant.

Scientific basis

Survey data are available from the Icelandic fall groundfish survey in Division Va (2000–2009). Cpue data are available from Icelandic trawlers in Division Va (1986–2009) but were not considered representative of stock trends.

Uncertainties in assessment and forecasts

The stratification used for calculating the survey index used to assess the stock has been changed from last year.

Comparison with last year's assessment and advice

The advice is the same as last year.

Sources

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

Table 2.4.8.1 Beaked Redfish (*Sebastes mentella*) in Division Va and Subarea XIV (Icelandic Slope stock). ICES advice, management and landings

Year	ICES Advice	Predicted catch corresponding to advice	TAC for Icelandic EEZ	Deep-sea *S. mentella* ICES landings
1987	Precautionary TAC	41–58	95[1]	37.5
1988	Precautionary TAC	41–58	85[1]	31.4
1989	TAC[1]	117[1]	77[1]	53.9
1990	TAC[1]	116[1]	80[1]	44.2
1991	Precautionary TAC	(40) 117[1]	55[1,5]	67.9
1992	Precautionary TAC	(40) 116[1]	90[1,6]	63.1
1993	Precautionary TAC	120[1]	104[1,6]	74.2
1994	Precautionary TAC, if required	100[1]	90[1,6]	83.6
1995	TAC	90[1]	77[1,6]	55.7
1996	Precautionary TAC (45 in Va; 23 in VI and XIV)	68[2]	65[1,6]	41.9
1997	Effort 75% of 95-value	39[2]	65[1,6]	43.1
1998	Fishing mortality to be further reduced towards the 86–90 levels		65[1,6]	38.9
1999	Fishing mortality to be further reduced towards the 86–90 levels		65[1,6]	35.0
2000	Fishing effort to be further reduced by 25%		60[1,6]	38.1
2001	Fishing effort to be reduced by 25% from 1998 level	22[3]	57[1,6]	23.9
2002	*Status quo* fishing effort	36[4]	65[1,6]	23.5
2003	Not higher fishing effort than recent average	30[4]	60[1,6]	31.1
2004	Not higher fishing effort than recent average	26.4[4]	57[1,6]	21.9
2005	Reduce catch to 2001 level in Subarea V	22.5[4]	57[1,6]	22.4
2006	Reduce catch to 2001 level in Subarea V	22.0[4]	57[1,6]	21.0
2007	Same advice as last year	22.0[4]	57[1,6]	17.5
2008	Same advice as last year	22.0[4]	57[1,6]	
2009	Develop management plan and reduce catch	<10.0[5]	50[1,6]	25.6
2010	Develop management plan and reduce catch	<10.0[5]	50[1,6]	18.7
2011	Same advice as last year	<10.0[5]		

Weights in '000 t.
[1] Deep-sea *S. mentella* and *S. marinus* combined.
[2] Deep-sea *S. mentella* only.
[3] In Division Va only.
[4] For entire Subarea V.
[5] Year ending 31 August.
[6] Quota year September–August.

Table 2.4.8.2 Nominal landings (tonnes) of demersal *S. mentella* on the continental shelf and slopes of Iceland (ICES Division Va and XIV).

Year	Iceland	Others	Total
1978	3 693	209	3 902
1979	7 448	246	7 694
1980	9 849	348	10 197
1981	19 242	447	19 689
1982	18 279	213	18 492
1983	36 585	530	37 115
1984	24 271	222	24 493
1985	24 580	188	24 768
1986	18 750	148	18 898
1987	19 132	161	19 293
1988	14 177	113	14 290
1989	40 013	256	40 269
1990	28 214	215	28 429
1991	47 378	273	47 651
1992	43 414	0	43 414
1993	51 221	0	51 221
1994	56 674	46	56 720
1995	48 479	229	48 708
1996	34 508	233	34 741
1997	37 876	0	37 876
1998	32 841	284	33 125
1999	27 475	1 115	28 590
2000	30 185	1 208	31 393
2001	15 415	1 815	17 230
2002	17 870	1 175	19 045
2003	26 295	2 183	28 478
2004	16 226	1 338	17 564
2005	19 109	1 454	20 563
2006	16 339	869	17 208
2007	17 090	369	17 459
2008	25 585	0	25 585
2009[1)]	18 721	0	18 721

1) Provisional

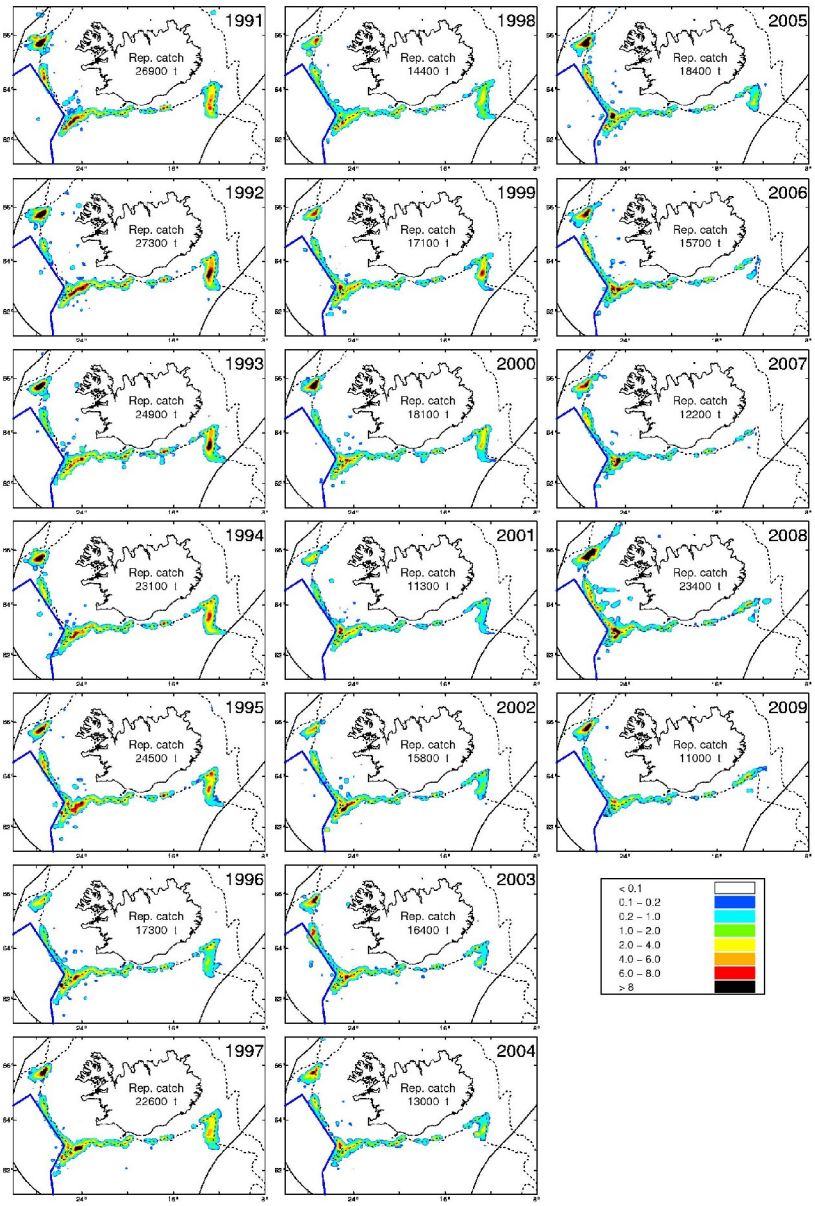

Figure 2.4.8.3 Demersal *S. mentella* on the continental shelf. Geographical location of the catch in Icelandic waters as reported in logbooks from the Icelandic bottom trawl fleet. Red line indicates border used by Icelandic authorities to assign catches of S.mentella as pelagic (west of) or demersal (east of).