NOT TO BE CITED WITHOUT PRIOR
REFERENCE TO THE SECRETARIAT

Northwest Atlantic Fisheries Organization

Serial No. N4987 **NAFO SCS Doc. 04/13**

SCIENTIFIC COUNCIL MEETING – JUNE 2004

A Report on the Deliberations of the ICES North-Western Working Group, 2004

by

F. Gonzalez
Instituto Español de Oceanografía (Vigo) Spain

And

D. Power

Nowthwest Atlantic Fisheries Centre, St. John´s, NF, Canada

Introduction

The ICES North-Western Working Group (NWWG) meeting took place from 27 April to 6 May 2004 in Copenhagen. The present report focuses in the new information on the stock structure and distribution of the stock of *Sebastes mentella* in ICES Sub-areas V, XII and XIV and NAFO Divisions 1F, 2H and 2J analyzed in the NWWG 2004 of ICES. The aim of this document is to present the information to respond to the Special Request 8 "Regarding pelagic *S. mentella* redfish in NAFO Subareas 1-3, the Scientific Council is requested to review the most recent information on the distribution of this resource, as well as on the affinity of this stock to the pelagic redfish resource found in the ICES Sub-area XII, parts of SA Va and XIV and the shelf stocks of redfish found in ICES Sub-areas V, VI and XIV, and NAFO Subareas 1-3".

1.- Distribution of Pelagic *S. mentella*

1.1.-Fishery Information

The fishery for pelagic *S. mentella* in ICES Sub-areas Va, XII, and XIV and in NAFO areas shows a persistent seasonal pattern in terms of geographical and depth distribution for the past five years. The main fishing occurs in the second and third quarter of the year. In the second quarter, the fishery takes place in the area east of 32°W and north of 61°N at depths deeper than 500 m. In the third quarter, the fleet moves towards the southwest to ICES Sub-area XII and NAFO Convention areas and the depth of the hauls are in waters shallower than 500 m. There has traditionally been very little fishing activity from November until late March, and in November 2003 until late March 2004 no activity was reported. The size of the fish caught in the southwest areas in the third quarter of the year is smaller than the fish caught in the northeast area in the second quarter. Usually, over 95% of the fish caught in all seasons are sexually mature.

Based on the geographical and seasonal distribution of the oceanic *S. mentella*, logbook catches in the Irminger Sea and adjacent waters it was concluded that the fishing pattern in 2003 was similar as it was in the past five years. The only new feature in the fishery was that the Icelandic fleet continued its fishery further north in 2003 than previously. The pelagic fishery extended to the shelf area, overlapping with the fishing areas for *S.mentella* on the shelf .

Total landings in 2003 is estimated to be about 150 000 t. The landings estimates for most recent years might increase due to the lack of reporting from some countries participating in the fishery, there are information of vessels from nations not reporting catches to any international organisation. As the effort of vessels from these nations are

unknown, the WG had no possibilities to estimate them. Therefore the catches given in table 1 are to be considered as an underestimation of the actual catches, at least in most recent years.

1.2.- Survey Information.

A trawl-acoustic survey on pelagic redfish (*S. mentella*) in the Irminger Sea and adjacent waters was carried out by Germany, Iceland and Russia in late May/June 2003. Approximately 405 000 nm2 were covered. A total biomass of less than 100 000 tonnes was estimated at depths between 0 and 500 m and about 700 000 tonnes below 500 m depth by use of a standardized "trawl method". The redfish biomass of less than 100 000 t estimated acoustically down to the deep-scattering layer or about 350 m, with redfish having a mean length of 35.3 cm, is the lowest ever obtained since the beginning of the joint measurements. The highest concentrations of redfish were found around 60°N, east of Cape Farwell. Below 500 m, the densest concentrations were found in the NE part of the area. The average length of the fishes caught below 500 m was 39.0 cm. The estimated abundance derived from the trawl data is considered highly uncertain.

The results of the survey series are inconsistent and thus do hardly indicate the actual stock status of pelagic redfish. To which extent biological effects or slight changes in the survey design (RV Walther Herwig III covered the south-western survey area in 2003 about 4 weeks earlier than in 2001) contributed to this inconsistency is unknown. The fishery in the area south of Cape Farwell does not support the outcome of the survey as the CPUE from July and onwards show relatively similar situation as has been observed in recent years.

The main results of the trawl-acoustic survey series are given in Table 2 and Table 3 shows the pelagic redfish *S. mentella*. 1999, 2001 and 2003 survey biomass estimates (trawl data) and area splitting between NAFO and NEAFC Convention areas by depth (shallower and deeper than 500 m). Figure 1 and Figure 2 present the geographical distribution patterns of standardised redfish catches in May-June 2003 trawl-acoustic survey shallower and deeper than 500m.

2.-Problems regarding stock identity of *S. mentella* in ICES Sub-areas V, XII and XIV and the NAFO Divisions 1F, 2H and 2J.

The WG recommended in 2003 that a separate ICES group with the appropriate expertise would review both existing and pending scientific material. As a response to that, it was decided at the ICES ASC that "A Study Group on Stock Identity and Management Units of Redfishes [**SGSIMUR**] (Chair: Kjell Nedreaas, Norway) will be established and will meet in Bergen, Norway, from 31 August to 3 September 2004 to a) review all reported material on the stock identity of the various redfish units (S. mentella) in the Irminger Sea and adjacent waters; b) identify the most likely definition of biological stocks of S. mentella as well as suggest practical management units. SGSIMUR will report by 8 September 2004 for the attention of RMC and ACFM." It has further been decided that there will be a 5 days meeting of the NWWG right after the SGSIMUR meeting to complete the assessment of the *S. mentella* stock(s) based on the outcome of SGSIMUR. This Sub-Group of NWWG will also meet in Bergen; the dates have been set for 6 to 10 September.

Due to this decisions mentioned above, the WG did not discuss further the problems of stock identity, but focused on updating information which will form the basis for the advice. Furthermore, the group focused on dividing the available data in such a way that the outcome of the SGSIMUR could be used on the available data.

Table 1.- Pelagic *S. mentella*. Catches (in tonnes) by area as used by the Working Group. Due to the lack of area reportings for some countries, the exact share in Sub-areas XII and XIV is just approximate in latest years.

Year	Va	Vb	VI	XII	XIV	NAFO 1F	NAFO 2J	NAFO 2H	Total
1978	0	0	0	0	0				0
1979	0	0	0	0	0				0
1980	0	0	0	0	0				0
1981	0	0	0	0	0				0
1982	0	0	0	39.783	20.798				60.581
1983	0	0	0	60.079	155				60.234
1984	0	0	0	60.643	4.189				64.832
1985	0	0	0	17.300	54.371				71.671
1986	0	0	0	24.131	80.976				105.107
1987	0	0	0	2.948	88.221				91.169
1988	0	0	0	9.772	81.647				91.419
1989	0	0	0	17.233	21.551				38.784
1990	0	0	0	7.039	24.477	385			31.901
1991	0	0	0	10.061	17.089	458			27.608
1992	1.968	0	0	23.249	40.745				65.962
1993	2.603	0	0	72.529	40.703				115.835
1994	15.472	0	0	94.189	39.028				148.689
1995	1.543	0	0	132.039	42.260				175.842
1996	4.744	0	0	42.603	132.975				180.322
1997	15.301	0	0	19.822	87.812				122.935
1998	40.612	0	0	22.446	53.910				116.968
1999	36.524	0	0	24.085	48.521	534			109.665
2000	44.677			19.862	50.722	10.815			126.076
2001	28.148			31.751	62.148	5.299	1.284	208	128.838
2002	37.279			23.844	66.133	7.514			134.770
2003	46.676			25.611	56.918	16.092	3.817	325	149.439

Table 2.- Pelagic redfish *S. mentella*. Time series of survey results, areas covered, hydro-acoustic abundance and biomass estimates shallower and deeper than 500 m (based on standardized trawl catches converted into hydro-acoustic estimates derived from linear regression models).

Year	Area covered (1000 NM2)	Acoustic estimates < 500 m (106 ind.)	Acoustic estimates < 500 m (1000 t)	Trawl estimates < 500 m (106 ind.)	Trawl estimates < 500 m (1000 t)	Trawl estimates > 500 m (106 ind.)	Trawl estimates > 500 m (1000 t)
1991	105	3498	2235				
1992	190	3404	2165				
1993	121	4186	2556				
1994	190	3496	2190				
1995	168	4091	2481				
1996	253	2594	1576				
1997	158	2380	1225				
1999	296	1165	614			638	497
2001	420	1370	716	1955	1075	1446	1057
2003	405	160	89	175	92	960	678

Table 3.- Pelagic redfish *S. mentella*. 1999, 2001 and 2003 survey biomass estimates (trawl data) and area splitting between NAFO and NEAFC Convention areas by depth (shallower and deeper than 500 m).

	NAFO (000 t)	NAFO %	NEAFC (000 t)	NEAFC %	Sum (000 t)
1999 shallower than 500 m *	540	46.3	626	53.7	1166
1999 deeper than 500 m	74	11.6	564	88.4	638
1999 Sum	614	34.0	1190	66.0	1804
2001 shallower than 500 m	686	63.8	390	36.2	1076
2001 deeper than 500 m	165	15.6	892	84.4	1057
2001 Sum	851	39.9	1282	60.1	2133
2003 shallower than 500 m	18	19	75	81	93
2003 deeper than 500 m	41	6	637	94	678
2003 Sum	59	8	712	92	771

* acoustically measured

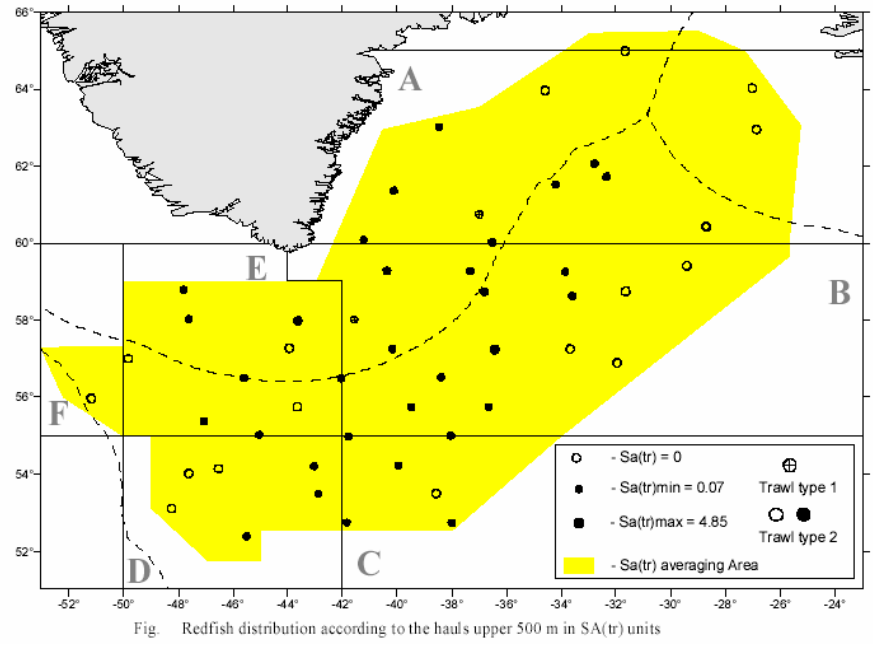

Figure 1.- Geographical distribution patterns of standardised redfish catches shallower than 500m in May-June 2003 trawl-acoustic survey.

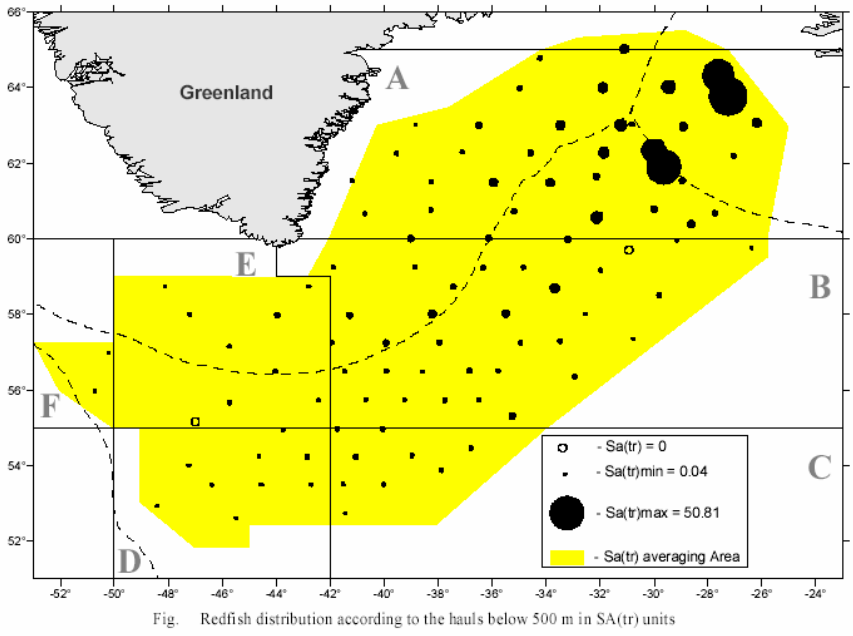

Figure 2.- Geographical distribution patterns of standardised redfish catches deeper than 500m in May-June 2003 joint trawl-acoustic survey.