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An update of the Flemish Cap Redfish assessment

by

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INTRODUCTION

Catches of redfish in Div. 3M have varied during the 1970's from 3000 t in 1970 to 42,000 t in 1972. Under the quota regulations the TAC was increased from 16,000 t in 1977 and 78 to 20,000 in 1979 and 80.

MATERIALS AND METHODS

In cases where the redfish catch was greater than 50% of the total catch, the fishery was defined as being directed to redfish. Effort for 1978 was obtained from STATLANT reports. Preliminary information for 1979 was available for Newfoundland vessels only. Fishing effort was standardized using the method described by Gavaris (1979).

The general production model, based on regressions of catch per unit effort against eight and ten-year running averages of effort, was updated with the 1978 catch and standardized effort.

Length frequencies from Canadian research surveys (1978-80) and sampling of the Canadian midwater trawl fishery (1979) are presented.

RESULTS AND DISCUSSION

Trends in the nominal catch, standardized effort (USSR TC 7 ØT and CanMQ TC 5 ØT used as the standard) and catch per unit effort are shown in Table 1. The CPUE for 1979 (preliminary) was based on catch and effort data for Newfoundland vessels (TC 5 midwater and otter trawl) which reported a directed redfish catch of 4500 t.

The general production model updated with the 1978 catch and standardized effort, is presented in Fig. 1. The yield, effort and CPUE at MSY and 2/3 effort MSY of the 8 and 10 year running average of effort are as follows:

	10 year			8 year		
	Yield ('000 t)	Effort ('000 hr)	CPUE	Yield ('000 t)	Effort ('000 hr)	CPUE
MSY	17	15.5	1.10	16	16	1.00
2/3 $Effort_{MSY}$	15	10.1	1.49	15	10.9	1.37

The catch rates for 1978 and 1979, shown in Table 1, while the lowest reported for the seventies, are close to the expected catch rates (under equilibrium conditions) at the MSY level predicted by the general production model.

The length frequencies of Mentella redfish from Canadian research in Div. 3M are shown in Fig. 2. The index of abundance at length used was numbers caught per half-hour tow, weighted by area sampled. The three trips were conducted by the same vessel (Gadus Atlantica) over the same strata (depth range 100-400 f) at the same time of year and are therefore considered comparable. However, the 1979 trip did not cover the area as extensively as the 1978 and 1980 trips (79 half-hour tows versus 119 and 115 respectively). A distinct bi-modality in the population length structure was shown in all three trips. Small-sized redfish showed up prominently in all years, but most strongly in the 1980 survey.

The length frequencies (numbers per thousand) sampled from the Canadian midwater trawl fishery in May and June showed a length distribution similar to the research surveys. The larger sized redfish formed the bulk of the catch while the small-sized redfish (approximate mean length 25 cm) were beginning to be recruited. In contrast, the frequency for July showed a unimodal distribution (Fig. 3). Sampling of the May and June trips was mainly from unit area 24 (northwest quarter of 3M) while July's was mainly from unit area 21 (southwest quarter of 3M). A similar difference in the length distribution of the commercial catch between specific regions of unit areas 21 and 24 has previously been observed (Stevenson 1979). Research sampling in Div. 3M has consistently found a higher abundance of small redfish in the northeast and northwest quarter than in the south over several years (D. McKone pers. comm.).

CONCLUSIONS

The 2/3 effort MSY yield predicted by the general production model was 16000 t. The catch rates for 1978 and 1979 showed a decline from the average catch rates of the seventies. The catch rates of both years were close to the expected catch rate predicted by the general production model under equilibrium conditions if fishing at the MSY level.

Length frequencies from Canadian research surveys and the Canadian commercial fishery gave evidence of relatively good recruitment to the fishery.

REFERENCES

Gavaris, C. 1979. Flemish Cap redfish assessment. ICNAF Res. Doc. 62.

Stevenson, S. C. 1979. Results of redfish mesh experiment on the Flemish Cap (August 1978). ICNAF Res. Doc. 43.

Table 1. Historical catches, standardized effort and CPUE for the 3M redfish fishery, 1956-79. (USSR 7ØT and CanMQ 5ØT standard).

Year	Catch (t)	Standard effort (hr)	CPUE
1956	12962	5940	2.18
1957	31573	19647	1.61
1958	53936	27810	1.94
1959	51977	39860	1.30
1960	8388	5723	1.46
1961	15517	9561	1.62
1962	6958	7638	0.91
1963	7035	6600	1.06
1964	17647	21127	0.84
1965	33427	33162	1.01
1966	7241	6111	1.18
1967	729	1314	0.56
1968	4963	5685	0.87
1969	2801	2388	1.17
1970	3168	2179	1.45
1971	8033	5864	1.37
1972	41946	23901	1.76
1973	22352	14210	1.57
1974	34671	17537	1.98
1975	16075	10745	1.50
1976	16998	11862	1.43
1977	20072	12413	1.62
1978[1]	16820	14806	1.14
1979			1.05[2]

[1] preliminary

[2] derived from effort for Newfoundland vessels only (4500 t directed catch).

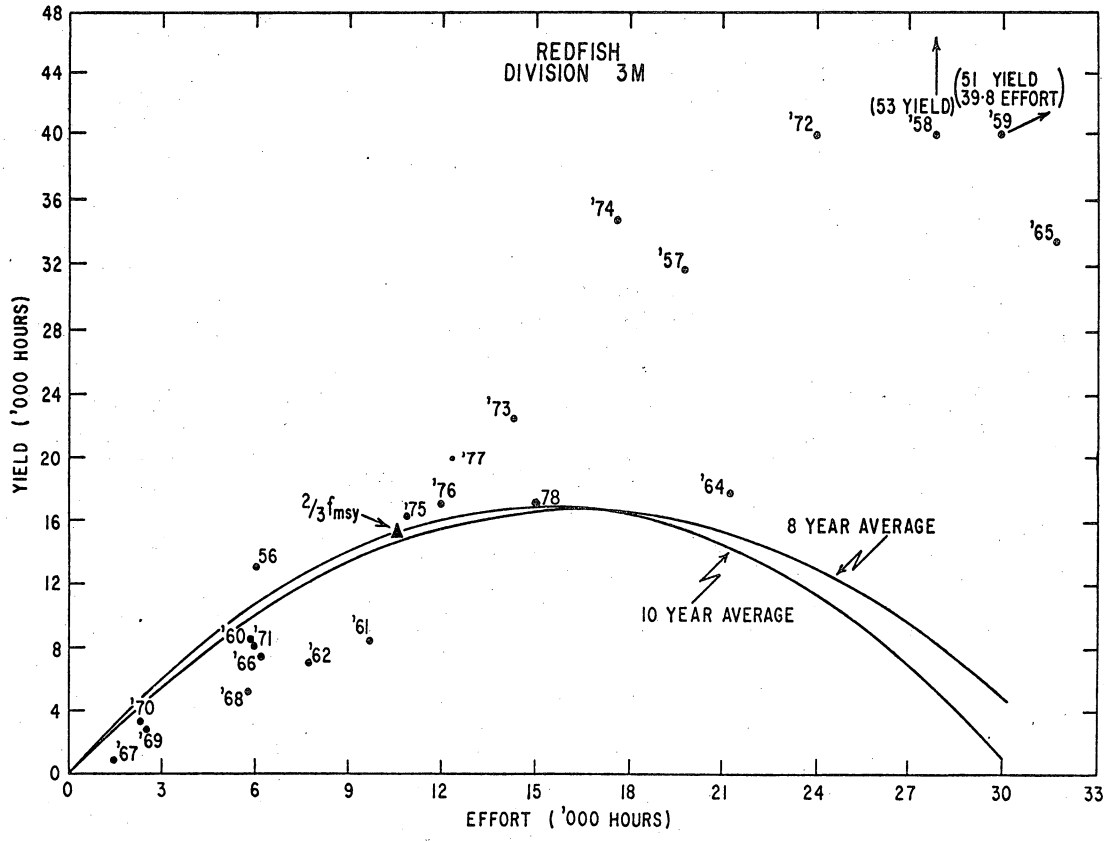

Fig. 1. Yield curves derived from regressions of catch per standard hour fished versus averaged effort with 1978 point added.

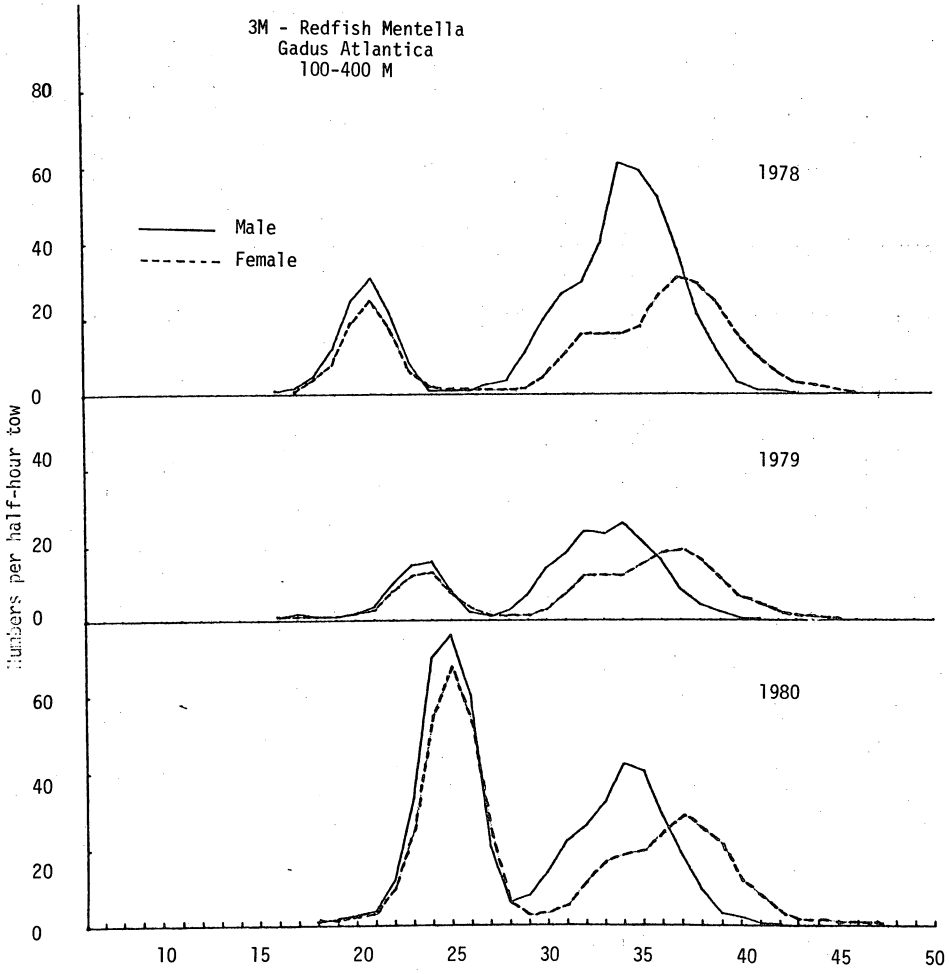

Fig. 2. Numbers per tow at length from Canadian research surveys of 3M, 1978-80.

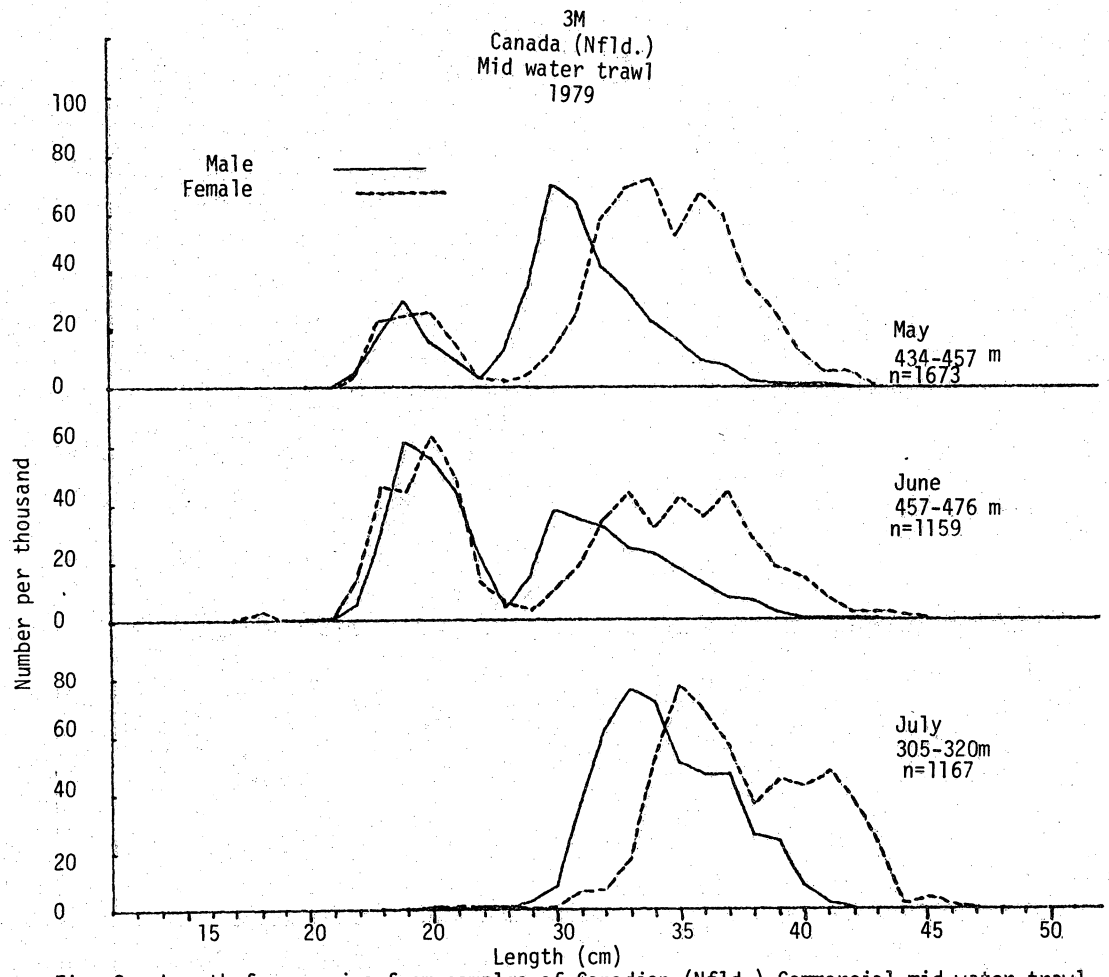

Fig. 3. Length frequencies from samples of Canadian (Nfld.) Commercial mid-water trawl fishery in 1979.