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Canadian Atlantic Fisheries
Scientific Advisory Committee

CAFSAC Research Document 83/24

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Comité scientifique consultatif des
pêches canadiennes dans l'Atlantique

CSCPCA Document de recherche 83/24

Redfish of NAFO Division 30

by

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Abstract

The few commercial frequencies available suggest that a wider range of fish sizes was caught in 1982 than in previous years. Catch rates have shown considerable fluctuation from year to year but show a general increasing trend since the mid-1970's. During the same period catches have averaged about 13,000 t.

Résumé

Les quelques fréquences de longueurs commerciales que nous possédions donnent à penser qu'on a capturé en 1982 une gamme de tailles plus étendue que dans les années précédentes. Les taux de capture ont varié considérablement d'une année à l'autre, mais, depuis le milieu des années 1970, la tendance générale est à la hausse. Pendant la même période, les prises moyennes ont été d'environ 13 000 t.

Introduction

Since 1970, nominal catches have ranged between 20,000t (1971) and 7,000t (1978) with an average over the period of about 14,000t. In 1981 and 1982 only about 50% of the TAC (20,000t in both years) was taken.

Methods and Results

Catch and effort data of directed redfish fisheries ($\geq 50\%$ redfish in catch) were obtained from ICNAF/NAFO Statistical Tables for the period 1959-1981 (1968 missing) and for Newfoundland vessels in 1982 from Economics Branch, Newfoundland Region. Maritimes data were not used due to problems encountered with the data. These were standardized by the method of Gavaris (1980) and weighted step-wise by effort using categories of vessel type, month, and year.

The regression results were significant (Table 1) and the relative catch rates (Table 2) have been fairly stable since 1976. Plots of catch, standardized effort, and standardized CPUE are shown in Fig. 1-3 respectively.

The few commercial frequencies available (Fig. 4) indicate a wide range of lengths taken, suggesting that the stock is healthy. The percent at length caught during a USSR research cruise to the area in 1982 (Fig. 5) suggest the presence of a large percentage of pre-recruits (fish < 16 cm).

References

- Gavaris, S. 1980. Use of a multiplicative model to estimate catch rate and effort from commercial data. Can. J. Fish. Aquat. Sci. 37: 2272-2275.

Table 1. REGRESSION OF MULTIPLICATIVE MODEL

MULTIPLE R,.....0.779
 MULTIPLE R SQUARED,....0.608

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DF	SUMS OF SQUARES	MEAN SQUARES	F-VALUE
INTERCEPT	1	3.375E1	3.375E1	
REGRESSION	34	1.208E2	3.554E0	13.161
TYPE 1	7	6.281E1	9.973E0	33.226
TYPE 2	5	1.245E1	2.490E0	9.221
TYPE 3	22	1.456E1	6.617E-1	2.450
RESIDUALS	289	7.805E1	2.701E-1	
TOTAL	324	2.326E2		

Table 2. Catch standardized effort and standardized CPUE for redfish in Div. 30, 1959-1982.

PREDICTED RELATIVE POWER

YEAR	TOTAL CATCH	PROP.	RELATIVE POWER MEAN	S.E.	EFFORT
1959	9268	0.886	1.000	0.000	9268
1960	5030	0.932	1.057	0.200	4759
1961	11394	0.699	1.034	0.201	11017
1962	7557	0.684	0.766	0.134	9864
1963	9194	0.449	0.795	0.132	11566
1964	20232	0.401	0.689	0.133	29367
1965	22438	0.329	0.603	0.147	37232
1966	15305	0.024	0.595	0.156	25729
1967	19037	0.025	1.563	0.411	12181
1969	15878	0.456	0.571	0.104	27826
1970	13192	0.780	0.705	0.116	18715
1971	19792	0.540	0.844	0.144	23445
1972	16117	0.293	0.622	0.114	25892
1973	8797	0.903	0.817	0.190	10766
1974	13124	0.579	0.549	0.121	23916
1975	15110	0.340	0.551	0.130	27417
1976	15348	0.640	0.917	0.162	16729
1977	10850	0.755	0.817	0.141	13283
1978	6860	0.771	0.821	0.160	8359
1979	17737	0.648	1.123	0.192	15789
1980	17306	0.779	0.850	0.150	20349
1981	12604	0.651	1.354	0.252	9309
1982	11339	0.038	0.783	0.227	14484

AVERAGE C.V. FOR THE MEAN:0.193

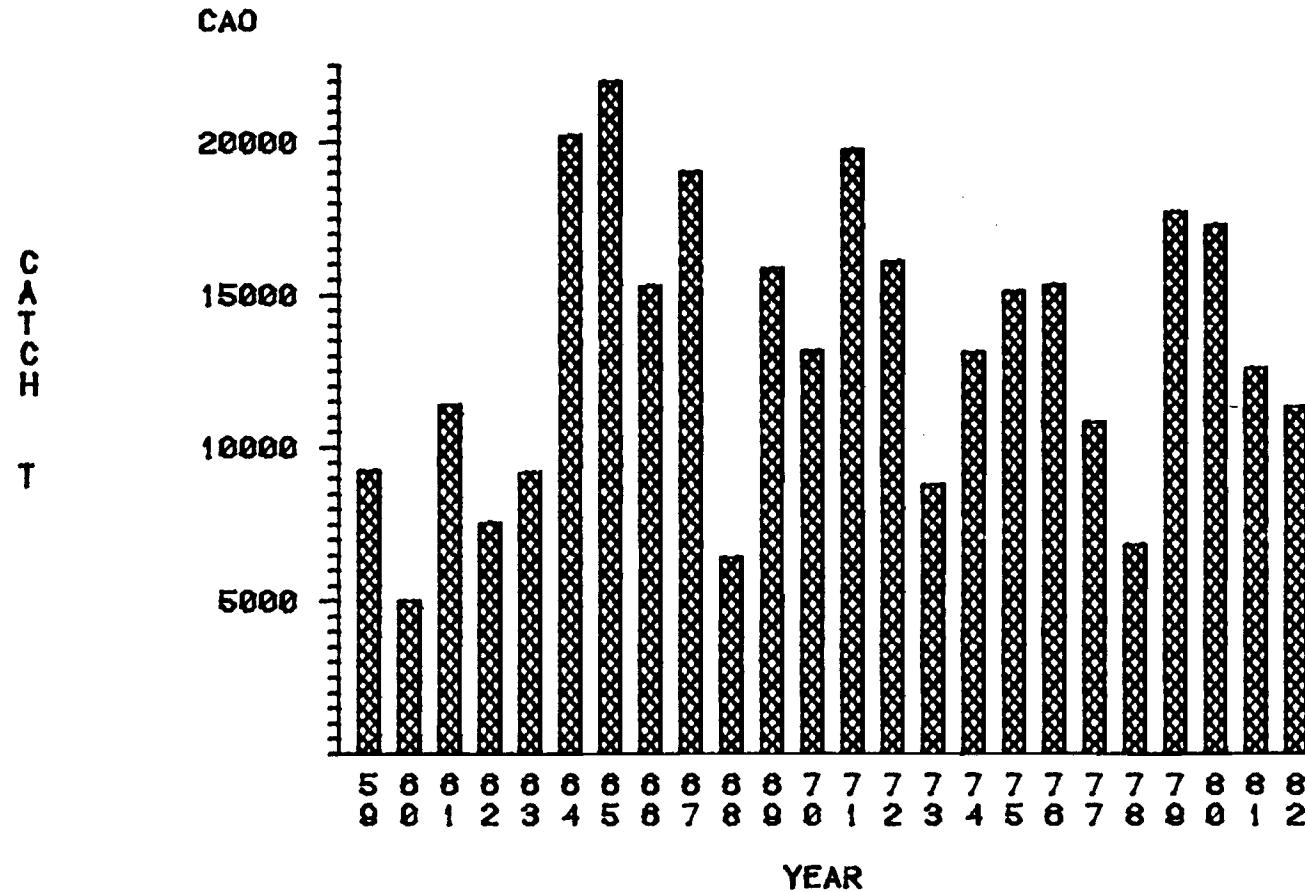


FIG.1: NOMINAL CATCHES OF REDFISH IN NAFO DIV. 30
(1982 IS PROVISIONAL)

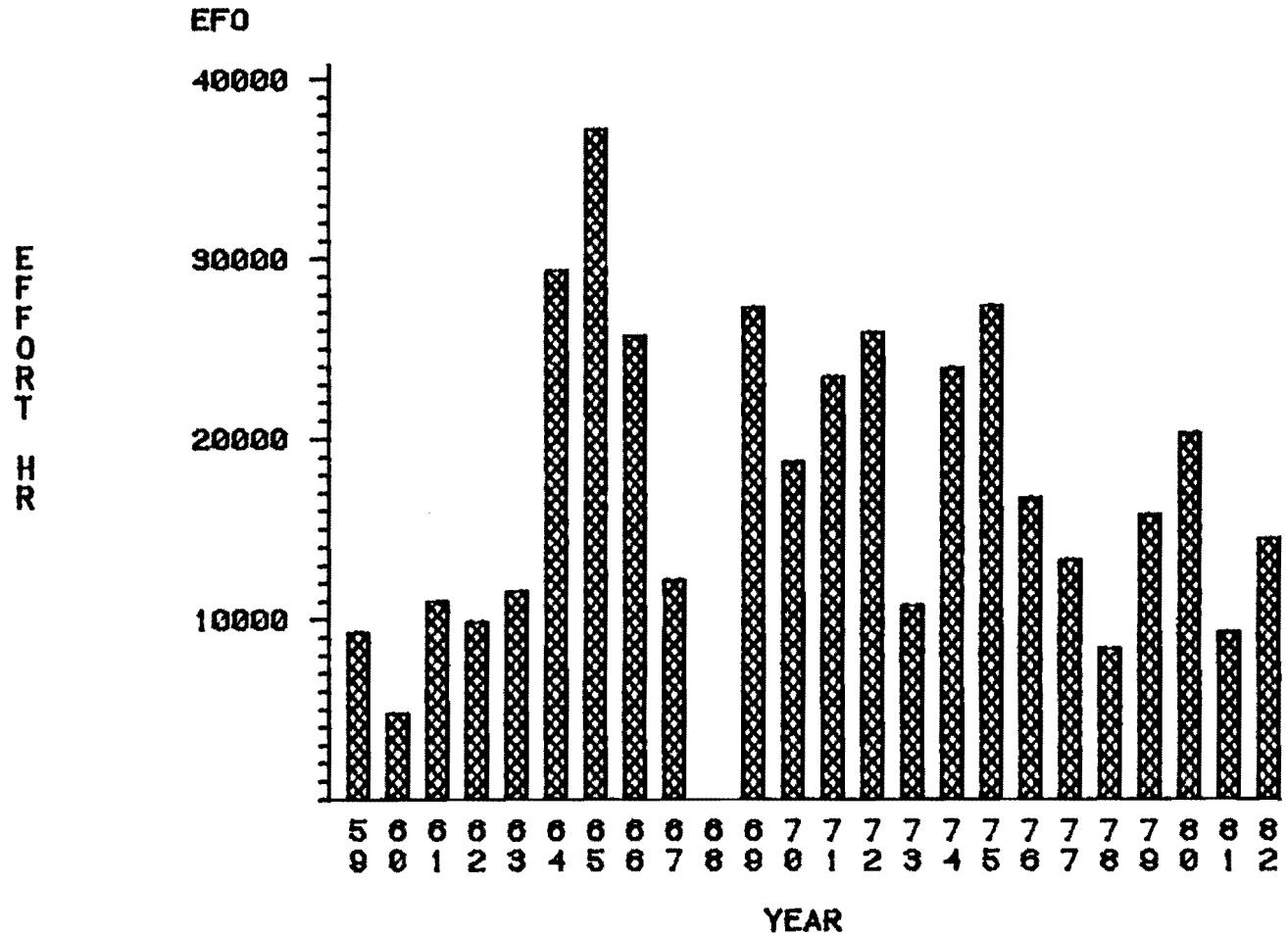


FIG.2: STANDARDIZED EFFORT FOR REDFISH IN DIV. 30
(MARITIMES AND QUEBEC DELETED)

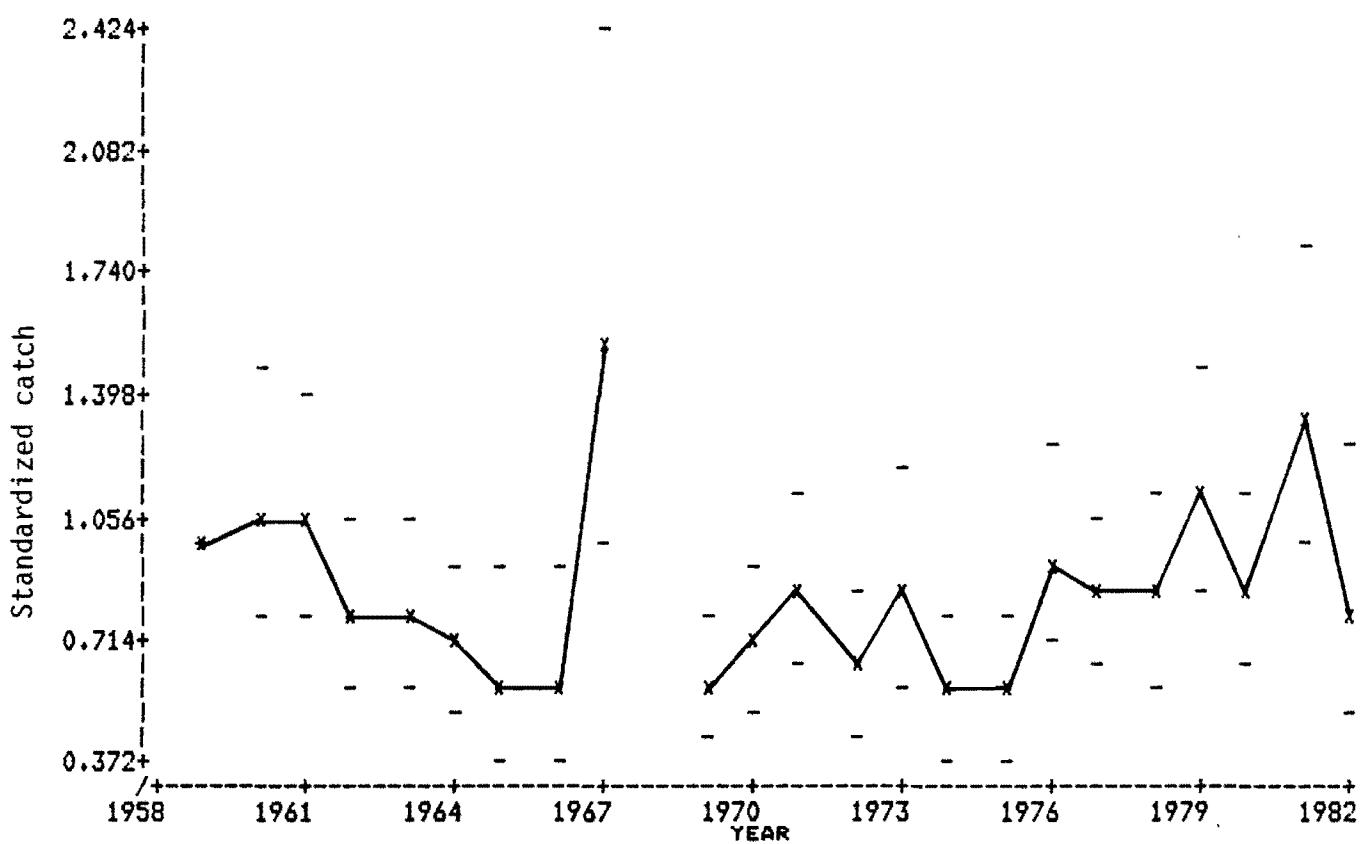


Fig. 3. Trend in standardized catch rates for 30 redfish, 1959-1982.

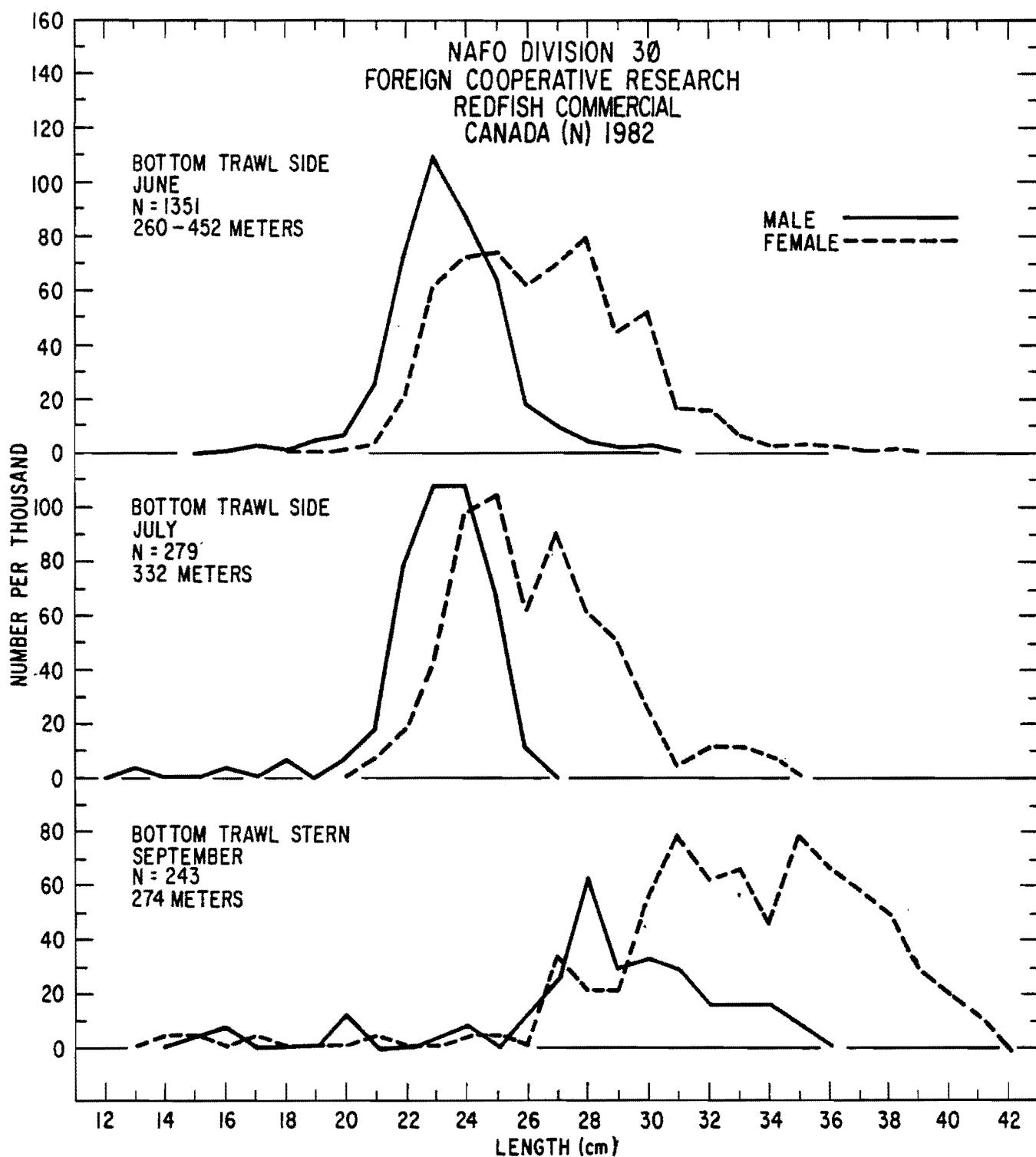


Fig. 4. Commercial length frequencies of redfish caught by USSR vessels in 30 in 1982.

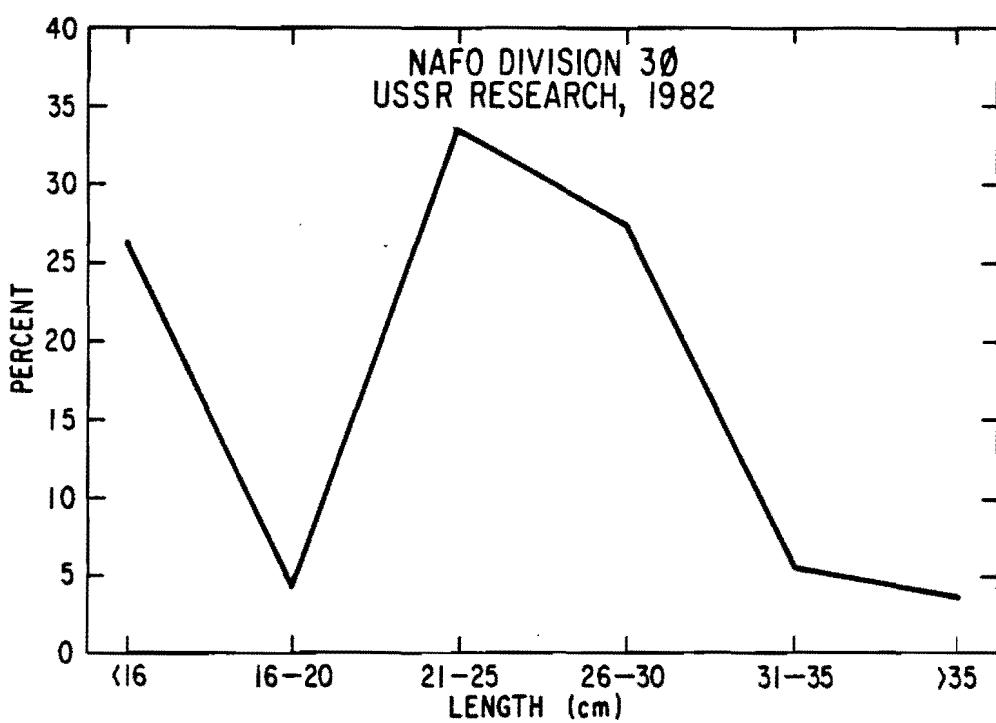


Fig. 5. Percent redfish at length from USSR research cruise in 30, 1982.