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The redfish in Div. 30-an update

by

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Abstract

In 1983, Canada caught only 4 t of redbfish in Div. 30 and hence no 1983 catch rate data were available for this assessment. Although showing considerable fluctuations, catch rates have gradually increased since the early 1970's. The TAC's have not been achieved in recent years.

Résumé

En 1983, le Canada n'a capturé que 4 t de sébaste dans la div. 30. Nous ne possédons donc pas de données sur les taux de capture sur lesquels fonder une évaluation de l'état de ce stock. Bien que montrant de fortes variations, les taux de capture augmentent graduellement depuis le début des années 1970. Les TPA n'ont pas été réalisés ces dernières années.

Introduction

Nominal catches have ranged between 7,000 t and 18,000 t since 1972. In 1981 and 1982 only about 50% of the TAC's of 20,000 t were taken and provisional data for 1983 indicate only about 35% being taken. A lack of commercial data precludes any analytical assessment of this stock.

Methods and Results

The redfish fishery in Div. 30 has been dominated by the USSR (Table 1) with fishing being conducted throughout the year but generally being greatest from about March to October (Table 2). Overall catches have fluctuated considerably (Fig. 1) and have steadily declined since 1979.

Because only 4 t were caught by Canada in 1983, no effort data are available for that year. The 1959-1982 directed ($\geq 50\%$ redfish) data were obtained from ICNAF/NAFO and analysed using the multiplicative model (Gavaris 1980) weighted by effort. Maritimes data were not used again this year. In addition this year, the residuals were examined closely and a number (4) of outliers were discarded. These were associated with small catches but relatively high effort.

The results (Table 3) indicate a high degree of significance and the relative catch rates (Table 4) show a gradual increase since 1972. The standardized effort and catch rates can be seen in Fig. 2 and 3.

There are no research or commercial length frequencies available for 1983.

The available data do not suggest a change in the 1985 TAC from the present level of 20,000 t.

Reference

- 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. 3-0 redfish catches (t) by country and year.

Country	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983 ^a
Canada (M)	450	42	34		610	655	381	1,557	565	417	47	4
Canada (N)	58	91	57	103	3,054	2,317	1,460	4,847	976	2,160	444	-
Fr. (M)	-	-	-	-	1	-	-	-	-	-	-	-
Fr. (Sp.)	2	-	31		15	2	-	-	-	-	-	-
GDR	8	472	-	-	-	-	-	-	-	-	-	-
Japan	66	-	44	7	4	-	3	2	-	-	496	2
Poland	26	36	-	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	1	-	-	134	59	-	5	-
Romania	-	-	-	-	-	-	-	664	-	-	-	-
Spain	-	-	-	-	-	-	1	8	-	-	-	-
UK	6	-	13	-	-	-	-	-	-	-	-	-
USSR	15,501	8,156	12,747	15,000	11,663	7,376	4,647	8,008	14,219	8,659	8,717	5,450
Cuba	-	-	-	-	-	500	368	2,517	1,487	1,368	1,651	1,694
U.S.A.	-	-	198	-	-	-	-	-	-	-	-	-
Total	16,117	8,797	13,124	15,110	15,348	10,850	6,860	17,737	17,306	12,604	11,360	7,150

^aProvisional

Table 2. 3-0 redfish catches (t) by month and year.

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1972	-	4	310	-	6,294	4,624	1,168	246	262	1,014	1,880	315	16,117
1973	-	-	84	10	292	2,006	3,468	2,384	529	19	4	1	8,797
1974	1	12	585	1,523	3,380	1,678	1,298	218	26	-	1	4,402	13,124
1975	-	2	1,926	1,313	2,186	3,680	723	897	3,123	1,159	-	101	15,110
1976	352	452	399	857	1,477	1,497	3,119	1,440	2,221	2,540	40	954	15,348
1977	553	36	1,047	1,736	987	1,865	1,580	1,113	1,032	828	63	10	10,850
1978	48	102	1,478	1,326	1,216	930	656	353	433	155	158	5	6,860
1979	35	844	2,464	2,072	87	1,997	739	692	1,235	1,320	3,594	2,658	17,737
1980	612	1,250	856	3,698	1,145	858	143	2,395	1,860	149	986	3,354	17,306
1981	991	3,735	1,444	1,601	621	1,467	773	584	510	873	5	-	12,604
1982	-	1	1,121	1,258	545	652	4,555	2,245	661	233	84	5	11,360

Table 3. Regression of multiplicative model for Div. 30 redfish.

MULTIPLE R,.....0.805
 MULTIPLE R SQUARED,.....0.649

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DF	SUMS OF SQUARES	MEAN SQUARES	F-VALUE
INTERCEPT	1	2.569E-1	2.569E-1	
REGRESSION	35	8.618E1	2.462E0	15.676
TYPE 1	7	5.069E1	7.242E0	46.105
TYPE 2	6	1.075E1	1.792E0	11.409
TYPE 3	22	1.568E1	7.126E-1	4.537
RESIDUALS	297	4.665E1	1.571E-1	
TOTAL	333	1.331E2		

Table 4. Predicted relative power for Div. 30 redfish.

YEAR	TOTAL CATCH	PROP.	RELATIVE POWER MEAN	S.E.	EFFORT
1959	9268	0.986	1.000	0.000	9268
1960	5030	0.932	0.945	0.123	5322
1961	11394	0.699	0.873	0.104	13047
1962	7557	0.684	0.618	0.107	12229
1963	9194	0.416	0.658	0.077	13969
1964	20232	0.401	0.639	0.096	31678
1965	22438	0.329	0.476	0.106	47162
1966	15305	0.024	0.653	0.163	23453
1967	19037	0.025	1.131	0.265	16830
1969	15878	0.456	0.552	0.090	28765
1970	13192	0.780	0.484	0.079	27254
1971	19792	0.540	0.710	0.109	27884
1972	16117	0.293	0.578	0.092	27879
1973	8797	0.903	0.747	0.137	11783
1974	13124	0.579	0.570	0.098	23009
1975	15110	0.340	0.581	0.114	25991
1976	15348	0.640	0.912	0.118	16830
1977	10850	0.755	0.803	0.103	13514
1978	6860	0.771	0.771	0.111	8898
1979	17737	0.648	1.108	0.144	16005
1980	17306	0.779	0.814	0.109	21250
1981	12604	0.651	1.217	0.172	10359
1982	11360	0.731	0.902	0.138	12597

AVERAGE C.V. FOR THE MEAN:0.154

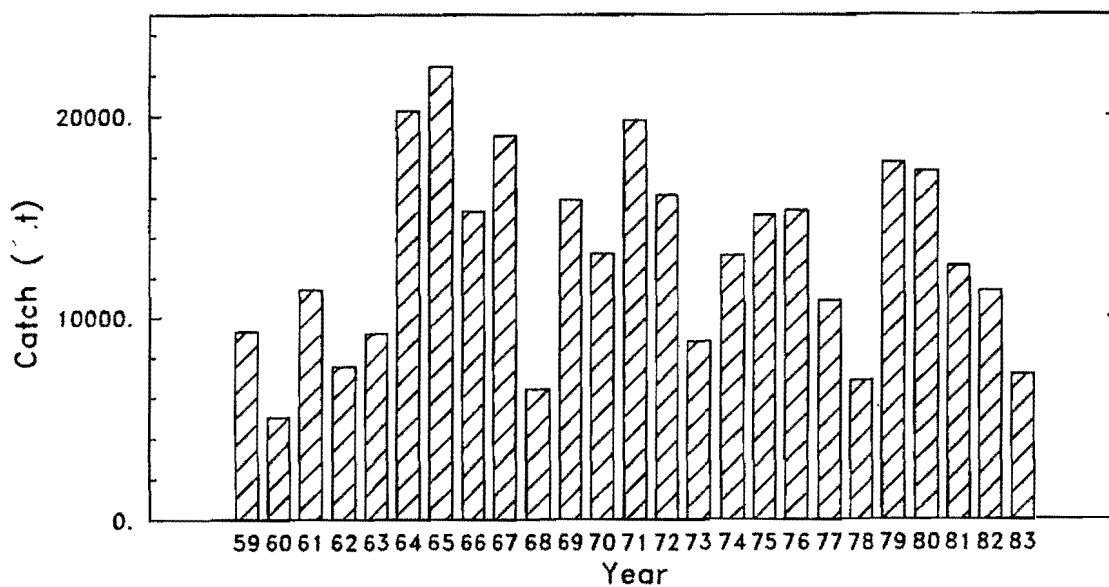


Fig.1: Nominal catches of redfish from 30, 1959–1983.
(1983 Provisional)

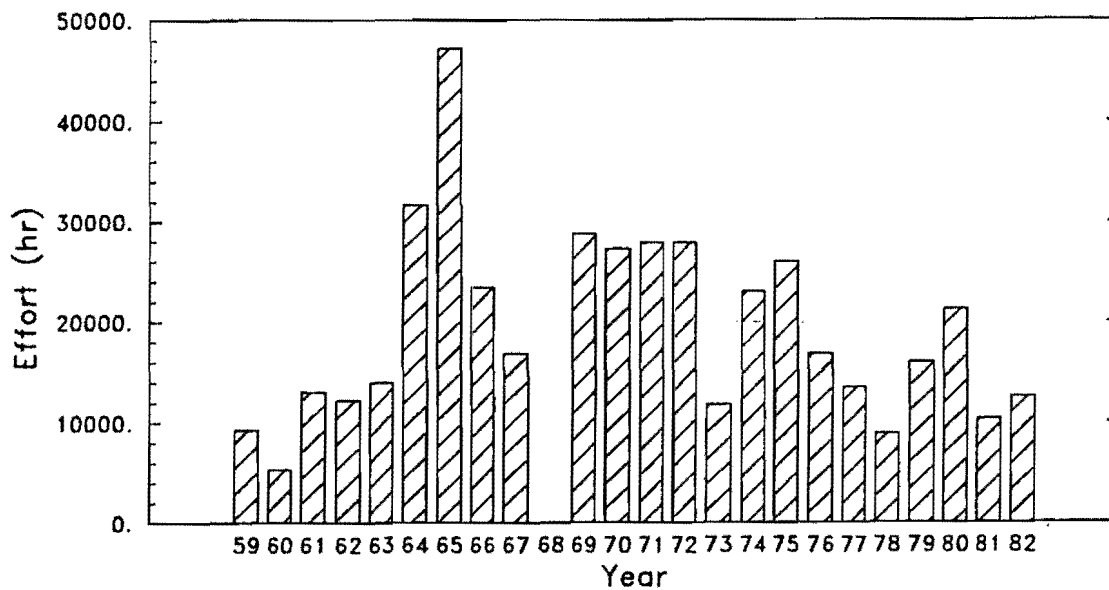


Fig.2: Standardized directed effort for redfish in 30, 1959–1982.

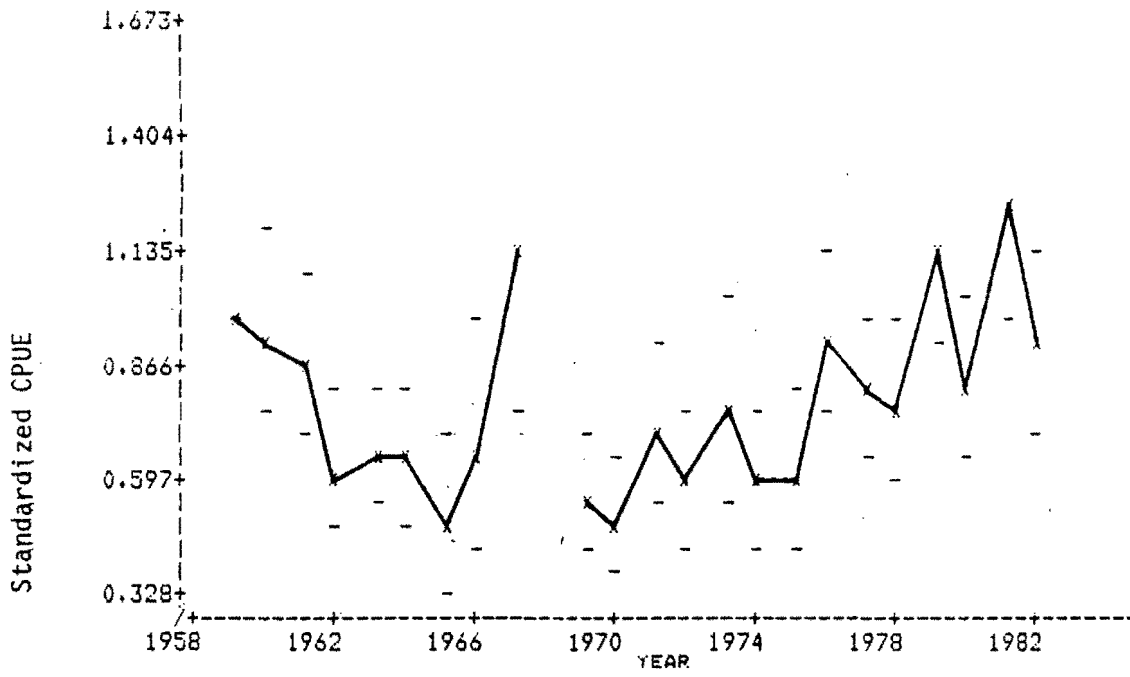


Fig. 3. Standardized catch rates for redfish in Div. 30