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THE REDFISH FISHERY ON THE SCOTIAN SHELF

by

R. G. HALLIDAY
Fisheries and Marine Service,
Biological Station
St. Andrews, N.B.
Canada

LANDINGS

Landings of redfish from the Scotian Shelf have fluctuated from 9,700 metric tons in 1955 to 62,400 metric tons in 1971 (Table 1). The average for the last 5 years (1967-71) was 29,600 tons. Canada, USSR and USA have been the principal exploiters. Landings were fairly equally distributed among Divisions and have fluctuated without apparent trend in all Divisions. Landings by country by Division are given in Tables 2-5.

CATCH PER UNIT EFFORT

Catch per unit effort for Canadian and USA otter trawlers of 151-500 gross tons do not show major trends between 1958 and 1972 (Table 6). Catch rates in all Divisions are similar although those in Div. 4X tend to be slightly lower than those in other Divisions. The substantial increase in landings in 1971 which occurred in all Divisions but particularly in Div. 4Vs was not accompanied by a comparable increase in cpe, although some increase took place.

SIZE COMPOSITION OF LANDINGS

Canadian and USA landings were composed of fish of 20-40 cm in 1965-72 (Fig. 1). Modal length increased from 1965-68 then decreased through 1972.

These length-frequencies were not weighted by Division or season. No size compositions of Soviet redfish catches have been reported.

ABUNDANCE AND SIZE COMPOSITION FROM
RESEARCH VESSEL SURVEYS

Biomass estimates from Canadian research vessel surveys increased from 172,000 to 229,000 metric tons between 1970 and 1972 and indicate that redfish are among the most abundant species in trawl catches on the Scotian Shelf (Table 7). Population numbers increased less from 672 million to 732 million fish.

Virtually all survey catches lay in the length range of 10-40 cm (Fig. 2) with predominant modes close to 20 cm in most cases.

Table 1 : Redfish nominal catches in ICNAF Divisions 4V-W-X by country and calendar year (metric tons round).

Year	ICNAF DIVISION										Non-Mem.					
	4Vn	4Vs	4W	4X	Total	Canada	France	FRG	Iceland	Italy		Japan	Poland	USSR	UK	USA
1954	12,772	4,474	4,686	21,932	1,037	-	-	-	-	-	-	-	-	-	20,895	-
1955	5,223	3,106	1,398	9,727	397	-	-	-	-	-	-	-	-	-	9,330	-
1956	5,641	4,604	6,310	16,555	242	-	-	-	-	-	-	-	-	-	16,313	-
1957	5,499	11,106	3,893	20,498	508	-	-	-	-	-	-	-	-	-	19,990	-
1958	8,131	14,939	9,286	32,356	757	-	-	-	-	-	-	-	-	-	31,599	-
1959	2,058	5,347	12,400	25,315	611	-	-	-	-	-	-	-	-	-	24,704	-
1960	5,889	8,123 ¹	11,127	12,344	37,483	1,171	17	-	-	1	-	-	-	-	36,294	-
1961	4,826	4,170	9,411	13,077	31,484	2,511	4	-	-	-	-	-	9	-	28,960	-
1962	3,271	4,479 ¹	16,173	12,812	36,735	3,388	-	-	-	2	-	-	3,975	-	29,370	-
1963	2,746	6,275 ¹	20,146	9,592	38,759	3,175	-	7	-	-	-	-	12,288	2	23,282	5
1964	2,430	7,697 ¹	6,535	6,244	22,906	3,045	51	427	9	-	-	-	3,659	6	15,641	68
1965	2,867	3,319	7,740	5,652	19,578	4,717	188	19	-	-	-	-	1,571	1	13,082	-
1966	6,888	3,067	16,105	14,776	40,836	10,010	63	-	-	-	-	-	13,943	-	16,679	141
1967	8,852	1,989	2,812	4,591	18,244	9,856	-	-	-	-	-	156	67	3	6,415	1,747
1968	7,730	2,222	1,169	1,982	13,103	7,852	427	-	-	-	-	-	186	-	4,635	3
1969	6,259	10,025	3,695	2,763	22,742	10,750	933	98	-	-	-	6,898	2,152	-	1,142	769
1970	4,246	6,694	16,215	4,424	31,579	15,293	131	-	-	-	968	20	13,218	-	1,949	-
1971	6,954	23,698	19,953	11,776	62,381	29,308	285	-	-	-	1,164	1,260	20,591	-	6,261	3,512

¹The following catches assigned to SA4 unk. or Div. 4V unk. assigned to Div. 4Vs as follows" 1960 - 1 m.t. by Italy; 1962 - 2 m.t. by Italy, 105 m.t. by USSR; 1963 - 5 m.t. by Non-members; 1964 - 68 m.t. by Non-members.

Table 2 : Redfish landings (metric tons round) 4Vn

Year	C O U N T R Y								Non-Mem.	Total All Countries
	Can(M&N)	France(SPM)	Germany	Poland	USSR	U.K.	U.S.A.			
1960	697	-	-	-	-	-	5,192	-	5,889	
1961	1,532	4	-	-	-	-	3,290	-	4,826	
1962	1,889	-	-	-	-	-	1,382	-	3,271	
1963	1,526	-	-	-	3	-	1,217	-	2,746	
1964	1,316	51	-	-	1	1	1,061	-	2,430	
1965	2,377	159	-	-	12	1	318	-	2,867	
1966	6,214	63	-	-	220	-	391	-	6,888	
1967	6,058	-	-	156	-	-	891	1,747	8,852	
1968	4,127	381	-	-	-	-	3,219	3	7,730	
1969	5,220	858	28	4	-	-	149	-	6,259	
1970	3,996	51	-	20	-	-	179	-	4,246	
1971	6,069	249	-	-	-	-	636	-	6,954	
Total	38,792	1,812	28	180	236	2	9,443	1,750	52,243	
Total	15,285	1,158	28	24	-	-	964	-	17,459	

Table 3 : Redfish landings (metric tons round) 4Vs

Year	C O U N T R Y										Non-Mem.	Total All Countries
	Can(M&N)	France(SPM)	Germany	Italy	Japan	Poland	USSR	U.K.	U.S.A.			
1960	177	17	-	1	-	-	-	-	7,928	-	-	8,123
1961	453	-	-	-	-	-	-	-	3,717	-	-	4,170
1962	972	-	-	2	-	-	105	-	3,400	-	-	4,479
1963	997	-	5	-	-	-	-	-	5,268	5	-	6,275
1964	1,233	-	116	-	-	-	-	-	6,280	68	-	7,697
1965	1,330	29	3	-	-	-	-	-	1,957	-	-	3,319
1966	2,502	-	-	-	-	-	-	-	565	-	-	3,067
1967	1,986	-	-	-	-	-	-	3	-	-	-	1,989
1968	1,996	46	-	-	-	-	163	-	17	-	-	2,222
1969	1,639	75	70	-	-	6,894	669	-	-	678	-	10,025
1970	1,594	80	-	-	885	-	4,135	-	-	-	-	6,694
1971	9,847	36	-	-	1,143	1,257	7,464	-	439	3,512	-	23,698
<u>Total</u>												
1962-1971	24,096	266	802	3	2,028	8,151	12,536	3	17,926	4,263	-	69,215
<u>Total</u>												
1969-1971	13,080	191	678	-	2,028	8,151	12,268	-	439	4,190	-	40,347

Table 4 : Redfish landings (metric tons round) 4W

Year	C O U N T R Y										Non-Mem.	Total All Countries
	Can(M&N)	Germany	Iceland	Japan	Poland	U.S.S.R.	U.K.	U.S.A.				
1960	176	-	-	-	-	-	-	10,951	-	-	-	11,127
1961	376	-	-	-	-	8	-	9,027	-	-	-	9,411
1962	431	-	-	-	-	3,870	-	11,872	-	-	-	16,173
1963	459	1	-	-	-	12,002	2	7,682	-	-	-	20,146
1964	278	103	9	-	-	2,888	5	3,252	-	-	-	6,535
1965	727	10	-	-	-	1,314	-	5,689	-	-	-	7,740
1966	291	-	-	-	-	8,719	-	7,094	1	-	-	16,105
1967	426	-	-	-	-	51	-	2,335	-	-	-	2,812
1968	379	-	-	-	-	23	-	767	-	-	-	1,169
1969	1,726	-	-	-	-	1,272	-	606	91	-	-	3,695
1970	6,031	-	-	45	-	8,699	-	1,440	-	-	-	16,215
1971	6,002	-	-	17	3	11,901	-	2,030	-	-	-	19,953
<u>Total</u>												
1962-1971	16,750	114	9	62	3	50,739	7	42,767	92	-	-	110,543
<u>Total</u>												
1969-1971	13,759	-	-	62	3	21,872	-	4,076	91	-	-	39,863

Table 5 : Redfish landings (metric tons round) 4X

Year	C O U N T R Y						Non-Mem.	Total All Countries
	Can(M&N)	Germany	Japan	U.S.S.R.	U.S.A.			
1960	121	-	-	-	12,223	-	12,344	
1961	150	-	-	1	12,926	-	13,077	
1962	96	-	-	-	12,716	-	12,812	
1963	193	1	-	283	9,115	-	9,592	
1964	218	208	-	770	5,048	-	6,244	
1965	283	6	-	245	5,118	-	5,652	
1966	1,003	-	-	5,004	8,629	140	14,776	
1967	1,386	-	-	16	3,189	-	4,591	
1968	1,350	-	-	-	632	-	1,982	
1969	2,165	-	-	211	387	-	2,763	
1970	3,672	-	38	384	330	-	4,424	
1971	7,390	-	4	1,226	3,156	-	11,776	
<u>Total</u>								
1962-1971	17,756	215	42	8,139	48,320	140	74,612	
<u>Total</u>								
1969-1971	13,227	-	42	1,821	3,873	-	18,963	

Table 6 : Redfish : catch per unit effort for Canadian side otter trawlers (metric tons per hour) and USA otter trawlers (metric tons per day) of 151-500 gross tons, by year and ICNAF Division.

Year	4Vn		4Vs		4W		4X	
	Can(M)	USA	Can(M)	USA	Can(M)	USA	Can(M)	USA
1958	0.452	-	0.625	-	-	-	-	-
1959	0.318	19.933	0.420	17.967	-	16.641	-	-
1960	0.331	25.260	0.830	23.780	-	22.601	-	-
1961	0.316	18.787	0.380	20.492	-	28.828	-	-
1962*	0.446	19.730	0.400	17.171	-	18.839	-	-
1963	0.375	15.465	0.735	19.577	-	16.525	-	-
1964	0.903	19.092	0.622	20.511	-	15.275	-	13.225
1965	0.635	-	0.296	24.351	-	24.591	-	24.773
1966	0.754	-	0.906	22.452	-	28.652	0.713	23.250
1967	0.883	-	0.659	-	-	26.425	0.226	12.688
1968	0.752	-	0.520	-	0.485	-	0.458	11.773
1969	0.725	-	0.663	-	0.759	-	0.400	13.342
1970	0.519	29.500	0.491	-	0.753	32.965	0.406	-
1971	0.699	-	0.720	-	0.725	27.758	0.469	22.753
1972	0.456	-	0.681	-	0.869	-	0.343	-

*1962 - O.T. Side 0-500 g.t.

Table 7. Redfish : Biomass, population numbers, and catch rates on the Scotian Shelf from Canadian research vessel surveys, 1970-72.

<u>A. Biomass (kg/tow)</u>			
<u>Strata</u>			
40-42	18,660 (55.9)	45,920 (137.6)	18,220 (54.6)
43-46	31,620 (47.1)	15,560 (23.2)	6,490 (9.7)
47-52	3,260 (8.0)	10,270 (25.3)	3,000 (7.4)
Total Div. 4V	<u>53,540</u>	<u>71,750</u>	<u>27,710</u>
53-66 (Div. 4W)	<u>99,620</u> (58.1)	<u>45,680</u> (26.6)	<u>33,530</u> (19.6)
70-81	12,750 (13.9)	61,970 (67.6)	101,120 (110.4)
82-84	4,440 (11.7)	6,570 (17.2)	66,540 (174.7)
85-92	1,990 (5.1)	270 (0.7)	350 (0.9)
93-95	+ (+)	20 (0.1)	- (-)
Total Div. 4X	<u>19,180</u>	<u>68,830</u>	<u>168,010</u>
Total Div. 4VWX	<u>172,340</u>	<u>186,260</u>	<u>229,250</u>
<u>B. Population numbers x10⁻⁶ (No/tow)</u>			
40-42	41.0 (123.0)	87.5 (262.3)	81.2 (243.3)
43-46	69.7 (103.9)	39.1 (58.3)	18.5 (27.6)
47-52	20.8 (51.2)	25.4 (62.6)	15.5 (38.2)
Total Div. 4V	<u>131.5</u>	<u>152.0</u>	<u>115.2</u>
53-66 (Div. 4W)	<u>481.4</u> (280.7)	<u>152.3</u> (88.8)	<u>122.1</u> (71.2)
70-81	47.9 (52.3)	357.8 (390.5)	392.6 (428.6)
82-84	8.4 (22.2)	11.1 (29.2)	101.1 (265.5)
85-92	2.6 (6.7)	0.8 (1.96)	0.8 (2.09)
93-95	+ (0.2)	+ (0.3)	- (-)
Total Div. 4X	<u>58.9</u>	<u>369.7</u>	<u>494.5</u>
Total Div. 4VWX	<u>671.8</u>	<u>674.0</u>	<u>731.8</u>

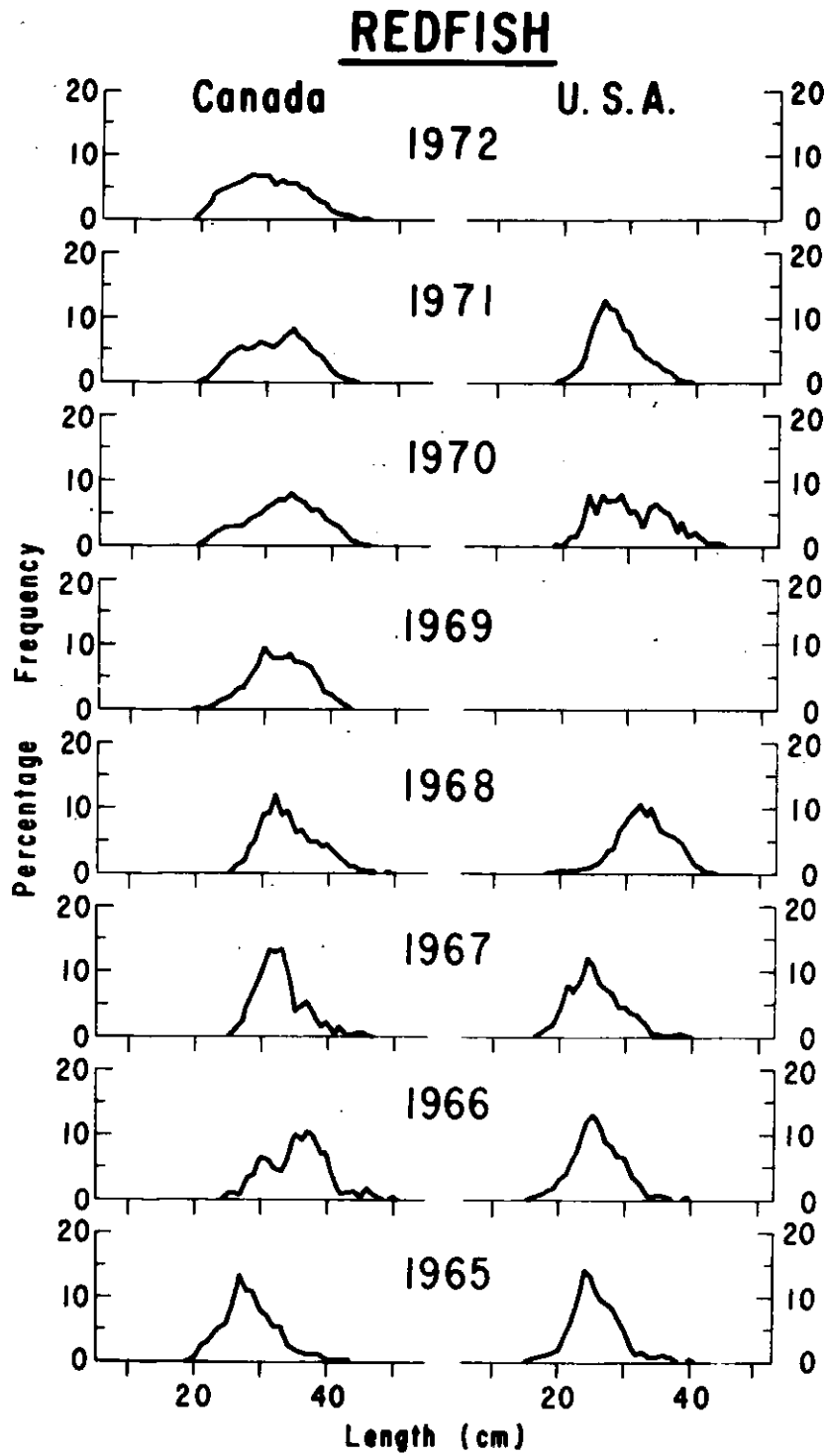


Fig. 1. Redfish : size composition of Canadian and USA commercial landings, 1965-72.

REDFISH

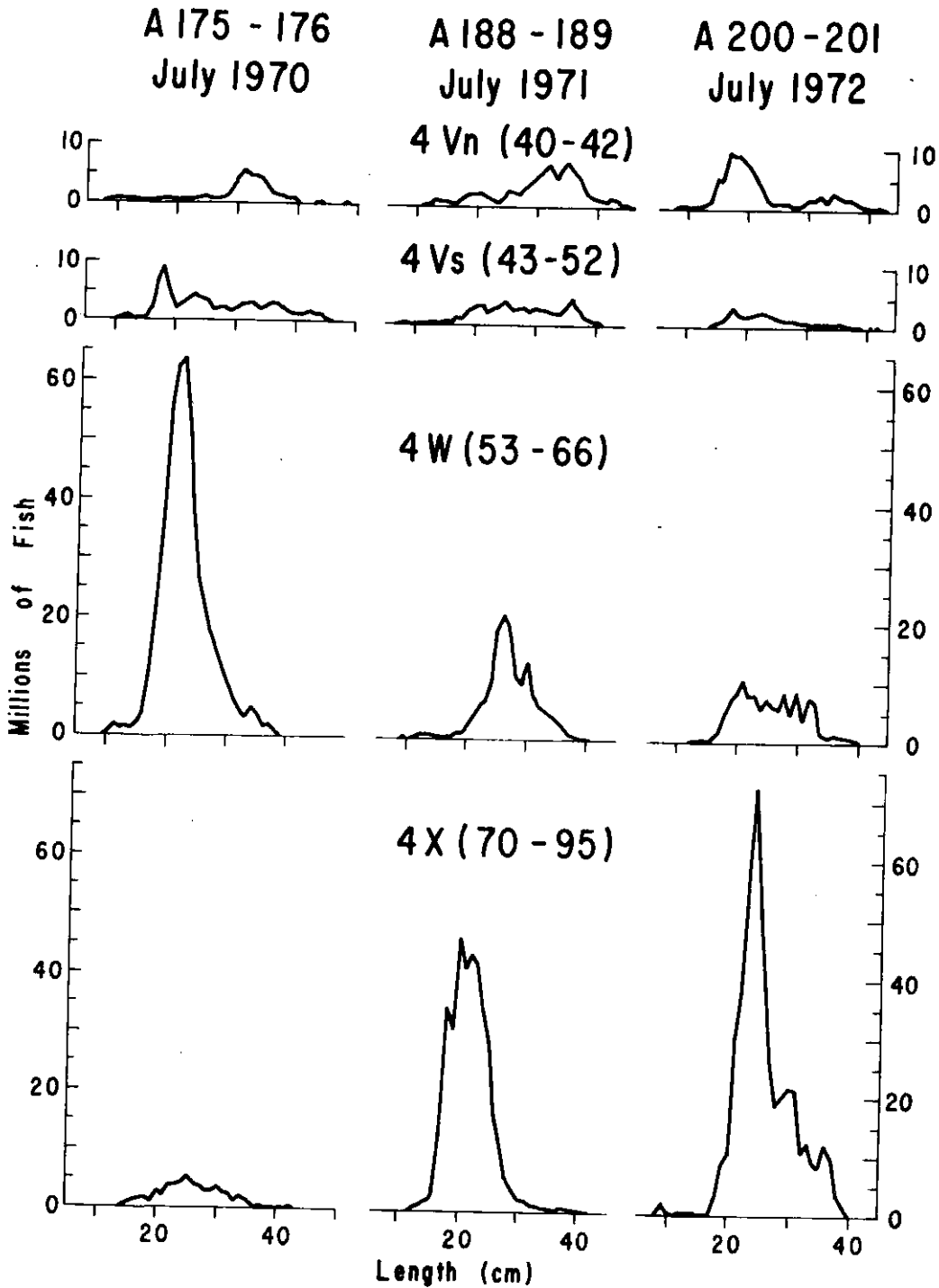


Fig. 2. Redfish : size composition of the population by Division estimated from Canadian research vessel.

