

Canadian Herring Fishery in ICNAF Div. 4V

by

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Catches in the ICNAF Div. 4V herring fishery have altered dramatically since its development in 1967. During the 1968-69 fishing season, over 114,000 tons were taken, primarily by distant water fleets in Subdiv. 4V<sub>s</sub>. Since that time, catches have declined to less than 20,000 tons annually, and Canada has become the major exploiter of this resource.

The Canadian purse seine fishery traditionally exploits an overwintering component primarily in the Sydney Bight area of Cape Breton. Neither the spawning grounds however, nor the relationships of this component to other east coast stocks, have been satisfactorily determined. Lacking essential information on the stock pertaining to geographical location and probable exploitation at other times of the year, assessment of this fishery using current fisheries models has not been attempted and management has been based on catch levels and catch-effort information.

This paper presents information on the 1976-77 fishery (Table 1) and compares the catch and effort information with previous years.

Table 1. Canadian catches and catch/effort in ICNAF Div. 4V during the 1976-77 winter fishery. Effort in nights fished are given in parentheses.

	<u>November</u>	<u>December</u>	<u>Total</u>
4V	5548	7283	12831
C/E	58.4	101.2	76.8
	(95)	(72)	(167)

The Canadian catch during the 1975-76 season declined to 5,652 tons, the lowest level since 1970-71 (Table 2) and caused considerable concern as to the status of the stock even though it was known that weather seriously limited fishing operations. The 1976-77 catch of 12,831 tons, however, was close to the long-term average for the Canadian fishery, and was limited by a national quota (10,100 tons) rather than abundance. The catch-per-effort also increased to previous levels (Table 2).

### 1977-78 Fishery

In analyzing the Div. 4V fishery, it is difficult to interpret the distant water-fleet catches in terms of stock status because of the sporadic nature of that fishery and the extreme lack of information on catch locations and stock components in the offshore areas of Div. 4V. The Canadian fishery however has traditionally occurred in November-January in the inshore area of Subdiv. 4V<sub>n</sub> and thus may give a reasonable indication of stock status.

The long-term average Canadian catch (1971/72-1976/77) is about 12,950 tons. The catch-per-effort, with the exception of the 1975-76 season, has been maintained at 75-80 tons per boat night. Lacking additional information, a TAC for 1977-78 of 12,000-13,000 tons could be suggested.

The percentage age composition of the Canadian catch (Table 3) however, indicates some shift in the age composition of the catches. In earlier years, the fishery exploited primarily old fish, but since 1973, the proportion of the older fish in the catch has declined. Although the 1970 year class has supported the fishery since 1973, the age composition data do not indicate any large new year classes being recruited. Since the contribution of the 1970 year class to the 1977-78 fishery is expected to decrease, and that there is no evidence for a strong new year class, it would be prudent to set the 1977-78 TAC below the long-term average, possibly at 10,000-11,000 tons.

Table 2 . Seasonal catches and Canadian catch per effort (boat night) in the 4V winter herring fishery 1970-71 to 1976-77 (July 1-June 30 season). Effort figures given in parentheses.

	<u>1970-71</u>	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>	<u>1975-76</u>	<u>1976-77</u>
Total Catch	10654	12394	18769	18464	16170	6632	13188*
Canadian Catch	3065	10516	17671	16493	14518	5652	12831
Canadian C/E	-	115.2 (56)	93.8 (149)	78.6 (193)	76.4 (211)	51.6 (105)	76.8 (167)

\*To end of 1976 only

Table 3 . Year class composition of the 4V Canadian fishery from 1970-77. The compositions for the 1973-74 through 1976-77 fisheries were derived from calculated numbers at age. The compositions for earlier years were derived from weighted age length distributions. The numbers in parentheses indicate the combined contribution of older year classes.

<u>4V<sub>n</sub></u>	<u>1974</u>	<u>1973</u>	<u>1972</u>	<u>1971</u>	<u>1970</u>	<u>1969</u>	<u>1968</u>	<u>1967</u>	<u>1966</u>	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>1962</u>	<u>1961</u>	<u>1960</u>
1970-71	-	-	-	-	-	-	0.7	5.8	12.3	14.7	13.9	19.5	5.4	12.4	15.3
1971-72	-	-	-	-	-	1.5	4.7	3.5	8.6	9.4	17.0	14.3	17.2	18.7	(5.1)
1972-73	-	-	-	0.1	5.9	14.5	19.2	9.0	8.5	5.8	15.0	11.0	6.5	(4.5)	
1973-74	-	-	0.1	4.6	51.9	16.9	5.3	3.5	3.8	3.4	4.6	3.1	(2.8)		
1974-75	-	0.2	8.1	6.5	51.3	9.9	3.6	3.5	3.6	4.7	3.9	(4.6)			
1975-76	-	3.2	7.4	8.8	37.5	12.3	5.4	4.3	4.8	5.7	(10.6)				
1976-77	-	6.0	10.3	8.4	35.6	16.9	6.9	4.9	3.8	(7.3)					