



Serial No. 4058
(D.c.9)

ICNAF Res. Doc. 76/XII/162

NINTH SPECIAL COMMISSION MEETING -- DECEMBER 1976

Preliminary mackerel catches and removals by Canada
and the USSR in ICNAF Subarea 3 and 4 in 1976

by

J.J. Hunt
Department of the Environment
Fisheries and Marine Service
Biological Station
St. Andrews, N.B., Canada

Catches

Canadian catches of mackerel in SA-4 declined to 7621 m.t. in 1976 from 18900, 14600 and 9650 m.t. in 1973, 1974 and 1975, respectively. Contribution by gear type and ICNAF Division were similar to those of 1975 (ICNAF Res. Doc. 76/VI/40) but catches were available only for the 2nd and 3rd quarters of 1976. In 1975, this portion of the catch accounted for 77% of the total. Canadian catches in SA-3 were not available by gear type or quarter but amounted to 1167 m.t. to the end of September to give a Canadian catch in SA-3 and 4 of 8788 m.t. (Moore, this meeting). Catches are summarized in Table 1.

USSR catches to the end of June 1976, as reported to ICNAF, accounted for 10074 m.t. in SA-4. The majority of the catch was in Division 4W (69%) by large otter trawlers. Catches by Division and gear type are shown in Table 4.

Biological Samples

Canadian biological samples were available for SA-3 (Moore, this meeting) and SA-4. USSR samples, as submitted to ICNAF, were used in this analysis. SA-3 random samples were combined by gear type and area to give an estimated year-class composition and mean length at age. SA-4 stratified samples were combined by gear and area and weighted to the estimated catch length-frequency in numbers (Table 2). The SA-3 catch was converted to numbers, using the mean weight of fish in the catch and this number proportioned on the basis of year-class composition from samples (Table 3). USSR samples for SA-4 consisted of catch length-frequencies for May and June and an age-length key for the 2nd quarter. These length frequencies were weighted by the number of fish samples and combined to give a catch length frequency. Catch composition in the 1st and 2nd quarters was assumed to be the same and the total catch (10074 m.t.) was converted to numbers, using reported mean weight of fish in the catch. This number was then proportioned on the basis of the combined length frequency and the number at length assigned to year classes by the age-length key (Table 5).

Catch Composition

Considerable variation in year-class composition between areas and countries is evident in Tables 3 and 5. Canadian catches in SA-4 were made up of about 30% age 1 and 2 as opposed to about 1% in SA-3. USSR catches in SA-4 were similar to those by Canada in SA-3 with about 2% age 1 and 2. In the combined SA-3 and 4 catch, age 1 and 2 composed about 15% of the total. The 1973 year-class was well represented in catches with diminishing catches of older year classes.

Conclusions

A total of 18862 m.t. of mackerel were taken by Canada and the USSR in SA-3 and 4 in 1976. Additional catches by the USSR in the 3rd and 4th quarters are not available but will increase the total. This catch was composed of 42201×10^{-3} individuals.

Table 1. Canadian mackerel catches (preliminary) in ICNAF Subareas 3 and 4 to September 1976.

Gear	2nd Quarter					3rd Quarter					Annual	
	4T	4Vn	4W	4X	Total	4T	4Vn	4W	4X	Total		
Weir	-	-	-	76.6	76.6	30.5	-	-	138.9	169.4	246.0	
Purse seine	2.9	-	-	5.5	8.4	333.5	-	-	1.0	334.5	342.9	
Otter trawl	7.4	-	-	-	7.4	2.3	-	-	0.3	2.6	10.0	
Midwater trawl	-	-	0.9	-	0.9	-	-	-	-	-	0.9	
Handline	7.3	-	11.6	3.5	22.4	241.2	1071.6	56.3	17.1	1386.2	1408.6	
Trap	10.7	681.3	79.5	682.9	1454.4	14.4	144.4	18.6	723.4	900.8	2355.2	
Gillnet	595.8	119.6	413.2	383.9	1512.5	603.8	51.7	125.0	180.0	960.5	2473.0	
Unspecified	11.1	20.5	45.4	23.4	100.4	439.3	24.4	182.9	36.8	683.4	783.8	
Total	635.2	821.4	550.6	1175.8	3183.2	1665.0	1292.1	382.8	1097.4	4437.4	7620.6	1166.9 in SA 3 (Moores this meeting) 8787.5 SA 3+4

Table 2.

MACKEREL REMOVALS (1000'S) IN THE CANADIAN (N) SA 4 FISHERY 1976

LOG WEIGHT (GM) = -7.1478 + 3.4644 LOG LENGTH (MM)

CATCH 7620.6 MT.

LENGTH GROUP (CM)	AGE GROUP											TOTAL
	1	2	3	4	5	6	7	8	9	10	10+	
15-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21-CM	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.
22-CM	14.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	14.
23-CM	29.	14.	0.	0.	0.	0.	0.	0.	0.	0.	0.	43.
24-CM	69.	18.	0.	0.	0.	0.	0.	0.	0.	0.	0.	87.
25-CM	66.	29.	0.	0.	0.	0.	0.	0.	0.	0.	0.	95.
26-CM	93.	84.	0.	0.	0.	0.	0.	0.	0.	0.	0.	176.
27-CM	65.	177.	8.	0.	0.	0.	0.	0.	0.	0.	0.	251.
28-CM	49.	527.	23.	0.	0.	0.	0.	0.	0.	0.	0.	599.
29-CM	28.	1628.	222.	9.	0.	0.	0.	0.	0.	0.	0.	1887.
30-CM	33.	1785.	1154.	11.	0.	0.	0.	0.	0.	0.	0.	2983.
31-CM	0.	935.	2050.	26.	13.	13.	0.	0.	0.	0.	0.	3037.
32-CM	0.	361.	1957.	268.	21.	0.	0.	0.	0.	0.	0.	2606.
33-CM	0.	38.	1033.	742.	131.	0.	0.	0.	0.	0.	0.	1944.
34-CM	0.	7.	250.	700.	386.	50.	29.	21.	0.	0.	0.	1444.
35-CM	0.	0.	51.	415.	508.	152.	152.	59.	42.	0.	0.	1380.
36-CM	0.	0.	15.	198.	396.	227.	286.	117.	95.	15.	15.	1364.
37-CM	0.	0.	0.	14.	101.	280.	266.	252.	151.	58.	14.	1144.
38-CM	0.	0.	0.	0.	45.	99.	324.	270.	153.	27.	9.	926.
39-CM	0.	0.	0.	0.	14.	38.	91.	100.	91.	24.	19.	376.
40-CM	0.	0.	0.	6.	0.	6.	6.	61.	55.	12.	18.	164.
41-CM	0.	0.	0.	0.	0.	0.	0.	0.	18.	6.	21.	44.
42-CM	0.	0.	0.	0.	0.	0.	0.	0.	5.	5.	0.	10.
43-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.
44-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45-CM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTALS	448.	5605.	6763.	2389.	1615.	873.	1153.	880.	609.	146.	99.	20582.
MEAN LEN	26.5	30.1	32.0	34.3	35.5	36.9	37.4	37.9	38.2	38.5	39.4	
MEAN WGT	177.7	275.5	339.5	430.6	487.4	553.9	581.2	610.4	626.0	643.8	698.6	
PERCENT	2.18	27.23	32.86	11.61	7.85	4.24	5.60	4.28	2.96	.71	.48	

Table 3. Year-class composition of Canadian mackerel catches in ICNAF Subareas 3* and 4, 1976.

		Year Class											
		'75	'74	'73	'72	'71	'70	'69	'68	'67	'66	'65 ⁺	Total
SA 4	Number (10 ⁻³)	448	5605	6763	2389	1615	873	1153	880	609	146	99	20,582
	Percent	2.2	27.2	32.9	11.6	7.9	4.2	5.6	4.3	3.0	0.7	0.4	100.0
	Mean length	26.5	30.1	32.0	34.3	35.5	36.9	37.4	37.9	38.2	38.5	39.4	32.93
SA 3	Number (10 ⁻³)	-	22	442	530	442	155	155	177	221	44	21	2209
	Percent	-	1.0	20.0	24.0	20.0	7.0	7.0	8.0	10.0	2.0	1.0	100.0
	Mean length	-	32.5	34.1	35.4	36.4	37.4	38.2	38.2	38.8	39.8	41.3	36.35
SA 3+4	Number (10 ⁻³)	448	5627	7205	2919	2057	1028	1308	1057	830	190	120	22,791
	Percent	2.0	24.7	31.6	12.8	9.0	4.5	5.7	4.6	3.6	0.8	0.7	100.0

*Data from Moores (this meeting)

Table 4 . Preliminary USSR mackerel catches in SA 4 to June 1976.

Gear	1st. Quarter				2nd Quarter				Total
	4V	4W	4X	Total	4V	4W	4X	Total	
Otter trawl	234	4242	663	5139	319	2739	1265	4323	9462
Purse Seine	-	-	-	-	-	612	-	612	612
Total	234	4242	663	5139	319	3351	1265	4935	10074 mt

Table 5 . Mackerel catch in numbers (10⁻³) in SA 3+4 in 1976 (preliminary) by USSR (to June) and Canada (to September).

	A G E G R O U P											TOTAL	CATCH MT.
	1	2	3	4	5	6	7	8	9	10	10+		
Canada	448	5627	7205	2919	2057	1028	1308	1057	830	190	120	22791	8788
USSR	4	440	4122	3621	6088	1108	298	2706	753	34	236	19410	10074
Total	452	6067	11327	6540	8145	2136	1606	3763	1583	224	356	42201	18862
Percent	1.07	14.38	26.84	15.50	19.30	5.06	3.81	8.92	3.75	0.53	0.84	100.00	

