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Scotian Shelf flatfish stocks - implications of 1975 data

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Introduction

American plaice, witch flounder and yellowtail flounder in Div. 4VWX are regulated together, the 1975 TAC being 32,000 mt. The TAC for 1976 was reduced to 28,000 mt because of observed over-exploitation of plaice in Div 4W and substantial declines in yellowtail stocks.

Research vessel survey results

Plaice - No substantial changes in abundance are observed in the 1970-75 data series, although there are indications of small increases in abundance in Div 4V and Div 4W (Table 1).

Witch - Again, no substantial changes are observed. Higher population estimates in 1974 were not followed by similar estimates in 1975 (Table 2).

Yellowtail - Small increases in abundance estimates occurred in both 1974 and 1975, particularly in Div 4V (Table 3).

In total (Table 4), there are indications of a moderate increase in abundance of flatfish in 1974 and 1975 over the previous four years.

Commercial catch rates

Catch rates of Canadian-side otter trawlers of 150-499.9 gt. show substantial declines from levels in the mid 1960's (Table 5), dropping from 151 kg/hr fished in 1965 to 76 kg/hr in 1974. A moderate increase to 86 mt/hr was observed in 1975. Plaice catch rates increased in both 1974 and 1975, witch decreased in both these years, while yellowtail increased in 1975.

Discussion

Commercial catch rate data do not support research survey data which show increased flatfish abundance in 1974, but do support evidence of a small increase in abundance in 1975. This change does not appear to be of sufficient magnitude to necessitate modification of the management regime.

Table 1. Div. 4VWX American Plaice - Canadian research vessel survey population abundance estimates.

Div.	1970		1971		1972		1973		1974		1975	
	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow
4V	28,830	20.46	38,010	26.96	29,980	21.28	17,950	12.73	45,330	30.74	27,630	19.60
4W	10,050	5.86	9,810	5.72	6,610	3.86	14,720	8.58	16,290	9.50	23,450	13.67
4X	6,860	3.73	3,430	1.85	3,060	1.66	4,010	2.18	8,230	4.46	2,600	1.42
4VWX	45,740	9.21	51,250	10.31	39,650	7.99	36,680	7.38	69,850	13.66	53,680	10.81
	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow
4V	114.0	80.89	115.0	79.11	99.1	70.32	57.4	40.69	138.4	98.15	85.4	60.60
4W	52.3	30.51	37.0	21.55	33.1	19.28	59.5	34.71	77.7	45.29	72.9	42.53
4X	23.7	12.86	11.2	6.08	10.4	5.66	9.7	5.26	30.0	16.26	7.9	4.27
4VWX	190.0	38.27	159.7	32.15	142.6	28.72	126.6	25.49	246.0	49.53	166.2	33.48

Table 2. Div. 4VWX Witch Flounder - Canadian research vessel survey population abundance estimates.

Div.	1970		1971		1972		1973		1974		1975	
	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow
4V	5,310	3.77	6,400	4.55	4,020	2.85	5,420	3.85	20,520	14.56	4,330	3.08
4W	1,640	0.96	1,420	0.83	2,170	1.26	7,540	4.40	4,660	2.72	4,690	2.74
4X	2,750	1.50	980	0.48	4,150	2.25	6,160	3.34	4,680	2.54	3,220	1.74
4VWX	9,700	1.96	8,800	1.76	10,340	2.08	19,120	3.85	29,860	6.01	12,240	2.47
	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow
4V	12.2	8.66	15.8	11.23	9.1	6.46	10.6	7.53	49.1	34.85	10.6	7.54
4W	4.1	2.40	3.1	1.81	4.2	2.45	17.9	10.44	9.0	5.27	6.7	3.92
4X	4.7	2.55	1.6	0.87	5.9	3.21	9.1	4.93	7.2	3.90	3.5	1.92
4VWX	21.0	4.23	20.5	4.14	19.2	3.87	37.6	7.57	65.3	7.57	20.9	4.21

Table 3. Div. 4VWX Yellowtail Flounder - Canadian research vessel survey population abundance estimates.

Div.	1970		1971		1972		1973		1974		1975	
	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow	Biomass(mt)	Kg/tow
4V	9,750	7.20	7,960	5.64	14,050	9.95	11,560	8.19	15,650	10.98	18,480	13.10
4W	12,370	7.21	9,800	5.72	9,430	5.50	10,960	6.39	15,050	8.78	13,620	7.94
4X	270	0.14	280	0.15	580	0.31	100	0.05	260	0.14	350	0.19
4VWX	22,390	4.59	18,040	3.63	24,060	4.84	22,620	4.55	30,960	6.23	32,450	6.53
	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow	Popn. no. (x10 ⁻⁶)	No/tow
4V	31.4	22.28	26.9	19.02	44.3	31.41	42.0	29.73	56.6	40.11	80.8	57.21
4W	68.1	39.68	57.5	33.52	44.4	25.89	52.1	30.41	70.2	40.93	71.0	41.40
4X	0.7	0.37	1.0	0.53	3.0	1.64	1.6	1.29	0.6	0.85	0.8	0.42
4VWX	100.2	20.16	85.4	17.17	91.7	18.46	95.7	19.25	127.4	25.65	152.5	30.70

Table 4. Div. 4VWX Flatfish - Canadian research vessel survey population biomass estimates (mt).

<u>Year</u>	<u>Plaice</u>	<u>Witch</u>	<u>Yellowtail</u>	<u>Total</u>	<u>4V</u>	<u>4W</u>	<u>4X</u>
1970	45,740	9,700	22,390	77,830	43,890	24,060	9,880
1971	51,250	8,800	18,040	78,090	52,370	21,030	4,690
1972	39,650	10,340	24,060	74,050	48,050	18,210	7,790
1973	36,680	19,120	22,620	78,420	34,930	33,220	10,270
1974	69,850	29,860	30,960	130,670	81,500	36,000	13,170
1975	53,680	12,240	32,450	98,370	50,440	41,760	6,170

Table 5. Div 4VWX Flatfish - catch rates of Canadian-side otter trawlers of 150-499.9 gross tons (kg/hr fished).

<u>Year</u>	<u>4Vn</u>	<u>4Vs</u>	<u>4W</u>	<u>4X</u>	<u>4VWX</u>	<u>Plaice</u>	<u>Witch</u>	<u>Yellowtail</u>
1965	196	487	86	6	151	43	35	73
66	154	535	32	6	140	68	22	50
67	226	436	62	8	134	58	29	47
68	173	478	67	10	142	62	31	50
69	152	454	50	11	130	74	32	25
1970	135	393	31	8	108	73	21	14
71	136	339	61	9	107	61	31	15
72	112	321	71	7	105	55	35	15
73	315	119	80	5	77	37	35	4
74	148	234	36	7	76	39	33	4
1975	90	298	39	6	86	51	21	15

