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Canadian Atlantic Fisheries  
Scientific Advisory Committee

CAFSAC Research Document 83/35

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Comité scientifique consultatif des  
pêches canadiennes dans l'Atlantique

CSCPCA Document de recherche 83/35

Assessment of American plaice in NAFO Subdivision 3Ps for 1982

by

W.B. Brodie and T.K. Pitt  
Fisheries Research Branch  
Department of Fisheries and Oceans  
P.O. Box 5667  
St. John's, Newfoundland  
A1C 5X1

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## ABSTRACT

This is, for the most part, a bycatch fishery and the data base presently available does not permit a precise analytical assessment. However, commercial catch per unit effort has remained fairly stable during the past several years, and hence the TAC of 5,000 t should be continued for 1984.

## RESUME

Comme les prises de plie canadienne sont en grande partie secondaires dans cette pêche, les données existantes ne permettent pas une évaluation analytique. Cependant, les prises commerciales par unité d'effort sont demeurées assez stables depuis plusieurs années. Le TPA devrait donc être maintenu au niveau de 5 000 t en 1984.

## INTRODUCTION

This stock has been under quota management since 1973. Catches are listed in Table 1. This fishery has been almost entirely by Canadian vessels since 1970. While most of the catch is taken as bycatch in other fisheries, there nevertheless is some directed fishing as indicated in Table 2.

## ASSESSMENT

Catch rates (Table 2) have remained rather stable in the past several years. The 1982 CPUE was up slightly, and was close to that experienced in the early 1970's.

Research vessel results are listed in Table 3. These indicate quite wide annual fluctuations with respect to total numbers caught and mean number per tow. From the results available it is difficult to make predictions with respect to year class strength and total abundance.

Sampling of the fishery was quite adequate (Table 4) and these data were used to calculate numbers at age (Table 5) in 1982. The latter indicate that the 11 year olds (1971 year class) were the single most important age group in the catch. The catch at age matrix for 1973-82 is given in Table 6.

Hopefully when more precise catch and effort data, etc. are available, a more precise assessment will be attempted, however, because of the bycatch nature of the fishery and the fluctuation noted in the research vessel survey results it is difficult to say when an analytical assessment of this rather small stock might be possible.

For now, at least, with the limited amount of data and the apparent stability in the CPUE there appears to be no reason to recommend any change in the 5,000 t TAC that has been in effect since 1980.

Table 1. Catches (tons) of American plaice in NAFO Subdivision 3Ps.

Year	Canada		France(SP)	USSR	Other	Total	TAC
	Nfld.	M&Q					
1960	422	405	827	60		887	
1961	764	660	1424	31		1455	
1962	659	363	1022	2		1024	
1963	504	25	529	208	1	754	
1964	1132	230	1362	152		1542	
1965	574	1275	1849	162	-	2022	
1966	1162	1332	2494	667	218	3406	
1967	2201	1074	3275	533	678	4494	
1968	4007	1516	5523	524	8233	14280	
1969	2888	1178	4066	245	2180	6491	
1970	7368	4227	11595	397	336	12328	
1971	4667	1286	5953	820	409	7182	
1972	4301	1621	5922	383	220	6538	
1973	10972	1840	12812	547	1368	14769	
1974	5887	443	6330	166		6598	11,000
1975	2517	1301	3818	65	128	4211	11,000
1976	5302	128	5430	5	9	5458	8,000
1977	4235	307	4542	63	-	4605	6,000
1978	3419	192	3611	47	-	3658	4,000
1979	3405	187	3592	49		3666	4,000
1980	2516	213	2729	107		2935	5,000
1981	2703	58	2761	326		3218	5,000
1982*	1814	45	1859	403		2262	5,000
1983							5,000

\* provisional

Table 2. Catch and effort for American plaice in Subdivision 3Ps. Catch rates calculated from Canada (N) OT-5 catch and effort data.

Year	Total catch (tons)	CPUE (t/hr)	Calculated effort (hr)	Directed catch (tons)
1967	4,494	0.740	6,073	1,342
1968	14,280	0.677	21,093	2,735
1969	6,491	0.553	11,738	1,754
1970	12,328	0.679	18,156	5,539
1971	7,182	0.530	13,550	2,778
1972	6,538	0.494	13,235	3,212
1973	14,769	0.506	29,188	9,542
1974	6,598	0.331	19,934	4,218
1975	4,211	0.307	13,717	1,797
1976	5,458	0.311	17,550	4,340
1977	4,605	0.326	14,126	3,045
1978	3,658	0.302	12,113	2,361
1979	3,666	0.407	9,007	2,276
1980	2,935	0.317	9,259	1,175
1981	3,218	0.396	8,126	1,303
1982	2,262	0.452	5,004	1,148

Table 3. Abundance of American plaice (Number x 10<sup>-3</sup>) from R.V. surveys in NAFO Subdivision 3Ps (same strata used each year).

Age/yr	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
2	4	15	4	1	3		17	96	39	19
3	423	113	99	38	17	145	39	372	418	267
4	903	333	190	309	69	165	323	537	1,856	755
5	1,996	430	239	386	256	680	880	1,784	2,304	881
6	3,303	246	172	478	164	993	1,440	3,110	3,691	992
7	3,858	227	107	187	167	820	2,949	7,212	6,320	1,347
8	3,169	132	75	146	104	784	1,892	5,062	7,177	1,517
9	4,298	159	23	94	94	840	971	2,788	4,025	1,786
10	4,056	128	29	73	78	315	352	1,570	1,366	955
11	3,200	78	35	31	68	354	358	562	314	379
12	1,499	95	43	22	47	140	328	303	269	318
13	1,608	90	54	14	28	109	172	113	309	160
14	618	81	29	11	70	30	118	60	374	124
15	453	67	17	41	42	14	93	1	95	46
16	218	23	18	39	14	29	60	5	148	25
17	119	29	4	20	8	2	10	-	49	12
18	100	8	9	14	7	-	-	1	100	23
19	31	26	4	5	3	-	-	-	104	4
20	18	15	-	13	-	-	-	-	-	3
21	31	-	-	-	-	-	-	-	-	-
22	16	12	-	-	-	-	-	-	-	-
23	6	-	-	-	-	-	-	-	-	-
Unk			2			43		11		
Total	29,927	2,307	1,153	1,922	1,239	5,463	10,002	23,587	28,958	9,613
Mean No/Tow	156.4	12.02	6.03	10.75	6.52	29.87	52.27	123.28	136.75	46.49

Table 4. List of commercial sampling for 1982 by quarter and division, American plaice, NAFO Subdivision 3Ps, provided by the St. John's Commercial Sampling Section.

Quarter	Measurements	Otoliths	Catch* (tons)	# Samples
1	1,486	392	269	3
2	1,351	115	315	2
3	402	97	372	1
4	1,432	381	536	4

\* Mostly from otter trawlers

Table 5. Average weight (kg) and numbers caught ( $\times 10^{-3}$ ), at age for American plaice in NAFO Subdivision 3Ps in the commercial fishery, 1982.

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Age	Weight	Catch	Var (catch)	STD, error	Coefficient variation
6	0.303	2	1.677	1.30	0.66
7	0.425	29	45.704	6.76	0.23
8	0.419	193	1198.021	34.61	0.18
9	0.448	390	2316.203	48.13	0.12
10	0.513	801	3450.068	58.74	0.07
11	0.656	1142	2960.046	54.41	0.05
12	0.924	463	1586.052	39.83	0.09
13	1.184	198	515.333	22.70	0.11
14	1.541	125	190.796	13.81	0.11
15	1.978	44	60.695	7.79	0.18
16	2.339	22	17.235	4.15	0.19
17	2.739	12	7.733	2.78	0.22
18	3.329	5	1.167	1.08	0.21
19	3.659	1	0.486	0.70	0.53
20	4.069	1	0.115	0.34	0.51

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Table 6. Catch numbers, 3Ps American plaice ( $\times 10^{-3}$ ).

Age	Year									
	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
6	46	312	264	121	24	53	97	2	9	2
7	568	783	619	442	150	206	182	148	115	29
8	823	857	613	1110	370	498	545	609	510	193
9	1170	1165	570	1499	896	994	900	925	929	390
10	941	1221	422	1249	917	1033	845	897	539	801
11	2003	777	403	963	1055	769	654	720	429	1142
12	1344	880	480	705	384	729	382	633	214	463
13	1272	844	401	454	280	329	241	401	114	198
14	1140	490	239	219	249	228	162	73	90	125
15	974	220	77	161	191	120	133	87	70	44
16	827	173	100	127	209	76	48	50	34	22
17	426	96	95	99	138	21	25	21	18	12
18	377	145	64	42	91	11	3	12	7	5
19	239	61	60	3	31	5	1	1	3	1