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American plaice, Subdivision 3Ps data update for
stock assessments

by

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ABSTRACT

This is primarily a by-catch fishery and the data base does not permit a precise analytical assessment. Catch curves suggest that removal levels of 8,000-10,000 t in the late 1960's and 1970's produced mortality rates of 0.30 to 0.35 which are above $F_{0.1}(0.24)$. The stock now appears to be in a relatively stable condition and hence a TAC of 5,000 should be continued for 1983.

RESUME

Cette pêche est constituée surtout de prises accessoires et la base de données ne permet pas de faire une évaluation précise. Les courbes indiquent, en raison des prises de 8 000 à 10 000 t réalisées à la fin des années soixante et soixante - dix, que le taux de mortalité se situait entre 0,30 et 0,35, valeurs supérieures au $F_{0,1} (0,24)$. Le stock semble actuellement relativement stable, si bien qu'on devrait maintenir le TPA à 5 000 t pour 1983.

INTRODUCTION

This stock has been under quota management since 1973. Catches and TAC's are listed in Table 1. This fishery has been almost entirely by Canada since 1970. Nominal catches averaged around 9,200 t 1967-73 and about 4200 t 1974-81. Although this fishery is primarily a by-catch fishery there has been some directed catch also (Table 2).

ASSESSMENT

Catch rates have remained relatively stable (Table 2) in the past several years, although the amount of directed effort was rather small.

Results of research vessel surveys are listed in Table 3. These are abundance estimates (numbers) from a group of selected strata within the American plaice depth range that have been fished each year since 1973. The large fluctuations indicated in the total abundance make these results rather suspect in a population consisting of such a large number of year-classes.

A catch curve using commercial catch numbers-at-age per unit effort (Fig. 1) for 1978-81 commercial data indicated average fishing mortalities of about 0.30 to 0.35 in the fully recruited age groups (assuming $M=0.20$). This mortality rate probably reflects removals of about 8,000 to 10,000 t annually. $F_{0.1}$ for this stock has been calculated at 0.24 (Brodie and Pitt, 1981), hence a TAC of 5,000 t would seem appropriate. The data base is not

available to permit a precise analytical assessment. It should be emphasized again that this is primarily a by-catch fishery and the catch level will perhaps be a function of the otter trawler fleet effort particularly in the 3Ps cod fishery.

REFERENCES

Brodie, W.B. and T.K. Pitt. 1981. An assessment of American plaice in Subdivision 3Ps. CAFSAC Res. Doc. 81/37.

Table 1. Catch for plaice in Subdivision 3Ps.

Year	Canada (tons)	All countries (tons)	TAC (tons)
1967	3,275	4,494	-
1968	5,523	14,280	-
1969	4,066	6,491	-
1970	11,545	12,328	-
1971	5,953	7,182	-
1972	5,922	6,538	-
1973	12,812	13,360	-
1974	6,330	6,598	11.0
1975	3,813	4,211	11.0
1976	5,383	5,428	8.0
1977	4,605	4,605	6.0
1978	3,611	3,658	4.0
1979	3,405	3,666	4.0
1980	2,728	2,865	5.0
1981*	2,693	2,693	5.0
1982			5.0

*Preliminary

Table 2. Catch and effort for American plaice 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	37,878	2,735
1969	6,491	0.553	11,738	1,754
1970	12,328	0.679	18,153	5,539
1971	7,182	0.530	13,550	2,778
1972	6,538	0.494	13,235	3,212
1973	13,360	0.506	26,403	9,542
1974	6,594	0.331	19,921	4,218
1975	4,211	0.307	13,717	1,797
1976	5,428	0.311	17,453	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	2,865	0.317	10,628	1,175
1981	2,693	0.396	6,800	1,303

Table 3. Abundance (Number $\times 10^{-3}$) from R.V. surveys NAFO Subdivision 3Ps (same strata used each year).

Age/yr	1973	1974	1975	1976	1977	1978	1979	1980	1981
2	4	15	4	1	3		17	96	39
3	423	113	99	38	17	145	39	372	418
4	903	333	190	309	69	165	323	537	1,856
5	1,996	430	239	386	256	680	880	1,784	2,304
6	3,303	246	172	478	164	993	1,440	3,110	3,691
7	3,858	227	107	187	167	820	2,949	7,212	6,320
8	3,169	132	75	146	104	784	1,892	5,062	7,177
9	4,298	159	23	94	94	840	971	2,788	4,025
10	4,056	128	29	73	78	315	352	1,570	1,366
11	3,200	78	35	31	68	354	358	562	314
12	1,499	95	43	22	47	140	328	303	269
13	1,608	90	54	14	28	109	172	113	309
14	618	81	29	11	70	30	118	60	374
15	453	67	17	41	42	14	93	1	95
16	218	23	18	39	14	29	60	5	148
17	119	29	4	20	8	2	10	-	49
18	100	8	9	14	7			1	100
19	31	26	4	5	3				104
20	18	15		13					
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

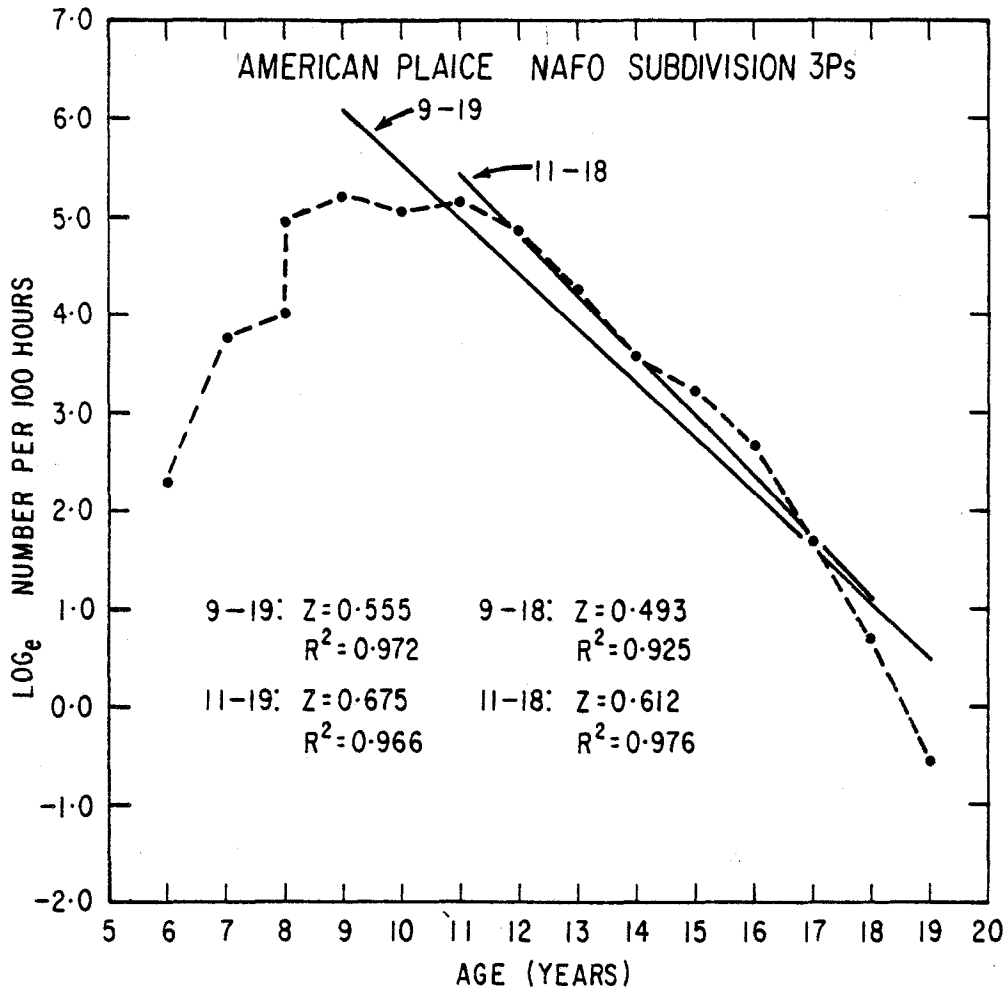


Fig. 1. Catch curve of American plaice NAFO Subdivision 3Ps using 1978-81 commercial catch per unit effort at age