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Canadian Atlantic Fisheries
Scientific Advisory Committee

CAFSAC
Res. Doc. 81/ 54

Witch Flounder of St. Pierre Bank -
a By-catch Fishery

by

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ABSTRACT

The fishery for witch flounder on St. Pierre Bank has traditionally been a by-catch of the trawler fishery for other species such as cod, redfish and American plaice with a small seiner fishery occurring in Fortune Bay. Landings from these areas have been less than 1000 t annually since 1978. Catches at age show that fish older than age 12 years have now been entirely removed from the existing fishery whereas in earlier years catches were comprised of fish as old as +25 years. Biomass estimates since 1975 have indicated that for the area surveyed the biomass has remained relatively stable, particularly since 1977, despite the reduction of the older age groups.

RESUME

La pêcherie de plie grise sur le banc Saint-Pierre a traditionnellement été constituée de prises fortuites lors du chalutage d'autres espèces, telles que morue et sébaste, et d'une pêche limitée à la senne dans la baie Fortune. Depuis 1978, les débarquements de ces régions sont inférieurs à 1 000 t par an. Les prises par âge indiquent que les poissons âgés de plus de 12 ans ont maintenant complètement disparu des prises, alors qu'auparavant ces dernières comprenaient des poissons aussi âgés que 25 ans et plus. Les estimations de biomasse depuis 1975 indiquent que, dans les régions étudiées, elle est demeurée relativement stable, surtout depuis 1977, en dépit de la diminution du nombre de poissons âgés.

COMMERCIAL LANDINGS

The landings of witch flounder in Subdivision 3Ps have fluctuated from 570 t in 1965 to 4805 t in 1967 (Table 1). Over the past 5 years the landings have been consistently around 900 t with the exception of 1977 where landings reached 4168 t. Since 1978, however, landings have been less than 1000 t annually. The fishery for witch on St. Pierre Bank is essentially a by-catch fishery for cod, American plaice and redfish. In fact, over the last few years about one-third of the landings in Subdivision 3Ps have been taken in the Fortune Bay area by inshore gear such as Scottish Seiners and gillnets making the by-catch fishery on St. Pierre Bank even less important. Because of the nature of this fishery and the very low catches, commercial sampling of the catches is virtually impossible.

BIOMASS SURVEYS

Over the past 10 years, stratified-random biomass surveys for groundfish have been conducted in the St. Pierre Bank region by the Canadian research vessel A. T. Cameron. Due to such reasons as inclement weather or malfunction of vessel equipment it has been difficult to survey the entire area each year. For 1972 to 1980 five common strata in a depth range of 101-150 fath have been surveyed and three common strata in a depth range from 150-200 fath for 1975-80. For 1981 a stratum was dropped from each depth zone in the survey because of time constraints. The stratification scheme for St. Pierre Bank is shown in Fig. 1.

Average numbers and weights per set were calculated for the five common strata in depth zone 101-150 fath for 1972-80 weighted by stratum area and the same for the four common strata for 1972-81. The results are presented in Table 2 and Fig. 2 and 3 respectively. Average numbers and weights per set were calculated for the three common strata in depth zone 151-200 fath for 1975-80 weighted by stratum area and the same for the two common strata for 1975-81. The results are presented in Table 3 and Fig. 4 and 5 respectively. For a combination of the six strata common to surveys from 1975-81, the results are presented in Fig. 6. The five common strata in depth zone 101-150 fath represents 19% of the total survey area whereas the three common strata in depth zone 151-200 fath represents only 8% of the total survey area.

AVERAGE CATCH PER SET

In depth zone 101-150 fath there appears to be a gentle decline in catch per set from 1977-1980 (Fig. 2 and 3) with a slight increase in 1981 (Fig. 3). For practical purposes, however, the average catch per set over the past few years would appear stable particularly with reference to average weight per set. For depth zone 151-200 fath there appears to be the opposite effect over the last few years with a gentle increasing trend (Fig. 4 and 5). A slightly lower value was encountered in 1980 (Fig. 4 and 5), however, increased again in 1981 (Fig. 5). Once again, for practical purposes, for average catch per set with particular reference to average weight per set, the trend appears stable over the past 7 years.

When combining the six strata common to the 1975-81 surveys (Fig. 6) the trend appears to fluctuate within a narrow range especially from 1976-81. The values generated from the 1981 survey are, in fact, the highest since 1975.

MANAGEMENT

A TAC of 3000 t was placed upon this stock in 1974 and has been in effect since that time. This value was based upon average catches in the late 1960's and early 1970,s. Considering the stability shown in the biomass surveys created by an average annual catch of 1500 t then a suggestion of 1500 t might be an appropriate TAC for 1982. However, this fishery is simply a by-catch on St. Pierre Bank and an unregulated inshore fishery in Fortune Bay, therefore, a restrictive TAC is probably unnecessary since any offshore effort is very unlikely to be directed towards this species.

Table 1. Nominal catches of witch flounder, Division 3Ps
1963-80 (t).

Year	CAN	FRA	USSR	UK	PORT	TOTAL
1963	771	131	-	22	-	924
1964	963	-	-	48	-	1011
1965	555	-	-	15	-	570
1966	1344	-	79	21	-	1444
1967	3790	-	982	33	-	4805
1968	2561	106	1464	-	-	4131
1969	2309	95	1691	1	-	4096
1970	2591	111	-	-	-	2702
1971	2193	57	-	-	-	2250
1972	1517	69	8	-	-	1594
1973	2341	112	443	10	-	2906
1974	1699	2	-	-	40	1741
1975	1370	40	4	-	13	1427
1976	866	32	3	-	2	903
1977	4168	-	-	-	-	4168
1978	963	-	-	-	-	963
1979	829	27	-	-	-	856
1980	817					817*

*Provisional catch statistics from quota report

Table 2. Witch biomass surveys 1972-81 Subdivision 3Ps

Stratum	309	310	313	316	318	Weighted mean: all strata	Weighted mean: except 318
Area (sq.n. miles)	(296)	(170)	(165)	(189)	(123)		
1972							
*No.	2.43	21.39	17.50	50.56	33.70	22.21	21.49
*Wt.	1.27	9.27	6.40	21.02	12.06	8.98	8.51
1973							
No.	36.00	13.00	12.25	51.60	40.50	31.41	30.05
Wt.	17.86	6.81	6.19	18.89	25.88	15.08	13.46
1974							
No.	29.62	14.75	56.60	74.33	54.00	43.80	42.27
Wt.	10.84	6.70	20.43	27.69	25.88	17.11	15.80
1975							
No.	4.20	3.98	120.67	126.50	4.97	49.15	55.78
Wt.	2.02	1.92	33.29	37.79	1.69	14.60	16.54
1976							
No.	5.13	5.25	27.17	13.75	6.55	10.92	11.58
Wt.	1.91	2.84	9.88	5.45	1.91	4.18	4.52
1977							
No.	13.56	13.94	20.73	91.06	14.50	30.54	25.16
Wt.	6.14	6.94	8.32	33.33	6.05	12.10	13.01
1978							
No.	9.56	16.44	34.20	42.67	16.50	22.65	23.58
Wt.	3.38	6.63	17.07	15.17	5.90	9.05	9.53
1979							
No.	8.17	8.33	14.40	43.67	37.00	20.16	17.64
Wt.	3.97	4.01	6.17	18.76	14.74	8.73	7.83
1980							
No.	0.00	9.00	31.50	14.00	16.00	12.03	11.43
Wt.	0.00	4.09	22.24	5.90	7.26	6.76	6.68
1981							
No.	10.00	10.50	57.00	46.00	-	-	27.86
Wt.	3.75	6.00	25.00	16.50	-	-	11.43

*No. = Av. No./Set (Weighted by Stratum area)

*Wt. = Av. Wt./Set (Weighted by Stratum area)

Table 3. Witch biomass surveys 1975-1981 - Subdivision 3Ps.

Stratum	705	707	715	Weighted mean: all strata	Weighted mean: except 707
Area (sq. n. miles)	(195)	(93)	(132)		
1975 *No.	25.81	65.25	19.00	32.40	23.06
1975 *Wt.	3.97	20.32	6.65	8.43	5.05
1976 No.	18.50	5.50	10.50	13.11	15.27
1976 Wt.	6.13	2.27	5.90	5.20	6.04
1977 No.	20.75	4.62	6.25	12.62	14.90
1977 Wt.	7.15	1.29	2.67	4.44	5.34
1978 No.	10.80	27.00	15.50	15.86	12.70
1978 Wt.	3.99	10.90	9.08	7.12	6.04
1979 No.	33.50	22.50	9.33	23.47	23.74
1979 Wt.	13.39	11.13	4.69	10.16	9.88
1980 No.	25.50	18.50	9.50	18.92	19.04
1980 Wt.	7.94	9.53	3.29	6.83	6.06
1981 No.	28.00	-	3.00	-	17.91
1981 Wt.	12.50	-	2.35	-	8.40

*Av. No./Set (Weighted by Stratum area)

*Av. Wt./Set (Weighted by Stratum area)

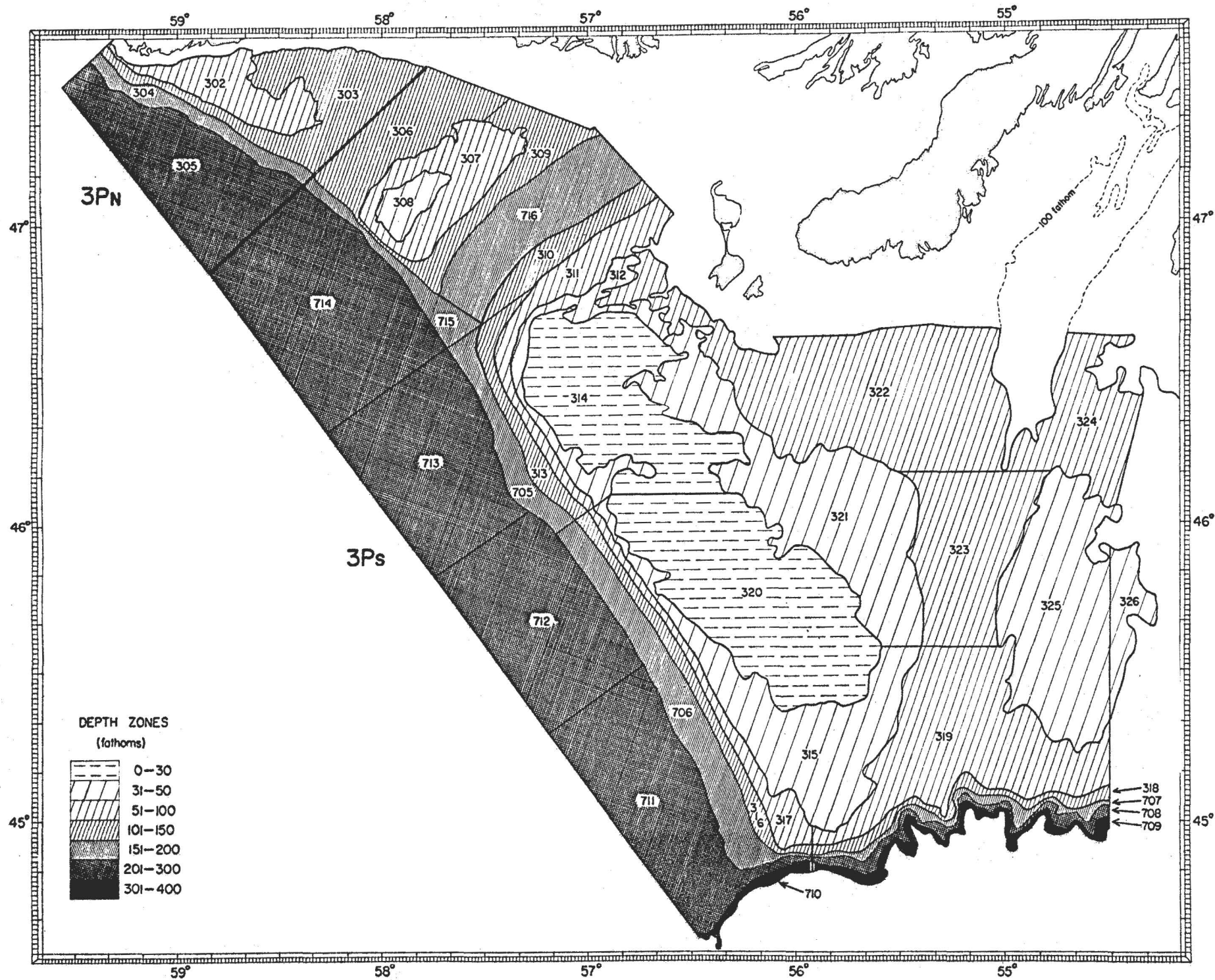


Figure 1. Stratification scheme for St. Pierre Bank.

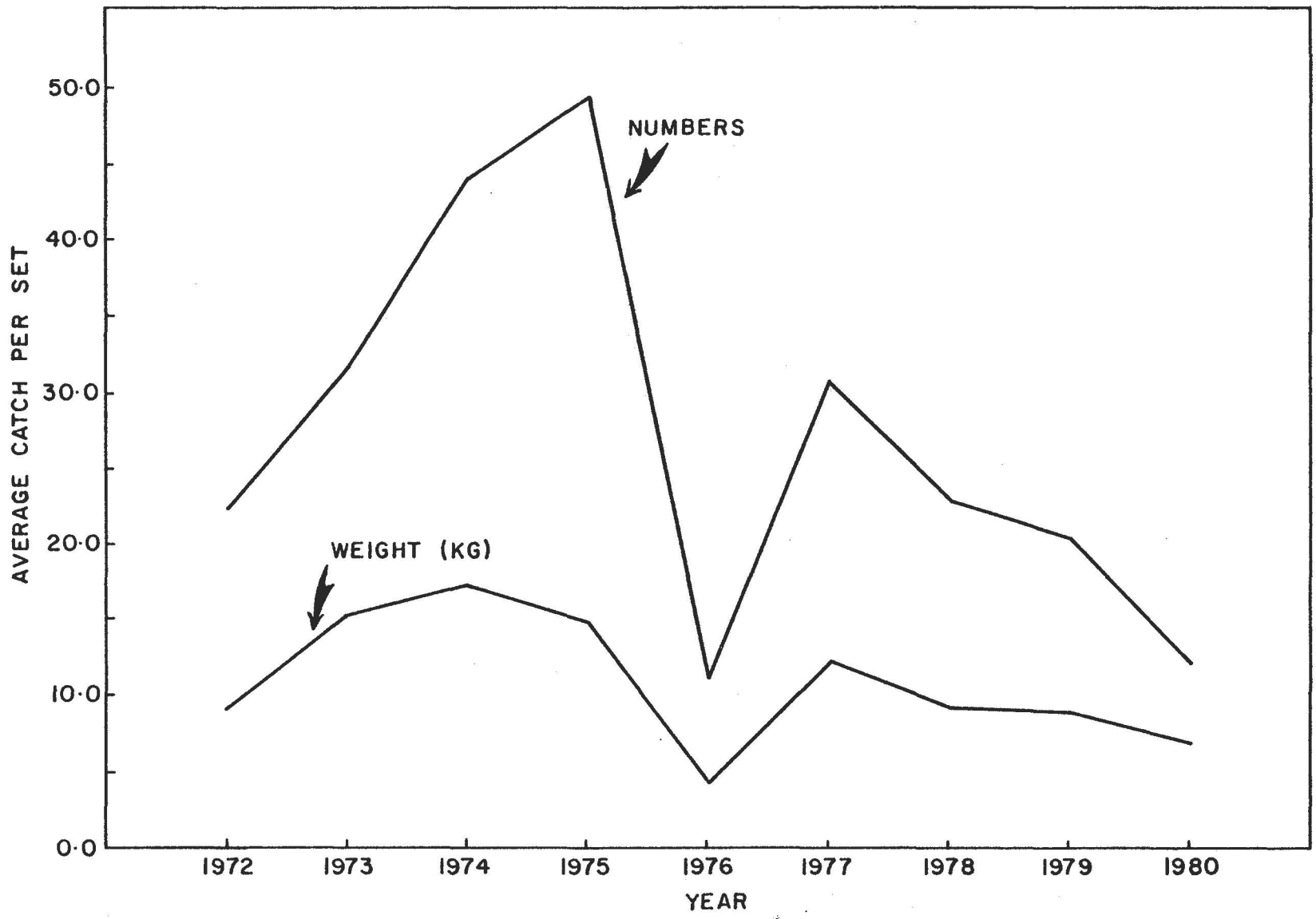


Figure 2. Witch Division 3Ps, strata 309, 310, 313, 316, and 318.

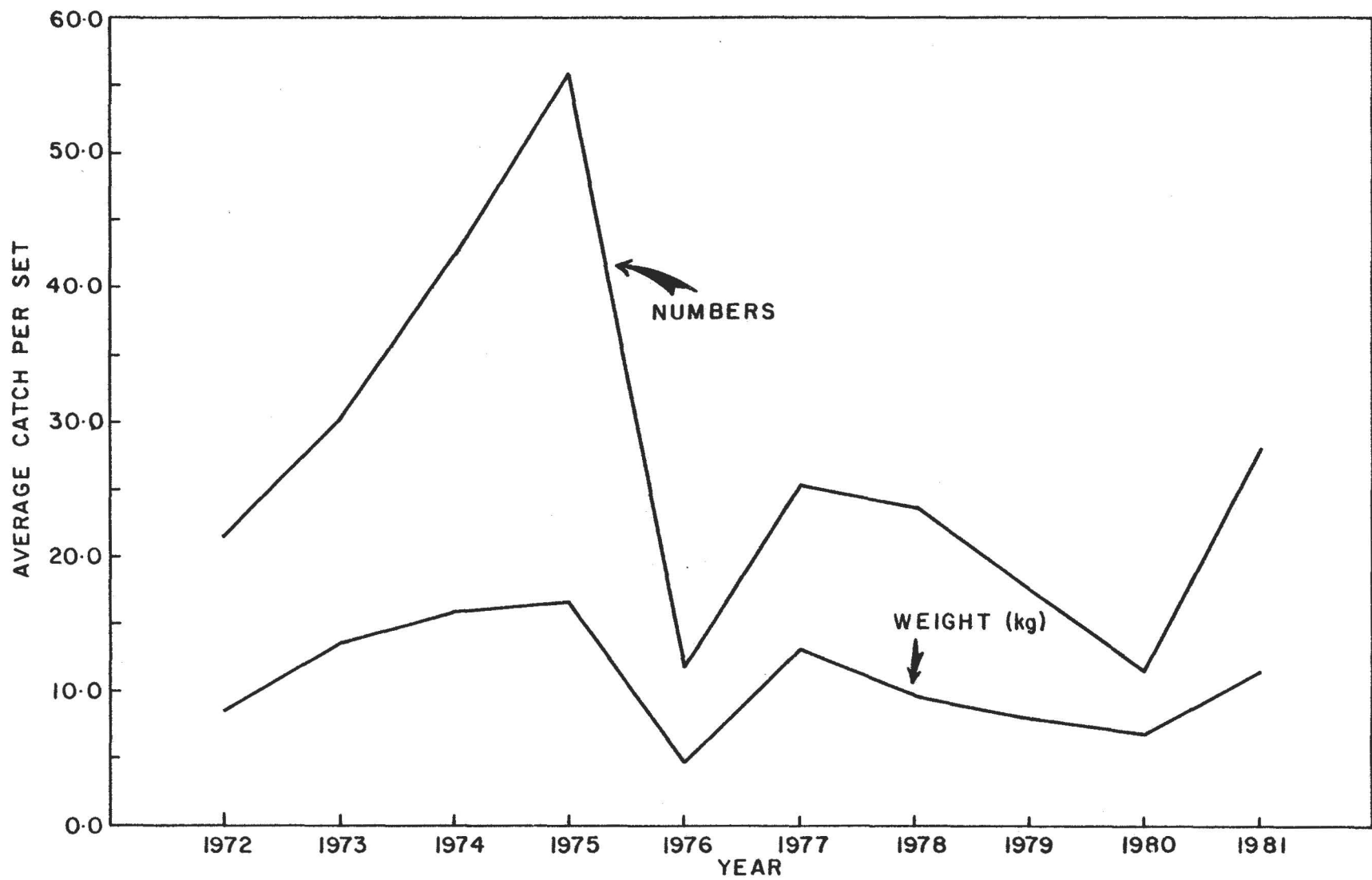


Figure 3. Witch Division 3Ps, strata 309, 310, 313, and 316.

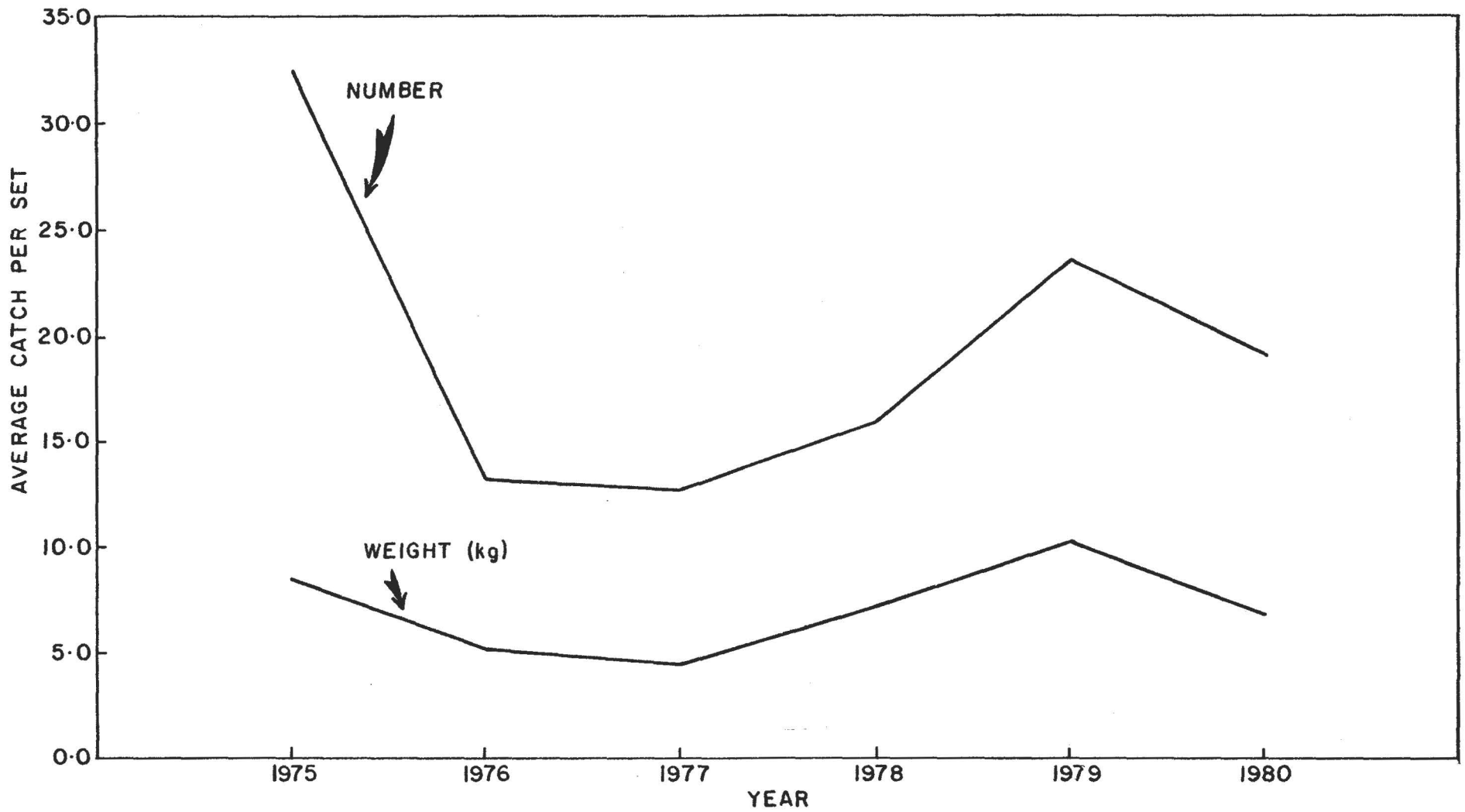


Figure 4. Witch Division 3Ps, strata 705, 707, and 715.

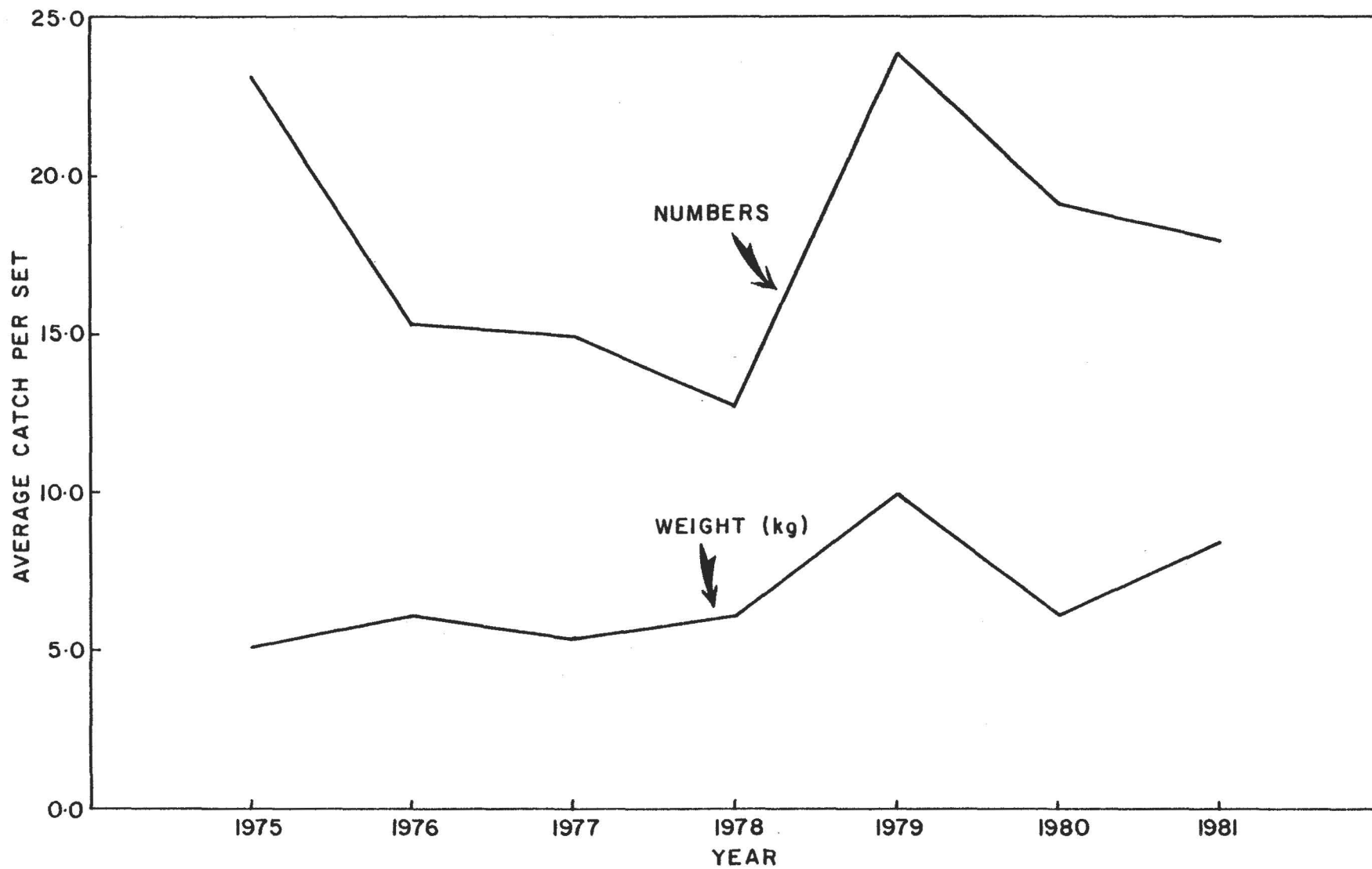


Figure 5. Witch Division 3Ps, strata 705 and 715.

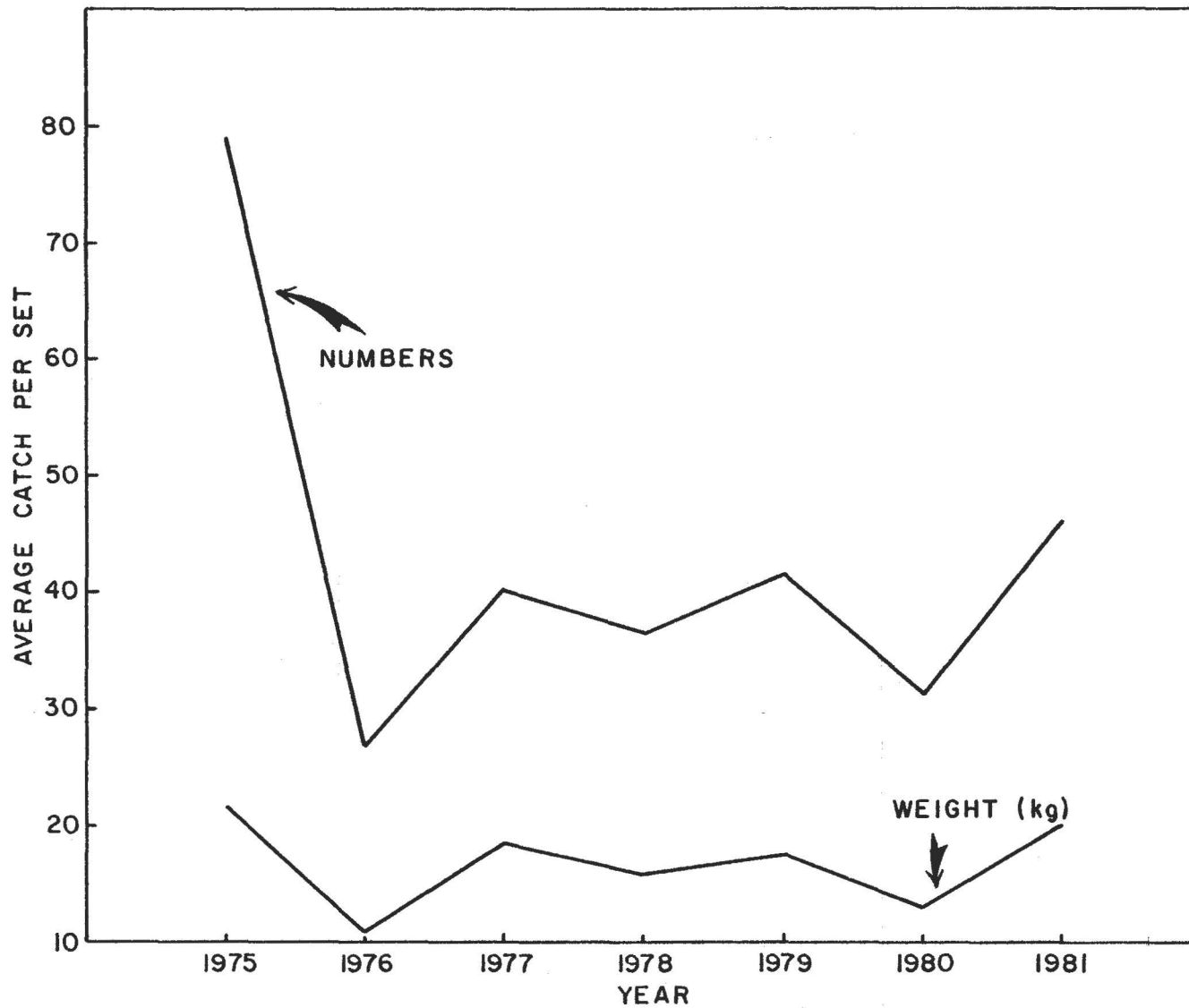


Figure 6. Witch Division 3Ps, strata 705, 715, 309, 310, 313, and 316.