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A REVIEW OF STOCK STATUS - 3Ps POLLOCK

by

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Abstract

Pollock landings were generally less than 500t from the late 1960's to the early 1980's, increased to about 7500t in 1986 and subsequently declined to about 1300t in 1991. Biomass estimates from research surveys showed a similar trend peaking in 1987 but declining since that time. In recent years pollock have been found mainly on the slopes of St. Pierre Bank during the survey period.

Résumé

Les débarquements de goberge ont été dans l'ensemble inférieurs à 500 t de la fin des années 60 au début des années 80, puis ils ont augmenté à environ 7 500 t en 1986 pour redescendre ensuite à approximativement 1 300 t en 1991. Les estimations de biomasse découlant des campagnes d'évaluation dénotent une tendance similaire à la hausse jusqu'en 1987 et à la baisse depuis lors. Au cours des campagnes d'évaluation de ces dernières années, la goberge était présente surtout sur les talus du banc de St. Pierre

Introduction

Pollock landings in Subdiv. 3Ps averaged 420t from 1967 to 1982, increased to a high of 7554t in 1986 but have steadily declined to 1278t in 1991 (Table 1, Figure 1). Landings since 1976 have been almost exclusively by Canada and France. Catches relative to TAC's since 1986 are as follows:

	1986	1987	1988	1989	1990	1991	1992
TAC ^a	1.5	5.4	5.4	5.4	5.4	5.4	5.4
Catch Canada	5.4	2.3	1.7	2.1 ^b	1.6 ^b	1.2 ^b	
Catch France	2.1	2.8	2.5	1.2 ^b	0.4 ^b	0.0 ^b	

^a Precautionary TAC established by management

^b Preliminary

Research Survey Data

Research vessel surveys have been conducted in Subdiv. 3Ps by Canada mainly during the February - March period since 1972 using the stratified random design (Figure 2). Biomass estimates were low (< 1000t) in the 1970's but increased to a high of about 7900t in 1987 (Table 2). Since that time estimates have declined, with the exception of a slight increase in 1992. Survey catches for most of period have been highest (Table 3) from strata surrounding Burgeo Bank (306-309) and to a lesser degree from those on the slopes of the St. Pierre Bank (310, 313, 318, 706, 707). In recent years survey catches have been largest on the slopes (strata 313, 316, 318 and 707).

Data from surveys since 1988 would suggest the presence of several maturity stages with the immature and prespawners predominating (Table 4). In 1992 a higher proportion of spent individuals was observed. Length frequencies since 1985 indicated some degree of consistency in the annual progression of modal sizes.

Table 1. Catches(t) of pollock in Subdivision 3Ps in the period 1967-91. Catches by "others" are mostly by Spain.

Year	Canada				Total
	MQ	N	France	Others	
1967	31	163	20	403	617
1968	29	80	6	330	445
1969	2	62	8	115	187
1970	22	61	1	378	462
1971	1	76	1	198	276
1972	76	78	4	153	311
1973	6	115	-	145	266
1974	40	94	15	69	218
1975	5	95	23	-	123
1976	4	65	35	33	137
1977	611	224	4	-	839
1978	253	177	2	-	432
1979	520	198	59	-	777
1980	83	487	94	-	664
1981	48	198	42	-	288
1982	96	338	336	-	770
1983	157	772	181	-	1110
1984	608	711	497	-	1816
1985	704	624	956	-	2284
1986	2106	3294	2092	62	7554
1987	88	2223	2760	-	5071
1988	164	1588	2514	-	4266
1989	1025	1133	1222	-	3380 ^a
1990	513	1067	438	-	2018 ^a
1991	49	1187	42	-	1278 ^a

^a preliminary

Table 2. Mean numbers and weights of pollock per standard tow from research vessel surveys in NAFO Subdivision 3Ps.

Year	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
<u>Numbers</u>																
Mean	0.25	0.18	0.50	0.59	1.23	0.49	0.34	0.42	2.49	1.19	3.06	0.95	0.88	0.35	0.15	0.42
Upper	0.45	0.30	1.44	6.22	6.03	0.8	0.56	0.84	28.36	1.87	9.65	1.35	1.21	0.55	0.23	4.82
Lower	0.05	0.05	-0.44	-5.04	-3.56	0.17	0.12	-0.00	-23.37	0.50	-3.53	0.54	0.56	0.15	0.08	-3.98
<u>Weights</u>																
Mean	0.59	0.28	1.03	1.29	3.30	1.05	0.87	0.68	3.16	2.05	6.02	1.75	1.77	0.73	0.27	1.06
Upper	1.36	0.50	2.78	13.72	16.04	2.66	1.57	3.26	34.49	2.93	17.28	3.35	2.33	1.15	0.46	12.82
Lower	-0.17	0.06	-0.73	-11.13	-9.44	-0.57	0.17	-1.90	-28.17	1.17	-5.25	0.16	1.20	0.32	0.08	-10.70
Abundance																
(000's)	146	156	361	761	1538	632	450	453	2931	1556	4004	1241	1161	423	204	544
Biomass(t)	342	247	782	1667	4112	1338	1149	738	3716	2692	7877	2302	2324	885	355	1388
Sets	102	105	81	81	71	92	171	95	112	145	135	152	157	109	164	147

Table 3.

Average weight per tow by stratum and trip for pollock in Subdivision 3Ps from 1977-1992. Also included are numbers per tow, average individual weight, and total biomass.

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
306	0	1.65	3.59	39.50	121.33	9.37	4.50	0	92.00	16.33	165.00	0.47	0.0	2.18	0.0	0.26
307	0.23	0.29	1.02	1.59	2.17	1.13	0.0	10.00	0	3.67	0.30	6.80	1.67	2.78	0.00	0.0
308	0	0	0.0	0	0	0	5.83	0	0	0	0.00	0.0	0.0	0.0	0.12	0.0
309	9.01	3.40	0.83	16.11	0	3.00	15.00	1.75	1.83	5.00	14.60	8.60	3.25	2.53	0.43	0.0
310	0	1.41	0.23	0	4.00	26.17	0.83	14.75	2.73	3.00	10.50	23.40	0.50	0.69	0.0	0.40
311	0.45	0.51	0	0	0	0	2.17	3.00	0	0	0.60	1.25	0.0	0.0	0.0	0.00
312	0	0.45	0		0	0	0.0	0	0	0	0.00	0.00	0.0	0.0	0.0	0.0
313	1.71	0.54	0.54	0	0.25	1.50	6.17	0.85	8.25	12.00	79.25	42.25	11.50	2.05	0.0	97.53
314	0	0		0	0	0.04	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
315	0		0	0	0	0	0.0	0	0	0	0.0	0.0	0.11	0.0	0.0	0.0
316	0	0.15	3.78	0	5.85		1.13	7.00	4.20	5.75	3.50	3.67	3.60	1.02	1.10	5.90
317	3.86	0	0	0	4.50	0	3.57	0	0	0	0.0	0.0	0.0	1.75	0.0	0.0
318	0	0	5.44	1.13		40.00	5.33	0		9.00	98.75	1.95	15.25	-	6.95	0.87
319	0	0	0	0	0	0.29	5.00	0	0	4.56	0.0	0.0	0.0	-	0.19	0.0
320				0	0	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
321	0			0	0	0	0.0	0	0.24	0	0.0	0.0	0.0	0.0	0.0	0.0
322	0	0	0	0	0	0	0.0	0	0.04	0	0.05	0.0	0.19	0.0	0.0	0.0
323	0	0		0	0	0	0.0	0	0.20	0	0.0	0.0	0.0	0.0	0.0	0.0
324		0	0		0	0	0.0	0	0.25	0	0.0	0.0	0.0	0.0	0.0	0.0
325	0	0	0	0	0	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
326	0	0	0	0	0	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
705	0	0	28.35	0	2.00	1.00	0.0	0	4.60	4.25	1.50	9.50	4.00	8.78	0.68	0.0
706	0.40	0	0	0	0	0.20	0.0	0.55	3.95	2.75	0.50	4.75	3.25	1.59	0.61	0.0
707	0	1.36	0	0			0.0	0		37.50	5.50	1.95	6.19		3.24	5.38
708	0		0	0			0.0	0		10.50	0.63	6.00	8.00		0.0	0.0
709							0.0	0				-	2.50		0.0	-
710							0.0	0	0	0	0	0.0			0.0	-
711			0	0	0	0	0.0	0	1.51	0.61	0.36	0.51	2.07	1.32	0.27	0.0
712		0	0	0	0	0	0.0		1.07	0	0.13	0.71	1.75	2.20	0.15	0.0
713			0	0	0	0	0.0		0.38	1.40	0.0	2.56	1.19	0.36	0.66	0.0
714	0		0	0	0	0	0.0			1.80	0.0	0.80	7.33	1.00	1.19	0.29
715	1.13	0.24	9.31	0.91	0	3.40	0.0	0		26.00	1.0	6.50	34.25	0.0	0.10	1.17
716	0.53	1.26	0	0	0	3.50	0.0	0.33	2.90	4.75	3.17	4.68	4.13	1.04	0.25	0.0
WT/tow	0.59	0.28	1.03	1.29	3.30	1.05	0.87	0.68	3.16	2.05	6.02	1.75	1.77	0.73	0.27	1.06
#/tow	0.25	0.18	0.50	0.59	1.23	0.49	0.34	0.42	2.49	1.19	3.06	095	0.88	0.35	0.15	0.42
Avg. wt	2.36	1.56	2.06	2.19	2.68	2.14	2.56	1.62	1.27	1.72	1.97	1.84	2.01	2.09	1.80	2.52
Biomass	342	247	782	1667	4112	1338	1149	738	3716	2692	7876	2302	2324	885	355	1388

Table 4. Maturity stage of pollock in Subdivision 3Ps 1988-1992 from r.v. surveys.

Maturity Stage	WT 68 1988	WT 81 1989	WT 91 1990	WT 103 1991	WT 118 1992
	Jan 26-Feb 15	Jan 31-Feb 17		Feb 2-19	Feb 2-20Feb 6-24
Immature	42	27	13	14	5
Prespawning	28	6	16	1	9
Spawning	-	-	-	-	-
Spent	2	25	2	7	2
Recovering	10	1	7	5	26
Total	82	59	38	27	42

Table 5. Pollock frequencies 3Ps 1985-1992 from Canadian r.v. surveys.

Length group	1985	1986	1987	1988	1989	1990	1991	1992
22		1				2		
25	1							
28	1						4	2
31	6	3	1					
34	15	22	5	14		2	2	
37	34	17	1	20		1	1	2
40	41	13	3	13	15		3	2
43	36	18	17	16	34			3
46	17	17	23	11	27	1		
49	27	24	30	8	12	5	2	
52	33	17	62	6	14	5	1	
55	14	6	110	8	3	2	2	1
58	14		72	16	7	4	3	8
61	12	8	48	23	3	1	1	17
64	5	5	28	14	3	1	2	17
67	7	8	15	5	10	1	1	10
70	3	7	6	8	9	3		11
73	1	6	13	9	7	3	1	7
76		3	12	4	2	4		1
79		4	8	1		1	1	1
82	1	4	4	1	4	2	1	4
85	2	2	2	3	3			
88			3	1	1			
91		1	2		2			
94		1	1	1	1			1
97		2	1					
100		2	1		1			
103								
106				1				
109								
112							1	
Total	270	191	469	182	158	38	28	85

Thousands t

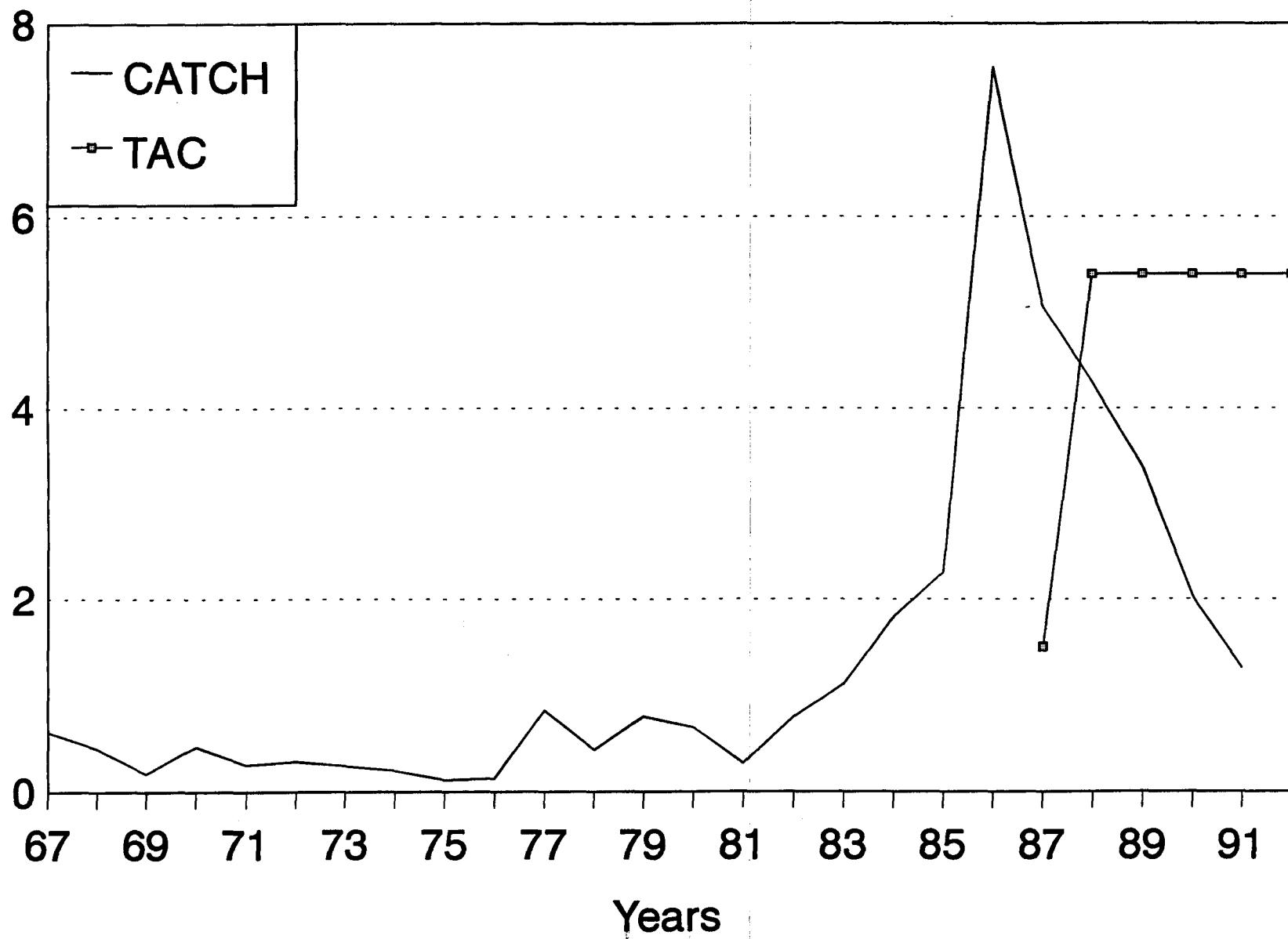


Fig.1. Nominal Catches of Pollock in Subdiv.3Ps

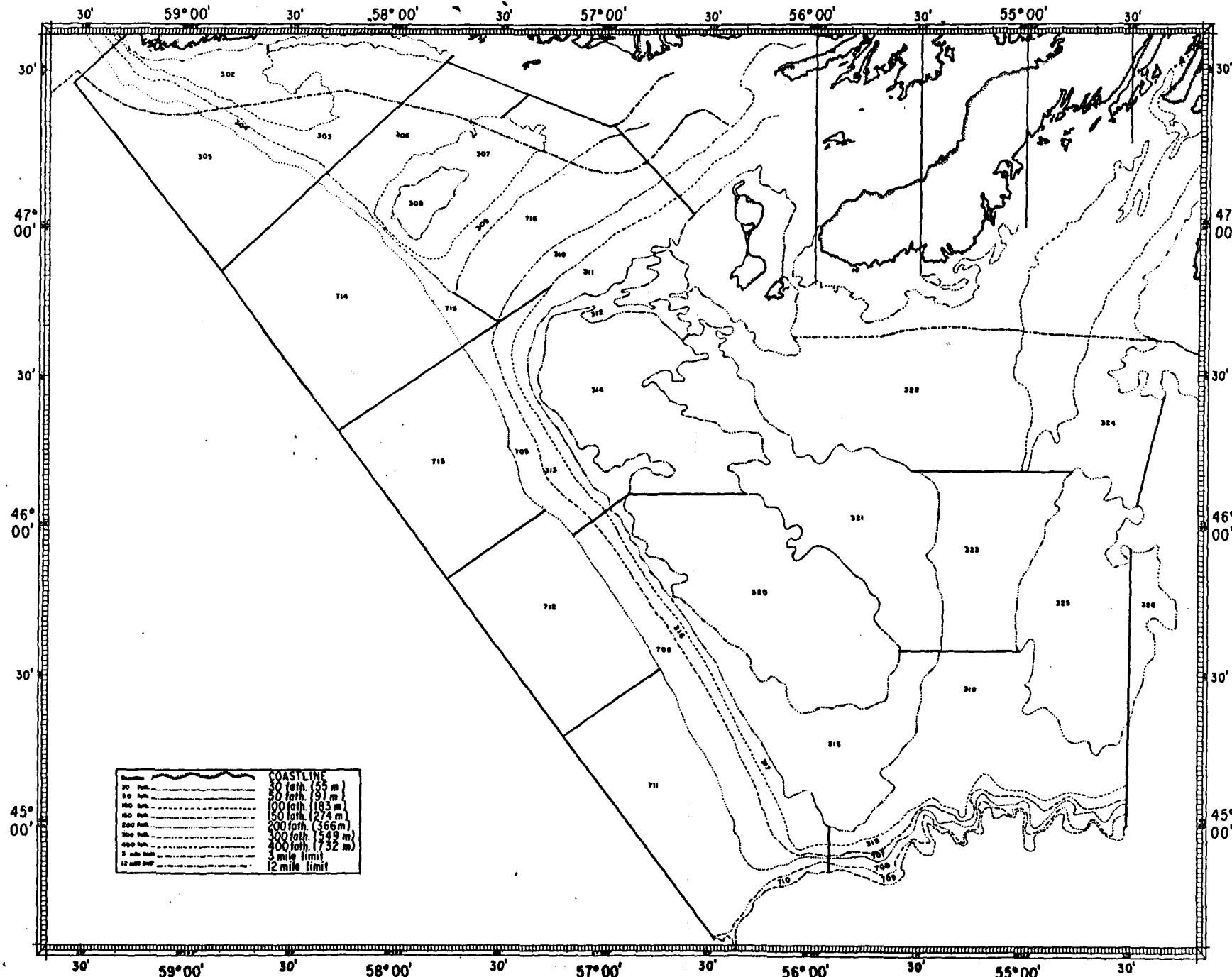


Figure 2. Stratification scheme used for random-stratified research vessel surveys in Subdivision 3Ps.