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The Scallop Fishery of the Grand Manan Area, 1984

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ABSTRACT

Ever since the record-breaking catches of 1981, over 550 t of scallop meats, the Grand Manan area landings have stabilized at around 300 t per year. Vessels less than 25.5 G.T., the great majority of scallop license holders, land about 250 t while vessels over 25.5 G.T., most of them carrying a Bay of Fundy scallop license, average approximately 50 t per year. Effort and catch-rate data may be estimated from the latter component of the fleet only. Effort has slightly increased, from 25,682 hm in 1981 to 31,160 hm in 1984; catch-rates have steadily declined from 4.00 to 2.38 kg/hm during that time period. The number of active participants in the fishery has remained virtually unchanged; although the number of licensed vessels over 25.5 G.T. and over 14 m has increased slightly. To maintain the landing pattern at this level the Grand Manan fleet is exploiting distant scallop beds in NAFO Subarea 5YB (1983-1984). It was not possible to carry out a stock survey in 1984.

RÉSUMÉ

Depuis les prises record de 1981, plus de 550 t de chairs, les débarquements de la région de Grand Manan se sont stabilisés aux environs de 300 t par année. Les bateaux de moins de 25.5 G.T., la majorité des détenteurs de permis pour la pêche aux pétoncles, débarquent 250 t alors que les bateaux de plus de 25.5 G.T., détenteurs d'un permis type Baie de Fundy pour la plupart, débarquent 50 t par année en moyenne. On ne peut établir des mesures d'effort et de taux de capture que pour les plus gros bateaux seulement. L'effort de pêche a légèrement augmenté, de 25,682 hm en 1981 à 31,160 hm en 1984; les taux de capture ont diminué graduellement de 4.00 à 2.38 kg/hm durant cette période. Malgré cela le nombre de pêcheurs actifs n'a à peu près pas changé, avec une légère augmentation des permis émis aux bateaux de plus de 25.5 G.T. et de plus de 14 m. Afin de maintenir le niveau des débarquements la flottille de Grand Manan exploite des bancs de pétoncles moins rapprochés dans la sous-région de l'OPANO 5YB (1983-1984). Une croisière d'évaluation des stocks n'a pas eu lieu en 1984.

INTRODUCTION

Declining catch levels continue to characterize the scallop fishery in the vicinity of Grand Manan Island, southwest New Brunswick, after the record-breaking 1981 year. No significant improvement seems to take place in the stock abundance. Stock surveys prior to 1984 identified the passage of an above-average recruitment pulse into the fishery. Survey data are not available for 1984. At the scheduled cruise time, the J.L. Hart was broken down; no further rescheduling was possible. This report presents a final analysis of the 1983 and 1984 fishery data. Previous analysis of fishery data may be found in Robert et al. (1984) stock survey results, and Dadswell et al. (1984).

METHODS

All vessels must be licensed for scallop fishing and must fill logbooks on daily fishing activities for tonnage over 25.5 G.T. and/or length overall greater than 14 m. Daily log records supply information on the catch and its location and fishing effort such as hours spent dragging, width of the gear, and number of crew. Catch-rate estimates may be computed when complete effort data are provided with respect to the catch; these data have been designated as Class 1 data.

The information provided by vessels over 25.5 G.T. form the basis of fishery analysis given here. It might not necessarily reflect the fishing performance of inshore vessels under 25.5 G.T. Hence, landings from this component of the fleet in that geographical area (Statistical Districts 48 to 53) are used to represent their contribution to this area's catches. However, it is difficult to accurately assess effort and catch-rate values from this fleet.

RESULTS AND DISCUSSION

Scallop fishing vessels may either carry a Bay of Fundy license or a 7-mile (inshore) license (see Robert et al. 1984 for definition). Although the number of Bay of Fundy licenses has remained quite constant for the past five yr, the number of 7-mile licenses which had sky-rocketed in 1981 is still very high, with only a 2% drop from 1983 to 1984 (Table 1). The majority of the 7-mile licenses are small vessels under 25.5 G.T. which do not have to report their daily fishing activities. An estimate of only 50% to 60% of vessels holding 7-mile licenses would participate in the fishery especially during the early winter months. Vessels over 25.5 G.T. which have to maintain logbooks hold Bay of Fundy licenses (most of them) and are actively involved in the fishery. Their number increased from 19 to 23 over 1983-84 although the same fraction complied with log procedures (Table 1).

Grand Manan area landings continue to decline in 1984 (approximately 300 t of scallop meats) after the 1981 record-breaking landings (Table 2). Over the last 3 yr (1982-1984) landings have averaged 315 t. The geographical location of Statistical Districts 48 to 53 is illustrated on Figure 1.

In Tables 3 and 4, 1983 and 1984 landings are presented on a monthly basis by statistical district and by vessel size respectively. The bulk of the landings originates from inshore (under 25.5 G.T.) vessels landing their catches on Grand Manan Island. Other districts contribute relatively little, proportionally speaking. In 1984 Saint John (Statistical District 48) is assuming a rank that it never had since 1974 (Robert et al. 1984). The input of offshore (over 25.5 G.T.) vessels landing in those districts remains fairly constant (1983: 23% of total landings; 1984: 24% of total landings). Although May, June, and July provide better weather conditions for conducting dragging operations, there is a marked seasonal trend in landing patterns with peak fishing activity occurring during winter, January to March. This has many causes: gear conflict with the lobster fishery and few other fisheries taking place at the beginning of the year, to name a few. Inshore scallop grounds surrounded by a network of headlands and ledges at the southern end of Grand Manan (Fig. 2) provide sheltered conditions for scallop dragging, even in winter. Such a definite seasonal pattern has the added benefit to resemble the conditions of a management regime of fishing season or area closure. Furthermore, as scallops are not heavily fished, winter months excluded, good growth may be achieved and yields improved.

Fishery characteristics in terms of effort and catch per unit effort (CPUE) are derived from Class 1 data in log records. Most log records are Class 1 data (80%). However, the completion rate of catches that were log-recorded has declined from 48% in 1981, 38% in 1982, 37% in 1983, and 36% in 1984 (Table 9). Extrapolations from this data base should be interpreted with caution.

Catch, effort, and catch-rate by fishing area as indicated in log records are presented for Grand Manan in 1983 (Table 5) and in 1984 (Table 6); Table 7 presents the characteristics of grounds near Campobello Island and in Passamaquoddy Bay. Scallop beds in the immediate vicinity of Grand Manan Island are most heavily exploited. Figure 3 shows Class 1 catch (in kilograms) and CPUE (in kilograms per hour meter) since 1981 for some grounds in particular and for Grand Manan scallop beds as a whole. Even though the Class 1 catch (and CPUE to a lesser extent) might vary considerably for a single fishing area depending on the information received for any one year, there is a general trend of decline in both catches and catch-rates which is best shown when all fishing grounds are examined in a single group.

According to the Class 1 catch and CPUE data the productivity of the exploited fishing grounds is decreasing markedly. The input of the five most productive fishing areas expressed as the percentage of the total Class 1 catch is very high at 55% (Table 8) average of the last 3 yr (1982: 50%). Exploitation of such scallop aggregations, when carried out, is very intensive, hence the high percent of a single area for any one year and the tendency for most fishing areas to appear as highly productive one year and considerably less the next year. Among the areas indicated in Table 8, Wolves Bank and Duck Island Sound are still productive enough from 1983 to 1984 to stay in the top five areas; however, percentages of catches drop. Average CPUE's (weighted by catch) are also decreasing steadily since the 1981 figure of 7.30 kg/hm; from 1983 to 1984, CPUE decreased by 17%.

As Table 9 indicates, the vast majority of scallop production in southwest New Brunswick comes from inshore vessels; and offshore vessels

bring in less than 25% of the landings. Effort and catch-rate estimates of offshore vessels are presented in Table 10. Total effort has gradually increased from 20,876 hm in 1982 while CPUE has decreased simultaneously, a 18% decline from 1983 to 1984.

Southwest New Brunswick and Grand Manan scallop landings may have been most likely caught in three NAFO subareas (4XR, 4XS and 5YB) (Fig. 1) including Bay of Fundy waters and deep waters to the south and west of Grand Manan Island (5YB). Because of the joint presence of New Brunswick-based boats and Nova Scotia-based vessels in the Bay of Fundy sharing common fishing grounds it is difficult to establish the proportion of '4XS' catches that would be landed in New Brunswick from New Brunswick-licensed vessels. The larger Nova Scotia-based scallop fleet expends higher effort than its New Brunswick counterpart in Bay of Fundy waters. However, 5YB catches are easier to assign to a particular fleet. It is highly doubtful that the small inshore Nova Scotia fleet would fish 5YB grounds. Offshore vessels based in Nova Scotia (over 25.5 G.T. but under 19.8 m), the "Bay of Fundy" scallop fleet, rarely, if any at all, exploit those relatively remote fishing grounds according to log information they provide. Therefore, one may say with confidence that 5YB catches by vessels under 25.5 G.T. are landed in southwest New Brunswick (Table 11) and Grand Manan offshore landings relate to 5YB catches for this section of the fleet. 5YB scallop grounds used to be little exploited until 1983, according to data from Statistics Division¹ (Table 11). This trend may indicate that the Grand Manan inshore fleet is working distant grounds to maintain their landings pattern after the depletion of the near-shore grounds. The monthly profile of 5YB catches (Table 12) relates to the seasonal trends in Grand Manan landings. 1984 5YB catches (Table 13) for January to March were higher than for the same time period in 1983, but they decreased rapidly thereafter in 1984, suggesting maybe that those scallop beds got depleted rapidly.

Log analysis for Grand Manan offshore waters (NAFO 5YB) as provided by New Brunswick vessels (33% of this fleet's catches in 1983) would indicate an increase in effort from 1,570 hm in 1983 to 2,711 hm in 1984 (Table 14), corresponding to a decrease in CPUE from 3.87 kg/hm in 1983 to 2.31 kg/hm in 1984.

Over 1983-1984, scallop landings in southwest New Brunswick have been maintained at 300 t annually. Effort values (vessels over 25.5 G.T.) have increased while catch-rates have decreased. The depletion rate of most productive near-shore grounds is now taking place over a shorter time period, and the Grand Manan fleet resorted to exploit distant grounds in NAFO Subarea 5YB.

REFERENCES

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Table 1.- Number of 1) licensed vessels plying Grand Manan waters (Source: Licensing Unit, Fisheries and Oceans, Halifax), 2) active fishing licenses for vessels over 25.5 G.T. supposed to follow log procedures, and 3) vessels complying with log procedures.

Year	1983	1984
1) 7-mile licenses	253	249
Bay of Fundy licenses	17	17
2) active licenses supposed to log	19	23
3) complied to log	14	17

Table 2.- Annual landings (t of scallop meats) by statistical district, by vessel tonnage, (1): ≤25.5 G.T., (2): >25.5 G.T. Prior to 1967, landings were not divided by vessel tonnage. Source: Statistics Div., Fisheries and Oceans, Halifax.

District	48		49		50		51		52		53		Total	
	Tonnage (1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1) + (2)	
1960					2.8									2.8
1961					1.9									1.9
1962					4.2		5.5				3.8			13.6
1963					4.8		5.5				3.3			13.6
1964					0.8		4.7				2.4			8.0
1965	0.2				7.8		1.8				2.8			12.6
1966					0.9		0.9							1.8
1967							0.5		1.8	2.8				5.1
1968					14.5		2.3	1.3		0.5	1.8			20.4
1969											0.9			0.9
1970					7.7				1.3		1.3			10.4
1971					1.8		0.9		1.8		4.9			9.5
1972					1.8		0.5				3.6			5.9
1973					4.6		1.8				2.8			9.2
1974					1.3		1.3				2.4			5.1
1975					0.7		2.1				1.1			3.9
1976					0.2		1.3							1.6
1977					3.5		0.2		0.5					4.2
1978					3.9	6.3			1.7					11.8
1979					24.7		0.1	1.9	3.4					30.1
1980					137.7	7.5	5.3	3.7	6.6	2.9		0.2		164.0
1981		0.1	2.2		430.0	57.6	11.3	39.3	5.4	7.5	2.8	5.3		561.5
1982	3.1	0.4	3.1	0.4	197.0	43.6	10.8	11.2	14.8	7.8	1.8			294.2
1983	3.0	1.8	11.4	4.5	222.1	45.0	24.6	21.7	1.8	2.3	2.9	3.4		344.4
1984	16.1	4.4	10.4	2.5	168.2	38.8	25.6	25.4	1.8	0.8	9.7	2.2		305.9

Table 3.- 1983 monthly landings (t of scallop meats) by statistical district and by vessel size. For statistical purposes, landings from vessels ≤ 25.5 G.T. are classified as 'inshore' and landings from vessels > 25.5 G.T. as 'offshore'.
Source: Statistics Div., Fisheries and Oceans, Halifax.

48			49			50			51			52			53		
IN	OFF		IN	OFF		IN	OFF		IN	OFF		IN	OFF		IN	OFF	
	$\leq 14m$	$> 14m$		$\leq 14m$	$> 14m$		$\leq 14m$	$> 14m$		$\leq 14m$	$> 14m$		$\leq 14m$	$> 14m$		$\leq 14m$	$> 14m$
Jan			0.12			47.66	3.00	3.12	0.72		0.48			0.48	0.12	0.84	
Feb			0.12			38.78	3.24	1.44	0.36	0.24	0.72			0.84	0.36		
Mar						38.66	4.80	1.56	0.60	0.84	0.12	0.36	0.48		0.36		
Apr			0.84	0.84		13.93	0.96	2.16	1.68	1.68	0.48		0.24		0.24		
May			2.16	0.84		12.12	1.32	0.84	1.08	1.08	0.60	0.12			0.24		
Jun		0.12	2.40	0.96	0.24	21.37	3.48	1.32	4.80	1.80	0.12	0.36			0.24		
Jul	.12	0.12	0.72			23.53	1.20	1.80	4.56	2.76	0.60	0.24			0.48	0.36	0.24
Aug	.24	0.36	0.24	2.16	0.48	14.29	2.76	1.92	4.80	1.32	1.20	0.24			0.48	0.84	
Se	2.64	0.84	0.12	1.92		8.40	1.20	0.96	3.48	1.44	2.16	0.12		0.12	0.24	0.72	
Oct			0.84	0.36	0.36	3.12	2.64	1.80	0.96	0.24	2.28	0.12		0.12	0.12	0.36	
Nov			0.12			0.24	0.12	0.24	0.84		1.20	0.12					
Dec							3.00	0.12	0.72		0.36	0.12					
Total																	
3.00	1.32	0.48				222.10		17.28		11.40			1.80	2.04	0.24		
			11.40	3.48	0.96		27.72		24.60		10.32				2.88	3.12	0.24

Table 4 .- 1984 monthly landings (t of scallop meats) by statistical district and by vessel size. For statistical purposes, landings from vessels ≤ 25.5 G.T. are classified as 'inshore' and landings from vessels >25.5 G.T. as 'offshore'.
Source: Statistics Div., Fisheries and Oceans, Halifax.

		48		49		50		51		52		53					
	IN	OFF		IN	OFF		IN	OFF		IN	OFF		IN	OFF			
		$\leq 14m$	$>14m$		$\leq 14m$	$>14m$		$\leq 14m$	$>14m$		$\leq 14m$	$>14m$		$\leq 14m$	$>14m$		
Jan				0.72	0.12		45.74	5.88	3.12	2.16	0.96	0.36	0.12		0.12	0.12	
Feb				0.36			47.90	6.24	2.40	2.28	0.24	0.84			0.60		
Mar				0.48			36.85	5.76	0.72	2.04	0.36	0.36			0.12		
Apr				1.08	0.12		8.16	0.36	0.96	0.72	0.24				0.60		
May	.60	0.12		1.56	0.84		8.88	0.12	2.40	2.64	1.08	0.48			0.60		
Jun	.72	0.12	0.24	1.32	0.36	0.24	6.96	0.24	1.20	3.36	0.36	0.60	0.12		0.96	0.12	
Jul	.12			0.72		0.36	5.52	0.12	1.80	2.52	0.36	0.12			1.68	0.12	
Aug	2.04	0.36		2.64		0.12	4.56	0.12	2.40	2.52	1.08	3.12	0.36		2.16	0.24	
Sept	6.48	1.68	0.12	1.08			2.16		0.60	3.36	1.08	4.08	0.24		2.16	0.96	
Oct	5.88	1.32		0.48			1.08	1.44	2.40	3.12	0.60	8.88	0.36	0.60	0.12	0.48	0.60
Nov	.24	0.48					0.24	0.36	0.12	0.60		0.12	0.48		0.12	0.24	
Dec				0.36			0.12			0.24		0.12	0.12				
Total				10.44	1.80	0.72				25.56	6.36	19.08			9.72	2.16	0.00
	16.08	4.08	0.36				168.17	20.64	18.12				1.80	0.60	0.24		

Table 5.- Fishery characteristics around Grand Manan Island, by area in 1983. Effort data not prorated to logged catch.

Area	Catch	Effort			CPUE		
	kg	days	hours	hour-meters	kg/d	kg/h	kg/hm
Duck I. Sound	4008	31	178	632.5	129	22.0	4.47
Gannet Rock	647	5	26	115.8	129	24.8	5.11
Green Island	337	3	14	66.1	112	25.0	5.10
Little Shoal	594	3	7	39.8	198	53.8	9.81
Middle Ground	943	9	39	213.0	105	24.3	4.43
Ox Head	519	4	15	79.6	130	35.8	6.52
Prangle Point	709	7	42	268.2	101	16.9	2.64
Shag Head Breaker	339	2	12	56.0	170	27.7	6.05
Ship Head	263	7	33	212.8	38	7.9	1.24
Sloop Cove	136	2	9	40.0	68	15.5	3.40
Three Island	745	7	21	48.0	106	36.1	5.62
West Isles	142	4	28	126.5	36	5.1	1.12
White Head	296	3	14	78.6	99	21.1	3.76
Wolves Bank	5482	86	586	2361.6	64	9.4	2.32
Grand Manan offshore waters:							
Bradford Cove	193	7	10	45.7	28	4.9	1.07
Bull Rock	298	4	16	72.7	75	19.2	4.10
Grand Manan Chann	473	14	52	236.6	34	5.8	1.26
Long Ledge	446	3	20	89.2	149	22.9	5.00
Murr Ledge	511	5	27	-	102	15.8	-
Southwest Head	136	1	-	-	136	-	-
2 miles "	145	2	10	46.2	73	14.4	3.14
3 miles "	138	1	7	31.7	138	19.9	4.35
Wallace Rock	411	3	17	84.7	137	23.7	4.85
Western Ledge	2007	13	70	317.7	154	28.9	6.32
445664	402	7	31	198.4	57	13.0	2.03
445670	249	7	21	132.8	36	9.9	1.54

Table 6.- Fishery characteristics around Grand Manan Island, by area in 1984. Effort data not prorated to logged catch.

Area	Catch kg	Effort			CPUE		
		days	hours	hour-meters	kg/d	kg/h	kg/hm
CrossJack Ledge	102	2	9	38.9	51	6.0	1.31
Dixon Rocks	207	2	-	-	104	-	-
Duck I. Sound	2058	15	125	572.2	137	15.9	3.43
Eastern Ledge	108	1	-	-	108	-	-
Gannet Rock	1147	6	52	283.4	191	22.1	4.05
2 miles "	193	1	11	57.6	193	18.4	3.35
Green Island	221	3	15	77.7	74	14.7	2.84
Middle Grounds	561	5	27	153.7	112	21.0	3.65
Ox Head	481	4	27	137.6	120	18.2	3.50
Shag Head Breaker	132	1	-	-	132	-	-
Ship Head	265	7	35	157.7	38	7.7	1.68
St. Mary's Ledge	722	8	44	201.5	90	16.4	3.58
White Horse Head	3024	28	57	297.4	108	15.5	2.98
Wolves Bank	1693	42	231	952.9	40	7.3	1.78
443664	1065	8	43	212.2	133	23.8	4.81
444664	66	1	6	35.2	66	12.0	1.87
445663	25	1	3	13.7	25	8.3	1.82
442665	2295	21	189	979.3	109	12.1	2.34
Grand Manan offshore waters:							
Bradford Cove	332	7	48	238.5	47	6.9	1.39
Bull Rock	946	9	42	205.4	105	16.6	3.36
Long Ledge	121	1	-	-	121	-	-
Murr Ledge	680	10	54	297.4	68	11.9	2.16
Southwest Head	1141	13	68	374.4	88	12.9	2.35
2 miles "	326	4	30	147.5	82	11.0	2.21
3 miles "	272	2	32	173.7	136	8.6	1.57
Seal Island	717	3	34	206.2	239	21.1	3.48
Western Ledge	640	7	9	39.6	91	5.2	1.14
2 miles "	234	2	13	68.6	117	18.7	3.41
Yellow Ledge	522	4	30	183.0	131	17.5	2.85
443665	178	3	13	58.3	59	14.0	3.05
444665	86	2	5	24.2	43	16.4	3.56
443670	536	9	73	381.0	60	7.3	1.41
441673	99	2	6	29.0	50	15.6	3.42

Table 7.- Fishery characteristics of Campobello Island and Passamaquoddy Bay in 1983 and 1984. Effort data not prorated to logged catch.

Area	Catch	Effort			CPUE		
	kg	days	hours	hour-meters	kg/d	kg/h	kg/hm
1983							
Campobello I.:							
Adams Island	360	10	58	263.6	36	6.2	1.37
1 mile "	223	7	38	174.1	32	5.9	1.28
2 miles "	96	1	8	38.1	96	11.5	2.52
Campobello I.	276	4	49	312.0	69	5.7	0.88
Herring Cove	61	3	13	80.5	20	4.9	0.76
Letete Passage	36	2	6	35.2	18	6.6	1.02
Eastern Bay	306	7	34	156.6	44	8.9	1.95
Maces Bay	2005	51	-	-	39	-	-
Roger's Head	58	2	8	29.7	29	7.7	1.95
St. Andrews	11	1	3	15.2	11	3.3	0.72
1984							
Deer Island:							
Deer I.	77	4	22	121.2	19	3.5	0.64
Herring Cove	13	1	3	16.0	13	5.2	0.81
Merry-go-round	1204	12	-	-	100	-	-
Eastern Bay	147	6	22	102.1	25	6.6	1.44
Letete Passage	183	5	22	109.7	37	8.3	1.67
St. Andrews	323	9	50	233.4	36	6.4	1.38

Table 8.- Percent of the total class 1 catches and CPUE (kg/hm) from the five most productive areas in 1983 and 1984 as reported in log records.

1983			1984		
Area	%	c.p.u.e.	Area	%	c.p.u.e.
Wolves Bank	25	2.32	442665	17	2.34
Duck I. Sound	13	4.47	Duck I. Sound	15	3.43
Western Ledge	9	6.32	Wolves Bank	13	1.78
Middle Ground	4	4.43	Gannet Rock	9	4.05
Prangle Point	3	2.64	443664	8	4.81
	<u>54</u>	<u>3.68*</u>		<u>62</u>	<u>3.04*</u>

* weighted by catch

Table 9.- Percentage of catches (t of scallop meats) from log records for southwestern New Brunswick and Grand Manan offshore waters and landings (inshore and offshore) in Statistical Districts 50 to 53 inclusive.

	inshore	offshore		total
	landings	Class 1 catch	logged landings	landings
1983	265.8	22.07	29.45	78.60
1984	231.8	19.54	26.76	74.16

	catches		landings
	$\%$ $\frac{\text{Class 1}}{\text{logged}}$	$\%$ $\frac{\text{logged}}{\text{landed}}$	$\%$ $\frac{\text{offshore}}{\text{total}}$
1983	75	37	23
1984	73	36	24

Table 10.- Summary of fishery characteristics. Effort pertaining to logged catch and total offshore effort are prorated according to the effort which generated Class 1 catch. Prorating for total offshore effort is possible as only vessels greater than 25.5 G.T. provide log information.

	Catch		Effort			CPUE		
	kg	t	days	hours	hour-meters	kg/d	kg/h	kg/hm
1983								
Class 1 data	22069	22.07	289	1690	7613	76.4	13.1	2.90
Logged data	29454	29.45	386	2248	10157			
Total offshore		78.60	1029	6000	27103			
1984								
Class 1 data	19540	19.54	233	1676	8198	83.9	11.7	2.38
Logged data	26761	26.76	319	2287	11244			
Total offshore		74.16	884	6338	31160			

Table 11.- Catches (t of scallop meats) for NAFO Subarea 5YB by year and by vessel size. Source: Statistics Division, Fisheries and Oceans, Halifax.

Year	Vessel size		Total
	under 25.5G.T.	over 25.5G.T.	
	under 19.8m	over 19.8m	
1981	0.00	4.85	4.85
1982	3.57	3.00	13.14
1983	116.77	14.44	141.16
1984	80.60	9.30	96.78

Table 12.- Monthly profile in catches from NAFO Subarea 5YB for 1983 by vessel size. Source: Statistics Division, Fisheries and Oceans, Halifax.

AREA	YEAR	MONTH	INSHORE	OFFSHORE	OFFSHORE	TOTAL
				<19.8 M	>19.8 M	
5YB	1983	1	1.75	0.47	0.00	2.23
5YB	1983	2	10.86	0.89	0.00	11.75
5YB	1983	3	24.63	2.39	0.00	27.02
5YB	1983	4	11.42	0.66	0.00	12.08
5YB	1983	5	11.72	0.54	0.00	12.27
5YB	1983	6	18.97	1.26	0.00	20.23
5YB	1983	7	15.86	0.21	0.00	16.07
5YB	1983	8	11.92	0.96	4.95	17.83
5YB	1983	9	7.56	1.20	2.71	11.48
5YB	1983	10	1.86	2.43	2.29	6.58
5YB	1983	11	0.14	0.27	0.00	0.41
5YB	1983	12	0.06	3.15	0.00	3.21
5YB	1983	13	116.77	14.44	9.95	141.16

Table 13.- Monthly profile in catches from NAFO Subarea 5YB for 1984 by vessel size. Source: Statistics Division, Fisheries and Oceans, Halifax.

AREA	YEAR	MONTH	INSHORE	OFFSHORE		TOTAL
				≤19.8 M	>19.8 M	
5YB	1984	1	7.58	1.98	0.00	9.56
5YB	1984	2	23.22	1.60	0.00	24.82
5YB	1984	3	19.69	3.30	0.00	22.99
5YB	1984	4	6.23	0.10	0.00	6.33
5YB	1984	5	7.00	0.10	0.13	7.22
5YB	1984	6	6.40	0.00	0.00	6.40
5YB	1984	7	5.33	0.53	6.75	12.60
5YB	1984	8	3.09	1.71	0.00	4.80
5YB	1984	9	2.06	0.00	0.00	2.06
5YB	1984	10	0.00	0.00	0.00	0.00
5YB	1984	11	0.00	0.00	0.00	0.00
5YB	1984	12	0.00	0.00	0.00	0.00
5YB	1984	13	80.60	9.30	6.88	96.78

Table 14.- Fishery characteristics according to log records provided by vessels under 19.8m L.O.A. for Grand Manan offshore waters (NAFO 5YB).

	Catch	%	Effort			CPUE		
	t		logged catch total catch	days	hours	hour-meters	kg/d	kg/h
1983	4.83	33	53	332	1570	91.1	14.5	3.87
1984	6.26	67	69	518	2711	90.7	12.1	2.31

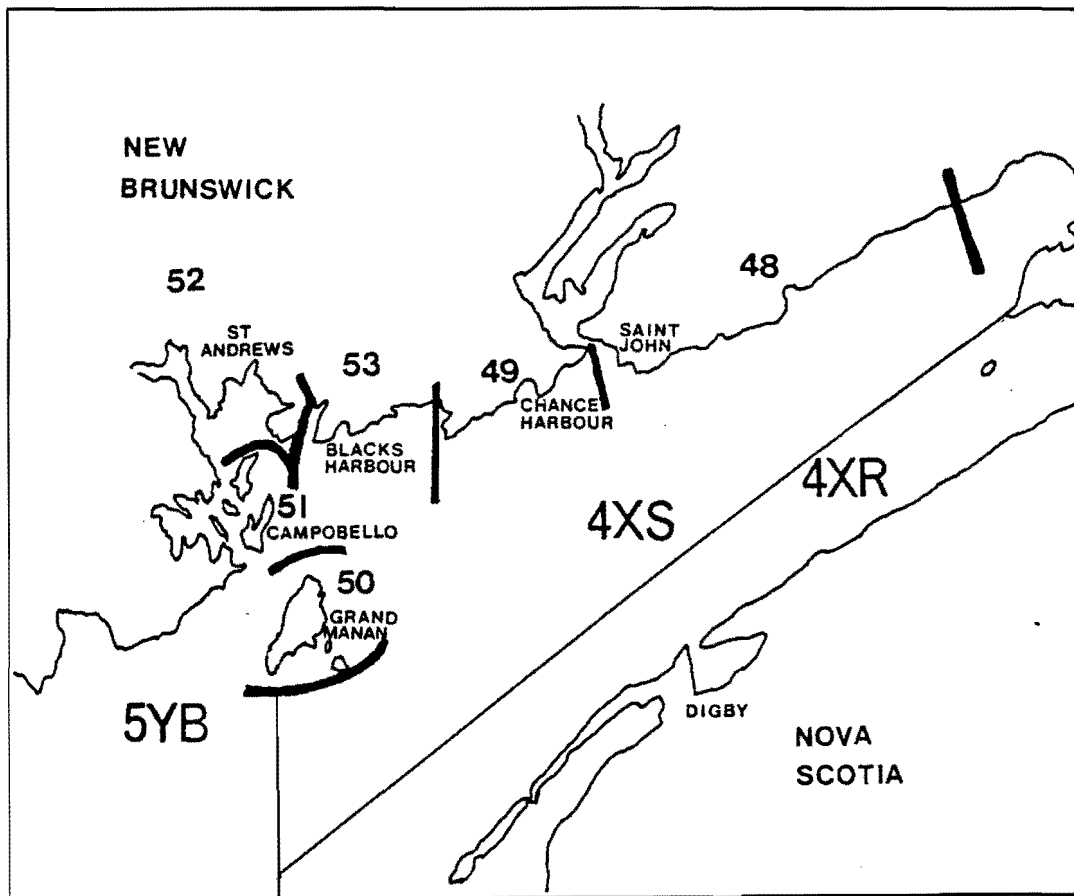


Figure 1.- Geographical location of New Brunswick Statistical Districts 48 to 53 and extent of NAFO sub-areas 4XR, 4XS, and 5YB in the Bay of Fundy and its outer reaches.

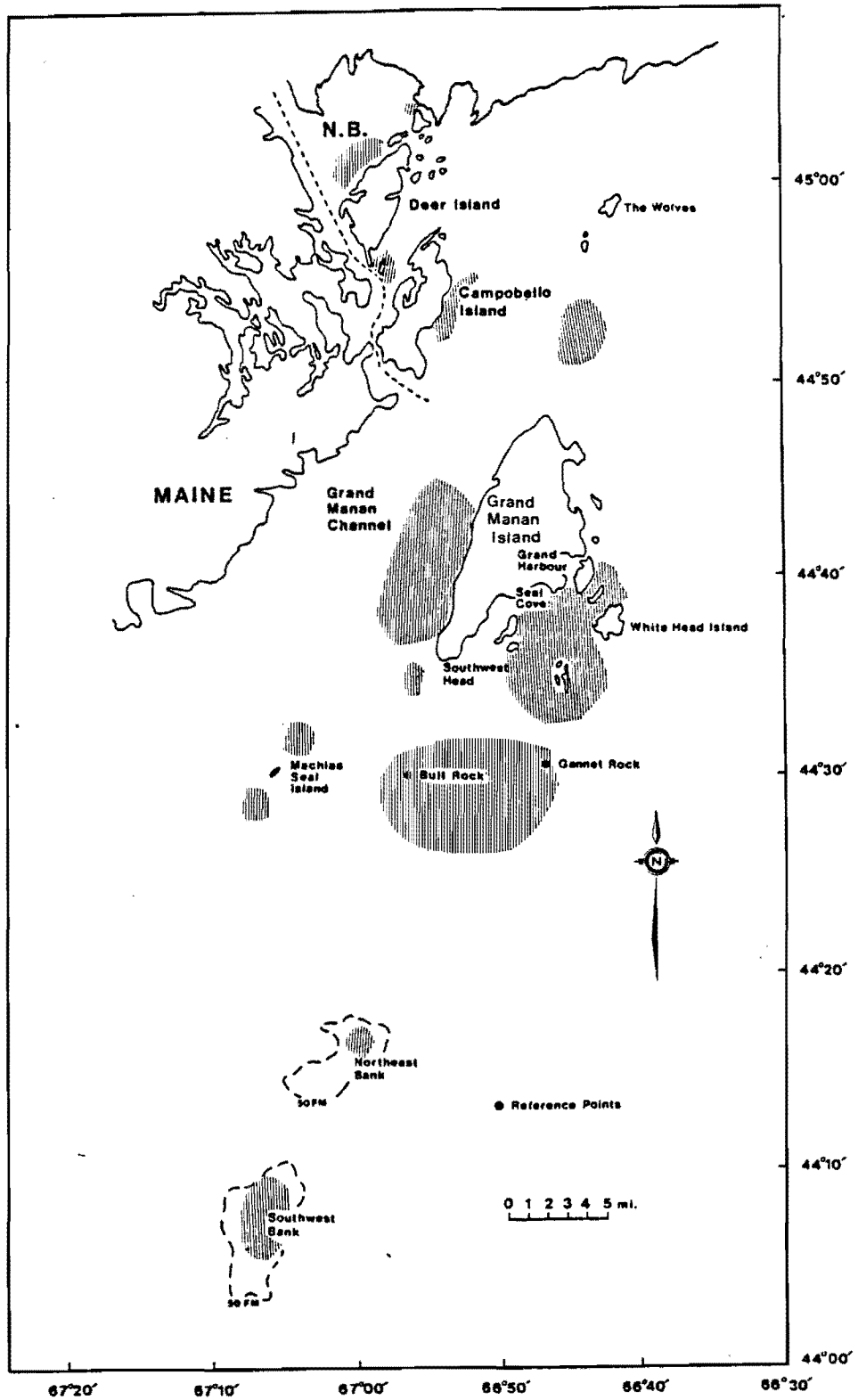


Figure 2.- Estimated location of scallop fishing grounds exploited by New Brunswick-based vessels, mainly on Grand Manan Island.

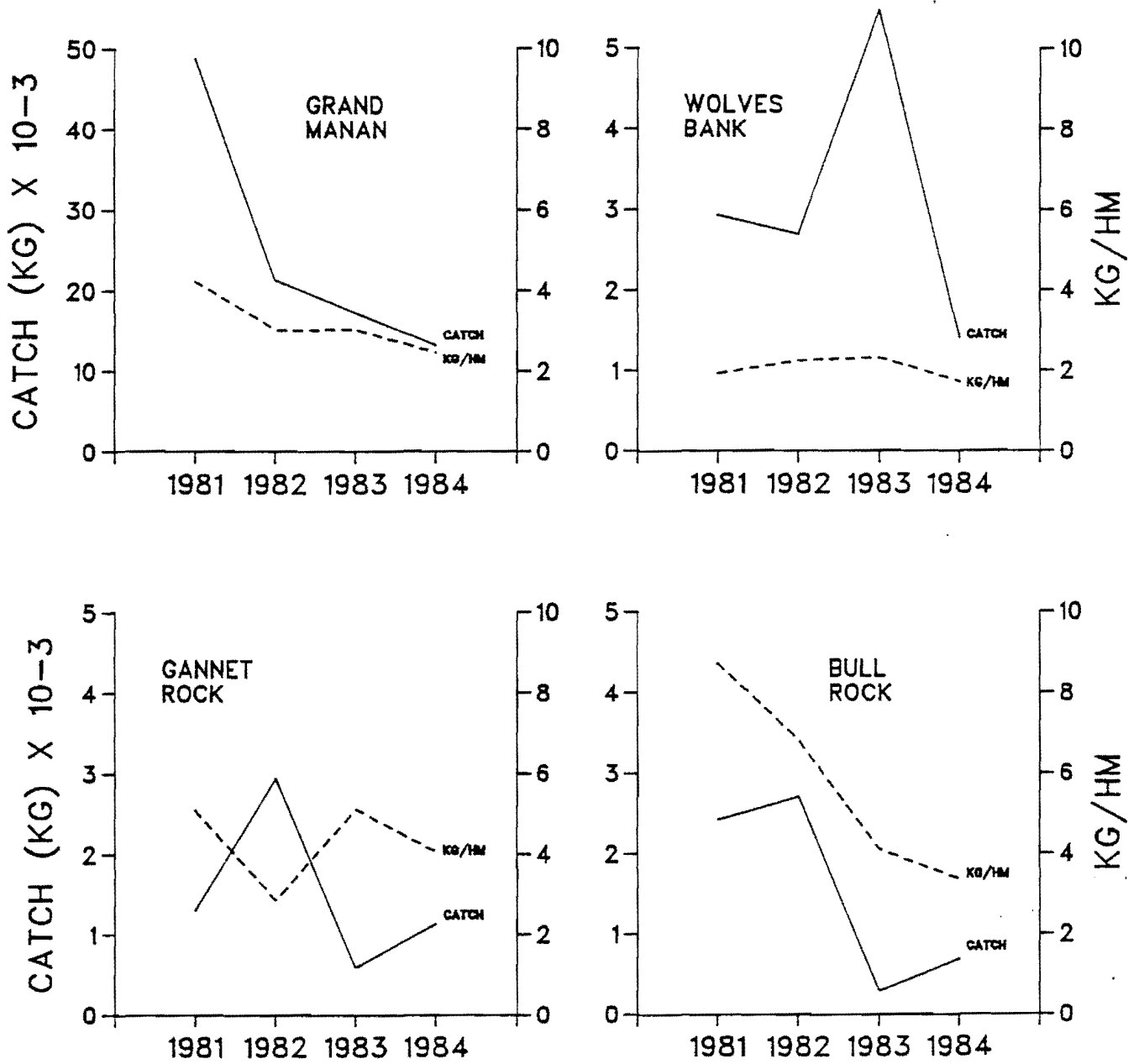


Figure 3.- Class 1 catch (kg) and catch-rate (kg/hm) of some scallop fishing grounds from 1981 to 1984 and of Grand Manan scallop beds considered all at once.