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Early Entry in the Scotian Shelf Silver Hake Fishery;
Activity of Cuban Vessels in April 1984 and April 1985

by

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INTRODUCTION

Since 1977, with the establishment of Canada's 200 mile economic zone, the Scotian Shelf silver hake fishery has traditionally opened on April 15. However, in 1984 and again in 1985 officials of Canada's Department of Fisheries and Oceans agreed to license several trawlers from each nation that harvests silver hake on the Scotian Shelf to begin directed activity for that species on April 1. Catch rates are usually higher during April to early June in this fishery. It was thought by DFO that an early opening would allow all countries greater access to these higher catch rates during the early stages of the fishery. If bycatches were minimal, countries could fulfill their silver hake quotas prior to the decline in catch rates and haddock by-catch problems that have marked the latter stages of this fishery (late June and July) in past years. In 1984 and 1985 however, only Cuban vessels took advantage of this provision. The purpose of this paper is to assess activity by Cuban vessels in this fishery in April of 1984 and 1985 using observer data.

MATERIALS AND METHODS

For this report, fishing activity was divided into the first and last two weeks of April for each year. Observer coverage was maintained at 100% as a condition of licence in the first two weeks of the month in both years while in the latter two weeks it was 54% in 1984 and 62% in 1985. Observations were made on 80% of all sets made during this study. For each set, position, time elapsed and catch by species were recorded. For at least one set per day, the observer sampled one or more species caught.

To assess relative fishing success, silver hake catch per unit effort (kg/hr) by year and weekly time periods above were plotted by unit area (these are statistical subdivisions of Nafo divisions used by Canada's Department of Fisheries and Oceans).

DISCUSSION

AREAS FISHED

In 1984, two Cuban vessels fished the period from 6 to 14 April and limited their activity mostly to the area south of Western Bank. In 1985, a single trawler began fishing on April 1 and was joined by two more vessels between 7 and 11 April. Again the favoured area was south of Western Bank although there was much more activity to the east as far as the meridian 59 20W.

In the last half of April 1984, fishing activity on observed vessels remained in the region south of Western and Sable Island Banks, but in the same period of 1985 there was a marked shift to the area along the continental slopes south east of Sable Island (Figures 1 and 2).

CATCH PER UNIT OF EFFORT BY UNIT AREA

In both halves of April 1984, the best silver hake catch rates were in the mid to western portions of the fishing area, in unit areas 4WJ and 4WL. Relatively little effort was expended and catch rates were low in the easternmost sectors. In 1985 the highest silver hake catch rates were further east in 4WG throughout the month. It should be noted that in April of both years silver hake catches were strong at over 2t/hr in all unit areas for each monthly half with only one exception. The April 1984 catch rates were the best in the entire 1984 fishery at 3216 kg/hr as compared to 2930 kg/hr for May, 1724 kg/hr for June, and 1174 kg/hr for July. (Crue by unit area is shown in Figures 3 and 4 and in Table 2)

TOTAL CATCH BY SPECIES AND BY-CATCH LEVELS

Although silver hake catch rates were high and by catches of other major commercial species (haddock, cod, pollock, and redfish) were very low at less than 1% in April of both years, Cuban trawlers did encounter large quantities of spiny dogfish, particularly in 1985. This species is generally considered as a trash fish which is either reduced to fish meal or discarded. In 1984 dogfish constituted a moderate problem at 2% of the total catch and apparently did not have a great effect on the fleet's fishing strategy. For the month of April 1985, spiny dogfish bycatch was at 12 % of the total catch. This high bycatch became a severe problem and the fleet expended much effort in trying to avoid it.

Haddock by-catch, which has often been a problem in the June-July portion of this fishery, was insignificant in April of both 1984 and 1985. Its percentages of total catch were .07% in April 1984 and .01% in April 1985 (Tables 3 and 4).

DEPTH RANGES FISHED

In April of both years there was very little difference in the mean depths fished. Also there was a tendency to fish shallower in the later part of the month observed for both years. In 1985, vessels fished shallower in 4WG than in the more western unit areas 4WJ and 4WL (Table 5).

CONCLUSIONS

Although the Cuban fishing fleet did not take full advantage of the earlier opening of the silver hake fishery in 1984 and 1985, the vessels that did fish in the period before April 15 realized strong silver hake catches with little haddock bycatch in both years. Only catches of spiny dogfish, regarded by many as a nuisance, caused problems, especially in 1985.

Observations of the silver hake fisheries for the first two weeks of April 1984 and 1985 suggest that foreign fleets can successfully fish for silver hake.

Table 1 Cuban Silver Hake Fishery, April 1984 and April 1985
Vessels and Observer Coverage

1984

Vessel Name	Period of Fishing Activity	Period of Observer Coverage
Rio Jibacoa	19 to 30 April	19 April to 7 May
Rio Almendares	17 to 30 April	14 April to 7 May
Rio Salado	18 to 30 April	
Rio Caonao	6 to 30 April	5 to 24 April
Rio Manabana	29 to 30 April	
Rio Bayamo	16 to 30 April	
Rio Toa	7 to 30 April	7 to 26 April

1985

Vessel Name	Period of Fishing Activity	Period of Observer Coverage
Rio Asabama	1 to 30 April	1 to 30 April
Rio Cauto	15 to 30 April	15 to 29 April
Rio las Casas	11 to 30 April	10 to 30 April
Rio Salado	20 to 30 April	
Rio Najasa	7 to 30 April	4 to 27 April
Rio Zaza	15 to 30 April	

Table 2 Comparison of Catch Per Unit Effort For Silver Hake, April 1984
and April 1985

Area	1984			1985		
	Apr. 1-14	Apr. 15-30	Overall	Apr. 1-14	Apr. 15-30	Overall
4ws	202.79		202.79	2393.07	3506.25	3479.69
4wJ	3044.19	3213.53	3192.26	2068.73	2606.34	2200.59
4wl	2725.20	3990.15	3351.37	2148.82		2148.82
all	2832.69	3318.26	3216.21	2101.38	3401.30	2996.47

Table 3: April 1984 Cuban Silver Hake Fishery, Comparison of Catch by Species and Unit Area by Monthly Half

Catch in K&S											
Unit Area	Date Range	Total Effort	Silver Hake	Haddock	Cod	Pollock	Reeffish	Illex	Argentine	S.Dosfish	Total
4ws	April 1-14	2.02	305	20			30	3	5	40	433
4wj	April 1-14	58.52	178152	650	195	12035	41	10	725	1615	196488
4wj	April 15-30	407.71	1310177	915	423	405	704	88	6613	28876	1374543
4wl	April 1-14	64.86	176762		390	6920	71	45	1073	4050	194498
4wl	April 15-30	63.57	253654	5	185	434	135	8	521	6970	265903
Totals		596.68	1919050	1590	1193	19794	981	154	8937	41551	2031865
% of total catch			94.44	.07	.06	.97	.04	.01	.44	2.04	

Table 4: April 1985 Cuban Silver Hake Fishery: Comparison of Catch by Species and Unit Area by Monthly Half

Catch in Kss											
Unit Area	Date Range	Total Effort	Silver Hake	Haddock	Cod	Fallock	Redfish	Illex	Argentine	S.Dogfish	Total
4WS	April 1-14	11.69	27975			85	199	1	170	39500	68670
4WS	April 15-30	478.24	1676829	69	100	2870	14340	19	21024	96382	1882549
4WJ	April 1-14	180.12	372620	115	1	2994	1057	46	500	151610	559638
4WJ	April 15-30	58.54	152575	145		330	108	4	262	30645	189130
4W1	April 1-14	51.98	111700			580	351	13	175	29475	147890
Totals		782.82	2345699	329	101	6859	16155	88	22131	346612	2852607
% of total catch			82.23	.01	.003	.24	.57	.003	.78		12.15

Table 5 Comparison of Depths Fished, Cuba; April 1984 and April 1985;
by Unit Area and Monthly Half

Unit Area	1984			1985		
	Minimum	Maximum	Average	Minimum	Maximum	Average
4ws						
April 1-14	210	210	210	170	330	247.5
April 15-30				150	350	235.9
4wj						
April 1-14	150	310	263.5	110	320	271.1
April 15-30	115	350	219.2	200	320	279.2
4wl						
April 1-14	230	285	263.2	210	340	276.7
April 15-30	230	285	262.5			
overall						
April 1-14	150	310	262.3	110	340	270.9
April 15-30	115	350	225.9	150	320	240.8

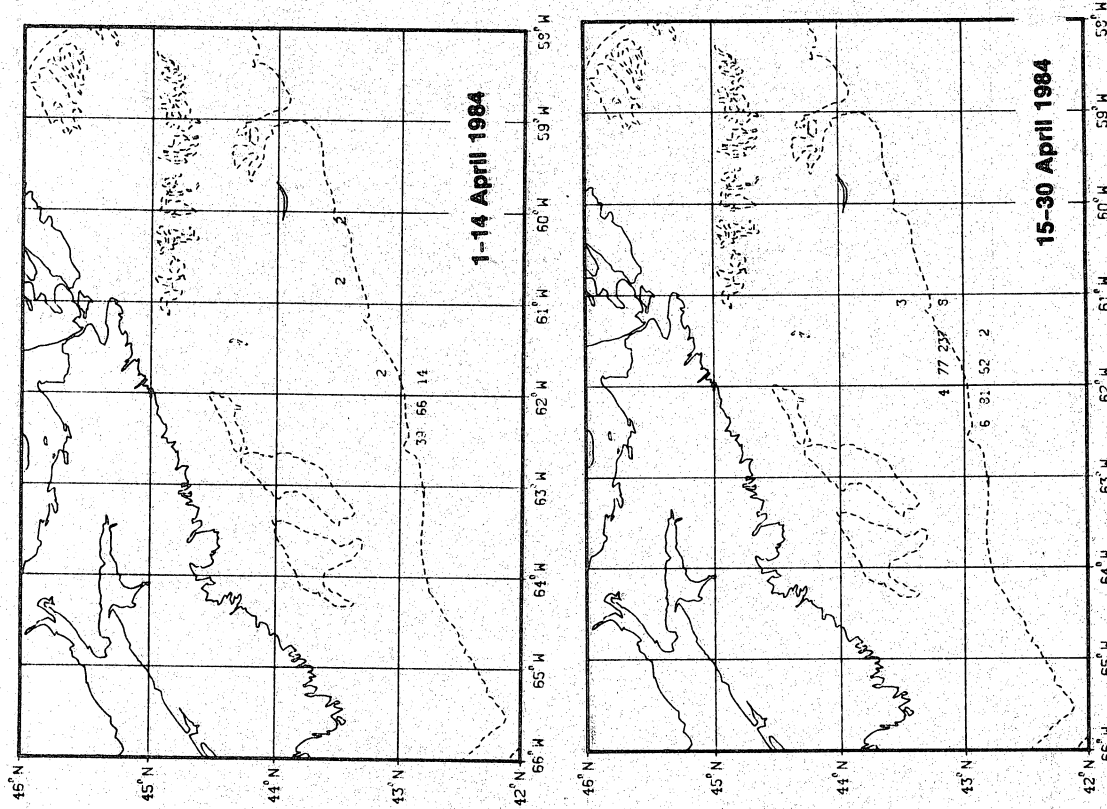


Fig. 1. Effort distribution (hours) by 20-minute quadrangles for Cuban vessels in April 1984.

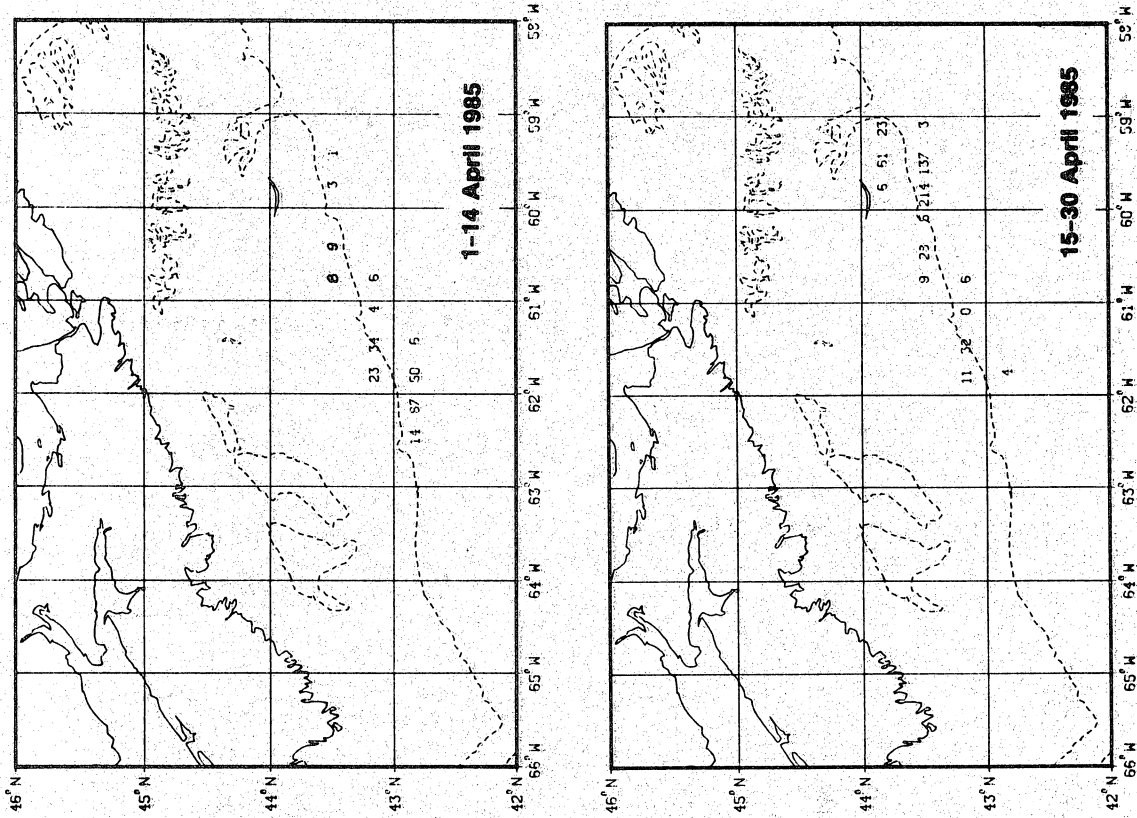


Fig. 2. Effort distribution (hours) by 20-minute quadrangles for Cuban vessels in April 1985.

