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Observations on the 1982 Experimental Capelin Fishery in Div. 2J3K
and the Inshore Capelin Fishery in Div. 3KL

by

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ABSTRACT

INTRODUCTION

During the late 1970's, capelin TAC's declined due to poor recruitment and declining biomass and about the same time, the pattern of the capelin fishery changed. In the northern capelin stock (Div. 2J3K), the large offshore commercial fishery (catches in excess of 200,000 tons in the mid 1970's) was replaced by an experimental capelin fishery with much lower TAC's (1980 TAC - 5,000 t, 1981 and 1982 TAC's - 10,000 t). In the south, the Southeast Shoal (Div. 3NO) fishery was closed in 1979 while in Div. 3L the fishery changed from an offshore fishery to an inshore fishery.

This paper documents the age-compositions in the catches of the experimental fishery in Div. 2J3K (1982) and the inshore catches in Div. 3L (1979-82) and Div. 3K (1982) and updates the catch/unit effort data for the experimental fishery in 1982.

Experimental Fishery Div. 2J3K 1982

The catch rates from this experimental fishery have proven difficult to interpret because of changing fishing patterns. Monthly catch summaries (Table 1) from the 1982 fishery indicate that, as in 1981 (Kovalev, 1982) and 1980 (Carscadden and Miller, 1981), fishing occurred only in Div. 2J. This fishing pattern is somewhat different from that of the mid 1970's when catches were reported from both Div. 2J and 3K. The catch rate in 1980 was considered to be an overestimate because the fishery was concentrated in a small area with fewer vessels for a shorter period than in previous years. It has been noted that the 1972-78 catch rates were from larger, more powerful BMRT-A trawlers while the 1979-81 catch rates were from the smaller BMRT trawler class. Thus, during periods of high abundance, the catch rates would likely be similar for both classes, but when abundance was low, the catch rates from the smaller BMRT trawlers would likely be underestimates (Anon., 1981). The estimated catch rate for 1982 (Table 2) is slightly lower than 1981 and well below the peak catch rates in 1975 and 1976.

Two-year-old fish (1980 yearclass) dominated the catch in Div. 2J in the fall of 1982 (Table 3). In the last four years, two-year-olds have comprised over 50% of the catch except in 1980 when two-year-olds and three-year-olds each comprised about 40% of the catch (Carscadden and Miller, 1982). It has been documented (Anon., 1982) that the 1979 yearclass is relatively strong; hence, it is at first surprising that it comprised only about 20% of the catch in 1982. The two other strong yearclasses that occurred in the population, 1969 and 1973, both comprised over 50% of the catch as three-year-olds in 1972 and 1976 respectively (Carscadden and Miller, 1982). However, the 1980 yearclass was estimated to be abundant as one-year-olds in the Canadian survey in 1981 (Miller et al., 1982; Anon., 1982) and if this is true, the dominance of the 1981 yearclass might not be surprising. The 1979 yearclass did not appear in high proportions in the Canadian research catches in 1982 (Miller and Carscadden, 1983).

Inshore Fishery

Div. 3K

Preliminary statistics indicate that the landings inshore in Div. 3K in 1982 were 3,896 t, the highest catch since 1974 (Nakashima and Harnum, 1983). The strong 1979 yearclass dominated these landings, comprising over 80% (Table 4). Four-year-olds (1978 yearclass) were next in abundance although they comprised only about 10% of the catch.

Div. 3L

Preliminary statistics indicate that the landings in Div. 3L in 1982 were 27,350 t, an increase of about 2,000 t over the 1981 landings. The 1979 yearclass dominated, comprising about 83% of the landings (Table 5). In 1981, there was an unusually high proportion of one-year-old capelin in the landings. In this year, inshore capelin landings in Div. 3L increased substantially due to increased market demand and an increased TAC. Fishermen were relatively inexperienced in sampling their catches to determine whether the fish met market requirements before they brought them onboard their vessels. This situation improved in 1982 due to an education program initiated by the Department of Fisheries and Oceans and as a result, a greater proportion of unsuitable fish were released alive (Nakashima and Harnum, 1983). In addition, most of the one-year-old capelin in 1981 came from only one sample. Thus, the high percentage of the 1980 yearclass as one-year-olds does not necessarily indicate a strong yearclass; the proportion of this yearclass as two-year-olds is about one-half the proportion of the 1979 yearclass as two-year-olds.

A detailed account of the logbook programme and catch/effort analysis is given in Nakashima and Harnum (1982, 1983).

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REFERENCES

- Anon. 1981. NAFO Sci. Council Reports, Special Meeting, February 1981, p. 7-19.
1982. NAFO Sci. Council Reports, Main Scientific Meeting - 1982, p. 7-69.
- Carscadden, J.E. and D.S. Miller. 1981. Analytical assessment of the capelin stock in Subarea 2 + Division 3K using SCAM. NAFO SCR Doc. 81/11/4, Ser. No. N268, 8 p.
1982. An assessment of the capelin stock in Subarea 2 and Division 3K using a sequential capelin abundance model. NAFO SCR Doc. 82/VI/56, Ser. No. N549, 13 p.
- Kovalev, S.M. 1982. Results of the experimental capelin fishery in the autumn of 1981. NAFO SCR Doc. 82/VI/60, Ser. No. N553, 4 p.
- Miller, D.S. and J.E. Carscadden. 1983. Capelin acoustic surveys NAFO Divisions 2J3K and 3LNO, 1982. NAFO SCR Doc. 83/VI/50, Ser. No. N708.
- Miller, D.S., B.S. Nakashima, and J.E. Carscadden. 1982. Capelin acoustic surveys in NAFO Divisions 2J + 3K, 3LNO and 3L, 1981-82. NAFO SCR Doc. 82/VI/54, Ser. No. N547, 12 p.
- Nakashima, B.S. and R.W. Harnum. 1982. Summary of a logbook survey of the 1981 inshore capelin fishery in Divisions 3KL. NAFO SCR Doc. 82/VI/18, Ser. No. N506, 6 p.
1983. Summary of a logbook survey of the 1982 inshore capelin fishery in Divisions 3KL. NAFO SCR Doc. 83/VI/47, Ser. No. N705.

Table 1. Monthly catches from the USSR experimental fishery in Div. 2J3K, 1982 (from FLASH).

Month	Area fished	Reported catch (t)
August	2J	886.2
September	2J	4309.5
October	2J	3508.2
November	2J	1250.7
TOTAL		9954.6

Table 2. Catch per hour of USSR trawlers in Div. 2J3K, 1972-82.

	Year										
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Catch/hour	2.81	3.29	4.56	6.47	5.27	4.14	2.29	1.34	4.57	3.68	3.19

Table 3. Age-compositions (%) of capelin from the experimental fishery in Div. 2J3K, 1982.

	Age					
	1	2	3	4	5	6
Males	6.9	80.9	12.0	0.1		
Females	4.1	68.2	24.6	2.4	.6	
Sexes combined	5.2	73.2	19.7	1.5	.4	

Table 4. Age-compositions (%) of capelin from the inshore commercial capelin fishery, Div. 3K, 1982.

	Age					
	1	2	3	4	5	6
Males		1.1	90.2	8.5	.2	.1
Females		.8	79.4	10.7	7.4	1.7
Sexes combined		.9	84.1	9.7	4.3	1.0

Table 5. Age-compositions (%) from inshore commercial capelin fishery, Div. 3L, 1979-82.

	Age					
	1	2	3	4	5	6
Males						
1979			47.6	36.3	15.1	.9
1980		.2	53.4	43.4	2.9	.1
1981	9.0	1.9	29.7	37.7	20.6	1.2
1982	.1	.5	88.8	10.0	.6	
Females						
1979		.8	59.1	25.4	11.3	3.4
1980	.1	3.3	64.6	31.1	.4	.6
1981	5.8	5.6	54.0	20.1	14.0	.6
1982	.2	2.4	76.4	13.0	6.4	1.6
Sexes combined						
1979		.2	50.3	33.8	14.2	1.5
1980		1.7	58.9	37.3	1.7	.4
1981	7.4	3.2	42.7	28.7	17.2	.9
1982	.1	1.4	83.1	11.4	3.2	.7