

Northwest Atlantic



Fisheries Organization

Serial No. N841

NAFO SCR Doc. 84/VI/54

SCIENTIFIC COUNCIL MEETING - JUNE 1984

The 1983 Inshore Capelin Fishery in Div. 3L

by

Brian S. Nakashima and Robert W. Harnum

Fisheries Research Branch, Department of Fisheries and Oceans,
P. O. Box 5667, St. John's, Newfoundland A1C 5X1

Abstract

Results from the 1983 logbook survey are presented. Discarding has increased substantially from 1982 primarily due to market problems. Cod by-catch continues to be low. Catch/effort indices for capelin traps and purse seines from 1981-83 are examined. Age-compositions from the inshore commercial fishery from 1979-83 are given.

Introduction

This report presents data on the inshore capelin fishery in 1983 derived from fixed gear and purse seine logbooks and from biological samples. Landings in Div. 3L by area from 1974-83 are presented in Table 1. Background information on the logbook survey is contained in previous reports (Nakashima and Harnum 1982, 1983).

Materials and Methods

In 1983, logbooks were distributed to fishermen who have been maintaining research logbooks for us since 1981. Logbooks were given to 84 purse seine and 131 fixed gear fishermen (capelin traps and beach seines) who were licensed to fish capelin in Div. 3L in 1983 (Table 2). All logbooks were mailed back.

Purchase slips provided by Statistics Branch were processed and compared with logbook entries. The quality of the data from logbooks and from purchase slips was compared in a previous report (Nakashima 1984).

Results

The return rate of logbooks was less in 1983 than in 1982 (Table 2). The difficulty encountered by fishermen in selling capelin in 1983 due to the stringent and sometimes confusing quality standards was given as the major reason by most fishermen for not filling out the logbooks.

As in 1981-82, landings reported are generally higher than those reported on purchase slips (Tables 3-5). Aside from the fishermen estimating their catches at sea, the major differences are probably due to incomplete data from purchase slips (Nakashima 1984).

Discarding

Discarding in 1983 was estimated to be higher than in 1982 or in 1981. Discards given as a percent of landings was 80% for purse seines (Table 3), 43% for capelin traps (Table 4), and 133% for beach seines (Table 5). These are higher than estimates of 21% for purse seines, 14% for traps, and 24% for beach seines in 1982 (Nakashima and Harnum 1983) and 37% for purse seines and 33% for traps in 1981 (Nakashima and Harnum 1982). As per our earlier reports, discarding includes all capelin, whether alive or dead which is caught but not landed. Discarding was high for all gear types in 1983 and reflects the market problems which predominated the fishery in 1983.

The reasons for discarding in 1983 centred around three reasons in particular: 1) presence of redfeed, 2) a low percentage of females in the catch, and 3) no market for the capelin (Table 6). In all areas redfeed was the most important reason for capelin being released or dumped with a low percentage of females a distant second. Capelin trap fishermen

had problems due to a low percentage of females and to problems with finding a buyer. Generally, trap fishermen do not have problems with redfeed, however in 1983, there was a problem for all capelin fishermen regardless of gear type.

Catch/Effort

In 1983 effort data from 44 purse seine (Table 7) and 66 traps (Table 8) logbooks were considered reliable and were employed in the catch/effort analysis. Purse seiners averaged 11.7 days searching for capelin and made 22.6 sets. Of the 44 seiners, ten also fished in Div. 3K.

Capelin trap effort data are mainly from Conception and Trinity Bays in 1983. In Trinity Bay, traps were fished 13.9 days and checked 17.6 times which is similar to the 1982 estimates of 13.3 days fished and 16.7 times checked (Nakashima and Harnum 1983). Conception Bay traps were fished for 14.2 days and checked 15.2 times which is considerably lower than the 18.6 days and 23.5 times checked in 1982 (Nakashima and Harnum 1983). These differences probably reflect the longer fixed-gear fishing season in 1982 which extended into mid-July.

By-catch

Cod by-catch in 1983 was 17.6 t for 68 traps (Table 4) which represented 0.6% of the reported logbook landings. This is similar to the 1981 rate of 0.5% and less than the 1982 rate of 1.4%. Cod by-catches are very low in comparison to capelin catches. In 1983 7.9 t of small herring were reported as a by-catch during the capelin trap fishery (Table 4). Although the absolute amount caught is small, it represents the first year of the three-year survey that small herring were caught in traps.

Age-composition

The age-composition table for the inshore commercial fishery presented in Carscadden (1983) has been updated to include data from the 1983 fishery (Table 9).

Discussion

Discarding rates in the inshore capelin fishery have increased substantially from 1982. Redfeed, low percentages of females, and inability to sell to the market were the major reasons given by most fishermen for discarding capelin. In 1983 the very low levels of redfeed which were acceptable in the roe fishery probably accounted for much of the discards. Cod by-catches remain low, however small herring by-catches were reported in Trinity and Conception Bays for the first time.

Catch/effort trends from capelin traps (Table 10) and purse seines (Table 11) are similar from 1981-83. The catch/effort index using landings alone suggests an increase from 1981 to 1982 and then a slight decline in 1983. The catch/effort index with landings and reported discards indicates that there has been an increase from 1981 through to 1983. The short survey period (three years) precludes a strong reliance on either trend. However, the changes shown in Tables 10 and 11 correspond with trends in spawning biomass (Nakashima 1984) and are encouraging.

The logbook survey in Div. 3L will be continued for the 1984 fishery. We have concentrated on the fixed gear fishery to provide better coverage in Div. 3L especially in Bonavista Bay where traps are starting to replace beach seines as a fixed gear fishery. The purse seine data from research logbooks can be supplemented by Statistics Branch logbooks. Thus we have reduced the number of purse seine logbooks which will be filled out for us in 1984. As in previous years we will maintain the contact between us and the fishermen to provide some degree of control on the data being recorded and utilized for this study.

Acknowledgements

Many inshore capelin fishermen kept logbooks for us and provided us with useful information for which we are grateful. M. Hynes assisted in the preparation of the manuscript.

References

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Table 1. Capelin landings (t) by area in Div. 3L, 1974-83.

Year	Bonavista Bay	Trinity Bay	Conception Bay	Southern Shore	Trepassey and St. Mary's bays	Div. 3L TOTAL
1974	1,288	2,287	310	791	186	4,862
1975	150	960	463	646	13	2,232
1976	98	4,954	2,062	645	54	7,813
1977	127	4,818	3,744	7	10	8,706
1978	351	3,387	3,574	117	10	7,439
1979	762	3,300	8,070	118	32	12,282
1980	1,711	5,029	7,090	324	361	14,515
1981	3,834	9,398	10,302	67	796	24,397
1982	3,664	10,589	11,606	368	1,123	27,350
1983	3,199	9,015	11,770	8	1,000	24,992

Table 2. Responses from a logbook survey conducted in Div. 3L, 1981-83.

	No. contacted	No. logbooks returned	Did not fish capelin	Logbooks not returned
<u>Purse seine</u>				
1981	70 (7)*	37 (44)	11	22
1982	91 (7)*	54 (61)	10	27
1983	75 (9)*	37 (46)	7	31
<u>Fixed gear</u>				
1981	119	74	13	32
1982	136	81	36	19
1983	131	66	38	27

* fishermen who reside in Div. 3K but fished in Div. 3L. These are added to the 'No. logbooks returned' column in parenthesis.

Table 3. Total purse seine landings (t) compiled from logbooks and from purchase slips in Div. 3L.

Area	Landings by logbook	Discards by logbook*	Landings by purchase slip	No. of fishermen
Bonavista Bay	1632.4	1308.8	1518.9	12
Trinity Bay	920.4	989.2	954.8	19**
Conception Bay	2283.6	2066.0	1860.7	22**
St. Mary's Bay	572.3	136.1	796.0	4
Div. 3L	5342.0	4298.1	5123.5	44

* includes capelin given to other vessels

** includes fishermen who had purchase slips from this area but did not fish there according to the logbook records

Table 4. Total capelin trap landings (t) compiled from logbooks and from purchase slips.

Area	Landings by logbook	Discards by logbook*	Landings by purchase slip	By-catch		No. of fishermen	No. of Traps
				Cod	Herring		
Bonavista Bay	5.3	0.4	5.0	+	-	1	1
Trinity Bay	1045.7	410.1	696.8	10.5	4.2	19	25
Conception Bay	1912.5	875.6	1857.2	7.1	3.7	25	40
Southern Shore	1.9	0.6	0.5	+	-	2	2
Div. 3L	2965.4	1286.7	2559.5	17.6	7.9	47	68

* includes capelin given to other vessels

Table 5. Total beach seine landings (t) compiled from logbooks and from purchase slips.

Area	Landings by logbook	Discards by logbook	Landings by purchase slip	Cod by-catch	No. of fishermen
Bonavista Bay	11.9	2.3	9.3	0	3
Trinity Bay	132.9	192.8	107.1	0	10
Conception Bay	6.8	6.8	2.0	0	1
Div. 3L	151.6	201.9	118.4	0	14

Table 6. Percent contribution by weight for reasons for discarding capelin in 1983.

	Redfeed	Low % of females	Small females	Females picked out	Females spawned out	No. market	Misc.	Not given
<u>Traps</u>								
Bonavista Bay	-	-	-	89	11	-	-	-
Trinity Bay	38	25	1	5	-	17	9	7
Conception Bay	11	43	-	2	-	18	11	15
Southern Snore	-	-	-	-	100	-	-	-
<u>Purse seine</u>								
Bonavista Bay	81	12	5	-	-	1	+	1
Trinity Bay	67	12	-	-	-	12	4	5
Conception Bay	66	20	+	-	1	6	2	5
St. Mary's Bay	21	63	-	-	-	-	-	16

Table 7. Catch/effort data for purse seiners from the 1983 logbook survey.

Area	No. days fished	No. sets made	Landings per logbook (t)	Landings and discards per logbook (t)	No. of purse seiners
Bonavista Bay	143	273	11.4/day 6.0/set	20.6/day 10.8/set	12
Trinity Bay	126	182	7.3/day 5.1/set	15.2/day 10.5/set	17
Conception Bay	215	481	10.6/day 4.8/set	20.2/day 9.0/set	21
St. Mary's Bay	29	58	19.7/day 9.9/set	24.4/day 12.2/set	4
Div. 3L	513	994	10.4/day 5.4/set	18.8/day 9.7/set	44

Table 8. Catch/effort data for capelin traps from the 1983 logbook survey.

Area	No. days fished	No. sets made	Landings per logbook (t)	Landings and discards per logbook (t)	No. of traps
Bonavista Bay	14	12	0.4/day 0.4/haul	0.4/day 0.5/haul	1
Trinity Bay	348	439	3.0/day 2.4/haul	4.2/day 3.3/haul	25
Conception Bay	567	607	3.4/day 3.2/haul	4.9/day 4.6/haul	40
Div. 3L*	929	1058	3.2/day 2.8/haul	4.6/day 4.0/haul	66

* Southern Shore effort data were incomplete

Table 9. Age-compositions (%) from the inshore commercial capelin fishery, Div. 3L, 1979-83.

	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	
1983		1.1	63.0	35.0	.9	
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
1983		6.0	58.7	32.7	2.5	.2
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
1983		2.9	61.4	34.2	1.5	.1

Table 10. Catch/effort of capelin traps utilizing research logbook data.

Year	Logbook landings (t)		Logbook landings and discards (t)	
	C/day	C/haul	C/day	C/haul
1981	2.1	2.1	2.7	2.7
1982	3.3	2.7	3.7	3.0
1983	3.2	2.8	4.6	4.0

Table 11. Catch/effort data in Div. 3L from purse seine logbooks.

Year	Logbook landings (t)		Logbook landings and discards (t)	
	C/day	C/set	C/day	C/set
1981	6.9	3.4	9.4	5.3
1982	13.5	6.7	16.4	8.1
1983	10.4	5.4	18.8	9.7

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