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Norwegian capelin fishery and capelin investigation in Newfoundland waters in 1978

by

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1. Introduction

The Norwegian fishery for capelin in the ICNAF area in 1978 was conducted by 9 purse seiners which delivered their catch to the factory ship F/S "Marine Harvester" (ex F/S "Norglobal"). One of the purse seiners, M/S "Nordervon", was chartered during a short period to carry out special investigations.

2. The Fishery

The first purse seiners arrived at the traditional fishing area on Southeast Shoal 10 June. During the period 10 - 20 June large areas on Grand Banks were intensively searched without finding any concentrations of mature capelin. Some registrations around 45° - 46°N and 50° - 51°W were identified as small immature capelin of mean length around 8.5 cm. The first concentrations of spawning capelin were found 20 June at position 44°17'N, 50°00'W. These concentrations were however very limited, and after 2 days of fishing the fleet was not able to find any more capelin in that area. After further searching without finding capelin the Norwegian vessels started to leave the area 27 June.

The 9 purse seiners fished altogether 4238 tons of capelin during the period 20 - 22 June. Practically all capelin in the catch were prespawning or spawning except for a few postspawners (Table 1). This is in good agreement with observations on spawning time made in earlier years.

Length and age compositions of the catches are shown in Figure 1. 4 years old capelin dominated.

The bottom temperature at Southeast Shoal was ca. 4.5°C (Fig. 2).

3. Tagging experiment

As in 1976 and 1977 (SANGOLT and ULLTANG, 1977, DOMMASNES, ULLTANG and SANGOLT 1978), a tagging experiment was conducted in order to get a direct estimate of the size of the spawning stock of capelin at Southeast Shoal. However, because of lack of capelin for tagging before the fishing started and the stop in the fishery after only two days of fishing, the tagging experiment in 1978 could not provide meaningful stock size estimates. Altogether 600 females and 1100 males were tagged with internal stainless steel tags. Data on tag releases and recoveries are given in Table 2. 272 tags, 79 females and 193 males, were recovered by magnets on board "Marine Harvester", and 21 tags were recovered at a production plant at Newfoundland. Although any valid stock size estimate can not be made, the high number of recaptures indicates that a large part of the capelin present in the fishing area were caught.

4. Conclusions

Already in 1976 - 1977 there were strong indications of a decrease in the spawning stock at Southeast Shoal compared to previous years. The 1978 observations indicate that no significant quantities of capelin spawned at the traditional spawning grounds on Grand Banks this year.

REFERENCES

- DOMMASNES, A., ULLTANG, Ø. and SANGOLT, G. 1978. Norwegian capelin fishery and capelin investigations in Newfoundland waters in 1977. Int.Comm.Northw.Atlant. Fish.Res.Doc. 78/VI/22, Ser.No. 5182.
- SANGOLT, G. and ULLTANG, Ø. 1977. Norwegian capelin fishery and capelin investigations in Newfoundland waters in 1976. Int.Comm.Northw.Atlant.Fish.Res.Doc. 77/VI/5, Ser.No. 5018.

Table 1. Sex composition and distribution of maturity stages.

Females %	Males %	Maturity stages (%) ¹			Number sampled
		5	6	7	
57	43	49	49	2	263

1) Stage 5 is prespawners, stage 6 is spawning capelin and stage 7 is postspawners.

Table 2. Tagging Experiment on Capelin, Grand Banks 1978

Date	Hrs.	Position	Series No.	Sex	Number	Recaptures	
						Nfld.	Marine Harvester
June 20	1615-1715	N44 ⁰ 18' W49 ⁰ 58'	48201-48500	female	300		36
"	2115-2215	N44 ⁰ 16' W50 ⁰ 00'	48501-48700	female	200		31
"	2215-2315	" "	48701-48900	male	200	1	36
June 21	0930-0950	" "	48901-49000	female	100		12
"	0950-1030	" "	49001-49200	male	200	2	39
"	1100-1245	" "	49201-49400	male	200	2	43
"	1610-1645	" "	49401-49600	male	200	7	32
"	1950-2050	N44 ⁰ 17' W50 ⁰ 00'	49600-49800	male	200	7	30
"	2100-2140	" "	49800-49900	male	100	2	13
Total					1 700	21	272

Produced capelin in tons:

Newfoundland	176
"Marine Harvester"	4 160

Magnet efficiency test F/S "Marine Harvester"	22 June	100
" " " " " "	22 June	100

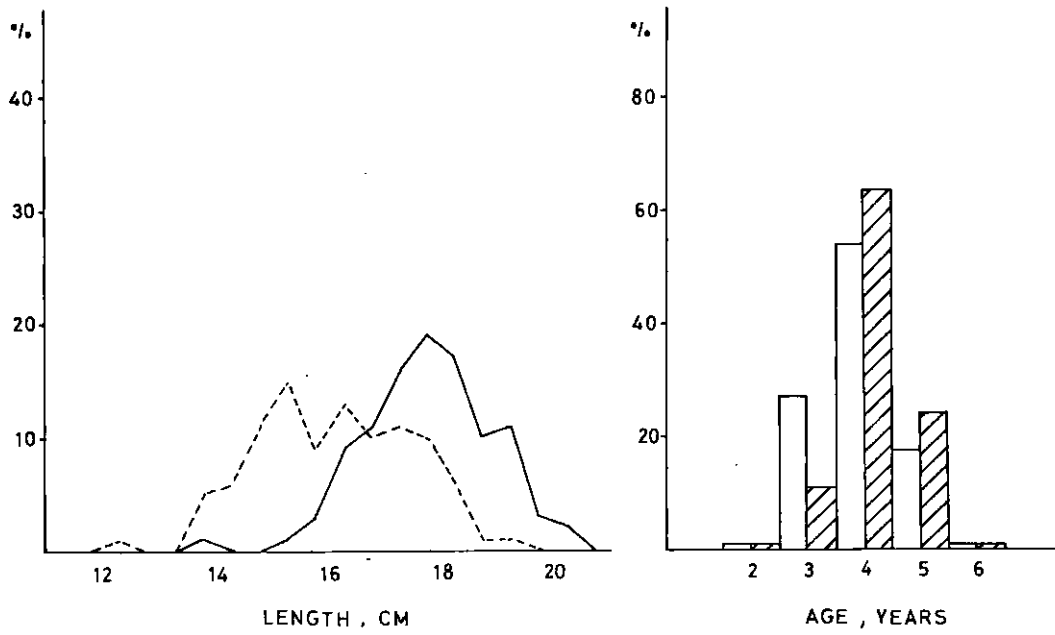


Figure 1. Age and length distribution of capelin caught 20 - 22 June 1978. Broken line or white column: females. Continuous line or shaded column: males.

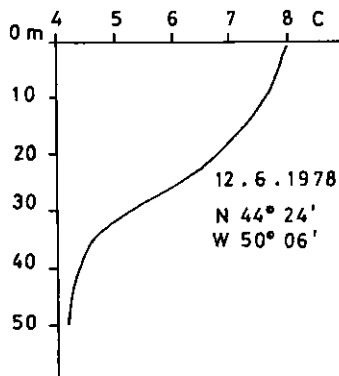


Figure 2. Temperature at the spawning ground at Southeast Shoal, 1978.