

International Commission for



the Northwest Atlantic Fisheries

Serial No. 3803
(D.c.3)

ICNAF Res.Doc. 76/VI/23

ANNUAL MEETING - JUNE 1976Norwegian capelin fishery and capelin investigations
in Newfoundland and Labrador waters in 1975

by

G. Sangolt
Directorate of Fisheries
Bergen, Norway

and

Ø. Ulltang
Institute of Marine Research
Bergen, Norway

1. Introduction

The Norwegian fishery for capelin in the ICNAF area in 1975 was conducted by the factory ship "Nordglobal" and 3 purse seiners and 4 trawlers, including R/V "Havdrøn" which carried out special investigations on distribution and composition of the capelin. Also an Icelandic purse seiner participated in the expedition.

2. Area of distribution

The survey route of R/V "Havdrøn" is shown in Fig. 1. Mature capelin were observed on Southeast Shoal, 6 nautical miles south of St. Pierre and 15 nautical miles southeast of St. John's. Mature capelin were not observed on St. Pierre Bank. The dense concentrations of mature capelin on Southeast Shoal were found in water with temperature above 3°C, while scattered registrations of mature capelin mixed with immature capelin were made as far as 60 nautical miles north and northeast of the fishing area (Fig. 1).

Capelin of the 1974 yearclass were found over a wide area between Whale Deep and St. Pierre Bank. Immature capelin (1973 and 1972 year-classes) were found in some quantities in an area about 60 nautical miles southeast of Cape Race, very scattered about 100 nautical miles east-northeast of St. John's and in more dense and catchable concentrations about 30 nautical miles north-northwest of Cape Freels (Fig. 2). No registrations of capelin were made further north.

In the area around 53°30'N, 52°30'W considerable quantities of lantern fish (Notoscopelus Elongatus) were registered (Fig. 3).

3. Spawning capelin on Southeast Shoal

Spawning started on Southeast Shoal 13 June and had finished about 10 July. During the spawning period a more or less continuous migration took place of mature capelin from northwest towards the spawning area. After spawning some of the females seemed to migrate back northwestwards while the males staid in the area, and this is reflected in the increasing proportion of males in the catches (Table 1).

4. The fishery

Fishing started on Southeast Shoal (Fig. 1) 7 June and continued there until 17 July. All capelin in the catches were mature. In Table 1 is shown catch, sex composition and distribution of maturity stages in the different weeks (catches in Table 1 include the catches taken by the Icelandic vessel). Prespawning, spawning and spent capelin contributed about equally to the total catch. In Fig. 4 is shown age and length composition of the catches of males and females. As in previous years 3 and 4 years old capelin dominated.

A significant difference was observed in the distribution of the capelin compared with previous years. In 1972 - 1974 the capelin on Southeast Shoal were distributed in a rather continuous midwater layer (Fig. 5), and trawl was the most efficient gear. In 1975 the capelin appeared in big shoals (Fig. 5-6) and the conditions for purse seining were good. Of a total Norwegian catch of 35903 tons 25396 tons were taken by purse seine.

This difference in distribution of the capelin between 1975 and previous years may be due to changes in the depth distribution of water temperature. In Fig. 5 is shown a typical temperature distribution from 1972, while Fig. 6 shows observations from 1975. In 1975 the surface temperature was lower and the temperature near bottom was higher than in the previous years. The distribution of water temperature in 1975 also improved the conditions for the use of sonar.

After the end of the spawning period on Southeast Shoal "Nordglobal" and 5 of the fishing vessels moved to the area 30 nautical miles north-northwest of Cape Freels where good registrations of

immature capelin had been made (see Section 2), but the capelin could not be utilized because of high water and fat content, and the expedition left Newfoundland waters 20 July.

Table 1. Catch (tons) per week¹⁾, sex composition and distribution of maturity stages.

Week no.	Date	Catch (tons)	Female %	Male %	Maturity stages (%) ²⁾			Number sampled
					3	4	5	
23 and 24	7 - 15 June	5 954.5	61.7	38.3	86.4	12.8	0.8	611
25	16 - 22 June	8 170.9	57.7	42.3	50.9	45.7	3.8	534
26	23 - 29 June	11 884.8	79.0	21.0	47.1	35.5	17.4	367
27	30 June-6 July	9 580.3	47.4	52.6	28.5	56.3	15.2	899
28 and 29	7 - 17 July	16 164.5	17.5	82.5	0.0	20.0	80.0	80
Total		51 755.0	48.6	51.4	34.1	33.5	32.4	

- 1) Catches delivered by the Icelandic vessel included
- 2) Stage 3 is prespawning, stage 4 is spawning capelin and stage 5 is postspawners

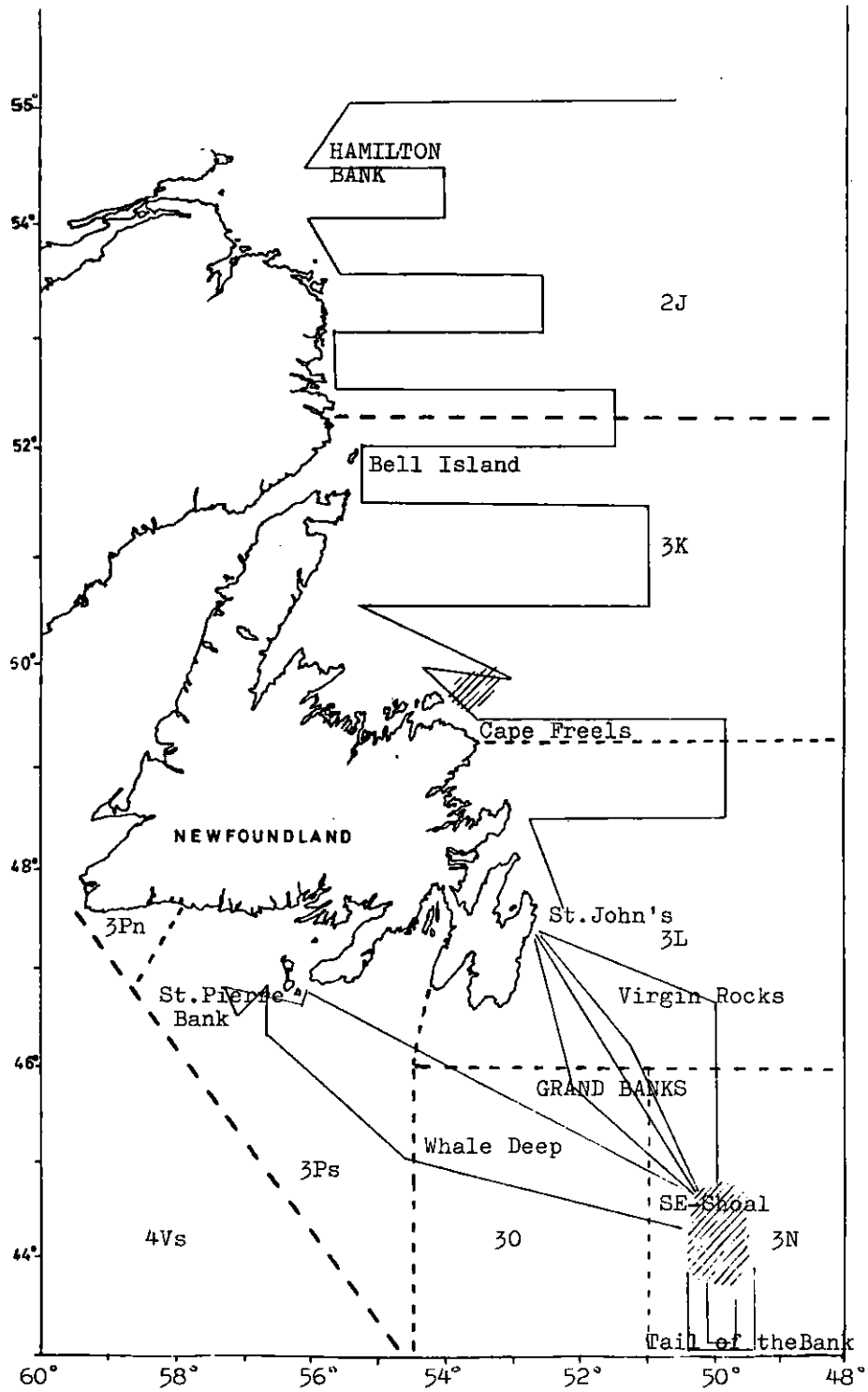


Fig. 1. R/V "Havdrøn" 10 June - 18 July 1975. Survey route and fishing area.

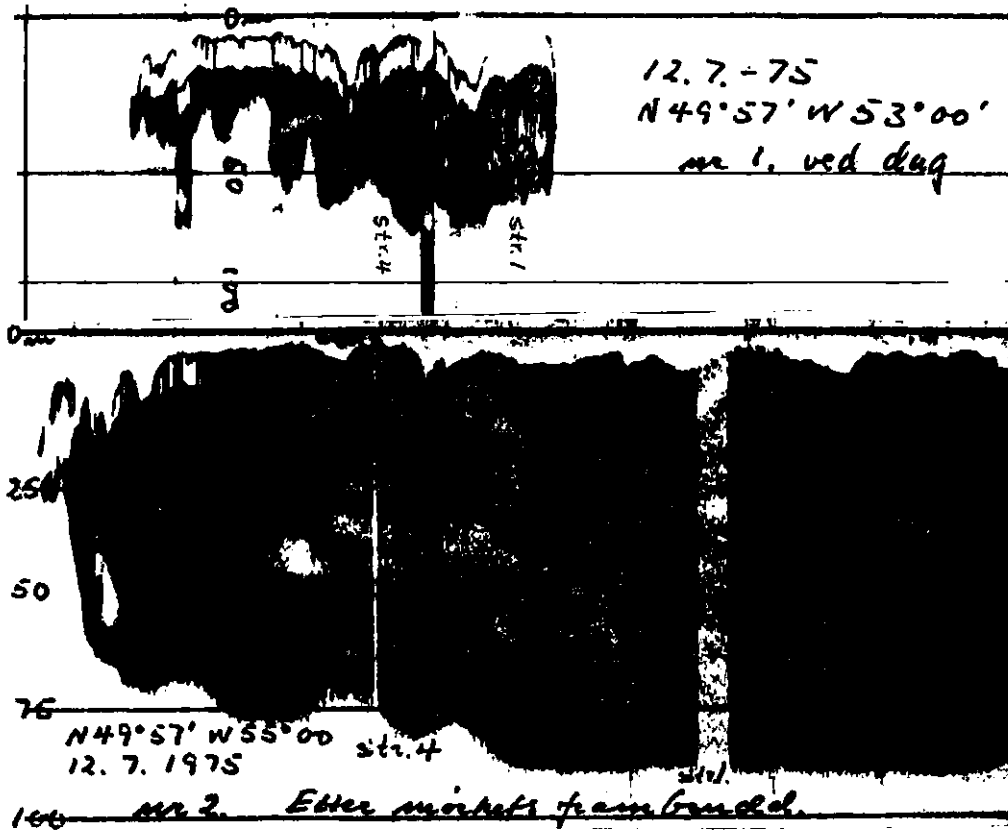


Fig. 2. Echo traces, young capelin. Upper figure: by day. Lower figure: by night.

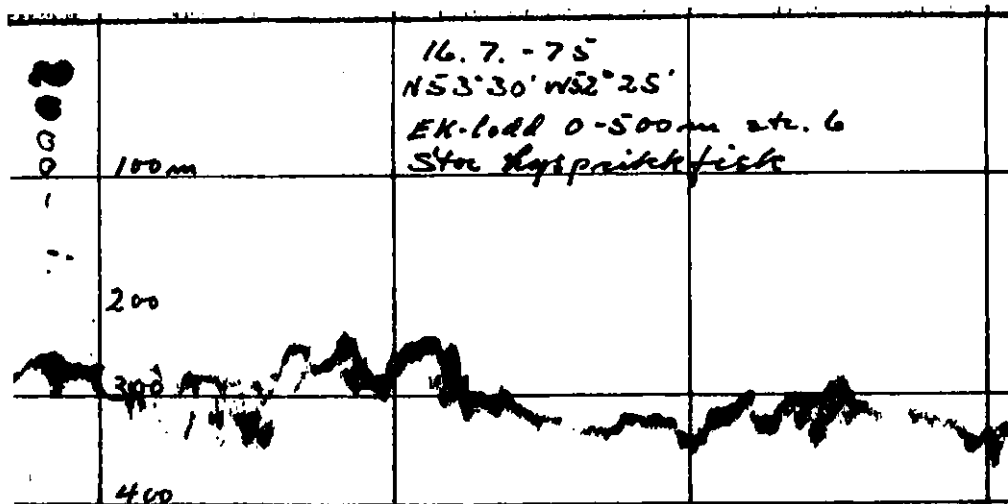


Fig. 3. Echo traces, lantern fish. (Notoscopelus Elongatus)

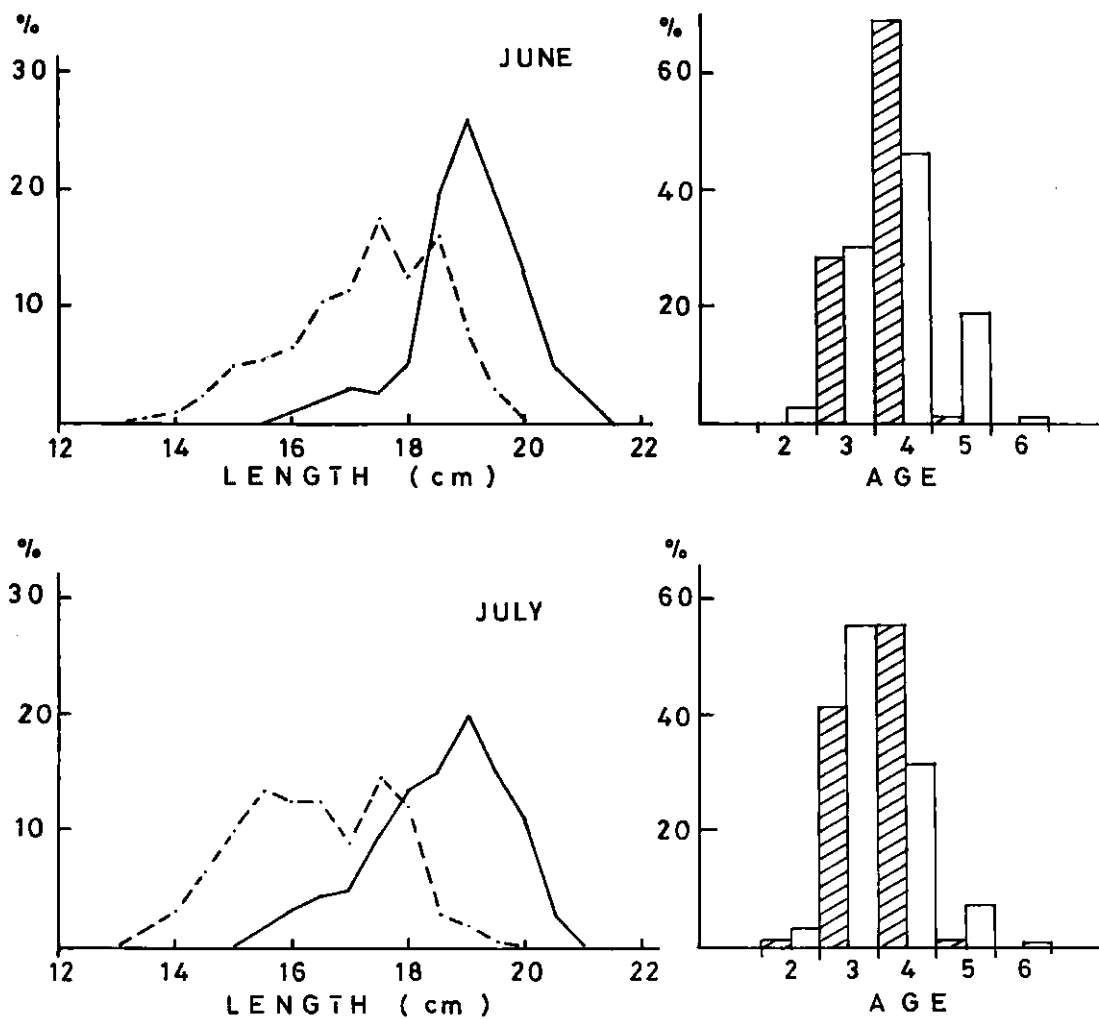


Fig. 4. Age and length distribution of capelin on Southeast Shoal of Grand Banks in June and July 1975. Broken line or white column: females. Whole line or shaded column: males.

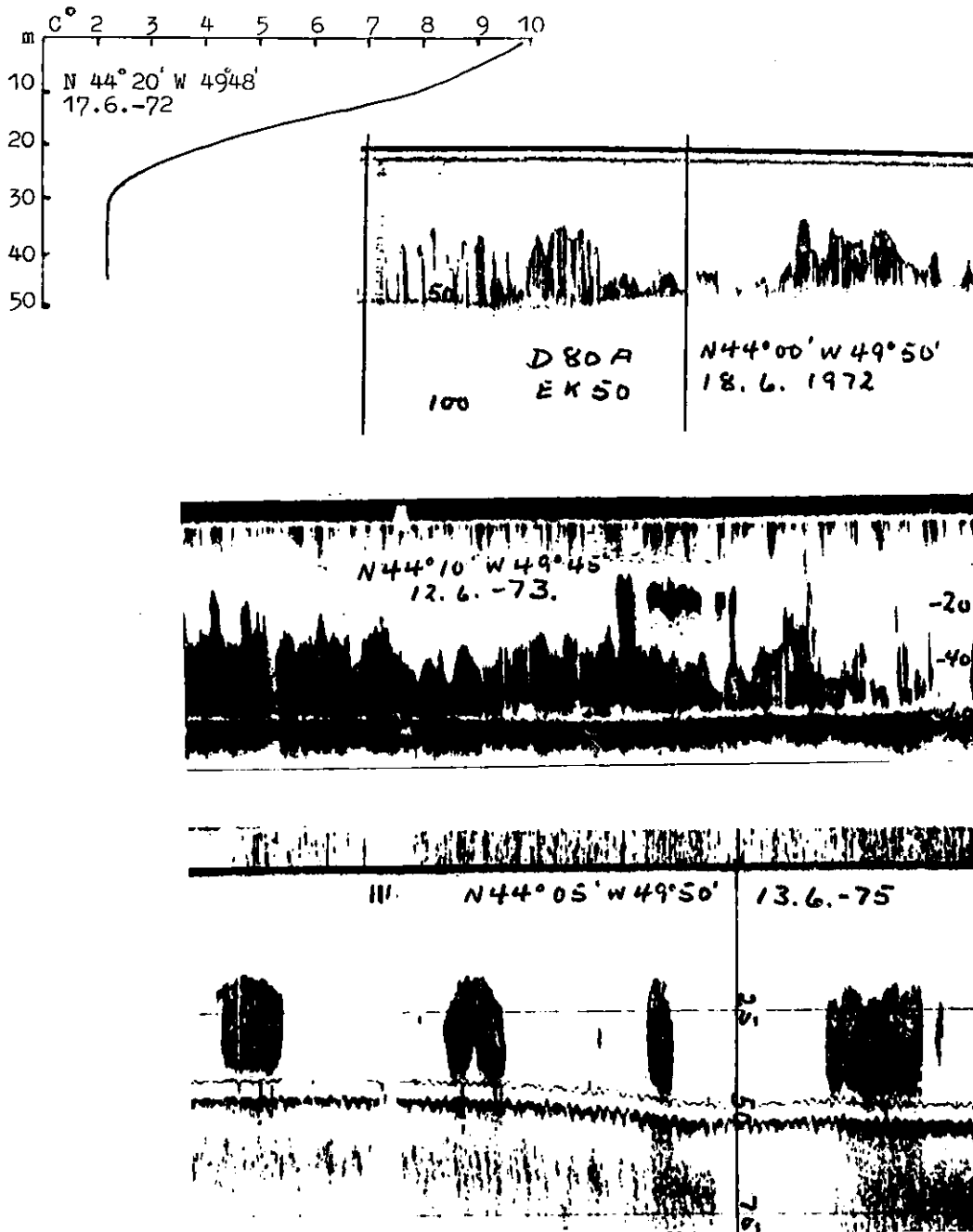


Fig. 5. Echo traces, Southeast Shoal, 1972, 1973 and 1975. Temperature 1972.

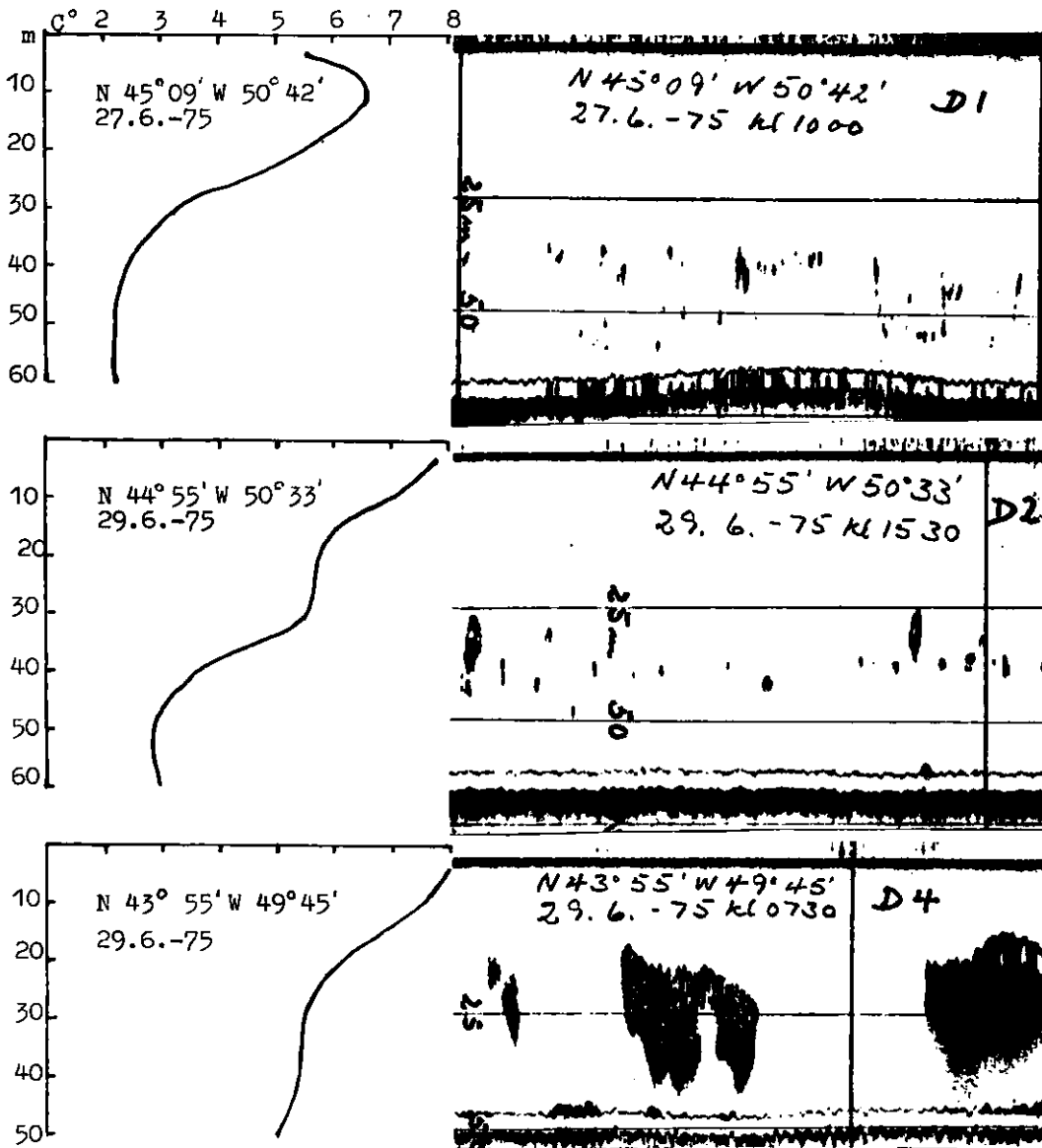


Fig. 6. Echo traces and temperature, Southeast Shoal 1975.