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Observations on the Spanish *Illex* fishery in Subarea 4

by

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Introduction

Observations carried out on board the fishing vessel FARPECA IV from 10 to 16 August are presented in this paper. During this time 21 hauls were carried out south of Sable Island, on a muddy bottom, in depths between 84 and 140 fm (154-256 m). Main species sought was *Illex illecebrosus*.

Material and Methods

FARPECA IV is a freezing trawler with 47.28 m overall length and 471 GRT. The gear used was a bottom trawl shown in Fig. 1, with a 4.5-m vertical mouth opening. Two different codend mesh sizes were used, 40 and 45 mm, and the resultant catches were quite similar in both cases. The vessel was equipped with a net-sounder, so it was possible to take note of bottom temperatures. The position of the hauls are given in Fig. 2, and the relevant data in Table 1.

There were 3,106 individuals of *Illex illecebrosus* measured (mantle length) and the resultant by-catch was also estimated.

Length-Frequency Distribution

Fig. 3 shows the length frequency distribution of all 3,106 individuals measured, combined from different hauls. Mantle lengths ranged from 16 to 30 cm, with a mean of 21 cm. Length frequency distributions from the individual hauls were quite similar to the overall length frequency distribution in Fig. 3.

Referring to the growth scheme proposed by Mesnil (1976) for this species, individuals measuring from 25 to 30 cm would correspond to individuals born in January-February of the years before (age 18 months), all of them mature. Individuals of less than 25 cm would be born in July-August of the year before (age 12 months), in which the males of larger sizes would be mature and all the females immature.

Catches and By-Catches

The catches of *Illex* during the observation period are shown in Table 1. These were well above average for this vessel for the whole season: 18.2 tons/day fished during the observation period against 10.9 for the whole season. FARPECA IV was one of the more efficient vessels of the whole fleet (average of the fleet was 7.11 tons/day fished).

Fig. 4 shows the catches of the different hauls and the bottom temperatures. Main catches were made when the water temperature was between 12 and 12.5°C.

Table 2 shows the by-catch composition and weight by species in the different days during the observation period, and it can be seen that it is very small, representing 1.8% of the total *Illex* catch.

References

- Mesnil, B. 1976. Growth and life cycle of squid, *Loligo pealei*, and *Illex illecebrosus*, from the Northwest Atlantic. ICNAF Res.Doc. 76/VI/65, Serial No. 3852.

Table 1. Observations on Spanish *Illex* fishery south of Sable Island during 10-16 August 1977.

Haul No.	Day	Duration of haul	Position of haul				Depth range (fm)	Hours fishing	<i>Illex</i> catch (kg)	Catch per hour (kg)
			Initial		Final					
			N	W	N	W				
1	10	0550-1005	43°40', 59°30'	43°36', 59°49'	87-100	4.25	4700	1006		
2	10	1045-1500	43°36', 59°50'	43°40', 59°32'	90-94	4.25	3500	824		
3	10	1545-1955	43°40', 59°33'	43°35', 59°51'	88-92	4.17	7400	1775		
4	10	2045-0055	43°36', 59°51'	43°41', 59°34'	85-87	4.17	300	72		
5	11	0450-0830	43°41', 59°29'	43°38', 59°45'	86-93	4.33	3050	704		
6	11	0915-1230	43°38', 59°45'	43°35', 59°59'	84-107	3.25	1150	354		
7	11	1400-1655	43°36', 59°54'	43°39', 59°42'	84-98	2.92	9175	3142		
8	11	1750-2040	43°38', 59°45'	43°35', 59°59'	92-94	3.50	6625	1893		
9	12	0715-1020	43°34', 59°59'	43°36', 59°47'	86-96	3.08	10000	3247		
10	12	1400-1735	43°36', 59°49'	43°41', 59°33'	92-96	3.58	2600	663		
11	12	1830-2140	43°40', 59°37'	43°39', 59°36'	88-96	3.17	2800	883		
12	13	0515-0742	43°35', 60°00'	43°36', 59°50'	88-90	2.45	12675	5173		
13	14	0505-0705	43°35', 60°00'	43°36', 59°51'	89-98	2.00	4275	2138		
14	14	0750-1100	43°36', 59°51'	43°35', 60°07'	87-140	3.17	5250	1656		
15	14	1730-2100	43°35', 60°01'	43°38', 59°46'	92-94	3.50	8200	2343		
16	15	0505-0740	43°35', 60°01'	43°38', 59°51'	90-94	2.58	4850	1880		
17	15	0830-1120	43°36', 59°51'	43°35', 60°04'	85-86	2.83	2950	1042		
18	15	1200-1555	43°35', 60°05'	43°28', 60°21'	92-120	3.92	1600	408		
19	15	1645-2000	43°27', 60°20'	43°33', 60°06'	90-92	3.25	14925	4592		
20	16	0910-1110	43°27', 60°26'	43°28', 60°18'	91-92	2.00	12175	6087		
21	16	1815-2010	43°27', 60°24'	43°28', 60°17'	88-94	1.92	9200	4792		

Table 2. By-catches (kg) of various species in the Spanish *Illex* fishery during 10-16 August 1977.

Day	Silver hake	American plaice	Cod	Goosefish	Crust-aceans	Total
10	420	60	30	9	2	521
11	300	75	-	-	3	378
12	240	90	-	-	-	330
13	150	75	-	-	-	225
14	420	150	30	-	-	600
15	120	60	-	-	-	180
16	60	21	-	-	-	81
Total	1710	531	60	9	5	2315

BOTTOM TRAWL

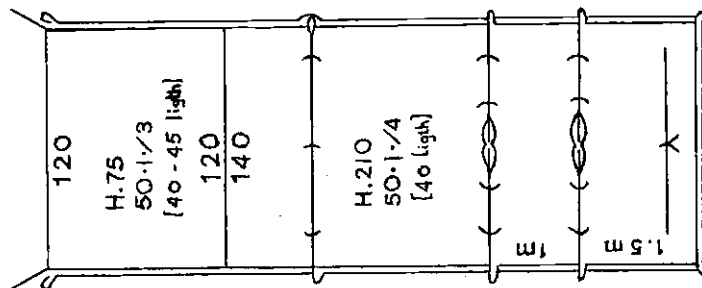
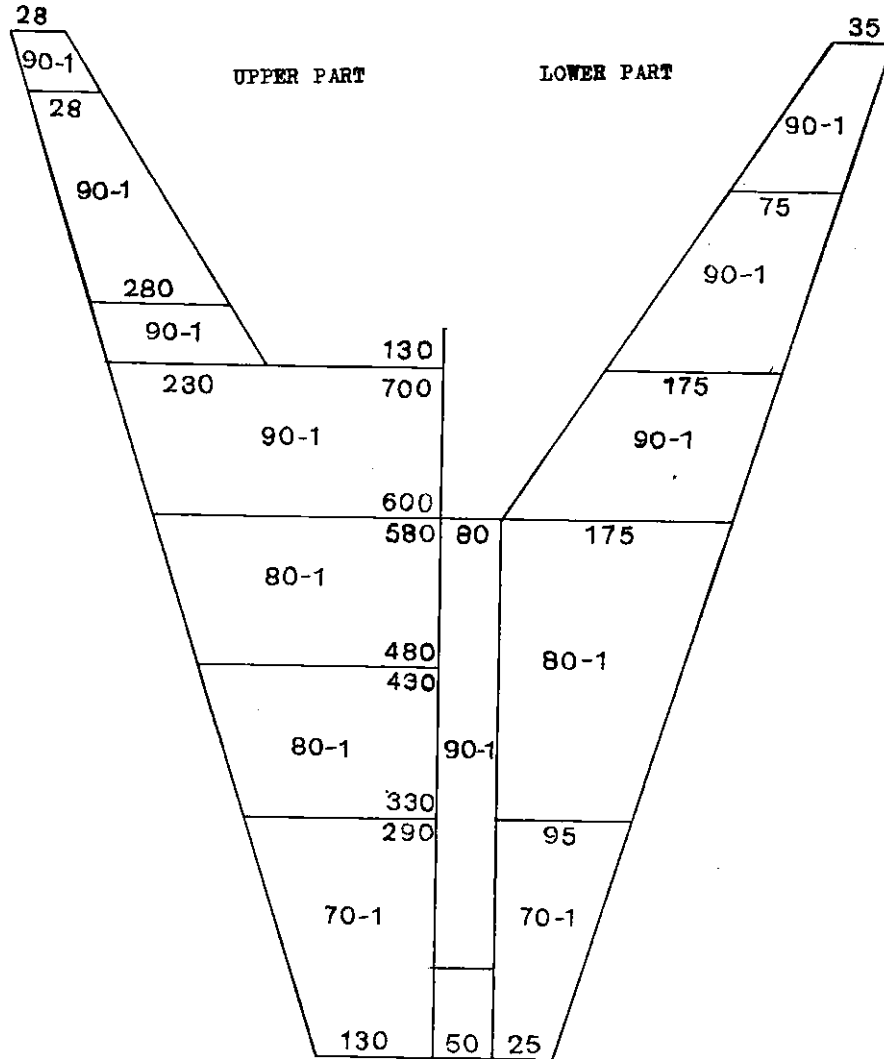


Fig. 1. Diagram of bottom trawl used by M/V *Farpesca IV* during *Illex* fishery in Subarea 4.

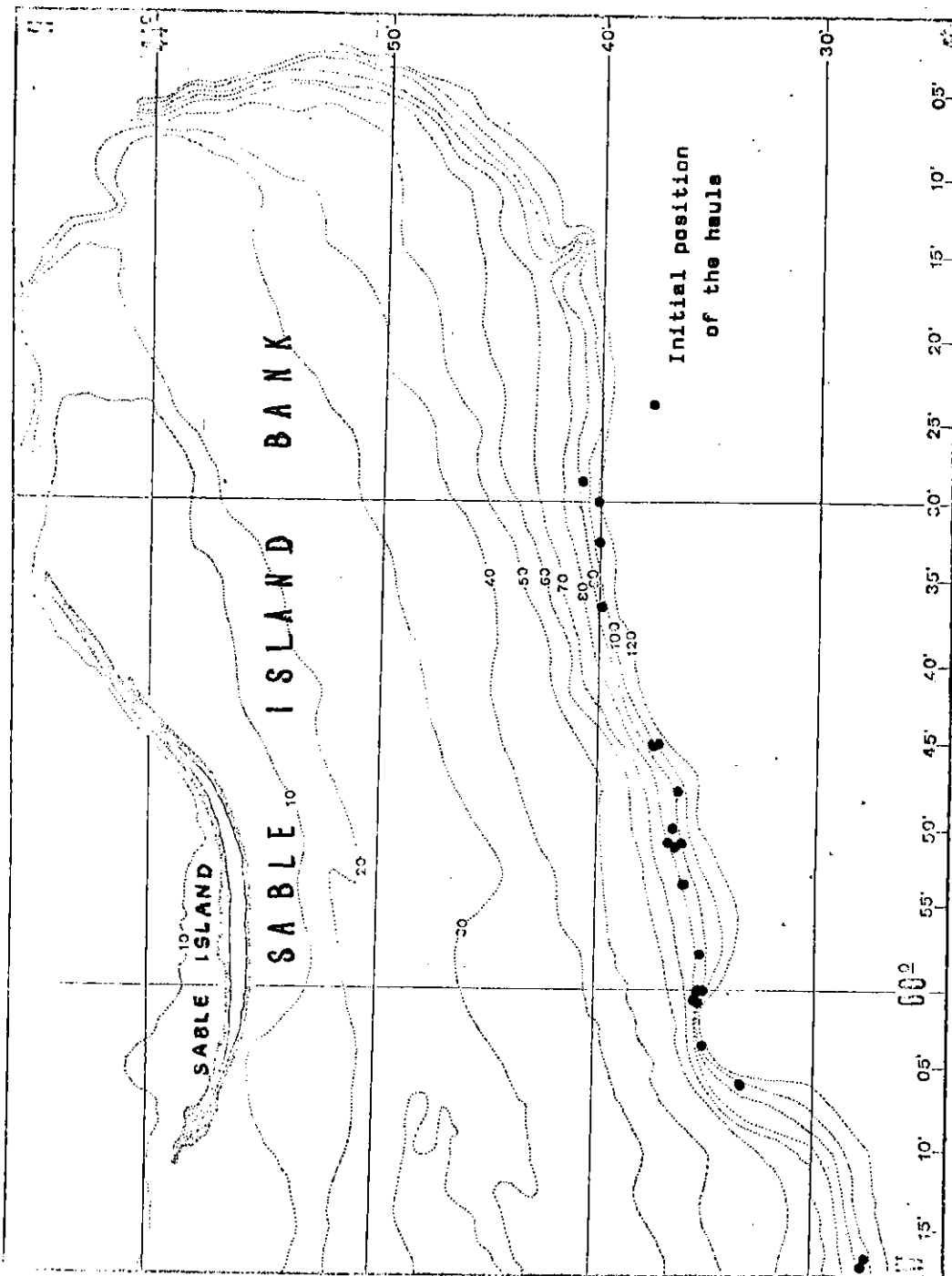


Fig. 2. Positions of individual trawl hauls for *Illex* by M/V *Farpesca IV* during 10-16 August 1977.

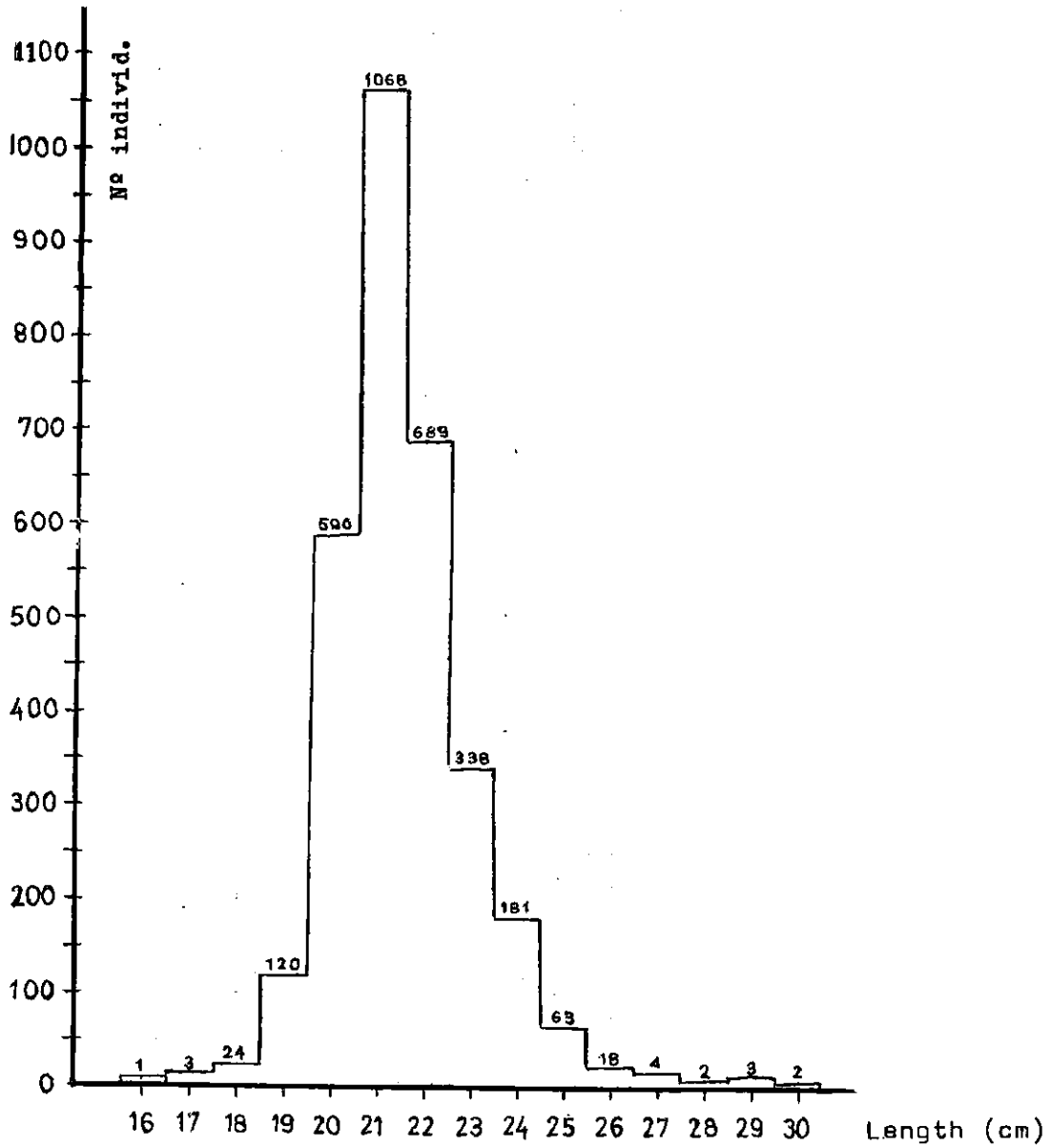


Fig. 3. Overall length frequency distribution of *Illex* in catches during the observation period of 10-16 August 1977.

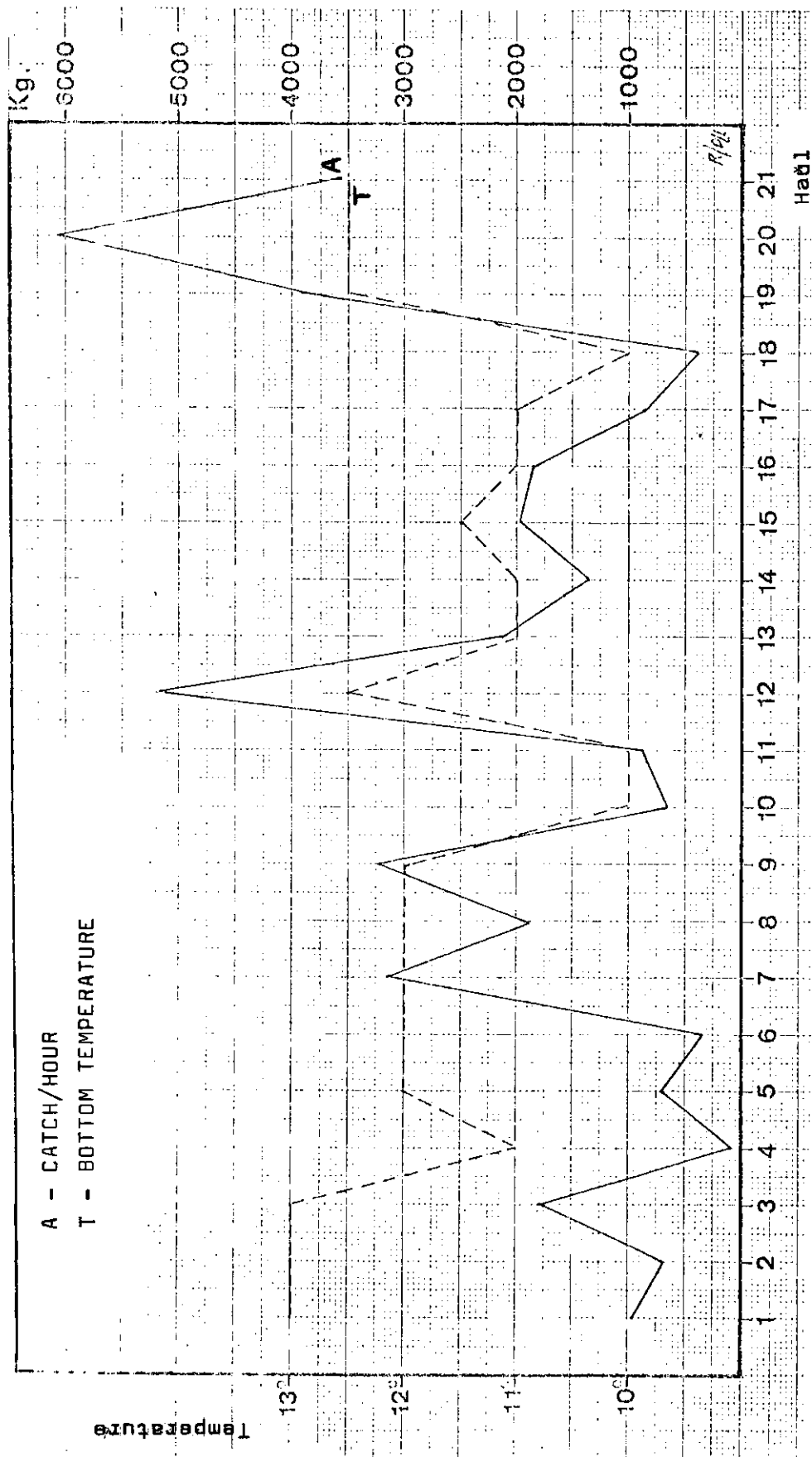


Fig. 4. Relationship of *Illex* catch per hour and bottom temperature during the observation period of 10-16 August 1977.