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The 1985 Fishery for Squid (Illex illecebrosus) in the Newfoundland Area, with Length, Sex and Maturity Composition from Inshore Commercial Samples

by

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Introduction

This paper provides a description of the 1985 fishery for Illex illecebrosus in the Newfoundland area (NAFO Subarea 3 and Division 4R). Commercial catches are broken down by month, NAFO Division and processing category. Length composition and (for males) maturity are described for the few commercial samples which were obtained. Yearly catches and biological characteristics have been described for most years since 1965, as noted by Drew et al. (1985).

Materials and Methods

Monthly inshore squid catches by NAFO Division (Fig. 1) were obtained from the Fisheries Systems and Statistics Branch, Department of Fisheries and Oceans, Newfoundland Region for NAFO Subarea 3. The NAFO Division 4R catch was provided by the Extended Data Processing Section of the Department of Fisheries and Oceans, Gulf Region.

Biological samples from the commercial fishery were taken when obtainable at Holyrood and St. Chad's, both communities being within NAFO Division 3L (Fig. 1). All samples were collected using Japanese type mechanical jiggers.

Squid from Holyrood were measured in dorsal mantle length to the nearest 0.5 cm and later grouped into 1 cm intervals whereas those from St. Chad's were measured in millimeters and later grouped to 1 cm intervals. Samples collected were summarized by biweekly periods for descriptions of length, sex and maturity composition. Maturity stages for males were assigned according to Mercer (1973).

Results and Discussion

Virtually all of the 1985 reported catch of 404 t (Table 1) came from inshore areas within NAFO Subarea 3 as there were no offshore catches reported within the 200-mile territorial limit. Division 4R reported an additional catch of 1 t in the month of October. The total reported catch of 405 t (Fig. 2) is just slightly higher than that reported for 1984 of 368 t (Drew et al. MS 1985). The reported catch of 405 t is probably an underestimate of the actual catch for 1985 as it was quite commonly reported that fishermen were not selling their catch but freezing it for themselves to be used later as bait in other fisheries. The abundance of squid in 1985 appeared to be somewhat higher than during 1984 and fishermen in the communities of Holyrood and St. Chad's expended more effort fishing for squid in 1985 than in 1984. No estimate of unreported squid catches can be obtained. As usual, most of the reported catch came from northeastern Newfoundland (NAFO Divisions 3K and 3L) (Table 1) and the largest catches occurred during September. The very low catch for 1985 was in accordance with the results of a bottom trawl survey carried out on the southwest slope of the Grand Bank during June 5-16 (Fig. 3). A single squid was captured from 85 daytime survey sets.

Temperatures from Holyrood (Fig. 4) for the 1985 season indicated that the overall trend was for slightly cooler temperatures than those reported for 1984 (Drew et al. 1985). However, constant temperatures above 5°C were evident after the end of July, sufficiently so that it should not have affected abundance in the Holyrood area.

Biological Characteristics

Length composition and, for males, maturity are described from commercial samples from Holyrood (Fig. 5) and St. Chad's (Fig. 6). These represent the first inshore commercial samples obtained since 1982 (Beck et al. MS 1983). At Holyrood during 1985 two distinct size groups were present as seen during the period ending September 15 (Fig. 5). For that time period the two groups had modal lengths of 16 and 22 cm for males and 16 and 23 cm for females. The group of smaller squid was not evident in the commercial samples for the earlier periods due to insufficient sampling. Throughout August the presence of schools of very small squid was commonly reported by fishermen.

Comparison of the 1985 and 1982 (Beck et al. MS 1983) August periods for Holyrood indicates that the group of large squid in 1985 (Fig. 5) was somewhat larger than the single size group sampled in 1982. However, sexual maturity in males was much more advanced during August 1982 than August 1985.

The presence of two distinct size groups (presumably cohorts) is quite commonly observed on the Scotian Shelf (Dupouy MS 1981) and off the northeastern United States (Lange and Sissenwine MS 1981) but has only rarely been reported at Newfoundland. Two distinct size groups were present at Newfoundland during the 1966 fishing season (Mercer MS 1975).

The commercial sample from St. Chad's was unimodal in length frequency distribution (Fig. 6). Mean length for both sexes were comparable to those described for Hampden in 1982 for the same time period (Beck et al. MS 1983) but sexual maturity in males was more advanced in the St. Chad's 1985 sample.

Acknowledgments

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Table 1. Reported squid catch (metric tons) by month, NAFO Division and processing category at Newfoundland for 1985.

NAFO Div.	Processing category	Month				Total
		August	September	October	November	
3K	Round	2	50	23	-	75
	Dry	6	29	59	6	100
	Total	8	79	82	6	175
3L	Round	19	138	29	1	187
	Dry	2	5	22	6	35
	Total	21	143	51	7	222
3Ps	Round	1	3	2	-	6
	Dry	1	-	-	-	1
	Total	2	3	2	-	7
Combined	Round	22	191	54	1	268
	Dry	9	34	81	12	136
	Total	31	225	135	13	404

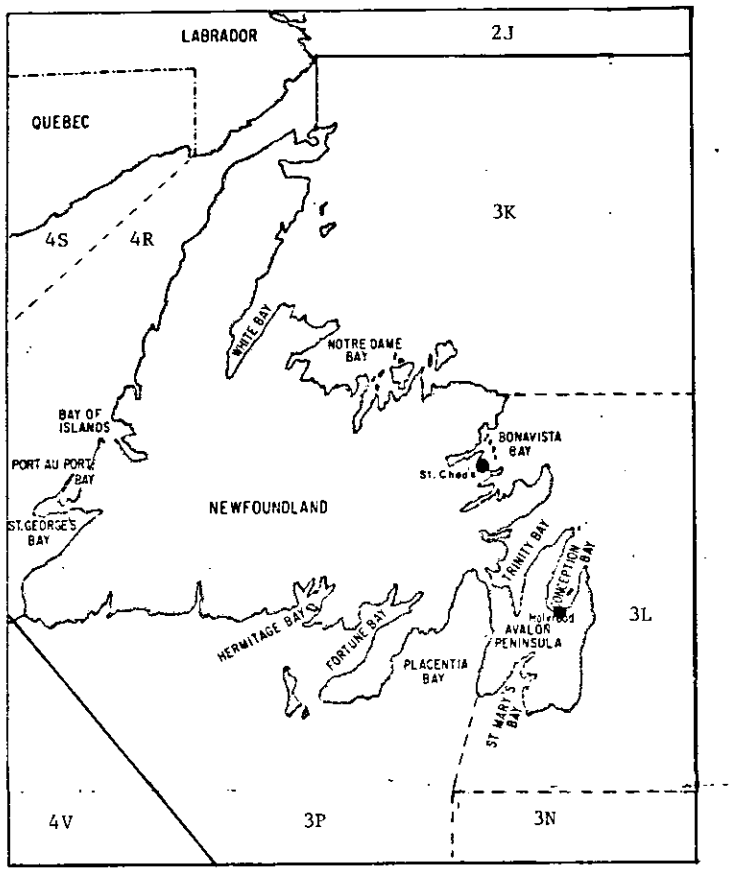

Fig. 1. Map of Newfoundland showing sampling locations and NAFO Divisions.

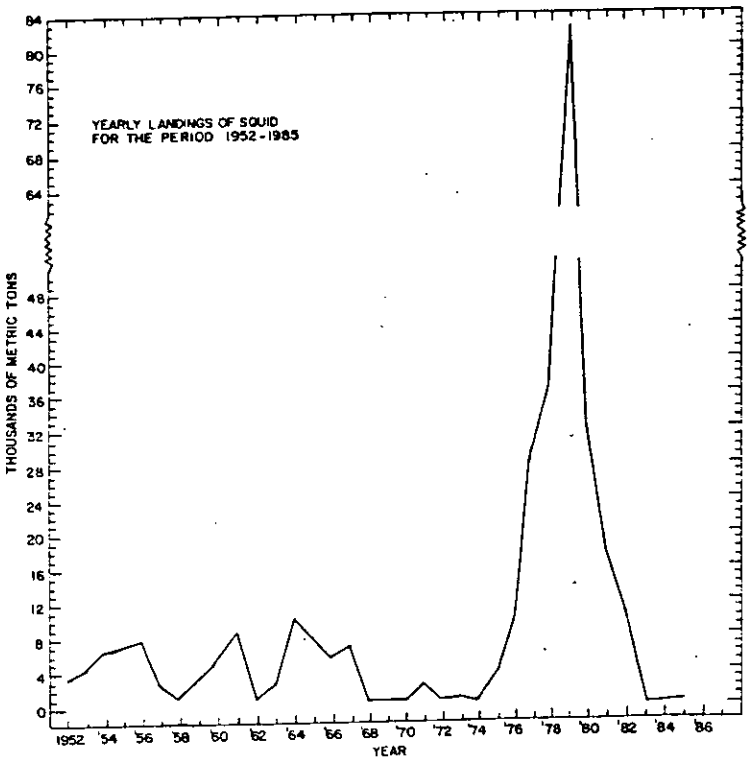

Fig. 2. Yearly landings of squid in Newfoundland for the period 1952-1985.

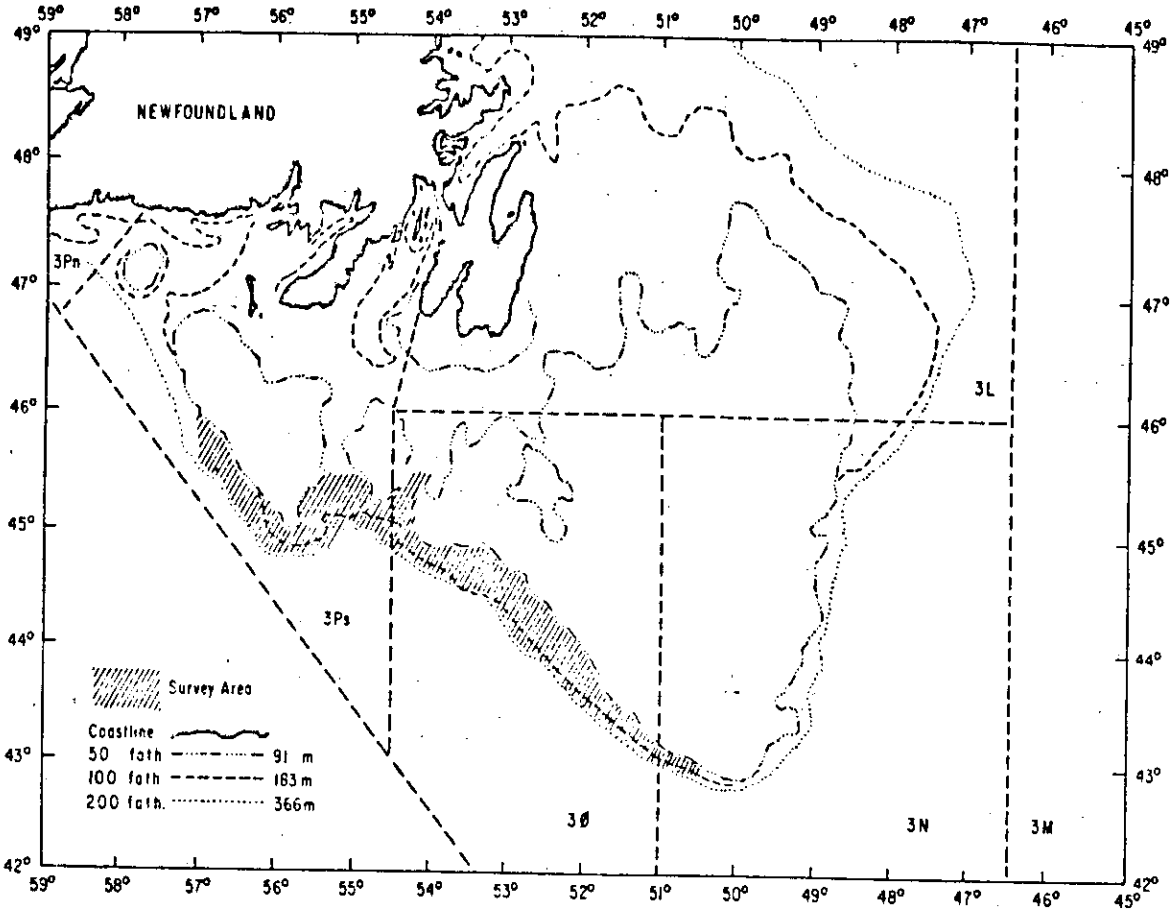

Fig. 3. Area surveyed during research cruise of the W. TEMPLEMAN, June 5-16, 1985.

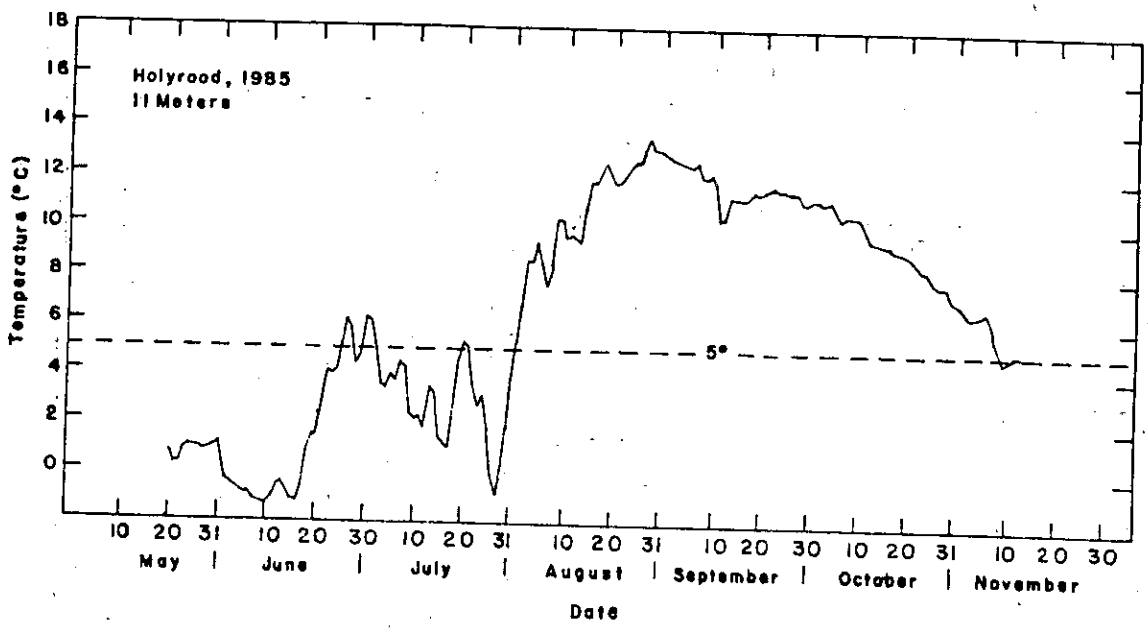

Fig. 4. Average daily temperatures at Holyrood during 1985.

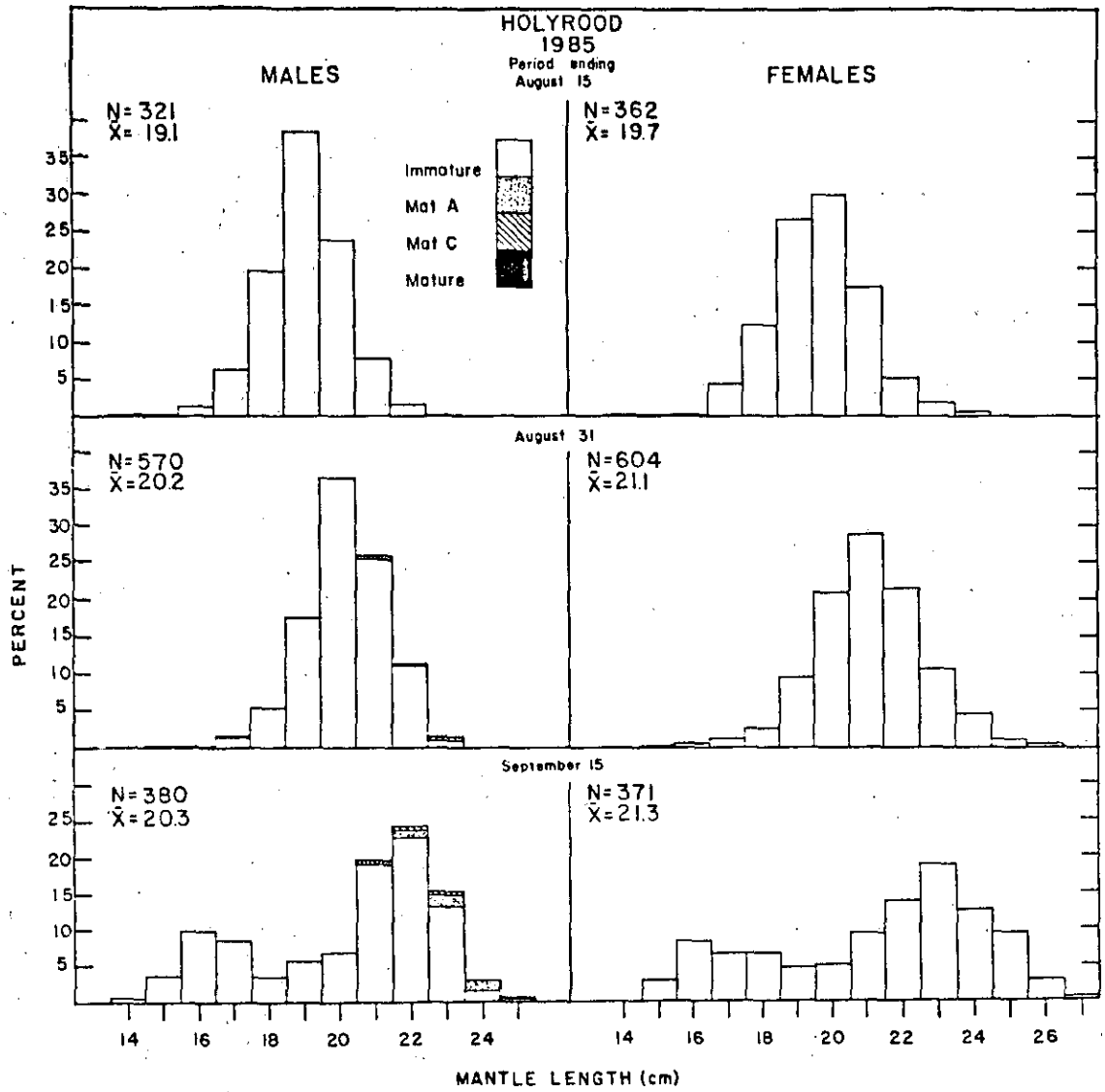

Fig. 5. Length frequencies and maturity stages by sex for biweekly periods in 1985 at Holyrood.

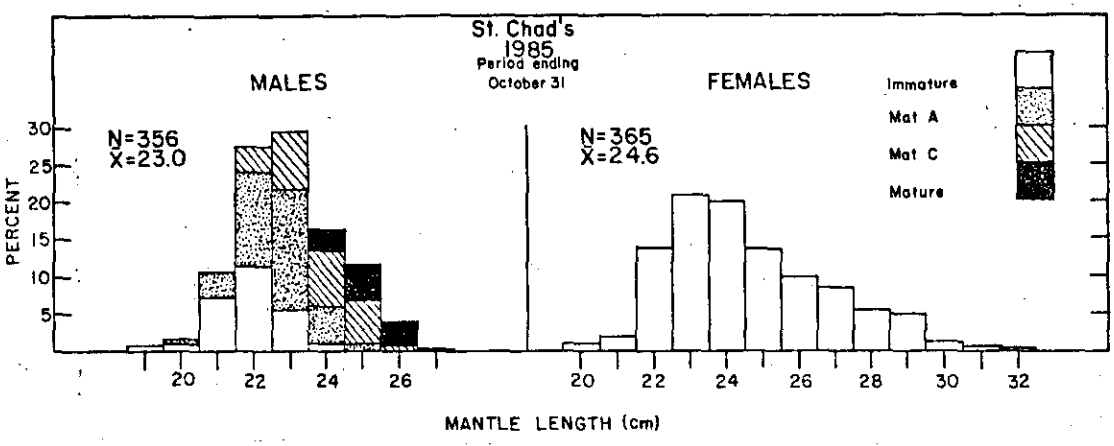

Fig. 6. Length frequencies and maturity stages by sex for biweekly periods in 1985 at St. Chad's.