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Catch, Effort and Biological Characteristics of Squid (*Illex illecebrosus*) in the French Fishery (Subdiv. 3Ps) in 1982

by

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I. Introduction

In 1982, as in previous years, the French fishery on squid (Illex illecebrosus) was conducted by small inshore boats around St Pierre and Miquelon Islands (Subdiv. 3 Ps) and offshore by large freezer trawlers. The characteristics of squid in the inshore fishery has been studied in the St Pierre Laboratory and those in the offshore fishery during two surveys in August-September (4 V W X) and October (3 Ps) in 1982.

II. Results

1. The inshore fishery

The inshore fishery took place inside the territorial waters of the French archipelago, mostly in the entrance of St Pierre harbour. The fishery was conducted by 42 dories equipped with mechanical jigging systems. The squid appearance was noted on the first of July but commercial landings was restricted to the week from July 19 to July 25, the abundance of squid being too low except during this short period to support a commercial fishery.

Consequently, the level of the catch obtained for 1982 (only 34 m. tons) is the lowest one observed from the starting of this fishery in St Pierre i.e. from 1976 (fig. 1). In table 1, catches per month and mean CPUE are presented for the years 1979 to 1982. The mean CPUE is calculated by dividing the total catch by the total number of dories participating in the inshore fishery for a given year. This index can be taken as an index of abundance under the assumption that squid landing per dory per year reflect the abundance of squid in the inshore waters. This assumption is no correct for very low and very large values of abundance because :

i) under a certain level of catch rate (estimated at 100-200 kg per dory per day) fishermen are not interested to devote their fishing effort on this species ;

ii) the catch rate per day cannot exceed a mean of 1 000 kg at 1 500 kg per dory per day because technical limitations (loading capacity of boats, freezing capacity of plant and market-limitation).

Although the CPUE index is rough, it indicates a sharp decline of abundance during the last two years (0.81 m.t./dory in 1982 against 6.28 m.t. in 1981 and 37.7 m.t. in 1980) i.e. respectively 2 % and 17 % of the 1980 level. These figures indicate the same trend than for the offshore index in Divisions 4 V W X from 1980 to 1982 (DUPOUY and DERIBLE, 1983).

Observations on water temperature (fig. 2) were made at a standard station in the entrance of St Pierre harbour (10 meters depth) were most of squid are usually caught by dories. As noted in previous years (DUPOUY and MINET, 1982), the first arrival of squid coincide whith water temperature close to 7°C. The disapearance of squid corresponded with a sharp increase of temperature at the end of July and beginning of August from 8°C to 13°C (i.e. + 5°C in two weeks).

Due to the very short period of fishing, only one sample of 200 squids was examined. All squid were sexed and measured by maturity stages according to the procedure established by AMARATUNGA and DURWARD (1979). Size distributions per sex are presented in figure 3 and compared with a sample collected one year previous. Mean size and weight were slighty lower in 1982 for males and females (17.7 cm and 18.3 cm respectively) instead the proportion of males was higher than in 1981 (46 % against 37 %) ; but no major difference on the biological characteristics were noted with previous years.

2. The offshore fishery

Because the scarcity of squid in the summer and autumn of 1982 in N.A.F.O. Divisions 3 and 4 no directed fishery were devoted to squid. Only 34 m. tons were caught as by-catch of cod in the 3 Ps Subdiv. in October and November by 3 freezer trawlers. This is the lowest level of catch obtained from the beginning of the offshore fishery in 1977 (fig. 1).

No samples were taken but during the same period, the R.V. Cryos was undertaken a groundfish survey in the same area and squid caught were analysed following the same procedure as described for inshore samples. As for inshore fishery, an unimodal distribution of squid was observed with mean size of 21.1 cm for males and 22.2 cm for females (fig. 4).

Assuming that squid caught offshore on 3 Ps pertained to the same age group that squid caught inshore the growth rate between the end of July and end of October was 3.4 cm for males and 3.9 cm for females i.e. a growth rate of 11.3 mm and 13.0 mm per month respectively. These figures are lower of about 45 % than those obtained for squid in Subdiv. 3 Ps in 1981 (DUPOUY and MINET, 1982).

III. Conclusion

After the record level of 1979, the French squid fishery declined dramatically during the 1980-1982 period. This decline affected both the inshore (Subdiv. 3 Ps) and offshore fishery (Divisions 3 and 4).

This situation reflects a decrease in abundance of squid observed in N.A.F.O. Divisions 3 and 4 during the last three years.

REFERENCES

AMARATUNGA (T.) and DURWARD (R.D.), 1979.- Standardization of Data Collection for the short-finned Squid (Illex illecebrosus).- ICNAF Sel. Papers, n° 5 : 37-41.

DUPOUY (H.) and MINET (J.P.), 1982.- Catch, Effort and Biological Characteristics of Squid (Illex illecebrosus) in the French Inshore Fishery (Subdiv. 3 Ps), in 1981.- NAFO SCR Doc. 82/VI/119

Table 1. Catch (m. tons) and CPUE data from French (Saint-Pierre) Illex inshore fishery.

Month	1979 (1)	1980 (2)	1981 (2)	1982 (2)
June	32	0	1	0
July	283	86	208	34
August	918	225	104	0
September	612	1 317	1	0
October	0	257	0	0
Total	1 845	1 885	314	34
CPUE (t/dory)	36.9	37.7	6.28	0.81

(1) Landing restricted after July 23 and stopped after September 26.

(2) Landing not restricted.

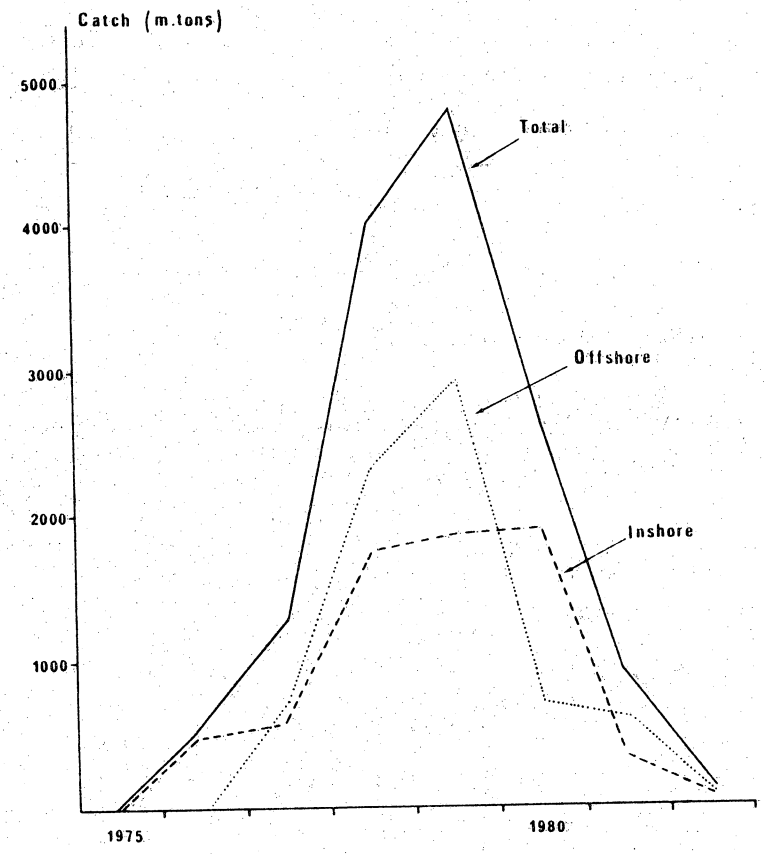

Figure 1.- Evolution of French inshore and offshore catches of squid Illex, 1976-1982.

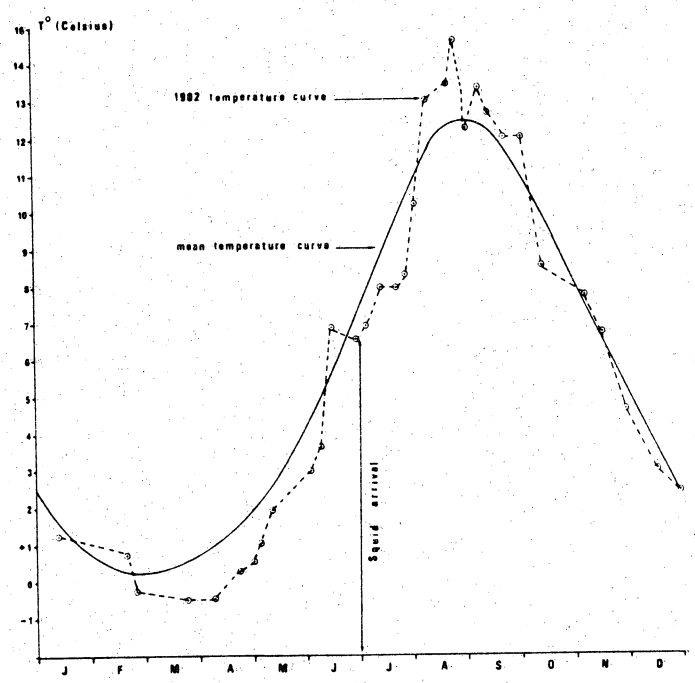

Figure 2.- Evolution of water temperature in St Pierre entrance (10 m depth) in 1982.

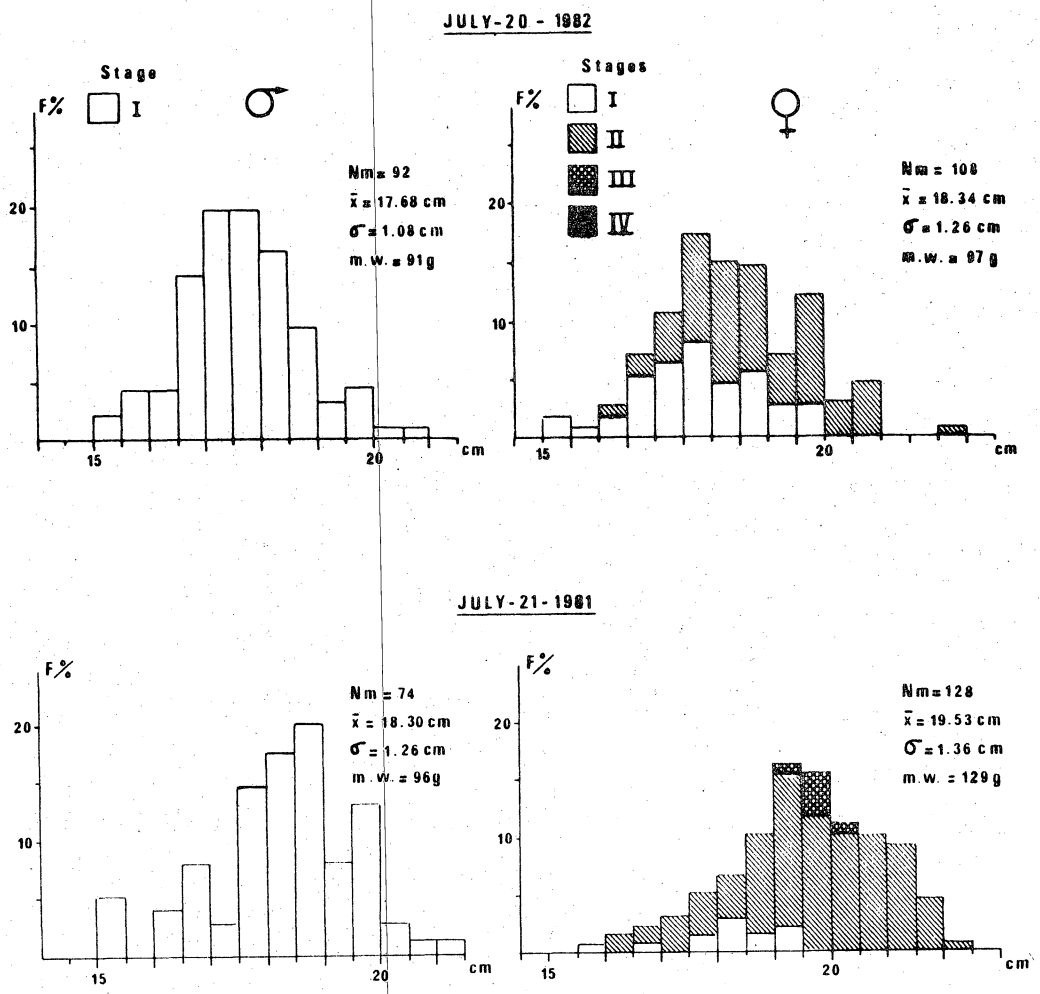

Figure 3.- Size distributions per sex and maturity stages of squid sampled in inshore waters (Subdiv. 3 Ps) in July 1981 and 1982.

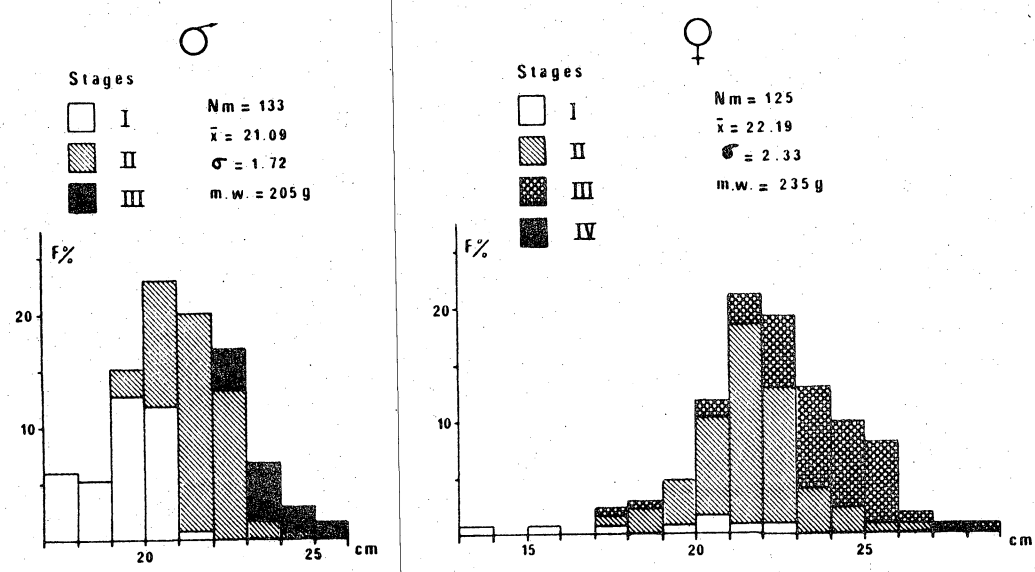

Figure 4.- Size distributions per sex and maturity stages of squid samples in offshore waters (Subdiv. 3 Ps) in October 1982.