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SOME ASPECTS ON BIOLOGY OF NORWAY LOBSTER (Nephrops norvegicus)
FROM THE CATALAN AREA

BY

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INTRODUCTION

Information on the biology of the Norway lobster in the Western Mediterranean is very limited, however, some data of the relative importance on the biology were give by F. BUEN (1916) and VIVES and SUAU (1963), with detail on size composition and sex ratio in the continental shelf of Castellón (N.E. of Spain).

This paper presents new data of Nephrops norvegicus on size distribution, sex ratio and frequency of moulting as a preliminary results of a more important work dealing with physiological aspects of the moult.

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MATERIAL AND METHODS

Samples were obtained from the commercial catches by the fishing boats in the Barcelona area (N.E. of Spain). Fishing operations for this purposes were carried out at 200 fathoms depth.

The samples cover the period from January to October 1974. There is a lack of data for specimens longer than 18 cm., this being the consequence the commercial procedence of samples.

Each one of the specimens was sized total length to the nearest 0.5 cm. measured from the tip of the rostrum to the hinder edge of the telson.

The sexual development in females was classified by dissection of the animal into six diferents stages acording to Farmer (1974)

The moult were reconized by the presence of the gastroliths and his very soft condition of his caparace.

RESULTS

1.- Size-Frequency distribution.

The size frequency histograms for the samples are represented in fig. 1; for both females and males toghether, and summarized in table I.

There are not diferences in the mean size of the females and males. The mean size is 9.7 cm.; the usual size is comprised between 8 and 11 cm. with a peak at the 10 cm.

The variations on the females and males caught are shown in fig. 2. The percentage of the females is more elevated in spring time , this period being in relation with the reproductive time.

2.- Reproduction

Norway lobster shows significative variations in its breeding cycle. Figlioredo and Thomas (1966) found considerable differences in the size of first maturity in females, the spawning frequency and the incubation period.

The maturity period in the Catalan area begins on May and finish on July-August. The period of eggs-carried is during August, September and October.

The size at first maturity, in females, can be found nearly at 8 cm.(fig. 3), this figure shows us that the first who mature are the largest (May-June-July) and also that the smallest ones mature later (June-July-August).

3.- Moults

The percentage of moulting Norway lobsters in the monthly samples are shown in fig. 4. Probably there are associated with sampling error, because are too small and very separatees in the time.

An increase in the percentage of the moulting specimens was observed in both sexes from June to July. Males show two peaks of moulting activity (January-February and June-July) as in the females but with different intensity: the peak in June-July is stronger in males than in females and the peak of January-February is more attenuated.

SUMMARY AND CONCLUSIONS

This paper presents new data of Nephrops norvegicus, in the N.E of Spain (1974), on size distribution, sex ratio and frequency of moulting of a more important work dealing with physiological aspects of the moult.

The conclusions obtained in this study can be summarized as follows:

1.- The mean size of the population of Norway lobster in the Catalan area, was of 9'7 cm. The usual size is comprised between 8 and 11 cm. with a peak in the 10 cm.

2.- The percentage of the females ,in the catches, is more elevated, that of the males, in spring time.

3.- The reproductive period extends from May to August and the eggs-carried period from August to October.

4.- The females sizes at the time of the first maturity is about 8 cm. This females mature later that the largest females.

5.- Two moulting periods were observed: one from January to February, for females, and other from June to August, for males.

RÉSUMÉ ET CONCLUSIONS

Cette note présente nouvelle information de Nephrops norvegicus dans le N.E. de Espagne (1974), en ce qui concerne la distribution des tailles, sex ratio et périodicité des mues, comme résultats préliminaires d'un travail plus important qui comprendra des aspects physiologiques de la mue.

De cet étude on peut entirer les conclusions suivantes:

1.- La taille moyenne de la population de Nephrops norvegicus dans la côte Catalane a été de 9'7 cm. Les tailles les plus abondants son comprises entre 8 et 11 cm., avec un maximum autour de 10 cm.

2.- Le pourcentage des femelles est supérieur à celui des mâles pendant le printemps.

3.- La période de reproduction est comprise entre Mai et Août et les femelles portent des œufs sur les pléopodes jusqu'à Octobre

4.- La taille à la première maturation sexuelle pour les femelles est à peu près sur les 8 cm. Les petites femelles commencent sa maturation un peu plus tard que les grandes femelles.

5.- La période de mue présente deux maximums: le premier en Janvier-Février, pour femelles, et le second dès Juin à Août pour mâles.

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Months	Total number	♂%	♀%	mean size ♂	mean size ♀	♀/♂	♀ > 8 cm.	% ♀ matures	% ♀ carry-eggs
January	155	49'6	50'3	9'18	11'28	1'01	47	4'2	6'3
February	83	65'0	34'9	11'94	9'25	0'53	12	-	-
April	95	34'7	65'2	9'51	10'12	1'87	59	5'1	-
May	135	46'6	53'3	9'69	10'40	1'14	50	82'0	-
June	103	47'5	52'4	9'29	9'91	1'10	49	91'8	-
July	230	43'9	56'0	9'37	9'20	1'27	93	84'9	-
August	158	63'2	36'7	10'02	9'06	0'58	39	30'7	20'5
September	91	64'8	35'1	9'16	8'98	0'54	22	-	36'3
October	197	55'3	44'6	10'08	9'07	0'80	60	-	15'0

TABLE I .- Size frequency, mean size, sex ratio and mature and carry-eggs females.

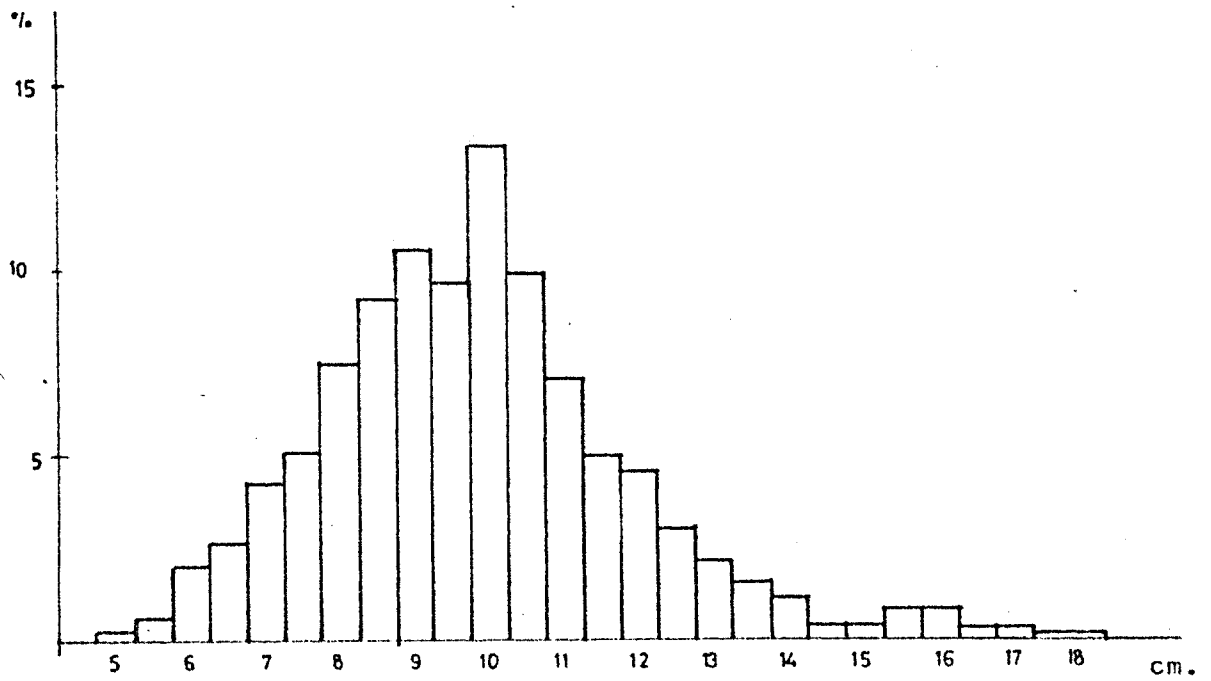


Fig. 1 - Size frequency for females and males together (0,5 cm).

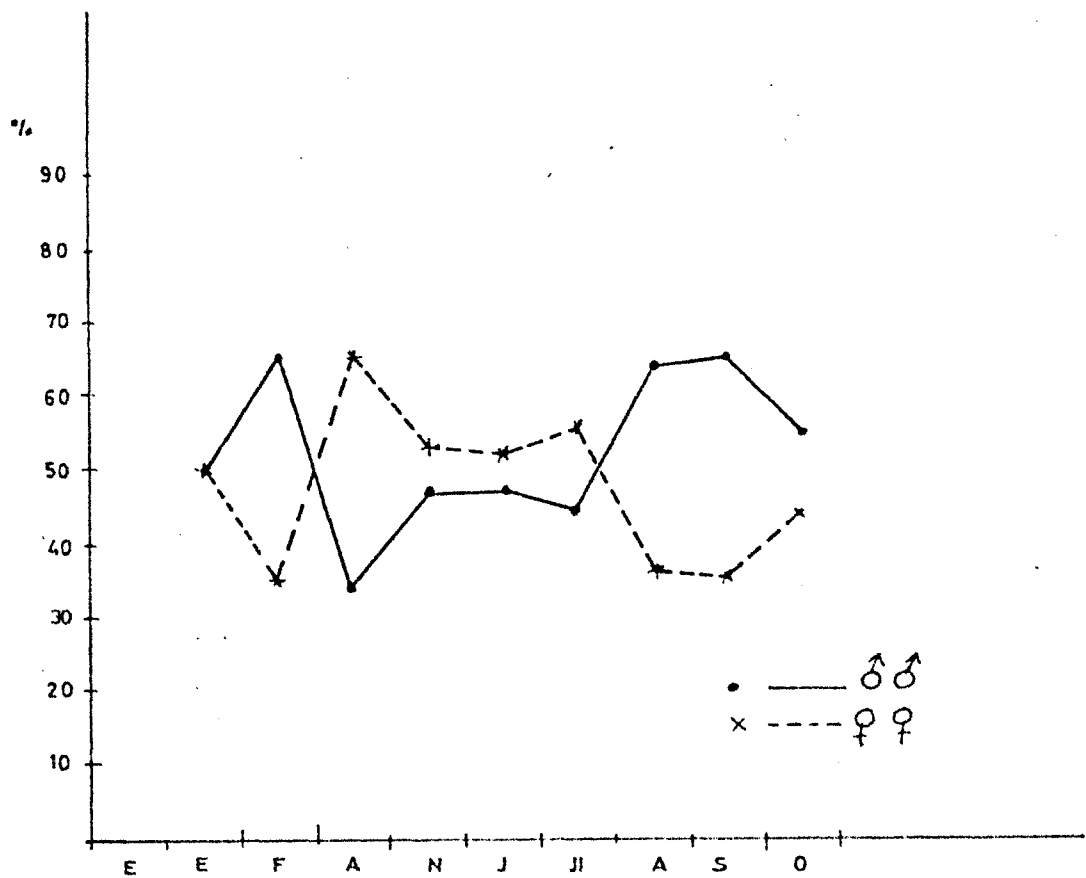


Fig. 2 - Variations on the females and males in the catches.

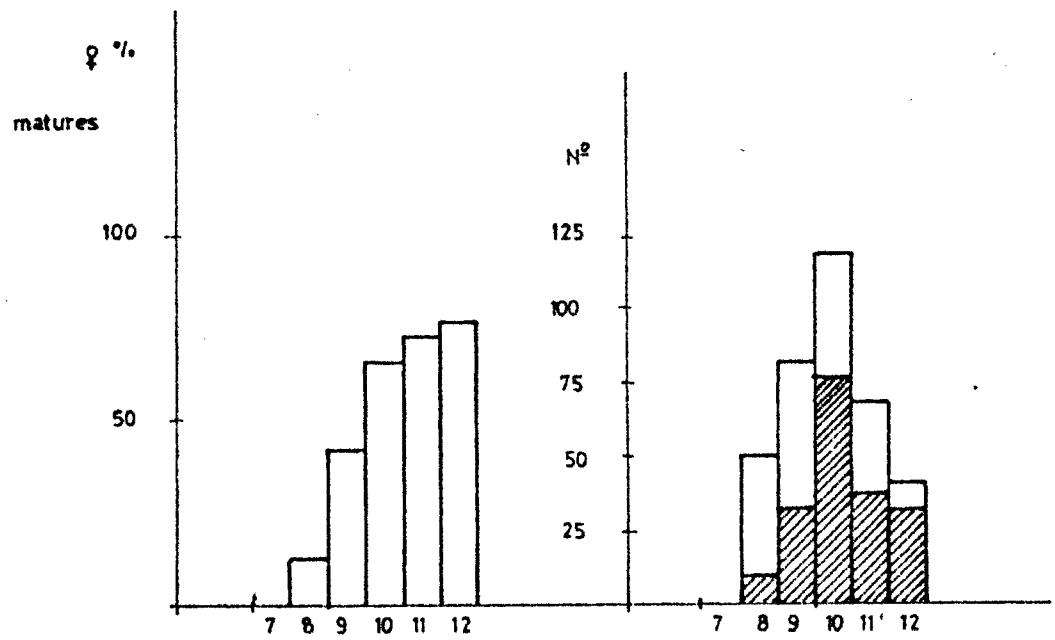
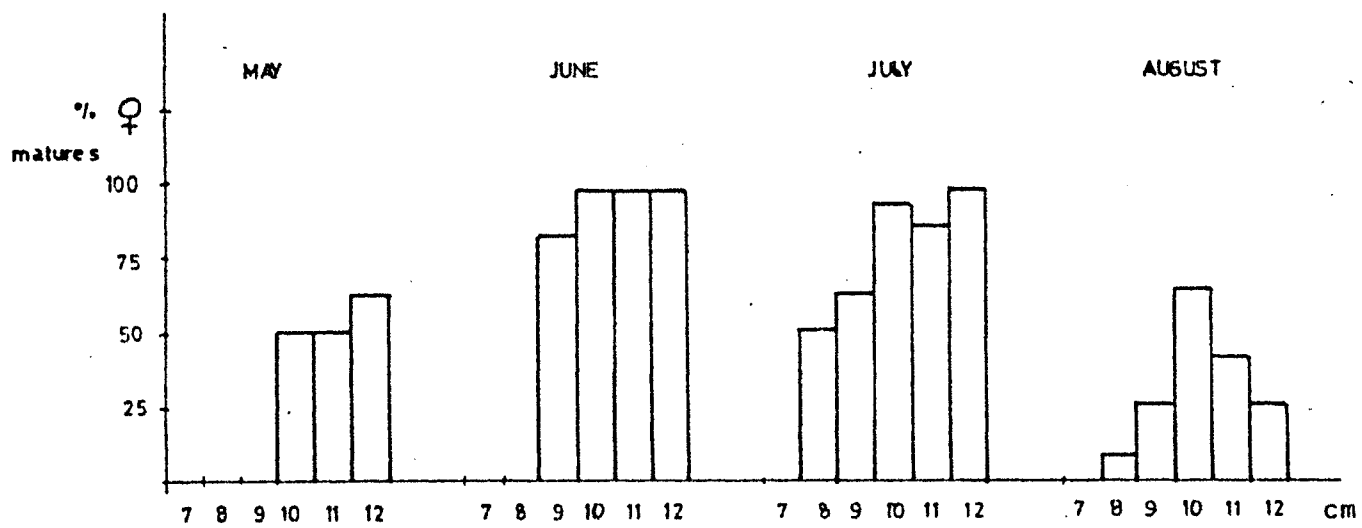


Fig. 3 - Above: Percentage of berried females during the reproductive period. Below: Total mature females.

□ total females ▨ total mature females

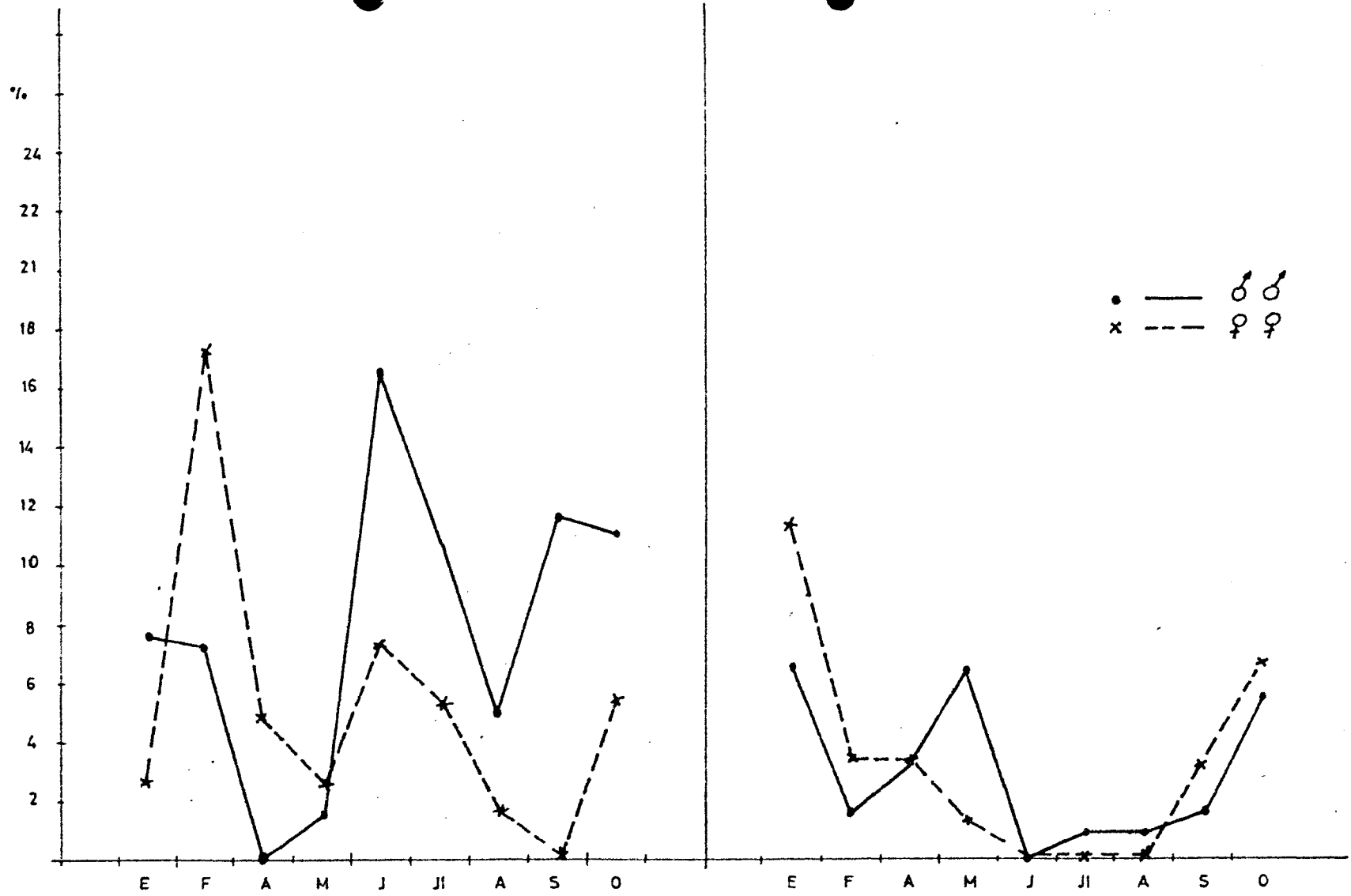


Fig. 4 - Percentage specimens with gastroliths.

Percentage specimens with soft caparace.