

OBSERVATIONS ON THE ANNUAL CYCLE (YEAR 1990) OF VARIOUS GROUPS OF ZOOPLANKTON OF THE SW OF TENERIFE (CANARY ISLANDS).

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With 2 figures and 4 tables

RESUMEN: En el presente trabajo se realizan una serie de observaciones sobre algunos grupos del zooplancton (cladóceros, ctenóforos, medusas, poliquetos, taliáceos y larvas), recolectados en el curso de la campaña TFMCBM/90 (isla de Tenerife), llevada a cabo a lo largo del año 1990 al SW de dicha isla. Las variaciones de estos organismos, a lo largo de los meses de muestreo, se presentan.

ABSTRACT: In the present study a series of observations were made on various groups of zooplankton (cladocera, ctenophora, medusae, polychaeta, tunicates and larvae), collected during the course of the TFMCBM/90 cruise (Tenerife), carried out in 1990 on the SW part of this island. Here, we present the variations found in these organisms over the months of the sampling.

Key words: Atlantic ocean, Canary Islands, Tenerife, zooplankton, annual cycle.

INTRODUCTION

Following the investigations of the Museum of Natural History on the coastal plankton of the Canary Islands, in this study results are shown with respect to the TFMCBM/90 project (island of Tenerife), carried out monthly on the SW part of this island during the year 1990.

In a previous study HERNANDEZ *et al.* (1991) a preliminary list of zooplankton appears as well as new records of Canarian plankton, according to LOZANO *et al.* (1988) and LOZANO and HERNANDEZ, P. (in publication).

MATERIAL AND METHODS

The study material comes from the twenty three hauls of plankton, collected on the SW part of Tenerife, specifically near Los Cristianos at the stations

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TFMCBM0002 and TFMCBM0003 with the following coordinates:

station TFMCBM0002: 28° 01' 06"N
16° 44' 18"W

station TFMCBM0003: 28° 01' 06"N
16° 45' 18"W

and located between isobaths of 500 and 2000 meters on rocky bottom (see figure 1 and table 1).

These samples were collected at the rate of two hauls per month (from 200 and 500 meters in depth up to the surface), with the exception of February, when an additional haul was collected at 1000 meters.

The plankton-net used was a WP-2 200 μ light-mesh. The samples were fixed with 5% formaline on board the boat.

In the laboratory the samples were sorted, counted, and determined taxonomically according to the studies of BLEEKER and VAN DER SPOEL (1988), BOLTOVSKOY (1981), GREEVE (1975) and RAMPAL (1973).

RESULTS

CLADOCERA

A total of 196 specimens were examined of all the samples, with two species being found: *Evadne spinifera* MÜLLER, 1868 (considered to be stenohaline and thermophile and present both on the surface as well as at greater depths) and *Evadne tergestina* (CLAUS, 1862), associated with summer plankton. No samples of the *Penilia avirostris* DANA, 1849 were found.

E. spinifera, in our study, appeared only at the beginning of the month of April, reaching a maximum number of specimens in the months of June and July. It was precisely in the latter month that it coexisted with *E. tergestina* (the only time of the year that this species was detected).

The minimum number of specimens were observed at the end of the year, with a total absence in the first few months, data according to MINGORANCE (1987). (See table 2).

CTENOPHORA

The two species of this group found were the young of *Beroe cucumis* FABRICIUS, 1780 and *Pleurobrachia pileus* (O.F. MÜLLER, 1766). Their presence in

the samples, although in small quantities, was detected in August (two specimens of *B. cucumis* at the surface) and in September (four specimens of *P. pileus*, two of which at the surface and the other two at greater depths).

MEDUSAE

Of the medusae found in this study the most notable, among the hydromedusae through all the months of the study, was *Aglantha digitale* (O.F. MÜLLER, 1766). This has been the most commonly found hydromedusae of the hauls taken, being particularly abundant in the month of January (see table 3).

This increase in surface specimens might be due to inflows of water. It was precisely in the month of January that up to 127 per 100 m³ were counted.

According to GOY *et al.* (1989), some small medusae can be found in high densities. This temporary increase can be explained by a change in its trophic or physical development. Certain modifications in environmental parameters might cause seasonal emissions of medusae in the plankton, such as, for example: increases in temperatures, decreases in salinity, variations in light intensity, phases of the moon, etc. Also, other conditions play an important role in the appearance of high concentrations of these organisms, such as the case of thermoclines, currents or sudden increases in secondary production.

Other hydromedusae collected were *Rhopalonema velatum* GENGEBAUR, 1856, *Crossota* sp. and *Pantochogon* sp. which like *A. digitale* belong to the Rhopalonematidae family. As for the scyphomedusae, we can only note the presence of one specimen of *Pelagia noctiluca* (FORSKÅL, 1775) found on the surface in the month of July.

POLYCHAETA

A total of 221 specimens of polychaeta were examined, finding 31 species belonging to five different families (HERNANDEZ *et al.* op. cit.).

The maximum number of specimens were taken in January and March, with the minimum number corresponding to November (see figure 2).

According to the abundance coefficient that has been calculated (see table 4) (MAIDANA and MOSTAJO, 1980), *Tomopteris elegans* CHUN, 1888, *Sagitella kowalewskii* WAGNER, 1872 and *Krohnia lepidota* (KROHN, 1845) appear regularly in the samples, and are also those which appear in the samples in the greatest numbers. *Maupasia gracilis* (REIBISCH), *Plotohelmis tenuis* (APSTEIN, 1900) and *Tomopteris nissenii* ROSA, 1908 seem to live at greater depths and they are the fewest in number.

THALIACEA

As for this group, both salps and doliolids appear regularly in all the months, although an increase was actually observed with respect to the *Salpa maxima* FORSKÅL, 1775, in August (240 specimens/sample). Only in the month of August two colonies of Pyrosomidae were collected.

DISCUSSION

Various groups of zooplankton from the SW of Tenerife were studied during 1990.

Cladocera were not present in all the months of sampling, they only appeared in the month of April, similar to the ctenophores which were only present in the months of August and September.

Aglantha digitale is the most common hydromedusa of the samples taken, being, according to our study, especially abundant in January.

Of the polychaeta we should note the *Tomopteris elegans* for its abundance, as well as *Maupasia gracilis*, *Plotohelmis tenuis* and *T. nisseni* for their scarcity (perhaps due to their preference for living at greater depths).

Thaliacea appear regularly, with *Salpa maxima* (salpidae) being especially abundant in August as well as one of the most notable species of the samples.

We should also mention the larval conditions observed in the samples, specifically the presence of numerous larvae of *Ceriantharia* (in different stages of development), appearing in the month of August at a rate of 30 specimens/sampling (surface); of paguridea in the month of October (38 specimens/surface sampling), as well as numerous larvae of cephalopods in the month of August.

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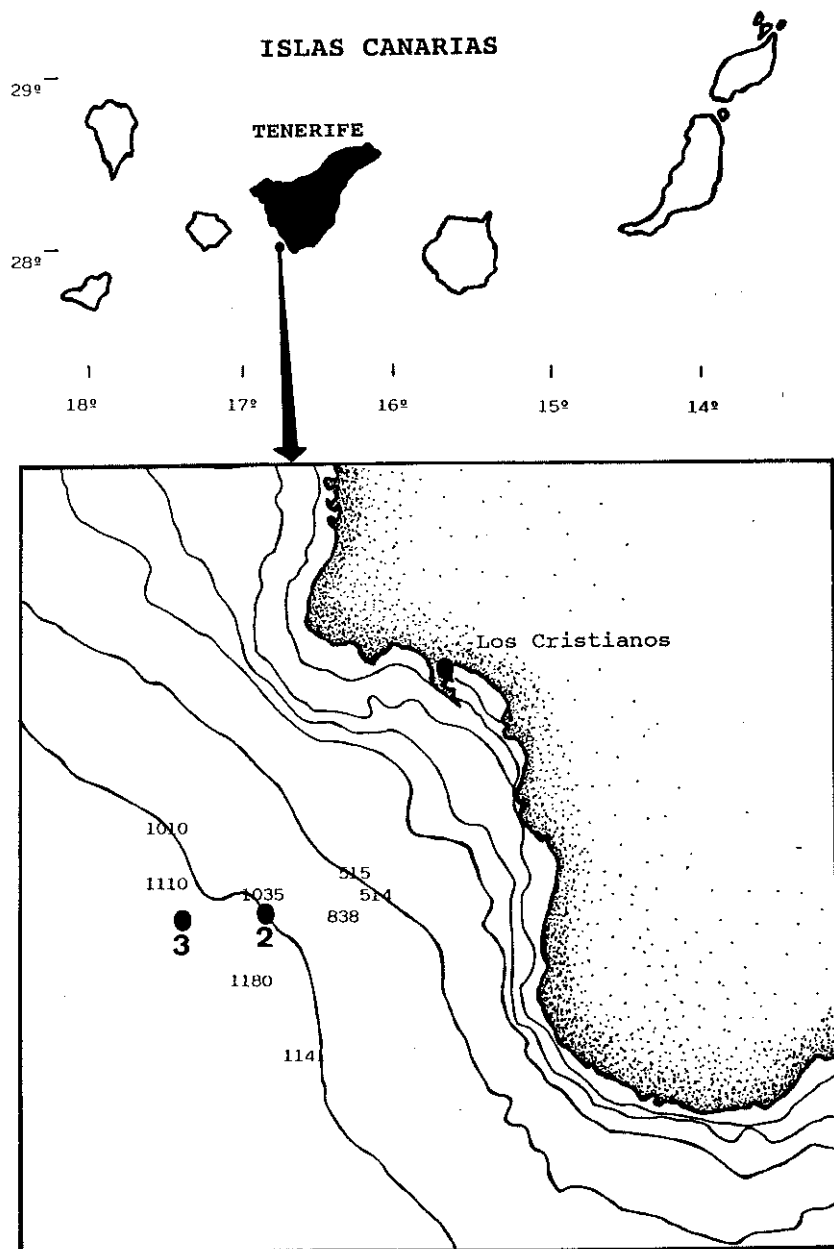


Figure 1.-Location of the sampling station in the Canary islands.

MONTH	SAMPLE	DATE	SEA	SKY	WIND STRENGTH	WIND DIRECTION	TEMPERATURE AT.
JANUARY	A,B	25/1/90	Plain	Clear	Weak	NE	25° C
FEBRUARY	A,B,C	21/1/90	Ridged	Clear	Weak	NE	27° C
MARCH	A,B	8/3/90	Plain	Cloudy	Slight	N	25° C
APRIL	A,B	4/4/90	Rough	Overcast	Moderate	SW	17° C
MAY	A,B	9/5/90	Rough	Cloudy	Moderate	NW	20° C
JUNE	A,B	7/6/90	Plain	Cloudy	Calm		24° C
JULY	A,B	10/7/90	Plain	Clear	Calm		26-27° C
AUGUST	A,B	30/8/90	Plain	Clear	Breeze	Variable	25° C
SEPTEMBER	A,B	4/9/90	Plain	Cloudy	Calm		24° C
OCTOBER	A,B	23/10/90	Plain	Cloudy	Moderate	NE	24° C
NOVEMBER	A,B	15/11/90	Plain	Clear	Calm		27° C

Table 1.- Characteristics of the sample station in this study.

SPECIES SAMPLE	<i>Evadne spinifera</i>		<i>Evadne tergestina</i>	
	A	B	A	B
1A				
1B				
2A				
2B				
3A				
3B				
4A	12	25,53		
4B	47			
5A	8	17,02		
5B				
6A	22	46,80		
6B	33			
7A	14	29,78	12	25,53
7B	11		1	
8A	5	10,63		
8B	5			
9A	4	8,51		
9B	3			
10A	6	12,76		
10B	4			
11A	4	8,51		
11B	5			

Table 2.- Cladocera observed in this study. A) number of specimens/samples. B) density (specimens/m³ x 100) at surface depth.

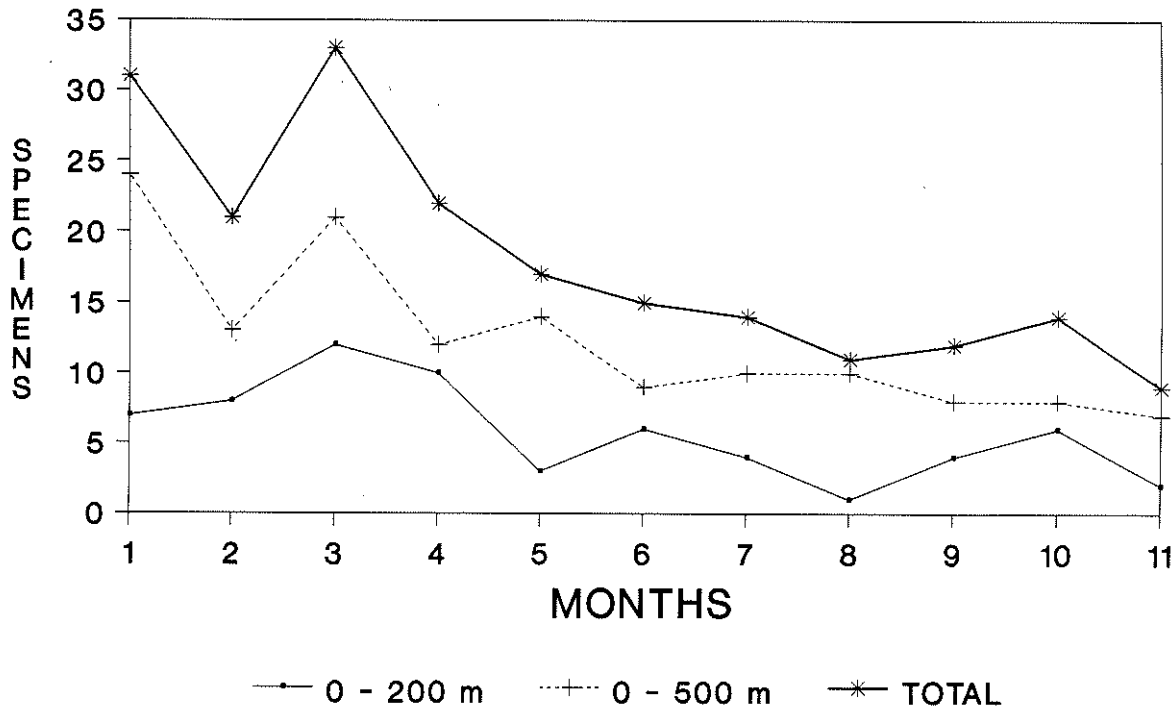


Figure 2. - Monthly variation of polychaeta during the TFMCBM/90 cruise.

	Nº specimens/sample	Specimens/100m ³
JANUARY	60 *	127 *
FEBRUARY	7	14
MARCH	4	8
APRIL	10	21
MAY	5	10
JUNE	7	14
JULY	4	8
AUGUST	4	8
SEPTEMBER	7	14
OCTOBER	4	8
NOVEMBER	8	17

Table 3.- Monthly variation of *Aglantha digitale* at surface depth.

	Nº SPECIMENS	%	COEFFICIENT
<i>Tomopteris elegans</i>	40	18.09	Abundant
<i>Sagitella kowalevskii</i>	28	12.66	Abundant
<i>Krohnia lepidota</i>	20	9.04	Abundant
<i>Tomopteris planktonis</i>	20	9.04	Abundant
<i>Typhloscolex muelleri</i>	17	7.69	Frequent
<i>Pelagobia longicirrata</i>	16	7.23	Frequent
<i>Rhynchonereella petersii</i>	10	4.52	Frequent
<i>Maupasia coeca</i>	8	3.61	Scarce
<i>Tomopteris septentrionalis</i>	8	3.61	Scarce
<i>Vanadis minuta</i>	7	3.16	Scarce
<i>Tomopteris cavallii</i>	7	3.16	Scarce
<i>Iospilus phalacroides</i>	6	2.71	Scarce
<i>Lopadorrhynchus henseni</i>	5	2.26	Scarce
<i>Rhynchonereella moebii</i>	5	2.26	Scarce
<i>Pedinosoma curtum</i>	2	0.90	Rare
<i>Alciopina parasitica</i>	2	0.90	Rare
<i>Alciopa reynaudii</i>	2	0.90	Rare
<i>Plotohelms tenuis</i>	2	0.90	Rare
<i>Rhynchonereella gracilis</i>	2	0.90	Rare
<i>Vanadis cuptallina</i>	2	0.90	Rare
<i>Travisioopsis dubia</i>	2	0.90	Rare
<i>Travisioopsis lanceolata</i>	1	0.45	Rare
<i>Phalacrophorus pictus</i>	1	0.45	Rare
<i>Tomopteris euchaeta</i>	1	0.45	Rare
<i>Tomopteris nissenii</i>	1	0.45	Rare
<i>Tomopteris nationalis</i>	1	0.45	Rare
<i>Tomopteris ligulata</i>	1	0.45	Rare
<i>Tomopteris duccii</i>	1	0.45	Rare
<i>Naiades cantrainii</i>	1	0.45	Rare
<i>Lopadorrhynchus krohnii</i>	1	0.45	Rare
<i>Maupasia gracilis</i>	1	0.45	Rare

Table 4.- Abundance coefficient of polychaeta in the present study.

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