INTERANNUAL VARIATION (2003-2008) OF CALYCOPHORAN SIPHONOPHORES IN THE BAY OF CALVI (CORSICA)

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Abstract
The interannual variation of the calycophoran siphonophores was investigated in the Bay of Calvi (Corsica) from 2003 to 2008. The dominant species, *Chelophyes appendiculata* was present throughout the year, with a maximum of reproduction during the summer. Large variations of abundance occur from year to year.
The study of the developmental stages along the year allows us to establish its life cycle, which seems to be correlated with the temperature and mesozooplancton abundance. The cycle takes place each year with a similar seasonal pattern throughout all the study. Other species as *Abylopsis tetragona, Lensia* sp., were also present in lower abundance.
Keywords: Zooplankton , Medusae, Western Mediterranean

Calycophoran siphonophores are widely distributed in the seas all over the world and are planktonic carnivorous predators which could have a major impact on the structure and dynamics of the zooplankton. They may represent up to 20 % of the zooplankton biomass. Copepods are their principal types of prey [1]. *Chelophyes appendiculata* represents the most common species of calycophoran living in the upper layers and is very dominant throughout the northwestern Mediterranean, especially in the area of Ligurian divergence [2] [3]. That species seems to be less abundant or absent in Gibraltar Straight, Alboran sea, in the South Western Mediterranean [1], in the Thyrenean Sea [4] and in the Gulf of Tigulio [5] [6] and finally in the Adriatic where *Muggieae* sp. or *Lensia* sp. are dominant.
A weekly time series of wp2 zooplankton horizontal sampling were carried out at 5 m depth in the Bay of Calvi from 2003 to 2008. The calycophoran siphonophores species have been counted and identified up to the developmental stage according to taxonomic criteria from Bouillon *et al.* [7] and Patriti [8].
In Calvi, the dominant species, *Chelophyes appendiculata* (Eschscholtz, 1829) was present throughout the year, with a maximum of reproduction during the summer. The different developmental stages (nectophores - asexual stage and the eudoxids - sexual stage) appear and follow each other during all the year.
Nectophores are present all the year with a mean density of 12.2 ind/100m³ but are less abundant in winter. Two peaks of abundance were observed one in spring and a larger in autumn. They were dominant in 2006 with a maximal value starting in July (647 ind/100m³).

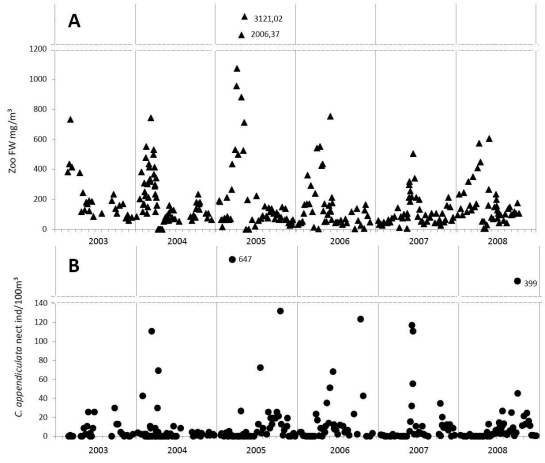

Fig. 1. Interannual variation of zooplancton fresh weight (A) and *C.appendiculata* necotophores (B) in the Bay of Calvi from 2003 to 2008

Eudoxids were less abundant during the winter and maxima occurred from the beginning of spring to the end of summer. The mean density was 0.74 ind/100m³. The highest abundance was noted in the beginning of June (64 ind/100m³).
The early larval stages coming from the sexual reproduction appeared only in a short time during summer.
These results agree with previous investigations made in the northwestern Mediterranean basin concerning the presence and temporal variation of *C. appendiculata* in Villefranche sur Mer [3]. The breading reproduction occurs in summer. The main difference between these studies is that *C. appendiculata*, in Calvi, occurs in larger abundance throughout the year.
This species is a species characteristic of the central waters of the Ligurian divergence [1] and its dominance in Calvi could be explained by the strong influence of offshore waters input Corsican occidental coast [9].
The comparison of the abundance of nectophores of *Chelophyes appendiculata* with the mesozooplankton biomass (fresh weight /m³) shows a good correlation (Fig.1). We have noted that the maximum values of abundances in 2006 and 2008 correspond to years when invasions of *Pelagia noctiluca* were important.
Abylopsis tetragona, was less abundant than *Cheophyes appendiculata* and only the nectophores were counted. This species occurred throughout the year (mean: 1.87 ind/100m³) but was less abundant during winter. The maximum of abundance was observed in May 2004 (27 ind/100m³).
More than other plankton species, siphonophores present variability in composition in different regions of the Mediterranean probably due to local hydroclimatic conditions. Actual data aren't enough to explain these variations. A integrate study of the calycophoran diversity and its variability should be carry out between the different laboratories.

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