EXPLORING A MEDITERRANEAN MESOZOOPLANKTON 13 YEAR TIME-SERIES

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Introduction

- Zooplankton: is abundant, world-wide spread and highly diverse; ensures vital ecosystem roles in food webs, organic carbon flux and microbial communities; represents bio-indicators of climate change.
- Long time series are crucial to understand long-term changes of the ecosystem.
- This study was conducted in the framework of the STARECAPMED program.

Materials and Method

- Sampling was carried out in the Calvi Bay (Corsica, France), NW of the Mediterranean Sea (Fig. 1). Sub-surface samples were collected bimonthly from 2004 to 2016, using a WP2 net (200 μm) and preserved in formaldehyde.
- In addition, 10 variables (physical, biological and chemical) were registered.
- Zooplankton data were obtained through digital imaging and automatic classification (Fig. 2) using the Zoo/PhytoImage software and a high resolution scanner (Fig. 3).

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Perspectives

With the complete series (13 full years) we will be able to:
- identify seasonal or annual patterns and trends of the mesozooplankton community over the last 13 years,
- identify correlations with environmental variables,
- identify interactions between plankton components (cascade events),
- check whether the size spectra is shifting with climate changes.

Final results are still to come, we’ll be back...

Fig. 1: Sampling area location

Fig. 2: Data acquisition workflow

Fig. 3: Examples of acquired plankton images

Fig. 4: Partial analysis of the plankton series (five years). Temporal evolution of water temperature and the abundance of a few taxonomical plankton groups. Interannual differences are already observable.

Preliminary results

- Strong interannual variations.
- Contrasting results regarding the relationship between water temperature and plankton abundances.
- Chaetognaths positive anomalies coincide with positive anomalies of copepods abundances.
- Salps show sporadic swarms and coincide with warmer water temperatures.