

Zooplankton distribution and water masses influence
in the Ibiza Channel (Balears Islands)

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A qualitative and quantitative study has been made on the spatial distribution of the zooplankton community associated with the special hydrographic characteristics in the area between the Iberian Peninsula and Ibiza Island.

Two oceanographic surveys were carried out, each of six days duration, the first in November 1990 and the second in March 1991. Twelve hydrographic and biological stations with 10 miles apart were established. The zooplanktonic samples were collected by oblique tows from a 100 m depth to the surface, using 20 cm O Bongo nets, equipped with a 250 μ m mesh and a General Oceanic flowmeter.

In both months the distribution of zooplankton observed, biomass and structure, was totally different and in accordance with the hydrographic conditions found in the area (2).

The November survey with 2.25 ± 0.48 mg D.W./ m^3 (72% O.M.) and 178 ± 18 ind/ m^3 (70% copepods) indicates the influence of the cyclonic eddy in the center of the channel on the zooplankton communities by dispersing the layer organisms towards the edge while the smaller individuals remain accumulated in the centre of the channel (Fig. 1).

In the March survey, the situation was not so clearly defined because of the flows of the cyclonic and anticyclonic eddies that appeared along the NE-SW axes of the work area (op.cit.); nevertheless the higher zooplanktonic biomass observed was along that direction, especially in the SW of the channel. In this occasion, the biomass average was 8.72 ± 2.48 mg D.W./ m^3 (57% O.M.) with 398 ± 85 ind/ m^3 (78% copepods). The biggest organisms present in the community studied, (siphonophores, salpids or appendicularians) were mostly found in the edge of the area analyzed, and close to the anticyclonic eddy (Fig. 2).

Summing up, we can assume that in both cases the mesoscale studies allow us to observe the complexity of the hydrodynamics of the water, and its high stationnal variability. Although we do not know much about the persistence of the phenomenon, the presence of the fronts and eddies act as fertility mechanisms (1) where the zooplankton reveals the amplifying character of the physical processes in the area.

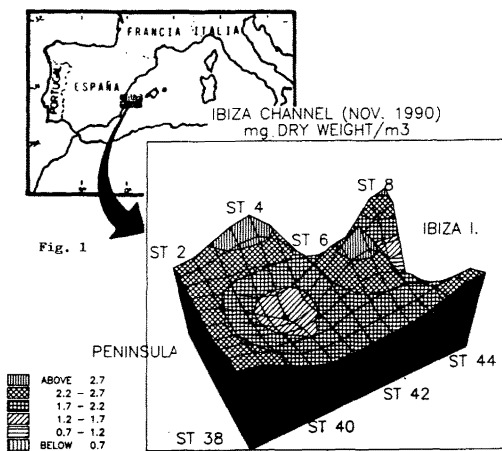


Fig. 1

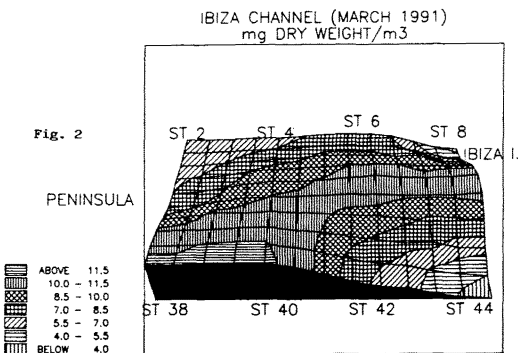


Fig. 2

Fig. 1: Zooplankton distribution (as biomass) in Nov. 1990.

Fig. 2: Zooplankton distribution (as biomass) in March 1991.

REFERENCES

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