

**Polychaetes of the leaf stratum of a *Posidonia oceanica* bed :
spatial and seasonal analyses**

Maria Cristina GAMBÌ* and Pasquale LANERA**

*Laboratorio di Ecologia del Benthos, Stazione Zoologica "Anton Dohrn",
NAPOLI (Italy)

**Bioservice Soc. Coop. a r.l., NAPOLI (Italy)

In the framework of an investigation on vagile fauna of *Posidonia oceanica* beds (GAMBÌ *et al.*, 1992), Polychaetes were sampled in the leaf stratum of a continuous *Posidonia* meadow off Lacco Ameno (Island of Ischia, Gulf of Naples, Italy). Samples were taken by SCUBA diving using a hand-towed net (400 µm mesh size); this sampling tool allows the capture of different benthic vagile taxa of the *Posidonia* canopy, although it is not very efficient for Polychaetes (GAMBÌ *et al.*, in press). Collections were made monthly, from July 1981 to June 1982, along a transect at 1 m, 3 m, 10 m, 15 m and 25 m depths. Each sample consisted in two hand-towed net replicates.

Polychaetes were found in 53 of the 60 samples examined, for a total of 1,811 individuals and 135 species. 38 taxa occurred only once with one individual, while 27 taxa (445 individuals) belonged to sessile, tubicolous forms that will be not considered in the following analysis. The best represented family was that of Syllidae (55 species and 865 individuals). The total number of species and individuals in the different months showed similar trends with two peaks in February-March and from September to November and two minima in July-August and in December-January (Fig. 1). To better define the spatio-temporal distribution pattern of the species, monthly data were grouped in four seasonal groups (summer, autumn, winter and spring) and analyzed by means of the Factorial Analysis of Correspondence (C.A.)

Along the first factorial axis (F1), that was significant, sample points were distributed according to depth (Fig. 2). The highest depth differences were observed in summer and spring. This is because in these seasons several physical conditions (e.g. summer temperature stratification) coupled with *Posidonia* features (leaf growth and plant epiphyte production) enhance the environmental differences between shallow and deep stands of the *Posidonia* beds, thereby resulting in more pronounced differences in the Polychaete populations associated. Seasonal differences in Polychaete community structure were higher between summer-spring and autumn-winter samples especially at shallower depths (from 1 to 10 m) where more fluctuating environmental conditions occur. On the contrary, these were almost negligible in the deepest samples (25 m) where the environment is more stable and less stressed.

The most abundant species, and those that best contribute to such a pattern were *Grubeosyllis clavata*, *G. limbata*, *Syllis prolifera*, *Autolytus sp.1*, *Platynereis dumerilii*, *Nereiphylla nana*, *Raphidrilus nemasoma* and *Oriopsis armandi*, characteristic of shallow depths, and more abundant in summer and spring. *Sphaerosyllis pirifera*, *Grubeosyllis vieitezi*, *Pionosyllis lamelligera*, were more frequent at intermediate depth (10 m), while *Eurisyllis tuberculata*, *Odontosyllis gibba*, *Exogone rostrata*, *Sphaerosyllis hystrix*, *Nereis rava* and *Kefersteina cirrata* characterized the deeper samples (15-25 m), especially in autumn and winter. *Amphiglena mediterranea* occurred, on the contrary, at all depths and in all seasons.

As a whole, two main Polychaete assemblages seem to be recognizable: one associated to shallow stands of the bed with higher seasonal fluctuations in species composition and abundance; another associated to the deeper, more stable stands of the bed with less changes in time.

With these general trends the spatial and seasonal distribution of Polychaetes in the *Posidonia* leaf stratum is consistent both with the environmental conditions of the bed and with the behaviour of the other groups of the vagile fauna studied (GAMBÌ *et al.*, 1992).

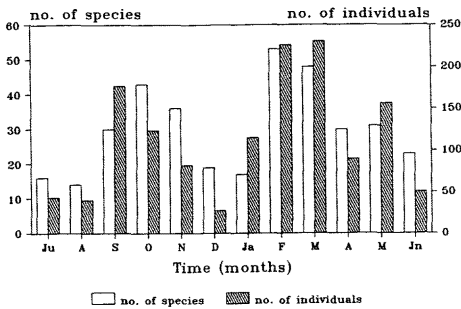


Fig. 1.- Monthly trends of the total number of species and individuals

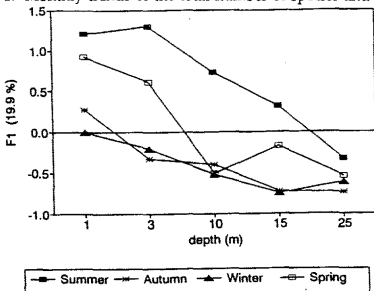


Fig. 2.- C.A. sample-point ordination along first factorial axis (F1)

REFERENCES

- GAMBÌ M.C., GIANGRANDE A., MARTINELLI M.R., CHESSA L.A., in press.- Polychaetes of a *Posidonia oceanica* bed off Sardinia (Italy): spatio-temporal distribution and feeding guild analysis. *Posidonia Newsletter*.
 GAMBÌ M.C., LORENTI M., RUSSO G.F., SCIPIONE M.B., ZUPO V., 1992.- Depth and seasonal distribution of some groups of the vagile fauna of the *Posidonia oceanica* leaf stratum : structural and trophic analyses. *P.S.Z.N.I. Marine Ecology*.

Project supported by European Community Commission (Environment project, ref. EV4V-0139B)