

RESEARCH IN PROGRESS ON *POSIDONIA OCEANICA* IN THE LIGURIAN SEA, WESTERN MEDITERRANEAN

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In recent years, *Posidonia oceanica* (L.) Delile has been extensively studied by many authors in several coastal regions of the Mediterranean (BOUDOURESQUE *et al.*, 1984; BOUDOURESQUE *et al.*, 1989). However, data on the distribution and phenology of the *posidonia* meadows are still fragmentary and little informing for large areas of this sea. Excluding some little meadows in the Gulf of Trieste and the not well investigated eastern coast of the Adriatic Sea, the Ligurian Sea is the northern distribution area of the seagrass. It is characterized by surface climatic conditions (temperature and salinity) which differ from the neighbouring Gulf of Lions (generally colder and more saline) and Tyrrhenian Sea (warmer during winter) (PICCO, 1990). Few and localized information on *Posidonia* meadows in the Ligurian Sea is available from literature: BIANCHI and PEIRANO (1990) supplied a complete and discussed bibliography; unfortunately this work, which is followed by a detailed mapping (scale 1:25.000) of the meadows of the whole Liguria province, has not been published. Other available mappings mainly refer to Portofino Promontory and Cinque Terre area on the east coast of Liguria, and to the region between Cogoleto and Loano on the west coast (BIANCHI *et al.*, 1987). Furthermore, most of the existing bibliography provide faunistic information, omitting data on phenology, morphology, upper and lower limit features, etc.

The research group "Development models of aquatic organisms" of the Comparative Anatomy Institute of the University of Genova, working from 1986 on growth strategies in marine invertebrates, engaged in investigations on *P. oceanica* as a support information on the ecosystem in which the selected target species lived. Given the lack of data, the first aim was to obtain detailed maps of the investigated meadows. A simple and fast acoustic technique has been developed to provide information also on the density of the prairie (WURTZ *et al.*, 1988). By this technique, density maps of Spotorno (8°26'E, 44°14' N), Cogoleto (8°39' E, 44°24' N), and Nervi (9°2' E, 44°23' N) meadows have been obtained (scale 1:10.000); in the same areas, permanent transects have been localized and described to set up an historical data base on the evolution of the meadows. While investigations on the morphology and the growth strategy of *Electra posidoniae* Gautier (Bryozoa, Cheilostomata) on *posidonia* leaves were carried on (MATRICARDI *et al.*, 1991), data on shoot density (40x40 cm quadrats), leaf number and measures (by age classes; GIRAUD, 1979), leaf base measure, apex condition, brown tissue extension and the index of epiphytism (MORRI, 1991) were collected on a seasonal sampling design and at different depths (0-30 m). According to GIRAUD (1977), preliminary data suggest to classify Nervi meadow as "Stade IV: herbier très clairsemé" (mean density: 216.7 shoots/m², 15 m depth), Prelo meadow (Portofino Promontory) as "Stade II: herbier dense" (mean density: 427 shoot/m², 5 m depth) and Spotorno meadow as "Stade II" (mean density: 181.5 shoots/m², 10 m depth); detailed data are still necessary to describe better shoot densities in the meadows. Statistical comparisons with similar data coming from other mediterranean regions will provide information on morphological differences related to environmental conditions. In the Spotorno and Nervi meadows, monthly investigations have been planned from 1994 to describe the leaf cycle of the plant, performing, by multivariate statistics, a better estimate of the mean dimensions of each leaf in the bundle during the year. More general information on the *Posidonia* ecosystem interactions are collected in the Spotorno meadow.

Some peculiar topics about *P. oceanica* biology have also been investigated. Flowerings have been observed at Cala dell'Oro (Portofino Promontory - 9°10' E, 44°19' N - 22 m depth, 1992) and Sori (9°7' E, 44°23' N - 4 m depth, 1993) (unpublished data). The phenology of a recent *Posidonia* settlement on hard substrate is monitored from 1992 at Cogoleto, in order to obtain information about the development of a prairie (DAVICO and MATRICARDI, 1995).

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