

FLOWERING IN POSIDONIA OCEANICA(L.) Delile PRAIRIES AROUND THE ISLAND OF ISCHIA (GULF OF NAPLES)

by

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Résumé : les floraisons dans les herbiers de *Posidonia oceanica* autour de l'île d'Ischia (golfe de Naples) ont été étudiées en plongée, spécialement les floraisons superficielle de 1979 et profonde de 1982. Tous les herbiers ont été concernés par ces floraisons. La floraison superficielle a été observée entre 0 et 6 m, tandis que la floraison profonde l'a été à partir de 20 m et jusqu'à 30 m. La floraison profonde a lieu à peu près un mois plus tard qu'en surface.

A complete review of flowering in Mediterranean waters is given by GIRAUD (1977) in his study on the phenology of *Posidonia oceanica*. The present paper reports the preliminary results of a survey on the flowering of *P. oceanica* prairies around the Island of Ischia. The first record of this phenomenon around Ischia was by GUSSONE (1831; see DEN HARTOG, 1970). No further reports appeared until 1975 (GIRAUD et al., 1979).

In spring of 1978 only one flower, which originated from the previous year, was observed in a deep (-15m) prairie off Lacco Ameno (CINELLI, pers. comm.). At the beginning of October, 1979 massive flowering was recorded for all shallow prairies off Ischia at depths of 1-6m (Fig. 1). At this time the flowers were not fertilized. Fruit was found already in early December. They were very abundant at 1 - 2m depth, but less at 4 - 6m. Already in January dead, small floating fruit was observed. Maximum maturity of fruit occurred in March, 1980.

Only a few flowers were found in autumn 1980 in the shallow prairie off Lacco Ameno. The surface water temperature in spring and summer 1979 was about 1-2°C higher than in 1980.

In January, 1982 flowering of deep prairies (Fig. 1) was discovered when the flowers were already in the state of fructification (MAZZELLA et al., in press). In the relatively sheltered Lacco Ameno prairie which extends from 1 to 30m depth, the phenomenon occurred in a well defined zone between 20 and 25m. The mean density of this prairie was estimated to 146 bundles/m² and

thus "semi-herbier" according GIRAUD's classification (1977). The prairie off La Nave, settled on rocky substratum, is much more exposed to wave action and forms irregular patches at 25-30m. Flowers were found only at 25-27m. The mean density of this prairie was 348 b/m² and thus " herbiers-clairsemés". The prairie off Punta S. Pancrazio is relatively exposed and extends from 10 to ≈35m depth. Only at 30m a few flowers occurred. The density (149 b/m²) of this prairie was very similar to that off Lacco Ameno. A comparison of the flowering of the three prairies in March 1982 showed that the highest density of flowers was found in the densest prairie (Tab.1).

During the first observations, in January 1982, the flowers which probably had appeared about one month earlier, were already fertilized. In the following months most of the fruit progressively decayed and full maturation was not reached. In April live fruit was found only in the prairie off Punta S. Pancrazio at a depth of 30m.

It is very interesting that some plants of *P. oceanica*, collected in September 1981 in the prairie off Lacco Ameno at a depth of 25m and planted into an aquarium at Vienna, produced flowers in January 1982, but no fruit was formed (OTT, pers. comm.). The extensive observations of the two flowerings (1979 shallow, 1982 deep) show a delay in time for this phenomenon in deep prairies. In fact , the first appearance of fructified flowers was recorded in November for the shallow prairies, and in January for the deeper locations. This seems to be correlated with the time delay of the vegetation period for leaf production in deeper stands.

As already pointed out by GIRAUD (1977), the flowering in *P. oceanica* is obviously not as rare as previously thought. In particular this is the second report of flowering at depths of 20-30m in the Mediterranean. Both reports refer to prairies around the Island of Ischia (GIRAUD et al.,1979).

TABLE n.1 Data on the flowering of deep prairies in March 1982.

Prairie	Depth in m	Bundles/m ²	Live flowers/m ²	
			Min.	Max.
Lacco Ameno	20-25	146	0	3
La Nave	25-27	348	1	18
S. Pancrazio	30	149	-	2



Fig.1. Map of the Island of Ischia with locations of *P. oceanica* prairies: 1= Lacco Ameno; 2= Castello Aragonese; 3= Punta S. Pancrazio; 4= La Nave. ★ Shallow flowering in 1979. ● Deep flowering in 1982.

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