

Live *Posidonia oceanica* in a Coralligenous Algal Bank at Sulana Bay, Corsica

Charles F. BOUDOURESQUE\*, Charles H. BIANCONI\*\* and Alexandre MEINESZ\*\*\*

\*L.B.M.E.B., Faculté des Sciences de Luminy, 13288 Marseille Cédex 9 (France)

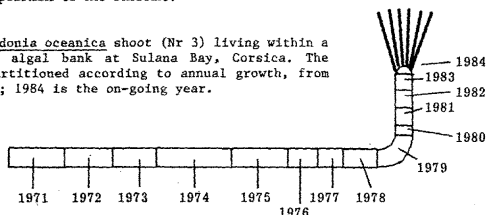
\*\*Parc Naturel Régional de la Corse, Galeria, Haute Corse (France)

\*\*\*Environnement Marin Littoral, Université de Nice, 06034 Nice Cédex (France)

The depth of *Posidonia oceanica* (L.) Delile prairie lower limits seems to be more constant than previously thought, at least in the western Mediterranean basin : 34-36(38)m around Port-Cros Island, France (HARMELIN and LABOREL 1976), 30-32(39)m around Ischia Island, Italy (COLANTONI et al. 1982), and 35-37 m in Elbu Bay, Corsica.

At Sulana Bay (South of Elbu Bay), beneath the lower limit of the *P. oceanica* prairie, scattered *P. oceanica* shoots were discovered living within a coralligenous algal bank of *Pseudolithophyllum cabiochae* Boudouresque et Verlaque (Rhodophyta, Corallinales), 43-44 m depth : 20-30 shoots/100m<sup>2</sup> ; some of them were collected in July, 1984. They consist of a live rhizome (pink on section) 10-20 cm long with a single (rarely 2-3) leaf bundle, tightly wedged into coralligenous crevices, but not definitely attached or rooted. Leaves are rather short (40-50 cm) and 9-10 mm width. A lepidochronological analysis of rhizome scales (leaf sheaths remaining on rhizomes after limb shedding) was performed ; a sharp decline of the rhizome growth rate occurs in 1976 for rhizome Nr 1 (Table I) ; this decline is gradual (1974 to 1976) for rhizome Nr 2 ; the rhizome Nr 3 is of special interest because of its shape (Fig. 1) : the part corresponding to years 1971 to 1978 is horizontal ; nevertheless, the scale arrangement, together with the number of scales per year, clearly indicate that this part of the rhizome was not creeping but vertical, at the time when leaves corresponding to present scales were alive ; beneath the bend (year 1979), scale arrangement and number of scales per year are in accordance with the in situ vertical position of the rhizome.

Fig. 1 : *Posidonia oceanica* shoot (Nr 3) living within a coralligenous algal bank at Sulana Bay, Corsica. The rhizome is partitioned according to annual growth, from 1971 to 1983 ; 1984 is the on-going year.



It is hypothesized that the material studied corresponds to drifting rhizomes uprooted during storms in shallow prairies ; the sharp or gradual decline in growth rate (associated or not with bending of the rhizome) could indicate the year of arrival : 1974 (rhizome Nr 2), 1976 (Nr 1) and 1979 (Nr 3). The partial recovery of the growth, together with the successful setting of new branches, which occurs in 1982 and 1983 (Nr 1 and 2) seem to mean that the transplantation stress is over.

Rhizome Nr	1		2		3	
	S	L	S	L	S	L
1983	8	6*	10	10°	5	4
1982	10	5	10	9°	6	5
1981	6	2	8	5*	6	5
1980	8	2	6	4*	4	3
1979	8	3	8	6	10	10
1978	6	2	9	8	8	9
1977	8	2	7	6	7	7
1976	8	4	9	8	8	8
1975		8	12		15	
1974		7	13		20	
1973		8	23		12	
1972		8	28		13	
1971		6	23		15	
1970		6	23			
1969		6	26			
1968		7				
1967		6				
1966		7				
1965		7				
1964		9				
1963		7				

Table I : Lepidochronological analysis of *P. oceanica* rhizomes (Nr 1, 2 and 3). The on-going year (1984) is removed. S = number of scales per year. L = lengthening of the rhizome (mm/yr). \* = occurrence of a dead branch. ° = occurrence of a living branch. At the lower part of rhizomes, scales were in bad condition : their number, which may prove to be inaccurate, is omitted.

The survival of drift shoots for up to 10 years, several meters below the lower limit of genuine prairies, is not inconsistent with the generally accepted opinion that this lower limit corresponds to the seagrass compensation depth ; dealing with a species in which growth is exceedingly slow and life span covers several centuries, even millenia, compensation depth must be estimated over long periods. A shower of rooted shoots probably

lands nearly everywhere after storms ; the coralligenous banks offer them the opportunity of being wedged into crevices ; although it is clear that they do not develop even small beds, they are able to survive and to grow, but they probably do not survive unfavorable periods (e.g. years with poor light balance). As a result, the presence of scattered *P. oceanica* shoots within coralligenous banks of Sulana is not to be regarded as a downward spreading of the *P. oceanica* prairie, or as relics left by the upward retreat of this prairie ; HARTOG's (1977) hypothesis, which suggests that the slow upward spreading of coralligenous banks after the last glacial period and the rise of the sea level is not completely over, is not supported by our results.

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