



EFFECTS OF *POSIDONIA OCEANICA* (L.) DELILE (1813) FLOWERING ON ELEMENTAL COMPONENTS AND ON TRACE ELEMENTS CONCENTRATIONS

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❖ Background:

❖ *Posidonia oceanica* : a magnioliophyte endemic to the Mediterranean Sea.

❖ Its flowering is **patchy and unusual**;

❖ Flowering induced **change in physiology**.

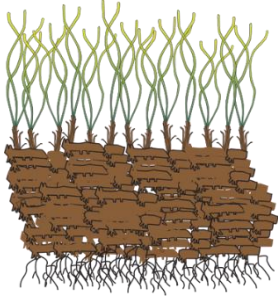
❖ Question of research

❖ Does **the frequency of the flowering phenomenon** have an impact on the dynamics of **CNP** elemental elements in *P.oceanica* **tissues**?

❖ Is the meadow fading as a result of this **stress**?

❖ Hypothesis:

❖ It was hypothesized **that an increase in the temperature of seawater** could explain this phenomenon of intense flowering (*Diaz et al., 2006*).



❖ The main results:

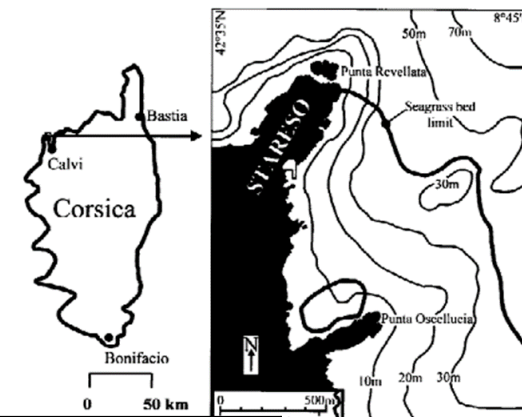
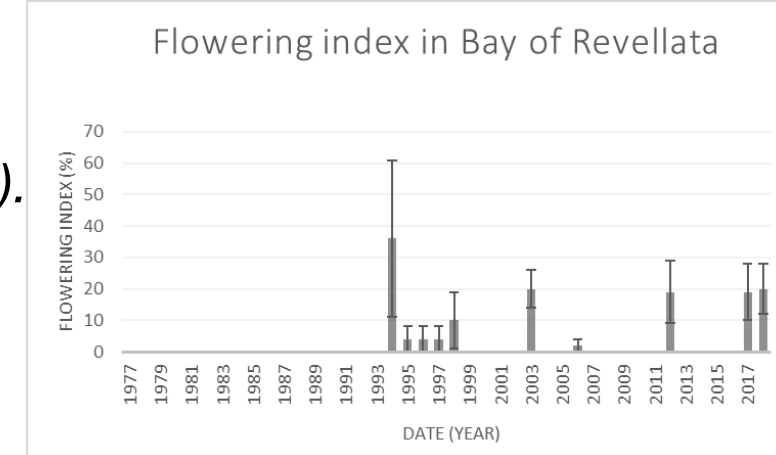
❖ In Revellata Bay, flowers (<1%) were reported in 1978 (*Bay, D., 1984*).

❖ In 1994, the **flowering index** was at maximum (IF: 36 ± 25%) and also in 2003 (IF: 20 ± 6%).

❖ In the Revellata Bay , we observe **now regular flowering events**.

❖ The **C, N, P contents** obtained since 2006 highlight a **drying up of the meadow** by flowering.

❖ Shown by the **decrease of N** in flowering samples and a modification of the **biometry** (lower width and lower length in adults leaves).

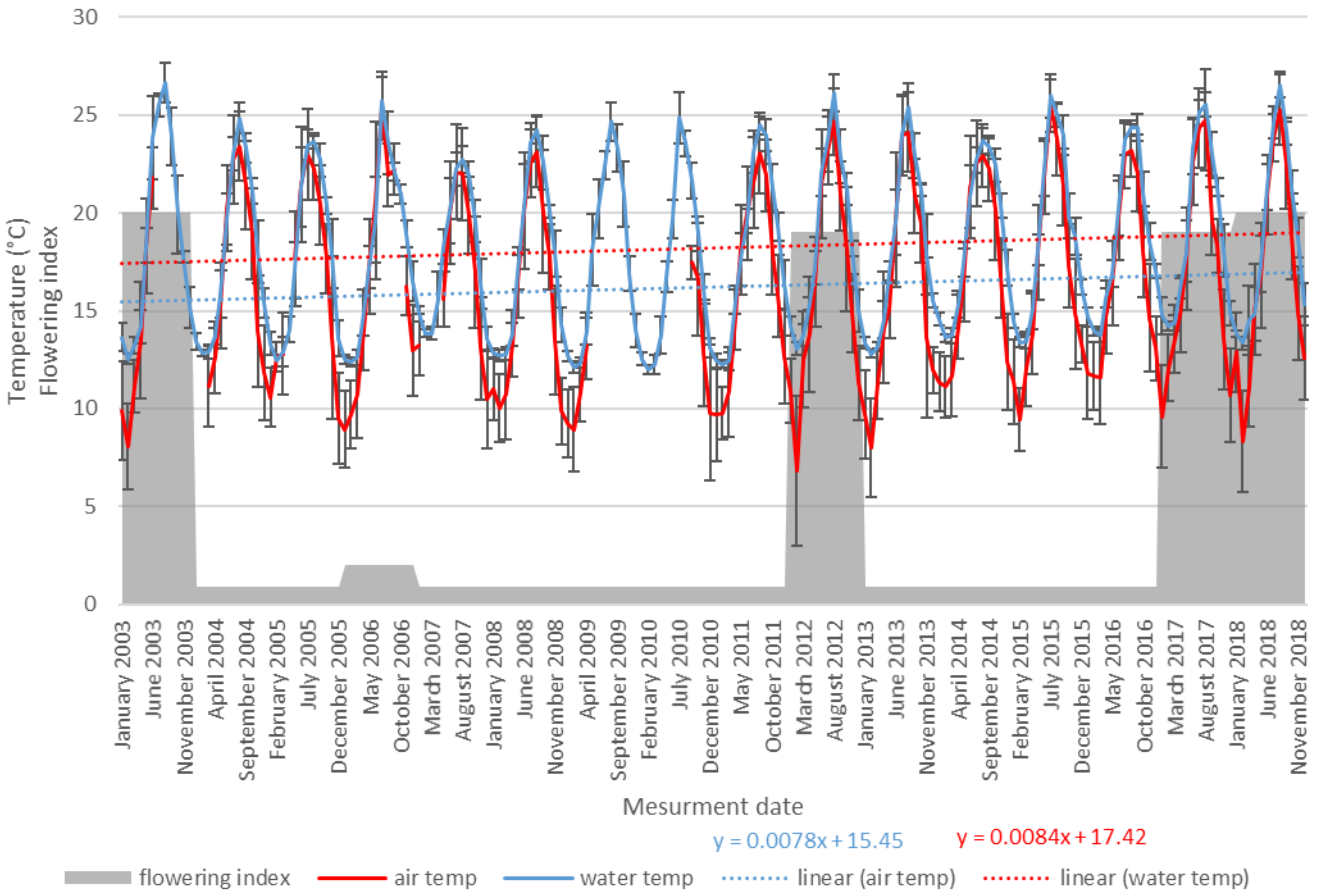


state year	value element	Flowering												Not flowering											
		Juv.		Int.		Adult		Shoot		Flow.		Rhiz.		Juv.		Int.		Adult		Shoot		Flow.		Rhiz.	
		%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd	%dw	sd
2006	C	17.6	0.6	nd	nd	33.2	0.55	nd	nd	30.6	1.15	18.1	0	17.1	0.36	nd	nd	32.6	0.35	nd	nd	0	0	18.1	0
	N	0.74	0.15	nd	nd	1.04	0.165	nd	nd	1.04	0.145	1.39	0.665	0.59	0.055	nd	nd	1.27	0.27	nd	nd	0	0	1.5	0.31
	P	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0	0	nd	nd
2012	C	20.9	0.697	34.1	0.867	32.4	0.932	32.5	0.586	31.3	0.874	27.1	0.69	29.5	1.428	33.3	1.293	32.4	0.888	32.8	0.695	0	0	30.8	0.211
	N	1.26	0.243	1.55	0.032	1.03	0.091	1.23	0.106	1.37	0.203	5.46	0.148	1.9	0.478	1.6	0.141	1.09	0.154	1.28	0.134	0	0	1.28	0.209
	P	0	0	0.11	0.015	0.08	0.011	0.1	0.004	0.2	0.109	0.08	0.007	0	0	0.15	0.023	0.09	0.007	0.11	0.011	0	0	0.28	0.138
2013	C	35.2	1.15	34.4	1.25	34	0.7	33.1	0.25	28.2	2.3	35.2	0.3	35.7	0.85	34.6	0.4	33.9	0.65	33.2	0.3	0	0	35.1	0.35
	N	2.2	0.05	5.45	0.2	1.45	0.35	1.5	0.1	1.1	0.05	1.45	0.2	1.95	0.32	1.85	0	1.35	0.05	1.5	0.05	0	0	1.5	0.05
	P	0	0	0.14	0.05	0.1	0.01	0.06	0	0	0	0.06	0	0	0	0.13	0	0.1	0	0.12	0	0	0	0.05	0.025

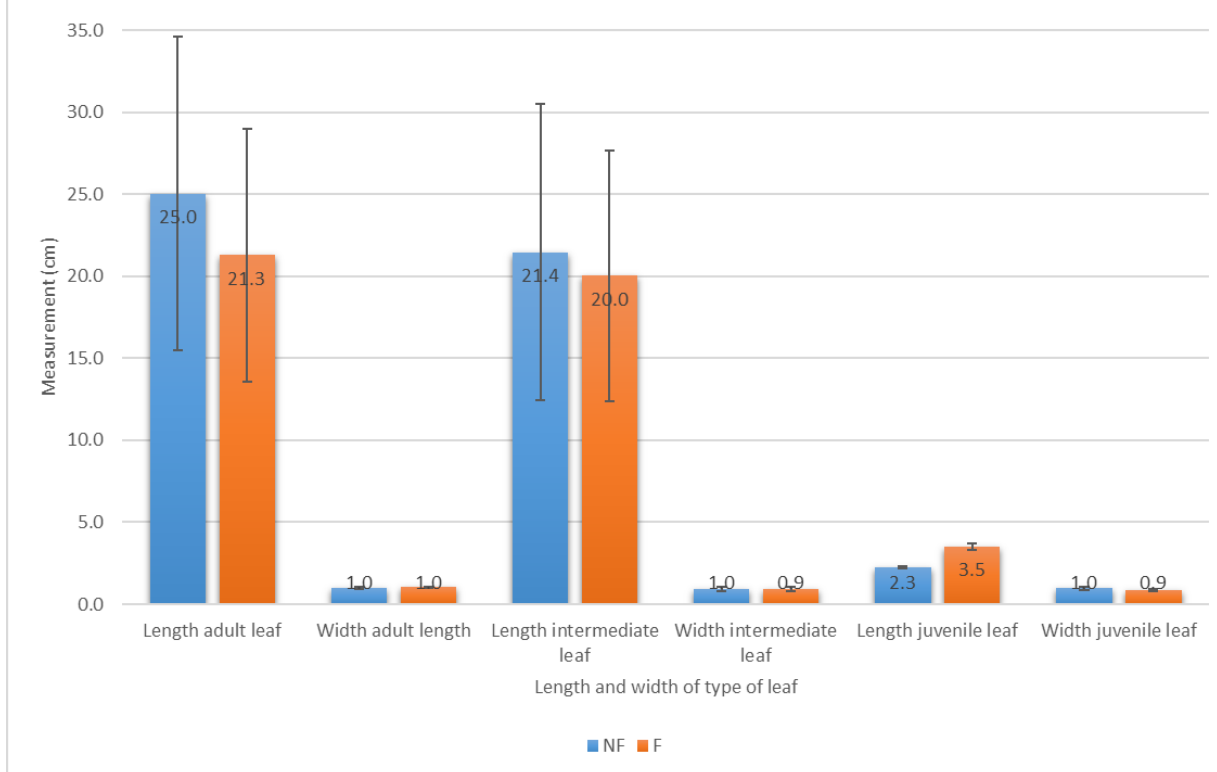



❖ The main results:

Relation between water/air temperature and flowering index



Biometry of flowering and no-flowering shoots





Thank you for your attention