ASSESSMENT OF THE ECOLOGICAL STATUS OF P OCEANICA MEADOW WITH A “NO DESTRUCTIVE SHOOT METHOD”: NDSM.
Context of the study

*Posidonia oceanica*

- Is a bioindicator
- Is a key species for the Mediterranean Sea
- Is a protected species
Objective

MSW Malta 2006 … « the use of non-destructive methods for the general conservation of the meadow »

- For research works and for monitoring programs
- For scientists and managers
- A No Destructive Shoot Method (NDSM)

Tested and validated
Some protocols of *in situ* measurements are available

Shoot density
Maximum leaf length
% dead matte…

Cartography
Some protocols of *in situ* measurements are available.

For tissue contents,

Some adapted methods

i.e. Third leaf
Some protocols of *in situ* measurements are available for tissue contents, some adapted methods i.e. third leaf, but this approach not efficient for Sn, Mo, not efficient for epiphyte, for PREI.
Focus on the foliar parts of the shoot
Methods

In situ

Meadow

Selected site
Methods

In situ

Meadow

20 shoots

Just above the ligula
Methods

*In situ*

- Meadow
- Leaves
- Plastic bag

In a freezer for later measurements
?! Too easy to be true ? !
Tests, comparisons and validation
They survive, they grow…

T0

T0+2 monthes
They survive, they grow... and they flower.
1. Surviving test

February 2011

Transect 200m, 15m
May 2011
2. Test on Growth

- September 2010
  - I cut 20 shoots in quadrats
Maximum Leaf lengths (cm) of shoot

In March 2011
After 3 months, the leaves reach the length of control leaves.
3. Tissue contents
### Stareso, 15m

<table>
<thead>
<tr>
<th></th>
<th>« Giraud »</th>
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<tbody>
<tr>
<td>Leaf surface Area (cm²/ shoot)</td>
<td>321</td>
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Biometry (April 2011, n=20)

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Stareso, 15m

2007

Gobert et al., 2009

Good
## CN contents, trace elements

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Conclusions

- No Destructive Method: NDM
- Use like the crossbows in whale research to take blubber biopsy without harming the whales

Without meadow alteration

Permits

Biometry
CNP, trace metals
Thank you for your attention
### Biometry

(April 2011, n=20)

**Stareso, 15m**

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Along PACA coast, Other seasons
CN contents, trace elements

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P, 19 trace elements