SERVICES FOR MOORING FIELDS LOCATED OVER *Posidonia oceanica* SEAGREASS BEDS

The Neptune seagrass is a marine phanerogam endemic of the Mediterranean Sea, which forms **one of the most bio-diverse habitats in this sea**, from which up to 1,000 animal and 400 plant species depend.

The Neptune seagrass is **protected by Spanish law** through the *Real Decreto* 1997/1995 (which guarantees the marine biodiversity through the conservation of the natural habitats of wild flora and fauna) and the *R.D.* 139/2011 (National Catalogue of Threatened Species). **At a European level**, the Neptune grass is considered a **priority conservation habitat**, included in Annex I of the Habitat Directive (DH 92/43/CEE).

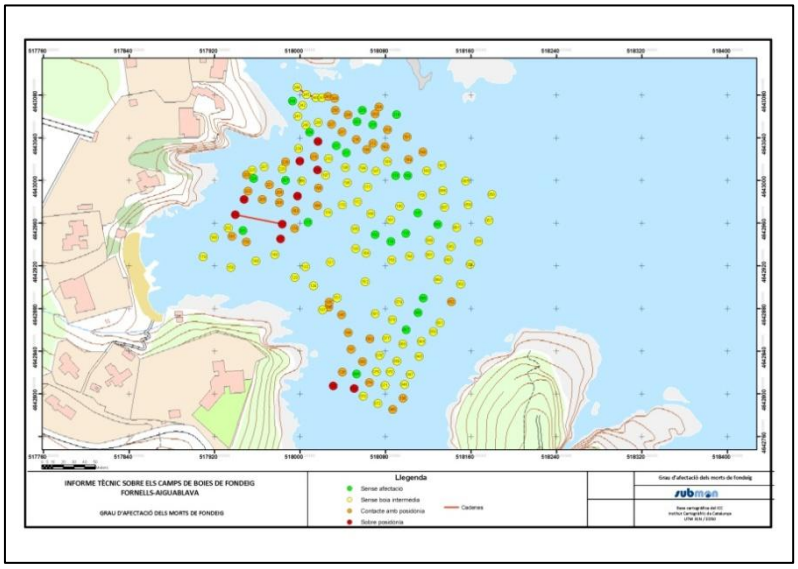
<u>One of the main conservation problems of seagrass beds is the incorrect installation of mooring systems and materials for the permanent mooring of vessels</u>

Concrete block located in a seagrass bed. The impact over the surrounding seagrass is obvious, due to the movement of the block.

c. Rabassa 49-51 loc.1. 08024 Barcelona
Tel:+34932135849
email: info@submon.org
www.submon.org

I - DIAGNOSIS OF MOORING FIELDS

- Identification and GPS-location of all mooring points
- Evaluation of the disposition of each mooring point in relation its affection to the surrounding seagrass
- Corrective measures recommended for each mooring point:
    - Removal of chains
    - Installation of intermediate buoys
    - Shifting of concrete mooring systems if on seagrass limits
    - Replacement of concrete mooring systems with low impact mooring systems if directly on seagrass



Result of a diagnosis of a mooring field. Each circle belongs to a mooring point, and its color implies an action to be carried out with it (green – no action needed; yellow – needs an intermediate buoy; orange – mooring system needs to be shifted a few meters; red – mooring system needs to be removed and replaced by a low-impact mooring)

II – REALIZATION OF CORRECTIVE MEASURES

- Shifting or removal of concrete mooring blocks
- Removal of chains
- Installation of low-impact mooring systems
- Installation of intermediate buoys and of respectful fastening systems from the mooring systems to the buoys

"Low impact" mooring system causing a strong effect on the surrounding seagrass due to an abandoned chain and an inadequate buoy for this mooring system.

III – DEVELOPMENT OF GUIDELINES FOR THE CORRECT PLANNING AND INSTALLATION OF MOORING FIELDS

- Planning of a mooring field: location, necessary previous studies, location of each mooring system to reduce affection over the seagrass bed
- Measures of the mooring system according to its use
- Types of mooring systems and indications for their correct use
- Types and measures of the chains
- Types and measures of the intermediate buoy
- Types and measures of the surface buoy

SUBMON ®
Marine Environmental Services
c/ Rabassa, 49-51 08024 Barcelona
Spain
Tel: +34 932135849
info@submon.org - www.submon.org