

2nd NCWG MEETING
Monaco 26-29 April 2016

Paper for Consideration by the Nautical Cartography Working Group (NCWG)
Seagrass/Seaweed (Macro-Algae)

Submitted by:	Spain (IHM)
Executive Summary:	Establish specifications in S4 and INT-1 about “Seagrass Seaweed”
Related Documents:	IHO S-4 , <i>Regulations for International (INT) Charts and Chart Specifications of the IHO</i>
Related Projects:	None

Introduction/Background

Nowadays, the INT1 publication “Symbols, Abbreviations, Terms used on Charts” edited in English/German, French and Spanish, and also, the **U.S. Chart No. 1**, depict the item **J13.1** and **J.13.2** as **Weed (including Kelp)**, with the **Wd** representation and next symbol:



(See annex A)

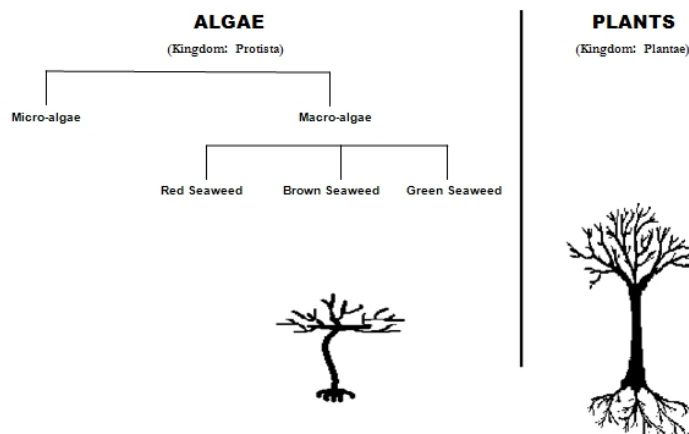
These two symbols, **J13.1** and **J.13.2**, are defined in accordance with sections 425.5, 428.2 in IHO publication S4, “Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO” Edition 4.5.0 – October 2014. (See annex B). Besides, there is another column in the same three publications INT 1, (English/German, French and Spanish) with the representation symbol or usage is obsolescent, (†), as a nationally used representation:

- **Alg** for Spanish INT 1
- **H., Al.** for French INT 1
- **Grs. ,Stg.** for German INT 1

Moreover, the INT1 publication depicts the item **J10** as **Coral, Coralline algae** with the **Co** representation and no symbol. (See annex A). This item is defined in accordance with S4 sections 425, 427.

However, in marine biodiversity, there are only two kind of main vegetation at sea;

1. Algae (*Macroalgae* (Red, Brown or Green Algae) also known as (*Seaweed, Weed, including Kelp*), and *Microalgae* (in this sheet, not taken into account due to its small size).
2. Seagrass (*Plant, phanerogam*).



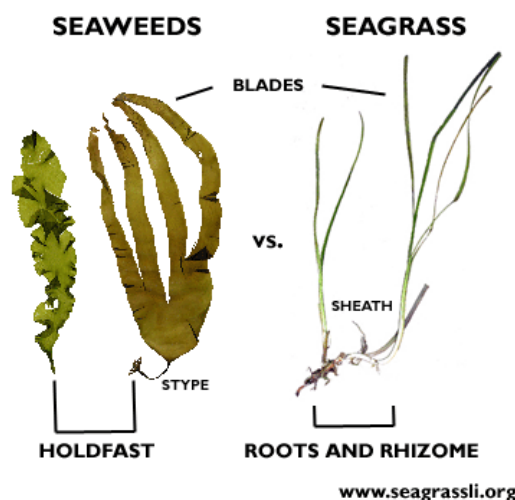
Definition Algae: it is an informal term for a large, diverse group of *eukaryotes* that are not necessarily closely related. There are included organisms range from unicellular genera¹⁾, to multicellular forms, such as seaweed (MacroAlgae) and the giant kelp, a large brown alga that may grow up to 50 meters in length.

- **Kelps** are a particular kind of seaweed (algae) belonging to the brown algae (*Phaeophyceae*) in the order *Laminariales*. There are about 30 different genera.

Definition Seagrass: Seagrasses are flowering plants (Division *Angiospermae*) belonging to four plant families (*Posidoniaceae*, *Zosteraceae*, *Hydrocharitaceae*, or *Cymodoceaceae*). There are 12 genera with some 58 species known.

The main differences of these two types of macro-vegetation are as follow:

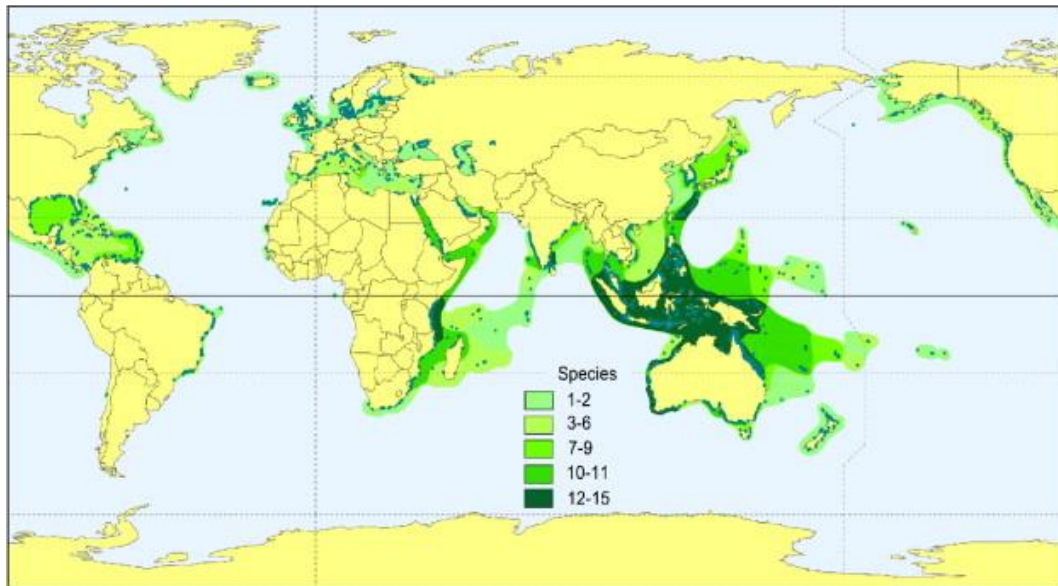
Seagrasses	Seaweeds (Macro Algae)
58 species	Around 5000 -6000
Seagrasses have veins.	Seaweeds do not have veins.
When you squish a small piece of seagrass, you don't get a mushy liquid as you do with seaweeds.	When you squish a small piece of green seaweed, you get a mushy liquid.
Seagrasses have woody underground stems.	Some seaweed may have underground structures that look like stems but these are not woody and do not have the same function as seagrass stems.
Seagrasses have real roots that absorb water and nutrients. They look like the roots of more familiar land plants.	Some seaweed may have structures that look like roots but these merely grip the ground or surface and are not specialised for absorbing water and nutrients.
Seagrass leaves do not come in as wide variety of shapes as green seaweeds. They are either leaf-, fern-shaped or long and grass-like.	Seaweeds come in a wide variety of shapes. Some may be fern-shaped. Other shapes include bubbles, hair-like filaments, grapes, sheets, perforated ribbons, fleshy disks.
Seagrasses do not suddenly become extremely abundant. There may be variations in lushness of seagrass meadows, but this is not as sudden or large as with seaweeds.	Some seaweed species may be seasonally abundant, covering the shores in a thick layer and then disappearing several weeks later.
Seagrasses produce flowers and fruits, but for most species found in Singapore, these are tiny and they rarely bloom.	Seaweeds do not produce flowers or fruits.



¹ Not taken into account in this sheet due to its small size.

The general distribution of this main macro-vegetation it is as follow:

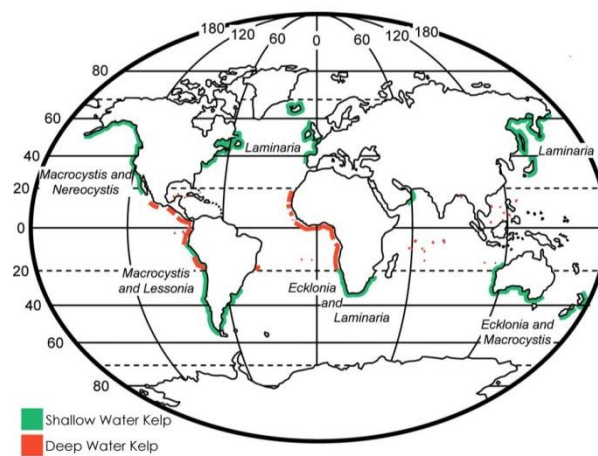
- Seagrass worldwide species distribution.



Global seagrass diversity and distribution from 2005 UNEP-WCMC.

- Seaweed worldwide species distribution. (Only Kelp distribution). Not included any other Seaweed (macro-algae) distribution.

Global Location of Kelp Forests



Pratt Institute/UG/Fall2010

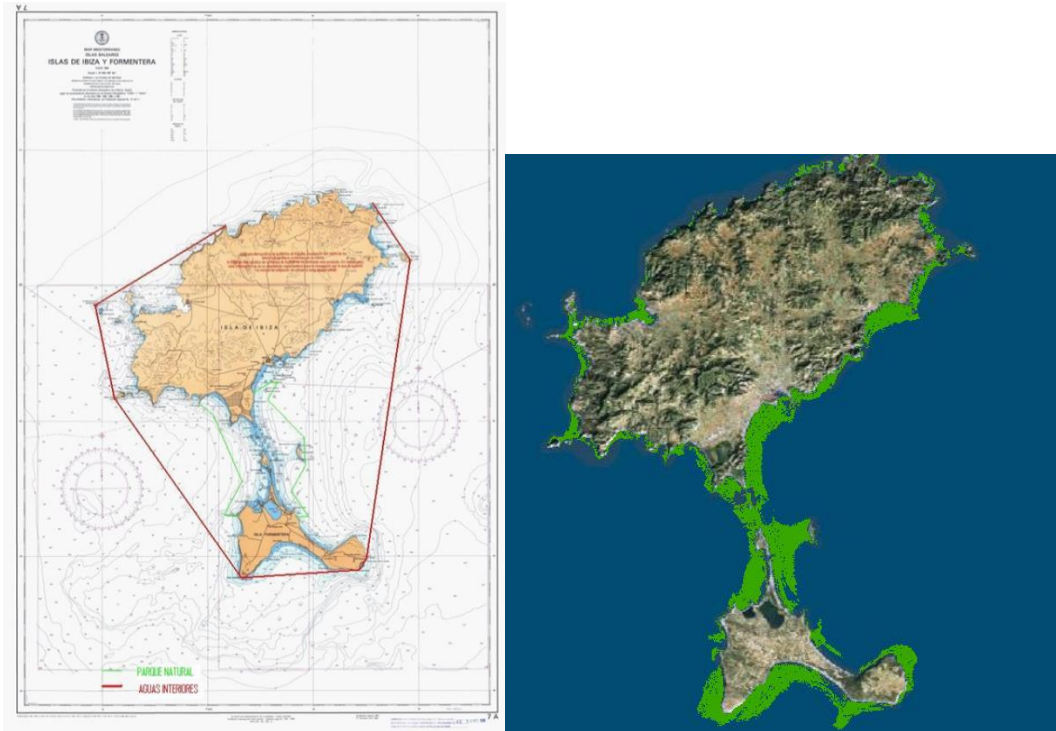
Analysis / Discussion

Nowadays, due to the importance of human activities such as fishing, and specially maintenance of coastal balance, seagrass (*plant, phanerogam*) is getting protected under several laws, at least in Europe, as:

- European Union Council Habitats Directive 92/43.
- European Union Directive 97/62 adapting to technical and scientific progress Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
- Council Regulation 1626/94 laying down certain technical measures for the conservation of fishery resources in the Mediterranean.

Besides, conservation and protection of Sea-grass (phanerogam) have been proposed for many national and international forums and international expert working groups in the marine environment, as the UNESCO Cooperation and Security Conference in the Mediterranean.

In the case of Spain, as only an example in Spain, there is an area of social Interest for Seagrass (*phanerogam, Posidonia*) in Balearic Island, (endemic in all the Mediterranean Sea). This area is protected as a Natural Reserve and the ships cannot anchor (in the proper chart, it is marked as «Reserved anchorage area» or «Limit of area into which entry is prohibited» or «Anchoring prohibited», etc. depending on the case.)





Example of Ibiza Island. <http://ideib.caib.es/visualizador/visor.jsp> (Posidonia distribution in Ibiza Island)










Nevertheless, there are many other general protected areas with different INT1 symbology and for different reasons, as:

- N-2.2 Limit of area into which entry is prohibited
- N-12.1 Anchorage area in general
- N-12-9 Reserved anchorage area.
- N 20 Anchoring prohibited
- N-21.1 Fishing prohibited
- N-22 Bird sanctuary
- N-22 Seal sanctuary
- N-22 Non-specific nature reserve, National parks, Marine Reserves (MR)
- N-22 Particularly Sensitive Sea Area (PSSA)

In addition, it is important to point the specific treatment in the intertidal zone to specific symbology. For instance, Manglar in C32 and Marsh in C33.

32		Manglar, Nipa Mangrove, Nipa palm	312.4
33		Marisma Marsh, Swamp, Reed beds	312.2

Moreover, specific vegetation symbology (trees). For instance, C30 through C 31.8. ,(species of trees and mangroves, Woods in general, Unspecified tree, Evergreen, Conifer, Palm, Nipa palm, Casuarina, Filao, Eucalypt, Swamp, Reed beds).

Vegetación			Vegetation	
30		Bosque	Bosque en general Woods in general	354.1
31			Árboles prominentes (aislados o en grupos) Prominent trees (isolated or in groups)	354.2
31.1			Árbol sin especificar Unspecified tree	
31.2			Árbol de hoja perenne (excepto coníferas) Evergreen (except conifer)	
31.3			Conífera Conifer	
31.4			Palmera Palm	
31.5			Nipa Nipa palm	
31.6			Casuarina Casuarina	
31.7			Filao Filao	
31.8			Eucalipto Eucalypt	

Objective of the proposal

The aim for this proposal is to have a distinction between Seagrass (*Plant, phanerogam* and Seaweed (Macro-Algae) area, because J13.1 or J13.2 is not enough.

For all these reasons and taking into account that many Seagrass species are protected grass, a simple weed definition (J13.1 and J13.2) for Seagrass and Seaweed it is not enough to clarify it.



Secondly, Coralline Algae is a class of seaweed, and it is unnecessary to be clarified as a different item J10 because it is a red Algae, and it could be define as an Seaweed.

Conclusions

- It would be interesting to distinguish between Seaweed (Macro-algae) and Seagrass symbology.
- Coralline Algae definition could be deleted from J10, for unnecessary distinction as a Seaweed.

Recommendations

Spain recommends the adoption of a new symbol for Seagrass, different to Seaweed, delete Coralline Algae in J10, and its inclusion in S4/INT-1. This new distribution of vegetation in INT1 and S-4 could be:

J10	Co	Coral Coral	†Cl	425 427
13.1	Wd	Algas Sea-Weed (Weed), (including kelp)	†Alg	425.5 428.2
13.2		Algas. Sea-Weed (Weed), (including kelp)		
13.3	Sg	Hierbas marinas, fanerógamas Seagrass (phanerogam).		425.5 428.2
13.4		Hierbas marinas, fanerógamas. Seagrass, (phanerogam)		

Action required of NCWG

The NCWG is invited to discuss the necessity for a S4/INT-1 Seagrass symbol different to Seaweed (Macro-Algae).

- a. Consider the recommendations presented in this document to modify S-4 and INT 1 symbol for Seagrass different to Seaweed.
- b. Make any necessary adjustments to the recommended S-4 text, and INT1 changes (Annex b)
- c. Take the required steps to implement the changes.