8th Meeting of the Hydrographic Services and Standards Committee
14-18 November 2016, IHB, Monaco

Changes to S-4 for Edition 4.7.0

Agreed at NCWG2 meeting and subsequent correspondence

Submitted by:	Chairman, NCWG
Executive Summary:	In accordance with its Terms of Reference, the NCWG keeps under continuous review the IHO publication S-4 'Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO', in order to advise the HSSC on their updating, design and format and the portrayal of symbols. During the 2nd NCWG meeting, the following changes were agreed and subsequently refined by NCWG correspondence.
Related Documents:	S-4; NCWG2 Report; NCWG Letters 04 and 09/2016
Related Projects:	None

Introduction / Background

The following lists extracts from the NCWG2 report, followed by NCWG2 Actions requiring substantive changes to S-4. The associated Explanatory Notes (ENs) are listed in the NCWG2 report extract below and can be viewed on the NCWG2 page of the IHO website, if required. Discussions follow under the heading 'Outcome' with agreed changes to **existing** S-4 clauses shown in red, with deletions crossed through. In the cases of **new** S-4 clauses, the proposal is shown in black.

Details of proposed changes

NCWG2 Report Extract:

> 8.1 Radio-activated Aids to Navigation **(US, CA)**
> *Docs: NCWG2-08.1A Radio Activated Aids to Navigation (+ 3 Annexes)*
> *Presentation available*

Colby Harmon (US) gave a presentation on recommendations for charting mariner activated aids to navigation. The meeting accepted the recommendations as follows:

'man' approved as an INT abbreviation for 'manually or mariner activated'

Example descriptions: Horn (man – see Note); Fl.G.3s (man – see Note).

Two example notes to be included in S-4 (as in paper).

Action NCWG2/10: Secretary to draft specifications for user activated AtoN and circulate to WG for comment and approval.

Outcome:

From EN NCWG2-08.1A Annexes A, B and C, with minor changes following NCWG2 discussions.

Add to:

B-122.1 Man Manually activated P56, R2

New clause:

B-452.9 **Manually activated fog signals** must be depicted by a legend containing the **international abbreviation** 'man', after the signal type, for example:

Horn (man - see Note)

Text should be sloping if associated with a floating aid. A note should be inserted either to provide the details (including activation method, channel/frequency, duration of activation) or to refer to an associated publication for details. For example:

Manually Activated Fog Signal (man)
Fog signal is activated by keying the mic 5 times on VHF-FM Ch 81.
Horn will operate for 30 minutes.

or

Manually Activated Fog Signal (man)
For activation details, see [associated publication].

If there are both manually activated lights and fog signals on the charts, the notes may be combined under a generic heading 'Manually Activated Aids to Navigation', with the wording of the note adjusted as appropriate.

In areas where the local authority has decided that all (or most) fog signals will be manually activated, such that adding '(man - see Note)' at all or most fog signals will result in excessive chart clutter, the relevant hydrographic office should issue a statement to this effect and insert a note on charts (or in an associated publication) stating that this is the case.

New clause:

B-473.8 **Manually activated lights** must be depicted by a legend containing the **international abbreviation** 'man', after the light description, for example:


Fl.G.3s (man - see Note)

Text should be sloping if associated with a floating aid. A note should be inserted either to provide the details (including activation method, channel/frequency, duration of activation) or to refer to an associated publication for details. For example:

Manually Activated Light (man)
Light is activated by keying the mic 5 times on VHF-FM Ch 81.
Light will operate for 30 minutes.

or

Manually Activated Light (man)
For activation details, see [associated publication].

If there are both manually activated lights and fog signals on the charts, the notes may be combined under a generic heading 'Manually Activated Aids to Navigation', with the wording of the note adjusted as appropriate.

In areas where the local authority has decided that all (or most) lights will be manually activated, such that adding '(man - see Note)' at all or most lights will result in excessive chart clutter, the relevant hydrographic office should issue a statement to this effect and insert a note on charts (or in an associated publication) stating that this is the case.

New entries for INT1:

P56	(man)	Manually activated		473.8
R2	(man)	Manually activated		452.9

In INT1 list of abbreviations, add: man Manually activated P56, R2

Notes:

NCWG2 agreed not to include a new line in B-471.1 (as suggested in EN NCWG2 – 08.1A Annex B) as 'manually activated' is not a type of light in the same sense as Aero, Dir and Ldg, which are included as pre-fixes to the light description. It is a qualification to any type of light, more like '(occas)', to be included in parenthesis, subordinate to the light description.

Within the discussions at NCWG2, recorded above, we have used the terms 'Radio-activated', 'Manually activated', 'Mariner activated' and 'user activated'. All accurately describe what happens. Given that four US/CA organizations (as mentioned in the US EN NCWG2-08.1A) have already agreed to use the abbreviation 'man', and that it works in English, French and Spanish, unless there is a strong argument to change to one of the other descriptions, we should accept this. Therefore we have not included the '(or Mariner)' insertions in the term, as mentioned in the NCWG2 Report.

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NCWG2 Report Extract:

> 8.4 Suspended submarine pipelines: *Presentation* **(TR)**
> *Docs: NCWG2-08.4A Rev2 Suspended Submarine Pipeline Presentation available*
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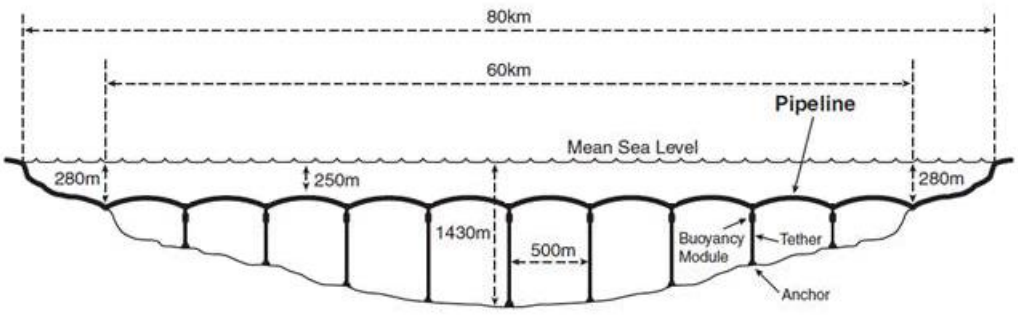
> Bülent Gürses (TR) showed some pictures of the construction phase of the sub-surface floating pipeline, which helped the meeting understand the details of this feature. The recommended addition to S-4 in the paper was generally accepted with the following amendments:
>
> B-444.9 Sub-surface pipelines that are floating in the water column and anchored….
>
> The example diagram should be adjusted to remove the appearance of buoys above the pipeline and to show the depth marker above the highest part of the arc.

Action NCWG2/15: Secretary to amend draft for sub-surface floating pipeline and circulate to WG for comment and approval.

Outcome:

New clause (taken from EN NCWG2-08.04A, with changes following NCWG2 discussions).

B-444.9 **'Sub-surface pipelines'** describes pipelines that are floating in the water column. They are anchored to the sea floor at regular intervals with large 'buoyancy modules' on the anchor hawsers, a little below the actual pipeline, so that it is submerged to a designed minimum depth. These pipelines do not generally constitute a danger to surface vessels, but are potentially a danger to submarines. Also, submarines and deep trawlers could damage the pipeline. A schematic diagram of a typical sub-surface pipeline is:



Sub-surface pipelines must be shown, where required, using the appropriate pipeline symbol as specified in clauses B-444.1 and B-444.2 above. To indicate the minimum design depth of the pipeline, a legend similar to *Water (submerged 250m – see Note)* must be placed along the pipeline, repeated as required if the pipeline extends across a

substantial area of the chart. A cautionary note should be charted, for example:

WATER PIPELINE
In depths greater than 280 metres the pipeline is anchored to the seabed at 500 metre intervals, so that it is submerged to a minimum depth of 250 metres. Mariners are advised not to anchor or trawl in the vicinity of submarine cables and pipelines.

If there are other conventional pipelines shown on the chart, the last sentence of the note should be excluded, and a generic pipeline note, such as that shown at clause B-444.1, positioned immediately above or adjacent to the note relating to the sub-surface pipeline.

A pictorial representation of the sub-surface pipeline, for example as shown above, may be included in addition to, or in lieu of, the note, in magenta, see B-390.1. If the diagram is included in lieu of the note, the legend along the pipeline symbol should read similar to *Water (submerged 250m – see Diagram)*.

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NCWG2 Report Extract:

8.9 Seaweed and Seagrass **(ES)**
Docs: NCWG2-08.9A Seagrass/Seaweed (Macro-Algae) (+ 2 Annexes)
Presentation available

Federico Yanguas Guerrero (ES) presented the paper. There was general support to approve a new INT abbreviation 'Sg' for seagrass. The proposed symbol was not approved (it is too complex), nor an alternative to use the marsh symbol (C33) as it is already also used for above water reed beds, which might be confusing to the chart user. It was also decided that Coralline Algae should remain at J10 (as far as the mariner is concerned, the difference is unimportant).

Action NCWG2/23: Secretary to circulate proposed revisions on seagrass to S-4 to WG for approval.

Outcome:

Suggested amendments to S-4 and INT1, based on EN NCWG2-08.9A (including Annexes) and discussions at NCWG2.

B-122.1 Add new entry after 'sf': Sg Seagrass J13.3

B-425.5 **Standard abbreviations.** English language abbreviations should be used, as in the following list.

…

J9 .2	*Bo*	-Boulders	(usually used in intertidal areas)
J10	*Co*	-Coral and Coralline Algae	
J11	*Sh*	-Shells	(skeletal remains)
J13.1	*Wd*	-Weed	(including extensive areas of Kelp, see B-425.6 and B-428.2~~, etc~~)
J13.3	*Sg*	-Seagrass	(where distinguished from weed, see B-425.6)
J30	*f*	-fine	(only used in relation to Sand)

…

B-425.6 ~~Currently unused.~~ **Marine vegetation** may be divided into two groups: Algae (seaweed, of which kelp is a large species) and Plants (seagrass). Many source documents do not distinguish between these groups, referring to them both as '*Wd*'. However, seagrass is increasingly being protected so, if the information is available, it should be distinguished

from seaweed by using the **international abbreviation** '*Sg*'. For associated protection measures, see B-437. For plants which rise above the sea surface, see B-312.2 (marsh and reed beds) and B-321.4 (mangroves and nipa palms).

B-428.2 Kelp (large species of seaweed) is an indication of the presence of submerged rocks. It must normally be charted by the following symbol:

 J13.2

A legend may be used in place of the symbol, but only for extensive areas.

Wd **J13.1**

For seagrass, see B-425.6.

INT1 Add new line: J13.3 *Sg* *Seagrass*

Add new international abbreviation: **Sg** **Seagrass** **J13.3**

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NCWG2 Report Extract:

8.10 Larger scale chart limits in yellow **(SE, NL)**

Docs: *NCWG2-08.10A* *Presentation of chart boundaries*
NCWG2-08.10B *References to other charts*

Andreas Andersson (SE) presented his 'A' paper on the colour used for chart boundaries (on multicolour charts). He advised the meeting that some magenta had been added to the yellow to make it clearer, following chart user feedback. Mikko Hovi (FI) also advised the meeting that user feedback had indicated that this method of de-cluttering was preferred to transferring the larger scale chart limits to a small diagram. The meeting agreed that this is a sensible method of de-cluttering the magenta layer and agreed it should be added as an option for multi-coloured charts.

Ben Timmerman (NL) presented his 'B' paper on references to smaller scale charts. The meeting agreed that this option should be included in S-4. Mikko Hovi (FI) suggested an alternative (to avoid words) of showing the smaller scale/adjoining chart number flanked by arrows and this was also well received. Options to use legends, for example 'adjoining chart'; 'smaller scale chart'; just the chart number, were also considered as appropriate, depending on the national convention.

Action NCWG2/25: Secretary to draft amendment to S-4 to allow use of yellow for chart limits and circulate to WG for comment and approval.

Action NCWG2/26: Secretary to draft amendment to S-4 to include all options for referencing smaller scale and adjoining charts for consideration by the WG.

Outcome:

The meeting agreed that the use of yellow for chart boundaries is a sensible method of de-cluttering the magenta layer. However, the general guidance on the use of colours (in B-140) does not cover the concept of de-cluttering the magenta layer by using different colours, only by using magenta tint, although this has become generally accepted for multicoloured charts. It is therefore time to include some brief explanation in an appropriate part of B-140 by the following addition to 2nd paragraph of B-140, a revision of sub-paragraph B-142.3 and a new sub-paragraph B-142.4:

B-140 USE OF COLOUR

….

The use of alternative colours, for example red instead of magenta, and of screened colours, tends to reduce the level of possible standardization. However, such colour variations can, if desired, produce an element of national individuality without affecting the comprehensibility of a chart as much as, for example, a non-standard symbol. Use of a non-standard colour, for example to reduce clutter on the magenta layer, should be referred to the Nautical Cartography Working Group (NCWG) for approval. It can then be included in this publication, to support standardization of multicoloured charts.

B-142.3 Magenta tint ~~may~~ must be used ~~in congested areas where it is important not to obscure black detail, and~~ for specific symbols ~~such as~~ including: Traffic Separation Zones; ~~,~~ ~~Particularly Sensitive Sea Areas and~~ Archipelagic Sea Lanes; Radar ranges and, when useful, for emphasizing restricted areas. Magenta tint may also be used to subdue submarine cables and pipelines where they may obscure more important black or magenta detail.

B-142.4 The magenta layer on charts can become cluttered. Multicoloured print technology enables other colours to be used instead. For example, green was introduced for environmental information (see B-145 and B-437.2b) and yellow for chart limits on multicoloured charts (see B-254.2). When other colours are used to de-clutter the magenta layer, this should be referred to the NCWG (see B-140).

More specifically, both Actions 25 and 26 require some changes to B-254, as suggested below:

B-254 REFERENCES TO OTHER CHARTS

Hydrographic offices should include on their charts references to similar or larger scale charts published by their own nation; references to smaller scale charts may also be included. These fall into two categories:

a. References in the border of the chart to adjoining charts of the same or similar scale, to smaller scale charts and to continuation insets.

b. References to larger scale charts or plans which cover part of the area covered by the chart.

Note: **Insets**, including continuation insets and large-scale plans, are small charts with their own borders included within the limits of a larger chart. A **plan** is a large scale inset of a nautical chart (for example a port plan). For more detailed definitions, see the Hydrographic Dictionary, S-32.

Plans should not be printed on the back of a chart, see B-210.

For references to insets on Source diagrams, see B-293.6. For references to foreign charts, see B-254.4.

B-254.1 **Border references** should be shown in magenta and be worded 'Adjoining chart...', 'See smaller scale chart…' or 'Continued in inset', or equivalent, as appropriate. If it is preferred to avoid the use of words, the adjoining chart number may be inserted on its own or, preferably, flanked by arrows pointing out of the chart to the next chart available, for example:

↑ 1234 ↑

B-254.2 **The limits of larger scale charts or plans** should be identified by numbered outlines in magenta, or by the legend 'see Plan' if the plan is on the same sheet. On multicoloured charts, if it is preferred to subdue chart limits so that more important magenta detail stands out, the limits and associated numbers or text may be shown in yellow. The same tone of yellow as used for light flares is suitable, see B-470.4.

If there is more than one inset on a chart, they should be labelled A, B, C etc, and have letter identifiers added to the reference on the main chart, or in its border.

A charted outline …

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NCWG2 Report Extract:

11.2 Vacant entries in INT1 (Task E4) **(Secretary)**

Docs: *NCWG2-11.2A* *Vacant entries in INT1*
NCWG2-11.2B *US response re Fathoms and Compass Terms*
NCWG2-11.2C *US response re Floating Barriers and Oil Retention Barriers*

Presentations available

Secretary presented the paper on vacant entries in INT1. Chair confirmed from participants that only US had some comments, after which Colby Harmon presented his papers.

On the 'B' paper, the meeting agreed that 'fm, fms' should be included as INT abbreviations for fathom(s) and included in INT1 at B48….

Action NCWG2/42: Secretary to add fm, fms to list of INT abbreviations in S-4 and add remaining vacant entries to the 'retired' list at B-151.2.

Outcome from 11.2 A and B:

At B-122.1 add a new line after 'Fla': fm, fms Fathom(s) B48

At B-151.2 add new entries B3, B24, B46, B60-67, H7, L13, L15, L21.3, Q6, Q60, Q61, Q125 (as listed in paper NCWG2-11.2A).

Colby Harmon presented his 'C' paper on floating barriers. The meeting agreed:

- That the entries at F29.1 and N61 should be split to show barriers without and with pile supports. The example list at each entry should be the same (if INT1 subWG decides to retain both entries).
- That the 'oil barrier' entry at F29.2 should be replaced by the term 'Bubbler', using a magenta pipeline symbol with legend 'Bubbler'.
- INT1 subWG to consider whether terms such as 'e.g.' and similar can be made consistent throughout INT1.

Action NCWG2/43: Secretary to draft new specification for 'bubbler' and circulate to WG for comment and approval.

Outcome from 11.2C:

Further research into the use and terminology associated with 'bubblers': The term 'bubbler' seems most commonly associated with various toys, smoking pipes and drinking fountains. It may be used for the feature we are concerned with but, probably, only as a colloquial term. The term 'pneumatic pipe' has many applications, but not usually the one we are trying to depict. 'Bubble curtain' seems more accurately the term used for the feature we want to depict. It has various marine applications, including to: prevent acoustic transmission (such as pneumatic drilling and underwater explosions); prevent the spread of floating liquids (such as oil) or debris; to control the movement of fish. (It also has non-marine decorative use in aquariums). It is suggested it is the best available term and should be the one used on charts.

This is very different from the physical barriers which obstruct navigation depicted by F29.1 and N61, explained at B-449.2. We could use the vacant B-449.5, but possibly it is more appropriate to include it with other pipelines in the B-444 section. Although it could be added to B-444.1 under 'Water pipelines' as 'Bubble emitting pipelines', it is not primarily a 'supply' pipeline. Therefore, it should be a separate category, at B-444.10 (noting use of B-444.9 at NCWG2 Action 15 above):

New clause:

B-444.10 **A bubble curtain** (also known as a pneumatic pipe or 'bubbler') consists of a high pressure sub-surface pipeline (usually on the sea floor) with holes emitting a curtain of air bubbles. Its uses include: the prevention of acoustic transmission through the water; preventing the spread of surface debris or floating liquids (including oil); controlling the movement of fish.

A bubble curtain should be charted by a magenta pipeline symbol (L40.1) with the legend '*Bubble curtain*' adjacent to it in sloping magenta text, preferably inside the containment area.

NCWG respondents decided that the symbol and term should be shown in INT1 at F29.2, as this was the purpose of this entry, although up until now no INT symbol had been agreed.

Action Required of HSSC

The HSSC is invited to approve the above new and amended clauses for S-4, to be published as Version 4.7.0.