INTERNATIONAL HYDROGRAPHIC ORGANIZATION

ORGANISATION HYDROGRAPHIQUE INTERNATIONALE

CHART STANDARDIZATION & PAPER CHART WORKING GROUP (CSPCWG)

[A Working Group of the Hydrographic Services and Standards Committee (HSSC)]

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CSPCWG Letter: 01/2012

UKHO ref: HA317/010/031-09

To CSPCWG Members Date 3 January 2012

Dear Colleagues,

Subject: Actions arising from 7th CSPCWG (2010) meeting (Group 2)

Follow-up to Letter 07/2011.

Thank you to the 18 members and ESRI who responded to CSPCWG Letter 07/2011. A consolidated list of the responses is attached at Annex A, to which, as usual, I have added the thoughts of your Secretary and Chairman in red.

You will see that we have good consensus to progress these changes. Nevertheless, there were many useful comments, from those in the 'yes' column as well as the 'no' column. Many of these have resulted in small adjustments to the proposed text, as detailed in my responses.

I do not believe further CSPCWG consultation is necessary. A 'clean' copy of the final text, which will be submitted shortly via Circular Letter for Member States' approval, is included at Annex B. I encourage you to ensure your national HO responds positively to the CL.

There is no need to respond to this letter, although of course, you are free to do so.

Yours sincerely,

Peter G.B. Jones,
Chairman

Annex A Consolidated responses to CSPCWG Letter 07/2011 (with comments)
Annex B Final text to be submitted to IHO Member States

CSPCWG7 ACTIONS 9, 10, 12, 13, 16, 18 and 19

CONSOLIDATED RESPONSES TO CSPCWG LETTER 07/2011

CSPCWG7 Action No	Question	Yes	No
9	Do you agree with the proposed changes to Section B-290?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, JP, NL, NO, NZ, SE, UK, ZA	US
	Do you agree with the proposed changes to paragraph B-620.3?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, JP, NL, NO, NZ, SE, UK, US, ZA	
10	Do you agree with the proposed new paragraph B-422 i?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, JP, NL, NO, NZ, SE, UK, ZA	US
12	Do you agree with the proposed new specification B-410.1?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, NL, NO, NZ, SE, UK, ZA	JP, US
	Do you consider example graphics are required? (if yes, please supply any known examples to Secretary)	AU, BR, CA, DE, DK, [ESRI], FI, FR, GR, NL, NO, NZ, SE, US	ES, IN, JP, ZA
13	Do you agree with the proposed changes to specification B-457.3?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, JP NL, NO, NZ, SE, UK, ZA	US
	Do you agree with the proposed changes to specification B-470.5?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, JP, NL, NO, NZ, SE, UK, US, ZA	
16	Should the symbol for diving prohibited be included in INT1 at (please answer yes to one only):		
	N28	AU, BR, CA, DE, FR, GR, NL, NZ,	
	or N21.2	DK, ES, [ESRI], FI GR, IN, NO, JP, SE, UK, US, ZA	
	Do you agree that examples, as suggested, in B-439.3 and B-439.4 are sufficient action for S-4?	AU, BR, CA, DE, DK, ES, [ESRI], FI FR, GR, IN, JP, NL, NO, NZ, SE, UK, US, ZA	
18	Do you agree with the new specification for 'imprecise shoal areas'?	AU, BR, CA, DK, ES, [ESRI], FI, GR, IN, JP, NO, SE, UK, US, ZA	AU, DE, FR, NL, NZ,
	Do you agree it should it be at B-424.7?	AU, BR, ES, FI, GR, IN, JP, SE, UK, US, ZA	AU, CA, DE, FR, NL, NZ,
19	Do you agree with the proposed new specification B-414.6?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, NL, NO, NZ, SE, UK, ZA	JP, US
23	Should the note under the table at B-450.2 be changed to read: Orange and amber lights should be charted as 'Y'?	AU, BR, CA, DE, DK, ES, [ESRI], FI, FR, GR, IN, JP, NL, NO, NZ, SE, UK, ZA	US

Comments

AUSTRALIA

Action 9: Clause B-294.4: Minor editorial change in first bullet point. Additionally, the final paragraph is inconsistent: The first sentence states that "In such circumstances, the Source diagram would not be modified to indicate the existence of the new survey.", but in the remainder of the paragraph alternatives are presented for compiling a new edition or updating the source/ZOC diagram by NM or NM Block. Suggest re-wording as follows (AU changes in blue):

B-294.4 When a new survey is received and assessed by a hydrographic office, it may be judged that:

- changes to the charted depths are of no navigational significance so a New Edition of the relevant chart is not necessary; or
- all navigationally significant depth changes can be promulgated by NM (especially on smaller scale charts).

In such circumstances, the Source diagram would not normally be modified to indicate the existence of the new survey. However, if the mariner may be influenced to avoid an area because of the nature of the currently charted data, then a New Edition must be considered to incorporate the new survey (and update the Source or ZOC diagram) even if the depths show little change. Exceptionally, consideration may be given to updating the Source or ZOC diagram details by NM (or NM Block). If this method is used, because the new details would not reflect the actual source used on the chart, an explanatory note should be added, eg '(most recent data used or assessed for charting)', or equivalent, directly under the Source diagram's title.

Chairman: Accepted.

Action 9: Clause B-297.4: The ZOC assessment for a particular area is not necessarily dependant only on the CATZOC value of the "best" quality source survey in the area. For instance, a number of surveys in the area, all having a CATZOC of "B" simply because of the "seafloor coverage" component (i.e. they satisfy CATZOC "A2" for depth and positional accuracy), may collectively be determined to satisfy CATZOC "A2" for the area. Also, AU has not yet seen a situation where a new survey with a worse CATZOC than shown in the ZOC diagram has resulted in a downgraded ZOC for the area. AU therefore suggests the following amendment to the new paragraph for B-297.4 (AU changes in blue):

When a Hydrographic Office considers that the CATZOC of a charted area has changed as a result of subsequent surveying of the area, consideration may exceptionally be given to updating the ZOC diagram by NM (or NM Block). For a fuller explanation, see B-294.4.

Chairman: It is a common situation in mobile seabed areas (at least in UK waters) where an area that has been fully surveyed (eg to CATZOC A2), is checked out by a reconnaissance (low CATZOC) survey and found to have shifted to the extent that the original high CATZOC survey is no longer relevant. This is the case covered by the reference '(or lower)'. I consider the original wording should stand to draw attention to this possibility.

Action 12: Clause B-410.1: AU considers that it is inappropriate to make reference to berthing scale ENCs in the first bullet point, for the following reasons:

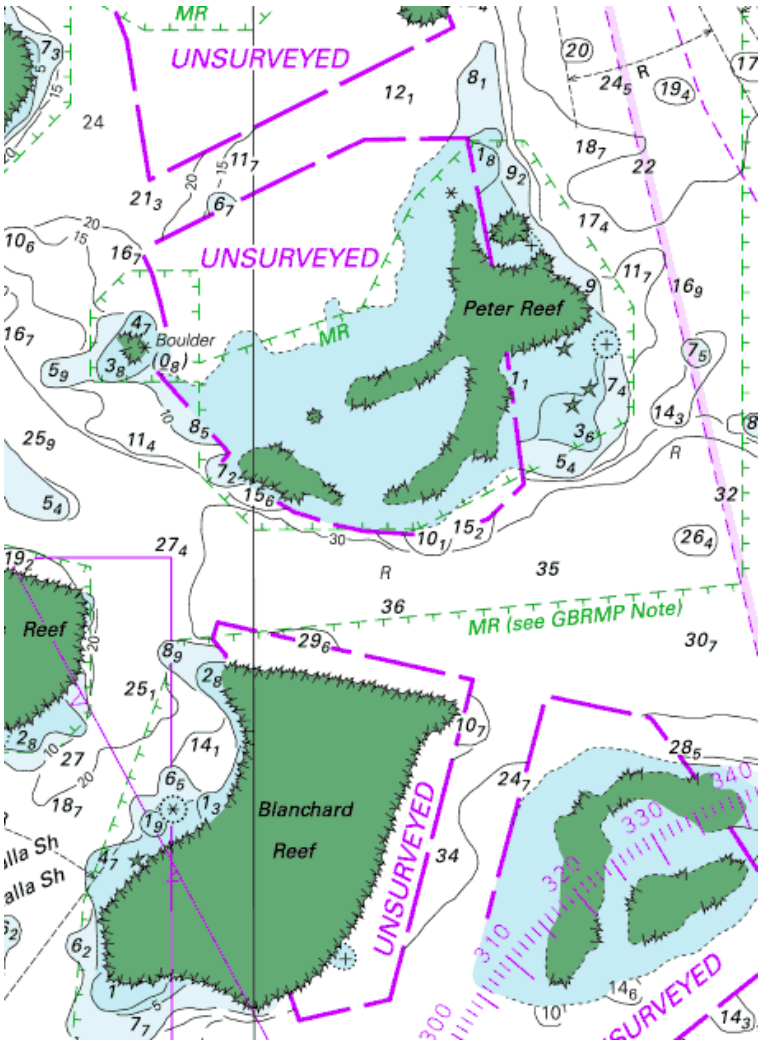
- There is no other incidence in S-4 (that AU can recall) relating a charting specification to any particular ENC scale(s). Indeed, there is no relationship between ENC Navigation Purpose and ENC compilation scale in S-57, therefore there is no such thing as a "berthing scale" ENC.

- The portrayal references within the clause to dashed lines, out of position soundings and colour tints, are either not in the control of the ENC compiler, or are not permitted for ENC.
- There are ENC specific ways to provide such information to the mariner, through population of DRVAL1 (minimum depth at the berth) and/or INFORM (maximum draft permitted at the berth) for the BERTHS object, which is included in S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC, in addition to encoding the geometry of depth and dredged areas adjacent to berthing facilities.

AU has corresponded with the Chair of TSMAD on this and as a result suggests that the text "(including berthing scale ENC)" be removed from the first bullet point, as the relevance of S-4 in terms of digital charting standards is adequately defined in B-100; and in line with the above points.
Chairman: Accepted, but see change agreed following FR comment.

AU agrees that example graphics (as has been used for bridge supports and bathymetry under bridges) is a good idea, particularly in the case of using a bracketed depth adjacent to the berthing facility, as is explicitly mentioned in B-412.2. Note that there is currently no example of the bracketed depth adjacent to a berthing facility in S-4 or INT1, even though it is specified in S-4 at B-412.2.
Chairman: An example is shown in S-4 (B-412.2) and INT1 (I11).

Action 18: Clause B-424.7: The example included in the new Specification is for possible shoal areas in generally deeper water. At CSPCWG7 AU presented examples of "areas considered to be coral reefs" and "areas of possible shoaling" as sourced from rectified satellite imagery colour banded by depth in the Great Barrier Reef. This imagery identified intertidal areas and areas to depths up to 10 metres in very clear water, shelving off rapidly to depths up to 30 metres as is typically found in the Reef. These areas could be very well defined and as such symbology specifically aimed at depicting these areas was developed by AU in order to indicate the approximate nature of the source, but also the well defined limits as indicated by pecked lines bounding the areas (for intertidal areas such pecked lines are interspersed with short section of coral reef edge symbology to indicate the probable edge of the drying coral reef). Note that AU only uses such imagery in unsurveyed areas. See example (with related explanatory note) below.



AU has no fundamental objection to the new draft Specification, as all the guidance is "should", therefore variations may be used. But perhaps consideration should also be given for remotely sensed data where the shoal areas are perhaps not so "imprecise", and a more accurate indication of the position of shoals can be determined from sources such as satellite imagery.
Chairman: We have included this example as a further option.

Regarding the location of the new Specification, AU has no objection to the suggested location, but consideration may also be given to B-418.2 (as these areas will most often be in unsurveyed areas(?)), or B-410.2 (similar to what has been done for depths alongside berths). Note, however, that section B-424 of S-4 is headed "Doubtful Dangers", and in the example outlined on AU charts as above, these shoal areas and areas considered to be coral reefs are not "doubtful".
Chairman: We did consider other locations as suggested by AU, and also B-417 (as suggested by CA and others). There did not seem much to choose between the various locations and the vote is slightly in favour of staying with B-424.7. We will add cross references as appropriate.

CANADA

Action 13: CA uses the term "Aband" for abandoned as opposed to the term "Disused". To remain consistent within our own specifications, we will continue to use this term. Otherwise we agree with the proposed changes in this section.

Action 18: CA's preference is to place this specification within the 417 section since this deals with inadequate information. Though there is a link to 424 with "reported" and a link to 418 "unsurveyed", we feel that it's a better fit within the 417 section. In some sense there is a survey of some sort to gather the info (even if remotely sensed) and that it is more than reported in that there is some validation of the information from the method by which it was collected.
Chairman: see above response to AU.

FINLAND

Action 18: The draft is in line with our current practice, so we don't object this. However, we have tried to phase out these, because they cause certain issues on ENCs. (Usually the imprecision is partially lost and shoals become "too" precise on ENCs.) Has anyone established a good way to encode imprecise shoals on ENCs? If not, should CSPCWG rethink this?
Chairman: UK's policy is: 'In the corresponding ENC they must be captured as 0 - 30m depth areas (DEPARE) as there are potentially shoal depths/dangers within these areas. This ensures the area will display in an ECDIS'. Perhaps there should be an encoding bulletin issued? We will forward to Chairman TSMAD.

Action 23: Just as a side note: The Finnish language has no commonly used word for the colour 'amber'. It's either yellow (keltainen) or orange (oranssi). Or yellow-orange (keltaoranssi) (or even yellowish-brown (kellanruskea) as in our INT1), if there is need to distinguish.

FRANCE

[In separate email: B-620.3 Information considered to be navigationally significant, *….

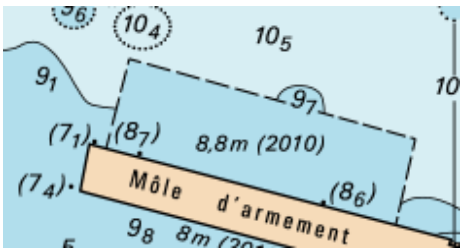
n. *Chart references. *References to adjoining and other scale charts when a NC (or NE with changed limits) is published, see B-635.2.

m. *Source (or ZOC) diagrams *for surveys assessed for charting of more recent date or different CATZOC than currently shown. For explanation, see B-290.6 and B-294.4.

the letter should be "o" instead of "m" for the last paragraph !?]
Chairman: of course! Thank you.

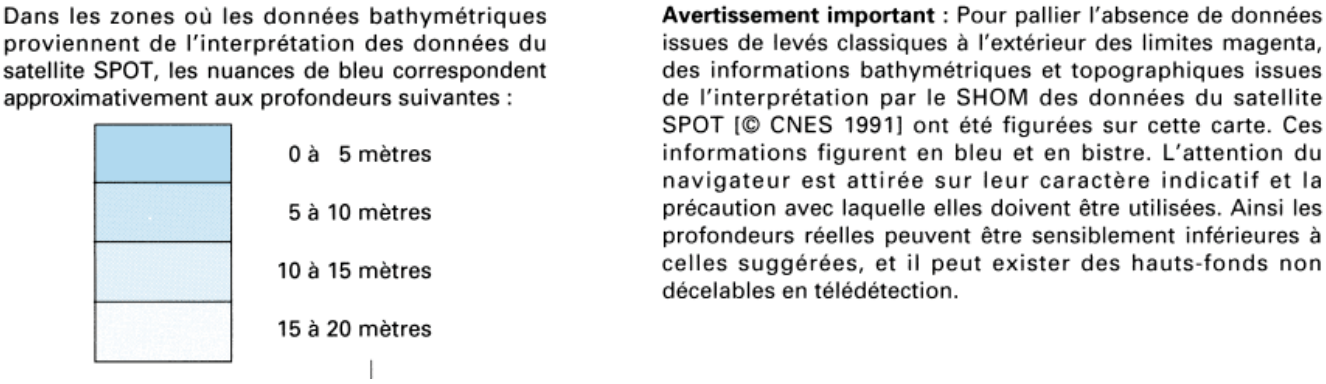
Action 12: The reference to very large scale chart should be illustrated, if necessary, by the terms given in B-126 (e.g.Berthing charts).
Chairman: We will amend to 'If the chart scale is sufficiently large, it may be possible…'

One example to illustrate "If the scale is too small to show the dredged limit parallel with the berth, it is still possible to show some 'out of position' soundings alongside, in parentheses either within the dredged area or on the adjacent land, as explained in B-412.2; see also B-414.5."



Chairman: Thank you, the graphic is a useful example and will be included. It is the only example we have received.

Action 18: The specifications should include also the possibilities of having more precision for the depiction of the depths of shoals, particularly at large scales, depending of the tools and methods used.
See French notes for such application:



Translation: In the zones where the bathymetric data come from the interpretation of the data of the satellite SPOT, the nuances of blue correspond roughly to the following depths:

Important warning: to mitigate an absence of data resulting from traditional surveys outside of the magenta limits, bathymetric and topographic information resulting from the interpretation by the SHOM of the data of the satellite SPOT were illustrated on this chart. These informations appear in blue and buff. The attention of the navigator is drawn to their indicative character and the precaution with which they must be used. Thus the real depths can be appreciably lower than those suggested, and it can exist nondetectable shallow waters in teledetection.
Chairman: I think 'more precision' is covered by AU's suggestion, see above and the additional option which will be included.

FR suggests this new specification should be in B-421.6 (B-421 is **ROCKS, ROCKY AREAS AND CORAL REEFS**), after B-421.5 **Submerged coral reefs and pinnacles.**
Chairman: see above response to AU. I do not recall considering B-421.6; it could be another option.

GERMANY
Action 18: We understand these shoal areas as inadequate surveyed. We prefer to add a wording about under B-417 and use possible symbols as I25, I30, I14 or I2.
Chairman: see above response to AU.

INDIA
Action 9: B 290.6: Source data diagram should be compulsorily updated when new surveys are included through Block corrections. The word 'exceptionally' may be deleted as it creates confusion.
Chairman: 'Exceptionally' deleted, as suggested; also at B-294.4 and B-297.4.

JAPAN
Action 12: B410.1 8th line '~ 2m' Japan has adopted the soundings within 1 meter from the position which is right under the outer edge of the fender attached on the quay.
B410.1 6th bullet: 'A diagram showing the profile of the side of the wharf may be included.' Japan suggests deleting this line. If there are multiple quays, it is difficult to spare enough space to chart the diagrams. And the use of this option makes paper charts complicated.
Chairman: Depths under the fender seem unnecessary to chart. I agree the 'profile' option would be unworkable where there are numerous quays, but it may still be a useful option.

Action 19: Japan does not agree with B414.6. Dredging plans should not be charted.
We have many experiences that dredging plans would be changed as a result of unavoidable circumstances. We propose that the result of dredging work should be reflected on paper charts.
Chairman: There is no obligation on any Member State to do this, but it provides options for how it may be done 'If it is considered useful…' (as stated at the beginning of the specification).

NETHERLANDS
Action 18: NL agrees with NZ that B424.7 contradicts B417.6 and 418.1
NL would not use the proposed B424.7 specifications
Chairman: See comment at NZ below.

NEW ZEALAND
Action 9: We agree with the proposed B-294-.4 but found the paragraph difficult to understand as the purpose of the paragraph is not obvious until after the bullet points. We suggest changing the first sentence to:
When a new survey is received and assessed by a hydrographic office, **the Source diagram would not be modified if it is** judged that:
And change the following sentences to:
As a result, the Source diagram would not be modified to indicate the existence of the new survey. However, if the mariner may be influenced to avoid an area because of the **age** of the currently charted data,

Chairman: Agree your suggestions above with regards to the first sentence. Once that amendment is made, the second sentence becomes mere repetition, so we have removed it altogether. In the next sentence, 'age' may not be the only factor the mariner needs to consider, so we will add it as an example: '…of the nature (eg age) of the…'

Action 12: No examples are available from New Zealand.
Action 18**:** The proposed B-424.7 contradicts B-417.6 and B-418.1 which state that 'Such areas must be shown by bold dashed black or magenta limits…'. We propose that the blue area shown in the graphic be delimited by 'bold dashed black or magenta limits' and the legend in B-417.6 or B-418.1 be added. The proposed Shoal Areas note could be reworded to become an Inadequately Surveyed or Unsurveyed note, with a reference to the dashed limit rather than the lack of contours.
This new specification could then be added to B-417.6 and B-418.1.
Chairman: These are methods of depicting some limited information within larger areas that are poorly surveyed or unsurveyed. Adding the bold dashed limiting line in these circumstances would be misleading, as it would imply that the other side of the line is surveyed. For placement in S-4, see comment at AU above.

Action 23: We suggest adding the quote from IALA, or an explanation about how orange, amber and yellow lights can not easily be differentiated over distance, to B-471.3.
Chairman: Agree.

NORWAY
Action 12 b) We do not know any good examples.

SOUTH AFRICA
Action No 9: B-620.3. The proposed change should read alphabetically **'o'** as 'm' is **Vertical clearances.**
Chairman: Of course! Thank you.

SPAIN
Action 9: I suggest to amend "**m**. Source (or ZOC)……" by "**o**. Source (or ZOC)……"
Chairman: Of course! Thank you.

SWEDEN
Action 13: ***specification 457.3:***

B-457.3 **Operational lighthouses,** ie substantial structures housing major marine navigational lights, must be shown as light stars (see B-470.5). As they are usually distinctive structures, in size, shape and colour, a small pictorial sketch may be placed nearby. It should normally be in magenta, but a different colour (other than black) may be used; see B-456.5.

 **E3.2**

Disused lighthouses are likely to remain visually conspicuous or prominent by day, and should be indicated by an appropriate building symbol (usually a tower – E20) or, if the structure is unknown, by a fixed point symbol (B22). The legend 'LtHo (disused)', or equivalent, may be inserted adjacent to the symbol, if this will help identify the distinctive shape of the building. Associated pictorial sketches may be retained for disused lighthouses.

For lights which have been temporarily extinguished, see B-473.7.

In SE we use the tower symbol E20 when lighthouses with substantial structures are disused. However when lighthouses with more minor structures are disused we use the 'Beacon in general' symbol Q80 (the version without the legend Bn). SE consider that using Q80, in such cases, should be a relevant method and if this is agreed upon by the CSPCWG perhaps something should be mentioned about it here in the specification.

Chairman: A disused lighthouse, by its nature, is almost always conspicuous, even when it no longer has a navigational purpose. If a lesser light structure becomes disused and is no longer a navigational daymark, it should be considered for potentially charting as a landmark by whatever symbol is most appropriate; that may be Q80. If this could potentially be confusing, perhaps a legend 'disused' should be added, but it would not be appropriate to include this in the specification dealing with lighthouses. Perhaps Sweden would like to suggest a solution for a future discussion?

US
Action 9: The proposed wording is difficult to follow. In all cases, the dates of the latest surveys evaluated for charting should be indicated in the source diagram, even if the actual charted hydrography, in an area of virtually no change, is from earlier surveys. This revised date gives the mariner an indication of the currency of the data. If surveys from the year 2010 show little change from the charted hydrography surveyed in 1948, the 2010 date should be used in the source diagram. The chart user would know that the charted data is good in recent times; otherwise he/she thinks that nothing has been surveyed in over 60 years and that the age of the survey makes the hydrography suspect. This should be the rule and not the "exception". Also, the scale of a survey may have some meaning to a hydrographer or cartographer in terms of line spacing, but would have little meaning to most chart users. What matters to the user is whether or not "full bottom coverage" was or was not achieved. The source diagram should reflect this.
Chairman: I agree with all that. 'Exceptionally' will be deleted; see also comment by India.

Action 10: The charted text refers to a physical obstruction and not a regulated or restricted area, so the text should be charted in black, just like the obstruction (wreck).
Chairman: this is one of those cases which can be argued either way, but traditionally the 'historic' element has been regarded as regulatory and consequently magenta, especially when associated (as it always was) with a restricted area symbol. It was agreed during the discussion that the legend should remain magenta even if the restricted area is not shown (or does not

exist), to avoid confusing the user by sometimes having the legend in black, sometimes in magenta.

Action 12: Along-side depth legends could be added parallel to the bulkhead on the "land" side or in a charted note.
Chairman: This could be an extra option. We will add an extra bullet: "A legend may be added on the land alongside the berth, eg 'Depth alongside 3.2m, 5m from wall', 'Depth alongside 3.2m (see Note). The note could explain that the foundations of the berth extend 5m underwater, for example.'."
The "blue tint" option would not work where the along-side depths are less than the adjacent dredged area but greater than the value of the blue tint curve. An example of a profile diagram would be helpful in determining whether or not this is a viable option.
Chairman: Yes, which is why the bullet says 'Choice of colour tints may allow…'. We do not have an example of a profile diagram (yet).

Action 13: Consider the use of the term "structure" or "landmark" rather than "building".
Chairman: We will omit the word in the first incidence and use 'structure' in the second.

Action 19: Without seeing an example, it sounds like superimposing magenta limits and legends on a chart over "existing depth information" in black would be very confusing to mariners. The preliminary NM or preliminary edition sound like more viable options.
Chairman: I think the words 'Being dredged…' (or equivalent) should avoid confusion. But it will only be a practicable option in some cases.

Action 23: Orange and amber lights must be charted as "Y"(instead of "should"). Otherwise, S-4 would be giving the option of charting light signal colours contrary to IALA's advice.
Chairman: Point well made. However, although IALA have advised, not all lighting authorities follow IALA's guidance. The suggestion from NZ will reinforce the 'should'.

PROPOSED NEW AND REVISED SPECIFICATIONS

1. **Source/Zoc Diagrams**
2. **Historic wrecks**
3. **Berthside obstructions**
4. **Lighthouses**
5. **Symbol for diving prohibited**
6. **Depiction of imprecise shoal areas**
7. **Development dredging**
8. **Yellow, amber and orange lights**

1. Source/ZOC diagrams.

Background: The CSPCWG considered how and why to include details of surveys assessed for charting, even when the bathymetry is largely unchanged. For example, an area compiled from a single-beam 1990 survey may have been resurveyed in 2010 by multi-beam, which demonstrated that the bathymetry is generally unchanged. It was agreed that some additional guidance should be added to S-4 in B-290 as an option to include evaluated sources on Source/ZOC Diagrams and also to include an additional NM criterion in B-620.

Proposed additions and amendments to S-4 shown in red.

B-290.6 **Updating:** Source diagrams should be updated when New Editions of charts are compiled. Source diagrams may be updated by NM, when a new survey in a navigationally significant area has been included on the chart by NM Block, or has been assessed for significant changes with none being found; see B-294.4.

B-294 DETAILS OF SOURCES: DATE AND SCALE

B-294.1 The date of a survey must be given on conventional Source diagrams. It gives an indication of:

- The adequacy of the equipment used
- The thoroughness of examinations of dangers at particular depths (based on the maximum draught of vessels afloat at that date)
- The likelihood of later changes in depths, particularly in areas of mobile or unstable seabed or coral growth.

For ZOC diagrams, see B-297.8.

The date of the edition of a published chart used can be misleading (as the source data may be much older) but may have some value.

Year dates only should normally be used.

B-294.2 Guidance on the practical significance of survey dates should be given in a national publication that advises users on the reliability of charts; see B-290.5.

B-294.3 The scale of a controlled survey (see B-295.2) may provide some indication of the thoroughness and the line-spacing, and should be stated in the form 1:5 000, 1:15 000, etc, on conventional Source diagrams. The scale of a chart source may have some value. If considered useful, line-spacing may be added to the details of a survey, e.g. '200m', under the heading 'Line-spacing', or equivalent. For surveys gathered by systems using multibeam, interferometric, laser or Lidar technologies, scale has little relevance; a statement of whether full sea floor coverage has been achieved, or not achieved, should be given instead.

B-294.4 When a new survey is received and assessed by a hydrographic office, the Source diagram would not normally be modified if it is judged that:

- changes to the charted depths are of no navigational significance so a New Edition of the relevant chart is not necessary; or
- all navigationally significant depth changes can be promulgated by NM (especially on smaller scale charts).

However, if the mariner may be influenced to avoid an area because of the nature (eg age) of the currently charted data, then a New Edition must be considered to incorporate the new survey (and

update the Source or ZOC diagram) even if the depths show little change. Consideration may be given to updating the Source or ZOC diagram details by NM (or NM Block). If this method is used, because the new details would not reflect the actual source used on the chart, an explanatory note should be added, eg '(most recent data used or assessed for charting)', or equivalent, directly under the Source diagram's title.

B-297.4 The quality of the hydrographic source data is assessed according to six categories: five quality categories for assessed data (A1, A2, B, C and D) and a sixth category (U) for data which has not been assessed. If none of the hydrographic sources used on a chart have been assessed, a ZOC diagram indicating only 'U' values should not be added to the chart, as it would not include any information of use to the mariner.

The assessment of hydrographic data quality and classification into zones is based on a combination of:

a. Position accuracy,

b. Depth accuracy, and

c. Sea floor coverage (certainty of significant feature detection).

Where a charted survey is supplemented by occasional soundings from a less accurate source, only the main survey should normally be categorised. The less accurate depths may be indicated as hairline/upright sounding figures (see B-417.3) on the chart.

When a new survey of better (or possibly worse) CATZOC than shown in the diagram is assessed between editions, consideration may be given to updating the ZOC diagram by NM (or NM Block). For a fuller explanation, see B-294.4. A high category survey in an area of mobile seabed may need to be downgraded if a later sketch surveys proves that the earlier survey is now inaccurate.

B-620.3 Information considered to be navigationally significant, ….

n. **Chart references.** References to adjoining and other scale charts when a NC (or NE with changed limits) is published, see B-635.2.

o. **Source (or ZOC) diagrams** for surveys assessed for charting of more recent date or different CATZOC than currently shown. For explanation, see B-290.6 and B-294.4.

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2. Historic Wrecks

Background. In Australia (and possibly elsewhere), wrecks over 75 years old are automatically classified as historic wrecks. This status implies that certain activities on the wreck are not allowed (eg diving), but no area is specified. Existing S-4 specifications do not quite cover this situation, as the INT1 'symbol' is limited to a restricted area with legend. It was agreed that historic wrecks, with or without an associated area, should be indicated by a magenta legend. The S-4 specification should be amended accordingly and relocated in the wrecks area (B-422), thereby changing the emphasis to the wreck rather than an area. INT1 N26 was considered to be redundant (and has been removed from the latest editions of INT1).

Proposed additions and amendments to S-4 shown in red.

B-422 *[instead of B-449.5]*

i **Historic wrecks.** Many nations have designated certain wrecks to be of historical or cultural importance (eg due to age, as sea graves), to protect the wrecks from unauthorised interference (eg by diving, salvage, anchoring). Such wrecks must be indicated, if required, by a magenta legend '*Historic Wk*', or equivalent, adjacent to the symbol. Any wreck detail and associated buoyage must be shown in black. If there is an associated area in which restrictions apply, this must be shown, if required, by the symbol for a restricted area (N2.1) on the largest scale charts.

An explanatory note may be added, in magenta, if required, eg:

HISTORIC WRECKS
The sites of historic wrecks are protected from unauthorised interference. Diving, fishing, anchoring and salvage are prohibited.

B-449.5 Not currently used.

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3. Berthside obstructions

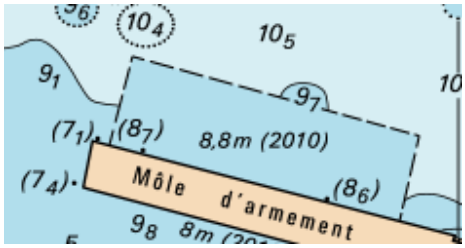
Background. Many berths are built with foundations which extend underwater. Changing ship design (from 'V'-shaped hulls to more 'U'-shaped hulls) means that such foundations, shoaler than the designed or dredged alongside depth, may be a hazard. CSPCWG agreed that some guidance should be added to S-4.

Proposed additions and amendments to S-4 shown in red.

B-410.1 **Depths alongside berths.** Berths are generally depicted on charts on the assumption that the construction consists of a vertical wall down to the harbour or river floor (often down to the charted dredged depth); however, this is not always the case. There may be an underwater slope or base structure supporting the wall, which protrudes below water into the berthing area above the sea floor (reportedly by up to 6m). For vessels with 'V'-shaped hulls, this is not usually an issue; however, for vessels with 'U'-shaped hulls, with near vertical sides, an underwater protrusion at a berth is more significant.

A protrusion of up to 2m is unlikely to create a problem and should not be charted, unless advised by the local authority. For larger protrusions, the charting options will depend largely on the scale of the chart. Consideration should be given to the following; more than one may be appropriate depending on circumstances:

- If the chart scale is sufficiently large, it may be possible to show the inner limit (dashed line) of the dredged area, if there is one, parallel with the wharf, so that navigators know that the dredged depth is not continuous right up to the edge of the berth. It may be possible to show some actual soundings in this narrow area, or 'out of position soundings' to show the 'alongside depth', as explained in B-412.2. Such soundings would need to be shown sufficiently frequently to indicate that it is not possible to avoid them by berthing between the soundings.
- Choice of colour tints may allow this area to be shown in blue tint while the dredged area is white, which will draw attention to shoaler depths and berth-side obstructions.
- If the scale is too small to show the dredged limit parallel with the berth, it is still possible to show some 'out of position' soundings alongside, in parentheses either within the dredged area or on the adjacent land, as explained in B-412.2; see also B-414.5, eg:



- A chart note may be used, advising the chart user to contact the harbour authority or pilot for advice whether it is possible to berth a particular vessel alongside. If applicable, the note may refer to an associated publication providing more details.
- A legend may be added on the land alongside the berth, eg 'Depth alongside 3.2m, 5m from wall', 'Depth alongside 3.2m (see Note)'. The note could explain that the foundations of the berth extend 5m underwater, for example.
- A large scale inset plan may be used to show more detail.
- A diagram showing the profile of the side of the wharf may be included.

A danger line should not be inserted alongside the wharf, as this indicates that the structure is not intended for berthing alongside, see B-322.1.

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4. Lighthouses

Background. Several different ways of depicting disused lighthouses have evolved. In the interests of standardization, CSPCWG agreed that clear guidance in one place in S-4 is desirable.

Proposed revisions to S-4 in red.

B-457.3 **Operational lighthouses,** ie substantial structures housing major marine navigational lights, must be shown as light stars (see B-470.5). As they are usually distinctive structures, in size, shape and colour, a small pictorial sketch may be placed nearby. It should normally be in magenta, but a different colour (other than black) may be used; see B-456.5.

 **E3.2**

Disused lighthouses are likely to remain visually conspicuous or prominent by day, and should be indicated by an appropriate symbol (usually a tower – E20) or, if the structure is unknown, by a fixed point symbol (B22). The legend 'LtHo (disused)', or equivalent, may be inserted adjacent to the symbol, if this will help identify the distinctive shape of the structure. Associated pictorial sketches may be retained for disused lighthouses.

For lights which have been temporarily extinguished, see B-473.7.

B-470.5 **Position of lights.** The position of a light (including one exhibited from a lighthouse, see B-457.3) should normally be shown by a five-pointed star in one of two sizes.

 **P1**

The larger star should be used for the majority of lights, including all major lights, see B-472.1. The smaller star may be used where there are numerous minor lights, eg the corners of quays and dolphins in a harbour.

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5. Symbol for diving prohibited

Several hydrographic offices have developed similar national symbols for diving prohibited. The CSPCWG agreed that an INT symbol for diving prohibited would be useful. It had been suggested that a simpler symbol was needed for ease of hand drawing, but no simpler, intuitive symbol could be devised. However, the CSPCWG considered that there is no need for the symbol to be very simple, as it is not expected that it should be inserted by NM and therefore need to be hand drawn.

Proposal for INT1

Suggested location in INT1: Divide N21 into 21.1 (Fishing prohibited) and 21.2 (diving prohibited).

Proposal for S-4

Propose adding:

- An example at B-439.3 (underneath N21)
- An example of a small area with centred symbol at B-439.4.

There does not seem any need for further additions to S-4. No specifications beyond these examples are included for N2.2 and N21. Examples of small seaplane operations area (N13), one or two ESSAs (from N22) and possibly the individual mine symbol (N23.1) could also be added to the examples at B-439.4.

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6. Depiction of imprecise shoal depth areas

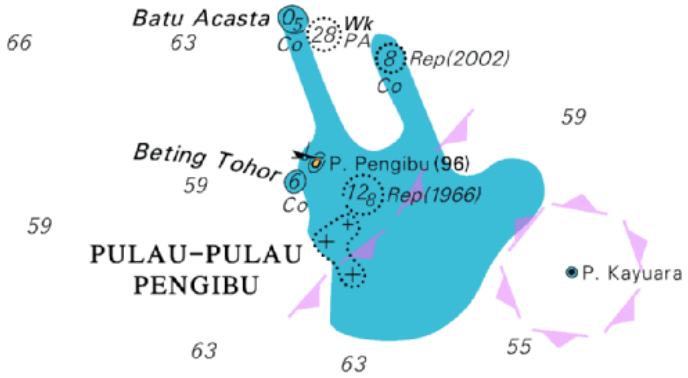
Background. Various methods of depicting the possible existence of shoal areas (eg derived from satellite photography, satellite altimetry, gravitational measurements) have been developed. While there is no invariable cartographic solution, CSPCWG decided that some general guidance and examples in S-4 would be helpful.

Draft additions and amendments to S-4 shown in red.

B-424.7 **Imprecise Shoal Areas.** It is important to depict known or suspected shoal areas on charts, so that the prudent mariner can avoid them, even where the actual depths cannot be shown because of the limitations of the source data. In areas where reliable hydrographic survey data is very limited or non-existent, it is sometimes possible to identify the existence of shoal patches by satellite imagery.

If confidence in the data is low, such areas should be charted by an area of full shallow water blue tint, without limiting line or contour. This is to avoid implying that the full extent or depth of the shoal has been established and also avoid conflicting line styles with any charted shoals from other sources that may lie close to or within the area.

Example:

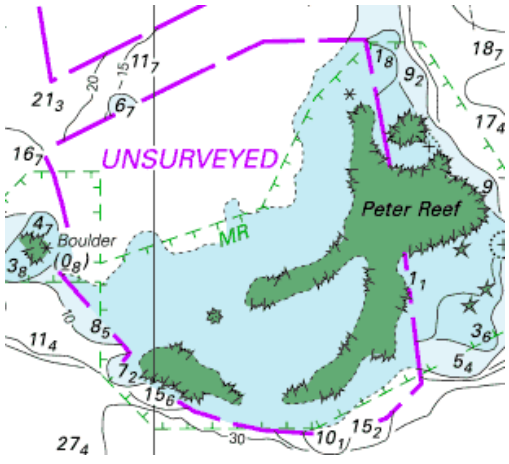


An explanatory note should be included on the chart, eg:

SHOAL AREAS

The shoal areas depicted within the area of this chart without contours, thus: , have been derived from satellite imagery. Uncharted dangers may exist.

Where confidence in the data allows, fine dashed lines may be used to bound areas of appropriate tint. For areas which may dry, small sections of symbols, eg rock, coral, may be inserted where known, eg:



An explanatory note should be included on the chart, eg:

REEF AND SHOAL LIMITS

Where reefs and shoals have not been surveyed, their limits have been determined from satellite imagery. They are not conclusive and dangers may exist outside the charted limits.

It is also possible to predict the existence of shoal areas (potentially dangerous only to sub-surface operations) by use of other techniques, eg gravimetric data. In such cases, an appropriate selection from B-424.1-5 should be made. If the depth can be reasonably estimated to lie between two extremes, particularly if the lower extreme can be confidently predicted to be greater than 30m, a legend, eg: *Shoal 30-100m rep (2011)*, or equivalent, may be inserted within or adjacent to the area. A dashed limit **(N1.1)** may be used to define the area, if necessary.

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7. Development dredging

Background. The CSPCWG considered that guidance is required for charting port areas planned for dredging, but not in such a way that the mariner may assume that what is charted already exists.

Draft additions and amendments to S-4 shown in red (except where magenta).

414.6 **Areas being dredged**. If it is considered useful to provide the mariner with detailed dredging plans (eg during port development), then the following options may be used, listed in the most likely order of application:

- Issue a preliminary (P) NM, including if useful a diagram showing the planned layout and depths of dredged areas; see B-634. Note: any diagram should be in accordance with B-634.5.
- Insert the outline of the planned dredged area on the chart in magenta (N1.2), by NM or New Edition as appropriate. Add sloping magenta legends within or adjacent to the area, as appropriate, stating, eg: '*Being dredged to 6,5m (2011)*', or equivalent. Existing depth information, if any, must not be deleted until confirmation has been received that the dredging has been completed. Consider adding a note explaining the situation, eg:

  DEPTHS – DREDGING PLANS

  Planned dredged depths and limits of access channels are shown in magenta and not confirmed. The Port Authority must be consulted for the latest information.

- In exceptional circumstances, publish a preliminary edition of the chart, as detailed in B-621.

For new constructions, areas being reclaimed and works in progress, see B-329; in these cases, the dashed lines, legends and tints make it clear that these works may be incomplete.

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8. Yellow, amber and orange lights

Background. A proposal was received to remove the option (at S-4 B-450.2) to chart orange and amber lights as yellow, to facilitate the population of the appropriate enumerates in S-57. A counter-proposal was to retain the existing options and leave the orange and amber enumerates in S-57 unpopulated (and delete them from S-101). As the proposals dealt with the colours of lights, it was decided that the issue should be referred to IALA for advice.

> The following response was received from the Chairman of IALA's Aids to Navigation Management Committee:
>
> The differentiation of orange, amber and yellow light by the human eye in anything other than good visibility can be seriously degraded over distance. Therefore within the maritime buoyage system and the international convention for the prevention of collisions at sea (the rule of the road) only red, green, white and yellow are used. In terms of charting therefore, whilst it may be of interest to denote an orange or amber light, these colour differentiations should not be used with respect to light signals. It is the opinion of ANM that charting for marine use should stick to the colour yellow when referring to lights but may differentiate if referring to structure colours e.g. orange Or tower.'

It is proposed to amend the note under the table at B-450.2 to read:

The differentiation of orange, amber and yellow light by the human eye in anything other than good visibility can be seriously degraded over distance. For this reason only red, green, white and yellow lights are used within the IALA Maritime Buoyage System and the International Regulations for Preventing of Collisions at Sea (COLREGs). IALA advises therefore that orange and amber lights should be charted as ‘Y’.