



CHART STANDARDIZATION & PAPER CHART WORKING GROUP (CSPCWG)

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

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To CSPCWG Members

Date 13 July 2011

Dear Colleagues,

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

Many of the 30 actions listed at CSPCWG7 required the Secretary (sometimes in consultation with others) to draft various papers. Work has started on most of these but it seems best to present them for consideration by Working Group members in small groups.

This letter covers actions 9, 10, 12, 13, 16, 18, 19 and 23. Each is the subject of a separate Annex. In each case, the relevant extract from the Record of CSPCWG7 meeting heads the Annex, and is followed by the proposed new or revised text or other actions.

Please study each carefully and let me have your comments by 7 September, using the response Form at Annex I. Responses are invited from all WG members, not just those who attended CSPCWG7. Comments are also welcome from other addressees.

Yours sincerely,

Andrew Heath-Coleman, Secretary

Annex A	Action 9: Depiction of surveys on Source Diagrams
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CSPCWG7 – ACTION 9**8.3 Depiction of surveys on Source Diagrams (UK)***Docs: CSPCWG7-08.3A Depiction of surveys on Source Diagrams*

P Jones (UK) explained the various issues outlined in the paper, in respect of 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 unchanged. He asked whether this information should be conveyed to the mariner and, if so, how? WG members were asked for their views, which varied between no action necessary, to NM block, to update the Source or ZOC diagram. Another method is to announce the surveys in NM, advising the results even if no charting update action is required. 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. TSMAD would pick up any changes needed for CATZOC from the CSPCWG actions.

ACTION 9: Secretary to draft clarifications to S-4 B-290 and B-620 for Source and ZOC diagrams.

Draft 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. *Exceptionally, 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, eg '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, 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 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.

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 exceptionally be given to updating the ZOC diagram by NM (or NM Block). For a fuller explanation, see B-294.4.

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.

CSPCWG7 – ACTION 10

8.4 Historic Wrecks (AU)

Docs: CSPCWG7-08.4A Historic Wreck at INT1 – N26

J Wootton (AU) explained that in Australia, 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 an area and 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, using wording suggested by AU and Secretary and relocated in the wrecks area (B-422), thereby changing the emphasis to the wreck rather than the area. INT1 N26 was considered to be redundant.

ACTION 10: Secretary (in consultation with AU) to draft revised wording on historic wrecks for S-4 and circulate to WG members for approval.

ACTION 11: INT1 producers to remove the example in N26. [*Note: DE has done this in 7th Edition 2011*].

Draft 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.*

CSPCWG7 – ACTION 12**8.5 Wharfside obstructions (KR / UK)**

Docs: CSPCWG7-INF1

Wharfside obstructions

Noting the problems raised by Y Baek (KR) are universal, it was agreed that some guidance could be added to S-4 along the lines outlined in the paper (possibly during the on-going review of B-300 under berthing areas, or at least cross referenced from there). B-410 was noted as another possible reference to use. M Wallhagen (SE) commented that they advised cartographers to ignore depths closer than 2m to a quayside.

ACTION 12: Secretary to draft wording for wharfside obstructions, based on CSPCWG7-INF1 and circulate to WG for approval.

Comment: Section B-300 generally deals with Topography and provides details of the charting of the above-water elements of berths. It seems therefore more appropriate to provide guidance about charting of depths alongside berths in Section B-400 (but with a cross reference from B-321). Suggested place is a new sub-specification B-410.1 (also cross referenced from B-410a, after 'alongside jetties, quays and berths').

Proposal for S-4

Draft 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 very large (including berthing scale ENC), 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.
- 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 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.

CSPCWG7 - Action 13**8.6 Lighthouses (AU)**

Docs: CSPCWG7-08.6A Lighthouses

J Wootton (AU) suggested three possible ways of charting a disused lighthouse. The meeting consensus was that the best method is to use an appropriate landmark symbol (usually a tower E20) or a position circle (B22), without light flare or star. The legend LtHo (disused), or equivalent, should be placed adjacent. The guidance 'should' rather than 'must' is appropriate. Some clarification is required at B-457.3 to show this specification applies only to lighthouses which are in use for displaying navigational lights.

ACTION 13: Secretary (in consultation with AU) to draft wording for disused lighthouses, which brings together the guidance in one suitable place.

Suggested 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 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.

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.

Note: 'should normally' still applies here, because of the various exclusions which follow. However, lighthouses are not listed in the exclusions, so they should be shown by a light star. The earlier paragraph makes clear that in fact it is a 'must'. Suggest no need for cross reference at B-374.3 and no need for entry in INT1, as the legend is self-explanatory.

CSPCWG7 – ACTION 16**8.8 Symbol for diving prohibited (SE)**

Docs: CSPCWG7-08.8A *Symbol for diving prohibited*
 CSPCWG7-08.8B *Symbol for diving prohibited – some history*

The meeting agreed that an INT symbol for diving prohibited would be useful. When previously considered by CSPCWG (Letter 04/2004 refers) it was suggested that a simpler symbol was needed for ease of hand drawing, but no simpler, intuitive symbol had been devised. This meeting 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. Several examples were viewed and the SE example was accepted as a good model. It was also agreed to use a 'cross' (X) rather than a 'stroke' (/) to signify prohibition, as this is consistent with other paper chart prohibited symbols and also avoids a clash with existing national symbols (eg DK) which use a stroke to signify advice.

ACTION 16: Secretary to draft a specification for diving prohibited.

Proposal for INT1

1. Suggested location in INT1: new entry at N28, with similar layout to N20 and N21.
2. An alternative (as suggested by Sweden in CSPCWG7-08.8A) could be to split N21. In this case, N21 should be headed 'Specified restrictions' (in a way similar to N22) with N21.1 being 'Fishing prohibited' and N21.2 being 'Diving prohibited'. This would leave open the possibility of symbolizing other restrictions in the future, such as 'seabed activities prohibited', 'dumping prohibited'...within an 'N21 group'. The problem of this option is that 'anchoring prohibited' has a separate entry at N20 and 'entry prohibited' is at N2.2, although logic would suggest they should be part of such an N21 group. But this is just another example of the many illogical location problems which accumulate in an evolving publication like INT1, which we have discussed before. The first option avoids this problem.

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.

Note: while considering this matter, two other matters were noticed:

- the entry for N12.1 at B-439.4 is wrong (the limit should be amended to dashes instead of T-shaped dashes).
- examples of small seaplane operations area (N13), one or two ESSAs (N22) and possibly N23.1 should be added to the examples at B-439.4.

CSPCWG7 – ACTION 18**8.11 Depiction of imprecise shoal depth areas (UK/US)**

Docs: CSPCWG7-08.11A *Depiction of imprecise shoal depth areas*
 CSPCWG7-INF4 *Red dot areas (Commentary on CSPCWG7-08.11A)*

Various methods of recognising the possible existence of shoal areas (eg from satellite photography, satellite altimetry, gravitational measurements) were explained, along with possible charting solutions. J Barone (US-NGA) explained the circumstances outlined in paper INF4. These include the use of existing styles such as 'Rep' depths and areas, use of danger line and shallow water blue tint areas. While there is no invariable cartographic solution, it was decided that some general guidance in S-4 would be helpful.

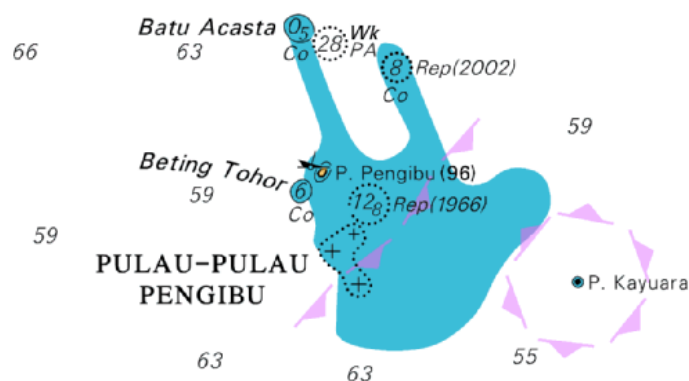
ACTION 18: Secretary to draft some outline guidance, with examples of techniques, for showing possible shoal areas derived from remote sensing methods, in consultation initially with FR, AU and US(NGA).

Draft addition to S-4.

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. 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.

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.

CSPCWG7 – ACTION 19

8.12 Development dredging (UK)

Docs: CSPCWG7-INF3 *Development dredging*

The draft specification in the paper was considered to cover the objections that had been directed at the original draft (arising from CSPCWG6 Action 25) for planned dredging areas. The Secretary was invited to circulate the new draft to the full WG for further consideration.

ACTION 19: Secretary to circulate revised proposal on development dredging to full WG for comment.

Draft addition to S-4.

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.

CSPCWG7 – ACTION 23

9.6 Colour abbreviations for orange and amber lights (AU)

Docs: CSPCWG7-09.6A Colour Annotation on Paper Charts

The proposal was to remove the option to chart orange and amber lights as yellow, to enable the population of the appropriate enumerates in S-57. The 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). However, as the proposals deal with colours of lights, it was decided that the issue should be referred to IALA for advice.

ACTION 23: Secretary to refer the issue of charting orange and amber lights to IALA for advice, explaining the background to the proposals.

The following response was received from Mike Hadley, IALA Technical Co-ordination Manager:

‘The answer from the Chair of our Aids to Navigation Management Committee is:

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.’

This means that the option to chart orange and amber lights as yellow should not be removed. The question arises whether the note under the table at B-450.2 should read:

Orange and amber lights should be charted as ‘Y’.

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

Response Form

(please return to CSPCWG Secretary by 7 September 2011)

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

If you do not agree with any of the changes, please comment below or submit a marked up version of the Annex(es).

Name:

Member State: