

INTERNATIONAL HYDROGRAPHIC ORGANIZATION



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COLOUR & SYMBOL SPECIFICATIONS FOR ECDIS

Edition 4.1 – January 1999

and its Annex A

IHO ECDIS PRESENTATION LIBRARY

Edition 3.2 – May 2000

C & S MAINTENANCE DOCUMENT

Number 4 – March 2004

DEFERRED AMENDMENT 6

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Introduction

The procedures for amending S-52 Appendix 2 follow those established for S-57, except in stressing the distinction between immediate and deferred amendments. Definitions and procedures for these amendments are given in S-52 App.2 "Colour & Symbol Specifications for ECDIS" (C&S Specs), section 1.2.4.1.

Amendments to S-52 App. 2 affect primarily the ECDIS manufacturers, though the mariners will benefit from the improvements made. The consequences of revisions of detail in an immediate amendment are generally a relatively minor matter, for example replacing a table in the manufacturer's software. (However once type-approved ECDIS are installed onboard ship, applying amendments becomes a much more difficult matter.)

An immediate amendment to the C&S Specs or Presentation Library (PresLib) changes the edition number. It applies only to corrections, which must not depend on any deferred amendment.

A deferred amendment is not entered in any S-52 Appendix 2 document until the next edition which is identified as bringing the deferred amendments into force.

The item number of each amendment item gives the edition number of the C&S Specs or the PresLib to which the amendment item applies. This edition number will change once an immediate amendment is applied, but does not change for a deferred amendment.

At the end of each immediate amendment, there is a reminder of the current edition number after the amendment is applied.

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S-52 APP. 2 – DEFERRED AMENDMENT 6**March 2004**

NOTES

1. These amendments are intended to remind users of S52 App.2 of the changes made at meetings C&S 13 and 14 and to point out where these changes have been applied in producing C&S Specs ed. 4.2 and PresLib 3.3.

2. CHANGE HISTORY FOR S-52 APP.2 FROM C&S SPECS 4.0 --> 4.2 AND PRESLIB 3.0-->3.3

As decided at C&SMWG meeting 13, edition 4.2 of the C&S Specs and 3.3 of the PresLib, to be issued in 2004, will bring into effect all outstanding deferred amendments to editions 4.0 of the C&S Specs and 3.0 of the PresLib issued in 1997.

CHANGE HISTORY FROM 1997 TO 2004

As required by C&S12 minutes 5.3.4, a change history should be added to the C&S Specs. and the PresLib. The history of the previous changes is as follows (MD stands for IHO Maintenance Document; IA stands for Immediate Amendment; and DA stands for Deferred Amendment):

Colours & Symbols Specifications (S-52 Appendix 2)

- Edition 4.0 (July 1997) + MD1 IA i01 --> Edition 4.1 (January 1999)
- Edition 4.1 + MD2 DA d02 + MD4 DA d6 --> Edition 4.2 (2004)

Presentation Library (Annex A to S-52 Appendix 2)

- Edition 3.0 (July 1997) + MD1 IA i01 --> Edition 3.1 (January 1999)
- Edition 3.1 + MD 3 IA i04 --> Edition 3.2 (May 2000)
- Edition 3.2 + MD2 DA d02 + MD3 DA d05 + MD4 DA d6 --> Edition 3.3 (2004)
- Digital versions: PRSLIB03.dai (July 1997), PSLB03_1.dai (December 1998), PSLB03_2.dai (May 2000).
- Temporary digital files: PSTY03_0.dai (June 1999), PSTY3_2b.dai (October 2001) (see amendment d05.cl.005)

3. ERROR IN TEMPORARY .DAI FILES FOR PRESLIB 3.2

An error exists in the deep water route centreline linestyle LC(DWRTCL07 & -08) in all the past temporary PSTY.DAI digital Presentation Library files applying to PresLib ed. 3.2, i.e.:

PSTY03_0.DAI of 28 June 1999,
 PSTY3_2b.DAI of 5 Oct 2001, and
 PSTY3_2B.DAI of 9 Apr 2002 (this file was issued at meeting C&S 13 but was never distributed generally).

The error is that the arrow points in the wrong direction by 180 deg. This error does not exist in the regular digital file PSLB03_2.DAI.

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S-52 APP. 2 – DEFERRED AMENDMENT 06

Throughout this amendment changes to the C&S Specs. and the PresLib. are indicated by ~~strike through~~ for deletions and **bold** for additions.

Item No. CS04.1.d6.co.1 - Correction to Colour & Symbol Specifications 1.2.3 and 1.2.4 – **revised Amendment Procedures**

C&S12 minutes item 5.1.1 outcome 3 reads:

- "3. *The meeting agreed that for consistency of IHO documentation, all documents should in future be issued as new "editions". Any periods of grace, "grandfather" clauses or other special implementation rules shall be included with the edition when it is released. Incremental changes will be indicated 3.3, 3.4, etc. Major revisions will be designated by a sequential prefix – 3.0, 4.0, 5.0, etc.*"

C&S12 minutes item 5.3.4 outcomes 2 and 3 read:

- "2. *The meeting agreed that better promulgation of the current edition numbers is required. All documents should provide a reference to the IHO website where a list of current editions is already maintained.*
3. *The meeting recommended that a change control history should be included in each document as they are revised.*"

(Note that the C&S Specs. have not been updated to edition 4.1. The above outcomes are therefore to be applied to existing immediate amendment 01 Item No. CS04.0.i01.co.001, which introduced the amendment procedures.)

C&S 13 minutes item 6 accepted the amendment below.

At C&S14 it was accepted informally that the Presentation library as a word processed file would become the "Official Presentation Library", and that it would carry a subscription charge for each new edition to help to cover maintenance costs. The digital version in .dai format containing the Symbol Library, Colour Tables and Look-up Tables would be provided as a manufacturer's option for edition 3.3, but may not be updated or provided for succeeding editions.

It was also agreed that amendments would in future be posted on the IHB Maintenance Bulletin Board (minutes item 12.2).

To implement these instructions from C&S12 and 13 revise, C&S Specs. ed. 4.1 section 1.2.2 to read as follows (changes in ~~strike through~~ and **bold**):

"The Presentation Library, **together with the Colour & Symbol Specifications, are** ~~is~~ supplied as a word-processed file on a CD **which carries a subscription charge for each new edition to help to cover maintenance costs**. This is the "Official Version" of the Presentation Library. A digital version in .dai format containing the Symbol Library, Colour Tables and Look-up Tables is provided as a manufacturer's option for edition 3.3, but may not be provided for succeeding editions. "

And revise section 1.2.3 to read as follows:

"1.2.3 Amending the Colour & Symbol Specifications and the Presentation Library

1.2.3.1 It is inevitable that amendments to the Colour & Symbol Specifications and the Presentation Library will be required as further testing is done and as sea experience accumulates.

ECDIS manufacturers should keep in mind that ECDIS is a new and developing aid to navigation. If it is to achieve its full potential it must be capable of changing to meet the mariner's evolving requirements. The ECDIS should be designed with enough flexibility to adapt to necessary and significant further developments with future editions of the ~~Colour & Symbol Specifications~~ **S52 App.2**

In the life of each edition of the ~~Colour & Symbol Specifications~~, **S52 App.2** amendments to the structure of the Presentation Library which might affect the ECDIS software (for example changing the number of fields in the look-up tables, or changing the logic of a conditional symbology procedure) will be avoided as far as possible. ~~Amendments~~ **However incremental changes** to detail in the Colour & Symbol Specifications and the Presentation Library ~~may~~ will be required. ~~from the start.~~

In a ~~new edition~~ **major revision**, changes in structure ~~will again be avoided whenever possible.~~ ~~but they~~ will be made if necessary.

Details of ~~amendment procedures~~ **the amendment process** are given in 1.2.4 below.

- 1.2.3.2 The current editions of the ~~Colour & Symbol Specifications~~ **S52 App.2 remain in force until the issue of either:**
(a) an immediate correction which is essential for reasons of safety of navigation, or
(b) a new edition which is identified as bringing outstanding deferred amendments into force.
Either of these will result in a new edition of the Colour & Symbol Specifications and/or the Presentation library, whichever is affected.

- 1.2.3.3 Amendments will be ~~passed to the manufacturer~~ **distributed as described in section 1.2.4** for information or for implementation. As noted above, immediate correction **amendments** may have to be issued under certain circumstances.

The manufacturer should implement any immediate corrections in all his ECDIS systems fitted onboard ship, at the first convenient port call as soon as possible.

When an amendment is implemented in a type approved ECDIS, the manufacturer should inform the type approval authority in case re-testing may be required.

1.2.4 Amendment Procedures

1.2.4.1 Definitions

- 1.2.4.1.1 There are three classes of amendments:
~~("specifications" in this section refers to the Colour & Symbol Specifications and/or the Presentation Library)~~

1.2.4.1 (i) "Clarification": an improvement to the wording of ~~the specifications~~ **S52 App.2** which does not result in any substantive change to the specifications. A substantive change is one which would result in a change in symbolization.

1.2.4.1 (ii) "Correction": a relatively specific change to ~~the specifications~~ **S52 App.2** to correct errors of commission or omission; or to improve the ECDIS presentation in the light of practical experience; or to take into account changes in another specification; **etc.**

1.2.4.1 (iii) "Extension": a more general change to ~~the specifications~~ **S52 App.2** intended to improve the ECDIS presentation, and approved by the Colours & Symbols Maintenance Working Group for inclusion in the next edition of ~~the specifications~~ **S52 App.2 which is identified as bringing outstanding deferred amendments into force** (e.g. a systematic change in display priorities).

- 1.2.4.1.2 Amendments: An amendment may consist of more than one item, as follows:

- an immediate amendment will contain only immediate corrections items,
- a deferred amendment may contain either:
 - (a) clarifications and deferred corrections items, or
 - (b) extension items, which are distributed separately.

- 1.2.4.1.3 Deferred and immediate **Immediate and deferred amendments**: In exceptional cases, applying only to corrections and only where a correction affects safety of navigation, an immediate amendment will be made.

Normally, the implementation of all amendments will be deferred until the next ~~edition of the specifications~~ **edition**

which is identified as bringing outstanding deferred amendments into force.

~~For example, Immediate amendment 01 consisted of 10 correction items numbered 001 through 010. Deferred amendment 02 consisted of 36 items, some of them clarification items and some correction items, numbered 001 through 036. And Deferred amendment 03 contains just one extension item, 001. (The next amendment will be numbered 04 whether it is an immediate amendment or a deferred amendment).~~

1.2.4.1.4 Edition/revision **Edition number** of the C&S Specs and the PresLib: The ~~edition/revision~~ edition number of a specification the **C&S Specs. or the PresLib.** is of the form "mm.n", where "mm" is the edition number and "n" is an ~~sequential revision~~ **incremental change** number which increases by one for every immediate amendment applied. The ~~edition/revision~~ number does not change for a deferred amendment.

Major revisions of the C&S Specs and the PresLib will be identified by an increment in the "mm" number, followed by a zero, i.e. 04.0, 05.0, etc. Smaller revisions involving immediate amendments, and also revisions which are not major but bring outstanding deferred amendments into force, will be identified by an increment in the "n" number, e.g. 04.1, 04.2, etc.

~~The edition/revision number of the Presentation Library is included in the digital version, and it should be possible to display it on the ECDIS. The ECDIS should maintain a register of immediate amendments to the Presentation Library. See Presentation Library section 9.1 for details.~~

It should be possible to identify the edition number in use on the ECDIS.

~~Edition/revision numbers refer only to the specifications, that is to the Colour & Symbol Specifications (currently ed/rev 4.0) and to the Presentation Library (currently ed/rev 3.0). Edition/revision numbers are used in the numbering of amendment items **in order** to point to the particular edition/revision of the C&SS or PL to which that item should be applied.~~

~~For example amendment item "Item No. PL03.3.d7.co.2" should be applied to the Presentation Library edition/revision 3.2.~~

1.2.4.1.5 Amendment item identifiers : Each item within an amendment is assigned a unique identifier, with the following form
"ssmm.n.aa.dd.nnn"

where:

ss	= Colour & Symbol Specifications (CS) or Presentation Library (PL), depending on which the amendment applies to,
mm.n.	= the edition/revision number to which the amendment applies,
aaa.aa.	= deferred (d) or immediate (i) amendment followed by the sequential number of the amendment (2 digits),
dd.	= clarification (cl), correction (co) or extension (ex),
nnn	= sequential number of the item within the amendment.

For example, look at item no : " **PL03.3.d7.co.2**", reading from the last number group back to the first :

"2"	this is item 2 of the amendment,
"co"	this item is a correction,
"d7"	it is a part of deferred amendment 7,
"PL03.3"	it applies to PresLib edition 3.3

(Note that:

- i) **the edition number of the PresLib. would not advance after applying this deferred amendment.**
- ii) **If this example had been an immediate amendment the item number would have been PL03.3.i7.co.2". In the case of an immediate amendment the edition number of the PresLib would have automatically advanced to 03.3 once the amendment was applied.**
- iii) **The next amendment would have been numbered "amendment 8" whether it was an immediate amendment or a deferred amendment.)**

1.2.4.2 Distribution and implementation

1.2.4.2.1 Immediate corrections to both the Colour & Symbol Specifications and the Presentation Library will be distributed with an initial delivery of ~~the specifications~~ **S52 App2** or when necessary. They will be posted on the Maintenance Bulletin Board on the IHO website www.iho.shom.fr.

~~An immediate amendment to the look-up tables, the symbol library or the colour tables of the Presentation Library will also be provided in digital form as a complete replacement .DAI file, available only to subscribers to the digital Presentation Library, at no extra charge.~~

A deferred amendment will be accompanied by a temporary .DAI file, available for those manufacturers who wish to implement the deferred amendment before it becomes mandatory.

The IHB will not re-issue the Colour & Symbol Specifications or the Presentation Library User's Manual as a whole on the occasion of such an immediate amendment. However, the Presentation Library Manual will be revised and made available on the Maintenance Bulletin Board on the IHO website www.iho-shom.fr.

1.2.4.2.2 Clarifications and deferred corrections **Deferred amendments will be posted on the IHO Maintenance Bulletin Board.**

All existent deferred amendments will be implemented in the next edition of the specifications **S52 App.2 which is identified as bringing them into force**. However an ECDIS manufacturer may implement a deferred amendment earlier if he wishes to do so, except when it is specifically stated that a particular amendment should not be implemented before the next edition **bringing deferred amendments into force** is issued (in order to preserve uniformity in symbolising the ENC).

When an amendment is implemented in a type approved ECDIS, the manufacturer should inform the type approval authority in case re-testing may be required.

1.2.4.2.3 Extensions are working documents, available from the IHB for test purposes on request. A description of the extension will be put on the web site.

1.2.4.2.4 Before and after plots **Where appropriate, before and after plots will, whenever possible, accompany amendments that make a change in symbolization.**

1.2.4.2.5 Change control history & list of current editions **Amendments will include a change control history and a reference to the list of current editions on the IHO website."**

2. NOTE: the phrase "edition/revision" should be changed to read "edition" throughout the PresLib.

(Note that this Item No. CS04.1.d6.co.1 on changes to C&S Specifications 1.2.3 and 1.2.4 completely replaces amendment item CS04.0.i01.co.001)

Item No. PL03.2.d6.co.2 - Correction to PresLib section 9 - **ECDIS onboard ship no longer required to accept amendments automatically; remove test edition of PresLib**

C&S12 minutes item 5.3.5 outcome 1 reads:

- "1. *The meeting agreed that such an option (requirement for the ECDIS onboard to accept amendments directly from the updating authority) should be withdrawn. Accordingly appropriate action should be promulgated as a deferred amendment"*.

C&S 13 minutes reads:

5.14 Removal of the requirement in C&S Specs. section 1.2.3 para. 2 for the ECDIS onboard to accept amendments (amendment d6.co.2):

Agreed. *A further consequence is that the 'Test edition' of the PresLib is no longer required in PresLib 8.3.5 or in IEC 61174 section 6.5.1b.*

Outcome: The appropriate requirement will be deleted from the new edition 4.2 of S-52 Appendix 2 and the digital version of PresLib 3.3 will not provide it any longer.

The requirement to accept amendments directly had already been deleted from the PresLib by amendment PL03.0.i01.co.003. Section 9 of the PresLib has now been rewritten to reflect the optional status of the digital PresLib, and where appropriate a note has been added in the PresLib to say that the Test Edition is no longer required but that symbol CHKSYM01 has been retained for use in checking symbol size.

Item No. CS04.1.d6.cl.3 - Clarification to Colour & Symbol Specifications: new section 1.2.6 – Minor Deviations to the Presentation Library.

The C&S12 meeting " agreed that the list of "slight deviations" as agreed at C&S9 revised at C&S11 be included in Section 1 of S-52 Appendix 2." This re-arrangement will be treated as a deferred amendment which supersedes deferred amendment CS04.1.d05.cl.004.

The C&S 13 meeting moved this item to section 1.2.6

Add the following new section 1.2.6 to the C&S Specifications:

"1.2.6 Type Approval - Minor Deviations to the Presentation Library

It is acknowledged that the manufacturers of navigational equipment and software are in constant contact with ECDIS users. To allow for fast response to suggestions for improvement to the chart display, the IHO Presentation Library for ECDIS is designed to provide a framework and guideline for chart symbolization from which the ECDIS manufacturer can derive a customized Presentation Library.

The following criteria shall serve as a guide for judging whether any symbolization on an ECDIS which is visibly different from the symbolization provided by the IHO Presentation Library and as demonstrated by the IHO Test Data Set print-outs is still compliant. The symbolization used:

- 1.) should be the same in general shape and size as the IHO version;
- 2.) should be clear and sharp so that there is no uncertainty over meaning;
- 3.) should be close enough to the IHO version to avoid ambiguity in meaning between that model and any other model of ECDIS;
- 4.) should use only the colours as specified in S-52 App.2;
- 5.) should comply with the various considerations of scientific design described in S-52 App. 2;
- 6.) should comply with the priority of prominence on the display in proportion to importance to safety of navigation which is built into the Presentation Library, and
- 7.) should avoid any increase in clutter.

Any symbolization which does not meet these criteria is not compliant.

The type-approval authority is strongly encouraged to contact the chairman of the IHO C&SMWG in any case of uncertainty over differences in symbolization, ideally attaching graphics to illustrate the situation. The chairman of the WG will give the reason for the particular symbolization on the Test Data Plots, and will comment on any perceived advantages or disadvantages of the manufacturer's version, with reasons.

Manufacturers, type-approval authorities, and above all mariners, are always encouraged to contact the IHO over any improvements, criticisms, questions or comments that they may have about the ECDIS display, in order that the specifications can be kept effective and up to date.

Address informal notes to the technical staff, in care of the IHB member:

Chairman, IHO C&SMWG, International Hydrographic Bureau, MC98011, Monaco.

Fax +377 9310 8140 or E-mail info@ihb.mc

Item No. PL03.2.d6.cl.4 - Clarification to Presentation Library 8.6.1 - displaying PICREP & TXTDSC attribute information

C&S12 minutes item 5.4.10a outcomes 2 and 3 read:

"2. The meeting agreed that manufacturers should provide appropriate solutions that enable PICREP files to be displayed without affecting night vision. This will be incorporated as a deferred amendment in Appendix 2 to S-52.

3. The meeting agreed to monitor the solutions that are being developed by manufacturers, but not to impose particular technical standards at this stage."

C&S12 minutes item 5.4.10b outcome 1 reads:

"1. *The meeting agreed that the introduction of additional symbology would not be beneficial and the current "I" symbol was well known as representing "information" in general.*"

C&S 13 minutes item 6 accepted the following amendment (d6.cl.4):

To implement these outcomes from C&S12 revise PresLib. ed. 3.2 section 8.6.1. to read as follows:

"8.6.1 INFORM, etc., plus national language versions

8.6.1.1 (Details of the above)

HOs may apply the INFORM attribute to any object to carry information that cannot be coded in S-57 format, such as a warning for a traffic junction, **an abstract from a nautical publication, a pictorial representation of an object, etc.** There are a total of five similar universal attributes:

INFORM + national language NINFOM
 TXTDSC + national language NTXTDS
 PICREP

To identify objects with such additional information, the ECDIS should, on mariner's command, identify all objects having any such attribute populated by means of SY(INFORM01). The mariner should then be able to access the information by cursor-pick. Note that this applies to all SENC objects whether symbolized by look-up table or conditional symbology procedure.

The pivot point of SY(INFORM01) should be placed at the position of a point object, at the midpoint of a line object, or at the centre of an area object. SY(INFORM01) is intended as a temporary overlay. Its display priority is 8, overradar, category other, viewing group 31030.

The ECDIS manufacturer should provide appropriate solutions that enable PICREP and other files to be displayed without affecting night vision. (Note: this applies as of September 2001 - particular technical standards may be applied at a later date if found necessary) "

(No further change is required. Note that the outcome of C&S12 item 5.4.10b was that no additional symbology is needed to distinguish TXTDSC from other additional information.)

Item No. PL03.2.d6.co.5 - Correction to Presentation Library 8.4 - **displaying date-dependent objects**

C&S12 minutes item 5.4.11 outcomes 2 reads:

"2. *The meeting agreed that there were two options to achieve the requirement to support time/date dependent objects in ECDIS, either:*

- a. *the ECDIS could allow the user to show *time/date dependent objects active at a future " *time/date window", or*
- b. *the ECDIS could show all objects in the database, including all *time/date dependent objects, irrespective of the current *time/date.*

Information on time/date restrictions would be available via "pick report".

*In either case, the user must be made aware, through a continuous indication, that objects in the display may not be valid at the current * time/date."*

**(Later editorial note: the attributes in question do not appear to provide a coding for time).*

C&S 13 minutes item 6 accepted the following amendment (d6.co.5):

To implement these outcomes from C&S12 revise PresLib. ed. 3.2 section 8.4. to read as follows:

"8.4 Display of objects depending on date or on display scale

8.4.1 Date-dependant objects

Some objects, such as seasonal buoys, are only to be displayed over a certain period (PERSTA to PEREND). Other objects, such as a traffic separation scheme, may have a date on which they are introduced (DATSTA) or discontinued (DATEND). Any object with one of the above attributes should not **normally** be displayed outside its effective dates (see figure 1).

~~———— (Edition 4 of the Presentation Library may specify that the mariner be given the option of requesting to display such objects for temporary review outside of their effective dates.)~~

However to provide for effective route planning; for look-ahead during route monitoring; or for other purposes, the ECDIS should allow the mariner to view chart data for any required date and time for the purpose of reviewing pre-planned changes in chart data. The ECDIS manufacturer may provide this either:

- (a.) **By allowing the mariner to select a date for displaying all chart objects active at that date and time, OR**
- (b.) **By allowing the mariner to display all objects in the ENC, irrespective of the current date. Information on the date and time window for which objects of interest are in existence should then be available by cursor-pick report through viewing the date-dependent attributes.**

WHEN THIS OPTION IS IN USE, THE MARINER MUST BE REMINDED THAT THE INFORMATION ON THE DISPLAY MAY NOT BE CORRECT FOR THE ACTUAL, CURRENT, DATE AND TIME.

8.4.2 Scale-dependant objects

Some objects (such as intermediate depth contours) may carry the attribute SCAMIN to specify the smallest display scale at which they should be drawn. At display scales smaller than SCAMIN the object should not be drawn, in order to avoid clutter. For example, an object with a SCAMIN value of 50,000, indicating a scale of 1/50,000, should not be drawn on an ECDIS display of 1/60,000."

Follow-on changes :

- 1.) Add the two new headings to the index
- 2.) Amend the third paragraph of Presentation Library Manual, Part I, section 2 "Display Generator " as shown below:

"2. BASIC CONCEPT OF A 'DISPLAY GENERATOR' FOR AN ECDIS SYSTEM

The elements of the Presentation Library are handled by the ECDIS Display Generator that is designed by each manufacturer on his own following the guidelines of this documentation and which performs the link between the object characteristic according to S-57 and the actual presentation on the ECDIS screen. Note that the basic concept for a Display Generator that is described in this section is only an example. There are other concepts to realize the ECDIS presentation. **NOTE ALSO THAT THE DISPLAY GENERATOR IS NOT PROVIDED IN THE PRESENTATION LIBRARY; THE MANUFACTURER MUST DEVELOP THIS.**

Figure 1 shows how the various elements of the Presentation Library can be linked together in order to display an S-57 object from the SENC. Only the individual elements (symbol library, look-up tables, etc.) are provided in the Presentation Library. It is understood, that the ECDIS manufacturer writes software linking these elements. Please note, that section 8 of this manual gives further details that are of interest to the programmer.

Note particularly section 8.4 dealing with the display of objects depending on date (e.g. DATSTA, DATEND) or on display scale (SCAMIN). **The requirement to display date-dependent information outside the date at which it is active (for route planning etc.) means that the date-filter in the first diamond of figure 1 will be deliberately by-passed on request by the mariner. When this option is in use, the mariner must be reminded that the information on the display may not be correct for the actual, current, date and time."**

(Note that this amendment item supercedes amendment item No.PL03.0.d02.co.032)

Item No. PL03.2.d6.co.6 - Correction to Presentation Library 7.4.5.2 - **cell boundary lines to be masked.**

C&S12 minutes item 5.4.14, outcome, reads:

"Canada (Eaton) later pointed out that PresLib section 7.4.5.2 does not mask an areas boundary with the USAG field = 3 (area truncated by a cell boundary) and so a minor amendment to add this is required as pointed out by France."

C&S 13 minutes item 6 accepted the following amendment (d6.c0.6):

Since cell boundary lines are not wanted on an ECDIS display, section 7.4.5.2 of the PresLib should be revised as follows:

"7.4.5.2 Masked Lines

Masked lines (MASK subfield of FSPT field set to {1}) **and cell boundary lines (edges encoded with [USAG] = {3})** should not be drawn."

Item No. PL03.2.d6.cl.7 - Clarification to Presentation Library 8.3.3.7 - **symbolizing an object of unknown / unidentified object class**

C&S12 minutes item 5.4.16, outcome, reads:

"1. The meeting did not agree to the proposal by C-Map, but did accept the proposal by Canada (Eaton) for a minor clarification to the Pres Lib section 8.3.3.3."

C&S 13 minutes item 6 accepted the following amendment (d6.cl.7):

Sometimes an SENC will contain objects with an unknown or unidentifiable Object Class, Attribute(s) or Attribute Value(s). This may arise from a data error or from an omission in the Look-up Tables, and some confusion has recently arisen over how the Presentation Library deals with this situation.

To clarify the situation, make the following changes to the Presentation Library Manual section 8.3.3.7:

1.) Change 8.3.3.7 to 8.3.3.7a and change the heading. Make **one minor change** to the text:

" 8.3.3.7a Symbolizing an object of unknown / unidentified object class

If there is no look-up table line matching the object at all, the look-up table is incomplete or the object is of an unknown object class. If this happens, a caution should be shown on the mariners' interface and a '?'-symbol ('QUESMRK1'-symbol, pattern or line style) should be shown as fail-safe presentation which on cursor inquiry would read out and **if possible** explain the object in the SENC. For an area use SY(QUESMRK1) as a centred symbol and **for the areas with symbolized boundaries use** LC(QUESMRK1) to symbolize the boundary"

2.) Add new 8.3.3.7b

"8.3.3.7b Symbolizing an object with unknown / unidentified attributes or attribute values

Following section 8.3.3.2 and 8.3.3.3 in detail will result in a fail-safe symbolization of the object by the default symbolization for that object class."

3.) Add the two new headings to the Index.

Item No. PL03.2.d6.cl.8 - Clarification to Presentation Library 8.3.3.7 - **identifying automatic chart corrections.**

C&S12 minutes item 5.5.2 discussed the matter of identifying automatic chart corrections on mariner's demand, and concluded:

"As there are now a number of solutions that have been developed is there a requirement to impose a standardised solutions? The general view was that this function need not be standardised."

C&S 13 minutes item 6 accepted the following amendment (d6.cl.8):

To clarify this in the PresLib:

- 1.) Change the title of section 8.7 to:
"8.7 Displaying manual updates and added non-ENC chart information.
Identifying automatic chart corrections."
- 2.) Add a new section 8.7.1.5:

"8.7.1.5 Identifying automatic chart corrections on mariners demand

The ECDIS manufacturer should provide a means of identifying automatic chart corrections to the SENC on demand by the mariner."

- 3.) Add the new headings to the index.
-

Item No. PL03.2.d6.co.9 - Correction to Presentation Library 12.2.2 - **Revision of CSP DATCVR; withdrawal of symbol for units of depth**

1. Revised Conditional Symbology Procedure 12.2.2 DATCVR02

This symbology procedure has been revised to incorporate changes from the following existing deferred amendments:

- amndt d02 item co.003 on identifying non-HO data, in section 2.1 of the CSP,
- amndt d02 item cl.022 on overscale indications, in section 4.2 of the CSP.

Item 7 of the minutes of meeting C&S13 records that:

- a.) the symbolization of the overscale area of a display comprising ENCs of different Navigation Purpose is to remain as the vertical 'Prison Bars' pattern AP(OVERSC01)
- b.) a suggestion for a new symbol SY(OVERSC11) [an upper-case "X"] expressing the overscale factor was rejected by the meeting.
- c.) C&S 13 agreed that the symbol SY(UNITFTH / UNITMTR) should be withdrawn (see below).

All the changes are identified in **bold** on the separate file '~~CSP-DATCVR02-Sept02.doc~~' 'CSP DATCVR02-Sept 02 rev.doc'

Follow-on changes:

- 1.1.) Revise all look-up table references to CS(DATCVR02).
- 1.2.) Presentation Library, Part I, section 13.2 Amend viewing group 11060 to read:
"11060 **Non-HO data boundary LC(NONHODAT)"**
- 1.3.) ECDIS Chart 1
Amend page AB to remove line LC(HODAT01) and add line LC(NONHODAT).
(This page is to be found in PresLib section 15.2 "Information about the chart display (A,B)".)

2.1.) Withdrawal of symbols for units of depth:

IMO PS appendix 2 requires as part of the Display Base the "units of depth and height". However S57 has from the start required that only metres be used for ENCs, so the prominent "M" or "F" required by PresLib Manual 8.5.2 is unnecessary clutter. To remove these:

- 2.2.) Delete the existing section 8.5.2 of the PresLib Manual and replace it with the following:

"8.5.2 Units of depths :

IMO PS Appendix 2, para. 1.7 requires that units of depth be part of the display base. However S57 does not permit any other unit of depth than metres, and so it is no longer necessary to display the earlier symbols UNITFTH1 and UNITMTR1. These symbols are hereby removed from the PresLib."

The labelling style is the same for both the safety contour and for all other contours.
See also amendment d6.co.12 below.

To implement this change add CSPs DEPARE02, DEPCNT03 and SAFCON01 (all the 6 Jan. '03 version) to the PresLib section 12; change the relevant references in the look-up tables; add the contour labels to the symbol library; add the viewing groups to section 13.2.

Item PL03.2.d6.co.12 - Correction to PresLib sections 11, 12 and 13.2 - Viewing Groups to give the mariner control of contour labels and the low accuracy symbol

The minutes of C&S 13 item 7 (d7.c0.2) last para. and item 9.7.4 require three new viewing groups to enable the mariner to switch the following secondary symbolisation on or off independently of the primary symbolisation:

- labels for the safety contour,
- labels for all other contours, and
- symbol LOWACC01, which applies to islets (point LNDARE), obstructions, rocks and wrecks.

This involves more change than is obvious at first sight. Two types of change are involved:

- extending the specifications for viewing groups to cover viewing control at symbol level,
- making the changes to CSPs needed to implement these two new viewing groups.

SPECIFICATIONS FOR VIEWING GROUPS

Viewing Groups are 'on' or 'off' switches for use by the mariner to control the information appearing on the display. They are generally attached to chart objects or mariners' objects and occasionally to objects all of which share a common condition, for example the overscale area of the display. They are also attached to some non-ENC features such as the scale bar.

This new requirement uses a viewing group to switch on/off a secondary symbol which is attached to a pre-existing object and its primary symbol. For example: a non-dangerous wreck of doubtful position symbolised as SY(WRECKS04) in viewing group 34050 will also be symbolised by SY(LOWACC01) which in future will be in separate viewing group 31011 so that it can be switched on/off without affecting the SY(WRECKS04) symbol. In a sense this appears as applying viewing groups as switches at symbol level, rather than at object level, and these 'symbol viewing groups' are listed in section 13.2 'Viewing Groups' of the PresLib Manual as symbols, not as objects as is the case for most other viewing groups.

The mariner's selection switch for this type of viewing group will always be in a conditional symbology procedure, not in the look-up table.

In specifying a 'symbol viewing group' the PresLib will be designed to ensure that:

- A new symbol viewing group is independent of any pre-existing viewing groups affecting the same object or objects.
- The symbolisation of the new viewing group does not interfere with any pre-existing symbolisation.
- Selecting or de-selecting the new viewing group does not affect the status ('on' or 'off') of any other viewing group attached to the same object.

Systems that can already handle viewing groups related to individual cartographic symbols will simply have to implement the new CSP changes and add new viewing groups for the mariner to operate on.

However systems that have implemented their internal data model so that one viewing group can be assigned to an object (and not its individual cartographic symbols) may have trouble with this change. One way of handling the problem might be to specify the addition of some new temporary cartographic objects that the ECDIS will handle internally, the way it handles the scale bar, for example. These new objects would be used to show things like accuracy symbols and to label contours. The conditional procedures could then be modified to specify when to create these objects and what viewing groups and priorities they should have. Of course this introduces another problem, that these cartographic objects would need to be turned on/off either when the mariner says so or if the mariner turns the underlying object on/off. So if contours are turned off, so should the labels be. This could be handled if the ECDIS discards the cartographic objects at the end of each draw and they get generated by the conditional procedure during each draw based on the current mariner parameter settings.

Remember also that the PresLib as a whole can be implemented in any way the manufacturer wishes, and that the viewing groups are specified as being an optional part of the PresLib. The requirement of IMO Performance Standard section 3.5 that "It should be easy to add or remove information from the ECDIS display. - - -" is the requirement which has to be satisfied.

INTRODUCING THE NEW VIEWING GROUPS AND REVISING THE CSPs USED TO GIVE THE REQUIRED VIEWING CONTROL

1. Amend PresLib section 8.3.4.4 to read:

" 8.3.4.4 Viewing Groups

The mariner should have effective control over which features appear on the display (subject to the overriding requirements of IMO category), **as required by the IMO ECDIS Performance Standard section 3.5.**

The viewing groups suggested in table 13.2 are intended as a framework on which the ECDIS manufacturer can base his own method of providing this capability.

Viewing groups are 'on' or 'off' switches for use by the mariner to control the information appearing on the display. An item in the viewing group table may be a chart object; a mariners' or other time-variable object; a special symbol such as the "depth less than safety contour" pattern; or a non-ENC feature such as the scale bar. In edition 3.3 further 'symbol viewing groups' have been added, to allow auxiliary symbols such as contour labels, the 'low accuracy' symbol, etc., to be switched on or off without affecting the primary symbolisation of the object.

Items in the viewing group tables in section 13.2 are arranged in numbered groups (e.g. group 26230 consisting of the items pipeline area and cable area) which in turn are arranged in sets (e.g. set 26000 consisting of cautionary areas). The groups are arranged by IMO Category, in the sequence of INT 1 for the paper chart, because mariners are generally familiar with INT 1.

The suggested viewing group is listed in field 7 of the look-up tables, and may be modified by the conditional symbology procedures. Symbol viewing groups are only switched by a conditional procedure.

~~The viewing group suggested for each object is given in field 7 of the look-up table.~~ The manufacturer may use the viewing group scheme or not, as he prefers. If he does use it, then in some cases a single item, such as soundings (33010) should probably be selectable. In other cases several groups from different sets may be combined. However groups from different IMO categories should not be combined.

Although the viewing groups reflect the IMO category, the authority for category is the classification in field 6 of the look-up table.

The Presentation Library provides a similar classification for text - see section 7.1.3
~~The viewing groups are listed in section 13, table 2. "~~

2. Add the following entries to table 13.2 "Viewing Groups":

"31010	accuracy of data (M_PCCY), (M_ACCY) , survey reliability (M_SREL), survey source (M_SSOR) quality of data (M_QUAL)
31011	symbol SY(LOWACC01), identifying low accuracy data, applied to the spatial object of point and area wrecks, rocks and obstructions and to point land areas
31020	nautical publication (M_NPUB)
33020	depth contours (DEPCNT) other than the safety contour, line depth area (DEPARE)
33021	label for the safety contour
33022	labels for all contours
33030	na

Follow-on changes:

The necessary mariner's symbol selection switches for contour labelling have been added to revised CSPs DEPARE02 and DEPCNT03. Selection switches for the low-accuracy symbol SY(LOWACC01) have been added to CSP QUAPNT02. (All CSPs -Sept'02 version). The look-up tables should be revised to give the correct references.

Item No. PL03.2.d6.co.13 - Correction to Presentation Library section 11 - **Symbolisation of an unsurveyed area**

Australia has pointed out that the existing symbolisation fails to show up small unsurveyed areas in a generally surveyed area.

An unsurveyed area always has an area-fill of horizontal dashes, but these may not show well in a small area, particularly at night, and at night the 'no data' colour fill used (colour 'NODTA') is at present the same colour (black) as deep water.

In addition an unsurveyed area has a low display priority at present, with the result that its area boundary line is sometimes suppressed by the boundary line of adjacent higher priority areas. However the display priority of an unsurveyed area should not be too high, since it may sometimes be necessary to draw mariners' objects (priority 8), non-HO data such as drilling rigs (priority 5), etc. on top of the area fill, which always has the same priority as the boundary line.

Meeting C&S 13 item 7 (d7.co.1) approved the proposal (C&S 13/5H & 13/5I.3) to increase the luminance of colour 'NODTA' at night and to increase the display priority to remedy this. The night colour for 'NODTA' will be increased in luminance from 0.00 to 1.20 cd/sq.m, which is much brighter than the 'depth less than safety contour' colour of 0.4 cd/sq.m. In addition the display priority of object class UNSARE will be increased from 0 to 3 so that the unsurveyed area boundary is less likely to be overwritten.

To implement this, make the above changes to the look-up tables and the night colour tables.

Item PL03.2.d6.co.14 - Correction to PresLib sections 12 - **Default depth value for wrecks, rocks & obstructions from the surrounding depth area.**

The minutes of C&S13 item 9.7 record that the proposal by Le Bihan of SHOM to eliminate the ISODGR symbol on non-dangerous wrecks in deep water by changes to CSPs was accepted.

The initial proposal (paper C&S 13/7.9A) was to run CSP DEPVAL on all wrecks and obstructions. However further investigation showed problems:

- a.) CSP DEPVAL was introduced when S-57 first required a DEPARE object under an area wreck. The CSP was based on the assumption that the DRVAL1 of this special DEPARE would provide a realistic estimate of the least depth over the wreck. However it now appears that HOs may instead be extending the surrounding DEPARE under the area wreck, and may not be digitising a special DEPARE.
- b.) The DRVAL1 of a surrounding DEPARE does not give a least depth over hazards in that area. UOC ed. 2.1 SECTION 5.4.3 defines DRVAL1 as follows: "For each depth area of type area, DRVAL1 and DRVAL2 should be encoded with the values corresponding to the shallowest and deepest depths in that area." However that apparently applies only to the general depth of the seabed; it does not cover the depth over isolated hazards (wrecks, rocks & obstructions) within the DEPARE; these may be significantly shallower than the DRVAL1. This is confirmed by the definitions and remarks under attribute EXPSON in the object catalogue.

We have to assume the fail safe case, that a point or area wreck or obstruction whose VALSON and EXPSON are unknown will be shallower than the DRVAL1 of the surrounding depth area.

Consequently, Le Bihan, in discussion with our contractor CARIS, has modified his original proposal of using the DRVAL1 of the surrounding DEPARE directly to using the approach recommended in M4, appendix to section 422.7, to estimate a Safe Clearance Depth over wrecks in deep water whose VALSON is unknown. This method, which has proved reliable in use by SHOM, leads to the following rule:

$$\begin{aligned} \text{Safe Clearance Depth} &= (\text{drval1} - 66) \text{ when } (\text{drval1} - 66) > 20, \\ \text{Safe Clearance Depth} &= 20 \text{ when } (\text{drval1} - 66) < \text{ or } = 20 \end{aligned}$$

The first part of the rule does not cut in until the DRVAL1 is greater than 86m., but it does eliminate the ISODGR symbols in the deep water traffic lanes off the coast of Brittany.

CSPs DEPVAL, WRECKS and OBSTRN have been modified to use the local DRVAL1 for default 'least depth' where EXPSON indicates no shallower depths exist, and CSP WRECKS has been modified to use the Safe Clearance Depth approximation to eliminate isolated danger symbols in very deep water.

Side-issue: TSMAD should be asked:

1.) To clarify the UOC 5.4.3 definition of DRVAL1 by stating that isolated wrecks, rocks and obstructions within a particular DEPARE may have less depth than the DRVAL1 of that DEPARE.

2.) To encourage the coding of EXPSOU=1 'within the range of depth of the surrounding depth area' on wrecks, rocks and obstructions wherever sufficient information is available to do so, and

To encourage the coding of EXPSOU=2 'not within the range of depth of the surrounding depth area' wherever the information available is insufficient,

- In order to provide the best possible information available on the least depth over such hazards and thus eliminate clutter from unnecessary ISODGR symbols on the ECDIS display.

To implement this change:

.1 Replace the following conditional procedures with their revisions:

CSP DEPVAL01 --> DEPVAL02

CSP OBSTRN04 --> OBSTRN05

CSP WRECKS02 --> WRECKS03

.2 Replace the title pages of CSP DEPVAL and CSP WRECKS with the revisions in the attachment.

Item No. PL03.2.d6.co.15 - Correction to Presentation Library section 12 - **UOC change: UNSARE underlay for non-navigable rivers etc**

Section 4.1 of the UOC has been changed to add **UNSARE** to **LNDARE** as an alternative group 1 underlay for rivers, canals, lakes, basins and docks which are not navigable at compilation scale. In order to correctly symbolize the case when the safety contour bounds one of these objects the revised CSP DEPARE02 has been modified to treat **UNSARE** objects in the same way as **LNDARE** objects.

Follow-on change:

Change CS(DEPARE01) wherever it appears to CS(DEPARE02).

Item No. PL03.2.d6.co.16 - Correction to Presentation Library section 12 - **UOC change: LNDARE underlay for area obstrns**

Clause 6.2.2 of the UOC has been in changed to include LNDARE in addition to the original DEPARE or UNSARE as an underlay for area obstructions.

In order to determine whether an obstruction is an underwater hazard a revised CSP UDWHAZ04

has been written which examines LNDAREs and UNSAREs as well as DEPAREs and DRGAREs to determine whether the obstruction is an isolated danger lying in safe water.

See separate file 'CSP UDWHAZ04'

Follow-on change:

Change CS(UDWHAZ03) to CS(UDWHAZ04) wherever it appears

Item No. PL03.2.d6.cl.17 - Clarification to Presentation Library section 11 - **UOC change: geographic names** (no action at present)

The draft for clause 14 - Geographic names - of ed 2.1 of the UOC has changes to code LNDRGN objects to name co-located nav aids and also to code SEAARE objects to code names associated with SBDARE objects (rocks, reefs, shoals etc.?) These will probably cause overwriting with pre-existing names.

This problem should be investigated at a later date when the TSMAD decides the details and we have more time to study them.

Item No. PL03.2.d6.cl.18 - Clarification to Presentation Library 8.6.2.2 - **UOC change: collection objects**

Add to section 8.6.2.2 of the PresLib Manual:

"The following paragraphs from clause 15 - COLLECTION OBJECTS of the next edition of S57 Appendix B.1 - Annex A 'Use of the Object Catalogue' (UOC). They are quoted here for information:

"If a collection object extends beyond a cell boundary (i.e. the objects that make up the collection are spread over multiple cells), the collection object should be repeated in each cell that contains one or more component objects. However, only the objects that exist in the cell that contains the instance of the collection object can be referenced by that collection object. If this technique is used, each instance of the original collection object must have the same feature object identifier (LNAM). It is up to the application (e.g. the ECDIS) that uses the cells to rebuild the complete collection object based on the unique feature object identifier.

It is highly recommended that no use be made of pointers that reference objects outside the cell in which the pointer is encoded. Use of such pointers can not be prohibited as no such rule exists in the ENC Product Specification."

Item No. PL03.2.d6.cl.19 - Clarification to Presentation Library section 11 - **UOC discussion: symbolizing a floating breakwater** (no action at present)

There is discussion in the amendments to UOC ed.2.0 on the UOC clause 4.6.8 about how to symbolise a floating breakwater. The look-up tables already cover the likely codings and so no action is required at present.

Item No. CS04.1.d6.cl.20 - Minor clarification to Colour & Symbol Specs. Annex B.4.6.1 - **Ishihara colour blindness test**

26 Nov. '01: in reply to an enquiry from Madeleine Rowles in Australia, Sharon McFadden pointed out that since the ECDIS colour scheme covers the whole spectrum we should specify the full 36-plate Ishihara test, and further that the test should be done under a Standard Lamp or in natural sunlight.

Amend Colour & Symbol Specs. Annex B.4.6.1 as to read as follows:

- .1 The person conducting the test should have passed the **full, 36-plate**, Ishihara colour blindness test, taken ~~by mariners~~ under a Standard Lamp or in natural sunlight. **The tester** should adapt to night viewing for 10 **minutes** before checking the night display.
-

Item No. CS04.1.d6.cl.21 - Clarification to Colour & Symbol Specifications 3.4.3 - **overbright toolbar**

A recent Australian enquiry into why some mariners prefer to use a dimmed 'day-white background' colour table at night lists a number of reasons for this. Among them is "Night tool bars too bright".

Dark room work done early in the development of IHO Colours & Symbols showed strikingly how a bright interface panel, or in this case a toolbar, can generate much more light than the entire darkened chart display, thus destroying the careful work done in designing the night colour tables.

This problem presumably arose through a programmer not fully understanding the night-time situation on the bridge; ECDIS manufacturers are asked to help in suggesting measures to avoid this happening in future.

Meanwhile the following strengthening of the relevant section of the C&S Specs is proposed.

Re-word the last paragraph of the Colour & Symbol Specifications section 3.4.3 as shown in **bold** below:

"At night it is **essential that any interface panel or other information added by the manufacturer to the screen carrying the chart display should never generate more light than the chart display itself. Great care is taken to reduce the light emitted by the chart in order to preserve the mariners night vision, and it is dangerous to ship safety if added non-chart information defeats that purpose.**

It is particularly important to limit the information shown using the conspicuous colour token "UINFD", which is reserved for important information. Even a small panel of text in this colour can produce more light on the bridge than the entire route monitoring chart display."

This change is in addition to the revision in amendment CS04.0.d02.cl.027

Item No. PL03.2.d6.cl.22 - Clarification to Presentation Library section 5 - **new example for amendment d02.co.029 - complex linestyles for curved lines**

Amendment PL03.0.d02.co.029 introduced short-segment complex linestyles for symbolizing curved lines and area boundaries. Following a report of trouble using these linestyles, an example has been added to the original amendment - see separate file 'Amndt curved linestyles with example.doc'

Item No. PresLib03.2.d6.co.23 - Correction to Presentation Library - **displaying OBJNAM, INFORM and TXTDSC on collection objects.**

C&S12 Minutes item 5.4.4 noted that applying INFORM and TXTDSC attributes on collection objects is likely to cause excessive clutter. (The same problem applies to OBJNAM.)

Outcome 2 reads:

2. *The meeting also agreed that manufacturers should be left to develop appropriate solutions for displaying information associated with collection objects that minimises clutter.*

The Minutes required a deferred amendment to the PresLib manual on this subject. To provide this, amend PresLib Manual section 8.6.2 as follows:

"8.6.2 Relationships and collection objects.

~~The immediate significance to display lies in the name of the feature.~~

The manufacturer should endeavour to develop appropriate solutions for displaying information associated with collection objects that minimise clutter.

~~8.6.2.1 (Details of the above)~~

~~For a relationship, the name is the OBJNAM of the co-located master object (buoy, beacon, lighthouse).~~

~~In the case of a light, for example, it will be written by a text command calling group 21 (for buoys and beacons) and 26 (for lighthouses).~~

~~8.6.2.2 (Details of the above)~~

~~In the case of a collection object the name is the OBJNAM of the C_AGGR or C_ASSOC object that ties the objects together. It is not written on the display, but should be found by cursor inquiry on any of the member objects, which will routinely include collection object information (see section 8.8)."~~

Item No. CS04.1.d6.co.24 - Correction to C&S Specifications and Presentation Library - **The digital version of ECDIS chart 1 may be omitted from future editions after PresLib 3.3.**

The question of whether it is necessary to update the ECDIS Chart 1 for editions 4.2 of the C&S Specs and 3.3 of the PresLib has been discussed on the C&SWG section of the Open ECDIS Forum. The moderator asked members who had contact with mariners using ECDIS to say whether the digital version of Chart 1 is being used on the bridge and whether it would be adequate to issue only a hard-copy version for this revision. The following is an abstract from the moderator's summary of the discussion:

- "- There is no support for maintaining the quasi-S-57 chart 1 database in its present form.
- A hard-copy chart 1 (with symbol meanings alongside each symbol) is the most convenient form for the mariner, and this should be readily available in electronic form such as jpg.
- We should consider a version which shows only those ECDIS symbols that differ from the paper chart symbol set."

The S-57 format digital version of the ECDIS Chart 1 will be supplied with edition 3.3 of the PresLib, but future updating depends on a voluntary maintainer, and this feature may be omitted from future editions. ~~emitted from the PresLib edition 3.3.~~

The future form of the ECDIS chart 1 is currently under discussion. Meanwhile Chart 1 in word-processed form continues to be carried in section 15.2 of the PresLib.

Item No. CS04.1.d6.co.25 - Corrections and clarifications to C&S Specifications and Presentation Library - **Minor changes to the Presentation Library etc.**

1.) LOOK-UP TABLE RULE:

A further example has been added in a case below where the rule is not entirely clear:

8.3.3.3 (Details of the above)

If there is more than one line in the look-up table, search for the first line each of whose attribute values in field 2 can also be found in the attribute values of the object. If more than one attribute value is given in the look-up table, the match to the object must be exact, in order as well as content. For example, a look-up table attribute value 4,3,4 is not matched by object attribute values 3,4,3 or 4,3. However, the existence of further attribute values does not invalidate the match: in the above example object attribute values 4,3,4,7 would match the look-up table, (because value 7 is not used in symbolizing). Use the symbology instruction given by that line in field 3 to symbolize the object's geometry.

As a further example, an object "BCNLAT", "COLOUR3,1", for which there is no exact match in the simplified point look-up table, should be symbolized using the line for "BCNLAT", "COLOUR3".

If no look-up table line can be identified where all attribute values in field 2 match the object's attributes, select the symbology instruction from the first line that contains the object class code in field 1. Field 2 of this line shall be empty and field 3 shall contain a fail-safe generic symbolization instruction.

2.) RESERVE BLUE

Minutes of C&S 13 item 9.6.6. refer to the use of blue for AIS.

To be consistent with C&S Specs Table 1, amend PresLib section 4.1 colour section iv: to:

"RESBL - blue (**provisionally** reserved for VTS line features and symbols)"

3.) "OFFICIAL CHART"

The term "paper chart" is longer strictly correct as some nations no longer require a paper chart to be carried with a type approved ECDIS. The term "official chart" includes an official RNC, smaller scale ENC or the paper chart.

In C&S Specs. section 2.3.1c "Manufacturer's information on the route monitoring display" para .2 sub-para. (ii), (iii) and (iv): delete the term "Unofficial data displayed. Refer to paper chart" and replace with "**Unofficial data displayed. Refer to RNC or paper chart.**"

The same change is made elsewhere in S52 App.2 wherever the term "paper chart" occurs in this context.

4.) ABBREVIATIONS FOR NATURE OF THE SEABED

PresLib 13.4.3 lists the abbreviations for the nature of the seabed.

Add the following note to this list: "**To write out on the display "Mud Sand Gravel", for example, causes much more clutter than writing " M S G". ECDIS manufacturers are encouraged to use the abbreviations both on the chart display and when providing cursor-pick information.**"

5.) COLOUR OF SYMBOL FOR FLOATING HAZARD

At present the colour of symbol FLTHAZ01 is grey (CHGRD). However this symbol is used for obstructions which are either standard display or more often display base, such as a tunny net (double-coded OBSTRN, WATLEV7).

Table 1 of the C&S Specs explains that on the ECDIS display grey "is used for - - important but less critical physical features such as non-dangerous soundings, - - and fish farms", whereas magenta "is used to highlight critically important features such as isolated dangers, - -"

It is obviously more appropriate that the floating hazard symbol should be magenta rather than grey, and symbol FLTHAZ01 has been replaced by symbol FLTHAZ02 coloured magenta (CHMGD) in the symbol library and the look-up tables.

6.) TEXT GROUPINGS

Add to PresLib Manual section 13.3 Text Groupings, the attribute VERCSA, as follows:

"11 vertical clearance of bridges, overhead cable, pipe or conveyor (BRIDGE, CBLOHD, PIPOH, CONVYR, **VERCSA**, VERCLR, VERCCL, VERCOP), bearing of navline, recommended route, deep water route centreline line (NAVLNE, RCRTCL, DWRTCL, ORIENT),"

7.) VIEWING GROUPS

Add to PresLib Manual section 13.2 the following viewing groups:

14050 isolated above water dangers in own-ship safe water (rocks, wrecks, obstructions which are "always dry" from conditional symbology procedure UDWHAZ)

24020 isolated underwater dangers in waters between the safety contour and the drying line (rocks, wrecks, obstructions, mooring cables from conditional symbology procedure UDWHAZ)

24050 isolated above water dangers in waters between the safety contour and the drying line (rocks, wrecks, obstructions which are "always dry" from conditional symbology procedure UDWHAZ)

8.) SYMBOLIZING OBSTRN, CATOBS6 - FOUL AREA

The case of an area OBSTRN, CATOBS6 was transferred from CSP OBSTRN04 to the area look-up table in PresLib ed.3.2, with a call to the CSP, in order to ensure it received appropriate symbolization and did not default to a lower level of symbolization. Now that CSP OBSTRN04 uses the 'else if' structure OBSTRN, CATOBS6 can be given the appropriate symbolization in the CSP. OBSTRN,CATOBS6 has now been removed from the look-up table altogether and is symbolized in the CSP. The case of a point OBSTRN,CATOBS6 is now also symbolized in the CSP.

9.) SYMBOL MEANINGS / EXPLANATIONS

The paragraph in bold below should be brought forward from Part III of the Preslib edition 3.2 to section 8 on cursor-picking in Part I:

"8.8.1.2 Interpretation

A plain language explanation of each symbol is included in the Symbol Library and in the Presentation Library section 15 and this gives the mariner quick and understandable information which is not always obvious from the object class and attribute information. The manufacturer should always provide these explanations to the mariner in response to a cursor pick on the symbol.

Attribute values provided in addition should be connected to their meaning, and the definitions should also be available."

10.) CLARIFICATION OF LINE SUPPRESSION BY DISPLAY PRIORITY

Clarify the second para of PresLib section 8.3.4.1 as follows:

"The display priority should be used to ensure that objects that overlap each other are drawn in the right sequence. Thus, an object with a higher priority should be drawn after (on top of) an object with a lower display priority. However, if two line objects, or two area boundaries, or a line and an area boundary, are located at the same position and share the same extent (their coordinates are identical), then the line symbolization with the ~~highest~~ **higher** display priority must suppress the ~~line~~ **line** symbolization of the other ~~line object~~ **object (line or area)**. Therefore only the **line** symbolization of the **object (line or area)** of the higher display priority is drawn.

Please study the following example:"

11.) LEGEND

Presentation Library section 8.6.3 requires a "Legend" which includes as element 8

"value of safety contour: Selected by user. Default is 30 metres."

Add to this the following: "If the mariner selected a contour which is not available in the ENC and the ECDIS displays a default contour, both the contour selected and the contour displayed should be quoted."

12.) "C" SUB-ROUTINE "LITDSN"

Clarify Presentation Library 8.6.4 by making the following changes:

"8.6.4 Light description text strings"

The mariner may need to label all lights with a description in order to identify those he can see. **A mariner-optional** ~~An optional~~ light description text-string is provided for this purpose, **as a required sub-procedure of conditional symbology procedure LIGHTS05.**

13.) IMO CATEGORY OF RIVERS AND LAKES

The S57 "Use of the Object Catalogue" clause 5.4.8 explains that navigable Lakes, Rivers, Canals, Locks and Docks are coded as such only when the compilation scale is too small to provide adequate detail for navigation. They are coded as depth areas or dredged areas at scales large enough to provide enough detail for navigation. At present Canals, Locks and Docks are in IMO category 'Base', since these object classes are likely to be navigable and so to be transformed to depth areas on larger scale ENC's. But in order to avoid clutter Lakes and Rivers, which are less likely to become navigable at larger scale, are at present in category 'Other'. This has caused trouble because the ship's destination in a navigable river may disappear on a small scale EDCIS display.

To remedy this problem, amend the look-up table to put Lakes and Rivers in 'Standard Display', and viewing group 22010

Item No. CS04.1.d6.co.26 - Correction to C&S Specifications section 4 'Colours' and Presentation Library section 13.1 'Colour Tables': **3-table colour system to replace the current 5-table system.**

The 3-table colour scheme developed by Sharon McFadden of DRDC, Toronto, was tested in comparison with the 5-table system by Sven Herberg at the Hochschule Wismar, Fachbereich Seefahrt Warnemunde, in 2002 - 2003, using mariners as subjects (see paper C&S/14/5F). As the minutes of C&S14 item 5.9 record, the two sets are very similar, and the 3-table set makes ECDIS operation simpler, and the outcome is that the 3-table set will replace the 5-table set in PresLib ed. 3.3

Item No. CS04.1.d6.co.27 - Correction to C&S Specifications sections 4 and 5 and Annex B:

Alignment of colour calibration procedures with IEC 61174, Ed 2 and with current experience with LCD displays.

The minutes of C&S13 item 9.5.4 discusses current experience with colour calibration of LCD displays, and 9.5.5 requires alignment of the colour calibration requirements and procedures in the C&S Specs to be consistent with IEC 61174. The minutes of C&S14 item 5.8 confirms the conclusions from C&S13. Colour & Symbol Specs sections 4 and 5, and Annex B, have been revised for use with other displays than CRTs, with the following three substantive changes:

Change 1." 4.1.3 ~~CRT monitor~~ Display calibration and verification

The ECDIS ~~CRT monitor~~ display should be calibrated initially in order to transform the CIE colour table coordinates to **screen coordinates**. ~~DAC (digital to analog converter) voltage values for the RGB guns.~~ **The main components of ECDIS display are monitor and image generator. Both the monitor and the image generator used to drive the ECDIS display can be calibrated together as a colour generating unit. Another alternative is to calibrate separately both the monitor and image generator.** This process is described for **CRT screens** in Annex B1, and software for processing calibration and converting CIE colour coordinates to RGB, with worked examples, is included in the Presentation Library.

The ECDIS ~~display monitor~~ calibration should be verified for type approval of **CRT monitors** as described in section 5.2.3, using a combination of instrumental testing for the bright sun colour table and subjective visual checking for the ~~day black background~~, dusk and night colour tables.

Only limited experience has been gained with calibration schemes for LCDs. Based on this, the procedure of calibrating all three colour tables by the current method used for CRTs, together with remote control of the calibration settings, should be used for LCDs for the interim (2003). "

Change 2.

" 5.2.3.1 Tolerances. The tolerances quoted below apply only to the process of converting CIE colour coordinates to RGB values, and so should be evaluated shortly after the ECDIS leaves the manufacturer's plant.

Considerable operational experience will be needed before it will be possible to state colour maintenance - - - -

- - - - for type-approval purposes they are restricted to the bright sun table.

Colour tolerance values:

1. The discrimination difference between any two colours displayed (except those with a tabular ΔE^* less than 20 - see list in Annex B 4.5) should be not less than 10 ΔE^* units.
2. The difference between the colour displayed and the CIE colour defined in these specifications should be not greater than ~~8~~ 16 ΔC^* units. **If a monitor is independently tested then the difference shall be not greater than 8 ΔC^* units.**
3. The luminance of the colour displayed should be within 20% of its specified value (except for black). **Black is a special case and the luminance of it shall be not greater than 0,52 cd/m² for bright sun colour table.**

5.2.3.2 Instrumental calibration verification test. **For CRT displays, an instrumental test to check that the results of the colour conversion calibration described in Annex B1 are within tolerance should be made by displaying the colours of the ~~bright sun~~ Day colour table (restricted to colour pairs of tabular ΔE^* greater than 20); measuring their CIE coordinates x,y and L; and applying a tolerance test. The procedure is described in Annex B4. **For LCD displays the instrumental test should be applied to all three colour tables.**"**

Change 3.

" B.1.3.3 Setting the Controls (*para.* 3):

The process for correctly setting the controls is as follows: with the ~~CRT~~ **monitor** in a dark room, and with the ~~CRT~~ **monitor** turned on and warmed up to the manufacturer's specification, drive the **monitor** with a black signal (0, 0, 0). ~~Observe the borderarea just shows.~~ Measure the Luminance of this area. It should be less than ~~0,02~~ 0.52 candelas per square metre (cd/m²). Lock ~~this~~ **the appropriate** controls for the calibration process. "

Item No. PL03.2.d6.co.28 - Correction to Symbol Library and Presentation Library - **Updating the Mariner's Navigational Symbols to IEC 6117 ed. 2 annex E and to IMO S/N Circ. 217 on AIS symbols.**

The Symbol Library, Chart 1, CSPs and Part II of the PresLib "Mariners' Navigational Objects" have been updated for changes in Navigational Symbols in IEC 61174 ed. 2, (July 2000) annex E and for the IMO "Guidelines for display of AIS Information" S/N Circular 217, July 2001.

The main changes are as follows:

- 1.) Extensive revision of AIS symbology following the IMO Guidelines, including:
 - new symbols for selected target and dangerous target,
 - new symbol for lost target,
 - old 'AIS default' symbol deleted,
 - vector changed to a dashed line; path predictor may be provided,
 - heading line drawn from the bow; turn indication added to it,
 - CSP VESSEL02 revised to account for these changes.
- 2.) New introduction to PresLib. Part II "Mariners' Navigational Objects" including a table relating IEC and IMO symbology to S-52 symbol plots.
- 3.) Revisions to symbols, CSPs, attributes, tables, Chart1, etc to bring the PresLib up to date with IEC 61174 ed. 2 and IMO S/N Circ. 217.

Details are contained in edition 3.3 of the PresLib. Part II. Changes have also been made to the following Mariners' Objects CSPs :

LEGLIN02 ---> LEGLIN03
 OWNSHP02 (clarification)
 VESSEL01 ---> VESSEL02
 VRMEBL01 ---> VRMEBL02

Item No. PL03.2.d6.co.29 - Corrections to Presentation Library - Mariner's option to display isolated dangers in 'unsafe waters' shallower than the safety contour.

Because there are very few ENCs available with dense contouring, the safety contour displayed on the ECDIS screen normally defaults from the value selected by the mariner to the next available deeper contour, often by a significant amount. At present, isolated dangers are only highlighted by the 'isolated danger' symbol SY(ISODGR) when they lie in 'safe' waters deeper than the displayed safety contour. But mariners may often be forced to navigate in 'unsafe waters' shallower than the displayed safety contour, due to lack of deep water in a harbour approach channel, due to needing to take avoiding action to prevent collision, and so on.

Conditional symbology procedure UDWHAZ has been revised to give the mariner the option of selecting "show isolated dangers in shallow waters" to see all rocks, wrecks or obstructions of depth less than or equal to his selected safety contour highlighted by the 'isolated danger symbol' in all waters below the drying line.

To implement this change, use revised CSP UDWHAZ04, revise the meaning of symbol SY(ISODGR01) to "isolated danger of depth less than the mariner's selected safety contour", revise viewing group 14010 to "isolated underwater dangers in waters deeper than the displayed safety contour" and add viewing group 24020: "isolated underwater dangers in waters shallower than the displayed safety contour".

Item No. PL03.2.d6.co.30 - Corrections to C&S Specifications and Presentation Library - Organisational and editorial changes to the C&S Specifications and Presentation Library.

The text of the C&S Specifications and the Presentation Library has been revised to reflect changes in the organisation of S52 App.2 since editions 4.0 and 3.0 were published in 1997.

The technical changes in this revision are described in other items of amendment d6. The main organisational change reflects the general consensus within the C&SMWG at meetings 13 and 14 that with the completion of the word-processed version of the Symbol Library the word-processed Presentation Library becomes the official version and that there will be a charge for this to help to pay for maintenance. The digital version in .dai format will be available as a manufacturer's option for ed. 3.3, but may not be available in future.

Details of the changes follow:

1.) COLOUR & SYMBOL SPECIFICATIONS

Only minor changes have been made to the C&S Specs and Annexes B.) Initial Colour Calibration and C.) Maintaining Colour Calibration. However the Chart 1 and symbol diagrams of the old "Hard-copy Addendum" to the Presentation Library have been moved to a new section 15 of the PresLib.

In addition the Colour calibration sections of the C&S Specs and Annexes B and C have been brought into line with IEC 61174 requirements and experience with LCD displays.

2.) PRESENTATION LIBRARY

The Presentation Library as a word processed file has become the "official version" for the future, and there will be a charge for this to help to pay for maintenance. The digital version in .dai format will be available as a manufacturer's option for ed. 3.3, but may not be available in future. The first paragraph of PresLib section 1.4 has been revised to read:

"1.4 Supply and amendment of the Presentation Library

From edition 3.3 onwards the word-processed version of the Presentation Library is the "official" version and this carries a subscription charge for each new edition to help to cover maintenance costs. A limited digital version in .dai format is provided on the same CD-ROM as a manufacturer's option for edition 3.3, but may not be provided for succeeding editions. It consists of look-up tables; symbols; and colour tables and is supplied in ASCII format in the .dai file."

The other major changes in the organisation of the PresLib are:

1.) The "official version" of the Symbol Library is now in 'word-processed' hard-copy form as an Addendum to the PresLib.

2.) The introduction to the Symbol Library is now in section 14 and the Chart 1 Plots, the Symbol Plots and listings and the Colour Test Diagram (the old "hard-copy addendum" of the C&S Specs) are in section 15 of the PresLib. Old sections 14 " -- - Colour model on an 8 Bits graphic device" and 15 "References" have been deleted.

.3) The 3-table colour system replaces the 5-table system (amendment d6.co.26)

.5) PresLib Part II, Mariners' Objects, has been revised and AIS symbols added.

.6) The old PresLib Part III on Calibration Software, the Digital Chart 1 and the Colour Test Diagram has been re-located in Part I as new section 19.

The new layout of the PresLib is:

PART I:

USERS' MANUAL

sections 1-8 description of symbolisation methods,
sections 9 & 10 description of the digital Presentation Library.

TABLES AND SYMBOLISATION PROCEDURES

section 11 Look-up Tables,
section 12 Conditional Symbology Procedures,
section 13 Colour Tables, Viewing Groups and Text Groups,

SYMBOL LIBRARY AND SYMBOL PLOTS

section 14 Symbol Library, description (detailed specifications in Addendum)
section 15 ECDIS Chart 1, Symbol plots, symbol meanings, colour test diagram.

REFERENCES AND NOTES

sections 16,17 References, Bibliography, Glossary,
section 18 contents of the accompanying digital files,
section 19 use of colour calibration software, digital Chart 1, colour test diagram

PART II:

MARINERS' NAVIGATIONAL OBJECTS

sections 1,2 Introduction, explanations,
section 3 Mariners' Object Classes,
section 4 Navigational Attributes,
section 5 References.

ADDENDUM:

Symbol Specifications in detail.

DIGITAL FILES ON CD-ROM:

- .DAI file version of the Presentation Library (if available),
- pseudo-S57 file version of ECDIS Chart 1 (if available),
- colour test diagram (pseudo S-57 code with look-up table),
- 'C' program for conditional symbology procedure LITDSN,
- CRT calibration software.

AMENDMENTS

Future amendments after amendment d6 will be published on the IHO Maintenance Bulletin Board. For details see C&S Specs section 1.2.4

Item No. PL03.2.d6.cl.31 - Clarification to C&S Specifications and Presentation Library - New editions of C&S Specifications and Presentation Library

1.) C&S12

The outcome of item 5.1.1 "Procedural model for maintenance of the Presentation Library" of the minutes of meeting C&S 12 reads as follows:

1. *Chairman proposed that the next revision (e3.3) be issued in 2002. e3.3 would bring into effect extant deferred amendments. The Chairman proposed developing a work programme for consideration later in the meeting.*
2. *The meeting supported the concept of circulating draft versions of e3.3 for evaluation prior to formal adoption at a C&SMG.*
3. *The meeting agreed that for consistency of IHO documentation, all documents should in future be issued as new "editions". Any periods of grace, "grandfather" clauses or other special implementation rules shall be included with the edition when it is released. Incremental changes will be indicated 3.3, 3.4, etc. Major revisions will be designated by a sequential prefix – 3.0, 4.0, 5.0, etc.*

2.) C&S13

The draft ed.3.3 current at the time of the meeting was duly prepared by the IHB and circulated at meeting C&S 13.

Items 12.1 and 12.2 of the minutes of meeting C&S 13 include the following:

12.1 Edition 3.3

- *Fee:*
 - *1.500 EURO for newcomers*
 - *500 EURO as update for earlier subscribers*
 - *free for attendees of C&SMWG*

12.2 When to set edition 3.3 in force (for type approval)?

- *New development :*
 - *one-year grace period starting from the date of issue*
- *New selling (already type-approved before date of issue) :*
 - *one-year grace period starting from the date of issue*

The 'grace periods' should be added by the IHB to the title page or preamble of the new editions of the C&S Specs. and the PresLib.

3.) C&S14

Minutes item 5.2 confirm that C&SS ed 4.2 and PresLib ed. 3.3 will be published forthwith.

End of deferred amendment d6 - March 2004

Note that the edition numbers have changed after this deferred amendment, which brought all of deferred amendments d2, d5 and d6 into effect. They have become:

- *Colour & Symbol Specifications 4.2, and*
- *Presentation Library 3.3*

(Minutes of meeting C&S 12 item 5.1.1 and C&S 13 items 12.1 and 12.2)

Please refer to the IHO website: www.iho.shom.fr for further information on current editions of IHO ECDIS publications.
