WEND8-5A rev.1

8TH WEND COMMITTEE MEETING Tokyo, Japan, 5-6 March 2004

CHRIS input to WEND/8 Submitted by Chairman of CHRIS

SUMMARY Executive summary:	Input to WEND 8 summarizing the most significant activities of CHRIS since WEND 7, inviting WEND to take note of the subjects, consider the applicability of CHRIS instructions for submission of proposals to WEND work and take into consideration CHRIS views on IHO ENC coverage diagram when reviewing the WEND ENC Task Group recommendations.
Actions to be taken:	Paragraph 10
Related documents:	WEND8-2A, Agenda point 5 and 4.

10. Background

Agenda point 5 of WEND 8, calls for a Review of activities of other IHO committees dealing with ECDIS, pertinent to WEND".

This documents aims at providing a CHRIS input into the review.

The input is grouped under the following headings:

- Status on the progress of S57 ed. 4.0
- > Ongoing work on ENC encoding harmonization
- Establishment of a new CHRIS Working Group, the Data Protection Scheme Working Group
- Availability of the document:" Electronic Charts Electronic Charts What can be used under SOLAS?"
- ➢ Validity of S57 ed. 3.0 ENCs
- Instruction for submission of proposals to CHRIS
- ENC coverage information

Following each input is a suggestion for WEND action on the input.

2. Status on the progress of S57 Ed. 4.0

The work on S57 Ed. 4.0 was launched in order to align the standard with the Generic Standards on Geospatial Information currently being developed by ISO Technical Committee 211 (TC211) and to cater for additional functionalities for the exchange of Hydrographic Information, which is currently not possible.

The work is progressing slowly, primarily because the work of TC211 is not yet complete and because the work is highly theoretical and only a very few parts of the standards have yet been put to a practical application. The end of 2006 is now the most optimistic estimate of the finalization of S57 Ed. 4.0. End 2004 was previously promulgated as the target date. (IHO Work Programme, task 3.1.1 refers.)

CL 42/2003 informed IHO Member States of this.

IHB in CL 68/2003 reported that no particular objection or comments had been received.

If any additional functionality is required for the standardized exchange of Hydrographic information before Ed. 4.0 is finalized an interim solution may be to identify one or more existing standards catering for this functionality maintained by other international organisations and endorse the relevant parts of the standard for IHO use.

WEND is invited to take note of the information above.

3. Ongoing work on ENC encoding harmonization

CHRIS 15 considered a paper developed by a cooperative effort of Germany, IC-ENC and Primar Stavanger. The paper identified a number of inconsistencies between ENCs issued by various HOs, in terms of compilation scale, usage band assignment, use of the SCAMIN S-57 attribute, etc. Such inconsistencies were causing confusion and dissatisfaction among users thereby threatening the viability and take-up of official ENCs. The paper proposed recommendations to achieve greater ENC consistency worldwide.

The inconsistencies are resulting in highly undesirable differences in ECDIS display where ENC cells with differing encoding practices are bordering each other and displayed at the same time.

CHRIS agreed that CHRIS Working Groups TSMAD and C&SMWG must address this as an urgent matter.

This has been done and the outcome of the efforts is attached as Annex A to this paper.

It is important to note that the recommendations do not warrant a change to S57 Ed. 3.1, but nevertheless reduce ambiguity and impose constraints on the freedom of interpretation in the encoding of ENCs. These constraints are essential in order to achieve a harmonized display of ENCs from more than one HO on the ECDIS display.

WEND is invited to take note of the information above and to consider supporting the efforts to achieve a higher degree of harmonization in ENC encoding.

10. Status on the progress of the revision of S-52

Revision of S-52 main document

The 5^{th} Edition of S-52, dated December 1996, is currently under review with the aim to eliminate operational requirements of ECDIS from the document and to focus the content on the cartographic aspects of ECDIS chart display.

A draft version of the reviewed document is expected at CHRIS 16 in May 2004 for discussion / adoption.

New Editions of S-52, App. 2 and Annex A

The upcoming new editions of the IHO ECDIS Standard S-52, Appendix 2 "Colour & Symbol Specifications for ECDIS", Edition 4.2, and its Annex A "IHO Presentation Library

for ECDIS", Edition 3.3, are being finalized for publication in March 2004.

The new PL will be very different compared to previous editions. Presently, the Symbol Library is the only part, which is not available as a printable document. The new Symbol Library will be specified in hard-copy format. This document will provide, for each symbol, its shape and dimensions translated from the digital symbol file, its colour, and links to the paper chart symbology, as in IHO INT1, etc..

The entire Presentation Library will then be available in a human-readable form, as PDF files, on a CD-ROM: this will be the authoritative "official" version. The machine-readable digital version of the Symbol Library will also be part of the package for those who would be interested in using it. The same change applies to the ECDIS Chart 1, which will be issued with the PL as a graphic file in TIFF-format and will be available in the pseudo S-57 format as well.

In addition to the hard-copy Symbol Library, the new PL will include a number of significant improvements, a.o.:

- a reduction from five to three colour tables, based on the finding that mariners prefer minimal adjustment to the ECDIS settings;
- Navigational symbols transferred to the patronage of IEC 61174 (ECDIS) and IEC 62288 (Navigational symbols) will no longer be included in the PL;
- the introduction of colour calibration requirements for flat panel displays, in line with IEC 61174;

ECDIS-systems should make use of the new PL as follows:

- Approved ECDIS systems that are already on sale must upgrade to Edition 3.3 from f^t January 2006 at the latest.
- Totally new ECDIS system developments starting after 1st June 2004 must make use of the Edition 3.3 right from the beginning.

WEND is invited to take note of the information above.

5. Establishment of a new CHRIS Working Group, the Data Protection Scheme Working Group

Member States approved the establishment of an IHO Recommended Security Scheme (RSS) at the end of 2002.

The IHO RSS version 1.0 is now promulgated as IHO S63 with the IHB as the Security Scheme Administrator.

CHRIS has established a new Working Group, the Data Protection Scheme Working Group (DPSWG) tasked to develop and maintain the IHO RSS.

DPSWG is further tasked to review the international developments in security services and prepare for a version 2 of the RSS allowing for a structured transition of the standard into the market.

WEND is invited to take note of the information above.

6. Availability of the document: "Electronic Charts – What can be used under SOLAS?"

CHRIS 15 considered a document with the title "Electronic Charts – What can be used under SOLAS?" developed by the chairs of CHRIS and TSMAD WG.

CHRIS 15 considered the document a useful element in the information activities on ECDIS and ENC by MS.

The document is available in English, French and Spanish on the IHO website under the heading:" ENC, Introduction"

WEND is invited to take note of the information above.

7. Validity of S57 ed. 3.0 ENCs

CHRIS 15 directed the IHB to seek the views of MS on a date where S57 ed. 3.0 would cease to be produced and used. December 2004 was suggested as the termination date.

CL 40/2003 requested IHO Member States views on this.

IHB in CL 68/2003 reported that 38 out of 39 MS supported December 2004 as the date where S57 Ed.3.0 ENCs and updates will cease to be valid. Japan reported that they might have to issue Ed. 3.0 ENCs after December 2004.

WEND is invited to take note of the information above.

8. Instruction for submission of proposals to CHRIS

CHRIS 15 agreed that the lack of guidance for the submission of proposals to CHRIS has in the past sometimes resulted in inefficiencies and greater difficulty in reaching informed decisions. As a result, CHRIS 15 adopted the recommendations in a document: "Instructions for submission of proposals to CHRIS and subsidiary bodies".

The guidelines are modelled on proven IMO procedures and templates and will be followed for all submissions to CHRIS in future. A copy is attached at **Annex B** for reference.

WEND is invited to consider the applicability of the Guidelines developed by CHRIS for WEND use and decide as appropriate.

9. ENC coverage information

CHRIS 14 requested the IHB to make provision for the graphical presentation of MS' ENC coverage to be made available on the IHO website, and to be kept up to date from MS' inputs.

At CHRIS 15 IHB gave an overview and demonstration of the ENC coverage diagrams developed through the inputs to the WEND study initiated through CL 31/2001 and 67/2002.

CHRIS members asked that information be sought on the formats to be used for submitting information to the IHB. The IHB reported that information would shortly be obtained by the IHB through CL.

To date it appears that not much further activity has been taken to enable and initiate the updating of the information on ENC coverage on the IHO website through MS' inputs.

On the IHO website under the heading "ENC, ENC coverage", a catalogue functionality allows a dynamic presentation on the present and planned coverage, with links to national and RENC catalogues. The catalogue also has functionality to allow for MS to update information concerning their area of responsibility by utilizing the ENC metadata information i.e. with very little effort of the MS and the IHB.

To the know ledge of the chair of CHRIS, this functionality has been made freely available to the IHB through Norway.

However, some of the information appears to be very much out of date, and as such not of much use to other organisations and potential distributors α users of ENC.

WEND is invited to endorse the benefits of providing information on present and planned ENC coverage on the IHO website, further taking into consideration that the IHO aims at being the recognized authority on Hydrographic Matters.

If WEND considers the provision of information on ENC coverage beneficial, WEND is further invited to endorse the initiation of a regular update mechanism.

Finally WEND is invited to inform CHRIS 16 of the outcome of its deliberations on the matter.

10. Summary of suggestions for WEND actions

WEND is invited to:

- Take note of the end of 2006 instead of 2004 as previously stated as the current most optimistic estimate of the finalization of S57 Ed. 4.0;
- Take note of and endorse the efforts to achieve a higher degree of harmonization in ENC encoding;
- Take note of the on going revision of S-52 main document and planned publication of new editions of S-52, App. 2 and Annex A;
- Take note of the establishment of a new Working Group, the Data Protection Scheme Working Group (DPSWG) tasked to develop and maintain the IHO Recommended Security Scheme;
- Take note of the document:" Electronic Charts What can be used under SOLAS?", available on the IHO website;
- Take note of December 2004 as the date where S57 Ed.3.0 ENCs and updates will cease to be valid;
- Consider the applicability of the "Guidelines for submission of proposals to CHRIS" (developed by CHRIS) for WEND use and decide as appropriate;
- Consider the benefits of providing information on present and planned ENC coverage on the IHO website, and take action as appropriate.

February 2004 Ole Berg CHRIS Chair.

DRAFT

Recommendations on ENC Data Encoding for improved ENC consistency

By the CHRIS Transfer Standard Maintenance and Applications Development WG (TSMAD)

Note: The final list of recommendations will be forwarded to MS by Circular Letter

1. The setting of <u>compilation scales</u> for all ENCs should be based upon the standard radar range scales in the following table:

Selectable Range	Standard scale (rounded)
200 NM	1:3000000
96 NM	1:1500000
48 NM	1:700000
24N M	1:350000
12 NM	1:180000
6 NM	1:90000
3 NM	1:45000
1.5 NM	1:22000
0.75 NM	1:12000
0.5 NM	1:8000
0.25 NM	1:4000

Table 1 Radar range / standard scale table

- Normally, the nearest larger standard scale should be used, e.g. an ENC produced from a 1:25,000 paper chart should have a compilation scale of 22000.
- Exceptionally, if source material permits, the next larger scale may be used. E.g. an ENC produced at 1:25,000 may have a compilation scale of 12,000 applied to an area compiled from a more reliable source.
- Where the source material used to produce the ENC is of a scale larger than 1:4000, then the actual paper chart / source material scale may be used as the compilation scale for the ENC.
- Where the source material used to produce the ENC is of a scale smaller than 1:3000000, then the actual paper chart / source material scale may be used as the compilation scale for the ENC.
- 2. <u>SCAMIN</u> values should be determined using a method that reduces the number of individual objects displayed and ensures clarity, using the standard rounded display scales listed in the above table:
 - SCAMIN should be applied to all SCAMIN-attributable objects and also to buoys and beacons, which belong to the display category "base display" of the IMO Performance Standards for ECDIS. SCAMIN should not be applied to any other base display objects. Possibly add a new table of all S-57 features within <u>base display</u>.

- As a minimum, a single standard value should be applied to all SCAMIN-attributable objects. This single standard value should be set to the compilation scale minus 1 of the next available smaller scale ENC covering the area, e.g. for an ENC with a compilation scale of 12000, where the next available smaller scale ENC has a compilation scale of 90000, this standard SCAMIN value should be set to 89999.
- In order to achieve clarity of display as the user zooms out, intermediate SCAMIN values should be applied to those individual objects in SCAMIN-attributable object classes that the HO considers are less important and that are contributing to clutter. These values should be set to one of the rounded standard scales (minus one) between the compilation scale of the cell and the compilation scale of the next smaller scale ENC available. For instance, for an ENC with a compilation scale of 12000, where the next available smaller scale ENC has a compilation scale of 90000, a SCAMIN value of 44999 could be applied to such objects.
- If it is desired to continue displaying navigationally important objects of the ENC at zoom levels beyond the compilation scale of the next smaller scale ENC available, other smaller scale SCAMIN values should be applied to such individual objects. These values should be set to one of the rounded standard scales (minus one) beyond the compilation scale of the next smaller scale ENC available. For instance, in the example above, a SCAMIN value of 179999 may be applied to such objects. The number of upward steps in rounded standard scales will differ for different objects/object classes of differing importance for navigation, e.g. selected soundings may possibly have SCAMIN values of two steps beyond, whereas aids to navigation (buoys, beacons etc.) may possibly require three or more steps beyond.

For the purposes of consistency, and to support a seamless transition between ENC cells, it makes sense if the objects selected for smaller scale SCAMIN values broadly correlate with the objects which appear on the next smaller scale ENC available.

- If there is currently no smaller scale ENC available, it is recommended that the starting point for use of SCAMIN be set at two steps beyond the compilation scale. The values should be set to one of the rounded standard scales (minus one) beyond the compilation scale of the ENC as described above.
- If the above recommendations are used to apply SCAMIN values, the last bullet point of UOC clause 2.2.7 recommending the use of the same SCAMIN value for all navigational purposes no longer applies.
- In order to ensure consistency of display at their boundaries, it is essential that HOs liaise with their neighbouring HOs, RENC and/or Regional Hydrographic Commission when defining these SCAMIN values.
- 3. HOs may assign each ENC to a <u>navigational purpose</u> based on the ENC's compilation scale. This should be done in consultation with neighbouring HOs or with all nations within a RENC, or with all nations within a Regional Hydrographic Commission, in order to maintain consistency across national or regional boundaries. For instance, the following ranges may be applied:

Navigation al Purpose	Name	Scale Range	Available Compilation Scales	Matching Scale Ranges
1	Overvie	<1:1499999	3000000 and smaller	200 NM
	W		1500000	96 NM
2	General	1:350000 -	700000	48 NM
		1:1499999	350000	24 NM
3	Coastal	1:90000 - 1:349999	180000	12_NM
			90000	6_NM
4	Approac	1:22000 - 1:89999	45000	3 NM
	h		22000	1.5 NM
5	Harbour	1:4000 - 1:21999	12000	0.75 NM
			8000	05. NM
			4000	0.25 NM
6	Berthing	> 1:4000	3999 and larger	< 0.25 NM

Table	2
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Note that this correlation of navigational purposes to compilation scale is intended to give guidance to those HOs about to start ENC production or to those who wish to rescheme their ENC cells.

- 4. The use of too many M_CSCL objects within the same cell should be avoided. The values of any M_CSCL CSCALE attributes should be set using the same criteria as those used for setting compilation scale described above.
- 5. Inconsistent depiction of the same localities in different navigational purposes should be avoided. For example, outlines of rivers, ports etc in smaller scale cells should be shown but may be in simplified outline form.
- 6. In addition to discussing and agreeing the setting of compilation scale and SCAMIN, there should be close liaison between neighbouring HOs when creating ENCs in their border areas, in order to resolve any issues of inconsistent depiction and to avoid gaps in data coverage. In particular, the following issues should be investigated and resolved:
 - common border limits and boundaries
 - COMF value used
 - scales / navigational purposes
 - overlaps / gaps buffer zone
 - content / data alignment
 - depth contour intervals
 - truncated limits and boundaries (areas that cross the border)
 - SCAMIN rule used.
- 7. Misalignment and inconsistent depiction of data at cell, source and international boundaries should be investigated and rectified.
- 8. HOs should, as a minimum, use standardised depth contour intervals (INT1 II30, 31). Additional contours may be added, where required.
- 9. HOs should not leave holes in smaller scale coverage, assuming that the user will have larger scale data available.

- 10. Wherever possible, meaningful and useful values of CATZOC should be used, i.e. values other than CATZOC 6 (data not assessed) for water areas.
- 11. Coordinates should be held in ENC production systems at a resolution of 0.0000001 (10 7) and the COMF value should be set to 10000000 (10⁷) for all cells.
- 12. There must be no gaps in data between adjoining cells of the same navigational purpose.
- 13. There must be no overlapping data between cells of the same navigational purpose (see S-57, Appendix B.1 clause 2.2), except at national boundaries, where, if it is difficult to achieve a perfect join, a 5 metre overlapping buffer zone may be used.

Annex B

INSTRUCTIONS FOR SUBMISSION OF PROPOSALS TO CHRIS AND CHRIS SUBSIDIARY BODIES

Introduction

1 In the past, guidance for the submission of proposals to CHRIS has been lacking. This has sometimes resulted in inefficiencies and greater difficulty in reaching informed decisions. To address this, the following guidelines are to be followed for all submissions.

Format

- 2 Proposals should comprise the following sections as applicable:
 - .1 <u>Summary</u>. The text of all documents containing proposals for consideration by CHRIS should begin with a brief summary prepared in the form, and containing the information, as set out below.

Submitted by:		
Executive summary:	Description outlining the proposal including information on whether the proposal will have financial implications for the shipping industry or for the IHO budget.	
Actions to be taken:	A reference should be made to the paragraph of the document, which states the action to be taken by CHRIS.	
Related documents:	Other key documents should be listed to the extent they are known to the originator of the document.	
Related Projects:		

- .2 <u>Introduction / Scope</u>. An introduction, background and an indication of the scope of the proposal.
- .3 <u>Analysis/Discussion</u>. An analysis and/or discussion of the issues involved including any potential cost impacts on the maritime industry or Member States. In analysing the issues, the following should be addressed:
 - .1 is the subject addressed by the proposal considered to be within the scope of IHO objectives?
 - .2 is the subject of the proposal within the scope of an item of the current IHO work programme?
 - .3 do adequate industry standards exist? and

- .4 do the benefits justify the proposed action?
- .4 Resource implication This would identify such matters as number of working group sessions, expertise, need for expert consultants, funding, etc.
- .5 <u>Benefits</u>. Identify the benefits, which would accrue from the proposal.
- .6 <u>Working Groups</u>. Identify which CHRIS working group(s) are essential to completing the work.
- .7 Any other relevant information not covered elsewhere.
- .8 Justification. See Annex A.
- .9 <u>Target completion date</u>.
- .10 Related activities and dependencies
- .11 <u>Action Required</u>. Specific indication of the action required.

Submission Timetables

- 3 Documents for consideration at meetings should be received by the Chairman and secretary of CHRIS as follows:
 - .1 documents containing proposals for new work programme items and documents requiring consideration and a decision from the relevant meeting; not later than 7 weeks before the commencement of the meeting.
 - .2 documents, containing 4 pages or less, for those MS who wish to raise alternative proposals or make substantial amendments to a proposal or who wish to make comments in absentia on those referred to in subparagraphs (.1) above; not later than 3 weeks before the commencement of the meeting.
- 4 In order that meeting delegates and other M/S may consider and prepare for each meeting, chairman and secretary should strictly enforce the deadlines in paragraph 3 above. Only in the most exceptional circumstances should new items be introduced after the deadlines.

5. To facilitate the processing of documents, digital versions, preferably in Microsoft Word, should be sent via the Internet to the e-mail address of the secretary and chairman.

6. The IHB will place the submitted proposal on the IHO website as soon as possible in order to facilitate comments and approval.

[Note: Information documents should reach the IHB three weeks before the commencement of the meeting.]

Appendix A to Annex G

Guidelines on the Evaluation of Proposals in the work of CHRIS and subsidiary bodies

Introduction

1 In order to best use the limited resources available to CHRIS and its subsidiary bodies it is necessary to evaluate the work programme. The purpose of these guidelines is to provide a uniform basis for the evaluation of such projects. The final decision on priorities rests with CHRIS.

- 2 The evaluation should be done in a two-stage process
 - .1 general acceptance; and
 - .2 establishment of priorities

General acceptance

3 Before deciding to include a new item in the work programme of CHRIS or its subsidiary bodies, the following factors should be taken into account:

- .1 is the subject addressed by the proposal considered to be within: a. the scope of IHO objectives?
 - b. the current IHO work programme?
- .2 has a need for the measure proposed been identified (e.g., client demand, internal improvements)
- .3 do adequate industry standards or solutions exist or are they being developed thereby reducing the need for action through CHRIS?
- .4 is the objective achievable in the existing CHRIS work program?

Establishment of priorities

4 Priorities for accepted work items should be assigned based on consideration of the following factors:

.1 measures aimed at substantially preventing maritime casualties or marine pollution incidents;

.2 measures to overcome identified deficiencies in existing IHO standards and technical resolutions;

.3 measures needed to align IHO standards and resolutions with those of other relevant international standards and recommendations;

.4 measures required to take into account the introduction of new technologies and methods in maritime transportation;

.5 measures required to take into account new measuring, surveying and production techniques in hydrography;

.6 increased hydrographic office efficiency

5 Follow up actions in response to specific requests emanating from the Conference and other international and intergovernmental organisations should be evaluated in light of paragraph 4 above unless specifically identified as urgent matters.

General remarks

6 When setting priorities, a certain flexibility should be allowed for initiatives that could not be foreseen.

7 Once a decision has been made on the basis of the above for a new work item to be included in the work programme of CHRIS or a CHRIS subsidiary body, an appropriate target completion date for the completion of the item should be established, taking into account the urgency of the matter concerned.