IHO Colours & Symbols Maintenance Working Group (C&SMWG)
15th Meeting, BSH, Rostock, Germany, 2 -4 May 2005

16th CHRIS MEETING
Ottawa, Canada, 28-31 May 2004

FINAL MINUTES

Notes: 1) The paragraph numbering is the same as in the agenda (Annex D).
2) A list of acronyms used in these Minutes is at Annex A.
3) A list of all actions agreed at CHRIS/16 is at Annex K
4) *Names of persons are written in full the first time they appear in the Minutes. Afterwards, only the surname is shown.*
5) Two presentations were given during the meeting on the "Navigation surface model concept" (USA) and on the "Digital Hydrographic Database" (Australia). Brief reports are in Annex J.

1. OPENING AND ADMINISTRATIVE ARRANGEMENTS

Docs:	*CHRIS16-1A rev.8*	*List of Documents (also Annex B)*
	CHRIS16-1B rev.6	*List of Participants (also Annex C)*
	CHRISWG-MEM	*Membership of CHRIS related WGs*
	CHRIS-MEM	*CHRIS Membership*

The 16th CHRIS Meeting was hosted by the Canadian Hydrographic Office and took place at the Westin Hotel, Ottawa, Ontario, Canada. Attendees were welcomed by Mr. HAINS (Dominion Hydrographer, Canada). The Chair (Ole BERG, Denmark) also welcomed the participants, including observers from CIRM, RTCM and ICCL, and opened the meeting.

The Chair outlined his intentions for the meeting and the general procedures to be followed. He explained that CHRIS operating under consensus, silence would be interpreted as support to the discussion. He further assumed that participants had read the various meeting documents and information papers, and that, when introduced, these documents would be briefly explained and not just read. He then briefly reviewed the timetable for the meeting and mentioned that there might be times when the plenary meeting would break into small working groups.

The Secretary (Michel HUET, IHB) detailed the provision of CHRIS/16 documents (Annex B), recalling that they were also available from the CHRIS page of the IHO website (www.iho.shom.fr > Committees > CHRIS). Lee ALEXANDER (HGMIO Chair) was introduced and accepted as Rapporteur for the meeting. It was agreed that the Rapporteur and the Vice Chair (Robert WARD, Australia) would produce a record of discussion for each day, which would be distributed the following day for comment and proposed amendment. This record would subsequently form the basis of the minutes of the meeting.

Michel POULIN (Canada) provided administrative and logistic details for the meeting. Alexis HADJIANTONIOU (Greece) agreed to serve as the official CHRIS/16 Photographer.

2. APPROVAL OF AGENDA

Doc:	*CHRIS16-2A rev.6*	*Agenda (also Annex D)*

It was agreed that all Information Papers would be reviewed under an additional item 13.2 of "Any Other Business". The amended agenda (Annex D) was then accepted by the meeting.

Outcome:

- Agenda approved, as amended.

3. MATTERS ARISING FROM MINUTES OF 15TH CHRIS MEETING

Doc: CHRIS16-3A Minutes of CHRIS/15

On request from Portugal (Antonio PINHEIRO), it was confirmed that the CHRIS Work Plan which was included as Annex F to the Minutes of CHRIS/15, i.e. Version 1.3, has now been superseded by the more recent Work Plan in Document CHRIS16-5A, i.e. Version 1.4. The latter Work Plan would be considered by the meeting. Referring to Annex H to the CHRIS/15 Minutes "Principles and Procedures for making Changes to IHO Technical Standards administered by CHRIS", USA-NOAA (David ENABNIT) asked if there was any further progress to resolve the issue of requiring at least 50% approval of MS to make any changes to IHO Standards. IHB (Kenneth BARBOR, Director) stated that the answer was NO and that this matter was being addressed by the IHO Strategic Planning Working Group (SPWG). Australia (WARD) further explained that the SPWG was aware of this matter and proposals were well in hand, for discussion at the 3rd Extraordinary IHC (Monaco, 11-15 April 2005).

Outcome:

- Minutes of CHRIS/15 approved.

Doc: CHRIS16-3B rev.1 Status of Actions List from CHRIS/15

IHB (HUET) provided a thorough review of the current status for these actions. It was noted that most of them had been completed. Referring to Action 10.3 on reviewing S-52, USA (Christian ANDREASEN) mentioned that he had prepared a *'Proposed Text as a Substitute for S-52 Appendix 1 'Guidance for ENC Updating'"* (Doc. CHRIS16-INF6). It was agreed that this document would be taken into consideration in the ongoing work on revising S-52. There were no further questions.

Outcome:

- Doc. CHRIS16-INF6 to be taken into account in the revision work on S-52.

Doc: CHRIS16-3C Terms of Reference for CHRIS Committee and related Working Groups

IHB (HUET) pointed out that the Terms of Reference for CSPCWG were framed quite differently from the other CHRIS working groups. The Chair of CSPCWG (Peter Jones, UK) recognized these differences and explained that revised TOR would be drawn up in conjunction with the forthcoming CSPCWG meeting in November 2004, then submitted to CHRIS/17.

Outcome:

- Chair CSPCWG to monitor the revision of the CSPCWG Terms of Reference, so as to align them with other CHRIS ToRs; to report back to CHRIS/17. (**New Action**)

4. DECISIONS OF OTHER IHO BODIES AFFECTING CHRIS

4.1. WEND Committee

Doc: CHRIS16-4.1A Report and Decisions of the 8th WEND Committee Meeting

IHB (BARBOR) provided a summary of the 8th WEND meeting (Tokyo, Japan, 5-6 March 2004). In particular, it was acknowledged that a new principle and additional guidelines had been adopted to supplement what WEND has focused on during the past eight years. Further, a definition for "Integrated Services" was agreed, which has been included as a footnote to the WEND Principles. Effort will be made to stimulate ENC production via increased involvement of Regional Hydrographic Commissions, particularly in terms of bilateral agreements. ENC consistency remains a concern but WEND considers this to be a CHRIS matter.

ICCL (George ARTS) asked for further information regarding Australian submission to IMO MSC 78 on RCDS Mode of Operation for ECDIS (Doc. CHRIS16-9.1A) and the Norwegian proposal on same subject (Doc. CHRIS16-9.1B). IHB (BARBOR) mentioned that this issue had now been referred to IMO NAV for further consideration and that IHB would provide input if/when requested. An IHB Circular Letter on this matter (CL 21/2004) resulted in six Member States, out of 36 replies, in favour of the Australian proposal to consider permitting ships to use the RCDS mode of ECDIS, without the requirement to carry paper charts. By contrast, 31 were in favour of a phased-in mandatory carriage requirement for ECDIS, as proposed by Norway. Germany (Mathias JONAS), who was at IMO MSC 78, mentioned however that the world appeared split 50/50 on this matter. ICCL (ARTS) provided further insight regarding what he felt was the maritime user community view on this matter, as follows:

1) Ship owners would like to be more involved in the process. He said that his attendance and experience at WEND/8 were disappointing. He felt that, without sufficient ENC coverage, it was not possible to make ECDIS mandatory. If HOs lack resources to produce ENCs, then ship operators should not be told that ECDIS must be used. A timeline for implementation of ECDIS should include a cost component as well. For example, he felt that $100K was too much. He added that there was still a lack of confidence in ECDIS.
2) The RCDS mode of operation has been in use for long enough to know its capability. The need to carry a full folio of paper charts is costly. He felt that a raster chart was perfectly sufficient for transit on high seas. ENCs would be used if available and, particularly, if they provide better information than contained in the RNCs. It would be desirable to allow ship owners more leeway.

The Chair thanked ICCL (ARTS) for this insight. He noted, however, that some of the issues raised were regulatory and under the responsibility of IMO (not IHO). He said that prices and cost were also a concern, but were rather a matter of competition in the market.

CIRM (Tor SVANES) stated that, in his view, cost was really not the major problem. ECDIS is now a standard installation on all new builds. Instead, the problem was the confusion about the various types of electronic chart data (ENCs, RNCs, SENCs, ECS data) and their availability.

USA-NOAA (ENABNIT) thanked ICCL and CIRM for their views, particularly as they related to mandatory carriage of ECDIS; this indicated that now the time to become actively involved has come.

ICCL (ARTS), referring to ENCs which have been produced but are not yet available, said that mariners were frustrated not to get this data. He mentioned an HO that had produced ENCs; however these had not yet been Quality Assured and there were no plans to do so in the near future. Primary messages from ICCL were as follows:

1) There is a need and willingness to use ENCs.
2) Shipping companies will continue to use paper charts, but really want to use ECDIS (with ENCs and RNCs)
3) There really is not a competitive market: HOs set the price.

The Chair agreed on the need for ENC availability on the market and felt that some HOs might not be aware that there is really a demand. He further mentioned that WEND had developed a new definition for RENC, for inclusion in the Glossary of ECDIS-related Terms.

Outcome:

- Report on WEND/8 noted.

- Secretary to liaise with the S-32 Working Group (Hydrographic Dictionary), so as to include the WEND definition of RENC in S-52 App.3 'Glossary of ECDIS-related Terms'. (**New Action**)

4.2. SPWG

Doc: CHRIS16-4.2A Issues arising from the SPWG Tokyo Meeting, March 2004, affecting CHRIS

IHB (BARBOR) gave a brief summary of SPWG activities. The WG has now concluded a two-year work. Final report has been sent to Member States via Circular Letter (CL xx/2004). Comments are to be received by 15 September 2004. Final proposals will be considered at the 3rd Extraordinary IHC. Any proposal that is approved by the Conference will need to be ratified by two-thirds of MS. If adopted, there are some technical aspects that would affect the work of CHRIS. He encouraged members of CHRIS to actively campaign for support to the work of SPWG.

Australia (WARD, member of SPWG) provided further insight and thoughts on SPWG recommendations, and their potential impact on CHRIS:

- New proposed structure includes a first technical committee, overseeing all bodies dealing with technical matters, which would virtually replace CHRIS. For instance, WEND would become a WG under this technical committee.
- Decision-making process would be much easier in terms of gaining endorsement of IHO as a body (as opposed to the current situation where it is difficult to get more than 50% of Member States to vote at all).
- There are a number of documents that are being circulated. The devil is in the details. MS should consider the proposals holistically rather than engage in a dissection of individual parts.

USA-NOAA (ENABNIT) asked about the effect regarding technical decisions made by CHRIS. Australia (WARD) responded that "being silent" would have less impact on the acceptance of proposals, particularly in the technical areas. USA-NGA (ANDREASEN) commented that he felt the work of SPWG was quite good.

CIRM (Michael RAMBAULT) asked about the opportunity of observers to participate in the work of IHO technical bodies. IHB (BARBOR) responded that requests for accreditation should be sent to the IHB. ICCL (ARTS) asked what would happen if the recommendations of SPWG were not adopted by IHO MS. IHB (BARBOR), noting that changes in the structure and decision-making process were perhaps the most important, responded that, in that case, the existing convention would remain in force. ICCL (ARTS) further suggested that Observers' comments might be useful to the work of SPWG. IHB (BARBOR) responded that certifying Observer status was a first step that could be adopted without ratification of a new Convention.

Outcome:

- Report on SPWG noted.

5. WORK OF CHRIS

Doc: CHRIS16-5A rev.2 Consolidated CHRIS Work Plan (Version 1.4)

The Chair, referring to the most recent version 1.4 of the CHRIS Work Plan, mentioned that updates to working group work plans had been provided for C&SMWG, DPSWG, CSPCWG and SNPWG. He noted that a "graphical overview" of the CHRIS Work Plan would be useful.

Outcome:

- Version 1.4 of CHRIS Work Plan noted.

Doc: CHRIS16-5B Templates for progress reports and change notes

The Chair introduced this paper, prepared by Canada (POULIN), and containing a process diagram and templates for a Change Proposal to CHRIS, a Change Note from CHRIS, and a Work Item Status Report for CHRIS. He suggested this document either be considered as an information paper or have a small group to look at it in more detail. Canada (POULIN) felt a small task group would be useful to improve / refine the process diagram and templates.

It was agreed that a task group 2 (TG2) would be convened later in the meeting to review and further develop the proposed process diagram and templates, as in Doc. CHRIS16-5B. TG2 worked on this issue on the 3rd day and its Chairman (Michael FARRELL, New Zealand) presented the results to the CHRIS/16 plenary on the following day (see TG2 Report in Annex E). The revised document, as in Annex F, was approved.

Regarding the process diagram, the Chair felt this was a much more systematic approach than before. On request from Chile (Gonzalo VALLEJOS), it was clarified that CHRIS would establish submission deadlines for Work Item Status Reports. USA-NOAA (Michael BROWN) suggested that some of the fields in the Change Note from CHRIS be "actual" rather than "proposed"; Australia (WARD) felt a simple scoping statement might be useful. New Zealand (FARRELL) suggested that a completed example of the use of the templates would be useful, in order to clarify the points raised above and further improve the templates. This was agreed and New Zealand and Canada accepted to progress this matter.

Outcome:

- Revised process diagram and templates for Change Proposal to CHRIS, Change Note from CHRIS, and Work Item Status Report for CHRIS, as in **Annex F**, approved.

- **New Zealand** (by 1 June 04) and **Canada** (by mid July 04) to develop a worked example and clarification of the use of the templates; to be forwarded to the Secretary by September. (**New Action**)

- **Secretary** to forward the revised templates and process diagram for change proposals to CHRIS Members for adoption. (**New Action**)

It was agreed that a task group 3 (TG3) would also be convened, formed of the CHRIS working group Chairs, to develop a template for Working Group Reports to CHRIS. TG3 worked on this issue on the 3rd day and the resulting template, as in Annex G, was presented to, and approved by the CHRIS/16 plenary on the following day.

Outcome:

- Template for Working Group Reports to CHRIS, as in **Annex G**, approved.

5.1 ENC Consistency

Doc: CHRIS16-5.1A Improving ENC Consistency

The Chair referred to the above paper containing a set of recommendations for ENC encoding, intended for improving consistency between ENCs produced by various HOs. USA-NOAA (BROWN, Chair of TSMAD) provided a brief explanation of how this was accomplished. Based on two

documents prepared by IC-ENC in 2003, these recommendations have been elaborated by TSMAD as "advice for good encoding practice". The 13 recommendations are listed in order of their anticipated effectiveness. Also, he stated that a consensus was achieved between TSMAD and C&SMWG on the text in CHRIS16-5.1A, which includes a draft CL to circulate the list of recommendations to MS. Recommendations are also to be posted on the IHO website.

Referring to the 1st recommendation to link ENC compilation scales with radar range scales, USA-NGA (ANDREASEN) felt that "infinite zoom" with uniform steps between the scales was a better approach, rather than tying geographic data to scale bands of radar. He also felt there was a problem with SCAMIN within the proposed scale bands in that they should be effected for zoom in and out rather than at the selected scale band. Germany (JONAS, Chair of C&SMWG) responded that the changes to the use of radar ranges was a request of industry. He felt that this did not prevent infinite zoom capability and he was open to further discussion on the matter, noting however that CHRIS plenary might not be the best forum. CIRM (RAMBAUT) mentioned that IMO was about to make some changes to performance standards for radars.

The Chair stated that a decision was needed on what had been recommended. PRIMAR Stavanger (Robert SANDVIK) expressed support to this document. Canada (POULIN) was also supportive but wondered about the next step with users and manufacturers. C&SMWG (JONAS) responded that experience would be needed with a wide number of users. USA-NGA (ANDREASEN) stated that he was not opposed to what was proposed, but felt that it will not be the optimum solution.

The meeting approved the list of recommendations and the draft CL.

Outcome:

- Proposed recommendations for ENC encoding and draft CL, as in Doc. CHRIS16-5.1A, approved.

- **IHB** to forward to IHO MS by CL the recommendations to improve ENC consistency, copy to ICCL and CIRM; to also post them on the IHO website. (**New Action**)

5.2 Re-structuring the S-52 Package

Docs: *CHRIS16-5.2A* *Review of S-52, to reduce its scope and volume*
CHRIS16-5.2B *Revised S-52, clean copy*

C&SMWG (JONAS) explained the basis for the restructuring of S-52, i.e. to expurgate operational elements from this IHO publication. Following an initial draft for changes to the main S-52 document, that he had prepared, the former Chair of TSMAD (Chris DRINKWATER, UK) provided comments, which has resulted in the above documents. He mentioned that it would be recommended, at IMO NAV 50 (July 2004), that the IMO Performance Standards for ECDIS (ECDIS PS) be revised. He felt It would be good if there was a new edition of S-52 to go with the new ECDIS PS.

The Chair felt that it would be desirable to submit the revised S-52 (main document) to IEC and CIRM for review and comments. USA-NGA (ANDREASEN) expressed support for what had been done, and endorsed further removal of the operational aspects. To a remark by Sweden (Goran NORDSTROM), wondering why reference to the horizontal datum should be removed, as proposed, TSMAD (BROWN) clarified that this was already addressed in S-57. HGMIO (ALEXANDER) felt that the recommended changes made by C&SMWG (JONAS) were quite good, but further reductions could be made. However, he felt it would not be possible to complete any new edition of S-52 until the revised ECDIS PS are finalized by IMO. C&SMWG (JONAS) further pointed out that navigation symbology will be addressed in the future IMO Performance Standards for Display of Navigation Information, under development. As a result, the current "Mariners Objects" in the Presentation Library will eventually be taken over by IMO. DPSWG (SANDVIK) felt that references to S-63 "IHO Data Protection Scheme", in the new ECDIS PS, would be appropriate as well.

Outcome:

- Revised S-52 (main document), as in Doc. CHRIS16-5.2B, approved.

- **Chair C&SMWG** to draft a letter to inform IMO about IHO's intended revision of the S-52 package, to be considered within the planned revision of ECDIS Performance Standards. (**New Action**)

- **IHB** to circulate, by August 2004, the revised S-52 main document to IMO, copy to IEC and CIRM, along with the accompanying letter referred to above, for comments and confirmation that expurgated "operational" items will be incorporated in relevant non-IHO documents; responses to be requested by end 2004. (**New Action**)

- **IHB** to prepare a revised version of the S-52 main document, from the comments received from IMO, IEC and/or CIRM, for consideration and approval by CHRIS/17. (**New Action**)

Doc: CHRIS16-5.2C Maintenance of the Glossary of ECDIS-related Terms, S-52 App.3

IHB (HUET) drew attention to the above document including a comparison of the definitions in S-52 App.3 with those in the IHO Hydrographic Dictionary, publication S-32, and a letter from the Chair of S-32 WG (Steve SHIPMAN, IHB) proposing a way forward. He explained that what was proposed was that definitions contained in S-52 App.3 be transferred to, and "flagged" within S-32. Thus, it would be possible to maintain S-52 App.3 as a separate publication, as required by the ECDIS PS which include an explicit reference to this publication. C&SMWG (JONAS) noted that an alternative option could be to remove or change this reference at the occasion of the planned revision of the ECDIS PS.

It was agreed that a task group 1 (TG1) would be convened later in the meeting to review the definitions in Annex A to Doc. CHRIS16-5.2C, to reconcile anomalies between S-32 and extant glossary prior to handing responsibility to S-32 WG. TG1 worked on this issue on the 3rd day and its Chairman (Erwin WORMGOOR, Netherlands) presented the results to the CHRIS/16 plenary on the following day (see TG1 Report in Annex H). Sixty-eight (68) definitions were amended, as emphasized in Annex I. However the task could not be completed, due to scope of work involved, and definitions for eleven additional terms still needed consideration, as noted in Annex H.

Revised definitions in Annex I were approved and it was agreed that completion of this work would be conducted by correspondence, under the Secretary's coordination.

Outcome:

- Maintenance by S-32 WG of glossary of ECDIS-related terms, agreed.

- Revised definitions for 68 ECDIS-related terms, as in Annex I, approved.

- **Secretary** to coordinate completion of reconciliation between Hydrographic Dictionary (S-32) and Glossary of ECDIS-related Terms (S-52 App.3) by correspondence (Completion date: September 2004); then to handover to S-32 WG for ongoing maintenance. (**New Action**)

5.3 Printed ENCs

Doc: CHRIS16-5.3A Printed ENCs (USA-NOAA)

In the above paper, USA-NOAA (ENABNIT), noting the difficulty to make traditional paper charts from S-57 databases without substantial additional attribution, proposed that a new paper chart be defined that can be made directly from an ENC. This was a following-up of CHRIS/15 (Action 4) where USA-NOAA was invited to poll industry on this matter, provide the best sample of what can be produced and invite industry to describe what may be needed (in addition to the current ENC Product Specification) to support the concept. He reported that this work was not yet completed and would be continued. Chair and Vice Chair felt there were needs to better estimate time and resources needed.

Portugal (PINHEIRO) did not see a need for this work to be done, i.e. to have a fourth product into the market (in addition to the existing paper chart, ENC and RNC). Sweden (NORDSTROM) said this new paper chart may be good for USA, but did not feel that this was required for his own organization. USA-NOAA (ENABNIT) responded that the idea was that mariners would be able to print a paper chart directly from any ENC. IHB (BARBOR) felt the idea was to produce an "adequate paper portfolio" onboard a vessel from an ENC. Greece (HADJIANTONIOU) did not believe that the production of a paper chart could be fully automated from an ENC. This would further require a new Presentation Library for printing a paper chart from an ENC. Moreover, the product (paper output) would not be Quality Controlled by the HO who initially issued the authorized ENC.

Australia (WARD) felt that CHRIS really needed to see a more fully developed proposal before taking any action. This was agreed, as well as that Industry be consulted on this matter [request by Canada (POULIN)] and that clarification be provided on the difference between this and Print-on-Demand and on the possible impact on the ENC Product Specification [request by CIRM (SVANES)].

Outcome:

- USA-NOAA to continue with current investigations on the "Printed ENCs" concept, with an intention of reporting to CHRIS/17. (**Ongoing Action**)

6. REPORTS BY CHRIS WORKING GROUPS

6.1 Transfer Standard Maintenance and Application Development (TSMAD)

Doc: CHRIS16-6.1A Report of TSMAD

Chair of TSMAD (BROWN) provided a brief summary of TSMAD activities over the past year. While the work of TSMAD has diminished with the "freezing" of S-57 e3.1, the S-57 e4 Sub-WG has become more and more active. Since the latest meeting of the latter Sub-WG (Silver Spring, Maryland, USA, March 2004), there is a greater feeling that it will be possible to align S57 e4 with ISO TC211 standards. The 2006 target completion date can still be met. He also mentioned that the Sub-WG is developing a "white paper" to explain what is being done on S-57. While not yet ready for distribution to CHRIS/16, this paper will be completed and distributed via e-mail. There is also an intention to publish an article on the matter in Hydro International and other publications to the wider community.

Australia (WARD) expressed support for the publication of such paper. However, he wanted to make sure of the direction that S-57 e4 will take, and that this paper would be clear and understandable for the widest possible audience. Norway (SANDVIK) reminded that at CHRIS/15 it was agreed that there would be an established procedure (roadmap) to be followed for any new or revised IHO publications/standards administered by CHRIS (see Annex H to CHRIS/15 Minutes). TSMAD (BROWN) said that many organizations would be impacted and briefly explained what was planned, as summarized hereafter. There were two main issues:

1. S-57 Edition 4 – It will be an entirely new standard that deals with things that are not covered in e3.1. However, when it will go into effect and replace e3.1 has not yet been decided. This was something that needed to be closely coordinated with industry. CIRM (RAMBAUT) supported this view but warned that it was important not to make abrupt changes. Germany (MELLES) mentioned that industry was actively involved in the work of TSMAD. Chile (VALLEJOS) felt that the key aspect in the changes to S-57 should be the ENC Product Specification.

2. The required "fixes" needed for S-57 Edition 3.1 - TSMAD (BROWN) explained that they were not major changes, and would include some new objects for ESSAs and PSSAs. C&SMWG (JONAS) pointed out that improvement to standards was necessary in a changing world. UK (SMITH) suggested that it might be useful to contact ECDIS manufacturers and ask for their suggestions. CIRM (RAMBAULT) agreed that the change procedure for e3.1 was of interest to CIRM members, who therefore should be informed. TSMAD (BROWN) emphasized that there were no plans for e3.2.

Outcome:

- TSMAD report endorsed

- **Chair TSMAD** to incorporate proposed minor changes, as in Doc. CHRIS16-6.1A, to current TSMAD work programme timetable. (**New Action**)

- **Chair TSMAD**, in consultation with CIRM, to monitor the preparation of an "options paper" identifying in plain language the proposed changes, options and potential impact of future revisions to S-57 ENC Product Specification (PS); this paper to also canvass options for the short term remediation of shortcomings in S-57 e3.1 ENC PS. To be submitted to CHRIS chair group by 1 October 2004. (**New Action**)

- After endorsement by the CHRIS Chair Group on behalf of CHRIS, the "options paper" to be widely circulated by the **Secretary** to include all possible industry bodies seeking opinion and input from interested non-IHO parties by 1 March 2005. (**New Action**)

- Taking into consideration any responses, **Chair TSMAD** to monitor the development of an S-57 e3.1 ENC PS to S-57 e4.0 ENC PS roadmap for consideration by CHRIS/17. (**New Action**)

Doc: CHRIS16-6.1B Liaison with non-IHO Constituents

TSMAD (BROWN) explained the basis for establishing another Work Item 2.10 to deal in liaison with other groups (e.g. Inland ENC, WMO Ice, DGWIG, etc.). Inclusion of this new work item would further the goal of broadening the use of S-57 in the geospatial community as well as indicating the IHO's commitment to including the requirements of related user communities in the development of S-57 Edition 4.0.

CHRIS approved the addition of Work Item 2.10 to the TSMAD Work Programme.

Outcome:

- **Chair TSMAD** to incorporate a new Work Item 2.10 "*Liaison with Non-IHO Constituents*" to the TSMAD work programme. (**New Action**)

Doc: CHRIS16-6.1C Print-on-Demand Nautical Charts

USA-NOAA (ENABNIT) briefly explained the current status. Print-on-Demand (POD) was successfully being used by USA-NOAA for nautical charts. The technology would also enable one HO to print charts on behalf of any other HO. It was recommended that Work Item 2.9 "*Paper Chart Product Specification*" be expanded to include this subject in order to support cooperative printing among HOs using POD. He mentioned that a paper on this topic had been given at CHC-2004.

TSMAD (BROWN) explained that WI 2.9 (Digital Repromat) deals with metadata for raster files and felt that POD could be treated as an expanded metadata set. It would probably not significantly add to this work item to deal with POD. USA-NGA (ANDREASEN) and France (Alain FOURGASSIÉ) expressed support for the proposal. UK (JONES) reported that UKHO had been using POD for more than a year for low turnover charts. Canada (POULIN) commented that POD would have broad applications beyond just paper charts. Portugal (PINHEIRO) pointed out that, in Doc. CHRIS16-6.1C, the proposed target completion date for this work was September 2004 whereas, in the CHRIS Work Plan, the target completion date for WI 2.9 (low priority) was September 2005.

The meeting approved that the scope of WI 2.9 be expanded, as proposed, with September 2005 as completion date.

Outcome:

- **Chair TSMAD** to expand the scope of TSMAD Work Item 2.9 "*Paper Chart Product Specification*" to include development of Print-on-Demand (POD) file transfer guidelines, with target completion date of September 2005; to be a "medium priority" (M); to amend the TSMAD Work Programme accordingly. (**New Action**)

6.2 Colour and Symbol Maintenance (C&SMWG)

Docs: CHRIS16-6.2A Report of C&SMWG (M. JONAS, Germany, Chair)

Chair of C&SMWG (JONAS) provided a brief overview of the past year's activities. An important Work Item was the completion of a new digital edition 3.3 of the C&S Presentation Library for ECDIS (PL , 600 pages) that was issued in March 2004. He raised the question of how to deal with both the old and new versions. He reported that operational aspects were now an IMO responsibility and were being addressed by the IMO Correspondence Group on the Presentation of Navigation-Related Information. He added that, to date, there has been no work to transform the current C&S Specifications into the ISO TC211 suite of standards. IHB (HUET) made special mention of the contribution of Mike EATON on the work to complete the new edition of the PL.

UK (SMITH) asked whether the IEC and IMO activities on Navigation Display would impact the work of IHO. C&SMWG (JONAS) referred to documents CHRIS16-INF2 and CHRIS16-INF3 for further information on this matter. UK (SMITH) also asked if the wording of S-52 and its annexes would be reviewed prior to transfer to IMO, for instance regarding the SENC requirements [CHRIS16-6.2A rev1, para. B(2)(b)] or for inclusion of a reference to the IHO data protection standard S-63. C&SMWG (JONAS) mentioned that an IHO letter would be sent to IMO on this matter (see also section 5.2).

CIRM (RAMBAUT and SVANES) pointed out the new edition of the PL will have a practical and financial impact on ECDIS and their type approval. They said that it is important to clearly state when it and the previous edition are in effect. C&SMWG (JONAS) responded that, hopefully, there is no safety concern for using the previous PL edition. However, any newly manufactured equipment should use the new edition. For existing systems, "Grandfathering clause" dates need to be determined. There will need to be a date set for new type approvals. CIRM (SVANES) stressed the need to ensure that existing systems are safe. Canada (POULIN) noted that there are Canadian mariners who use type approved ECDIS, but not being operated using the IHO PL.

C&SMWG (JONAS) said that there are two main items to decide:

1) The date when the new edition (3.3) of the PresLib (S-52, Appendix 2, Annex A) will be put into force. He proposed the following:
   - published date – March 2004;
   - implementation date – 1 January 2005.
     - previous versions continue to be valid;
     - new, type-approved equipment must comply on or after this date.

2) How to convert the S-52 colours & symbols specifications into ISO TC211 standards.

The implementation date of 1st January 2005 for new systems was agreed, as well as that existing systems would remain valid after that date.

Regarding the alignment of S-52 C&S specs with TC211 standards, C&SMWG (JONAS) stated that there was no urgency, but a test process should be done at some time. Australia (WARD) pointed out that compared to S-57, there has been relatively little Member States involvement in S-52 C&S development. He believed that funding would be required to accomplish any conversion of S-52 to TC211 standards.

The Chair suggested that C&SMWG and TSMAD jointly develop an estimate of the cost and time required for such alignment. He added that, potentially, there were two options: i) to do something,

i.e. to undertake the alignment work within the IHO, or ii) IHO not be any longer involved in C&S issues. TSMAD (BROWN) said that "Portrayal" expertise exists with the ISO TC211 persons. USA-NGA (ANDREASEN) felt that this is a matter that IHO must fund. IHB (BARBOR) mentioned that the 2005 IHO budget was being prepared, and that funding for this type of activity may require Member State approval.

Outcome:

- C&SMWG report endorsed.

- Thanks to be recorded to Mike EATON for his work to complete e3.3 of the IHO Presentation Library.

- e3.3 of PresLib to enter into force for ECDIS type approved on or after 1 Jan 2005. Existing versions remain valid.

- **Chair C&SMWG** to draft a letter informing all subscribers to the IHO Presentation Library (PresLib) for ECDIS, IMO, IEC/TC80 and other interested authorities of the new PresLib e3.3 and the changes resulting thereof; **IHB** to issue this letter. (**New Action**)

- **Chair C&SMWG** to liaise with ISO/TC211 to seek ways and indicative costs to align S-52 with the ISO standard 19117. (**New Action**).

In order to illustrate the need for IHO funding of C&S work, C&SMWG (JONAS) gave a presentation on "Future Challenges of ECDIS Presentation Library Maintenance". He described the various options for the new edition of the PresLib to come into practical use onboard ships. He explained the requirements for future PL adaptations to new symbology and technology, and the need for appropriate external expertise, which is generally costly.

TSMAD (BROWN) agreed that there is a systemic and overriding problem with how to upgrade systems in the field. Canada (POULIN) mentioned the dilemma of whether and how to deal with C&S. For instance, has the use of proprietary C&S rather than S-52 C&S ever caused an incident?

The Chair felt that, for the IHO to continue to take responsibility on C&S specifications, the following should be done:

1. Member States need to identify individuals to participate.
2. A paper raising business case and proposal for IHO funding of C&S work should be drafted and submitted to Member States, possibly at the 3rd EIHC. This paper should propose a solution in terms of human resources and money.

Australia (WARD) asked about the consequences if IHO does not support the level of resources that are needed? C&SMWG (JONAS) replied that how the items are displayed will diverge, and be influenced by regional preferences. Also, ECS manufacturers are not restricted on how chart and navigation information can be displayed. Potentially, masters and pilots may want different types of displays.

The Chair wondered whether this matter could be handled by another international organization, e.g. IMO or IEC. IHB (BARBOR) stated that it might be that the IHB will need to provide funding for this type of work. If so, this would have to be approved by two-thirds of MS.

Chair asked for opinions on whether IHO should continue to be involved in the display of chart information.

- Canada (POULIN) felt that there was no case where a non-IHO S-52 display has caused an incident. The background colour scheme (white, black or blue) and the type of display (CRT or flat-panel) is evolving. When it comes to C&S specifications, IHO should focus on the minimum.
- C&SMWG (JONAS) agreed that things are rapidly changing. Perhaps the best thing to do is to focus on two-dimensional display.
- USA-NGA (ANDREASEN) believed that specifying chart presentation is a core business for IHO. However, he was concerned that the workload could dramatically increase to keep

up with new developments. He would investigate what assistance could be provided by NGA to C&SMWG.

The Chair summarized that IHO will continue to play a coordination role regarding the display of chart-related information on paper and electronic charts, and asked C&SMWG (JONAS) to provide specific recommendations for personnel and funds to continue the C&SMWG work, i.e. a business case.

Outcome:

- C&SMWG requires: a mapping technologist, an ECDIS simulator, a technical coordinator and greater involvement from IHO Member States.

- CHRIS supports the continued coordination role for IHO in the presentation of charting information.

- **Chair C&SMWG** to prepare, in liaison with the CHRIS Chair and the IHB, a paper raising business case and proposal for IHO funding of C&S work as required, with target date of 1st October 04; **IHB** to then circulate this paper to MS by CL; could possibly be considered at the 3rd Extraordinary IHC (April 2005). (**New Action**)

6.3 Data Protection Scheme (DPSWG)

Docs: CHRIS16-6.3A Report of DPSWG (R. Sandvik, Norway-ECC, Chair)

Chair of DPSWG (SANDVIK) gave a presentation on the work of DPSWG. He explained that Edition 1.0 of the IHO Data Protection Scheme S-63 was published in October 2003 and is available for download from the IHO website. The IHB acts as administrator of the scheme. He mentioned that, as of May 2004, three data servers and around 40 OEMs were using S-63. He said that DPSWG's focus has so far been to ensure successful implementation and operation of the scheme. He suggested that there were two options for further work:

1) begin work on developing the next edition of S-63 immediately; or
2) gain formal operational feedback on S-63 e1.0 as basis for further development.

He felt that, in any case, long lead time will be required for developing a new edition of S-63 which, probably, will not be backward compatible with S-63 e1.0. He also mentioned the development of *S63x*, an auxiliary industry specification, by a group of ENC Data Servers and OEMs.

Japan (KAJIMURA) asked what additional information is / will be contained in *S63x*? DPSWG (SANDVIK) replied it is primarily metadata and referred to the *S63x* website (http://www.s63x.org) for more information.

CIRM (SVANES) asked how S-63 will relate to the eventual S-57 e4.0? DPSWG (SANDVIK) said this matter has not really been assessed yet but, he felt, there will not be a new edition of S-63 before S-57 e4.0. DPSWG would monitor how CHRIS decides to progress with the ENC Product Specification and would review any possible impacts at its next meeting in June 2004.

Greece (HADJIANTONIOU) was in favour of gaining more feedback on e1.0 before commencing work on a new edition. Canada (POULIN) supported this view and suggested the freezing of S-63 e1.0 for at least two years. He also wondered if the Primar proprietary data protection scheme was now an international standard? DPSWG (SANDVIK) explained that the former PRIMAR security scheme was abandoned and all operational responsibility transferred to the IHB. DPSWG has enabled the speedy transfer of the PRIMAR security scheme to S-63 e1.0, as requested in the WG TOR. He added that DPSWG maintains a list of possible work items, to include in the DPSWG work plan for the development of a future edition of S-63, and this includes the use of international standards. Chile (VALLEJOS) inquired about the relationship of S-63 with ISO TC211? It was clarified that, to date, the series of TC211 standards do not include a standard on data protection. However should this occur in future, the ISO standard would be considered by DPSWG when developing the next edition of S-63. Regarding the IEC test standard for ECDIS, IEC61174, DPSWG (SANDVIK) further noted that several

of the DPSWG members are also affiliated to IEC TC80 and would be in a position to provide technical input to the work on a new edition of IEC61174, if TC80 defines a work item on S-63.

There was general support for the views expressed by Greece and Canada.

The Chair summarized: There should be no development of a new edition of S-63 at this time. No changes should be made to the standard. The primary focus is to gain feedback on S-63 e1.0. There is a need to revise the TOR for DPSWG, accordingly, for the next CHRIS meeting.

Outcome:

- DPSWG report endorsed.

- DPSWG work on developing a new edition of S-63 is deferred, pending further experience and feedback with S63 e1.0, and that a clear requirement is demonstrated.

- **Chair DPSWG** to provide revised TOR for DPSWG, reflecting progress made, for consideration at CHRIS/17. (**New Action**)

6.4 Standardization of Nautical Publications (SNPWG)

Docs: CHRIS16-6.4A Report of SNPWG (J. MELLES, Germany, Chair)

Chair of SNPWG (MELLES) gave a brief update on SNPWG activities. Relatively little had occurred during the past year. While there was agreement on principles, participation of SNPWG members, e.g. follow through via e-mail, had been disappointing. They intended to work harder to identify and assign tasks, at their next meeting in June 2004 in Silver Spring, MD, USA.

Canada (POULIN) wondered if part of the problem is that the scope of the work is viewed as too large? He further mentioned that at CHC-2004 (May 2004), there was a manufacturer (IIC) that offers some nautical publications services, called e-Pilot. SNPWG (MELLES) responded that there are both technical and integration issues, but they are fairly specific. Regarding the 2nd point, he stated that he would be meeting with ICC, and would invite them to participate in SNPWG.

The Chair summarized: At the next meeting, it should be known who wish to participate in SNPWG work. SNPWG (MELLES) viewed the next meeting as a decision point on the future of SNPWG.

Outcome:

- SNPWG report endorsed.

6.5 Chart Standardization and Paper Chart (CSPCWG)

Doc: CHRIS16-6.5A Report of CSPCWG (JONES, UK, Chair)

Chair of CSPCWG (JONES) provided a brief overview. Twelve CSPCWG circular letters had been issued since CHRIS/15, addressing various paper charting subjects including Archipelagic Sea Lanes (ASLs), Environmentally Sensitive Sea Areas (ESSAs), guidance for the preparation of INT chart schemes, activities prohibited or not advisable, and international Notices to Mariners. These matters were progressing steadily and would culminate at the first CSPCWG meeting, to be held in November 2004 at the IHB. He reminded that one of the reasons for having CSPCWG under CHRIS was to achieve better overall coordination. He made specific mention to effective liaison with C&SMWG (Mathias JONAS, Chair and Chris ROBERTS, Secretary).

USA-NOAA (ENABNIT) asked about CSPCWG CL 04/2004 regarding HOs' responsibility to inform mariners, via a chart, of "activities prohibited or not advisable". CSPCWG (JONES) responded that this relates to what is the fundamental reason for a chart, and what information should be provided. He said that CSPCWG members generally felt that it is not the business of charts to carry advice of this nature, which could lead to liability issues for areas where no advice is given. Australia (WARD) drew attention to Doc. CHRIS16-INF4 *Depiction of Port Security Limits on Nautical Charts* on a similar matter. The Chair felt that, ultimately, decision to include on a chart, information on "activities prohibited or not advisable" must be made by issuing HOs. He also suggested this issue could be covered in a product specification for paper charts, i.e. beyond what is called for in M-4. USA-NGA (ANDREASEN) felt that much of this information is already in nautical publications that supplement paper charts.

Australia (WARD) asked about international Notices to Mariners (CSPCWG CL 8/2004) and whether this was in addition to the current work item. CSPCWG (JONES) indicated that, in accordance with the CSPCWG work plan, this CL was merely seeking clarification from CSPCWG members about the scope and history of this work item.

Outcome:

- CSPCWG report endorsed.

- **Chair CSPCWG** to amend the CSPCWG Work Programme by expanding CSPCWG scope to collate national criteria for issuing chart-updating Notices to Mariners. (**New Action**)

7. LIAISON WITH INDUSTRY

Doc: CHRIS16-7A Report of 2003 Industry Workshop and Stakeholder Organizations (IHB)

IHB (BARBOR) briefly reviewed what occurred at the 2003 Industry Days Workshop. It was particularly upbeat despite the concern over the slow progress in the use of ECDIS primarily due to poor ENC availability. The attendees had raised expectations that they would be considered as part of the solution and a welcomed participant in the workings of the IHO. It is the recommendation of the IHB that the IHO proactively adopt procedures for the participation of non-governmental organizations as observers before the various organs of the IHO.

On request from Canada (POULIN), it was clarified that the "A Captain" referred to in item 2.5 of CHRIS16-7A, was Captain Steven BLIGH who is now the Director of the UK Maritime and Coast Guard Agency. IHB (BARBOR) informed that there would be no Industry Days in 2004, but one is planned for 2005. Ideally, it would be "integrated" or be held in conjunction with the next CHRIS meeting.

Two options were put forward:

1. To hold the Industry Days in conjunction with, but separate from the CHRIS meeting, e.g. in the middle of CHRIS/17; or
2. To integrate the Industry Days with the CHRIS meeting, i.e. with all "industry" participants in the Industry Days attending CHRIS/17 as observers.

USA, Australia and Canada expressed preference for the 1st option. Canada further felt that specific items would need to be addressed at the CHRIS meeting, of little interest to industry participants. It was noted that holding the Industry Days in conjunction with the CHRIS meeting may place additional burden on the venue where CHRIS/17 will take place; however, it could be held in a separate, external facility. Also, it could be hosted by local shipping companies.

The Chair summarized: Option 1 is agreed, with one Industry Day held in the middle of CHRIS/17. Germany (JONAS) will look into the possibility of holding both events in Rostock, Germany. Chair, Vice Chair and Secretary/IHB will then coordinate to organize both CHRIS meeting and Industry Day workshop.

Outcome:

- Report noted.

- "Industry Day" workshop to be timetabled as part of CHRIS/17.

- **Germany**, as host of CHRIS/17, to devote a day in the middle of the meeting timetable to an "Industry Day" forum; this day will NOT be part of CHRIS/17. (**New Action**)

Doc: CHRIS16-7B Liaison between IHO and CIRM (C. COBLEY, CIRM Secretary-General)

CIRM (RAMBAUT) summarized some key points. They proposed that CIRM should be formally recognised as an Observer to IHO and should be invited to attend at the appropriate levels of IHO/IHB meetings. This would enable CHRIS and other IHO bodies to receive expert industrial and technical advice without having to deal directly with individual manufacturers.

USA-NOAA (ENABNIT) wondered how organizations are becoming accredited. IHB (BARBOR) replied that the Directing Committee is currently doing the "accreditation". He added that, after the 3rd IEHC (April 2005), a more formal procedure will likely be enacted. Australia (WARD) asked if it would be useful that CHRIS endorses the recognition of CIRM. This was supported by the meeting, although IHB (BARBOR) said this was not necessary.

The Chair summarized: CHRIS supports the role of observers such as CIRM. A set of mechanisms, rules and procedures to follow are always desirable. If there are important issues to address, these should be forwarded for consideration by CHRIS.

Outcome:

- CIRM paper noted.

- CIRM proposal for formal IHO recognition is endorsed by CHRIS.

IHB (HUET) asked if there was a planned date for the next edition, the third, of IEC 61174? CIRM (RAMBAUT) answered that this will depend on the outcome of NAV50 regarding the display of navigation-related information. He felt that, most likely, edition 3 of IEC 61174 will be for late 2005 – early 2006.

AUSTRALIA (WARD) asked about the ability to participate as either P (Primary) or O (Observer) members in just one working group. USA-NOAA (ENABNIT) asked if there is anything that CHRIS should be aware of, related to the work of IEC TC80/WG13. HGMIO (ALEXANDER) and C&WMWG (JONAS) explained that, depending on the outcome of NAV50 regarding the display of navigation-related information, CHRIS may need to take action on some of these issues.

8. VECTOR DATA DEVELOPMENT

8.1 RENCs

Doc: CHRIS16-8.1A PRIMAR-Stavanger Status Report

Norway-ECC (SANDVIK) briefly reported on the work and status of Primar Stavanger (P-S) – operated by the Norwegian Hydrographic Service - since CHRIS/15. The number of cooperating HOs has increased to 11 with the recent addition of Greece and Singapore. The P-S ENC service, compliant

with S-63, is carried out through 26 distributors worldwide. NHS has been accepted as VAR of IC-ENC and can thus integrate the IC-ENC data with the P-S ENC service. He referred to their website (www.primar-stavanger.org) for more information, e.g. on the current ENC coverage available in the P-S ENC service.

Doc: CHRIS16-8.1B IC-ENC Status Report

UKHO (SMITH), operator of IC-ENC, referred to the above report by Graham Saundercock, IC-ENC manager. Over the last year, Greece, India and South Africa became new members. The IC-ENC database currently includes over 630 ENCs (May 2004). More details on the ENC coverage are on www.ic-enc.org. The IC-ENC members consider it essential to apply a final independent quality assurance process, prior to ENC release, to ensure a supply of high quality consistent data to end users. IC-ENC delivers its ENC data to the market through specialist distributors, known as Value Added Resellers (VARs). To date five VARs have been appointed.

Doc: CHRIS16-8.1C MBS Virtual RENC Status Report (Italy)

Italy (Nannini) reported on virtual RENC developments in the Mediterranean and Black Seas area, since CHRIS/15. The VRENC project aims at producing a prototype ENC delivery service in the MBS area, with NO setting up of independent physical infrastructures, and which can then be expanded into a full commercial network involving producers (HOs), distributors (private manufacturers, HOs, etc), and users (Mariners, land based VTS, etc). A VRENC North Adriatic Pilot project is in progress (Italy, Croatia and Slolenia), with the implementation of the ENC's distribution network planned in Summer 2004. MBS VRENC is now part of, and funded through MEDCHARTNET, an European Union project with the objective of providing a regional network and policy infrastructure, interconnecting Mediterranean HOs and distribution outlets, for the exchange and facilitated dissemination of hydrographic information, including ENCs.

Outcome:

- Reports noted as tabled.

8.2 ENC Development and Coverage

Doc: CHRIS16-8.2B rev5 Compendium of National Reports on ENC Development (IHB)

IHB (HUET) mentioned that the compendium document included all national reports on ENC development and production, which had been received at the IHB from February to May 2004, namely: Argentina, Australia, Chile, Finland, France, Germany, Greece, Netherlands, New Zealand, Portugal, Russia, South Africa, Sweden, UK and USA-NOAA.

The following additional comments were offered:

- Greece (HADJIANTONIOU) mentioned that since the Greek report was supplied, new ENCs were being produced each week; the best way to know about their status was to consult the ENC Coverage Catalogue on the IHO website.
- Italy (NANNINI) informed that they have completed the production of their ENC series and they were now planning to distribute them.
- New Zealand (FARRELL) reported that the New Zealand Navy had purchased a WECDIS and that, consequently, 20 new ENCs would be produced by the NZ HO (LINZ). CATZOC analysis contract by Hydrographic Sciences Australia (HSA) would start on 1 June 2004.
- IHB (HUET) commented that the Russian report was the first detailed report received by HDNO in several years.
- USA-NOAA (ENABNIT) stated that more than 1.2 million ENCs had been downloaded from NOAA's website (http://NauticalCharts.noaa.gov/mcd/enc/index.htm) since distribution began

in July 2001. However, he said NOAA was not certain about who was downloading those ENCs and for what purposes. He added that Chart Agents did not seem to be interested in ENC distribution.

Germany (JONAS) asked about the status of worldwide small-scale ENC production based on INT chart scheme. IHB (BARBOR) clarified that this was being coordinated with the Regional Hydrographic Commissions.

Greece (HADJIANTONIOU) commented that there is not complete coordination between the different ENC catalogues (IHO, IC-ENC, and PRIMAR Stavanger). He felt that P-S provided the best way for mariners to determine actual ENC data coverage. He suggested that, perhaps, the IHO website could have a similar capability. UK (GREENSLADE) suggested that if free software was provided to Member States, it might be possible to achieve better means to accomplish this, i.e. to show the ENC data coverage. Chile (VALLEJOS) and New Zealand (FARRELL) fully supported this effort, and mentioned that there are other software improvements that could be made. IHB (HUET) mentioned that several Member States currently update their ENC coverage information via a password. UK (SMITH) felt that small differences between ENC catalogues are not a problem, and part of the efforts of value-added distributors.

The Chair summarized:

1. The ENC Coverage Catalogue on the IHO website is serving a useful purpose. Member States are encouraged to keep this information up to date.
2. Displaying actual ENC data coverage would be very useful. IHB will investigate the best means to do this.
3. Data should be made available for third party use, i.e. a public website.

Outcome:

- Report noted as tabled.

- **IHB** to investigate upgrading the ENC Coverage Catalogue on the IHO website to enable an enhanced ENC catalogue, e.g. by showing the actual data coverage. (**New Action**)

- **IHB** to make ENC catalogue information available for third party use wherever cost impacts are minimal. (**New Action**)

8.3 DNC Development

Doc: CHRIS16-8.3A Report on DNC Development (USA-NGA)

USA-NGA (ANDREASEN) reported that the worldwide DNC – about 5,000 charts - was being brought into operational status with digital updating, with the "patch" method, effective end of September 2004. He mentioned that distribution of printed Notices to Mariners would be terminated on 1st January 2005. DNC for US waters is available for download (gratis) from the NGA public website, limited to marine GIS use only. DNC in foreign waters continues to be restricted from public distribution. Extension of DNC attribution for military use, based on ENC, is being handled through the DGIWG. NGA is in the process of adopting the IHO SCAMIN attribute for use in display generalization, and is investigating scale bands and the acceptable ranges of zoom in and out. Also, experiments are in progress with 3-D data display.

Outcome:

- Report noted as tabled.

8.4 Inland ECDIS

Doc: CHRIS16-8.4A Status Report on Inland ECDIS development and Standardization (ALEXANDER, USA-UNH)

HGMIO (ALEXANDER) introduced Tony NILES (US Army Corps of Engineers - USACE) who provided a brief overview of the work undertaken to develop and implement Inland ENC standards between Europe and North America. Both European Inland ECDIS Expert Group and USACE had developed Inland ENC Content Specifications, based on S-57, e3.1. At a workshop held in Netherlands (Nijmegen, 30 June - 1 July 2003), it was agreed to develop an Inland ENC Core Product Specification (CPS) that would be suitable for all inland ENC requirements. In addition to ENC e3.1 features, it will include a set of classes, attributes and values that are required for river navigation in both North America and Europe. Also, an Inland ENC Harmonization Group (IEHG) has been formed to monitor these issues.

USCG (RADICE) felt that there should be only one ENC product specification that covers both maritime and inland applications. C&SMWG (JONAS) asked about the use of existing IHO colours & symbols specifications in inland ENC applications? It was answered that they would be used as far as practicable.

The Chair summarized: This is a good development that others organizations are adopting standards based on IHO standards. Continued liaison between relevant CHRIS WGs, e.g. TSMAD and C&SMWG, and IEHG was endorsed.

Outcome:

- Report noted.

- CHRIS endorse continuing liaison between relevant CHRIS WGs, i.e. TSMAD and C&SMWG, and Inland ENC Harmonization Group (IEHG).

9. RASTER DATA DEVELOPMENT

9.1 RCDS Mode of ECDIS

Docs: CHRIS16-9.1A Australian proposal, submitted to MSC/78, to consider permitting *ships to use the RCDS mode of ECDIS, without the requirement to carry paper charts*

CHRIS16-9.1B Norwegian submission to MSC/78 on ECDIS, commenting on the Australian proposal in CHRIS16-9.1A.

The Chair mentioned that the above two documents were submitted to IMO MSC/78 (May 2004) and had been referred to NAV 50 (July 2004) for further consideration. Australia (WARD) explained that the RCDS initiative, as reflected in Doc. CHRIS16-9.1A, was brought forward by the Australian Maritime Safety Administration (MSA) and not the AHO. This matter was really an operational and implementation matter, rather than a technical issue.

Outcome:

- Documents noted for information.

Doc: CHRIS16-9.1C Proposed Amendment to the RCDS Mode of ECDIS (USA-NOAA)

USA-NOAA (ENABNIT) felt that the information provided in this paper, which aims at supporting the Australian proposal in Doc. CHRIS16-9.1A, was important and should be considered by Marine Safety Administrations. NOAA believes that the requirement for an accompanying “appropriate folio of up to

date paper charts.", when an ECDIS is used in the RCDS mode, is unnecessary, and may be slowing the adoption of ECDIS.

Outcome:

- Document noted for information.

- Member States are encouraged to brief their Administrations as they see fit.

10. MARINE INFORMATION OBJECTS (MIO)

Docs: CHRIS16-10A Report of HGMIO (by L. ALEXANDER, USA-UNH, Chair)

HGMIO (ALEXANDER) provided a brief overview on HGMIO activities. He reminded that MIOs consist of supplementary information, i.e. additional, non-mandatory information not already covered by existing IMO, IHO, and IEC standards, to be used with an ECDIS that are not ENC features or specified navigational elements. Examples include ice coverage, tide/water level, current flow, meteorological, and oceanographic information. He referred to the draft IMO Performance Standards for Display of Navigation-related Information, following-up the work of IEC TC80/WG13, and its likely impact, if adopted, on the work of HGMIO in terms of how MIO information should be displayed. He noted that there was a relatively low level of activity by HGMIO members and felt that, unless there is specific tasking from IHO CHRIS or IEC TC80, work on MIO-related matters would be regarded by most HGMIO members as having a low-priority.

USA-NAVO (VAN NORDEN) made specific mention of some of the ongoing efforts in the oceanography area. He encouraged a continued participation in this effort.

Outcome:

- Report noted.

11. OPEN ECDIS FORUM

Docs: CHRIS16-11A Report on OEF Activities (L. Alexander, USA-UNH)

OEF (ALEXANDER) provided a brief report. He reminded that the OEF was established to facilitate the international development and implementation of ECDIS and explained that its activities include:

- establish discussion forums on issues related to ECDIS. E-mail discussions are being widely used as means to exchange ideas, resolve technical issues, as well as to prepare for meetings.
- review and register "user-defined" S-57 objects. Recent additions related to Inland ENC / ECDIS, Additional Military Layers (AMLs), Ice Information, and Weather.
- register private producer organization codes. There are now over 50 companies and organizations that are listed, nine of which have registered during the past year.

He said that Gert BÜTTGENBACH, SevenCs (Germany), continues to chair the OEF Board of Advisors. He explained that, while the OEF was hosted and maintained at the University of NH (Center for Coastal and Ocean Mapping – Joint Hydrographic Center), its management OEF was primarily performed by SevenCs. He stressed that continued operation and management of the OEF will require some level of financial support, in particular due to prevailing conditions with internet-based virus and spam threats that have led to increased demands and additional resources.

Australia (WARD) mentioned that the AHO is a significant user of the OEF. Registration of S57 objects is a key activity. He expressed concern about the funding and long-term support. He

suggested that a formal funding request should be submitted to IHB. The various WG chairs (DPWG, C&SMWG, TSMAD, SNPWG, CSPCWG) all expressed their support for funding of the OEF.

The Chair summarized that CHRIS supports this request for funding.

Outcome:

- Report noted as tabled.

- CHRIS considers the OEF as an important facility to the working of CHRIS WG's, and supports in principle that the OEF should be funded by IHO if funding is requested.

- **OEF Board of Advisors** to seek formal funding arrangements from IHB/IHO. (**New Action**)

12. LIAISON WITH OTHER GROUPS

12.1 ISO-TC211 (Geographic Information-Geomatics)

Docs: CHRIS16-12.1A Report on TC211 Activities affecting CHRIS (IHB)

IHB (HUET) provided a brief overview. TC211 is now dealing with more than 40 standards and technical specifications on geographic information, of which 12 have already been published as ISO Standards. Over the past year the IHO has actively participated in the development of ISO standards, in particular ISO 19126 (Data Dictionary Catalogue), on which the IHO data dictionary / feature catalogue registry will be based. Other TC211 standards used as basis for S-57 e4.0 development include ISO 19115 (Metadata), 19115 – Part 2 (Metadata for Imagery and Gridded Data), 19129 (Imagery, Gridded and Coverage Data Framework), and 19107 (Spatial Schema).

Outcome:

- Report noted.

12.2 IEC TC80

CIRM (RAMBAUT) gave a presentation about IEC TC80. IEC Technical Committee 80 "Maritime navigation and radiocommunication equipment and systems" mainly develops test standards for IMO Performance Standards. CIRM is a liaison organization to TC80 and provides its Secretariat to help manufacturers get involved with the drafting of standards, know what's coming in the future, and be ready for type approval. TC80 WGs relevant to CHRIS work are mainly WG7 (ECDIS and ECS) and WG13 (navigation related displays).

Outcome:

- Presentation noted.

13. ANY OTHER BUSINESS

13.1 Review of S-44

Docs: CHRIS16-13.1A Proposal by Australia to review S-44 "IHO Standards for Hydrographic Surveys"

Australia (WARD) explained that S-44 is increasingly being used. However, the S-44 WG is currently dormant. Depending on the outcome of the SPWG and decision by the 3rd EIHC (April 2005), in the future S-44 may be part of the work program of CHRIS (or similar new Technical Committee). USA-NAVO (VAN NORDEN), New Zealand (FARRELL) and Canada (POULIN) strongly supported this proposal to re-convene the S-44 WG to undertake a full review of the current edition and the subsequent publication of a revised edition that takes into account the latest technology and contemporary requirements for hydrographic data. While Portugal (PINHEIRO) did not support the proposal, on the grounds that S-44 did not come under CHRIS at this time, he supported the principle of re-activating S-44.

Outcome:

- Proposal supported by CHRIS.

- IHB to be informed of CHRIS support to proposal to reactivate the S-44 WG.

13.2 Review of Information Papers

Docs: *CHRIS16-INF1* *Status of IHO Publications on ECDIS*
CHRIS16-INF2 *Requirements for the Display and Use of AIS Information on Shipborne Navigational Displays. Report of the Correspondence Group for Presentation of Navigation-related information (IMO NAV 50/4)*
CHRIS16-INF3 *Requirements for the Display and Use of AIS Information on Shipborne Navigational Displays Presentation of Navigational Information. Sub mitted by IEC (IMO NAV50/4/1)*

Outcome:

- Papers noted.

Doc: *CHRIS16-INF4* *Depiction of Port Security Limits on Nautical Charts*

CSPCWG (JONES) explained that no work on this matter has been done. He wondered if this might add too much clutter on a paper chart. C&WMWG (JONAS) did not feel that this information should be displayed on nautical charts. Also, he had concerns regarding its impact on ECDIS Colours & Symbols. TSMAD (BROWN) supported these concerns. Australia (WARD) explained the background for this proposal. Australia was seeking the collective view of IHO whether this type of information should be included on paper charts and ENCs. There are underlying principles that need to be considered. As such, it should become a consideration for CHRIS.

Netherlands (WORMGOOR) felt that the interface and relationship between nautical charts and nautical publications need to be considered. CSCPWG (JONES) said he was willing to take this matter on in his WG. SNPWG (MELLES) also expressed his willingness to deal with this matter.

The Chair asked if we should enable this type of information to be provided by the ECDIS? He felt that IMO was increasingly concerned about port security issues. USANOAA (ENABNIT) felt that MS should first discuss this matter with their maritime administrations. IHB (BARBOR) suggested the following course of actions to deal with this matter, which was agreed by the Meeting:

1) IHB to send a CL to MS; results to be then forwarded to CHRIS.
2) CHRIS to provide guidance by correspondence.
3) CHRIS to make this a work item.

Outcome:

- IHB to seek and coordinate responses from MS regarding the principle of where administrative borders such as port security limits should be included: chart products or nautical publications or both? (**New Action**)

Doc: CHRIS16-INF5 USA-NGA input to C&SMWG on revision of S-52 (Updating)

Outcome:

- Paper noted.

Doc: CHRIS16-INF6 Information Paper by Canada on new chart usage implementation

Canada (POULIN) mentioned that Canada was amending their Canadian Shipping Act, which *inter alia* deals with ECDIS carriage requirements.

Outcome:

- Paper noted.

14. DATE AND LOCATION OF NEXT MEETING.

The 17th CHRIS Meeting will be held in Rostock, Germany, on 5-9 September 2005. Germany (BSH) will host both the CHRIS meeting and the IHO Industry/Stakeholder Day (7 September). Germany (JONAS) explained that travel to Rostock can be via the Hamburg or Berlin airport, then train to Rostock.

The 18th CHRIS Meeting is planned on September 2006, in Australia.

Chairman's closing remarks

The Chair closed the meeting in mentioning that this CHRIS meeting was a continuing transition towards a more structured process. He recalled that adhering to submission deadlines was important. It was also important that Member States inform about their attendance at meetings so that logistic arrangements can be made. He hoped that by 2005, CHRIS can really hit its stride.

The meeting closed at 13:00 on 31 May 2004.

Annex A

LIST OF ACRONYMS

3-D	Three Dimensions
AIS	Automated Identification System
ASL	Archipelagic Sea Lane
ATBA	Area To Be Avoided
BSH	Bundesamt für Seeschiffahrt und Hydrographie (Germany)
CHS	Canadian Hydrographic Service
CHRIS	Committee on Hydrographic Requirements for Information Systems (IHO)
CIRM	Comité International Radio Maritime
CL	Circular Letter
CSC	Chart Standardisation Committee (IHO)
C&SMWG	Colour and Symbol Maintenance Working Group (IHO)
CSPCWG	Chart Specification and Paper Chart Working Group (IHO)
DGIWG	Digital Geographic Information Working Group (NATO)
DIGEST	Digital Geographic Information Exchange Standard (DGIWG)
DNC	Digital Nautical Chart (USA-NIMA)
DPSAG	Data Protection Scheme Advisory Group (IHO)
DPSWG	Data Protection Scheme Working Group (IHO)
ECDIS	Electronic Chart Display and Information System
ECS	Electronic Chart System
EIHC	Extraordinary International Hydrographic Conference (IHO)
ENC	Electronic Navigational Chart
ESSA	Environmentally Sensitive Sea Area
HGMIO	Harmonizing Group on Marine Information Objects (IHO-IEC)
HO	Hydrographic Office
HP	High Priority
IC-ENC	International Centre for Electronic Navigational Charts
IEC	International Electrotechnical Commission
IHB	International Hydrographic Bureau

IHO	International Hydrographic Organization
IMO	International Maritime Organization
ISO	International Organization for Standardization
LP	Low Priority
MACHC	Meso-American and Caribbean Sea Hydrographic Commission (IHO)
MBSHC	Mediterranean and Black Seas Hydrographic Commission (IHO)
MEDCHARTNET	Mediterranean Charting Network (EU)
MP	Medium Priority
MS	Member State
MSC	Maritime safety Committee (IMO)
NAV	Sub-committee on Navigation (IMO)
NATO	North Atlantic Treaty Organization
NAVO	Naval Oceanographic Office (USA)
NGO	Non-Governmental Organization
NIMA	National Imagery and Mapping Agency (USA)
NOAA	National Oceanic and Atmospheric Administration (USA)
NP	Nautical Publication
NP-2	Digital Nautical Publications (IHO)
NP-3	Nautical Publications for ECDIS (IHO)
OEF	Open ECDIS Forum
PL	Presentation Library (IHO)
PoD	Print-on-Demand
PS	Performance Standards for ECDIS (IMO)
PSSA	Particularly Sensitive Sea Area
RCDS	Raster Chart Display System (IHO-IMO)
RENC	Regional Electronic Navigational Chart Coordinating Centre (IHO)
RHC	Regional Hydrographic Commission (IHO)
RNC	Raster Navigational Chart
RSS	Recommended Security Scheme (IHO)
RTCM	Radio Technical Committee on Maritime Services (USA)

SCAMIN	Scale Minimum (IHO/S-57)
SENC	System Electronic Navigational Chart
SHARED	Singapore Hong Kong Admiralty Raster and ENC Demonstration
SPWG	Strategic Plan Working Group (IHO)
SNPWG	Standardization of Nautical Publications Working Group (IHO)
SOLAS	Safety of Life at Sea Convention (IMO)
TAWG	Technology Assessment Working Group (IHO)
TC211	Technical Committee 211 (ISO)
TG	Task Group
ToR	Terms of Reference
TSMAD	Transfer Standard Maintenance and Application Development Working Group (IHO)
UKHO	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on the Law Of the Sea
USCG	United States Coast Guard
VRENC	Virtual Regional ENC Co-ordinating Centre
VTS	Vessel Traffic Service
WEND	Worldwide Electronic Navigational Chart Data Base (IHO)
WG	Working Group

Annex B

LIST OF DOCUMENTS

CHRIS16-1A rev.8	List of Documents
CHRIS16-1B rev.6	List of Participants
CHRISWG-MEM	Membership of CHRIS related WGs
CHRIS-MEM	CHRIS Membership
CHRIS16-2A rev.6	Agenda
CHRIS16-3A	Minutes of CHRIS/15
CHRIS16-3B rev.1	Status of Actions List from CHRIS/15
CHRIS16-3C	Terms of Reference for CHRIS Committee and related Working Groups
CHRIS16-4.1A	Report and Decisions of the 8th WEND Committee Meeting (IHB)
CHRIS16-4.2A	Issues arising from the SPWG Tokyo Meeting, March 2004 (IHB)
CHRIS16-5A rev.2	Consolidated CHRIS Work Plan
CHRIS16-5B	Templates for progress reports and change notes (M. Poulin, Canada)
CHRIS16-5.1A	Improving ENC Consistency (TSMAD, in liaison with C&SMWG)
CHRIS16-5.2A rev.1	Review of S-52, to reduce its scope and volume (M. Jonas, Germany)
CHRIS16-5.2B	Revised S-52, clean copy (M. Jonas, Germany)
CHRIS16-5.2C	Maintenance of the Glossary of ECDIS-related Terms, S-52 Appendix 3 (IHB)
CHRIS16-5.3A	Printed ENCs (USA-NOAA)
CHRIS16-6.1A	Report of TSMAD (M. Brown, USA-NOAA, Chair)
CHRIS16-6.1B	Liaison with non-IHO Constituents (TSMAD)
CHRIS16-6.1C	Print-on-Demand Nautical Charts (USA-NOAA)
CHRIS16-6.2A rev.1	Report of C&SMWG (M. Jonas, Germany, Chair)
CHRIS16-6.3A	Report of DPSWG (R. Sandvik, Primar-Stavanger, Chair)
CHRIS16-6.4A	Report of SNPWG (J. Melles, Germany, Chair)
CHRIS16-6.5A	Report of CSPCWG (P. Jones, UK, Chair)
CHRIS16-7A	Report of Industry Workshops and Stakeholder Organizations (IHB)
CHRIS16-7B rev.1	Liaison between IHO and CIRM (C. Cobley, CIRM Secretary-General)
CHRIS16-8.1A	PRIMAR Stavanger Status Report (R. Sandvik, Primar Stavanger)
CHRIS16-8.1B	IC-ENC Status Report (G. Saundercock, IC-ENC)
CHRIS16-8.1C	MBS Virtual RENC Status Report (M. Nannini, Italy)
CHRIS16-8.2B rev.5	Compendium of National Reports on ENC Development (IHB)
CHRIS16-8.3A	Report on DNC Development (C. Andreasen, USA-NIMA)
CHRIS16-8.4A	Status Report on Inland ECDIS development and Standardization (L. Alexander, USA-UNH)
CHRIS16-9.1A	Australian proposal, submitted to MSC/78, to consider permitting ships to use the RCDS mode of ECDIS, without the requirement to carry paper charts
CHRIS16-9.1B	Norwegian submission to MSC/78 on ECDIS, commenting on the

	Australian proposal in CHRIS16-9.1A.
CHRIS16-9.1C	Proposed Amendment to the RCDS Mode of ECDIS (USA-NOAA)
CHRIS16-10A	Report of IHO-IEC Harmonizing Group on Marine Information Objects (HGMIO) (L. Alexander, USA-UNH, Chair)
CHRIS16-11A	Report on Activities of the Open ECDIS Forum (OEF) (L. Alexander, USA-UNH)
CHRIS16-12.1A	Report on ISO/TC 211 Activities affecting CHRIS (IHB)
CHRIS16-13.1A	Proposal by Australia to review S-44 "IHO Standards for Hydrographic Surveys"
CHRIS16-INF1	Status of IHO publications on ECDIS (IHB)
CHRIS16-INF2	Requirements for the Display and Use of AIS Information on Shipborne Navigational Displays – Report of the Correspondence Group for Presentation of Navigation-related Information (IMO NAV 50/4)
CHRIS16-INF3	Requirements for the Display and Use of AIS Information on Shipborne Navigational Displays – Presentation of Navigational Information. Submitted by IEC (IMO NAV 50/4/1)
CHRIS16-INF4	Depiction of Port Security Limits on Nautical Charts – Request for Formal Guidance by Australia
CHRIS16-INF5	USA-NGA input to C&SMWG on revision of S-52 (Updating)
CHRIS16-INF6	Information Paper by Canada on new chart usage implementation

Annex C

LIST OF PARTICIPANTS

Country	Name of Member	Email
Australia	Robert E. WARD (Vice Chair)	Robert.Ward@hydro.gov.au
Canada	Michel POULIN	PoulinM@dfo-mpo.gc.ca
	Don VACHON	VachonDon@DFO-MPO.GC.CA
Chile	Juan CUNEO	jcuneo@shoa.cl
	Gonzalo VALLEJOS C.	gvallejos@shoa.cl
China	ZHANG Tiejun	tjhjjhzx@public.bta.net.cn
	YE Yin	tjhjjhzx@public.bta.net.cn
Denmark (KMS)	Ole BERG (Chair)	olb@kms.dk
	Carsten RIISE-JENSEN	Cr@kms.dk
Finland	Juha KORHONEN	Juha.Korhonen@fma.fi
France	Alain FOURGASSIE	Alain.Fourgassie@shom.fr
Germany	Mathias JONAS (C&SMWG Chair)	Mathias.Jonas@bsh.de
	Johannes MELLES (SNPWG Chair)	Johannes.Melles@bsh.de
Greece	Alexis HADJIANTONIOU	dcd@hnhs.gr
Italy	Massimiliano NANNINI	nanninim@marina.difesa.it
Japan	Toru Kajimura	Tooru-kajimura@kaiho.mlit.go.jp
Korea (Rep. of)	Won-kyung KIM	wkkjm@nori.go.kr
	Jae-young ROH	nohjy@nori.go.kr
	Sang-hyun SUH	shsuh@kriso.re.kr
	Kyoung-hun LEE	ikhun@kesti.co.kr
Netherlands	Erwin WORMGOOR	info@hydro.nl
New Zealand	Michael FARRELL	mfarrell@linz.govt.nz
Norway	Robert SANDVIK	Robert.Sandvik@primar.org
Portugal	António Martins PINHEIRO	ceno@hidrografico.pt
Sweden	Goran NORDSTROM	Goran.Nordstrom@sjofartsverket.se
	Patrik WIBERG	Patrik.Wiberg@sjofartsverket.se
UK	Peter JONES (CSPCWG Chair)	Peter.Jones@ukho.gov.uk
	Barrie GREENSLADE	Barrie.Greenslade@ukho.gov.uk
	Chris SMITH	Chris.Smith@ukho.gov.uk
USA (NGA)	Chris ANDREASEN	andreasenc@nga.mil
USA (NOAA)	Roger L. PARSONS	Roger.L.Parsons@noaa.gov
	Dave ENABNIT	Dave.Enabnit@noaa.gov
	Michael BROWN (TSMAD Chair)	Mike.Brown@noaa.gov
USA (NOO)	Max VAN NORDEN	VannordenM@navo.navy.mil
USA (USCG)	Jim RADICE	jradice@navcen.uscg.mil

Country	Name of Member	Email
USA (ACOE)	Tony NILES	Anthony.R.Niles@erdc.usace.army.mil

	Name	Email
IHB	Kenneth BARBOUR (IHB Director)	kbarbour@ihb.mc
	Michel HUET (Secretary)	mhuet@ihb.mc

Observers	Name	Email
CIRM & IEC	Michael RAMBAUT	mr@cirm.org
CIRM	Tor SVANES	svanes@c-map.no
ICCL	George ARTS	artsg@attglobal.net
OEF & HGMIO	Lee ALEXANDER (HGMIO Chair)	Lee.Alexander@unh.edu
PRIMAR - Stavanger	Robert SANDVIK (DPSWG Chair)	Robert.Sandvik@primar.org
RTCM	Fred GANJON	fganjon@starpower.net

Annex D

16th CHRIS MEETING
Ottawa, Canada, 28-31 May 2004

AGENDA

Notes: 1. A presentation on the Navigation surface model concept, by Andrew A. Armstrong, Capt. NOAA (retired), Co-Director NOAA/UNH Joint Hydrographic Centre, was given on 28 May in the afternoon.

2. A presentation by Tenix on the "Digital Hydrographic Database" (DHDB) - a unified hydrographic data management and production system now being installed in the Australian HO – was given on 29 May in the afternoon.

5. Opening and Administrative Arrangements

Docs: *CHRIS16-1A* *List of Documents*
CHRIS16-1B *List of participants*
CHRISWG-MEM Membership of CHRIS related WGs
CHRIS-MEM *CHRIS Membership*

6. Approval of Agenda

Doc: *CHRIS16-2A* *Agenda*

7. Matters arising from Minutes of 15th CHRIS Meeting

Docs: *CHRIS16-3A* *Minutes of CHRIS-15*
CHRIS16-3B *Status of Actions List from CHRIS-15*
CHRIS16-3C *Terms of Reference for CHRIS Committee and related Working Groups*

4. Decisions of other IHO bodies affecting CHRIS

4.1 WEND Committee

Doc: *CHRIS16-4.1A* *Report and Decisions of the 8th WEND Committee Meeting (IHB)*

4.2 SPWG

Doc: *CHRIS16-4.2A* *Issues arising from the SPWG Tokyo Meeting, March 2004, affecting CHRIS (IHB)*

5. Work of CHRIS

Docs: *CHRIS16-5A* *Consolidated CHRIS Work Plan*
CHRIS16-5B *Templates for progress reports and change notes(M. Poulin, Canada)*

5.4 ENC Consistency

Doc: *CHRIS16-5.1A* *Improving ENC Consistency (TSMAD, in liaison with C&SMWG)*

5.5 Re-structuring the S-52 Package

Docs: *CHRIS16-5.2A* *Review of S-52, to reduce its scope and volume (M. Jonas, Germany)*
CHRIS16-5.2B *Revised S-52, clean copy (M. Jonas, Germany)*
CHRIS16-5.2C *Maintenance of the Glossary of ECDIS-related Terms, S-52 Appendix 3 (IHB)*

5.3 Printed ENCs

Doc: *CHRIS16-5.3A* *Printed ENCs (USA-NOAA)*

6. Reports by CHRIS Working Groups

6.1 Transfer Standard Maintenance and Application Development (TSMAD)

Docs: *CHRIS16-6.1A* *Report of TSMAD (M. Brown, USA-NOAA, Chair)*
CHRIS16-6.1B *Liaison with non-IHO Constituents (TSMAD)*
CHRIS16-6.1C *Print-on-Demand Nautical Charts (USA-NOAA)*

6.2 Colour and Symbol Maintenance (C&SMWG)

Doc: *CHRIS16-6.2A* *Report of C&SMWG (M. Jonas, Germany, Chair)*

6.3 Data Protection Scheme (DPSWG)

Doc: CHRIS16-6.3A Report of DPSWG (R. Sandvik, Norway-ECC, Chair)

6.4 Standardization of Nautical Publications (SNPWG)
Doc: CHRIS16-6.4A Report of SNPWG (J. Melles, Germany, Chair)

6.5 Chart Standardization and Paper Chart (CSPCWG)
Doc: CHRIS16-6.5A Report of CSPCWG (P. Jones, UK, Chair)

7. Liaison with Industry

Docs: CHRIS16-7A Report of 2003 Industry Workshop and Stakeholder Organizations (IHB)
CHRIS16-7B Liaison between IHO and CIRM (C. Cobley, CIRM Secretary-General)

8. Vector Data Development

8.1 RENCs
Docs: CHRIS16-8.1A PRIMAR-Stavanger Status Report
CHRIS16-8.1B IC-ENC Status Report
CHRIS16-8.1C MBS Virtual RENC Status Report (Italy)

8.2 ENC Development and Coverage
Docs: CHRIS16-8.2A Status Report on ENC Coverage (IHB)
CHRIS16-8.2B Compendium of National Reports on ENC Development (IHB)

8.3 DNC Development
Doc: CHRIS16-8.3A Report on DNC Development (USA-NIMA)

8.4 Inland ECDIS
Doc: CHRIS16-8.4A Status Report on Inland ECDIS development and Standardization (L. Alexander, USA-UNH)

9. Raster Data Development

9.1 RCDS Mode of ECDIS
Docs: CHRIS16-9.1A Australian proposal, submitted to MSC/78, to consider permitting ships to use the RCDS mode of ECDIS, without the requirement to carry paper charts
CHRIS16-9.1B Norwegian submission to MSC/78 on ECDIS, commenting on the Australian proposal in CHRIS16-9.1A.
CHRIS16-9.1C Proposed Amendment to the RCDS Mode of ECDIS (USA-NOAA)

10. Marine Information Objects (MIO)

Doc: CHRIS16-10A Report of HGMIO (by L. Alexander, USA-UNH, Chair)

11. Open ECDIS Forum

Doc: CHRIS16-11A Report on OEF Activities (L. Alexander, USA-UNH)

12. Liaison with other Groups

12.1 ISO-TC211 (Geographic Information-Geomatics)
Doc: CHRIS16-12.1A Report on TC211 Activities affecting CHRIS (IHB)

13. Any Other Business

13.1 Review of S-44
Doc: CHRIS16-13.1A Proposal by Australia to review S-44 "IHO Standards for Hydrographic Surveys"

13.2 Review of Information Papers
Docs: CHRIS16-INF1 Status of IHO Publications on ECDIS
CHRIS16-INF2 Requirements for the Display and Use of AIS Information on Shipborne Navigational Displays Report of the Correspondence Group for Presentation of Navigation-related information (IMO NAV 50/4)

CHRIS16-INF3 *Requirements for the Display and Use of AIS Information on Shipborne Navigational Displays Presentation of Navigational Information. Submitted by IEC (IMO NAV50/4/1)*
CHRIS16-INF4 *Depiction of Port Security Limits on Nautical Charts*
CHRIS16-INF5 *USA-NGA input to C&SMWG on revision of S-52 (Updating)*
CHRIS16-INF6 *Information Paper by Canada on new chart usage implementation*

14. Date and Location of Next Meeting.

Annex E

Task Group 2 "Templates for CHRIS Work"

REPORT

By Michael FARELL, New Zealand, TG2 Chair

Chair: New Zealand

Representatives: Canada, Finland, IEC, Italy, Japan, Denmark and USA.

The meeting commenced with Canada providing a brief overview and background to the process diagram and the associated templates.

The TG then reviewed the process diagram and accepted that it was in accordance with the process agreed upon at CHRIS/15.

A few cosmetic changes were suggested and accepted by the group and the final agreed process diagram is included in Annex F.

In light of these changes to the diagram, the group revised the CHRIS change templates, adding new sections and ensuring consistency between the templates. These can be found in Annex F.

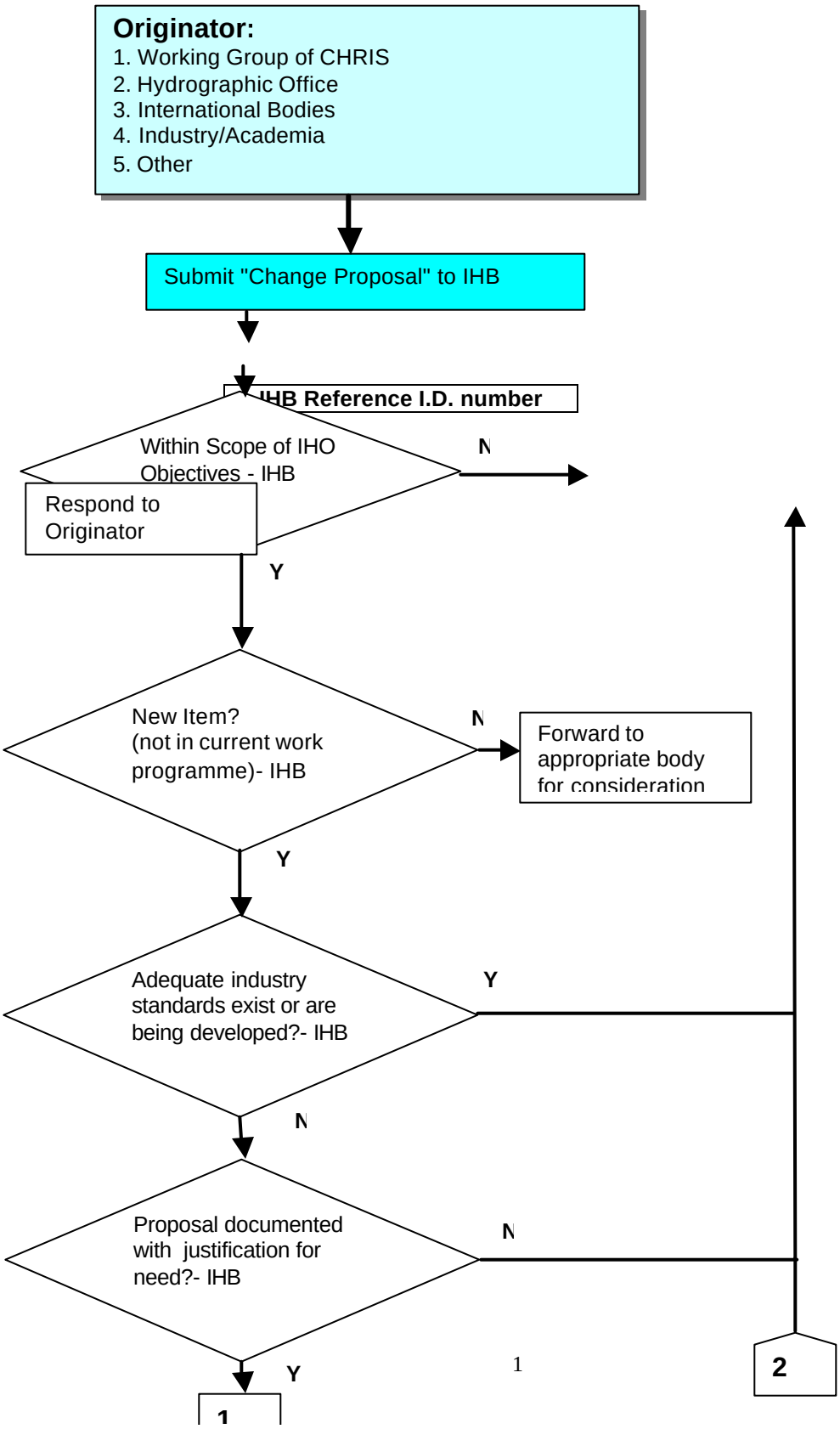
The task group then submitted these to the CHRIS committee for feedback and endorsement.

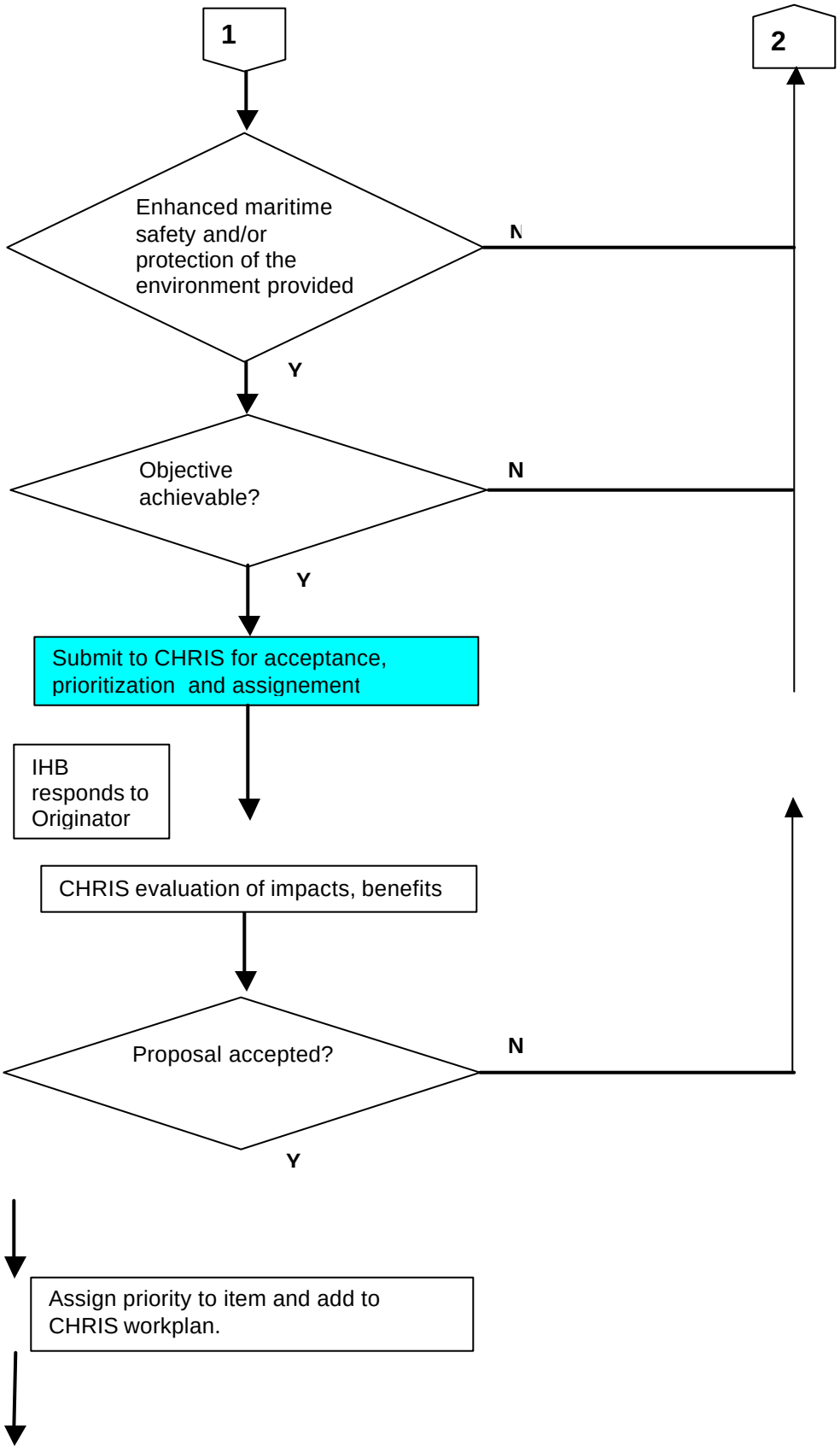
The TG2 chair would like to acknowledge the work of Canada in producing these templates and diagrams.

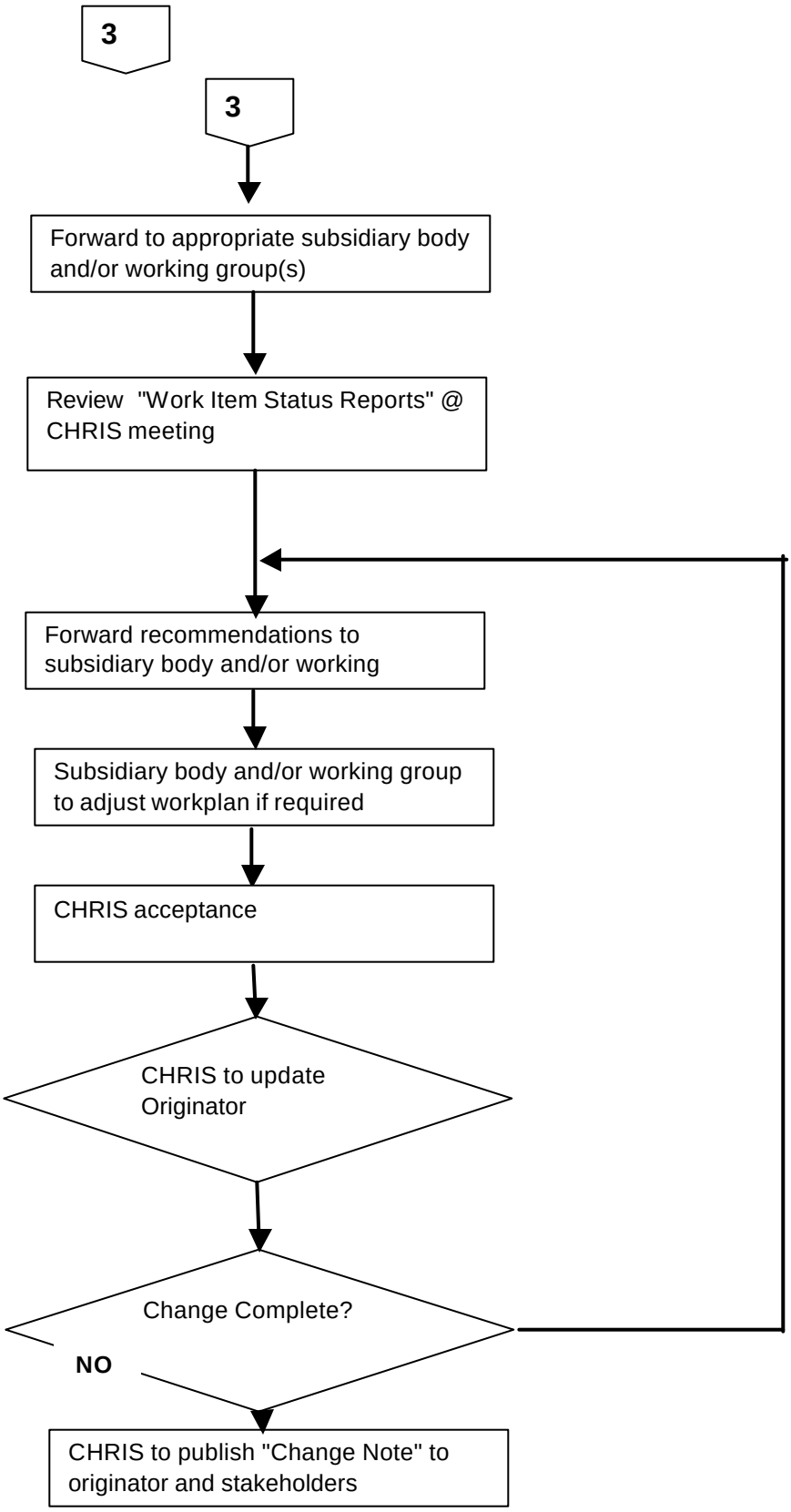
Annex F

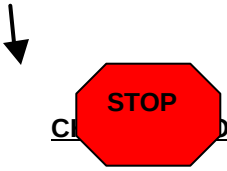
FLOW DIAGRAM AND TEMPLATES FOR PROGRESS REPORTS AND CHANGE NOTES

1. FLOW DIAGRAM




1
2
Enhanced maritime safety and/or protection of the environment provided
N
Y
Objective achievable?
N
Y
Submit to CHRIS for acceptance, prioritization and assignement
IHB responds to Originator
CHRIS evaluation of impacts, benefits
Proposal accepted?
N
Y
Assign priority to item and add to CHRIS workplan.


3
3
Forward to appropriate subsidiary body and/or working group(s)
Review "Work Item Status Reports" @ CHRIS meeting
Forward recommendations to subsidiary body and/or working
Subsidiary body and/or working group to adjust workplan if required
CHRIS acceptance
CHRIS to update Originator
Change Complete?
NO
CHRIS to publish "Change Note" to originator and stakeholders



2. CHRIS Change Proposal to CHRIS

1	**CHRIS Change Proposal Reference ID:** _____
2	**Date of Submission:**

PROPONENT

3	**Submitted by:** o Hydrographic Office, which: _____ o CHRIS Working Group, which: _____ o International Body, which: _____ o Industry/Academia, whom: _____ o Other, please specify: _____ _____ _____
4	**Executive Summary:**
5	**Related Documents:**
6	**Background and Scope:**

7	**Perceived Benefits & Justification**
8	**Impacts / Outcomes**

International Hydrographic Bureau

9	**IHB Analysis/Action(s)** **Proposal Accepted Y/N: _____**
10	**IF related to existing Work Item forward to:** **Working Group, which: _____** **IF related to external development refer item to:** **External Body, which: _____** **IF not accepted, respond to Originator:** **Reference: _____**
11	**Assess and assign priority to item:**
12	**Effectiveness of proposal:**

13	**Substantiate/Derive Work Items required to accomplish proposed "Change":** **<u>TIMELINE</u>** **1.** _____ **2.** _____ **3.** _____ **4.** _____ **5.** _____ **6.** _____ **7.** _____ **8.** _____ **9.** _____
14	**Does it relate with the current CHRIS work-plan?** **YES, then identify related Work Item of workplan: _____** **NO, then provide plan of action (e.g. wait):**
15	**Accepted by CHRIS?** o **YES, please identify "Change Note Reference ID":** _____ o **NO, then advise IHB.**

3. CHANGE NOTE from CHRIS

1	**CHRIS Change Note Reference ID: _____**
2	**Related CHRIS Change Proposal Reference ID: _____**
3	**Initial proposal summary:**
4	**Actual change proposal:**
5	**Recommended actions / implementation:**
6	**Proposed timetable:** **Start Date: _____** **End Date: _____** **Delays expected due Pre-requisites: _____**
7	**Comments/adjustments to proposed timetable**
8	**Review and comments on work item by working group**
9	**Impact Assessment:**
10	**Stakeholders Affected:**

4. WORK ITEM STATUS Report for CHRIS

1	**CHRIS Change Proposal Reference ID: _____**
2	**Work Item Reference ID: _____**
3	**Working Group:** **Project Leader:**
4	**Revised timetable:** **Start Date: _____** **End Date: _____** **Delays rationale:**
5	**Related documents:** **Related Projects:**
6	**Executive Summary:**
7	**Actions Progress/Update:**

8	**Outstanding Actions and reasons:**
9	**Remaining actions / Next steps:**
10	**Complete:** o **YES, authorized by: _____** o **NO, report again after next meeting.**

Annex G

Template for Working Group Reports to CHRIS

box	*Submitted by:* *Executive summary:* *Actions to be taken:* *Related documents:* *Related Projects:*
1	Chair Vice Chair & Secretary Members Expert Contributors
2	**Meetings** Past: (date & location) Next
3	**Work Program** highlight important issues Note: a complete description of all items can be in annex
4	**Progress on CHRIS Action Items**
5	**Problems Encountered** resources funding attendance
7	**Actions to be taken by CHRIS** also, include any recommendations
8	**Other Items of Note**
A	**Annex A – Membership**
B	**Annex B – Work Plan**

Annex H

Task Group 1 "Glossary Revision (ANNEX A to CHRIS16-5.2C)"

REPORT

By Erwin WORMGOOR, Netherlands, TG1 Chair

The Task Group 1 (TG1) acknowledges the work done by Mr. Erich FREY (USA-NOAA) on behalf of the Committee on the Hydrographic dictionary.

Initially is was expected that TG1 should focus merely at the ECDIS Glossary terms not considered necessary for inclusion in S-32 (39 terms, denoted with an asterisk in the second column of ANNEX A to Doc. CHRIS16-5.2C). It soon appeared that the other four groups (over 200 terms) also needed a thorough review to ensure completeness and consistency within S-32. During the review both the ECDIS Glossary and S-32 were used to verify and/or amend the proposals at ANNEX A to Doc. CHRIS16-5.2C.

During some five hours, 262 terms were reviewed and when applicable amended with consensus (68 terms); these amendments have been marked up in Annex I. Nine terms are recommended for a thorough reconsideration by another small group of experts. These terms are: cell, ECDB, ECDIS, ECS, ENCD, ENCDB, ENC data, colour tables, ISO. Also two new terms should be defined by this group: CATZOC and RNC (term "raster" already exists).

CONCLUSION

- Review completed, 68 terms amended with consensus.

RECOMMENDATIONS

- CHRIS/16 to endorse TG1's proposed amendments to the definitions in Annex A to Doc. CHRIS16-5.2C, as emphasized in Annex I, and inform accordingly the Committee on the Hydrographic Dictionary (S-32).
- CHRIS/16 to initiate an additional work item to reconsider 9 terms and propose definitions of 2 new terms (preferably by correspondence).

Annex I

Integration of the ECDIS Glossary into S-32

Changes emphasized below have been agreed by CHRIS/16

TERMS: The list of terms are from S-52 APP.3.
N/E: N = term from S-52 which is "new" to S-32, E = term from S-52 which already exists in S-32
PROPOSED DEFINITION = revised definition proposed for inclusion in S-32
COMMENTS = explanation as to the reasoning of the proposed action

TERM (from ECDIS Glossary)	N/E	PROPOSED DEFINITION	COMMENTS
aid to navigation	E	visual, acoustical, or radio device designed to assist in determining a safe course or a vessels' position, or to warn of dangers and/or obstructions. Aids to navigation usually include BUOYS, BEACONS, FOG SIGNALS, LIGHTS, RADIO BEACONS, LEADING MARKS, radio position fixing systems, GPS which are usually chart-related in the interest of and are essential to safe NAVIGATION	The first part of this definition is from S-52 and originated with Bowditch. The second part is from S-32.
all other information	N	used in ECDIS to describe information not belonging to the STANDARD DISPLAY. Also called "ON-DEMAND INFORMATION".	Adapted from S-52.
attribute value	N	See ATTRIBUTE LABEL/CODE	Directly from S-52
Automatic Identification System	N	In ECDIS, an automatic communication and identification system intended to improve the safety of navigation by assisting the efficient operation of vessel traffic services, (VTS), ship reporting, and ship-to-ship and ship-to-shore operations.	Directly from S-52, except for the "In ECDIS" introduction.
bearing (BRG)	E		Use existing S-32 definition.
cell	N	In ECDIS, the basic unit for the distribution of ENC DATA covering a defined geographical area bounded by two meridians and two parallels, the content of which must not exceed 5	Directly from S-52, except for the "In ECDIS," introduction.

		Mbytes, and which is intended for a particular NAVIGATIONAL PURPOSE.	To be refined
chain	E		Use existing S-32 definition. The only existing difference is the use of the term "edge" as opposed to "segment"
chain node	N	In ECDIS, tThe data structure in which the geometry is described in terms of EDGES, ISOLATED NODES and CONNECTED NODES. Edges and connected nodes are topologically linked. NODES are explicitly coded in the DATA STRUCTURE.	Directly from S-52, except for the "In ECDIS," introduction. (Ref: Transfer Standard)
chart	E	(almost same as S-32)	Use existing S-32 definition.
Colour tables	N*		Not recommended for S-32. It is not really a definition.
Committee on ECDIS (COE)	N		Add to Acronym section of S-32.
Committee on Exchange of Digital Data (CEDD)	N		Add to Acronym section of S-32.
Committee on Hydrographic Requirements for Information Systems (CHRIS)	N		Add to Acronym section of S-32.
compilation scale	N	the SCALE at which the ENC DATA was compiled.	Directly from S-52.
conditional symbology procedure	N*		Not recommended for S-32.
Correction(s)	E		Use existing S-32 definition. S-32 uses the singular while S-52 uses the plural.
corrupted data	N	In ECDIS, any change in introduced during, and as a result of, its transmission	Directly from S-52, except for the "In ECDIS," introduction.

Course up display	N	In ECDIS, Tthe information shown on the DISPLAY (radar or ECDIS) with the direction of the vessel's course upward. The display ORIENTATION is stabilized by means of a gyro until a new course direction is fed in	Directly from S-52, except for the "In ECDIS," introduction.
Data dictionary	N*		Not recommended for S-32. (Not really a definition)
data quality indicator	N*		Not recommended for S-32. (Not really a definition)
Differential GLONASS	N	see GLONASS	
digital terrain model	E	(same as S-32)	
Electronic chart	E	~~In general, any data, software, and electronic system, capable of displaying CHART INFORMATION which may or may not be equivalent to official charts required by SOLAS.~~	Adaptation of S -52 definition
Electronic Chart Display and Information System (ECDIS)	E	a navigation information system whichwith adequate BACK-UP ARRANGEMENTS can be accepted as complying with the up-to-date chart required by regulation V/20 of the 1974 SOLAS Convention, by displaying selected information from a SYSTEM ELECTRONIC NAVIGATIONAL CHART (SENC) with positional information from navigation sensors to assist the mariner in ROUT PLANNING and ROUTE MONITORING, and if required display additional navigation-related information	Directly from S-52 (Ref Performance Standard). To be further refined.
ENC product specification	N	Appendix B-1Part of S-57 which specifies the content, structure and other mandatory aspects of an ENC	Directly from S-52
ENC test data set	N*		Not recommended for S-32
entity	N	any concrete or abstract thing of interest, including association of things	Directly from S-52
GLONASS ~~(Global Navigation Satellite System~~	N	a space-based, radio-positioning, navigation and time-transfer system operated by the Government of the Russian Federation. GLONASS to which differential corrections have been applied is	Directly from S-52

		known as Differential GLONASS (DGLONASS)	
GPS ~~(Global Positioning System)~~	E	a satellite-based navigation system designed to provide highly accurate positions and velocity information in three dimensions and precise time and time interval on a global basis continuously. GPS is operated by the United States Government. GPS to which differential corrections have been applied is known as DIFFERENTIAL GPS (DGPS)	This is a combination of the existing S-32 definition with the S-52 definition. (S-32 spells out the term whereas S-52 uses the acronym)
ground stabilization	N	In ECDIS~~,~~ A~~a~~ display whereby own ship position is referenced to the ground. Usually performed on ECDIS in conjunction with radar/ARPA, it can be determined by computing set and drift or by the use of GPS/DGPS	Directly from S-52, except for the "In ECDIS," introduction.
IHO INT 1	N	~~reference publication of the IHO containing chart symbols abbreviations and terms~~	Extensively revised version of S-52 definition
IHO Transfer Standard for Digital Hydrographic Data	N	a THEORETICAL DATA MODEL, DATA STRUCTURE, OBJECT CATALOGUE, ENC PRODUCT SPECIFICATION, USE OF THE OBJECT CATALOGUE fo~~e~~ ENC and an Object Catalogue DATA DICTIONARY Product Specification for use in the exchange or transfer of digital hydrographic data.	First part directly from S-52 with additional explanation.
IHO test data set	N*		Not recommended for S-32
ISO ~~8211~~	N*		Not recommended for S-32. The reason is that there will constantly be more ISO's which will have to be considered.
ISO 10646	N*		Not recommended for S-32. The reason is that there will constantly be more ISO's which will have to be considered.
Isolated node	N	an isolated zero-dimensional SPATIAL OBJECT that represents the geometric location of a point FEATURE. An isolated node is never used as a beginning or end NODE.	Directly from S-52 (Ref: Transfer Standard)
Key	E		This term is already in S-32, but totally different from the term as used in S-52. Suggest that S-32 remain unchanged and

			the S-52 definition not be included.
layer	E		This term is already in S-32, but totally different from the term as used in S-52. Suggest that S-32 remain unchanged and the S-52 definition not be included.
line	N	a one-dimensional GEOMETRIC PRIMITIVE of an OBJECT specifying location	From S-52
Log file	N	a record of nautical chart updatesinformation, including time of application and identification parameters.	Adapted from S-52
look-up table	N*		Not recommended for S-32
manual updat~~ing~~	N	the manual application of hand corrections to nautical charts; In ECDIS, the manual application of corrections to ENC DATA in the SENC by human operator, usually based on unformatted UPDATE INFORMATION (such as NtMs, voice radio, verbal communications, etc.)	First part added to cover paper charts, Second part directly from S-52.
matrix	E		This term is already in S-32, but totally different from the term as used in S-52. Suggest that S-32 remain unchanged a nd the S-52 definition not be included.
nautical chart	E	(same as S-32)	
navigational aid	E	(same as S-32)	
navigational purpose	N	In ECDIS, the specific purpose for which a ~~CHART CELL~~ has been compiled. There are six such purposes; berthing, harbour, approach, coastal, general, and overview	Directly from S-52, except for the "In ECDIS," introduction.
navigational symbol	N*		Not recommended for S-32
node	E	a zero-dimensional SPATIAL OBJECT, located by a coordinate pair of coordinates. A node is either ISOLATED or CONNECTED. In ASTRONOMY, one of the.....	First part directly from S-52, replacing the first S-32 definition. The remainder of the S-32 definition is suggested to remain as is.

Non-chart symbol	N	a symbol for information such as own ship's position, COURSE MADE GOOD, etc., which appears on the ECDIS but which does not appear on the printed chart. See MARINERS NAVIGATIONAL OBJECTS.	Directly from S-52.
Object Catalogue	N	a feature schema ~~for S-57. Its primary function is to~~ provide a description of real world entities. It contains a list of FEATURE OBJECT classes (each relating to a real world entity), ATTRIBUTES and allowable ATTRIBUTE VALUES	Directly from S-52.
official updates	N	updates provided by the ISSUING AUTHORITY for application to a chart. In ECDIS ~~the~~ updates ~~are~~ provided in digital format by the ISSUING AUTHORITY of the ENC being corrected, for integration with the ENC DATA in the SENC.	A generic definition was developed for S-32. But a specific ECDIS application definition was also included.
Performance Standards for ECDIS	N	minimum performance requirements for ECDIS, adopted by IMO 23 November 1995 as Assembly resolution and published as Annex to IMO Resolution A19/Res 817 ~~(15 December 1995)~~.	Directly from S-52.
presentation	N*		Not recommended for S-32.
Raster	N	see RASTER DATA PRESENTATION A regular array with information pertaining to each element (*pixel*) or group of ele~~-~~ments.	The S-52 definition is very technical whereas the suggested S-32 definition for "raster data presentation" seems more generic.
record	N*		Not recommended for S-32.
Regional ENC Coordinating Centre (RENC)	N	organizational entities where IHO Member States have established cooperation amongst each other to guarantee a world-wide consistent level of high quality data, and for bringing about coordinated services with official ENCs and updates to them	Add to Acronym section of S-32. New definition agreed by WEND/8.
relationship	N*		Not recommended for S-32.
Route	N*		Not recommended for S-32. (Too generic)

scale bar	N*		Not recommended for S-32. It is too confusing with “scale: bar” which is a term defined in S-32.
SOLAS	N		Add to Acronym section of S-32.
Spatial record	N*		Not recommended for S-32.
target data	N	In ECDIS, the data on which an UPDATE operation is performed by the APPLIER.	Directly from S-52, except for the “In ECDIS,” introduction.
Time varyingMarine Information Oobject (MIO)	N	an OBJECT which has one o r more ATTRIBUTES, the value or values of which vary with time.	Directly from S-52.
Topology	N	In. digital dataECDIS, the set of properties of geometric forms (such as connectivity, neighbourhood) which is defined with the DATA MODEL remaining invariant when subject to a continuous transformation.	Directly from S-52, except for the “In ECDIS,” introduction.
Warning	N	an ALARM or INDICATOR.	Directly from S-52.
Water stabilization	N*		Not recommended for S-32.
WEND	N*		Not recommended for S-32.
zoom	E		Use existing S-32 definition.

Note:
* = denotes term is not recommended for inclusion in S-32.

THE USE OF ALL CAPITAL LETTERS = denotes that the word or term has its definition contained in S-32.

In summary, where there is either no entry or “(same as S-32)” in the “Proposed Definition” field, the proposal is to retain the S-32 definition. And if accepted, no further action is required.

Annex J

PRESENTATIONS GIVEN AT CHRIS/16

1. The "**Navigation Surface Model Concept**", by Andrew A. Armstrong, Capt. NOAA (retired), Co-Director NOAA/UNH Joint Hydrographic Centre (presentation given on 28 May in the afternoon).

The "Navigation Surface" is a new database approach for processing bathymetric survey data. Developed at the University of New Hampshire by LT Shep Smith (NOAA), a Navigation Surface replaces the traditional 'selected sounding' dataset representation of a survey with gridded dataset. Each grid is built to represent the best estimate of the true depth of the water at precise locations across the survey area, while maintaining significant hydrographic detail where required. Optimized for safety of navigation, the Navigation Surface consists of a collection of Digital Terrain Models (DTMs), each at a resolution appropriate to the source. Further, it provides the tools and procedures to 'deconflict', merge and generalize the models to an appropriate chart scale. Since all of the cartographic elements (e.g., depth areas, depth curves, selected soundings) are derived from the same database, they can be compiled with little or no human, intervention. The database can be used to generate one or more products at varying levels of detail and/or different scales. This includes traditional paper nautical charts and electronic navigational charts (ENCs) for use with ECDIS. In addition, the highest resolution model is preserved for use in future navigation products, e.g., sea floor classification, additional military layers (AMLs), coastal zone management, etc.

In addition to the PPT presentation by Capt. Amstrong, copy of an article on this subject which appeared in the IH Review (August 2002) was also mentioned.

Canada (POULIN) explained that CHS plans to conduct a St Lawrence River Canadian Pilot Project (showcase) to test and evaluate the Navigation Surface Model Concept.

2. The "**Digital Hydrographic Database**" (DHDB) - a unified hydrographic data management and production system now being installed in the Australian HO, by Robert WARD, Australia, and Tom UROSOVIC, Tenix (presentation given on 29 May in the afternoon).

Australia (WARD) mentioned that this new system was due to come on line very shortly and added the following comments to the PPT presentation:

- all archived bathymetric data was now in digital form [mixture of vector (newer surveys) and raster (older surveys)] or digitally retrievable (very old surveys); 8M AUD to do so.
- manpower saving was never envisaged; but increased capacity for ever increasing demands for hydrographic products and services instead.
- change management was an important factor.
- product generation will be more a rule-based activity.

Discussion:

Greece (HADJIANTONIOU) asked what was the impact on people to make this transition? Australia (WARD) answered that, for younger people with GIS experience, it is very easy; however, it is more difficult for managers. USA-NGA (ANDREASEN) asked if there was a hierarchy of teams or roles in the process? The answer was that the system does provide a mechanism for control. For the control of the system, users have full power. Germany (MELLES) asked if automatic generalization tools were being used? The response was no, but links are established between different scale levels. For The Netherlands (WORMGOOR), this seemed to be quite similar to the CARIS based HPD.

Annex K

LIST OF ACTIONS

ACTION	AGENDA ITEM	SUBJECT	ACTIONS (in bold, action by)
1	3	CSPCWG TOR	**Chair CSPCWG** to monitor the revision of the CSPCWG Terms of Reference, so as to align them with other CHRIS ToRs; to report back to CHRIS/17.
2	4.1	Definition of "RENC"	**Secretary** to liaise with the S-32 WG, so as to include the WEND definition of "RENC" in S52 App 3 – Glossary of ECDIS Related Terms.
3	5	CHRIS Work Plan	.1 **New Zealand and Canada** to provide the Secretary with a worked example and clarification of the use of the templates. .2 **Secretary** to update the CHRIS Work Plan accordingly.
4	5.1	ENC Consistency	**IHB** to forward to IHO MS by CL the recommendations to improve ENC consistency, copy to ICCL and CIRM; to also post them on the IHO website.
5	5.2	S-52 Package	.1 **Chair C&SMWG** to draft a letter to inform IMO about IHO's intended revision of the S52 package, to be considered within the planned revision of ECDIS Performance Standards. .2 **IHB** to circulate the revised S-52 main document to IMO, copy to IEC and CIRM, along with the accompanying letter referred to in the above item .1, for comments and confirmation that expurgated "operational" items will be incorporated in relevant non-IHO documents. .3 **IHB** to prepare a revised version of the S-52 main document, from the comments received from IMO, IEC and/or CIRM, for consideration and approval by CHRIS/17. .4 **IHB** to coordinate completion of reconciliation between Hydrographic Dictionary (S-32) and Glossary of ECDIS-related Terms (S-52 App.3) by correspondence; then to handover to S-32 WG for ongoing maintenance.
6	5.3	Printed ENCs	**USA (NOAA)** to continue with current investigations with an intention of reporting to CHRIS/17.
7	6.1	TSMAD Activities	.1 **Chair TSMAD**, in consultation with CIRM, to monitor the preparation of an "options paper" identifying in plain language the proposed changes, options and potential impact of future revisions to S-57 ENC Product Specification (PS); this paper to also canvass options for the short term remediation of shortcomings in S-57 e3.1 ENC PS. To be submitted to CHRIS chair group by 1 October 2004. .2 After endorsement by the CHRIS Chair Group on behalf of CHRIS, the "options paper" to be widely circulated by the **Secretary** to include all possible industry bodies seeking opinion and input from interested non-IHO parties by 1

			March 2005. .3 Taking into consideration any responses, **Chair TSMAD** to monitor the development of an S-57 e3.1 ENC PS to S-57 e4.0 ENC PS roadmap for consideration by CHRIS/17. .4 **Chair TSMAD** to incorporate a new Work Item 2.10 *"Liaison with Non-IHO Constituents*" to the TSMAD work programme. .5 **Chair TSMAD** to expand the scope of TSMAD Work Item 2.9 *"Paper Chart Product Specification*" to include development of Print on Demand (PoD) file transfer guidelines, with target date of September 2005; to be a "medium priority" (M); to amend the TSMAD Work Programme accordingly.
8	6.2	C&SMWG Activities	.1 **Chair C&SMWG** to draft a letter informing all subscribers to the IHO Presentation Library (PresLib) for ECDIS, IMO, IEC/TC80 and other interested authorities of the new PresLib e3.3 and the changes resulting thereof; **IHB** to issue this letter. .2 **Chair C&SMWG** to liaise with ISO/TC211 to seek ways and indicative costs to align S-52 with the ISO standard 19117. .3 **Chair C&SMWG** to prepare a paper raising business case and proposal for IHO funding of C&S work as required, with target date of 1st October 04; **IHB** to then circulate this paper to MS by CL; could possibly be considered at the 3rd Extraordinary IHC (April 2005).
9	6.3	DPSWG Activities	**Chairman DPSWG** to provide revised ToRs for DPSWG for consideration at CHRIS/17.
10	6.5	CSPCWG Activities	**Chairman CSPCWG** to amend the CSPCWG Work Programme by expanding CSPCWG scope to collate national criteria for issuing chart -updating Notices to Mariners.
11	7	Liaison with Industry	**Germany**, as host of CHRIS/17, to devote a day in the middle of the meeting timetable to an "Industry Day" forum; this day will NOT be part of CHRIS/17.
12	8.2	ENC Coverage Catalogue	.1 **IHB** to investigate upgrading IHO website by displaying actual ENC data coverage to enable an enhanced ENC catalogue. .2 **IHB** to make ENC catalogue information available for third party use wherever cost impacts are minimal.
13	11	Open ECDIS Forum	**OEF Board of Advisors** to seek formal funding arrangements from IHB/IHO.
14	13.2	Port Security Limits	**IHB** to seek and coordinate responses from M/S regarding the principle of where administrative borders such as port security limits should be included: chart products or nautical publications or both?