

**18<sup>th</sup> CHRIS MEETING**  
**Cairns, Australia, 25-29 September 2006**

**FINAL MINUTES**

- Notes: 1) Paragraph numbering is the same as in the agenda (Annex D)  
2) A list of acronyms used in this report is provided at Annex A  
3) A list of actions agreed at CHRIS18 is provided at Annex E  
4) All documents referred to in these minutes are available from the CHRIS page of the IHO website ([www.iho.shom.fr](http://www.iho.shom.fr) > Committees > CHRIS > List of CHRIS18 Documents)  
5) Names of contributors are written in full the first time they appear in these minutes. Then, only the surname is shown.

**1. OPENING AND ADMINISTRATIVE ARRANGEMENTS**

Docs: CHRIS18-1A rev.9    *List of Documents (also Annex B)*  
CHRIS18-1B rev.10    *List of Participants (also Annex C)*  
CHRIS18-1C            *CHRIS Membership*

The 18<sup>th</sup> CHRIS Meeting was hosted by the Australian Hydrographic Service (AHS) and took place at the Sheridan Plaza Hotel, Cairns, Australia. The Chair (Capt. Robert WARD, Australia) opened the meeting. Capt. Rod NAIRN, Hydrographer of Australia, welcomed participants in Cairns. He noted the recent WEND and TSMAD meetings, and was hopeful that CHRIS would also be successful in progressing the technical program of the IHO.

The Chair explained how CHRIS operates:

- It has no executive power;
- It provides technical information and guidance;
- It executes many of the technical aspects of the IHO Work Programme; and
- It works by consensus.

He further stressed that CHRIS Members are encouraged to speak and explain their views. It is assumed that silence means agreement.

The Secretary (Mr. Michel HUET, IHB) briefly reviewed the list of documents, noting that some had only been recently received.

Dr. Lee ALEXANDER (Univ. of NH, USA), HGMIO Chair and OEF Representative, kindly offered to serve as Rapporteur for the meeting, which was gratefully accepted.

**2. APPROVAL OF AGENDA**

Docs: CHRIS8-2A rev.8    *Agenda (also Annex D)*

The Chair suggested that agenda items 4.2 *WEND Committee* and 5 *Liaison with Industry* be considered consecutively as they addressed related issues arising from recent meetings of WEND and the ECDIS Stakeholders Forum (ESF). He also suggested adding a new item 12.2 *Title for S-100*. This was agreed.

Outcome:

- The meeting approved the agenda, as amended (see Annex D).

**3. MATTERS ARISING FROM MINUTES OF 17<sup>TH</sup> CHRIS MEETING**

Docs: CHRIS18-3A            *Minutes of CHRIS/17*  
CHRIS18-3B rev.1        *Status / Review of Actions List from CHRIS/17*  
CHRIS18-3C            *Terms of Reference for CHRIS Committee and related Working Groups*

The Secretary reviewed the Status of Actions arising from CHRIS/17, as in Doc. CHRIS18-3B. Most of the actions had been completed. The following additional comments were made regarding pending actions [figures (#) refer to the numbers in the 'ACTION No' column of CHRIS18-3B]:

#17/5/2 (Currency of ECDIS Software) – The Chair mentioned that the CHRIS Chair Group Meeting on 25 September immediately prior to the CHRIS meeting addressed this issue. The outcome was that CHRIS would provide a draft Circular Letter to the IHB on the matter. He provided an outline of initial thoughts proposing that IHO raise a submission to IMO seeking the issue of an IMO Safety of Navigation Circular concerning the maintenance of navigation software updates on ships. The meeting was invited to provide further comments / recommendations. As a result of discussions and input outside the meeting, the CG developed an outline text for consideration by MS centred on invoking SOLAS V Reg. 16 as a mechanism to ensure that software and the relevant editions of standards are used in ships.

Capt. Joe COLLINS (MCA, UK) stated that the UK (and other interested nations) intend to raise this issue more broadly at IMO NAV 53. Mr. Nick LEMON (AMSA, Australia) suggested that some information be provided on how upgrades should be accomplished. UK-MCA (COLLINS) added that the implications and cost could be significant. It was agreed that this was the proper framework. UK-MCA would liaise with CHRIS and IHB on the preparation of the two NAV 53 papers.

Outcome:

- The meeting agreed an outline text as amended (see Annex F).
- **Action 18/1:** Using the text at Annex F as a basis, the **CHRIS Chair Group** to develop a draft Circular Letter inviting MS to support a submission on the maintenance of navigation software updates on ships to IMO at NAV 53 (2007). **IHB** to take subsequent action with the draft CL.

The Chair then raised the issue of how MS should communicate their concerns about the performance of ECDIS and related services. Ing. en chef Michel EVEN (France) suggested that it may be appropriate for IHB to report to the appropriate authorities concerns about any ECDIS related shortcomings. A discussion followed about which authorities these problems should be communicated to.

The Chair summarized: CHRIS may wish to recommend that HOs who become aware of significant shortcomings in ECDIS should inform the relevant authorities accordingly. These may include National Maritime Authorities, classification societies, test agencies, and ECDIS manufacturers. He noted that it is in the interest of all ENC producers to ensure that their ENCs are being displayed correctly in an ECDIS environment, and providing such feedback would help to ensure this.

Outcome:

- The meeting agreed that any reports of identified shortcomings be reviewed at the CHRIS Chair Group meeting (preceding a CHRIS meeting) and discussed at the CHRIS meeting. Those considered significant would be forwarded to IHB, which would then forward details on behalf of CHRIS to the relevant body. In particular, any correspondence should:
  - respect commercial confidentiality;
  - not include any adverse references to any other product, process or service other than that of the addressee;
  - describe the apparent shortcoming and its potential consequences;
  - point out any relevant references, guidelines or standards;
  - invite the addressees to consider the IHO input and take action as appropriate.
- **Action 18/2:** **CHRIS Chair Group** to collate any feedback received about identified shortcomings related to the work of CHRIS, and present proposals to CHRIS.

#17/5/6 & 17/5/7 (S-100 & S-101) – The Chair mentioned that these issues would be addressed during the meeting (see Section 5).

#17/6/1 (Linear Depth Areas) – Chairman CSMWG (Mr. Mathias JONAS, Germany) reported that this action has been completed.

#17/6/4 (Pick Reports) – It was agreed that this matter would be addressed by CSMWG rather than SNPWG, as was initially planned (see also Section 6.2).

#17/6/5 (PL Maintenance) & 17/6/6 (Symbols Registry) – Chairman CSMWG (JONAS) mentioned that these issues would be addressed during the meeting (see Section 6.2).

#17/8/3 (NP3 Presentation) – Chairman HGMIO (ALEXANDER) explained that UNH and HGMIO are still willing to assist, but no formal request has been made. Action still pending.

Outcome:

- **Action 18/3** (carried over from CHRIS/17): **Chairman SNPWG** (Mr. Johannes MELLES, Germany), in liaison with **Chairman HGMIO** (ALEXANDER), to seek assistance from academia and industry in developing appropriate standards and guidelines for NP3 presentation, through a suitable research project.

#17/11(OEF) – Dr. ALEXANDER reported that no request for funds was addressed to the IHB during 2006.

#17/13(Inland ECDIS) - Dr. ALEXANDER mentioned that the Inland ENC Harmonization Group (IEHG) is actively involved and participating in TSMAD work.

#17/15(ISO-IHO MoU) – Radm Ken BARBOR (IHB) explained that ISO felt that the Class A liaison status of the IHO before ISO/TC211 and the accreditation of ISO as an observer to the IHO defined sufficient rights and responsibilities of each organization in their mutual dealings and that an MoU was not warranted. Action closed.

#17/16 (DGIWG-IHO CA) – IHB (BARBOR) mentioned that this would be discussed during the meeting (see Section 4.6).

#17/17 (ECS Standard) - It was mentioned that an ECS Performance Standard was recommended for approval at IMO NAV in July 2006.

#17/19 (IEC-IHO MoU) - IHB (BARBOR) explained that IEC felt that the Class A liaison status of the IHO before IEC/TC80 and the accreditation of IEC as an observer to the IHO defined sufficient rights and responsibilities of each organization in their mutual dealings and that an MoU was not warranted. Action closed.

#### **4. DECISIONS OF OTHER IHO BODIES AFFECTING CHRIS**

##### **4.1 IHO Strategic Planning WG (SPWG)**

*Docs: CHRIS18-4.1A rev.1 CHRIS Chairman's Report to SPWG on Implementation of HSSC*

The Chair reported that SPWG had endorsed his paper. Furthermore, Proposals PRO 8 and PRO 9 at the end of the paper, relating to the establishment of HSSC in 2009, will be considered at the 17<sup>th</sup> IHC in 2007. He noted that it is not necessary for the revised IHO Convention to come into force for this to occur.

There were no comments from the meeting.

Outcome:

- The meeting took note of the report.

## 4.2 WEND Committee

*Doc: CHRIS18-4.2A Actions from 10<sup>th</sup> WEND Committee Meeting*

IHB (BARBOR) provided a brief overview. He conveyed WEND's concern about achieving ENC coverage / distribution in order to enable IMO to establish mandatory ECDIS carriage requirements in the near future. The Chair noted that WEND has proposed that the CHRIS *Principles and Set of Procedures for Making Changes to IHO Standards* (see CHRIS18-4.2A, Annex 3) be considered at the 17<sup>th</sup> IHC for application across the IHO and that CHRIS be invited to support this. He suggested that this was an important development and it was therefore appropriate that CHRIS review its published process to ensure that it was appropriate both for CHRIS and for wider application in the IHO.

Australia (NAIRN) mentioned that WEND/10 also dealt with the issue of what is an "official ENC". The result was a WEND/10 resolution that provided additional clarification (see CHRIS18-4.2A, Annex 1). He added there was some concern about the implications of S-63 (IHO Security Scheme).

The Chair reminded the meeting that CHRIS is not subservient to WEND or the ESF, but to the IHO MS via the IHC. However, CHRIS needs to take note of the issues that have been raised by WEND and/or the ESF.

Mr. Peter JONES (UK) believed that CHRIS *Principles and Set of Procedures for Making Changes to IHO Standards* should be generic so they can apply to HSSC in the future. Dr. Mathias JONAS (Germany) felt there needs to be some trust that the WGs of CHRIS are doing things in the spirit of the principles. The Chair concurred and felt that perhaps a "scoping statement", prefacing the document, was needed.

Mr. Robert SANDVIK (Norway) believed that there also needs to be some concern about the impact of such principles & procedures on end-user systems. The Chair clarified that the justification process should include an assessment of workload and financial impacts. Mr. John SPITTAL (New Zealand) stated that there is an administrative overhead to keep track of any change process, and that it is very time-consuming. Australia (NAIRN) also mentioned the importance of cost and practicality of making changes.

The Chair proposed that a revision of the CHRIS principles & procedures (Annex 3 to CHRIS18-4.2A), limited to substantive changes, could be dealt with by a small "review & revision" drafting group. This was agreed and the CHRIS Vice Chair, Mr. Parry OEI (Singapore), kindly accepted to lead such a drafting group which would also:

- include a scoping statement at the beginning of the document;
- adapt the existing text to the future IHO structure, i.e. HSSC and IRRC;
- determine if procedures, as described in the document, are efficient and workable.

UK (JONES), Norway (SANDVIK), USA-NOAA (Mr. Mike BROWN), Germany (JONAS), Italy (LCdr. Massimiliano NANNINI) and UK-MCA (COLLINS) volunteered to take part in the group.

Subsequent Output from the Drafting Group: On the following day, the CHRIS Vice Chair reported on the Drafting Group work and provided an overview of an initial revision that had deliberately been made generic for wider application than just CHRIS. Mr. Richard MURCOTT (New Zealand) explained the development of a framework time-line for IHO standards. Mr. Michael BERGMAN (RTCA) provided a lifecycle and project timeline diagram (Gantt chart). To demonstrate the validity of the proposed development framework, HGMIO (ALEXANDER) showed a table that tracked the historical development for three IHO ECDIS-related standards, i.e. S-52, S-57, and S-63.

The meeting reviewed the Drafting Group work and decided that it should revert to a CHRIS specific text, which IHB could use as a basis for any subsequent IHC proposal. The draft was revised and the necessary substantive changes were agreed. The Secretary was instructed to finalise the document

to ensure that it referred exclusively to CHRIS. Subject to these editorial changes, the meeting agreed that the new text would be used by CHRIS henceforth. The resulting *CHRIS Principles and Procedures for Making Changes to IHO Technical Standards and Specifications* are provided at Annex G and include:

- Typical Lifecycle of an IHO Standard;
- Instructions for the Submission of Reports and Proposals for Consideration by CHRIS; and
- Guidelines for the Evaluation of Proposed New Work Items for CHRIS and its Subordinate Bodies.

The meeting also recommended that the document at Annex G be used as the basis for any IHO-wide implementation of the principles and procedures that are included in this text.

Outcome:

- The meeting adopted the revised *CHRIS Principles and Procedures for Making Changes to IHO Standards and Specifications* (see Annex G).
- **Action 18/4: IHB** to consider using the revised *CHRIS Principles and Procedures for Making Changes to IHO Standards and Specifications* as a basis for a proposal to be put before the 17<sup>th</sup> IHC, for their IHO-wide implementation.

### 4.3 IHO Seminar 2005 on Spatial Data Infrastructure

*Doc: CHRIS18-4.2A Conclusions of the IHO Seminar 2005 on SDI*

Australia (Mr. Gordon HOMES) provided a brief overview of the seminar from a participant's perspective. The Chair asked what should be the role that CHRIS should play in SDI?

NZ (SPITTAL and MURCOTT) reported that NZ already has an advanced approach to spatial data infrastructure that goes well beyond hydrography. They do not believe that CHRIS really has a role since SDI must be implemented on a national and perhaps regional basis and depends on national perspectives. Easy interoperability and sharing spatial data is already a goal of S-100 and therefore serves the aims of SDI. Australia-AMSA (LEMON) mentioned that SDI was raised at the recent meeting of IALA on e-Navigation. UK (GREENSLADE) believed that support of SDI is being addressed by TSMAD already through S-100 and related activities. S-100 is being aligned with the ISO 19100 series of standards dealing with geospatial data.

IHB (HUET) referred to CL 44/2006 and reminded that IHB would organize an IHO Marine SDI workshop at the Geomatica 2007 Conference in Havana, Cuba, in February 2007. He encouraged Central and South America HOs to attend.

Outcome:

- The meeting noted the conclusions of the IHO Seminar 2005 on SDI. CHRIS will ensure that TSMAD continues to monitor and incorporate relevant aspects of SDI in its work, particularly in relation to the development and implementation of S-100 as well as to ensure compatibility and interoperability with other SDI initiatives.

### 4.4 IMO

*Doc: CHRIS18-4.4A Status of Electronic Charting Issues before IMO*

IHB (BARBOR) provided a brief summary of this report. At NAV 52 in July 2006, it was decided that the revised IMO Performance Standards for ECDIS would be submitted to MSC 82 in December 2006 for adoption. NAV 52 also adopted a revised structure for the IHO on-line catalogue of available official charts, i.e. ENC's; RNC's where ENC's are not available; appropriate portfolio of up-to-date paper charts for areas where ECDIS is operated in RCDS mode; and an index of all available paper charts.

It was generally accepted that any mandatory carriage requirement for ECDIS should be linked to the adequate availability of ENC's. E-Navigation strategy was another topic discussed.

The Chair noted that para. 7 of the report asked that CHRIS identify any specific action that needs to be taken. There was none.

Outcome:

- The meeting took note of the report.

### **Emergency Wreck Marking Buoy**

Doc: CHRIS18.4.4B      IMO SN Circ. on Emergency Wreck Marking Buoy introduced by IALA

IHB (HUET) briefly explained that IALA has introduced a new Emergency Wreck Marking Buoy on a trial basis, which was reported at NAV 52, and suggested there may be a charting / display matter for CSPCWG and C&SMWG to consider. Chairman CSPCWG (JONES) was under the impression that there would be a long trial period by IALA.

During discussion, it became uncertain whether this buoy will be a very temporary or a more permanent buoy. In other words, will the buoy actually be in place long enough to be reflected on a chart? Also, how does this relate to NtoM action? The Chair suggested that some clarification is required from IALA. He also questioned whether IALA should provide, under the IHO-IALA Cooperation Agreement, advanced warning of any initiatives that have an implication for hydrography or charting. IHB (BARBOR) confirmed that the Agreement could be interpreted as requiring such liaison.

Outcome:

- The meeting agreed that CSPCWG, TSMAD and CSMWG should address the Emergency Wreck Marking Buoy issue as an urgent work item, subject to clarification from IALA.
- **Action 18/5: IHB** to contact IALA:
  - a. seeking clarification whether it is expected that the Emergency Wreck Marking Buoy will be shown on charts, and
  - b. drawing attention to the Cooperation Agreement between the two organizations and encouraging greater liaison and advance warning on similar IALA initiatives in the future.
- **Action 18/6: Chairmen CSPCWG, TSMAD and CSMWG** to include "Charting / Display of Emergency Wreck Marking Buoy" in the work programmes for their WGs, as a matter of urgency.

### **e-Navigation**

Doc: CHRIS18-4.4C      *Development of e-Navigation Strategy – MSC 81/23/10*  
CHRIS18-4.4D      *e-Navigation Core Elements – IMO Correspondence Group on e-Navigation*

IHB (BARBOR) gave a brief explanation about IHO involvement. The overall goal for IHO should be to provide an ENC that is interoperable with other e-Navigation components. Australia-AMSA (LEMON) reported that he participated in an IALA e-Navigation meeting. In particular, a "working" definition of e-Navigation has been developed by IALA:

*e-navigation is the collection, integration, and display of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, safety and security, and protection of the marine environment.*

Germany (JONAS) felt that the term "interpretation" should be included in this definition, so as to read: *e-navigation is the collection, integration, interpretation, and display of maritime information ....*

HGMIO (Alexander) expressed disappointment that the IMO paper at CHRIS18-4.4C did not include a definition.

Outcome:

- The meeting took note of the report and, in particular, the fundamental role that ENC coverage will play in e-navigation. CHRIS will continue to monitor e-Navigation developments to ensure that work items of CHRIS and its WGs support e-navigation to the maximum extent possible.

#### 4.5 ISO/TC211 (Geographic Information / Geomatics)

Chairman TSMAD (Greenslade) gave a brief overview. ISO/TC211 is slow to complete its standards, and this impacts the work of TSMAD. ISO copyright policies (no more than 10% of an ISO standard can be reproduced) are of concern. However, this should not adversely affect the S-100 target completion date of end 2007.

Outcome:

- The meeting took note of the report.
- **Action 18/7: Chairman TSMAD** to prepare a draft letter for IHB to forward, seeking clarification from ISO and a relaxation of the 10% rule with respect to using ISO copyright material in IHO standards, which in turn will be registered with ISO.

#### 4.6 NATO-DGIWG (Digital Geographic Information WG)

*Doc: CHRIS18-4.6A Cooperation Agreement between IHO and DGIWG*

IHB (BARBOR) provided a brief summary. Following CL 4/2006 forwarding a draft IHO-DGIWG Cooperation Agreement, comments were received from MS and a revised draft has been prepared, as contained in CHRIS18-4.6A. DGIWG has completed its task on S-57 – DNC Harmonization, and the Interoperability WG has been disbanded. Accordingly, this WG is no longer reflected in the revised draft CA. It was agreed that a CL would be sent to MS asking for endorsement of the revised draft CA. On request from NZ (SPITTAL), it was confirmed that there will continue to be both IHO and DGIWG participation in ISO TC211.

Outcome:

- The meeting took note of the report and endorsed the revised text of the draft IHO-DGIWG Cooperation Agreement.
- **Action 18/8: IHB** to send the revised draft IHO-DGIWG Cooperation Agreement by CL, asking for its endorsement by MS.

#### 4.7 IEC TC80/WG7 (ECDIS and ECS)

*Doc: CHRIS18-4.7A Status of IEC Standard 62376 on ECS*

USA-NOAA (BROWN) presented the report. The IEC standard 62376 specifies the minimum operational and performance requirements and methods of testing for ECS. It is planned that a committee draft for voting (CDV) be released by the end of 2006. He noted that there are three different classes of ECS. Potentially, from their performance requirements, ECS could be considered adequate backup arrangements for ECDIS. HGMIO (ALEXANDER) clarified that, while IEC 62376 contain both ECS performance standards and test standards, IMO has not adopted any performance standards for ECS. Germany (JONAS) wondered whether there are equipment or display requirements in the IEC standard. He believed that this is a standard meant for smaller, non-SOLAS

vessels. He also felt it is not clear which information should be provided to IHO MS about this standard. Singapore (OEI) wondered how IMO would view an IHO position on ECS and whether this would further complicate mandatory ECDIS carriage.

USA-NOAA (BROWN) gave a brief explanation of what is the definition of an ECS:

*Navigation information system that electronically displays vessel position and relevant nautical chart data and information from the ECS database on a display screen, but does not meet all the IMO requirements for ECDIS and is not intended to satisfy the SOLAS Chapter V requirement to carry a navigational chart.*

He further stressed that an ECS is not intended to meet SOLAS V chart carriage requirements. Also, regarding vector data presentation, there is reference to S-52 or displaying chart data using “traditional paper chart symbology”.

The Chair opined that IHO does not have a position on ECS or direct involvement in ECS at this stage in the process. If IHO wishes to have a collective view on ECS, then CHRIS could propose such a position on the chart-related aspects of this IEC standard. However, there are some considerations in terms of what course of action to take and whether it would have adverse consequences, e.g.:

- a) do nothing.
- b) develop a policy / position.

The meeting considered that an IHO position was not appropriate at this stage, but that individual MS may wish to have input to IEC through their respective national bodies. It was also suggested that it may be useful if a copy of the draft standard could be made available to MS for consideration.

Outcome:

- The meeting took note of the report.
- **Action 18/9: IHB** to look into the possibility of including a copy of the latest draft of IEC 62376 with CHRIS/18 minutes.

#### 4.8 Capacity Building Committee (CBC)

*Docs: CHRIS18-4.8A IHB Letter CBC-1 of 21 August 2006*

Referring to the above letter, the Chair commented that at present, there are no specific items on the CHRIS Work Program that relate directly to capacity building. He encouraged MS who participate in CHRIS and its WGs to maintain an awareness of the IHO capacity building program and to identify any capacity building issues as they arise.

Outcome:

- The meeting took note of the report.

#### 5. LIAISON WITH INDUSTRY / STAKEHOLDERS

*Doc: CHRIS18-5A 2<sup>nd</sup> ECDIS Stakeholders Forum: Follow-on Actions by IHO*

IHB (BARBOR) provided an overview of the main issues raised, i.e. ENC coverage, availability, consistency, cost, distribution, etc. There were 18 action items that resulted from ESF/2, six of them pertaining directly to CHRIS. In particular, he mentioned there was lengthy discussion about the impacts of S-100 and S-101. He also mentioned that WEND/10 was in favour of the OEF continuing.

Australia (NAIRN) mentioned that the next ESF would be held in Rotterdam, Netherlands, in order to attract more mariner participation. He pointed out that the biggest threat was potential opposition by some in the shipping industry to mandatory ECDIS carriage due to the required use of ENCs. HGMIO

(ALEXANDER) mentioned that most stakeholders were quite pleased with ESF/2 in terms of active dialogue and exchange of views and opinions.

### **Use of SCAMIN**

Referring to action item #5 of the above document, i.e. “*IHB to invite CHRIS to provide guidance to HOs on the use of SCAMIN for providing for a clear display*”, Radm Christian ANDREASEN (USA-NGA) felt that this is definitely a matter that CHRIS should address. Currently, features are displayed differently at different scales. There needs to be a common display, worldwide. Barrie GREENSLADE (UK) reminded that guidance had been prepared previously (re: IHO Circular Letter 47/2004) and perhaps should be made known again or improved. He stated that at best, SCAMIN could be dealt with in a semi-automatic manner, but there is still a significant element of individual judgement required. Potentially, this SCAMIN consistency issue will be dealt with better with S-101. Mr. Chris ROBERTS (Australia) mentioned that the IHO website is being upgraded such that all ECDIS-related publications will be accessible from one location.

The Chair asked if SCAMIN guidance should be mandatory – rather than just recommendations as in CL 47/2004? Germany (JONAS) wondered who currently uses the guidance and who does not? The Chair then asked the meeting to consider whether it would be useful to contact ENC producers (HOs) and find out whether SCAMIN guidance is followed. He further asked the TSMAD Chair (GREENSLADE) whether there were any additional instructions or guidance that could be written to assist. The TSMAD Chair indicated that the current guidelines are adequate and the problem is more that the guidelines are not always followed. This view was generally shared by the meeting participants.

The Chair summarized: The existing SCAMIN guidelines “*Recommendations for Consistent ENC Data Encoding*”, as in Circular Letter 47/2004, are adequate but do not appear to be used widely or consistently. Another CL is required, reminding Member States that IHO guidance on the use of SCAMIN exists and should be followed, and stressing the consequences of not applying SCAMIN appropriately. RENCs would be in copy of this new CL.

#### Outcome:

- **Action 18/10: IHB** in conjunction with **Chairman TSMAD** to prepare a Circular Letter reminding IHO Member States that IHO guidance on the use SCAMIN exists (re: CL 47/2004) and should be followed, and stressing the consequences of not applying SCAMIN appropriately.
- **Action 18/11: IHB** to continue revision of the IHO website to enable all ECDIS-related documents to be accessible from an identifiable central location.

### **Differences across cell boundaries**

Referring to action item #6 of CHRIS18-5A, i.e. “*IHB to invite CHRIS to determine an appropriate way in which to ‘highlight’ inconsistencies between adjacent ENC’s*”, Germany (JONAS), also Chairman CSMWG, suggested that “inconsistencies” are really deficiencies and it was an inappropriate term to use. He further felt the problem pertained to ENC cells of adjacent MS. He suggested a better wording would be “... to ‘highlight’ areas where differences may occur across cell boundaries”. Also, there is the matter of how to show a new large-scale ENC superimposing an older small-scale ENC. He felt some testing would be needed before deciding on how this can be resolved and informed that this issue will be on the agenda of the next CSMWG meeting (June 2007).

USA-NOAA (BROWN) pointed out that many of these ENC “inconsistencies” are due to ENC’s being created from digitizing existing paper charts. Perhaps compilation scales need to be linked to radar range scales rather than paper chart scales. Aligning with radar may help to overcome this problem. Germany (JONAS) pointed out that similar to paper charts, this is nothing new and cannot be easily solved. Singapore (OEI) questioned whether this is really a CHRIS issue. In many respects this is a “heritage” issue carried over from paper charts. He believed that this problem might be best addressed by Regional Hydrographic Commissions. Australia (ROBERTS) and HGMIO (ALEXANDER) felt that this problem cannot be solved by displaying visual clues of cell boundaries, which would result in more screen “clutter”.

The Chair summarized: The meeting needs to identify:

- 1) if highlighting differences across cell boundaries is a justifiable observation by ESF/2?
- 2) if so, is there a reasonable prospect of finding a technical solution, i.e. would developing more symbology actually help?

He felt the real issue was how to achieve ENC consistency.

UK (Capt. Vaughan NAIL) brought up the matter of overlapping ENCs between adjacent MS. Australia (ROBERTS) pointed out there should not be overlapping cells of the same Navigational Purpose, according to the ENC Product Specification. Norway (SANDVIK) explained that this is a matter of concern of RENCs, but it is up to MS to resolve. UK (GREENSLADE) mentioned that a 5m overlap is allowed, but ECDIS will select only one cell.

It then became apparent that the issues raised by ESF/2 may well relate to adjacent data rather than adjacent cells. Further discussion revealed that there were other matters that could cause apparently inconsistent display of data and that highlighting either or both cell boundaries or data boundaries may cause more rather than less confusion. While Sweden (Mr. Hans ENGBERG) felt that discussion of this issue was fruitless, UK-MCA (COLLINS) believed that the users (mariners) think this is an important issue. USA-NOAA (BROWN) believed that the underlying issue was that IHO "recommends" adherence to specifications for paper charts, which allows deviations, while there are specific "requirements" for ENCs.

The Chair summarized: CHRIS is unable to determine whether the areas in question relate to cell [ENC] or data boundaries. In either case, the introduction of additional symbology would not necessarily highlight the relevant areas, nor be immediately available to the mariner due to such things as the status of the ECDIS software, or the particular user interface in the equipment. Notwithstanding, the IHO must continue to encourage ENC producers to conform to the compilation guidelines published under CL 47/2004. The goal should be to eliminate the current presentation issues cause by ENC inconsistencies, rather than by highlighting them.

Outcome:

- Introduction of new symbology to highlight differences across cell boundaries is not supported. Instead, focus should be on resolving the current presentation issues caused by ENC inconsistencies, by proper implementation of the compilation guidelines published under CL 47/2004, and this is reflected in Action 18/10. No further action is required.

**S-100 Information Paper**

Reference was then made to action item #10, i.e. *IHB to invite CHRIS to update the IHO Information Paper on S-57 Ed.4, taking into account the current development of S-100.* Chairman TSMAD (GREENSLADE) reported that he had already begun the process of revising the Information Paper.

The meeting agreed that a Circular Letter should be published as soon as possible, drawing attention to the Information Paper being revised and emphasising that the publication of S-100 will have no impact on ECDIS. The CHRIS Chair Group prepared an outline of the key points to be covered in the CL. This was subsequently reviewed by the meeting and additional comments were agreed.

Outcome:

- **Action 18/12: CHRIS Chair Group** to prepare a draft Circular Letter, referring to the S-100 Information Paper under revision and stressing that the publication of S-100 will have no impact on ECDIS. **IHB** to take subsequent action with the draft CL.

- **Action 18/13: Chairman TSMAD** to coordinate the updating of the IHO Information Paper on S-57 Ed.4, taking into account the current development of S-100. **IHB** to subsequently post the revised paper on the IHO website and inform MS by CL.

**Study of Impact of S-101**

Referring to action item #12, i.e. *IHB to invite CHRIS to conduct a study of the impact of S-101 (future ENC Product Spec) on all ECDIS Stakeholders*, the Chair reported that the CG had discussed this topic in detail before the meeting. Chairman TSMAD (GREENSLADE) confirmed that S-101 will in effect be an update of S-57e3.1.1, but with practical and beneficial improvements. There will not be sweeping or major changes. The plan is to have a draft S-101 ready by end of 2008. Stakeholders will be actively engaged in the development process. There will be extensive testing on ECDIS software and equipment. Formal implementation will not be until at least 2012.

IHB (BARBOR) pointed out that there was both concern and confusion at ESF/2 and WEND/10 about S-100 and S-101. He said he had explained that S-100 would have no impact on ECDIS at all, and that S-101 was planned for the future and meant to provide improvements, not an entirely new approach. UK-MCA (COLLINS) explained the concern about effects on IMO consideration of mandatory ECDIS carriage. Any confusion about the possible impact of either S-100 or S-101 should be avoided.

UK (GREENSLADE) reiterated that IHO will actively seek Stakeholders' input, i.e. ENC producers, OEMs, users, etc., during the S-101 development process. USA-USCG (Mr. Jim RADICE) felt that ECS users are equally important, and should be involved as well. He wondered if the ESF is primarily for ECDIS users. The Chair clarified that ESF is open to all interested in ECDIS and electronic charting. However, it is the S-57 ENC's for ECDIS that is what IHO is responsible for (to meet SOLAS requirements), not ECS data.

UK-MCA (COLLINS) asked about backward compatibility of S-101 being used in existing ECDIS equipment. UK (GREENSLADE) responded that ensuring some form of "backward compatibility" is a key issue. HGMIO (ALEXANDER) made the point that the goal is for S-101 ENC to perform better than the currently "frozen" S-57 ENC, not to replace it. RTCA (BERGMAN) commented that "downward capability" is a key point in the aviation industry. The aviation industry wants any changes to be new advantages, not simply a change. Germany (JONAS) pointed out that it is important to stress that HO's will continue to produce S-57 data even with the newer product specification in place.

Outcome:

- The meeting agreed that the need to produce a formal Impact Statement was not possible in the circumstances but it would be helpful to provide a statement indicating the strict terms under which S-101 is being developed and will be considered for implementation. This statement will be contained in a CL to be prepared by the CHRIS CG.

As a result, the CG prepared an outline of the key points to be covered in the CL. This was subsequently reviewed by the meeting and additional comments were agreed. New Zealand (SPITTAL) felt that the outline was rather timid and should be more pro-active. UK-MCA (COLLINS) had concerns about the statement on "backward compatibility". UK (GREENSLADE) explained that backward compatibility is achievable. HGMIO (ALEXANDER) suggested that by the year 2012, ECDIS equipment will be "dual fuel", i.e. they will be able to use both S-57 and S-101 ENC's. Australia-AMSA (LEMON) suggested that it may be useful to have a more definite transition between S-57 to S-101, through a change-over date. USA-NOAA (BROWN) believed a solution to backwards compatibility may be able to leverage off principles used in the aviation industry and explained by RTCA (BERGMANN). An S-101 ENC would contain both core S-57 data, which could be used in legacy systems, and new S-101 extensions / functionality.

The Chair emphasised that it is important to provide some feedback to MS (and the wider stakeholder community) on what is intended, i.e. guiding principles. In particular it needs to be clear that S-101 ENC's will be compatible with current ECDIS equipment, i.e. backward compatible. He presented an outline of the key points to be included in the CL on S-101. It would stress that CHRIS is acutely aware of avoiding adverse impacts on ECDIS and the maritime community through the development of S-101. The key message in the CL will be that:

- The guidance to TSMAD and the intent of the IHO is that S-101 ENC's will be compatible with S-57 based ECDIS equipment.

- S-101 based ECDIS will be able to use S-57 ENC's which, therefore, will not become instantly obsolete.

Outcome:

- The meeting agreed the outline points of the proposed CL, as stated above.
- **Action 18/14: CHRIS CG** to prepare a draft CL on S-101. **IHB** to take subsequent action with the draft CL.

## 6. REPORTS BY CHRIS WORKING GROUPS

### 6.1 Transfer Standard Maintenance and Application Development (TSMAD)

*Docs: CHRIS18-6.1A Report of TSMAD*  
*CHRIS18-6.1B IHB Letter on S-58 ENC Validation Checks*  
*CHRIS18-6.1C rev.2 Enhancements Required to encode S-57 Edition 3.1.1 ENC Data*

Outgoing Chairman TSMAD (BROWN) gave an update on TSMAD activities. He mentioned in particular that the development of e3.1.1 of the ENC Product Specification was completed and finalized at TSMAD/13 (Wellington, New Zealand) on the preceding week. He also drew attention to the TSMAD work plan and reported that the following work items had been completed or were well advanced:

- 2.1 Develop new Feature Data Dictionary
- 2.3 Develop extensions for imagery and gridded data
- 2.5 Implement relevant metadata standard
- 2.6 Develop S100 Core Components

He conveyed TSMAD's proposal that the Data Quality Working Group be reactivated to undertake data quality work related to S-100 and tabled proposed Terms of Reference for the DQWG. Australia (ROBERTS) pointed out that, currently, TSMAD does not have sufficient experts to deal with data quality.

The Chair noted this concern and suggested that MS be asked to recommend a suitable DQWG Chair. The proposed ToR were reviewed and approved by the meeting after some adjustments had been made (see Annex H).

Outcome:

- The meeting agreed that DQWG should be re-established and approved ToRs for the DQWG, as at Annex H.
- **Action 18/15: IHB**, in consultation with **Chairman TSMAD**, to seek nominations for DQWG Chair.

HGMIO (ALEXANDER) recommended that, for the three new sub-WGs, specific mention be made as to which standard was involved, i.e. S-100, S-58 or S-57. He also clarified that active participation in TSMAD of other experts was encouraged, e.g. from the Inland ENC Harmonization Group.

Regarding e3.1.1 data, the Chair asked how will it impact e3.1 ECDIS operating software? Outgoing Chairman TSMAD (BROWN) responded that an unknown object, e.g. PSSA or ASL, would be shown as a "?". Using a "Pic report", a user could then query this object. He noted however, based on tests on several type-approved ECDIS at various test facilities, that different ECDIS equipment display this differently. On request from HGMIO (ALEXANDER), it was confirmed that the results were not sent back to the ECDIS manufacturers. Germany (JONAS) felt that CHRIS needs to approve a feedback mechanism. Incoming Chairman TSMAD (GREENSLADE) suggested that perhaps CHRIS should establish procedures for this.

The Chair inquired about the consequences of releasing 3.1.1 data, and not getting the desired / expected results. UK-MCA (COLLINS) believed that this type of shipboard updates to ECDIS needs some type of audit or tracking process. This could be similar to what occurs with S-63. Outgoing

Chairman TSMAD (BROWN) mentioned that the things that are added are regulatory in nature. He also pointed out that no ECDIS failed when e3.1.1 data was used, only that the objects were not displayed as expected.

The Chair opined that even with the anticipated “implementation date” of 2008 for S-57 e3.1.1, several steps are required:

- There will not be an “instant” compilation of e3.1.1 ENC by HOs.
- There is time to inform IMO on the status and recommended mechanism for implementation.
- ECDIS OEMs and mariners must be informed of the need for upgrade.
- There is a need to establish a registration process, similar to that used for S-63.

UK (NAIL) pointed out that S-63 requires some form of registration process. This could be used by OEMs to track their user base.

Referring to an earlier topic [see Section 3, #17/5/2 (Currency of ECDIS Software)], the Chair raised the issue of who should inform OEMs, test houses, etc. about shortcomings related to the work of CHRIS, e.g. on e3.1.1? Ideally, this would be done in a relatively neutral manner. IHB, Chair of CHRIS and Chairs of WGs are possible options. NZ (SPITTAL) felt that this should be informally done by WG Chairs. Germany (JONAS) believed that it would be more official if done by IHB. Outgoing Chairman TSMAD (BROWN) expressed concerns about IHO being seen as an ECDIS “help desk” or test house.

The Chair stated that the intent is for WGs to prepare the information on identified shortcomings, but that information should be sent to OEMs under the authority of IHO. IHB (BARBOR) had concerns about policy implications of IHB communicating with OEMs. Germany (JONAS) felt that, while it is important to maintain open communications with OEMs, this is an issue that requires more formal notification.

Outcome:

- The meeting confirmed Action 18/2 for CHRIS Chair Group to collate any feedback received, and present proposals to CHRIS.
- The meeting took note of the report and endorsed the continuance of the TSMAD Work Plan.
- **Action 18/16: Secretary** to incorporate a new standing agenda item for CHRIS meetings: “*Review of Potential Feedback Items for ECDIS Stakeholders*”.

## 6.2 Colour and Symbol Maintenance (CSMWG)

*Docs: CHRIS18-6.2A rev.1 Report of CSMWG*

Chairman CSMWG (JONAS) reported on CSMWG activities, drawing attention to several points as below.

### Symbolization of unknown objects

With the current rules of PresLib 3.3, symbolization is done as follows:

- unknown object, i.e. non-existent in ENC Product Specification, by question mark;
- known object with invalid attribute, by default symbol for the object class;
- known object with valid attribute but invalid attribute value, by default symbol of the object class / attribute class (type approval matter).

He further mentioned that detection of an unknown object / invalid attribute / invalid attribute value, during loading of the data, is not recorded in the log file by some of the tested devices (an IEC matter). He added that the inform and/or text description attribute of an unknown object / known object carrying invalid attributes or attribute values, is not user accessible with some of the tested devices (an IEC matter).

As a result, IEC and type-approval authorities should be advised on the need to test for this. However, he was unsure how to proceed. Should this be done by CSMWG, CHRIS or IHB? He suggested that, perhaps this action should be combined with new objects by TSMAD. HGMIO

(ALEXANDER) explained what is currently planned in terms of the reactivation of IEC/TC80/WG7 (ECDIS).

Outcome:

- **Action 18/17: Chairmen of CSMWG and TSMAD** to collate information on e3.1.1 matters requiring consideration by IEC, and present it to CHRIS/19 for endorsement, prior to forwarding to IEC/TC80 by late 2007, for inclusion in the next edition of IEC 61174.

**Linear depth contours**

Chairman CSMWG recommended the continuation of the coding of linear depth contours by HO's until future PresLib 3.4 has been implemented by a majority of OEMs. He also suggested that TSMAD issue an "Encoding Bulletin" on this matter.

Outcome:

- The meeting agreed that linear depth contours be retained until PresLib e3.4 enters into force.

**Symbol Presentation Registry**

Chairman CSMWG explained that an IHO Symbolization Registry System was under development by a consultant, paid from the PresLib Fund managed at the IHB (total cost of €12.000). He mentioned that this development also benefits TSMAD work on S-100 and will allow other IHO WGs to establish their own registers.

Outcome:

- The meeting recommended that IHB continue to financially support the ongoing maintenance of the PresLib under contract.

**Compilation of deferred amendments and reorganization of S-52**

Chairman CSMWG reported that a deferred amendment to PresLib e3.3 was under preparation, which will include all amendments adopted by CSMWG since publication of e3.3 (March 2004). It will be posted on the IHO website. He also suggested that the current state of S-52 would benefit from revision into a harmonized document, which could be accomplished before CHRIS/19 in end of 2007, as follows:

- Removing S-52 App.1 (ENC Updating), absorbed by the revised IMO PS, and App. 3 (ECDIS Glossary), absorbed by the IHO Hydrographic Dictionary S-32.
- Merging S-52 App.2 with S-52 main document, to form the new main S-52 document.
- Renaming S-52 to 'Colours & Symbols Specifications for ECDIS Presentation Library'
- Issuing as S-52, Edition 3.4 by end of 2007

USA-NOAA (BROWN) asked if there was any feedback from the new Hydrographic Dictionary (S-32), regarding the incorporation of the ECDIS Glossary (S-52 App. 3), which included C&S-related terms. IHB (HUET) replied that he had provided the ECDIS Glossary to the Chairman of the Hydrographic Dictionary WG, and would check the current status of inclusion of ECDIS-related terms into S-32.

Outcome:

- The meeting agreed that S-52 be reorganized as proposed by CSMWG and renamed *Colours & Symbols Specifications for ECDIS Presentation Library*, as part of the CSMWG work programme.
- **Action 18/18: Chairman of CSMWG** to monitor the development of e3.4 of S-52, for presentation to CHRIS/19.
- **Action 18/19: Secretary** to ascertain that ECDIS-related terms are incorporated in S-32 before e3.4 of S-52 is published.

### **Implementation Roadmap**

Chairman CSMWG presented an implementation roadmap for e3.4, proposing concurrent entry into force of S-52 e3.4 and S-57 e3.1.1, on 1 January 2008.

The Chair opined that introducing new versions of IHO standards are substantive changes, and must therefore be put to MS for approval. He added that it is increasingly obvious that there is a need for proper and consistent wording as to the various phases of introduction of new standards. This should be resolved when Action 18/4 on *Principles and Procedures for Making Changes to IHO Technical Standards and Specifications*, has been completed. Australia (ROBERTS) felt that implementation of both PresLib e3.3, which has already been released, and e3.4 needs to be addressed.

#### **Outcome:**

- The meeting supported the proposed implementation roadmap and concurrent entry into force of S-52 e3.4 and S-57 e3.1.1, on 1 January 2008.

### **Limited abilities of CSMWG to provide input to future S-100 based products**

Chairman CSMWG stressed the limited abilities of CSMWG in its current shape to contribute to portrayal of future S-100 based products and suggested that this may be a good area for expert contributors. Portugal (Lt. António PINHEIRO) believed that mariners want to see standard symbology and not entirely new visual presentations.

The Chair highlighted that there currently is a low participation rate by HOs in the work of CSMWG. This also pertains to future symbology development. UK (GREENSLADE) pointed out that ENC is a special case (navigational importance), and that S-100 will be much broader and will need more flexibility. USA-NGA (ANDREASEN) made specific mention of a 3-D presentation that is used for "situational awareness" when entering ports.

#### **Outcome:**

- The meeting noted that any continuation in chart display standardisation after 2008 to set up visualisation rules for S-100 compliant products will need a reconstitution of the affected subordinate body.

### **ESSA and PSSA**

Chairman CSMWG asked for clarification on the need for ESSA to be coded / presented by an ECDIS as a special case of PSSA. He noted that although ESSA is not recognized by IMO, it is described in M-4. USA-NOAA (BROWN) and UK (JONES) stated that ESSA is included in S-57 3.1.1 since it occurs on paper charts.

#### **Outcome:**

- The meeting agreed that ESSA should be symbolised for ECDIS and that it be included in the CSMWG Work Plan.
- The meeting took note of the report and endorsed the continuance of the CSMWG Work Plan, as amended.

## **6.3 Data Protection Scheme (DPSWG)**

*Docs: CHRIS18-6.3A rev.1 Report of DPSWG*  
*CHRIS18-6.3B Proposed Amended Terms of Reference for DPSWG*

Chairman DPSWG (SANDVIK) gave a brief summary of DPSWG activities. Regarding the implementation of the IHO Data Protection Scheme S-63, he mentioned that:

- An increasing number of Data Servers and OEMs are using S-63. As of September 2006, 13 Data Servers and 76 OEMs have been accredited.

- Correct implementation of S-63 is slow among OEMs, with slow upgrade of compliant systems among end-users.
- Data Servers are ready for full S-63 transition. They have agreed interim solutions which ensure successful operation of the scheme.
- IHB operates as scheme administrator, but data server certificates are not fully implemented due to limitations in OEM implementations.

He conveyed DPSWG's proposal to develop a new e1.1 of S-63 within one year as follows:

- There would be no introduction of new features; changes would be kept to a minimum.
- Published S-63 guidelines would be included into the standard.
- S-63 would be reorganized to group issues specific to IHB as Scheme Administrator, Data Servers, and OEMs.
- There would be a more precise description of correct implementation of the IHO standard.

The Chair summarized that changes to S-63 are needed whether applied to existing or new ENC's. To a question by UK-MCA (COLLINS), Chairman DPSWG (SANDVIK) clarified that the implementation of S-63 is not covered in the current edition of IEC 61174 and that the future edition of the IEC standard will have to include specific tests to assess compliance with S-63. Also, for OEMs to fully implement S-63, ECDIS equipment will have to be able to deal with both un-encrypted and encrypted ENC's.

The Chair asked if it is possible to achieve approval by MS within the time schedule. IHB (BARBOR) responded that MS had approved S-63 e1.0, and believed that the next edition should be produced as soon as possible. However, it was not totally clear if this can be regarded as a revision or a new edition. The Chair felt that regardless of whether a revision or new edition, the real issue is when it should go into force. UK-MCA (COLLINS) felt that more at-sea testing is needed before making a final decision.

Outcome:

- The meeting agreed that DPSWG proceed with developing e1.1 of S-63 and report at CHRIS/19.
- The meeting adopted revised Terms of Reference for DPSWG, as in CHRIS18-6.3B.
- The meeting took note of the report and endorsed the continuance of the DPSWG Work Plan, as amended.
- **Action 18/20: IHB**, in consultation with **Chairman DPSWG**, to issue a CL reporting on the development of S63 e1.1.

#### 6.4 Standardization of Nautical Publications (SNPWG)

*Docs: CHRIS18-6.4A      Report of SNPWG*

Dr. JONAS (Germany) gave a brief summary on behalf of Chairman SNPWG (MELLES). Recommendations from the report were to add "Test Data" as a new work item to the Work Plan of SNPWG, and to implement a Nautical Publications Register within the IHO Feature Data Dictionary Registry.

UK (GREENSLADE) commented that the intent of future ENC Product Specification is that NP Text Data would continue to be treated as a supplemental layer.

Referring to the SNPWG Work Plan, the Chair questioned whether some items and dates were too optimistic or that the scope of work was focussed primarily on Sailing Directions information. As a result, several amendments were made to the proposed WP.

Outcome:

- The meeting agreed that a Nautical Publications Register be established.
- The meeting took note of the report and endorsed the continuance of the SNPWG Work Plan, as amended.

## 6.5 Chart Standardization and Paper Chart (CSPCWG)

Docs: CHRIS18-6.5A      Report of CSPCWG  
CHRIS18-6.5B      Status of IHO Charts INT 1, INT 2 and INT 3

Chairman CSPCWG (JONES) provided a brief overview. Revision of M-4 Part B Section 400 was progressing according to plan, although this exercise is time-consuming due to the detailed nature of the specifications. An INT 1 sub-WG has been established to facilitate the coordination between, and the advice available to, the respective volunteer HOs in their maintenance of the 3 official IHO language versions of INT 1.

Australia (ROBERTS) suggested that HOs who produce INT 1, provide input to the INT 1 Sub-WG. UK (GREENSLADE) mentioned that since one goal of S-100 is to be more flexible, perhaps XML could be used to provide M-4.

The Chair congratulated the Secretary of the WG (Mr. Andrew COLEMAN, UK) on the particularly impressive achievement in collating documents / responses and managing the significant amount of work achieved by the WG by correspondence.

### Outcome:

- The meeting took note of the report and endorsed the continuance of the CSPCWG Work Plan, as amended.

### **Status of INT 1, INT 2, INT 3**

Referring to CHRIS18-6.5B, Chairman CSPCWG (JONES) pointed out that there is some uncertainty whether INT2 and INT3 are actually international chart publications rather than international standards. The paper provides pros and cons. Currently, the status quo seems to work. In concept, the 3 official language versions of INT 1 could be combined. But, some HOs want to use their own national language.

The Chair highlighted that the WG proposes that the wording of M-4 and P-4 be adjusted. USA-NGA (ANDREASEN) felt that this should be done by IHB, which may take copyright sensitivities into account.

The meeting endorsed the recommendations to include clarifying statements in M-4 and P-4, and provided additional guidance on wording:

- M-4 is the authority for paper chart compilation and therefore represents the “contemporary” or “community” standard for Paper Charts.
- A statement reflecting the ownership and stewardship arrangements for each document.

### Outcome:

- The meeting expressed thanks to the producer nations of the documents, i.e. Germany (INT 1, English), France (INT 1, French), Spain (INT 1, Spanish), Netherlands (INT 2), and UK (INT 3), for their continued support.
- The meeting agreed that the INT 1 Sub WG should include consistency checks, and subsequent endorsement, of the relevant documents during its work.

## 7. MARINE INFORMATION OBJECTS (MIO)

Docs: CHRIS18-7A      Report of HGMIO

Chairman HGMIO (ALEXANDER) provided a brief summary. He reminded that topics addressed so far include Ice Coverage, Meteorological, Water Levels, Current Flow, Oceanographic, Marine Environmental Protection, and Aids to Navigation Status. He noted that due to the relatively few active HGMIO members, the work of HGMIO progresses rather slowly.

The Chair mentioned that HGMIO is focused on additional, enhanced information. This will only occur with the active participation of MS.

Outcome:

- The meeting agreed that MS should encourage wider community participation in HGMIO work wherever possible.
- The meeting took note of the report and endorsed the continuance of the HGMIO Work Plan.

## 8. WORK OF CHRIS

### 8.1 CHRIS Input to IHO Work Program 2008-2012

Docs: CHRIS18-8.1A IHO Work Plan 2008-2012  
CHRIS18-8.1B CHRIS Input to IHO WP 2008-2012

The Chair explained the basis of this submission, as in CHRIS18-8.1B, and invited CHRIS to review / comment, particularly to ensure that the scope of the submission would cover all anticipated CHRIS work items over the next five years.

The meeting had no substantive comments to make.

Outcome:

- The meeting agreed that the CHRIS Input to IHO WP 2008-2012, as in CHRIS18-8.1B, be submitted to IHB for incorporation in the proposed IHO Work Programme for consideration by the 17<sup>th</sup> IHC.

### 8.2 Review of CHRIS Work Plan

Docs: CHRIS18-8.2A Consolidated CHRIS Work Plan

The Chair presented the CHRIS Work Plan for next year.

Outcome:

- The meeting adopted the proposed CHRIS WP, subject to the Secretary incorporating those additional items and changes agreed during the meeting.

### 8.3 Review of CHRIS Terms of Reference

Docs: CHRIS18-8.3A rev.1 Terms of Reference for CHRIS Committee  
CHRIS18-8.3B IHO Technical Resolution T1.1 "Formation of Intersessionary Subsidiary Bodies of the IHO"

The Chair highlighted an inconsistency in the current ToR relating to the election procedure for the office bearers. He proposed that the relevant clauses of the proposed ToR for HSSC be used instead. This was agreed, as reflected in the revised Terms of Reference for CHRIS at Annex I.

Outcome:

- The meeting agreed the proposed amendments and the revised CHRIS ToR, as at Annex I.
- The meeting agreed that similar changes were required to CHRIS WG ToRs.
- **Action 18/21: CHRIS Chair** to submit amended ToRs to the 17<sup>th</sup> IHC for approval.
- **Action 18/22: Secretary** to amend WG ToRs to incorporate agreed changes.

## 8.4 Printed ENC

Docs: CHRIS18-8.4A Progress Report on "Printed ENCs"

Outcome:

- The meeting took note of the report.

## 8.5 Print-on-Demand

Docs: CHRIS18-8.5A Print on Demand Nautical Charts Status

Outcome:

- The meeting took note of the report.

## 9. OPEN ECDIS FORUM

Docs: CHRIS18-9A Report on OEF Activities

Dr. ALEXANDER (USA-UNH), OEF Manager, provided an overview of the current activity and status. The OEF is administered at the University of New Hampshire and specific OEF activities include:

- establish discussion forums on issues related to ECDIS
- review and register "user-defined" S-57 objects
- register S-57 data producer codes
- distribute ECDIS-related freeware/shareware software and S-57 datasets
- organize workshops on ECDIS-related matters
- provide a link with the IHO website, and to other organizations involved in ECDIS

He mentioned that, based on discussions at both ESF/2 and WEND/10, it was recommended that the OEF should continue to exist for the time being, and it continue to be hosted at UNH.

The Chair pointed out that the use of the OEF has reduced significantly in recent years, except for Inland ECDIS development. He also mentioned that the OEF was originally convened by "industry" as a non-IHO-based forum – yet for most of its existence has been used primarily for IHO-based activities. He reported that the CG had considered the future of the OEF and noted that most IHO-based activities are now hosted on IHO servers. Furthermore, the CG felt there was no significant requirement for a long-term dependency on OEF to support CHRIS or IHO activities. He felt that IHO requirements can be achieved in other ways and this is happening increasingly.

The Chair reported that the CG has proposed a migration plan for the few IHO requirements currently on the OEF to be transferred to IHO servers and website facilities. Norway (SANDVIK) supported this migration. UK (NAIL) supported the concept of the OEF, and believed that it should continue. Germany (JONAS) supported the migration, but wanted to see a smooth transition. Portugal (PINHEIRO) agreed with the CG recommendations.

Outcome:

- The meeting took note of the report.
- The meeting agreed that the few IHO requirements currently on the OEF, be migrated to IHO servers and website facilities.
- The meeting agreed that future IHO financial support of the OEF be reviewed at CHRIS/19.
- **Action 18/23: IHB and OEF Manager** to begin the migration of IHO functions currently operated on the OEF, to other IHO-sponsored servers over the next 12 months. Existing IHO funding allocations may be used to support any requirements.

## 10. DIGITAL CHART AVAILABILITY

### 10.1 ENC Coverage

*Doc: CHRIS18-10.1A Development of a Comprehensive Online Catalogue of Available Official Charts*

IHB (Barbor) provided a brief overview. The future on-line catalogue of available official chart, under development at the IHB following IMO request, will focus only on those ENC's that are available for use. It will show:

- ENC coverage;
- RNC's coverage for those areas where no ENC coverage exists; and
- A list of "adequate backup" paper charts.

Outcome:

- The meeting took note of the report.

*Doc: CHRIS18-10.1B ENC Status (USA-NOAA)*

Outcome:

- The meeting took note of the report.

### 10.2 Inland ENC's

*Doc: CHRIS18-10.1A Report on Inland ECDIS Development and Standardization*

HGMIO (ALEXANDER) highlighted the main aspects of this report. In particular, he mentioned the importance of complying with IHO standards for inland and "maritime" ENC's. He stressed that IEHG is anxious to be involved in S-100 development.

Outcome:

- The meeting took note of the report.
- **Action 18/24: IHB** to write to IEHG formally, inviting them to participate in TSMAD work.

## 11. SUPERCESSION OF CHAIRMAN OF CHRIS

The Chair informed the meeting that he will retire from the Navy and therefore the Australian Hydrographic Service on 6 July 2007, and will then be ineligible to serve as Chair of CHRIS. He encouraged participating MS to identify a replacement.

Outcome:

- **Action 18/25: IHB** to seek for a new Chairperson of CHRIS.

## 12. ANY OTHER BUSINESS

### 12.1 Review of Information Papers

*Doc: CHRIS18-INF1 Status of IHO Publications on ECDIS*

IHB (HUET) provided a brief overview.

Outcome:

- The meeting took note of the report.

Doc: CHRIS18-INF2      *On-line Chart Viewer*

USA-NOAA (BROWN) introduced this report.

Outcome:

- The meeting took note of the report.

Doc: CHRIS18-INF3      *Raster Navigational Chart Status*

Mike Brown (USA-NOAA) introduced this report.

Outcome:

- The meeting took note of the report.

Doc: CHRIS18-INF4      *Digital Nautical Chart Report*

USA-NGA (ANDREASEN) introduced this report. He mentioned that NGA is continuing to withdraw NGA paper charts from public availability. He also reported that a new "World Vector Shoreline", at 1:250K scale, is in process. It will be available from the NGA website.

Outcome:

- The meeting took note of the report.

Doc: CHRIS18-INF5      *CHRIS Report to the 17th IHC*

The Chair invited the meeting to review his proposed report to the 17<sup>th</sup> IHC and to provide any additional input. There were no substantive comments.

Outcome:

- The meeting supported the proposed CHRIS Report to the 17th IHC.

## 12.2 Title for S-100

The Chair proposed that for ease of reference and clarity, a formal title was required for S-100. In consultation with the Chair of TSMAD, he proposed S-100 title should be: "*The IHO Geospatial Standard for Hydrographic Data*". This was agreed.

Outcome:

- The meeting agreed "The IHO Geospatial Standard for Hydrographic Data" as the formal title for S-100.

## 13. DATE AND LOCATION OF NEXT MEETING

Following a joint UK-Netherlands proposal, it was agreed that the 19<sup>th</sup> CHRIS meeting will take place in November 2007 in Rotterdam, Netherlands. It will be co-hosted by UK and Netherlands, and will coincide with EUROPORT 2007 (6-9 November 2007).

Outcome:

- The meeting confirmed the proposed venue and timing of CHRIS/19.
- **Action 18/26: UK and Netherlands** to organize the 19<sup>th</sup> CHRIS meeting.

In his closing remarks, the Chair thanked all participants, with special note for the WG chairmen, the Rapporteur, the Secretary and the Vice-chair for their support. On behalf of the meeting attendees, he also expressed his gratitude to the AHS staff for their efficient support throughout the meeting.

The meeting closed at 18:00 on 28 September 2006.

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## LIST OF ACRONYMS USED AT CHRIS/18

<b>AHS</b>	Australian Hydrographic Service
<b>AMSA</b>	Australian Maritime Safety Administration
<b>ASL</b>	Archipelagic Sea Lane (IMO)
<b>CA</b>	Cooperation Agreement
<b>CBC</b>	Capacity Building Committee (IHO)
<b>CDV</b>	Committee Draft for Voting (IEC-ISO)
<b>CG</b>	Chair Group
<b>CHRIS</b>	Committee on Hydrographic Requirements for Information Systems (IHO)
<b>CL</b>	Circular Letter (IHO)
<b>CSMWG</b>	Colours and Symbols Maintenance WG (IHO)
<b>CSPCWG</b>	Chart Specifications and Paper Chart WG (IHO)
<b>DGIWG</b>	Digital Geographic Information WG (NATO)
<b>DNC</b>	Digital Nautical Chart (NGA)
<b>DPSWG</b>	Data Protection Scheme WG (IHO)
<b>DQWG</b>	Data Quality WG (IHO)
<b>ECDIS</b>	Electronic Chart Display and Information System
<b>ECS</b>	Electronic Chart System
<b>ENC</b>	Electronic Navigational Chart
<b>ESF</b>	ECDIS Stakeholders Forum (IHO)
<b>ESSA</b>	Environmentally Sensitive Sea Area (IHO)
<b>HGMIO</b>	Harmonizing Group on Marine Information Objects (IHO-IEC)
<b>HO</b>	Hydrographic Office
<b>HSSC</b>	Hydrographic Services and Standards Committee (IHO)
<b>IALA</b>	International Association of Marine Aids to Navigation and Lighthouse Authorities
<b>ICCL</b>	International Council of Cruise Liners
<b>IC-ENC</b>	International Centre for ENCs
<b>IEC</b>	International Electrotechnical Commission
<b>IEHG</b>	Inland ENC Harmonization Group (USA–EU–Russia)
<b>IHB</b>	International Hydrographic Bureau (IHO)
<b>IHC</b>	International Hydrographic Conference (IHO)
<b>IHO</b>	International Hydrographic Organization
<b>IMO</b>	International Maritime Organization
<b>INT 1</b>	Symbols, Abbreviations and Terms used on Charts (IHO)
<b>INT 2</b>	Borders, Graduations, Grids and Linear Scales (IHO)
<b>INT 3</b>	Use of Symbols and Abbreviations (IHO)
<b>ISO</b>	International Organization for Standards
<b>M-4</b>	Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO
<b>MCA</b>	Maritime and Coastguard Agency (UK)
<b>MIO</b>	Marine Information Object (IHO)
<b>MoU</b>	Memorandum of Understanding
<b>MS</b>	Member State
<b>MSC</b>	Maritime Safety Committee (IMO)
<b>NATO</b>	North Atlantic Treaty Organization
<b>NAV</b>	Sub-committee on Navigation (IMO)
<b>NGA</b>	National Geospatial-Intelligence Agency (USA)
<b>NOAA</b>	National Oceanic and Atmospheric Administration (USA)
<b>NP3</b>	Digital Nautical Publications for ECDIS (IHO)
<b>NZ</b>	New Zealand
<b>OEM</b>	Original Equipment Manufacturer
<b>PresLib</b>	Presentation Library for ECDIS (IHO)
<b>PSSA</b>	Particularly Sensitive Sea Area (IMO)

<b>RENC</b>	Regional ENC Coordinating Centre (IHO)
<b>RHC</b>	Regional Hydrographic Commission (IHO)
<b>RNC</b>	Raster Navigational Chart
<b>RTCA</b>	Radio Technical Commission for Aeronautics
<b>S-32</b>	IHO Hydrographic Dictionary
<b>S-52</b>	IHO Colours & Symbols Specifications for ECDIS Presentation Library
<b>S-57</b>	IHO Transfer Standard for Digital Hydrographic Data
<b>S-63</b>	IHO Data Protection Scheme
<b>S-100</b>	IHO Geospatial Standard for Hydrographic Data
<b>S-101</b>	Future ENC Product Specification (IHO)
<b>SCAMIN</b>	Scale Minimum (IHO)
<b>SDI</b>	Spatial Data Infrastructure
<b>SENC</b>	System ENC
<b>SNPWG</b>	Standardization of Nautical Publications WG (IHO)
<b>SOLAS</b>	Safety of Life at Sea Convention (IMO)
<b>SPWG</b>	Strategic Planning Working Group (IHO)
<b>TG</b>	Task Group
<b>TOR</b>	Terms of Reference
<b>TSMAD</b>	Transfer Standard Maintenance and Application Development WG (IHO)
<b>UNH</b>	University of New Hampshire (USA)
<b>USCG</b>	United States Coast Guard (USA)
<b>WEND</b>	Worldwide Electronic Navigational Chart Data Base (IHO)
<b>WP</b>	Work Plan

## LIST OF DOCUMENTS

CHRIS18-1A rev.9	List of Documents
CHRIS18-1B rev.10	List of Participants
CHRIS18-1C	CHRIS Membership
CHRIS18-2A rev.8	Agenda
CHRIS18-3A	Minutes of CHRIS/17
CHRIS18-3B rev.1	Status of Actions List from CHRIS/17
CHRIS18-3C	Terms of Reference for CHRIS Committee and related Working Groups
CHRIS18-3D	ECDIS Type-Approval - Correspondence with IEC/TC80 (France)
CHRIS18-4.1A rev.1	CHRIS Chairman's Report to SPWG on Implementation of HSSC
CHRIS18-4.2A	Actions from the 10 <sup>th</sup> WEND Committee Meeting (IHB)
CHRIS18-4.3A	Conclusions of the IHO Seminar 2005 on Spatial Data Infrastructures (SDI)
CHRIS18-4.4A	Status of Electronic Charting Issues before IMO (IHB)
CHRIS18-4.4B	IMO SN Circular on the Emergency Wreck Marking Buoy introduced by IALA (IHB)
CHRIS18-4.4C	Development of an e-Navigation Strategy – MSC 81/23/10
CHRIS18-4.4D	e-Navigation Core Elements – IMO Correspondence Group on e-Navigation
CHRIS18-4.6A rev.1	Cooperation Agreement Between IHO and DGIWG (IHB)
CHRIS18-4.7A	Status of the Standard IEC 62376 on ECS (USA-NOAA)
CHRIS18-4.8A	IHB Letter CBC-1 of 21 August 2006
CHRIS18-5A	Conclusions of the 2 <sup>nd</sup> ECDIS Stakeholders' Forum (IHB)
CHRIS18-6.1A	Report of TSMAD (M. Brown, USA-NOAA, Chair)
CHRIS18-6.1B	IHB Letter on S-58 ENC Validation Checks
CHRIS18-6.1C rev.2	Enhancements Required to encode S-57 Edition 3.1.1 ENC Data
CHRIS18-6.2A	Report of CSMWG (M. Jonas, Germany, Chair)
CHRIS18-6.3A rev.1	Report of DPSWG (R. Sandvik, Primar-Stavanger, Chair)
CHRIS18-6.3B	Proposed Amended Terms of Reference for DPSWG
CHRIS18-6.4A	Report of SNPWG (J. Melles, Germany, Chair)
CHRIS18-6.5A	Report of CSPCWG (P. Jones, UK, Chair)
CHRIS18-6.5B	Status of IHO Charts INT 1, INT 2 and INT 3 (P. Jones)
CHRIS18-7A	Report of HGMIO (L. Alexander, USA-UNH, Chair)
CHRIS18-8.1A	IHO Work Programme 2008-2012
CHRIS18-8.1B	CHRIS Input to IHO WP 2008-2012
CHRIS18-8.2A rev.1	Consolidated CHRIS Work Plan
CHRIS18-8.3A rev.1	Terms of Reference for CHRIS and proposed amendments
CHRIS18-8.3B	IHO Technical Resolution T1.1 "Formation of Intersessionary Subsidiary Bodies of the IHO"
CHRIS18-8.4A	Progress Report on "Printed ENCs" (USA-NOAA)
CHRIS18-8.5A	Print on Demand Nautical Charts Status (USA-NOAA)

CHRIS18-9A	Report on OEF Activities (L. Alexander, USA-UNH)
CHRIS18-10.1A	Development of a comprehensive Online Catalogue of available Official Charts (IHB)
CHRIS18-10.1B	ENC Status (USA-NOAA)
CHRIS18-10.2A	Status Report on Inland ECDIS development (L. Alexander, USA-UNH)
CHRIS18-INF1	Status of IHO publications on ECDIS (IHB)
CHRIS18-INF2	On-line Chart Viewer (USA-NOAA)
CHRIS18-INF3	Raster Navigational Chart Status (USA-NOAA)
CHRIS18-INF4	Digital Nautical Chart Report (USA-NGA)
CHRIS18-INF5	CHRIS Report to IHC-XVII (Chair)

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**AGENDA**

**Note:** CHRIS18 actually started at 09:00 on Tuesday 26 September at the Sheridan Plaza Hotel. It was preceded by a CHRIS Chair Group Meeting (Chair, Vice Chair, Chairmen of WGs, Secretary) starting at 09:00 on 25 September, also at the Sheridan Plaza.

**4. Opening and Administrative Arrangements**

Docs: CHRIS18-1A *List of Documents*  
 CHRIS18-1B *List of Participants*  
 CHRIS18-1C *CHRIS Membership*

**5. Approval of Agenda**

Docs: CHRIS18-2A *Agenda*

**6. Matters arising from Minutes of 17<sup>th</sup> CHRIS Meeting**

Docs: CHRIS18-3A *Minutes of CHRIS-17*  
 CHRIS18-3B *Status / Review of Actions List from CHRIS-17*  
 CHRIS18-3C *Terms of Reference for CHRIS Committee and related Working Groups*  
 CHRIS18-3D *ECDIS Type-Approval - Correspondence with IEC/TC80 (France)*

**4. Decisions of other bodies affecting CHRIS**

4.1 IHO Strategic Planning WG (SPWG)

Docs: CHRIS18-4.1A *CHRIS Chairman's Report to SPWG on Implementation of HSSC*

4.2 WEND Committee

Docs: CHRIS18-4.2A *Actions from the 10<sup>th</sup> WEND Committee Meeting (IHB)*

4.3 IHO Seminar 2005 on Spatial Data Infrastructure (SDI)

Docs: CHRIS18-4.3A *Conclusions of the IHO Seminar 2005 on SDI*

4.4 IMO

Docs: CHRIS18-4.4A *Status of Electronic Charting Issues before IMO (IHB)*  
 CHRIS18-4.4B *IMO SN Circular on the Emergency Wreck Marking Buoy introduced by IALA (IHB)*  
 CHRIS18-4.4C *Development of an e-Navigation Strategy – MSC 81/23/10*  
 CHRIS18-4.4D *e-Navigation Core Elements – IMO Correspondence Group on e-Navigation*

4.5 ISO-TC211 (Geographic Information-Geomatics)

Docs: CHRIS18-4.5A *Report on TC211 activities affecting CHRIS (IHB)*

4.6 NATO-DGIWG (Digital Geographic Information W.G.)

Docs: CHRIS18-4.6A *Report on DGIWG activities affecting CHRIS (IHB)*

4.7 IEC-TC80-WG7 (ECDIS and ECS)

Docs: CHRIS18-4.7A *Status of the Standard IEC 62376 on ECS (USA-NOAA)*

4.8 Capacity Building Committee (CBC)

Docs: CHRIS18-4.8A *IHB Letter CBC-1 of 21 August 2006*

**5. Liaison with Industry**

Docs: CHRIS18-5A *Conclusions of the 2nd ECDIS Stakeholders' Forum (IHB)*

**6. Reports by CHRIS Working Groups**

6.1 Transfer Standard Maintenance and Application Development (TSMAD)

- Docs: CHRIS18-6.1A      *Report of TSMAD (M. Brown, USA-NOAA, Chair)*  
CHRIS18-6.1B      *IHB Letter on S-58 ENC Validation Checks*  
CHRIS18-6.1C      *Enhancements Required to Encode S-57 Edition 3.1.1 ENC Data*
- 6.2      Colour and Symbol Maintenance (CSMWG)  
Docs: CHRIS18-6.2A      *Report of CSMWG (M. Jonas, Germany, Chair)*
- 6.3      Data Protection Scheme (DPSWG)  
Docs: CHRIS18-6.3A      *Report of DPSWG (R. Sandvik, Norway, Chair)*  
CHRIS18-6.3B      *Proposed amended TOR for DPSWG*
- 6.4      Standardization of Nautical Publications (SNPWG)  
Docs: CHRIS18-6.4A      *Report of SNPWG (J. Melles, Germany, Chair)*
- 6.5      Chart Standardization and Paper Chart (CSPCWG)  
Docs: CHRIS18-6.5A      *Report of CSPCWG (P. Jones, UK, Chair)*  
CHRIS18-6.5B      *Status of IHO Charts INT 1, INT 2 and INT 3 (P. Jones)*
- 7.      Marine Information Objects (MIO)**  
Docs: CHRIS18-7A      *Report of HGMIO (L. Alexander, USA-UNH, Chair)*
- 8.      Work of CHRIS**
- 8.1      CHRIS Input to IHO Work Program 2008-2012  
Docs: CHRIS18-8.1A      *IHO Work Plan 2008-2012*
- 8.2      Review of CHRIS Work Plan  
Docs: CHRIS18-8.2A      *Consolidated CHRIS Work Plan*
- 8.3      Review of CHRIS Terms of Reference  
Docs: CHRIS18-8.3A      *Terms of Reference for CHRIS Committee*  
CHRIS18-8.3B      *IHO Technical Resolution T1.1 "Formation of Intersessionary Subsidiary Bodies of the IHO"*
- 8.4      Printed ENCs  
Docs: CHRIS18-8.4A      *Progress Report on "Printed ENCs" (USA-NOAA)*
- 8.5      Print-on-Demand  
Docs: CHRIS18-8.5A      *Print on Demand Nautical Charts Status (USA-NOAA)*
- 9.      Open ECDIS Forum**  
Docs: CHRIS18-9A      *Report on OEF Activities (L. Alexander, USA-UNH)*
- 10.     Digital Chart Data Availability**
- 10.1     ENC Coverage  
Docs: CHRIS18-10.1A      *Development of a Comprehensive Online Catalogue of Available Official Charts (IHB)*  
CHRIS18-10.1B      *ENC Status (USA-NOAA)*
- 10.2     Inland ECDIS  
Docs: CHRIS18-10.2A      *Status Report on Inland ECDIS development (L. Alexander, USA-UNH)*
- 11.     Supersession of Chairman of CHRIS**
- 12.     Any Other Business**
- 12.1     Review of Information Papers

Docs: CHRIS18-INF1      *Status of IHO Publications on ECDIS (IHB)*  
CHRIS18-INF2      *On-line Chart Viewer (USA-NOAA)*  
CHRIS18-INF3      *Raster Navigational Chart Status (USA-NOAA)*  
CHRIS18-INF4      *Digital Nautical Chart Report (USA-NGA)*

12.2    Title for S-100

**13.    Confirmation of Date and Location of Next Meeting**

*(Rotterdam to coincide with EUROPOORT 2007, November 2007; co-hosted by The Netherlands and UK)*

## LIST OF ACTIONS FROM CHRIS/18

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)
3.	Currency of ECDIS Software	18/1	Using the text at Annex F as a basis, the <b>CHRIS Chair Group</b> to develop a draft Circular Letter inviting MS to support a submission on the maintenance of navigation software updates on ships to IMO at NAV 53 (2007). <b>IHB</b> to take subsequent action with the draft CL.
3.	ECDIS Shortcomings	18/2	<b>CHRIS Chair Group</b> to collate any feedback received about identified shortcomings related to the work of CHRIS, and present proposals to CHRIS.
3.	NP3 Presentation	18/3	(carried over from CHRIS/17) <b>Chairman SNPWG</b> (Mr. Johannes MELLES, Germany), in liaison with <b>Chairman HGMIO</b> (ALEXANDER), to seek assistance from academia and industry in developing appropriate standards and guidelines for NP3 presentation, through a suitable research project.
4.2	Changes to IHO Standards	18/4	<b>IHB</b> to consider using the revised <i>CHRIS Principles and Procedures for Making Changes to IHO Standards and Specifications</i> as a basis for a proposal to be put before the 17 <sup>th</sup> IHC, for their IHO-wide implementation.
4.4	Emergency Wreck Marking Buoy	18/5	<b>IHB</b> to contact IALA: a. seeking clarification whether it is expected that the Emergency Wreck Marking Buoy will be shown on charts, and b. drawing attention to the Cooperation Agreement between the two organizations and encouraging greater liaison and advance warning on similar IALA initiatives in the future.
4.4	Emergency Wreck Marking Buoy	18/6	<b>Chairmen CSPCWG, TSMAD and CSMWG</b> to include "Charting / Display of Emergency Wreck Marking Buoy" in the work programmes for their WGs, as a matter of urgency.
4.5	ISO Copyright	18/7	<b>Chairman TSMAD</b> to prepare a draft letter for IHB to forward, seeking clarification from ISO and a relaxation of the 10% rule with respect to using ISO copyright material in IHO standards, which in turn will be registered with ISO.
4.6	IHO-DGIWG OA	18/8	<b>IHB</b> to send the revised draft IHO-DGIWG Cooperation Agreement by CL, asking for its endorsement by MS.
4.7	IEC 62376	18/9	<b>IHB</b> to look into the possibility of including a copy of the latest draft of IEC 62376 with CHRIS/18 minutes.

5.	ENC Consistency	18/10	<b>IHB</b> in conjunction with <b>Chairman TSMAD</b> to prepare a Circular Letter reminding IHO Member States that IHO guidance on the use SCAMIN exists (re: CL 47/2004) and should be followed, and stressing the consequences of not applying SCAMIN appropriately.
5.	IHO website	18/11	<b>IHB</b> to continue revision of the IHO website to enable all ECDIS-related documents to be accessible from an identifiable central location.
5.	S-100	18/12	<b>CHRIS Chair Group</b> to prepare a draft Circular Letter, referring to the S-100 Information Paper under revision and stressing that the publication of S-100 will have no impact on ECDIS. <b>IHB</b> to take subsequent action with the draft CL.
5.	S-100 Information Paper	18/13	<b>Chairman TSMAD</b> to coordinate the updating of the IHO Information Paper on S-57 Ed.4, taking into account the current development of S-100. <b>IHB</b> to subsequently post the revised paper on the IHO website and inform MS by CL.
5.	S-101	18/14	<b>CHRIS CG</b> to prepare a draft CL on S-101. <b>IHB</b> to take subsequent action with the draft CL.
6.1	DQWG Chair	18/15	<b>IHB</b> , in consultation with <b>Chairman TSMAD</b> , to seek nominations for DQWG Chair.
6.1	Feedback for ECDIS Stakeholders	18/16	<b>Secretary</b> to incorporate a new standing agenda item for CHRIS meetings: “ <i>Review of Potential Feedback Items for ECDIS Stakeholders</i> ”.
6.2	e3.1.1 input to IEC 61174	18/17	<b>Chairmen of CSMWG and TSMAD</b> to collate information on e3.1.1 matters requiring consideration by IEC, and present it to CHRIS/19 for endorsement, prior to forwarding to IEC/TC80 by late 2007, for inclusion in the next edition of IEC 61174.
6.2	e3.4 of S-52	18/18	<b>Chairman of CSMWG</b> to monitor the development of e3.4 of S-52, for presentation to CHRIS/19.
6.2	ECDIS terms in S-32	18/19	<b>Secretary</b> to ascertain that ECDIS-related terms are incorporated in S-32 before e3.4 of S-52 is published.
6.3	e1.1 of S63	18/20	<b>IHB</b> , in consultation with <b>Chairman DPSWG</b> , to issue a CL reporting on the development of S63 e1.1.
8.3	CHRIS ToRs	18/21	<b>CHRIS Chair</b> to submit amended ToRs to the 17 <sup>th</sup> IHC for approval.
8.3	CHRIS WG ToRs	18/22	<b>Secretary</b> to amend WG ToRs to incorporate agreed changes.
9.	OEF Migration	18/23	<b>IHB</b> and <b>OEF Manager</b> to begin the migration of IHO functions currently operated on the OEF, to other IHO-sponsored servers over the next 12 months. Existing IHO funding allocations may be used to support any requirements.

10.2	IEHG and TSMAD	18/24	<b>IHB</b> to write to IEHG formally, inviting them to participate in TSMAD work.
11.	CHRIS Chairmanship	18/25	<b>IHB</b> to seek for a new Chairperson of CHRIS.
13.	CHRIS/19	18/26	<b>UK</b> and <b>Netherlands</b> to organize the 19 <sup>th</sup> CHRIS meeting.

**CURRENCY OF ECDIS SOFTWARE**

**Text agreed at CHRIS/18 as a framework to draft an IHO CL**

At its 18<sup>th</sup> meeting in Cairns, Australia, the IHO Committee on Hydrographic Requirements for Information Systems (CHRIS) considered the status of implementation of the standards and specifications governing ECDIS and ENC's. In particular, the CHRIS expressed its concern that even when important improvements to the IHO standards have been made in the interests of safety of navigation, many ECDIS manufacturers have been slow to incorporate these changes into their new ECDIS products or to support their existing customers. In addition, most mariners are unaware of why it is important to keep their ECDIS software up-to-date. This can result in a degraded performance of ECDIS and in some cases can result in seafarers not being aware of all the information published in ENC's. For example, using older editions of the relevant IHO standards will result in sub-optimal performance; for example, the recently introduced IMO requirements, such as Particularly Sensitive Sea Areas (PSSA) and Archipelagic Sea Lanes or the IALA Emergency Wreck Marking Buoys may not be presented to the mariner or the appropriate alarms or indications activated. This has obvious safety, environmental protection and liability implications.

The CHRIS also noted that a failure to maintain software in conformance with current specifications probably applies to other computer-based ship borne systems software as well as ECDIS, for example .....

CHRIS/18 agreed that it is important for the IHO to inform the IMO of this situation and to invite the IMO to consider whether it should provide clarification regarding the use of software-based equipment, including ECDIS that relies on out-of-date software. In particular, IMO should consider whether the use of such out-of-date equipment meets the requirements of SOLAS V/16.

**SOLAS V/16**

***Maintenance of equipment***

- 1 The Administration shall be satisfied that adequate arrangements are in place to ensure that the performance of the equipment required by this chapter is maintained.***
- 2 Except as provided in regulations I/7(b)(ii), I/8 and I/9, while all reasonable steps shall be taken to maintain the equipment required by this chapter in efficient working order, malfunctions of that equipment shall not be considered as making the ship unseaworthy or as a reason for delaying the ship in ports where repair facilities are not readily available, provided suitable arrangements are made by the master to take the inoperative equipment or unavailable information into account in planning and executing a safe voyage to a port where repairs can take place.***

In the case of ECDIS this means any equipment in use should comply with the relevant editions of the IHO standards in effect. In the near-future, these will be the ENC Product Specification (S57 e3.1 or 3.1.1), the relevant ECDIS Colours and Symbols (S-52 PresLib e3.4) and the IHO Data Protection Scheme (S-63 e1.1).

A number of MS represented at CHRIS/18 indicated that separate but complementary submissions to IMO are already being prepared by their Maritime Administrations on the use of ship borne computer equipment that relies on out-of-date software. CHRIS agreed that it is therefore most opportune for an IHO submission to be made at the same time.

Submissions of the nature described above must reach IMO by 2007 to be considered at the Maritime Safety Committee (MSC) meeting. The submission is then likely to be referred to the Subcommittee on the Safety of Navigation (NAV) for detailed discussion or study.

We seek your approval to make a submission to IMO as recommended by CHRIS.

The IHO Committee on Hydrographic Requirements for Information Systems (CHRIS)  
**Principles and Procedures  
for  
Making Changes to IHO Technical Standards and Specifications**

**History**

These principles and procedures were agreed at the 18<sup>th</sup> meeting of CHRIS in Cairns, Australia 26-29 September 2006. They supersede those developed at the 13<sup>th</sup> meeting of CHRIS in Athens, September 2001 and revised at the 15<sup>th</sup> meeting of CHRIS in Monaco in June 2003.

**Scope**

These principles and procedures are intended to be applied to all proposals for changes to IHO technical standards and specifications and for new work items that will require significant resources to resolve or will potentially impact on those who need to apply the standards and specifications.

These procedures are not intended to be applied to minor or technical issues that arise from the work of CHRIS subordinate bodies, or for the correction of identified problems or for clarification of elements of the standards themselves.

Any reference to "standards" in these principles and procedures also includes specifications and guidelines as appropriate.

**Principles**

Improvements to technical standards can only occur by change. However, significant change can lead to problems such as incompatibility between systems, high updating costs, market monopoly, dissatisfied users, or increased risks to safety of navigation. These guiding principles have been developed to avoid these circumstances.

1. Before approval is granted, any proposed changes to existing standards should be assessed from a technical and commercial perspective, also taking into account any other relevant factors.
2. Where possible, assessment should involve all relevant parties such as international organisations, maritime administrations, equipment manufacturers, data distributors, users and other professional organisations.
3. As far as practicable, any change to standards or systems should be "backwards compatible", or the existing version must be supported for a specified time.
4. If changes are required for the basis of product enhancement rather than for safety of navigation, then the previously approved system must be allowed to continue to be used at sea for a sufficient time to allow changes to be implemented on board.
5. If not already specified by external or higher IHO authority, the timeline for making changes should be defined.
6. In exceptional cases (for example, those affecting safety of navigation), it may be necessary to make recommendations for immediate change to standards and systems to the relevant authorities. This may be achieved through shortening the normal time frames for submission and consideration of proposals.
7. The principles of a recognised project management system should be followed.
8. All interested parties should be encouraged to continuously improve IHO technical standards. Constructive feedback should therefore be provided for all rejected proposals.

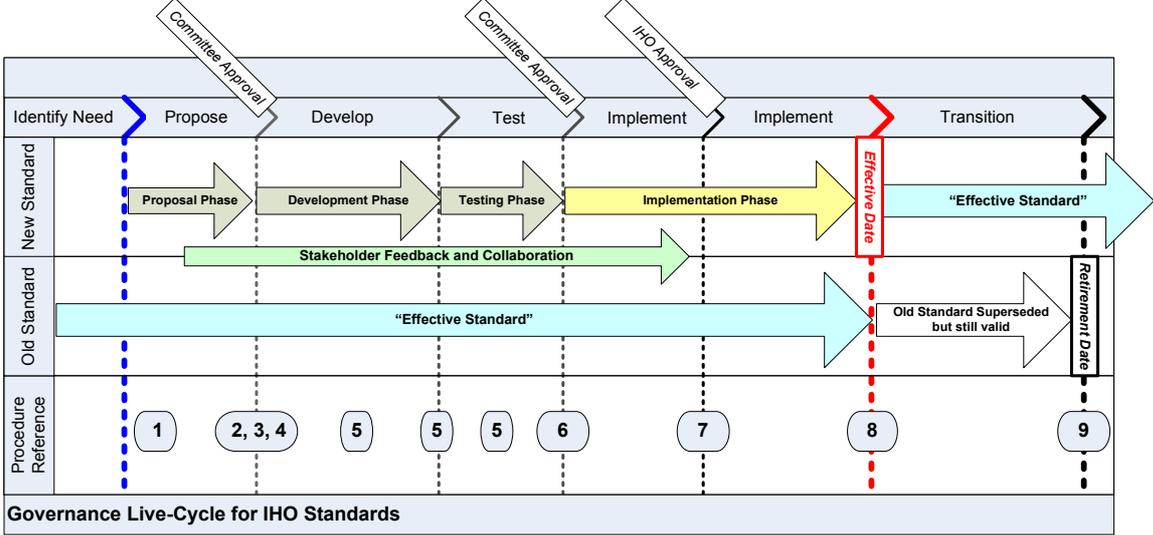
## Procedures

These procedures are recommended to ensure that any proposed changes are properly assessed and implemented. These procedures should remain simple to encourage their use.

The life cycle of a typical standard is illustrated in Annex A.

1. Proposals should follow the "*Instructions for Submission of Reports and Proposals for consideration by CHRIS*". Proposals must contain a justification, a recommended action list and a proposed time frame for implementation.
2. CHRIS will consider proposals at its meetings.
  - CHRIS will consider the impact on relevant stakeholders in assessing the proposal and planning any subsequent work. Relevant stakeholders may include representation from international organisations, maritime administrations, non governmental international organisations, equipment manufacturers, data distributors and other users of the standard.
  - If rejected, feedback will be provided to the proposal originator giving the reasons for rejection.
  - Consideration of each proposal should be undertaken in accordance with the "*Guidelines for the Evaluation of Proposed New Work Items for CHRIS and its Subordinate Bodies*".
3. After endorsing proposals, and establishing a work priority, the CHRIS will forward proposals to the IHB for necessary action including incorporation into the relevant IHO work programs.
4. Relevant stakeholders should be notified by the IHB of the timetable for new work items and be invited to comment and participate as appropriate. The notification should include a summary forecast of:
  - the potential changes,
  - the documents affected,
  - the likely action list for relevant stakeholders,
  - the timetable for implementation, and
  - the proposed effective date of the new or revised standard.
5. Relevant WGs should provide progress reports on a regular basis and after each milestone during the development and testing phases. These should be made available to stakeholders by the IHB.
6. At the end of the development and testing phases the CHRIS will review the standard. If endorsed, a "*change note*" should be forwarded to relevant stakeholders. The "*change note*" will provide:
  - a summary of changes,
  - the documents affected,
  - a recommended action list ,
  - the timetable for implementation, and
  - the proposed effective date of the new or revised standard.
7. Following an adequate period for comment on the "*change note*", and incorporation of any relevant feedback, the revised standards should be submitted to Member States by the IHB for approval of the content, and confirmation of the "*effective date*".
8. At the "*effective date*", the revised standard becomes the effective standard. The "*superseded*" standard will usually remain available concurrently with the revised standard for a suitable transition period.
9. A "*superseded*" standard may be "*retired*" as an available standard when it is no longer appropriate for use, subject to Member State approval.

**Typical Lifecycle of an IHO Standard**



**Instructions for the  
Submission of Reports and Proposals  
for Consideration by CHRIS**

**Introduction**

1. In the past, guidance on the submission of reports and proposals to CHRIS has been lacking. This sometimes resulted in inefficiencies and greater difficulty in reaching informed decisions. To address this, the following instructions are based on the principles originally agreed at CHRIS/13 and CHRIS/15 and revised and enhanced at CHRIS/18. They shall be followed for all submissions to CHRIS and its subordinate bodies.

**Format for Papers**

2. The formats shown in Appendices 1 and 2 should be used as the basis for reports, proposals and submissions intended for consideration by CHRIS or its subsidiary bodies. Inapplicable sections may be omitted or modified as appropriate.

**Submission Dates**

3. **Substantive Papers.** Substantive papers for consideration by CHRIS and its subordinate bodies shall be received by the relevant Chairman and Secretary as follows:
  - a. **New Items**

Proposals for new work items, reports from subsidiary bodies and any submissions requiring consideration and a decision by CHRIS and its subordinate bodies shall be forwarded to the relevant Secretary and Chairman not later than **seven** weeks before the commencement of a meeting.
  - b. **Subsequent Comments and Contributions**

Subsequent papers (which should be no more than 4 pages), commenting on submissions or proposals submitted under clause 3a above may be forwarded to the relevant Secretary and Chairman not later than **three** weeks before the commencement of the meeting. Such submissions may:

    - (1) raise alternative proposals for consideration,
    - (2) propose substantial amendments to proposals, or
    - (3) provide comments in absentia for those delegates unable to attend a meeting.
4. In order that all participants as well as MS not represented at a meeting may consider the issues in advance, the relevant Chairman and Secretary will strictly enforce the deadlines in paragraph 3 above. Only in the most exceptional circumstances may new items be introduced after the deadlines.
5. To facilitate the processing of papers, digital versions, preferably in Microsoft Word®, should be sent via the Internet to the e-mail addresses of the Secretary and Chairman.
6. The IHB will place papers on the IHO website as soon as possible.
7. **Information Documents.** Information papers should also be submitted to the relevant Secretary and Chairman at least **three** weeks before the commencement of a meeting.

[CHRIS / Relevant CHRIS WG] xx-xx

**Paper for Consideration by [CHRIS] [CHRIS WG]**

**[Short descriptive title]**

<b>Submitted by:</b>	MS or Organization
<b>Executive Summary:</b>	Brief summary outlining the intention of the paper.
<b>Related Documents:</b>	Any relevant documents and references to the extent that they are known to the originator.
<b>Related Projects:</b>	Any related projects that may impact upon considerations

**Introduction / Background**

An introduction and any relevant background.

**Analysis/Discussion**

An analysis and/or discussion of the issues involved.

In analysing the issues, the following should be considered and addressed as appropriate:

- is the subject addressed by the paper within the scope of IHO objectives?
- is the subject of the paper within the scope of an item of the current IHO work programme?
- do adequate industry standards exist?
- do the benefits justify the proposed action?
- are there any potential cost impacts on the maritime industry, Member States or other involved parties?

**Conclusions**

Any conclusions that may be drawn from the analysis/discussion.

**Recommendations**

Any resultant recommendations.

**Justification and Impacts**

Justification for any proposed action or recommendations. This should include:

- identifying the benefits which would accrue from any proposed action;
- identifying any resource implications resulting from the recommendations, such as the number of working group sessions, expertise, need for expert consultants, funding, et cetera;
- identifying which CHRIS working group(s) are essential to completing any proposed new work items; and
- the date when any proposed new work item is expected to be completed;
- the proposed priority (high, medium, low);
- any related activities that may impact on a proposed work item or decision.

**Action Required of [CHRIS] [Relevant CHRIS WG]**

The [CHRIS] [Relevant CHRIS WG] is invited to:

- a. endorse .....
- b. agree .....
- c. note .....
- et cetera.

**Report of the [title of WG or relevant body]**

<b>Submitted by:</b>	Chairman, [relevant WG or other reporting body]
<b>Related Documents:</b>	Any relevant documents and references to the extent that they are known to the originator.
<b>Related Projects:</b>	Any related projects that may impact upon considerations

<b>Chair:</b>	[Name], [Country]
<b>Vice-Chair:</b>	[Name], [Country]
<b>Secretary:</b>	[Name], [Country]
<b>Member States:</b>	[Countries]
<b>Expert Contributor Organisations:</b>	[Organisations]
<i>see Annex A for full details</i>	

**Meetings Held During Reporting Period**

Provide dates and venues of meetings held during the reporting period.  
Provide dates and venue for next meeting (if known).

**Work Program**

Highlight the important issues and activities during the reporting period.  
(For lengthy or complex reports, the use of supporting annexes may be appropriate.)

**Progress on CHRIS Action Items**

Summarise progress made during the reporting period.

**Problems Encountered**

Highlight any issues with resources, funding, participation, et cetera.

**Any Other Items of Note**

Include any other relevant information not covered elsewhere.

**Conclusions and Recommended Actions**

Identify any conclusions drawn from the report.  
Identify any actions recommended by the WG / reporting body.  
Refer to the revised Work Plan submitted as Annex B.

**Justification and Impacts**

Justification for any proposed actions or recommendations. This should include:

- Identifying the benefits which would accrue from any proposed action.
- Identifying any resource implications resulting from the recommendations, such as the number of working group sessions, expertise, need for expert consultants, funding, et cetera.

- Identifying which CHRIS working group(s) are essential to completing any proposed new work items.
- Identifying proposed priorities for new work items.
- The date when any proposed new work item is expected to be completed.
- Any related activities that may impact on a proposed work item or decision.

**Action Required of CHRIS**

The CHRIS is invited to:

- a. endorse .....
- b. agree .....
- c. note .....
- et cetera.

**Annex A to Appendix 2**

**Membership of [WG]**

<b>Member State</b>	<b>Name of Delegate</b>	<b>email</b>

<b>Observer Organisation</b>	<b>Name of Delegate</b>	<b>email</b>

Annex B to Appendix 2

[WG] Proposed Work Plan - [date] to [date]

1. Any remarks relevant to the understanding of the plan to be inserted in here.

*[WG] Tasks*

- A.
  - B.
  - C.
  - D.
- et cetera

Task	Work Item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-Completed	Contact Person	Affected Pubs/Standard	Remarks
A1	Description								
A2									
A3									
B1									
B2									

**Guidelines  
for the  
Evaluation of Proposed New Work Items  
for  
CHRIS and its Subordinate Bodies**

**Introduction**

1. In order to best use the limited resources available to CHRIS and its subordinate bodies, it is necessary to evaluate and prioritise proposed new work items. These guidelines are based on the principles originally agreed at CHRIS/13 and CHRIS/15 and revised and enhanced at CHRIS/18. They are intended to provide a uniform basis for evaluation and prioritisation.
2. Evaluation should be done as a two-stage process:
  - a. general consideration leading to acceptance or rejection; and if accepted,
  - b. establishment of priorities.

**General acceptance**

3. Before deciding to include a new item in the work programme of CHRIS and its subordinate bodies, the following factors should be taken into account:
  - a. is the subject addressed by a proposal considered to be within:
    - (1) the scope of IHO objectives?
    - (2) the current IHO work programme?
  - b. has a need for the measure proposed been identified (for example, client demand, internal improvements)?
  - c. do adequate industry standards or solutions exist or are they being developed thereby reducing the need for action through CHRIS and its subordinate bodies?
  - d. is the objective achievable in the existing CHRIS and its subordinate bodies' work program?
  - e. What are the envisaged deliverables ?

**Establishment of priorities**

4. Priorities for accepted work items should normally be assigned based on consideration of the following factors:
  - a. measures aimed at substantially preventing maritime casualties, marine pollution incidents or enhancing maritime security
  - b. measures to overcome identified deficiencies in existing IHO standards and technical resolutions;
  - c. measures needed to align IHO standards and resolutions with those of other relevant international standards and recommendations;
  - d. measures required to take into account the introduction of new technologies and methods in maritime operations;
  - e. measures required to take into account new techniques in data acquisition, processing and management, and production techniques in hydrography;
  - f. measures leading to increased Hydrographic Office efficiency.

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

**General remarks**

6. When setting priorities, certain flexibility should be provided to allow for initiatives that could not be foreseen.
7. Once a decision has been made on the basis of the above for a new work item to be included in the work programme of CHRIS and its subordinate bodies, an appropriate target completion date should be established, taking into account the urgency of the matter concerned.
8. In general, proposals for new work items as well as the revised work programs raised by WG Chairs as part of their annual reports should include a proposed priority for each work item, based on the guidelines above.
9. Wherever possible, proposed priorities for work items will be considered ahead of a meeting by a "Chair Group" comprising Chairman, Vice chairman, Secretary and all available Work Group Chairs. Final endorsement of work item priorities will rest with CHRIS and be considered at the respective meeting.

**TERMS OF REFERENCE  
for the  
DATA QUALITY WORKING GROUP (DQWG)**

**1. Objective**

To develop appropriate methods of classifying and depicting the quality of digital hydrographic data.

**2. Authority**

The Working Group is a subsidiary of CHRIS and its work is subject to CHRIS approval.

**3. Procedures**

- a) The WG should:
  - i. Review ISO 19113 *Geographic Information-Quality Principles*, ISO 19114 *Geographic Information-Quality Evaluation Procedures*, and ISO 19115 *Geographic Information - Metadata* and propose relevant enhancements and amendments for incorporation in S-100;
  - ii. monitor and further develop quality indicators for hydrographic data;
  - iii. review and revise as needed existing S-57 quality indicators, including the education of both the mariner and the cartographer, and the development of documentation, and;
  - iv. Propose new data quality topics and other applications for consideration by CHRIS.
- b) The WG should work by correspondence, group meetings, workshops or symposia. Permanent or temporary sub-working groups may be created by the WG to undertake detailed work on specific topics such as: quality indicators for hydrographic data, tidal information, etc. The WG should meet as necessary.
- c) The WG should liaise with other relevant CHRIS WG's and other IHO bodies, such as S-44 WG, and international bodies as appropriate and as instructed by CHRIS.

**4. Composition and Chairmanship**

- a) The WG shall comprise representatives of IHO Member States (M/S), Expert Contributors and Accredited NGIO Observers.
- b) Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the WG, only M/S may cast a vote. Votes shall be on the basis of one vote per M/S represented.
- c) Expert Contributor membership is open to entities and organisations that can provide a relevant and constructive contribution to the work of the WG.
- d) The Chair and Vice-Chair shall be a representative of a Member State. The election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the Conference (Conference to be replaced by Assembly when the revised IHO Convention enters force) and shall be determined by vote of the Member States present and voting.
- e) If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.
- f) Expert Contributors shall seek approval of membership from the Chairman.
- g) Expert Contributor membership may be withdrawn in the event that a majority of the M/S represented in the WG agree that an Expert Contributor's continued participation is irrelevant or unconstructive to the work of the WG.
- h) All members shall inform the Chairman in advance of their intention to attend meetings of the WG.
- i) In the event that a large number of Expert Contributor members seek to attend a meeting, the Chairman may restrict attendance by inviting Expert Contributors to act through one or more collective representatives.

**COMMITTEE ON HYDROGRAPHIC REQUIREMENTS FOR INFORMATION SYSTEMS (CHRIS)**

**Terms of Reference**

*(revised at CHRIS/18, Cairns, Australia, September 2006)*

Considering the need to promote and coordinate the development of standards, specifications and guidelines for official hydrographic products and services, to meet the requirements of mariners and other users of hydrographic information, the International Hydrographic Organization (IHO) establishes a Committee on Hydrographic Requirements for Information Systems (CHRIS) with the following Terms of Reference and Rules of Procedure:

**1. Terms of Reference**

1.1 To monitor the requirements of mariners and other users of hydrographic information associated with development and use of paper hydrographic products and electronic information systems that may require data provided by national hydrographic authorities, and identify those technical matters that may affect the activities and products of those authorities.

1.2 To study and propose methods and minimum standards for the development and provision of official hydrographic data, nautical products and other related services.

1.3 To prepare and maintain publications to describe and promote the recommended methods, standards, specifications and guidelines as adopted by the IHO, and advise IHO Member States about implementation procedures.

1.4 To consider alternative procedures for the timely production of standards, for example by using external expertise when necessary.

1.5 To establish and maintain contact with other relevant IHO bodies, such as the Committee on WEND, the Legal Advisory Group, etc, to ensure that IHO activities are coordinated.

1.6 To liaise with other relevant international organizations.

**2. Rules of Procedure**

2.1 The Committee is composed of Representatives of Member States and a representative of the International Hydrographic Bureau (IHB).

2.2 Accredited Non-Governmental International Organizations (NGIO's) may attend Committee Meetings.

2.3 Meetings shall be held at least once a year. The venue and date will be announced at least three months in advance.

2.4 Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the Committee, only Member States may cast a vote. Votes shall be on the basis of one vote per Member State represented.

2.5 The Chair and Vice-Chair shall be a representative of a Member State. The election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the Conference (Conference to be replaced by Assembly when the revised IHO Convention enters force) and shall be determined by vote of the Member States present and voting.

2.6 If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.

2.7 The Committee will progress its work primarily through Working Groups, each of which will address specific tasks. Working Groups will operate by correspondence to the maximum extent practicable.

2.8 Recommendations of the Committee will be submitted to the Member States for adoption through the IHB Directing Committee.

DRAFT