

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

**TERMS OF REFERENCE FOR CHRIS COMMITTEE
and Related Working Groups
(March 2004)**

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

Considering the need to promote and coordinate the development of official digital products and services to meet the requirements of mariners, the International Hydrographic Organization 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 associated with development and use of paper hydrographic products and electronic information systems that may require data provided by national hydrographic offices, and identify the matters that may affect the activities and products of these offices.
- 1.2 To study and propose methods and minimum standards for the development and provision of official digital hydrographic data, nautical products and other related services.
- 1.3 To prepare and maintain publications to describe and promote the Committee's recommended methods and standards adopted by the International Hydrographic Organization, and advise national hydrographic offices about implementation procedures as required by those offices.
- 1.4 To consider alternative procedures for the timely production of standards, for example 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 Committee, the IHO WG on Copyright, etc...
- 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.
- 2.2 Member State Representatives, or the Committee as a whole, may invite Observers to 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 The Committee Members will elect the Chairman of the Committee at its first meeting following each International Hydrographic Conference.

2.5 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.

2.6 Recommendations of the Committee will be submitted to the IHO Member States for adoption through the Directing Committee.

Reference: Decision No 17b of the 16th International Hydrographic Conference, 14-19 April 2002

II. TRANSFER STANDARD MAINTENANCE AND APPLICATIONS DEVELOPMENT W.G. (TSMAD)

1. Objective

- a) To maintain, develop and extend the IHO transfer standard for digital hydrographic data (Special Publication S-57), including development and maintenance of relevant application profiles;
- b) To monitor the development of other related international standards.

2. Authority

The Working Group is a subsidiary of CHRIS and its membership and decisions are subject to CHRIS approval.

3. Procedures

- a) The WG should:
 - (i) maintain S-57 by preparing and promulgating maintenance documents containing clarifications, corrections and extensions when required;
 - (ii) review relevant international standards and specifications and advise CHRIS accordingly;
 - (iii) consider new topics as instructed by CHRIS and advise CHRIS accordingly and/or draft the relevant extension documents;
 - (iv) draft new editions of S-57 as instructed 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: S-57 maintenance, product specification, tidal information, survey information, etc.. The WG should meet at least once a year.
- c) The WG should liaise with other CHRIS WG's and other IHO 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) and Expert Contributors.
- 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 WG shall be chaired by a representative of a M/S. The Chairman and the Vice- Chairman shall be chosen by the M/S represented in the WG, for a period of three years.
- e) Expert Contributors shall seek approval of membership from the Chairman.

- f) 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.
- g) All members shall inform the Chairman in advance of their intention to attend meetings of the WG.
- h) 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.

III. COLOURS AND SYMBOLS MAINTENANCE W.G. (C&SMWG)

1. Objective

To maintain IHO specifications for colours, symbols and display rules used to show SENC information on ECDIS in a safe and ergonomic manner.

2. Authority

This WG is a subsidiary of the Committee on Hydrographic Requirements for Information Systems (CHRIS). Its membership and decisions are subject to CHRIS approval.

3. Procedures

- a) The WG should:
 - (i) Maintain Appendix 2 of IHO Special Publication S52 and its accompanying Presentation Library, by preparing and promulgating maintenance documents when required.
 - (ii) Monitor the operational performance and development of IHO specifications, progress in display technology, and human perception analysis.
 - (iii) Coordinate technical exchange between C&SMWG, type-approval authorities, ECDIS manufacturers and ECDIS user community.
 - (iv) Consider new topics and other applications affecting electronic chart display, and/or draft the relevant extension documents.
 - (v) Propose new topics and other applications for consideration by CHRIS.
 - (vi) Draft new editions of S-52 Appendix 2 as instructed by CHRIS.
 - (vii) Provide and maintain a framework for display of SENC information that is feasible and practicable within available technology.
 - (viii) Provide guidance to ECDIS manufacturers in terms of C&S presentation.
 - (ix) Identify basic scientific fundamentals related to colours and symbolization.
- b) The WG should work by correspondence, group meetings, workshops or symposia. The WG should meet at least once every two years.
- c) The WG should liaise and harmonize with other ECDIS-related bodies as appropriate (e.g., TSMAD, IEC, IMO/IHO HGE, IALA, WMO, IACS, NATO, etc.).
- d) The WG should identify a work programme for each year, including expected time frame.

4. Composition and Chairmanship

- a) The WG shall comprise representatives of IHO Member States (M/S) and Expert Contributors.
- 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 WG shall be chaired by a representative of a M/S. The Chairman and the Vice-Chairman shall be chosen by the M/S represented in the WG, for a period of three years.
- e) Expert Contributors shall seek approval of membership from the Chairman.
- f) 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.
- g) All members shall inform the Chairman in advance of their intention to attend meetings of the WG.
- h) 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.

5. Guiding Principles

- a) The primary focus of the C&S specification should be on matters pertaining to safety of navigation (e.g., SENC display in Route Monitoring mode).
- b) There is a distinction between immediate amendments and long-term revisions. Immediate amendments should be limited to safety-related matters.
- c) The WG should consider what is happening related to ECDIS type-approval. This should include such matters as current exceptions granted and future regulations (e.g., carriage requirements).
- d) New specifications should not be adopted without first conducting comprehensive testing and validation by manufacturers, and at-sea trials with mariners.

IV. DATA PROTECTION SCHEME W.G. (DPSWG)

1. Objective

To develop and maintain an IHO ENC data protection scheme.

2. Authority

This Working Group (WG) is a subsidiary of the IHO CHRIS. Its membership and decisions are subject to IHO CHRIS approval.

3. Procedures

- a) The WG should:
 - (i) Enable immediate preparation of an IHO ENC Data Protection Scheme v.1 with documentation, software kernel and test data modelled on the Primar Security Scheme.
 - (ii) Review international developments in security services to amend and prepare IHO ENC Data Protection Scheme v.2 with industry representatives and other ECDIS standardisation bodies, and allow for a structured transition of the standard into the market.
 - (iii) Develop procedures and information to enable IHO to assume responsibility of the documentation and supporting information and operate as the Security Scheme Administrator. Identify how technical support will be made available to IHO.
- b) The WG will liaise and harmonise with other international ECDIS-related bodies as appropriate;
- c) The WG should work by correspondence, and use group meetings, workshops or symposia only when required.
- d) The WG should identify a work programme for each year, including expected time frame.

4. Composition and Chairmanship

- a) The WG shall comprise representatives of IHO Member States (M/S) and Expert Contributors.
- 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 WG shall be chaired by a representative of a M/S. The Chairman and the Vice-Chairman shall be chosen by the M/S represented in the WG, for a period of three years.
- e) Expert Contributors shall seek approval of membership from the Chairman.
- f) 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.
- g) All members shall inform the Chairman in advance of their intention to attend meetings of the WG.
- h) 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.

Reference: 15th CHRIS Meeting, 10-13 June 2003, IHB, Monaco

V. STANDARDISATION OF NAUTICAL PUBLICATIONS W.G. (SNPWG)

1. Objective

To develop guidelines for the preparation of nautical publications, in a digital format compatible with ECDIS.

2. Definition

A Nautical Publication is a special-purpose book, or a specially compiled database, that is issued officially by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution and is designed to meet the requirements of marine navigation. Nautical publications include but are not limited to:

- Distance Tables,
- List of Buoys and Beacons,
- List of Lights,
- List of Radio Signals,
- List of Symbols, Abbreviations and Terms used on Charts,
- Mariners' Handbooks,
- Notices to Mariners,
- Routeing Guides,
- Sailing Directions,
- Tidal Stream Atlases,
- Tide Tables.

Nautical publications can be made available in a paper or a digital format.

3. Authority

This Working Group (WG) is a subsidiary of the Committee on Hydrographic Requirements for Information Systems (CHRIS) and its membership and decisions are subject to CHRIS approval.

4. Execution

- a) The WG should:
 - (i) Investigate the data format specifications, content and display requirements of digital nautical publications intended for use in ECDIS.
 - (ii) Draft guidance document(s) and/or revised technical resolutions, as appropriate.
 - (iii) Liaise with relevant IHO Technical WG's to ensure, technical feasibility and compatibility of any developed proposals.
 - (iv) Investigate restructuring the format and content of nautical publications in order to optimize their reproduction in digital and paper formats, and to facilitate their integration with information systems such as ECDIS. Initial focus should be given to Sailing Directions, to define: 1) the minimum content of digital Sailing Directions compatible with ECDIS, and 2) the minimum common content of both digital and paper Sailing Directions, as stand alone documents.
 - (v) Draft guidance document(s) and/or revised technical resolutions, as instructed by CHRIS.

- (vi) Investigate the production of specifications for International (INT) nautical publications (e.g. Sailing Directions, List of Lights and Radio Signals).
- b) The WG should liaise with other CHRIS WG's and other IHO and international bodies as appropriate and as instructed by CHRIS.

5. Chairmanship and Procedures

- a) The WG shall comprise representatives of IHO Member States (M/S) and Expert Contributors.
- b) The WG should work primarily by correspondence. The WG should attempt to meet at least once every two years, normally in connection with another convenient IHO forum.
- c) 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.
- d) Expert Contributor membership is open to entities and organisations that can provide a relevant and constructive contribution to the work of the WG.
- e) The WG shall be chaired by a representative of a M/S. The Chairman and the Vice-Chairman shall be chosen by the M/S represented in the WG for a period of three years.
- 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.

Reference: 15^h CHRIS Meeting, 10-13 June 2003, IHB, Monaco

VI. DATA QUALITY W.G. (DQWG) [currently dormant]

1. Objective

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

2. Authority

The Working Group (WG) is a subsidiary of CHRIS and its membership and decisions are subject to the Committee on Hydrographic Requirements for Information Systems (CHRIS) approval.

3. Procedures

a. The WG should:

- (i) monitor and develop the further use of quality indicators for hydrographic information;
- (ii) propose methods for the depiction of quality indicators, such as Zones of Confidence (ZOC), on electronic displays;
- (iii) develop guidance for the implementation of ZOC, covering the education of both the mariner and the cartographer, including the development of documentation and appropriate software;
- (iv) propose relevant amendments and enhancements for incorporation in S-57 Edition 4;
- (v) provide to the relevant IHO Bodies information on the potential use of ZOC in non electronic media (for example, paper charts); and
- (vi) propose new data quality topics and other applications for consideration by CHRIS.

b. The WG should work primarily by correspondence. The WG should attempt to meet at least every two years, normally in connection with another convenient IHO forum.

c. The WG should liaise with other CHRIS WG's and other IHO 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) and Expert Contributors.
- 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 WG shall be chaired by a representative of a M/S. The Chairman and the Vice-Chairman shall be chosen by the M/S represented in the WG, for a period of three years.
- e) Expert Contributors shall seek approval of membership from the Chairman.

- f) 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.
- g) All members shall inform the Chairman in advance of their intention to attend meetings of the WG.
- h) 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.

VII CHART STANDARDIZATION AND PAPER CHART W.G. (CSPCWG)

Membership

Membership of the Chart Standardization and Paper Chart Working Group (CSPCWG) is open to all Member States wishing to be represented, by request to the Directing Committee of the International Hydrographic Bureau (IHB). Normally there should be one representative from each Member State. The Chairman will monitor membership to ensure that each regional hydrographic commission is represented on the CSPCWG. He will inform the Directing Committee of the IHB if, at any time, a regional commission is not represented.

Organization:

1. A Chairman and Vice-Chairman of the CSPCWG will be appointed from participant Member States of the CSPCWG. They will be determined by the CSPCWG, from amongst its members, by election conducted by the CSPCWG Chairman.
2. The previous Chairman and Vice-Chairman will discuss and decide between themselves the organization of the work entailed in these posts.
3. A Secretary will be appointed from within the organization of the Chairman of the CSPCWG to ensure the smooth running of business, and to administer consultation and collation of members' views. The Secretary will not be a member of the Working Group.
4. The CSPCWG conducts its business mainly by correspondence but holding meetings at least every two years.

* Length of tenure of Chairmanship and Vice-Chairmanship is governed by TR T1.1.

Objectives:

The CSPCWG, and the publications for which it is responsible, provides a core of expertise on the basic concepts of charting. Whatever physical form the chart or publications may take, the fundamental concepts and elements of marine cartography remain the same.

Tasks:

Specifically, the IHO Chart Standardization and Paper Chart Working Group (CSPCWG) shall:

Chart Specifications of the IHO

M-4 Part B provides an internationally-agreed product specification for both national and international (INT) charts at medium- and large-scale. The role of M-4 Part B is twofold, in that it provides:

- a. an explanation of the general concepts and rationale behind the portrayal of features on charts, much of which is relevant to both digital [ie electronic] and analogue [ie paper] charts.
 - b. specific guidance for paper charts, including the use of text and symbology.
- Specific guidance for digital (vector) charts is provided by S-52 and S-57; specific guidance for digital (raster) charts is provided by S-61. All make full use of the background material contained in M-4 and include cross references where appropriate. Duplication of information is thus (rightly) avoided.

1. Keep under continuous review in all respects the "Chart Specifications of the IHO", in order to advise the IHB on their updating, including future design and format.

* Maintain INT 1, INT 2, INT 3 and their relations to Annex D of S-57 Appendix B.1.

2. Advise the IHB on suggestions, put forward by Member States, to update the "Chart Specifications of the IHO", with the goal of achieving the maximum possible adherence by Member States to the Specifications.

Regulations of the IHO for International (INT) Charts

3. Keep under continuous review in all respects the "Regulations of the IHO for International (INT)

Charts” in order to advise the IHB on their updating.

4. Advise the IHB on suggestions, put forward by Member States, to update the “Regulations of the IHO for International (INT) Charts”.

International (INT) Chart Scheming

5. Advise the IHB, as appropriate, in the setting-up of regional hydrographic commissions or working groups in order to accelerate the production of large- and medium-scale international (INT) charts.
6. Offer advice on chart schemes and cartographic work of such commissions or groups, in order to ensure homogeneity and so that these commissions might take advantage of its experience.

Note: With regard to 5 and 6, the role of the CSPCWG vis-a-vis the regional commissions and groups is purely of a consultative nature.

Guidelines for Regional Coordinators of International (INT) Chart Schemes

7. Keep under continuous review the “Guidelines for Regional Coordinators of International (INT) Chart Schemes” in order to advise the IHB on their updating.

* Complete the inclusion of the Guidance in M-11 in accordance with IHO Work Programme.

Liaison with other IHO bodies

8. Maintain close liaison with other CHRIS Working Groups and other international and IHO bodies, as appropriate.

Reports of activities

9. Report progress to meetings of CHRIS and its Working Groups, and to Member States through the CHRIS report in the Annual Report of the IHB, and by means of a report to each ordinary session of the IH Conference.

Reference: 14th CHRIS Meeting, 15-17 August 2002, Shanghai, China (CL 54/2002)

VIII IHO-IEC HARMONIZING GROUP ON MARINE INFORMATION OBJECTS (HGMIO)

1. Objective

To harmonise the activities of the International Electrotechnical Commission (IEC) and International Hydrographic Organisation (IHO) related to Marine Information Objects (MIOs).

Definition:

MIOs consist of supplementary information to be used with an Electronic Chart Display and Information System (ECDIS) that currently, are not Electronic Navigational Chart (ENC) objects or specified navigational elements or parameters. Supplementary means non-mandatory information that is in addition to those required by existing ECDIS-related standards and specifications. MIOs may be either chart- or navigation-related. Some examples of MIOs include: Ice Information; Tides/Water Levels and Current Flow; Oceanographic, Meteorological; Marine Habitats; and Environmental Protection.

2. Authority

2.1 The IMO Performance Standards for ECDIS specify for:

a) Chart-related information:

- (i) the Electronic Navigational Chart (ENC) contains “*all the chart information necessary for safe navigation, and may contain supplementary information in addition to that contained in the paper chart (e.g., sailing directions) which may be considered necessary for safe navigation*” (Section 2.2).
- (ii) *The chart information to be used in ECDIS conforms to IHO S-57 standards* (Section 4.1).
- (iii) *IHO recommended colours and symbols (S-52) should be used to represent System ENC information* (Section 8.1).

b) Navigation-related information:

- (i) *Radar information or other navigational information may be added to the ECDIS display. However, it should not degrade the SENC information, and should be clearly distinguishable from the SENC information* (Section 6.1).
- (ii) *The colours and symbols other than those mentioned in 8.1 should be used to describe the navigational elements and parameters listed in Appendix 3 and published by IEC Publication 61174* (Section 8.2)

2.2 HGMIO is a subsidiary of two committees:

- (i) IHO Committee on Hydrographic Requirements for Information Systems (CHRIS).
- (ii) IEC Technical Committee No. 80 - Maritime Navigation and Radiocommunications Equipment and Systems (TC80)

3. Procedures

The HGMIO should:

- a) Harmonize the activities of IHO and IEC related to the provision and display of supplemental chart- and navigation-related information on ECDIS.
- b) Conduct technical exchange on MIOs with type-approval authorities, ECDIS manufacturers and ECDIS user community.
- c) HGMIO maintains a functional working relationship with:
 - (i) IHO CHRIS/Transfer Standard Maintenance and Applications Development WG (TSMAD)
 - (ii) IHO CHRIS/Colours and Symbols Maintenance WG (C&SMWG)

- (iii) IEC TC80/Working Group 7 (ECDIS)
- (iv) IEC TC80/Working Group 13 (Navigation Display)

- d) Liaise with other organizations, committees and working groups involved in ECDIS-related matters. This may include:
 - IMO/IHO Harmonization Group on ECDIS (HGE)
 - International Association of Lighthouse Authorities (IALA)
 - World Meteorological Organization (WMO)
 - North Atlantic Treaty Organization (NATO)
 - IHO Tidal Committee

- d) When instructed by IHO CHRIS, recommend appropriate changes or additions to:
 - 1) IHO S-57
 - 2) IHO S-52, Appendix 2

- e) When instructed by IEC TC80, recommend new navigation-related symbols to be incorporated into:
 - IEC 61174, Annex E (Navigational Symbols for ECDIS)
 - IEC 62288 (Presentation of Navigation-related Information)

4. Composition and chairmanship

- a) HGMIO should be comprised of members or participants of standing IHO and IEC committees or working groups. The Chairman may also invite subject matter experts to participate as required.

- b) HGMIO should be chaired by an individual who is an active participant in both IHO CHRIS and IEC TC80.

5. Guiding Principles

Overall, the role of HGMIO is to facilitate the development and implementation of Marine information Objects. To this end there are a number of guiding principles:

- a) The primary focus of developing specifications related to the use Marine Information Objects (MIOs) on ECDIS should be to supplement the minimum chart- and navigation-related information required for safety of navigation.

- b) The HGMIO should monitor other ECDIS-related developments and performance standards that may involve the display of additional navigation-related information. This would include IMO Performance Standards for other navigation systems, such as Automatic Identification Systems (AIS), VTS-related information proposed by IALA, and Displays for the Presentation of Navigation-Related Information by IEC.

- c) The HGMIO should monitor what is occurring related to ECDIS type-approval. This should include such matters as current exceptions granted and future regulations (e.g., carriage requirements).

- d) Recommendations for MIOs should not be finalized without first conducting comprehensive testing and evaluation, validation by ECDIS manufacturers, and at-sea trials with mariners.

Reference: CHRIS Letter 3/2002, dated 16 May 2002