

**14<sup>th</sup> CHRIS MEETING**  
**Shanghai, China, 15-17 August 2002**

**TERMS OF REFERENCE FOR CHRIS COMMITTEE**  
**and Related Working Groups**  
*(August 2002)*

**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 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.

## **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 S-52 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. TECHNOLOGY ASSESSMENT W.G. (TAWG)**

##### **1. Objective**

To assess the potential of present and developing information technology with respect to applications within the scope of CHRIS, and advise CHRIS accordingly.

##### **2. Authority**

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

##### **3. Procedures**

- a) The WG should establish time-limited project groups (PGs) on specific subjects or topics agreed upon by CHRIS;
- b) Membership of the PGs should be composed of experts from HOs, industry, and other qualified bodies, as appropriate;
- c) The WG and PGs will work by meetings, symposia, workshops and correspondence. No funds from the IHB will be used without prior specific approval by Member States;
- d) The WG and PGs will liaise with other IHO WGs as appropriate;
- e) The WG will provide advice to CHRIS through project reports.

##### **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.

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

[revised by CHRIS-13, 2001, Athens, Greece]

### 1. **Objective**

To develop guidelines for the preparation of nautical publications, primarily in a digital format compatible with ECDIS and secondly in paper and digital formats, as stand-alone publications.

### 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.

## 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. IHO-IEC HARMONIZING GROUP ON MARINE INFORMATION OBJECTS (HGMIO) [adopted by CHRIS Letter 3/2002, dated 16 May 2002]

### 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.