

**20<sup>th</sup> CHRIS MEETING**  
**Niterói, RJ, Brazil, 3-7 November 2008**

**TERMS OF REFERENCE FOR CHRIS COMMITTEE**  
**and Related Working Groups**  
*(October 2008)*

**I. COMMITTEE ON HYDROGRAPHIC REQUIREMENTS FOR INFORMATION SYSTEMS (CHRIS) –**  
**M-3 TR K2.13**

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.

*Reference: Decision No 27 (B) of the 17<sup>th</sup> IHC, May 2007*

## **II. TRANSFER STANDARD MAINTENANCE AND APPLICATIONS DEVELOPMENT W.G. (TSMAD) – M-3 TR K2.21**

### **1. Objective**

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

### **2. Authority**

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

### **3. Procedures**

- a) The WG should:
  - (i) maintain the IHO transfer standard for digital hydrographic data 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 the IHO transfer standard for digital hydrographic data 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: maintenance of the IHO transfer standard for digital hydrographic data, product specifications, 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.
- 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), Expert Contributors and Accredited NGO 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.

*Ref: 18<sup>th</sup> CHRIS Meeting (Cairns, Australia, 25-29 September 2006)*

### **III. COLOURS AND SYMBOLS MAINTENANCE W.G. (CSMWG) – M-3 TR K2. 26**

#### **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 work is 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) Perform maintenance of Appendix 2 by immediate amendments for safety related matters and long-term revisions by deferred amendments.

(iii) Draft new editions of S-52 Appendix 2 as instructed by CHRIS.

(iv) Identify basic scientific fundamentals and provide guidance to ECDIS manufacturers related to colours and symbolization of hydrographic information.

(v) Provide and maintain a framework for display of SENC information that is feasible and practicable within available technology.

(vi) Coordinate technical exchange between CSMWG, type-approval authorities, ECDIS manufacturers and ECDIS user community, including the conduction of comprehensive testing and validation of colours and symbolization by manufacturers, and at-sea trials with mariners.

(vii) Monitor the operational performance and development of IHO specifications, progress in display technology, and human perception analysis.

(viii) Consider new topics and other applications affecting electronic chart display, and/or draft the relevant extension documents.

b) The WG should work by correspondence, group meetings, workshops or symposia. The WG should meet at least once every two years.

e) The WG should liaise and harmonize with other ECDIS-related bodies as appropriate (e.g., TSMAD, CSPCWG, IEC, IMO/IHO HGE, IALA, WMO, IACS, NATO, etc.).

f) 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), 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.

*Ref: 18<sup>th</sup> CHRIS Meeting (Cairns, Australia, 25-29 September 2006)*

**IV. DATA PROTECTION SCHEME W.G. (DPSWG) –  
M-3 TR K2.27**

**1. Objective**

To develop and maintain an IHO ENC data protection scheme.

**2. Authority**

This WG is a subsidiary of the Committee on Hydrographic Requirements for Information Systems (CHRIS). Its work is subject to 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), Expert Contributors and Accredited NGO 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.

*Ref: 18<sup>th</sup> CHRIS Meeting (Cairns, Australia, 25-29 September 2006)*



**V. STANDARDISATION OF NAUTICAL PUBLICATIONS W.G. (SNPWG) –  
M-3 TR K2.34**

**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 WG is a subsidiary of the Committee on Hydrographic Requirements for Information Systems (CHRIS). Its work is subject to CHRIS approval.

**4. Procedures**

- 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.
- b) The WG should liaise with other CHRIS WG's and other IHO and international bodies as appropriate and as instructed by CHRIS.
- c) 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.
- d) The WG should identify a work programme for each year, including expected time frame.

**5. Composition and Chairmanship**

- a) The WG shall comprise representatives of IHO Member States (M/S), Expert Contributors and Accredited NGO 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.

Ref: 18<sup>th</sup> CHRIS Meeting (Cairns, Australia, 25-29 September 2006)

**VI. CHART STANDARDIZATION AND PAPER CHART W.G. (CSPCWG) –  
M-3 TR K2.39**

**1. Objectives**

- a. To provide a core of expertise on the concepts of charting, noting that whatever physical form the chart may take the fundamental concepts and elements of marine cartography remain the same.
- b. To develop and maintain the IHO publications for which it is responsible.

**2. Authority**

This WG is a subsidiary of the Committee on Hydrographic Requirements for Information Systems (CHRIS). Its work is subject to CHRIS approval. In the interests of procedural efficiency the WG has authority to reach decisions on the maintenance and updating of the documents for which it is responsible and seek direct endorsement of its proposals by IHO Member States via the IHB. This does not include matters that may have a strategic or financial implication for Member States or other interested stakeholders.

**3. Procedures**

- a. The WG's main tasks are to:
  - i. Keep under continuous review the IHO publication M-4 'Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO', in order to advise the IHO on their updating, design and format and the portrayal of symbols. Note: M-4 is supplemented by:
    - INT 1 'Symbols, Abbreviations and Terms used on Charts'
    - INT 2 'Borders, Graduation, Grids and Linear Scales'
    - INT 3 'Use of Symbols and Abbreviations, as recommended by the IHO'
  - ii. Advise the IHO on suggestions put forward by Member States to update M-4, in accordance with IHO Specification B-160, with the goal of achieving the maximum possible adherence by Member States to the Regulations and Specifications.
  - iii. Keep under continuous review the following IHO publications in order to advise the IHO on their updating:
    - M-11 Part A 'Guidance for the Preparation and Maintenance of International Chart Schemes'
    - M-15 'List of Booklets on Chart Symbols & Abbreviations'
    - S-49 'Recommendations concerning Mariners' Routeing Guides'
  - iv. Advise the IHB and Regional Hydrographic Commissions, as appropriate, on the work of Regional Charting Groups (RCG) in order to promote the production of international (INT) charts. The role of the WG is purely consultative.
  - v. Offer advice based on its experience to RCG and individual Member States, on chart schemes and cartographic work, in order to strongly encourage adherence to IHO charting specifications. The role of the WG is purely consultative.
- b. The WG conducts its business mainly by correspondence. It will also plan to hold meetings at least once every two years, dependant on membership support and business needs.
- c. All members shall inform the Chairman in advance of their intention to attend meetings of the WG.
- d. Decisions shall generally be made by consensus. If votes are required on issues or to endorse proposals presented to the WG, votes shall be taken by a simple majority of the Member States present and voting. When dealing with inter-sessional matters by correspondence, a simple majority of responding WG members shall be required.

- e. The WG should identify a work programme for each year, including expected time frame for progressing tasks.
- f. The WG will maintain close liaison with other CHRIS WGs, particularly CSMWG and TSMAD, and other international and IHO bodies, as appropriate and as instructed by CHRIS.
- g. The WG will report progress to meetings of CHRIS and to Member States through the CHRIS report in the Annual Report of the IHB

#### 4. **Composition and Chairmanship**

- a. Membership of the CSPCWG is open to all Member States wishing to be represented. Normally there should be not more than one representative from each Member State.
- b. Accredited Non-Governmental International Organizations observers may participate in CSPCWG activities.
- c. 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.
- d. 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.
- e. The Chairman and Vice-Chairman will decide between themselves the organization of the work entailed in these posts.
- f. The Chairman will monitor membership to ensure that each regional hydrographic commission is invited to be represented on the WG.
- g. A Secretary will be appointed, normally from within the organization of the Chairman of the WG, to ensure the smooth running of business, and to administer consultation and collation of members' views. The Secretary is a member of the WG.

#### 5. **Guiding principles**

- a. 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:
  - i. an explanation of the general concepts and rationale behind the portrayal of features on charts, much of which is relevant to both electronic and paper charts.
  - ii. specific guidance for paper charts, including their content and the use of text and symbology.

Ref: *18<sup>th</sup> CHRIS Meeting (Cairns, Australia, 25-29 September 2006)*  
*[Updated at CSPCWG-4 (November 2007)]*

## VIII. IHO-IEC HARMONIZING GROUP ON MARINE INFORMATION OVERLAYS (HGMIO) – M-3 TR K2.25

### 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 transfer standard for digital hydrographic data (currently, S-57)* (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 transfer standard for digital hydrographic data (currently, 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 Overlays. To this end there are a number of guiding principles:

- a) The primary focus of developing specifications related to the use Marine Information Overlays (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.

Ref: *17<sup>th</sup> CHRIS Meeting, 5-9 September 2005, Rostock, Germany*  
*[Updated at HGMIO-4 (May 2007)]*

**IX. DATA QUALITY W.G. (DQWG)**  
M-3 TR K2.37

**1. Objective**

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

**2. Authority**

This WG is a subsidiary of the Committee on Hydrographic Requirements for Information Systems (CHRIS). 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;
  - iv. Review and revise as needed the presentation of data quality, as provided in S-52 and its Presentation Library;
  - v. Investigate ways of ensuring that ECDIS displays provide a clear warning or indication to the mariner on the quality of the underlying survey data, through appropriate use of the attribute CATZOC and/or improvement of the existing display capabilities, and;
  - vi. 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 NGO 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.

*Ref: 19<sup>th</sup> CHRIS Meeting (Rotterdam, The Netherlands, 5-9 November 2007)*



**X. HYDROGRAPHY AND CARTOGRAPHY IN INLAND WATERS W.G. (HCIWWG)**

M-3 TR K2.44

**1. Objective**

Analyse and recommend the level and nature of IHO involvement in the hydrography and cartography of inland waterways.

**2. Authority**

This Working Group (WG) is a subsidiary of the IHO CHRIS. Its work is subject to IHO CHRIS approval.

**3. Procedures**

The WG should:

- a) Define those inland waterways for which the IHO may have a significant role.
- b) Determine any actions that the IHO might take to contribute positively to the hydrography and cartography of inland waterways and propose which IHO bodies might foster such actions.
- c) Propose any Technical and/or Administrative Resolutions that may be required to reflect IHO involvement in the hydrography and cartography of inland waterways.
- d) The WG should liaise with all relevant non-IHO international bodies including the Inland ECDIS Harmonization Group (IEHG), as appropriate;
- e) The WG should work by correspondence, and use group meetings, workshops or symposia only if required.
- f) Submit a report and recommendations to CHRIS/20 in 2008 for subsequent consideration at the 4<sup>th</sup> Extraordinary International Hydrographic Conference in 2009.

**4. Composition and Chairmanship**

- a) The WG shall comprise representatives of Member States, Expert Contributors and Accredited NGO Observers, all of whom have expressed their willingness to participate.
- b) Member States, Expert Contributors and Accredited NGO Observers may indicate their willingness to participate at any time. A membership list shall be maintained and confirmed annually.
- 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 should normally 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, in such case, shall be determined by vote of the Member States present and voting.
- e) 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. In the event that votes are required between meetings or in the absence of meetings, including for elections of the Chair and Vice Chair, this shall be achieved through a postal ballot of those M/S on the current membership list.
- f) If a secretary is required it should normally be drawn from a member of the WG.
- g) 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.

- h) Expert Contributors shall seek approval of membership from the Chairman.
- i) Expert Contributor membership may be withdrawn in the event that a majority of the M/S represented in the WG agrees that an Expert Contributor's continued participation is irrelevant or unconstructive to the work of the WG.
- j) All members shall inform the Chairman in advance of their intention to attend any meetings of the WG.
- k) 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.

*Ref: 19<sup>th</sup> CHRIS Meeting (Rotterdam, The Netherlands, 5-9 November 2007)*

**XI. MARINE SPATIAL DATA INFRASTRUCTURES W.G. (MSDIWG) –  
M-3 TR K2.45**

**1. Objective**

Identify the Hydrographic Community inputs to National Spatial Data Infrastructures (NSDI).

**2. Authority**

This Working Group (WG) is a subsidiary of the IHO CHRIS. Its work is subject to IHO CHRIS approval.

**3. Procedures**

The WG should:

- a) Identify, in line with the objectives, mission and vision of the IHO, the level and nature of the IHO's role in assisting Member States (M/S) in their support of NSDI.
- b) Liaise, as appropriate, with other relevant technical bodies such as the IOC, and the World Data Centers in Oceanography, Bathymetry and Marine Geophysics.
- c) Propose any Technical and/or Administrative Resolutions that may be required to reflect IHO involvement in the support of NSDI.
- d) Identify actions and procedures that the IHO might take to contribute to the development of National Spatial Data Infrastructure (NSDI) and / or MSDI in support of Member States.
- e) Determine any actions that the IHO and individual M/S might take to forge links with other bodies (e.g. OGC, ISO TC211, IOC) to ensure M/S are best placed to meet the developing challenges associated with data management and governance.
- f) Identify and recommend possible solutions to any significant technical issues related to interoperability between maritime and land based inputs to NSDI, and in particular:
  - 1) Datum issues.
  - 2) S-100 interoperability with NSDI.
  - 3) S-100 interoperability with oceanographic, marine biological, geological and geophysical data structures.
- g) Identify any IHO capacity building requirements.
- h) The WG should work by correspondence, and use group meetings, workshops or symposia only if required.
- i) Submit a report and recommendations to CHRIS/20 in 2008 for subsequent consideration at the 4<sup>th</sup> Extraordinary International Hydrographic Conference in 2009.

**4. Composition and Chairmanship**

- a) The WG shall comprise representatives of Member States, Expert Contributors and Accredited NGO Observers, all of whom have expressed their willingness to participate.
- b) Member States, Expert Contributors and Accredited NGO Observers may indicate their willingness to participate at any time. A membership list shall be maintained and confirmed annually.
- 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 should normally 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, in such case, shall be determined by vote of the Member States present and voting.

- e) 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. In the event that votes are required between meetings or in the absence of meetings, including for elections of the Chair and Vice Chair, this shall be achieved through a postal ballot of those M/S on the current membership list.
- f) If a secretary is required it should normally be drawn from a member of the WG.
- g) 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.
- h) Expert Contributors shall seek approval of membership from the Chairman.
- i) Expert Contributor membership may be withdrawn in the event that a majority of the M/S represented in the WG agrees that an Expert Contributor's continued participation is irrelevant or unconstructive to the work of the WG.
- j) All members shall inform the Chairman in advance of their intention to attend any meetings of the WG.
- k) 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.

*Ref: 19<sup>th</sup> CHRIS Meeting (Rotterdam, The Netherlands, 5-9 November 2007)*