

1st IHO-HSSC Meeting
The Regent Hotel, Singapore, 22-24 October 2009

Report of the Digital Information Portrayal Working Group (DIPWG)

Submitted by:	Chairman, Colby A. Harmon
Related Documents:	IEC 61174, ECDIS - Operational and performance requirements, methods of testing and required test results IEC 62288, Presentation of navigation-related information on shipborne navigational displays - General requirements, methods of testing and required test results. IMO A.817(19), Performance Standards for ECDIS, as amended IMO MSC.232(82), Revised Performance Standards for ECDIS ISO 19117, Geographic Information - Portrayal
Related Projects:	TSMAD Development of S-100 and S-101

Chair:	Colby A. Harmon, USA		
Vice-Chair:	Julia Powell, USA		
Secretary (acting):	Richard Coombes, United Kingdom		
* Member States:	Australia	France	South Africa
	Brazil	Germany	UK
	Canada	Japan	USA
	Denmark	Norway	(and IHB)
	Finland	Sweden	
* Expert Contributor Organisations:	CARIS (Canada) C-Map/Jeppesen Marine (Germany/Norway) DCIEM (Canada) ECC (Norway) ESRI (USA) Furuno Finland (Finland) GEOMOD (France) Hydroservice AS (Norway) IC-ENC (UK) IIC Technologies (Canada) Offshore Systems Inc. (Canada) SAM Marine Electronics (Germany) SevenCs (Germany) T-Kartor (Finland) Transas Group (Russia)		
<i>see Annex A for full details</i>			

* Attendees of either of the last two DIPWG annual meetings. Bold text indicates those attending in 2009.

Meetings Held During Reporting Period

DIPWG1 4-8 May 2009 Ottawa, Canada Hosted by Canadian Hydrographic Service (CHS)

Next Meeting

DIPWG2 Spring 2010 Rostock, Germany Hosted by Bundesamt für Seeschifffahrt und Hydrographie (BSH)

Work Program (Tasks with active work items assigned)

Task	Task / Work Item	Priority	Start	End
A	Maintain S-52 and its associated "Presentation Library"	H	2002	Cont
A.2	Implementation of changed requirements of revised IMO ECDIS Performance Standards into S-52 Colours & Symbols regulations.	H	2006	2009

Status: ONGOING

The final draft of S-52, Edition 6, has been distributed for comment. Edition 6 will be released after comments from Member States have been incorporated into the final document or otherwise addressed.

CIRCULAR LETTER 34/2009, "S-52 – Specifications for Chart Content and Display Aspects of ECDIS Draft 6th Edition - Request for Stakeholder Feedback," issued on 19 May 2009, requested that, "In order that any significant feedback can be considered by HSSC-1, feedback on S-52 Edition 6 should be forwarded ... no later than 18 September 2009."

S-52, Edition 6 removes redundant operational ECDIS requirements specified in the new IMO ECDIS Performance Standards adopted through resolution MSC.232(82) and updated any S-52 references that pointed to the former performance standards, Res.A.817(19). The structure of S-52 was simplified by merging the S-52 Appendix 2 into the Main S-52 Document.

Details of the changes applied to S-52 Edition 6 are described below:

Deletions:

- Requirements that were redundant with those specified in the new IMO MSC.232(82), ECDIS Performance Standards (PS) were removed from S-52.
- Commentary related to the relative immaturity of ECDIS, LCD displays or other developing technology that was written for the earliest editions of S-52 was most often deleted, but sometimes was revised to reflect the respective entity's current state of development or use.
- Annex A to the original S-52 main document, "Reference Table between S-52 and the IMO Performance Standards for ECDIS" was deleted.
- Annex B to the original S-52 main document, Performance Standards For ECDIS, IMO Resolutions A.817 (19), Msc.64 (67) And Msc.86 (70)" was deleted.

Updated References:

- All references from S-52 to the old IMO Res.A.817(19) PS were changed to the corresponding reference in the new IMO MSC.232(82) PS.
- Figure 1, in section 1.1.4, "International organizations and their related standards for ECDIS," was updated and expanded.
- Figure 2. In Section 1.4, "Structure of the Specifications" was updated to reflect the new S-52 document structure.
- References to CRTs when used in a generic sense were changed to "display."

Amalgamations:

- The historical background sections from the S-52 main document and Appendix 2 were combined. This is now the most comprehensive chronology of S-57 and S-52 development found within the IHO standards and specifications.
- The document change history from the former S-52, Appendix 2 was updated and expanded to apply to the entire S-52 document.

Document Restructuring:

- Since the S-52, Appendix 2 is much larger than the S-52 main document, it was decided to retitle Appendix 2 as the S-52 main document and then selectively merge appropriate portions of the old main document into the former Appendix 2.
- The original paragraph numbering in the former Appendix 2 was retained. Therefore, any reference from other

documents to sections in S-52, Appendix 2 will have the same paragraph number in the newly merged S-52 main document.				
- Annexes A, B and C of the former Appendix 2, became Annexes A, B and C of the merged S-52 main document. The content of these Annexes remains unchanged.				
- The group did not touch S-52, Appendix 1 since the newly formed ENC Updating Working Group (EUWG) has been tasked to review this document (Decision 20/17 of CHRIS-20 and Annex G to CHRIS-20 Minutes refer).				
A.3	Issue Maintenance Document No. 7 of S-52, Appendix 2, Edition 4	M	2008	2008
Status: COMPLETED (HSSC endorsement of MD7 is sought) MD 7 (Deferred Amendment 8) has been completed. It consists of the following changes: - Correction and addition to PresLib Look-up table - Correction to DGPS symbol - Addition to PresLib Look-up table - Point and area objects - Addition to PresLib symbol description (Users"Manual Addendum) - CHECKPOINT and GRIDIRON symbols - Correction and addition to List of Symbol Names & Meanings - Correction to several entries				

Task	Task / Work Item	Priority	Start	End
C	Examination of S-52 main documents and annexes for redundant operational aspects of ECDIS.	M	2002	2007
C.1	Re-structure S-52 including annexes under consideration of the recent revisions of applying documents of IMO and IEC.	H	2008	2009
Status: COMPLETED (HSSC agreement to close this work item is sought) The S-52, Appendix 2 has been merged into the S-52 main document. DIPWG is also recommending that the S-52, Appendix 1, "Guidance on Updating the Electronic Navigational Chart," be separated from S-52 and made into a separate IHO S-XX document to be maintained by the ENC Update Working Group (EUWG). Also See Task A.2 above				
C.2	Liaise with IEC to harmonize the resulting new draft of S-52 with IEC61174 and IEC62288 through the Chairman of IEC/TC80.	H	2008	2009
Status: ONGOING IEC 61174 All references from the new IEC 61174 Operational and Performance Requirements to S-52 Edition 5 were traced to the corresponding section in the new S-52 Edition 6. These changes were identified to the Chairman of the IEC/TC80, Dr Andrew Norris, through the letter of 15 May 2009, (IHB File No. S3/8151/DIPWG), "Need for updating of IEC 61174 references to IHO S-52 when S-52, Edition 6 is released." IEC 62288 Edition 1 of IEC 62288, "Presentation of navigation-related information on shipborne navigational displays - General requirements, methods of testing and required test results," was published 27 July 2008. The S-52 Presentation Library, Annex A of Appendix 2, Page I-245 states that a, "depiction of selected ECDIS Mariner's Navigational Symbols are included in these specifications for convenience of reference, by courtesy of IEC, who are the authority for them under IEC 62288. However, to preclude any confusion over the precedence of the two documents, DIPWG is considering the removal of Nav Symbols from the ECDIS Chart 1. DIPWG will continue to monitor IEC 61174 and IEC 62288 maintenance activities to identify any conflicts or other issues related to ECDIS symbology.				
C.3	Present a re-drafted S-52 to HSSC-1.	H	2009	2009
Status: COMPLETED (HSSC endorsement of plan to release S-52, edition 6 and to close this work item is sought) See Task A.2 above				

Task	Task / Work Item	Priority	Start	End
F	Assess the impact on S-52 C&S regulations of other IHO standards.	M	2002	Cont
F.2	In close liaison with TSMAD, set up a portrayal register within the S100 registry.	H	2005	2009

Status: ONGOING

Two major activities were undertaken last year that directly support the ongoing development of the S-100 Portrayal Register. The first was the development of a preliminary Portrayal Model as a profile of the ISO 19117 standard. As ISO 19177 is still evolving, it is anticipated that a fair amount of work will be required to realign the Portrayal Model after the ISO standard stabilizes, but the DIPWG contends that the work needed to support the development of S-100 and S-101 should not wait for ISO.

This work, accomplished under an IHB contract, included the creation of XML to frame the Portrayal Model itself, which defines the relationships among portrayal components, such as rules, filters and portrayal instructions within XML. A Symbol Model was also built, which defines the relationships among symbol components (colours, line styles, etc.) and instantiates the symbols in XML.

The second activity was the translation of the Conditional Symbology Procedures in the S-52 Portrayal Library into XML. This work was accomplished through a separate member state sponsored contract.

Additional work has been planned to harmonize the XML schemes that were developed separately for each of these efforts, address feedback generated from the DIPWG, TSMAD and industry review of these efforts, and to align the models to the expected changes in the ISO 19117 standard.

Task	Task / Work Item	Priority	Start	End
J	Harmonisation with CSPCWG.	M	2005	Cont
J.1	Liaise with CSPCWG.	M	2005	Cont

Status: ONGOING

Continuing to monitor CSPCWG activities. CSPCWG Vice Chair, Jeff Wootton, provided an update on the WG's efforts to the combined TSMAD/DIPWG meeting in May 2009. In coordination with TSMAD, DIPWG will be reviewing new paper chart symbols for "Pipes Buried in Tunnels" and "Offshore Renewable Energy Installations" (Wave and Wind Farms) to determine if there is any need for S-52 counterparts. Also awaiting the results of HDWG, CSPCWG and TSMAD discussions regarding the definition and usage of the terms "foul area" and "foul ground."

Task	Task / Work Item	Priority	Start	End
K	Maintain the DIPWG bulletin and FAQ section on the IHO website	M	2005	Cont
K.1	Establish Links at IHB server	M	2005	Cont

Status: COMPLETED (HSSC agreement to close this work item is sought)

Links to "S-52 IHO Colours and Symbols – FAQ" and "S-52 Chart Presentation Bulletins (CPB)" are accessible from the IHO Website through the left-hand submenu on the "ENC Portrayal" page reached by the path [Home](#) > [About ENCs](#) > [ENC Portrayal](#) > or at the bottom of the DIPWG homepage.

The URLs are <http://www.iho-ohi.net/english/about-encs/enc-portrayal/s-52-faqs.html> and <http://www.iho-ohi.net/english/about-encs/enc-portrayal/s-52-portrayal-bulletins.html> respectively.

Work Program (Tasks with no active work items assigned)

There are no active Work Items assigned or proposed for the Tasks listed below. All work on Task I, "Develop Symbols for object and attribute enhancements of S-57 Edition 3.1.1," has been completed. The DIPWG chair recommends that Task I be deleted from the DIPWG Work Plan.

Task	Task / Work Item	Priority	Start	End
B	Contribute to IEC TC80/WG13 symbol harmonizing work	H	2002	2008
D	Introduce new website based recommendation service for good application practice of S-52	M	2002	2008
E	Contribute to harmonised rules for ENC loading strategy, use of SCAMIN and overscale indication.	M	2002	Cont
G	Improving ENC Consistency/loading strategies.	M	2006	Cont
H	Harmonisation of pick report presentation	M	2005	2008
I	Develop Symbols for object and attribute enhancements of S-57 Edition 3.1.1	M	2006	2008

Progress on HSSC Action Items

HSSC Action No.	Subject	Action
19/14	Symbol specifications register	IHB to monitor the continuation of activities to establish an IHO Symbol Specification Register as part of S-100, to be done under an IHO contract of approximately €12,000 per year.
Status: ONGOING		
Activities under this contract are described under Work Program Task Item F.2 above. Additional funding will be required to continue development of the Geospatial Information Infrastructure (GII) Portrayal Register (formerly called the IHO Symbol Specification Register).		
20/21	Revision of S-52	DIPWG to undertake a revision of S-52, including all annexes.
Status: COMPLETED		
Details are described under Work Program Task Item A.2 above.		
20/22	Pick report	DIPWG to further develop pick report as proposed in CHRIS20-06.3A.
Status: PLANNED		
DIPWG plans to refine Pick Report specifications for use in S-101.		

Problems Encountered

None

Any Other Items of Note

The chairmanship of the DIPWG passed from Mathias Jonas to Colby Harmon at the DIPWG1 meeting in Ottawa, Canada on 4 May 2009.

Recommended Actions and Justifications

Actions Recommended by DIPWG:

- a. Recommendation: Adopt the revised DIPWG Work Plan contained in Annex B.
Justification: Details of each task item are described in the remarks section of the work plan.
- b. Recommendation: Expand the scope of the DIPWG work to include supporting the development and future maintenance of the Geospatial Information Infrastructure Portrayal Register and the portrayal related portions of the S-100 and S-101 standards, as specified in the revised DIPWG TOR contained in Appendix D.
Justification: This action will extend the current use of the subject matter experts among ECDIS portrayal stakeholders within DIPWG, who maintain S-52, to help formulate the next generation of portrayal standards in support of the emerging the S-100 and S-101 standards.
- c. Recommendation: CHRIS20 tasked the newly formed ENC Update Working Group (EUWG) to, "review and revise the updating mechanisms as contained in S-52 Appendix 1." Therefore, the DIPWG recommends removing Appendix 1, "Guidance on Updating the Electronic Navigational Chart," from S-52 and establishing it as a separate IHO S-XX document to be maintained by the EUWG.
Justification: This action will fulfill earlier HSSC direction, make the responsibility for each working group over respective documents clear and facilitate the independent configuration control and maintenance of each document.

Action Required of HSSC

The HSSC is invited to:

- a. endorse plan to release of S-52, Edition 6 after the review and response to the feedback generated from Circular Letter 34/2009 calling for the review of S-52, edition 6.
- b. endorse S-52, Maintenance Document 7 for release
- c. endorse the new DIPWG Work Plan as shown in Annex B.
- d. agree to changing the DIPWG Terms of Reference as shown in Annex D.
- e. agree to removing Appendix 1, "Guidance on Updating the Electronic Navigational Chart," from S-52 and establishing it as a separate IHO S-XX document to be maintained by the ENC Update Working Group (EUWG).
- f. agree to request additional IHB funds for continuing the development of the Geospatial Information Infrastructure (GII) Portrayal Register and for additional work needed to correct errors in the ECDIS Chart 1.
- g. note the fine work that has been accomplished by the DIPWG team.

Annex A

Membership of DIPWG

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DIPWG Proposed Work Plan – October 2009 to October 2010

The proposed work plan below closes three work items (C.1, C.3 & K.1) that have been completed, retains four ongoing work items (A.2, C.2, F.2 & J.1), and recommends starting six new work items (A.1, A.4, F.3, F.4, K.2 & K.3) to focus DIPWG efforts in the future. The work to be undertaken within each of the proposed work items is described in the remarks section.

This work plan extends the trend established in the previous plan to continue routine maintenance of the existing S-52 standard while broadening our support for the development of S-100, S-101 and the Geospatial Information Infrastructure Portrayal Register. This plan also recommends that the task category I, “Develop Symbols for object and attribute enhancements of S-57 Edition 3.1.1,” be deleted altogether as all work on this task has been completed and no additional work items under this task are anticipated.

DIPWG Tasks

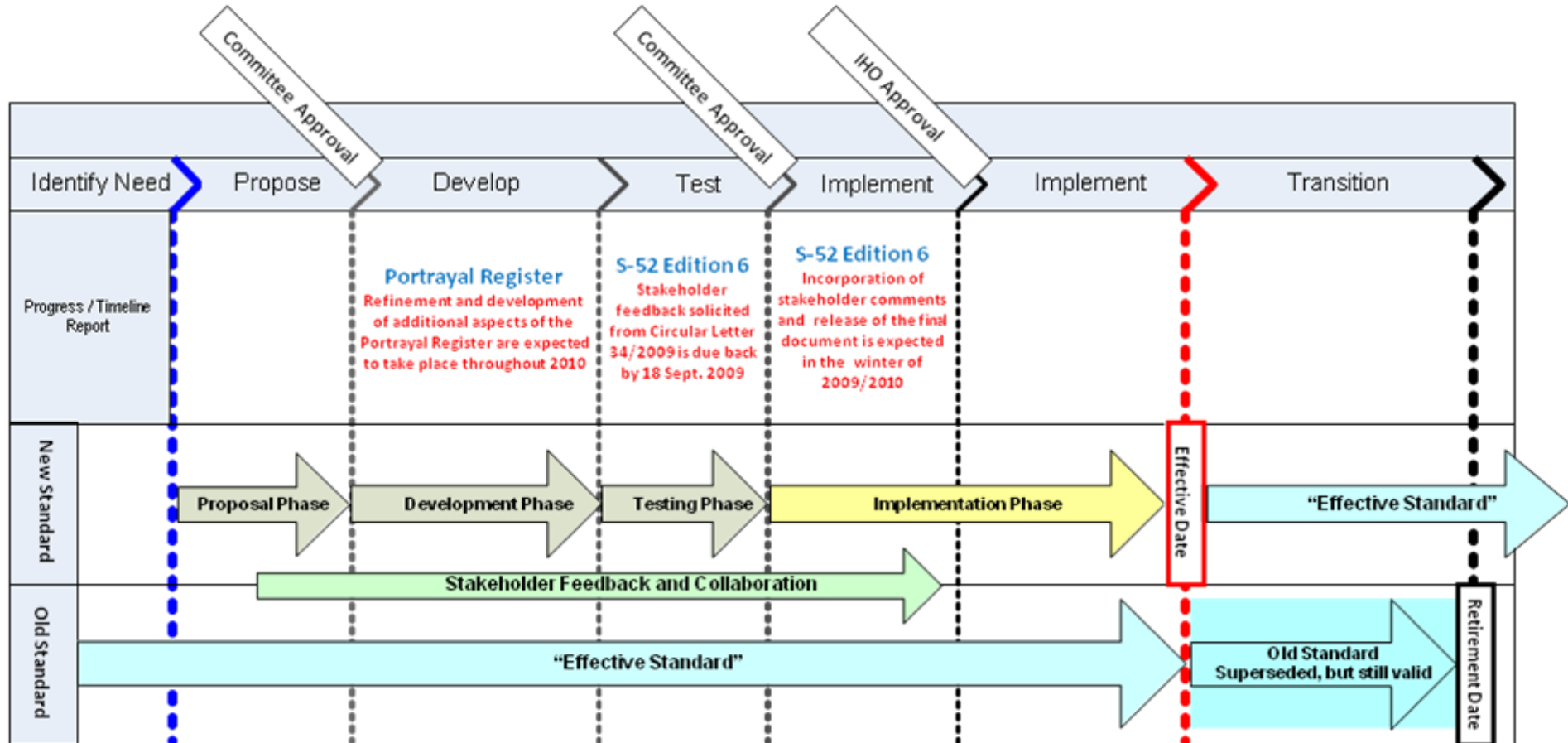
- A Maintain S-52 and its associated “Presentation Library” (IHO T3.3.1 refers)
- B Contribute to IEC TC80/WG13 symbol harmonizing work (IHO T3.3.3 refers)
- C Examination of S-52 main documents and annexes for redundant operational aspects of ECDIS (IHO T3.3.1 refers)
- D Introduce new website based recommendation service for good application practice of S-52 (IHO T3.3.1 refers)
- E Contribute to harmonised rules for ENC loading strategy, use of SCAMIN and overscale indication
- F Assess the impact of other IHO standards on S-52 C&S regulations **[The wording of this task has been reordered for the sake of clarity]**
- G Improving ENC Consistency/Loading strategies
- H Harmonisation of pick report presentation
- I Develop Symbols for object and attribute enhancements of S-57 Edition 3.1.1 (IHO T3.3.1 refers) **[All work on this task has been completed. Recommend deleting this category]**
- J Harmonisation with CSPCWG
- K Maintain the DIPWG bulletin and FAQ section on the IHO website

Task	Work Item	Priority H-high M-medium L-low	Mile- stones	Start Date	End Date	Status P-planned O-ongoing C-Completed	Contact Person	Affected Pubs/Standard	Remarks
A.1	Resolve any problems or errors identified in S-52 and its Presentation Library as appropriate	H		2009	-	O	Colby Harmon Julia Powell	S-52	New Work Item This addresses the routine maintenance of S-52.

A.2	Implementation of changed requirements of revised IMO ECDIS Performance Standards into S-52 Colours & Symbols regulations	H		2006	2010	O	Colby Harmon	S-52	Continuing Work Item The final draft of S-52, Ed. 6, has been distributed for comment through IHO Circular Letter 34/2009, which requests feedback by 18 Sept. 2009. After comments have been addressed, S-52, Edition 6 will be released.
A.4	Issue Maintenance Document No. 8 of S-52.	M		2009	2010	P	Colby Harmon Mathias Jonas	S-52	New Work Item It is expected that MD8 will: - Clarify the portrayal of certain wrecks and obstructions - Resolve some issues with the ECDIS Chart 1 - Add "Unknown" as a valid enumerate value in the Presentation Library Look-up Tables to differentiate between unknown and unpopulated (null) attribute values.
C.2	Liaise with IEC to harmonize the resulting new draft of S-52 with IEC61174 and IEC62288 through the Chairman of IEC/TC80.	H		2008	2010	O	Mathias Jonas	S-52	Continuing Work Item IEC/TC80 has been alerted to the pending changes to S-52. This work item addresses any ongoing coordination to clarify any questions that IEC may have.
F.2	In close liaison with TSMAD, set up a portrayal register within the S100 registry	H		2005	2012	O	Colby Harmon Pol Lebihan Julia Powell	S-52 S-100 Portrayal Register	Continuing Work Item This work item will refine and expand the initial development of Portrayal and Symbol Models that will ultimately become part of the Geospatial Information Infrastructure Portrayal Register.
F.3	Assist TSMAD in identifying which aspects of S-52 should be incorporated into the S-101 Specification.	H		2009	2010	P	Colby Harmon Julia Powell	S-101	New Work Item This assists TSMAD in writing Section 9 of the S-100 standard, which describes portrayal.

F.4	Develop proposal to refine and clarify the governance for each portrayal component (Standards, Specifications & Registers) of S-100 & S-101.	H		2009	2010	P	Colby Harmon Julia Powell	S-100 S-101	New Work Item This work item will build upon the Geospatial Information Infrastructure Management Arrangements proposed by the TSMAD to the HSSC in document HSSC1-06.1G.
J.1	Liaise with CSPCWG	M		2009	-	O	Colby Harmon Jeff Wootton	S-52 S-100 Portrayal Register	Continuing Work Item This work item will review and address, as appropriate, any changes in paper chart portrayal standards, in close coordination with TSMAD.
K.2	Maintain Chart Presentation Bulletins on the DIPWG page of IHO website	M		2008	-	O	Colby Harmon Michel Huet		New Work Item This work item addresses the routine posting of CPBs on the IHO website.
K.3	Review and revise other informational pages on the DIPWG page of IHO website	L		2008	-	O	Colby Harmon Michel Huet		New Work Item This work item addresses the continual improvement of the DIPWG page on the IHO website.

IHO Standards Development - Progress Report Diagram



DIGITAL INFORMATION PORTRAYAL Working Group. (DIPWG) - Terms of Reference
(Formerly, Colours and Symbols Maintenance Working Group)

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 Hydrographic Services and Standards Committee (HSSC). Its work is subject to HSSC approval.

3. Procedures

a) The WG should:

- (i) Maintain IHO Special Publication S-52, ~~and~~ its accompanying Presentation Library and the portrayal related elements of IHO Special Publications S-100 and S-101, as well as the Portrayal Register of the Geospatial Information Infrastructure (GII) by preparing and promulgating maintenance documents when required.
- (ii) Perform maintenance of S-52 and the GII Portrayal Register by immediate amendments for safety related matters and long-term revisions by deferred amendments. Collaborate with TSMAD in performing maintenance of the portrayal related elements of S-100 and S-101 by immediate amendments for safety related matters and long-term revisions by deferred amendments.
- (iii) Draft new editions of S-52 and modifications to the GII Portrayal Register as instructed by HSSC.
- (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 DIPWG, 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. When meetings are scheduled, and in order to allow any WG submissions and

reports to be submitted to HSSC on time, WG meetings should not normally occur later than nine weeks before a meeting of the HSSC.

- c) 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.).
- 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: 1st HSSC Meeting (Singapore, October 2009), 20th CHRIS Meeting (Niteroi, RJ, Brazil, 3-7 November 2008)