

**9<sup>th</sup> CSPCWG MEETING**  
**Seoul, South Korea, 06-09 Nov 2012**

**Paper for Consideration by CSPCWG**

**Report to CSPCWG8 on TSMADWG Activities**

<b>Submitted by:</b>	Australia
<b>Executive Summary:</b>	Report on TSMADWG Activities Since CSPCWG8.
<b>Related Documents:</b>	Minutes TSMAD23; Minutes TSMAD24
<b>Related Projects:</b>	S-4 Maintenance

**Introduction / Background**

1. The IHO Transfer Standards Maintenance and Application Development (TSMAD) Working Group is a Working Group of the IHO HSSC. Its primary objectives are to:
  - Maintain the IHO Transfer Standard for Digital Hydrographic Data (S-57).
  - Develop, maintain and extend the new IHO Geospatial Standard for Hydrographic Data (S-100), including management and maintenance of the IHO Hydrographic Register, and development and maintenance of the new ENC Product Specification (S-101), including the S-101 Feature and Portrayal Catalogues.
  - Monitor the development of other related international Standards.
  
2. Since CSPCWG8 TSMAD had held two meetings:
  - TSMAD23 in Wellington, New Zealand – 16-20 January 2012;
  - TSMAD24 at IHB, Monaco – 07-11 May 2012 (in conjunction with DIPWG4).
  
3. The main focus of these meetings was the continuation of the development of the new ENC Product Specification S-101, and the development of a New Version (3.1.0) of S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC. The following is a summary of the activities of these meetings, with particular emphasis on activities that may be of relevance to CSPCWG. Minutes of meetings may be found on the TSMAD page of the IHO web site.
  
4. Additionally, the following TSMAD Sub-Working Group meetings and workshops were held:
  - S-101 Data Classification and Encoding Guide Sub-Working Group meeting in Wollongong, Australia – 11-13 January 2012.
  - IALA e-Navigation Workshop at IHB, Monaco – February 2012 (S-100 and IHO Registry).
  - S-101 Data Classification and Encoding Guide Sub-Working Group meeting at IHB, Monaco – 03-05 May 2012.
  
5. TSMAD25 will be held in Tokyo, Japan, from 14-18 January 2013. The main topic for this meeting will be S-101 development, including submission of a first draft of the S-101 Data Classification and Encoding Guide for full TSMAD review.

**Analysis / Discussion**

6. Documents published since CSPCWG8:
  - S-99 – Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry – Edition 1.1.0 (October 2012 (anticipated publication)): The revision of S-99 has resulted from feedback and experience in the practical use of the IHO S-100 Geospatial Information Registry. The main change from Edition 1.0.0 is theoretical only, and removes the concepts of the Main and Supplementary Registers, which had the potential to confuse users of the Registry and possibly deter prospective users. The change is theoretical in nature as in reality no such barriers exist in the Registry. The single substantive change is the extension of the time limit for raising objections to proposals to changes to the Registers from 30 days to 60 days to allow for

more thorough consideration by relevant stakeholders. The document has been submitted to HSSC4 for endorsement.

- S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC – Edition 3.1.0 (October 2012 (anticipated publication)): New version of the document resulting from published/pending ENC Encoding Bulletins and FAQs. Changes from Edition 3.0.0 include:
  - New guidance to ensure the display in ECDIS of the name of an anchorage (ENC Encoding Bulletin No. 42).
  - New guidance regarding population of attribute EXPSON for underwater rocks, wrecks and obstructions in order to improve ECDIS display (ENC Encoding Bulletin No. 43).
  - New guidance regarding the encoding of magnetic variation information in ENCs (ENC Encoding Bulletin No. 44).
  - New guidance for use of satellite imagery as a source of bathymetry for ENCs (ENC Encoding Bulletin No. 45).
  - New guidance regarding the positioning of features in ENC that are shown out of position on paper charts (ENC Encoding Bulletin No. 46).
  - New guidance regarding the encoding of mangrove areas covered by the intertidal area (ENC Encoding Bulletin No. 47).
  - New guidance regarding the spatial extent of ENC data sets (ENC Encoding Bulletin No. 48).
  - New guidance to further clarify the use of the attributes INFORM and TXTDSC (ENC Encoding Bulletin No. 49).
  - New guidance regarding appropriate content and format for externally referenced graphic files (ENC Encoding Bulletin No. 50).
  - New guidance regarding the level of depiction of topographic detail in ENCs (ENC Encoding Bulletin No. 51).
  - Additional guidance for encoding multiple features which have been generalised into a single feature on the source (ENC Encoding Bulletin No. 52).

The document has been submitted to HSSC4 for endorsement.

7. TSMAD23: The principle agenda item for this meeting was the continuing development of the new ENC Product Specification S-101, including the initial draft of the S-101 Data Classification and Encoding Guide. The following issues that may be of interest to CSPCWG were discussed:

- S-100: The IHO Registry continues to receive proposals to register new items, mainly from domains other than nautical charting such as inland ENC, nautical publications, international boundaries and ice. As S-100 has been determined by the IMO to be the base Standard for e-Navigation, it is expected that future focus in the Registry will be in support of e-Navigation requirements, and IALA has already held discussions with TSMAD in terms of its requirements.
- S-101 ENC Product Specification: Phase 2 of the development of S-101 was reported to be 95% complete, excluding S-101 portrayal, which is still awaiting the completion of the Portrayal part of S-100. Phase 2 development includes enhanced packaging and data loading mechanisms to support new support file formats and functionality to update text files. It was agreed by the meeting that the intended publication date for the first Edition of S-101 of 2013 was ambitious, and it was conceded that this would likely be the date that an initial version of S-101 would be published to enable development and use/testing in test beds. Extended discussions were held in relation to ENC dataset loading and unloading strategies in ECDIS; revised data modelling from the S-57 standard to improve performance of ENC in ECDIS; and sample applications for complex attributes to enhance S-101 data modelling. A demonstration of the S-57 to S-101 convertor was also given at the meeting, and it was anticipated that further improvements would be made to the convertor as S-101 development progresses. Interesting discussions were also held in regard to text placement in ECDIS display, with an innovative solution being suggested by Sweden which will be investigated further. Initial discussions were also held in respect to conducting an S-101 impact study in conformance with IHO TR 2/2007.
- S-101 Data Classification and Encoding Guide (S-101 Appendix A): A TSMAD Sub-Working Group meeting was held in Wollongong, Australia, during the week preceding TSMAD23 to discuss the review of the document which was done by correspondence, and the comments and proposals submitted as a result of this review. Over 800 comments had been submitted and over 20 proposals developed. The Sub-Working Group addressed all the proposals and progressed through about half the comments during the meeting. It was determined that another face to face meeting of the Sub-Working Group would likely be required prior to TSMAD24.

- S-57 Maintenance: Discussions at the meeting related to ensuring ENC consistency in ECDIS display, particularly when changing display scale through different usage bands; improved guidance for associated file (text and picture) content; magnetic variation information in ENCs; revised guidance for mangrove encoding to support revised S-4 – B-312.4; guidance for encoding “areas of possible shoaling” in ENC; and frequency of publication of new versions of the UOC. It was also agreed that a new Edition of S-58 should be compiled, incorporating a re-structure to more clearly identify those validation checks that are critical in terms of dataset loading and performance in ECDIS.
- CSPCWG Discussion Items reported to TSMAD: There were no Actions from CSPCWG8 for attention of TSMAD of note. The following discussion items from CSPCWG8, and issues progressed by correspondence, were reported to TSMAD23 for information and discussion:
  - Retired INT1 references, and reviewing INT1 and S-4 references in general in the IHO Hydro Register: Noted by TSMAD. All S-4 and INT1 references were being reviewed as part of S-101 Data Classification and Encoding Guide development, and this review would be used to update the references for registered items in the IHO Hydro Register.
  - Development of guidelines for the preparation and maintenance of small / medium scale ENC schemes: It was again emphasised that any feedback on the development of such schemes should be provided to national CSPCWG representatives.
  - Indication of the source of power for navigational lights in ENC: TSMAD was in agreement with the decision made by CSPCWG, in that such information was not required for inclusion in ENC.
  - Inclusion of abbreviations for FSO and FSU as approved international abbreviations: Noted by TSMAD for possible modelling in S-101.
  - New symbology for the delimitation of areas considered to be inadequately surveyed due to the impact of a natural disaster: It was considered that this could be indicated in ENC through reassignment of the M\_QUAL value of CATZOC for the areas, but more discussion was required.
  - Use of the generic term GNSS: TSMAD agreed with the CSPCWG decision to replace the acronym GPS with the more generic GNSS in its specifications.
  - Depiction of orange and amber lights on charts as yellow lights: Noted for further TSMAD discussion on the population of the attribute COLOUR for LIGHTS objects.
  - New clause S-4 – B-410.1 providing guidance for the depiction of depth information alongside berths: It was determined that this was specific to paper charts, and existing guidance for ENC as included in the Use of the Object Catalogue for ENC was sufficient.

8. TSMAD24: The principle agenda items for this meeting were the continuing development of the Portrayal Part of S-100 (refer to DIPWG report to CSPCWG9); continuing development of S-101; ENC data quality indicators; and a new draft New Edition of the S-57 UOC. The following issues that may be of interest to CSPCWG were discussed:

- S-100: Proposals were submitted to the meeting for the development of S-100 based Product Specifications to support surface current information; sea ice information; and ocean forecasts. IALA continues to work with TSMAD to research requirements for aids to navigation information to support e-Navigation. Work continues to develop the content of S-100 Part 9 (Portrayal) in conjunction with DIPWG. It is planned to produce a new edition 2.0.0 of S-100 in 2013.
- S-101 Development: The Phase 2 development had been completed, and it was anticipated that Phase 3 development would be completed as a result of discussions at the meeting. Additional discussion topics at the meeting included the concepts of “scale independent” and “scale dependant” ENC datasets; finalisation of a survey for mariners, OEMs, HOs and other stakeholders to support the S-101 impact study; S-101 test plan requirements; and timeline and project plan for publication of S-101 version 1.0.0 (likely to be mid-late 2014).
- S-101 Data Classification and Encoding Guide (S-101 Appendix A): A 2<sup>nd</sup> TSMAD Sub-Working Group meeting was held at the IHB during the week preceding TSMAD24 to complete discussions regarding the review of the document which was done by correspondence, and the comments and proposals submitted as a result of this review. Those comments not addressed at the 1<sup>st</sup> Sub-Working Group meeting were discussed and resolved, further proposals evaluated, and a procedure agreed for completion of the draft document for submission to TSMAD25. At the TSMAD24 meeting, there were extensive discussions in regard to bathymetric data quality indicators in ECDIS, with a report on the findings of the DQWG commissioned data quality indicator survey, and a report of the work currently being done by the University of Southern

Mississippi on behalf of DQWG in regard to improving the modelling and portrayal of bathymetric data quality indicators in ENC and ECDIS.

- S-57 Maintenance: Discussions at the meeting related to providing new guidance recommending that magnetic variation information in ENC be encoded as areas (further suggestion was that for S-100 magnetic variation information be incorporated in a separate Product Specification); and revision of the Encoding Bulletin and FAQ pages on the IHO web site.
- S-57 UOC Draft New Version: As there had been a number of new ENC Encoding Bulletins and FAQs published or submitted to the meeting for approval, TSMAD agreed that a new version of the document (Edition 3.1.0) should be prepared and submitted to HSSC4 for endorsement to submit to IHO Member States for approval to publish. The new version was prepared post-TSMAD24 and approved by TSMAD by correspondence. The document has been submitted to HSSC4. Refer paragraph 6 above for a summary of the major changes from Edition 3.0.0.
- S-58: A progress report was delivered and TSMAD agreed with the approach taken in terms of re-categorising ENC validation checks, and approved the progress made on the compilation of the new version of the document. It is anticipated that a draft of the new version of S-58 would be presented at TSMAD25.
- CSPCWG Discussion Items reported to TSMAD: The following discussion items from CSPCWG8, and issues progressed by correspondence, were reported to TSMAD23 for information and discussion:
  - Guidance on the preparation and maintenance of small/medium scale ENC schemes: AU had been designated as the TSMAD contact for any submissions that delegates may wish to provide to CSPCWG to progress this CSPCWG Work Item. Unfortunately no submissions have been received.
  - The CSPCWG review of S-4 – B-300 prompted some discussion regarding the level of encoding of topographic detail in ENCs. The meeting agreed that, as there may be a requirement for mariners to navigate purely by visual navigation techniques because of failure in the vessel's GPS, the minimal level of topographic information should be that required to achieve safe navigation by visual means. As a result of this discussion, an Action was generated to compile an ENC Encoding Bulletin to include this guidance, and incorporate the guidance in the draft new version of the UOC (paragraph 6 above refers).

9. Future Meetings: The next meeting of TSMAD (TSMAD25) will be held in Tokyo, Japan, from 14-18 January 2013. It is intended that the following meeting of TSMAD (TSMAD26) be held in the USA, in May/June 2013 in conjunction with DIPWG5.

## **Conclusions**

10. Continued liaison between CSPCWG and TSMAD is a necessity in the ongoing review of S-4 and the continuing development of S-100 and S-101.

## **Recommendations**

11. None.

## **Justification and Impacts**

12. No major impacts on CSPCWG projects arise from this report.

## **Action required of CSPCWG**

13. The CSPCWG is invited to:
- a. consider this report
  - b. note that no feedback has been received by TSMAD members in regard to guidance on the preparation and maintenance of small/medium scale ENC schemes
  - c. note other issues within the report of interest to CSPCWG.