

8th CSPCWG MEETING
Turku, Finland, 29 Nov – 02 Dec 2011

Paper for Consideration by CSPCWG

Report to CSPCWG8 on TSMADWG Activities

Submitted by:	Australia
Executive Summary:	Report on TSMADWG Activities Since CSPCWG7.
Related Documents:	Minutes TSMAD21; Minutes TSMAD22
Related Projects:	S-4 Maintenance

Introduction / Background

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 Hydrographic Feature Catalogue.
- Monitor the development of other related international Standards.

Since CSPCWG7 TSMAD had held two meetings:

- TSMAD21 in Victoria, Canada – 29 Nov – 03 Dec 2010;
- TSMAD22 in Seoul, Korea – 11-15 April 2011 (in conjunction with DIPWG3).

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 Edition 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.

Additionally, the following workshop was held:

- Joint TSMAD/IALA e-navigation Workshop in Taunton, UK – 04-06 May 2011.

TSMAD23 will be held in Wellington, New Zealand, from 16-20 January 2012. The main topic for this meeting will be S-101 development, including further discussions on the S-101 draft Data Classification and Encoding Guide, for which a preceding meeting will be held in Wollongong, Australia, from 11-13 January 2012.

Analysis / Discussion

Documents published since CSPCWG7:

- S-99 – Operational Procedures for the organisation and Management of the S-100 Geospatial Information Registry – Edition 1.0.0 (January 2011): S-100 provides a framework geospatial standard for hydrographic and related data. S-100 was adopted by the IHO, and Edition 1.0.0 of S-100 was published, in January 2010. S-100 is underpinned by a Registry and component Registers based on ISO 19135 – Procedures for Registration of Items of Geographic Information. The IHO owns and manages the Registry, which was introduced on the IHO web site in January 2011. S-99 describes the roles, responsibilities and procedures for operating and managing the S-100 Geospatial Information Registry and its component Registers.
- S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC – Edition 3.0.0 (October 2011 (anticipated publication)): S-57 was frozen as a Standard in 2002 after publication of Edition 2.1 of the Use of the Object Catalogue for ENC (UOC). Since then, new or amended ENC encoding guidance has been promulgated to the IHO community through the publication of two

Supplements to S-57; publication of ENC Frequently Asked Questions and Encoding Bulletins on the IHO web site; and through inclusion in other IHO publications such as S-58 and S-65. At HSSC2 (October 2010) it was agreed that the UOC be “unfrozen” in order to incorporate all extant ENC encoding guidance into a single publication, within the scope that the guidance in the revised document would not invalidate existing published ENCs, or compromise the performance of ENCs in ECDIS. At the time of compiling this report, Edition 3.0.0 of the UOC has been approved by IHO Member States for publication via IHO CL 41/2011, and the document is being finalised for publication. The UOC will be maintained henceforth in line with the standard maintenance procedures for IHO publications, while the rest of S-57 remains frozen.

- S-58 – Recommended ENC validation Checks – Edition 4.2 (February 2011): S-58 specifies the checks that, as a minimum, producers of ENC validation tools should include in their validation software. Edition 4.2 of S-58 included modified checks to test the encoding of the attribute EXPSOU (exposition of sounding) on soundings as a consequence of identified ECDIS performance issues, as well as minor feedback received since publication of Edition 4.1.

TSMAD21: The principle agenda item for this meeting was the continuing development of the new ENC Product Specification S-101, including the first draft of the S-101 Data Classification and Encoding Guide. The decision was also taken at this meeting to “unfreeze” the S-57 UOC to produce a New Edition. The following issues that may be of interest to CSPCWG were discussed:

- S-100 Registry: Preparations continued for the anticipated launch of the S-100 Geospatial Information Registry on the IHO web site in January 2011. Development was continuing for the Metadata and Portrayal Registers, while the Hydro component of the Feature Concept Dictionary Registers is complete to the extent that it is the equivalent to the S-57 Object Catalogue. The Nautical Publications component of the Feature Concept Dictionary Registers was continuing its development through the IHO SNPWG, and the Supplementary Register for Inland ENC had been completed through the IEHG. Interest had also been expressed from the port ENC community and IALA to register items specific to their domains.
- S-101 ENC Product Specification: The final draft of Phase 1 of the document, incorporating revisions from the previous TSMAD Focus Group meeting in September 2010, was presented for review, and approved by the meeting with some minor amendments. S-101 Phase 1 is essentially a reproduction of the S-57 ENC Product Specification utilising S-100. It was reported that NOAA had entered into a contract with ESRI to develop an S-57 to S-101 open source converter, which will be provided to the IHO on completion. The initial version of the convertor will be based on S-101 Phase 1. Development will now begin on Phase 2 of S-101 development, which will include enhanced data packaging and data loading mechanisms, and begins to introduce new functionality such as complex attributes on some features.
- S-101 Data Classification and Encoding Guide (S-101 Appendix ??): The first draft of this document was submitted to the meeting, along with a list of issues for discussion that had been raised during the compilation of the document. The draft had been updated to include amended guidance based on the latest published Edition of S-4. The meeting began systematically discussing the issues raised, with ongoing work to be conducted in the interim by TSMAD delegates at their home Offices.
- ENC cell “compilation scales”: It has been agreed that for S-101 ENCs, there will be a fixed set of “compilation scales” for ENC cells. This will be termed the “optimum display scale for the ENC data”, and will be the list of scales based on the standard radar ranges as listed in S-65 on page 11. This, in combination with the same values being used for standard display scales in the ECDIS, and being the reference for values populated for the attribute SCAMIN, will ensure consistency between the encoding and display of ENC data in S-101 compliant ECDIS.
- CSPCWG Action Items to TSMAD: There were two Actions from CSPCWG7 relating to TSMAD, which were presented to TSMAD21, noting that there was no accompanying paper as CSPCWG7 had been held the previous week:
 - Action 8 – AU to refer ‘Artificial Islands’ to TSMAD: The discussion from CSPCWG7 was summarised, with confirmation that in S-57 artificial islands are encoded as a category of offshore platform (CATOFP). TSMAD agreed that, depending on future discussions by CSPCWG and possible new guidance regarding artificial islands, the modelling for artificial islands may need to be revised, possibly as a category of land area. A place-holder has been added to the S-101 Data Classification and Encoding Guide “Issues” document to note any further CSPCWG discussions on this issue.

- Action 26 – AU to discuss at TSMAD whether INT1 references should be included as a Register in the S-100 Registry and advise CSPCWG: There was little discussion on this at the meeting, with the TSMAD Chair agreeing to give the matter consideration and report back to TSMAD22 (see below).

TSMAD22: The principle agenda items for this meeting were the development of the Portrayal component of S-100 (as this meeting was combined with DIPWG3); S-101 Phase 2 development; and the draft New Edition of the S-57 UOC. The following issues that may be of interest to CSPCWG were discussed:

- S-100 Portrayal: Significant progress had been made since TSMAD20/DIPWG2 in the development of the Portrayal component of S-100. Refer to DIPWG Report to CSPCWG8
- S-101 Development: The Phase 2 development of S-101 was well underway, and it is anticipated that this phase would be completed by end of December 2011. A first version of the S-101 Open Source Translator, which will convert S-57 data to S-101, was submitted to the meeting and demonstrated by ESRI. Additional discussion topics at the meeting included the structure of S-101 documentation; the concept of scale independent and scale dependant ENC's; data quality (improving quality indicators for the mariner in S-101 ENC's); text placement in ENC's; and Updating in S-101 ENC's (improved indication and display of Updates).
- S-102 – Bathymetric Surface Product Specification: This will be the first S-100 compliant Product Specification to be published, and is a product specification for Bathymetric Surface Products, based on the Format Specification Document – Description of the Bathymetric Attributed Grid Object (BAG) Version 1.0.0. The final review of the document was completed at the meeting, and subsequent stakeholder review and finalization of the document has resulted in the final draft Product Specification being submitted to HSSC3 for approval to proceed to IHO Member State vote for adoption as an active Product Specification.
- S-57 UOC Draft New Edition: The first draft of Edition 3.0.0 of the S-57 UOC was submitted to the meeting by the S-57 Maintenance Sub-Working Group for review. The draft document included new/amended guidance building on from the work of CSPCWG such as enhanced guidance for the encoding of foul area and foul ground; new guidance for encoding offshore wind farms, wave energy devices and wave farms; new guidance for encoding MRCC; new guidance for disused lighthouses; new guidance for encoding AIS aids to navigation; new guidance for encoding floating waste bins and sub-surface ODAS instruments; and revised guidance for radio and radar navigation systems. As part of the review all S-4 and INT1 references in the document were reviewed and amended as required, and a statement included in the introduction that references in the “frozen” documents within S-57 may be incorrect. Issues identified during the review were discussed and solutions determined. It was decided that the remainder of the work would be completed by correspondence and the New Edition submitted for IHO Member State approval as soon as possible. The New Edition has been submitted (IHO CL 41/2011) and subsequently approved, and it is expected that the document will be published in late October 2011.
- ECDIS “Test Card”: As a result of the identification of several operational anomalies in some ECDIS, the UK had undertaken a systematic analysis of ECDIS display and alarm functionality and identified further issues. In order to test ECDIS at sea to identify whether an installed system may exhibit these anomalies, the UKHO has developed an ECDIS “Test Card” dataset which it was proposed could be distributed as part of ENC service delivery, along with a related questionnaire and operating instructions for the mariner. The Test Card would identify to the mariner whether there may be any anomalies in the performance of their ECDIS, and feedback from the questionnaire would be useful in gathering more detailed information regarding ECDIS systems in use, such as whether the system has the latest version of the Presentation Library. The “Test Card” and associated documentation has been submitted to IHO Member States, ECDIS equipment manufacturers and relevant NGOs for comment (IHO CL 46/2011), and it is anticipated that the “Test Card” will be distributed in the near future.
- Register of INT1 References: This was raised as a follow-up to the brief discussion held at TSMAD22 in relation to CSPCWG7 Action 26. It was agreed by TSMAD that it was possible for a Register of INT1 references to be included in the S-100 Geospatial Information Registry. It was further decided that, if CSPCWG considered it appropriate, the Register could be extended to include the actual paper chart symbols, or incorporated as a paper chart sub-Register within the

Hydro Portrayal Domain. A demonstration of a test Register for ECDIS Portrayal (i.e. ECDIS symbols as currently included in the ECDIS Presentation Library) indicated how such a Register could be structured. At the time of compiling this report, the Portrayal Register for ECDIS symbols was not accessible, however a demonstration on those Registers currently available in the S-100 Geospatial Information Registry can be provided at CSPCWG8 in order to give delegates an indication as to how a Register of INT1 references may be developed.

Future Meetings: The next meeting of TSMAD (TSMAD23) will be held in Wellington, New Zealand, from 16-20 January 2012, preceded by a 3 day S-101 Data Classification and Encoding Guide Development Sub-Working Group meeting in Wollongong, Australia, from 11-13 January 2012. It is intended that the following meeting of TSMAD (TSMAD24) be held at the IHB, Monaco from 07-11 May 2012 in conjunction with DIPWG4.

Conclusions

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

None.

Justification and Impacts

No major impacts on CSPCWG projects arise from this report.

Action required of CSPCWG

The CSPCWG is invited to:

- a. consider this report
- b. note issues within the report of interest to CSPCWG.