

1st NIPWG Meeting/10th DQWG Meeting
Paper for Consideration by NIPWG/DQWG
Report on S-100 Working Group Activities

Submitted by:	S-100 Working Group Chair
Executive Summary:	Report on S-100 Working Group Activities.
Related Documents:	1. Minutes TSMAD28/DIPWG6; TSMAD29/DIPWG7; 2. HSSC6-05.1A – TSMAD Report
Related Projects:	S-100

Introduction / Background

The IHO Transfer Standards Maintenance and Application Development (TSMAD) Working Group was a Working Group of the IHO HSSC. Its primary objectives were 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 S-100 Geospatial Information Registry, 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.

The TSMAD29 meeting was the final meeting of the TSMAD, which has been replaced by the S-100WG and the ENCWG as a result of the HSSC re-structure of its technical Working Groups. This report will focus on the activities of the S-100 working group.

Analysis / Discussion

Documents published since DQWG9 and SNPWG18:

- S-100 – Universal Hydrographic data Model (Edition 2.0.0)

Edition 2.0.0 includes numerous clarifications, corrections and extensions intended to accommodate the requirements of new S-100 based Product Specifications. The major extension for this Edition is the inclusion of Part 9 – Portrayal Model.

Discussion Topics of the TSMAD of interest to DQWG/NIPWG:

- S-100 Infrastructure

IHO Register (current status):

NOAA is currently providing support for the database back-ups and will troubleshoot any other issues that may come up. While testing the proposal interface, it was found that some of the functionality was not working as intended. Therefore NOAA will be “patching” the web-interface as an interim solution. It is expected that these fixes will be finalized by late July.

Su Marks from the UKHO is currently acting as the front end register administrator and will be uploading the content that has been approved by the S-101 Project Team to the register.

Feature Catalogue Builder (current status and future plans):

The Republic of Korea has generously supported the development of the feature catalogue builder (FCB). The FCB is currently connected to a test version of the IHO register that ROK is maintaining for testing and development. As part of the testing process a baseline version of the S-101 feature catalogue has been created.

Once the S-100 register has been stabilized the next step is to establish a connection between the

FCB and the Register for use by other IHO working groups. It is hoped that this activity will be finalized in early 2016.

IHO Register (future plans):

S-100 edition 2.0.0 added codelists, and some other extensions to the underlying model, therefore the existing IHO Register will need to be extended and harmonized. In addition, support for the product specification register and the revisions to S-99 will also have to be addressed as well as the connection to the Feature Catalogue Builder.

The S-100 working group is working to update the register to 2.0.0 and provide a comprehensive update to the web-interfaces. Because of the resources required for this project there is no current estimated completion time as it is being done on a volunteer basis.

IHO Portrayal Register (current status and future plans):

The portrayal register is currently a collection of un-related tables that hold basic content based on S-52. These tables are not compliant to the S-100 portrayal model that was included in edition 2.0.0 and are missing the primary-foreign key relationships that are conducive to good database design.

There is currently only a basic interface that allows users to view the content, but there is not an interface that allows submitting organizations to upload content. In addition, consideration should be given for the need to develop separate “portrayal dictionaries” based on domains. For example, the WMO has a domain for weather information on the feature concept dictionary; there should be a similar domain for portrayal of weather related information.

The following activities still need to take place:

- Update the underlying database to existing portrayal register model based on S-100 Part 2
- Develop portrayal domains for non-hydro information such as weather
- Migrate the existing register data into the new database
- Develop a web-interface that allows for submitting organizations to upload register information.
- Update the PCB to point to the new tables

The S-100 Working Group Chair is working with the IHB to allocate S-52 Presentation Library funds for to complete some of the above tasks.

S-100 Test Cases:

Initial test cases have been developed for implementation in S-100 test beds. These test cases have been developed principally for the implementation of S-101 Feature and Portrayal Catalogues and S-101 datasets in an S-100 ECDIS, but by extension will be expanded to include interaction with other S-100 based Product Specifications.

- S-101: The draft S-101 ENC Product Specification documentation was “baselined” in April 2014, allowing for the development of draft S-101 Feature and Portrayal Catalogues; and development of S-101 datasets for use in S-100 test beds. In order to facilitate the creation of the Feature Catalogue, KHOA has done a significant amount of work in developing a Feature Catalogue Builder; while the development of a Portrayal Catalogue Builder has been progressed by IHB contract.

The TSMAD/S-101 Project Team continues to liaise with the DQWG to develop a new data model for bathymetric data quality in S-101 (“CATZOC replacement”).

As a result of the proposed CSPCWG changes to S-4 and INT1 in regard to maintained/dredged areas, a review of some of the enumerate values for the Quality of Sounding attribute will be required.

The planned operational release date for S-101 as included in the S-101 Roadmap is the end of 2018,

however this is considered to be a “best guess” considering the amount of work that remains to be done.

- **S-102:** An update to the S-102 Bathymetric Surface Product Specification is required to incorporate changes to the Bathymetric Attributed Grid (BAG) Specification which forms the basis for S-102; and to extend the Product Specification to include S-102 portrayal.
 - **S-112:** The first draft of S-112 – Dynamic Water Level Data Transfer Product Specification, was presented at HSSC6 and subsequently at TSMAD29/DIPWG7. This draft has been prepared by the UKHO with the assistance of MPA Singapore, utilising practices used within the Malacca and Singapore Straits Marine Electronic Highways project. The intention is to utilise an application-specific AIS message broadcasting meteorological and oceanographic specific information, part of which is water level information, to supply tidal polygon correction information as measured in real-time. Further work is required, in terms of both the draft S-112 and S-100 itself, and it is expected that this will form a significant part of discussions at the next TWCWG meeting. It is intended that this Product Specification could be used in both S-57 and S-100 ECDIS.
 - **CGHR Outcomes:** The Correspondence Group on HSSC Restructure (CGHR) recommendations, as approved at HSSC6, saw the replacement of the TSMAD with the S-100WG and the ENCWG. As a result, TSMAD29 was the final meeting of the TSMAD. Elections for the Executive for the new Working Groups were held, and confirmation of commitment of Member States to the Working Groups as indicated in responses to IHO CL /2014 obtained (with amendments). The Executives of the new Working Groups are:
 - S-100WG: Chair – Julia Powell (US); Vice-Chair – Yong Baek (ROK); Secretary – Eivind Mong (Jeppesen Marine).
 - ENCWG: Chair Tom Mellor (UK); Vice-Chair – Vacant; Secretary – Tony Pharaoh (IHB).
- It is anticipated that the NCWG will work in close association with the ENCWG and the S-101 Project Team (S-100WG). It was stressed that members of other HSSC Working Groups would be welcome to participate in the S-101 Project Team if they are interested.

S-100 Working Group Action items of interest to SNPWG/DQWG:

Meeting	Project Team	Reference	Action	Responsible
TSMAD29	S-101 DCEG	10.3E	Update the DCEG based on the comments provided by TSMAD for S-101 post baseline and harmonize back to SNPWG on the update information proposal See TSMAD29 minutes for more information	JW
From TSMAD29 minutes	<p>The proposals submitted by the SNPWG were discussed:</p> <ul style="list-style-type: none"> - The proposal for Category of Restricted Area: enum value - coral sanctuary, was agreed for inclusion in S-101. Action: JW to the DCEG (JW) - Proposed change of the feature class PILBOP was accepted in principle; but EM to take back to NIPWG to see in the model can be improved. - The difference of the geometric primitives statements for features was agreed. JW to fix the point primitive discrepancy for Dam in the DCEG (JW). - Clarification of MARSYS information was accepted. HB noted that there must be an authority to maintain the code list and supported the second option. The meeting agreed to the second option presented. - Missing content in section 2.5.2. JW reported that there is a statement in the DCIG that this is still to be done. - The reference to a non-existing attribute was accepted. JW reported that he has updated the DCEG for this. - Harmonization between S-101 and SNPWG data model on update information was agreed in principal but no action is to be taken until more testing of the DCEG has been carried out. Action for the DCEG to contact the chair of NIPWG to discuss harmonization issues. (JW) - The issue on spatial quality was agreed. SM proposed that this should be include in the interest of completion. 			
TSMAD29	S-101 DCEG	10.5A+B	Dialogue with SNPWG on the proposed revised harmonized text model.	JW
From TSMAD29 minutes	EM proposed that there is a need for the harmonisation of the S-101 model with S-122, S-123 and other nautical publications specifications with respect to information encoded as text strings and text support. He noted that the proposed model will simplify the current modelling of text information as well as			

	<p>extend it to make provision for nautical information datasets. He proposed that S-100WG should interact with SNPWG/NIPWG to harmonize the modeling of text information in nautical publications and S- 101 application schemas wherever possible.</p> <p>JW noted that he has no problem with the proposal provided that there is agreement that this is a requirement that the mariner really needs. HA questioned whether the file references in the text are mandatory or optional. JW noted that a similar model had been considered by the DCEG and it was decided to change back because of the conditional/mandatory implications.</p>			
TSMAD29	S-101	10.6A	Update Data Quality Model for the DCEG for those items that were approved.	JW
From TSMAD29 minutes	<p>EM reported that this paper is an input from the DQWG and it contains proposed the following changes for the S-101 ProdSpec and the S-101 DCEG relating to data quality issues.</p> <ul style="list-style-type: none"> - Quality of non-bathymetric data. Accepted by the meeting. - Quality of bathymetric data. Not accepted by the meeting. RF noted that this is unnecessarily complex and many HOs will not populate this field. The concept of sweeping depth areas is a mechanism to provide a clear statement of what is there (or not there). JW also questioned the value of including swept areas over unsurvey area. This was illegal as it would create overlapping skin of the earth features. AT noted that swept areas could be considered as a surveyed areas – but it is not possible to populate DRVAL1 – DRVAL2. These would have to be left empty. 			
TSMAD29			Develop a paper Swept Areas and Skin of the Earth Features for presentation at DQWG	JW/CM/EM
TSMAD29	S-100	11.7A	Inform SNPWG and DQWG to propose to S-100WG that the data quality principles as defined in Paper 11.7A be proposed to S-100	JP
From TSMAD29 minutes	<p>EM reported that there are differences between the SNPWG and TSMAD data quality models and the purpose of the paper was to propose how the models can be harmonized. He noted that the proposed changes to the S-101 data quality model will result in a data quality model that is more generalized and can be used in common across multiple IHO product specifications including nautical publications datasets as well as giving it the ability to capture quality characteristics at both coarse-grained and fine-grained levels, i.e., ranging from the dataset level down to feature class and attribute levels.</p> <p>BG asked where this fits in within the S-100 data model. He noted that it could be included in the S-100 document, and then profiled in the product specification. EM agreed that this was the intention.</p> <p>The meeting endorsed the resulting data model as the common data quality model for S-101 and will interact with DQWG and SNPWG to maintain a harmonized data quality model.</p> <p>This model has been incorporated into S-101 and will be registered in the S-100 register.</p>			

Conclusions

None.

Recommendations

Liaison between NIPWG/DQWG and S-100WG is a necessity in order to address emerging navigational requirements in a multi-product environment.

Justification and Impacts

It is recognized that the S-100 register needs to be functional for the work of DQWG and NIPWG. The S-100 working group is working to fix the issues and stabilize the infrastructure for S-100. The chair will continue to give periodic updates on the S-100 register status to NIPWG and DQWG.

Action required of CSPCWG/NCWG

The NIPWG/DQWG is invited to:

- a. **Note** this report.
- b. **Note** issues within the report of interest to the S-100 working group.