25th Transfer Standard Maintenance and Applications Development (TSMAD) Working Group Meeting

Japan Hydrographic and Oceanographic Department, Tokyo
(15-18 January 2013)

Minutes

Chairman: Barrie Greenslade (UKHO)
Vice Chairman: Julia Powell (NOAA)
Secretary: Anthony Pharaoh (IHB)

Annexes:

Annex A – List of Documents
Annex B – Agenda
Annex C – List of Participants

1. Opening and Administrative Arrangements

Barrie Greenslade thanked members for attending the meeting and asked Chief Hydrographer Shin Tani to formally open the meeting. The Chief Hydrographer welcomed members to Japan and the Japanese Hydrographic and Oceanographic Office (JHOD). He highlighted the importance of the work being undertaken by the working group and noted that IHO standards are used by many nations and the completion of the S-101standard would was being eagerly awaited. He proposed that the completion of S-100 and S-101 will be one of the largest steps forward in terms of the IHO standards development activities. In conclusion he wished the meeting every success with their work and thanks members for bringing a large amount of snow with them from their cold home countries.

1.1 Participant and Apologies.

The Chairman welcomed all those new members who were attending the meeting for the first time and noted that an apology had been received from Odd Aage Føre. He also informed the meeting of the passing of valued former TSMAD colleague – Lynn Kolbeinson (Norway).

2. Approval of the Agenda.

The combined agenda was unanimously approved by the meeting.

3. Approval of the TSMAD 24 Minutes

3.1 The minutes of the 24rd TSMAD meeting which took place at the IHB, Monaco (7 to 11 May 2012) were reviewed and approved without comment.

3.2 The actions from the 24rd TSMAD WG meeting were reviewed are documented below.

No	Sect. No	Description	Member
1	10.2A	Investigate what is required for documenting multiple dataset metadata using the 19115/19139 MD dataset series constructs for SI and SD datasets. Based on the outcomes of the SD and SI discussion.	BG Closed
2	10.3.A	Make the S-101 impact study survey (paper 10.3B) available as a web-based survey and present the results to the HSSC4 and TSMAD25 meetings.	LL Completed

		BG noted that LL will provide a report on this later in the meeting. It is proposed that this will be presented to the HSSC5 meeting.	
3	11.2A	TSMAD chair to organize a meeting and invite relevant stakeholders to develop a new version of S-64 as identified in TSMAD24-DIPWG4-11.2A	BG Completed
4	11.3A	The list of 14 comments included at Annex 1 of paper TSMAD24-DIPWG4-11.3A are to be forwarded to the S-102 Work Item leader for consideration and possible inclusion in the next edition of the publication.	BG Completed
5	11.4A	Prepare a paper for TSMAD25 presenting the options for an S-100 GML profile. (TR BG)	TR / BG Completed (see paper 4.3.12A)
6	11.6A	Submit a paper to HSSC4 proposing that a work item to revise S-99 be added to the TSMAD work programme. The proposal should also request an amendment to the TSMAD ToRs to make provision for the on-going maintenance of S-99. BG noted that the new edition had been submitted to the HSSC4 meeting and approved. The document was distributed for MS approval via CL 102/2012.	BG Completed
7	11.7A	Include all approved new Encoding Bulletins and FAQs (presented in paper TSMAD24-DIPWG4 – 11.7A), in the EB section on the IHO web site. (IHB). Prepare a new draft version of the UOC for approval at HSSC4. TSMAD to review and approve changes by correspondence. JW reported the draft version had been prepared, submitted to HSSC3 and approved. The document was sent to MS for approval with CL 102/2012 – closing date 31 Jan 2013 (voting paper Annex B).	IHB Completed JW Completed
8	11.7B	Replace the existing list of Encoding Bulletins and FAQs on the IHO website with the revised list in paper TSMAD24-DIPWG44-11.7B. Remove FAQ 8 from the list. (IHB)	IHB Completed
9	11.8A	Prepare a paper for submission to HSSC4, requesting that a new work item to produce a product specification for surface currents be added to the TSMAD work program (Canada). BG reported that a paper had been submitted to HSSC3 and the meeting had agreed that Canada and USA would form a small working group to produce a product specification.	LP Completed
10	12	Study and produce a paper outlining how to model Dates and Time, taking into account the requirements of other WGs. To be presented at the TSMAD 25 meeting.	TR Complete (see paper 4.3.6)
11		Encoding Bulletin for ensuring sufficient topographic information JW reported that this had been prepared and is included as EB51 and in the UOC under section 4 Topography.	JW/RF Completed
12		Check S-58 and S-64 for incorrect use of RESTRN = 14	UK / SHOM Complete

4. Matters Arising

4.1 Actions from HSSC4

Agenda	Action
HSSC4/07	**TSMAD Chair** to include in the TSMAD work plan an additional work item to produce a roadmap (using mind map), taking into account the S-101 impact study and showing key tasks that have to be completed in order to implement S-101, and indicating interaction between the tasks and the implications for stakeholders. BG reported that this is included as an information paper TSMAD25-INF2. He noted that it is very difficult to assign definitive figures, because of the uncertainty of resources available to TSMAD, and requested members to provide any feedback on the paper noting that he would include this in the TSMAD report to HSSC5.
HSSC4/11	TSMAD to develop, with IHB support and in consultation with the relevant stakeholders, a nomenclature for S-100 based product specifications as part of the GI registry management, and revise S-100, taking into account the following guidance: S-100 to S-199 numbers should be reserved for IHO product specifications; Non IHO product specifications identifiers should be assigned by the registry manager on a first come first served basis from S-200 onwards. BG reported that this is the subject of paper TSMAD25-4.5.8. If not taken at TSMAD25 it will be taken at TSMAD 26.
HSSC4/14	**TSMAD** to draft a statement of requirements for the development of a S-101 test plan and submit it to the IHB for tendering. BG reported that the first draft is included as paper TSMAD25-4.5.8 and is to be discussed later in the meeting.
HSSC4/16	**TSMAD** to develop an Encoding Bulletin that describes how to encode virtual AIS Aids to Navigation using the New Object (NEWOBJ) feature. BG reported that a paper has been produced by the TSMAD maintenance group for discussion during the meeting.
HSSC4/25	**TSMAD and DIPWG Chairs** to produce, by the end of January 2013, a "master plan" document for the development of S-100 and S-101, in accordance with the life cycle diagram included in resolution 2/2007, incorporating sequencing with DQWG and DPSWG, and scheming the implications for stakeholders. BG reported that January 2013 was not a realistic target date and it is intended to discuss this issue at the combined TSMAD26 / DIPWG5 meeting.
HSSC4/29	**TSMAD** to apply to S-57 Appendix B.1 Annex A (Use of the Object Catalogue for ENC), the changes identified in section 8 of HSSC4-05.6B and dealing with reflecting the impact of extreme events through CATZOC. BG reported that this requirement that had been identified as a result of the terrible tsunami that took place in Japan, and added that an Encoding bulletin would be produced which would be added to the next edition of the UOC.

4.1.1 TSMAD Work Programme

Review of TSMAD Work Programme

JP proposed to amend task A.1 (Develop a template Product Specification for S-100 based Marine Information Overlays (MIO)), to on-going.

It was decided to retire the item A.4 (Investigate a suitable grid referencing system for S-100) until a better understanding of the requirement is obtained. *(See action item 1)*.

Work Item A.9 (Develop an S-10X product specification for Auxiliary Informational Layer Integration) – LP reported that there had been a meeting on this issue in Canada however she was of the opinion that this item has been overtaken by events and is no longer relevant. *(See action item 2).*

Work item E.1 (Study the possibility to encode information features as New Objects (see S-57 supplement) to avoid caution area objects (CNTARE) in some cases, e.g. to encode T&Ps). TR reported that this item has been completed and was reported on during the TSMAD 21 meeting, and can be closed. *(See action item 3).*

4.2 Reports from other Working Groups

4.2.1 SNPWG

EM reported that since the last TSMAD meeting SNPWG held its 15th meeting in Helsinki, Finland, during which Mr Jens Schröder-Fürstenberg, was elected as SNPWG chairman and Mr Thomas Loeper as vice chairman. Work on the Marine Product Specification has resulted in the production of several datasets - their schemas are described in paper TSMAD25-4.3.13A.

SNPWG are working on a data model for structuring their nautical publication information in an ECDIS compatible format. This overlaps with the S101 Product Specification for light information and the IALA working on creating a model for light information. It is proposed that TSMAD and SNPWG should work together with IALA to ensure that the models used for light information are compatible. SNPWG do not agree with the National number and propose the use of a national designator (NATION) as used in S57.

SNPWG are waiting for the sandbox function – required for progressing their work. The SNPWG chair will be the main point of contact for SNPWG registry items. The last SNPWG meeting had a discussion on light information, and did not agree with the TSMAD model and would like to proposed the inclusion of country code in the light number. SNPWG proposing that it should work with TSMAD and IALA to develop a number model.

BG stated that the sandbox function is under development and progressing - it should be available before TSMAD 26. The function to create proposed features is almost complete.

EM reported that paper TSMAD25-4.2.1A elaborated on the discussion of light numbering and it was agreed that this needed further offline discussion and proposal developed for the next SNPWG and TSMAD meetings. *(See actions item 4 and 5).*

4.2.2 CSPCWG Report

JW reported that since the last TSMAD meeting the CSPCWG held a meeting in Seoul, South Korea, from 12-15 November 2012. The WG released S-4 edition 4.3.0 which includes several items of interest to TSMAD that include;

- discussion about what defines a major light;
- issues about specifying a maximum width of the sector arc for light sectors having directional functions;

- the interpretation of the terms “group” and “interrupted” for quick and very quick flashing lights;
- discussion on the term “interrupted” and “group” for lights;
- discussion on restricted areas – there is a need for joint CSPCWG/TSMAD work;
- discussion about the discontinuity between survey data on paper charts - also being discussed by the DCEG sub-WG;
- discussion on charting “radio activated fog signals”
- teroidal “doughnut shaped” - CSPCWG concluded that there was no requirement for a new buoy shape for these;
- discussion about making provision for “maximum authorised draught” to be depicted for dredged areas, in addition to, or in steed of, dredged depth;
- proposal that “maintained” may be made obsolete;
- approved the development of a prototype register of INT1 references;

The next CSPCWG meeting will be held in January 2014 in New Zealand.

4.2.3 DQWG

EM reported that the last meeting held wash in July at NOAA. Work to document the mappings between S-57 quality items and quality items in the S-101 model had been completed however the study that is being undertaken at the University of Southern Mississippi may supersede this work.

There was a discussion on the proposal from USM on testing data quality, and this resulted in tests being sent to mariners. There was discussion on 19115 quality and 19117 portrayal relationships, however the meeting proposed that DQWG did not have the expertise to complete this and it should be discussed at the next TSMAD/DIPWG joint meeting.

4.2.4 DIPWG

TM reported that DIPWG had held a meeting following the HSSC4 meeting to make a final decision on the S-100 portrayal model. At this meeting, it was decided to use the xml/xslt approach. He noted that during the short meeting held prior to the TSMAD25 meeting, it was possible to demonstrate some xslt transformation and portrayal instructions.

There are still a number of issues to be discussed, and it was proposed that a sub group meeting would have to be scheduled – proposed for Frankfurt in March. As the ISO 19117 standard has been published, the WG will attempt base the work on this (as far as possible). The WG is also working on a new version of the PL, and will have its first review version completed before the June DIPWG/TSMAD meeting for endorsement in June – thereafter to be submitted to HSSC5 for approval.

4.2.5 TWLWG

No report provided.

4.2.6 IALA

TR noted that because TSMAD had met earlier in the year, these actions had been discussed and were being dealt with. He noted that IALA are developing S-100 based product specifications.

He attended an IALA workshop January 2012 and provided assistance with the development of a draft template products specification for IALA use (see paper 4.3.4). IALA continue to work on S-100 based product specifications, and this work will be progressing during a meeting (hosted by IALA) in June 2013.

4.2.7 DGIWG

TR NATO is developing NGIF which is a GI exchange framework similar to S-100 in some ways. There is a need for ongoing liaison (as reported in paper 4.2.7). He suggested that there is a need to monitor the activities of this group to ensure harmonization with TSMAD work. DGIWG are developing a number of ISO/TC211 profiles, some of which may be of interest to TSMAD, in particular ones on elevations and Geotiff. DIGIWG are also studying how to convert S-57 AMLs to S-100, and may require input from TSMAD.*(See action item 6).*

4.3 S-100

BG noted that since the publication of S-100, a number of changes and extensions have been identified. These need to be formally submitted for inclusion in the next edition using the standard S-100 submission form available on the S-100 page. WL noted that changes identified as a result of the S-102 work were submitted to TSMAD, however they were not provided on the S-100 change request form and he would resubmit the comments. BG requested that all proposed changes to S-100 should be submitted using the correct documentation. *(See action item 7).*

4.3.1A S-100 Product Specification Template

JP reported that this (HSSC appointed) task was intended to assist IHO working groups and non IHO bodies to develop S-100 conformant product specifications. TR noted that a prototype document was available as document TSMAD25-4.3.1B. The meeting noted the paper and associated template document and proposed follow up actions. *(See action item 8 and 9).*

HB recommended that the document should be an informative annex to S-100 rather than a separate document.

4.3.1B S-10n Product Specification Template

The S-100 product specification document was presented as document 4.3.1B. There were no comments concerning the content and structure of the document.

4.3.2 Revisions and Extensions to S-100 Edition 1.0.0 (S-100 Gaps and Extensions)

EM reported that since S-100 was published, a number of missing elements (or edits) to the document had been identified. A description of these is provided below:

The addition of FAL (Facilitation of International Maritime Traffic) was agreed for inclusion in the Terms and abbreviations section.

The following additions were accepted for inclusion; CEN 15449, INSPIRE D.2.5: INSPIRE, Generic Conceptual Model. 2012-05-15, ISO 19109, ISO 19757-3, BLAST1: Harmonization of Nautical Information and Technical report for BLAST project, D_WP4_3, 2011.

It was agreed that, as a result of changes to S-99, appropriate changes will have to be made to S-100 parts 2 and 2A.

The meeting agreed that the proposal to make provision for operational procedures relating to inter domain functions needed further consideration.

It was agreed that normative content relating to the registry should be in just one document rather than both S-99 and S-100. S-100 Parts 2/2a should include a non-normative overview of registry organization and content, as well as sub paragraphs specifying the register schema, FCD registers and other registers (i.e. portrayal, metadata, product specifications, and data producer codes registers). *(See action item 10).*

EM reported that ISO 19136 makes extensive use of Codelists, but S-100 classifies list value as enumerations (see Part 3 GFM and Rules for Application Schemas). Enumerated lists are intended for fixed lists, and there is a need for code lists that allow the lists to be extended. Other international organization using the registry may also want to use code lists and there should be a mechanism for referencing these.

Concerning the proposal to add an attribute type "Codelist", define a code list register and include operational procedures for maintaining the code list register, it was decided that the necessary text and diagrams describing this needs to be developed and presented to the TSMAD 26 meeting. Consideration needs to be given as to how this might affect the feature catalogue model and whether codelist catalogues need to be developed. *(See action item 11).*

EM proposed that S-100 should make provision for the use of URI schemes, however the meeting was uncertain as to what items, should be denoted by URIs – (feature classes, attributes, enumerated values). It was therefore proposed that more information was required concerning the use of URIs, and a paper should be submitted on the subject for TSMAD 26. *(See action item 12).*

EM noted that roles in the updated GFM are mandatory at both ends of feature associations and only one end of an information association. As this has the potential to increase the size of the feature catalogue and potentially the size of datasets, he proposed that:

- Roles should be made optional – this was agreed by the meeting.

- Default roles "source"/"target" should be defined and add "both" for the "as-yet-unknown" case where the domain model must treat both the same – this was agreed.

- Use signed association codes to denote the direction in the encoding – this was not agreed.

The chair noted that further information/investigation was required on how to include roles in the S-100 GFM. *(See action item 13).*

Part 4a (Metadata)

EM noted that S-100 makes reference to metadata schemas that still have to be developed, and proposed that the metadata XML schemas developed by SNPWG for the marine protected areas should be used. He noted that the dataset metadata schema is very close to the 19115, but additional schemas will have to be developed for exchange set metadata. *(See action item 14).*

EM proposed that S-100 should reflect its status as a framework standard to encourage its use for domains other than ENCs. He suggested that there may be a need to separate product/service and message metadata as a very small non-19115 extension? He proposed that;

- the metadata schemas referenced in S-100 should be made publically available – this was agreed,
- a register of metadata items should be Establish - this was agreed,
- a note providing advise that metadata can be made available for different delivery modes should be included – this was agreed.

EM noted that SNPWG had requested that feature catalogue builder should to be completed and made available. Furthermore he noted that there may be a requirement for additional types of geometric primitives such as circles in S-100, and recommended that other 19017 primitives be added to S-100.

TR proposed that it should be for other bodies to propose what they require, and TSMAD should respond to the requirement. *(See action item 15).*

Part 10 (Encoding Formats)

EM proposed that there is there a need to make provision for "format definition files" in an exchange set. Currently S-100 implicitly allows inline and referenced spatial components in Part 10 (Encoding Formats) however this should be formally included in the document. *(See action item 16).*

4.3.3 Options for an S-100 GML Profile

(See paper 4.3.12A)

4.3.4 IALA guideline for developing S-100 based Product Specifications

TR reported that the IALA product specification diagram had been developed (with the assistance of TSMAD members) following a joint IHO/IALA meeting at the IHB. It was proposed that this could be used as informative content (annex) to S-100 when finalized. The meeting noted that document (see also 4.3.10).

4.3.5 S-100 Metadata Schemas?

(No paper)

4.3.6 Inclusion of a Temporal Model within S-100

TR reported that truncated date time information is supported in the S-57 model but it is not in the S-100 model. He proposed how to include it in S-100 so that it can be used in S-101 and other product specifications. He noted that this had been discussed at the SNPWG 15 meeting and was generally accepted by that working group. *(See action item 17).*

4.3.7 S-100 Portrayal

(No document provided)

4.3.8 Revision of the ISO8211 Encoding in S-100

HB reported that during a review of S-100 document, an inconsistency with the ISO 8211 encoding had been discovered (relating to data fields). He noted that this would not require any changes to the content of data fields and would only require some changes to the description of the encoding to rectify the inconsistency. The meeting agreed that there should be a distinction between fields for one coordinate tuple and fields for a list of coordinate tupels, and agreed to the use of the appropriate fields in the corresponding records. *(See action item 18).*

4.3.9 Proposal to formalize the identifiers for S-100 based product specifications.

TR reported that TSMAD had been tasked by HSSC to develop a nomenclature for numbering S-100 product specifications (both for IHO and non IHO numbers). For example using numbers from 101-199 for IHO product specifications and A-200-299 for other authorities - IHO endorsed product specifications. He noted that the proposal by UK was intended to allow for organizations to assign their own numbers, however this was not reflected in the decision by HSSC4.

JP proposed that that this was a requirement from the inland ENC harmonization group, who want to move ahead with an S-10X product specification and would like to have a number assigned to it.

HB proposed that the IHO should not be defining numbers for other organization. Non IHO users of the standard should able to define their own numbers. He proposed that it would be much better to use name spaces and the only criteria that should be specified is that the identifiers must be unique. This was agreed by the meeting. *(See action item 19).*

4.3.10 Development of a Guideline for S-100 Product Specification Development

TR reported that following an IHO/IALA workshop at the IHB, he was tasked to develop a draft guideline "cookbook" document that would contain key concepts of S-100, but would not be too technical. He noted that HSSC4 had tasked TSMAD to provide advice to other organizations using S-100, and he proposed that the document would reduce the requirements for IHO members to provide assistance to other groups.

The meeting noted the IALA document and approved the development of a similar document for wider use by other communities using S-100. *(See action item 20).*

4.3.11 S-100 Maintenance Procedures

(No paper)

4.3.12 GML Profile for S-100

TR reported that it was agreed at the TSMAD 24 meeting that a discussion paper presenting the options for including a GML (Geography Markup Language) profile for S-100 should be submitted to the next TSMAD meeting. Paper 4.3.12A provided an overview of the GML encoding and the GML schemas were provided a zip archive under item 4.3.12B. TR explained that the full documentation would made available for review. BG requested TSMAD members to provide comments and feedback on the schema and example datasets and documentation. p *(See action item 21).*

4.3.12B GML Profile – Annex A (see above).

4.3.13A

EM highlighted the work undertaken by the SNPWG to produce a Marine Protected Areas Product Specification and highlighted the resulting GML/XLM encoding schemas that were produced for this. He noted that these schemas may be of use to the work being undertaken by TSMAD and may have an impact on the work being undertaken to develop an S-100 GML profile. He encouraged members to consult the SNPWG document page on the IHO web site and the SNPWG WIKI.The meeting noted the paper and TSMAD members were asked to review the schemas and provide any comments and feedback to the SNPWG.

4.4 S-101 Encoding Guide Working Group

4.4.1 Update information and feature worked examples

TR reported that this is an ongoing item for UK and has not been completed. As it provides explanatory content for the DCEG it is a lower priority task. (No paper submitted)

4.5 S-101

4.5.1A S-101 Status Update and Risk Register

JP noted that as a result of delays in getting the S-100 portrayal model completed, the anticipated completion schedule for completion of S-101 (January 13) had slipped. She provided a brief report on the progress made and the present state of completion and noted that document 4.5.1B presented an analysis of the risks associated with not completing these tasks on schedule.

4.5.1B S-101 Risk Register

JP reported that due to the difficulty in predicting target dates, she had developed a risk register that highlight the important tasks that are behind schedule, and that will compromise the completion of S-101 if not completed. RF requested that a percentage column be added to the table presented.

EV noted that the register will be a very good vehicle for reporting progress to HSSC and to identify areas that need additional time and resources.

The meeting noted that paper and requested that JP continue populating the risk register. The register needs to be expand to cater for the main PS and other draft PS progress, and should also include a completion status (as percentage levels) column. *(See action item 22).*

4.5.2 S-101 Requirements and Test Case

(see item 4.5.3 below)

4.5.3 S-101 Test Case - Statement of Objectives

JP reported that, in order to satisfy TR 2/2007 – S-101 must be tested and although TSMSD has the expertise to draft a test plan, it does not have the resources to draft formal test cases. The HSSC4 meeting agreed that the draft test cases could be put out to tender. The test plan should include both positive and negative test cases for each requirement. These should be used to test the functionality of S-101 during the test bed phase. The objectives for the S-101 test case (stated in Annex A to paper 4.5.3) should be used as the basis for the contract.

4.5.3A S-101 Draft Test Plan

The meeting reviewed the draft test plan and the chairman requested TSMAD members to discuss the plan with their home offices and send any comments to JP. *(See action item 23)*

4.5.4 S-101 Phase 4 – Comments and editorial observations.

(See revised document containing all proposed changes on the TSMAD25 document download page).

4.5.4A Draft ENC Product Specification, Phase 4 - November 2012

JP reviewed the Phase 4 ENC Product specification, and asked members to send any comments to her for consideration.

4.5.5 S-57 Compilation Scale to S-101 Display Scale Convertor Mappings

Taken under Agenda Item 4.5.11

4.5.6 Validation Checks for S-101

TR noted that S-101 will require a set of validation checks to ensure conformance with the product specification and Data Capture and Encoding Guide (DCEG). He proposed that the checks should cover all the rules defined in the S-101 ENC Product Specification, changes to the ENC data model (for new features / attributes) exclusions that should not require S-58 checks and possibly ISO 8211 encoding related checks.

He proposed that a sub-WG should be established in order to prepare a draft set of validation checks for S-101. BG proposed that the current review of the S-58 check should identify what checks will be applicable to S-100.

GU noted that he had lead the S-58 work and wished to retire as leader but would continue as a contributor. RF (IC-ENC) offered to take over as leader of this sub-group, and this was confirmed by the meeting. *(See action item 24)*

4.5.7 S-101 Vertical Datum

TR reported that S-57 defines sounding datum and vertical data separately within the ISO 8211 records. This has resulted in 2 CRSs – one for the horizontal positions and a second for the vertical positions. It is proposed to use a compound coordinate reference system should be used for S-101. This should include a horizontal CRS which should to be defined by an EPSG Code e.g. 4326 for WGS 84 geographical coordinates, and a vertical CRS for soundings. A different CRS can be used for the vertical component of soundings – i.e. the vertical component can be repeated.

HB proposed that it may be more appropriate to use an information type for capturing vertical datum information. The meeting agreed with this approach, and it was proposed that an example should be included in the S-101 product specification to demonstrate the inclusion of vertical datum information in ISO 8211 records. *(See action item 25)*

4.5.8 Producer Agency Codes and S-101

TR reported that IEC 61174 requires that it should be possible to differentiate between official and non-official ENC data within an ECDIS. Currently the ECDIS determines this by using the S-62 agency codes. They are also used to provide the visual indication on the ECDIS. This implies that the list of S-62 codes must be included within the ECDIS system. This is not ideal as it has a maintenance overhead and the following options were proposed for discussion;

a. mandate that S-101 ENC product specification may only be used by official ENC producers (radical but simple).
b. use a dataset attribute for producer agency code (a list of producer agency codes would have to be included in the S-101 Feature Catalogue).
c. provide an XML catalogue of official producer codes.

It was decided that approaches b. or c. would be most suitable.

4.5.9A S-101 Impact Study - Hydrographic offices

LL reported on the results of the impact study which was intended to identify critical issues and the risk associated with moving from S-57 to S-101 data. The survey targeted 6 stakeholder communities, namely, ECDIS manufacturers, hydrographic offices, mariners, RENCs and VARs, ship owners and software producers

Questions were either of a general, technical, distribution, timeframes/transition or business nature, and varied depending on the types of communities to whom they were directed. The questionnaire was sent to stakeholders via TSMAD letter and was also made available as an online web form.

Responses from mariners reported that they wanted bigger screens, reduction in the complexity of systems, better coverage of ENCs, a lack of data for remote regions, too many alarms, too many different manufacturers, a need for a simplification of licenses & updating management, confusing symbology, a need for ECDIS specific training, and a requirement to integrate lists of lights and sailing directions information. LL proposed to consolidate the results of this survey with the results of the survey carried out by 7C's.

TR noted that there were not many responses from mariners and asked if there are other outreach mechanisms to get the survey to a wider community. TM proposed that perhaps the IHO should consider using social media channels to reach a wider audience.

EM reported that the survey was a worthy and timely effort and highlighted that there are many misconceptions about what S-101 will deliver. He proposed that follow up action was required to obviate these negative misconceptions. *(See action item 26 and 27).*

4.5.9B S-101 Impact Study – ECDIS Manufacturers

(See paper 4.5.9.A)

4.5.9C S-101 Impact Study – Mariners

(See paper 4.5.9.A)

4.5.9D S-101 Impact Study - RENCs and VARs

(See paper 4.5.9.A)

4.5.9E S-101 Impact Study - Ship Owners

(See paper 4.5.9.A)

4.5.9F S-101 Impact Study - Software Producers

(See paper 4.5.9.A)

4.5.10 S-101 Metadata Comments – (on how TSMAD learned to love metadata).

JP reported that the paper was intended to addressed metadata comments from the last review, and as a result of additional comments regarding clause 12, it was decided to discuss these as a separate paper rather than through the S-101 comments adjudication session. Jeppesen reported that they were happy to withdraw their comments at 12.1 (Introduction), and the meeting accepted to the revised introductory text, and the UML diagram.

4.5.11 S-57 to S-101 convertor (mapping table)

JP reported that the DCEG discussed how the new S-57 to S-101 convertor could deal with assigning both the maximum display scale and minimum display scale values for an S-101 dataset when there are no direct equivalents in S-57. The DCEG proposed that a standard mapping to automatically convert the S-57 values to equivalent S-101 values could be used and presented an initial table for consideration and discussion.

After discussion, JW proposed that this needs further discussion and recommended that a correspondence group should review the list of proposed scales. TdP reported that the values will be contained in an XML file which will allow users to modify the values. JW proposed that max display scale won't be an issue however finding the optimal minimum display scale values will be more of a challenge.

The meeting noted the need for an S-57 to S-101 mapping for data Coverage and agreed that S-101 display scale may need some additional values to reduce ambiguity. *(See action item 28)*

4.6 New S-101 Features

4.6.1A S-52 CSP Review – new attributes

JP reported that one of the actions from the joint TSMAD24/DIPWG4 meeting was for DIPWG members to undertake a review of the existing conditional symbology procedures (CSP) in S-52 and see if they can be reduced (simplified). She noted that TSMAD24/DIPWG4, paper 10.8A identified some cases where additional attributes could help simplify portrayal, however as DIPWG were about to undertake a full review of CSPs, it did not accept any of the proposals in the TSMAD 24 paper.

Concerning the proposal (1) to add a new attribute "least depth" or "safe clearance depth" to obstruction, underwater rock and wrecks features, JP noted that if VALSOU is not populated with a value, then the ECDIS calculates a value from the underlying depth values. HA noted that this is questionable process and it would be better if HOs populate VALSOU. RF stated that VALSOU is

optional for wrecks (i.e. encoders should use either VALSOU or CATWRK, and the meeting should consider making VALSOU mandatory. It was decided that this needs further consideration. *(See action item 29)*

Concerning the proposal (2) to add a new attribute "maximum surrounding depth" for Obstructions and Underwater Rocks features, HP noted that this is one of the most important issues for the ECDIS to do, and if it is required to implement a machine readable catalogue, a value needs to be populated so that the portrayal engine knows if the water surrounding the vessel is navigable – taking into account the ships parameters. HB proposed that another option may be to not add an attribute, but rather a relationship. It was concluded that this option may create problems for the portrayal catalogue, so the attribute proposal was preferred.

The meeting decided that the proposal was not accepted in its present format and needs to be expanded to look at all the scenarios. *(See action item 30)*

Concerning the proposal (3) to add a new "lightDescription" attribute to light features, TR proposed that symbology could be simplified if production systems were to automatically populate a new attribute within the ENC. The string would be formed using the same procedure as in the existing CSP and would use the following attributes CATLIT, COLOUR, HEIGHT, LITCHR, SIGGRP, SIGPER, STATUS, VLNMR.

After discussion, it was decided that this needs to be postponed to take account of the current work on portrayal and should explore the use of xslt logic being developed by DIPWG.

The proposal (4) to add a new simple attribute to selected lights features in S-101 named sectorExtension as an integer value. TR proposed that for S-101 portrayal, the value would be used to extend the default distance where sectors overlap. The LIGHTS05 conditional symbology procedure could then be omitted from S-101 portrayal. There was agreement to add the sector extension attribute but it was decided that the DCEG needs to determine how best to implement this. *(See action item 31)*

Concerning proposal (5) to add an integer attribute value for flare rotation lights, it was decided that this needs further documentation, and additional S-58 check will be required, however the proposal was accepted in principal.

4.6.1B S-52 CSP Review – Proposal for a light description

The proposal to add a new "lightDescription" attribute. See discussion at 4.6.1A above.

The proposal to add a new sectorExtension attribute. See discussion and action at 4.6.1A above.

The proposal concerning adding a new simple attribute for flareRotation, was accepted.

4.6.2 Eliminating the RESARE03, RESTRNnn CSP and the RESCSP02 CSP sub-routine.

JP reported that an action from the joint TSMAD24/DIPWG4 meeting was for DIPWG members to review existing S-52 CSPs to see if they can be simplifies or eliminated, and as a result of this the CSPs for RESARE03 and RESCSP were identified for elimination. Three different options were identified;

- Option 1 proposes to convert the RESARE03 and the RESCSP02 into a look-up table applicable CSPs include (RESARE03, RESCSP02 and possibly RESTRN01).
- Option 2 proposes the addition of a new sub-routine function called "LT" into the model of the drawing engine.
- Option 3 recommends the addition of new portrayal to support attributes together with function called "LT".

- Option 4 proposes to add new portrayal support attribute in such a way that the export filter of the production system will explicitly define which symbol is used (HP (Hannu) approach).

HA questioned that the way restriction (RESTRN) is modeled and proposed that a better approach may be to rationalize different types of restriction onto different groups and use different features. The meeting decided that options 2 and 3 provided the best solution however the DCEG needs to examine the types of RESTRN groupings with a view to creating additional RESARE type features. *(See action item 32)*

4.6.3 Auxiliary Files and S-101

TR reported that there are a number of complications and shortcomings with the current method including and managing text and picture files in ENCs. These shortcomings have resulted in a variety of implementations between end user systems and it was therefore proposed that for S-101, the content of the TXT and TIF files should be embedded directly into the ISO8211 dataset file (as long ASCII characters and binary data).

JP reported that this will substantially increase the dataset size and the size of the exchange set. HB proposed that an information type could be used for this for text files, and there would be no need to make changes to the 8211 encapsulation format. However for picture files there would be big implications for S-100, including changing the data model and the 8211 encoding. The proposal was not accepted in its present form. As this proposal was written by the chair of the DPSWG, it was decided that the TSMAD chair should request the originator of the paper (DPSWG chair) to rework the proposal and resubmit it to TSMAD 26 taking into account the comments above. RF offered to assist the DPSWG chair. *(See action item 33)*

4.6.4 Risks attached to the concept of Scale Independent and Scale Dependent (SI-SD) data sets

LL reported that in response to the discussion about the SD/SI concept, a survey that was carried out to assess the impact that it would have for S-101. He noted that the results showed that a significant number of these stakeholders consider that the SI-SD concept creates drawbacks and creates new issues. In particular, the SI-SD concept significantly increases difficulties with the transition to S-101 and include, reorganize the current ENC data into SI and SD products, reorganization of schemes (including between countries), reorganization of distribution and marketing structures and the need for additional training.

LL noted that as a consequence of the findings of the study, implementing SD/SI concept in S-101 will cause significant delays in data availability, and recommended that the SD/SI concept should not be implemented at this stage.

LL noted that he had further discussions concerning the SD and SI concept during the meeting, and although the original paper recommended abandoning the SD/SI proposal, he presented an additional proposal that made provision for using the SD/SI for value added products.

PE reminded the meeting that there is presently an ECDIS mandate. About 30 000 vessels will be implementing ECDIS over the next few years and this needs to be taken into account. KI proposed that the concept was not that foreign as this type of concept has already been implemented for additional layers. EM noted that IMO has decided to use S-100 as the base architecture of e-Navigation following the offering of S-100 by IHO, as well as making the ENC the base layer. This means that S-101 must fit in with the big e-Navigation sand box, and without the SI/SD concept, it will be significantly more difficult to achieve this.

LP stated that, although a good idea it was logistically going to be very difficult to implement and was not feasible for S-101 ENCs. Technically it is possible, but she proposed that logistically HOs will not be

prepared to re scheme their data. KI proposed that the reorganization could be undertaken as part of the data distribution process – i.e. HOs produce data, distributors do the SD/SI reorganization.

HB thanked France for the report – and noted that if SD/SI is to be implemented it should not be implemented in parallel with the implementation of S-101 data. He suggested that it be mothballed for further development until a better understanding of the all the implications was gained.

The meeting noted the findings of the paper, and agreed that the SD/SI concept should not be implemented in parallel with S-101 data. Its further development will be temporarily retired until a better understanding of it impact is gained.

JW noted that if work on this proposal was not going to be continued, TSMAD must look at other ways to improve harmonization of vertical consistency and improve updating mechanisms (i.e. not having to update multiple instances of objects).

4.7 S-58

4.7.1A S-58 Test Dataset

JP reported that as a result of the TSMAD task to re-format S-58 into machine readable XML file format, it was recognized that there was a need to develop proper test datasets that include both positive test data and negative test data. Due to funding limitations, NOAA was not able to complete all of the required tests in S-58 however, most of the outstanding checks had been completed by the UKHO.

JP proposed that the test datasets should be included as part of the official S-58 standard when completed. The meeting endorsed the test dataset, and agreed to their inclusion in S-58 when completed.

4.7.1B S-58 Test Dataset – UK (paper)

TR reported that UK had produced test data for almost all of the outstanding S-58 checks produced by NOAA (see 4.71A above). The meeting commended the work carried out by the UK and the USA. *(See action item 34).*

4.7.1C S-58 Test Dataset (cells)

Test dataset cell available for download from the TSMAD25 document page – no discussion.

4.7.2 S-58 5.0.0 Draft

TR reported that following an HSSC action, work on the development S-58 edition 5 had been progressed by the UK and IC-ENC.

The meeting noted the progress of the work. It was decided to keep the existing numbering system for the validation checks however they will be supplemented by an additional numbering system that will reflect the new proposed numbering structure.

It was also decided to move the strikethrough items to a list section at the back of the publication and include the reason for withdrawing a test. The sub-group were requested to further develop and include the tests developed by UK and USA. These are to be included in Edition 5 of S-58. It was agreed that there is presently no need to include an xml file containing the tests for S-57, however it was decided to do this for S-101 if required.

It was decided that a mandatory minimum set of checks should be identified and presented to the TSMAD26 meeting for approval. *(See action item 35)*.

4.7.3 Proposed S-58 Validation Check on the Vertex Density of Edges

BG noted that this paper proposes that edge primitives should not be encoded at a vertex density greater than 0.3 mm at compilation scale. It also proposes that validation tools should report a single warning when a significant number of vertices are detected for an entire cell.

RF noted that he fully supports the paper as IC-ENC frequently receive cells with high density vertices. He proposed that validation SW should only report how many instances of these anomalies occur for each cell tested. It was decided that it would not be possible to implement the variations on the theme as they are not included in the standard, however guidance should be provided via an encoding bulletin. *(See action item 36)*.

4.7.4 Use of the attribute TECSOU on the object M_QUAL

GU reported that there are discrepancies between the definition of CATZOC in Appendix A – Chapter 2 (Attribute Catalogue) and the UOC, and proposed a clarification and changes to the documents. The meeting agreed with all of the recommendations of the paper however noted that the wording needs to be improved to ensure that it is not misinterpreted. *(See action items 37 and 38)*.

4.8 S-57

4.8.1 Encoding All Round (Omni-directional) lights

See paper 4.11.1 and 4.11.1A

4.8.2 Proposals to amend the UOC

TR noted that the paper proposed some changes to the UOC to make certain text more clear.

Guidance on M_COVR changes – (chapter 2.6 Updates). The UK proposes that the UOC is amended to read “must” instead of “should” at “2.6 Updating”. This was not agreed by the meeting.

Include guidance on the encoding of underlying base display objects. The UK proposes that guidance should be added to the UOC for the appropriate objects to reflect S-58 check 54 and to be consistent with the text included at section 11.7.4. This was agreed for inclusion in the next version of the UOC

Horizontal datum shift parameters. TSMAD should consider improving the guidance on M_HOPA and may also wish to consider issuing an encoding bulletin to strongly recommend against its use. The meeting agreed that more guidance needs to be added to the UOC, and this should include an example. *(See action item 39)*.

The proposal concerning Pilot boarding areas was agreed.

The proposal to constraining the lights objects for UOC (and check 2000) to white, red, green, blue, yellow, orange, violet and amber was agreed.

4.8.3 S-57 Maintenance Sub-Working Group Report

JW reported that a TSMAD 24 action was to prepare new edition of the UOC. This had been completed and approved by HSSC4, and was presently being circulated to MS for approval. Since the last meeting, four new FAQs had been posted on the web site. Seven of these were approved at the TSMAD 24 meeting and the rest were approved by correspondence. Another significant EB action was a request from HSSC4 to develop an EBs on AIS and natural disasters.

TSMAD endorse the report and note the publication of ENC Encoding Bulletins and FAQs and the pending publication of UOC Edition 3.1.0.

JP noted that the USA had an issue with the S-58 test, relating to updates to base cells and proposed that the S-58 warning should be an error. JW stated that the text of the EB should reference the S-57 UOC and the best approach was to provide guidance by issuing an EB. *(See action items 40 and 41)*.

4.8.4 Restricted areas in S-57 ENCs

JW reported that feedback from mariners indicated that there was an increasing level of frustration resulting from ECDIS alarms and indications being triggered due to the encoding of restricted areas, and this is resulting in alarms being turned off.

He noted that after an AHS study on what restrictions trigger alarms, it was proposed to divide the attribute RESTRN into two categories; "navigational" and "regulatory". Those classified as "navigational" will continue to be encoded as RESARE by the AHS, however alternate object class that do not trigger ECDIS alarms (e.g. ADMARE) will be used for "regulatory" areas.

JW requested the meeting to consider the revised AHS draft encoding guidance for possible revision of IHO encoding guidance.

TM reported that this is being worked on by DIPWG to divide restrictions into "alarms" or "alerts" using IMO performance specification and 61174 as a guide. As it is proposed to present this to HSSC5 for approval and subsequent inclusion in S-52, it was decided to wait for the outcome of HSSC5.

The meeting agreed however that encoding guidance is required in the UOC in order to reducing the number of ECDIS alarms and indications triggered by RESARE. Furthermore it was agreed that this must also be addressed for S-101 ENCs.

4.9 S-64

4.9.1 Draft S-64 3.0.0

BG reported that this was an action item assigned by HSSC4. The S-64 edition 3.0.0 sub-working group has developed TOR and hope to have a draft for submission to TSMAD 26.

JP noted that US would provide a polar datasets. BG noted that he is in possession of some polar datasets which are being cleaned up and will then be distributed to various stakeholders and to the chair of the Antarctic Regional Hydrographic Commission for comment. KI stated that there needs to provide clear guidance on how type approval agencies will use the polar datasets.

JP proposed that the ARHC may want some guidance on what the optimum projection to be used in polar areas should be.

HB stated that the projection should not be included in the data, and it should be up to the manufacturer to provide this facility in his system – i.e. the ENC will be projected when displayed. Furthermore it needs to be absolutely clear how vessels should use ENC's in polar areas. The inclusion of polar datasets in S-64, should not confuse the type approval process.

TM proposed that because S-64 and S-52 are both interrelated, they should be sent out as a single package with the same effective dates. *(See action item 42)*.

4.10 Encoding bulletins – cell cancellation

JP reported that USA had experienced a problem issuing cancellation cell updates. The updates cells were not cancelling ENC cell on some type approved ECDIS. On further investigation it was noted that there were discrepancies between S-57 and S-64. S-57 provides clear notification that an update cell file must contain only the Data Set General Information record. The "Data Set Identifier" [DSID] field and

the [DSSI] field must not be included in the update message. The S-64 dataset includes empty feature and vector records in addition to the DSID and DSSI update. This is not consistent with what is stated in S-57. Because S-64 is used as the test dataset during type approval, it appears that OEM have based their systems on the S-64 dataset rather than the general guidance given in S-57. TR suggested that OEMs should be consulted on how this had been implemented in their system. He recommended that careful consideration must be taken concerning changes to S-64 as the implementation of cell cancellation in many legacy systems will conform to it.

JW proposed that there is no point issuing an encoding bulletin about what is clearly stated is in the UOC. It was noted that the problem should be fixed in S-64. *(See action item 43)*.

4.10.1 Cell Cancellation Encoding Bulletin

See above – it was decided that an encoding bulletin was not appropriate for this, and the problem should be rectified in S-64 (see discussion above). *(See action item 44)*.

4.10.2 IALA - AIS Virtual Aid to Navigation

JW noted that HSSC had directed TSMAD to develop a method for the encoding and portraying of Virtual AIS Aids to Navigation in S-57 ENCs in order to satisfy mariner requirement.

HP reported that IMO have not yet set any policy on this and there is no IMO version of the symbols yet. He stated that this will be discussed at the NAV meeting in September 2013 and noted that the paper chart symbols are different to the digital chart symbols. *(See action item 45)*.

4.11 Miscellaneous

4.11.1 Considerations on the implementation of Annex 1 to TSMAD Terms of Reference

The chair noted that the paper had been submitted by IHB director Gilles Bessero. The paper dealt with two (related) topics. The first topic highlights some issues concerning the implementation of Annex 1 of the TSMAD TORs. This topic proposes that the fast track process for issuing EBs related to safety issues takes a longer that the process for non safety issues. The chairman noted that Annex 1 needs to be changed to rectify the inconsistency, and he will discuss this with the IHB with a view to submitting a proposal to HSSC5.

On the second issue relating to the drafting of an EB for all round (omni-directional) lights, BG reported that he informed the IHB that some data producers were where encoding sector lights with SECTR1 and SECTR2 as 0 and 360 rather than leaving these attributes blank as stipulated in the UOC. He noted that this was considered to be safety related and it was decided that the fastest way of resolving the issue was to fix the data. Following consultation with the IHB and MS, Circular Letter 90/2012 was issued and EB 53 was posted on the IHO web site. Finland had objected to the issuing of the EB noting that they had based their decision to encode sector SECTR1 and SECTR2 on the text contained in Edition 3.4 of the S-52 PL. The chairman noted the comments contained at Annex B of the paper (4.11.1) and invited Finland to present their response comment paper 4.11.1A.

4.11.1A

MH proposed that the guidance regarding the use of attributes SECTR1 and SECTR2 for all-round lights is somewhat unclear in S-57, but clearer in S-52. It is not clear in the UOC if it is prohibited to use attributes SECTR1 and SECTR2 for all-round lights, or if the attributes are mandatory only for lights not visible all-round and optional for others. Edition 3.3 of the Presentation Library provided clear guidance on how to portray light features with SECTR1=0 and SECTR2=360

He proposed that at the CSMWG17 meeting it was stated that it should be possible to encode all round lights either without SECTR1 and SECTR2 or with SECTR1 and SECTR2 (having 0 - 360). The revised PL should portray the former as a flare and the latter as sector arc.

MH invited the meeting to consider the following proposals listed in their paper;

(27) The proposal to amend Encoding Bulletin 53 to read: "Encoders are advised that the attributes SECTR1 and SECTR2 should not be populated for lights that are visible all-round (omni-directional)" was agreed.

JW noted that it could only be included in the UOC when a new edition is produced. HB reported that if the problem is being caused by incorrect implementation of the CSP then the OEM should fix the problem with their systems.

SdO noted that TSMAD has a responsibility to the mariner safety and the EB should be kept, and there is a need for an encoding fix and also an OEM / portrayal fix. *(See action item 46)*.

(28) TSMAD to initiate actions to clarify the criteria and process for assessing an issue to be a safety or non-safety issue. – Agreed for discussion at TSMAD 26 meeting.

(29) TSMAD to inform DIPWG about the portrayal issue and invite it to take appropriate actions. - Agreed for discussion at TSMAD26/DIPWG5 meeting.

(30) TSMAD to formalize the S-57 sub-group (TORs, ROPs, membership). – Agreed for discussion at TSMAD 26.

(31) TSMAD to initiate actions to complement Annex 1 with textual explanation – Agreed.

In conclusion BG noted that he was only informed of the this issue a few days before he initiated the action. TM also reported that as soon as he was aware of the situation he drafted a portrayal bulleting and posted it to the the DIPWG chairman. *(See action item 47)*.

4.11.2 S-52 Presentation Library

TM reported that at the HSSC4 meeting, the UKHO agreed to undertake a revision of the S-52 Presentation Library Part 1 and proposed that this would result in the publication of Version 3.5. He noted that there has never been a full overhaul of S-52, and provided an overview of the major changes to the document. He noted that one of the main goals has been to ensure that the new document will be easier for OEMs to understand. As a consequence much of the indexing will be changed once all the clarifications and corrections have been included. The document will be presented to the next DIPWG meeting for approval and UKHO will recommend that a sub working group be established to review and finalize S-52 – noting that there should be no changes to the document content.

Concerning the comments about the complexities of the Nassi-Schnidermann diagrams, HB pointed out that the confusion was not with the actual diagrams, but rather their content which was not consistent. Unless the content is updated they will not be any better when converted to UML format. Concerning the proposal to remove the C-code, he was of the opinion that it was useful as it provides an unambiguous notation of the program logic. He proposed to replace it with generic code.

11.2B US Response to the Proposed Changes to S-52 Presentation Library.

JP stated that the USA has serious reservations regarding the amount of effort that will be needed by DIPWG members to review the Presentation Library Ver 3.5 for approval noting that a track change version had not been provided. TM responded that as a result of changes to the structure of the document, producing a red line version was not practical.

JP proposed that changes were outside the scope as discussed at HSSC and the edition number should be 4.0. TM responded that the changes to the content were not to extensive – the main changes were to the organization of the structure.

JP noted that many of editorial changes are pervasive throughout the document and it will require more resources to review the document than either DIPWG or TSMAD can afford. Furthermore changes that have not already been approved and incorporated into the maintenance documents should be accompanied by a discussion paper for consideration by the next DIPWG meeting.

The meeting noted the concerns presented in the paper.

4.11.3 Review TSMAD TOR Annex A

The chairman provided a brief review of the TSMAD TORs and noted that he would work with the IHB to proposed changes to Annex A for submission the next HSSC meeting.

5. National Papers

5.1 Ocean Forecast Product Specification

JW reported that WMO is working on defining Met-Ocean Object and Attributes as an S-57 catalogue. The group has not yet started work on developing a product specification for vector products that could be used as an S-10X overlay for ECDIS. This will probably use the 8211 encoding format.

JP reported that NOAA is requesting that TSMAD provide guidance on the development of an S-100 based product specification to ETMSS and would like to establish a liaison with ETMSS in order to determine how to best facilitate a register for the met-ocean features. It may be necessary to establish a JCOM register for this work. The meeting noted the request for TSMAD to provide expert advice on the creation of an S-100 based product specification for Ocean Forecasts,

TR noted that this may have an impact on S-53, and proposed that JP should be the liaison with WWNWS Working group. *(See action item 48)*

5.2 Korean National Report (Is your bathymetry REAL?)

YH provided a presentation on the use of survey data for uses other that charting. He noted that most surveys do not provide a real representation of the sea floor topology because of shoal bias and the use of chart datum rather than Mean Sea Level. His presentation demonstrated KHOAs tests to develop a new bathymetry dataset, which reduces the amount of data by 90%, yet maintains the precision of sea floor topology. The full presentation is available from the TSMAD 25 document page.

6. Any Other Business

6.1 INF1 Use of Topography and other Items

Paper not taken.

6.2 INF2 S-101 Value Added Roadmap

Paper not taken.

6.3 INF3 Feature relationships and coming challenges of e-Navigation

Paper not taken.

6.4 INF4 SNPWG liaison note to TSMAD concerning the Registry

Feature relationships and coming challenges of e-Navigation

BG reported that many of the issues raised by SNPWG concerning the registry were being tested or were still under development and would be completed before the next meeting. The meeting noted the paper and agreed that SNPWG should be kept abreast of registry development items.

7. Date and Venue of Next Meeting

The next meeting will be a joint TSMAD / DIPWG meeting, and is scheduled to take place between the 10th and 14th of June 2013 in Silver Spring, Maryland, USA.

Annex A

List of Documents.

Document No	Document Title
TSMAD25-1A	List of Documents
TSMAD25-1B	List of Participants - (including hotel booking confirmations)
TSMAD25-2	Draft Agenda
TSMAD25-3	Minutes of the 24th Meeting - IHB, Monaco
TSMAD25-3.1	Action Items from 24 meeting
TSMAD25-4.2.1	Report from SNPWG
TSMAD25-4.2.2	Report from CSPCWG
TSMAD25-4.2.3	Report from DQWG
TSMAD25-4.2.4	Report from DIPWG
TSMAD25-4.2.5	Report from TWLWG
TSMAD25-4.2.6	Report from IALA
TSMAD25-4.2.7	Report from DGIWG
TSMAD22-4.3.1A	S-100 Product Specification Template
TSMAD25-4.3.1B	S-10n Product Specification Template
TSMAD25-4.3.2	Revisions and Extensions to S-100 Edition 1.0.0
TSMAD25-4.3.4	IALA - Introduction to Preparing S-100 Product Specifications
TSMAD25-4.3.5	S-100 Metadata Schema
TSMAD25-4.3.6	Inclusion of a Temporal Model within S-100
TSMAD25.4.3.7	S-100 Portrayal
TSMAD25-4.3.8	Revision of the ISO8211 Encoding in S-100
TSMAD25-4.3.9	Proposal to formalize the identifiers for S-100 based product specifications
TSMAD25-4.3.10	Development of a Guideline for S-100 Product Specification Development
TSMAD25-4.3.12A	GML Profile for S-100
TSMAD25-4.3.12B	GML Profile - Annex A (ZIP File)
TSMAD25-4.3.13A	SNPWG - Marine Protected Area Schema
TSMAD25-4.3.13B	SNPWG - Marine Protected Area Schema XML Files (ZIP format)
TSMAD25-4.4.1	Update information feature worked examples
TSMAD25-4.5.1A	S-101 Status and Risk Register
TSMAD25-4.5.1B	S-101 Risk Register
TSMAD25-4.5.2	S-101 Requirements Test Case

TSMAD25-4.5.3	S-101 Test Case - Statement of Objectives
TSMAD25-4.5.3A	S-101 Draft Test Plan
TSMAD25-4.5.4	S-101 Phase 4 – Comments and Editorial Observations.
TSMAD25-4.5.4A	Draft ENC Product Specification, Phase 4 - November 2012
TSMAD25-4.5.5	S-57 Compilation Scale to S-101 Display Scale Convertor Mappings
TSMAD25-4.5.6	Validation Checks for S-101
TSMAD25-4.5.7	S-101 Vertical Datum
TSMAD25-4.5.8	Producer Agency Codes and S-101
TSMAD25-4.5.9A	S-101 Impact Study - Hydrographic Offices
TSMAD25-4.5.9B	S-101 Impact Study - ECDIS Manufacturers
TSMAD25-4.5.9C	S-101 Impact Study - Mariners
TSMAD25-4.5.9D	S-101 Impact Study - RENCs and VARs
TSMAD25-4.5.9E	S-101 Impact Study - Ship Owners
TSMAD25-4.5.9F	S-101 Impact Study - Software Producers
TSMAD25-4.5.10	S-101 Metadata Comments – or how TSMAD learned to love metadata
TSMAD25-4.5.11	S-57 to S-101 convertor (mapping table)
TSMAD25-4.6.1A	S-52 CSP Review – New attributes to simplify portrayal
TSMAD25-4.6.1B	S-52 CSP Review – Proposal for a light description
TSMAD25-4.6.1C	Light Descriptions
TSMAD25-4.6.2	Eliminating the RESARE03, RESTRNnn CSP and the RESCSP02 CSP sub-routine
TSMAD25-4.6.3	Auxiliary Files and S-101
TSMAD25-4.6.4	Risks attached to the concept of Scale Independent and Scale Dependent (SI-SD) data sets-
TSMAD25-4.7.1A	S-58 Test Dataset
TSMAD25-4.7.1B	S-58 Test Dataset - UK (Paper)
TSMAD25-4.7.1C	S-58 Test Dataset - UK (Test datasets - ZIP format)
TSMAD25-4.7.2	S-58 5.0.0 Draft (ZIP file containing; S58 5.0.0 Section 1.doc, S58_Ed5_proposal_conclusions.doc,
TSMAD25-4.7.2A	NOAA - Testing S-58 Validation Checks Using Dedicated Test ENC Datasets
TSMAD25-4.7.3	Proposed S-58 Validation Check on the Vertex Density of Edges
TSMAD25-4.7.4	Use of the attribute TECSOU on the object M_QUAL
TSMAD25-4.8.1	Encoding All Round (Omni-directional) lights
TSMAD25-4.8.2	Proposals to amend the UOC
TSMAD25-4.8.3	S-57 Maintenance Sub-Working Group Report
TSMAD25-4.8.4	Restricted areas in S-57 ENCs
TSMAD25-4.9.1	Draft S-64 3.0.0 (ZIP file containing S-64 3.0.0.doc, Change Tracker S-64 3.0.0.xls, S-64 3.0.0

TSMAD25-4.10.1	Encoding Bulletin to address Cancel Cell Update
TSMAD25-4.10.2	IALA - AIS Virtual Aid to Navigation
TSMAD25-4.11.1	Considerations on the implementation of Annex 1 to TSMAD Terms of Reference
TSMAD25-4.11.2	S-52 Presentation Library
TSMAD25-4.11.2B	Proposed Changes to S-52 Presentation Library
TSMAD25-4.11.2C	S-52 Presentation Library Part 1 - redline version (ZIP format)
TSMAD25-4.11.3	TSMAD Terms of Reference
TSMAD25-5.1	Development of an S-100 Based Product Specification for Ocean Forecasts
TSMAD25-5.2.1	Korean Report on "Is Your Bathymetry REAL?" and
	TSMAD25 INF Papers
TSMAD25-INF1	Use of Topography and Other Items of Interest
TSMAD25-INF2	S-101 Value Added Roadmap
TSMAD25-INF3	Feature relationships and coming challenges of e-Navigation
TSMAD25-INF4	Liaison Note from SNPWG IHO GI Registry - Desirable Components and Tools

Annex B

Agenda

1. Opening and Administrative Arrangements

A. List of Documents

B. List of Participants

2. Approval of Agenda

3. Minutes of the 24nd TSMAD Meeting, 7-11 May, 2012 - Monaco

Approval of 24th TSMAD minutes

3.1 LIST OF ACTION ITEMS FROM TSMAD 24

No	Sect. No	Action
1	10.2A	Investigate what is required for documenting multiple dataset metadata using the 19115/19139 MD dataset series constructs for SI and SD datasets.
2	10.3.A	Make the S-101 impact study survey (paper 10.3B) available as a web-based survey and present the results to the HSSC4 and TSMAD25 meetings.
3	11.2A	TSMAD chair to organize a meeting and invite relevant stakeholders to develop a new version of S-64 as identified in TSMAD24-DIPWG4-11.2A
4	11.3A	The list of 14 comments included at Annex 1 of paper TSMAD24-DIPWG4-11.3A are to be forwarded to the S-102 Work Item leader for consideration and possible inclusion in the next edition of the publication.
5	11.4A	Prepare a paper for TSMAD25 presenting the options for an S-100 GML profile. (TR BG)
6	11.6A	Submit a paper to HSSC4 proposing that a work item to revise S-99 be added to the TSMAD work programme. The proposal should also request an amendment to the TSMAD ToRs to make provision for the on-going maintenance of S-99.
7	11.7A	Include all approved new Encoding Bulletins and FAQs (presented in paper TSMAD24-DIPWG4 – 11.7A), in the EB section on the IHO web site. (IHB). Prepare a new draft version of the UOC for approval at HSSC4. TSMAD to review and approve changes by correspondence.
8	11.7B	Replace the existing list of Encoding Bulletins and FAQs on the IHO website with the revised list in paper TSMAD24-DIPWG44-11.7B. Remove FAQ 8 from the list. (IHB)
9	11.8A	Prepare a paper for submission to HSSC4, requesting that a new work item to produce a product specification for surface currents be added to the TSMAD work program (Canada).
10	12	Study and produce a paper outlining how to model Dates and Time, taking into account the requirements of other WGs. To be presented at the TSMAD 25 meeting.
11		Encoding Bulletin for ensuring sufficient topo information
12		Check S-58 and S-64 for incorrect use of RESTRN = 14

4 Matters arising

4.1 From HSSC 4

No	Agenda	Action
5.1.1	HSSC4/07	**TSMAD Chair** to include in the TSMAD work plan an additional work item to produce a roadmap (using mind map), taking into account the S-101 impact study and showing key tasks that have to be completed in order to implement S-101, and indicating interaction between the tasks and the implications for stakeholders.
5.1.4	HSSC4/11	**TSMAD** to develop, with IHB support and in consultation with the relevant stakeholders, a nomenclature for S-100 based product specifications as part of the GI registry management, and revise S-100, taking into account the following guidance: S-100 to S-199 should be reserved for IHO product specifications; Non IHO product specifications identifiers should be assigned by the registry manager on a first come first served basis from S-200 onwards.
5.1.5	HSSC4/14	**TSMAD** to draft a statement of requirements for the development of S-101 test plan and submit it to the IHB for tendering.
5.1.8	HSSC4/16	**TSMAD** to develop an Encoding Bulletin that describes how to encode virtual AIS Aids to Navigation using the New Object (NEWOBJ) feature.
5.3.3	HSSC4/25	**TSMAD and DIPWG Chairs** to produce, by the end of January 2013, a "master plan" document for the development of S-100 and S-101, in accordance with the life cycle diagram included in resolution 2/2007, incorporating sequencing with DQWG and DPSWG, and scheming the implications for stakeholders.
5.6.2	HSSC4/29	**TSMAD** to apply to S-57 Appendix B.1 Annex A (Use of the Object Catalogue for ENC), the changes identified in section 8 of HSSC4-05.6B and dealing with reflecting the impact of extreme events through CATZOC.

4.1.2 TSMAD Work Programme

Action/Agenda No	Item
4.1.1	IHO TSMAD Work Programme

4.2 Reports from Other Working Groups

Action/Agenda No	Item
4.2.1	SNPWG
4.2.2	CSPCWG
4.2.3	DQWG
4.2.4	DIPWG
4.2.5	TWLWG
4.2.6	IALA

4.3 S-100

Action/Agenda No	Item

4.3.1A 4.3.1B	S-100 Product Specification Template S-10n Product Specification Template
4.3.2	Revisions and Extensions to S-100 Edition 1.0.0
4.3.3	Options for an S-100 GML Profile
4.3.4	IALA guideline for develop S-100 based Product Specifications
4.3.5	S-100 Metadata Schemas?
4.3.6	Inclusion of a Temporal Model within S-100
4.3.7	S-100 Portrayal
4.3.8	Revision of the ISO8211 Encoding in S-100
4.3.9	Proposal to formalize the identifiers for S-100 based product specifications
4.3.10	Development of a Guideline for S-100 Product Specification Development
4.3.11	S-100 Maintenance Procedures
4.3.12A	GML Profile for S-100
4.3.12B	GML Profile – Annex A

4.4 S-101 Encoding Guide Working Group

Action/Agenda No	Item
4.4.1	Update information feature worked examples

4.5 S-101

Action/Agenda No	Item
4.5.1A 4.5.1B	S-101 Status Update and Risk Register S-101 Risk Register
4.5.2	S-101 Requirements and Test Case
4.5.3 4.5.3A	S-101 Test Case - Statement of Objectives S-101 Draft Test Plan
4.5.4 4.5.4A	S-101 Phase 4 – Comments and editorial observations. Draft ENC Product Specification, Phase 4 - November 2012
4.5.5	S-57 Compilation Scale to S-101 Display Scale Convertor Mappings
4.5.6	Validation Checks for S-101
4.5.7	S-101 Vertical Datum?
4.5.8	Producer Agency Codes and S-101

4.5.9A	S-101 Impact Study - Hydrographic offices
4.5.9B	S-101 Impact Study – ECDIS Manufacturers
4.5.9C	S-101 Impact Study - Mariners
4.5.9D	S-101 Impact Study - RENCs and VARs
4.5.9E	S-101 Impact Study - Ship Owners
4.5.9F	S-101 Impact Study - Software Producers
4.5.10	S-101 Metadata Comments – on how TSMAD learned to love metadata
4.5.11	S-57 to S-101 convertor (mapping table)

4.6 New S-101 Features

Action/Agenda No	Item
4.6.1A	S-52 CSP Review – new attributes
4.6.1B	S-52 CSP Review – Proposal for a light description
4.6.1C	Light Descriptions (ZIP file)
4.6.2	Eliminating the RESARE03, RESTRNnn CSP and the RESCSP02 CSP sub-routine
4.6.3	Auxiliary Files and S-101
4.6.4	Risks attached to the concept of Scale Independent and Scale Dependent (SI-SD) data sets

4.7 S-58

Action/Agenda No	Item
4.7.1A	S-58 Test Dataset
4.7.1B	S-58 Test Dataset – UK (paper)
4.7.1C	S-58 Test Dataset (cells)
4.7.2 4.7.2A	S-58 5.0.0 Draft Testing S-58 Validation Checks Using Dedicated Test ENC Datasets (See NOAA S-58 Test data set)
4.7.3	Proposed S-58 Validation Check on the Vertex Density of Edges
4.7.4	Use of the attribute TECSOU on the object M_QUAL

4.8 S-57

Action/Agenda No	Item
4.8.1	Encoding All Round (Omni-directional) lights
4.8.2	Proposals to amend the UOC
4.8.3	S-57 Maintenance Sub-Working Group Report
4.8.4	Restricted areas in S-57 ENCs

4.9 S-64

Action/Agenda No	Item
4.9.1	Draft S-64 3.0.0

4.10 Encoding bulletins

Action/Agenda No	Item
4.10.1	Cell Cancellation Encoding Bulletin
4.10.2	IALA - AIS Virtual Aid to Navigation

4.11 Miscellaneous

Action/Agenda No	Item
4.11.1 4.11.1A	Considerations on the implementation of Annex 1 to TSMAD Terms of Reference Finish response to 4.11.1
4.11.2	S-52 Presentation Library
4.11.2B	Proposed Changes to S-52 Presentation Library
4.11.2C	S-52 Presentation Library Part 1 - redline version
4.11.3	Review TSMAD TOR Annex A

5. National Papers

Action/Agenda No	Item
5.1	Ocean Forecast Product Specification
5.2.1 5.2.2	Korean Report "Is your bathymetry REAL?" and TideBed : Tide datum relationship database of Korea

6. Any Other Business

Action/Agenda No	Item
INF1	Use of Topography and other Items
INF2	S-101 Value Added Roadmap
INF3	Feature relationships and coming challenges of e-Navigation
INF4	SNPWG liaison note to TSMAD concerning the Registry

7. Date and location of next meeting

Annex C

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