23rd Transfer Standard Maintenance and Applications Development (TSMAD) Working Group Meeting

Wellington, New Zealand (11-15 January 2012)

Minutes

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

Annexes:

Annex A – List of Documents
Annex B – Agenda
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Annex D – List of Action Items.

1. Opening and Administrative Arrangements

The New Zealand hydrographer, Mr. Adam Greenland opened the meeting and welcoming the TSMAD Working Group members to Wellington. He informed the meeting that New Zealand was a maritime nation and 95% of all imports and exports relied on the marine transportation. He thanked the meeting for their dedication and determination in getting the standards development work completed and wished the Working Group every success with their work while in Wellington.

The Chairman, Barrie Greenslade thanked Mr. Greenland for his warm welcome and for the excellent logistics and support that had be provided by members of LINZ – in particular Jennifer Ryan for her logistical support.

1.1 Participant and Apologies.

The chairman welcomed all those new members who were attending the meeting for the first time and noted that apologies had been received from Ellen Vos, Tom Deputy, Wade Ladner, Al Armstrong and Carsten Riise-Jensen.

2. Approval of the Agenda.

The TSMAD23 agenda (document TSMAD 23-2) was unanimously approved by the meeting, with the addition of information papers TSMAD23-5.1.3 and TSMAD23-515A.

3. Approval of the TSMAD 21 Minutes

Minutes of the 23rd TSMAD meeting which took place in Seoul, Republic of Korea (11 to 15 April 2011) were reviewed and approved without comment.

3.1. Status of Actions from the 23rd TSMAD WG meeting. (Listed in Agenda);

Action 1. *Prepare a paper for the HSSC 3 meeting proposing that S-100 should have a special dispensation with respect to revisions and corrections to the standard.* The Chairman informed the meeting that this had been completed. **Done.**

Action 2. *TSMAD members are to discuss the case for reinstating a special dispensation for maintaining S-100 with respect to revisions and corrections to the standard.* **Done**.

Action 3. *Draft a paper for the TSMAD23 meeting proposing that a register for INT1 references be established in the S-100 Geospatial Information Registry.* JW reported that he had produced a paper on the subject and distributed it to CSPCWG members. There was not much feedback on the paper. JW will continue the work on producing the INT 1 register. **Ongoing**

Action 4. *Develop an encoding bulletin and UOC guidance to help resolve confusion concerning the use of foul area / foul ground.* JW reported that this was for inclusion in the next version of the UOC. **Ongoing**.

Action 5. *Develop an Encoding Bulletin and UOC guidance outlining how to encode wave energy devices and wave farms.* JW reported that this is for inclusion in the next version of the UOC. **Ongoing**.

Action 6. *Prepare a paper for the next CSPCWG meeting regarding the registration of INT 1 reference numbers with a view to ensuring that discontinued numbers will not be reused.* JW reported that this is for inclusion in the next version of the UOC. **Ongoing**.

Action 7. *Develop an encoding bulletin and UOC guidance explaining the implications of CSPCWG amendments to INT1 references to small craft entries.* JW reported that this is for inclusion in the next version of the UOC. **Ongoing**.

Action 8. *Develop an encoding bulletin and UOC guidance for encoding CATSPM for floating waste bins*. **Done**

Action 9. *Develop an encoding bulletin and UOC guidance to provide guidance on the encoding of sub-surface ODAS devices*. JW reported that this is for inclusion in the next version of the UOC. **Ongoing**.

Action 10. *Develop an encoding bulletin and UOC guidance outlining how to encode floating wind turbines and wind farms.* JW reported that this is for inclusion in the next version of the UOC. **Ongoing**.

Action 11. *Develop a paper (for TSMAD 23) proposing how picture files should be formatted for optimal use in ECDIS systems*. **Done.**

Action 12. *Circulate the rewrite of the entire paragraph 5 to review group for comment – response period of 1 week*. JW reported that this is for inclusion in the next version of the UOC. **Ongoing**.

Action 13. *Produce a paper for TSMAD 23 on Traffic separation schemes for inclusion in the next edition of the UOC.* **Ongoing.**

Action 14. *Provide information to the IHB concerning the incorrect encoding of recommended routes (i.e. coordinate direction). Include information on how this could lead to safety related issues. There is also a requirement to identify other similar encoding issues and document these with recommended actions that should be followed*. **Done**. JW reported that the CL still needed to be distributed – **Ongoing.**

Action 15. *Test Card to be sent out to OEMs for review*. **Done**

Action 16. *Include all edits resulting from the meeting discussion, and then send out a revised version of the UOC to all TSMAD members for comment - (1 month for responses).* **Done**.

Action 17. *Complete the explanatory documentation for the Test Data Pack Ver 1.1 and prepare a submission for HSSC 3.* **Done.**

Action 18. *A correspondence group is to be established to investigate the tasks identified in the presentation by JP on the phased approach for implementing the full functionality of S-101 ENCs Phase*

2. TR to lead the correspondence group. (Members JW, TR, GU, (Netherland - possibly). JP to circulate items in the presentation to corresponding group members. **Done.**

Action 19. *TR is to provide TD with an S-101 conformant feature catalogue name for the conversion SW pack. TD to incorporate the new FC name into the next version of the converter application*. **Done.**

Action 20. *Distribute a list of fields that are missing from the converter application to members of the distribution list for verification and then add these to the feature catalogue. HB to provide the distribution list members with a recommended solution for making this machine readable so that is can be added to S-101.* **Ongoing.**

Action 21. *Spatial attributes have not been included in the FC, and information types for both QUAPOS and POSACC therefore need to be added*. **Ongoing**.

Action 22. *Produce a new diagram for inclusion in S-101 to illustrate how masking works*. **Done.**

Action 23. *Continue the investigation on Scale Dependent and Scale Independent cells - taking into account comments and feedback provided by the working group*. **Done**.

Action 24. *The implementation rules for chart loading in ECDIS are to be re-edited and distributed to TSMAD members for comment. After approval they are to be included in the business rules section of S-101 - Phase 2*. **Done**

Action 25. *Carry out further study on text placement for portrayal in ECDIS – paper to be produced for TSMAD 23*. **Done**.

Action 26. *Based on the decision that the feature type approach (with geometry and themes) was the best way to convey update information in S-101 ENCs / ECDIS, a further study needs to be carried out and reported to TSMAD 23*. **Done.**

Action 27. *Distribute S-102 for wider stakeholder community review.* **Done**.

Action 28. *Add the S-102 product specification to the TSMAD report to HSSC3, for endorsement.* **Done**.

Action 29. *Develop a paper (for TSMAD 23) proposing how picture files should be formatted for optimal use in ECDIS systems.* **Done.**

Action 30. *Get data covering a polar area for testing and for eventual inclusion in the TDS.* **Ongoing.** (BG to get datasets from OSL requesting dataset for test purposes). This is to be included in the new version of S-64. HB reported that he has a dataset that covers the polar region (only contains a few point) that could be made available. **Ongoing.**

4. Matters arising

4.1 Matters arising from the HSSC3 meeting (23 4.1.1)

4.1.1 BG reported that TSMAD has been tasked by the HSSC to investigate how to expand S-64 in order to improve its usefulness. He reported that the UK demonstrated a test dataset, which had been produced to identify display inconsistencies in ECDIS, to the HSSC 3 meeting. The dataset will be useful for type approval. UK offered to provide accompanying documentation for the test dataset. HSSC3 approved its incorporation into a revised edition of S-64 and recognizing that there is a need to provide a more comprehensive test data. HSSC3 tasked TSMAD to investigate expanding S-64 in order to improve its usefulness for both OEMs and type approval authorities. HSSC 3 also proposed that DIPWG should produce a revised Presentation Library, and it is proposed that this work should be harmonized with the new version of S-64. It was proposed that; the new S-64 edition should, be

restructured to embed graphic plots within the tests and should also include additional tests to address specific areas of ECDIS display and alarm functionality.

4.1.2 Validation Checks. BG reported that HSSC 3 agreed that a minimum validation check standard for ENCs should be established using the "error" category in S-58, and approved the restructuring of S-58 into a new section that will contain; errors which must be corrected in all ENCs, "warnings" that require cartographic interpretation for a satisfactory solution and tests to be performed prior to data import in ECDIS. See paper TSMAD 23 4.7.1

4.1.3. Discussion about resolution 2/2007. BG reported that HSS3 agreed that Resolution 2/2007 should be amended to indicate that, while S-100 is an IHO standard as defined in Resolution 2/2007, it should have a different maintenance routine. In particular, that TSMAD may approve revisions and clarifications to S-100 when considered to be necessary. CL 03/2012 on the subject had been sent out by the IHB. BG reported that this should be discussed further under the S-100 agenda item.

4.1.4. S-101 maintenance. BG reported that HSSC3 confirmed that Resolution 2/2007 applies to the S-101 standard.

4.1.5 Restructuring of HSSC3 working groups. BG reported that he had submitted a paper to HSSC3 that proposed several changes to the structure and functioning of the HSSC working groups, and was intended to improve their efficiency. The proposals were not approved by HSSC3.

4.1.6. BG reported that HSSC3 approved the list of IHO technical standards that should be subject to the terms of Resolution 2/2007, and recommended that MS adopt the agreed list as an Appendix to Resolution 2/2007. The IHB is to circulate a proposed amendment to Res 2/2007 to Member States for adoption.

4.2. Reports from Other Working Groups

4.2.1. SNPWG – NPUBS Development Impact on S-100. EM reported that presently most of the data modeling work is being carried out by correspondence. There has been a focusing on data quality issues and the production of a Marine Protected Area product specification. SNPWG will be having their next meeting at the IHB, Monaco during February 2012. SNPWG are not ready to register their modeled feature classes and attribute classes yet. These are presently recorded on the SNPWG WIKI and will eventually be move it into the registry when stable. JP noted that SNPWG needs to be cautious that there is not duplicate modeling of feature / information types by other groups.

4.2.2. DIPWG – S-100 Portrayal Focus Group. BG reported that there had been portrayal meetings in Hamburg and Taunton. The portrayal model is at fairly advanced stage, and the documentation should be completed in time to present to the next TSMAD / DIPWG meeting for approval, after which it will be include in S-100. HB reported that there is still some work required to complete the XLM schema, however it is anticipated to get this completed during the course of meeting.

4.2.3. TWLWG – Tidal Data Product Specification(s). No report was provided from the group.

4.2.4. DQWG – DQWG Input to S-100 / S-101. EM reported that 2 meetings had taken place since that last TSMAD meeting. DQWG had carried out a survey on data quality requirements. A more detailed report of the proposed new items for S-101 will be provided as part of the papers 23- 4.5.13 and 4.5.13A.

4.2.5. Report on CSPCWG – Activities. JW reported that there had been one CSPCWG meeting since the last TSMAD meeting. A new edition of S-4 (Ed 4.2.0 Aug 201) had been published since the last TSMAD meeting. The new edition includes a new listing of retired INT1 references at B-151.2; a revised specification for foul area and foul ground, and new symbology for larger areas of foul ground. It is anticipated that this will not have an impact for ENC production.

JW highlighted the following items of interest that TSMAD should note;

Concerning the development of guidelines for the preparation and maintenance of small / medium scale ENC schemes, HSSC3 have instruct CSPCWG to complete this work within the next 12 months in order to provide guidance to RHCs for scheming small / medium scale ENCs.

A new edition of INT3 has been completed and is to be included on the IHO web site.

JW reported that CSPCWG had discussed the inclusion of sources of the power for lights used as aids to navigation. These may be useful on charts and ENC. He cited the problems caused by a loss of power in Brisbane port, and the Port authorities had requested to have the source of power included on AtoNs. The proposal was rejected by CSPCWG but it was noted that it may be necessary to bring this to the attention of TSMAD. TSMAD concluded that this was not worth including in ENC.

CSPCWG are to include FPSO (floating production, storage and offloading facilities) as an international abbreviation in S-4, and will also include abbreviations for floating storage and offloading vessel (FSO) and floating storage and unloading vessel. TSMAD noted the proposal.

JW reported that, based on the Japan Tsunami event, new paper chart symbology to depict the limit of areas that can be considered to be inadequately surveyed as a result of natural disasters was approved by CSPCWG. TSMAD will need to consider ENC encoding guidance for this new symbology. BG questioned whether this can be covered by the use of M_QUAL? JW noted that Japan presently assign CATZOC (U) for these areas. The proposal was noted.

JW reported that CSPCWG had discussed amending the definitions for major lights in various IHO publications, and providing revised guidance for the depiction of the light star symbols on paper charts. It was noted that UK are to conduct further enquiries with IALA and Light List Authorities to develop a more formal proposal and anticipate to report on this to TSMAD 24.

CSPCWG discussed the replacement of the GPS the acronym with the more generic GNSS (Global Navigation Satellite System) one in S-4 and INT1.

JW reported that it is anticipated that S-4 Section B-300 (topography) is to be completed by the end of 2012. This will include some major changes to the S-4 guidance regarding the level of topographic depiction on charts.

JW reported that US are to produce a paper chart / ECDIS symbol version of their Chart 1 (anticipated completion date 2012), and UK are working on a “BA5012” document of ECDIS symbols to supplement their BA5011 (anticipated completion date during 2012).

JW reported that CSPCWG had discussed a pilot project to use “pointer lights” to navigation lights in harbours to direct attention to certain important navigational lights. TSMAD considered that this was not appropriate for ENCs.

JW reported that the following CSPCWG activities had been progressed on S-4 by correspondence since TSMAD20/DIPWG2;

- Revision to provide general guidance as to what the minimum content on charts should be. HSSC3 approver the new wording, for inclusion of next edition of S-4.
- Discussions on the development of generic lights symbols for multi-coloured charts - more discussion is required.
- Amendments to provide additional guidance on updating source/ZOC diagram information where new survey data is assessed for an existing published edition of a chart.
- Inclusion of a new clause providing guidance for the depiction of depth information alongside berths. As a result of concerns raised by Korea – no implication for S-57 / S-101.
- New clause providing guidance on the depiction of “imprecise” shoal depth areas derived from satellite imagery / satellite photography in areas where there is little or no survey data.

- Possible amendments to indicate that orange and amber lights should be depicted on charts as yellow lights.

The next CSPCWG meeting is scheduled to take place in Korea during November 2012.

CSPCWG have proposed revised definitions for height and elevation. This is presently being discussed by the HDWG. TSMAD endorsed the recommendation to continue to monitor the activities of CSPCWG and notes the recommendations outlined in the paper TSMAD23 4.2.5.

4.3. S-100

4.3.1. S-100 Registry Status Report. BG reported that there had been a few proposals to register items since the last meeting. All IENC features and attributes had been included. There is potential for the IALA e-Nav initiative to develop their own domains for their own requirements. The next e-Nav meeting will take place in Monaco during February 2012. He reported that it is now possible to generate an S-62 user codes document from the registry. UKHO will be developing the sand box registration application for the temporary registration of features.

4.3.2. UID's relationship to feature catalogues. TR reported that during the TSMAD 22 meeting there was a discussion related to the benefits of having a mechanism to link items in a feature catalogue back to the registry. BG noted that there is already and link in the database.

4.3.3. S-100 Feature Catalogue Builder. TR reported that the feature catalogue builder is complete, and will be made available on the registry web site within the next 2 months. The application provides an online interface to choose features and attributes / and make the bindings between them. Outputs files are in xml / xls formats and an html version of the catalogue can also be generated. The application does not yet have a functionality to track changes to a catalogue – this is to be added later.

4.3.4. Review of Hydro Registry Items. No discussion on this item.

4.3.5. Amendments to S-100. LP reported that a paper (TSMAD23 4.3.5A) had been written as a result of discussion at HSSC3. It attempts to find some middle ground concerning the discussion regarding the application of resolution 2/2007 to the S-100 Standard. BG reminded the meeting that HSSC3 had voted in favor of excluding S-100 from Res 2/2007 and this paper was a diversion from that decision. He noted that a decision could not be made on this issue until the results of CL 3/2012 had been received. LL proposed that, as S-100 is based on the ISO/TC211 standards, there should be a link back to these standards. BG noted that it is the product specifications that need to be strictly controlled, but as S-100 will be used as the building blocks for other community product specifications, it needs to be flexible and extensible and should not be constrained by Res 2/2007.

4.3.6. S-100 Metadata Extension (TSMAD23 4.3.6). JP reported that as a result of the S-101 development work, it had become evident that some extensions needed to be made to the S-100 metadata section to accommodate the S-101 requirements. TR proposed that the new item should be included in a metadata register and not S-100. JP was of the opinion that, as there is no such register, TSMAD should include this in S-100. It was noted that e-Nav may also have to extend the existing metadata items. This would also require that all mandatory elements (in paper TSMAD23 4.3.6) should be changed to conditional status for S-100. They could however be made mandatory in the S-101 product specification. The following proposed changes were discussed.

- Items - exchangeCatalogueName and exchangeCatalougeDescription – approved.
- Items - ExchangeCatalogueComment, compressionFlag, algorithmMethod, sourceMedia, replacedData, dataReplacement – approved.
- Creation date of the exchange catalogue
- dataProtection – approved.
- MD_Identification>purpose – not accepted – requires further investigation.

- optimumDisplayScale, maximumDisplayScale, minimumDisplayScale – should be integer not double – approved.
- Decided to include a reference for the horizontalDatum field (e.g. EPSG).
- verticalDatum,– make provision to include a reference to a resource and a reference field to cite the resource.
- soundingDatum - make provision to include a reference to a resource and a reference field to cite the resource.
- boundingPolygon – change multiplicity to [0..*].
- layerID – needs further work, not for inclusion yet.
- S100_VerticalAndSoundingDatum Code list – make this a reference to a register and include a citation field.
- S100_SupportFileDiscoveryMetadata – need proper description for fileName
- filePath – needs to be included – make mandatory.
- dataTypeVersion – make [0..*]
- change crc – to checksum and make a reference to what checksum is used. Add an attribute for digital signature.

4.3.7. S-100 XML Encoding (TSMAD23 4.3.7). Supporting Documents (testdatasetroute.xml, S-100 XML Schema.xsd, RouteAppSchema.xsd, HSSC3-INF9, e-NAV10-INF7). TR reported that UKHO had investigated what would be required to develop an XML based data format for mariner's routing guide information. The GML format developed by Jeppesen for the BLAST project was taken into account as part of this work. XML schemas were built and used to encode sample data generated by BSH, NHS, and KMS. BG noted that this is not in the TSMAD work program and TSMAD need to do some more preparatory work before making a submission to HSSC4 to have it included in their work programme.

4.4. S-101 Data Encoding Guide Working Group. TR report the DCEG Sub WG had a meeting during the previous week in Wollongong, Australia. Over 800 comments had been received on the new DCEG document. JW outlined the new structure of the document and highlighted a number of issues. He questioned whether it was necessary to include the acronyms in addition to the CamelCase descriptions in the document? It was decided to keep all acronyms in a cross reference annex of the document. The following proposed changes were discussed;

Rename M_COVR to DataCoverage – agreed
Remove M_HOPA from S-100 - agreed
Remove Control Point - agreed
Magnetic variation proposal. It was agreed that more feedback was required. Perhaps implement as a separate S-100 PS and incorporate an application that the ECDIS can read a 5 year model.

- Light issues – discussion on using complex attributes for light sectors. It was decided to create a new feature classes for specific lights. This will make portrayal easier.
- New concept of abstract types. Agreed.
- The new model for complex attributes for text. Agreed, but inclusion of a Boolean field to order the name display sequence was not agreed. It was agreed that the display sequence should not be encoded in the data.
- Value of local magnetic anomaly. Agreed
- General recommendations. It was agreed to further investigate what additional ICE objects are required in S-101.
- New meta feature for minimum depiction areas. Agreed.
- New complex attribute for topmarks – (topmarks will no longer a separate feature – but will become an attribute of the base feature). Agreed
- UKHO structure for tidal stream information. Agreed.
- Removal of exposition of sounding. Agreed.

- Removal of SORIND and SORDAT. Agreed
- NATSUR/NATQUA – basic model agreed in principle however, feedback from mariners should be sought.
- The concept of an "information area" feature. Not agreed – this concept needs further investigation.
- Named aggregation. Not agreed – the concept needs further work. It was decided that areas that require minimal depiction, should include some features from the larger scale data. The practice of encoding a depth area with DRVAL 1 being equal to the shallowest sounding should be discouraged / not used in S-100. It was noted that this can cause some nasty portrayal issues in the ECDIS.

4.5. S-100

4.5.1. S-101 Progress Report (TSMAD23 4.5.1). JP reported that the implementation of S-101 will be undertaken in progressive phases. Phase 1 documentation which is for an S-57 content equivalent product containing only those features currently defined in S-57, is complete. This phase includes complex attributes, information types and compound geometry.

Phase 2 will introduces enhanced packaging and data loading mechanisms, functionality for new support file formats and functionality to update text files. This stage is about 95% complete.

Phase 3 includes extensions to the data model which are intended to make provision for additional complex attributes and information types and will explore the use of cartographic attributes. The due date for this stage is May 2012. JP reported that quite a bit of work on catalogues has been completed. It is missing parts of the portrayal section. It is uncertain how long this will take to complete.

The completion date for phase four is December 2014. The S-101 test bed may need to be split because the work on portrayal development is behind schedule. The DCEGWG review had resulted in about 800 comments, most of which had been addressed at the Wollongong DCEWG meeting.

4.5.2. Use of M_CSCL in S-101 (TSMAD23 4.5.2). JP reported that, with the elimination of traditional usage bands and the restructuring of S-101 data to fall within 12 optimum display scales, it is questioned whether there is a need for the use of M_CSCL in S-101 ENCs. Many Hydrographic Offices however, have ENCs that includes M_CSCL and if it were eliminated, this should not result in a requirement to re-scheme their ENCs.

FH noted that many ECDIS systems will not show the over scale symbols for smaller scale sections of a cell when zoomed into a larger scale portion of a cell.

After further discussion, it was recommended to eliminate M_CSCL for use in S-101 and to create business rules for data of a higher density than the surrounding data. There will be a requirement for the S-101 converter to handle legacy M_CSCL data. RF noted that M_CSCL does not presently work in many systems and TSMAD needs to find a better mechanism. JW proposed to include a meta object that carries a minimum viewing scale for areas covered by M_CSCL. HA recommended that if areas of larger scale M_CSCL were treated as metadata, it could be used far more efficiently in the ECDIS. A break out group was convened to establish how this could be achieved and to develop appropriate text for inclusion in the S-101 product specification and encoding guide document. (Members RF HE JW FH).

Report back from M_CSCL working Group. It was proposed to replace M_CSCL with a coverage object DataCoverage feature that has a scale max attribute. This will enable the EDIS to differentiate between those parts of the cell that have lower resolution which will get prison bars when the zoom factor is > than max scale, and those areas that are within the max scale limit. RF noted that there should be a limit on how many times they can be used in a cell. This will require "holes" to be created in the main cells coverage for those areas where these new data coverage objects will appear.

4.5.3. Data Set Loading and Unloading (TSMAD23 4.5.3). JP reported that in spite of a significant amount of discussion over the data loading and unloading (based on the Swedish proposal), there were still a number of issues that needed to be decided. Does TSMAD agree with the new text proposed in paper TMAD23 4.5.3 and is there a need for optimum display scale? HB pointed out that the current problems with the loading strategy stem from ECDIS having to load cells based on usage band, and inconsistencies on how this had been implemented in different OEMs. There should be a standard algorithm for loading.

The meeting agreed that the ATIX, PAIX and ATIN should have fixed values. Data should not be loaded based on discovery metadata. Optimum display scale will be used for compilation purposes and for defining SCAMAX and SCAMIN. It was decided to use the definitions in the TSMAD 18 paper by submitted Sweden. There will not be an optimum display scale.

4.5.4. S-101 Update Information. (TSMAD23 4.5.4). TR reported that following discussions at the TSMAD22 meeting, it was decided that further investigation was required concerning a feature type approach for including update information in S-101 ENCs. These would be used to highlight changes to ENCs, but would not include detailed geometry changes. They will carry information about the update and will include an attribute to allow for a brief description of the changes.

HB noted that this solution will provide a better mechanism to list what updates have been applied to an ENC. The existing S-57 mechanism shows every update step of the application of an update which is confusing to the mariner. It was agreed that the proposal should be implemented in S-101 and a group was tasked to review the model and draft the text for inclusion in S-101.

4.5.5. Exchange Set Discussion. JP reported that the S-101 Work Item leader had sent a discussion paper containing several questions about S-101 and Exchange Sets to TSMAD members. There was not good consensus in the responses to the questions and further discussion on the proposed issues in the questionnaire was required. The following questions were proposed;

Question 1. Does the TSMADWG agree that the exchange sets should include an S-101 Feature Catalogue and Portrayal Catalogue, and should they accompany the data distribution when updates are produced? HB noted that sending the catalogue files will increase the volumes of the exchange set – especially the portrayal catalogue as this is expected to be very large. Scenario 1 was considered as being not suitable. It was agreed that the distribution and packaging should be the responsibility of the service provider. It should be possible to include this if necessary, but the structure of the exchange sets and the location of support files needs to be defined.

Question 2. How will the ECDIS system know which versions of catalogue files to use? HB reported that there may be a requirement to allow for minor and major version (i.e. multiple version) of catalogues. It is also conceivable that there may be different version of data that will require different versions of catalogues.

Question 3: In the last line of Paragraph 5 it states: “A complete encoding suitable for commercial distribution will be published in IHO XX-YY.” Does this belong in S-101 at all? It was agreed to remove the section from S-101 – this needs to be dealt with by data distributors.

Question 4: Paragraph 6: The proposal to remove the entire paragraph and replace with a single line stating that “Data conforming to S-101 shall be transformed, but not changed”. It was decided to include a statement to ensure that the data integrity must be maintained.

Question 5: Is it necessary to keep the README.TXT file? It was initially decided that the readme file was no longer needed and its contents should be moved into the discovery metadata file. Following later discussion however, it was decided to reverse this decision and keep the readme.txt file.

4.5.6 S-101 Support Files. Does TSMAD agree to following support file management methodology proposed in paper TSMAD23 4.5.6? This was agreed with the following minor changes; Include “new”, “replacement” and “deletion” in the purpose field.

Does TSMAD agree in principle to the proposed support file location methodology RF reported that the new structure will overcome the duplication files and redundant files. HB noted that the inclusion of redundant file should be avoided, however defining a fixed structure may be too restrictive and it may be sufficient to just have a business rule stating that the storage of redundant cells should be avoided. JP is to draft new text.

4.5.7 Metadata (TSMAD23 4.5.7). JP reported that NOAA had contracted IIC to review the S-100 metadata section and it was noted that it needed to be expanded to include additional elements and entities for S-101 purposes. On further discussion, it was agreed that the paper (TSMAD23 4.5.7) had been superseded by the S-100 metadata paper and did not require any further consideration.

4.5.8. Outstanding S-101 Actions/Issues (TSMAD23 4.5.8). JP reviewed the following outstanding S-101 action items for discussion:

- Section 4.3.4 – the proposed change to the wording for Information types. - Approved.
- Section 4.7 Geometry. The UML diagram needs to be constrained to loxodromic. - Approved.
- Section 4.7 Additional wording for the 0.3 mm rule. Approved but optimum display scale must be changed to maximum display scale.
- Section 4.7.2 Additional proposed new text and graphics for masking. Approved.
- Section 6. The proposal to add conformance to S-58 and use the DQ Metadata as a basis for this clause, was deferred.
- Section 11.3.1. Amend update limit to at least 100KB – which is 10% of the base dataset size -
- currently, S-101 only refers to the use of CATCOV=2. It was noted that this needs to take into account satellite distribution of updates. – Not accepted. The new proposed text “Updates should be kept to a minimal size and should not exceed 50Kb” was agreed.

4.5.9. Bridges in S-101 (TSMAD23 4.5.9). TR reported on the proposal for a revised structure for modeling bridges which would support enhanced functionality and will improve their display in S-100 ECDIS. This will facilitate ECDIS functions to check clearances of bridge spans along the route against vessel parameters. Instead of having a single bridge object it is proposed to a have a bridge object with associated “span” objects. A complex attribute would be used to encode the characteristics of the bridge / spans. With the current model OBJNAM is displayed for each span (if populated), however the revised structure will only be displayed for the whole BRIDGE feature. The SPAN feature could display fill and clearance values could be included. This will have an impact for HOs but partial mapping would allow for partial conversion to the new feature.

LL proposed to add an attribute indicating the direction that vessels should pass under the bridge. JW noted that this should be encoded as part of routing information, but could be associated to the bridge feature. The proposal was approved in principal.

4.5.10. Text Placement in S-101 (TSMAD23 4.5.10). TR reported that following discussion at TSMAD 22, it was decided that it should be possible to control the display of text at different display scales using SCAMIN however the approach adopted should not place a big burden on data producers. HB noted that text tends to clutter ECDIS, and any investigation should also consider if it would it be possible to use scaleMin / scaleMax for text. There was general agreement with the use of the complex attribute approach, however it was noted that this approach will need substantial testing.

HE presented a method using an offset and angle to ensure that text will not overwrite important features such as channels.

It was agreed that an offset and angle was need as well as scaleMin and scaleMax. This should be included in the model. A method for alignment (i.e. to the left or to the right) also needed to be included. An attribute to allow for the encoding of minor and major text items should be considered. HA suggested to use an annotation placement attribute which will tell the ECDIS how and where to pace

and align the text. A breakout group was convened and after reporting back to the meeting, the new model for text placement was agreed.

4.5.11 S-101 Scale Independent and Dependent data. TR and EM provided a report on the use of SI/SD and noted that this should be considered optional for data producers. HOs should be able to migrate their data to SI/SD as resources allow and if deemed necessary. It is anticipated that this will also support the e-Nav requirement and increased data consistency. Implementing SI/SD may require hydrographic offices to re-scheme and improve their data. There will also be an impact resulting from a requirement to harmonize data in the vertical plane, however the implementation of SD /SI concept, should result in a significant reduction in update effort. It was noted that this concept needs further investigation, however the new text provided in TSMAD 23-4.5.11 should be used replace the existing text in section 4.6 of the draft S-101 product specification.

4.5.12 S-101 Impact Study (TSMAD23 4.5.12). LL reported that as part of the migration plan to move to S-101 ENC, HOs need to undertake a risk analysis in order to get a better understanding of the resources that will be needed for the migration. Stakeholder will have a number of issues to consider, and he proposed to conduct a survey in order to get a better understanding on what stakeholders feel about the change to S-101. There is a need to provide guidance to stakeholders on what their responsibilities will be. IHO will need to find answers to questions such as; do we have any idea of what the implications of migrating to S-101 will be, and can S-101 ECDIS read S-57 data? There is a need to determine what the software compatibly issues are and to look at different migration plans. LL noted that HOs are very different and may require different migration requirements. The meeting agreed with the proposal - see associated action item.

4.5.13. S-101 Data Quality (TSMAD23 4.5.13, A, B). EM reported that the DQWG intend to deconstruct CATZOC and make its replacement construct carry all the constituent parts of CATZOC. It is proposed that this will allow for a more flexible approach to capture data quality, and will facilitate the flexible portrayal of data quality information. It is expected that the S-101 ECDIS will utilize algorithms to determining where safe water is for a particular vessel. Data producers should be able to convert S-57 data quality into the S-101 data quality constructs without loss of meaning.

4.5.14. S-101 DRAFT Implementation and Transition Plan (TSMAD23 4.5.14). Australia proposed that there is a need for a new / updated information paper on S-101. It is anticipated that the first draft of S-101 should be completed by the end of 2012. The completion of the portrayal section may extend that completion date. On completion of the first version, it will be sent out for review. The review period will be followed by a testing period.

4.5.15. S-101 Transition. EM reported that TSMAD has made considerable progress towards the completion of S-101, and presented a “best guess” timeline for the future development and implementation of S-101 ENCs. He reported that S-101 Version 1 should allow for multiple adoption scenarios by hydrographic offices. HB proposed that version 1 should not include SI/SD. Version 2.0 should include enhancements to the SI/SD concept following the first 5 years of lessons learned from its implementation. Version 3.0 should see the phasing out of flat file support and a shift to SI/SD ENC based on experience gained.

4.6 New S-101 Features.

4.6.1. Update Information Feature Type Proposal (see paper 4.5.4)

4.7. S-58

4.7.1. Proposed Re-structure of S-58 (TSMAD23-4.7.1 / HSSC3-05.1B). BG informed the meeting that although S-58 had come a long way, there are still some problems that were causing issues with ECDIS due to errors in ENC data. He proposed that there is a need to restructure the document and provide more extensive tests. He noted that he had provided a presentation (based on ECDIS anomalies) to

HSSC3 and had received approval to restructure the document. TR proposed that certain test will have to become mandatory. There is also a need to restructure the document in an .xlm format which will allow manufacturers to implement the tests more easily.

RF noted that IC-ENC have three categories of tests;

1. Critical checks (significant to navigational safety). These have an “HO must correct” status.
2. Minor errors. These have a “HO should correct” status.
3. Issues of lesser significance for which RENCs can’t make a judgment.

BG noted that there would be a need to produce an extensive test dataset for validation tool developers to ensure that their tools catch all errors / inconsistencies and are able to respond correctly.

JP reported that digital signature are not appropriate for S-57, but may be more appropriate for S-100. LL proposed to have one unique tool that everyone should use so that all errors / warning would be consistent. FH considered that this was not practical for commercial reasons, however having a machine readable (XML) set of S-58 test and a scripting language that encapsulates tests which manufacturers could use, would help to standardize validation SW. EM proposed that the development of a script language was of less importance and proposed that the test dataset would be more useful.

BG noted that the new version should also provide advice on how to fix common problems. The 3 categories was agreed by the meeting. The concept of signing cells will be deferred for implementation S-101. The concept of updating the S-58 via the dissemination of an XML file requires more study. Greater involvement by validation tool manufacturers in the S-58 working group would expedite the implementation of the new rules. HA proposed that it would help if there was a standard set of definitions (words/phrases) to describe errors / warnings which could be used by all SW manufacturers. IC-ENC offered to provide their error/warning classification documentation (used by IC-ENC and PRIMAR) as a reference for this. (*See related action item).* HB proposed that it might be worth implementing the same type of expression and syntax language that is being used for the portrayal catalogue, for implementing a machine readable version of S-58.

It was agreed that the following needs to be undertaken; restructure tests into new categories; harmonize wording for reporting of tests; develop test datasets; investigate whether there is a better way of distributing S-58 checks in a machine readable form (*see action items*).

The proposed revision of S-58 should categorize errors into the following groups;

- Major Errors – Affects safety of navigation
- Minor Errors – Usability affected but navigation unaffected
- Warnings – Issues which should be addressed but do not affect the usability of the data

To improve consistency across software tools it was decided to use standard terms such as those used in ISO 19125:2 Spatial Operators Equals, Disjoint, Touches, Within, Overlaps, Crosses, Intersects, Contains etc …. A column providing explanations of how to resolve general issues should be provided where appropriate.

4.8. S-57.

4.8.1. Production and Validation Solutions for Improving ENC Consistency (TSMAD23-4.8.1) FH noted that there were numerous ENC consistency problems that require standards bodies, data producers and industry to work together. TSMAD should consider providing examples of some of the most common types of inconsistencies found in ENC cells. Some examples include;

- SCAMIN should be applied consistently, as set out in S-65 (IHO 2009).

- The coordinate multiplication factor COMF should be the same for all cells and is recommended to be set to 107 (IHO 2009).
- The vertical datum should be the same for all cells within the same geographic region.

4.8.2. Reducing Data Volumes (Text and Picture files). RF noted that S-57 does not give much guidance on the use of ancillary files. Test carried out by IC-ENC showed that within an exchange set, only 11Kb of a total of 22Kb of ancillary files, were unique. The type and amount of content included in these files varied greatly. Some text files contained large amounts of spurious information that was of little use to the mariner. The inclusion of picture files was also inconsistent. Some picture files were as big as 17 Mb. Picture files should only be used for navigational requirements. RF noted that there is a need to include stronger guidance for using text and picture file and proposed that this guidance should be included in an Encoding Bulletin, the UOC and the DCEG.

4.9. Encoding Bulletins.

4.9.1. Encoding bulletins paper. TR reported that UKHO had received feedback that certain anchorage area names were not being displayed in ECDIS. This issue will require changes to the S-52 look up tables however given the timescales for making a deferred amendment to S-52, alternative encoding action was proposed as an interim solution. Where large numbers anchorages exist in close proximity, it is proposed to double encoding a SEAARE object with the OBJNAM of the ACHARE which ensures that the name will display.

TR reported that following DIPWG discussion about how to reduce the number of unnecessary isolate danger symbols, UKHO carried out further investigations and proposed that if VALSOU is not populated and WATLEV=3 an object will display as an isolated danger. If however the source information supports the population of EXSPOU=1 (within the range of depth of the surrounding depth area) its will reduce the number of unnecessary isolated danger symbols.

TR reported on inconsistent encoding of magnetic variation information in ENC. This is resulting from some producers encoded magnetic variation objects as point features and other as area features.

JW reported on the new Encoding Bulletins that had been produced since the last meeting. These had been incorporated in the UOC – and it was questioned whether these should be added as encoding bulletins. It was decided that all new EB will be rolled into the next new edition of the UOC.

4.10. Miscellaneous.

5. National Papers

5.1.1. S-100 Route Exchange Format. TR reported that UKHO had received user feedback concerning a requirement for a standard format for exchanging basic route information between ECDIS systems. There are currently several formats that are being used but no single universal format. TR provided an overview of the specification prepared by UKHO and noted that it was not intended to be a traditional ENC product however it is based on the existing mariner's objects features currently included in S-52.

5.1.2. Addition of QUASOU = 8 for DRGARE. TSMAD to consider allowing the use of QUASOU = 8 (value reported – not surveyed) to be used in conjunction with the already allowed value of QUASOU = 11.

5.1.3. Encoding of mangroves on ENCs. JW reported that an earlier version of paper 5.1.3 had been presented to TSMAD 18 meeting but had not been accepted. The revised proposal has been amended to remove mangroves, and he proposed that this will address the new guidance that has been included in S-4. This provides guidance on how to encode mangroves in intertidal areas. It was noted that this will influence S-58 warnings. The proposal was approved.

5.1.4. Sea Floor Coverage Descriptions for CATZOC. No paper submitted.

6. Any Other Business.

6.1 SK proposed in paper INF 1B that there was a need to provide additional advice on populating CATZOC for areas that had been affected by bad tsunamis, which had resulted in numerous underwater obstructions.

6.2 Mat McGregor from GeoScience Australia provided a presentation on the Maritime boundaries product specification that had been partially completed. He highlighted the UN Convention on the Law of the Sea and noted that there was a requirement for a formal standard with some flexibility.

7. Date and Venue of Next Meeting

The chairman reminded the meeting that the next combined TSMAD / DIPWG meeting was scheduled to take place at the IHB (Monaco) between the 7th and 11th of May 2012.

Annex A

List of Documents.

Document No	Document Title
TSMAD23-1A	List of Documents
TSMAD23-1B	Provisional List of Participants
TSMAD23-2	Agenda
TSMAD23-3	Minutes of the 22nd TSMAD & 3rd DIPWG Meeting, 11-15 April 2011, Seoul, South Korea
TSMAD23-4.1.1	Development of S-64
TSMAD23-4.2.5	Report on CSPCWG Activities Since TSMAD22/DIPWG3
TSMAD23-4.3.5A	S-100 Maintenance Proposal
TSMAD23-4.3.6	S-100 Metadata harmonization for S-100
TSMAD23-4.3.7 TSMAD23-4.3.7A	S-100 XML Encoding ZIP file containing the following supporting documents (testdatasetroute.xml, S-100 XML Schema.xsd, RouteAppSchema.xsd, HSSC3-INF9, e-NAV10-INF7)
TSMAD23-4.5.1	S-101 Project Plan, Progress, and Gap Analysis
TSMAD23-4.5.1A	S-101 Draft ENC Product Specification
TSMAD23-4.5.2	Use of M_CSCL in S-101
TSMAD23-4.5.3	S-101 Data Loading and Unloading
TSMAD23-4.5.4	Update Information in S-101
TSMAD23-4.5.5	Exchange Set Discussion
TSMAD23-4.5.6	S-101 Support Files
TSMAD23-4.5.7	Metadata - down the rabbit hole
TSMAD23-4.5.8	S-101 Outstanding Actions/Issues (Rev 1)
TSMAD23-4.5.9	Bridges in S-101
TSMAD23-4.5.10	Text Placement in S-101
TSMAD23-4.5.11	S-101 Scale Independent and Dependent data - Impact Review
TSMAD23-4.5.12	S-101 Impact Study
TSMAD23 4.5.13	S-101 Data Quality
TSMAD23 4.5.13A	Annex A – Draft of S-101 Chapter 6 – Data Quality
TSMAD23 4.5.13B	Annex B - Proposal for Data Quality additions to the Hydro Register

TSMAD23-4.5.15	S-101 DRAFT Implementation and Transition Plan
TSMAD23-4.7.1 HSSC3-05.1B	Proposed Re-structure of S-58 See also paper submitted to HSSC3 (Review of S-58 Recommended ENC Validation Checks)
TSMAD23-4.8.1	Production and Validation Solutions for Improving ENC Consistency
TSMAD23-4.8.2	Reducing Data Volumes (Text and Picture files)
TSMAD23-4.9.1	Encoding Bulletins
TSMAD23-5.1.1	S-100 Route Exchange Specification
TSMAD23-5.1.1A	ZIP File containing the following files; Route Information Portrayal Catalogue.doc, S-100 Route Data Specification.doc, testdatasetroute.xml, RouteAppSchema.xsd, S-100 XML Schema.xsd, RouteFeatureCatalogue.xml
TSMAD23-5.1.2	Adding QUASOU = 8 to DRGARE
TSMAD23-5.1.3	Encoding of Mangrove Coast and Mangrove Areas on ENC
TSMAD23-515A TSMAD23-515B TSMAD23-515C	S-100 Route Exchange Specification Waypoint exchange specification Vessel Waypoint Exchange - xsd
TSMAD23-INF1A	Comments on display scales for the working party at TSMAD 23 meeting
TSMAD23 INF1B	Descriptions for CATZOC for less reliable depths affected by tsunami
	Dataset Loading Document
	Dataset Loading .xls
	Working Documents from Tom
	S-58 Rewording
	1758 Script Document

Annex B

Agenda

1. Opening and Administrative Arrangements

A. List of Documents
B. List of Participants

2. Approval of Agenda

3. Minutes of the 22nd TSMAD & 3rd DIPWG Meeting, 11-15 April 2011, Seoul, South Korea

Approval of 22nd TSMAD minutes

3.1 LIST OF ACTION ITEMS FROM TSMAD 22

No	Agenda	Action	
1	3.F	Prepare a paper for the HSSC 3 meeting proposing that S-100 should have a special dispensation with respect to revisions and corrections to the standard.	BG
2	3.F	TSMAD members are to discuss the case for reinstating a special dispensation for maintaining S-100 with respect to revisions and corrections to the standard.	All
3	6.2A	Draft a paper for the TSMAD23 meeting proposing that a register for INT1 references be established in the S-100 Geospatial Information Registry.	JW
4	6.2A	Develop an encoding bulletin and UOC guidance to help resolve confusion concerning the use of foul area / foul ground.	JW
5	6.2A	Develop an encoding bulletin and UOC guidance outlining how to encode wave energy devices and wave farms.	JW
6	6.2A	Prepare a paper for the next CSPCWG meeting regarding the registration of INT 1 reference numbers with a view to ensuring that discontinued numbers will not be reused.	JW
7	6.2A	Develop an encoding bulletin and UOC guidance explaining the implications of CSPCWG amendments to INT1 references to small craft entries (yacht berths, yacht club …) and the removal of all other references to INT1 Section U.	JW
8	6.2A	Develop an encoding bulletin and UOC guidance for encoding CATSPM for floating waste bins. (JW)	JW
9	6.2A	Develop an encoding bulletin and UOC guidance to provide guidance on the encoding of sub-surface ODAS devices.	JW
10	6.2A	Develop an encoding bulletin and UOC guidance outlining how to encode floating wind turbines and wind farms.	JW
11	6.2A	Develop a paper (for TSMAD 23) proposing how picture files should be formatted for optimal use in ECDIS systems.	RF
12	6.2A	Circulate the rewrite of the entire paragraph 5 to review group for comment – response period of 1 week.	JW

13	10.1B	Produce a paper for TSMAD 23 on Traffic separation schemes for inclusion in the next edition of the UOC.	JW
14	10.1B	Provide information to IHB concerning the incorrect encoding of recommended routes (i.e. coordinate direction). Include information on how this could lead to safety related issues. There is also a requirement to identify other similar encoding issues and document these with recommended actions that should be followed.	JW
15	10.2A	Test Card to be sent out to OEMs for review.	TR
16	10.5.3	Include all edits resulting from the meeting discussion, and the send out a revised version of the UOC to all TSMAD members for comment - (1 month for responses).	JW / TP
17	10.2B	Complete the explanatory documentation for the Test Data Pack Ver 1.1 and prepare a submission for HSSC 3.	TR
18	11.1A	A correspondence group is to be established to investigate the tasks identified in the presentation by JP on the phased approach for implementing the full functionality of S-100 ENCs Phase 2. TR to lead the correspondence group. (Members JW, TR, GU, (Netherland - possibly). JP to circulate items in the presentation to corresponding group members.	JP/TR
19	11.2A	TR is to provide TD with an S-101 conformant feature catalogue name for the conversion SW pack. TD to incorporate new FC name into the next version of the converter application.	TR / T
20	11.2A	TR is to distribute a list of fields that are missing from the converter application to members of the distribution list for verification. Once verified, TR is to add these to the feature catalogue as outlined by HB during the meeting. HB to provide the distribution list members with a recommended solution for making this machine readable so that is can be added to S-100. Distribution list: Julia Powell; Holger Bothien; Hugh Astle; Ed Kuwalek Tom Richardson; Greenslade Barrie.	TR HB
21	11.2A	Spatial attributes have not been included in the FC, and information types for both QUAPOS and POSACC therefore need to be added.	TR
22	11.3A	Produce a new diagram for inclusion in S-101 to illustrate how masking works.	TR
23	11.5A	Continue the investigation on Scale Dependent and Scale Independent cells - taking into account comments and feedback provided by the working group.	TR / EM
24	11.6A	The implementation rules for chart loading in ECDIS are to be re-edited and distributed to TSMAD members for comment. After approval they are to be included in the business rules section of S-101 - Phase 2.	JP
25	11.11A	Carry out further study on text placement for portrayal in ECDIS – paper to be produced for TSMAD 23.	TR, TM, CI, HA, HP, OW
26	11.13A	Based on the decision that the **feature type** approach (with geometry and themes) was the best way to convey update information in S-101 ENCs / ECDIS, a further study needs to be carried out and reported to TSMAD 23.	TR

27	12.1A	Distribute S-102 for wider stakeholder community review.	WL
28	12.1A	BG to add the S-102 product specification to the TSMAD report to HSSC3, for endorsement.	BG
29		Develop a paper (for TSMAD 23) proposing how picture files should be formatted for optimal use in ECDIS systems. For FAQ	RF (6.2A)?
30	INFO1	Get data covering a polar area for testing and for eventual inclusion in the TDS.	BG

4 Matters arising

4.1 From HSSC 3

Action/Agenda No	Item	Who	Paper
4.1.1	TSMAD tasked to investigate expanding S-64 to improve its usefulness for both OEMs and type approval authorities.	TR	TSMAD23-4.1.1
4.1.2	● In principle, accepted that a minimum validation check standard for ENC should be established using the "error" category in S-58 ● Agreed to restructure the S-58 standard into ▪ errors which must be corrected in all ENCs ▪ "warnings" that require cartographic interpretation for a satisfactory solution ▪ tests to be performed prior to data import in ECDIS, ● Agreed that TSMAD investigate and propose how a minimum validation check standard can be achieved across all ENC providers, including the development of a use-case dataset. Agreed that TSMAD develop, in consultation with stakeholders, a migration path and guidance for the establishment consistent tools for establishing a minimum validation check standard		
4.1.3	• Agreed that Resolution 2/2007 be amended to indicate that while S-100 is an IHO standard as defined in Resolution 2/2007, it should be subject to a different maintenance routine, in particular, that TSMAD may approve revisions and clarifications to S-100 when considered to be necessary. ● Instructed the IHB to invite MS to adopt the changes described in paper HSSC3-05.1C (as amended during the meeting).		
4.1.4	• Confirmed that Resolution 2/2007 applies to the S-101 standard • Instructed TSMAD to conduct a formal impact study on S-101 in conformance with the requirements of Resolution 2/2007 taking into account paper HSSC3-INF4 and report to HSSC-4		

4.1.5	• Did not agree to amalgamate TSMADWG and DIPWG as the Digital Chart Data Working Group (DCDWG) under new Terms of Reference as set out in Annex A. • Did not agree to Establish a Digital Data Technical Support Working Group (DDTSWG), under the Terms of Reference set out in Annex B. • Did not agree to transfer the role of the Data Protection Scheme WG to the S-100 Support WG (DDTSWG). • Did not agree the concept of an HSSC Technical Working Week comprising concurrent meetings of certain Working Groups under the coordination of a Digital Data Coordination Sub Committee • Did not agree to establish a Digital Data Coordination Sub Committee (DDCSC) under the terms of Reference and Rules of Procedure as set out in Annex C. • Did not agree that the new arrangements take effect on completion of the XVIIIth International Hydrographic Conference.		
4.1.6	• Agreed a list of IHO technical standards that should be subject to the terms of Resolution 2/2007 • Recommended that MS adopt the agreed list as an Appendix to Res 2/2007 and instructed the IHB to circulate a proposed amendment to Res 2/2007 to Member States for adoption		

4.2 Other Working Groups

Action/AgendaNo	Item	Who	Paper
4.2.1	SNPWG – Npubs development impact on S-100?		
4.2.2	DIPWG – S-100 Portrayal Focus Group		
4.2.3	TWLWG – Tidal Data Product Specification(s)		
4.2.4	DQWG – DQWG Input to S-100 / S-101		
4.2.5	CPSCWG - Report	JW	TSMAD23 4.2.5

4.3 S-100

Action/Agenda No	Item	Who	Paper
4.3.1	S-100 Registry Status Report	BG	
4.3.2	UID's relationship to feature catalogues	TR	
4.3.3	S-100 Feature Catalogue Builder	TR	
4.3.4	Review of Hydro Registry Items	??	
4.3.5	Amendments to/NE of S-100 S-100 Maintenance proposal	BG LP	No paper TSMAD23 4.3.5A
4.3.6	S-100 Metadata Extension	JP/EK	TSMAD23 4.3.6

4.3.7	S-100 XML Encoding Supporting Documents (testdatasetroute.xml, S-100 XML Schema.xsd, RouteAppSchema.xsd, HSSC3-INF9, e-NAV10-INF7)	TR	TSMAD23 4.3.7 TSMAD23 4.3.7A

4.4 S-101 Encoding Guide Working Group

Report on the resulting actions from the S-101 sub working group

4.5 S-101

Action/Agenda No	Item	Who	Paper
4.5.1	S-101 Progress Report	JP	TSMAD23 4.5.1
4.5.2	Use of M_CSCL in S-101	JP	TSMAD23 4.5.2
4.5.3	Data Set Loading and Unloading	JP	TSMAD23 4.5.3
4.5.4	S-101 Update Information	TR	TSMAD23 4.5.4
4.5.5	Exchange Set Discussion Wrap-up	JP	TSMAD23 4.5.5
4.5.6	Support File Management	JP	TSMAD23 4.5.6
4.5.7	Metadata	JP/EK	TSMAD23 4.5.7
4.5.8	Outstanding S-101 Actions/Issues	JP	TSMAD23 4.5.8
4.5.9	Bridges in S-101	TR	TSMAD23 4.5.9
4.5.10	Text Placement in S-101	TR	TSMAD23 4.5.10
4.5.11	S-101 Scale Independent and Dependent data – Impact Review	TR/EM	TSMAD23 4.5.11
4.5.12	S-101 Impact study	France	TSMAD23 4.5.12
4.5.13	S-101 Data Quality Annex A – Draft of S-101 Chapter 6 – Data Quality Annex B – DQ proposals for Hydro Register	EM	TSMAD23 4.5.13 TSMAD23 4.5.13A TSMAD23 4.5.13B
4.5.14	S-101 DRAFT Implementation and Transition Plan	JP/EM	TSMAD23 4.5.14

4.6 New S-101 Features

Action/Agenda No	Item	Who	Paper
4.6.1	Update Information Feature Type Proposal	TR	

4.7 S-58

Action/Agenda No	Item	Who	Paper
4.7.1	Proposed Re-structure of S-58 See also; Review of S-58 Recommended ENC Validation Checks	JP/BG	TSMAD23-4.7.1 HSSC3-05.1B

4.8 S-57

Action/Agenda No	Item	Who	Paper
4.8.1	Production and Validation Solutions for Improving ENC Consistency	FH	TSMAD23-4.8.1
4.8.2	Reducing Data Volumes (Text and Picture files)		TSMAD23-4.8.2

4.9 Encoding bulletins

Action/Agenda No	Item	Who	Paper
4.9.1	Encoding Bulletins	TR	TSMAD23-4.9.1

4.10 Miscellaneous

Action/Agenda No	Item	Who	Paper

5. National Papers

Action/AgendaNo	Item	Who	Paper
5.1.1	S-100 Route Exchange Format	UK	TSMAD23-5.1.1 TSMAD23-5.1.1A
5.1.2	Addition of QUASOU = 8 for DRGARE	US	TSMAD23- 5.1.2

5.1.3	Encoding of mangroves on ENCs	AU	TSMAD23-5.1.3
5.1.4	Sea Floor Coverage Descriptions for CATZOC	AU	
5.1.5	S-100 Route Exchange Specification Waypoint exchange specification Vessel Waypoint Exchange - xsd	MH	TSMAD23-515A TSMAD23-515B TSMAD23-515C

6. Any Other Business

7. Date and location of next meeting

Annex C

List of Participants

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Annex D

List of Action Items from TSMAD 23.

No	Agenda	Action	
1	3.1	Contact OSL about getting Polar dataset. HB to provide BG with the Seven Cs test data set.	BG/HB
2	4.2.5	TSMAD members are encouraged to provide national / regional guidance on the preparation and maintenance of small / medium scale ENC schemes. Submissions to be sent to JW.	All
3	4.2.5	Review the S-101 Encoding Guide to ensure that "GNSS" has been used in place of GPS where required.	JW
4	4.3.3	Identify selected TSMAD members and request them to test the feature catalogue builder.	TR
5	4.3.6	Submit additional metadata items for inclusion in S-100 using the online submission form.	JP
6	4.4	Submit proposal concerning the production of a magnetic variation product/dataset to HSSC for addition to the TSMAD work program.	BG
7	4.4	New models for light and textual information to be sent to TSMAD members for finalization.	TR
9	4.5.2	Develop the necessary feature constructs and text for the new DataCoverage feature to replace M_CSCL.	TR
10	4.5.6	Business rule need to be included in S-101 to ensure that data producers do not include redundant or duplicate support files (as per paper 23-4.5.6).	JP
11	4.5.8	Review all the UML diagrams in the S-101 document, identify missing diagrams and review existing diagrams for accuracy. Any duplicate diagrams must also be harmonized.	TR
12	4.5.8	Remove the geometry model from S-101 and include a reference to the appropriate S-100 section.	JP
13	4.5.9	Review the attributes and enumerated values in the S-101 bridges proposal TSMAD23 4.5.9.	TR
14	4.5.10	Produce the model and accompanying documentation for S-101 text placement.	TR
15	4.5.11	Set up a new Google discussion group and use this forum to define what problems need to be resolved using the SI/SD proposal. There is also need to identify what problems are likely to be encountered in implementing the SI/SD proposal. Report back to TSMAD 24.	TR/LP/LL/JP
16	4.5.12	TSMAD to conduct a formal impact study on S-101 in conformance with the requirements of Resolution 2/2007 taking into account paper TSMAD23-4.5.12. (Google correspondence group to be set up and led	LL/JP/BG/EM/LP

		by LL).	
17	4.5.13	TSMAD members are to review the proposals outlined in the data quality paper (TSMAD 23 4.5.13) and report any comments to the secretary of the DQWG - EM.	All
18	4.5.13	Create a cross mapping of old M_QUAL attributes to the new attributes defined in the DQWG paper (TSMAD 23 4.5.13B).	EM
19	4.5.13	Register the new features / attributes, proposed by DQWG. Text describing the new DGWG content must be included in the S-101 and DCEG documents. Also include the (DQ_conformance elements) in S-101 and make reference to S-58.	JP/TR
20	4.7.1	Prepare a new edition of S-58 based on the HSSC3 decision. Including the following; • Restructuring the document. • IC-ENC to send the standard list of IC-ENC / Primar error / warning classification document to the S-58 sub WG. (RF) • Produce new S-58 test data sets for use in testing validation SW.	 UKHO RF UKHO
21	4.8.2	Produce document showing examples of the misuse of text and picture files and providing advice on how they should be encoded and included in ENCs.	RF/JW
22	4.8.2	Produce an EB and FAQ regarding the inclusion and encoding of picture and text files in the UOC and DCEG.	JW/RF
23	4.9.1	Produce EB and FAQ providing guidance on the encoding of ACHARE	JW /TR
24	4.9.1	Produce an EB to address the inconsistent encoding of magnetic variation in S-57 ENCs.	JW / TR
25	4.9.1	Produce EB and FAQ providing guidance on the encoding of EXPSOU.	JW /TR
26	4.9.1	Produce EB providing guidance on the encoding of shoal areas that have been identified by remote sensing methods.	JW/TR
27	4.9.1	Complete the review of the FAQ and EB pages on the IHO web site and circulate to the EB sub working group for review.	JW
28	5.1.2	Include proposed changes for encoding QUASOU in the next editions of the UOC and S-58.	JW
29	5.1.3	Produce an EB providing guidance on encoding mangrove area.	JW
30	INF 1A	Produce EB for encoding M_COVR only as the MBR	JW