

**17th Transfer Standard Maintenance and Application
Development Working Group (TSMAD)
Minutes.**

8th to 12th September 2008 (Seattle, USA)



Chairman: Barrie Greenslade (UKHO)

Vice Chairman: Don Vachon (CHS)

Secretary: Tony Pharaoh (IHB)

Annexes:

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

1. Opening and Administrative Arrangements

Julia Powell (NOAA) provided brief overview of the administrative arrangements for the duration of the meeting.

1.1 Introduction and Welcome.

The Chairman Barrie Greenslade welcomed members to the meeting and thanked the US delegation, (notably Julia Powell) for the time, effort and financial support spent arranging the meeting. He noted that due to unforeseen circumstance, the Vice chairman Don Vachon would not be able to attend the meeting.

2. Approval of Agenda.

The agenda was approved and the following additional items were proposed for discussion under any other business;

- Additional work that needs to be carried out on the Feature Concept Dictionary.
- Discussion on the BSHC Report on ENC harmonization.

3. Minutes of the 17th TSMAD Meeting.

The Minutes of the 17 TSMAD meeting held in Cape Town between the 5th and 9th of May 2008 were accepted.

4. Matters Arising

Action items at 5.1 - TSMAD members are to review the Baltic Sea ENC Consistency Study (when it is available). This paper was not released in time for all members to review it for the meeting.
Ongoing

Action items at 5.1 - Canada to provide paper on their implementation/application of SCAMIN to IHB for distribution. Ongoing – the report is expected to be released for the CHRISD 20 meeting (November 2008).

Action items at 6.1 - IHB to check if Mr. Jin can be tasked to check for missing definitions, camel case tags and other references. Some of the work has been carried out by Tom Mellor. These need to be reviewed and enumerations need to be completed. It was proposed that as the Registry is not yet officially online, and TSMAD is the control body, the changes should be put out for comment (for a limited period – before the May TSMAD meeting), after which they should be accepted.

Action: Barrie Greenslade to make printable (Excel spreadsheet) version available (on the WIKI) for checking purposes.

Action items at 6.1 - Tom Mellor to put the list on the forum. See above

Action items at 6.1 - IHB to set up discussion item for new definitions on WIKI. Done

Action items at 6.2 – complete the setting up the necessary sections of the TSMADWG site. Done

Action items at 7.1 - prepare a paper based on the concept of a “small scale usage band” for the next CHRIS meeting. Ongoing – BG to work on this for CHRIS 20.

Action items at 7.4 – a review of the S-57 Product Specification needs to be carried out to identify all scale independent feature. This was completed later in the TSMAD 16 meeting – see table in TSMAD 16 minutes.

Action items at 7.4 – Holger Bothien to include this as a proposed change for S-100, and to provide a paper for the next TSMAD (17) meeting. Ongoing – this was partly covered during the GFM discussion that took place on Sunday 7th Sept 08.

Action items at 7.7 – Julia Powell to include the list of Action items on the TSMAD WIKI. Done

Action items at 8.1 - IHB to place Encoding Bulletin concerning the use of text and picture files on the IHO web site. Done

Action items at 8.3 – Jeff Wootton to reword relevant encoding bulletin and insert links to examples of bad practices. IHB to put on the web site. Ongoing

Action items at 8.5 – Jeff Wootton to prepare Encoding Bulletin concerning the use of FOID and the implications of the January 2009 date for DEPART lines. Ongoing

Action items at 8.6 - Encoding bulletin to be produced to provide advice on issuing large updates that change the extent of coverage objects. Ongoing

5. Reports by other working groups

5.1 Marine Environment Protection Product Specification Working Group (*TSMAD17-5.1_MEP.pdf*)

The report was presented by MEPTG Work Item leader (Craig Winn). He provided an outline of the progress on TSMAD Action Items for this group and highlighted some of the problems encountered by the task group. It had not been possible to develop a product specification (mostly due to the present state of the Registry and S-100 standard), however much valuable experience had been gained. The report also presented the following conclusions and recommended and proposed the following actions;

- Adopt MPAARE feature into the hydrographic feature data dictionary
- Refer the information type objects, MPADET and MPAPEN to the SNPWG for adoption to the nautical publications feature data dictionary.
- Refer the feature object attributes, CATMPA and CATIUC to the SNPWG for adoption to the nautical publications feature data dictionary.
- Recommend that the CHRIS authorize continued work by this task group to develop a marine environmental protection product specification that could demonstrate how the S-100 standard can be used by scientists, environmental stewards, and natural resource managers to reliably exchange and use hydrographic data for non-navigation purposes.

TSMAD agreed that this was valuable work which should be continued with a view to the development of a product specification.

Action: The chairman is to report to CHRIS 20 that TSMAD recommends that this work should continue. Furthermore BG to discuss the creation of an MIO register during CHRIS 20 meeting, and identify who would be the control body for such a register.

It was decided that the present scope for the product specification should remain the same, and should be confined to navigationally significant features. Other features such as Coral Reefs and MARPOL areas will however need further investigation at a later time.

5.2 Chart Standardization and Paper Chart Working Group (CSPCWG) (No paper submitted)

Jeff Wootton reported that the CSPCWG had not met since the last TSMAD meeting, however they were about to have a meeting between the 21st and 23rd of November in Sydney, Australia. The final draft of the revised M-4 section covering navigational aids is to be reviewed during this meeting. This may have an impact on TSMAD work and should be monitored closely.

5.3 Standardization of Nautical Publications Working Group (SNPWG) (No paper submitted).

Eivind Mong reported that the SNPWG met during April 2008. Significant progress has been made with the modeling of features and attributes. The SNPWG register is in the process of being populated. A joint BSH / Jeppesen presentation on a nautical publications test bed project was provided during the last meeting (SHOM - Brest, France, 21 - 25 April 2008). This project implemented the SNPWG model and proved that the model can be used to publish Sailing Directions on web, print and XML from the same base data. SNPWG is currently working on a project on vessel pilotage is presently being carried out, and its outcome will be presented to the next SNPWG meeting. The next meeting is to take place in Norfolk, Virginia, during February 2009.

5.4 IC-ENC/Primar Stavanger Technical Experts Working Group (TEWG) (No paper submitted).

Richard Fowle reported that T & P notices were discussed extensively at the last JTEWG meeting, and those member HO's who were not issuing T & P notices were encouraged to do so. Another important topic of discussion was the implementation of a mechanism for providing notification of changes to traffic separation schemes. Although DATSTA and DATEND can be used for this, there are still many legacy ECDIS systems that can not use this method and an alternative mechanisms must also be considered.

5.5 Harmonization Group on Marine Information Objects (HGMIO) (No paper submitted).

Barrie Greenslade reported that the next HGMIO meeting is scheduled to take place between the 25th and 26th of September 2008, in Bath, UK. This meeting is scheduled to take place in conjunction with the CARIS conference.

6. **National Papers**

6.1 SHOM CATZOC Proposal

France (Guy Uguen) provided a brief summary of the SHOM paper concerning the population of CATZOC. He noted that many producing nations are reluctant to use ZOC A1 and A2 because they are too restrictive and could expose HO's to legal liability. If the proposals in this paper are accepted, it may enable many HO's to populate CAZOC. The paper proposed the following recommendations:

Recommendation 1 – (*...changing the wording from "All significant seafloor features detected and depths measured." to "Most significant seafloor features detected"*)

TSMAD agreed with this recommendation but expressed concern at the use of "most" – i.e. how can this be quantified. It was agreed that from a legal perspective, many HO would not encode CATZOC A areas while the text still contained "All".

Action: TSMAD Chairman to present this issue to the next informal DQWG meeting for further study.

Recommendation 2 – (*Improve alignment between S44 and S57 ZOC criteria for "significant features" detection.*).

Recommendation 3 – *(Investigate a change in the portrayal of M_QUAL and M_SREL to include the SUREND symbology)*. It was decided that it would be more appropriate to discuss this at the DQWG meeting.

Action: TSMAD Chairman to report on and discuss at the DQWG meeting. (Some concern about quantifying “most”).

7. T & P Notices to Mariners

7.1 Temporary (T) and Preliminary (P) Notices to be used with ENC's (*TSMAD17-7.1_T&P_NtM_FR.doc*)

France (Guy Uguen) provided an overview of the information paper which highlighted the lack of consistency in the way T and P notices are promulgated by various HO's.

This issue was also discussed at the 2008 ECDIS stakeholders and JTEWG meetings. Furthermore it was noted that, if T & P notices were sufficiently important to be promulgated for paper charts, the same should apply for ENC's. It was agreed that a harmonized and consistent way of dealing with T & P notices should be implemented by HO's.

Action: TSMAD Chairman to convey the TSMAD discussion concerning the implementation of T&P notices to the CHRIS 20 meeting.

8. S-100

8.1 Committee draft meeting

The Draft S-100 standard was published in February and distributed together with a comment submission form. Numerous comments were received, from (Australia, Canada, CARIS, France, Jeppesen, IHB, Sweden, UK, and USA). These comments were evaluated and accepted or rejected for inclusion in the standard.

8.2 ISO 8211

The S-101 Product Specification will use a modified version of the ISO 8211 encoding standard. Modifications will be required to cater for new S-101 constructs. This task was completed by a small breakout group and will be included as an encoding specification in S-100.

8.3 Feature Catalogue XML schemas

The chairman noted that an XML version of the S-101 feature catalogue (and future catalogues) would be made available together with their schemas. He noted that the machine readable catalogue could be used to create a formatted printable version. Holger Bothien has set up a namespace for IHO S-100 / S-10X schemas. All schemas will have to be made available as an online resource (on the IHO web server), when they have been completed.

8.4 Governance and Management Arrangements for the IHO Information Registry

The chairman provided a brief overview of the Governance and Management Arrangements for the IHO Information Registry as contained in paper TSMAD17-8.4_GII. This paper attempts to highlight some of the impacts on IHO resources and proposes management arrangements required for the IHO Geospatial Information Infrastructure Registry. The paper has been submitted as a discussion paper to the next CHRIS meeting. For information only.

9. S-101

Julia Powell provided an overview of the work that had been carried out since the previous meeting and highlighted the discussion items that had been included on the S-101 WIKI. It was noted that at some stage the comments to the discussion items will need to be harmonized. It was proposed to eventually put all the comments into a comment sheet and adjudicate them at an editing meeting.

It is intended to add a new page for Action Items on the WIKI. The chairman noted that TSMAD members may also open a new page for a discussion item if they wish to do so.

Action: Julia Powell to include text in the S-101 introduction page informing members to press “Post” (not “Skip”) after they post a comment so that notification of the comment is sent to all members.

Development of S-101

What should the S-101 scope include? It was recognized that much of the content of the S-57 UOC is obligatory (“must”) and should be in the S-101 product specification. The new S-101 “Encoding Guide” should contain advisory information. This will require a complete revision of the UOC to establish what information should be included in the S-101 product specification and what should be in the Encoding Guide.

Should the scope include the concept of thematic layers? What other functionality should be included, keeping into consideration the requirement for backward compatibility? What about scalable objects – discussed at the Cape Town meeting i.e. themes would be created using an aggregation of feature object? This would use a special (hard coded) aggregation. It could also be used for portrayal, but the portrayal mechanism must take account of the aggregation rules. This is similar to the concept of groups in S-57 (i.e. group 1 and 2) but would allow for more themes. It could also allow for a limited number of themes to make provision for some value added layers. The initial scope should perhaps be limited to SOLAS requirements. What about Nautical Publications? It was noted that the group needs to take into consideration the work required for updating additional themes. Nautical publications should probably be in a separate publication/overlay. Most importantly this must take into account the users needs and the OEMs requirements. It was agreed that there is a need for a better understanding of this requirement and it would be helpful to have some “use cases” before implementing themes. There is a need for some form of outreach in order to establish what users want. It was proposed that this could be achieved by contacting navigation training institutions.

Action: Julia Powell to set up a WIKI page. TSMAD members to propose candidate questions on this WIKI page. JP to collate these into a questionnaire and send to training institutions.

It was decided that in defining the scope, the group should start with the need for S-101 to support SOLAS class vessels, and then build on this requirement. The next step should be to address issues and deficiencies of the existing S-57/ENC product specification with a view to making S-101 a better specification.

Breakout groups were formed to discuss and report back on the following topics;

Breakout Group 1 working on the scope statement for S-101 product specification.

The following scope was compiled by the breakout group.

“The specification “S-101—IHO Electronic Navigational Chart” enables Hydrographic Offices to produce a consistent ENC, and manufacturers to use that data efficiently in an ECDIS that satisfies the IMO Performance Standards for ECDIS. It is also to be used for the exchange of digital hydrographic data between national Hydrographic Offices and for its distribution to manufacturers, mariners and other users. This exchange must be in conformance to the IHO S-100 Standard.

This product specification is a complete description of all the elements required to define an ENC. It is a description of all the features, attributes and relationships with their associated portrayal of a given application. This constitutes a set of human readable documentation. It includes machine readable files for information such as the feature catalogue, portrayal catalogue, the application schema and the coordinate reference system parameters. This document defines the specification for data of ENC chart display”.

Breakout Group 2, S-101 Project Plan Group

This group was tasked with the development of project plan that should include the identification of known issues that need resolving. The group should also attempt to identify the extent of work required.

The following items were identified;

- S-101 data must satisfy the SOLAS market for IMO
- ENCs will become the primary navigation source for SOLAS type vessels
- Remove the ambiguity from the data collection by making the Encoding Rule more proscriptive.
- Updating portrayal and feature catalogues should be machine readable.
- Should the S-58 tests be included in the PS? Needs keep a flexible update regime and it may be better to keep S-58 tests in a separate publication.
- IC-ENC and PRIMAR need to release the extra checks that they perform on data so that they can be fed into the project.
- Any performance checks will be performed externally. Need to inform IEC of the changes that will be made.

It was agreed that before requesting further information, some background research should be carried out to identify what has been discussed / agreed at previous forums. This should include; stakeholder meetings in Monaco, Rotterdam, Tokyo and Rio/Brazil (CHRIS 20). An analysis of the feed back from these meetings should include some of the “big issues” to be resolved for S-101. This is to be followed up with a questionnaire to Member States (and all interested stakeholders) asking for improvements they would like to see in S-101.

Some of the “big issues” identified by the group that need to be addressed and researched included:

- Themes - are these going to be included? This concept has been discussed at previous TSMAD meetings and Industry Stakeholders meetings. (It was noted that this could be a carrot to get the OEM's to implement new data).
- Scalability layers – has also been discussed at Stakeholders meetings needs use case examples to be developed.
- Different way of defining file size. This could impact the use of themes. Need to investigate other mechanisms e.g. number of objects.
- Encoding rules for data collection
 - Analyzing UOC – there is a need to;
 - define complex attributes – see TSMAD 16
 - define Information Objects – provide more use case scenarios.
 - identify mandatory attributes.
 - identify mandatory encoding rules
 - research logical order for the encoding rules document.
- S-57 maintenance document – structure, format content and maintenance procedures need to be determined.
- deferred actions list – member states requested to re-propose maintenance items (Chair to send out letter).
- Determine what the implications of the M-4 review will be – as outlined in Chris Roberts papers presented to TSMAD 14.
- The NOAA's ENC encoding document needs a complete review by all TSMAD members.
- Encoding Bulletins (180 degree ENC's) – this needs further evaluation.
- Commence the PS work by including all the relevant (good bits) of S-57
- Other issues that will need further work include Portrayal catalogue, Validation, Application schema, CRS, Data Quality, Metadata, updating regime for the product specification

It was noted that these items will impact other work items and should be dealt with first or in parallel with these items.

Breakout Group 3 dealing with the deficiencies in S-57.

This group was tasked to identify the deficiencies in S-57 and propose how they can be remedied.

- The lack of use of SCAMAX. There is a need to develop guidance on the use of SCAMAX. This is related to the use of scalable and non-scalable objects. Awaiting resolution.
- The inconsistent use of SCAMIN. Better guidance on the use of SCAMIN. There is a need to review the use of SCAMIN in conjunction with the concept of themes.
- Values for dangers to surface navigation must be populated with hard rules. There is a need for more flexibility for the user to determine safe/unsafe areas.
- Missing Values (Unknowns). There is a need to clearly define what an unknown value is. Make unknown an allowable value, i.e. a new enumerate, or an allowable value.
- Better mechanisms are required to prevent the overuse of CTNARES and the attribute INFORM to address deficiencies.
- Volume naming issues need further investigation, refer this to the S100 or S101 scoping group.
- It was noted that the 5MB size limit too restrictive. Proposed that manufacturers need to provide a fixed or floating limit. Should the size limit be relaxed? (See also discussion by breakout group 4).
- Meta objects should contain metadata to allow for effective data discovery.

- There is a need to provide better guidance concerning when a producer should issue an update versus a new edition. What about reissues? These are still used in a few circumstances, but this was considered to be an artifact of paper charts that should not be used for ENCs.

- Modernize rules for naming files. Should the 8 character rule be relaxed? Will this cause backward compatibility issues? S-101 should define character set to be used.
- Clarify the use of truncated edges. Further guidance on this is needed in S-101.
- Clarify topology concepts, as it relates to logical/topological relationships.
- What should be the level of detail included in the encoding guide?
- Data about how up to date the data is? This information should be included in the metadata.
- What references to Performance Standards should be included?
- Metadata for updates (Consider including comments about changes in the metadata)
- The ORIENT attribute – further guidance will be required on its use.
- Encoding should drive display? This could simplify the need for conditional symbology procedures.
- There is a need to revise “Skin of the Earth” concept. This also needs to take into account the use of themes.
- How should tides be accommodated? It was felt that tides should be in a different Product Spec.
- It was also felt that magnetic variation information MAGVAR should be included in a different Product Specification.
- Should there be additional metadata about the appropriate backup paper chart?
- Guidance about areas of insufficient data, such as minimal depiction areas must be included.
- Metadata? Should it be included in the data file or as an external file? It was decided that metadata would be documented in a separate file that would be part of the exchange set.
- Additional Metadata about what scales the data is usable at, should be included.

9.2 Discussion of the S-101 WIKI.

Julia Powell provided a brief overview of the structure of the TSMAD WIKI and went through the S-101 WIKI pages that she had set up. Those TSMAD members who were not already TSMAD WIKI members were encouraged to join. The preliminary draft of the S-101 product specification has been posted on the WIKI. Although a number of topics have been discussed extensively, Barrie Greenslade noted that the aim should be to bring each discussion item to a logical conclusion so that

a final decision and agreed text will eventually appear on the WIKI. This will require someone (or a group) taking ownership for each discussion item.

Furthermore CARIS suggested that two pages should be setup for some sections. (One page to be used for discussion, and the second page for documenting the latest version of the text). It was agreed that the work should be divide into the following topic specific components, and members tasked to manage each section.

- Work Item 1 (South Africa)
 - Section 7 – Data Product Identification
- Work Item 2 (UK)
 - Section 8 – Data Content and Structure
 - Feature Catalogue (Feature Concept Dictionary)
 - Application Schema
 - Geometry
- Work Item 3 (US)
 - Section 8 – Data Content and Structure (remainder)
 - Display Scale
 - SCAMIN (SCAMAX ?)
 - Themes
 - Scaleable/Non-Scaleable data
 - etc
- Work Item 4 (7Cs)
 - Section 9 – Coordinate Reference System
- Work Item 5
 - Section 10 – Data Quality (await DQWG review)
- Work Item 6 (Australia)
 - Section 11 – Data Capture and Classification (Split out into new wiki group)
- Work Item 7 (IC_ENC)
 - Section 12 – Data Maintenance (Updating)
- Work Item 8
 - Section 13 – Portrayal
- Work Item 9 (UK)
 - Section 14 – Data Product Format (encoding)
- Work Item 10 (Can)
 - Section 15 – Data Product Delivery
- Work Item 11 (IHB)
 - Section 17 – Metadata
- Work Item 12 (US NAVO)
 - S102
- Work Item 13 (NGA)
 - Outreach

Breakout Group 4 working on distribution and metadata (items 15 and 17 of the Product Specification).

The following issues were discussed by this breakout group.

Discussion on the use of cells

In order to facilitate the efficient processing of ENC data the geographic coverage of a given usage must be split into cells. Each data set (cell) must be contained in a physically separate, uniquely identified file on the transfer medium, known as a data set file (see clauses 5.4 and 5.6.3).

Cells must be rectangular (i.e. defined by 2 meridians and 2 parallels). No advantage to removing rectangular cells. Any data limits should be possible.

The coordinates of the borders of the cell are encoded in decimal degrees in the 'Catalogue Directory' [CATD] field. Data extent will be described using MD_DatasetDiscovery Metadata.boundingBox

Each cell must contain a minimum of one group 1 (skin of the earth) feature. Data coverage in the cell is defined by the exterior boundary/ies of one or more contiguous group 1 feature. Areas of non data coverage are defined as those areas within a cell not populated with data. Remove- we should not define no data areas. CATCOV = 2 has been removed from the standard. Data in cells with the same display scale should not overlap. In areas of overlap the mariner should have the choice.

Cell file size. Should there be a limit on file size or can this be a service provider/ECDIS issue.

It was agreed that the current 5MB limit is too small. What about hi-density ENC's, hi-res bathy cells?

- ENC maximum file size will be increased (Proposed size - 15Mb)
- Should there be a maximum file size for an update? (e.g. 5Mb)?
- Should there be a limit for the total extent for a given scale?
- How will changes impact on the ECDIS performance.
- Need to look at tiles sizes in DNCs (1 degree cell size).
- Don't know ahead of time what the size will be - find out at the end of the process.

It was noted that another possibility could be to base cell size on other criteria such as number of features in a cell. Some research needs to be carried out to determine ENC file sizes verses number of objects? Also need to investigate the density of the data (vertices) in comparison to file size.

What should the content of the exchange set include? The group recommended to;

- include audio visual files,
- include acceptable file formats and examples,
- include references to decision on text and picture file formats,
- remove references to S-57,
- add support for files with subtype picture, text, metadata xml.

Volume naming – It was decided that volume naming was no longer necessary and should be remove from standard

Directory structure - the structure has been agreed to. There is a need to clean up the text.

The 64 Kb file limit needs to be removed.

Data sets – It was recommended to look at refining ISDT. Consider removing re-issue date and clarify new edition usage.

File Name. Preserve the 2 character limit for producer designation. The 3rd character will now be reserved for navigational purpose in order to replace usage band. (This will result in less changes for the implementer and ECDIS producer). Need to identify what the implications of using “_” and other special characters will be. Does utf8 solve issues of national characters? (There are 2 possible options; keep the 8 characters filename, or let OEMs set a limit based on the operating system requirements).

ReadMe File – It was decided to leave this as is for the present. TSMAD should consider creating a questionnaire to determine whether HO's and RNC's use this and if so, what for.

Catalogue File – It was noted that proposal submitted by UKHO should be used as a starting point.

Text and picture files. (Consider using utf-8 for encoding).

Feedback from stakeholders and OEMs should be sought on how to store, display and delete files? These would include text, Jpeg2000, html, xhtml, xml, Xslt, mpeg3/4, avi, wmv, pdf and others.

Updating – There is a need to clarify the use of ISDT.

Remove - To inform the mariner that a new edition is available, an update cell file may be created, containing only the Data Set General Information record with the "Data Set Identifier" [DSID] field. The "Data Set Structure Information" [DSSI] field is not required." The "Edition Number" [EDTN] subfield must contain a value one higher than the current edition number.

When an object pointing to a text, picture or application file is deleted or updated so that it no longer references the file, the ECDIS software should check to see whether any other object reference the same file, before that file is deleted. If another relationship is found the file must not be deleted.

a) *Up-to-dateness information – Change to currency of the information.*

Issuing updates in advance. It was decided to remove from this section and place it in encoding guide section.

Comments from the group tasked with the review of Section 8 and 9 of the Draft S-101 Product Specification

The following sections were discussed by this group.

8. *Data Content and Structure*

- *A discussion developed regarding the inclusion of Portrayal in this section. It was determined that it should not be included in this section, because Section 13 is dedicated to Portrayal. S-100 defines that Portrayal is not included in this section. Comment was added stating that Portrayal will be handled in a different section.*
- *Propose removal of Feature Operations from Part 10 Section 8 of S-100.*

8.1 *Data Display and Compilation Scale*

- *An attempt was made to better define compilation scale*
- *Metadata must be included in the data header indicating both the maximum and minimum scale for display*

ACTION: Metadata group should be made aware of this

ACTION: Sweden - Definition of maximum and minimum scale for display will be provided as well as a recommendation on what the system should do in case of different scenarios – this also becomes a performance issue

- *Gridded should be removed from this table as this is a Data Delivery issue*
- *Prior to deletion, the following discussions occurred:
HO Grid scheme and No Grid changed to method of cell scheme optional
Is there an IHO Grid Scheme? If not, is there an action item somewhere to create one.
This section should be included in Section 15*
- *3 Scales Recommended by Sweden*
 - *Overscale Warnings*
 - *Scale level at which the cells should not be loaded*
 - *SCAMIN – when the scale is no longer useful*

8.2 *Topology*

- The group disagree with the removal of the statement regarding the duplication of coincident linear geometry. New statement should be added which defines that “Coincident linear geometry should be avoided when there is a dependency between features.” An example should be given. (This is because there are instances where duplication should be allowed to occur, such as when a pipeline runs along the same plane as a depth contour).

- Chain-node topology is not mentioned in S-100, so chain-node topology remark was deleted and a new remark added regarding Level 2a - 0-, 1-Dimension.

8.3 *Feature Identifiers*

- References to Feature Objects were changed to read “Feature”.

8.4 *Numeric Attribute Values*

*- Changed title “Numeric Attributes”
- No changes to textual content*

8.5 *Text Attribute Values*

*- Changed title to “Text Attributes”
- UTF-8 was written out.*

8.6 *Complex Attribute Values*

*- Title changed to “Complex Attributes”
- No text was originally present. New text added to this section.*

8.7 *Information Types*

- No text originally present. New text added to this section

- Clarification needs to be made regarding the difference between a TXTDSC and an Information Type
- S-100 needs to be changed so that it includes the ability to be associated with real world features.
- An example will be taken from SNPWG.
- Related to features or other information types, e.g. carry metadata which can be hierarchical, such as a contact name that applies to numerous features. The features themselves will point to that Information type which contains the contact information.
- An information type must be referenced by a feature. If an Information Type must reference an entire chart, one possible solution would be to say that it must be referenced by a feature and if it is not referenced to a feature then it is assumed that it references the entire cell.

8.8 Thematic Layers – needs further development –taking into account 8.8.1 below.

8.8.1 Skin of the Earth

8.9 Scale Minimum – needs further work.

8.10 Generalized and Non-Generalized Data – further work needed

8.11 Cartographic Attributes – should these be included, if so, how will they be implemented.

Feature Catalogue and Application Schema added as sections. It was felt that they need to be moved to the beginning of the document.

9.2 Data Capture and Classification Guide

Julia Powell presented the US NOAA Data Capture and Classification guide (Version 1.0.0 dated July 2008). This document is based on many years of data encoding experience and provides guidance for encoding S-57 data. It was proposed that this document could form the basis of the S-101 Encoding Guide document.

Australia requested that further consideration should be given to the harmonization with other IHO publications. For example, should standard nautical cartographic principals/rules (i.e. relevant sections of M-4) be included in this document? This would not necessarily include data capture rules.

Action: Australia (Jeff Wootton) to identify what rules in M-4 should be included in S101. (These may possibly be included in a separate document).

9.3 S-101 sub work groups

a) Feature Catalogue

Barrie Greenslade noted that S-101 feature catalogue was included in the IHO registry. A function would be provided to output the catalogue in an XML format which could be transformed into a structured (printable) format using an appropriate style sheet. (See also the discussion item 8.3 Feature Catalogue XML schemas).

b) Data Capture and Classification Guide Review. See the discussion under item 9.2 above.

10. Any Other Business

- Additional work that needs to be carried out on the Feature Concept Dictionary. Tommy Mellor gave a brief report on the status of the tasks that were identified during the TSMAD 16 meeting. Unfortunately it was not possible to enlist the assistance of Mr. Jin some of these task. A review and update of the cammelCase identifiers has been completed. He noted that there were still some inconsistencies with definitions and distinctions which were carried over from S-57.

- Discussion on the BSHC Report on ENC harmonization. The chairman noted that the report provided useful guidance on ENC consistency. Although it had been based on North European (Baltic) context, it provided an important reference for other regional hydrographic commission areas. The document also provided valuable guidance on the use of SCAMIN and proposed 17 recommendations relating to future ENC harmonization efforts. He noted that, in addition to the main report, members should also download and read the 12 documents that were available as separate Annexes.

11. Date and place of next meeting

Canada offered to host the next meeting at the Canadian Hydrographic Office (Ottawa), between the 11th and 15th of May 2009.

LIST OF DOCUMENTS

Document No	Document Title
TSMAD17-1A	List of Meeting Documents
TSMAD17-1B Rev 2	List of Participants
TSMAD17-2 Rev2	Draft Agenda
TSMAD17-3_16Minutes	Minutes of the 16th TSMAD Meeting (Cape Town, South Africa)
TSMAD17-5.1_MEP.pdf	Report of the MEPTG Pro
TSMAD17-6.1_CATZOC_FR	CATZOC Proposal France
TSMAD17-7_1_TP_NtM_FR.pdf	Temporary (T) and Preliminary (P) Notices to be used with ENCs
TSMAD17-8.1_GII	Governance and Management Arrangements for the IHO Information Registry

AGENDA

- 1. Opening and Administrative Arrangements**
 - A. List of Documents (*TSMAD17-1A_Docs*)
 - B. List of Participants (*TSMAD17-1B_Participants*)
 - 2. Approval of Agenda** (*TSMAD17-2_Agenda*)
 - 3. Minutes of the 17th TSMAD Meeting, 5th to 9th May 2008 (Cape Town, South Africa)**
(*TSMAD17-3_Minutes*)
 - 4. Matters arising**
 - 5. Reports by other working groups**
 - 5.1 Marine Environment Protection P.S. Working Group (*TSMAD17-5.1_MEP.pdf*)
 - 5.2 Chart Standardization and Paper Chart Working Group (CSPCWG)
 - 5.3 Standardization of Nautical Publications Working Group (SNPWG)
 - 5.4 IC-ENC/Primar Stavanger Technical Experts Working Group (TEWG)
 - 5.5 Harmonization Group on Marine Information Objects (HGMIO)
 - 6. National Papers**
 - 6.1 SHOM CATZOC Proposal (*TSMAD17-6.1_CATZOC_FR*)
 - 7. T & P Notices to Mariners**
 - 7.1 Temporary (T) and Preliminary (P) Notices to be used with ENCs (*TSMAD17-7.1_T&P_NIM_FR.doc*)
 - 8. S-100**
 - 8.1 Committee draft meeting
 - 8.2 ISO 8211
 - 8.3 Feature Catalogue XML schemas
 - 8.4 Governance and Management Arrangements for the IHO Information Registry
(*TSMAD17-8.4_GII*)
 - 9. S-101**
 - 9.1 Scope of S-101
 - 9.2 Discussion of the S-101 wiki
 - 9.2 Data Capture and Classification Guide
 - 9.3 S-101 sub work groups
 - a) Feature Catalogue
 - b) Data Capture and Classification Guide Review
 - 10. Any Other Business**
 - 11. Date and place of next meeting**
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LIST OF ACTION ITEMS.

Section	Action	Responsible Person(s)
4.	Barrie Greenslade to make printable (Excel spreadsheet) version of the IHO register available (on the WIKI) for checking purposes.	Barrie Greenslade
5.1	The chairman is to report to CHRIS 20 that TSMAD recommends that this work should continue. Furthermore BG to discuss the creation of an MIO register during CHRIS 20 meeting, and identify who would be the control body for such a register.	Barrie Greenslade
6.1	TSMAD Chairman to present this issue to the next DQWG meeting for further study.	Barrie Greenslade
7.1	TSMAD Chairman to convey the TSMAD discussion concerning the implementation of T&P notices to the CHRIS 20 meeting.	Barrie Greenslade
9.	Julia Powell to include text in the S-101 introduction page informing members to press "Post" (not "Skip") after they post a comment so that notification of the comment is sent to all members.	Julia Powell
9.1	Julia Powell to set up a WIKI page. TSMAD members to propose candidate questions on this WIKI page. JP to collate these into a questionnaire and send to training institutions.	Julia Powell
9.2	Australia to identify what rules in M-4 should be included in S-101. (These may possibly be included in a separate document).	Jeff Wootton
9.2	See also tasks to be completed regarding the WIKI	All