16th Transfer Standard Maintenance and Application Development Working Group (TSMAD) Minutes.

5th to 9th May 2008 (Cape Town, South Africa)

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 – Action Items Arising from the 16th TSMAD Meeting.
Annex E - Action Items Arising from the 15th TSMAD Meeting.

1. Opening and Administrative Arrangements –

A. List of Documents (TSMAD16-1_Docs)
B. List of Participants (TSMAD16-1_Participants)

1.1 Introduction and welcome

Captain Theo Stokes welcomed TSMAD members to Cape Town on behalf of the SAN hydrographer Capt Abri Kampfer. He noted that the South African hydrographic office, provides navigational products and services for diverse maritime requirements, and had played an active role in the activities of the IHO.

2. Approval of Agenda – Administrative arrangements

The agenda was approved and the following additional items were proposed for discussion item 8. Any other business;

- Portrayal of minimal depiction bathymetry areas.
- The use of duplicate FOID
- The use of INFORM for the S-57 Ed 3.1.1 objects (still active until Jan 2009).
- Unique updating scenarios.

3. Minutes of the 15th TSMAD Meeting, (14 – 18 Jan 2008, IHB, Monaco) – Review of Action Item

A review of the following action items resulting from the 15th TSMAD meeting was carried out.

Items from Section 6.1 - S-57 object classes not symbolized on ECDIS:

Action: AU to add (CHKPNT and CURENT) to CR spreadsheet containing these issues (Done).

Action: TSMAD15-6.1A Rev1 to be submitted to the combined TSMAD/CSMWG. (Done)

Action: ENC-EB Sub WG coordinator to add encoding of offshore renewable energy installations to the ENC Encoding Bulletin Actions List. (Still to to be done).

Action: ENC EB Sub-WG coordinator to complete Encoding Bulletin on promulgation of advice on new or revised routing measures. (Done)

Action: IHB. Seconded to IHB - It was decided that the scoping study for INT1 should be added to the list of possible tasks. (Task still to be done).

Actions from the report to TSMAD15 regarding the review of M-4 *(TSMAD15-6.3_M4_Review.pdf)*

Recommendation 2

Action: ENC EB Sub-WG coordinator to investigate new features in M-4 as outlined in the "Changes for TSMAD consideration for S-100 FDD" spreadsheet for possible requirements for ENC Encoding Bulletins. (Still to be done)

Recommendation 3
Action: Lee Alexander (UNH) to look into the IHO discussion site for possible implications to TSMAD (Still to be done).

Recommendation 5.
Action: ENC EB Sub-WG coordinator to notify the secretary of CSPCWG and disseminate all future CSPCWG Letters to the Sub-WG for evaluation (Done).

Recommendation 6 (It was agreed by the meeting that a co-coordinator's role needs to be raised at the CHRIS level, and the IHB should be approached to support such a role).
Action: TSMAD Chair to raise this at the next CHRIS meeting. (Still to be done)

ENC Encoding Bulletins: Action: ENC EB Sub-WG coordinator to collate all papers and discussions relating to the Wrecks EB and prepare a submission for TSMAD16/CSMWG18. (Done).

Change Request Form:
Action: Tom Mellor agreed to design such a form, which would be included as an Annex to the profile (Done).

Action: TSMAD Chair to compile a TSMAD Letter to MS inviting ideas for use of the S-100 Information Object. (Still to be done).

Action: TSMAD Chair to compile a TSMAD Letter to MS requesting a review of any papers submitted by them and placed on the TSMAD Deferred Actions List for possible proposals for S-100. (Still to be done).

4. Matters Arising (4.1 Action Items from TSMAD 14)

The Chairman explained that due to the requirement to get a draft version of the S-100 document completed during the 15th TSMAD meeting, it was not possible to review the action items from the 14 meeting. The action items listed below are from the 14th TSMAD meeting:

Action from Section 3.1 Bullet Items:

Actions: ENC EB SubWg to review and issue ENC EB re 180 degree. (Done) SevenCs to develop 180 degree example in IHO TDS. (It was decided that this was no longer necessary).

Action: Advise Chairman of IEC TC80 WG7 of new test required for ENCs crossing 180 degrees. (It was decided that this should be taken up for S-101).

Action: TSMAD13 issue (item 7.1): S-57 booklet to be withdrawn from IHO website and a comprehensive list of all S-57 related documents added to the IHO ENC website.(Done. All documents including their numbers and a description are available on the IHO web site)

Action: TSMAD13 (item 9.1): Chairman was to raise at CHRIS18 re HGE to revisit IEC 61174. Only minor changes were made to include new version of the ECDIS PS. (To be carried forward for consideration under S-101 work item).

TSMAD13 (item 9.3) S-100 Information Object to take away from **CTNARE** and relates to SNPWG**.**
Action: to be discussed at TSMAD 16 meeting. (Done)

<u>Actions from section 6. S-101:</u>

S-101 with multiple encodings (ISO 8211 and GML) or multiple Product Specifications. The question was then asked as to what encapsulation the OEMs would prefer to use. Action: Chair to raise with OEMs at the ECDIS Stakeholders meeting in November. (Done/closed).

Actions from section 6.2 - bullet points

The product specification should include both SCAMIN and SCAMAX. Need to establish how Inland ECDIS are implementing this? Action: AU to prepare a brief paper on how SCAMAX may be utilized. (Ongoing)

B.1 Section 2 - Need to include a section providing guidance on the use of compilation scale (which should be considered as optimum display scale), and its link with the use of SCAMIN. Action: TSMAD needs to monitor the implementation of this within ECDIS. Furthermore TSMAD needs to investigate whether the concept of Navigational Purpose could be removed and only be used for cataloguing purposes. (Ongoing)

B.1 Section 2.2 Cells - Grid system for ENC. Discussion about introducing the grid layout as described in Ed 2.0. Action: Members to discuss with their home offices and report to Julia Powell. (Ongoing)

B.1 Section 3.4 Meta objects - Data identification such as a descriptive comment for cell name. Can ISO 8211 be amended to allow for extensions to meta data? Need to put out a questionnaire getting the opinion of MS and OEMs. Action: Chairman. (This was discussed during the Stakeholders forum and is being progressed under the S-101 work item).

B.1 Section 3.6 - There was discussion to allow cartographic objects back into the PS in order to enhance ECDIS display. Action: Questionnaire required Chairman to get feedback. (Being progressed under S-101 work).

B.1 Section 3.9 - Need to include the concept of Association Role, and also need to account for explicit roles and associations. This needs further investigation when there is better knowledge about info objects. Action: Chairman to raise this with OEMs – possibly at the next CIRM meeting**.** (Ongoing)

B.1 Section 5.4.3 Directory structure - There is also a need for stricter guidance on how text files are stored in the ECDIS systems. Action: ENC EB SubWg to develop an EB on this issue**.** (Done) Different content requires different filename. Using the same filename will overwrite/update the existing file. It was agreed that a new mechanism needs to be developed for S-101. (Ongoing within S-101 work)

Part 1 Section 7 Maintenance – Separate maintenance regimes for S-100 and for S-101 / other Prod Specs, noting that the Feature Catalogue can be updated as often as required. Action: Task group required to scope out the maintenance regime and document it. (Ongoing under the S-101 work item).

General issues – Problem with OBSTRNs and alarms in ECDIS. Action: TSMAD members to discuss with their home offices and report back – also members to propose specific new object/attributes to reduce the overuse of caution area. (Discussed at the stakeholders meeting – and continued work under S-101 It was proposed that consideration should be given to creating a new feature for "foul ground" – perhaps new display rules for this. Caution areas are also the cause of numerous alarms).

Overuse of **CTNARE**. What object classes have had a caution area applied? Action: all TSMAD MS to discuss with their home office and compile a list for the next meeting. (Ongoing)

The way updates are handled needs to be reviewed. Action: TSMAD members to discuss with their home office and propose solution for next meeting. (Ongoing).

Actions from Section 6.3.5 SCAMIN Recommendations

TSMAD recommends [to CHRIS] that SCAMIN should be used for all ENCs.

It is recommended that this be issued to MS as a CHRIS Letter, and be brought to the attention of IHO Stakeholders. Action: The Chairman is to propose to CHRIS that it be adopted and distributed

via CL and presented to RHCs. (Done/closed)

6.4.2 There is a need to identify issues such as the way to describe the structure for new encodings such as GML. The eventual change-over date from S-57 to S-101 also needs to be raised. Action: Chairman to report back to CHRIS. (Done – this was also discussed at the stakeholders workshop – a modified version of ISO 8211 will probably be used for S-101).

Actions from section 7. - S-100 issues

The S-101 Product Specification will have to include a section on portrayal. Action: Portrayal needs to be discussed at the combined CSMWG meeting in Stavanger. *(Done - see minutes)*.

Actions from section 7.1 - Feature Data Dictionary component (S-100-2): Bullets

Submitting organizations: Each IHO MS will nominate a person to vet all submissions for completeness. Action: IHB will need to send out a CL asking for MS to nominate a person when ready. (Ongoing)

7.3.2 ISO/TC211 – 19110 Action: MS to lobby national bodies against the proposed amendments to ISO 19110 (Done).

7.3.5 Peter Parslow noted that the definitions should be included in the data dictionary and there is a need for a business rule within S-100 stating that all definitions should be included in the FDD. Action: It was agreed to revise the diagram to make it look more like a 19110 implementation by correspondence for finalization at the next Focus Group meeting. (Done)

7.5.1.2 It was questioned whether there is a need for an Engineering CRS (perhaps for local datums for raw survey data for port development?). Action: TSMAD members need to ask their home office experts whether this would be required. (Ongoing).

7.5.1.5 Action: Holger to complete the draft component with some good (relevant) examples on how to use it. (Done)

7.7.1 Discussion on copyright: The Chairman reported that he is still pursuing the issue with ISO but noted that there is a reduced need to copy ISO content from the 19100 documents. Action: Chairman to follow up ISO and report to CHRIS. Captain Robert Ward had been in contact with ISO central secretariat – ongoing.

8.2.1 A display problem with sloping ground had been raised at TSMAD12 by Sidney Osborne (RSA). Action: Australia to raise this at the next CSMWG – CR noted that this was not raised at CSMWG16 and was not on the agenda for next week at the Norway meeting. CR will follow up on current status of this issue. (Discussed during the C&SMWG meeting).

8.2.2 The 180 degree longitude boundary problem. The TSMAD12 Chair Mike Brown was to write to IEC outlining the 180 deg long problem. Julia Powell informed the meeting that IEC TC80 WG 7 is dormant. Action: The Chairman (BG) to follow up with IEC (Done).

8.2.3 IHO Test Data Set (S-64) to be completed. Action: Holger and IHB. (Done)

8.2.4 The S-57 Booklet. Action: IHB: The S-57 documents need to be cleaned up on the IHO web site. (Done)

8.2.6 Prohibited use of underscore for cell names. Action: ENC EB Sub-Wg to issue FAQ. (Done)

8.2.7 Linear maritime boundaries. This item has been completed but needs to be posted on the IHO web site. Action: Julia Powel and IHB. (Done EB 15 – Jan 2008)

8.2.10 The Encoding Bulletin for **wrecks** had not been completed and it was recommended to do so during a break out meeting. Action: For completion by Encoding Bulletins SubWG. (Done)

8.2.12 The FAQ for DGPS. To be completed during the meeting. Action: For completion by Encoding Bulletins SubWG. (FAQ 18 – Done)

8.2.14 Underwater turbines and current farms (see INT1 L24 and M-4 B-445.10 and B-445.11). Action: ENC EB SubWg to issue FAQ for underwater turbines and current farms. (No FAQ – still to be done)

8.2.15 Wind turbine and farms (see INT1 L5.1, 5.2 and M-4 B-445.8 and 445.9). Action: ENC EB SubWg to issue FAQs for wind turbines and wind farms. . (FAQ – still to be done)

8.2.17 EB for PELs. Action: This is to re-worked by the ENC EB Sub WG – Australia to lead, the group to also include France, New Zealand, USA and any HO lights experts. (Done)

8.2.18 AIS EB Is a feature or attribute required for this AIS? It was noted that this also needs to be symbolised and it was therefore decided to raise and discuss this at the CSMWG. Action: Chair to raise this at the CSMWG. (Done)

8.2.19 EEZ EB. NOAA and CHS proposal for EEZ - S-58 check. It was decided not to downgrade the S-58 Error to a warning. It was decided that an encoding bulleting should be produced to recommend that the disputed areas should be encoded as a caution area. Action: ENC EB Sub WG to produce a bulletin concerning disputed areas. (Done)

8.2.20 Emergency Wreck Buoy (TSMAD14-14 and TSMAD14-10B). Australia – noted that the EB on the web site is no longer relevant and should be removed. Action: IHB. (Done)

8.2.21 It was noted that ENC Encoding Bulletin 13 on BUAARE should be withdrawn until issues pertaining to the Presentation Library are sorted out. Action: IHB and ENC EB SubWg. (Done)

Action: Jeff Wootton to review TSMAD14-10B and all issues raised at this meeting concerning ENC EBs and FAQs and action all items through the ENC EB SubWg by email before the next meeting. JP to send JW copies of all relevant proposals. (Done).

8.2.23 France requires guidance for the management of updates for Traffic Separation Schemes and maintained that this should be in the S-101 Data Encoding Rules. UKHO have prepared some internal guidance on TSS. It was agreed that further investigation was required for this. Action: France to draft a proposal for ENC EB SubWg to consider as FAQ or EB (Ongoing).

8.2.24 All ENC EBs will need to be considered for inclusion in S-101. Action: S-101 coordinators to add to their action list (Ongoing within S-101 work).

10.2 Chart Standardization and Paper Chart WG (**CSPCWG**): The Chairman noted that the EB SubWg should continue to monitor this with a view to preparing an EB when the IALA trials have been completed and CSPCWG have reached a conclusion. Action: ENC EB SubWg to monitor progress. (Ongoing – need to liaise with the CSPCWG. It was noted that this was also discussed at the CSPCWG).

There are numerous suggestions which need to be considered by TSMAD for the Hydrographic FDD (new features, attributes and enumerated elements). Action: to be reviewed by the FDD sub-group when the content of the Hydrographic register is being reviewed (based on S-57) (Ongoing – list attributes need to be reviewed).

<u>Action from the CHRIS Report – Section 12.</u>

12.1 IEC document 61174. It was noted that there was a requirement to tighten up some of the clauses contained in this document and TSMAD needs to make proposals for changes that will be required for S-101. It was proposed that this should be done via the Harmonizing Group of Experts (HGE). This needs to be reported to CHRIS19. Action: For Chairman (BG) (Done).

12.3 The Feature Data Dictionary - Register definitions. The chairman agreed that there should be some attempt to harmonize definitions where possible however the updated definitions as contained

in the spreadsheet should be used as the primary source. Australia proposed that this should be raised at CHRIS19. Action: For Chairman (BG). (Done).

3.3 TSMAD and CSMWG collate information on E3.1.1 matters requiring consideration by IEC for CHRIS19. Action: Combined paper to be prepared by the Chairs of TSMAD and CSMWG for CHRIS19. (Done).

3.6 ENC Encoding Bulletin for PELs (CSMWG16 Action 33) Action: AU (JW) as TSMAD SubWg coordinator, to send draft ENC Encoding Bulletins to CSMWG members for information before posting on IHO website. (Done).

3.9 LNDARE line features – Action: Add new LUT for **LNDARE** line to MD05. TSMAD to review the existing ENC EB on **LNDARE** line features (JW). (Done).

5. National Papers

5.1 SHOM SCAMIN Proposal (TSMAD16-5.1_France_Rev1)

Paper TSMAD16-5.1_France_Rev1 outlining issues concerning the existing advise on the use of SCAMIN was presented by Mikael LE GLEAU (ML). The core in this document is:
1) To ensure good coordination (via RHC for instance) and refine strategies for the application of SCAMIN (especially for the updating of already produced portfolios). ML insisted on not altering areas where the consistency is already in place, and encouraged coordination in regions.

2) Investigate improving ENC consistency at display level instead of at the data level.
One suggestion was to evaluate if we can solve part of the consistency issue by using S52. This is not an easy and straight forward solution, as the standard needs modification, the ECDIS need updating and so forth, but still France considers that we have to be sure this is not a faster and less resource intensive approach. The meeting noted that this was an issue that needs to be considered for S-101 ECDIS however it would not be feasible to implement a requirement to updates to ECDIS systems. This may also require that systems need re type approval.
The meeting concluded that for the present SCAMIN should be applied to the data.

3) To evaluate whether an ECDIS indication for the mariner may be suitable when SCAMIN is used and more generally to clarify the use of SCAMIN from the mariner point of view.
Holger Bothien indicated that an indication already exists in ECDIS standards when SCAMIN is in use. This was considered as an answer to the original question. (*Post meeting note: the indication only concerns OEMs SCAMIN application; that means that there is still no compulsory indication when SCAMIN encoded in the data is in use).*

The application of SCAMIN should however, as far as possible be “rule” bases and should require as little manual intervention as possible. The meeting also recognized that the Baltic Sea study would provide further information on the optimum application of SCAMIN. France (ML) requested that a more concise implementation strategy be included in the SCAMIN proposal. After a long discussion, it was concluded that TSMAD should continue to improve the consistency guidelines and monitor the harmonization activities of the RHCs and the implementation of SCAMIN.

Action: TSMAD members are to review the Baltic Sea ENC Consistency Study (when it is available), and in light of this review, re-examine the existing SCAMIN proposal. This is to be done before the next TSMAD study. Richard Fowle (RF) and ML to provide a report on an implementation strategy- i.e. to what extent SCAMIN can be applied using a rules based method. RF and ML are to coordinate with the BSHM and the CHS, with a view to providing a report to the next CHRIS meeting (including, if needed, a draft letter giving implementation and updating strategy and guidelines for RHCs). Holger Bothien (HB) to provide RF and ML with the 7Cs list of object classes, (to which SCAMIN can be applied automatically), and their appropriate filtering rules.

Action: Canada to provide paper on their implementation/application of SCAMIN to IHB for distribution.

6. S-100

6.1 FDD maintenance

It was noted that the FDD needs further work, perhaps needs a separate review to ensure that all of the content is complete. Still some definitions need to be included – camel case needs to be completed and checked. New S-101 features and attributes need to identifiable. This needs further work and should be progress by a small work group for review by TSMAD.

Camel case needs to be checked, new definitions required (where none exist), references to other documents (INT 1 S-32) needs to be checked, problem definitions need to be identified and need to be highlighted for resolution. Julia Powell noted that definitions should not be changed. If there is a need for a change, the proposal needs to go to the source. Where there are not definitions these must be sought. **Action:** IHB to check if Mr. Jin can be tasked to check for missing definitions, camel case and references.

There is a need to discuss and progress the list of complex attributes and to identify all attributes that are conditional on another. Also need to look at complex attributes. Deferred items need to be resubmitted. Extensions need to be checked, and inserted on the new discussion forum.
Action: Tom Mellor to put the list on the forum – notify members to check within a cutoff time. No response = tacit acceptance. Defining Complex attributes.

Action: Discussion on new definitions should be conducted on new WIKI forum. IHB to set up discussion item.

6.2 S-100/S-101 Wiki/Forum

WIKI Development forum. Several tests had been carried out using commercial packages and hosted solutions, however the proposed free solution appeared to be adequate and did not limited the number of users that could participate. Tony Pharaoh provided a brief overview of the TSMAD site and demonstrated the discussion groups, WIKI, and other facilities.

Action: Tony Pharaoh, Julia Powell and Tom Mellor – to complete setting up the necessary sections of the TSMADWG site.

6.3 Information Paper from SNPWG (TSMAD16-6.3_InfoPaper_SNPWG)

This paper is to inform TSMAD of recent work of SNPWG and of proposed developments to current S-57 Objects and attributes. Some of these proposals have already been entered in the NPUB register as INVALID. TSMAD was requested to note this paper and its Annexes. The annexes included a list of new GEO objects and attributes.

7. S-101 ENC Product Specification

The Chairman reported that work had commenced on the S-101 ENC product specification, and in order to gain a better understanding of the users (mariners) requirements, an S-101 stakeholders users requirement workshop was held at the IHB between the 4th and 6th of March 2008. The primary objectives of the workshop were to inform stakeholders of some of the new concepts included in S-100 / S-101, and, most importantly, to get feedback on what users would like to have included in future ENCs and ECDIS.

7.1 Report on S-101 Stakeholders User Requirements Workshop (TSMAD16-7.1)

Julia Powell provided a brief report on the Results of TSMAD S-101 Stakeholders User Requirements Workshop and noted that extremely positive comments and feedback had been forthcoming as a result of the discussion during the workshop. Some of the issues for discussion during the meeting included;

The implementation of dynamic tides. It was proposed that this should be implemented for S-57 ECDIS. It was noted that this item is to be discussed under the CSMWG meeting (See papers by Transas and SevenCs).

Should S-101 Discovery Metadata replace the existing catalogue file? Yes - it should contain all information already in catalogue file but should also include additional metadata to enable plain language naming of cells, status and currency info regarding standards dependencies, etc …. The new metadata file(s) should form part of the VARs "product file". It was concluded that catalogue files should also contain data coverage limits – (M_COVR CATCOVR = 1 with excess vertices removed) in addition to cell limits. The Chairman provided a brief overview of the draft definition of a catalogue file structure and content for S-101 ENCs. This will require further work and will be progressed under the S-101 work item.

5MB cell size. It was proposed that the strict enforcement of 5MB cell size needs to be relaxed. It was agreed that a fixed 5 MB limit is too restrictive, and a better alternative may be to define optimal limits with recommendations on upper and lower limits. It was recognized however that for optimal use in ECDIS, file sizes must be kept within manageable limits. It was noted that this requires further study for S-101.

Navigational Purpose, Compilation Scale and Discussion about "cutting in" smaller scale data areas into larger scale cells. It was decided that M_CSLE should be kept, although, there should be less need to use this with the increased number of scale bands. There should be a percentage rule to keep scale variances' within acceptable limits.

Navigational Purpose and SCAMIN for S-101. It was agreed that the Navigational Purpose concept will only be retained for catalogue purposes. After further discussion the meeting agreed that the existing list of radar ranges (as per the consistency proposal circulated in CL 108/2007) should be adopted with a possible extra scale band for berthing. It was noted that this will provide data producers with a wider range of scales to use. No overlapping data will be allowed within each scale band.

It was agreed that file naming convention should not be limited to 8 characters. It should be up to the data producer to decide on the cell name however cell names must still be unique. User agency codes are to be retained for this purpose. Cell names should not contain any other metadata. All metadata should be included in the catalogue fie.

The allocation of cell to the Small Scale usage bands (1 and 2). It was proposed that there should be a single very small scale global ENC product. This could for example be produced under the auspices of the IHO to ensure consistency, and could possible be based on a world grid layout.

Action: TSMAD to prepare a paper based on this for the next CHRIS meeting. (Chairman)

It was noted that gridded cell schemes may need to be devised for other small scale bands. These will need to be coordinated/ agreed at RHC meetings. (TSMAD may need to put together proposed small scale grid schemes for RHC. (Need to study the Baltic See study when this becomes available. This should be available in June). Grid scheme for cells may not be suitable for larger scale bands.

Additional issues raised concerning portrayal were highlighted for discussion during the CSMWG meeting.

(a) Selectable Range	**Standard radar scale (rounded)**	**Gridded**
(b)		
200 NM	1:3, 000,000	IHO Grid Scheme
96 NM	1:1,500,000	IHO Grid Scheme
48 NM	1:700,000	IHO Grid Scheme
24NM	1:350,000	HO Grid Scheme

12 NM	1:180,000	HO Grid Scheme
6 NM	1:90,000	HO Grid Scheme
3 NM	1:45,000	HO Grid Scheme
1.5 NM	1:22,000	No grid
0.75 NM	1:12,000	No grid
0.5 NM	1:8000	No grid
0.25 NM	1:4000	No grid
	<=1:2000	No grid

7.2 Draft Workplan (TSMAD16-7.2)

Julia Powell reviewed the S-101 work plan and highlighted the tasks that had been identified as listed below;

- Task 1 Base documentation. The S-101 Product Specification will mostly be based on S-57 but will have to be produced in conformance with S-100 part 10. The S-57 - Use of the Object Catalogue (UOC) needs to be reviewed and relevant information extracted for inclusion in the S-101 ENC Encoding Guide.

- Task 2 Feature Catalogue. This will be a machine readable (xml) catalogue (based on the FDD) and will be used to generate a human readable version (This will need to be in conformance with S-100-3).

- Task 3. Build Portrayal Catalogue. This is dependent on the completion of the ISO 19117 document which is still under development. This work is relevant to S-52 development for which closer liaison with CSMWG will be required.

- Task 4 Application Schema (S-100-20) - presently under development.

- Task 5 Use of the Object Catalogue Review and Replacement UOC, (The NOAA data capture and classification guide could be used as the basis for this).

- Task 6 Establish Maintenance Procedures (S-100-9). This needs further work.

- Task 7 Metadata elements (S-100-5). There is a need to determine product and feature level metadata elements. What metadata will be included in the catalogue file and what will be included in the dataset.

- Task 8 Resolve Action Item list (S-101 action items). This is an ongoing task.

- Task 9 S-58 checks: TSMAD needs to decide where they belong. Additionally there is a need to review the existing data validation procedures and the list of errors for their applicability.

- Task 10 SCAMIN/SCAMAX – There is a requirement to determine how these will be applied. This needs to take account of the concept of thematic groups that are proposed for inclusion in S-101.

7.3 Draft S-101 Product Specification (TSMAD-16-7.3)

Discussion on the use of navigational purpose (NP) and the ENC data scales. It was noted that the present assignment of compilation scales to the five existing NP categories was the source of many ENC inconsistency problems, and a better mechanism needs to be found for S-101. It was concluded that the optimum display scale should be based on a defined list which would be based on the list of radar ranges described in the paper circulated with CL/108 of 2007.

7.4 Discussion on Nav Purpose, Thematic Layers and Compilation Scale

The Chairman noted that S-57 did not make use of the concept of layers for grouping various types of content within an ENC. Thematic groupings (layers) could improve, data management/selection, portrayal and updating within an ECDIS. Possible groupings could be applied to different types of content and could be used structuring content for different types of navigation (e.g. port approach, coastal etc…), or for different vessel types. Holger Bothien and Hugh Astle, both agreed that the concept of thematic groups (layers) could provide more scope for producer of data production software and ECDIS.

Discussion on the concept of having scale independent (SI) and scale dependent (SD) data layers for different types of ENC data.

Hannu Peiponen (HP) noted that this was technically possible but expressed some concerns about data delivery of the two products on a vessel and highlighted possible issues about loading policies between the two types of products. Michael Bergman noted that these issues could be solved by data providers. If this is a better way to provide data, the concept needs to be investigated further. Another question to be considered includes how many non scalable cells would be required.

Hugh Astle (HA) stated that, if the main reason for this was to reduce the update burden, it may also be possible to achieve this by using the unique feature concept.

Holger Bothien (HB) noted that the use of the unique feature concept would require the ECDIS to do a search through many thousands of features to find the unique feature IDs to be updated. HP proposed that this will make it difficult for marine inspectors to check whether updates have been applied. It was concluded that the best approach would to be use separate cells.

Should the scale dependant cell be divided it into coverage cells? – HB proposed that a good approach may be to produce one big dataset and and it would be up to the service provider to package portions of the cell as required. Another possibility could be to have cell division based on a grid structure. Cell divisions may need to be coordinated by Regional Hydrographic Commissions.

What are the advantages/ disadvantages of this approach? The following scoping exercise was carried out:

Pros;

- more efficient updating – maintain data only once and update one layer
- improved consistency, (consistent data , consistent updates, consistent positions)
- improved efficiency (data management, product maintenance – in non database environment)

Cons;

- deviates from S-57 model - less compatible - need business rules
- distribution of updates may be more complex
- scale dependant and scale independent cells will be separate – potential increased distribution overhead
- feature relation that drive conditional symbology
- there may be data synchronizing issues between scalable dependent (SD) and scalable independent SID layers.

It was concluded that rules will be required to ensure that all objects that are part of associations and aggregations must be kept on the SI layer. E.g. a light will need to be kept together with its structure objects. The following were proposed as guiding principals;

- Point features that change frequently should be considered first.
- All line or area features that require generalization over layers should not be included.
- Wrecks / Obstructions can be included in the SI layer if the HO assigns an EXPSOU – this removes the condition.

- Features (e.g. wrecks) that are dependent on underlying depth areas must use the best available (least depth) data.

Action: A review of the S-57 Product Specification needs to be carried out to identify all scale independent feature. (This is for all TSMAD members. The list is to be included on the TSMAD Work Forum).

After further discussion, it was agreed that only one SI cell should be produced per national production area. This concept needs further testing however.

What features should a SI cell contain? The following is a list of object classes and their geometric primitives that were identified (as highlighted) as possible candidates for the scale independent layer (P = point, L = line, A = area, N = none). The principal of "if in doubt – leave it out" was adopted when compiling the list.

ACHARE	P		A	
BCNCAR	P			
BCNSPP	P			
BOYISD	P			
BRIDGE	P	L	A	
CAUSWY		L	A	
CGUSTA	P			
CONZNE			A	
CTRPNT	P			
DAMCON	P	L	A	
DISMAR	P			
DMPGRD	P		A	
EXEZNE			A	
FNCLNE		L		
FSHFAC	P	L	A	
GRIDRN	P		A	
ICEARE			A	
LNDARE	P	L	A	
LIGHTS	P			
LOGPON	P		A	

ACHBRT	P		A	
BCNISD	P			
BERTHS	P	L	A	
BOYLAT	P			
BUAARE	P		A	
CBLARE			A	
CHKPNT	P		A	
COSARE			A	
CTSARE	P		A	
DAYMAR	P			
DOCARE			A	
DYKCON		L	A	
FAIRWY			A	
FOGSIG	P			
FSHGRD			A	
HRBARE			A	
ICNARE	P		A	
LNDELV	P	L		
LITFLT	P			
LOKBSN			A	

ADMARE			A	
BCNLAT	P			
BOYCAR	P			
BOYSAW	P			
BUISGL	P		A	
CBLOHD		L		
COALNE		L		
CRANES	P		A	
CURENT	P			
DEPARE		L	A	
DRGARE			A	
DWRTCL		L		
FERYRT		L	A	
FORSTC	P	L	A	
FSHZNE			A	
HRBFAC	P		A	
ISTZNE			A	
LNDMRK	P	L	A	
LITVES	P			
MAGVAR	P	L	A	

AIRARE	P		A	
BCNSAW	P			
BOYINB	P			
BOYSPP	P			
CANALS		L	A	
CBLSUB		L		
CONVYR		L	A	
CTNARE	P		A	
CUSZNE			A	
DEPCNT		L		
DRYDOC			A	
DWRTPT			A	
FLODOC		L	A	
FRPARE			A	
GATCON	P	L	A	
HULKES	P		A	
LAKARE			A	
LNDRGN	P		A	
LOCMAG	P	L	A	
MARCUL	P	L	A	

MIPARE	P		A	
OFSPLF	P		*Se*	
PILPNT	P			
PONTON		L	A	
RADLNE		L		
RAILWY		L		
RDOCAL	P	L		
RETRFL	P			
RTPBCN	P			
SILTNK	P		A	
SLOTOP		L		
SNDWAV	P	L	A	
SUBTLN			A	

MORFAC	P	L	A	
OSPARE			A	
PIPARE	P		A	
PRCARE	P		A	
RADRNG			A	
RAPIDS	P	L	A	
RDOSTA	P			
RIVERS		L	A	
RUNWAY	P	L	A	
SISTAT	P			
SLOGRD	P		A	
SPLARE	P		A	
SWPARE			A	

NAVLNE		L		
OILBAR		L		
PIPOHD		L		
PRDARE	P		A	
RADRFL	P			
RCRTCL		L		
RECTRC		L	A	
ROADWY	P	L	A	
SBDARE	P	L	A	
SISTAW	P			
SMCFAC	P		A	
SPRING	P			
TESARE			A	

OBSTRN	P	L	A	
PILBOP	P		A	
PIPSOL	P	L		
PYLONS	P		A	
RADSTA	P			
RCTLPT	P		A	
RESARE			A	
RSCSTA	P			
SEAARE	P		A	
SLCONS	P	L	A	
SOUNDG	P			
STSLNE		L		
TIDEWY		L	A	

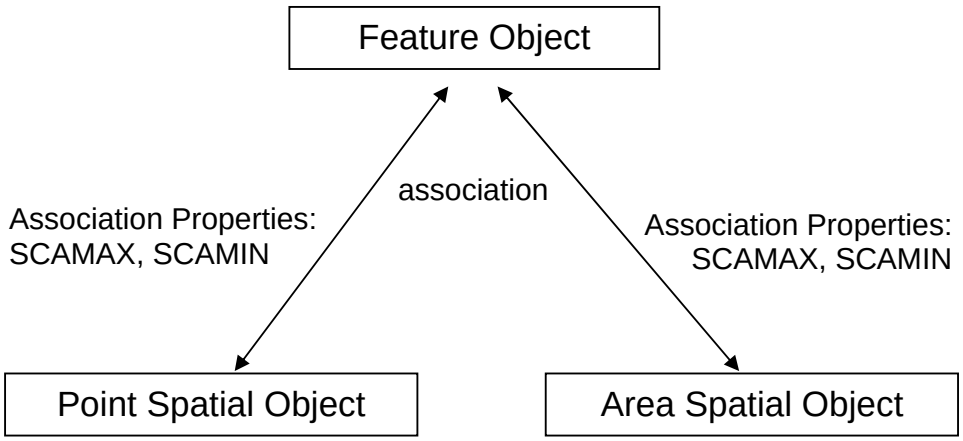
TOPMAR	P			
TSSCRS			A	
TWRTPT			A	
WATFAL	P	L		
C_AGGR				N
M_CSCL			A	
M_QUAL			A	
T_HMON	P		A	
TS_PAD	P		A	

TSELNE		L		
TSSLPT			A	
UNSARE			A	
WATTUR	P	L	A	
C_ASSO				N
M_HOPA			A	
M_SDAT			A	
T_NHMN	P		A	
TS_PNH	P		A	

TSEZNE			A	
TSSRON			A	
UWTROC	P			
WEDKLP	P		A	
M_ACCY			A	
M_NPUB	P		A	
M_SREL		L	A	
T_TIMS	P		A	
TS_PRH	P		A	

TSSBND		L		
TUNNEL	P	L	A	
VEGATN	P	L	A	
WRECKS	P		A	
M_COVR			A	
M_NSYS			A	
M_VDAT			A	
TS_FEB	P		A	
TS-TIS	P		A	

Proposal concerning SCAMIN and SCAMAX. Holger Bothien proposed to put the SCAMIN and SCAMAX attributes on the association relationship. This will require a change to the general feature model. (See diagram at 6.3.1 of the draft S-100 base document). This proposal was agreed.



Proposed change to the S-100 GFM to accommodate SCAMIN/SCAMAX

Action: HB to include this as a proposed change for S-100, and to provide a paper for the next TSMAD meeting.

Discussion on Text and picture files.

Picture files. It was noted that .tiff was not a suitable format and JPEG may be an overkill for the requirement of ECDIS. It was decided that Portable Network Graphics (PNG) was an open image file format standard that was well documented and was most suitable for this requirement.

Text data. What about PDF? It was noted that this is an industry standard, and not an open standard (such as xml), and may not be suitable. It was decided that an open standard (such as XML) should be used. If XML is to be adopted, then appropriate schemas would have to be developed. It may also be necessary to provide (or provide guidance on) style sheets for rendering the text and picture data. This needs to be checked with the SNPWG.

Management of text and picture files, (i.e. how should text and picture files be updated, and how should redundant files be deleted from the system?) S-101 must have a better mechanism for updating text and picture files on the ECDIS system. In cases where many cells reference the same text and picture files, redundancy must me minimized. The exchange set catalogue (metadata) file should have metadata about text and picture associated with the ENC. The mechanism for deleting obsolete files should apply to both text, picture and ENC files. The exchange set catalogue (metadata) file could be used for this purpose - i.e. there could be a metadata flag in the file indicating that a record is marked for deletion.

Presentation on the new structure by Holger for SCAMAX and SAMIN on feature to spatial object association.

7.5 Encoding

The chairman noted that both GML and ISO 8211 had been considered for S-101. This had been discussed at TSMAD 14. Presently a modified version of ISO 821 was considered most appropriate.

7.6 Data Capture and Classification Guide Example

Julia Powell presented the proposed S-101 Data Capture and Classification Guide Example (as presented in TSMAD16-7.6), which contained sample pages showing the format and structure of this document.

7.7 Review S-101 Action Item List (TSMAD16-7.7)

Julia Powell reviewed the list of S-101 action items listed in TSMAD 16 -7.7. It was noted that many of these items had been discussed during various TSMAD meetings however it would be helpful to get as much feedback as possible, and the list should be included on the TSMAD WIKI.

Action: JP to include the list of Action items on the TSMAD WIKI.

7.8 A – New Feature Data Dictionary Issues

TSMAD 16 paper 7.8 A by Chris Roberts (Australia) outlined issues concerning definitions in the S-100 Feature Data Dictionary and other IHO publications such as S-32 and M-4. It was noted that a thorough review of definitions needs to be undertaken. This could possibly be contracted out.

B - S-57 Edition 3.1 objects review for what is considered to be 'hydrographic' for authoritative definitions for ISO TC211.

This TSMAD document (TSMAD 16 – 7.8B) was noted.

C - S-57 Edition 3.1 attributes review for what is considered to be 'hydrographic' for authoritative definitions for ISO TC211.

This TSMAD document (TSMAD 16 – 7.8C) was noted.

D - Issues from M-4.

It was noted that the spreadsheet containing the list of M-4 and S-57 inconsistencies, is still under development while the review of the new M-4 document is being carried out. It is expected that this will continue until at least the end of 2008.

E - Definitions from IMO publication Ships' Routing Edition 8 (2003) Part A – General - Provisions on Ships' Routing

TSMAD 16 document 7.8E concerning the IMO publication Ships' Routing was noted.

8. Any Other Business

8.1 Encoding Bulletin

The Encoding Bulletin concerning the use of text and picture files was accepted with a few minor modifications**. Action:** IHB to place on the IHO web site.

8.2 Establishing a Register for Portrayal of MIOs

This paper provided by the chair of the HGMIO working group (Lee Alexander) highlighted the issue that the ECDIS presentation library will not include MIO symbols. Furthermore it noted that the CHRIS19 meeting agreed that there would be a Portrayal Registry for MIOs as part of the overall IHO Information Registry under the new Geospatial Information Infrastructure (GII). The paper request guidance on establishing a MIO Portrayal Register associated with: IHO S-57 and IHO S-100. The paper was noted and the Chairman reminded the meeting that there was a sub group working on an MIO product specification. A presentation on portrayal and the portrayal registry was to be provided during the CSMWG meeting.

8.3 Portrayal of minimal depiction bathymetry areas.

RF demonstrated that the depiction of min bath as described in the USOC Section 8.5.3.1 was not being applied correctly and this was leading to gross inconsistencies.

Action: JW to reword relevant encoding bulletin and insert links to examples of bad practices. IHB to put on the web site.

8.4 The use of duplicate FOID

Each feature should have a unique FOID – however there were instances where the same FOID had been used for duplicate features. After discussion, it was concluded that this would only cause a problem for Ed 3.1 ENCs if duplicate FOIDs were used for feature to feature relationships, or if there were duplicate FOIDS in the same cell. FOID will not be used for feature to feature relationships for S-101 ENCs.

8.5 The use of INFORM for S-57 Ed 3.1.1 objects.

It was noted that it was still necessary to include a note in the INFORM field for Edition 3.1.1 attributes. This will still be required until Jan 2009, however TSMAD needs to needs to provide advanced notification that this will not be required after this date.

Action: JW to prepare Encoding Bulletin providing about the use of FOID and the January 2009 date.

8.6 Unique updating scenarios.

Richard Coombes highlighted an instance of an update that included a large change in the coverage object and caused some ECDIS systems to crash. The meeting concluded that changes in coverage objects should only be made through new editions or re-issues. It was noted that IEC 61174 states that an update must be rejected if its extent goes beyond the base cell limit. S-57 does not provide any guidance on this.

Action: Encoding bulletin to be produced to provide advice on issuing large updates that change the extent of the coverage object. (JW).

9. Joint TSMAD/CSMWG Session

See CSMWG minutes.

9.1 Strategy for implementing portrayal catalogue

Discussed under CSMWG meeting

9.2 CSPs, is there a way to reduce their use?

Discussed under CSMWG meeting

9.3 Supplementary Layers (MIOs etc.)

The Chairman noted CHRIS had tasked TSMAD to produce an MIO product specification which would be used to produce MIO datasets for use as supplementary layers in ECDIS. The portrayal of these in ECDIS would be discussed during the CSMWG meeting.

10. Date and place of next meeting

It was decided that the next TSMAD meeting would take place between the 8th and the 12th of September 2008 in Seattle, USA.

Annex A

LIST OF DOCUMENTS

Document No	Document Title
TSMAD16-1A	List of Meeting Documents
TSMAD16-1B	List of Participants
TSMAD16-2	Draft Agenda *(28 April 2008)*
TSMAD16-3A Report	Report of the 15th TSMAD Meeting (IHB, Monaco)
TSMAD16-3B FGX Report	Focus Group Report (None)
TSMAD16-4.1ActionItems	Action Items from TSMAD 14
TSMAD16-5.1_Rev1	Improving ENC Consistency - Application of SCAMIN (France) Rev1
TSMAD16-6.3_InfoPaper_SNPWG	Information Paper from SNPWG
TSMAD16-7.1	Report on S-101 Stakeholders User Requirements Workshop
TSMAD16-7.2	Draft Workplan
TSMAD-16-7.3	Draft S-101 Product Specification (Word /.zip format)
TSMAD16-7.6	Data Capture and Classification Guide Example
TSMAD16-7.7	Review S-101 Action Item List (Word .zip format)
TSMAD16-7.8A	New Feature Data Dictionary Issues Background information for TSMAD16
TSMAD16-7.8B	S-57 Edition 3.1 objects review for what is considered to be 'hydrographic' for authoritative definitions for ISO TC211.
TSMAD16-7.8C	S-57 Edition 3.1 attributes review for what is considered to be 'hydrographic' for authoritative definitions for ISO TC211.
TSMAD16-7.8D	Issues from M-4
TSMAD16-7.8E	Definitions from IMO publication Ships' Routing Edition 8 (2003) Part A - General Provisions on Ships' Routing
TSMAD16-8.1_EB_TextPictFiles	Proposed Encoding Bulletin - Text and Picture Files
TSMAD16- 8.2 MIO Memo	Establishing a Register for Portrayal of MIOs

Annex B

AGENDA

1. Opening and Administrative Arrangements
- A. List of Documents *(TSMAD16-1_Docs)*
- B. List of Participants *(TSMAD16-1_Participants)*

2. Approval of Agenda *(TSMAD16-2_Agenda)*

3. Minutes of the 15th TSMAD Meeting, 14 – 18 Jan 2008, IHB, Monaco
(TSMAD16-3A_Report)

4. Matters arising
- 4.1 Actions from the TSMAD 14 Meeting *(TSMAD16-4.1_Action_Items)*

5. National Papers
- 5.1 SHOM SCAMIN Proposal (*TSMAD16-5.1_France_Rev1)*

6. S-100
- 6.1 FDD maintenance
- 6.2 S-100/S-101 Wiki/Forum
- 6.3 Information Paper from SNPWG *(TSMAD16-6.3_InfoPaper_SNPWG)*

7. S-101
- 7.1 Report on S-101 Stakeholders User Requirements Workshop *(TSMAD16-7.1)*
- 7.2 Draft Workplan *(TSMAD16-7.2)*
- 7.3 Draft S-101 Product Specification (*TSMAD-16-7.3)*
- 7.4 Discussion on Nav Purpose, Thematic Layers and Compilation Scale
- 7.5 Encoding
- 7.6 Data Capture and Classification Guide Example *(TSMAD16-7.6)*
- 7.7 Review S-101 Action Item List *(TSMAD16-7.7)*
- 7.8A New Feature Data Dictionary Issues Background information for TSMAD16 *(TSMAD167.8A)*
- 7.8B S-57 Edition 3.1 objects review for what is considered to be 'hydrographic' for authoritative definitions for ISO TC211. *(TSMAD16-7.8B_S-57AuthoritativeHydroFeatures)*
- 7.8C S-57 Edition 3.1 attributes review for what is considered to be 'hydrographic' for authoritative definitions for ISO TC211. (*TSMAD16-7.8C_S-57AuthoritativeHydroAttributes)*
- 7.8D Issues from M-4. *(TSMAD16-7.8D_S-100IssuesFromM-4)*
- 7.8E Definitions from IMO publication Ships' Routing Edition 8 (2003) Part A - General Provisions on Ships' Routing. *(TSMAD16-7.8E_ShipsRoutingDefinitions)*

8. Any Other Business
- 8.1 Encoding Bulletin – Text and Picture Files *(TSMAD16-8.1_EB_TextPictFiles)*
- 8.2 Establishing a Register for Portrayal of MIOs *(TSMAD16_8.2Memo-PortrayalOfMIOs.doc)*

9. Joint TSMAD/CSMWG Session (proposed topics for discussion)
- 13.1 Strategy for implementing portrayal catalogue
- 13.2 CSPs, is there a way to reduce their use?
- 13.3 Supplementary Layers (MIOs etc.)

10. Date and place of next meeting

Annex C

LIST OF PARTICIPANTS

J. WOOTTON	Australia	jeff.wootton@defence.gov.au
E. KUWALEK	IIC	edk@iictechnologies.com
E.MONG	Jeppersen	emong@c-map.no
D. GUALTON	Canada	GaultonD@dfo-mpo.gc.ca
H. ASTLE	CARIS	astle@caris.com
MR C.RIISE-JENSEN	Denmark	cr@kms.dk
H. PEIPONEN	Furuno	hannu.peiponen@furuno.fi
M.HOVI	Finland	Mikko.Hovi@fma.f
P LE BIHAN	Geomod	plebihan@geomod.fr
M.LE GLEAU	France	legleau@shom.fr
M.JONAS	Germany	mathias.jonas@bsh.de
J.MELLES	Germany	johannes.melles@bsh.de
H.BOTHIEN	Seven Cs	bo@sevencs.com
O. WENTZEL	Seven Cs	wz@sevencs.com
M.BERGMANN	Jeppersen	Michael.Bergmann@jeppesen.com
A. PHARAOH	IHB	a.pharaoh@ihb.mc
M. HUET	IHB	m.huet@ihb.mc
O. FOERE &	Norway	forodd@statkart.no
K.IVANOV	Transas	Konstantin.Ivanov@transas.com
S.OSBORNE*	South Africa	hydrosan@iafrica.com
R. FOWLE	UK	Richard.fowle@ic-enc.org
R. COOMBES	UK	richard.coombes@ukho.gov.uk
B.GREENSLADE	UK	barrie.greenslade@ukho.gov.uk
T.MELLOR	UK	Thomas.Mellor@ukho.gov.uk
P.BURTON	UK	Paul.Burton@UKHO.gov.uk
J. RADICE	USA	James.T.Radice@uscg.mil
R. LADNER	USA	rodney.ladner@navy.mil
J. FORD	USA	James.D.Ford@nga.mil
S. REEVES	USA	Scott.W.Reeves@nga.mil
J. POWELL	USA	Julia.Powell@noaa.gov

Annex D

Action Items Arising from the 16th TSMAD Meeting.

5.1	**Action:** TSMAD members are to review the Baltic Sea ENC Consistency Study (when it is available), and in light of this review, re-examine the existing SCAMIN proposal. This is to be done before the next TSMAD study. Richard Fowle (RF) and ML to provide a report on an implementation strategy- i.e. to what extent SCAMIN can be applied using a rules based method. RF and ML are to coordinate with the BSHM and the CHS, with a view to providing a report to the next CHRIS meeting. Holger Bothien (HB) to provide RF and ML with the 7Cs list of object classes, (to which SCAMIN can be applied automatically), and their appropriate filtering rules.	TSMAD members
5.1	**Action:** Canada to provide paper on their implementation/application of SCAMIN to IHB for distribution.	Canada
6.1	**Action:** IHB to check if Mr Jin can be tasked to check for missing definitions, camel case and references.	IHB
6.1	**Action:** Tom Mellor to put the list on the forum – notify members to check within a cutoff time. No response = tacit acceptance. Defining Complex attributes.	UKHO Tom Mellor
6.1	**Action:** Discussion on new definitions should be conducted on new WIKI forum. IHB to set up discussion item.	IHB
6.2	**Action:** Tony Pharaoh, Julia Powell and Tom Mellor – to complete setting up the necessary sections of the TSMADWG site.	IHB
7.1	**Action:** TSMAD to prepare a paper based on the concept of a "small scale usage band" for the next CHRIS meeting.	Chairman
7.4	**Action:** A review of the S-57 Product Specification needs to be carried out to identify all scale independent feature. (This is for all TSMAD members. The list is to be included on the TSMAD Work Forum).	TSMAD Members
7.4	**Action:** HB to include this as a proposed change for S-100, and to provide a paper for the next TSMAD meeting.	Holger Bothien
7.7	**Action:** JP to include the list of Action items on the TSMAD WIKI.	Julia Powell
8.1	**Action:** IHB to place Encoding Bulletin concerning the use of text and picture files on the IHO web site.	IHB
8.3	**Action:** JW to reword relevant encoding bulletin and insert links to examples of bad practices. IHB to put on the web site.	
8.5	**Action:** JW to prepare Encoding Bulletin providing about the use of FOID and the January 2009 date.	Jeff Wootton
8.6	**Action:** Encoding bulletin to be produced to provide advice on issuing large updates that change the extent of the coverage object. (JW).	Jeff Wootton

Annex E

Incomplete Action Items from the 15th Meeting. (14 – 18 Jan 2008, IHB, Monaco

6.1	Action: ENC-EB Sub WG coordinator to add encoding of offshore renewable energy installations to the ENC Encoding Bulletin Actions List. (Still to to be done).	Jeff Wootton
6.1	It was decided that the scoping study for INT1 should be added to the list of possible tasks. (Task still to be done).	IHB
6.1	ENC EB Sub-WG coordinator to investigate new features in M-4 as outlined in the "Changes for TSMAD consideration for S-100 FDD" spreadsheet for possible requirements for ENC Encoding Bulletins. (Still to be done)	
6.1	Action: Lee Alexander (UNH) to look into the IHO discussion site for possible implications to TSMAD (Still to be done).	Lee Alexander
6.1	(It was agreed by the meeting that a co-coordinator's role needs to be raised at the CHRIS level, and the IHB should be approached to support such a role). Action: TSMAD Chair to raise this at the next CHRIS meeting. (Still to be done)	Chairman
6.1	TSMAD Chair to compile a TSMAD Letter to MS inviting ideas for use of the S-100 Information Object. (Still to be done).	Chairman
6.1	TSMAD Chair to compile a TSMAD Letter to MS requesting a review of any papers submitted by them and placed on the TSMAD Deferred Actions List for possible proposals for S-100. (Still to be done).	Chairman