21st Transfer Standard Maintenance and Application Development Working Group (TSMAD)
Draft Minutes.
29th November to 3rd December 2010 (Victoria, Canada)

Chairman: Barrie Greenslade (UKHO)
Vice Chairman: Jean-Luc Deniel (SHOM)
Secretary: Tony Pharaoh (IHB)

Annexes:

Annex A – List of Documents
Annex B – Agenda
Annex C – List of Participants
Annex D – List of Action Items.
Annex E - Procedure to be followed when navigationally significant issues are detected in S-57

1. Opening and Administrative Arrangements

Barrie Greenslade welcomed members to the 21 TSMAD meeting and thanked the Canadian Hydrographic Service, Lynn Patterson and Patti Parkhouse for hosting the meeting in Victoria, Canada.

2. Approval of Agenda

The agenda was approved by the meeting.

3. Minutes of the 20th TSMAD Meeting

The TSMAD 20 minutes were approved by the meeting.

3.1 Review of the Actions from the TSMAD 20 meeting.

The list of action from the TSMAD 20 meeting and their status are listed below;

Agenda Item	Action By	Action	Status
7.3A	JP	There is a requirement to review the relevant IEC standards that may affect S-101.	Done
JP reported that this had been done. The following IEC standards were relevant and had been reviewed; 61174, 60945, 62376, 62288. These standards documents can be obtained from the IEC web site.			
9A	TP	TP to include the PECDIS datasets on the TSMAD20/DIPWG2 document index page.	Done
10A	TSMAD	Members TSMAD members to review the Draft S-101 document, and provide feedback to JP.	Done

JP reported that feedback had been obtained from Jeppesen, UKHO and the Australian HO.			
11.1A	MB/TR	A data catalogue product specification needs to be developed. Jeppesen offered to submit a paper to HSSC2 proposing that this be done by the Data Chain and Certification WG. Draft PS to be developed and distributed within the group.	Closed
BG reported that this was initially submitted to HSSC2 but it was later withdrawn so that it could be reviewed by TSMAD. He noted that TSMAD submissions to HSSC should be prepared well in advance of the HSSC meeting so that they can be reviewed by TSMAD members before being sent to HSSC. Submissions to HSSC should be made at least seven weeks before the meeting. After further discussion, it was decided that this should be a service provider function and should not be developed by TSMAD.			
11.1A	BG	Base TIFF format to be included in the list of picture formats in S-100. The standard maintenance form is to be used for this.	Ongoing
It was noted that this was also being considered by SNPWG and further discussion with this group was required.			
11.2A	RF	RF to provide information concerning the optimal size and resolution for TIFF files used for picture representation (PICREP). This is for inclusion in S-101.	Done
16.5A	JW	Include guidance on contour intervals (depth areas intervals) from S-4, in the Encoding Guide.	Done
JW – informed the meeting that this was completed and was included in Clause 11.7			
16.5A	JP	RF It was agreed that further research was needed on the how source breaks could be used in ENCs. JP to include a question on this in the next NOAA user feedback questionnaire.	Ongoing
JP informed the meeting that the 2010 survey was for users of recreational navigational products. There is however, a need to develop an example for next year's survey.			
16.5A	TR	UKHO to investigate and report on the conditions under which the encoding of M_QUAL may not be mandatory (e.g. for small scale cells). This should also include a report on how CATZOCs that are used in small scales ENCs, can be rationalized.	Done
TR noted that this had been completed and was reported in paper.			
20.2A	JW	Encoding AIS on aids to navigation (e.g. on buoys). EB 17 needs to be extended to explain that TSMAD recommends that AIS on aids to navigation should not be encoded in S-57 ENCs (other than using INFORM).	Ongoing
JW reported that there is a need to review encoding bulletins as there are some inconsistencies – e.g. EB 29 There may be a requirement to have a check list to see if an EB has implications for other publications e.g. S-58.			
20.2B	UKHO	Sub group to determine how permanent virtual Atons will be encoded and displayed in S-57 and draft a proposal for the next TSMAD meeting. This needs to be done for both point and areas Atons.	Done
To be discussed at agenda item 4.9.1			

18A	TSMAD/ WL	TSMAD members to circulate S-102 within their home office experts requesting comments to be sent to WL by end of August 2010. Results to be submitted to the TSMAD 21 meeting (six weeks before the meeting).	Ongoing
BG reported that this work was ongoing and a draft document will to be submitted to the TSMAD 22 meeting.			
23A	TSMAD/JP	TSMAD members are to review the list of assorted S-101 issues (in paper 23A) and send all comments, correction or changes to JP by TSMAD21-3B email before the end of July.	Closed
JP reported that there were no comments but the S-101 development work was ongoing and members were invited to submit comments.			
24.1A	JLD	TSMAD to present a paper to HSSC2 on the process to be followed for EBs This is to include a recommendation for dealing with safety related issues which should not be included in EBs.	Done
To be reported on as part of HSSC2 actions.			
24.2A	S-58 SubWG	The S-58 sub working group is to make the changes as agreed during the TSMAD20 sub-WG meeting. The new edition of S-58 is to be submitted to the HSSC2 meeting for approval (before 7 September 2010).	Done
25	BG/JW	Develop a TSMAD paper for presentation at HSSC2 recommending that the S-57 UOC be “un-frozen” to allow for information contained in other documents to be incorporated.	Done
BG reported that this had been accepted by HSSC2 and endorsed by MS			

4. Matters arising

4.1 Actions for TSMAD 2 arising from the HSSC 2 Meeting.

Report on the HSSC2 meeting. BG noted that the new editions of S-58 and S-99 were approved by HSSC2. The revised version of IHO resolution A. 27 was also approved and S-100 is now classified as a reference model and not a standard. HSSC2 has also developed a list of strategic technical issues of which e-Navigation, S-100/S-101 and supplementary data were the most important. HSSC2 also produced a shortened list of performance indicators.

JLD reported that the decision diagram outlining the processes to be followed when dealing with safety related issues was presented to and accepted by the HSSC2 meeting. There is also a requirement to include the processes showing how decisions will affect other relevant documents. It was decided that the diagram should be included as an annex to TORs (see Annex E).

Action	Item	Who	Paper
	TSMAD to incorporate process diagram for dealing with encoding issues in its business rules.	TSMAD	HSSC2-05.1C

	TSMAD to prepare a revised version of S-57 Appendix B.1, Annex A - Use of the Object Catalogue by incorporating all outstanding encoding bulletins and other relevant extant material.	TSMAD	HSSC2-05.1E
	All HSSC Working Groups to review relevant documents, as opportunity arises, to ensure that they only refer to S-32 and the relevant definition itself and should not make any reference to the old "index" numbers that appeared in the printed versions of S-32	BG	HSSC2-05.9A
	TSMAD to enhance the ECDIS test data set to help expose some of the recently exposed potential implementation issues	TSMAD	HSSC2-INF8
GB reported that a new Test Data Set will be presented at the next TSMAD / DIPWG working group. It should be completed at least 2 months before the meeting.			

4.2 Other working group reports

4.2.1 SNPWG Report

EM reported that as a result of the modeling work that was taking place with the SNPWG, it had become evident that nautical publications models required more complex relationships than are presently allowed in the S-100 General Feature Model. SNPWG are also working on the production of several test data sets and have concluded that the S-100 GFM needs to be extended for their requirements.

SNPWG modeling work makes extensive use of Information types and it has been discovered there is a need for extra types of relations ships – in some cases more than one relationship between features is required. A sub working group was convened to establish how to include the proposed new association class in the GFM. This will be presented to the TSMAD 22 meeting.

4.2.2 TWLWG – Tidal Data Product Specification Tidal Heights Report

Proposed S-57 Objects and Attribute Catalogue. The Chairman reported that the Tidal and Water Level Working Group (TWLWG) had been tasked to liaise with TSMAD in order to investigate how best to implement dynamic tidal information so that it can be used in ECDIS. The group has produced information paper TSMAD 21-4.2-2 which proposed existing S-57 objects and attributes to be used for tidal data, however it was noted that the Working Group should also consider proposing new feature classes and properties for inclusion in the S-100 Feature Concept Dictionary (FCD).

4.2.3 Inland ENC Harmonization Group (IEHG) Report.

S-100 Registry Proposals. BG reported that the Inland ENC Harmonization Group (IEHG) had submitted the Excel spreadsheet containing additional enumerated values for existing attributes and enumerations. The list was examined and it was agreed that the enumerations should be uploaded to the hydro register before January 1st and all duplication enumerations in the IE register should be retired.

DLD reported that the 8th meeting of the Inland ENC Harmonization Group took place in St Petersburg, and it is anticipated that there will be significant changes required resulting from a new member China joining the IEHG. The GII Registry was also discussed at the meeting. The next meeting is scheduled to take place in China during October - 2011.

4.2.4 Report on CSPWG Activities

JW reported on the CSPCWG meeting that took place during the preceding week in Cape Town and noted that there was very little discussion on the "Foul Area and "Foul Ground." This was an issue that had been debated via CSPCWG letter, without any consensus being achieved. JW also present list of items for inclusion to the hydro register relating to paper chart production. The list will be formally submitted as a TSMAD22 paper. He also reported that the HSSC guidelines on maintenance of IHO standards will be included in the next edition of S-4.

It is also proposed to include information of source / ZOC diagrams in S-4. A paper outlining the impact on S-101 paper will be submitted to TSMAD 22.

CSPCWG also decided that the INT 1 numbers should not be re- used and would like to determine if a registry mechanism can be used for INT 1 items. It was agreed that further investigation into how this can be achieved needs to be carried out.

US proposed that "foul ground" should become a new feature. CSPCWG noted that this is an issue for the encoder – not for the user. The Hydrographic Dictionary WG has revised the scope of the definition to include that a "foul ground" covers an area over which the mariner can navigate.

Concerning cable and pipeline tunnel entrances – after due consideration the meeting decided that this was not appropriate for encoding on ENC's.

How should wave energy devices and wave farms be encoded in S-57 ENCs? CSPCWG decided that these should be encoded as offshore production areas with restrictions on them. It was proposed that these could also be encoded as obstructions on large scale cells.

How does the CSPCWG decision to remove INT1 – Section U, effect the feature SMCFAC in S-101? It was decided that S-101should conform to the new INT 1 specification.

4.2.5 Data Quality Working Group (DQWG) Report

SK reported that Germany and Japan provided input and presentations to the DQWG. USA sent a paper with some proposals on M_QUAL and M_SREL. BG noted that M_QUAL is important for S-101 and he was concerned at the pace of progress and outcomes of the WG. A more intuitive display of quality information in S-101 will be very important and TSMAD is reliant on the outcomes of the WG. The next DQWG meeting is scheduled to take place in mid June 2010 in Helsinki, Finland.

4.2.6 Digital Information Portrayal Working Group (DIPWG) Report

BG reported that the UKHO are working on a portrayal catalogue. Work is progressing well and it expected to provide a presentation on this work at the next joint TSMAD/DIPWG meeting in Korea.

2.6.7 Expert Team on Sea Ice (ETSI) - Ice Information for Electronic Navigational Systems

LP provided a presentation on behalf of John Falkingham, (Canadian Ice Service). She reviewed the feature classes/ attributes required for sea ice navigation and proposed how these types of data could be used as a Marine Information Objects overlay within ECDIS. ETSI have an ice object catalogue (Version 5) and they are looking for guidance from TSMAD as to make this S-100 compliant. They would like to see ice information portrayed on the ECDIS or on an ancillary screen. Russia has also developed a catalogue – and there are efforts to harmonize the Canadian and Russian catalogues.

ETSI are working on the production of an S-57 product specification which is to be transferred to an S-100 product later. There is an investigation that is looking at how existing paper ice chart symbolization can be used in ECDIS? ETSI would like to encourage GIS production system manufacturers to include functions to encode ice information. ETSI also have a requirement for a viewer and any S-101viewer may benefit ther work.

4.2.8 DGIWG Report

PB reported that liaison between DIGIWG and IHO had continued. The last DGIWG meeting took place in Ontario. DIGWG had established their FCDD and Registry and were now working on a projects relating to web services metadata, and GML Encoding. DGIWG were also working on the ISO 19135 draft standard for a registry (REGML – XML) schema which will be used for the standardized exchange of registry information. DGIWG have also built a registry management tool which is freely available from the DGIWG site. DGIWG have set up a portrayal registry using the GEOSYM and MGCP symbol sets. There is also a rule set for each of these symbol sets.

DGIWG have also commenced work on the elevation surface which is land based. They are looking to TSMAD for the development of an elevation surface for marine use. The next DGIWG meeting is scheduled to take place in Sorrento, Italy (4 to 8 April 2011).

4.2.9 ENC Updating Working Group (EUWG) Report.

JW reported that the EUWG were of the opinion that it is too early to remove “reissues” from S-101. Concern was also raised at HSSC2 concerning the use of temporary updates. The Chairman proposed that TSMAD needs to wait until the completion of the EUWG report before making any decisions about reissues and T&P notices. HB noted that Chartworld would like to retain reissue. Japan also noted that they produce reissues. It was therefore decided to include the concept of reissue in S-101.

4.4 S-100

4.4.1. S-100 Registry Status Report.

BG reported that the S-99 document was presently being voted on by MS and it is anticipated that it will come into force on the 1 January 2010. It is anticipated that the metadata register will be developed over the next few months. The portrayal registers should also be completed within the next few months. The content for the Inland ENC items have been completed. There have also been requests from the port ENCs community to register items identified by the International? Harbour masters Association. IALA have also expressed an interest in submitting items for registration – possibly in their domain.

TR - if the control body member has 30 days to make a comment on a proposal, does the TSMAD control body member have the authority to accept the proposal for the hydro register or should he/she distribute it to TSMAD members (or a sub group) for comment and feedback to the proposer? It was agreed that there should be a TSMAD sub group that will review all proposals. The hydro register manager will distribute all proposals to the sub group.

TSMAD TORs must be updated to include this activity. New TORs (see Annex E) will be submitted to HSSC 3 for approval.

4.4.2 Unique Identifier for S-100 Feature Catalogues.

TR presented the concept of using unique identifiers in the product feature catalogues so that software systems can distinguish between different objects. The following three options; the unique identifier assigned in the Registry, the 3 digit code used in S-57 object catalogue or the camel case code.

It was decided that the concept of namespaces should be used. Each product should have its own name space which should be unique. The identifier within catalogues would be unique by virtue of the namespace and item identifier. It was proposed that the organizations URL should be used – (perhaps reverse the URL to make it unique e.g. the domain name www.iho.int would become www.int.iho). This was agreed by the meeting.

4.4.3 S-100 Feature Catalogue Builder

TR provided an overview of the Feature Catalogue Builder which is under development. It will be a web based application used to build XML feature catalogues that will be included in S-100 Product Specifications. It builds the catalogue using content from the features and attributes and enumerations databases. A similar application may be required to build portrayal catalogue.

Questions – what about features / attributes from other registries? These will have to be patched into a catalogue. It was noted that there will also be a need to include the concept of namespaces in the catalogue XML header as discussed in 4.4.2 above.

4.4.5 Maintenance of S-100.

BG noted that since the publication of S-100 in January 2010 a number of issues have been identified that will require the publication of a new edition of S-100. It is intended to also include the portrayal content in the new edition. He presented the proposed maintenance procedure which will have to be documented in S-100.

4.5 – S-101

JP provided a brief report on the status of the development of the S-101 ENC product specification. She noted that significant progress had made but there were many issues that needed further discussion.

4.5.1 Use of Offset coordinates in S-101

TR presented an alternative method for storing coordinates in S-100 products (especially ENCs) with a view to reducing data volume. It was noted that this may have a processing overhead and required more investigation.

4.5.2A S-101 Draft Product Specification

JP provided a brief review of the latest version of the ENC Product Specification, which included revisions from the focus working group meeting – September 2010. There are still several sections that need further work. The product specification will cater for phase 1 ENC data.

4.5.2B S-101 Content Management Guide

JP presented a table showing the status of this document. She noted that the Introduction, References, Terms, Definitions and Abbreviations chapters for the Overview section still need to be completed. Several issues concerning the Data Set Identification and Data Content and Encoding sections were resolved. There were no issues raised on the CRC section, and it was agreed that the Data Quality section should be referred to the Data Quality Working Group (DQWG). It was proposed that DIPWG should be requested to review the Portrayal section when complete, and cells be referred to as datasets, which will have a size limit of 10MB and datasets will be able to cross the 180 degree limit. JP requested the meeting to review the document and provide feedback to her.

4.5.3. Outcomes of the S-101 Focus Group

JP noted that a focus Working Group meeting had taken place during August 2010 to progress the work on S-101 and to resolve a number of issue. A report on the work carried out and the recommendations of the Focus Group are reported in 4.5.4 below.

4.5.4 S-101 Focus Group Recommendations

Following the Focus Groups discussions, it was proposed to;

- change the latitudinal spatial extent from 90 degrees to 88 in order to prevent ENC data from crossing the poles. Is there a need to produce a different product specification for polar regions? It was decided that this was not necessary.
- change the term “Display Scale” to “Optimum Display Scale”. It was decided that this should be just “scale” – and then include a note to clarify that “scale” has been aligned with radar range scales;
- include the S-100 General Feature Model in the Application Schema, and constrain it to only what is needed for S-101. Agreed but this should include examples of associations and aggregations – without being too complex;
- cells should be referred to as “datasets” – this was agreed;
- the maximum dataset (cell) size should be limited to10 MB – this was agreed.
- re-issues should be removed from the PS – this was rejected;
- datasets should be allowed to cross the 180 degree line – this was agreed, but there should be some guidance regarding how two encode data across the 180 deg line.
- CATCOV=2 should be eliminated, thus eliminating the need for rectangular datasets. (CATCOV = 1, cannot overlap) – this was agreed. (There is a need to take account of the advice in S-65 concerning buffer overlaps).

Dataset file naming

The Focus Group propose the following conventions:

CCXXXXXXXX.EEE – it was agreed that metadata should not be encoded in the file name. It should be in the metadata. The main part forms an identifier where: the first two characters identify the issuing agency. This was agreed by the meeting.

The third to tenth characters can be used in any way by the producer to provide the unique file name – This was agreed by the meeting. The following characters are allowed in the dataset name, A to Z, 0 to 9 and the special character _ (underscore).

EEE – new editions will use 100, updates start with 101 and increment until a limit of 142. This was rejected by the meeting. Itt was decided to keep the existing .000 structure. It was noted that there is a

need to take note of what the EUWG are going to recommend for updates as this will influence the work of the S-101 development work.

4.5.5. S-101 Feature Catalogue Draft 0.2

TR reviewed the spreadsheet containing complex attributes for structured text. The meeting noted that;

- C_AGGR, C_ASSO are not features but associations. C_AGGR must be kept for phase 1 of S-100, but should be replaced with S-100 named aggregations for phase 2 and 3. C_ASSO can be replaced with an appropriate S-100 construct.
- Tidal feature (TS_PRH,TS_PNH,TS_TIS,T_HMON,T_NHMN,T_TIMS), should be removed taking into account the work being undertaken by the Tidal Working group.
- Cartographic and dataset feature classes ($TEXTS, $COMPS, $CSYMB, $LINES, $AREAS, M_UNIT, M_PROD) should be removed from the product specification.

It was agreed to include Complex Attribute SBDQUA - using NATSUR/NATQUA. These should also be included in the FCD. It was also agreed to propose a feature definition for SEABED. (See proposed action for SEABED)

"Exposition of sounding" – it was decided to retain EXPSOU as it may still be relevant for minor shallowings (soundings) and in dredged areas, however the outcome of portrayal work to reduce the requirement for Conditional Symbology Procedures may require this to be revisited.

It was agreed that Tidal attributes (TS_TSV, T_ACWL, T_HWLW, T_MTOD, T_THDF, T_TSVL, T_VAHC, T_TINT) should be removed. TIMEND, TIMSTA, DUNITS, PUNITS should also be removed.

It was agreed that the following theme should be included in the feature catalogue; Skin of the Earth .

It was agreed that the following complex attributes should be included; Light Sector, Rhythm of Light, Signal Sequence, Signal Sequence Interval, Signal Status and Signal Duration

The following Complex Attributes were approved to replace support structured text; (COMCHA, RADWAL, SHIPAM, SORIND, SIGGRP and TS_TSP).

4.5.6. S-101 Phase 1 Metadata

JP noted that the metadata work had been produced as a result of work carried out at the TSMAD20 and focus working group meetings. The following types of metadata have been proposed; Exchange Set Metadata, Dataset Metadata, Support File Metadata and Catalogue Metadata. It is proposed that metadata should be structured so that lower levels metadata will inherit from higher levels.

Exchange Set Metadata – no fields have been defined yet. TSMAD members were encouraged to discuss with their home offices and report additional any requirements to JP.

Dataset Metadata Comments will include;
- metadataLanguage – it was proposed that this should be English
- dataProtection – it was agreed that unprotected data should be changed to unencrypted and should be moved to the exchange set metadata section.

Definitions are required for specificUsage – 3 categories accepted
- editionNumber – need to clarify how this is to be used and need to determine if this should be an integer of character string.

EK proposed that there is a need to approve the fields in the document and then check that the value field conforms to the associated ISO documents; 19115, 19139 and S-57 8211 fields. These include;

- issueDate – needs definition
- productSpecification - accepted
- optimumDisplayScale – for phase two – need to have maximum, hyper and minimum display scale – in line with the Swedish paper presented to TSMAD19.
- horizontalDatum it was agreed to use the EPSG code
- verticalDatum – this should be an enumerated list.
- Support File Metadata - agreed
- Exchange Catalogue Metadata - agreed
- boundingBox - agreed
- boundingPolygon – the present S-100 version does not make provision for multiple polygons. (See associated action item)
- Layers. It was decided to remove this concept until there is a better understanding of how layers will be implemented.

Support File Metadata

It was proposed that the support file metadata should be included as part of the Dataset Metadata. EM questioned how the mariner will be informed of a change to a support file? HB noted that support files may also be referenced by other products such as nautical publications and updates will need to consider this. EM proposed that this should be handled by service providers. Korea proposed that discovery metadata should also include national language support for certain fields such as; description, comment and others. This was agreed and EK will check 19115 for this.

JP provided an overview of the status of work on the S-101 product specification and noted that there are a number of issues that that require further guidance and decision by TSMAD.

S-101 Items that need clarification;

- If the FC/PC catalogue change does this trigger a new publication of the PS? Yes but taking into consideration the number versioning system for IHO publications.
- Does TSMAD agree to change Display Scale to Optimum Display Scale? It was decided that this should be considered as part of phase 2 work on display and loading strategy.
- Need to incorporate the S100 GFM (it was decided to only including what is needed for S-101and split out the features and the spatial (Clause 4.2 - remove first diagram improve second diagram)
- Need to review this Clause 4.2.1. It was agree that this needs to be rewritten.
- Need to add the Spatial Model – (Clause 4.2.2 – BG to submit text for this section).
- Need to create a Skin of the Earth Theme and submit to TSMAD for approval. (4.3.2.4.1 Skin of the Earth Theme – HB noted that themes are grouping instances – not classes – every instance record in 8211 can be referenced to a theme record). The text needs to be updated.
- Associations. Master slave relationships have (to a certain extent) been superseded by the decision to use complex attributes. It was decided that associations may still be needed for things like chart notes. Aggregations will also be needed. There is also a requirement to include an example of a feature to feature example.
- Aggregations – The UML diagram was approved.
- Composition – the text needs to provide guidance on the deletion of dependent objects – e.g. such as for master / slave objects. Business rules are required to make sure that production system delete dependent objects when a master object is deleted.
- Information Types – TR to update the diagram to include one information type and one complex attribute.
- Complex Attributes – this was accepted – it was decided to use the seabed example.

- Coordinate Units (S-57 PS 4.4) –it was decided to remove this section.
- Data Sets (S-57 PS 5.5) - recommendations for consistency – BG noted that this had already been defined in S-65.
- Metadata – this had been discussed previously.
- Use of lexical level 2 – catered for by UTF8 reference 4.3.5.3. It was decided to remove this section – delete last line of 12.2 (*All national languages …*).
- Mandatory attributes - do they belong in the product specification or in the feature catalogue? It was decided that guidance should be in the encoding guide.
- It was proposed that M_QUAL is not useful at small scales – can it be mandatory for some display scales and not for others? It was decided to defer this to the discussion on paper - TSMAD21-4.5.13

4.5.8 S-101 8211 Discussion

IHB noted that there were several issues that needed some modifications to the ISO 8211 section. These include;

- a few minor corrections,
- some of the cardinalities need to be modified,
- the ISO 8211 record identifier can be removed,
- DSID must be the same as the S-100 version,

Since S-101 should not prohibit the of properties (as is the case for S-57 ENCs), it was questioned whether it was necessary to include the old S-57 “use” column with the “M” and “P” properties populated. The default value column needs to be populated where applicable. It was decided that this should be deferred to a breakout out group. No report back provided during the meeting.

4.5.9 Use Case for Themes to Improve the User Experience

It was proposed that a number of themes which group ENC objects by type should be included in S-101 data to support the structure of “pick reports” and other elements of ECDIS functionality. An update theme should also be included in S-101 data to support the display of update information to the user. Where does this belong? There needs to be a way to standardize the way pick reports are presented to the mariner. The advantage of using themes is that they can be updated (changed) using the feature catalogue. HA proposed that this is similar to the existing S-52 viewing groups. The main use of themes should be for filtering instances of features to show updates and should not be the same as for viewing groups. It was agreed that more feedback should be sought from users about what types of themes are required.

Discussion about Update Themes. Updates theme would group information types for each update which could be associated with the updated feature(s). The information type will document information about the update and could reference the feature that was updated. In the case of deletions the information object could provide information about the update. There is a need to determine what the additional overheads will be required, and whether the use of themes was the appropriate mechanism for filtering. Information types could also be filtered. It was agreed that this had the potential to provide useful information to the mariner, but it needed further development and some use cases. There is also a need to investigate the possibility of expanding the metadata in the ER file. Consideration should also be given to creating some additional feature classes that will allow the mariner to show what has been changed as a temporary markup on the ECDIS.

4.5.10 S-101 DCCG Discussion

See associated document ; “S101_DCEG_TSMAD21-Issues.doc”

4.5.10 S-57 to S-101 Open Source Convertor

JP reported that the S-57 to S-100 converter is a combined NOS / ESRI project and will be made available as an open source and application via the IHO. It will be developed using a common language and will be a standalone application. If funds are available, an additional application to produce updates will be included. No reverse converter is envisaged at this stage

4.5.12 S-101 Project Plan and Gap Analysis

TSMAD approved the phase 1 work on the S-101 Feature Catalogue, thus enabling work to commence on the S-57 to S-101 open source converter.

Phase 1: S-101 catalogue will have content equivalent to S-57 – anticipated to be completed by December 2010 (i.e. it will contain only those features that are currently defined in S-57, but will make use of complex attributes and compound geometry).

Question - what about the skin of the earth features e.g. Pontoons, Floating Docks etc? It was proposed to either; 1 replace the area under the feature with an un-surveyed area or 2, retain skin of the earth. After further discussion, it was agreed that proposal 1 would be adopted.

Phase 2 will implement enhanced packaging and data loading mechanisms including support file formats and functionality to update text files.

Phase 3 will cover extending the model to include additional complex attributes and information types and will possibly include the use of cartographic attributes.

Question - is there a need to revise the 2012 deadline for completing S-101? It was decided that 2012 should be the publication date, but extensive testing will be needed following its publication. Further tesing through a viewer and development of detailed requirements for S-101 ECDIS will also be required.

4.5.13. Inclusion of M_QUAL on Small Scale ENCs

What would the implications of making M_QUAL optional on small scale ENCs be? HA stated that a generalized option might be required for smaller scales. CA proposed that areas of significance could be captured to speed up population. This could save significant ENC encoding effort. The meeting decided that M_QUAL should be optional for small scale ENCs but feedback is required from users and HO's. (See associated action item).

4.5.14A Data Classification and Encoding Guide

General Discussion - JW provided some background about the development of the draft document so far. It is based on the NOAA Nautical Chart Manual – Digital Specifications – Data Capture and Classification Guide and the Inland Electronic Navigational Chart Encoding Guide. It includes content from S-57 Appendix A, Chapters and 2; and S-57 Appendix B.1 – for ENCs and the ENC Product Specifications and Use of the Object Catalogue. He noted that the document is essentially for data encoders, but also includes relevant information from the S-101 ENC Product Specification. It has been included as Annex A to the Product specification. JP noted that Annex A should be changed to Annex B. It was agreed that for consistency of language, the Shorter Oxford English dictionary should be used.

JW questioned whether TSMAD wish to retain the strength of wording contained in the S-57 (i.e. the use of "must" and "should" obligations). RF proposed that the wording in some cases should be strengthened to

ensure better consistency. LP noted that changes should not result in unnecessary changes to S-101 ENCs. (See associated action regarding strength of wording).

The meeting agreed that there needs to be a statement linking the encoding guide document to the product specification.

Concerning the S-32 definitions, it was agreed that JW should forward these to the Hydographic Dictionary WG. (Those definitions in the DGWG FDD that are hydrographic related should be submitted but those that are not - should not).

JW requested members to review the document within their home offices and report any changes updated of proposed inclusions to him.

4.6.1 S-102 Bathymetric Product Specification.

BG reported that the leader on this item (Wade Ladner) was not able to attend that meeting, however WL had received a number of comments on the latest draft document he and will submit a revised version to TSMAD22.

4.7.1 Reopening of the Use of the Object Catalogue.

It was decided that the Encoding Bulletin WG should produce the new edition of the UOC under the chairmanship of JW. If possible a first draft for review should be made available for the TSMAD 22 meeting. The new edition will include clarifications and corrections. Sub WG need to evaluate the required changes and see what needs to be done. Changes must not affect existing data. Relevant S-65 content can be moved directly into the new version. Any controversial issues should be brought to TSMAD 22. Any proposals to change the strength of wording must be brought to TSMAD 22 for discussion. (See associated action item).

4.7.2 Discussion paper on the codification of BCNLAT colour.

Canada questioned what other HO's are doing in this regard? US are encoding topmark instead of daymark. It was agreed that this was a presentation issue and should be raised at the next DIPWG meeting. (See associated action).

4.7.3. Deficiency Report – Require Addition of a New Attribute Value to CATCRN – Tower Crane

It was agreed that there is no adequate attribute to describe this type of crane (used for building construction). Canada were invited to make a proposal to the registry for tower crane as an additional value to CATCRN

4.7.4. Deficiency Report – Required Addition of a TWRTPT Object to a Traffic Separation Scheme

JW noted that two way routs are not part of a traffic reparation scheme.

4.7.5. Deficiency Report – Require An Addition for the CATSPM Enumeration List to include to value "positional mark"

It is recommended that the definition of the CATSPM attribute be extended to allow for the addition of the enumeration value of "57 – Positional Mark" to correct this deficiency. (Positional Mark = painted white pole). Canada were invited to propose this for inclusion in the FCD. The proposal must include a definition.

4.7.6. Deficiency Report – Require an update to the definition of a SLCONS object.

One of the possible attribution values for the corresponding WATLEV attribute is “floating” This is in direct contradiction to the original definition. JW noted that this has been taken care of in the maintenance document.

4.7.7 Deficiency Report – Require Addition of a New Attribute Value to CATSEA – “cay”

It was proposal that the attribute value “55 – cay” be added to the CATSEA attribute value enumeration list for incorporation in S101 to correct this S-57 deficiency. JW reported that cay is already used for land region and proposed that it should be “cay – intertidal”. Canada were invited to propose this for inclusion in the FCD.

4.7.8. Potential removal of CATZOC- Un-assessed Enumeration.

It was noted that if M_QUAL is to be made optional, the problem may be resolved. JW noted that un-assessed will still be needed as it is important for getting new (un-assessed) data onto the ENCs. There is a need to establish what the DQWG are proposing before a decision can be made.

4.7.9. Discussion paper on the use of EXPSOU.

LP reported that this paper that was produced in response to Encoding Bulleting 27. She questioned why EXPSOU =2 should this be used, considering that there are other ways of encoding features. GU noted that if the is no VALSOU encoded, it could affect presentation. SK noted that EXPSOU is not only used for showing a sounding that is shallower that the depth area, it is also a convenient way of showing a shallow patch in a depth area.

The meeting decided to keep it for S-101 but needs to ensure that the portrayal/ detection/ alarm problem gets fixed. (See associated action).

4.7.10 Discussion paper on S-57 – S101 Migration plans for HO’s.

Preliminary migration plans or preparations are required to facilitate the migration of ENC data to the new standard by HOs, HO clients, and HO partners. Will HOs have to maintain two different databases and products? It was noted that it should be possible to output two products from a single production database. What are the plans to provide training for encoding S-101 data. BG reported that, in his opinion 90 % of S-100 ENC data will be that same as for S-57. There are only a few new constructs – such as information types that will be slightly different.

4.7.11 Reducing S-57 ENC Data Volumes.

TR outlined on the proposed procedures to be followed to ensure that ENC and associated file sizes are kept to a minimum. These include;
- only picture files that are useful to the mariner should be included – repeating information should be avoided,
- tables should be included as formatted text and not as images
- images files should be kept to an optimal size.

It was proposes that encoders should use generalization techniques to ensure that vertex density is not greater than 0.3mm.

RF also recommended that unnecessary land cartography that is of little use to the mariner should be removed – to reduce dataset file size. There is a need to include advice on how to encode line data with the correct balance between line quality and optimal efficiency. Brazil noted that they have some images that are larger that the image size limit. It was concluded that some advice should be included in the S-101 Encoding Guide. This should also include guidance on the optimization of picture files.

4.8 Encoding bulletins

4.8.1 Discussion on Encoding Bulletin 31 and the 50KB Limit.

It was proposed that ER files should not exceed 50 kilobytes in size. EM noted that Encoding Bulletin 31 is just a guide, and is not mandatory. JW noted that this is being considered by the EUWG and it would be premature to consider making changes to this yet.

4.9 Miscellaneous

4.9.1 Discussion on the deployment of NEWOBJ.

EM reported that Jeppesen had examined the implications of using NEWOBJ. This included issues affecting ENC encoding, portrayal and validation. He reported that there may also be limitations concerning the triggering of alarms within the EDCIS which may need further investigation.

4.9.2 Proposals for the use of New Object

LP noted that this paper was produced in response to a requirement to encode Virtual AtoNs. The proposal investigates whether NEWOBJ could be used for encoding Virtual AtoNs and T/P notice to mariners. HE noted that this is not an urgent requirement and although it is an interesting exercise it is premature. It was noted that when the presentation library was unfrozen, it would be possible to include the new symbol. There was general acceptance of the proposal and it was noted that CSPCWG have defined symbology, and Virtual AtoNs are being deployed.

On the issue of T&P notices, the meeting agreed that the use of NEWOBJ does not meet the criteria for encoding T&P notices, and mariners note MARINF should be used. According to Supplement 1 - NEWOBJ can only be used for features that have been approved by IMO and cannot be encoded using existing S-57 features. There was general concensus that the proposed NEWOBJ features could not be implemented.

5. National Papers

None

6. Any Other Business

None

7. Date and location of next meeting

Following an invitation from the Korean Hydrographic and Oceanographic Association (KHOA) to host the next meeting, it was agreed that the TSMAD 22 meeting will be held in Seoul, Rep. of Korea (in conjunction with DIPWG 3 meeting), between the 11 and 15 April 2011.

Annex A

LIST OF DOCUMENTS

Document No	Document Title
TSMAD21-1A	List of Documents
TSMAD21-1B	List of Participants
TSMAD21-2	Agenda (Draft Version 3)
TSMAD21-3A	Minutes of the 20th TSMAD Meeting
TSMAD21-3B	Status of Actions from TSMAD20
TSMAD21-4.2.1A	Information Associations (SNPWG)
TSMAD21-4.2.1.B	SNPWG Report to TSMAD
TSMAD21-4.2.2	Tidal Heights - Proposed S-57 Objects and Attribute Catalogue (for information only)
TSMAD21-4.2.3	S-100 Registry proposals (IENC FDD Enumerations HYDRO.xls) (DQWG)
TSMAD21-4.2.4	Report on CSPCWG Activities
TSMAD21-4.2.7	Expert Team on Sea Ice
TSMAD21-4.4.1	S-100 Registry Status Report (no paper - verbal report)
TSMAD21-4.4.2	Unique Identifier for S-100 Feature Catalogues
TSMAD21-4.4.3	S-100 Feature Catalogue Builder
TSMAD21-4.4.4	Review of Hydro Registry Items (no paper - verbal report)
TSMAD21-4.4.5	Maintenance of S-100
TSMAD21-4.5.1	Use of Offset coordinates in S-101
TSMAD21-4.5.2A	S-101 ENC Product Specification - Draft 0.0.0 **MS Word Version**
TSMAD21-4.5.2B	S-101 Product Specification Content Management and Actions
TSMAD21-4.5.4	S-101 Focus Group Meeting Report and Actions
TSMAD21-4.5.5	S-101 Feature Catalogue Draft 0.2 - download compressed file containing:
TSMAD21-4.5.6 *	S-101 Metadata (Clause 12)
TSMAD21-4.5.7 *	S-101 Phase One Action Items
TSMAD21-4.5.8 *	Review of 8211 for S-101
	* = documents available in MS Word format and can be downloaded as a single ZIP
TSMAD21-4.5.9	Use Case for Themes to Improve the User Experience
TSMAD21-4.5.10	S-101 DCCG Discussion (no paper yet)

TSMAD21-4.5.11	S-57 to S-101 Open Source Convertor (included in paper TSMAD21-4.5.12 below)
TSMAD21-4.5.12	S-101 Project Plan and Gap Analysis (and S-57 to S-101 Open Source Converter)
TSMAD21-4.5.13	Inclusion of M_QUAL on Small Scale ENCs
TSMAD21-4.5.14A	Report on S-101 Data Classification and Encoding Guide
TSMAD21-4.5.14B	Draft S-101 Data Classification and Encoding Guide (ZIP format)
HSSC2-05.1E	Reopening of the Use of the Object Catalogue
TSMAD21-4.7.2	Discussion paper on the codification of BCNLAT Colour
TSMAD21-4.7.3	Deficiency Report - Require Addition of a New Attribute Value to CATCRN - Tower Crane
TSMAD21-4.7.4	Deficiency Report - Required Addition of a TWRTPT Object to a Traffic Separation Scheme
TSMAD21-4.7.5	Deficiency Report - Require An Addition to the CATSPM Enumeration List to Include to
TSMAD21-4.7.6	Deficiency Report - Require An update to the definition of a SLCONS object
TSMAD21-4.7.7	Deficiency Report - Require Addition of a New Attribute Value to CATSEA - "cay"
TSMAD21-4.7.8	Potential removal of CATZOC- Un-assessed Enumeration
TSMAD21-4.7.9	Discussion paper on the use of EXPSOU
TSMAD21-4.7.10	Discussion paper on S-57 - S101 Migration plans for HO's
TSMAD21-4.7.11	Reducing S-57 Data Volumes
TSMAD21-4.8.1	Proposal for Discussion of Encoding Bulletin 31 and the 50KB Limit
TSMAD21-4.9.1	Discussion on the deployment of NEWOBJ.
TSMAD21-4.9.2	Proposals for the use of New Object

Annex B

21st TSMAD AGENDA
Victoria, Canada,

1. Opening and Administrative Arrangements

A. List of Documents
B. List of Participants

2. Approval of Agenda

3. Minutes of the 20th TSMAD & 2nd DIPWG Meeting, 3rd to 7th May 2010 (Rostock, Germany)

Approval of 20th TSMAD minutes

3.1 LIST OF ACTION ITEMS FROM TSMAD 20

4. Matters arising

4.1 From HSSC 2

4.2 Other working group reports

4.2.1 SNPWG – NPubs development impact on S-100?
4.2.2 TWLWG – Tidal Data Product Specification
4.2.3 Inland ENC Harmonization Group (IEHG)
4.2.4 CSPCWG – (CSPCWG7 is taking place immediately prior to TSMAD22)
4.2.5 Data Quality Working Group (DQWG) – Input to S-100 / S-101
4.2.6 Digital Information Portrayal Working Group (DIPWG) – S-100 Portrayal
4.2.7 Expert Team on Sea Ice (ETSI)

4.4 S-100

4.4.1 S-100 Registry Status Report
4.4.2 Unique Identifier for S-100 Feature Catalogues
4.4.3 S-100 Feature Catalogue Builder
4.4.4 Review of Hydro Registry Items
4.4.5 Maintenance of S-100

4.5 S-101

4.5.1 Use of Offset coordinates in S-101
4.5.2 S-101 Draft Product Specification
4.5.3 Outcomes of the S-101 Focus Group
4.5.4 S-101 Focus Group Recommendations
4.5.5 S-101 Feature Catalogue Draft 0.2
4.5.6 S-101 Phase 1 Metadata
4.5.7 S-101 Action Items
4.5.8 S-101 8211 Discussion

4.5.9 Use Case for Themes to Improve the User Experience
4.5.10 S-101 DCCG Discussion
4.5.11 S-57 to S-101 Open Source Convertor
4.5.12 S-101 Project Plan and Gap Analysis
4.5.13 Inclusion of M_QUAL on Small Scale ENCs
4.5.14 Report on S-101 Data Classification and Encoding Guide

4.6 S-102

4.6.1 S-102 Bathymetric Product Specification
4.6.2 Gridded Data Product Specification Template

4.7 S-57

4.7.1 Reopening of the Use of the Object Catalogue
4.7.2 Discussion paper on the codification of BCNLAT Colour
4.7.3 Deficiency Report – Require Addition of a New Attribute Value to CATCRN – Tower Crane
4.7.4 Deficiency Report - Required Addition of a TWRTPT Object to a Traffic Separation Scheme
4.7.5 Deficiency Report – Require An Addition to the CATSPM Enumeration List to Include to value "positional mark"
4.7.6 Deficiency Report – Require An update to the definition of a SLCONS object
4.7.7 Deficiency Report – Require Addition of a New Attribute Value to CATSEA – "cay"
4.7.8 Potential removal of CATZOC- Un-assessed Enumeration
4.7.9 Discussion paper on the use of EXPSOU
4.7.10 Discussion paper on S-57 – S101 Migration plans for HO's
4.7.11 Reducing S-57 ENC Data Volumes

4.8 Encoding bulletins

4.8.1 Proposal for Discussion of Encoding Bulletin 31 and the 50KB Limit

4.9 Miscellaneous

5. National Papers

6. Any Other Business

7. Date and location of next meeting

Annex C

TSMAD 21 - List of Participants

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Annex D

TSMAD 21 - LIST OF ACTION ITEMS

No	Agenda Item	Action By	Action	Status
1	3.1	RF / JP	Develop a question concerning source breaks for inclusion in the 2011 NOAA survey. (Do mariners want to see a source data break lines? If so – how should this be displayed).	
2	4.2.2	TR ?	Liaise with the TWLWG concerning the inclusion of tidal feature classes/properties in the registry, and provide feedback to the TWLWG on the TWLWG paper to TSMAD 22.	
3	4.2.3	BG	Include the additional enumerated values provided by the IEWG in the hydro register, and make necessary changes to the hydro and IE registers to ensure that all duplicate enumerations are resolved.	
4	4.2.4	JW/TR	Develop an Encoding Bulletin to provide additional guidance for data encoders regarding the use of foul ground.	
5	4.2.4	JW	Develop a FAQ for encoding Marine Rescue and Coordination Centers in S-57 ENCs. Also consider how to add to this to the UOC.	
6	4.2.4	JW	Produce an Encoding Bulletin describing how wave energy devices and wave farms should be encoded in S-57 ENCs.	
7	4.4.1	BG	Chairman to issue a TSMAD letter inviting members to be part of a sub-working group that will review all new proposals to the registry.	
8	4.4.2	TR	Update the Feature Catalogue section of S-100 to describe the use of namespace for unique identifiers will be used for catalogue items. Product Specification section of S-100 needs to describe the use of Namespaces in the S-100 Feature Catalogues.	
9	4.5.1	TR	Carry out additional research on what sorts of data savings can be achieved using coordinate offsets in S-101. This should include how this could be implemented. A paper outlining the results is to be presented to TSMAD 22.	
10		BG / TR	A new maintenance procedure section for S-100 is to be produced and submitted for agreement at the TSMAD22 meeting.	
11	4.5.4	JP / TR	Provide guidance in the Product Specification template to ensure that producer agencies don't include duplicate dataset (cell) names within the same agency code.	
12	4.5.5	TR	Propose a feature definition for SEABED complex attribute for inclusion in the FCD.	
13	4.5.6	BG	Update the S-100 data model to make provision for	

			boundingPolygon to have multiple polygon geometries.	
14	4.5.9	TR /TP	Develop a paper for the TSMAD 22 meeting investigating how to include additional metadata in an ER file so that it can be used within an EDCIS.	
15	4.5.13	JP / BG	Request DQWG to include a question on the use of M_QUAL on small scale ENCs in their user survey. To be distributed as a TSMAD letter.	
16	4.5.14	RF/SS	Send a letter to IC-ENC/PRIMAR members requesting them to comment on what changes they felt should be made to the UOC and report on the strength of wording in the document.	
17	4.5.14	JW	Establish (from the HDWG Chairman) what flavor of English is stipulated for use in S-32.	
18	4.5.14	JW	Develop a short paper outlining whether the default state for CONVIS, CONRAD, EXPSOU (and others) can be rationalized for S-101. For submission to TSMAD 22.	
19	4.7.2	LP /PP	Paper outlining the issues concerning whether to encode the full colour description for BCNLATobjects, or only the colour of lateral significance. The paper should also (including portrayal problems) and is to be submitted to the next TSMAD / DIPWG meeting.	
20		JW/TR	Develop a paper for DIPWG on the display of anchorage area names and anchor berth circles.	
21		JP	To ask DIPWG to address the display and alarm functionality using Expsou=2 in S-52	

Annex E

Procedure to be followed when navigationally significant issues are detected in S-57

M-3 K2.21

TRANSFER STANDARD MAINTENANCE AND APPLICATIONS DEVELOPMENT WORKING GROUP (TSMAD)
Terms of Reference
Ref: 1st HSSC Meeting (Singapore, October 2009)

1. Objective

a) To maintain, develop and extend:

(i) the S-57 IHO transfer standard for digital hydrographic data;

(ii) the S-100 IHO Geospatial Standard for Hydrographic Data;

(iii) the S-101 IHO ENC Product Specification;

b) To monitor the development of other related international standards.

2. Authority

This WG is a subsidiary of the Hydrographic Services and Standards Committee (HSSC)**.** Its work is subject to HSSC approval.

3. Procedures

a) The WG should:

(i) maintain the S-57 IHO transfer standard for digital hydrographic data by preparing and promulgating maintenance documents containing clarifications, corrections and extensions when required. In case of an issue detected on ECDIS, this is made by following the procedure described in annex 1;

(ii) maintain the S-100 IHO Geospatial Standard for Hydrographic Data as directed in Part 13 (S-100 Maintenance Procedures);

(iii) maintain the S-101 IHO ENC Product Specification;

(iv) participate in the Feature Concept Register, the Portrayal Register and the Metadata Register control bodies as defined in S-99;

(v) review relevant international standards and specifications and advise HSSC accordingly;

(vi) consider new topics as instructed by HSSC and advise HSSC accordingly and/or draft the relevant extension documents;

(vii) draft new editions of the IHO transfer standard for digital hydrographic data as instructed by HSSC.

b) The WG should work by correspondence, group meetings, workshops or symposia. Permanent or temporary sub-working groups may be created by the WG to undertake detailed work on specific topics such as: maintenance of the IHO transfer standard for digital hydrographic data, product specifications, tidal information, survey information, etc. The WG should meet at least once a year. When meetings are scheduled, and in order to allow any WG submissions and reports to be submitted to HSSC on time, WG meetings should not normally occur later than nine weeks before a meeting of the HSSC.

c) The WG should liaise with other HSSC WG's, international organizations and industry to educate and encourage the application of IHO standards to the work of those organizations.

d) The WG should identify and promote the availability of other navigation-related data in ECDIS and in IHO geospatial standard-compliant format.

e) The WG should identify a work programme for each year, including expected time frame.

4. Composition and Chairmanship

a) The WG shall comprise representatives of IHO Member States (M/S), Expert Contributors and Accredited NGIO Observers.

b) Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the WG, only M/S may cast a vote. Votes shall be on the basis of one vote per M/S represented.

c) Expert Contributor membership is open to entities and organisations that can provide a relevant and constructive contribution to the work of the WG.

d) The Chair and Vice-Chair shall be a representative of a Member State. The election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the Conference (Conference to be replaced by Assembly when the revised IHO Convention enters force) and shall be determined by vote of the Member States present and voting.

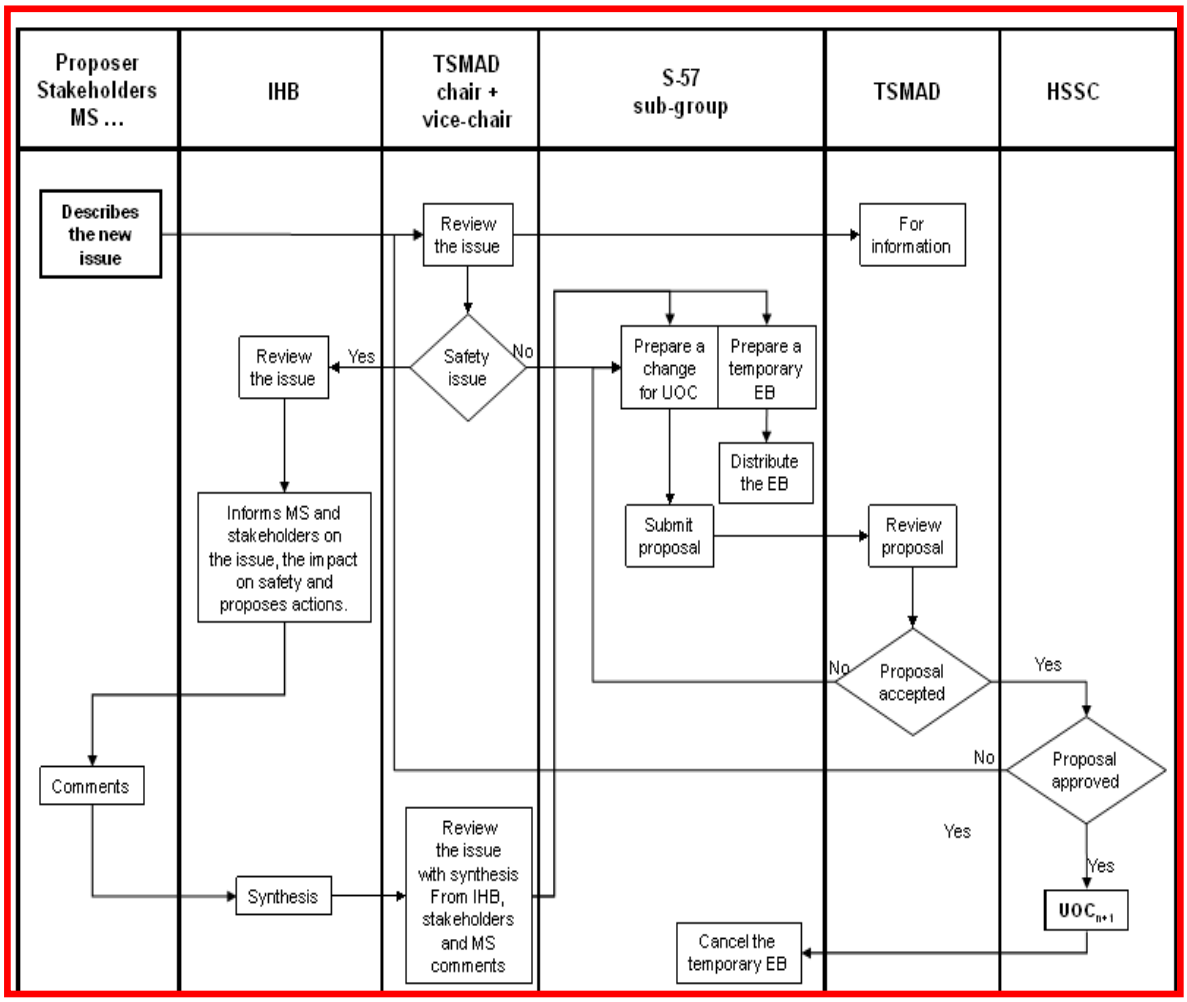
e) If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.

f) Expert Contributors shall seek approval of membership from the Chairman.

g) Expert Contributor membership may be withdrawn in the event that a majority of the M/S represented in the WG agree that an Expert Contributor’s continued participation is irrelevant or unconstructive to the work of the WG.

h) All members shall inform the Chairman in advance of their intention to attend meetings of the WG.

i) In the event that a large number of Expert Contributor members seek to attend a meeting, the Chairman may restrict attendance by inviting Expert Contributors to act through one or more collective representatives.


Proposer Stakeholders MS ...
IHB
TSMAD chair + vice-chair
S-57 sub-group
TSMAD
HSSC
Describes the new issue
Review the issue
For information
Safety issue
Yes
No
Review the issue
Prepare a change for UOC
Prepare a temporary EB
Distribute the EB
Informs MS and stakeholders on the issue, the impact on safety and proposes actions.
Submit proposal
Review proposal
Proposal accepted
No
Yes
Comments
Proposal approved
No
Yes
Yes
Synthesis
Review the issue with synthesis From IHB, stakeholders and MS comments
Cancel the temporary EB
UOC n+1