

27th TSMAD MEETING
02-06 December 2013. IHB, Monaco

Paper for Consideration by TSMAD

Proposals to Amend the UOC

Submitted by:	S-57 Maintenance Sub-Working Group Coordinator
Executive Summary:	A number of new issues have been raised as a result of the preparation of UOC Edition 4.0.0 and S-58 Edition 5.0.0, which require discussion by TSMAD for possible further amendments to the UOC.
Related Documents:	S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC; ENC Encoding Bulletins and FAQs; S-58 Recommended ENC Validation Checks.
Related Projects:	S-57 and S-58 Maintenance; S-101 Development

Introduction / Background

S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC (UOC) was reopened for maintenance by TSMAD in 2011 in order to include all new international guidance for ENC compilation. The latest version of the UOC, Edition 4.0.0, has been submitted to HSSC5 for approval to proceed to IHO Member State vote on adoption.

As a result of the discussions and reviews undertaken during the development of UOC Edition 4.0.0, some issues were raised that require TSMAD discussion and possible action of the TSMAD S-57 Maintenance Sub-Working Group, and therefore could not be considered for inclusion in UOC Edition 4.0.0. This paper summarises those issues for consideration of TSMAD.

Analysis / Discussion

The following amendments to the UOC are proposed for consideration of TSMAD:

1. Dates:

It has been reported that there have been ENC datasets published with illogical dates encoded for the temporal attributes PEREND, PERSTA, DATEND and DATSTA where a relationship exists between objects. For instance, a date range has been populated using DATSTA and DATEND for the structure object in master/slave relationship but no date range has been populated for the related equipment objects.

It is suggested that an amendment to UOC clause 2.1.5 clarifying the use of temporal attributes on objects for which a relationship has been established, with a specific reference to this guidance added at clauses 12.1.2 (Relationships) and 15 (Collection objects).

Additional feedback from the UOC Edition 4.0.0 draft reviews proposed that the temporal attributes be removed as allowable attributes for the object classes FLODOC and PONTON, as these objects are Group 1 when encoded as type area (existing guidance suggests that a CTNARE be encoded to indicate the periodic/seasonal nature of FLODOC or PONTON of type area). It is suggested that no change be made to the UOC as line is an allowable primitive for both FLODOC and PONTON, which is not defined as Group 1, and for which the temporal attributes are therefore allowable.

2. TECSOU on M_QUAL:

During the S-57 Maintenance Sub-Working Group review of the draft Edition 4.0.0 UOC, comments were received on behalf of the DQWG relating to the usefulness of populating the attribute TECSOU on M_QUAL objects. The suggestion from DQWG was that the

Remarks bullets at UOC clause 2.2.3.1 related to TECSOU should be removed, as it was considered that TECSOU did not provide any added value to the indication of the quality of the bathymetric data as provided by CATZOC. Further, it has been suggested that TECSOU should be prohibited for M_QUAL, but allowed for M_SREL, as TECSOU is an attribute that is more directly related to individual surveys than overall data quality.

For UOC Edition 4.0.0, no action was taken in this regard as TSMAD had already agreed to provide additional guidance for the population of TECSOU on M_QUAL at clause 2.2.3.1. Further, the S-57 Maintenance Sub-Working Group Coordinator considered that removing all guidance relating to the population of TECSOU from clause 2.2.3.1 could result in inconsistent population of TECSOU on M_QUAL, given that TECSOU remains a valid attribute for M_QUAL. However, given the views expressed by DQWG, it is considered that further discussion by TSMAD, particularly in regard to S-101, is warranted.

3. Gates:

A change has been approved for S-58 Edition 5.0.0 as follows (changes in red):

1580	For each GATCON which is not WITHIN a DEPARE, DRGARE, UNSARE or LNDARE of type area.	GATCON not covered by DEPARE, DRGARE, UNSARE or LNDARE.	Amend objects to ensure GATCON is covered by DEPARE, DRGARE, UNSARE or LNDARE.	4.6.6.4	E
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This change had been previously proposed prior to the UOC being “unfrozen”, but was rejected as it would conflict with the UOC guidance. It is considered that this change can now be made to the UOC as reflected in the approved amended S-58 check 1580.

4. Wrecks:

Some inconsistencies have been identified with table 6.2 in clause 6.2.1 related to the encoding guidance for WRECKS objects. In the table entry for wreck “Showing any part of hull or superstructure”, the attributes QUASOU and TECSOU have been listed as prohibited (“/” entries in the table). This is inconsistent with guidance for all other table entries having WATLEV = 4 (covers and uncovers) as an allowable attribute, where QUASOU and TECSOU may be populated, if known. It is suggested that the table entry for wreck “Showing any part of hull or superstructure” be amended to two entries, similar to the mast only visible at high/low water entries.

Further, the table entry for a wreck having “The mast only is visible at high water” specifies a value for the attribute WATLEV as 2 (always dry). If only the mast, or a section of the mast, is visible at high water, at least the superstructure of the wreck must be submerged at high water. It is therefore suggested that the value of WATLEV for a wreck having the mast only visible at high water be amended to 1 (partially submerged at high water), as the characteristics of the mast should not be considered to be encoded independent of the wreck. [NOTE: It is not considered that WATLEV = 2 be removed from wreck showing any part of hull or superstructure as a wreck may be above the high water line.]

5. Areas to be avoided:

A decision was made at TSMAD24 to restrict the value for the attribute RESTRN = 14 (area to be avoided) as an allowable attribute for the object class RESTRN only. This decision was based on the definition for RESTRN value 14 in S-57 Appendix A – Chapter 2 – Attributes, and associated ECDIS display issues. The recommendation of the S-58 Sub-Working Group is that this new guidance be included in the UOC at clause 10.2.7. It was also agreed that S-58 check 2000 needs to be amended to reflect this change.

6. Radar conspicuous features:

A question has been raised in regard to S-58 check 1762 (note that the check below is an updated (in red) version of the draft S-58 Edition 5.0.0 check to be further discussed at TSMAD27):

1762	For each RADRFL object which TOUCHES an object not of type DAYMAR or PILPNT of type area or point.	RADRFL encoded on objects other than DAYMAR or PILPNT.	Remove unnecessary RADRFL or encode PILPNT or DAYMAR objects.	12.12	E
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This S-58 check references clause 12.12 of the UOC (Radar conspicuous objects). While this clause states that:

- If it is required to encode an area or point object which is radar conspicuous because it is fitted with a radar reflector, it must be indicated using CONRAD = 3 (radar conspicuous (has radar reflector)) on the object.

it does not include any guidance as to how to encode an area or point object which is radar conspicuous because it is fitted with a radar reflector, but does not have the attribute CONRAD as an allowable attribute for the relevant object class. S-58 in this case includes additional information to the guidance included in the UOC, but limits this information to just allowing RADRFL to be encoded where it is associated with DAYMAR or PILPNT objects. This limitation has caused issues with recent encoding of features in ENC (e.g. OBSTRN) which have radar reflectors fitted but do not have CONRAD as an allowable attribute. While such encoding is not prohibited in regard to the UOC, it is flagged as an Error in ENC validation software unless the radar reflector is associated with a DAYMAR or PILPNT object.

S-58 is intended to be a reflection of the guidance included in the S-57 Standard. In this case an S-58 check has included additional conditions in the check that have not been reflected anywhere in S-57. It is suggested that TSMAD discuss whether the limitation in S-58 for the encoding of RADRFL associated with point and area objects not having CONRAD as an allowable attribute is appropriate (i.e. only allowed for DAYMAR and PILPNT), or it be a general rule that any point or area object not having CONRAD as an allowable attribute but having a radar reflector fitted may have a RADRFL encoded to indicate that it is radar conspicuous.

Recommendations

1. (a) That TSMAD consider the adding new guidance at clause 2.1.5 similar to the following:

Where the temporal attributes DATEND, DATSTA, PEREND or PERSTA have been encoded for any object that is a component of a relationship (master/slave, **C_ASSO**, **C_AGGR**), all other component objects within the relationship should have the identical temporal attribute values encoded. Exceptionally, temporal attributes for equipment (slave) objects may be populated with a date range that falls within the date range populated for the structure (master) object, or any date range where the structure (master) object has no temporal attribution.

Additionally, that TSMAD consider adding new guidance at clause 12.1.2 similar to the following (as Remarks):

- For guidance related to the population of the attributes DATEND, DATSTA, PEREND and PERSTA for equipment objects in a master to slave relationship, see clause 2.1.5.

and, at clause 15 (as Remarks):

- For guidance related to the population of the attributes DATEND, DATSTA, PEREND and PERSTA for objects included in a collection object, see clause 2.1.5.

(b) That TSMAD agree to retain the current guidance regarding the encoding of temporal characteristics for object classes FLODOC (clause 4.6.6.2) and PONTON (clause 4.6.7.3).

2. That TSMAD discuss the feedback from DQWG regarding the population of the attribute TECSOU on M_QUAL.
3. That TSMAD approve amended guidance at clause 4.6.6.4 as follows (changes in red):

GATCON of type area must also be covered by a **DEPARE**, **DRGARE**, **UNSARE** or **LNDARE** object.

4. That TSMAD consider the following changes to clause 6.2.1, table 6.2 (changes in red):

Wrecks...	S-4	INT 1	CATWRK	WATLEV	QUASOU	TECSOU
Showing any part of hull or superstructure (visible at high water)	B-422.2	K24 K20	5	1 or 2	/	/
Showing any part of hull or superstructure (visible at low water)	B-422.2	K24 K21	5	4		
Covers and uncovers	B-422.2	K24 K21	4 or 5	4		
Awash				5		
The mast only is visible at high water	B-422.2	K25	4 or 5	1	/	/
The mast only is visible at low water	B-422.2	K25	4	4		
Measured depth	B-422.4	K26		3	1 or 6	
Depth measured and swept by wire drag	B-422.3	K27		3	6	6
Depth measured by diver	B-422.3	K27		3	1 or 6	4
Depth unknown, considered dangerous by the responsible Producing Authority	B-422.6	K28	2	3	2*	/
Depth unknown, not considered dangerous by the responsible Producing Authority	B-422.6	K29	1	3	2*	/
Depth unknown, with a safe clearance	B-422.5	K30		3	7	/
Distributed remains of wreck	B-422.8	K31	3			
Reported, not confirmed	B-424.5	I3.1,3.2			9	

table 6.2

5. That TSMAD consider new guidance at clause 10.2.7 in relation to the population of the attribute value RESTRN = 14 (area to be avoided) (as Remarks):

- Value 14 (area to be avoided) for the attribute RESTRN is only allowable for **RESARE**, and must not be populated for any other object class having RESTRN as an allowable attribute, or for an encoded **RESARE** not designated as an IMO defined routeing measure "area to be avoided".

Additionally, the introductory paragraph to clause 10.2.7 should be amended to better reflect the definition for attribute value RESTRN = 14 in S-57 Appendix A, Chapter 2 – Attributes (changes in red):

If it is required to encode an **IMO designated** area to be avoided, it must be done using a **RESARE** object (see clause 11.1), with attribute RESTRN = 14 (area to be avoided). An **IMO designated** area to be avoided around a navigational aid must also be encoded with attribute CATREA = 12 (navigational aid safety zone).

TSMAD should also consider adding an additional Remarks bullet at clause 11.1 (Restricted areas in general):

- The attribute value RESTRN = 14 (area to be avoided) must only be used to encode an IMO designated routeing measure "area to be avoided" (see clause 10.2.7).

6. That TSMAD consider revised guidance at clause 12.12 in relation to the encoding of RADRFL on point or area objects not having CONRAD as an allowable attribute in accordance with discussions, similar to (additional guidance in red):

- If it is required to encode an area or point object which is radar conspicuous because it is fitted with a radar reflector, it must be indicated using CONRAD = 3 (radar conspicuous (has radar reflector)) on the object where CONRAD is an allowable attribute. Where CONRAD is not an allowable attribute for the object

class, a **RADRFL** object having **CONRAD = 3** (radar conspicuous (has radar reflector)) must be encoded within or coincident with the object.

or

- If it is required to encode an area or point object which is radar conspicuous because it is fitted with a radar reflector, it must be indicated using **CONRAD = 3** (radar conspicuous (has radar reflector)) on the object where **CONRAD** is an allowable attribute. Where **CONRAD** is not an allowable attribute for the object class, a **DAYMAR** or **PILPNT** object (see clauses 12.3.3 and 4.6.7.2) must be substituted, and a **RADRFL** object having **CONRAD = 3** (radar conspicuous (has radar reflector)) must be encoded within or coincident with the **DAYMAR** or **PILPNT**.

If the first option is agreed, then S-58 check 1762 should be amended similar to (changes in red):

1762	For each RADRFL object which TOUCHES an object of type area or point having CONRAD as an allowable attribute.	Unnecessary RADRFL object encoded.	Remove unnecessary RADRFL and encode CONRAD = 3 on associated object.	12.12	E
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Justification and Impacts

The changes proposed in this Paper are aimed at providing improved guidance to ENC encoders in regard to providing better consistency and quality of ENC's to the mariner. The changes to the UOC suggested in this paper do not impact on existing published ENC's as any proposed new or amended guidance should not require published ENC cells to be changed retrospectively.

Action required of TSMAD

TSMAD is invited to:

- Discuss the proposed changes to the UOC as raised in this Paper;
- Consider the recommendations above in regard to these discussions and agree on appropriate action; and
- Determine any additional action regarding ENC FAQ's, Encoding Bulletins and S-58.