Paper for Consideration by TSMAD

Proposals to amend the UOC

Submitted by:	UK
Executive Summary:	This paper presents specific changes to the UOC for consideration by TSMAD. These are consistent with the TSMAD approach to ensure the UOC provides consistent, accurate and complete guidance for the encoding of S-57 ENC.
Related Documents:	a) S-57 UOC 3.1.0
Related Projects:	1. N/A

Introduction / Background

1. In 2011 TSMAD reopened the UOC and encoding guidance can now be more quickly reflected in this document which should form the primary guidance for the encoding of S-57 ENCs. This paper follows changes proposed at TSMAD25 (paper TSMAD 25 4.8.2) by the UK and reflects TSMAD 25 action 39 which invites TSMAD members to contribute further proposals.

Analysis/Discussion

The following amendments are proposed for consideration by TSMAD;

2. Reported Anchorages

S-4 B-431.1 specifies the depiction of reported anchorages on paper charts. In ENC these are encoded with an appropriate value of INFORM as specified at UOC 9.2. As S-4 uses reported rather than recommended. The UK proposes amending UOC 9.2 as follows;

From
Individual recommended anchorages without defined limits should be encoded as **ACHARE** objects of type point, with attributes CATACH = *1* (unrestricted anchorage) and STATUS = *3* (recommended).

To
Individual reported anchorages without defined limits should be encoded as **ACHARE** objects of type point, with attributes CATACH = *1* (unrestricted anchorage), STATUS = *3* (recommended) and INFORM = 'Reported anchorage'.

3. Soundings out of position

UOC 5.4.3 currently specifies for drying areas with a sounding out of position DRVAL1 should usually be –H and the drying height should be encoded in INFORM. The UK proposes that this could be clarified to specify that DRVAL1 should be either –H or the drying height value. This avoids the use of INFORM and for drying patches and banks is a more accurate representation. Consequently UOC 5.4.3 para 2 should be amended as follows;

From
A drying area, within which a drying height is indicated without a true position, should be encoded using a **DEPARE** object, with DRVAL1 usually set to –H (see NOTE (a) associated with Figure 6 below for

definition of H) and DRVAL2 set to a data set contour value (usually zero). The drying height should be encoded using the attribute INFORM on the **DEPARE** object (e.g. *Dries 1.4*).

To

A drying area, within which a drying height is indicated without a true position, may either be encoded using a **DEPARE** object, with DRVAL1 set to –H and DRVAL2 set to a data set contour value (usually zero). The drying height should be encoded using the attribute INFORM on the **DEPARE** object (e.g. *Dries 1.4*). Or DRVAL1 should be populated with the value of the drying height. (see NOTE (a) associated with Figure 6 below for definition of H)

4. CTNARE coincident with DEPCNT

The UK has found that in some instances CTNARE objects of type area may be encoded coincident with a DEPCNT object. Due to display prioties in S-52 this may result in the CTNARE linestyle being overwritten by the DEPCNT linestyle. Therefore it is proposed that a remark is added to '6.6 Caution areas' as follows;

- In order to ensure correct display CTNARE objects of type area should not share the geometry of objects such as DEPCNT and other objects with higher S-52 display priorities.

5. Isolated dangers and isolated nodes

As a result of display anomalies in some ECDIS it is proposed that isolated danger should not be encoded sharing the geometry of other objects using a connected node. Consequently isolated dangers of type point (UWTROC, WRECKS, OBSTRN) should be encoded as isolated nodes. Therefore the UK proposes adding the following text to UOC 6 Dangers;

Due to possible display issues isolated dangers of type point (UWTROC, WRECKS and OBSTRN) should not be encoded using the geometry of other objects. They should be encoded as isolated nodes.

6. Racon response frequencies

S-4 B486.3 specifies that it is no longer required to show Radar Wavelength information on paper charts. TSMAD should therefore consider whether clarification is required on the use of RADWAL on RTPBCN objects for ENC. As the reasons for not charting this information on paper charts relate to clutter TSMAD may consider that this information is still useful on ENC. This would be consistent with lights where more detailed information than that on paper charts may be included.

The UK invites TSMAD to consider the need for clarification on this with S-4 B486.3 in mind.

7. SMCFAC areas

In order to avoid unhelpful display in ECDIS SMCFAC areas of type area should not be encoded in water. The UK proposes adding the following remark at UOC 4.6.5;

- **SMCFAC** objects of type area should only be encoded within objects of type **LNDARE** or **PONTON**.

<u>8. Discontinuities between surveys</u>

In order to reflect the paper chart practice of showing narrow linear 'discontinuities between surveys'. The UOC should include guidance on how these should be captured for ENC. The uK proposes the following clause be added;

5.8.2.1 Discontinuities between surveys

If it is required to show a significant discontinuity between survey information an UNSARE object should be captured with INFORM = 'Discontinuity between surveys'

<u>9. Wadis</u>

Dry river beds sometimes called Wadi are shown on some charts and should be captured using LNDRGN rather than RIVERS objects. ECDIS display can be an affected if encoded as RIVERS objects. The UK proposes adding a remark to the UOC to clarify this.

4.7.6 Add Remark;

- Some dry riverbeds known as Wadis may be shown on charts these should be encoded using **LNDRGN** with the name encoded using OBJNAM.

<u>10. Masking</u>

The UOC 3.1.0 contains little guidance on the masking of ENC objects. As appropriate masking can enhance the display of ENC data in ECDIS and consistency is desired across global ENC data the UK proposes the addition of a short recommended masking policy in the UOC. A draft is provided in Annexe A of this paper.

Conclusion

5. This paper presents a number of items where the UOC can be improved and TSMAD should consider the action required. The UK hopes that such changes to the UOC can contribute to enhancing the usability and consistency of ENC data.

Action Required of TSMAD

- To consider the proposals contained in this paper for inclusion in the next version of the UOC

<u>Annexe A Draft Recommended Policy for Masking</u>

To improve the look and feel of ENCs for the mariner certain objects should be masked.
Example: The boundaries of Anchorage area symbols overwrite the coincidental geometry of
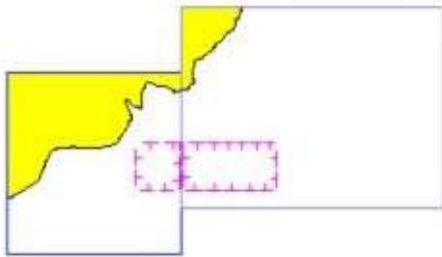a pontoon's edge.
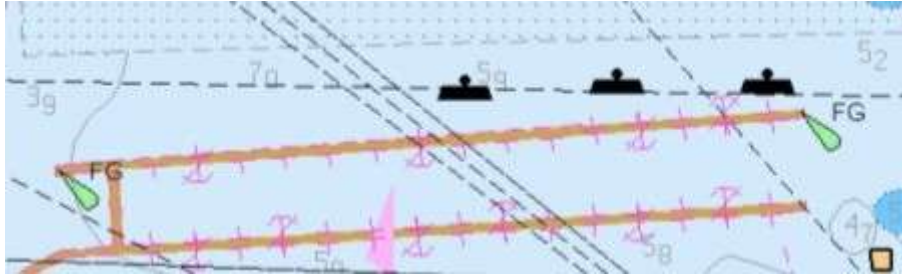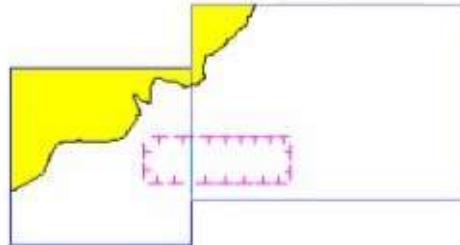

The following scenarios can be considered;

Area objects crossing cell boundaries.

When a single area object appears in two ENCs and crosses a cell boundary into the
adjacent cell. Mask the edge where it shares the geometry of the boundary in each ENC eg :–
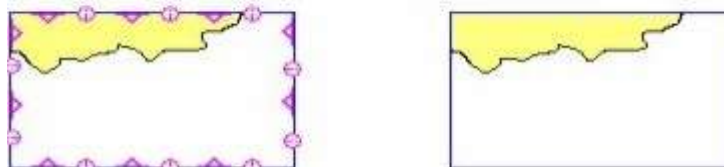

This allows the objects to be displayed as a single area object rather than being divided at the cell
boundary and having the representation of two separate objects. Some software will automatically
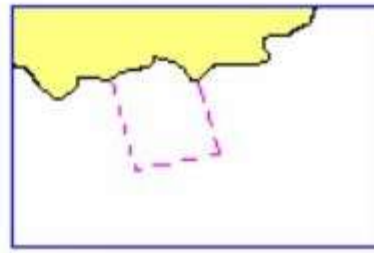truncate features at the cell boundary.

Masking is applied to the area of M_COVR, where CATCOV=1.

Masking applied when an object's boundary is coincidental with the coast
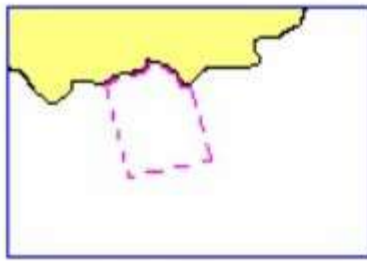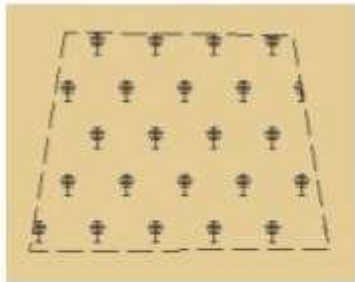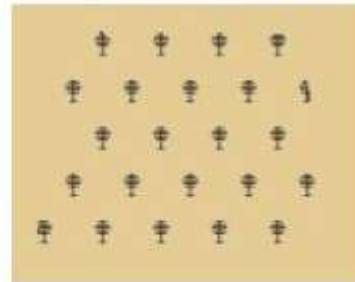

Before

After

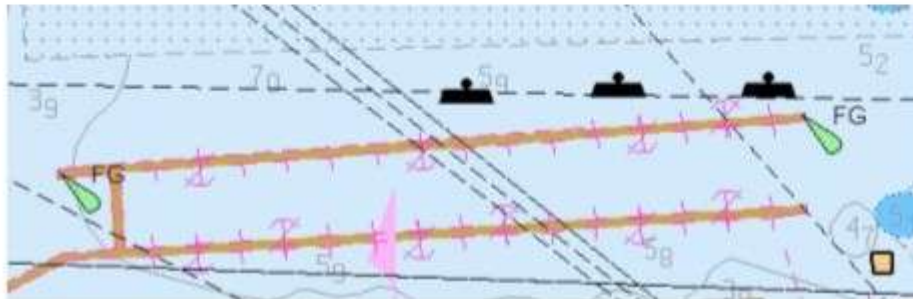It may be necessary to view the areas in an ECDIS.

Area objects that do not display a boundary on the paper chart eg. Vegetation

Before

After

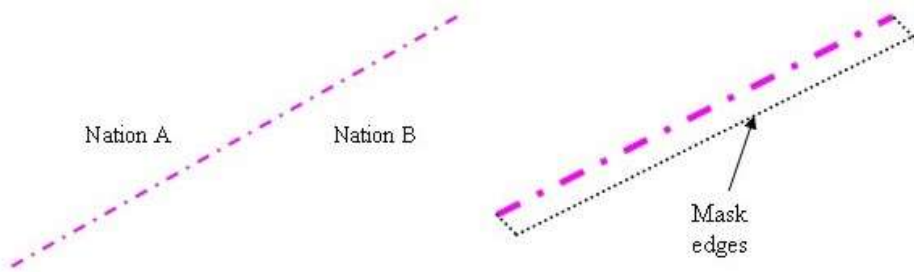In the example above the pontoon's edge has been overwriten by an ACHARE

Other objects also overwrite Pontoons. Again it may be necessary to view the areas in an ECDIS
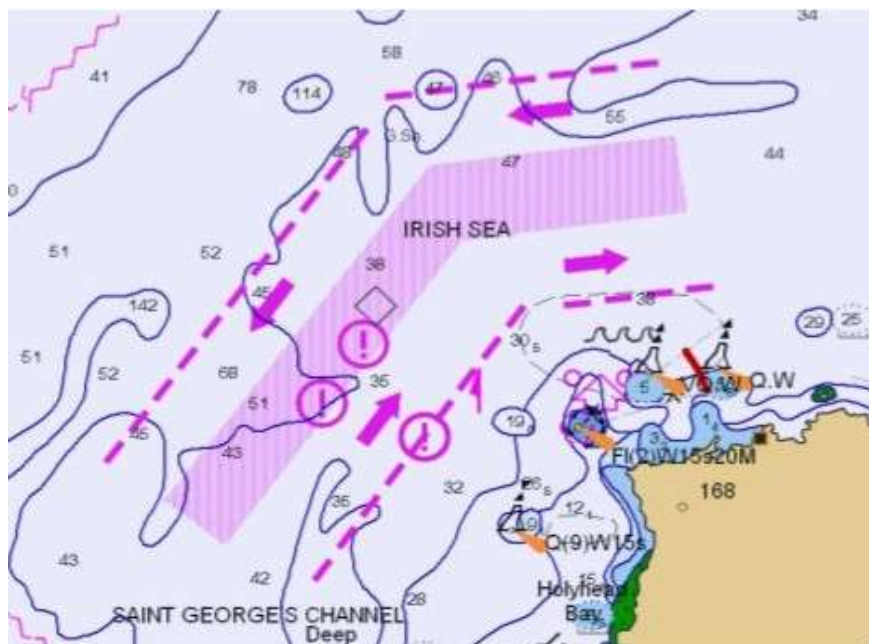
Where it is necessary to show a linear feature when S57 only has the option for an area primitive. Eg International boundaries

Caution Areas

Traffic Separation Scheme with CTNARE boundary unmasked

TSS with CTNARE polygon masked

In the example above it is also possible to mask the areas of water turbulence but the area to the east of the West cardinal buoy is captured too small to display the symbol. In cases such as this consider capturing the object as a point feature.

List of Objects to be Masked

Objects listed below should only be masked on edges that are coincident with areas of no coverage (M_COVR = No Coverage); edges of the feature object that are coincident with the external limits of the cell should be 'truncated' automatically and should not require masking. Truncated edges should not be masked.

ACHARE	
CBLARE	
CTNARE	also edges that are shared with Traffic Separation Scheme (TSS) as part of C_AGGR
CTSARE	
DMPGRD	
DRGARE	
EXEZNE	
FSHGRD	
FSHZNE	
HRBARE	
ICEARE	
ICNARE	
M_SREL	
M_QUAL	
MIPARE	
OSPARE	
PILBOP	area when the whole cell falls within the pilotage area.
PIPARE	
PRCARE	not applied if it is within a TSS.
RESARE	
SPLARE	
SNDWAV	
SUBTLN	
TESARE	
WATTUR	

Entrance and exit edges to the list of objects below should be masked regardless of where they occur in the cell, including internal changes in orient (see diagram below).

DWRTPT	
FAIRWY	
ISTZNE	only to be applied when the entrance and\or exit routes are known
RCTLPT	
TSSLPT	
TSSRON	
TWRTPT	
VEGATN	
M_COVR	Coverage available, mask full coverage. (No Coverage available, don't mask)
M_NSYS	mask full coverage. If ORIENT is attributed don't mask.

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Conclusion

Masking clearly has a beneficial effect on the display of data in an ECDIS and should be applied using the guidelines above.

Judgment must be applied to the masking of small polygons, if in doubt capture point primitives and view the areas concerned in an ECDIS.

The following list of objects can be used as a starting point for polygons to be masked either on Cell boundaries or by reducing clutter.

ACHARE	Anchorage area
CBLARE	Cable area
CTNARE	Caution area
CTSARE	Cargo transhipment area
DMPGRD	Dumping ground
DMPGRD	Spoil ground
DRGARE	Dredged area
DWRTPT	Deepwater route
FAIRWY	Fairway
FSHGRD	Fishing ground
ICEARE	Ice area
ICNARE	Incineration area
ISTZNE	Inshore traffic zone
MIPARE	Military practise area
OSPARE	Offshore production area
PIPARE	Pipeline area
PRCARE	Areas to be avoided
PRCARE	Traffic routeing scheme precautionary area
RCTLPT	Recommended traffic lane
RESARE	Anchorage prohibited
RESARE	Fishing prohibited
RESARE	Restricted area
RESARE	Specially protected areas
SEAARE / FAIRWY	Channel
SNDWAV	Sand waves
SPLARE	Seaplane landing area
SUBTLN	Submarine transit lane
TSEZNE	Traffic separation zone
TSSRON	Traffic routeing scheme crossing or roundabout
TWRTPT	Two-way traffic route
VEGATN	Vegetation
WATTUR	Water turbulence