TSMAD24/DIPWG4-11.7.1

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Paper for Consideration by TSMAD

ENC Encoding Bulletins

Submitted by:	S-57 maintenance Sub-WG Coordinator
Executive Summary:	Draft ENC Encoding Bulletins for consideration and approval of TSMAD.
Related Documents:	S-57 Appendix B.1, Annex A (Edition 3.0.0); S-58
Related Projects:	S-57 Maintenance; S-101 Development; S-58 Maintenance; ENC Encoding Bulletin Sub-WG

Introduction / Background

The S-57 Maintenance Sub-Working Group is responsible for the development of ENC Encoding Bulletins and Frequently Asked Questions in order to provide improved ENC encoding guidance resulting in more consistent and user-friendly ENC datasets to the end user. ENC Encoding Bulletins and Frequently Asked Questions must be approved by TSMAD before they can be published on the IHO web site, and included in the next draft of S-57 Appendix B.1, Annex A – Use of the Object Catalogue for ENC.

Analysis / Discussion

There were a number of discussions and Actions recorded from TSMAD23 (January 2012) that required the development of new or revised Encoding Bulletins and Frequently Asked Questions. Final drafts of those Encoding Bulletins and Frequently Asked Questions developed since TSMAD23 are included at Annex A for consideration of TSMAD.

Recommendations

1. That Encoding Bulletins and Frequently Asked Questions at Annex A be approved for publication on the IHO web site.

Justification and Impacts

ENC Encoding Bulletins and Frequently Asked questions provide enhanced ENC encoding guidance resulting in greater consistency in ENC datasets resulting in a better end-user experience.

Action required of TSMAD

TSMAD is invited to:

a. Discuss the draft Encoding Bulletins at Annex A.
b. Amend as required, and approve publication.

ANNEX A

Draft ENC Encoding Bulletins for approval of TSMAD:

Tom Richardson 27/01/2012. Amendments by Jeff Wootton 05-06/03/2012.

EBXX - UOC Clause 9.2.1 Anchorage Areas

Clause 9.2.1 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides guidance for the encoding of anchorages, including the recommendation that the name or number of the anchorage be populated using the attribute OBJNAM for an encoded **ACHARE** object.

In ECDIS **ACHARE** objects of type area do not display the name of the anchorage when populated using OBJNAM; this makes it difficult for mariners to identify anchorages by name, which can only be viewed by using the ECDIS Pick Report function. This limitation will be addressed in the next version of the S-52 Presentation Library however it will be some time before this is available or incorporated in ECDIS.

Encoders are advised, therefore, that where it is considered necessary to display the name of an anchorage area in ECDIS, a SEAARE object of type area should be encoded coincident with the ACHARE area. The attribute OBJNAM for the SEAARE should be populated with the name of the the anchorage.

FAQ

Q XX ***I have encoded a named anchorage area but the name is not displaying in the ECDIS. How should I encode the area such that the name displays?***

A XX The area should be double encoded as a SEAARE object, in addition to the encoded ACHARE. See ENC Encoding Bulletin No. XX.

EBXX - UOC Clauses 6.1.2 Rocks which may cover; 6.2.1 Wrecks; and 6.2.2 Obstructions, foul areas and foul ground

Clause 6.1.2 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides guidance for the encoding of underwater/awash rocks, including the population of the attribute EXPSOU to indicate objects with a "value of sounding" within or not within the range of depth of the surrounding area. Clauses 6.2.1 and 6.2.2 of the *Use of the Object Catalogue for ENC* provide similar guidance in relation to wrecks and obstructions respectively.

The attribute Exposition of Sounding (EXPSOU) will influence the display of **UWTROC**, **WRECKS** and **OBSTRN** objects in ECDIS when the attribute VALSOU is not populated, or is populated with an empty (null) value. In particular it has been noted that for these objects where the VALSOU of the object is not known but source information indicates it is within the range of the surrounding depth area the population of EXPSOU = *1* (within the range of the surrounding depth area) will avoid unnecessary isolated danger symbols, which can clutter the ECDIS display.

Encoders are advised, therefore, that if it is required to encode an UWTROC, WRECKS or OBSTRN object where the VALSOU is not known, but the source information indicates the depth of the object is within the range of the surrounding depth area, the value EXPSOU = *1* (within the range of the surrounding depth area) should be populated in order to avoid the unnecessary display of isolated danger symbols in ECDIS.

FAQ

Q XX ***How do I avoid the display of unnecessary isolated danger symbols in ECDIS where the depth of an encoded underwater rock, wreck or obstruction is not known but the source indicates the depth is within the range of depth of the surrounding depth area?***

A XX The attribute value EXPSOU = *1* (within the range of the surrounding depth area) should be encoded. See ENC Encoding Bulletin No. XX.

EBXX - UOC Clause 3.1.1 Magnetic variation

Clause 3.1.1 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides guidance for the encoding of magnetic variation.

There remains a requirement to include magnetic variation information in ENCs whilst SOLAS regulations include the requirement for a magnetic compass and deviation card. However, it is noted that across ENCs world-wide magnetic variation information is encoded differently. ENC producers are encoding points, lines and areas to include this information, in accordance with their national policy. User feedback indicates that it can be difficult to access this information in ECDIS where it has been encoded using the point or line primitive. Encoding this information using the area primitive ensures that the user can interrogate the ENC data using the ECDIS Pick Report function at any chart location and identify the value of magnetic variation at that location.

Encoders are advised, therefore, that in order to make magnetic variation information easily available to ECDIS users, it is recommended to encode this information using MAGVAR objects of type area.

FAQ

Q XX ***What is the preferred method for encoding magnetic variation information in ENCs?***

A XX It is recommended that magnetic variation be encoded as area objects using the object class **MAGVAR**. See ENC Encoding Bulletin No. XX.

Comment [AHO1]: My notes from TSMAD23 indicate that the EB should include some information as to where encoders can get the area information (url) and the format that this information is in. Tom is doing some further investigation on this and more information will be added to this EB later.

EBXX - UOC Clause 5.8 Areas with inadequate depth information

Clause 3.8 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides guidance for the encoding of areas having inadequate or no depth information, including unsurveyed areas; inadequately surveyed areas; and areas of omitted bathymetry.

In some areas source information may be limited to shallow water depth information derived from satellite imagery. Where defined depths can be interpolated from satellite imagery (e.g. the drying line, 5 metre or 10 metre depth contours), and little or no reliable source survey information exists in the area, consideration should be given to showing this information in ENCs.

Encoders are advised, therefore, that if it is required to encode shoal areas which have been derived from satellite imagery, DEPARE and DEPCNT objects of an appropriate depth range should be used. This should only be done in areas which have not been systematically surveyed. Areas of depth information derived from satellite imagery should be covered by M_QUAL meta objects having the appropriate value for the attribute CATZOC (i.e. *4* (zone of confidence C) or *5* (zone of confidence D), and having attribute TECSOU populated as *11* (satellite imagery).

I don't think we need a FAQ for this one.

UK proposed additional encoding bulletin;

EBXX - UOC Section 2 Cartographic framework

Section 2 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides the cartographic framework to be used for ENC, including guidance regarding the horizontal and positional accuracy components of data in ENC.

On paper charts objects such as buoys may be displaced from their real world position in order to allow for the depiction of underlying hazards. Where ENCs are captured from paper charts this displacement may then be carried onto the ENC. As a result of the ability of ECDIS users to zoom in to inappropriate scales this can result in an ECDIS display which is not an accurate representation of reality. There is no method within ENC to indicate to the mariner that an object has not been encoded in its true position, therefore it is considered important for objects to be

encoded in their true position to provide the mariner with an accurate representation of the real world.

Encoders are advised, therefore, that if it is required to encode a feature which has been displaced on the paper chart for cartographic reasons, it should be captured in its real-world position on the ENC.

I don't think we need a FAQ for this one.

TSMAD 23 Encoding Bulletins – S-57 Sub-Working Group feedback required (TSMAD24/DIPWG4)

EBXX - UOC Clause 4.7.11 Vegetation

Clause 4.7.11 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides guidance for the encoding of vegetation, including the encoding of mangrove areas, including the seaward edge of mangrove areas. IHO Publication S-4 – Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO (Edition 3.006, April 2009), contained revised specifications for the depiction of mangrove areas on paper charts. This revised specification includes the option for the cartographer to depict mangrove areas in the intertidal area, with a defined seaward and landward edge.

In the "real world", mangrove areas are predominantly located in the intertidal area. Current ENC encoding guidance specifies that mangrove areas be encoded on the land (**LNDARE**), with the seaward edge encoded as coastline (**COALNE**) corresponding to the high water line on the ENC. In order to allow for encoding that better represents the real world situation to the mariner in all ECDIS display settings, revised guidance is required for the encoding of mangrove areas in the intertidal area.

Encoders are advised, therefore, that where the source indicates that a mangrove area is in the intertidal area, a VEGATN object, with attribute CATVEG = *7* (mangroves) should be encoded on top of the intertidal area (DEPARE with attributes DRVAL1 = *-H* and DRVAL2 = *0*). The seaward edge of the mangrove area should be encoded using a COALNE object, with attribute CATCOA = *7* (mangrove), and the corresponding spatial edge(s) should have the spatial attribute QUAPOS = *4* (approximate). The landward edge of the mangrove area should be encoded as COALNE, having no value populated for CATCOA and no value for QUAPOS on the related spatial edge(s).

Where the above guidance has been followed, ENC validation Errors/Warnings related to this encoding should be ignored.

FAQ

Q 36 ***Can mangrove areas be encoded for ENC in accordance with the changed paper chart specifications for the depiction of mangroves (Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO (S-4) – clause B-312.4; as amended at Edition 3.006 (April 2009))?***

A 36 Yes. See ENC Encoding Bulletin number XX.

EBXX - UOC Clause 2.8.1 Wide blank area

Clause 2.8.1 of Edition 3.0.0 (October 2011) of the *Use of the Object Catalogue for ENC* (S-57 Appendix B1, Annex A) provides guidance on the encoding of areas of a data set which contain no data, using the meta object **M_COVR** with attribute CATCOV = *2* (no coverage available). Clause 2.2 of the *ENC Product Specification* (S-57 Appendix B.1) specifies the cells must be rectangular (i.e. defined by 2 meridians and 2 parallels).

In order to maximise spatial ENC catalogues, and improve ENC data loading capabilities in ECDIS, it is recommended that the spatial extent of the **M_COVR** objects in a data set be kept to a minimum.

Encoders are advised, therefore, that the spatial extent of the M_COVR objects comprising an ENC data set should be restricted to the spatial extent of the minimum bounding rectangle formed by the area of the cell covered by data (M_COVR with CATCOV = *1* (coverage available).

FAQ

No FAQ required.