



IHB File S3/7330

CIRCULAR LETTER 65/2011  
25 October 2011

**APPROVAL OF THE NEW EDITION OF ANNEX A TO APPENDIX B.1 OF S-57  
USE OF THE OBJECT CATALOGUE FOR ENC**

Reference: IHB CL 41/2011 Dated 18 July – Proposed New Edition of Annex A to Appendix B.1 of S-57 – *Use of the Object Catalogue for ENC*

Dear Hydrographer,

1 The Directing Committee would like to thank the following 44 Member States that replied to CL 41/2011 proposing the adoption of the new edition of IHO Publication Annex A to Appendix B.1 of S-57 - *Use of the Object Catalogue for ENC*: Algeria, Argentina, Australia, Belgium, Brazil, Canada, Chile, Colombia, Croatia, Cuba, Denmark, Ecuador, Estonia, Finland, France, Germany, Greece, Iceland, India, Ireland, Italy, Korea (Rep. of), Latvia, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Romania, Russia, Singapore, Slovenia, South Africa, Spain, Sweden, Thailand, Turkey, UK, USA and Venezuela.

2 All responses supported the proposed new edition. Several Member States provided comments which have resulted in several minor editorial corrections and improvements being made to the document. These are highlighted in yellow in Annex B to this CL. Member States' comments are listed in Annex A together with responses from the Chairman of the TSMAD WG.

3 There are currently 80 Member States of the IHO, two of whom have been suspended. Therefore in accordance with paragraph 6 of Article VI of the Convention on the IHO, the majority required on "questions concerning the technical functioning of the Organization" is 40. As a result of the 44 positive responses, Edition 3.0.0 of Publication S-57 Annex A to Appendix B.1 – *Use of the Object Catalogue for ENC* has been adopted.

4 The new edition is available for downloading from the IHO website:

[www.iho.int](http://www.iho.int) > Standards & Publications > Download IHO Publications

On behalf of the Directing Committee  
Yours sincerely,

Robert WARD  
Director

## MEMBER STATES' COMMENTS

### **Australia**

Australia suggested a number of editorial corrections and improvements to the draft New Edition.

*Comment by TSMAD Chair: Australia's editorial corrections and improvements have been incorporated in the final version of S-57 Appendix B.1, Annex A – Edition 3.0.0.*

### **Canada**

Canada considers it would be helpful to maintain a 'record of changes' in this document to identify sections of the publication that have been affected between revisions. For example, it would be helpful if this version could identify the Encoding Bulletins that have been included and the sections they impact.

*Comment by TSMAD Chair: It is intended that the record of changes be included in the 'Document Control' page of the document (see page viii). For this version, TSMAD considered that the extent of the changes from Edition 2.1 were too numerous to include in a concise list of changes, taking into account that changes have also been derived from ENC Frequently Asked Questions (FAQs), S-65 and the revised S-4. It is intended, on publication of Edition 3.0.0, to replace the text of those ENC Encoding Bulletins and FAQs on the IHO web site that have been incorporated in UOC Edition 3.0.0 with the appropriate UOC clause number(s).*

### **France**

This comment refers to the second part of the question (introducing edition 3.0.0 of S-57 Appendix B.1).

It concerns clause 11.7.4 (offshore production areas): "Where a **LNDMRK** is encoded, a **PILPNT** object must also be encoded coincident to ensure the feature is always displayed on the ECDIS."

So as to respect the following principle given in the introduction of the future version of Appendix B.1: *Although this document is open to change the following guidelines must be adhered to: Any change to this document must not cause existing data to be changed retrospectively, ...*, France proposes to replace in clause 11.7.4 (offshore production areas) the word "must" by the word "should", so as to read:

*"Where a **LNDMRK** is encoded, a **PILPNT** object **should** also be encoded coincident to ensure the feature is always displayed on the ECDIS."*

Furthermore, other objects, when they are located offshore, may be obstacles for navigation and not appear in the basic display (LNDMRK, FORSTC, BUISGL, CRANES...). Encoding a PILPNT object or equivalent object at the same position as this obstacle should also be recommended. This new general clause could be inserted in Chapter 4. The clause's mandatory nature should be handled by other channels.

*Comment by TSMAD Chair: While it is agreed that the current wording of clause 11.7.4 may invalidate some ENC data that is already published, in contravention of clause 1.1, it is considered important to mandate that an ECDIS Base Display object be encoded to ensure that a feature is always displayed in the ECDIS. The first Remarks bullet point of clause 11.7.4 has therefore been amended to allow other ECDIS Base Display objects such as LNDMRK to be encoded, while retaining the word "must".*

*The suggestion by France regarding other S-57 objects that are located offshore but not currently part of the ECDIS Display Base has merit. The best location and method for including relevant new guidance in the UOC will be discussed by TSMAD for inclusion in the next revision of the UOC.*

As a result of the above comment and general confusion which has existed for some time, the following minor amendment to clause 1.1 bullet 1 has been made.

Any change to this document must not cause existing published ENC's to be changed retrospectively. **However producers are encouraged to include new changes (if the data is affected by them) in any new ENC's and any ENC for which there is a planned New Edition.** Any required change to data due to a significant issue affecting safety of navigation will be addressed by a communication to all producers by the IHB.

### **Thailand**

Unfreezing and revising the UOC would update its content and resolve ENC and ECDIS misbehaviour when displaying on the ECDIS, e.g. shallow depth sounding not shown when using base display, some tiny islands not be shown when zooming out. Such a revision would improve both ENC and ECDIS consistency, resulting in safety of navigation.

*Comment by TSMAD Chair: While some ECDIS inconsistency issues can be addressed in part by improving the encoding guidance contained in the UOC, such as the non-display of soundings in some ECDIS display modes, other issues are best addressed in other Standards such as the ECDIS Presentation Library. Such issues are being discussed by the TSMAD in consultation with other IHO Technical Working Groups.*

### **Turkey**

TN-ONHO would like to contribute to the above mentioned publication with the following editorial amendments:

1. Page A.2 Clause 1.1.1: "Encoders should therefore use the IHO on-line version of the IHO Hydrographic Dictionary, which can be found at url <http://hd.iho.int/en> (for the English version) or <http://hd.iho.int/fr> (for the French version). The Spanish version of the on-line dictionary is currently under development." Since this sentence is subject to be updated because of the works under development, it may be amended as "Encoders should therefore use the on-line IHO Hydrographic Dictionary, which can be found on IHO website."
2. Page A.3 Clause 1.4.4.2 "Correction" in the last sentence to be amended as "Revision".
3. Page A.23 Clause 2.6.2.2, item 8, in the last sentence "Producing Authority's" to be amended as "Producing Authorities".

#### Comment by TSMAD Chair:

1. Agree to amendment with minor change to suggested text.
2. Agree to amendment.
3. Agree to amendment.

### **United Kingdom**

The UK makes the following comments:

- 1) Wind farms and wave energy devices: The UK has much experience of charting Wind Farms and wave energy devices. We note that there may be general information which should be attached to the OSPARE object to avoid INFORM being populated for individual turbines resulting in cluttered display. In addition populating CONVIS = 1 on the LNDMRK object ensures that these display with the appropriate symbol in STANDARD display on an ECDIS. The UK proposes the following modified remark at 11.7.4;

*If it is required to encode an offshore wind farm, it should be done using an OSPARE object, with attribute CATPRA = 9 (wind farm). General information about the wind farm such as blade diameter should be encoded INFORM or TXTDSC. If it is required to encode individual offshore wind turbines, it should be done using a LNDMRK object of type point (see clause 4.8.15), with attribute CATLMK = 26 (windmotor) and CONVIS = 1 (visually conspicuous). Where a LNDMRK is encoded, a PILPNT object (see clause 4.6.7.2) should also be encoded coincident to ensure the feature is always displayed on the ECDIS. Where fitted, lights should be*

encoded as described in clause 12.8, with the **LNDMRK** being used as the structure object for the **LIGHTS** equipment object(s) (see clause 12.1.1).

Comment by TSMAD Chair: Agree with encoding **INFORM** or **TXTDSC** on the **OSPARE** to avoid cluttered **ECDIS** display. The value **CONVIS** = 1 (visually conspicuous) should only be populated where the feature is in fact visually conspicuous to the mariner, and as this attribute is mandatory for **LNDMRK**, encoders will populate the attribute as appropriate. Therefore, it is considered that no additional guidance regarding **CONVIS** is required. The relevant bullet point has been modified taking into account the UK suggestion (see also France comments above).

The UK has a number of wave energy test sites and notes that these devices can take various forms which can vary in size and structure. Therefore this guidance should allow the use of **OFSPLF** or **BOYSPP** as appropriate as in some cases these devices are much closer to such objects than they are to **OBSTRN**. Also there is no need to populate **CATOB**s in such cases. The UK proposes the following wording at 11.7.4:

*If it is required to encode a wave or current farm (or turbine field) for generating electricity from waves or tidal currents, it should be done using an **OSPARE** object, with no value populated for **CATPRA** and attribute **INFORM** = Wave farm or Current farm. If it is required to encode individual wave energy devices or underwater turbines, it should be done using an **OBSTRN** object (see clause 6.2.2) or, if there are associated surface structures, using appropriate object classes, e.g. **OFSPLF** or **BCNSPP** (see clauses 11.7.2 and 12.3.1), with attribute **INFORM** = Wave energy device or Underwater turbine. The extent and nature of any restricted area related to the feature should be encoded using a **RESARE** object (see clause 11.1).*

Comment by TSMAD Chair: Agree with comments regarding wave or current farms and wave energy devices or underwater turbines.

2) Shoal Depths in Dredged areas: Although the UK recognises that in some instances use of **DRVAL1** and **DRVAL2** to set a 'range' for a dredged area is a sensible approach it has cases where this approach would not work. In such cases to avoid making large areas inaccessible due to a few isolated shoals the UK policy is to encode a small **DEPARE** without **DEPCNT**. The UK proposes the following amendment at 5.5 and other locations:

*Where a **SOUNDG** object is encoded in a dredged area to indicate shoaler depths, the attribute value **EXPSOU** = 2 (shoaler than the depth of the surrounding depth area) should not be populated (see clause 5.3). Where required, the shoal depths should be encoded using **SOUNDG**, with the appropriate underlying depth information (**DEPARE** and **DEPCNT** if appropriate) to support the depths. Alternatively, the attribute **DRVAL2** for the **DRGARE** may be set to the designed dredged depth for the dredged area and the attribute **DRVAL1** set to the value of the shoalest depth, or a **CTNARE** object may be encoded covering the shoaler depth area with the depth information provided using the attribute **INFORM**. Where the shoal depths are close to the edge of the dredged area, the dredged area limit may be adjusted to exclude the shoal depths from the area. See also S-4 – B-414.5.*

Comment by TSMAD Chair: Agree. The relevant bullet point has been modified as suggested. Minor editorial corrections have been made at clause 2.6.2.2 paragraph 10(j) for consistency, but without further information it is not possible to determine where "other locations" within the document may be.

3) 2.2.3.1 **M\_QUAL** over land: The bullets in this section are confusing, it seems to be saying **M\_QUAL** should not be populated over land except where an entire cell **M\_QUAL** object is used to give a general. Recommend that these bullets are reconsidered.

Comment by TSMAD Chair: Other than the changes already made to this clause from Edition 2.1, there has been no discussion by TSMAD regarding the bullet points in relation to possible confusion in the guidance for encoding **M\_QUAL** over land. Before further changes are made to this clause in response to the UK comment, TSMAD will need to be presented with a proposal, and agree on appropriate changes for a future Edition of the UOC.

4) 2.2.7.1 Table 2.3: Combine **FLODOC** line and area as **NOT SET** to agree with bullet 4 of 2.2.7.

Comment by TSMAD Chair: FLODOC of type line is not a part of Group 1 (refer to clause 4.6.6.2), therefore Table 2.3 is not in conflict with bullet 4 of clause 2.2.7. No change has been made to Table 2.3 for FLODOC.

Both GATCON entries should be point/line/area and 'if covered by DEPARE objects' should read 'DEPARE/DRGARE objects'.

Comment by TSMAD Chair: As it is not prohibited to encode a GATCON of type point in DEPARE or DRGARE, and clause 4.6.6.4 specifies that GATCON of type area only must be covered by DEPARE or LNDARE objects, the suggested amendments to Table 2.3 for GATCON have been incorporated.

5) Table 5.1: Remarks column states 'Should be encoded using QUAPOS = 10', delete and add '10' to QUAPOS column.

Comment by TSMAD Chair: This entry at Table 5.1 in clause 5.3 is unchanged from UOC Edition 2.1. There may be a specific reason why the recommendation to populate QUAPOS = 10 is in the Remarks column rather than the QUAPOS column for a sounding in true position. This will require discussion by TSMAD and possible amendment for a future Edition of the UOC. No change made.

6) Q59 deleted from INT1: Q59 has been removed from INT1 therefore should be deleted from table 12.3.

Comment by TSMAD Chair: The official IHO English language version of INT1, produced by BSH, was published as a New Edition (Edition 7) in January 2011. This Edition still has the symbol at Q59 for a buoy marking a wave recorder or current meter. The Reference has therefore been retained.

7) 10.5 Typographical error: Second paragraph 'Routing' should be 'Routeing'.

Comment by TSMAD Chair: Agree with the proposed amendment.

**REVISED GUIDANCE FOR S-57 APPENDIX B.1, ANNEX A**  
**USE OF THE OBJECT CATALOGUE FOR ENC**

*(New changes highlighted in yellow)*

NOTE: Minor changes identified in Member States' comments considered to be editorial have not been included in the revised guidance below, but have been addressed in the draft UOC Edition 3.0.0 in accordance with the TSMAD Chair comments.

## 1.1 General

The following clauses specify the conventions that must be used to encode the geometry and semantic description of each object in an ENC. This document is laid out, as far as possible, along the lines of the IHO publication "Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO – S-4".

This document describes how to encode information that the cartographer considers relevant to an ENC. The content of an ENC is at the discretion of the Producing Authority provided that the conventions described within this document are followed. A "Producing Authority" is a Hydrographic Office (HO) or an organisation authorised by a government, HO or other relevant government institution to produce ENCs.

This document is intended for use with Edition 2.0 of the ENC Product Specification (S-57 Appendix B1, Annex A) contained within S-57 Edition 3.1 which was issued in November 2000, including S-57 Supplement No. 2 (June 2009).

Although this document is open to change the following guidelines must be adhered to:

- **Any change to this document must not cause existing published ENCs to be changed retrospectively. However producers are encouraged to include new changes (if the data is affected by them) in any new ENCs and any ENC for which there is a planned New Edition. Any required change to data due to a significant issue affecting safety of navigation will be addressed by a communication to all producers by the IHB.**
- **Any change to this document must not cause a subsequent issue to the use of the data in ECDIS.**

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### 1.1.1 References within S-57 to other IHO publications

Throughout S-57 documentation, there are references to clauses in other IHO publications, notably S-4 – Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO; and INT1 – Symbols, Terms and Abbreviations used on Charts. S-57 has effectively been "frozen" since 2000, but these publications have been revised, and as such clause references quoted in S-57 documents may be incorrect. Note that S-4 and INT1 references quoted in this document are correct for the versions of those publications current at the time of publication.

Encoders should also note that IHO Hydrographic Dictionary, Edition 5 index numbers as quoted in S-57 Chapters 1 and 2 (Objects and Attributes) may refer to definitions that have been revised or superseded. Encoders should therefore use the **on-line IHO Hydrographic Dictionary, which can be found on the IHO web site.**

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### 1.4.4.2 Revision version control

Revisions must be denoted as 0.x.0. Each revision or set of revisions approved at a single point in time must increment x by 1. **Revision** version control will set clarification version control to 0.

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### 2.6.2.2 Temporary (T) Notices to Mariners (see S-4 – B-633)

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8. ENC Updates issued for temporary information should be carefully managed and reviewed regularly to consider whether further action is necessary. New information may have been received that necessitates the issuing of a new Update to modify or cancel the previous one. Producing **Authorities** should make it easy to recover the original charted state before the temporary changes came into effect.

### 2.2.7.1 Sample SCAMIN policy

..... [Table 2.3]

GATCON	Point/Line/Area		2
GATCON	<b>Point/Line/Area</b>	If covered by <b>DEPARE</b> or <b>DRGARE</b> objects; or is coincident with the coastline	NOT SET

## 5.5 Dredged areas (see S-4 – B-414)

If it is required to encode dredged areas, this must be done using the object class **DRGARE**.

Geo object: Dredged area (**DRGARE**) (A)  
 Attributes: DRVAL1 - depth of dredging. DRVAL2 - depth of dredging (if different to DRVAL1). NOBJNM OBJNAM QUASOU - 10 - maintained depth. 11 - not regularly maintained. If encoded, the value of QUASOU must be one of the above. RESTRN SOUACC - see use of **M\_QUAL** (clause 2.2.3.1). TECSOU ~~VERDAT~~  
 INFORM NINFOM SORDAT -date of dredging or last control survey.

Remarks:

- **DRGARE** objects of type area are part of Group 1.
- The boundary of a dredged area should not have coincident linear geo objects encoded, unless part of the boundary corresponds to the shoreline (see clause 4.5).
- Dredged areas are often subject to siltation, resulting in shoaler depths being identified in the dredged area than the designed dredged depth. Where a **SOUNDG** object is encoded in a dredged area to indicate shoaler depths, the attribute value EXPSOU = 2 (shoaler than the depth of the surrounding depth area) should not be populated (see clause 5.3). Where required, the shoal depths should be encoded using **SOUNDG**, with the appropriate underlying depth information (**DEPARE** and, if required, **DEPCNT**) to support the depths. Alternatively, the attribute DRVAL2 for the **DRGARE** may be set to the designed dredged depth for the dredged area, and the attribute DRVAL1 set to the value of the shoalest depth, or a **CTNARE** object may be encoded covering the shoaler depth area with the depth information provided using the attribute INFORM. Where the shoal depths are close to the edge of the dredged area, the dredged area limit may be adjusted to exclude the shoal depths from the area. See also S-4 – B-414.5.
- The attribute SORDAT may be used to encode the year of the latest control survey for dredged areas where the dredged depth is not maintained. For dredged areas where the dredged depth is maintained, it is not required to indicate the year of dredging.

### Offshore production areas (see S-4 – B-445.3; B-445.9; B-445.11 and B-445.12)

If it is required to encode an offshore production area, it must be done using the object class **OSPARE**.

Geo object: Offshore production area (**OSPARE**) (A)  
 Attributes: CATPRA CONDTN CONRAD CONVIS DATEND DATSTA HEIGHT  
 INFORM NINFOM NOBJNM OBJNAM PRODCT RESTRN  
 STATUS ~~VERACC~~ VERLEN

Remarks:

- If it is required to encode an **offshore** wind farm, it should be done using an **OSPARE** object, with attribute CATPRA = 9 (wind farm). General information about the wind farm such as blade diameter and blade vertical clearance should be encoded, if required, using the attributes INFORM

or **TXTDSC**. If it is required to encode individual offshore wind turbines, it should be done using a **LNDMRK** object of type point (see clause 4.8.15), with attribute **CATLMK** = 26 (windmotor). Where a **LNDMRK** is encoded, an **ECDIS Base Display object** (e.g. **PILPNT**, **LNDARE**) must also be encoded coincident to ensure the feature is always displayed on the ECDIS. Where fitted, lights should be encoded as described in clause 12.8, with the **LNDMRK** being used as the structure object for the **LIGHTS** equipment object(s) (see clause 12.1.1). The extent and nature of any restricted area related to the wind turbine should be encoded using a **RESARE** object (see clause 11.1).

- If it is required to encode a wave or current farm (or turbine field) for generating electricity from waves or tidal currents, it should be done using an **OSPARE** object, with no value populated for **CATPRA** and attribute **INFORM** = *Wave farm* or *Current farm*. If it is required to encode individual wave energy devices or underwater turbines, it should be done using an **OBSTRN** object (see clause 6.2.2) or, if there are associated surface structures, using appropriate object classes, e.g. **OFSPFL** or **BCNSPP** (see clauses 11.7.2 and 12.3.1), with attribute **INFORM** = *Wave energy device* or *Underwater turbine*. The extent and nature of any restricted area related to the feature should be encoded using a **RESARE** object (see clause 11.1).