

IHO File No. S3/8151/S-100

CIRCULAR LETTER 41/2025 06 November 2025

ADOPTION OF IHO PUBLICATIONS

**EDITION 2.0.0 OF S-98 - DATA PRODUCT INTEROPERABILITY IN S-100 NAVIGATIONS
SYSTEMS,
EDITION 5.0.0 OF S-52 ANNEX A:100 - IHO S-100 ECDIS PRESENTATION LIBRARY FOR S-57
ENC,
EDITION 4.0.0 OF S-64:100 – S-57 ENC TEST DATASETS FOR S-100 ECDIS,
EDITION 2.0.0 OF S-65 ANNEX B - S-57 ENC TO S-101 CONVERSION GUIDANCE, and
EDITION 2.0.0 OF S-130 - POLYGONAL DEMARCATIONS OF GLOBAL SEA AREAS.**

References:

- A. IHO Resolution 2/2007 - Procedures for making changes to IHO Technical Standards and Specifications.
- B. IHO CL 33/2025 dated 04 August 2025 – Call for the approval.

Dear Hydrographer,

1. In accordance with reference A, the adoption of several operational Editions of S-100 Standards - endorsed by HSSC at its 17th meeting- were proposed through the Circular Letter in Reference B.
2. The IHO Secretariat thanks the forty Member States who responded to Reference B: Algeria, Australia, Belgium, Brazil, Canada, Chile, Cuba, Denmark, Estonia, Fiji, Finland, France, Germany, Greece, Indonesia, Ireland, Italy, Japan, Malaysia, Netherlands, New Zealand, Nigeria, Norway, Oman, Philippines, Poland, Portugal, Republic of Korea, Russian Federation, Singapore, Slovenia, Spain, Sri Lanka, Sweden, Thailand, Ukraine, United Kingdom, United States of America, Uruguay and Venezuela.
3. All forty Member States supported the adoption of all proposed Editions. Eight Member States submitted comments in addition to their vote. All comments received are provided in Annex A to this Circular Letter with responses from the HSSC Chair and IHO Secretariat.
4. When the Reference was issued, there were 102 Member States of the IHO with two States suspended. In accordance with the provisions of the Convention on the IHO as amended, the minimum number of affirmative votes required is 33. As a result, the abovementioned proposed Editions have been adopted and are now available (English versions only) on the IHO GI Registry > GI Registers > [Product Specification](#). A link to the Product Specifications has also been placed on the IHO website > Publications > [Standards and Specifications](#).

5. The IHO Secretariat and the HSSC Chair would like to congratulate and thank all those involved in the development of this corpus of operational standards and specifications necessary to enable S-100 production.

On behalf of the Secretary-General

Yours sincerely,

A handwritten signature in black ink, appearing to read 'J. Nyberg', is positioned above the printed name.

John NYBERG

Director

Annex:

- A. Responses to Member States' comments to IHO CL 33/2025 from the HSSC Chair and IHO Secretariat (in English only)

**MEMBER STATES' RESPONSES TO IHO CL 33/2025 AND COMMENTS
FROM THE WORKING GROUP and PROJECT TEAM CHAIRS, IHO SECRETARIAT**

S-98, Ed. 2.0.0	DATA PRODUCT INTEROPERABILITY IN S-100 NAVIGATIONS SYSTEMS
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AUSTRALIA (Vote for adoption = YES)

Clause No./ Subclause No./ Annex (e.g. 3.1)	Type of comment	Comment (justification for change)	Proposed change	HSSC Chair/IHO Secretariat Comments
7.2.6	Technical	This section highlights concerns about the visual impact the rendering of some shared edges can have on the clarity of portrayal in ECDIS BUT does not direct OEMs to implement solutions (no specific ECDIS performance requirements are outlined).	Recommend OEMs are directed to implement solutions to resolve these issues and include S-164 tests for 2 scenarios (simple and complex lines).	The intended display outcome in ECDIS has been incorporated in two new tests included in S-164. Additional guidance may be included in the next Edition of S-98 based on OEM feedback
8	Editorial	The title of the S-98 document referred in this section is incorrect: S-98 (Data Product Interoperability in S-100 Navigation Systems)	Amend to either: S-98 (S-100 ECDIS and Interoperability Specification) OR S-98 Annex A (ECDIS Interoperability Specification)	The reference has been amended to read "S-98 (S-100 ECDIS and Interoperability Specification)"

12.9.10	Technical	The IMO performance requirement in MSC.530(106) is about allowing mariners to take into account 'accuracy information' of relevant hydrographic information. A general statement aims at using all available accuracy values (horizontal & vertical). S-98 is implementing a methodology in ECDIS that only considers the 'horizontal' component of accuracy, and ignores its 'vertical' constituent.	1. Include a dedicated paragraph highlighting the current limitations in the application of the IMO's requirements regarding ENC accuracies. 2. Direct OEMs to appropriately name the corresponding ECDIS function/selector so there's no doubt to mariners that only 'Horizontal' accuracy of charted information will be considered. For example: 'H Accuracy' over 'Accuracy'. 3. Include clear information on the limitations associated with the implementation of 'accuracies' in ECDIS in S-66 (and/or any other possible S-100 evolution of this document).	The application of an indication of the accuracy of bathymetric data in S-100 ECDIS portrayal is subject to further discussion in the relevant IHO Working Groups/Project Teams. Further guidance, and possible expansion of this guidance to take into account the vertical component of bathymetric data uncertainty, will be included in the next Edition of S-98. The inclusion of guidance for end-users in S-66 will be passed on to the ENCWG for their consideration.
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Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Australia for their comments. Please see the above Table for comments from the HSSC Chair and IHO Secretariat, after discussing with the (S-100WG) S-98 Sub-Group Lead.

FRANCE (Vote for adoption = YES)

General Comment: "We support the approval of Edition 2.0.0 of S-98 as an essential step to initiate operationalisation. At the same time, we are conscious of the further work needed for Edition 3, which should address in a better way the management of uncertainties, potentially with implications for other standards."

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank France for their comments and take note of their recommendation.

GREECE (Vote for adoption = YES)

General comment: “Greece approves the proposed S-98 Ed 2.0.0, as fully understands the need of requirements and guidance for the implementation of harmonized portrayal and other user interaction functions for S-101 ENC’s and other S-100 based data products in an ECDIS, as part of the critical S-100 framework of Roadmap for the S-100 Implementation Decade.

However, Greece is worried about concerns extensively discussed during HSSC17 regarding the development of a technical solution to address S-100 products overlapping on ECDIS. Consequently, Greece awaits to evaluate the expected proposal for technical solution, as the S100 WG was tasked.”

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Greece for their comments and take note of their remark.

MALAYSIA (Vote for adoption = YES)

General comment: “The approval of S-98 Edition 2.0.0 is a significant step enhancing S-100 products interoperability. It provides clearer instructions on how to use different S-100 datasets in the same system. This facilitates moving from S-57 to S-100 and improves standards, system connections, and future e-navigation.”

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Malaysia for their comments.

NETHERLANDS (Vote for adoption = YES)

General comment:

“comment as a reminder for future editions:

D-3 Treatment of Depth and Water Level Related S-101 Features describes the interoperability between S-101 and S-102. With the present solution, the safest value of the depth (value of sounding) is not retained for underwater hazard Point features, e.g. Wrecks, Obstructions, Underwater rocks. In most cases S-101 will contain the most accurate and safest information, however this will be overwritten."

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Netherlands for their comments and take note of their comment for consideration for the next Edition of S-98.

OMAN (Vote for adoption = YES)

General comment: "Oman thanks the IHO and the HSSC for their contribution to the development of S-100 documents and new editions of IHO Standards."

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Oman for their comments.

UNITED STATES (Vote for adoption = YES)

After the document was submitted to HSSC it was noted that there were a couple of inconsistencies by the S-98 Sub working group. These proposed changes do not change the intent of S-98, rather they just clarify the document.

As part of these comments, we have submitted both a red line version and a clean version of S-98 and the comments are summarized below:

1. Corrected Tidal stream panel format (15.4)
2. Image with 3-D shading to be changed in D-1 Enhanced safety contour.
3. *dataDynamicity* in Legend (table entry in 12.10.3)
4. Correction to Legend table delete crossed out text (12.10.3)
5. Revision to first sentence of para 2 in 6.1.1. Split sentence into 2 separate sentences to clarify, "*with the exception of...*"

6. 2nd Para 12.2, clarify “when the data doesn’t contain the display scale AND the user has requested data to be displayed/used, then the ECDIS must show it by default, but can drop data in the interests of system resources.”. Also, correct attributes font to bold.
7. 12.3.2 - The first half of the “*in addition to...*” can be deleted.
8. 12.3.3 should be *DataCoverage* features, not just ENC...
9. Manual update appendix refers to a portrayal catalogue which doesn’t exist. Change text to “These symbols, alongside an associated feature catalogue allow the OEM to implement a manual update and editing feature on the ECDIS”.

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank United States for their comments. After discussing with the (S-100WG) S-98 Sub-Group Lead, the HSSC Chair and IHO Secretariat have approved editorial and correctional amendments to the S-98 Main document in line with the comments submitted by the United States.

S-52 – ANNEX A:100 Ed. 5.0.0	IHO S-100 ECDIS PRESENTATION LIBRARY FOR S-57 ENC
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AUSTRALIA (Vote for adoption = YES)

Clause No./ Subclause No./ Annex (e.g. 3.1)	Type of comment	Comment (justification for change) by the CO ³	Proposed change by the CO	HSSC Chair/IHO Secretariat Comments
10.5.13	Technical	The IMO performance requirement in MSC.530(106) is about allowing mariners to take into account 'accuracy information' of relevant hydrographic information. It's a general statement that aims at using all available accuracy values (horizontal & vertical). S-98 is implementing a methodology in ECDIS that only considers the 'horizontal' component of Accuracy, and ignores its 'vertical' constituent.	1. Include a dedicated paragraph highlighting the current limitations in the application of the IMO's requirements regarding ENC accuracies. 2. Direct OEMs to appropriately name the corresponding ECDIS function/selector so there is no doubt to mariners that only 'Horizontal' accuracy of charted information will be considered. For example: 'H Accuracy' over 'Accuracy'. 3. Include clear information on the limitations associated with the implementation of 'accuracies' in ECDIS in S-66.	This comment has no direct impact on the contents of S-52 Annex A:100 but is relevant for data interoperability (S-98) and end-user guidance (S-66). Please see the HSSC Chair/IHO Secretariat Comments for the corresponding comment for S-98 Edition 2.0.0 above.

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Australia for their comments. After discussing with the ENCWG Chair, please see the above Table for comment from the HSSC Chair and IHO Secretariat.

OMAN (Vote for adoption = YES)

General comment: “The draft S-52 Annex A:100 Edition 5.0.0 is a significant update to the ECDIS Presentation Library for the S-100 system. It introduces clearer display rules, modern symbols, and greater consistency, ensuring that S-100 chart data is shown uniformly and safely across all systems. This progress highlights the IHO's commitment to harmonisation, user safety, and a seamless transition from S-57 to S-100.”

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Oman for their comments.

OMAN (Vote for adoption = YES)

General comment: “The draft S-64:100 Edition 4.0.0 provides updated test datasets and procedures to evaluate ECDIS performance within the S-100 framework. Aligned with the latest IMO standards, it ensures that next generation ECDIS remains consistent, reliable, and safe. This update further strengthens interoperability, while facilitating the global transition from S-57 to S-100 and supporting the future of e-navigation.”

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Oman for their comments.

DENMARK (Vote for adoption = YES)

- "1. In S-65 Annex B Table A-3 Enhanced S-101 Encoding, Dry Dock is missing 'elevation' as a newly allowable attribute in S-101.
2. The statement in 12.8.6.2 "The guidance for the encoding of lights obscured by obstructions remains unchanged in S-101. See S-101 DCEG clause 19.3.1.1." is misleading and should be amended, and LITVIS should be added to the list of restricted allowable enumerate values".

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Denmark for their comments. These changes are editorial in nature and add value to the final published version of S-65 Annex B, Edition 2.0.0, and have therefore been applied.

UNITED STATES (Vote for adoption = YES)

Please note recommended changes have no impact on S-101 itself.

Amendment required to Table A-1: *NEWOBJ* and *LOKBSN* are missing from the list.

Amendment to conversion guidance: Section 11.6.4, remove *RESTRN* as it does not need to be referenced for restricted allowable S-101 enumerated values on PIPARE.

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank the United States for their comments. These changes are editorial in nature and add value to the final published version of S-65 Annex B, Edition 2.0.0, and have therefore been applied.

AUSTRALIA (Vote for adoption = YES)

Australia is keen to view the S-23 based IHO test dataset for S-130 and understand the validation and approval process.

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Australia for their comments.

BELGIUM (Vote for adoption = YES)

- Product Specification - Figure 4-1: Typo *theSpacialInformaitonSource* should be corrected to *theSpatialInformationSource*
- Product Specification and all related comments - In accordance with Decision 12/02 of the Project Team, the multiplicity of *pointDerivedZone* and *contributedLimit* should be changed from **1..*** to **0..*** as in Edition 1.1.0. It should be clarified in the Product.
- Specification and Data Classification and Encoding Guide that a *ContributingPoint* must be related to at least one of *GlobalSeaArea* or *ConstructionLine*.
- Product Specification and all relevant related documents - In accordance with Decision 12/04 of the Project Team, a revised definition of *SourceInformation* should be proposed to the GI Registry.

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Belgium for their comments. After discussing with the S-130PT Chair, the HSSC Chair and IHO Secretariat have approved editorial and correctional amendments to the S-130 Main document and DCEG in line with the comments submitted by Belgium. A revised definition for the source Information concept has been submitted to the IHO GI Registry, however this revised definition is currently subject to review by the Register Domin Control Body, and a further amendment to the definition or the feature name may be required in a future Edition of S-130.

NEW ZEALAND (Vote for adoption = YES)

New Zealand thanks the HSSC for all their hard work in developing these Standards and Specifications.

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank New Zealand for their comments.

OMAN (Vote for adoption = YES)

General comment: “The draft S-130 Edition 2.0.0 delivers clearer definitions, refined data structures, and enhanced interoperability for the digital representation of maritime zones. This update ensures greater consistency and reliability of global sea area boundaries, supporting navigation, regulatory compliance, and integration with other S-100 products.”

Comments by the HSSC Chair and IHO Secretariat:

The HSSC Chair and IHO Secretariat thank Oman for their comments.