



12th Meeting of the Hydrographic Services and Standards Committee

Report of the ENCWG

Presented by Tom Mellor
Chair of IHO ENC Standards Maintenance
Working Group

HSSC-12, VTC Event, 19-22 October 2020

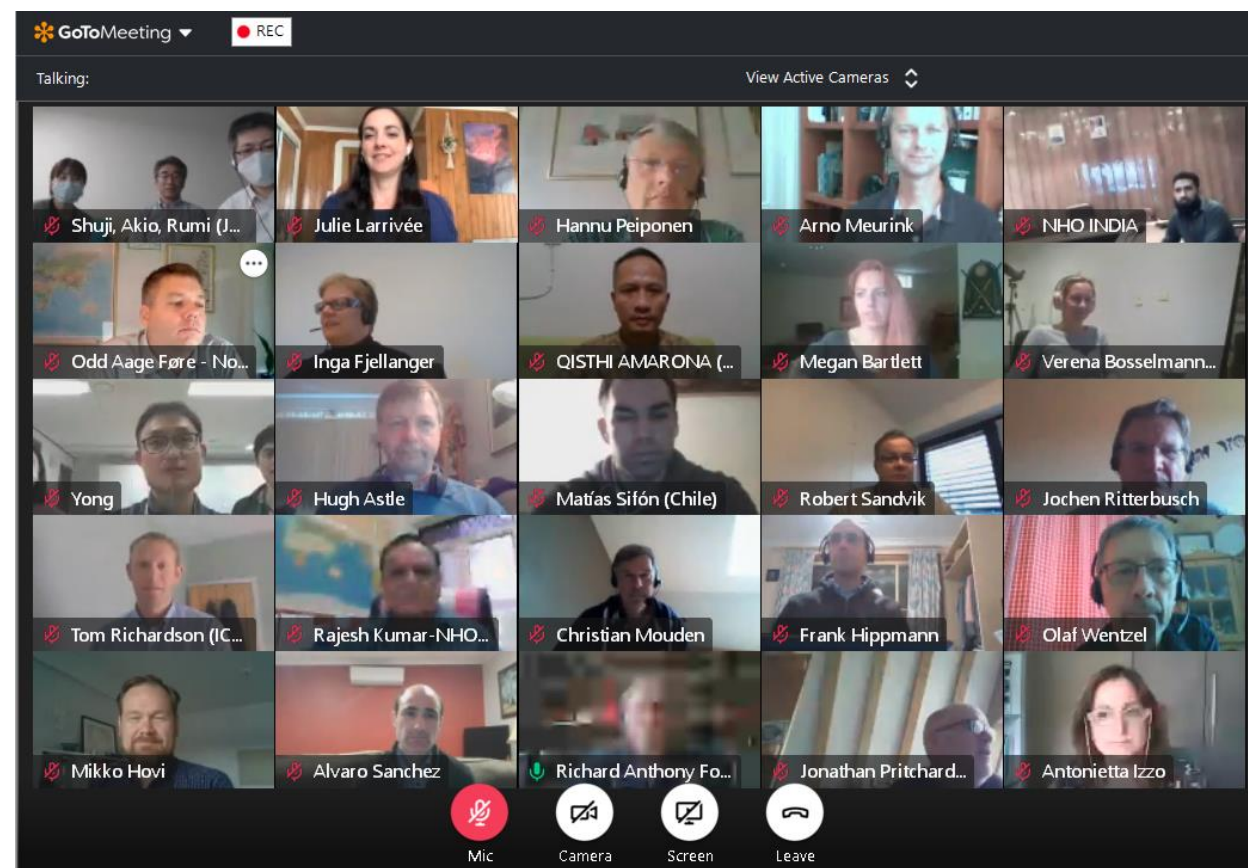


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ENCWG5 VIRTUAL MEETING 15TH -16TH JULY 2020

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- ENCWG 5 meeting to be held in Wellington, New Zealand, June 2020, had to be cancelled due to COVID 19 global pandemic
- ENCWG VTC arranged 15-16 July 2020. 42 ENCWG members took part each day, meeting time was limited to 3 hours.
- Small subgroups formed to progress action items, progress to be reported back to ENCWG plenary meeting tbc early 2021.
 - S-52 & S-64 Clarifications
 - S-63 ENC Security & Impact Assessment
 - S-58 ENC Validation
 - S-57 to S-101 Encoding
- ENCWG requested to consider amending IHO standards to remove Master and Slave references





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PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

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The key priority of the IHO Work Programme 2019-2020 tasked to the ENCWG is as follows;

Consolidation and clarification of standards in relation to ECDIS/ENC

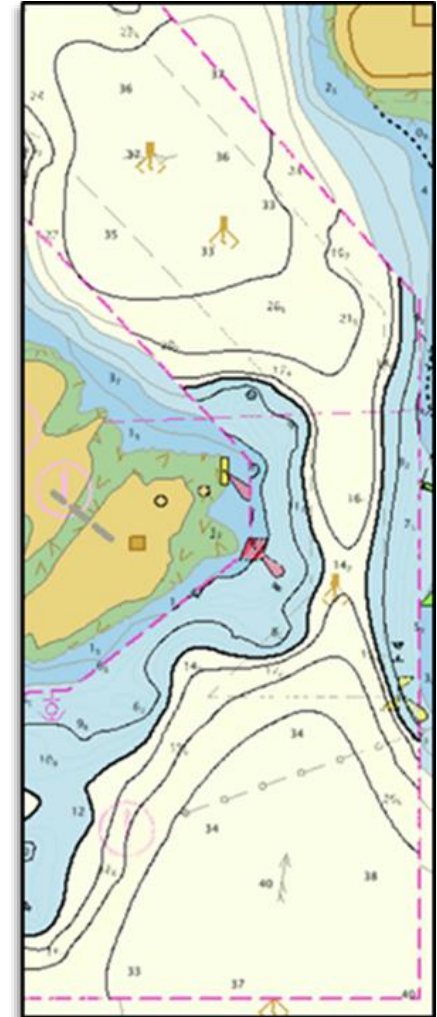
1. Publication of IHO S-65 Annex A HDENC Production and Maintenance Guidance, Jan 2020
2. Publication of IHO S-63 clarification edition 1.2.1, Mar 2020
3. S-58 edition 6.1.0 became operational Sept 2019
4. S-52 and S-64 clarification editions due for publication Dec 2020
5. Final draft document “Information on ENC Generalization, Over-Scaling and Safety Checking Functions in ECDIS” prepared for HSSC approval
6. S-57 Appendix B-1, Annex A submitted to IHO MS for adoption (IHO CL 08/2020)



IHO IHO S-65 HDENC ANNEX A

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- Jan 2020 Publication of S-65 Annex A - HDENC Production and Maintenance Guidance
- Increased safety in depth constrained waterways
- Provides both the Master and Pilot with enhanced data for berth to berth planning and monitoring





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S-63 IHO DATA PROTECTION SCHEME - CLARIFICATION

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- Intertanko requested the IHO investigate standardizing the content of a README.txt file within an ENC exchange set.
- ENCWG in consultation with RENCs and Data servers developed a new structure for the file which forms part of the IHO S-63 standard.

Section 1 – Important General Information

Section 2 – HO's information:

Section 3 – Withdrawn Cell

Section 4 – Miscellaneous Information

- Standardising the README.TXT file structure will enable OEMs to display the file content within ECDIS, in a consistent way.
- Important note, as this clarification does not affect ECDIS and there is no need for software upgrades.



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IHO S-58 CRITICAL ERRORS

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- S-58 edition 5.0 was retired on 1st September 2019 at which time Edition 6.1.0 became the effective standard as advised by IHO CL37/2019.
- The main change was the introduction of a new critical error test.
- Both Regional ENC Coordination Centres (RENCs) confirmed their intention to follow the conformance rules contained in S-58 edition 6.1.0 and advised their members that they would not publish any new ENC cell, new edition or update if it contained a critical error.
- There were a small number of ENCs withheld from distribution to correct critical errors.
- Collection of user feedback is ongoing to further refine the critical error checks in S-58.

C	Critical Error	An error which would make an ENC unusable in ECDIS through not loading; or causing an ECDIS to crash; or presenting data which is unsafe for navigation.
E	Error	An error which may degrade the quality of the ENC through appearance or usability but which will not pose a significant danger when used to support navigation.
W	Warning	An error which may be duplication or an inconsistency which will not noticeably degrade the usability of an ENC in ECDIS.



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S-58 ENC VALIDATION CHECKS EDITION 7.0

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- Following the publication and adoption of S-58 Edition 6.1.0 the ENCWG have received a number of proposals for additional new validation checks, and for changes to existing checks.
- To include new checks a full new edition (Edition 7.0) will be necessary.
- The proposed changes will ensure that the standard remains relevant and reduces the number of false positives reported. The impact of the new edition will be limited to the validation tool producers who will need to update their software.



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PROBLEMS OR OUTSTANDING ISSUES

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1. Cyber Secure ECDIS – Possible S-63 new edition

The IMO require all vessels to include in their SMS, cyber risk management no later than the first annual inspection after 1st January 2021.

In response IEC have developed IEC 63154 ED1 “Maritime navigation and radiocommunication equipment and systems – Cybersecurity – General requirements, methods of testing and required test results”, allowing OEMs to type approve their equipment to meet the IMO requirement.

To ensure the entire solution is protected (i.e. equipment and data supply), S-63 needs to be modified to improve the resilience of all associated IHO standards.



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IHO S-63 CYBER SECURITY

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- A proposed solution to address the S-63 vulnerability has been developed
- Sample datasets have been created for testing by OEMs and IHO data servers
- Potential solution may be possible to implement without effecting existing ECDIS
- ENCWG to carry out impact assessment to ascertain the viability of solution and impact on the IHO, HO's, OEMs and shipping industry

ENC exchange set files currently not digitally signed by data servers.

CATALOG.031	MEDIA.TXT
README.TXT	PERMIT.TXT
PRODUCTS.TXT	SERIAL.TXT
STATUS.TXT	



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INFORMATION ON ENC GENERALIZATION, OVER-SCALING AND SAFETY CHECKING FUNCTIONS IN ECDIS

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HSSC Letter 03/2020 invited the ENCWG to make proposals to be considered at HSSC-12 on the following:

- **With the endorsement of S-67 - Mariners' Guide to Accuracy of Depth Information in Electronic Navigational Charts (ENC), is there a need to amend the information paper, so it is synchronized with S-67, before it is made publicly available at least for consistency purposes?**

Having reviewed S-67, the ENCWG do not believe there is a need to modify the information paper sent to HSSC for approval and publication. The DQWG may wish to consider if Annex B is really appropriate for inclusion within S-67 Accuracy of Depth Information in Electronic Navigational Charts (ENC).

- **What is the information included in this paper that is missing in existing standards and publications (same for the stand-alone paper on "IHO Advice for PSC Inspectors Concerning IHO Standards")? Could this information be incorporated in any of the already existing standards or publications, e.g. S-66 Facts about Electronic Charts and Carriage Requirements**

The information paper gives context to the use of ENC data in ECDIS and seeks to inform Mariners of the limitations when using them beyond their intended purpose. Apart from the very brief overview in S-67 there is currently no IHO Standard or Specification that covers this topic.



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MANAGEMENT OF ENCWG INFORMATION PAPERS

ENCWG TORs State;

Coordinate technical exchange with type-approval authorities, ECDIS manufacturers and ECDIS user community and offer guidance and advice as appropriate

Issue

- Current IHO technical standard and specification guidance documents don't always cover contemporary issues raised by the ECDIS/ENC user community
- ENCWG need to be able to respond to urgent requests for information from ENC users
- IHO technical standards are not always the best conduit for information that has a limited life expectancy

Proposals

- Establish ENCWG LinkedIn account and other social media channels for adhoc requests for information to maximise reach.
- Consider IHO ENCWG website to host ECDIS test datasets and other topical content, similar to www.S-121.com
- Publish ENCWG Information papers in periodicals and trade magazines like the Nautical Institute Seaways publication which is distributed to thousands of Mariners



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S-121 WEBSITE

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s121

Not secure | s-121.com/w/index.php/Main_Page

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Preamble

S-121 is an open access method of providing digital representation of Maritime Limits and Boundaries (MLBs). Maritime limits and boundaries are constructs used to define maritime zones for nations around the world. With the United Nations Convention of the Law of the Sea (UNCLOS), they can form an international legal foundation of the marine domain. S-121 represents an essential extension of the International Hydrographic Organisation S-100 for the administration of the marine domain.

In December 2016, the International Hydrographic Organisation (IHO) distributed the initial document describing the standard at the United Nations headquarters in New York. This meeting began the international effort to define the core features of the S-121 standard.

There are two goals of the S-121 standard, first: to have an open, international, coordinate-based, representation of maritime boundaries and their associated

S-121 EXAMPLE DATASET

Example of maritime boundary between states.

IHO S-121 Feature Model

Description	Open product specification for maritime limits and boundaries
Initial Document	December 2016
Location	United Nations headquarters in New York
Document Link	IHO S-121




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EXAMPLE ENCWG LINKEDIN ACCOUNT

International Hydrographic Organization

New blog post - The cost of digital assets: How to optimize your budget. Ad ...




Thomas Mellor Owner
Created group: Jul 2020

Pending posts 0
Requests to join 0

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IHO ENC Standards Maintenance Working Group (ENCWG)

Listed group

1 member



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About this group

To maintain IHO standards which apply to ENC production and display

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Group admin



Thomas Mellor
· You Owner
Head of OEM Technical Support and Digital Standards at United Kingdom Hydrographic Office

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MASTER/SLAVE

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HSSC Paper - Removal of the Term Master/Slave from S-57 and other IHO standards

- A proposal from NOAA to the ENCWG 5 requested removing the term Master/Slave from all IHO standards and specification where referenced.
- The ENCWG unanimously supported this action given the IHO have committed to gender-inclusive language
- Eliminating outdated terminology that does not reflect the views of the IHO Member States needs to be addressed

3.9 Relationships

There are two ways to define relationships between objects :

- nominated master feature record,
- collection objects of classes "aggregation" (C_AGGR), or "association" (C_ASSO).

The use of the Catalogue Cross Reference record is prohibited.

The use of the collection object class C_STAC is prohibited.

All hierarchical relationships (master to slave) must be encoded by using a nominated "master" feature record carrying the pointers to the "slave" objects in the "Relationship Indicator" [RIND] subfield in the "Feature Record to Feature Object Pointer" [FFPT] field with the value {2} = slave.

All association or aggregation relationships using collection objects are assumed to be peer to peer. The "Relationship Indicator" [RIND] subfield of these collection feature records must be {3} = peer.

The use of these relationships is described in Appendix B1, Annex A "Use of the Object Catalogue for ENC".

S-57 Appendix B Product Specification



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FUTURE WORK PROGRAMME

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1. New Work Item - S-57 to S-101 Conversion, to support fully automated conversion tools transforming S-57 to S-101 ENC's there is a requirement to add additional attribution into the S-57 data. ENCWG to update the S-57 Use of the Object Catalogue to assist HO's with S-57 ENC encoding to support conversion to S-101 ENCs.
2. New Work Item – Assessment of S-63 impact study and potential production of a new edition of S-63.



IHO **THANK YOU TONY**

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The ENCWG wish to extend their thanks to the former Assistant Director Mr Tony Pharaoh for his many years of service as Secretary supporting the Working Group and its development of technical IHO standards.

All the very best Tony for a long and happy retirement.





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ACTIONS REQUESTED FROM HSSC

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1. Approve the Mariner Information paper ENC Generalization, Over-Scaling and Safety Checking Functions in ECDIS.
 - Establish ENCWG LinkedIn account
 - Consider creation of IHO ENCWG website to host ECDIS test datasets and other topical content, similar to www.S-121.com
 - Publish ENCWG Information paper in periodicals and trade magazines



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ACTIONS REQUESTED FROM HSSC

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2. Approve the ENCWG request to update S-57 and the relevant IHO Standards to remove references to Master and Slave
3. Approve the request to create new edition 7.0 of S-58



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QUESTIONS