

Paper for Consideration by the IRCC

Draft IHO Resolution to address issues related to the existence of overlapping ENC data

<i>Submitted by:</i>	WENDWG
<i>Executive Summary:</i>	Following Action IRCC8/14, this paper provides a proposal from the WENDWG for a draft IHO Resolution to address issues related to the existence of overlapping ENC data.
<i>Related Documents</i>	IRCC8-07D, IRCC8 Report, List of Actions, List of Decisions IHO Resolution 1/1997 as amended - WEND Principles – Guidelines for the Implementation of the WEND Principles. NCSR 4/27/5 – Report on monitoring ECDIS issues by the IHO.
<i>Related Projects</i>	New Ed. 3.0.0 of S-11 Part – <i>Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes</i>

Introduction and Background

1. The eighth meeting of the IHO Inter-Regional Coordination Committee (IRCC-8) took place in Abu Dhabi, UAE, from 29 to 31 May 2016. The WENDWG Chair delivered the WENDWG report (Doc. [IRCC8-07D](#)), based on the decisions made at WENDWG-6. The WENDWG Work Programme for 2016-17 ([Annex A](#) to Doc. IRCC8-07D) was endorsed.
2. The IRCC-8 meeting noted with concern several issues related to ENC coverage including the fact that little progress had been made in resolving the continuing existence of overlapping ENC data in some areas of the world.
3. The following actions were decided:

N°	Action	Responsible	Deadline
IRCC8/13	work to reduce overlaps by applying the WEND Principles in defining approved ENC schemes	RHC Chairs	Permanent
IRCC8/14	draft an IHO Resolution to address the overlapping issues and report to the IRCC	WENDWG	IRCC9

4. In support of Action IRCC8/13, the WENDWG continues to monitor the evolution of ENC overlaps by charting region as a standing agenda item, with the kind support provided by the RENCs and the UKHO. In addition, it is worth noting that Ed. 3.0.0 of S-11 Part A (endorsed at HSSC-8, and in the approval process at the date of this paper), includes, now, a section providing guidance for the preparation and maintenance of *ENC schemes*. These actions are consistent with each other and complementary. They are also key components for providing reliable data to the Strategic Performance Indicator SPI 9 for monitoring the existence of approved ENC Schemes (if retained at IHO-A1).
5. At its 7th meeting, the WENDWG drafted a proposal built on the existing Guidelines for the Implementation the WEND Principles, on the lessons learned from ECDIS tests using different scenarios (ENC in same usage bands, ENC in different usage band but having the same compilation scale), on the work already done by the WENDWG at its 6th meeting. Concerns raised in Doc. [NCSR 4/27/5](#) (sections 16 and 17 in particular) were also noted and the WENDWG confirmed the need to reinforce the full implementation of the WEND Principles, with such an IHO Resolution. Key messages on this matter were highlighted at the IHO-A1 in the IRCC Chair's

report.

Actions required from the IRCC

6. The IRCC is invited to:
 - Consider the draft IHO Resolution in Annex A, with a view to submitting an agreed version to the IHO Council/IHO Member States for approval.
 - Consider other proposed actions as appropriate.

Annex A

PROPOSAL FOR AN IHO RESOLUTION ON THE ELIMINATION OF OVERLAPPING ENC DATA IN AREAS OF DEMONSTRABLE RISK TO THE SAFETY OF NAVIGATION

Submitted by: WENDWG

References:

- A: IHO Resolution 1/1997 as amended – *WEND Principles* – including its Annex - *Guidance for the Establishment of ENC Production Boundaries* -.
- B: *Guidelines for the Implementation of the WEND Principles*.
- C: S-11 Ed. 3.0.0 - *Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes and Catalogues of INT Charts and ENCs* (currently in the approval process after endorsement at HSSC-8).

PROPOSAL: To adopt IHO Resolution xx/2017 – *Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation.*

EXPLANATORY NOTE:

At its 8th meeting, IRCC tasked the WENDWG to draft an IHO Resolution addressing issues related to overlapping ENC data. The proposed IHO Resolution is the result of Action WENDWG6/05 as agreed at the 6th meeting of the WENDWG (WENDWG-6). It also takes into account existing references and the new Ed. 3.0.0 of S-11 Part A - *Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes* endorsed by HSSC at its 8th meeting, and currently awaiting approval by IHO Member States.

It is proposed that the relevant section of the existing *Guidelines for the Implementation of the WEND Principles* related to overlapping issues, is incorporated directly in the proposed IHO Resolution, without any change, in order to reinforce its important role. One of the main reason to do so, is that this section has already been approved by IHO Member States ([IHO CL 40/2014 dated 26 May](#)).

This draft proposal takes also into account the recommendations made at WENDWG-6 as follows (Extract of the minutes of WENDWG-6):

“One of the main objectives of the WENDWG is to monitor the application of the WEND Principles by the Hydrographic Offices and the Regional Hydrographic Commissions (RHCs). ... Yet, for various reasons, there remain numerous cases of overlapping ENCs, which is contrary to the ENC production principles established by the IHO. Based on the analysis provided by the UKHO and the RENCs, it was agreed that the situation is not improving very much.

While the research study led by Singapore in the Malacca Strait is expected, IC-ENC provided a very comprehensive report on the unpredictable behaviour of ECDIS in situations where overlapping data occurs, for different scenarios.

CIRM provided very useful comments on the possible existing ENC selection criteria implemented in ECDIS. He also stated that manufacturers would stand ready to implement a hierarchy of tests if the IHO was in a position to propose selection criteria (CATZOC, waters under the jurisdiction of the ENC Producer, compilation scale, more recent survey date, publication date, etc.). But this is obviously not possible at the moment and it is likely that the selection is made...randomly! He also confirmed that HO's cartographers are the right people to make cartographic choices, not the industry.

PRIMAR reported that for budget reasons, it is likely that the mariners do not face so many cases of overlapping as they buy only one ENC at the appropriate scale for the voyage. However, the RENCs cannot deny the sale of these overlapping cells. So the US wondered whether the problem was real or not, and if it was, what could be achieved by the WENDWG if not the monitoring only?

As decided at WENDWG-5, South Africa confirmed that the WEND Principles together with the Guidelines did not need to be amended, as there will be no effect at all if they were, but they needed to be applied even enforced, notably through the definition of approved-ENC schemes by RHCs in their respective Charting Regions.

Considering that the use of IMO arbitration was the absolute last option, as indicated in the Guidelines, the Chair of the IC-ENC

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Steering Committee suggested a pragmatic approach taking into account all the complementary tools available at the IHO level and as a first stage, to consolidate the results of the IC-ENC overlapping study seeking the views of OEMs, the ENCWG and the NCWG. A full set of actions was decided accordingly.

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Post meeting note: An S-57 Encoding Bulletin, regarding the “same compilation scale, different usage band” scenario, was subsequently issued by the ENCWG.”

[Draft] IHO Resolution xx/2017 – *Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation*

Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation	xx/2017	IHO CL xx/2017 (after endorsement at IRCC-9 and IHO Council 1)	
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1. It has been reported that overlapping ENC data, when used in ECDIS equipment, may lead to unpredictable behaviors in at least the following cases:
 - overlapping data occurring in the same usage band (navigational purpose code);
 - overlapping data occurring in ENC cells in different usage bands (navigational purpose codes) but using the same compilation scale.
2. Hydrographic Offices, ENC Producers, and Regional Hydrographic Commissions should take appropriate measures to eliminate all overlapping ENC data, particularly in areas of demonstrable risk to the safety of navigation.
3. While RENCs and End-User Service Providers may develop certain distribution policies to help prevent such overlapping data from passing through the ENC distribution chain, the safety of mariners at sea should not rely on these mechanisms alone, as if they were the primary solution.
4. In addition to the existing procedures related to overlapping ENC data described in:
 - IHO Resolution 1/1997 as amended (*WEND Principles*) and its Annex (*Guidance for the Establishment of ENC Production Boundaries*);
 - the *Guidelines for the Implementation of the WEND Principles*, as endorsed by the 11th WEND Committee Meeting in 2008 and amended in 2014;
 - S-11 Ed. 3.0.0 - *Guidance for the Preparation and Maintenance of International (INT) Chart and ENC Schemes and Catalogues of INT Charts and ENCs*; and
 - S-57 - *IHO Transfer Standard for Digital Hydrographic Data* -, Appendix B.1, Annex A - *Use of the Object Catalogue for ENC* (Ed. 4.0.0, June 2014) - clause 2.1.8;

Hydrographic Offices, ENC Producers, and Regional Hydrographic Commissions should seek to:

- identify overlapping ENC data in all areas of significance to navigational safety within their areas of production or control;
 - prevent the increase of any such cases;
 - resolve all of those cases where a demonstrable risk to the safety of navigation exists, through discussion and negotiation between the relevant ENC producers, as soon as possible, and at least within one year of any such overlapping ENC data being reported or identified.
5. Notwithstanding the responsibilities of concerned ENC Producer Member States to take early action to notify the mariner of possible risks to the safety of navigation, in any case where the elimination of overlapping ENC data cannot be resolved and its continued existence presents a demonstrable risk to the safety of navigation, the procedures described in section 1.7 of the *Guidelines for the Implementation of the WEND Principles* should be applied. The timescale to resolve should be within one year of the matter coming to the attention of the concerned ENC Producer Member States. Section 1.7 states:

“1.7. The S-57 Standard allows minimal overlap of ENC data within usage bands. ECDIS systems will operate unpredictably in areas where significant overlapping ENC coverage is present, raising a potential navigational risk to end-users. Where overlapping coverage exists the Producer Member States should recognize their responsibility and take the necessary steps to resolve the situation. To

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ensure that overlapping ENC data coverage is resolved to the satisfaction of the Regional Hydrographic Commission (RHC), the following procedures should be undertaken in sequence until there is satisfactory resolution:

1.7.1 The RHC will identify and assess ENC coverage within their area of responsibility and highlight those areas where there are navigationally significant differences between the overlapping ENCs. The assessment of what may be navigationally significant should be guided by the best practices in this regard, acknowledged and approved by the IRCC. The RHC may seek the assistance of a Regional ENC Coordination Centre (RENC) to assist in development of this assessment and should take a proactive approach with the ENC Producer Member States, to resolve overlap issues within the region.

1.7.2 The RHC will keep the IRCC Chair and the IHB informed, through the annual reporting process, about overlaps in ENC coverage, their associated risks and related action(s) taken by the coastal States and/or the Producer Member State. Appropriate action by the IHB should be initiated to inform the International Maritime Organization of the situation with details of the desired actions to be taken by the Government(s) of the involved coastal State(s) and the risks associated with inaction.

1.7.3 Where urgent action is required to alert mariners to navigationally significant overlap issues then the RHC, through the concerned Producer Member States, should initiate promulgation of appropriate warnings directly with the regional NAVAREA coordinator and other local navigational warning protocols, while keeping the IRCC Chair and IHB informed.”