

## 33<sup>rd</sup> North Sea Hydrographic Commission Meeting (NSHC)

Ostende, Belgium, 27 to 28 March 2018

### Report of the Worldwide ENC Database Working Group

#### (WENDWG)

<b>Submitted by:</b>	Nigel Sutton, NSHC WENDWG Representative
<b>Related Documents:</b>	Final minutes of IRCC-9, IHO Council Decisions, IHO Strategic Plan Performance Indicators and IHO Resolution 1/2018.
<b>Related Projects:</b>	N/A
<b>Chair:</b>	Jamie McMICHAEL-PHILLIPS, UK
<b>Vice-Chair:</b>	John NYBERG, USA
<b>Secretary:</b>	Yves GUILLAM, IHB
<b>Member States, RHCs and RENCs:</b>	<a href="#">Membership List</a>

*WENDWG is a working group under the IRCC Committee. The purpose of the WEND Working Group is to advise IRCC and to assist in facilitating a world-wide consistent level of high-quality, updated official ENC's through integrated services that support chart carriage requirements of SOLAS Chapter V, and the requirements of the IMO Performance Standards for ECDIS.*

#### Meetings Held During Reporting Period

1. WENDWG7, 21 January – 2 February 2017, Washington DC, USA.
2. Planned: WENDWG8, 20 - 22 March 2018, Buenos Aires, Argentina.

#### Programme of Work

3. In 2017, at the 7<sup>th</sup> meeting of the Working Group, the following key issues were discussed and are summarised in more detail further within this report:

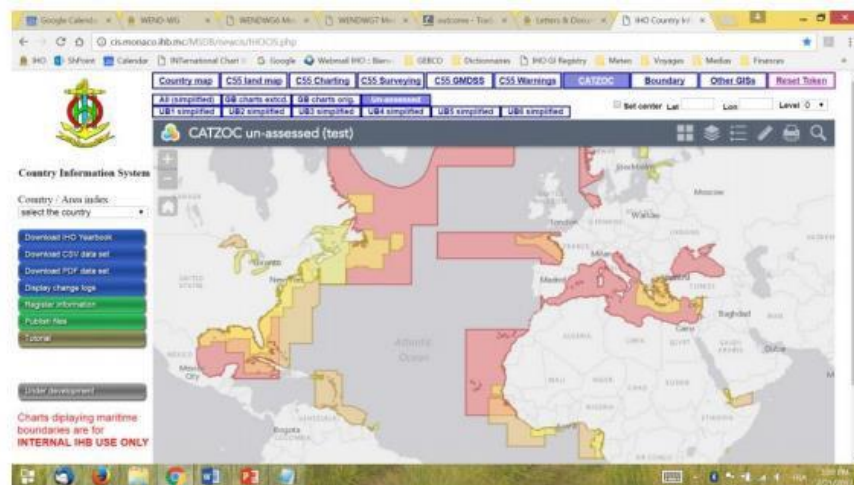
- IHO Performance Indicators
- IHO ENC Catalogue
- RENC Harmonisation and Distribution
- The Full Implementation of the WEND Principles
- IRCC8 Decisions and Actions that impact WENDWG
- AIO (Admiralty Information Overlay)
- Draft IHO resolution for eliminating overlapping ENC's
- Review and Update of the WENDWG Work Programme

#### ➤ IHO Performance Indicators (PIs)

4. The meeting agreed on the simplification of the number of PIs. There was a focus on PIs related to Usage bands 1, 2 and 3 as Usage Bands 4 and 5 are usually limited to national rather than regional ENC coverage. Discussion on the topic at IRCC9 resulted in Decision 15: WENDWG to await the progress in the review of the IHO Strategic Plan as agreed by A-1 before developing Performance Indicators.

➤ IHO ENC Catalogue

5. Since 2016 many improvements have been made to the IHO ENC Catalogue, including provision of CATZOC data by the RENCs, following approval of ENC producers. Experimentation is still in progress.



*Experimentation at the IHO Secretariat for displaying “un-assessed” CATZOC values*

➤ RENC Harmonisation and Distribution

6. RENCs provided a short summary of the outcome of the Joint RENC meeting that was held in Washington DC, prior to the WENDWG-7 meeting. After five years of fruitful co-operation and harmonization, it is considered that the two RENCs have now entered a period of maturity and stability. Lots of support to HOs in data quality control and in capacity building is provided. The RENCs suggested that a 6-month cycle for updating the ENC data flow diagram of would be more suitable than the one-year periodicity. The WENDWG raised some concerns for the ENC that are not distributed through a RENC yet (black box). Following actions were agreed and completed.

AGENDA ITEM/WORK IEM	SUBJECT	ACTION No.	ACTIONS&DECISIONS (in bold, action by)	TARGET DATE/EVENT
	ENCs not distributed through a RENC yet	WENDWG7/12	In order to make “exclusive” ENCs accessible through the RENC system for distribution, <b>UKHO</b> invited to give a timeline on when that will happen.  <b>WENDWG</b> to monitor the progress made on an annual basis (ENC Data Flow diagram).	<b>1 March 2017</b>  <b>WENDWG-8</b>
	Quality control, risk assessment	WENDWG7/13	<b>WENDWG Chair</b> to report to IRCC that all Produced ENC data (incl. “exclusive”) must be made available to every RENC for them to ensure quality control (overlapping checks, risk assessment, etc).	<b>IRCC-9</b>

➤ The Full Implementation of the WEND Principles

7. IRCC8 put an action on RHC chairs to work to reduce overlaps by applying the WEND Principles, when defining approved ENC schemes. IHO Member States have been requested in IHO Circular Letter 19/2017, to approve a new Edition of S-11 (Part A - Guidance for the Preparation and the Maintenance of International (INT) Charts and ENC Schemes). The inclusion of ENC schemes in the guidance is intended to reinforce the need to implement ENC scheming at the regional level. Based on the existing coverage for ENC at usage bands 1 to 3, the status of the indicator (WPI 21) for the percentage of agreed/available ENC schemes at the end of Dec. 2016 is 82% for all the charting regions.

➤ **IRCC8 and 9 Decisions and Actions that impact WENDWG. MIO (Marine Information Overlay)**

8. Some ENC producer countries, who already include Temporary & Preliminary Notices to Mariners (T&P NtMs) in their ENC updates, argued that decisions made at IRCC-8 relating to the Admiralty Information Overlay service provided by the UKHO as part of its AVCS service, had not been implemented yet. It was agreed, that UKHO will report to France, Norway, Sweden and Finland on why AIO still exist on their ENCs. The topic of MIO and AIO was further discussed at IRCC9, which resulted in IRCC9 Decision 22, to amend the MIO statement that was earlier adopted at the 8th IRCC meeting (IRCC8 Decision 14).

➤ **Draft IHO resolution for eliminating overlapping ENCs**

9. An ad hoc group was established to prepare a draft of a new IHO Resolution seeking to limit overlapping ENC coverage issues when safety of navigation is at risk. This new proposed IHO Resolution aims to clarify and consolidate the procedure which already exists in the Guidelines for the Implementation of the WEND Principles. It was submitted to IRCC9 (IRCC9\_07D3) and then onto Council (C1-3.2 Annex B) for endorsement before being adopted by Member States via Circular Letter (IHO CL 19/2018 refers). IHO Resolution 1/2018 - the elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation, is shown at Annex A.

10. Current and historic ENC overlapping issues were also discussed.

**WENDWG7 Washington 2017**

RHC	YEAR				
	2012	2013	2014	2015	2016
ARHC	36	14	20	9	9
BSHC	67	36	14	16	16
EAHC	294	133	177	241	253
EATHC	6	2	3	3	0
HCA	2	1	1	4	3
MACHC	34	15	4	5	4
MBSHC	268	120	99	100	96
NHC	71	35	30	8	4
NIOHC	115	33	10	18	21
NSHC	71	21	10	16	23
RSAHC	16	7	3	17	11
SAIHC	2	0	1	1	4
SEPHC	4	2	2	2	1
SWATH	8	2	4	4	4
SWPHC	26	8	8	2	6
USCHC	171	42	46	19	22

**Global ENC overlaps by RHCs from 2012 to 2016**

➤ **Review and Update of the WENDWG Work Programme**

11. WENDWG 2017-2018 Work Programme was approved at IRCC9, June 2017 – included for reference at Annex B.

**Progress on IRCC Action Items**

12. All IRCC9 decisions and actions have been incorporated into the WENDWG Work Programme and progressed accordingly.

**Decision 15:** WENDWG to await the progress in the review of the IHO Strategic Plan as agreed by A-1 before developing Performance Indicators.

**Action 13:** WENDWG to contribute to the IHO Strategic Plan review in order to ensure consistent and relevant performance indicators related to WEND are in place and report back to IRCC (deadline: IRCC10).

**Decision 16:** to commend the IHO Secretariat on the improvements made to the IHO ENC catalogue over the last year.

**Decision 17:** to commend both RENCs on the work undertaken hitherto to reach maturity and stability and for the support provided to hydrographic offices and end-user service providers.

**Decision 18:** to note the revised 6-monthly updates to the ENC Data Flow Diagram maintained by the RENCs.

**Action 14:** RHC Chairs to encourage the Member States in the region to consider making all ENC data available through the RENCs (deadline: December 2017).

**Action 15:** RHC Chairs to encourage the work of the IHO community to increase existence of ENC schemes at regional level (deadline: December 2017).

**Decision 19:** to endorse the draft IHO Resolution for eliminating overlapping ENCs proposed in doc. IRCC9-07D3.

**Action 16:** IRCC Chair to submit the draft IHO Resolution for eliminating overlapping ENCs to the Council as proposed in doc. IRCC9-07D3 (deadline: in time for C-1).

**Decision 20:** to approve the proposed updated WENDWG ToR as proposed in doc. IRCC9-07D2.

**Decision 21:** to approve the proposed updated WENDWG 2017-18 Work Programme as given at Annex A of doc. IRCC9-07D1 and the continuity of WENDWG activities under its updated ToR.

**Decision 22:** to endorse the amendment proposed to the statement that was earlier adopted at the 8<sup>th</sup> IRCC meeting, jointly provided by Australia, Canada, France, Italy and United States amending IRCC8 Decision 14.

**Decision 23:** to note the WEND reports, IRCC9-07D1, IRCC9-07D2, IRCC9-07D3, IRCC9-07D4 and IRCC9-07D5.

13. The NSHC is invited to:

- a. **Commend** MS work towards reducing overlaps by applying the WEND Principles in defining approved ENC schemes.
- b. **Note** the recently adopted IHO Resolution to address issues related to the existence of overlapping ENC data (IHO Resolution 1/2018 as shown at Annex A).
- c. **Note** the IRCC9 approved updated WENDWG 2017-18 Work Programme as shown at Annex B and the continuity of WENDWG activities (WENDWG ToRs Art. 4.3 refers).

Annex:

- A. IHO Resolution 1/2018 to Address Issues Related to the Existence of Overlapping ENC Data.
- B. WENDWG 2017-18 Work Programme.

Previously Annex B to IHO CL 19/2018
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## PROPOSED IHO RESOLUTION ON THE ELIMINATION OF OVERLAPPING ENC DATA IN AREAS OF DEMONSTRABLE RISK TO THE SAFETY OF NAVIGATION

[Proposed] IHO Resolution 1/2018 – *Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation*

<b>Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation</b>	<b>1/2018</b>	<b>IHO CL 19/2018</b>	
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1. It has been reported that overlapping ENC data, when used in ECDIS equipment, may lead to unpredictable behaviour in at least the following cases:
  - overlapping data occurring in the same usage band (Navigational Purpose);
  - overlapping data occurring in ENC cells in different usage bands (Navigational Purposes) 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 11<sup>th</sup> 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. 4.1.0, January 2018) - 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; and
  - 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 the ENC Producer Member States involved, 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

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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 ENC Producer Member States involved.

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 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 IHO Secretariat 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 IHO Secretariat 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 IHO Secretariat informed."*

## WENDWG Work Programme 2017-18 (Approved at IRCC-9)

### Objectives ([WENDWG TORs](#) refer)

1. Monitor the development of adequate ENC coverage to meet carriage requirements for ECDIS;
2. Develop proposals for speeding up ENC production and ensuring uniform ENC quality and consistency, and for making data available worldwide, including SENC distribution, taking advantage of any offers for production assistance, or other ways of mutual assistance and co-operation;
3. Advise MS, where appropriate, on the need, as well as on methods and tools for validating the data, and on any assistance which could be offered by the RENCs;
4. Monitor the implementation of the WEND, in response to Decision 21 of the XVIIth IHC, and advise IRCC of appropriate measures for speeding-up the implementation process;
5. Assist in harmonizing the policies of regional ENC Coordinating Centres (RENC) with respect to matters related to administration, legality, finances, technical processes, et cetera.

### Tasks

A	To assess overlapping ENC data issues within ECDIS and make progress to solve them
B	To finalise paper on Guidelines on Assessing and Eliminating the Risk of Overlapping ENC Cells
C	To progress on RENC Harmonization Issues
D	To continue working to attract ENC producer nations to join the RENCs or distribute their ENCs through a RENC
E	To ensure data quality and consistency
F	To monitor and report ENC coverage report to WENDWG
G	<i>Left blank intentionally</i>
H	To progress the development of the IHO ENC catalogue
I	To develop capacity Building activities
J	To propose way ahead for assessing the long term consequences of not achieving full implementation of the WEND Principles
K	To address the relevance of information overlay services and their status in the global IHO ENC Programme

Work Item	Title	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-superseded	Contact Person(s). Participants	Deliverable	Remarks
A.1	Pilot project using OEM tools to resolve ENC overlapping issues	M	IRCC8 (tbc)	2014	2016	O	Singapore/EAH C	Recommendations and potential impact on WEND Principles	See HSSC6-05.6B <b>Action WENDWG6/07</b> <b>Report expected from EAHC/SG</b>
A.2	Develop scenarios and test cases on ECDIS with overlapping ENCs	M	WENDWG6	--	2016	C	IC-ENC	idem	Action WENDWG5/04. <b>Complete</b>
A.3	Assess the impact of overlapping ENC on ECDIS	H	WENDWG7	2016	2017	O	IC-ENC, CIRM	Recommendations and Resolution at IHO-A1 (tbc)	<b>Questionnaire to CIRM for full assessment</b> <b>Actions WENDWG6/03, 04, 05.</b>
B.1	Finalise paper on Guidelines on Assessing and Eliminating the Risk of Overlapping ENC Cells	M	WENDWG5	2013	IRCC-7	C	WENDWG		First step (procedure for RENC): see IRCC6-08C Action WENDWG5/09 <b>Complete</b>
B.2	Develop policy on overlapping data and production responsibilities	M	IRCC8, HSSC8	2014	2017	O	RENCs Manager, RENC Chair, RHC, NCWG	Recommendations and Resolution at IHO-A1 (tbc)	<b>Complete</b> <b>Actions WENDWG6/05 and 06</b> <b>New Edition of S-11 Part A including ENC Scheming in progress to be reviewed at NCWG-2.</b>



Work Item	Title	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-superseded	Contact Person(s). Participants	Deliverable	Remarks
C.1	Provide revised RHSG paper on WENC	M	WENDWG5	2013	June 2015 (IRCC7)	C	RENCs		WENDWG5-04C. Action WENDWG5/03: Recommendation is that RHSG is to be disbanded while RENC Harmonization issues remain in the programme of work (C.2) <b>Complete</b>
C.2	Report on RENC Harmonization issues and progress made	M	WENDWG7	--	Permanent	O	RENCs		<b>Done for 2015-16</b>
D.1	Provide a joint RENC paper a paper on the benefits for ENC Producer Nations either to join a RENC or to distribute their ENCs through a RENC	M	May 2015	2014	WENDWG6	C	RENCs		Action WENDWG5/17 <b>Complete</b>
D.2	Create a documents repository on the IHO WENDWG webpage	H	April 2015	2015	June 2015	C	IHB		Action WENDWG5/05 <b>Complete</b>
D.3	Monitor ENC Producers who distribute their ENCs through a RENC	H		2014	Permanent	O	RENCs, IHB		IHO CL 59/2014 refers. <b>Done for 2015-16</b> <b>Actions WENDWG6/08 and 09</b>

Work Item	Title	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-superseded	Contact Person(s). Participants	Deliverable	Remarks
E.1	Ensure harmonization use of CATZOC and increase resolution of bathymetric contour lines	M		2016	Permanent	P	ENCWG, ENC Producers		Action WENDWG6/21
F.1	Monitor global ENC Coverage	H		2014	October 2015	O	UK		Done for 2015-16. Action WENDWG6/12
F.2	Using risk assessment methodologies, identify and consider ENC Gaps	H		2014	Permanent	P	RHCs, IHB		To be continued and improved by RHCs. Very good report made by MACHC at WENDWG6. Action WENDWG6/11
F.3	Provide and update the List of Ports (and moorings) database	H	WENDWG7	2014	Permanent	P	UK, US, RHCs, IHB		Action WENDWG6/10

Work Item	Title	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-superseded	Contact Person(s). Participants	Deliverable	Remarks
F.4	Provide relevant SPIs and WPIs on ENC adequate Coverage and ENC Producers	H		2015	December 2016	O	Chair (supported by UK), RENCs, IHB		WENDWG5-04A refers Action WENDWG5/21 <b>Complete for 2015, continue in 2016 To be reassessed after IHC17/IHO-A1 Actions WENDWG6/13, 14</b>
H.1	Continue the development of the IHO ENC Catalogue	H		2014	2017	O	IHB, UKHO, Jeppesen, RENCs		<b>Done for 2015. Progress expected in liaison with RENCs and Industry in 2016 Actions WENDWG6/15, 16, 17</b>
H.2	Deliver the RENC ENC Catalogue and Overlap Checker to RHCs and IHB	H	March 2015	2014	June 2015	C	RENC (PRIMAR), IHB		<b>Complete, but no evidence of interest or feedback from RHCs in general</b>
I.1	Provide support to CBSC on request for compelling requirements in the scope of the WENDWG activities	M		2015	WENDWG7	P	RHCs		

Work Item	Title	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-superseded	Contact Person(s). Participants	Deliverable	Remarks
J.1	Identify articles in WEND Principles and Guidelines that are considered not fully implemented	M	IRCC8	2015	2017	P	FR, and correspondence group		In progress Action WENDWG6/18
J.2	Identify barriers that prevent these articles to be implemented	M		2015	2017	C	FR, and correspondence group		Complete
J.3	Make proposals for corrective actions	M	IRCC8	2015	2017	P	FR, and correspondence group		In progress Action WENDWG6/18
J.4	If no action identified, assess long term consequences	M	IRCC8	2015	2017	P	FR, and correspondence group		In progress.

Work Item	Title	Priority H-High M-Medium L-Low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-Superseded	Contact Person(s). Participants	Deliverable	Remarks
J.5	Improve ENC full accessibility	H	IRCC8	2016	WENDWG7	P	UKHO, Jeppesen		Action WENDWG6/22
K.1	Provide systematic advanced notices of AIO to ENC Producers in case of safety issues and seek agreement and report on progress made on the information flow	H	IRCC8	2015	Permanent  WENDWG6	P	UK  All		On-going Report(s) provided at WENDWG6 Actions WENDWG6/19, 20
K.2	Provide AIO benefits/risks evaluation, description of information flow, views from NCWG and final recommendations	H	Sept. 2015 (for HSSC7)	2015	WENDWG6	C	UK, All, Chair		Complete