

34<sup>th</sup> North Sea Hydrographic Commission Meeting (NSHC)

27 – 28 April, Online VTC

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-10 & IRCC-11 and 2 <sup>nd</sup> & 3 <sup>rd</sup> IHO Council Actions and Decisions
<b>Related Projects:</b>	N/A

<b>Chair:</b>	John NYBERG, USA
<b>Vice-Chair:</b>	Annika KINDEBERG, SWEDEN
<b>Secretary:</b>	Yves GUILLAM, IHO SECRETARIAT
<b>Member States, RHCs and RENCs:</b>	<a href="#">Membership List</a>

*WENDWG is a subsidiary working group of the Inter Regional Coordination Committee (IRCC). The purpose of the WEND Working Group is to advise IRCC to enable the highest societal value of Member State effort by:*

- a. Facilitating a world-wide consistent level of high-quality, updated official S-57 ENC's through integrated services that support chart carriage requirements of SOLAS Chapter V, and the requirements of the IMO Performance Standards for ECDIS;*
- b. Reviewing options, and recommending actions, that expand the value of the Worldwide ENC Database to all marine data users applying data management principles and; (10th IRCC Meeting (Goa, India, June 2018) – Expansion of the scope of WENDWG)*
- c. Supporting the S-100 based products implementation strategy (11th IRCC meeting (Genoa, Italy, June 2019) – Support of the S-100 Implementation Strategy).*

**Meetings Held During Reporting Period**

1. WENDWG8, Buenos Aires, Argentina, 20 - 22 March 2018.
2. WENDWG9, Brest, France, 26 - 28 February 2019.
3. WENDWG10, Visio-TeleConference Meeting (VTC01), 7 - 9 April 2020.
  - a. Visio-TeleConference Meeting (VTC02), 9 September 2020.
4. WENDWG11, Video-TeleConference Meeting (VTC01), 17 - 18 February 2021

**Programme of Work**

5. In 2018 and 2019, at the 8<sup>th</sup> and 9<sup>th</sup> meetings of the Working Group, the following key issues were discussed and are summarised in more detail further within this report:

- a. Industry and Stakeholders Session (2018)
- b. ENC Coverage and Overlapping Issues
- c. IHO ENC catalogue
- d. RENC harmonisation and distribution
- e. The Full Implementation of the WEND Principles
- f. Impact of New TORs & C2 Actions (Workshop Sessions)
- g. Review and Update of the WENDWG Work Programme

## ➤ Industry and Stakeholders Session (2018)

6. In accordance with the WENDWG ToRs, expert contributors were invited to join the 8<sup>th</sup> meeting. Presentations were given as follows:

- a. “Nominal ENC Coverage and Navigational Risks” by the National Taiwan Ocean University.
- b. “Facilitation of chart providers for leisure market through harmonised licence arrangements” by IHO Secretariat.
- c. “Public-Private Partnership ... Serving All Mariners” by C-Map.
- d. “PRIMAR S-57 Distribution” by PRIMAR.
- e. “Unveiling of ENC depth information” by SevenCs.
- f. “Seamless transition to Seabed 2030 global initiative by requesting the RENCs establish processes for Coastal States to authorise and extract bathymetry data from ENCs for delivery to the IHO DCDB” by US and Norway.

7. These presentations proved to be hugely informative and generated much discussion and debate. Key outputs were as follows:

- a. WENDWG generally endorsed a recommendation that RENCs might consider offering a S-57 licence management service to support provision of accurate and adequate data for safety of navigation for all classes of vessels.
- b. WENDWG agreed to consider exploring options to support the GEBCO Seabed 2030 initiative. It was recommended that US and NO resubmit their paper to IRCC, seeking guidance on the possible expansion of the WENDWG scope for addressing this proposal.
- c. Subsequently post the WENDWG8 meeting in March 2018, a wider MS Proposal (US, NO et al) has been submitted to IRCC. This seeks to expand the WENDWG ToRs to accommodate the intent within the IHO Convention (IHO Publication M-1 Basic Documents of the IHO) that notes that the mission of the IHO is to create a global environment in which States provide adequate and timely hydrographic data, products and services and ensure their widest possible use. The Proposal, for which IRCC10 guidance is sought by WENDWG, recommends that WENDWG’s ToRs be amended to include the following wording: *The purpose of the WEND Working Group is to advise IRCC and to assist in:*
  - i. *Facilitating a world-wide consistent level of high-quality, updated official ENCs through integrated services that support chart carriage requirements of SOLAS Chapter V, and the requirements of the IMO Performance Standards for ECDIS.*
  - ii. *Reviewing options and recommending actions that expand the value of the RENC hydrographic data to all data users and the application of data management principles to extract the highest societal value of Member States effort.*

## ➤ ENC Coverage and Overlapping Issues

8. Work continues by stakeholders to improve coverage and to manage overlaps. RHCs are encouraged to make their own risk assessment of navigational risk for ENC overlaps and to act to manage these as required. The one-year “clock” to resolve overlaps should begin once the overlapping issues, starting with the potential highest risk cases, have been reported to ENC producers.

9. GIS algorithms are not necessarily robust enough for use in assessing port data for coverage. Work is underway by US NGA to upgrade Publication 150 which will provide a modernised web-based World Port Index greatly in improving ENC coverage assessments for port areas.

## ➤ IHO ENC catalogue

10. As part of INTToGIS Phase II activity, work is ongoing to develop the link between the INT Chart Web Catalogue and to include an Automatic Identification System (AIS) traffic density database. In the

meantime, plans are underway to commission a more user-friendly version of the ENC Coverage Catalogue.

11. Catalogue functionality improvements are now fully operational and give better alignment with the RENCs's. The IHO Secretariat and other stakeholders are to be congratulated for their hard work in achieving this.

➤ **RENC harmonisation and distribution**

12. WENDWG reaffirmed its conviction that all ENC data should be made available to the RENC not only for ensuring QC in general but also importantly for risk assessment of overlapping ENCs. The harmonization process should include, in the future, exchanges with the new EAHC Regional ENC Coordination Centre (EAHC RECC) which was established recently.

13. Two of the RENCs remain within a period of maturity and stability and continue their excellent support to hydrographic offices and end-user service providers. Assurance of quality control (overlapping checks, risk assessment etc) is vital work and it is deemed essential that all produced ENC data (including exclusive data) be made available to every RENC for them to fulfil this function.

14. PRIMAR continues to innovate in projects many of which contribute to S-100 Implementation Strategy. IC-ENC continues to include significant training components within its service. The EAHC Regional ENC Coordination Centre (RECC) is continuing to develop and work is underway to build membership.

➤ **The Full Implementation of the WEND Principles**

15. WENDWG noted that there was a need to better understand, at IHO level, those issues with coverage and overlaps across the regions.

16. Apart from NOIHC, status reports on ENC coverage, availability and overlaps have been received from RHCs regions as requested. Implementation of ENC schemes varies significantly from region to region and most RHCs have a pragmatic approach to address this issue.

17. Following much support from KHOA, INTogIS Phase II experimentation has completed. Phase II includes ENC Schemes that consider actual cell coverage and will be a timesaving application that can assist Chart Coordinators in establishing/improving their own regional ENC schemes. AIS density will also be included within INTogIS.

18. ENC Producers who have yet to do so, are invited to provide their agreement to their RENC, for making CATZOC values available in the additional layers of INTogIS II (Manager Mode only, available to MS only).

➤ **Impact of New TORs & C2 Actions (Workshop Sessions)**

19. Two workshop sessions were held to examine the impact of the new TORs and actions from the 2<sup>nd</sup> IHO Council.

- a. Impact of ToRs: It was agreed to retain in the Work Programme those items anticipated at WENDWG8 (in support of the expansion of the scope of work of the WG) including development of a licence management service for non-SOLAS class vessels and support of Seabed 2030.
- b. Action C2/301 and Action C2/312 were in relation to development of the new S-100- Implementation Strategy and for WENDWG (via IRCC) to investigate the applicability of the WEND-like Principles to the production and dissemination of S-101 ENCs and the first generation of S-100 based products. Following discussion, it was agreed that there was benefit here for Principles that will benefit S-100 based products in the same way development of a seamless and consistent ENC coverage has benefitted through WEND. A draft straw man from the US promoted formulation of "Worldwide Electronic Navigation Services" (WENS) Principles and was positively received. This is being further developed into a consolidated set of principles with a progress report was submitted at IRCC11.

- c. It was proposed that WENDWG ToRs be further amended to support an implementation strategy for S-100 based products, including S101 ENC.
- d. Action C2/273 and Action C2/284 concerned initial assessment of implementation and evaluation of the effectiveness of *IHO Resolution 1/2018 - Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation*. It was noted that in some Charting Regions the situation is not improving however the RENCs will enhance support to ENC producers and RHCs via their tracking and accounting procedures, in support of ENC Producers and RHCs; and in future the enhanced version of the INTToGIS system (INTToGIS II) will include an invaluable ENC overlap checker function. There was a general agreement that time has come to start applying the different steps identified in the Resolution to be in a more robust position to evaluate effectiveness in the near future.
- e. In 2021 WENDWG11 agreed to submit IHO Resolution on WEND-100 Principles to IRCC-13 for endorsement together with the commitment that WENDWG must develop basic technical Guidelines as matter of priority to address the establishment of S-101 ENC Schemes, during the transition phase until the full retirement of the earlier S-57 ENC, and beyond.

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

20. All IRCC previous actions have been incorporated into WENDWG work programme and progressed accordingly. WENDWG still has a very active role to play within the IHO.

21. WENDWG 2019-2020 Work Programme was approved at IRCC11, June 2019 – included for reference at Annex A.

22. WENDWG 2021-2022 Work Programme to be submitted at IRCC13, June 2021 (WENDWG awaiting a draft).

➤ **Council Meeting Decisions and Actions affecting WENDWG**

23. The IRCC report to the 3<sup>rd</sup> Council meeting noted the input from a drafting group set up under the WENDWG in support of Council actions C2/30 and C2/31 in order to gather feedback and analyse the proposed WENS principles. It commented that the WENS approach is an update to the WEND Principles that shifts it, "from a pure ENC focus to one that represents a more comprehensive suite of S-100 based services...". The following Council Decisions and Actions document the Council's views on the matter and highlight a key strand of work for the forthcoming WENDWG meeting to undertake, prior to Assembly, as outlined in Action C3/33:

- a. Decision C3/32: The Council agreed on the proposal from IRCC that the transition from WEND to WENS was needed and approved the principles to expand the remit of the WENDWG scope to include "WENS" concept (S-1xx products) and that the WENDWG liaise with HSSC and its WGs as appropriate.
- b. Action C3/33: The Council invited the IRCC to instruct the WENDWG to draft new TORs accordingly and to submit draft WENS Principles (new draft IHO Resolution) consistent with the S100 Roadmap to the endorsement of IRCC. (deadline: WENDWG-10/IRCC12). IRCC to submit these new WENS Principles (new draft IHO Resolution) to the endorsement of the Council prior to the approval of Member States. (deadline: C-4 (-3 months).
- c. Decision C3/34: The Council agreed that it was more appropriate to keep the current WEND Principles and their Guidelines for Implementation in M-3 as they are, for the time being at least until the "sunset" of S-57 ENC production.
- d. Action C3/35: Council Chair to include a progress report on the transition for WEND to WENS in his report to A-2. (deadline: A-2).

24. 4th Council Meeting were presented the WEND100 Principles. The WEND Working Group had agreed on the format of the Principles and would submit its final conclusions to IRCC and the Council and draft a resolution to be submitted to Member States for adoption by circular letter in approximately one year's time.

- a. Decision and Action C4/24: Council to monitor the subsequent development of the WEND100 Principles, as a consequence of the expanding range of hydrographic data products addressed in the S-100 Implementation Strategy (deadline C-5).
- b. IRCC to submit a new IHO Resolution on WEND100 Principles to the Council for endorsement. Then, submission to Member States for approval and inclusion as a reference in Annex 3 of the S100 Implementation Roadmap (deadline C-5).
- c. The Assembly (A-2) endorsed the draft WEND100 Principles presented at IRCC12 and the proposed path forward in their subsequent development, as a consequence of the expanding range of hydrographic data products addressed in the S-100 Implementation Strategy.

**25. The NSHC is invited to:**

- a. **Commend** Member States work towards reducing overlaps by applying the WEND Principles in defining approved ENC schemes.
- b. **Note** the submission of a paper on behalf of NSHC MS regarding a risk based approach to the management of overlaps/gaps on small scale ENCs.
- c. **Note** the extended WENDWG Terms of Reference to support the S-100 Implementation Strategy and expansion of the value of the Worldwide ENC Database to all marine data users.
- d. **Note** the IHO Council Decisions and Actions to further update the WENDWG Terms of Reference.
- e. **Note** the IRCC11 approved updated WENDWG 2019-20 Work Programme as shown at Annex A.
- f. **Note** the WEND-100 Principles and ongoing work to draft guidelines.

Annex:

- A. WENDWG 2019-20 Work Programme

**WENDWG Work Programme 2019-20 (Approved at IRCC-11) Updated Work Programme to be submitted to IRCC 13****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.
6. Develop options to expand the value of the Worldwide ENC Database to all marine data users applying data management principles
7. Develop WEND-like Principles, if appropriate, in order to support the production and dissemination of S-101 ENCs and the first generation of S-100 based products

**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 provide support on capacity Building activities, as appropriate
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
L	To support non-ECDIS maritime community through license management of ENC data
M	To support Seabed 2030 Initiative
N	To prepare the "WEND-like" component of the S-100 Implementation Strategy

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
B.3	Monitor the implementation of the IHO Resolution on the Elimination of overlapping ENC data in areas of demonstrable risk to the safety of navigation	M	IRCC11	2018	2020	O	Chair, RHCs, RENCs, IHO Sec	No ENC overlap that is navigationally-significant in 2020	IHO Resolution 1/2018 in force (IHO CL 19/2018 refers). <b>Actions C2/27 and C2/28</b>
B.4	Make available a <b>Worldwide</b> AIS traffic density database to the IHO Member States through the IHO GIS System (INToGIS II,...)	M	June 2019	2018	2020	O	US, <b>NO, FI</b> , IHO Sec.	INToGIS II additional layer at the disposal of ICCWGs	For ENC gap coverage assessment
C.2	Report on RENC Harmonization issues and progress made	M	WENDWG10	--	Permanent	O	RENCs		Done for <b>2018</b> . EAHC RECC <b>has joined</b> .
D.3	Monitor ENC Producers who distribute their ENCs through a RENC	M	WENDWG10	2014	Permanent	O	RENCs, <b>RHCs</b> , IHO Sec.	Updated ENC Data Flow Diagram	IHO CL 59/2014 refers. <b>Action WENDWG7/12 (second part)</b>
F.1	Monitor global and regional ENC Coverage	H		2014	Permanent	O	UK, RHCs	Annual statistics	Done for <b>2018</b> . Reports are now made by RHCs Rep. at WENDWG meetings

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.2	Using risk assessment methodologies, identify and consider ENC Gaps	H		2014	Permanent	O	RHCs, IHO Sec.	Improved coverage (and supporting survey plans where needed)	To be continued and improved by RHCs. Reports are now made by RHCs Rep. at WENDWG meetings
F.3	Update the List of Ports (and moorings) database	M	WENDWG10	2014	Permanent	O	US, RHCs		Action WEND9/06
F.4	Provide relevant SPIs and WPIs on ENC adequate Coverage and ENC Producers	L		2017	Permanent	O	Chair (supported by UK), RENCs, IHO Sec	IHO Annual Report	On hold (waiting for SPRWG outcome)
H.1	Continue the development of the IHO ENC Catalogue	H		2014	Permanent	C	IHO Sec., UKHO, RENCs		New version welcomed at WENDWG9 (Decision WENDWG8/10)
H.3	Develop approved ENC schemes in every charting regions (S-57 ENCs, then S-101 ENCs), at least for small scales	H	WENDWG10	--	Permanent	O	RHCs	ENC Schemes available online	Action WENDWG7/08 and WENDWG9/15 & 9/16 Top priority identified in C-1



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
I.1	Provide support to CBSC on request for compelling requirements in the scope of the WENDWG activities	M		2015	--	P	RHCs		As appropriate
J.5	Improve ENC full accessibility	H	WENDWG10	2016	<del>WENDWG9</del> Permanent	O	Myanmar, Sri Lanka, Thailand, UK, Viet Nam		Action <del>WENDWG7/12</del> WENDWG8/13 Action WENDWG9/09
L.1	Consider possibility of offering a licence management service for non-SOLAS class vessels	M		2018	<del>WENDWG9</del> WENDWG10	O	RENCs		Action WENDWG9/13
M.1	Consider supporting the Seabed 2030 Initiative through the IHO DCDB with ENC data	M		2018	WENDWG10	P	ENC Producers, RENCs	Bathymetric information extracted from RENC databases	Action WENDWG9/12
N.1	Develop new WEND-like Principles in support of the production and dissemination of S-101 ENCs and the 1 <sup>st</sup> generation of S-100 based products	M		2019	WENDWG11	P	Chair, US	WENS Principles (name to be confirmed)	Actions WENDWG9/21 & 9/22 (depending on the outcome of Action WENDWG9/23)